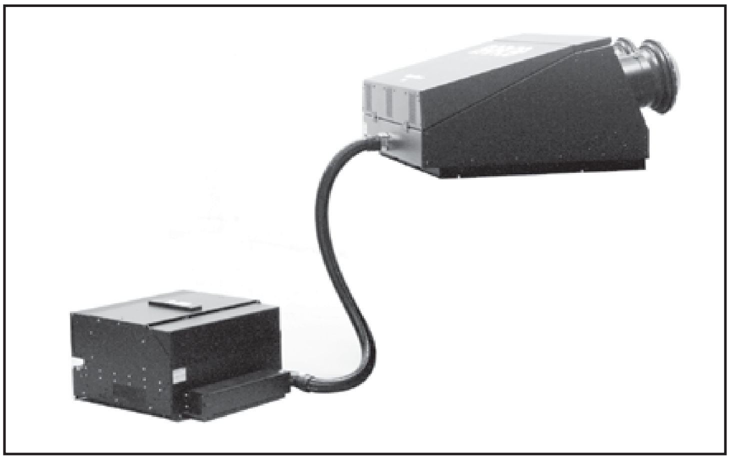
BARCO REALITY812 HS

SERVICE MANUAL — Rev : 00

Order No.: R5975859 — Date: 17/11/1998

BARCO

BARCO PROJECTION SYSTEMS



BARCO REALITY 812 HS

R9002180 (230V AC) - R9002189 (120V AC)

SERVICE MANUAL

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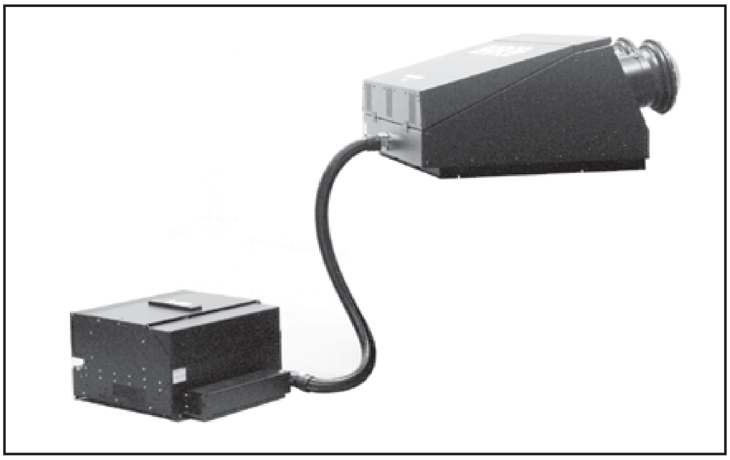


BARCO REALITY 812 HS

R9002180 (230V AC) - R9002189 (120V AC)

SAFETY NOTICE

PRODUCT SAFETY NOTICE

Components identified by ⚠ or ✱ have SPECIAL CHARACTERISTICS IMPORTANT TO SAFETY. Before replacing any of these components, read carefully the service safety precautions.

DO NOT DEGRADE THE SAFETY OF THIS SET THROUGH IMPROPER SERVICING.

SAFETY NOTICE

Components having special safety characteristics are identified by ⚠ on schematics and on the parts list in this SERVICE MANUAL and its supplements and bulletins. Before servicing this apparatus, it is important that the service technician read and follow the "*SAFETY PRECAUTIONS*" and "*PRODUCT SAFETY NOTICES*" in this Service Manual.

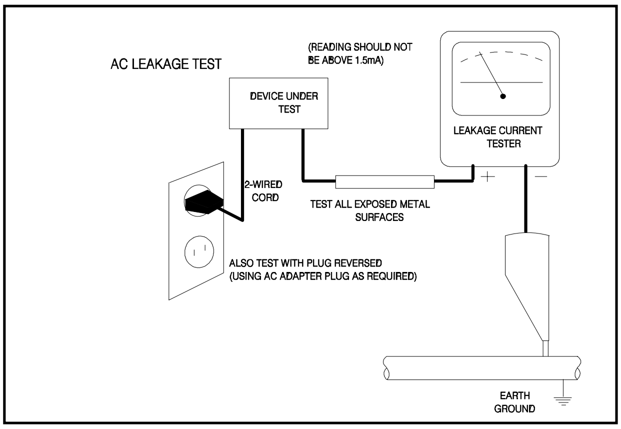
SAFETY PRECAUTIONS

1. **Before returning an instrument to the customer**, always make a safety check of the entire instrument, including, but not limited to, the following items :

   a. Be sure that no built-in protective devices are defective and/or have been defeated during servicing. (1) Protective shields are provided on this chassis to protect both the technician and the customer. Correctly replace all missing protective shields, including any removed for servicing convenience. (2) When reinstalling the chassis and/or other assembly in the cabinet, be sure to put back in place all protective devices, including, but not limited to, insulating materials, barriers, covers/shields, and isolation resistor/capacitor networks. **Do not operate this instrument or permit it to be operated without all protective devices correctly installed and functioning. Servicers who defeat safety features or fail to perform safety checks may be liable for any resulting damage.**

   b. Be sure that there are no cabinet openings through which an andult or child might be able to insert their fingers and contact a hazardous voltage. Such openings include, but are not limited to, (1) excessively wide cabinet ventilation slots, and (2) an improperly fitted and/or incorrectly secured cover panels.

   c. **Leakage Current Hot Check** - With the instrument completely reassembled, plug the AC line cord directly into a 220 V AC outlet. (Do not use an isolation transformer during this test.) Use a leakage current tester or a metering system that complies with American National Standards Institute (ANSI) C101.0 Leakage Current for Appliances and Underwriters Laboratories (UL) 1410, (50.7). With the instrument AC switch first in the on position and then in the off position, measure from a known earth ground (metal waterpipe, conduit, etc.) to all exposed metal parts of the instrument (antennas, handle bracket, metal cabinet, screwheads, metallic overlays, control shafts, etc.). especially any exposed metal parts that offer an electrical return path to the chassis. Any current measured must not exceed 1.5 milliapp. Reverse the instrument power cord plug in the outlet and repeat test.
   ANY MEASUREMENTS NOT WITHIN THE LIMITS SPECIFIED HEREIN INDICATE A POTENTIAL SHOCK HAZARD THAT MUST BE ELIMINATED BEFORE RETURNING THE INSTRUMENT TO THE CUSTOMER OR BEFORE CONNECTING ACCESSORIES.



WARNING: RISK OF ELECTRIC SHOCK DURING THIS TEST. THE PROJECTOR IS NOT CONNECTED TO GROUND. DO NOT TOUCH THE PROJECTOR AND USE WELL INSULATED TEST PROBES.

   d. X-Radiation and High Voltage - Because the picture tubes are the primary potential source of X-radiation in solid-state projectors, they are specially constructed to prohibit X-radiation emissions. For continued X-radiation protection, the replacement picture tube must be the same type as the original. Also, because the picture tube shields and mounting hardware perform an X-radiation protection function, they must be correctly in place.
   After replacement of any X-ray radiation related safety components (marked in this manual with an *), the EHT voltage board must be checked.

2. Read and comply with all caution and safety-related notes on or inside the projector cabinet or on the projector chassis, or on the picture tube.

3. **Design Alteration Warning** - Do not alter or add to the mechanical or electrical design of this apparatus. Design alterations and additions, including, but not limited to, circuit modifications and the addition of items such as auxiliary audio and/or video output connections, might alter the safety characteristics of this apparatus and create a hazard to the user. Any design alterations or additions may void the manufacturer's warranty and may make you, the servicer responsible for personal injury or property damage resulting therefrom.

4. **Picture Tube Implosion Protection Warning** - The picture tube in this projector encloses a high vacuum. Do **not** remove, install, or otherwise handle the picture tube in any manner without first putting on shatterproof goggles equipped with side shieds. People not so equipped must be kept safely away while picture tubes are handled. Keep the picture tube away from your body. Do not handle the picture tube by its neck.
   For continued implosion protection, replace the picture tube only with one of the same type number.

5. **Hot Chassis Warning** - This projector chassis has two ground systems: the primary ground system is formed by the negative voltage of the rectified mains (power) and is only used as a reference in primary circuits; the secondary ground system is connected to earth ground via the earth conductor in the mains (power) lead.
   Separation between primary and secondary circuits is performed by the safety isolation transformers. Components bridging this transformers are also safety components and must never be defeated or alterated.
   All user-accessible conductive parts must be connected to earth ground, or are kept at SELV (Safety Extra Low Voltage).

6. Observe original lead dress. Take extra care to assure correct lead dress in the following areas:
   a. near sharp edges,
   b. near thermally hot parts - be sure that leads and components do not touch thermally hot parts,
   c. the AC supply,
   d. high voltage.
   Always inspect in all areas for pinched, out-of-face, or frayed wiring. Do not change spacing between components, and between components and the printed-circuit board. Check AC power cord for damage.

7. Components, parts, and/or wiring that appear to have overheated or are otherwise damaged should be replaced with components, parts, or wiring that meet original specifications. Additionally, determine the cause of overheating and/or damage and, if necessary, take corrective action to remove any potential safety hazard.

8. **PRODUCT SAFETY NOTICE** - Many electrical and mechanical parts have special safety-related characteristics some of which are often not evident from visual inspection, nor can the protection they give necessarily be obtained by replacing them with components rated for higher voltage, wattage, etc. Parts that have special safety characteristics are identified in BARCO service data by ⚠ on schematics and in the parts list. Use of a substitute replacement that does not have the same safety characteristics as the recommended replacement part in BARCO service data parts list might create shock, fire, and/or other hazards. Product Safety is under review continuously and new instructions are issued whenever appropriate. For the latest information, always consult the appropriate current BARCO service literature.

SERVICING PRECAUTIONS

CAUTION: Before servicing instruments covered by this service data and its supplements and addendums, read and follow the SAFETY PRECAUTIONS of this publication.

NOTE: If unforeseen circumstances create conflict between the following servicing precautions and any of the safety precautions on page 2 of this publication, always follow the safety precautions.

Remember: Safety First.

General Servicing Precautions

1. Always unplug the instrument AC power cord from the AC power source before:

   a. Removing or reinstalling any component, circuit board, module, or any other instrument assembly.

   b. Disconnecting or reconnecting any instrument electrical plug or other electrical connection.

   c. Connecting a test substitute in parallel with an electrolytic capacitor in the instrument.

   Caution: A wrong part substitution or incorrect polarity installation of electrolytic capacitors may result in an explosion hazard.

2. Do not spray chemical on or near this instrument or any of its assemblies.

3. Unless specified otherwise in this service data, clean electrical contacts by applying the following mixture to the contacts with a pipe cleaner, cotton-tipped stick or comparable nonabrasive applicator: 10% (by volume) Acetone and 90% (by volume) isopropyl alcohol (90%-99% strength). **Caution:** *This is a flammable mixture.*

   Unless specified otherwise in this service data, lubrication of contacts is not required.

4. Do not defeat any plug/socket B+ voltage interlocks with which instruments covered by this service data might be equipped.

5. Do not apply AC power to this apparatus and/or any of its electrical assemblies unless all solid-state device heat sinks are correctly installed.

6. Always connect the test instrument ground lead to the appropriate instrument chassis ground before connecting the test instrument positive lead. Always remove the test instrument ground lead last.

7. Use with this instrument only the test fixtures specified in this service data.

CAUTION: Do not connect the test fixture ground strap to any heatsink in this instrument.

Electrostatically Sensitive (ES) Devices

Some semiconductor (solid state) devices can be damaged easily by static electricity. Such components commonly are called Electrostatically Sensitive (ES) Devices. Examples of typical ES devices are integrated circuits and some field-effect transistors and semiconductor "chip" components. The following techniques should be used to help reduce the incidence of component damage caused by static electricity.

1. Immediately before handling any semiconductor component or semiconductor-equipped assembly, drain off any electrostatic charge on your body by touching a known earth ground. Wear a commercially available high impedance discharging wrist strap device.

2. After removing an electrical assembly equipped with ES devices, place the assembly on a static dissipative surface such as a 3M No 8210 table mat, to prevent electrostatic charge buildup or exposure of the assembly.

3. Use only a grounded-tip soldering iron to solder or unsolder ES devices.

4. Use only an anti-static type solder removal device. Some solder removal devices not classified as "anti-static" can generate electrical charges sufficient to damage ES devices.

5. Do not use freon-propelled chemicals. These can generate electrical charges sufficient to damage ES devices.

6. Do not remove a replacement ES device from its protective package until immediately before you are ready to install it. (Most replacement ES devices are packaged with leads electrically shorted together by conductive foam, aluminium foil or comparable conductive material.)

7. Immediately before removing the protective material from the leads of a replacement ES device, touch the protective material to the chassis or circuit assembly into which the device will be installed.
   CAUTION: Be sure no power is applied to the chassis or circuit, and observe all other safety precautions.

8. Minimize bodily motions when handling unpackaged replacement ES devices. (Otherwise harmless motion such as the brushing together of your clothes fabric or the lifitng of your foot from a carpeted floor can generate static electricity sufficient to damage an ES device.)

General Soldering Guidelines

1. Use a grounded-tip, low-wattage soldering iron and appropriate tip size and shape that will maintain tip temperature within the range 260°C to 315°C.

2. Use an appropriate gauge of RMA resin-core solder composed of 60 parts tin/40 parts lead.

3. Keep the soldering iron tip clean and well tinned.

4. Thoroughly clean the surfaces to be soldered. Use a small wire-bristle (0.5 inch, or 1.25 cm) brush with a metal handle. Do not use freon-propelled spray-on cleaners.

5. Use the following unsoldering technique:

   a. Allow the soldering iron tip to reach normal temperature (260°C to 315°C).

   b. Heat the component lead until the solder melts.

   c. Quickly draw away the melted solder with an anti-static, suction-type solder removal device or with solder braid.

   CAUTION: Work quickly to avoid overheating the circuit board printed foil.

6. Use the following soldering technique:

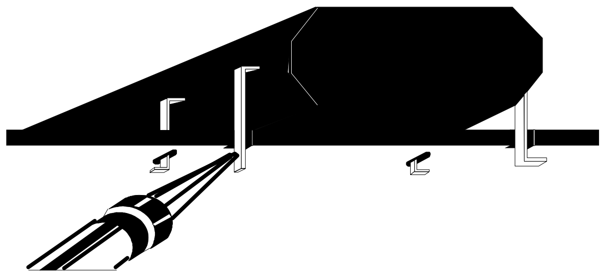
   a. Allow the soldering iron tip to reach normal temperature (260°C to 315°C).

   b. First, hold the soldering iron tip and solder strand against the component lead until the solder melts.

   c. Quickly move the soldering iron tip to the junction of the component lead and the printed circuit foil, and hold it there only until the solder flows onto and around both the component lead and the foil.

   CAUTION: Work quickly to avoid overheating the circuit board printed foil or components.

   d. Closely inspect the solder area and remove any excess or splashed solder with a small wire-bristle brush.



Use Soldering Iron To Pry Leads

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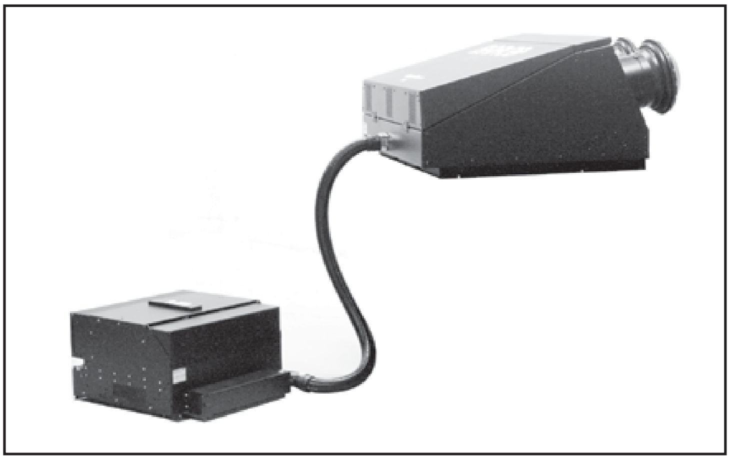
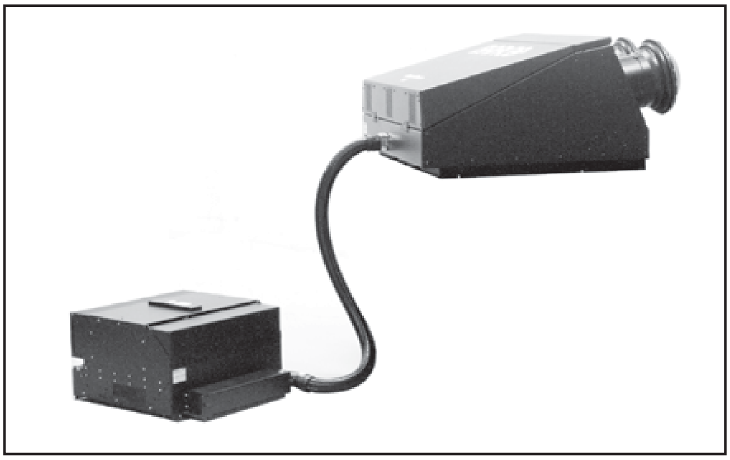


BARCO REALITY 812 HS

R9002180 (230V AC) - R9002189 (120V AC)

GENERAL INFORMATION

BARCO PROJECTION SYSTEMS



BARCO REALITY 812 HS

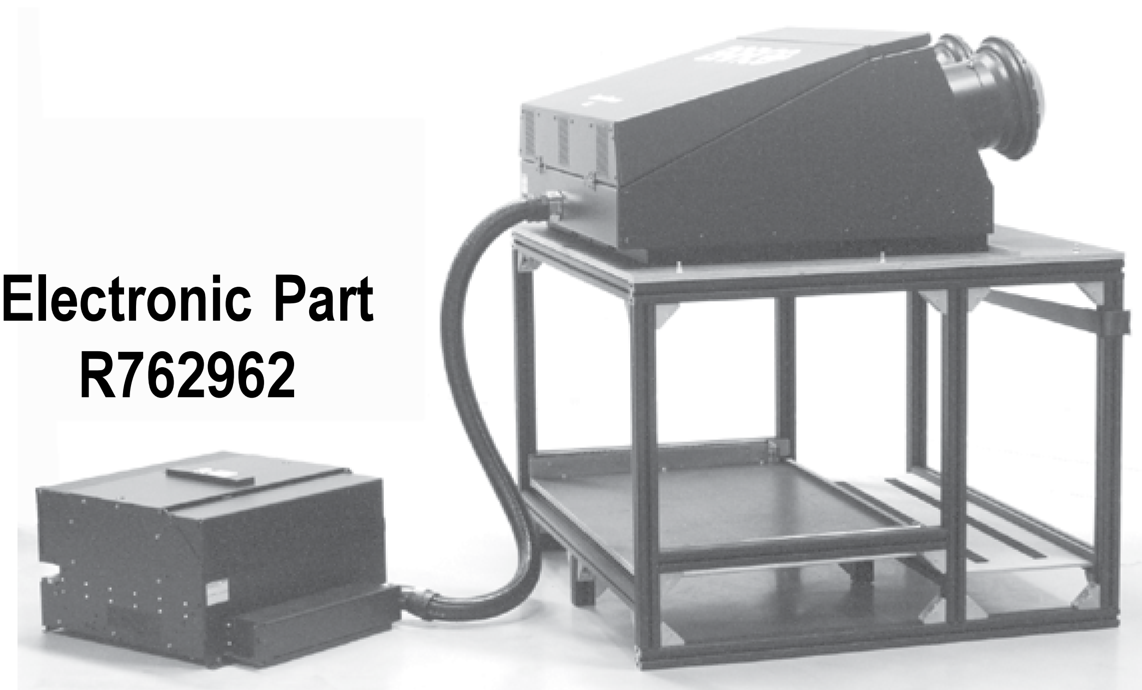
R9002180 (230V AC) - R9002189 (120V AC)

PARTS LIST ON BOARD LEVEL
PARTS LIST ON COMPONENT LEVEL

BarcoReality 812 HS

12" CRT Projector

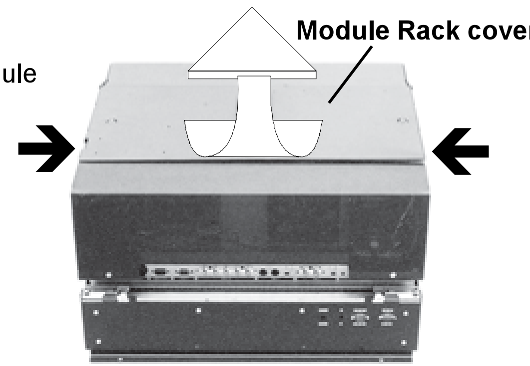
Optical Part
R762959

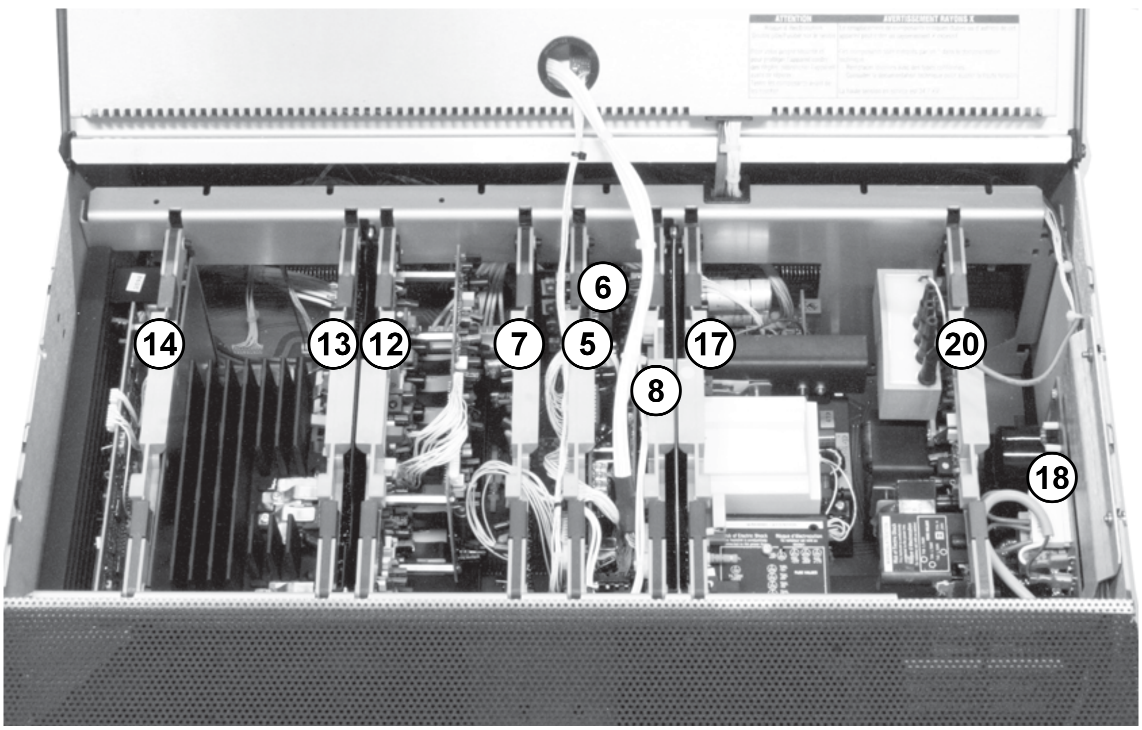


Parts list on module level: Electronic Part R762962

Access to the modules

Loosen, on both sides of the unit, the securing screw of the module rack cover and pivot it backwards to open.





Section reference

- (5) R762719 RGB Input & Input Switching
- (6) R762745 Quad Decoder & Comb Filter
- (7) R7621055 RGB Analog Auto Sync Input
- (8) R762720 RGB Gain Control
- (12) R762745 Sync & Vert. Deflection

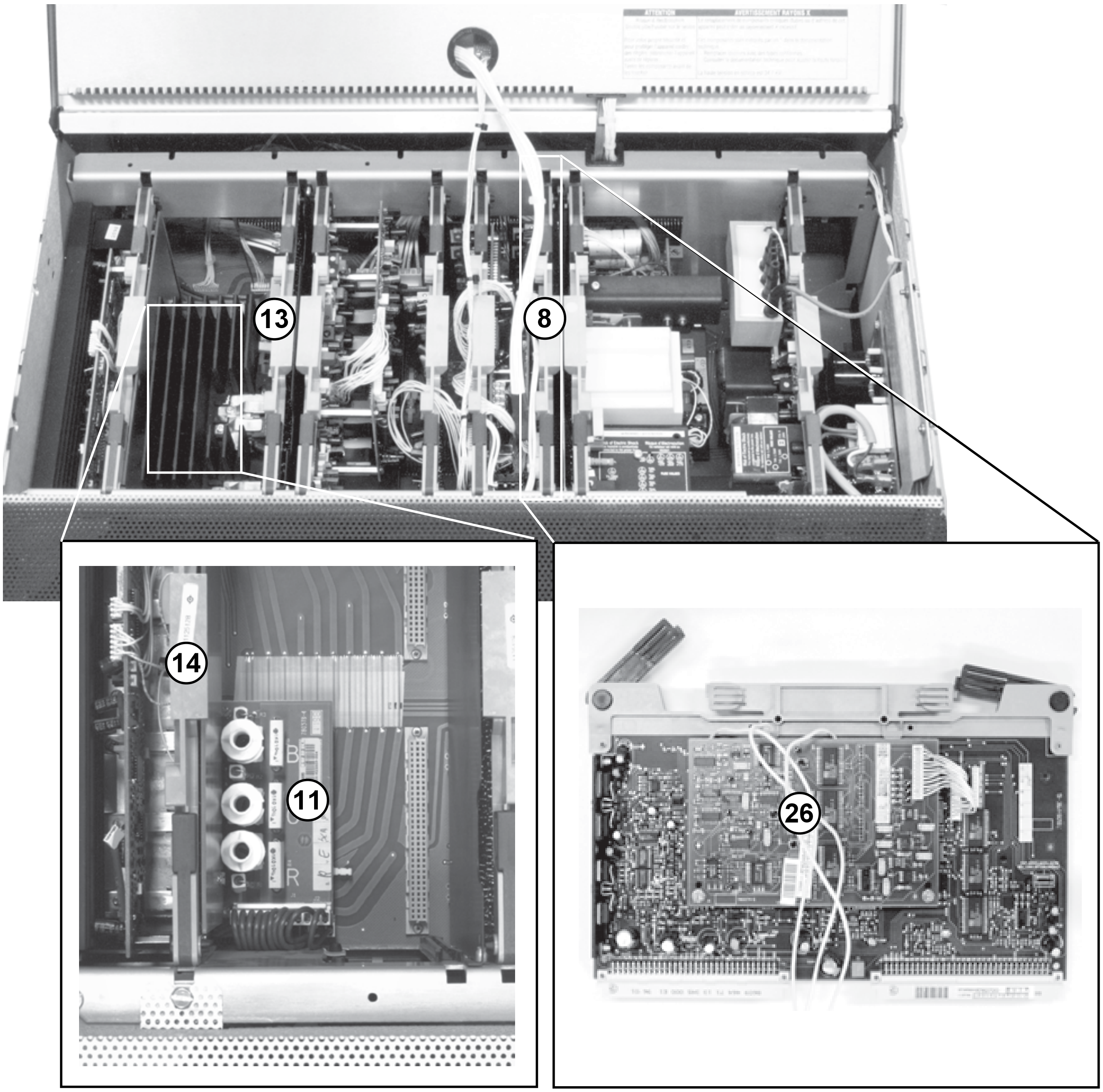
Section reference

- (13) R76226715 Horizontal Deflection
- (14) R7625035 Mag. Focus & Hor. Shift
- (17) R7621706 SM Power Supply
- (18) R762507 Power (Mains) Input
- (20) R763029 Second SMP & G2

Access to the Hor. Amplitude coils & Contrast Modulation module

Open module Rack Cover (see preceding page).

Remove the Horizontal Deflection module (13) to access the Hor. Amplitude coils module (11).
Remove the RGB Driver module (8) to access the Contrast Modulation module (26).



Section reference

11	R7625095	Hor. Deflection coils
13	R76226715	Horizontal Deflection

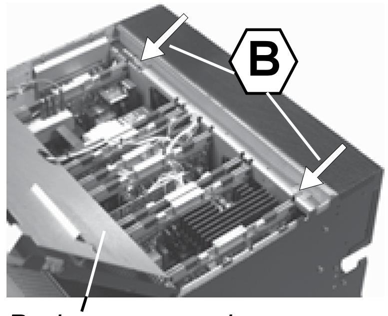
Section reference

14	R7625035	Mag. Focus & Hor. Shift
26	R7624845	Contrast Modulation (Option)

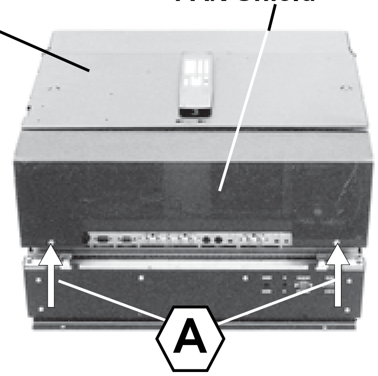
Access to the electrical parts

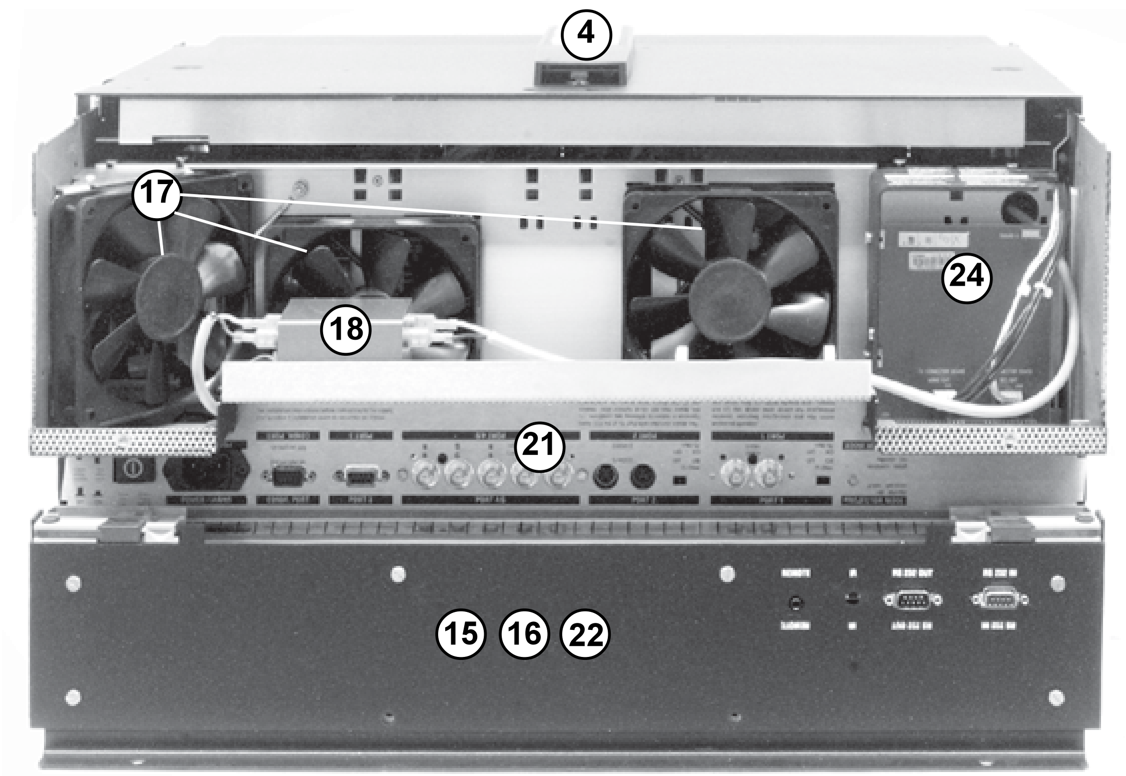
Open module Rack Cover (see preceding page).

To remove the Fan Shield, remove the 2 screws (A) securing the Fan shield to the front of the unit and loosen the 2 screws (B) securing the shield on top of the unit.



Rack cover opened





Section reference

4	R7916721	Internal Control Unit
15	R7625189	Convergence Driver
15	R769005	Convergence Output
16	R762514	Dynamic Astigmatism
17	R762523	FAN

Section reference

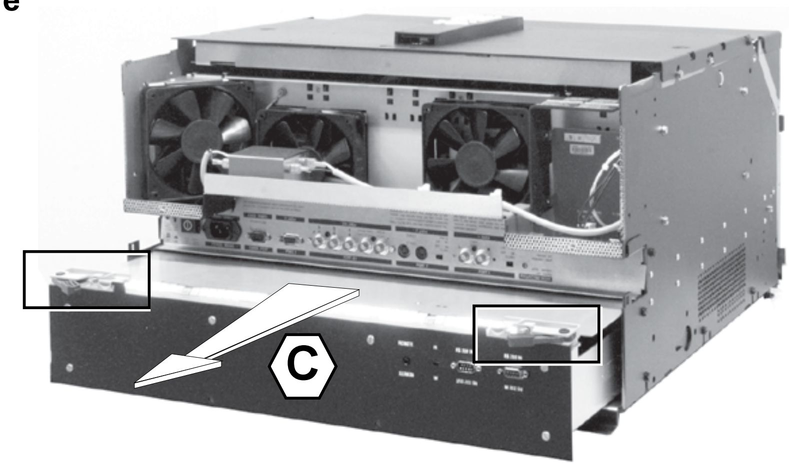
18	R305915	Power (Mains) Filter
21	R762501	Frame
22	R762510	RS232 Comm. Interface
22	R762215	Infra Red Receiver
24	R762930	Linking module (EHT)

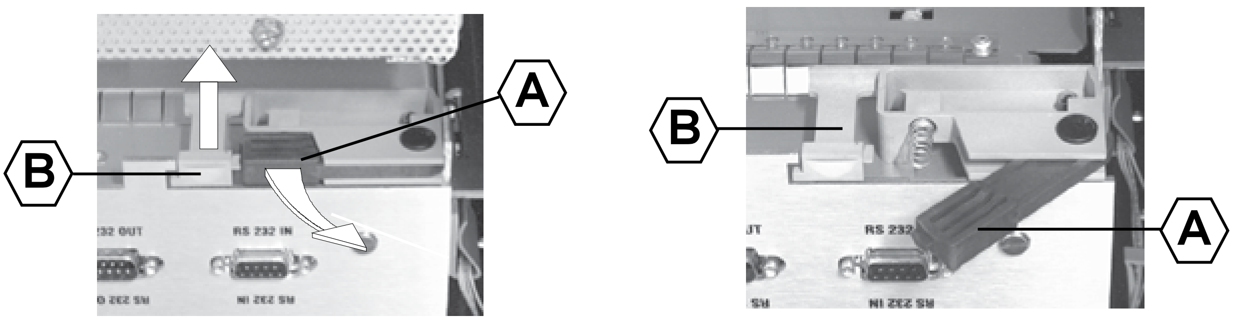
Access to the Convergence module

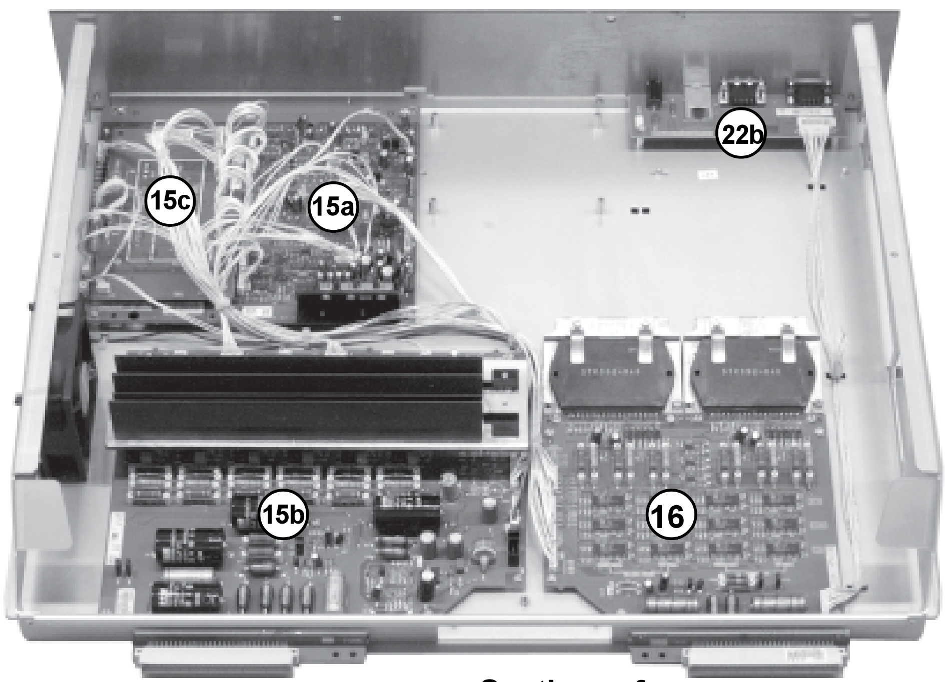
Unlock both boardextracters **(A)** (on both sides of the module) by pushing the respective board extracter lock **(B)** upwards.

Pull both board extraxters simultaneously towards you to disconnect the module from its connectors.

Slide the convergence unit **(C)** towards you, out the projector housing..







Section reference

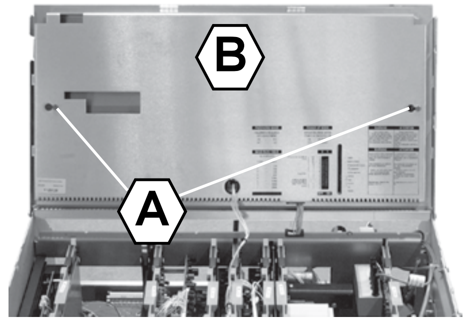
- 15a R7625189 Convergence Driver
- 15b R769005 Convergence Output
- 15c R7625128 Conv. Driver Green (Option)

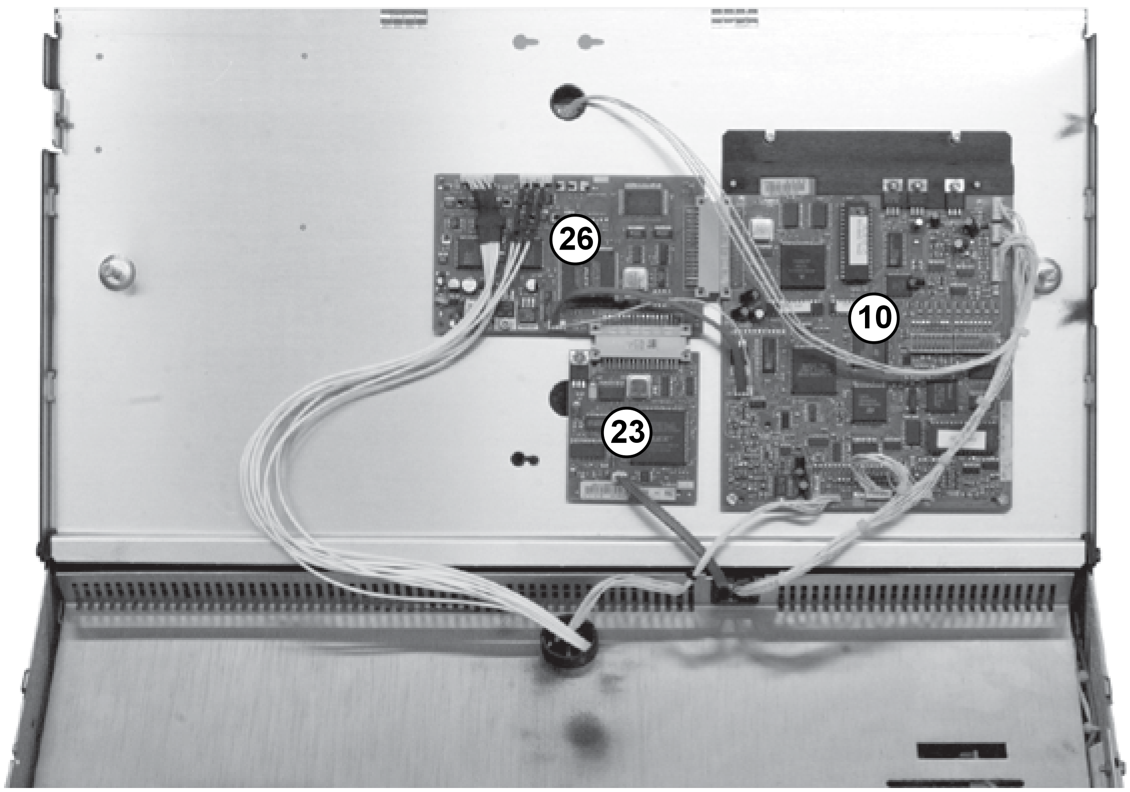
Section reference

- 16 R762514 Dynamic Astigmatism
- 22b R762510 RS232 Comm. Interface+IR Rec.

Access to the modules

Loosen the two securing screws **(A)** of the screening plate **(B)**.
Move the plate to the right until the head of both screws matches the provided gap beside it.
Take off the screening plate.





Section reference

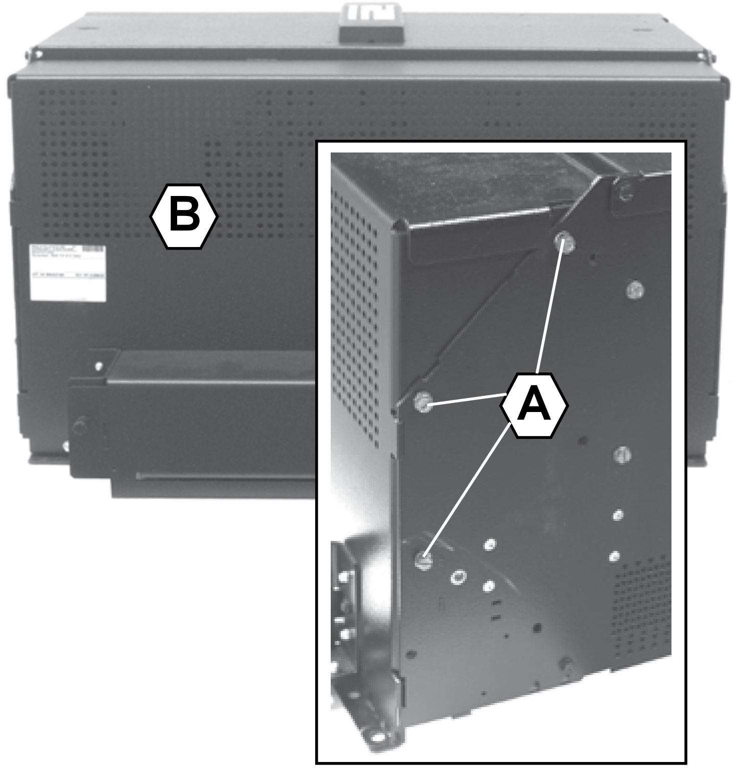
26	R762948	Softedge (option)
23	R762722	Iris Control

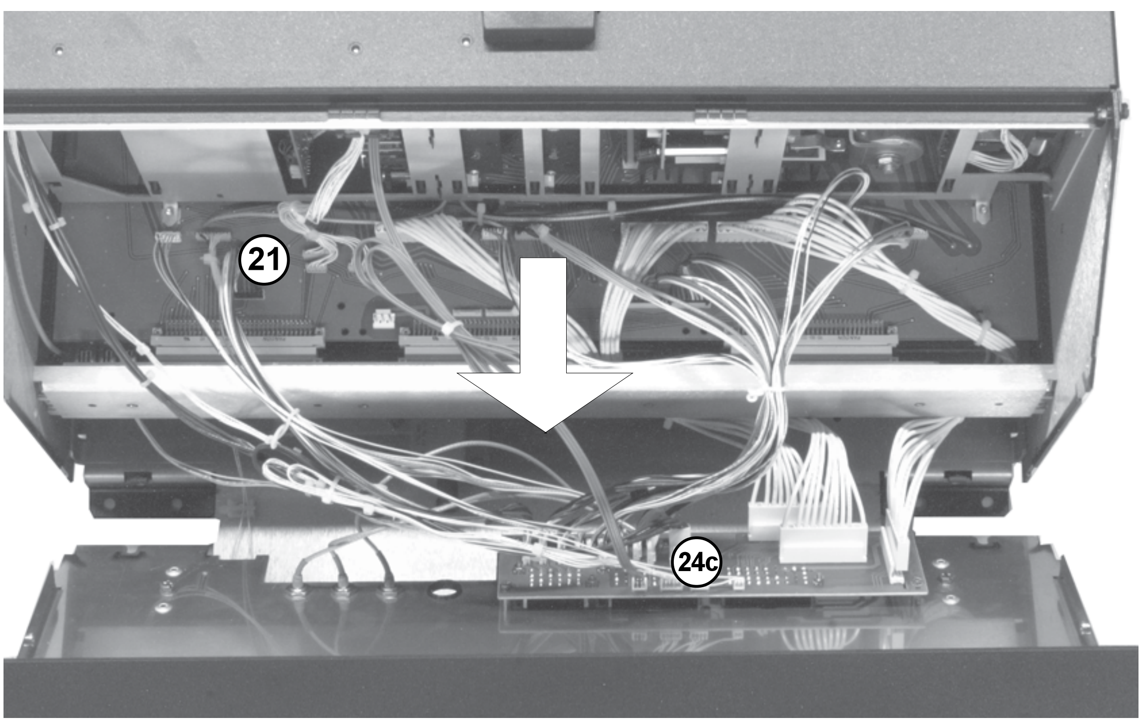
Section reference

10	R7625115	Controller

Access to the modules

Loosen, on both sides of the unit, the three securing screws **(A)** of the rear panel **(B)**. Move the panel backwards to reach the cable connector input.





Section reference

(21) R762501 Frame

Section reference

(24c) R762927 Cable interface (Electronic block)

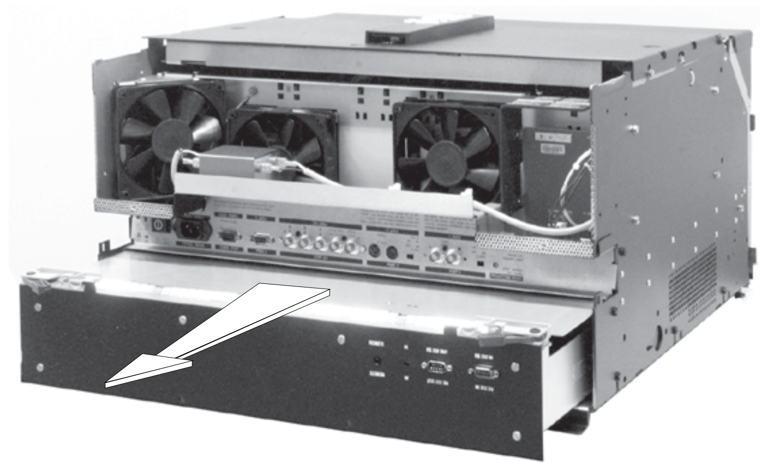
Access to the modules

Via removed Convergence module:

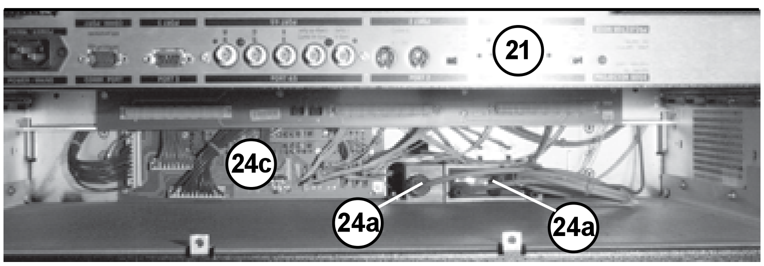
Removing the Convergence module (see page 5) to access the modules.

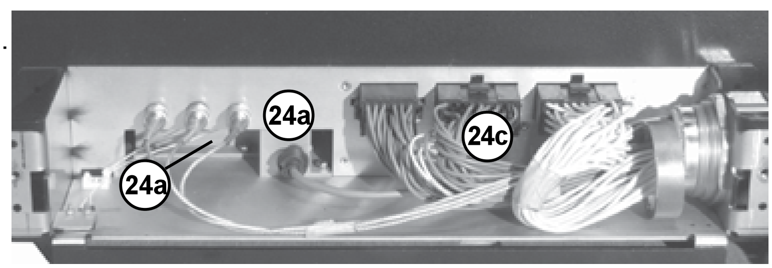
Via removed Cable Interface cover:

Lossen the two spring screws **(A)** on the left and right side of the cover.
Take off the cover.

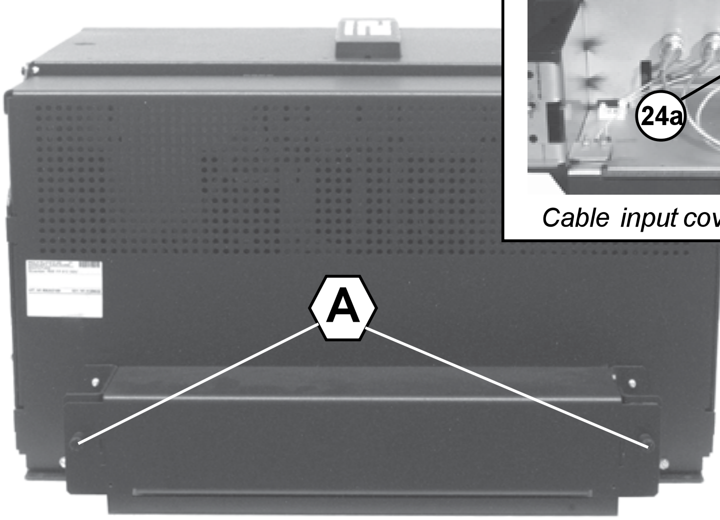


Convergence module removed





Cable input cover removed



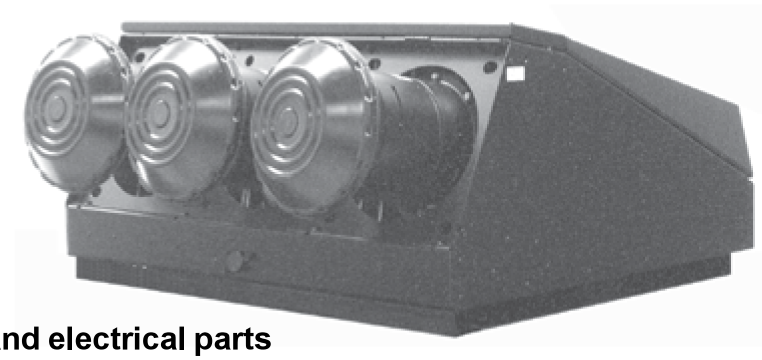
Section reference

21	R762501	**Frame**
24a	R762949	**High Voltage connector**

Section reference

24c	R762927	**Cable interface (Electronic block)**
24a	R762929	**G2 Voltage Interface**

Parts list on module level: Optical Part R762959



Access to optical and electrical parts

Pull the small cover (A) upwards to open. The three lock screws (B) of the top cover (C) become accessible (see photo 02).

Unlock, using a coin or a screwdriver, the three lock screws (B) of the top cover (C) by turning the screws a half turn counter-clockwise. Lift up the cover and pivot it carefully until the cover rest against the cable tube.

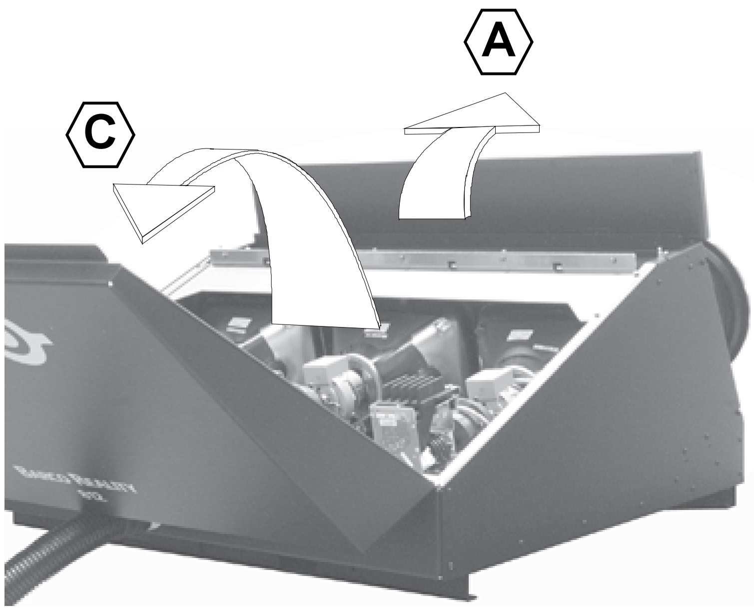


Photo 01

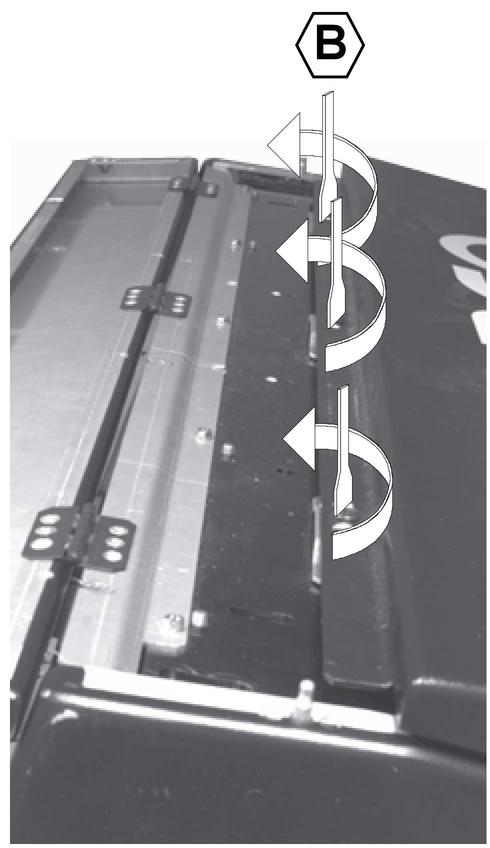
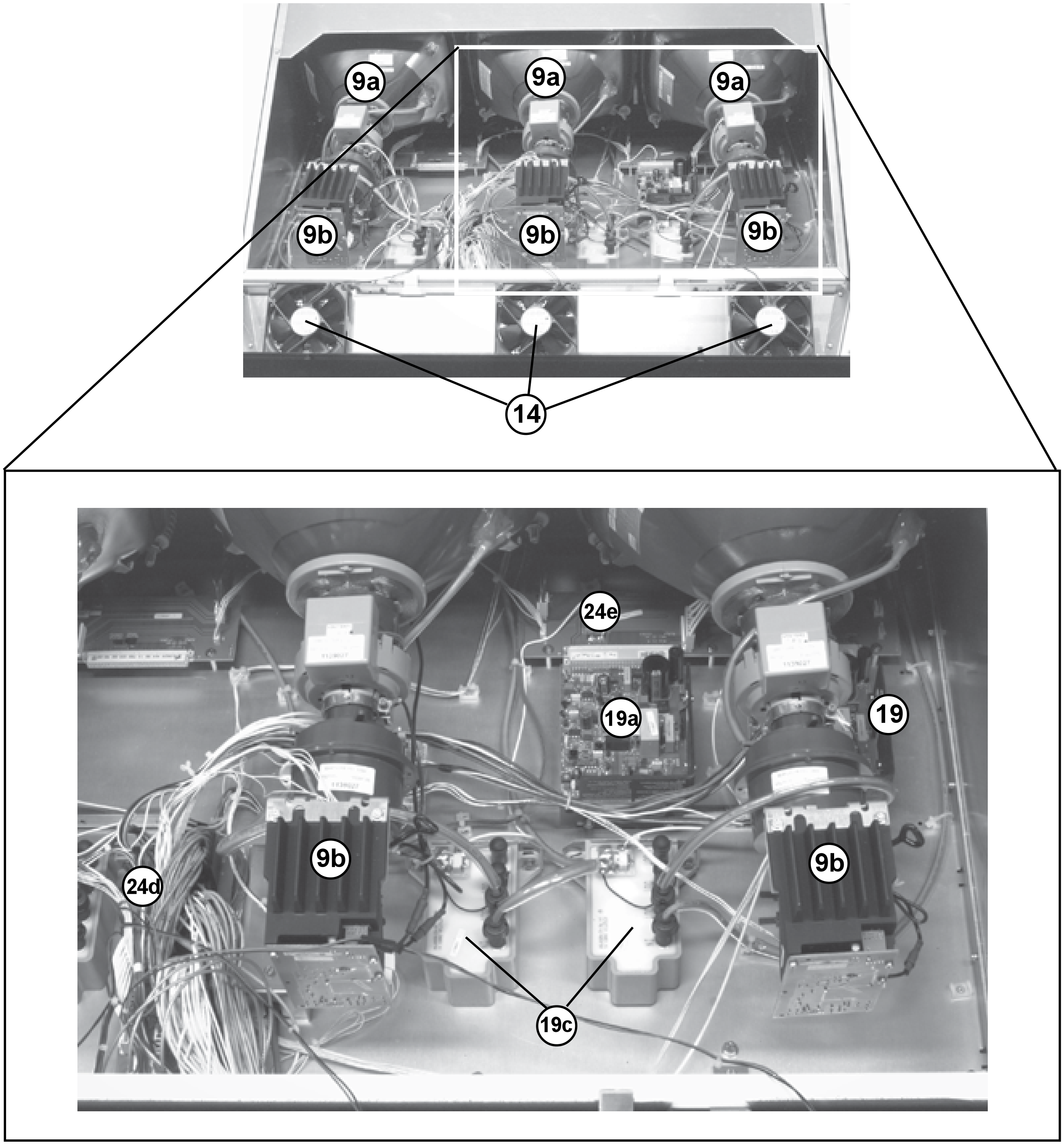


Photo 02

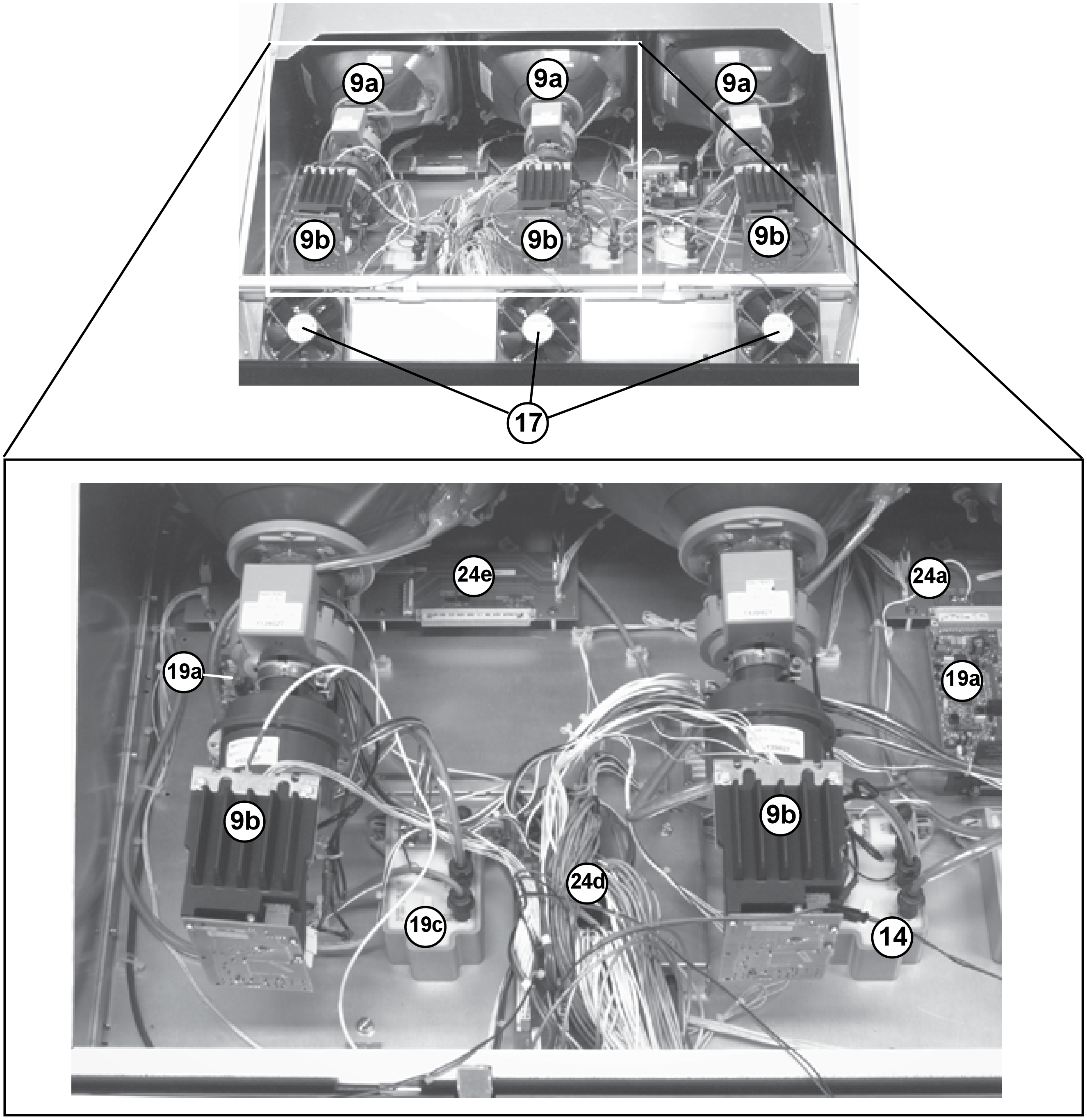


Section reference

9a	R7629632	CRT M12M HD219 Red
	R7629635	CRT M12M HD219 Green
	R7629636	CRT M12M HD219 Blue
9b	R769015	RGB Out & Socket
14	R324392D	FAN Convergences

Section reference

19a	R762716	EHT Generator
19c	R762718	EHT Splitter
24e	R762928	EHT Interface
24d	R763009	Cable Interface (Optical block)



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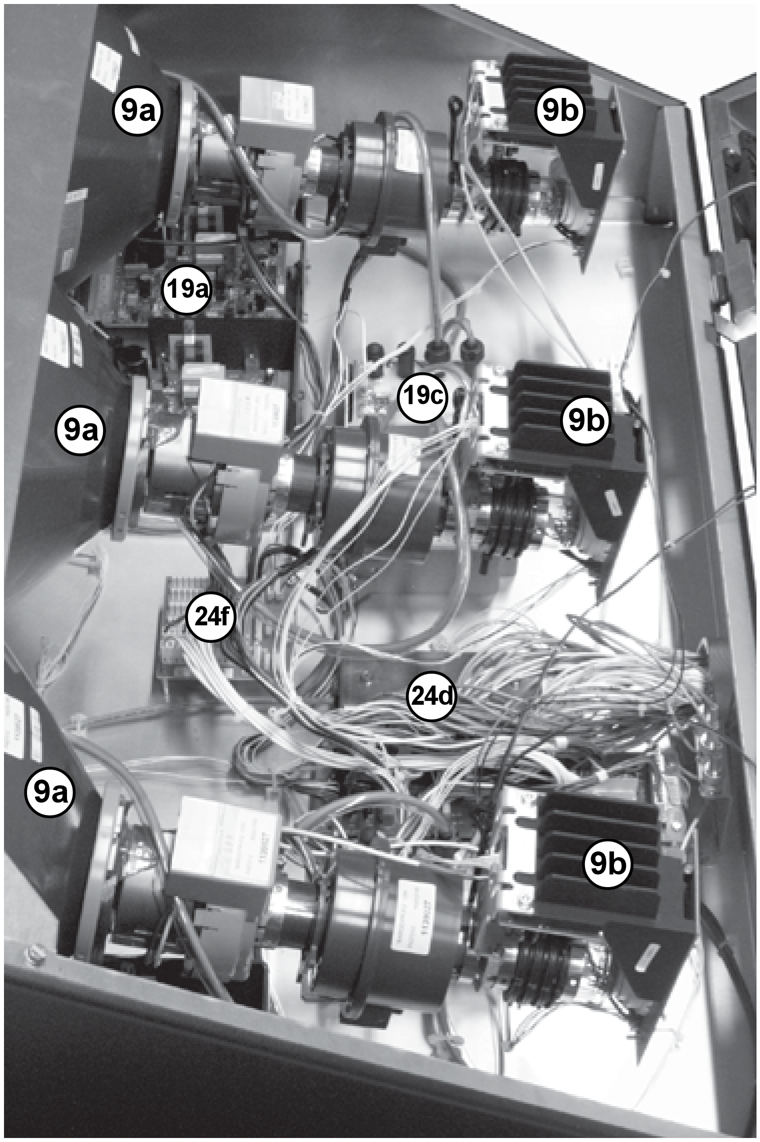


Section reference

9a	R7629632	CRT M12M HD219 Red
	R7629635	CRT M12M HD219 Green
	R7629636	CRT M12M HD219 Blue
9b	R769015	RGB Out & Socket

Section reference

19a	R762716	EHT Generator
19c	R762718	EHT Splitter
24d	R763009	Cable Interface (Optical block)
24f	R763007	Defl./RGB Interface

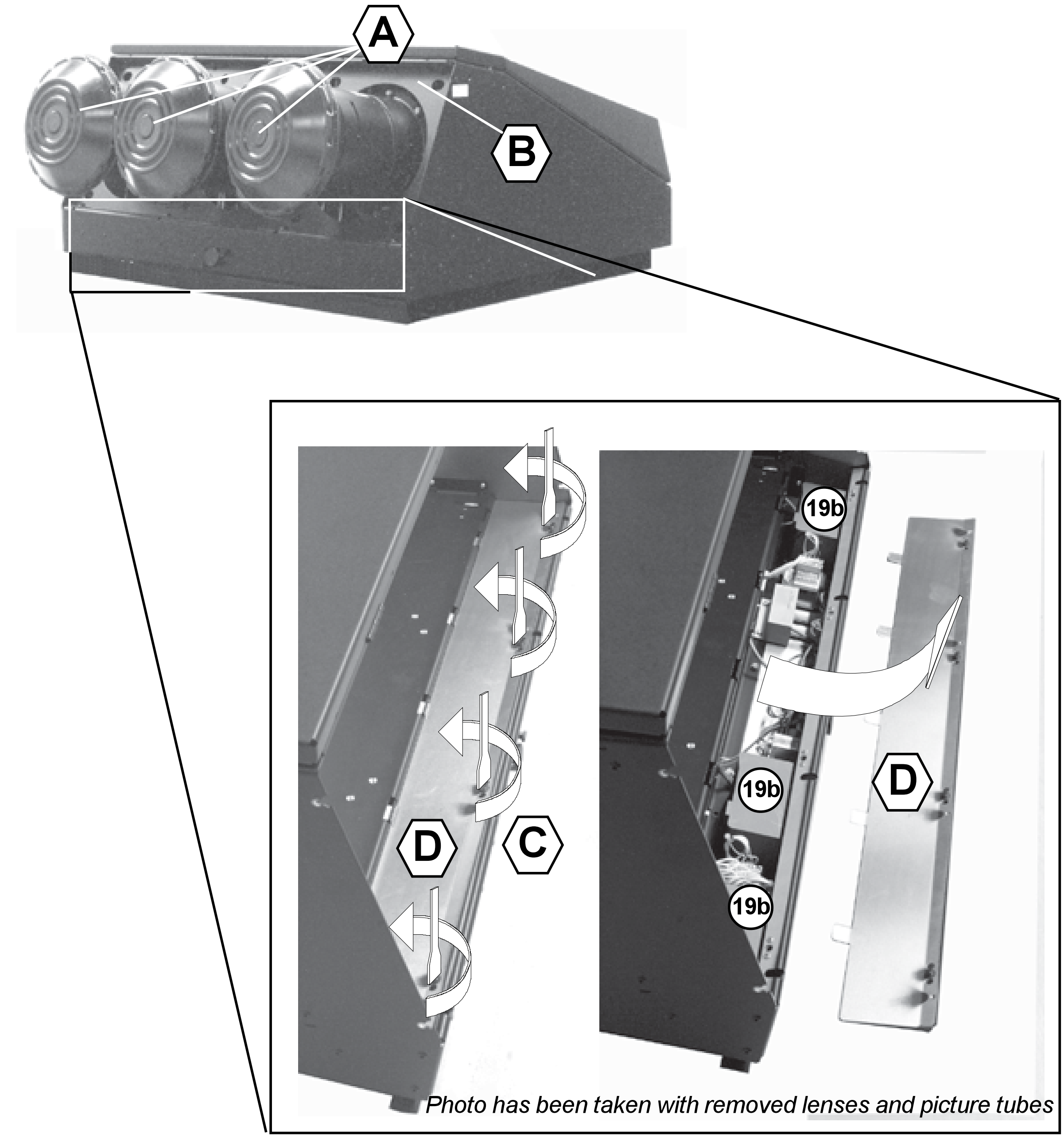


Photo has been taken with removed lenses and picture tubes

Access to the electrical parts below the picture tubes

Remove the three lenses (A) (each lens is secured with 8 bolts) and remove next the picture tube cover plate (B) (cover secured with 12 screws to Optical house) to access the screen cover of the electrical parts. This cover is secured with four lock screws.

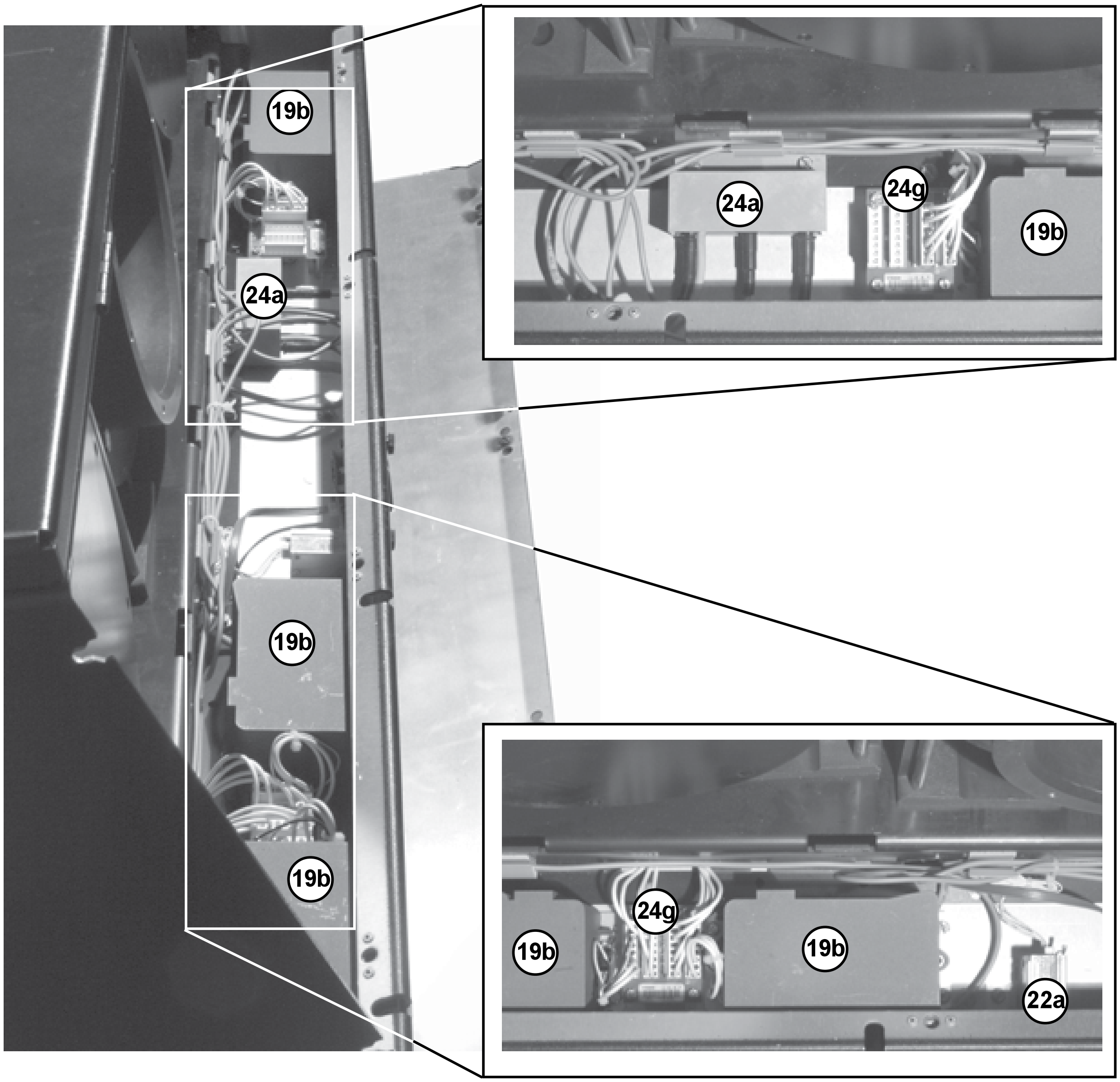
Unlock, using a coin or a screwdriver, the four lock screws (C) of the cover (D) by turning the screws a half turn counter-clockwise. Lift up the cover a little and remove the cover by sliding the cover lips carefully out the provided centre gaps.

Section reference

A **R130816 Lens HD219**

Section reference

19b **R762717 EHT Quadrupler**



Section reference

19b	R762717	EHT Quadrupler
24a	R762929	G2 Voltage Interface
24g	R763008	Quadrupler Interface
22a	R762215	Infra Red Receiver

Section reference

19b	R762717	EHT Quadrupler
24d	R763009	Cable Interface (Optical block)
24f	R763007	Defl./RGB Interface

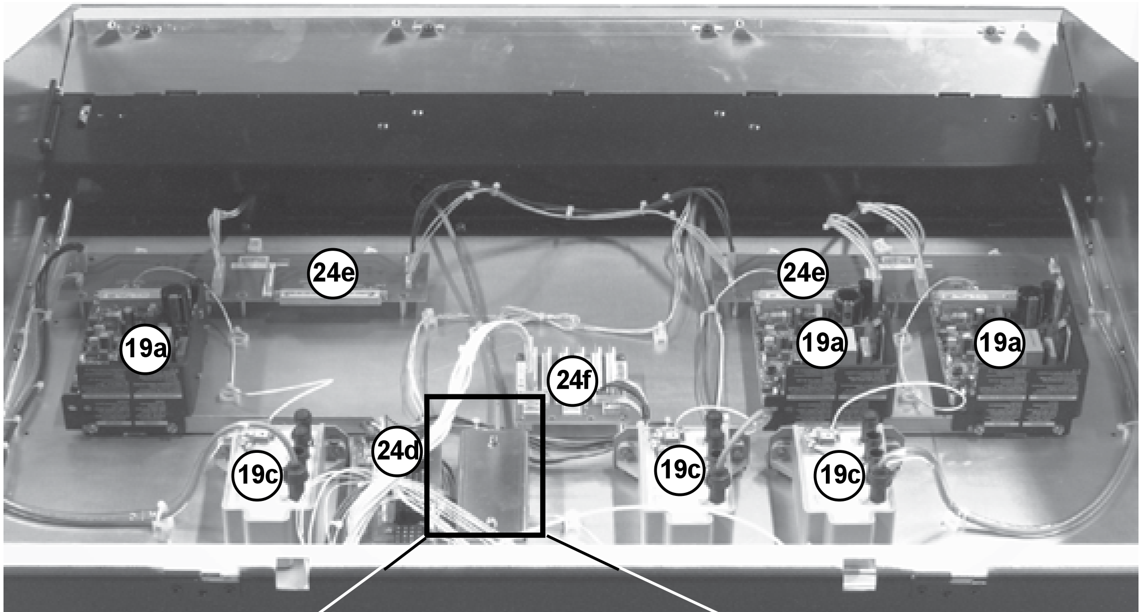
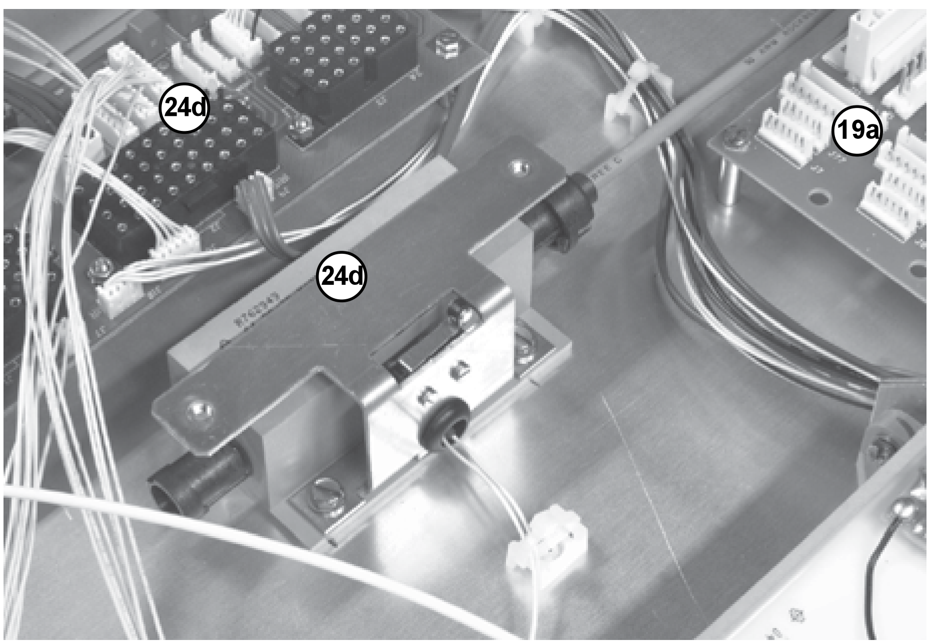


Photo has been taken with removed picture tubes

Photo has been taken with removed High Voltage connector cover



Section reference

19a	R762716	EHT Generator
19c	R762718	EHT Splitter
24d	R763009	Cable Interface (Optical block)

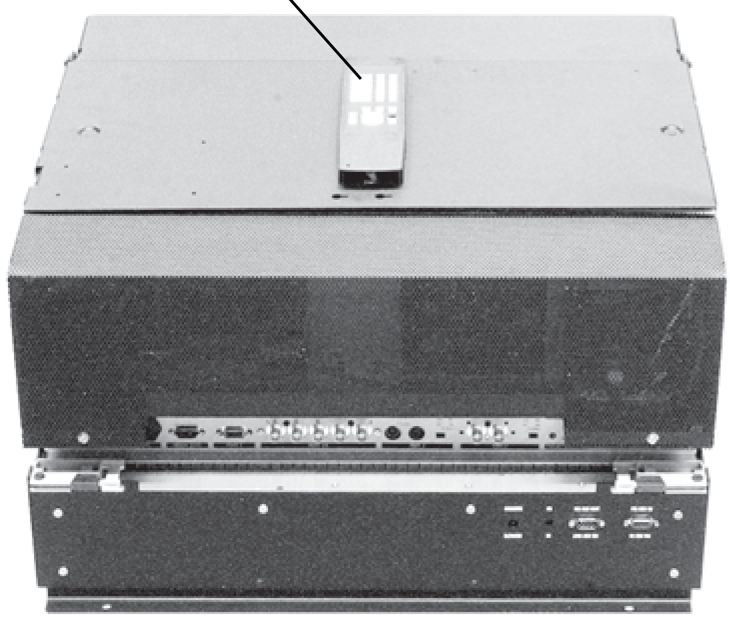
Section reference

24e	R762928	EHT Interface
24f	R763007	Defl./RGB Interface
24g	R762949	High Voltage connector

Transmitter (Infra Red)

Internal Contol unit

4a



Section reference

(4a) R791664 Transmitter (Infra Red)

Section reference

(4b) R7916721Internal Contol unit

Spare parts on module level Optical Part R762959

Itemno	Description	Qty	Itemno	Description	Qty
R7621042D	CDS G1200 CRT 09MX	3	R762949	UN D708HS EHT CNN	1
R762215	UN V700 RX FR 900	1	R7629632	UN R812 CRT M12M HD219 R	1
R762716	UN G808S EHT	3	R7629635	UN R812 CRT M12M HD219 G	1
R762717	UN G808S EHT QDR	3	R7629636	UN R812 CRT M12M HD219 B	1
R762718	UN G808S EHT SPL	3	R763007	UN R812 CNN EXT DEF-RGB	1
R7627241	UN IRIS2 CAM CCD MK2	1	R763008	UN R812 CNN EXT QDR	2
R762928	UN R812 EHT CNN	2	R763009	UN R812 CNN OP	1
R762929	UN R812 G2 CNN	1	R769015	UN R762839 RGB O+S A	3

Spare parts on module level Electronic Part R762962

Itemno	Description	Qty	Itemno	Description	Qty
R7621055	UN *1200 INP RGB S_TRACK	1	R762720	UN G808S RGB DVR	1
R7621706	UN G808 SMP1 MK2	1	R762722	UN IRIS2 CTRL	1
R76226715	UN D1209S HOR 2,7USEC	1	R762745	UN *808S DEC COMB_F	1
R7622686	UN G80* VER+S MK2	1	R762815	UN R*808S CNN CNV	1
R762501	UN G802 FRM -UN M180	1	R762927	UN R812 CNN EL	1
R7625035	UN G808 FOC+SH HDL	1	R762929	UN R812 G2 CNN	1
R762507	UN G808 MNS	1	R762930	UN R812 EHT DUMMY	1
R7625095	UN *808S DEF AMPL COILS	1	R762949	UN D708HS EHT CNN	1
R762510	UN G808 RS232	1	R763029	UN G808S G2+CHK BSP	1
R7625115	UN G808 CTRL 68000	1	R769005	UN R762519 CNV OUT C	1
R762514	UN G808 AST DYN	1			
R7625189	UN $1208/09 CNV DVR	1	R7916721	UN **** RCU TX WIRE2	1
R762523	UN G808 FAN	1	R791664	UN RCU 700 IR+LGT	1
R762719	UN G808S RGB INP	1			

SUGGESTED SPARE PARTS LIST

a) First level Parts

ART NO.	DESCRIPTION	QUANTITY
R762717	EHT Quadrupler	
R762718	EHT splitter	
R7629632	CRT Red	
R7629635	CRT Green	
R7629636	CRT Blue	

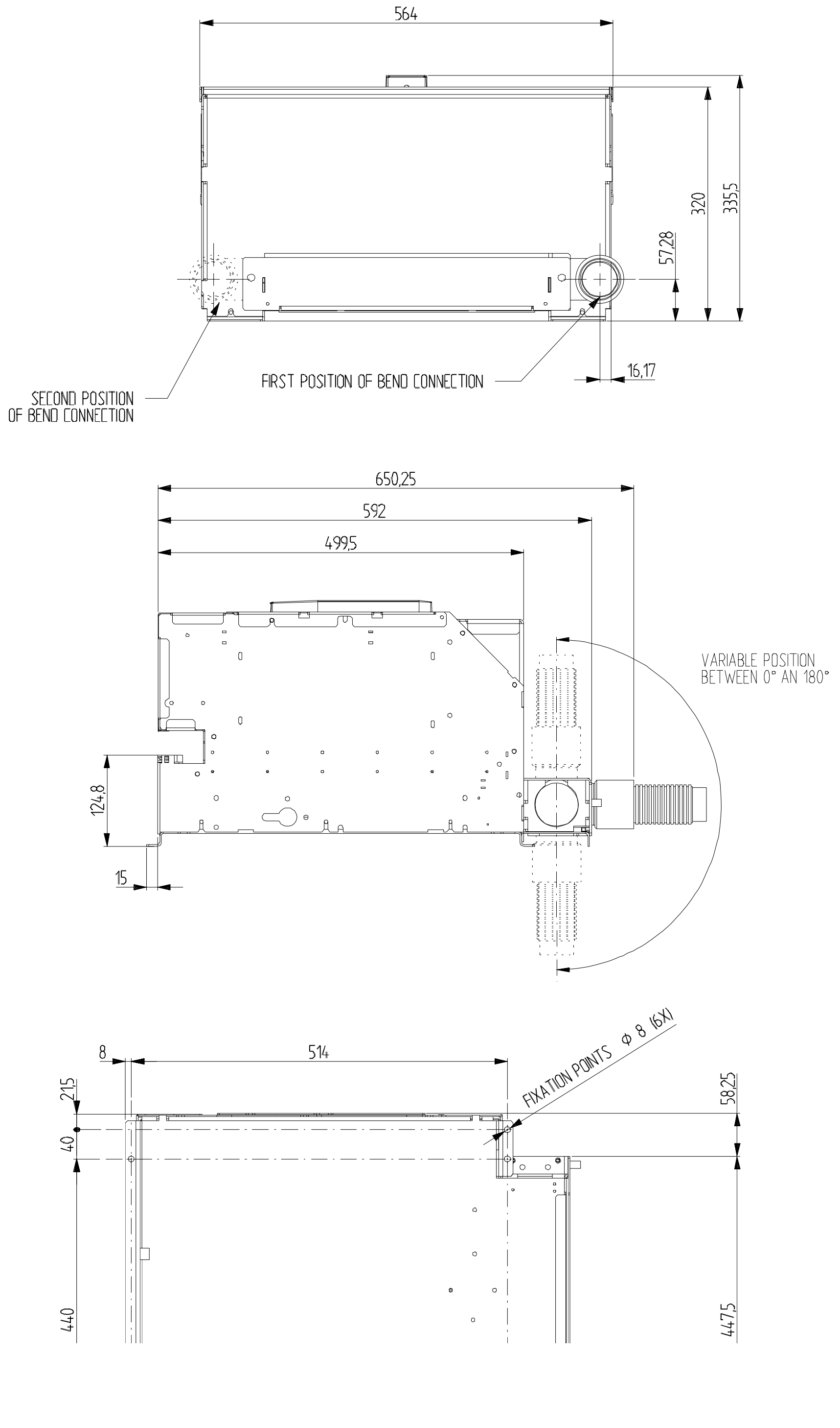
b) Second Level Modules

ART NO.	DESCRIPTION	QUANTITY
R7621706	SM Power Supply	
R76226715	Hor. Deflection	
R762716	EHT generator	
R762719	RGB Input & Switching	
R762745	Quad decoder	
R769015	RGB Output Amplifier	

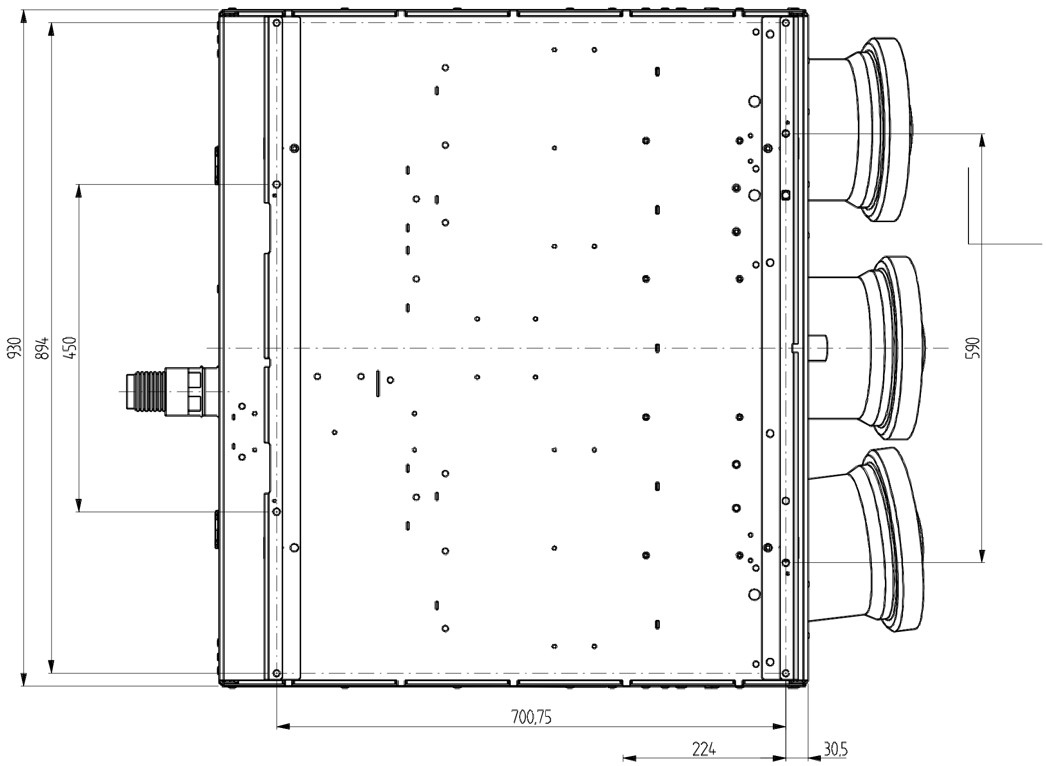
c) Third Level Modules

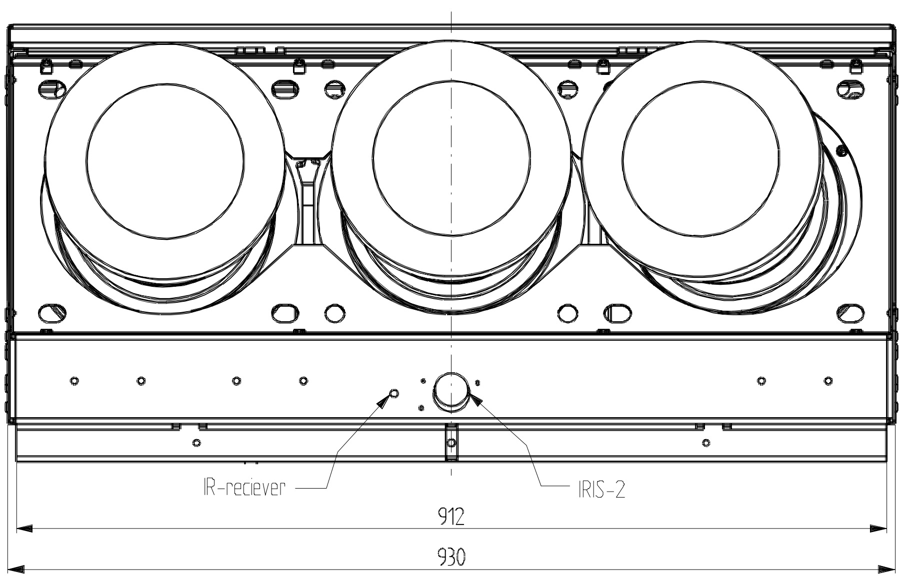
ART NO.	DESCRIPTION	QUANTITY
R7622686	Sync+Vertical Deflection	
R7625115	Controller (Asic)	
R7625035	Mag. Focus+Hor.Shift	
R7625189	Convergence (Driver)	
R769005	Convergence (Output)	
R762514	Dynamic Astigmatism	
R762720	RGB driver	
R791664	IR Transmitter	
R7916721	UN **** RCU TX WIRE2	

Electrical Part R762962

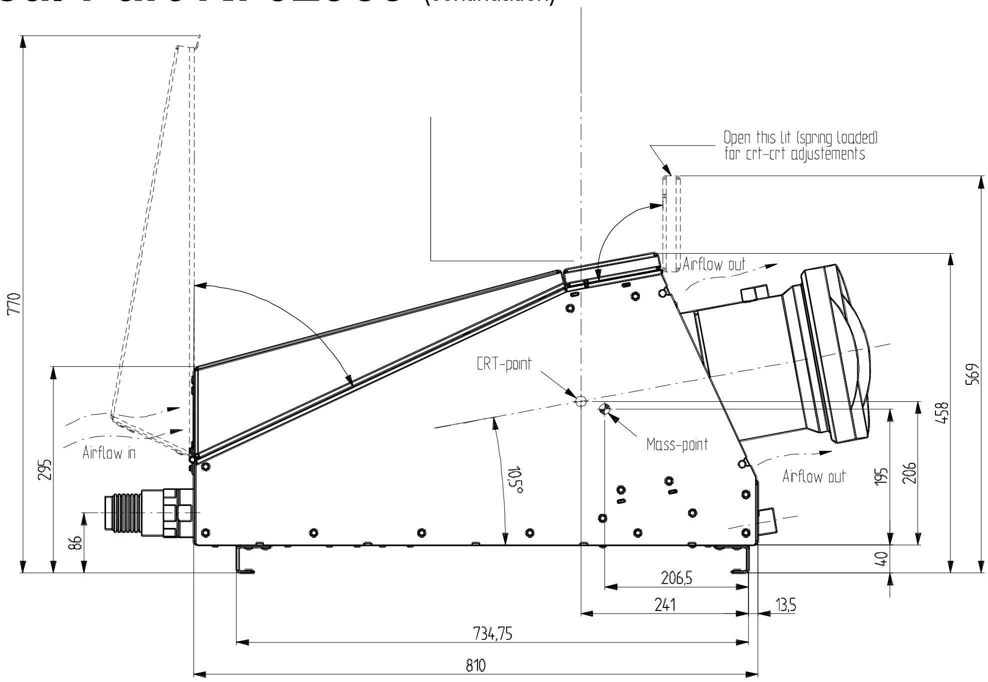


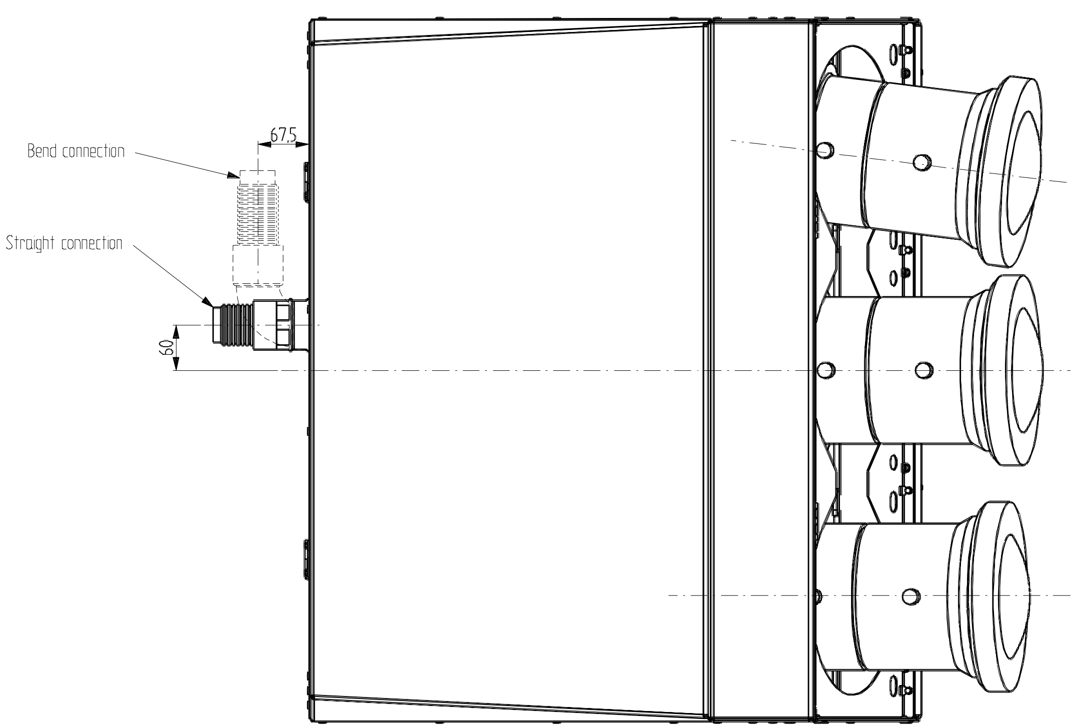
Optical Part R762959





Optical Part R762959 (continuation)





Summary of used components REALITY 812 HS

Art. No.	Description	Quantity
A503159	J MD2 C MBS P100E1AU 6,7	1
A503437	J MD2 C FBT P10 E1AU 7,0	1
A509022	D TVS 33V 1500WU DO201	1
A552528	C PPMERA 100N M162E11 HV	1
A573058	XO 16M000000 TN-10DIP 8M	1
A573379	Q BD242B P P TO220	1
B1319054	D R BYW97G 14203A SOD64	6
B1329351	Q BUX87P N P SOT82	1
B133165	Q APT12082LVRFN P TO264	1
B133338	U 2631 HCPL DIP8 P	1
B134308	U 08B VPJ	1
B332142	J BNC FBS P5 SHLD SIP	1
B332143	J BNC FBS P2 SHLD SIP	1
B334008	J EUR2R FBS P64 E1C2S 1,6	2
B338019	J TTI C FBT P24 AU T	2
B338020	J TTI C FBT P36 AU T	4
B338800	J PHN FBS D 3.5MON P	2
K1114777	C EL RA 100M M 25E2 105	4
P200339	R# CE H 1E F 0W25 1206	4
P200361	R# CE H 8E2 F 0W25 1206	1
P200363	R# CE H 10E F 0W25 1206	20
P200371	R# CE H 22E F 0W25 1206	1
P200377	R# CE H 39E F 0W25 1206	2
P200379	R# CE H 47E F 0W25 1206	5
P200381	R# CE H 56E F 0W25 1206	2
P200385	R# CE H 82E F 0W25 1206	2
P200386	R# CE H 91E F 0W25 1206	1
P200387	R# CE H100E F 0W25 1206	78
P200389	R# CE H120E F 0W25 1206	3
P200391	R# CE H150E F 0W25 1206	2
P200395	R# CE H220E F 0W25 1206	6
P200397	R# CE H270E F 0W25 1206	7
P200399	R# CE H330E F 0W25 1206	1
P200401	R# CE H390E F 0W25 1206	11
P200403	R# CE H470E F 0W25 1206	58
P200405	R# CE H560E F 0W25 1206	2
P200407	R# CE H680E F 0W25 1206	13
P200409	R# CE H820E F 0W25 1206	12
P200411	R# CE H 1K F 0W25 1206	84
P200413	R# CE H 1K2 F 0W25 1206	9
P200415	R# CE H 1K5 F 0W25 1206	18
P200416	R# CE H 1K6 F 0W25 1206	2
P200417	R# CE H 1K8 F 0W25 1206	18
P200419	R# CE H 2K2 F 0W25 1206	72
P200421	R# CE H 2K7 F 0W25 1206	5
P200423	R# CE H 3K3 F 0W25 1206	42
P200425	R# CE H 3K9 F 0W25 1206	15
P200426	R# CE H 4K3 F 0W25 1206	1
P200427	R# CE H 4K7 F 0W25 1206	58
P200429	R# CE H 5K6 F 0W25 1206	24
P200431	R# CE H 6K8 F 0W25 1206	6
P200432	R# CE H 7K5 F 0W25 1206	1
P200433	R# CE H 8K2 F 0W25 1206	12
P200435	R# CE H 10K F 0W25 1206	134
P200436	R# CE H 11K F 0W25 1206	1
P200437	R# CE H 12K F 0W25 1206	29
P200439	R# CE H 15K F 0W25 1206	66
P200441	R# CE H 18K F 0W25 1206	34
P200442	R# CE H 20K F 0W25 1206	1
P200443	R# CE H 22K F 0W25 1206	42
P200445	R# CE H 27K F 0W25 1206	1
P200447	R# CE H 33K F 0W25 1206	4
P200449	R# CE H 39K F 0W25 1206	5
P200451	R# CE H 47K F 0W25 1206	6
P200453	R# CE H 56K F 0W25 1206	1
P200457	R# CE H 82K F 0W25 1206	1
P200459	R# CE H100K F 0W25 1206	17
P200461	R# CE H120K F 0W25 1206	3
P200463	R# CE H150K F 0W25 1206	3
P200465	R# CE H180K F 0W25 1206	2
P200469	R# CE H270K F 0W25 1206	8
P200470	R# CE H300K F 0W25 1206	1
P200471	R# CE H330K F 0W25 1206	4
P200473	R# CE H390K F 0W25 1206	1
P200475	R# CE H470K F 0W25 1206	4
P200485	R# CE H 1M2 F 0W25 1206	1
P200499	R# CE H 4M7 F 0W25 1206	2
P200505	R# CE H 8M2 F 0W25 1206	1
P200507	R# CE H 10M F 0W25 1206	1
P200693	R# CE H 4E7 J 0W12 0805	6
P201015	R# CE H 1E F 0W12 0805	14
P201031	R# CE H 4E7 F 0W12 0805	31
P201039	R# CE H 10E F 0W12 0805	39

Art. No.	Description	Quantity
P201047	R# CE H 22E F 0W12 0805	1
P201052	R# CE H 36E F 0W12 0805	1
P201053	R# CE H 39E F 0W12 0805	1
P201055	R# CE H 47E F 0W12 0805	16
P201056	R# CE H 51E F 0W12 0805	12
P201057	R# CE H 56E F 0W12 0805	11
P201059	R# CE H 68E F 0W12 0805	3
P201060	R# CE H 75E F 0W12 0805	8
P201061	R# CE H 82E F 0W12 0805	6
P201063	R# CE H100E F 0W12 0805	49
P201065	R# CE H120E F 0W12 0805	6
P201066	R# CE H130E F 0W12 0805	3
P201067	R# CE H150E F 0W12 0805	4
P201068	R# CE H160E F 0W12 0805	1
P201069	R# CE H180E F 0W12 0805	1
P201070	R# CE H200E F 0W12 0805	1
P201071	R# CE H220E F 0W12 0805	12
P201072	R# CE H240E F 0W12 0805	1
P201073	R# CE H270E F 0W12 0805	9
P201075	R# CE H330E F 0W12 0805	13
P201076	R# CE H360E F 0W12 0805	3
P201077	R# CE H390E F 0W12 0805	3
P201078	R# CE H430E F 0W12 0805	10
P201079	R# CE H470E F 0W12 0805	64
P201080	R# CE H510E F 0W12 0805	4
P201081	R# CE H560E F 0W12 0805	16
P201083	R# CE H680E F 0W12 0805	15
P201084	R# CE H750E F 0W12 0805	2
P201085	R# CE H820E F 0W12 0805	6
P201086	R# CE H910E F 0W12 0805	3
P201087	R# CE H 1K F 0W12 0805	89
P201088	R# CE H 1K1 F 0W12 0805	4
P201089	R# CE H 1K2 F 0W12 0805	6
P201090	R# CE H 1K3 F 0W12 0805	1
P201091	R# CE H 1K5 F 0W12 0805	9
P201092	R# CE H 1K6 F 0W12 0805	1
P201093	R# CE H 1K8 F 0W12 0805	10
P201095	R# CE H 2K2 F 0W12 0805	44
P201096	R# CE H 2K4 F 0W12 0805	2
P201097	R# CE H 2K7 F 0W12 0805	2
P201099	R# CE H 3K3 F 0W12 0805	17
P201101	R# CE H 3K9 F 0W12 0805	8
P201102	R# CE H 4K3 F 0W12 0805	1
P201103	R# CE H 4K7 F 0W12 0805	49
P201104	R# CE H 5K1 F 0W12 0805	1
P201105	R# CE H 5K6 F 0W12 0805	19
P201106	R# CE H 6K2 F 0W12 0805	2
P201107	R# CE H 6K8 F 0W12 0805	15
P201108	R# CE H 7K5 F 0W12 0805	3
P201109	R# CE H 8K2 F 0W12 0805	2
P201110	R# CE H 9K1 F 0W12 0805	1
P201111	R# CE H 10K F 0W12 0805	94
P201112	R# CE H 11K F 0W12 0805	4
P201113	R# CE H 12K F 0W12 0805	9
P201114	R# CE H 13K F 0W12 0805	7
P201115	R# CE H 15K F 0W12 0805	20
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P201117	R# CE H 18K F 0W12 0805	3
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P201122	R# CE H 30K F 0W12 0805	3
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P201124	R# CE H 36K F 0W12 0805	3
P201125	R# CE H 39K F 0W12 0805	5
P201127	R# CE H 47K F 0W12 0805	32
P201129	R# CE H 56K F 0W12 0805	12
P201130	R# CE H 62K F 0W12 0805	1
P201131	R# CE H 68K F 0W12 0805	2
P201133	R# CE H 82K F 0W12 0805	4
P201135	R# CE H100K F 0W12 0805	47
P201137	R# CE H120K F 0W12 0805	3
P201138	R# CE H130K F 0W12 0805	4
P201139	R# CE H150K F 0W12 0805	14
P201141	R# CE H180K F 0W12 0805	1
P201143	R# CE H220K F 0W12 0805	27
P201145	R# CE H270K F 0W12 0805	4
P201146	R# CE H300K F 0W12 0805	3
P201149	R# CE H390K F 0W12 0805	1
P201151	R# CE H470K F 0W12 0805	13
P201155	R# CE H680K F 0W12 0805	2
P201157	R# CE H820K F 0W12 0805	5
P201158	R# CE H910K F 0W12 0805	1
P201159	R# CE H 1M F 0W12 0805	8
P201167	R# CE H 2M2 F 0W12 0805	1
P201352	R# CE H 10M K 0W12 0805	3

Art. No.	Description	Quantity
P201354	R# CE H 0E 0W12 0805	5
P201370	R#TCE H 10K M 0W1 S4 TS	1
P201390	R#TCE H 2K M 0W25 S4 TS	3
P201392	R#TCE H200E M 0W25 S4 TS	3
P201393	R#TCE H 50K M 0W25 S4 TS	15
P202220	R# MF H 47E F 0W25 MMELF	6
P202228	R# MF H100E F 0W25 MMELF	1
P210001	C# C0G MU 10P G 50 0805	4
P210005	C# X7R MU 39N K 50 1206	2
P210007	C# C0G MU 1N F 50 1206	1
P210010	C# C0G MU 68P J 50 1206	4
P210013	C# C0G MU 1N J 50 1206	4
P210016	C# C0G MU 15P J 50 0805	1
P210017	C# C0G MU 22P J 50 0805	1
P210018	C# C0G MU 33P J 50 0805	2
P210019	C# C0G MU 47P J 50 0805	7
P2100190	C# C0G MU 47P J 50 0805	1
P210020	C# C0G MU 68P J 50 0805	1
P210021	C# C0G MU 100P J 50 0805	12
P210022	C# C0G MU 150P J 50 0805	4
P210023	C# C0G MU 220P J 50 0805	3
P210024	C# C0G MU 330P J 50 0805	1
P210025	C# C0G MU 470P J 50 0805	4
P210029	C# C0G MU 2N2J 50 1206	7
P210035	C# X7R MU 1N K 50 0805	16
P210041	C# X7R MU 10N K 50 0805	19
P210043	C# X7R MU 22N K 50 0805	2
P210045	C# X7R MU 47N K 50 1206	3
P210061	C# C0G MU 4P7D 50 0805	4
P210064	C# C0G MU 22P J 50 1206	1
P210068	C# X7R MU 22N K 50 1206	2
P210070	C# C0G MU 680P J 50 0805	3
P210071	C# C0G MU 220P F 50 0805	2
P210073	C# C0G MU 82P J 50 1206	8
P210074	C# C0G MU 39P K 50 0805	3
P210081	C# C0G MU 180P J 50 0805	6
P210091	C# C0G MU 1P D 50 0805	2
P210092	C# X7R MU 10N K 50 1206	5
P210095	C# X7R MU 330N M 50 1812	12
P210097	C# X7R MU 33N K 50 1206	3
P210102	C# C0G MU 470P J 50 1206	2
P210106	C# X7R MU 3N9J 50 1206	1
P210111	C# X7R MU 47N K 50 0805	1
P210112	C# C0G MU 1N2J 50 1206	1
P210115	C# C0G MU 6P8D 50 0805	8
P210117	C# C0G MU 47P G 50 1206	6
P210121	C# C0G MU 330P J 50 1206	3
P210122	C# X7R MU 100N K 50 1206	271
P210124	C# X7R MU 100N K 50 0805	4
P210130	C# C0G MU 2P2D 50 0805	7
P210131	C# C0G MU 2P7D 50 0805	3
P210132	C# C0G MU 3P3D 50 0805	3
P210133	C# C0G MU 3P9D 50 0805	3
P210134	C# C0G MU 5P6D 50 0805	6
P210135	C# C0G MU 8P2D 50 0805	3
P210136	C# Y5V MU 330N Z 50 1206	6
P210137	C# C0G MU 100P J 50 1206	18
P210138	C# C0G MU 10P J 50 1206	9
P210139	C# C0G MU 33P J 50 1206	3
P210140	C# X7R MU 4N7K 50 1206	5
P210141	C# C0G MU 27P J 50 1206	2
P210148	C# Y5V MU 470N Z 25 1206	7
P210150	C# X7R MU 3N3K 50 1206	1
P210151	C# X7R MU 18N K 50 1206	1
P210153	C# Z5U MU 1M M 50 1812	2
P210158	C# C0G MU 150P J 50 1206	6
P210161	C# C0G MU 120P J 50 1206	1
P210169	C# X7R MU 220N K 50 1210	3
P210173	C# C0G MU 1N K100 1206	1
P210178	C# Y5V MU 1M Z 16 1206	39
P210182	C# C0G MU 12P J 50 0805	7
P210185	C# C0G MU 390P J 50 1206	2
P210213	C# Y5V MU 100N Z 25 0805	154
P210217	C# C0G MU 82P J 50 0805	1
P210220	C# X7R MU 10N K500 1210	3
P210227	C# Z5U MU 100N Z 50 0805	136
P210252	C# X7R MU 220N K 25 1206	2
P210290	C# Y5V MU 4M7Z 16 1206	1
P210295	C# Y5V MU 1M Z 16 0805	3
P210296	C# X7R MU 220N K 16 0805	1
P212001	C# TA 2M2M 20 3528	2
P212005	C# TA 47M M 10 7343	2
P212006	C# TA 4M7M 16 3528	3
P212009	C# TA 1M M 16 3216	2
P212015	C# TA 33M K 16 7343	1
P212018	C# TA 10M M 16 6032	6
P212024	C# TA 10M M 35 7343	4

Art. No.	Description	Quantity
P212031	C# TA 22M M 16 7343	3
P212040	C# TA 100M M 6 7343	1
P213508	C# EL RA 10M M 16ALMV4	11
P230006	U#062 TL SO8 P	7
P2300090	U#14046B MC SOL16 I	1
P230021	U#74HC04 SO14 I	3
P230025	U#74HC123 SO16 I	2
P230028	U#393 LM SO8 P	6
P230030	U#4053 SO16 I	4
P230034	U#4013 SO14 I	1
P230046	U#74HC393 SO14 I	1
P230051	U#74HCT245 SOL20 I	3
P230062	U#78L05A LM SO8 P	1
P230064	U#4052 SO16 I	2
P230072	U#74HC00 SO14 I	2
P230073	U#74HCT123 SO16 I	4
P230095	U#074 TL SO14 P	19
P230096	U#74HCT02 SO14 I	1
P230099	U#072 TL SO8 P	3
P230100	U#3080 CA SO8 P	7
P230102	U#74HCT00 SO14 I	1
P230153	U#74HC32 SO14 I	1
P230164	U#74HC573 SOL20 I	2
P230173	U#74HC14 SO14 I	1
P230206	U#74HC30 SO14 I	1
P230218	U#74HC86 SO14 I	1
P230220	U#74HC4538 SO16 I	2
P230222	U#74HC03 SO14 I	1
P230231	U#74HC08 SO14 I	2
P230266	U#353 LF SO8 P	1
P230287	U#74HC20 SO14 I	2
P230293	U#082 TL SO8 P	7
P230318	U#74HC245 SOL20 I	1
P230328	U#064 TL SO14 I	5
P230343	U#74AC02 SO14 I	1
P230344	U#74AC08 SO14 I	1
P230372	U#80C32 PLCC44 P	1
P230384	U#74AC00 SO14 I	1
P230451	U#4098 HCF SO16 I	1
P230453	U#34081 MC SO8 P	1
P230477	U#318 LM SO8 P	3
P230498	U#74HCT03 SO14 I	1
P230499	U#74HCT14 SO14 I	1
P230506	U#68901 MK PLCC52 P	1
P230526	U#74AC32 SO14 I	1
P230543	U#8574 PCF SOL16 P	3
P230561	U#14C88 MC SO14 P	1
P230625	U#68230-8 TS PLCC52 P	1
P230628	U#74HCT153 SO16 I	3
P230652	U#75C189A SN SO14 P	1
P230653	U#BELLA 5 SOL28 P	50
P230677	U#121GB TLP MINISO4P	1
P230705	U#34084 MC SOL16 P	7
P230713	U#74HC4052 SO16 I	1
P230754	U#74AC541 SOL20 I	1
P230756	U#SRAM 32KX8 70FP28 P	1
P230768	U#5534 NE SO8 P	6
P230886	U#74HC4051 SO16 I	1
P230911	U#8574A PCF SOL16 P	1
P230912	U#04 MLT SOL18 I	2
P230936	U#8444A TDA SOL20 P	1
P230969	U#1881 LM SO8 P	2
P2309910	U#68EC000-16 MC PLCC68 P	1
P231013	U#3046 CA SO14 I	2
P231025	U#8709A TDA SOL28 P	1
P231055	U#28C64B -15PLCC32 P	1
P231121	U#8282A-4 EPF PLCC84 P	1
P231230	U#2-20 MSWA SO8 I	3
P231233	U#1100 HFA SO8 I	6
P231268	U#SRAM 32KX8 15SOJ28 P	2
P231329	U#4665 TDA SO16 P	1
P231479	U#542 DG SO16 I	5
P231489	U#835 AD SO8 I	7
P231526	U#541 DG SO16 I	3
P231527	U#360 LM SO8 P	1
P231830	U#2064 CXD QFP48 P	1
P232004	Q#BC849C N SS SOT23	34
P232026	Q#BC817-40 N SS SOT23	5
P232033	Q#BSV52 N SS SOT23	3
P232042	Q#BC807-25 P SS SOT23	7
P232043	Q#BC849B N SS SOT23	58
P232044	Q#BC859B P SS SOT23	52
P232046	Q#BSS123 F SS SOT23	22
P232050	Q#BC857B P SS SOT23	6
P232051	Q#BC847B N SS SOT23	12
P232054	Q#BCV27 DN SS SOT23	3
P232066	Q#BSR14 N SS SOT23	2
P232076	Q#BFS17 N SS SOT23	10
P232079	Q#BSS84 F SS SOT23	10
P232090	Q#BFR92A N SS SOT23	6

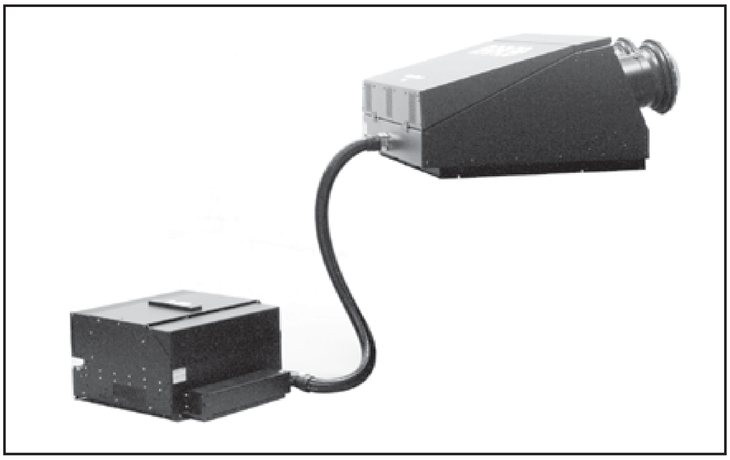
Art. No.	Description	Quantity
P232092	Q#BF623 P SS SOT89	1
P232101	Q#BC859C P SS SOT23	23
P232109	Q#BFG31 P SS SOT223	2
P232122	Q#BCX56 N P SOT89	3
P232149	Q#BF821 P SS SOT23	3
P232150	Q#BF822 N SS SOT23	1
P232158	Q#BF824 P SS SOT23	3
P232199	Q#BFQ149 P SS SOT89	6
P234004	D#BAV70 C-C SOT23	5
P234014	D#ZEN 5V6 0W3 C SOT23	1
P234018	D#ZEN 6V2 0W5 C DMMELF	2
P234029	D#BAW56 C-A SOT23	1
P234040	D#LED LSS260 RED SOT23	12
P234046	D#ZEN 12V 0W5 C DMMELF	4
P234047	D#BAV99 SER SOT23	12
P234055	D#BAT54 SCH SOT23	46
P234056	D#4002 R DMELF	1
P234057	D#ZEN 8V2 0W5 C DMMELF	2
P234062	D#LED LYS260 YEL SOT23	24
P234063	D#LED LGS260 GRE SOT23	8
P234089	D#ZEN 13V 0W5 C DMMELF	1
P234094	D#ZEN 6V8 0W3 C SOT23	2
P234099	D#4148 R DMMELF	258
P234127	D#ZEN 5V1 0W5 C DMMELF	2
P234164	D#ZEN 5V6 0W5 C DMMELF	7
P234179	D#ZEN 20V 0W5 C DMMELF	2
P234185	D#ZEN 27V 0W5 C DMMELF	1
P234195	D#BAS21 SW SOT23	4
P234196	D#BYD37J AVA SOD87	6
P234205	D#BAT54C SCH SOT23	7
P234213	D#ZEN 3V3 0W5 C DMMELF	2
P234219	D#BZV87-1V4 STA DMMELF	1
P234259	D#BA682 S035A1 DMMELF	41
P234268	D#ZEN 6V8 0W5 C DMMELF	2
P234289	D#HSMS2814 SCH SOT23	1
P250005	L# FFECH 0,47M M160	6
P250509	CH# 1.5 UH L1210	3
P250511	CH# 22.00UH L1812	3
P250516	CH# 3.3 UH L1210	4
P250533	CH# 330.00NH L1210	1
P250583	CH# 10.00UH L1812	7
P250586	CH# 10µH TOKO614	1
P250587	CH# 3,3µH TOKO614	1
P250588	CH# 15µH TOKO614	1
P252512	X# 9M216000 30 MG3A	1
R100124	R MF V100E J 0W6 E2	2
R100128	R MF V220E J 0W6 E2	1
R100136	R MF V 1K J 0W6 E2	1
R100137	R MF V 1K2 J 0W6 E2	1
R100144	R MF V 4K7 J 0W6 E2	1
R100145	R MF V 5K6 J 0W6 E2	1
R100146	R MF V 6K8 J 0W6 E2	1
R1001909	R CFFV E1 K 0W4 E1	6
R1003009	R CFFV 1E J 0W25 E1	5
R1003169	R CFFV 22E J 0W25 E1	1
R1011008	R CFFH 1E J 0W25	10
R1011046	R CFFH 2E2 J 0W35	2
R1011059	R CFFH 2E7 J 0W25	3
R1011129	R CFFH 10E J 0W25	6
R1011169	R CFFH 22E J 0W25	4
R1011209	R CFFH 47E J 0W25	3
R1011246	R CFFH100E J 0W35	1
R1011369	R CFFH 1K J 0W25	1
R1011907	R CFFH E1 K 0W35	10
R1011917	R CFFH E22K 0W35	1
R1012009	R CFFH 1E J 0W5	1
R1012997	R CFFH E1 K 0W7	2
R101300	R MF H 1E J 1W E6	12
R101358	R MF H 68K J 2W E7	1
R1013997	R CFFH E1 K 1W	2
R101404	R MF H 2E2 J 2W E7	3
R101460	R MF H100K J 2W E7	2
R101462	R MF H150K J 2W E7	3
R101500	R MF H 1E F 0W4 E3	8
R101504	R MF H 2E2 F 0W4 E3	1
R101505	R MF H 2E7 F 0W4 E3	1
R101508	R MF H 4E7 F 0W4 E3	1
R101512	R MF H 10E F 0W4 E3	8
R101514	R MF H 15E F 0W4 E3	11
R101515	R MF H 18E F 0W4 E3	2
R101516	R MF H 22E F 0W4 E3	2
R101520	R MF H 47E F 0W4 E3	2
R1015231	R MF H 75E F 0W4 E3	5
R101524	R MF H100E F 0W4 E3	17
R101525	R MF H120E F 0W4 E3	1
R101526	R MF H150E F 0W4 E3	3
R101527	R MF H180E F 0W4 E3	4
R101528	R MF H220E F 0W4 E3	8
R1015281	R MF H200E F 0W4 E3	2

Art. No.	Description	Quantity
R101529	R MF H270E F 0W4 E3	11
R101530	R MF H330E F 0W4 E3	4
R101531	R MF H390E F 0W4 E3	3
R1015311	R MF H360E F 0W4 E3	1
R101532	R MF H470E F 0W4 E3	12
R101533	R MF H560E F 0W4 E3	2
R101534	R MF H680E F 0W4 E3	5
R101535	R MF H820E F 0W4 E3	16
R1015351	R MF H750E F 0W4 E3	2
R101536	R MF H 1K F 0W4 E3	58
R101537	R MF H 1K2 F 0W4 E3	19
R101538	R MF H 1K5 F 0W4 E3	11
R101539	R MF H 1K8 F 0W4 E3	7
R101540	R MF H 2K2 F 0W4 E3	22
R1015401	R MF H 2K F 0W4 E3	3
R101541	R MF H 2K7 F 0W4 E3	4
R101542	R MF H 3K3 F 0W4 E3	12
R101543	R MF H 3K9 F 0W4 E3	5
R1015431	R MF H 3K6 F 0W4 E3	1
R101544	R MF H 4K7 F 0W4 E3	30
R101545	R MF H 5K6 F 0W4 E3	11
R1015451	R MF H 5K1 F 0W4 E3	1
R101546	R MF H 6K8 F 0W4 E3	13
R101547	R MF H 8K2 F 0W4 E3	4
R101548	R MF H 10K F 0W4 E3	48
R101549	R MF H 12K F 0W4 E3	17
R1015491	R MF H 11K F 0W4 E3	1
R101550	R MF H 15K F 0W4 E3	9
R1015501	R MF H 13K F 0W4 E3	1
R101551	R MF H 18K F 0W4 E3	7
R101552	R MF H 22K F 0W4 E3	13
R101553	R MF H 27K F 0W4 E3	4
R101554	R MF H 33K F 0W4 E3	9
R1015541	R MF H 30K F 0W4 E3	1
R101555	R MF H 39K F 0W4 E3	10
R101556	R MF H 47K F 0W4 E3	13
R101557	R MF H 56K F 0W4 E3	6
R1015571	R MF H 51K F 0W4 E3	1
R101558	R MF H 68K F 0W4 E3	8
R101559	R MF H 82K F 0W4 E3	4
R101560	R MF H100K F 0W4 E3	17
R101561	R MF H120K F 0W4 E3	7
R101562	R MF H150K F 0W4 E3	4
R101563	R MF H180K F 0W4 E3	3
R101564	R MF H220K F 0W4 E3	6
R1015641	R MF H200K F 0W4 E3	2
R101565	R MF H270K F 0W4 E3	3
R101566	R MF H330K F 0W4 E3	5
R101567	R MF H390K F 0W4 E3	4
R101568	R MF H470K F 0W4 E3	4
R101570	R MF H680K F 0W4 E3	2
R101571	R MF H820K F 0W4 E3	3
R101572	R MF H 1M F 0W4 E3	7
R102038	R CC H 1K5 K 0W5 E6	3
R102148	R CC H 10K K 1W E8	1
R103158	R MO H 68K J 1W	1
R103224	R MO H100E J 2W E10	1
R103226	R MO H150E J 2W E10	15
R103248	R MO H 10K J 2W E10	3
R103254	R MO H 33K J 2W E10	3
R103341	R MO H 2K7 J 4W E10	1
R103600	R WW H E1 J 4W E10	4
R103606	R WW H E33K 4W E10	3
R103612	R WW H 1E K 4W E10	1
R103640	R WW H220E J 4W E10	1
R103660	R WW H 1K K 4W E10	3
R103742	R WW H 1K5 K 5W E12	5
R1041698	R WWFV 1K5 K 2W	1
R104212	R WW V 4E7 K 7W	3
R104446	R WW V 82E K17W	2
R104654	R HV H 1M J 0W5 3500	6
R104656	R HV H 1M2 J 0W5 3500	1
R104670	R HV H 4M7 J 0W5 3500	3
R104678	R HV H 10M J 0W5 3500	1
R1046781	R HV H 10M J 1W 10000	1
R104682	R HV H 15M J 0W5 3500	1
R104690	R HV H 33M J 0W5 3500	2
R105016	R NTC 2K7 0W25	2
R105020	R NTCR 4E M 5W1 E3 UL	1
R105021	R NTCR 2E M 5W1 E3 UL	2
R105211	R PTCR 5K 14MA	1
R106725	R TCE H500E K 0W5 S10TS	1
R106729	R TCE H 10K K 0W5 S10TS	1
R106732	R TCE H 50K K 0W5 S10TS	1
R106733	R TCE H100K K 0W5 S10TS	1
R106825	R TCE V500E K 0W5 S10SS	1
R106827	R TCE V 2K K 0W5 S10SS	4
R106828	R TCE V 5K K 0W5 S10SS	1
R106830	R TCE V 20K K 0W5 S10SS	1
R106832	R TCE V 50K K 0W5 S10SS	1

Art. No.	Description	Quantity
R106833	R TCE V100K K 0W5 S10SS	1
R107005	R TCE H500E K 0W5 S 7TS	7
R107009	R TCE H 10K K 0W5 S 7TS	1
R107010	R TCE H 20K K 0W5 S 7TS	1
R107012	R TCE H 50K K 0W5 S 7TS	2
R107534	R MCE H100K K 0W75 M20SS	4
R1076136	R THV V 5M M 0W5 1000	3
R1111355	C EL AX1000M M 10E10 85	1
R1111565	C EL AX 10M T 25E6 85	3
R111164	C EL AX1000M T 25E14 85	6
R111193	C EL AX1000M T 40E14 85	2
R111223	C EL AX 470M T100E10 85	4
R111230	C EL AX 22M T160E12 85	1
R1113889	C EL RA 47M M100E2 85	4
R1114169	C EL RA 10M M350E2 105	1
R111453	C EL RA1000M M 10E2 85	2
R111458	C EL RA 470M M 10E2 85	1
R111466	C EL RA 100M M 16E2 105	6
R111467	C EL RA 220M M 16E2 105	2
R111468	C EL RA 470M M 16E2 105	6
R111469	C EL RA1000M M 16E2 85	1
R1114729	C EL RA4700M M 16E3 105	1
R111476	C EL RA 47M M 25E2 85	23
R111477	C EL RA 100M M 25E2 85	26
R111478	C EL RA 220M M 25E2 105	2
R111479	C EL RA 470M M 25E2 105	11
R111486	C EL RA 47M M 50E2 85	6
R111487	C EL RA 100M M 50E2 105	1
R111488	C EL RA 220M M 50E2 85	6
R111489	C EL RA 470M M 35E2 105	2
R111510	C EL RA 22M M 25E2 85	12
R111531	C EL RA 10M M 35E2 85	59
R111532	REPLACED BY V1114855	10
R111548	C EL RA 2M2M 50E2 85	3
R111549	C EL RA 3M3M 50E2 85	1
R111550	C EL RA 4M7M 50E2 85	11
R111556	C EL RA 470M M100E3 85	3
R1115695	C EL RA 10M M250E2 85	1
R111571	C EL RA 2M2M350E2 105	2
R111576	C EL RA 390M M385E4 85	1
R111578	C EL RA 100M M400E4 105	2
R1115915	C EL5 RA 4M7M 35E2 85	9
R1115935	C EL5 RA 10M M 35E2 85	11
R111616	C EL RA2200M T 16SKT 85	4
R111626	C EL RA1000M T 40SKT 85	6
R1116491	C EL RA 47M T385SKT 85	4
R111678	C EL BRA 10M M 25E2 85	20
R111716	C CE DI 680P M202E3 HV	2
R111718	C CE DI 1N K302E3 HV	1
R1117201	C PPMERA 6N8J202E9 HV	1
R111722	C PPMERA 10N J162E9 HV	1
R1117674	C PPMERA 2N7J162E6 HV	1
R111769	C PPMERA 3N3J202E9 HV	3
R111773	C PPMERA 4N7J162E9 HV	2
R1120902	C CE DI 100P K202E3 HV	1
R112098	C CE DI 470P M250E5 Y1	2
R112222	C NP0 MI 2P2C100E2	6
R112230	C NP0 MI 10P G100E2	1
R112231	C NP0 MI 12P G100E2	1
R112232	C NP0 MI 15P G100E2	2
R112234	C NP0 MI 22P G100E2	1
R112235	C NP0 MI 27P G100E2	5
R112237	C NP0 MI 39P G100E2	1
R112238	C NP0 MI 47P G100E2	1
R112239	C NP0 MI 56P G100E2	5
R112240	C NP0 MI 68P G100E2	1
R1122415	C NP0 MI 82P G100E2	1
R112242	C NP0 MI 100P G100E2	7
R112362	C N750MI 100P G100E2	1
R112363	C N750MI 120P G100E2	2
R112364	C N750MI 150P G100E2	5
R112365	C N750MI 180P G100E2	1
R112366	C N750MI 220P G100E2	1
R112368	C N750MI 330P G100E2	6
R112681	C N750MI 15P G500E2	1
R112692	C N750MI 120P G500E2	1
R112733	C CE MI 330P K100E2	1
R112735	C CE MI 470P K100E2	11
R112737	C CE MI 680P K100E2	6
R112739	C CE MI 1N K100E2	15
R112740	C CE MI 1N2K100E2	5
R112741	C CE MI 1N5K100E2	6
R112743	C CE MI 2N2K100E2	10
R112747	C CE MI 4N7K100E2 85	12
R112760	C CE MI 3N3K100E2	2
R112762	C CE MI 4N7Z 63E2 85	1
R112763	C CE MI 10N Z 63E2 85	20
R112797	C CE DI 2N7K500E2	1
R1128111	C N750DI 68P K102E3 HV	1
R112830	C CE DI 2N7S400E3 85	1
R112833	C CE DI 4N7S400E3 85	1
R112837	C CE DI 10N S500E3 85	2
R1137121	C POMERA 10N K250E2 85	20
R1137131	C POMERA 12N K100E2 85	3
R1137141	C POMERA 15N K100E2 85	1
R1137151	C POMERA 18N K100E2 85	1
R1137161	C POMERA 22N K100E2 85	3
R1137171	C POMERA 27N K100E2 85	3
R1137181	C POMERA 33N K100E2 85	1
R113720	C POMERA 47N K 63E2 85	5
R113722	C POMERA 68N K 63E2 85	1
R113724	C POMERA 100N K 63E2 85	118
R113726	C POMERA 150N K 63E2 85	2
R113728	C POMERA 220N K 63E2 85	3
R113729	C POMERA 270N K 63E2 85	3
R113732	C POMERA 470N K 63E2 85	1
R113819	C POMERA 3N3J250E2 85	1
R113841	C POMERA 220N K 63E2 85	13
R114068	C POMERA 10N M 63E2 85	4
R114085	C POMERA 330N K 63E2 85	9
R114087	C POMERA 470N K 63E2 85	17
R114090	C POMERA 1M K 63E2 85	14
R114144	C POMERA 1M K250E9 85	1
R114154	C POMERA 22N K400E4 85	3
R114603	C POMERA 100N M102E9 HV	2
R114685	C PO RA 6N8K100E2 85	1
R1147009	C CE DI 4N7M250E5 Y1	1
R114716	C PO RA 1M K250E11 X2	1
R114799	C PPMERA 30M J220BS 85	1
R1150051	C PPMERA 2N2J162E9 HV	2
R1159081	C PP RA 470P J100E2 85	4
R1159141	C PP RA 820P J100E2 85	1
R1159161	C PP RA 1N J100E2 85	2
R115922	C PP RA 1N8J100E2 85	1
R115926	C PP RA 2N7J100E2 85	1
R115928	C PP RA 3N3J 63E2 85	2
R115932	C PP RA 4N7J 63E2 85	6
R115934	C PP RA 5N6J 63E2 85	1
R115936	C PP RA 6N8J 63E2 85	3
R115940	C PP RA 10N J 63E2 85	1
R117001	C T 7 -35P 160	2
R1312651	SURGE ARRESTER 300V RA	3
R1314071	Q BC547B N SS TO92	5
R1314072	Q BC547A N SS TO92	4
R131411	Q BC549C N SS TO92	48
R131413	Q BC557 P SS TO92	2
R1314131	Q BC557B P SS TO92	3
R1314181	Q BC559B P SS TO92	14
R1314182	Q BC559C P SS TO92	14
R1314245	Q BC338-40 N SS TO92	2
R1314295	Q BC549B N SS TO92	12
R1314311	Q BC327 P SS TO92	5
R1314446	Q BD237 N P TO126	2
R1314451	Q BD238 P P TO126	2
R1314651	Q BF245B FN SS TO92	4
R131621	D S 1N4148 075150 DO35	136
R131628	D BAW62 SW DO35	5
R1316361	D Y BAT85 030200 DO34	22
R131637	D R BA158 600400 DO7	66
R131639	D S BAX12 090400 DO35	1
R131646	D R 1N4007 10201A DO41	14
R131662	D LED D3 T RD	6
R1316666	D O TSUS5202 T IR	6
R131667	D LED D3 T GN	12
R131674	D LED D5 T RD/GN	1
R131681	D O BPW41N PIN	1
R131683	U 2601 HCPL DIP8 P	1
R131691	U 601-3 SFH DIP6 P	4
R131701	D ZEN 6V2 2W5 C SOD81	1
R131704	D STB 2V6 0W33 DO35	1
R131706	D ZEN 9V1 1W3 C DO41	2
R131714	D STB 1V4 0W33 DO35	1
R131716	D ZEN 5V1 0W5 C DO35	1
R131720	D ZEN 6V2 0W5 C DO35	5
R131721	D ZEN 13V 0W5 C DO35	2
R131728	D ZEN 11V 0W5 C DO35	2
R131729	D ZEN 4V7 0W5 C DO35	1
R131730	D ZEN 20V 0W5 C DO35	7
R131734	D ZEN 5V6 0W5 B DO35	4
R131740	D ZEN 12V 0W5 C DO35	4
R131742	D ZEN 6V8 0W5 C DO35	1
R131743	D ZEN 8V2 0W5 C DO35	7
R131745	D ZEN 18V 1W3 C DO41	1
R131754	D ZEN 3V3 0W5 C DO35	6
R131756	D ZEN 7V5 0W5 C DO35	4
R131767	D ZEN 6V8 0W5 B DO35	1
R131768	D ZEN 7V5 0W5 B DO35	2
R131771	D ZEN 150V 3W25 C SOD57	1
R131787	D ZEN 51V 0W5 C DO35	2
R131788	D ZEN 15V 0W5 C DO35	24
R131790	D ZEN 33V 1W3 C DO41	1
R131791	D ZEN 6V2 0W5 B DO35	3
R131865	D ZEN 4V7 0W5 B DO35	1
R1319025	D R BY255 1323A0 DO201	2
R131906	D R BYV96E 1021A5 SOD57	4
R131907	D R BY584 182085 SOD61A	3
R131913	D R BY329 10208A TO220C	4
R131914	D Y 04510A TO220	1
R131927	D R BY229 60007A TO220C	11
R131950	D R BYV27 1502A0 SOD57	2
R131952	D R BYW96E 10203A SOD64	1
R131954	D R BYW29E 20008A TO220C	2
R131958	D R BY329 12208A TO220C	2
R132029	D B D20B60 60020A	1
R132102	U 33B ZTK DO35	1
R1322101	Q TIC106D TH P TO66	1
R1325093	Q BU508AW N P SOT429	1
R1325145	Q BF469 N P TO126	1
R132515	Q BF470 P P TO126	12
R132516	Q BF422 N SS TO92	1
R132552	Q BF423 P SS TO92	1
R132557	Q BC635 N SS TO92	1
R132591	Q BUZ42 FN P TO220	1
R132593	Q BUZ74A FN P TO220	1
R132751	U 2030V TDA TO220T P	6
R132762	U 2595 TDA DIP18 P	1
R132765	U 1496 LM DIP14 P	2
R132773	U 4565 TDA DIP18 P	1
R132787	U 4601-5 TDA SIP9 P	3
R132788	U 1875 LM TO220 P	1
R132817	U 1881 LM DIP8 P	1
R132824	U 2800 TBA DIP14 P	1
R132827	U 8172 TDA H_W P	3
R132828	U 4650 TDA DIP28 P	1
R132833	U BELLA 4 DIP28 P	4
R132874	U 2579A TDA DIP18 P	1
R1328821	U#1 TG PLCC68 P	1
R132900	Q BUZ310 FN P TO218	3
R132904	Q 2N2905A P SS TO39	3
R132905	Q 2SA1406E P P TO126	6
R132909	Q BD652 DP P TO220	1
R132910	Q BS170 FN SS TO92	10
R1329105	Q BS170 FN SS TO92	4
R132916	Q BS250 FP SS TO92	6
R132917	Q 2SK511 FN P TO126	6
R132941	Q IRF632 FN P TO220	7
R132942	Q IRF9630 FP P TO220	7
R132944	Q BCY87 2N SS TO71	1
R132951	Q IXTH11N100 FN P TO247	12
R132968	Q BC640 P SS TO92	1
R132972	Q BF421 P SS TO92	2
R132973	Q BF420 N SS TO92	2
R132974	Q APT5025BN FN P TO247	1
R133206	D LED D5 S GN HLDR	1
R134001	U 7805 TO220 P	7
R134002	U 7812 TO220 P	8
R134010	U 7815 TO220 P	2
R134011	U 7905C TO220 P	3
R134016	U 7912 TO220 P	8
R134026	U 317T LM TO220 P	1
R134027	U 337T TO220 P	1
R134028	U 317LZ LM TO92 P	3
R134029	U 337LZ TO92 P	3
R134030	U 2940CT05LM TO220 P	2
R134031	U 431C TL TO92 P	4
R134032	U 78L05AC TO92 P	3
R134033	U 78L12AC TO92 P	1
R134035	U 79L05A TO92 P	1
R134113	U 084 TL DIP14 P	5
R134114	U 393 LM DIP8 P	8
R134116	U 353 LF DIP8 P	1
R134124	U 082 TL DIP8 P	4
R134125	U 34084 DIP14 P	1
R134146	U 34082 MC DIP8 P	5
R134222	U 1495 MC DIP14 P	1
R134224	U 582 TLP 1119A1 P	2
R134303	U 392-040 STK PACK	2
R137098	U 74HCT4538 DIP16 P	1
R1373325	U 4098B DIP16 P	4
R137391	U 4053B DIP16 P	1
R137392	U 4070B DIP14 P	1
R1373945	U 4093B DIP14 P	1
R137397	U 4013B DIP14 P	1
R137552	U 74HCT123 DIP16 P	1
R137602	U 4046B DIP16 I	1
R137625	U 34063 DIP8 P	2

Art. No.	Description	Quantity
R302102	CORE TUBE 4,95/1,3 X40,5	1
R302108	CORE TUBE 3,5 /1,3 X 3	6
R305909	CH TOR V 1200 UH 2A	1
R305913	CH MNS AX NS 12 UH 3A	15
R305916	CH MNS 17 MH 2X-10A	1
R3061222	CH AX NS 1.5 UH	6
R3061322	CH AX NS 10 UH	4
R3061341	CH AX NS 100 UH	8
R3061582	CH AX NS 1.5 MH	2
R306222	CH TOR V 80 UH 2A	1
R306718	T 300MA SMP STAND-BY	1
R306816	X 8M867238 20 HC49	1
R306819	RSN CE 0M429 P 2	2
R306849	X 7M159090 20 HC49	1
R307122	XO 32M000000 CN-10DIP 8M	1
R311046	J CRT FBT T180 SKT	1
R312934	J TAB1 MBT H6,3S0,8 BZ	6
R313196	BAT ACC SNAP-ON CLP 6LR61	2
R313286	J MO1 C MBT P 3 R1SN 7,5	3
R3132862	J MD1 C MBT P 2 E1SN 6,7	21
R3133921	J MD SHUNT F P2 E1SN I RD	1
R3134685	J MTA MBT P12 M3,96 FL RO	15
R3135005	J DE P8 MBS P 9 FUMBLPGDB	2
R3135015	J DE P8 FBS P 9 FUMBLPGDB	2
R313525	J EUR2C MBS P64 E1C2S 1,6	15
R313526	J EUR2C FBT P64 E1C2S 1,6	19
R313529	J EUR2R MBT P64 E1C2S 2,5	3
R313530	J*EUR2R FBS P64 E1C3S 1,6	3
R313531	J EUR2C MBS P64 E1C3S 1,6	4
R313572	J MT MBT P 3 R1 FL BK	6
R313584	J MT I MBT P 2 R1 BK	2
R313607	J MTA MBT P 3 M3,96 FL RO	7
R3136078	J MTA MBT P 8 M3,96 FL RO	7
R313726	J MTA MBT P 8 M3,96SN RO	1
R313729	J TESTEYE D2,1 H3,1 SN BK	20
R313851	J CIRC A FBS P 4 MDIN MS	2
R3138850	J MD1 C MBT P 2 E1SN	3
R313922	J CT H MBT P 2 M2SN WH	16
R313923	J CT H MBT P 3 M2SN WH	7
R313924	J CT H MBT P 4 M2SN WH	7
R313925	J CT H MBT P 5 M2SN WH	12
R313926	J CT H MBT P 6 M2SN WH	24
R313927	J CT H MBT P 7 M2SN WH	6
R313928	J CT H MBT P 8 M2SN WH	20
R313929	J CT H MBT P 9 M2SN WH	9
R313930	J CT H MBT P10 M2SN WH	1
R313932	J CT H MBT P12 M2SN WH	3
R313942	J CT H MBS P 2 M2SN WH	1
R313943	J CT H MBS P 3 M2SN WH	2
R313944	J CT H MBS P 4 M2SN WH	3
R313946	J CT H MBS P 6 M2SN WH	1
R313947	J CT H MBS P 7 M2SN WH	1
R313949	J CT H MBS P 9 M2SN WH	3
R313950	J CT H MBS P10 M2SN WH	1
R313952	J CT H MBS P12 M2SN WH	1
R314007	J CT C FWT P 7 M2SN	1
R314068	J EUR3C MBS P96 E1C2S 1,6	1
R314069	J EUR3C FBT P96 E1C2S 2,5	1
R314071	J EUR2C2MBS P32 E1C2S 1,6	1
R314079	J SP MBT P 9 R1	15
R314116	F 5X20 T 2A H UL	1
R314142	F 5X20 T 0A125L UL	1
R314143	F 5X20 F 2A H UL	1
R314145	F 5X20 T 6A3 H UL	2
R314147	F 5X20 F 3A15 H UL	1
R314183	F TR5 T 5A L UL	3
R314186	F TR5 T 2A L UL	2
R314188	F TR5 T 4A L UL	6
R314516	F A H+C 6A 5X20 BV B	3
R314519	F A HLD 10A 5X20 BOD	3
R315302	J PIN PR D1,3L 5,5+3	6
R315310	J TAB1 MBT H2,8S0,5 F1	6
R324182	SW DIP SLD 1A P 1 BT SN	3
R324184	SW DIP SLD 1A P 8 BT SN	2
R324251	SW SLD JSA 1C BS H 6	1
R324252	SW SLD JSA 2C BS H 6	1
R3247155	SW MNS NE18 2C	2
R324791	SW F 8C	1
R324792	SW MNS JPZ 2A TV5 BS	1
R324793	SW MNS NE18 2C/2C	1
R32831309	US G1208 RWI 509	1
R32833001	US G808 GB ADEC 301	1
R328331	US G808 INT 100	1
R32850701	US ***** RCU 101	2
R32858600	US G808S DEC 200	1
R3421902	CD SO 1015AWG18BK 90	1
R3421903	CD PIN 1015AWG18BK 90	1
R34302418	CBLU COA RG179 BU 75E 180	1
R34302427	CBLU COA RG179 BU 75E 270	1
R34302439	CBLU COA RG179 BU 75E 390	1
R34303680	CBLU COA RG178 BU 50E 800	1
R34699302	SLVU SHR D 9,6/4,8 BK 20	1
R348101	WU JUMP 0,6 5	1
R348102	WU JUMP 0,6 7,5	7
R3481031	WU JUMP 0,51 10 ISO RD	1
R348105	WU JUMP 0,6 15	2
R34840710	CD CT FTFT P 7 120	1
R34840931	CD CT $FTMT P 9 340	3
R3484096	CD CT FTMT P 9 140	1
R3484124	CD CT FTMT P12 140	1
R3485054	CD CT FTMT P 5 520	1
R3485063	CD CT FTMT P 6 420	1
R3485079	CD CT FTMT P 7 380	1
R367699	RVT AVTRON2,5L 8,1 AL	1
R774151	COIL AMP PJ45 HOR DATA	3
R774153	COIL LIN PJ45 HOR DHR	1
R774154	CH D**HR HOR	3
R774306	T G800 LIN CTRL	1
R774310	T D800 HOR DEF	1
R774312	COIL SHIFT PJ49 G800	3
R774323	T G1200 SMP VAR	1
R774341	T G801 SMP FIX	1
R774350	T G801 HOR DVR	1
R774356	T G808 SMP VAR	1
R775164	CH AX NS 0,5 51	9
V1011984	R MF H E22J 0W6 E4	2
V102024	R CC H100E K 0W5 E6	1
V102304	R MF H 2E2 J 3W E10	3
V102308	R MF H 4E7 J 3W E10	15
V1026000	R MF H 10M F 0W6 E4	1
V1026004	R MF H 10E F 0W6 E4	11
V1026005	R MF H100E F 0W6 E4	24
V1026006	R MF H 1K F 0W6 E4	19
V1026007	R MF H 10K F 0W6 E4	44
V1026008	R MF H100K F 0W6 E4	11
V1026009	R MF H 1M F 0W6 E4	2
V1026085	R MF H121E F 0W6 E4	8
V1026086	R MF H 1K21F 0W6 E4	4
V1026087	R MF H 12K1 F 0W6 E4	6
V1026089	R MF H 1M21F 0W6 E4	1
V1026117	R MF H 13K F 0W6 E4	1
V1026174	R MF H 15E F 0W6 E4	1
V1026175	R MF H150E F 0W6 E4	3
V1026176	R MF H 1K5 F 0W6 E4	8
V1026177	R MF H 15K F 0W6 E4	10
V1026178	R MF H150K F 0W6 E4	3
V1026179	R MF H 1M5 F 0W6 E4	2
V1026255	R MF H182E F 0W6 E4	3
V1026256	R MF H 1K82F 0W6 E4	3
V1026257	R MF H 18K2 F 0W6 E4	1
V1026333	R MF H 2E21F 0W6 E4	1
V1026334	R MF H 22E1 F 0W6 E4	3
V1026335	R MF H221E F 0W6 E4	5
V1026336	R MF H 2K21F 0W6 E4	6
V1026337	R MF H 22K1 F 0W6 E4	11
V1026338	R MF H221K F 0W6 E4	5
V1026424	R MF H 27E4 F 0W6 E4	2
V1026425	R MF H274E F 0W6 E4	9
V1026426	R MF H 2K74F 0W6 E4	8
V1026427	R MF H 27K4 F 0W6 E4	4
V1026428	R MF H274K F 0W6 E4	4
V1026437	R MF H 28K F 0W6 E4	1
V1026505	R MF H332E F 0W6 E4	4
V1026506	R MF H 3K32F 0W6 E4	12
V1026507	R MF H 33K2 F 0W6 E4	12
V1026508	R MF H332K F 0W6 E4	1
V1026574	R MF H 39E2 F 0W6 E4	3
V1026575	R MF H392E F 0W6 E4	2
V1026576	R MF H 3K92F 0W6 E4	5
V1026578	R MF H392K F 0W6 E4	4
V1026587	R MF H 39K F 0W6 E4	11
V1026654	R MF H 47E5 F 0W6 E4	3
V1026655	R MF H475E F 0W6 E4	9
V1026656	R MF H 4K75F 0W6 E4	21
V1026657	R MF H 47K5 F 0W6 E4	6
V1026658	R MF H475K F 0W6 E4	6
V1026684	R MF H 51E1 F 0W6 E4	1
V1026686	R MF H 5K11F 0W6 E4	1
V1026724	R MF H 56E2 F 0W6 E4	4
V1026725	R MF H562E F 0W6 E4	2
V1026726	R MF H 5K62F 0W6 E4	5
V1026727	R MF H 56K2 F 0W6 E4	2
V1026728	R MF H562K F 0W6 E4	1
V1026805	R MF H681E F 0W6 E4	2
V1026806	R MF H 6K81F 0W6 E4	2
V1026807	R MF H 68K1 F 0W6 E4	4
V1026844	R MF H 75E F 0W6 E4	11
V1026884	R MF H 82E5 F 0W6 E4	4
V1026885	R MF H825E F 0W6 E4	5
V1026886	R MF H 8K25F 0W6 E4	8
V1026887	R MF H 82K5 F 0W6 E4	1
V1026926	R MF H 9K09F 0W6 E4	2
V102913	R MF H 12E J 2W E7	1
V102946	R MF H 6K8 J 2W E7	1
V102971	R MF H820K J 2W E7	1
V103420	R MO H 47E J 6W	1
V1034342	R MO H820E J10W E14	2
V1034362	R MO H 1K J10W E14	2
V1114718	C EL RA1000M M 25E2 LE	1
V1114874	C EL RA 100M M 50M3 105	3
V1115109	C EL RA 22M M 25E2 105	5
V1115119	C EL RA 47M M 25E2 105	4
V1115319	C EL RA 10M M 50E2 105	3
V1115469	C EL RA 1M M 50E2 105	14
V1115489	C EL RA 2M2M 50E2 105	3
V1115657	C EL RA 1M M200E1 105	1
V111598	C EL RA1000M M200E4 85	4
V111679	C EL BRA 10M M 25E2 105	2
V1127830	C X7R MU 100N K 50E2 125	11
V1140424	C POMERA 100N K400E6 85	1
V1140426	C POMERA 100N K250E2 85	28
V114098	C POMERA 2M2M 50E2 85	3
V1151632	C PP RA 2N2H100E2 85	1
V131711	D ZEN 56V 1W3 C DO41	1
V1317441	D ZEN 5V6 0W5 A DO35	1
V132504	Q 2N2369A N SS TO18	9
V132527	Q 2SC3600E N P TO126	6
V132575	Q BC517 DN SS TO92	1
V1325851	Q BUT11AF N P SOT186	2
V132599	Q BU2525A N P SOT93	2
V306541	DL 180NS 1K	2
V3135931	J EUR2R2FBS P32 E1C2S 1,6	1
V3136081	J MTA MBT P11 M3,96 FL RO	2
V3136372	J MD1 C FBT P 2 E1SN 8,5	3
Z34227200	WU UL1015 AWG20 ST RD 305	1
Z34227635	WU UL1015 AWG20 ST BL 350	1
Z34501104	WU CUSN 0,60 MM 40	4
Z3481006	WU JUMP 0,51 5 ISO	1
Z3484066	CD CT $FTMT P 6 400	1
Z3484085	CD CT FTMT P 8 520	1
Z3484120	CD CT FTFT P12 120	1
Z3495082	CD CT FTFT P 8 150	2

BARCO PROJECTION SYSTEMS



BARCO REALITY 812 HS

R9002180 (230V AC) - R9002189 (120V AC)

SERVICE SHEETS

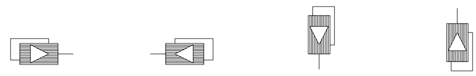
Linking signals on a sheet.

These symbols indicate a signal (name) which is generated in another place on the same sheet.

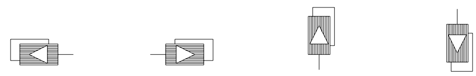
These symbols indicate a signal (name) which is generated in this location and used further on the same sheet.

These symbols indicate a signal (name) which is bidirectional and used in the same sheet only.

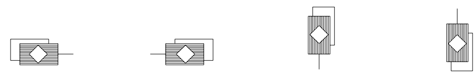
Linking signals across sheets.



These symbols indicate a signal (name) which is generated on another sheet.



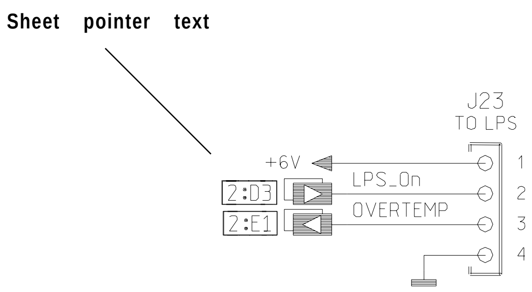
These symbols indicate a signal (name) which is generated in this location and always used further on other sheets , and possibly on the same.



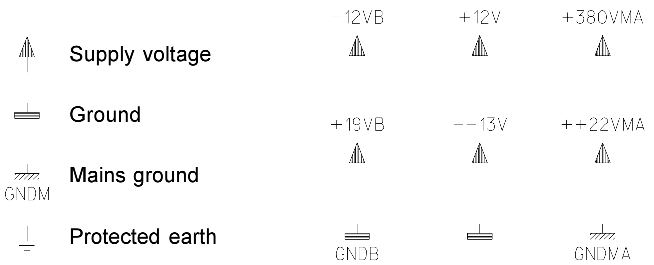
These symbols indicate a signal (name) which is bidirectional and used on other sheets.

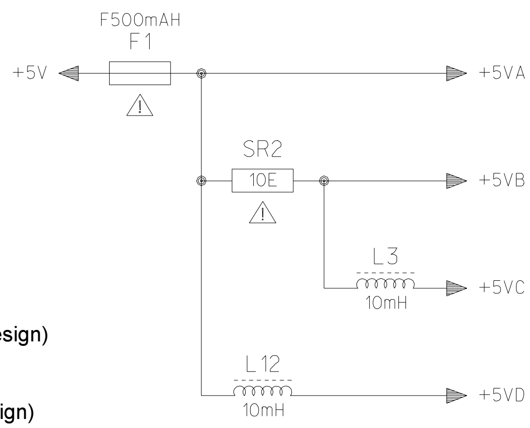
Explanation about sheet pointer text.

The sheet pointer text gives us the sheet number and the coordinates from, or to where a signal flows. It contains two parts seperated by " : ". The first part is a digit which represent the sheet number. The second part contains a character followed by a digit, those are respectivily the horizontal and the vertical coordinates.



Nomenclature about voltage supplies





PREFIX

+	Positive supply voltage
-	Negative supply voltage
++	Positive standby voltage
--	Negative standby voltage

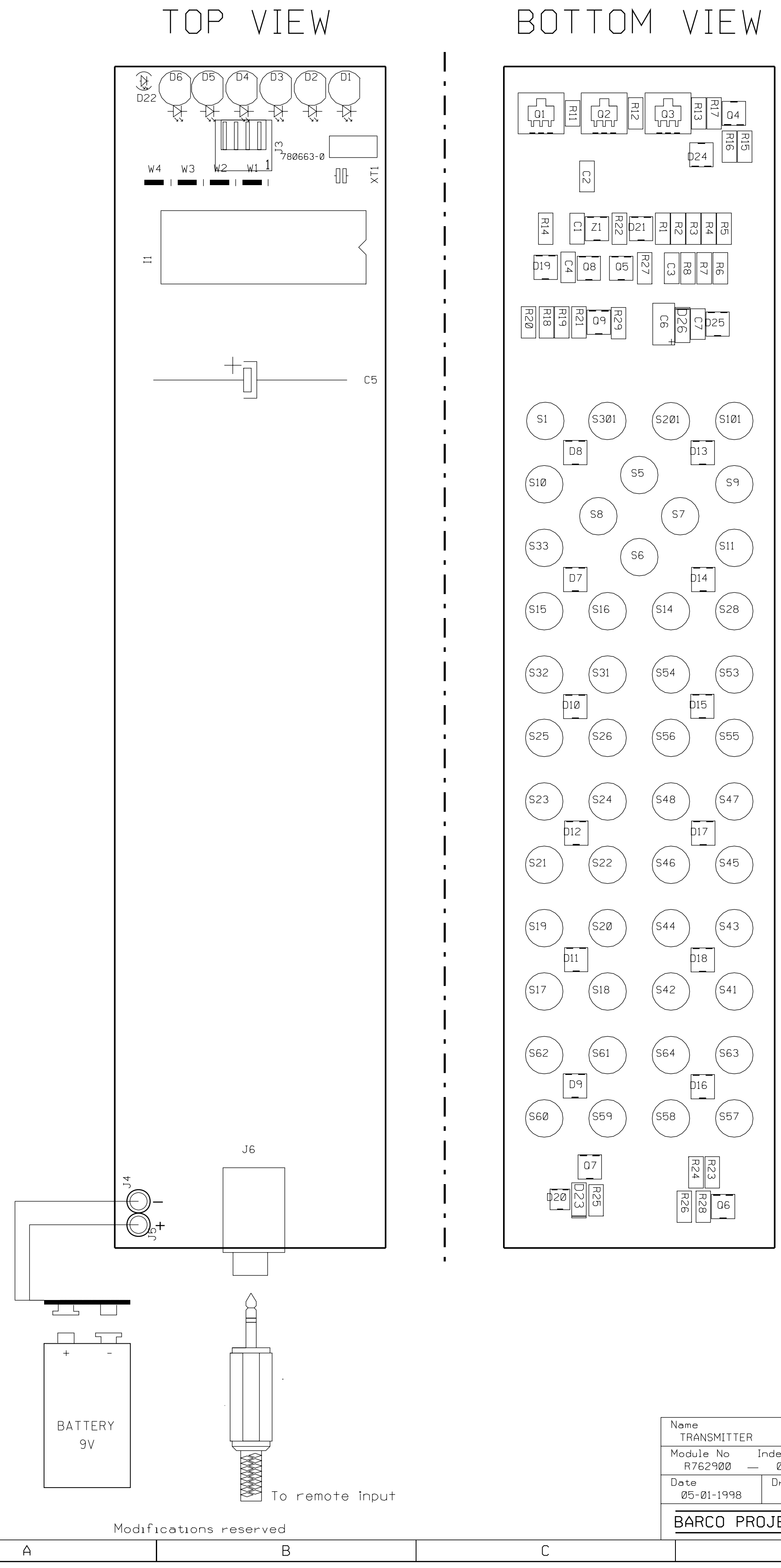
SUFFIX

A	Part "A" or Analog (depends on design)
B	Part "B"
C	Part "C"
D	Part "D" or Digital (depends on design)
M	Mains
V	Volt

Infra Red Remote Control Unit
R791664

RCU with Control button

R791664 Rev.: 04

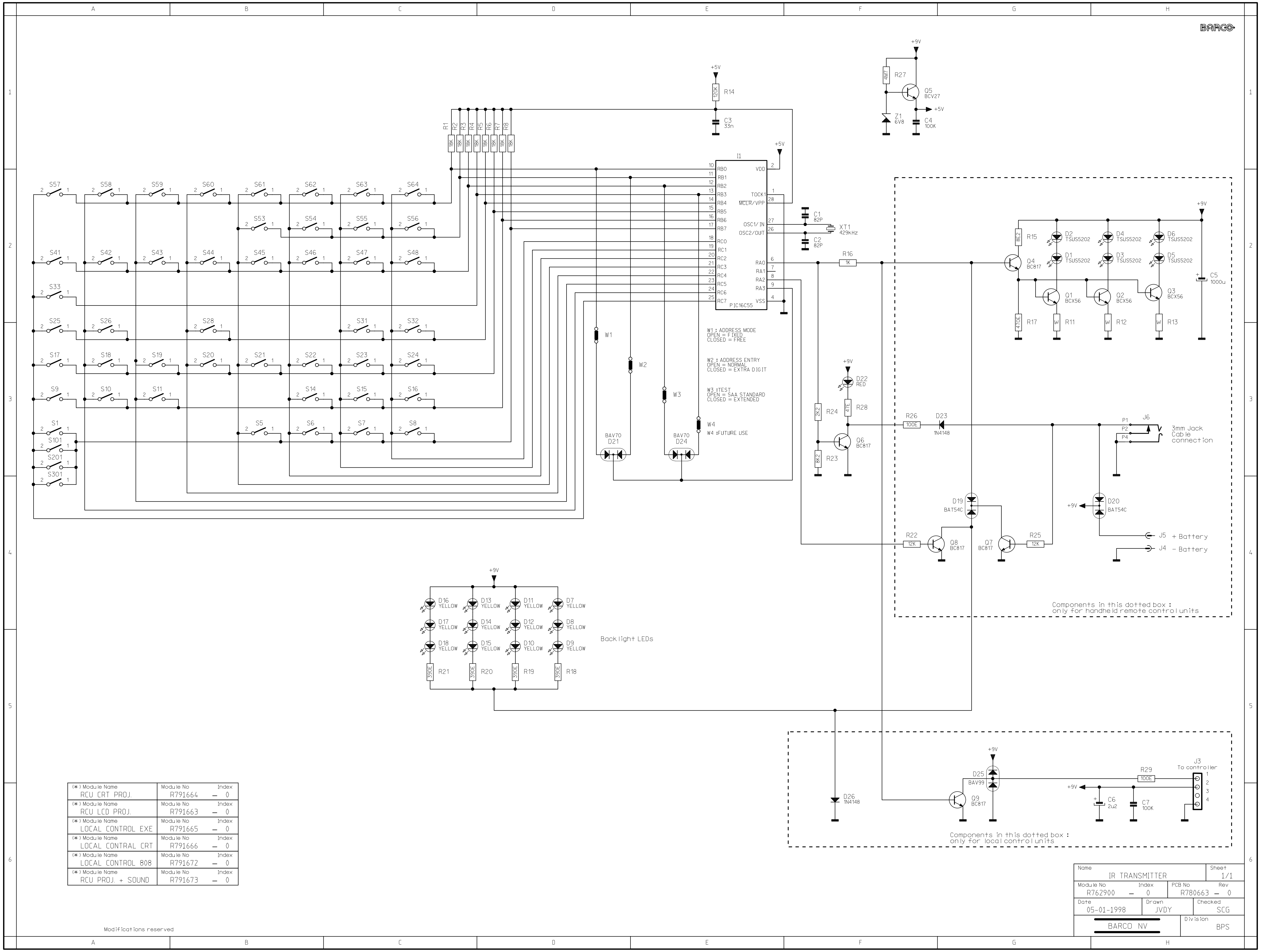


BARCO

Modifications reserved

Name				Sheet
TRANSMITTER				1 / 1
Module No	Index	PCB No		Rev
R762900	— 0	R78663		— 0
Date	Drawn		Checked	
05-01-1998	JVDY		SCG	

BARCO PROJECTION SYSTEMS

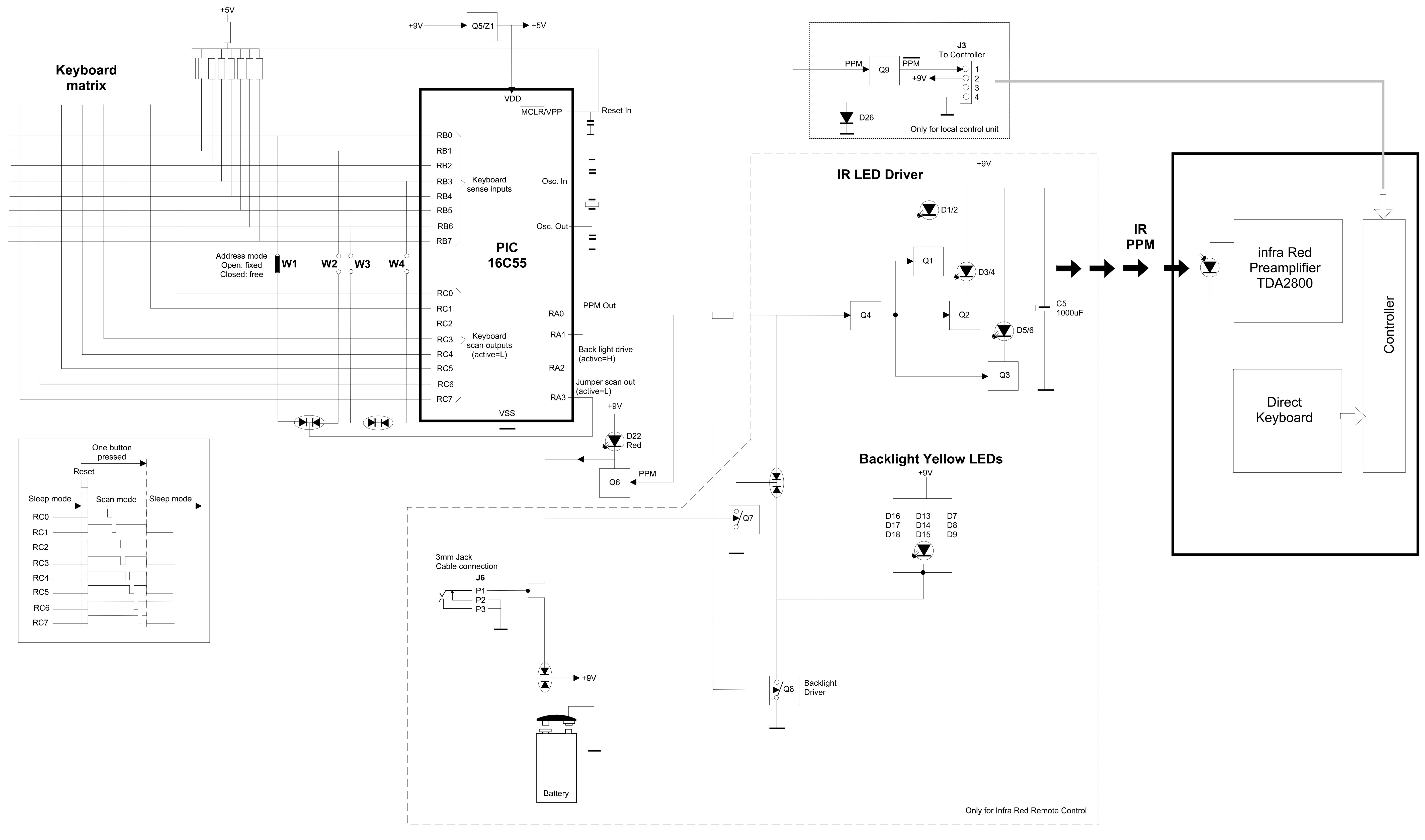


COMP.	LOC.
C1	F2
C2	F2
C3	E1
C4	F1
C5	H2
C6	H6
C7	H6
D1	G2
D2	G2
D3	H2
D4	H2
D5	H2
D6	H2
D7	D4
D8	D4
D9	D5
D10	D5
D11	D4
D12	D4
D13	D4
D14	D4
D15	D5
D16	C4
D17	C4
D18	C5
D19	G4
D20	H4
D21	D3
D22	F3
D23	G3
D24	E3
D25	G5
D26	F6
I1	E1
J3	H5
J4	H4
J5	H4
J6	H3
Q1	G2
Q2	H2
Q3	H2
Q4	G2
Q5	F1
Q6	F3
Q7	G4
Q8	G4
Q9	G6
R1	C1
R2	C1
R3	C1
R4	C1
R5	D1
R6	D1
R7	D1
R8	D1
R11	G3
R12	H3
R13	H3
R14	E1
R15	G2
R16	F2
R17	G3
R18	D5
R19	D5
R20	D5
R21	C5
R22	F4
R23	F3
R24	F3
R25	G4
R26	F3
R27	F1
R28	F3
R29	H5
S1	A3
S5	B3
S6	B3
S7	C3
S8	C3
S9	A3
S10	A3
S11	A3
S14	B3
S15	C3
S16	C3
S17	A3
S18	A3
S19	A3
S20	B3
S21	B3
S22	B3
S23	C3
S24	C3
S25	A2
S26	A2
S28	B2
S31	C2
S32	C2
S33	A2
S41	A2
S42	A2
S43	A2
S44	B2
S45	B2
S46	B2
S47	C2
S48	C2
S53	B2
S54	B2
S55	C2
S56	C2
S57	A2
S58	A2
S59	A2
S60	B2
S61	B2
S62	B2
S63	C2
S64	C2
S101	A3
S201	A3
S301	A3
W1	D3
W2	E3
W3	E3
W4	E3
XT1	F2
Z1	F1

(✱) Module Name	Module No	Index
RCU CRT PROJ.	R791664	— 0
RCU LCD PROJ.	R791663	— 0
LOCAL CONTROL EXE	R791665	— 0
LOCAL CONTRAL CRT	R791666	— 0
LOCAL CONTROL 808	R791672	— 0
RCU PROJ. + SOUND	R791673	— 0

Name			Sheet
IR TRANSMITTER			1/1
Module No: R762900	Index: — 0	PCB No: R780663	Rev: — 0
Date: 05-01-1998	Drawn: JVDY	Checked: SCG	
BARCO NV		Division: BPS	

Blockdiagram RCU R791664



R762900_r00

Technical description of the Infra Red transmitter

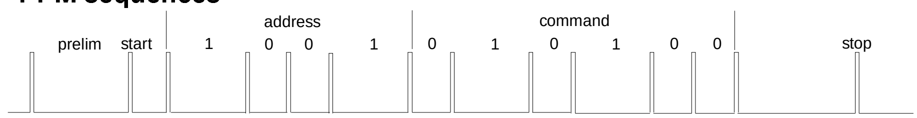
Introduction:

The SAA1250 in the RCU R791664 is replaced by the PIC16C55, an EPROM-Based 8-Bit CMOS Microcontroller with hardware selectable enhancements.

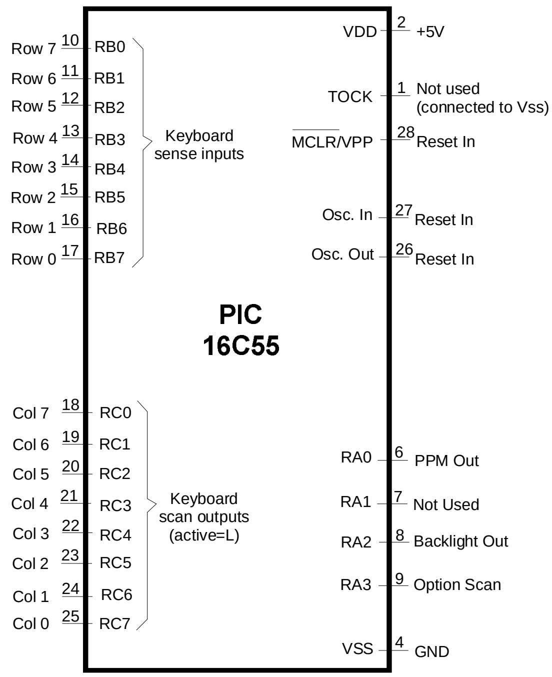
PIC16C55

Pin functions:

PPM sequences



Puls Width=10us
'0'=100us
'1'=200us
After prelim/before stop=300us



Pin functions:

VDD: Power Supply
Vss: Ground connection
Oscillator: Use of a 429kHz Ceramic resonator with 2 load capacitors of 82pF.
MCLR Reset Input : to be activated in 2 cases:
- *Power On*: all memory locations are initialised.
- *Awake from sleep*: option jumpers are scanned and memorised, keyboard matrix is scanned, key entries are processed, and the device goes back to sleep.

RA0: IR-Pulse driver Output: active=H
RA2: Backlight driver Output: active=high
Turns on for 13s when key on row0/column0 is hit. This period is retriggered when any key is hit. During this period, the PIC doesn't enter to sleep.
RA3: 'Option jumpers' scan Output: active=high
RB0..RB7: Keyboard Sense Inputs
RC0..RC7: Keyboard Scan Outputs active=low

Operating

During the idle time of the RCU, the IC PIC is in the sleep mode and all scan outputs are low.
Any key action will discharge the RESET timing capacitor C3 through the involved sense input pull up resistor (R1..R8). When the C3 voltage drops to $0.15V_{DD}$, the PIC resets and puts the scan outputs in the Hi_Z state. The capacitor C3 recharges through the resistor R14 and when the $0.15V_{DD}$ is reached, the PIC starts running.
Since this is a reset from sleep, a 'warm reset' procedure is started, which reads 'in' the option jumpers: the scan pin is put to low momentarily, during which time the 8 sense inputs are read and stored in the memory. After that, key debounce is done by a 20ms delay loop.
Next, the keyboard matrix is scanned: one after another the columns are forced to low through the scan pins RC0..RC7, and each time, the bit pattern of the column is read through the sense inputs RB0..RB7.

The whole matrix is always scanned to detect simultaneously pressed keys, in which case the scan results are ignored. The scan pulses only last 20 oscillator periods, short enough to have no influence on the reset pin voltage.

Depending on which key was pressed, the following actions can be taken:

1. Backlight key:
   Backlight is lit, the 13 seconds countdown starts, the sleep mode is not entered during this time. The countdown retriggers at any key actuation while the backlight is on.

2. Address key:
   The 'ADDR' command is transmitted along with the 'always listen' address value (address '10'). A 5 seconds countdown starts, during which 1 or 2 numeric key entries are expected. Each numeric key entry is followed by a 260 ms holdoff and restarts the countdown, but now for 2 seconds. If the initial time window elapses without a numeric key entry, or if an invalid address (e.g. >16) is entered, the RCU address is reset to the 'always listen' value.

3. Other keys:
   The corresponding command is transmitted along with the address last entered. The command bits are related to the matrix co-ordinates as follows:
   *command=row *8 +column*
   e.g. button S41 pressed
   command= (row)2 x 8+ (column)7 = 23

After transmitting, the keyboard is scanned once more to detect if a key is still pressed. This keeps the repetition rate controllable at exactly 130ms, because the reset timing is offside now.

Power Supply

The IC1 needs to run from the +5V typically, which should be made from the 9V-battery voltage. The circuit around the transistor Q5 and the zener Z1 is very common, but its transistor has an extremely high current gain, because zener bias should be very low to prevent excessive quiescent current, and so extend battery life.

IR LED Driving

The transistors Q1, Q2 and Q3 drive the IR LED's in a constant current figuration. The current is determined from the battery voltage by the emitter resistor.
An emitter follower Q4, which follows the pulse output RA0 of IC1, provides the drive current for the base of the three IR LED's drivers.
The base signal of the transistor Q4 is short-circuited to ground by the saturated transistor Q7 through the diode D19 when the Jack Cable is inserted between the RCU and a powered-up Projector. The transistor Q7 is driven through R25 from the projector's +9V.
The capacitor C5 acts as a buffer for delivering the high current pulses. The battery can not supply high currents, due to its internal resistance.

Backlight LED driving

The transistor Q8 drives the 12 LED's via their load resistors R18..R21. The On/Off status is imposed by IC1, output RA2, which handles the switch-on criteria. When the Jack cable connection is installed, the transistor Q8 is shunted by the saturated transistor Q7 (see above) through D19, causing the backlight to be lit continuously.

Indicator LED driving

The transistor Q6 drives the LED D22 via the resistor R28. The latter needs to have a rather small value because the driving pulses are very short.

3.5mm Jack Cable Connection

The 'hot' conductor of the Jack cable, is also driven by the transistor Q6. This line is supplied on the RS232 Communication Interface by the +9VSB. The resistor R26 determines the amplitude of the current pulses, detected on the series resistor of the pulse detection circuit built around the transistor Q52 on the RS232 Com. Interface. The series diode D23 ensure that the transistor Q7 is only driven if the jack connection is installed, and not via R28/D22.

Field Service

The IC1 RESET (pin28): needed to wake up the microcontroller. A downward pulse should be visible at pin 28 each time a key is pressed (except while an address entry is expected, or when the backlight is still lit).

Oscillator (pin 26,27) : as soon as IC1 wakes up, its oscillator should start .

PPM Ouput (pin 6): after a debounce time of about 20ms, a train of 13 pulses of 10us should be present at pin 6, repeating itself every 130ms. (Except while the IC waits for an address entry, or after pressing the backlight key).

Only for the Infra Red Remote control

Enhancements:

Jumper W1 'Address Mode' Installed?

- Yes: command send with free address
- No: command send with fixed address

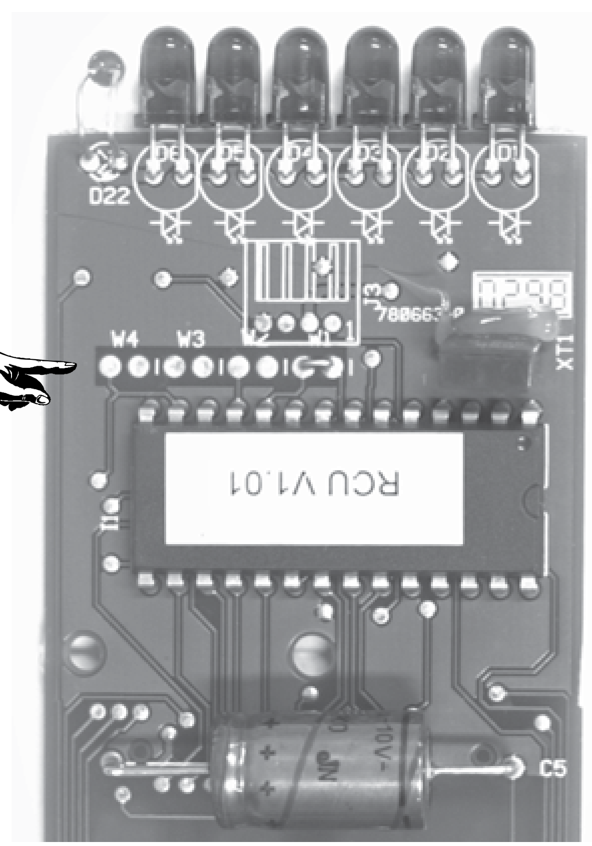
Jumper W2 'Address Entry' Installed?

- Yes: entering address with 2 digits (0..16)
- No: entering address with 1 digits (0..9)

Jumper W3 'Extend' Installed?

- Yes: PPM protocol extended (7 addr bits +7 data bits)
- No: Standard PPM protocol (4 addr bits +6 data bits)

Jumper W4 : further expansion



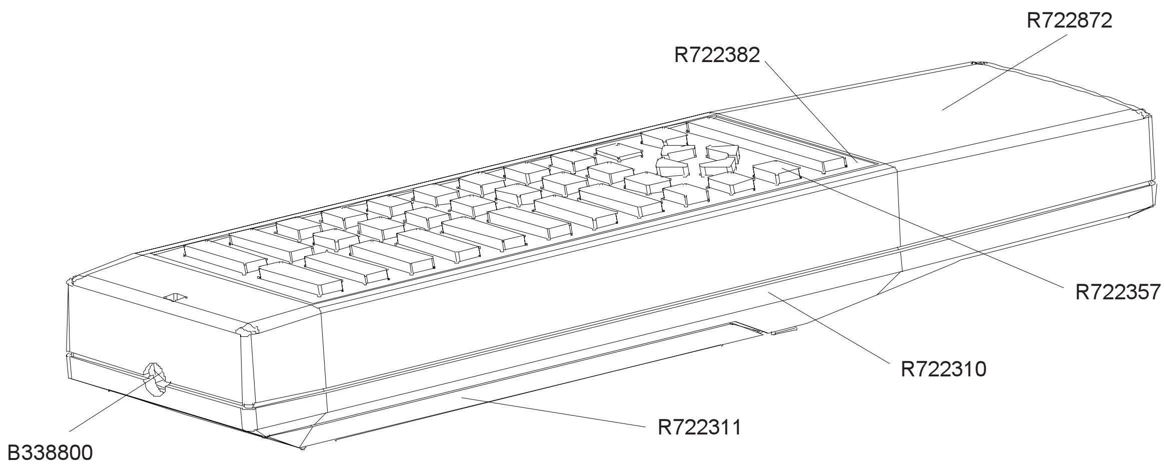
Parts listing Transmitter RCU R791664

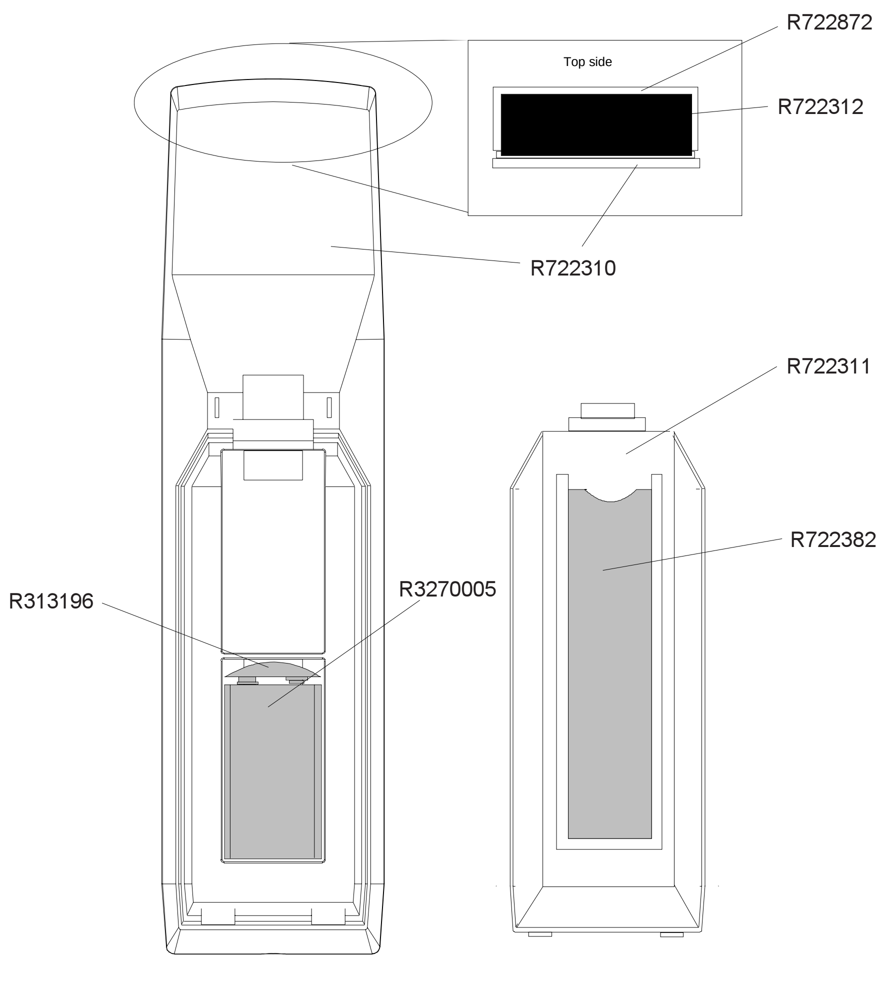
SIT.	ITEM NO.	DESCRIPTION	QUANTITY
	R3615075	SCR HILO_R 3,2X 7,9STZB	1
	R593540	BAG PE 85X 270X0,07	1
	R5975045	LFLT RCU700 TX	1
	R722310	HSG G800 RCU2 CVR DN	1
	R722311	HSG G800 RCU2 CVR BAT	1
	R722312	HSG G800 RCU2 WDW IR	1
	R722382	HSG *800 RCU2 LFLT WDW	1
	R722872	HSG G808 RCU2 CVR UP RND	1
	R722873	SW D5000 KYBD TX ROUND	1
	R722877	FRM V701S RCU2 FOIL3	1
C 1	P210073	C# COG MU 82P J 50 1206	1
C 2	P210073	C# COG MU 82P J 50 1206	1
C 3	P210097	C# X7R MU 33N K 50 1206	1
C 4	P210122	C# X7R MU 100N K 50 1206	1
C 5	R1111355	C EL AX1000M M 10E10 85	1
D 1	R1316666	D O TSUS5202 T IR	1
D 2	R1316666	D O TSUS5202 T IR	1
D 3	R1316666	D O TSUS5202 T IR	1
D 4	R1316666	D O TSUS5202 T IR	1
D 5	R1316666	D O TSUS5202 T IR	1
D 6	R1316666	D O TSUS5202 T IR	1
D 7	P234062	D#LED LYS260 YEL SOT23	1
D 8	P234062	D#LED LYS260 YEL SOT23	1
D 9	P234062	D#LED LYS260 YEL SOT23	1
D 10	P234062	D#LED LYS260 YEL SOT23	1
D 11	P234062	D#LED LYS260 YEL SOT23	1
D 12	P234062	D#LED LYS260 YEL SOT23	1
D 13	P234062	D#LED LYS260 YEL SOT23	1
D 14	P234062	D#LED LYS260 YEL SOT23	1
D 15	P234062	D#LED LYS260 YEL SOT23	1
D 16	P234062	D#LED LYS260 YEL SOT23	1
D 17	P234062	D#LED LYS260 YEL SOT23	1
D 18	P234062	D#LED LYS260 YEL SOT23	1
D 19	P234205	D#BAT54C SCH SOT23	1
D 20	P234205	D#BAT54C SCH SOT23	1
D 21	P234004	D#BAV70 C-C SOT23	1
D 22	R131662	D LED D3 T RD	1
D 23	P234099	D#4148 R DMMELF	1
D 24	P234004	D#BAV70 C-C SOT23	1
I 1	R32850701	U_S ***** RCU V101	1

SIT.	ITEM NO.	DESCRIPTION	QUANTITY
J 4	R313196	BAT ACC SNAP-ON CLP 6LR61	0,5
J 5	R313196	BAT ACC SNAP-ON CLP 6LR61	0,5
J 6	B338800	J PHN FBS D 3.5MON P	1
PC	R780663	PCB **** RCU	1
Q 1	P232122	Q#BCX56 N P SOT89	1
Q 2	P232122	Q#BCX56 N P SOT89	1
Q 3	P232122	Q#BCX56 N P SOT89	1
Q 4	P232026	Q#BC817-40 N SS SOT23	1
Q 5	P232054	Q#BCV27 DN SS SOT23	1
Q 6	P232026	Q#BC817-40 N SS SOT23	1
Q 7	P232026	Q#BC817-40 N SS SOT23	1
Q 8	P232026	Q#BC817-40 N SS SOT23	1
R 1	P200441	R# CE H 18K F 0W25 1206	1
R 2	P200441	R# CE H 18K F 0W25 1206	1
R 3	P200441	R# CE H 18K F 0W25 1206	1
R 4	P200441	R# CE H 18K F 0W25 1206	1
R 5	P200441	R# CE H 18K F 0W25 1206	1
R 6	P200441	R# CE H 18K F 0W25 1206	1
R 7	P200441	R# CE H 18K F 0W25 1206	1
R 8	P200441	R# CE H 18K F 0W25 1206	1
R 11	P200339	R# CE H 1E F 0W25 1206	1
R 12	P200339	R# CE H 1E F 0W25 1206	1
R 13	P200339	R# CE H 1E F 0W25 1206	1
R 14	P200461	R# CE H120K F 0W25 1206	1
R 15	P200361	R# CE H 8E2 F 0W25 1206	1
R 16	P200411	R# CE H 1K F 0W25 1206	1
R 17	P200403	R# CE H470E F 0W25 1206	1
R 18	P200401	R# CE H390E F 0W25 1206	1
R 19	P200401	R# CE H390E F 0W25 1206	1
R 20	P200401	R# CE H390E F 0W25 1206	1
R 21	P200401	R# CE H390E F 0W25 1206	1
R 22	P200437	R# CE H 12K F 0W25 1206	1
R 23	P200433	R# CE H 8K2 F 0W25 1206	1
R 24	P200419	R# CE H 2K2 F 0W25 1206	1
R 25	P200437	R# CE H 12K F 0W25 1206	1
R 26	P200387	R# CE H100E F 0W25 1206	1
R 27	P200499	R# CE H 4M7 F 0W25 1206	1
R 28	P200379	R# CE H 47E F 0W25 1206	1
XT 1	R306819	RSN CE 0M429 P 2	1
Z 1	P234094	D#ZEN 6V8 0W3 C SOT23	1
W1	A557159	WU JUMP 0,6 2,5	1

Note: Pxxxxxx = in SMD mounted components

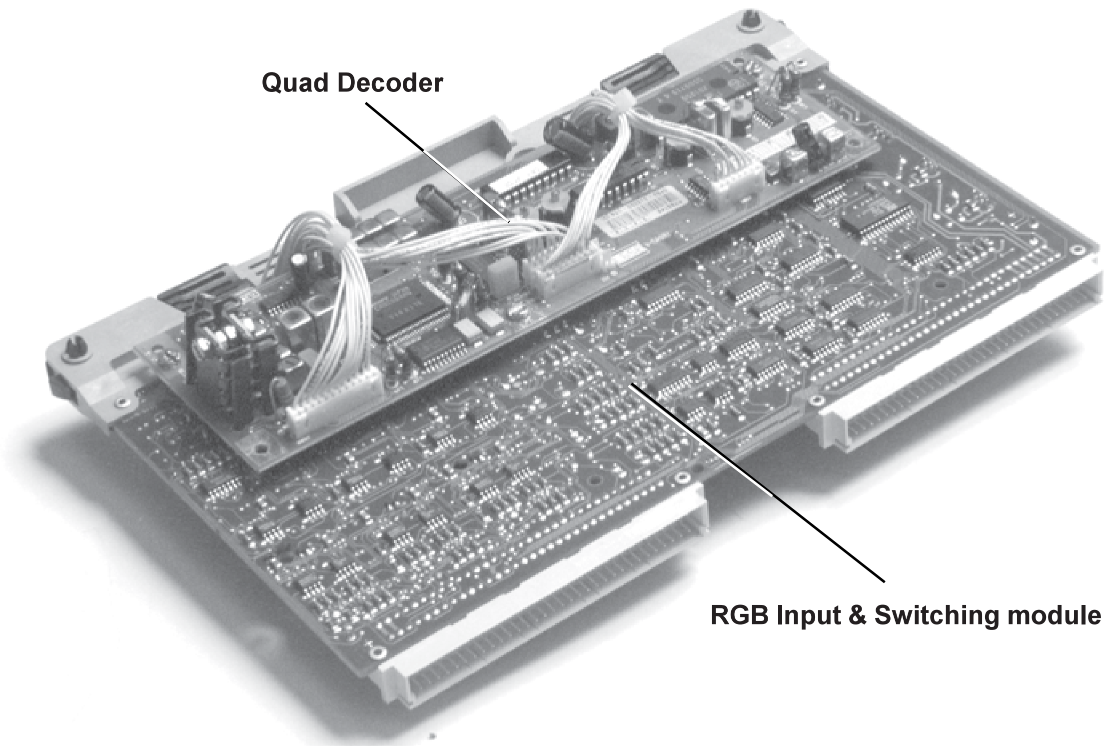
Parts listing Transmitter RCU R791664



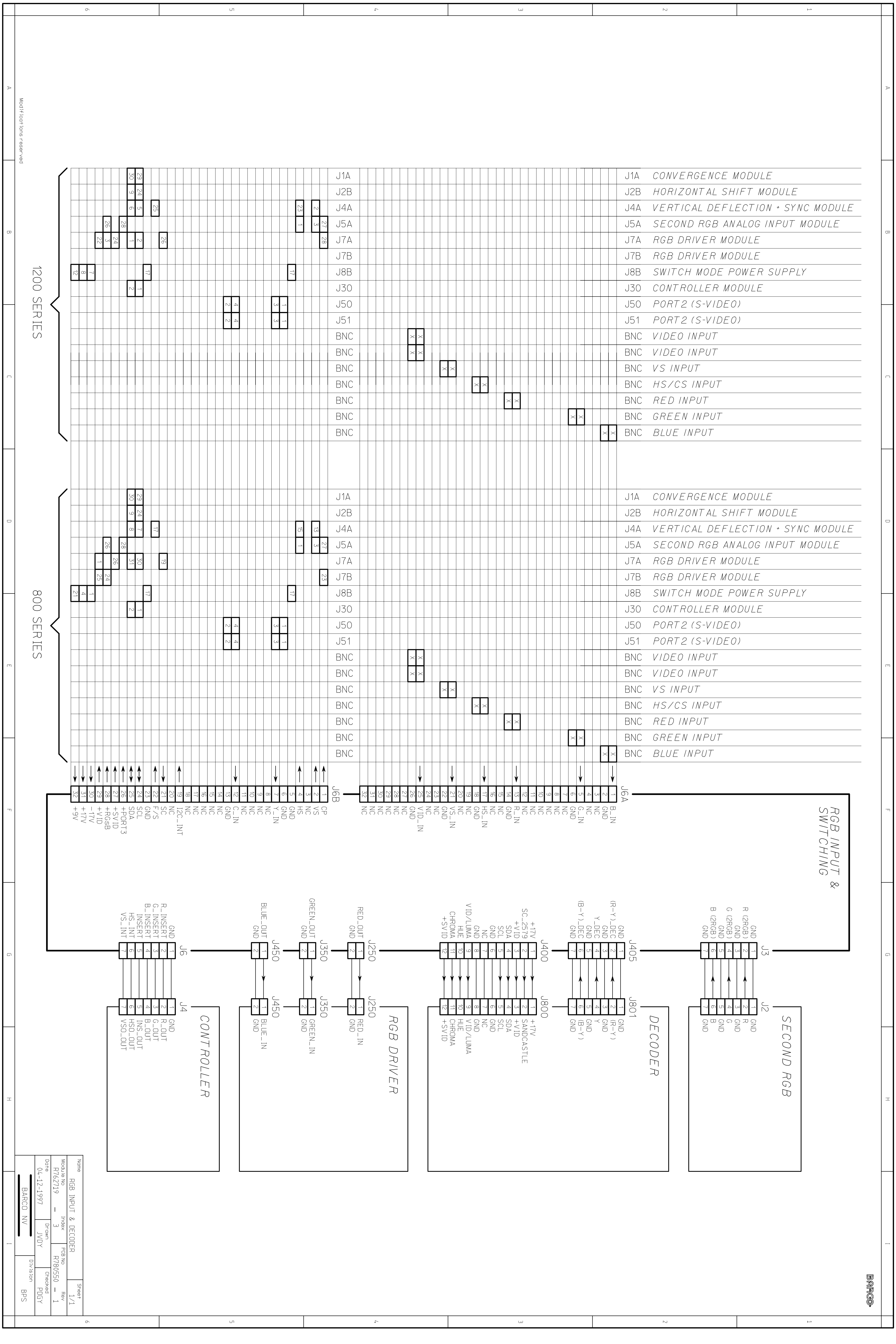


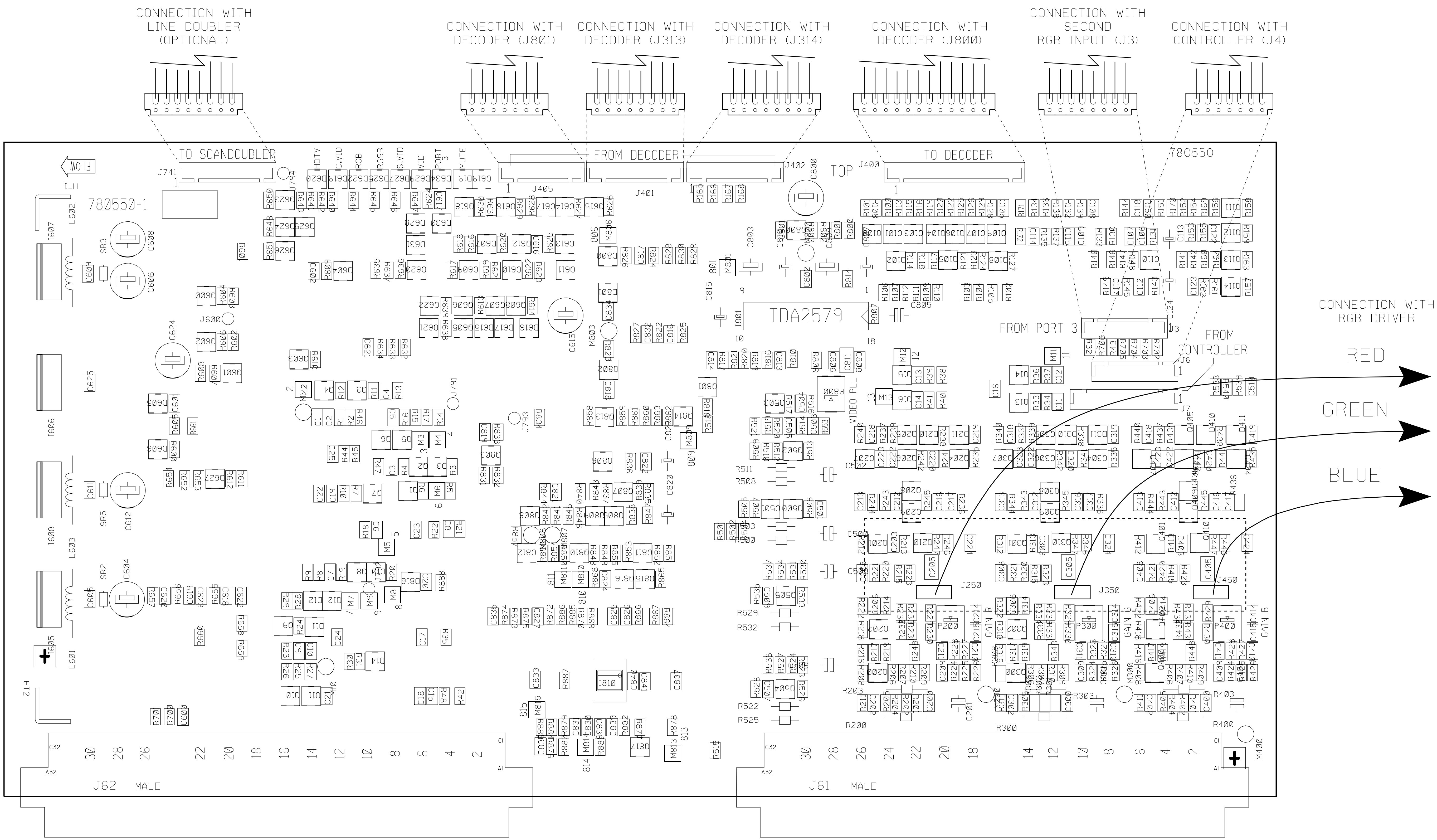
RGB input+Switching module R762719

RGB Input & Switching module + Quad Decoder



R762719 Rev. 00


Modifications reserved
1200 SERIES
800 SERIES
J1A CONVERGENCE MODULE
J2B HORIZONTAL SHIFT MODULE
J4A VERTICAL DEFLECTION + SYNC MODULE
J5A SECOND RGB ANALOG INPUT MODULE
J7A RGB DRIVER MODULE
J7B RGB DRIVER MODULE
J8B SWITCH MODE POWER SUPPLY
J30 CONTROLLER MODULE
J50 PORT2 (S-VIDEO)
J51 PORT2 (S-VIDEO)
BNC VIDEO INPUT
BNC VIDEO INPUT
BNC VS INPUT
BNC HS/CS INPUT
BNC RED INPUT
BNC GREEN INPUT
BNC BLUE INPUT
J6B
J6A
RGB INPUT & SWITCHING
J6
J4
CONTROLLER
J450
J350
J250
RGB DRIVER
J400
J800
J405
J801
DECODER
J3
J2
SECOND RGB
Name RGB INPUT & DECODER
Module No R762719 Index 3
PCB No R780550 Rev 1
Date 04-12-1997
Drawn JVDY
Checked PDGY
BARCO NV
Division BPS
Sheet 1/1
BARCO



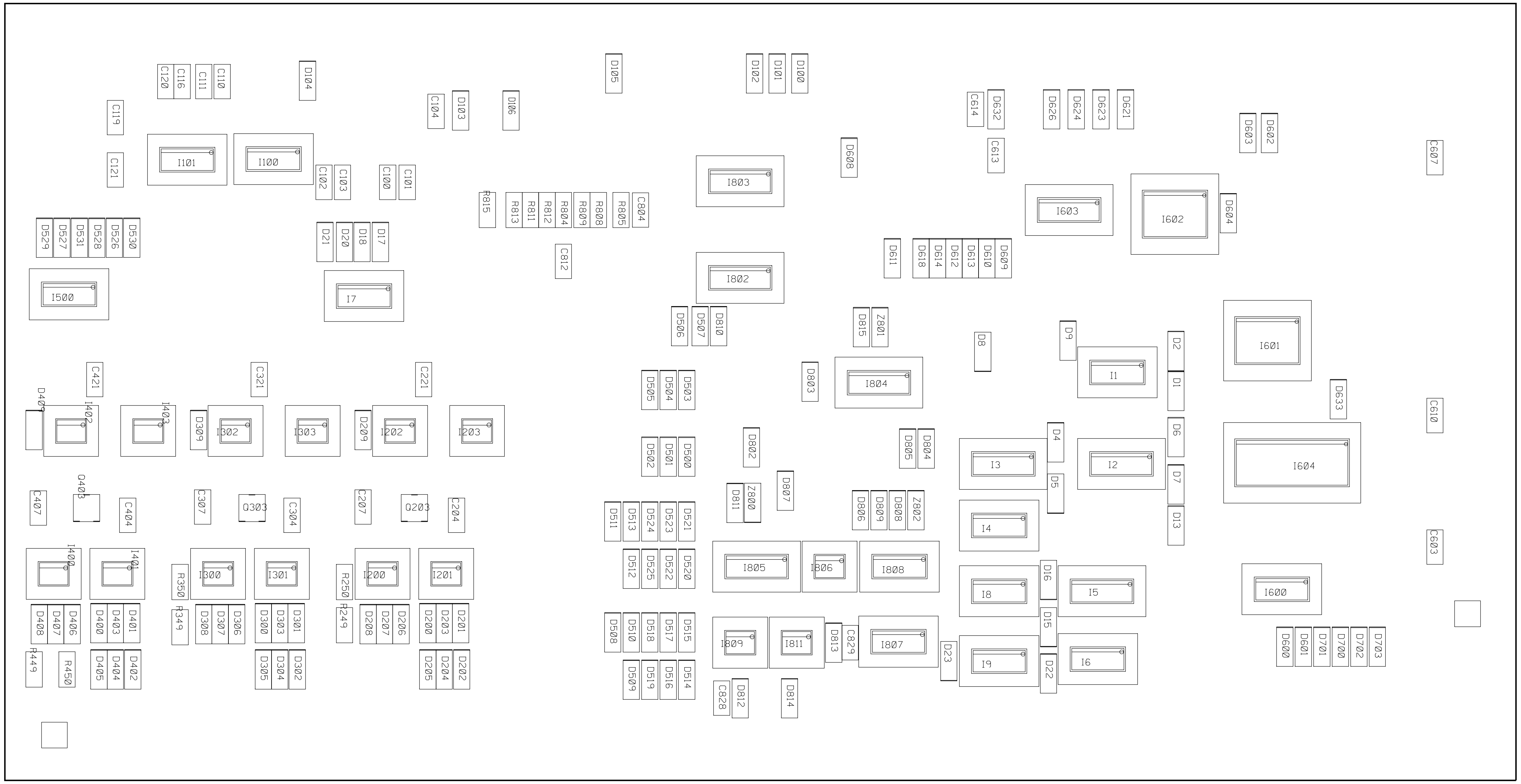
TOP VIEW

Modifications reserved

Name: RGB INPUT & SWITCHING			Sheet: 1 / 2
Module No: R762719	Index: 5	PCB No: R780550	Rev: 1
Date: 08-12-1998	Drawn: JVDY		Checked: PDGY

BARCO PROJECTION SYSTEMS

BARCO

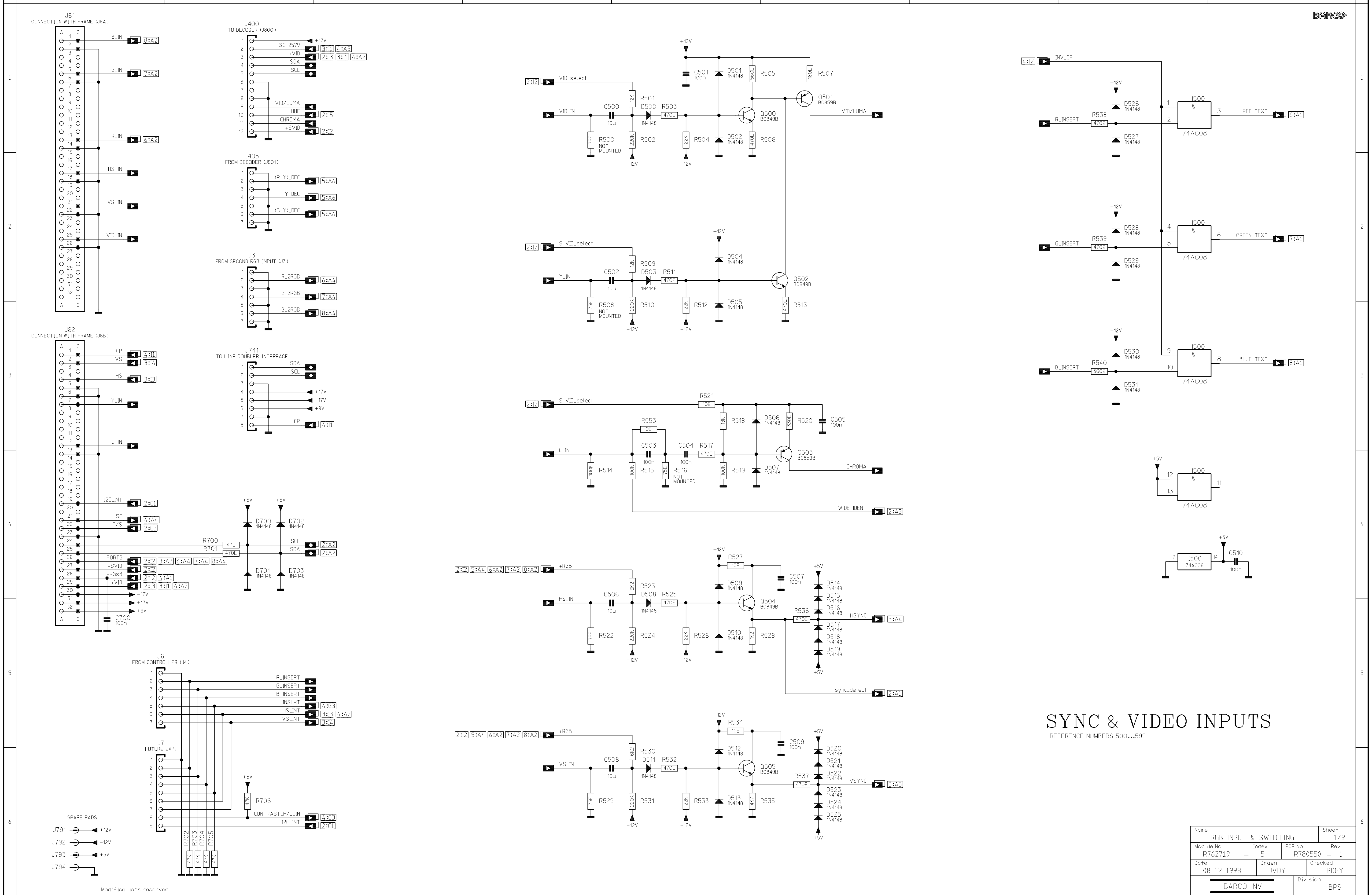


BOTTOM VIEW

Modifications reserved

Name			Sheet
RGB INPUT & SWITCHING			2 / 2
Module No	Index	PCB No	Rev
R762719	— 5	R780550	— 1
Date	Drawn	Checked	
08-12-1998	JVDY	PDGY	

BARCO PROJECTION SYSTEMS

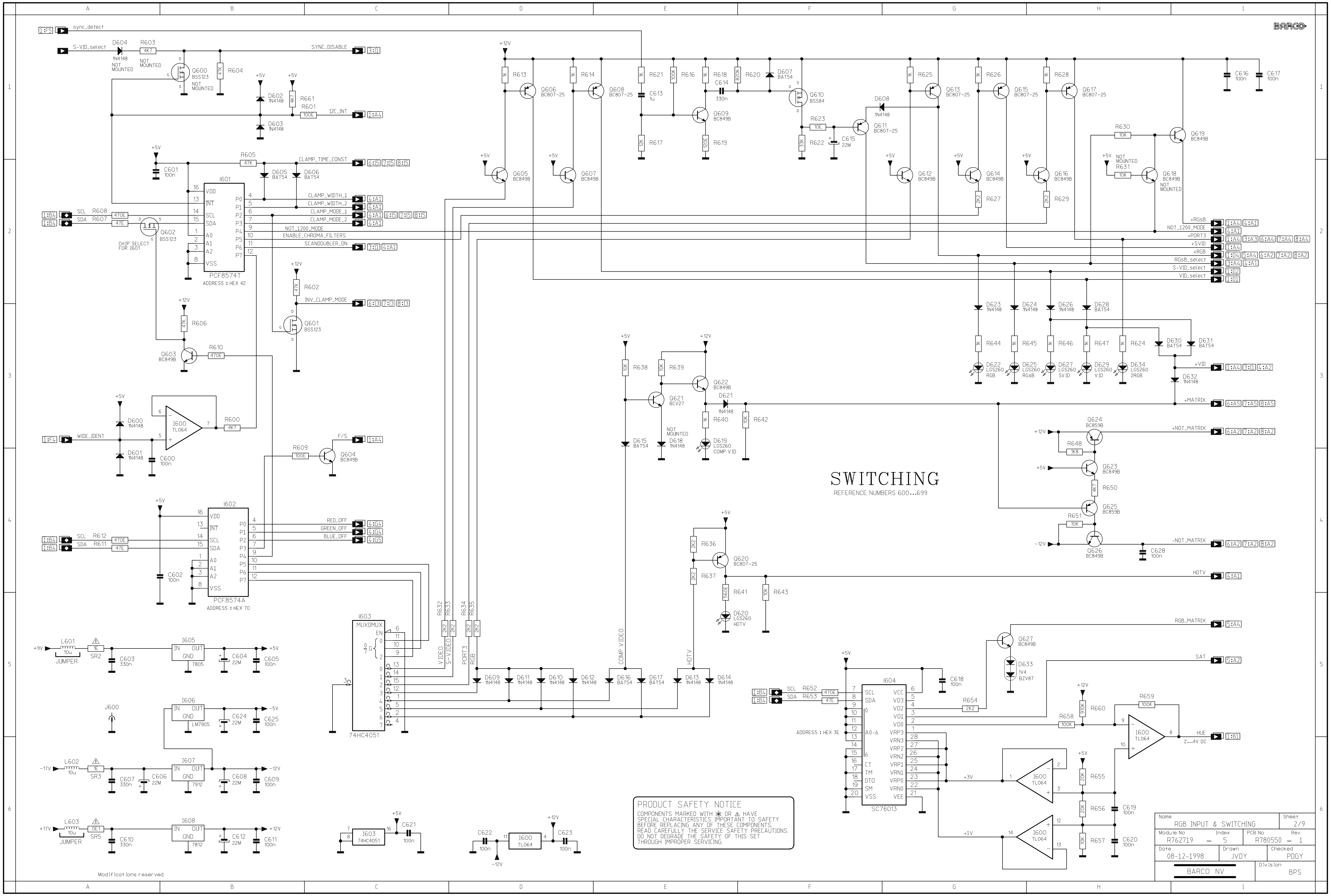


SYNC & VIDEO INPUTS

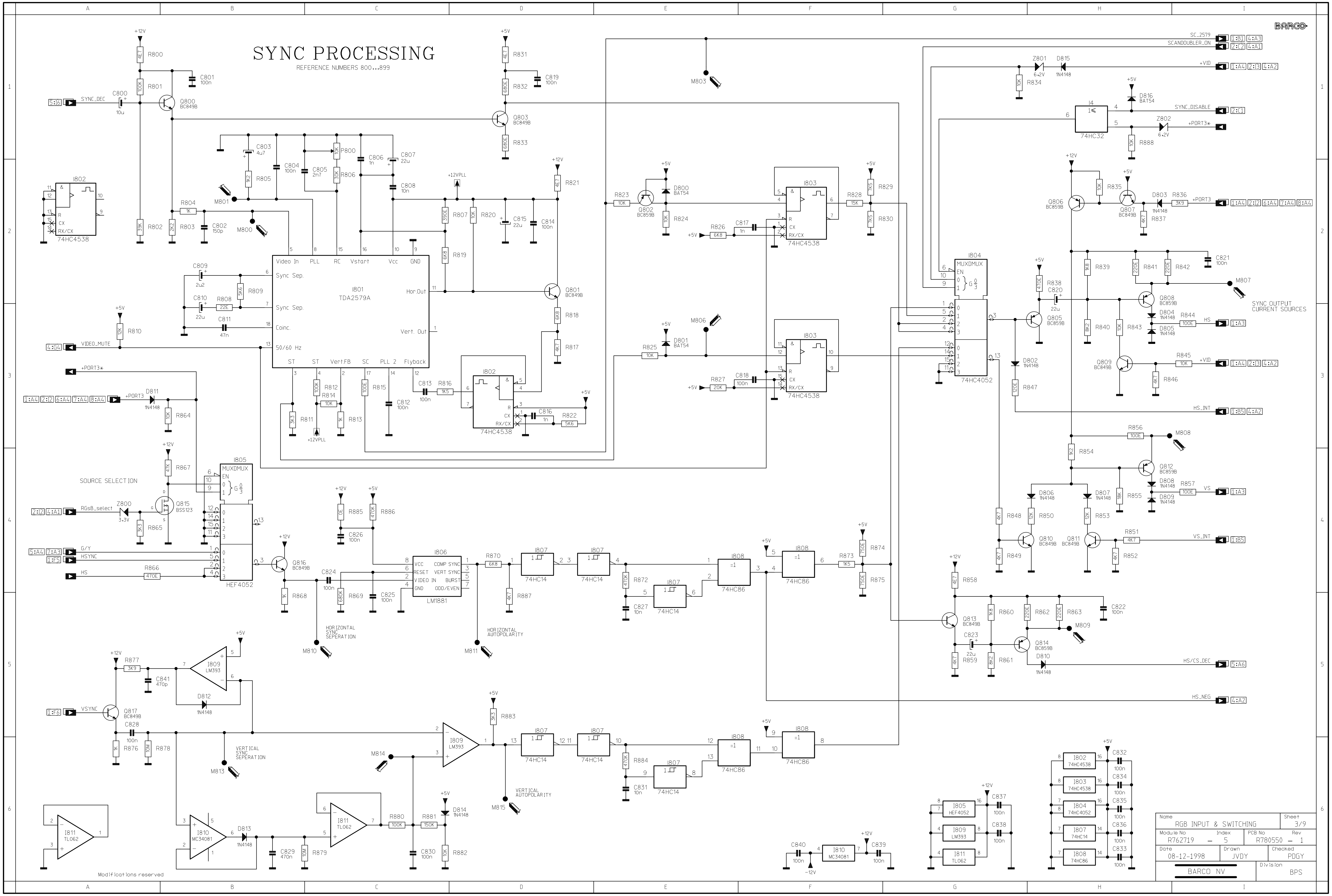
REFERENCE NUMBERS 500...599

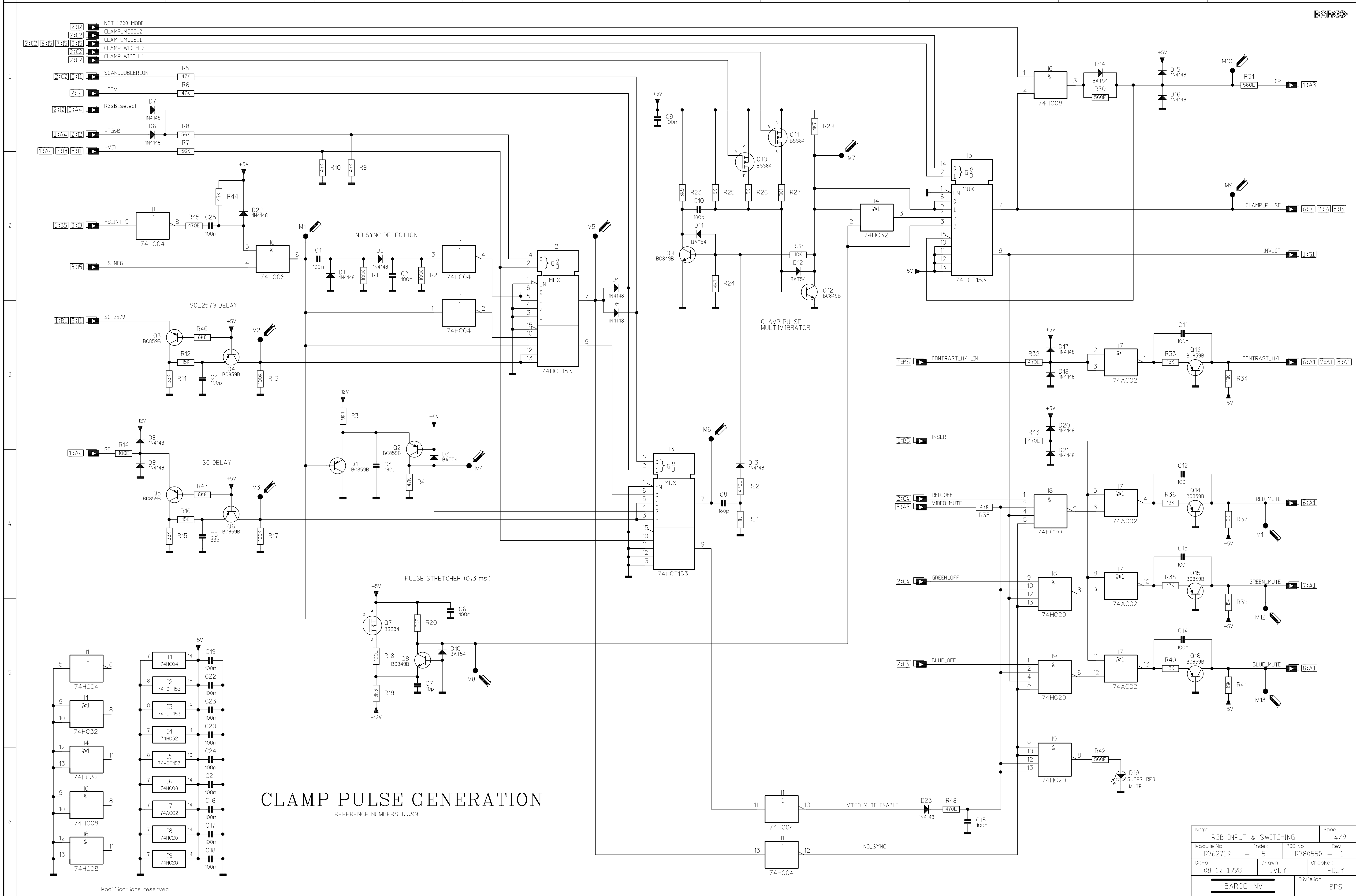
Modifications reserved

Name		Sheet
RGB INPUT & SWITCHING		1/9
Module No R762719	Index 5	PCB No R780550 Rev 1
Date 08-12-1998	Drawn JVDY	Checked PDGY
BARCO NV		Division BPS



SWITCHING
REFERENCE NUMBERS 600...699
PRODUCT SAFETY NOTICE
COMPONENTS MARKED WITH ✱ OR ⚠ HAVE SPECIAL CHARACTERISTICS IMPORTANT TO SAFETY. BEFORE REPLACING ANY OF THESE COMPONENTS, READ CAREFULLY THE SERVICE SAFETY PRECAUTIONS. DO NOT DEGRADE THE SAFETY OF THIS SET THROUGH IMPROPER SERVICING.
Name: RGB INPUT & SWITCHING
Sheet: 2/9
Module No: R762719
Index: 5
PCB No: R780550
Rev: 1
Date: 08-12-1998
Drawn: JVDY
Checked: PDGY
BARCO NV
Division: BPS
Modifications reserved
sync_detect
S-VID_select
SYNC_DISABLE
I2C_INT
CLAMP_TIME_CONST
CLAMP_WIDTH_1
CLAMP_WIDTH_2
CLAMP_MODE_1
CLAMP_MODE_2
NOT_1200_MODE
ENABLE_CHROMA_FILTERS
SCANDOUBLER_ON
INV_CLAMP_MODE
CHIP SELECT FOR I601
PCF8574T
ADDRESS : HEX 42
PCF8574A
ADDRESS : HEX 70
WIDE_IDENT
F/S
RED_OFF
GREEN_OFF
BLUE_OFF
74HC4051
MUXDMUX
VIDEO
S-VIDEO
PORT3
RGB
COMP VIDEO
HDTV
+RGsB
NOT_1200_MODE
+PORT3
+SVID
+RGB
RGsB_select
S-VID_select
VID_select
+VID
+MATRIX
+NOT_MATRIX
-NOT_MATRIX
RGB_MATRIX
SAT
HUE
2...4V DC
SC76013
ADDRESS : HEX 3E
TL064
JUMPER

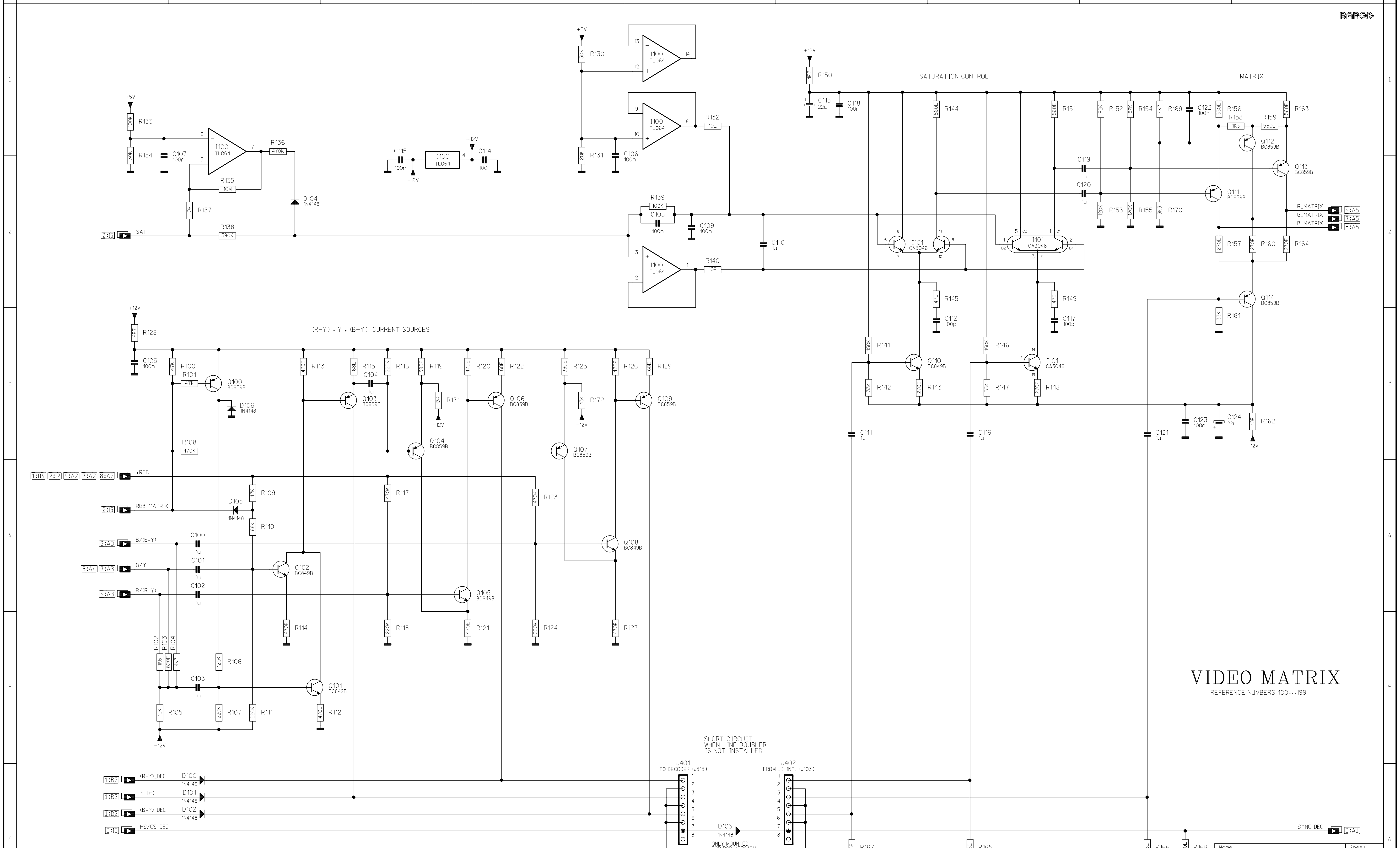

SYNC PROCESSING
REFERENCE NUMBERS 800...899
BARCO
SOURCE SELECTION
HORIZONTAL SYNC SEPERATION
HORIZONTAL AUTOPOLARITY
VERTICAL SYNC SEPERATION
VERTICAL AUTOPOLARITY
SYNC OUTPUT CURRENT SOURCES
I801 TDA2579A
I802 74HC4538
I803 74HC4538
I804 MUXDMUX 74HC4052
I805 MUXDMUX HEF4052
I806 LM1881
I807 74HC14
I808 74HC86
I809 LM393
I810 MC34081
I811 TL062
I4 74HC32
SYNC_DEC
VIDEO_MUTE
+PORT3*
RGsB_select
G/Y
HSYNC
HS
VSYNC
SC_2579
SCANDOUBLER_ON
+VID
SYNC_DISABLE
HS_INT
VS
VS_INT
HS/CS_DEC
HS_NEG
Modifications reserved
Name
RGB INPUT & SWITCHING
Sheet
3/9
Module No
R762719
Index
5
PCB No
R780550
Rev
1
Date
08-12-1998
Drawn
JVDY
Checked
PDGY
BARCO NV
Division
BPS



CLAMP PULSE GENERATION

REFERENCE NUMBERS 1...99

Name			Sheet
RGB INPUT & SWITCHING			4/9
Module No	Index	PCB No	Rev
R762719	– 5	R780550	– 1
Date	Drawn	Checked	
08-12-1998	JVDY	PDGY	
BARCO NV		Division	BPS

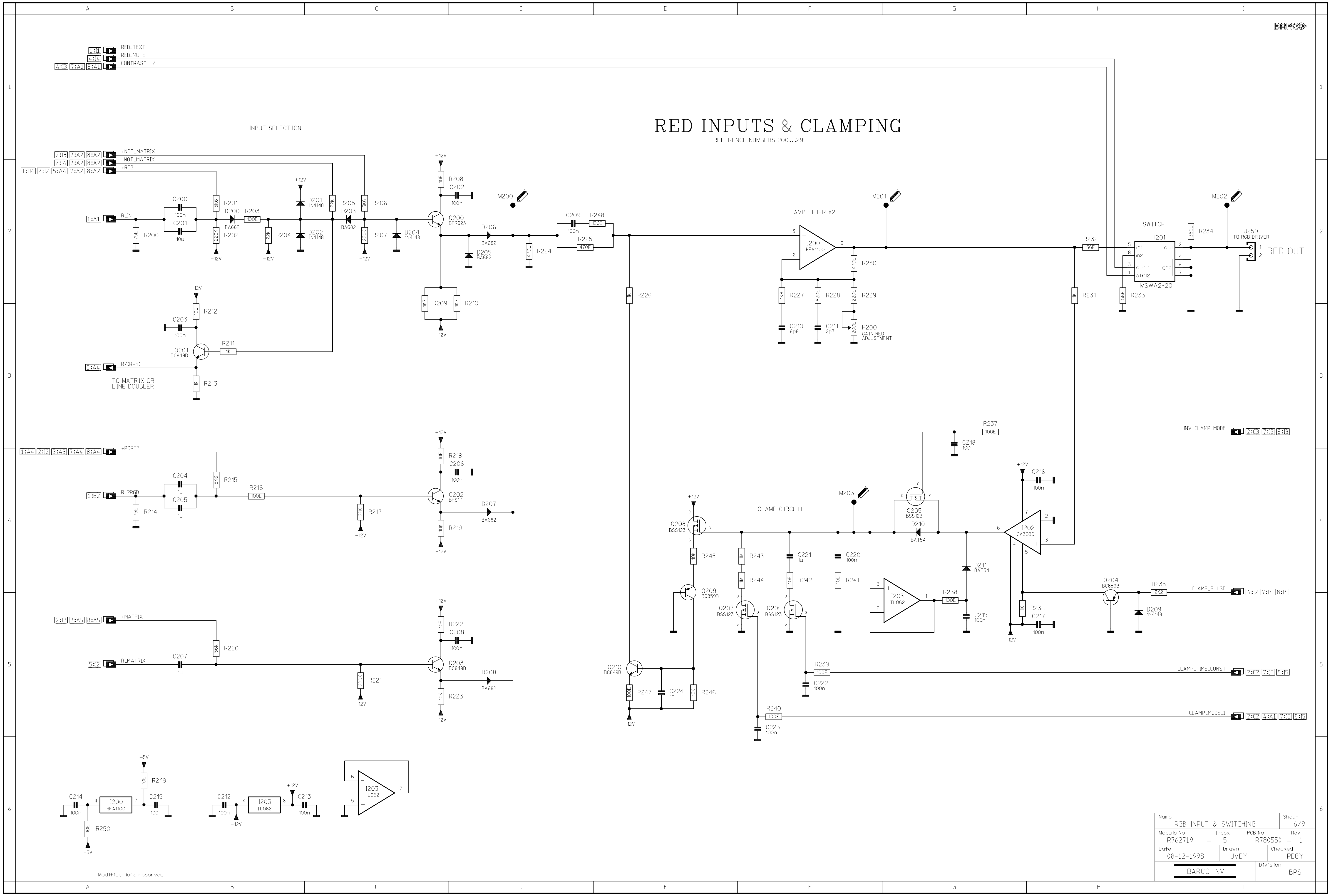


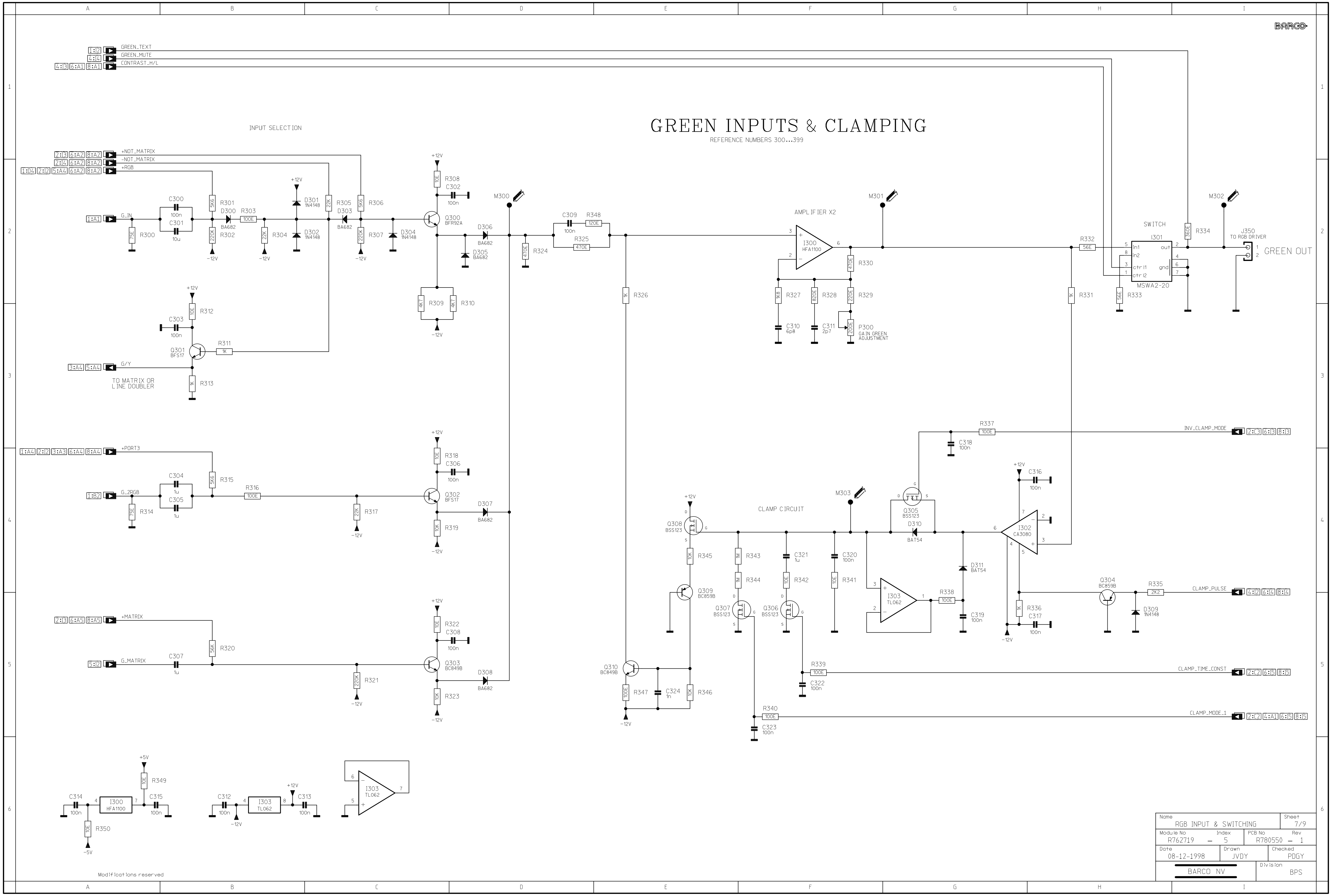
VIDEO MATRIX

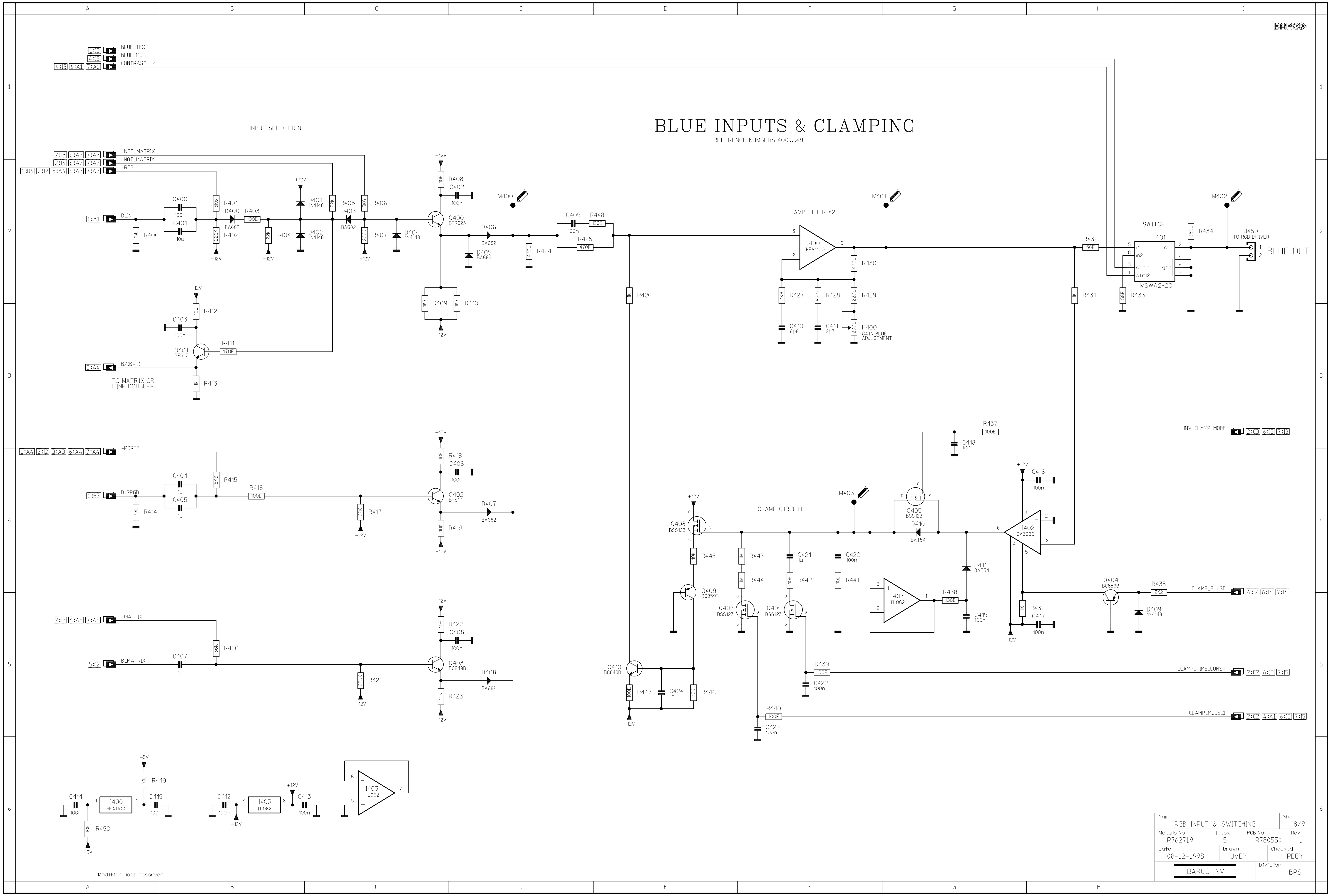
REFERENCE NUMBERS 100...199

Name			Sheet
RGB INPUT & SWITCHING			5/9
Module No	Index	PCB No	Rev
R762719	5	R780550	1
Date	Drawn	Checked	
08-12-1998	JVDY	PDGY	
BARCO NV		Division	BPS

Modifications reserved


RED INPUTS & CLAMPING
REFERENCE NUMBERS 200...299
INPUT SELECTION
RED_TEXT
RED_MUTE
CONTRAST_H/L
+NOT_MATRIX
-NOT_MATRIX
+RGB
R_IN
R/(R-Y)
TO MATRIX OR LINE DOUBLER
+PORT3
R_2RGB
+MATRIX
R_MATRIX
AMPLIFIER X2
GAIN RED ADJUSTMENT
SWITCH
MSWA2-20
TO RGB DRIVER
RED OUT
CLAMP CIRCUIT
INV_CLAMP_MODE
CLAMP_PULSE
CLAMP_TIME_CONST
CLAMP_MODE_1
Modifications reserved
BARCO
Name RGB INPUT & SWITCHING
Sheet 6/9
Module No R762719 - Index 5
PCB No R780550 - Rev 1
Date 08-12-1998
Drawn JVDY
Checked PDGY
BARCO NV
Division BPS


GREEN INPUTS & CLAMPING
REFERENCE NUMBERS 300...399
INPUT SELECTION
AMPLIFIER X2
SWITCH
CLAMP CIRCUIT
GREEN_TEXT
GREEN_MUTE
CONTRAST_H/L
+NOT_MATRIX
-NOT_MATRIX
+RGB
G_IN
G/Y
TO MATRIX OR LINE DOUBLER
+PORT3
G_2RGB
+MATRIX
G_MATRIX
TO RGB DRIVER
GREEN OUT
GAIN GREEN ADJUSTMENT
INV_CLAMP_MODE
CLAMP_PULSE
CLAMP_TIME_CONST
CLAMP_MODE_1
Modifications reserved
Name
RGB INPUT & SWITCHING
Sheet
7/9
Module No
R762719
Index
5
PCB No
R780550
Rev
1
Date
08-12-1998
Drawn
JVDY
Checked
PDGY
Division
BPS
BARCO NV



BLUE INPUTS & CLAMPING
REFERENCE NUMBERS 400...499
INPUT SELECTION
BLUE_TEXT
BLUE_MUTE
CONTRAST_H/L
+NOT_MATRIX
-NOT_MATRIX
+RGB
B_IN
B/(B-Y)
TO MATRIX OR LINE DOUBLER
+PORT3
B_2RGB
+MATRIX
B_MATRIX
AMPLIFIER X2
GAIN BLUE ADJUSTMENT
SWITCH
MSWA2-20
J450 TO RGB DRIVER
BLUE OUT
CLAMP CIRCUIT
INV_CLAMP_MODE
CLAMP_PULSE
CLAMP_TIME_CONST
CLAMP_MODE_1
Modifications reserved
Name RGB INPUT & SWITCHING
Sheet 8/9
Module No R762719
Index 5
PCB No R780550
Rev 1
Date 08-12-1998
Drawn JVDY
Checked PDGY
BARCO NV
Division BPS

SCHEMATIC COMPONENT LOCATION

COMP.	LOC.	SH.
C1	C2	4
C2	C2	4
C3	C4	4
C4	B3	4
C5	B4	4
C6	C5	4
C7	C5	4
C8	E4	4
C9	E1	4
C10	E2	4
C11	H3	4
C12	H4	4
C13	H4	4
C14	H5	4
C15	G6	4
C16	B6	4
C17	B6	4
C18	B6	4
C19	B5	4
C20	B5	4
C21	B6	4
C22	B5	4
C23	B5	4
C24	B6	4
C25	B2	4
C100	B4	5
C101	B4	5
C102	B4	5
C103	B5	5
C104	C3	5
C105	A3	5
C106	D1	5
C107	B1	5
C108	E2	5
C109	E2	5
C110	E2	5
C111	F3	5
C112	G3	5
C113	F1	5
C114	D1	5
C115	C1	5
C116	G3	5
C117	G3	5
C118	F1	5
C119	H2	5
C120	H2	5
C121	H3	5
C122	H1	5
C123	H3	5
C124	H3	5
C200	B2	6
C201	B2	6
C202	D2	6
C203	B3	6
C204	B4	6
C205	B4	6
C206	D4	6
C207	B5	6
C208	D5	6
C209	D2	6
C210	F3	6
C211	F3	6
C212	B6	6
C213	B6	6
C214	A6	6
C215	A6	6
C216	H4	6
C217	H5	6
C218	G3	6
C219	G5	6
C220	F4	6
C221	F4	6
C222	F5	6
C223	F5	6
C224	E5	6
C300	B2	7
C301	B2	7
C302	D2	7
C303	B3	7
C304	B4	7
C305	B4	7
C306	D4	7
C307	B5	7
C308	D5	7
C309	D2	7
C310	F3	7
C311	F3	7
C312	B6	7
C313	B6	7
C314	A6	7
C315	A6	7
C316	H4	7
C317	H5	7
C318	G3	7
C319	G5	7
C320	F4	7
C321	F4	7
C322	F5	7
C323	F5	7
C324	E5	7

COMP.	LOC.	SH.
C400	B2	8
C401	B2	8
C402	D2	8
C403	B3	8
C404	B4	8
C405	B4	8
C406	D4	8
C407	B5	8
C408	D5	8
C409	D2	8
C410	F3	8
C411	F3	8
C412	B6	8
C413	B6	8
C414	A6	8
C415	A6	8
C416	H4	8
C417	H5	8
C418	G3	8
C419	G5	8
C420	F4	8
C421	F4	8
C422	F5	8
C423	F5	8
C424	E5	8
C500	D1	1
C501	E1	1
C502	D2	1
C503	E3	1
C504	E3	1
C505	F3	1
C506	D4	1
C507	F4	1
C508	D6	1
C509	F5	1
C510	I4	1
C600	A4	2
C601	B2	2
C602	B4	2
C603	A5	2
C604	B5	2
C605	B5	2
C606	A6	2
C607	A6	2
C608	B6	2
C609	B6	2
C610	A6	2
C611	B6	2
C612	B6	2
C613	E1	2
C614	E1	2
C615	F1	2
C616	I1	2
C617	I1	2
C618	G5	2
C619	H6	2
C620	H6	2
C621	C6	2
C622	D6	2
C623	D6	2
C624	B5	2
C625	B5	2
C628	H4	2
C700	A5	1
C800	A1	3
C801	B1	3
C802	B2	3
C803	B1	3
C804	B2	3
C805	C2	3
C806	C1	3
C807	C1	3
C808	C2	3
C809	B2	3
C810	B2	3
C811	B3	3
C812	C3	3
C813	C3	3
C814	D2	3
C815	D2	3
C816	D3	3
C817	F2	3
C818	F3	3
C819	D1	3
C820	H2	3
C821	I2	3
C822	H5	3
C823	G5	3
C824	C4	3
C825	C5	3
C826	C4	3
C827	E5	3
C828	A5	3
C829	B6	3
C830	C6	3
C831	E6	3
C832	H6	3
C833	H6	3
C834	H6	3
C835	H6	3

COMP.	LOC.	SH.
C836	H6	3
C837	G6	3
C838	G6	3
C839	F6	3
C840	F6	3
C841	A5	3
D1	C2	4
D2	C2	4
D3	C4	4
D4	E2	4
D5	E3	4
D6	A1	4
D7	A1	4
D8	A3	4
D9	A4	4
D10	C5	4
D11	E2	4
D12	F2	4
D13	E4	4
D14	H1	4
D15	H1	4
D16	H1	4
D17	G3	4
D18	G3	4
D19	H6	4
D20	G3	4
D21	G4	4
D22	B2	4
D23	G6	4
D100	B6	5
D101	B6	5
D102	B6	5
D103	B4	5
D104	B2	5
D105	E6	5
D106	B3	5
D200	B2	6
D201	C2	6
D202	C2	6
D203	C2	6
D204	C2	6
D205	D2	6
D206	D2	6
D207	D4	6
D208	D5	6
D209	H5	6
D210	G4	6
D211	G4	6
D300	B2	7
D301	B2	7
D302	B2	7
D303	C2	7
D304	C2	7
D305	D2	7
D306	D2	7
D307	D4	7
D308	D5	7
D309	H5	7
D310	G4	7
D311	G4	7
D400	B2	8
D401	C2	8
D402	C2	8
D403	C2	8
D404	C2	8
D405	D2	8
D406	D2	8
D407	D4	8
D408	D5	8
D409	H5	8
D410	G4	8
D411	G4	8
D500	E1	1
D501	E1	1
D502	E1	1
D503	E2	1
D504	E2	1
D505	E3	1
D506	F3	1
D507	F4	1
D508	E4	1
D509	E4	1
D510	E5	1
D511	E6	1
D512	E6	1
D513	E6	1
D514	F4	1
D515	F5	1
D516	F5	1
D517	F5	1
D518	F5	1
D519	F5	1
D520	F6	1
D521	F6	1
D522	F6	1
D523	F6	1
D524	F6	1
D525	F6	1
D526	H1	1

COMP.	LOC.	SH.
D527	H1	1
D528	H2	1
D529	H2	1
D530	H3	1
D531	H3	1
D600	A3	2
D601	A4	2
D602	B1	2
D603	B1	2
D604	A1	2
D605	B2	2
D606	B2	2
D607	F1	2
D608	F1	2
D609	D5	2
D610	D5	2
D611	D5	2
D612	D5	2
D613	E5	2
D614	E5	2
D615	E3	2
D616	E5	2
D617	E5	2
D618	E3	2
D619	E3	2
D620	E5	2
D621	E3	2
D622	G3	2
D623	G3	2
D624	G3	2
D625	G3	2
D626	H3	2
D627	H3	2
D628	H3	2
D629	H3	2
D630	H3	2
D631	I3	2
D632	I3	2
D633	G5	2
D634	H3	2
D700	B4	1
D701	B4	1
D702	B4	1
D703	B4	1
D800	E2	3
D801	E3	3
D802	G3	3
D803	H2	3
D804	H3	3
D805	H3	3
D806	H4	3
D807	H4	3
D808	H4	3
D809	H4	3
D810	H5	3
D811	A3	3
D812	B5	3
D813	B6	3
D814	D6	3
D815	H1	3
D816	H1	3
I1	C2	4
I1	C2	4
I1	A5	4
I1	A2	4
I1	F6	4
I1	F6	4
I1	B5	4
I2	B5	4
I2	D2	4
I3	B5	4
I3	E4	4
I4	H1	3
I4	B5	4
I4	F2	4
I4	A5	4
I4	A5	4
I5	B6	4
I5	G2	4
I6	B6	4
I6	G1	4
I6	B2	4
I6	A6	4
I6	A6	4
I7	B6	4
I7	H3	4
I7	H4	4
I7	H4	4
I7	H5	4
I8	B6	4
I8	G4	4
I8	G4	4
I9	B6	4
I9	G5	4
I9	G5	4
I100	C2	5
I100	E2	5
I100	B1	5
I100	E1	5

COMP.	LOC.	SH.
I100	E1	5
I101	G2	5
I101	F2	5
I101	F2	5
I101	G3	5
I200	F2	6
I200	A6	6
I201	H2	6
I202	H4	6
I203	B6	6
I203	G5	6
I203	C6	6
I300	F2	7
I300	A6	7
I301	H2	7
I302	H4	7
I303	B6	7
I303	G5	7
I303	C6	7
I400	F2	8
I400	A6	8
I401	H2	8
I402	H4	8
I403	B6	8
I403	G5	8
I403	C6	8
I500	H1	1
I500	H2	1
I500	H3	1
I500	H4	1
I500	H4	1
I600	B3	2
I600	H6	2
I600	H6	2
I600	H5	2
I600	D6	2
I601	B2	2
I602	B4	2
I603	C6	2
I603	C5	2
I604	F5	2
I605	B5	2
I606	B5	2
I607	B6	2
I608	B6	2
I801	C2	3
I802	D3	3
I802	A2	3
I802	H6	3
I803	F2	3
I803	F3	3
I803	H6	3
I804	G2	3
I804	H6	3
I805	G6	3
I805	B4	3
I806	C4	3
I807	D4	3
I807	D4	3
I807	E4	3
I807	E6	3
I807	D5	3
I807	D5	3
I807	H6	3
I808	H6	3
I808	E4	3
I808	F4	3
I808	F5	3
I808	E6	3
I809	G6	3
I809	C6	3
I809	B5	3
I810	F6	3
I810	B6	3
I811	G6	3
I811	A6	3
I811	C6	3
J3	B2	1
J6	A5	1
J7	A5	1
J61	A1	1
J62	A3	1
J250	I2	6
J350	I2	7
J400	B1	1
J401	E6	5
J402	F6	5
J405	B2	1
J450	I2	8
J600	A5	2
J741	B3	1
J791	A6	1
J792	A6	1
J793	A6	1
J794	A6	1
L601	A5	2
L602	A6	2
L603	A6	2

COMP.	LOC.	SH.
M1	B2	4
M2	B3	4
M3	B4	4
M4	D4	4
M5	D2	4
M6	E3	4
M7	F2	4
M8	D5	4
M9	I2	4
M10	I1	4
M11	I4	4
M12	I5	4
M13	I5	4
M200	D2	6
M201	G2	6
M202	I2	6
M203	F4	6
M300	D2	7
M301	F2	7
M302	I2	7
M303	F4	7
M400	D2	8
M401	G2	8
M402	I2	8
M403	F4	8
M800	B2	3
M801	B2	3
M803	E1	3
M806	E3	3
M807	I2	3
M808	I3	3
M809	H5	3
M810	C5	3
M811	D5	3
M813	B6	3
M814	C6	3
M815	D6	3
P200	F3	6
P300	F3	7
P400	F3	8
P800	C1	3
Q1	C4	4
Q2	C3	4
Q3	A3	4
Q4	B3	4
Q5	A4	4
Q6	B4	4
Q7	C5	4
Q8	C5	4
Q9	E2	4
Q10	E2	4
Q11	F1	4
Q12	F2	4
Q13	H3	4
Q14	H4	4
Q15	H4	4
Q16	H5	4
Q100	B3	5
Q101	C5	5
Q102	B4	5
Q103	C3	5
Q104	C3	5
Q105	D4	5
Q106	D3	5
Q107	D3	5
Q108	D4	5
Q109	E3	5
Q110	F3	5
Q111	H2	5
Q112	I1	5
Q113	I2	5
Q114	I2	5
Q200	C2	6
Q201	B3	6
Q202	C4	6
Q203	C5	6
Q204	H4	6
Q205	G4	6
Q206	F5	6
Q207	E5	6
Q208	E4	6
Q209	E4	6
Q210	E5	6
Q300	C2	7
Q301	B3	7
Q302	C4	7
Q303	C5	7
Q304	H4	7
Q305	G4	7
Q306	F5	7
Q307	E5	7
Q308	E4	7
Q309	E4	7
Q310	E5	7
Q400	C2	8
Q401	B3	8
Q402	C4	8
Q403	C5	8

COMP.	LOC.	SH.
Q404	H4	8
Q405	G4	8
Q406	F5	8
Q407	E5	8
Q408	E4	8
Q409	E4	8
Q410	E5	8
Q500	E1	1
Q501	F1	1
Q502	F2	1
Q503	F4	1
Q504	E5	1
Q505	E6	1
Q600	B1	2
Q601	B3	2
Q602	B2	2
Q603	B3	2
Q604	C4	2
Q605	D2	2
Q606	D1	2
Q607	D2	2
Q608	E1	2
Q609	E1	2
Q610	F1	2
Q611	F1	2
Q612	G2	2
Q613	G1	2
Q614	G2	2
Q615	G1	2
Q616	H2	2
Q617	H1	2
Q618	H2	2
Q619	I1	2
Q620	E4	2
Q621	E3	2
Q622	E3	2
Q623	H4	2
Q624	H3	2
Q625	H4	2
Q626	H4	2
Q627	G5	2
Q800	B1	3
Q801	D2	3
Q802	E2	3
Q803	D1	3
Q805	H3	3
Q806	H2	3
Q807	H2	3
Q808	H2	3
Q809	H3	3
Q810	H4	3
Q811	H4	3
Q812	H4	3
Q813	G5	3
Q814	H5	3
Q815	B4	3
Q816	B4	3
Q817	A5	3
R1	C2	4
R2	C2	4
R3	C3	4
R4	C4	4
R5	B1	4
R6	B1	4
R7	B1	4
R8	B1	4
R9	C2	4
R10	C2	4
R11	B3	4
R12	B3	4
R13	B3	4
R14	A3	4
R15	B4	4
R16	B4	4
R17	B4	4
R18	C5	4
R19	C5	4
R20	C5	4
R21	E4	4
R22	E4	4
R23	E2	4
R24	E2	4
R25	E2	4
R26	E2	4
R27	F2	4
R28	F2	4
R29	F1	4
R30	H1	4
R31	I1	4
R32	G3	4
R33	H3	4
R34	I3	4
R35	G4	4
R36	H4	4
R37	I4	4
R38	H4	4
R39	I5	4
R40	H5	4
R41	I5	4

COMP.	LOC.	SH.
R42	H6	4
R43	G3	4
R44	B2	4
R45	B2	4
R46	B3	4
R47	B4	4
R48	G6	4
R100	B3	5
R101	B3	5
R102	A5	5
R103	A5	5
R104	A5	5
R105	A5	5
R106	B5	5
R107	B5	5
R108	B3	5
R109	B4	5
R110	B4	5
R111	B5	5
R112	C5	5
R113	B3	5
R114	B5	5
R115	C3	5
R116	C3	5
R117	C4	5
R118	C5	5
R119	C3	5
R120	D3	5
R121	D5	5
R122	D3	5
R123	D4	5
R124	D5	5
R125	D3	5
R126	D3	5
R127	D5	5
R128	A3	5
R129	E3	5
R130	D1	5
R131	D2	5
R132	E1	5
R133	A1	5
R134	A2	5
R135	B2	5
R136	B1	5
R137	B2	5
R138	B2	5
R139	E2	5
R140	E2	5
R141	F3	5
R142	F3	5
R143	F3	5
R144	G1	5
R145	G2	5
R146	G3	5
R147	G3	5
R148	G3	5
R149	G2	5
R150	F1	5
R151	G1	5
R152	H1	5
R153	H2	5
R154	H1	5
R155	H2	5
R156	H1	5
R157	H2	5
R158	I1	5
R159	I1	5
R160	I2	5
R161	H3	5
R162	I3	5
R163	I1	5
R164	I2	5
R165	G6	5
R166	H6	5
R167	F6	5
R168	H6	5
R169	H1	5
R170	H2	5
R171	C3	5
R172	D3	5
R200	A2	6
R201	B2	6
R202	B2	6
R203	B2	6
R204	B2	6
R205	C2	6
R206	C2	6
R207	C2	6
R208	C2	6
R209	C3	6
R210	D3	6
R211	B3	6
R212	B3	6
R213	B3	6
R214	A4	6
R215	B4	6
R216	B4	6
R217	C4	6
R218	C4	6
R219	C4	6

COMP.	LOC.	SH.
R220	B5	6
R221	C5	6
R222	C5	6
R223	C5	6
R224	D2	6
R225	D2	6
R226	E2	6
R227	F2	6
R228	F2	6
R229	F2	6
R230	F2	6
R231	H2	6
R232	H2	6
R233	H2	6
R234	I2	6
R235	H4	6
R236	H5	6
R237	G3	6
R238	G5	6
R239	F5	6
R240	F5	6
R241	F4	6
R242	F4	6
R243	F4	6
R244	F4	6
R245	E4	6
R246	E5	6
R247	E5	6
R248	E2	6
R249	A6	6
R250	A6	6
R300	A2	7
R301	B2	7
R302	B2	7
R303	B2	7
R304	B2	7
R305	C2	7
R306	C2	7
R307	C2	7
R308	C2	7
R309	C3	7
R310	D3	7
R311	B3	7
R312	B3	7
R313	B3	7
R314	A4	7
R315	B4	7
R316	B4	7
R317	C4	7
R318	C4	7
R319	C4	7
R320	B5	7
R321	C5	7
R322	C5	7
R323	C5	7
R324	D2	7
R325	D2	7
R326	E2	7
R327	F2	7
R328	F2	7
R329	F2	7
R330	F2	7
R331	H2	7
R332	H2	7
R333	H2	7
R334	I2	7
R335	H4	7
R336	G5	7
R337	G3	7
R338	G5	7
R339	F5	7
R340	F5	7
R341	F4	7
R342	F4	7
R343	F4	7
R344	F4	7
R345	E4	7
R346	E5	7
R347	E5	7
R348	D2	7
R349	A6	7
R350	A6	7
R400	A2	8
R401	B2	8
R402	B2	8
R403	B2	8
R404	B2	8
R405	C2	8
R406	C2	8
R407	C2	8
R408	C2	8
R409	C3	8
R410	D3	8
R411	B3	8
R412	B3	8
R413	B3	8
R414	A4	8
R415	B4	8
R416	B4	8
R417	C4	8

COMP.	LOC.	SH.
R418	C4	8
R419	C4	8
R420	B5	8
R421	C5	8
R422	C5	8
R423	C5	8
R424	D2	8
R425	D2	8
R426	E2	8
R427	F2	8
R428	F2	8
R429	F2	8
R430	F2	8
R431	H2	8
R432	H2	8
R433	H2	8
R434	I2	8
R435	H4	8
R436	H5	8
R437	G3	8
R438	G5	8
R439	F5	8
R440	F5	8
R441	F4	8
R442	F4	8
R443	F4	8
R444	F4	8
R445	E4	8
R446	E5	8
R447	E5	8
R448	E2	8
R449	A6	8
R450	A6	8
R500	D1	1
R501	E1	1
R502	E1	1
R503	E1	1
R504	E1	1
R505	E1	1
R506	E1	1
R507	F1	1
R508	D3	1
R509	E2	1
R510	E3	1
R511	E2	1
R512	E3	1
R513	F3	1
R514	D4	1
R515	E4	1
R516	E4	1
R517	E3	1
R518	E3	1
R519	E4	1
R520	F3	1
R521	E3	1
R522	D5	1
R523	E4	1
R524	E5	1
R525	E4	1
R526	E5	1
R527	E4	1
R528	E5	1
R529	D6	1
R530	E6	1
R531	E6	1
R532	E6	1
R533	E6	1
R534	E5	1
R535	E6	1
R536	F5	1
R537	F6	1
R538	H1	1
R539	H2	1
R540	H3	1
R553	E3	1
R600	B3	2
R601	C1	2
R602	B2	2
R603	A1	2
R604	B1	2
R605	B1	2
R606	B3	2
R607	A2	2
R608	A2	2
R609	B4	2
R610	B3	2
R611	A4	2
R612	A4	2
R613	D1	2
R614	D1	2
R616	E1	2
R617	E1	2
R618	E1	2
R619	E1	2
R620	F1	2
R621	E1	2
R622	F1	2
R623	F1	2
R624	H3	2
R625	G1	2

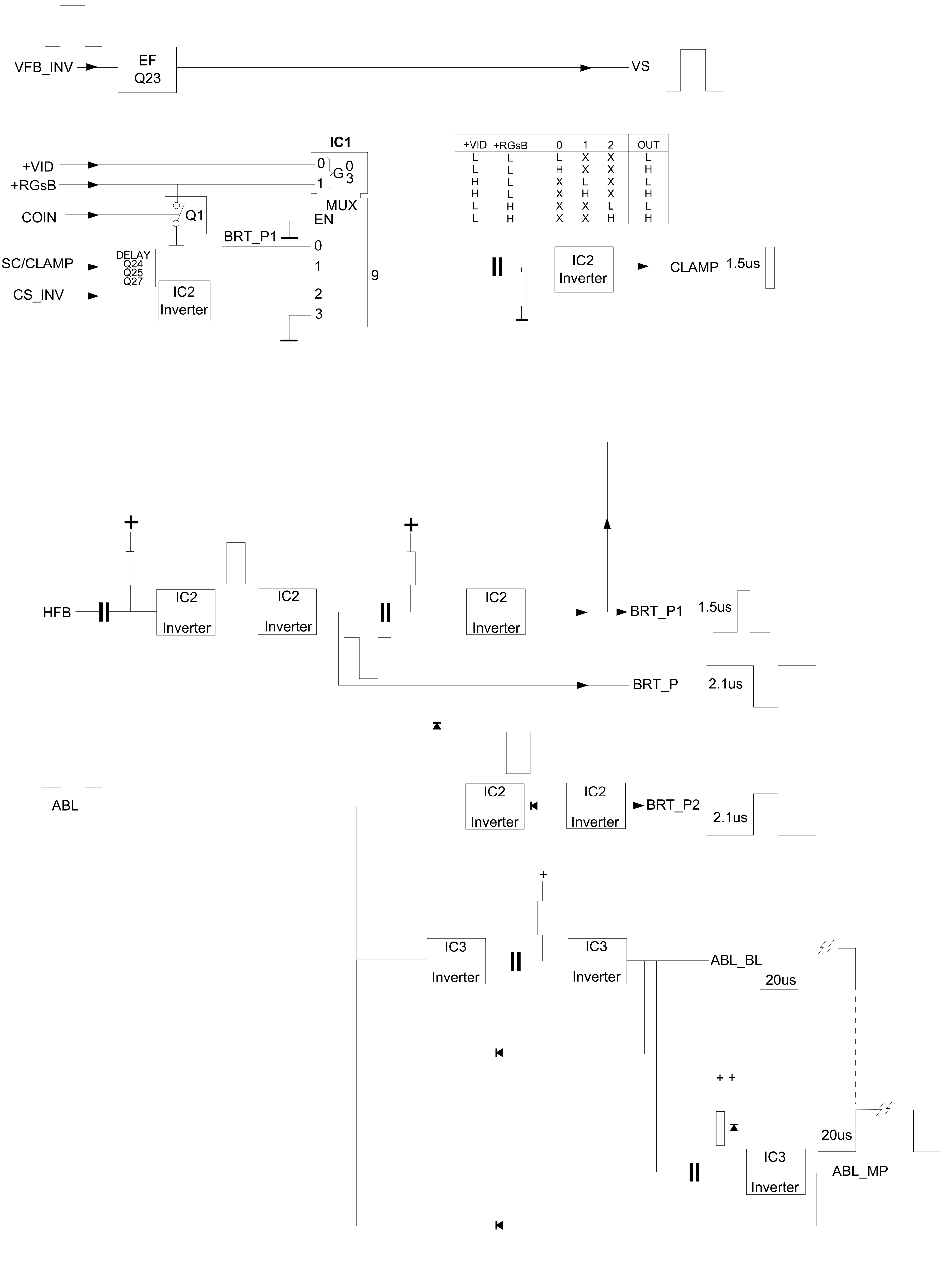
COMP.	LOC.	SH.
R626	G1	2
R627	G2	2
R628	H1	2
R629	H2	2
R630	H1	2
R631	H2	2
R632	C5	2
R633	C5	2
R634	D5	2
R635	D5	2
R636	E4	2
R637	E4	2
R638	E3	2
R639	E3	2
R640	E3	2
R641	E5	2
R642	F3	2
R643	F5	2
R644	G3	2
R645	G3	2
R646	H3	2
R647	H3	2
R648	H3	2
R650	H4	2
R651	H4	2
R652	F5	2
R653	F5	2
R654	G5	2
R655	H6	2
R656	H6	2
R657	H6	2
R658	H5	2
R659	H5	2
R660	H5	2
R661	B1	2
R700	B4	1
R701	B4	1
R702	B6	1
R703	B6	1
R704	B6	1
R705	B6	1
R706	B6	1
R800	A1	3
R801	A1	3
R802	A2	3
R803	B2	3
R804	B2	3
R805	B2	3
R806	C2	3
R807	D2	3
R808	B2	3
R809	B2	3
R810	A3	3
R811	B3	3
R812	C3	3
R813	C3	3
R814	C3	3
R815	C3	3
R816	C3	3
R817	D3	3
R818	D3	3
R819	D2	3
R820	D2	3
R821	D2	3
R822	D3	3
R823	E2	3
R824	E2	3
R825	E3	3
R826	E2	3
R827	E3	3
R828	F2	3
R829	F2	3
R830	F2	3
R831	D1	3
R832	D1	3
R833	D1	3
R834	G1	3
R835	H2	3
R836	I2	3
R837	H2	3
R838	H2	3
R839	H2	3
R840	H3	3
R841	H2	3
R842	I2	3
R843	H3	3
R844	I3	3
R845	I3	3
R846	H3	3
R847	G3	3
R848	G4	3
R849	G4	3
R850	H4	3
R851	H4	3
R852	H4	3
R853	H4	3
R854	H4	3
R855	H4	3
R856	H3	3
R857	I4	3

COMP.	LOC.	SH.
R858	G4	3
R859	G5	3
R860	G5	3
R861	G5	3
R862	H5	3
R863	H5	3
R864	B3	3
R865	A4	3
R866	A4	3
R867	B4	3
R868	B5	3
R869	C5	3
R870	D4	3
R872	E4	3
R873	F4	3
R874	F4	3
R875	F4	3
R876	A6	3
R877	A5	3
R878	A6	3
R879	C6	3
R880	C6	3
R881	C6	3
R882	D6	3
R883	D5	3
R884	E6	3
R885	C4	3
R886	C4	3
R887	D5	3
R888	H1	3
SR2	A5	2
SR3	A6	2
SR5	A6	2
Z800	A4	3
Z801	H1	3
Z802	H1	3

Modifications reserved

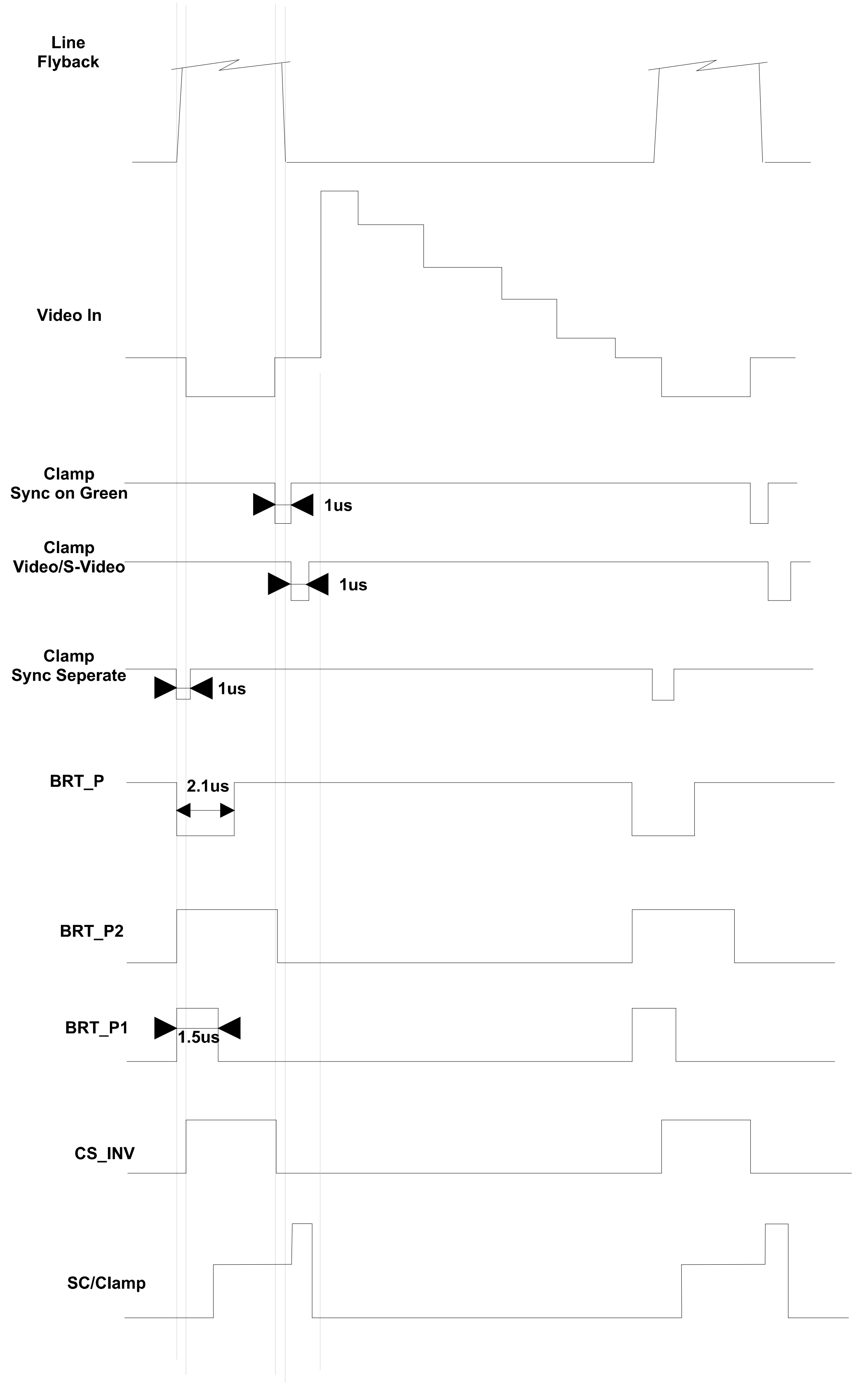
Name			Sheet
RGB INPUT & SWITCHING			9/9
Module No R762719	Index – 5	PCB No R780550	Rev – 1
Date 08-12-1998	Drawn JVDY		Checked PDGY
BARCO NV		Division BPS	

Blockdiagram
Support signals

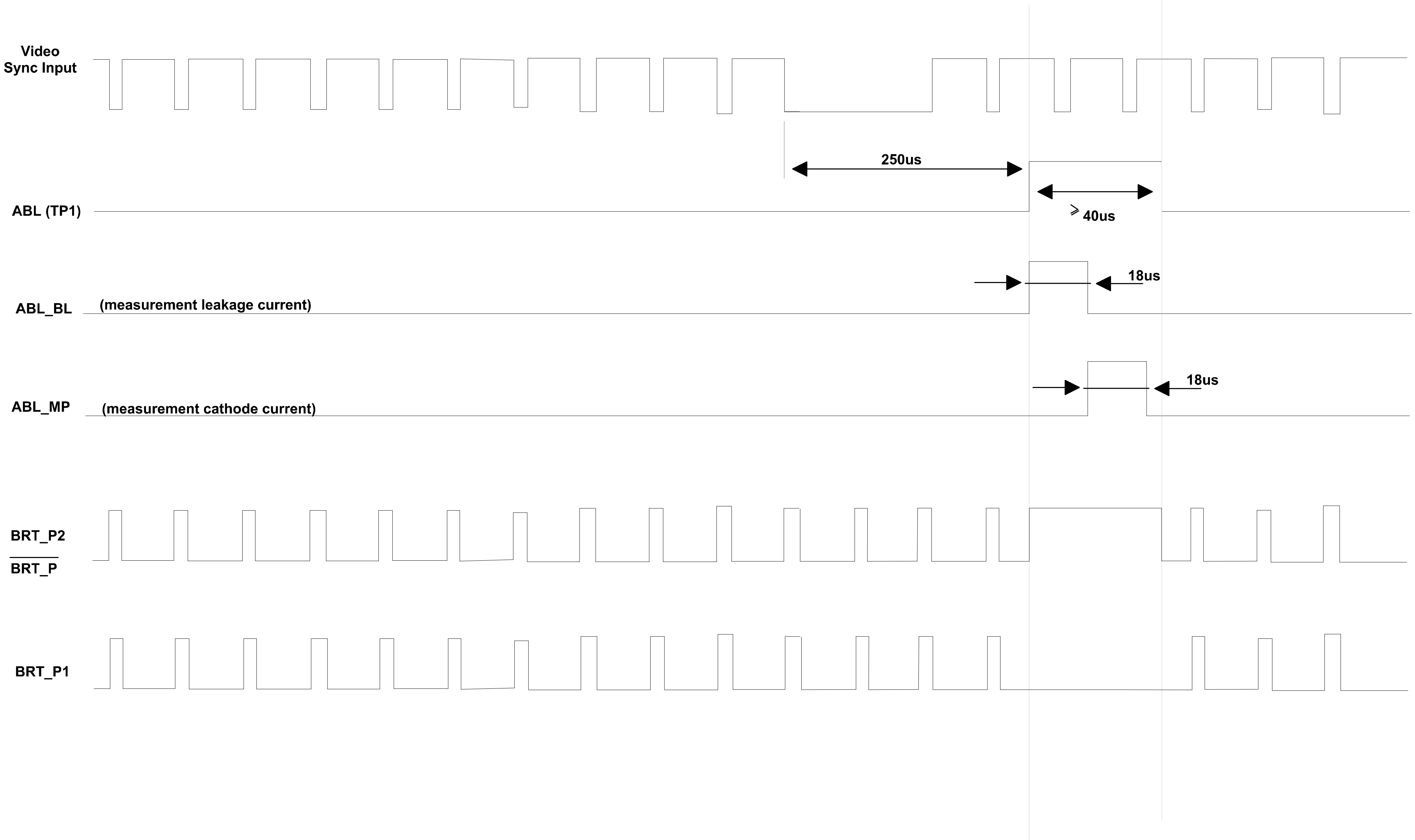


+VID	+RGsB	0	1	2	OUT
L	L	L	X	X	L
L	L	H	X	X	H
H	L	X	L	X	L
H	L	X	H	X	H
L	H	X	X	L	L
L	H	X	X	H	H

Support signals



Support signals

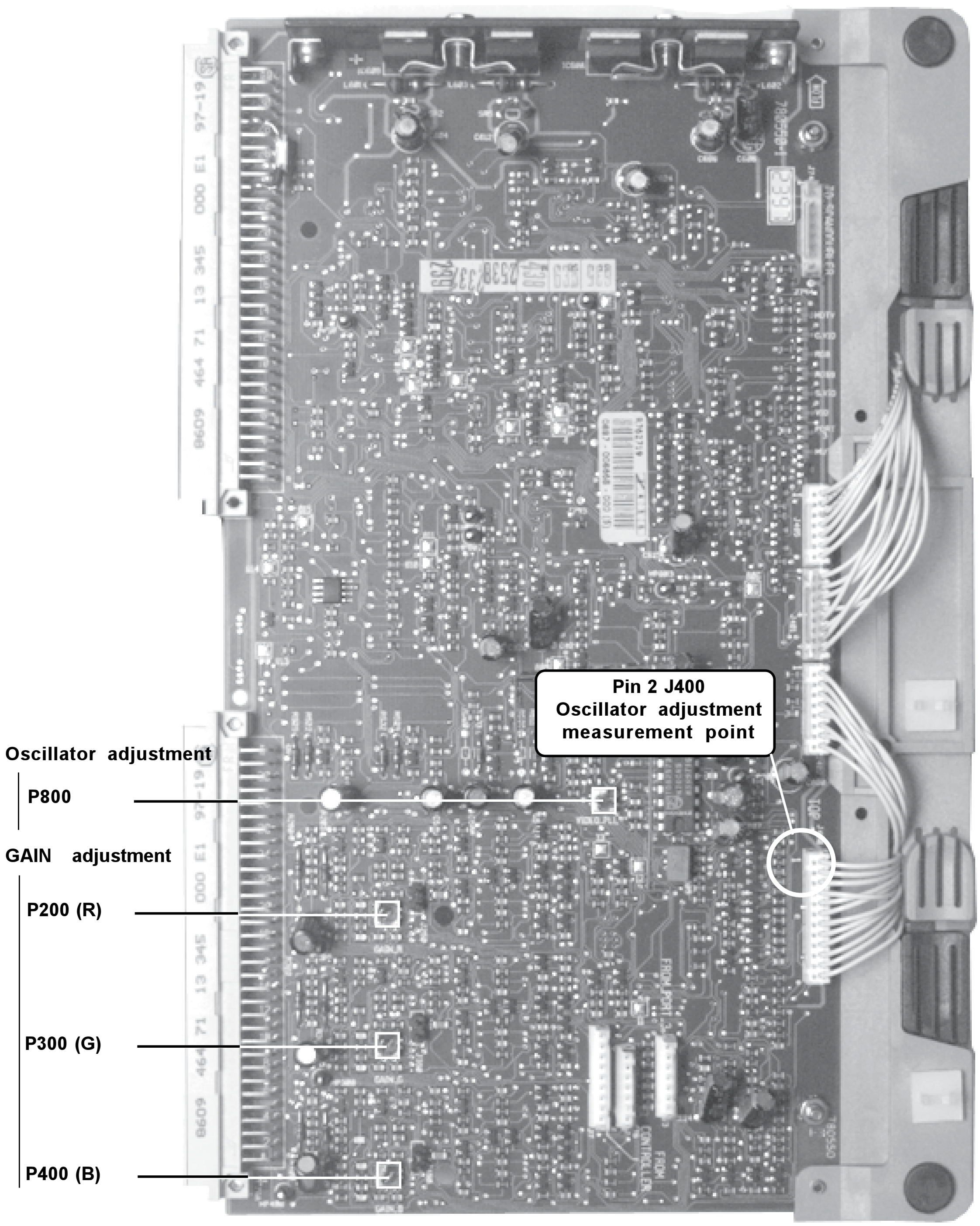


Adjustment procedure for the RGB Input + Driver module

1. Adjustments on the module:

- Adjustment of the GAIN for Red (P200), Green (P300) and Blue (P400).
- Adjustment of the duty cycle of the Horizontal Oscillator at 64us (P800) in free-running mode.

2. Location of the controls



3. Adjustments

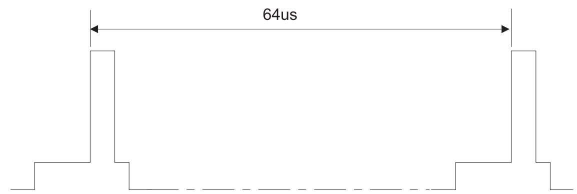
A. Adjustment of the Oscillator period P800

A1. Signal input:

No input selected (no signal)

A2. Adjustment of the Oscillator period in the IC 801 TDA2579A

- Connect an oscilloscope to pin 2 of the connector J400.
- Adjust the potentiometer P800 for a period of the Sandcastle pulse of 64us.



B. Input GAIN adjustment For Red (P200), Green (P300) and Blue (P400)

B1. Input GAIN adjustment Red (P200) channel

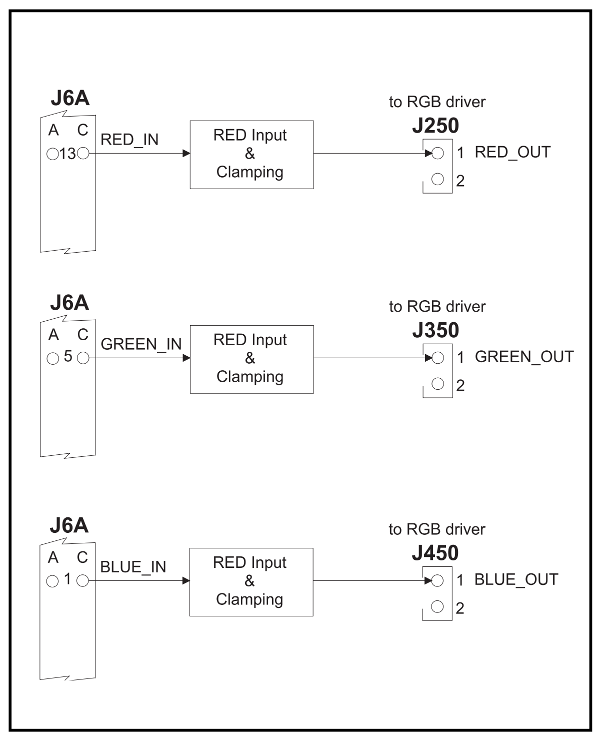
- Connect a RGB/S signal to the RGB-HS/CS inputs and select RGB/S.
- Connect one probe of the double beam oscilloscope to the RED_IN signal and the other to RED_OUT, pin 1 of the board connector J250.
- Adjust the potentiometer P200 for a signal aspect ratio In/Out of 1.

B2. Input GAIN adjustment Green (P300) channel

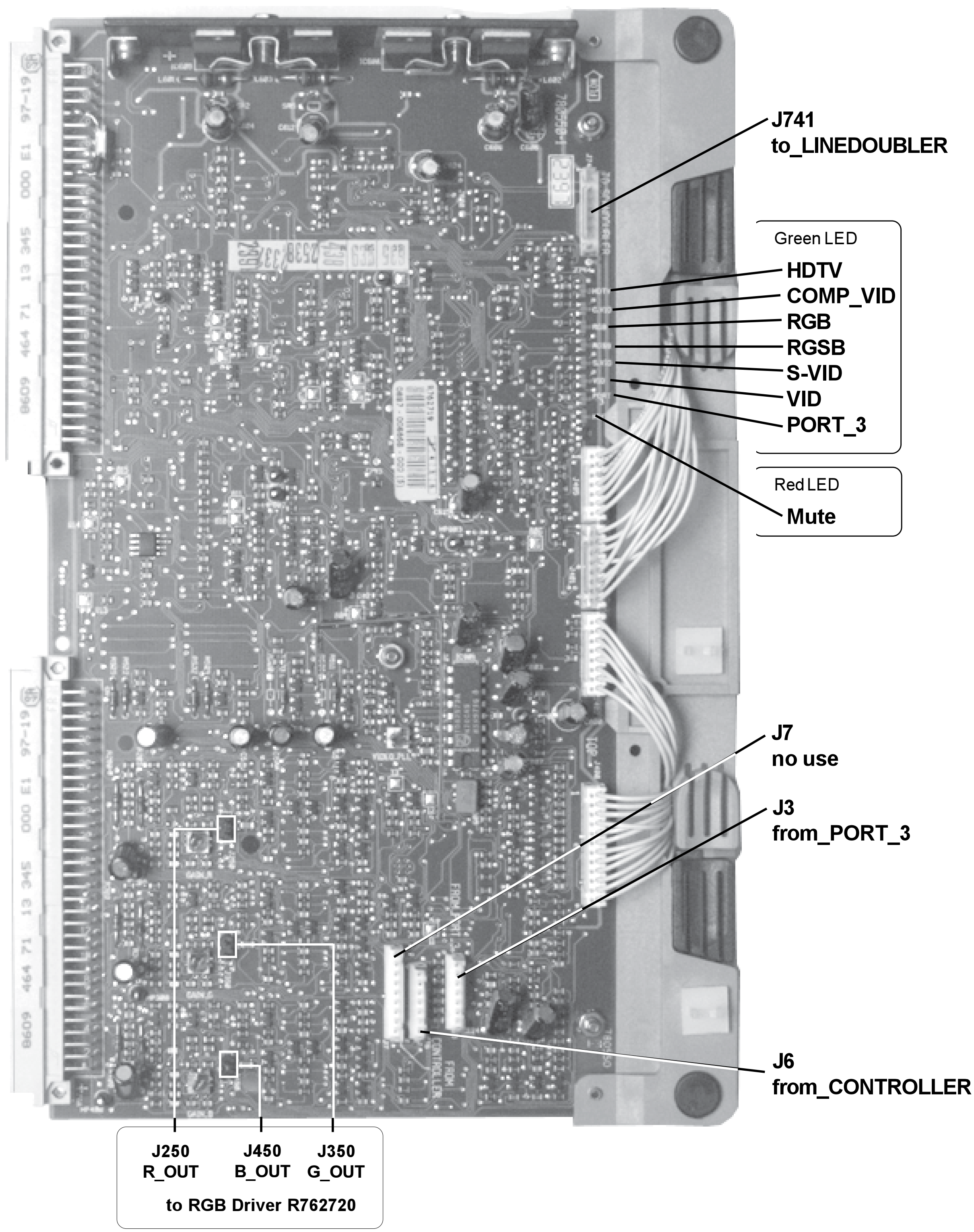
- Connect a RGB/S signal to the RGB-HS/CS inputs and select RGB/S.
- Connect one probe of the double beam oscilloscope to the GREEN_IN signal and the other to GREEN_OUT, pin 1 of the board connector J350.
- Adjust the potentiometer P300 for a signal aspect ratio In/Out of 1.

B3. Input GAIN adjustment Blue (P400) channel

- Connect a RGB/S signal to the RGB-HS/CS inputs and select RGB/S.
- Connect one probe of the double beam oscilloscope to the BLUE_IN signal and the other to BLUE_OUT, pin 1 of the board connector J450.
- Adjust the potentiometer P400 for a signal aspect ratio In/Out of 1.



Connections /Control LED's on the module



Connections

Connector J3 (from second RGB input)

pin	1	GND		GROUND
pin	2	R(2RGB)	1Vpp	RED Video input signal from second RGB analog input
pin	3	GND		GROUND
pin	4	G(2RGB)	1Vpp	GREEN Video input signal from second RGB analog input
pin	5	GND		GROUND
pin	6	B(2RGB)	1Vpp	BLUE Video input signal from second RGB analog input
pin	7	GND		GROUND

Connector J6A (frame connection)

pin	1	B IN	1Vpp	BLUE Video input (BNC) signal (Source 4,5)
pin	5	G IN	1Vpp	GREEN Video input (BNC) signal (Source 4,5)
pin	13	R IN	1Vpp	RED Video input (BNC) signal (Source 4,5)
pin	17	HS IN	0.3..5Vpp	Ext. Horizontal/composite Sync input (Source 4,5)
pin	21	VS IN	0.3..5Vpp	Ext. Vertical Sync input (Source 4,5)
pin	25	VID IN	1Vpp	Video composite input signal (Source 1)
pin	2/6/14/18/22/26		GND	GROUND

Connector J6B (frame connection)

pin	1	CP	TTL	Output Clamp pulses to RGB driver
pin	2	VS	1Vpp	Output Vertical Sync Pulses to Vert. Deflection
pin	4	HS	1Vpp	Output Hor./Composite Sync Pulses to Vert. Deflection
pin	7	Y IN	1Vpp	Ext.Luma signal input (Source 2)
pin	12	C IN	0.3Vpp	Ext.Chroma signal input
pin	19	I2C INT	TTL	Open collector I2C Interrupt line
pin	21	SC	2 level	Input Sandcastle from TDA2595
pin	22	F/S	Hi Z	Output Fast/Slow (open collector)
pin	24	SCL	TTL	I2C Clock
pin	25	SDA	TTL	I2C Data
pin	26	+PORT3		Selection Port 3 (+12V for source 3)
pin	27	+S VID		Selection S-Video (+12V for source 2)
pin	28	+RGsB		Selection RGsB (+12V for source RGsB)
pin	29	+VID		Selection Video (+12V for source 1 & 2)
pin	30	-17V		Power Supply -17V DC
pin	31	+17V		Power Supply +17V DC
pin	32	+9V		Power Supply +9V DC
pin	5/6/13/23		GND	GROUND

Connector J6 (from controller)

pin	1	GND		GROUND
pin	2	R Insert	TTL	Input RED Text from Controller
pin	3	R Insert	TTL	Input GREEN Text from Controller
pin	4	R Insert	TTL	Input BLUE Text from Controller
pin	5	Insert	TTL	Input Insert from Controller
pin	6	HS INT	TTL	Input Hor. Sync Pulses from Controller
pin	7	VS INT	TTL	Input Vert. Sync Pulses from Controller

Connections

Connector J400 (to decoder)

pin 1	+17V		Output Power Supply +17V
pin 2	SC_2579		Output 3-level Sandcastle pulse from TDA2579
pin 3	+VID		Output Selection Voltage Video (+12V for Video)
pin 4	SDA	TTL	I^2C bus
pin 5	SCL	TTL	I^2C bus
pin 6/8	GND		GROUND
pin 9	VID/LUMA	TTL	Output Video/Luminance signal
pin 10	HUE	2..4V DC	Output control voltage Hue
pin 11	CHROMA	150Ω	Output CHROMA Signal
pin 12	+S VID		Output Selection Voltage S-Video (+12V for S-Video)

Connector J401 (to decoder)

pin 1	(R-Y)	75Ω	Output (R-Y) to Line Doubler
pin 2	GND		GROUND
pin 3	Y	75Ω	Output Y to Line Doubler
pin 4	GND		GROUND
pin 5	(B-Y)	75Ω	Output (B-Y) to Line Doubler
pin 6	GND		GROUND
pin 7	SYNC	75Ω	Output SYNC to Line Doubler

Connector J402 (from line doubler interface)

pin 1	(R-Y)	75Ω	Input (R-Y) from Line Doubler
pin 2	GND		GROUND
pin 3	Y	75Ω	Input Y from Line Doubler
pin 4	GND		GROUND
pin 5	(B-Y)	75Ω	Input (B-Y) from Line Doubler
pin 6	GND		GROUND
pin 7	SYNC	75Ω	Input SYNC from Line Doubler

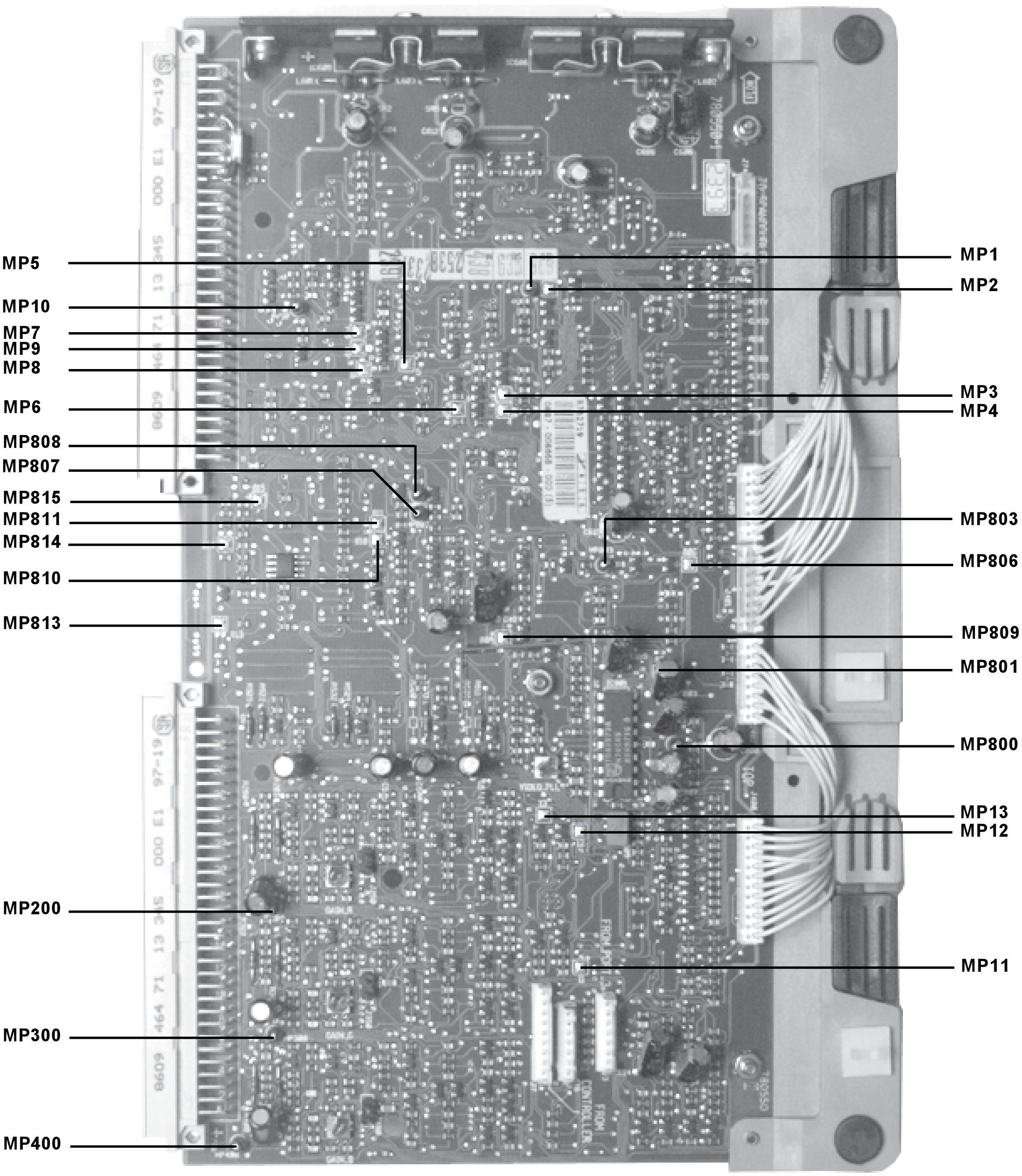
Connector J405 (from decoder)

pin 1	GND		GROUND
pin 2	(R-Y)_DEC	75Ω	Input (R-Y) from Decoder
pin 3	GND		GROUND
pin 4	Y_DEC	75Ω	Input Y from Decoder
pin 5	GND		GROUND
pin 6	(B-Y)_DEC	75Ω	Input (B-Y) from Decoder
pin 7	GND		GROUND

Connector J741 (to line doubler interface)

pin 1	SDA		I^2C bus
pin 2	SCL		I^2C bus
pin 3	GND		GROUND
pin 4	+17V		Power Supply -17V (±0.5V)
pin 5	-17V		Power Supply +17V (±0.5V)
pin 6	+9V		Power Supply +9V (±0.5V)
pin 7	GND		GROUND
pin 8	CP		Clamp Pulse

Measurement contacts (see diagram for location on component)



TECHNICAL DESCRIPTION “SIGNAL INPUT ”

1. General

a) Generation of the clamp pulse.

As the clamp pulse for the brightness control should depend on the type of input source, the **position** and the **width** of the pulse must be adapted to the operating mode of the projector which, on its turn, depends on the input signal.
Furthermore, the **clamping method** is also important for the efficiency of the clamping or brightness circuit and to avoid clamping problems.

Hereafter, we’ll discuss first the generation of the clamping pulses in general followed by a description of the schematic diagram.

With *position* we mean the position of the pulse **with respect to the horizontal sync pulse** (referred to as *H sync* hereafter).

The clamping pulse can start when the sync starts, this is, triggered by the leading edge of the sync pulse (--> separate sync and internal sync from the microprocessor board).

Or, the clamping pulse can start when the sync takes an end, this is triggered by the trailing edge of the sync (--> sync on green, video, HDTV, scan doubled sync from the optional line doubler referred to as LIDO further in the text).

The width can be 0.5µs (standard clamping in RGB) , 1µs (scan doubled video and HDTV) , or 2 µs (standard composite video).

b) Clamping methods.

* *Standard clamping mode:*

With standard clamping it is possible to correct the black level of the video signal ‘in two directions’. The clamp comparator can correct the black level to the desired clamp level irrelevant its original position (this level may be lower or higher than the reference clamping level).
Advantage of this method :
- reliable and *relative fast* clamping method.
Disadvantage :
- a minimum time is required for a correct clamping (a minimum width of the clamping pulse is necessary).

Now, this time, being added to the time needed for sync separation (approx. 0.4µs) requires a long backporch time of the signal for a correct clamping.

Actually, the clamping pulse in the 800 series for standard RGB is 0.5µs which requires a backporch of 0.8µs minimum. With separate sync and sync on Green (and sync on R and B...) this sometimes leads to an incorrect clamping.

** Restoration mode :*

With this method the clamp comparator can correct or adjust the black level of the signal in one direction only : in the direction of the top of the sync. A pull-up resistor tries to pull the videosignal towards the white level during the active line time. As soon the clamp comparator gets active, the videosignal's black level is too high and the comparator re-adjusts it (drops it) to the desired level. The clamping pulse here can start coincident with the start of the horizontal sync. The sync tip itself, if present, does not cause any trouble for the 'one way clamper' since this top of the sync is always far below the clamping reference level .
Consequently, the comparison in the comparator will start only when the signal is higher than the reference level and this is after the sync tip or at the start of the backporch level.

Advantage :

The clamp pulse can start now coincident with the hor. sync which eliminates the delay of the sync separator. The real clamping time can be reduced to **0.4µs.** Since the sync does not play any role any more in the clamping, signals with separate sync AND sync on red, green and blue even can now also be correctly clamped.

In general, in practice, we can always use standard clamping in RGB **except :**

* **when the backporch is small (between 0.4 - 0.8 µs).**
* **when the sync is separate and with sync on Red, Green and Blue**

The operating mode of the projector cares automatically of the switching and selection of the triggering pulse in the standard mode as will be explained below.

However the choice between standard or restoration mode and choice of the width of the pulse is always a task of the service engineer ,responsible for the installation !
Indeed, the clamping method can be 'installed' per memory block or per source.

2. Clamp pulse generation - Trigger

Following trigger signals are used (*sheet 4*, clamp pulse generation) :

- *HS_NEG* : external horizontal sync (---> RGB , HDTV).
- *HS INT* : internal hor sync from the microprocessor's text generator.
- *SC* : sandcastle delivered by the TDA2595 on the vert defl board.
- *SC_TDA2579* : standard videosignal sandcastle delivered by the TDA2579 of this board (video and S-video not line doubled).

a) *SC* and *SC_TDA2579.*

Two identical circuits (Q5/Q6 and Q3/Q4) generate a pulse which is delayed with respect to the top of the sandcastle. This delay is needed to compensate the delay of the luminance signal which has passed through the decoder. We discuss the circuit around Q5/Q6.

Q5 gets forward biased at the top of the *SC* as its base is at +5V and the top-top of the sandcastle is at approx. 10V. Now, via R15, C5 is charging up and as soon the emitter reaches the 5.6V level, Q6 starts conducting as well (Q6's base is at +5V).
When Q5 stops conducting, C5 discharges and Q6 gets blocked again.
At the collector or *MP3* (Measurement point 3) we see a delayed pulse which feeds now the inputs "3" and "1" of the dual multiplexer IC3.

In a similar way, a trigger pulse is derived from the *SC_TDA2579* with Q3/Q4, however, the trigger pulse is now applied to inputs "2" and "3" of the multiplexer IC2.

b) External horizontal sync *HS_NEG* and *HS INT*.

The external horizontal sync *HS_NEG* is combined with the internal sync *HS INT* with IC6. With the circuit R45/C25/R44/D22 a "high" is presented at the input pin 5 when there is no internal sync, thus, let the *HS_NEG* pass through the gate.
IC1 (1,2) inverts the sync polarity in order to be able to select between the leading and the trailing edge.
When using the external HS input, there might be a problem when there is no sync at the input, as there will be no clamp pulse then ! The videosignal can then run away, and this can cause problems the first moment sync is applied...
In case *H sync* is absent another trigger source must get active, the *SC* from the TDA2595. Therefore, an automatic detection of the *H sync* will

"oblige" the multiplexer to select the *SC* in this case via the diodes D4/ D5 (see later).
With C1/D1/R1 the negative sync is reclamped at zero and followed by a peak detection D2/C2/R2. Output pin 4 is high when there is no sync presented at pin1. When this output is selected by IC2, output pin 7 forward biases D4 and D5 and this will "oblige" IC3 to select its input "3" This input is the trigger pulse from the *SC* (TDA2595) as discussed earlier.

c) HDTV or 3-level sync.

Here we meet another problem : the third level of the *H sync* pulse. Clamping during this third level is always troublesome.
Consequently, the clamping pulse needs to be delayed to avoid above problem. This delay is realised with Q1 / Q2 /C3 / R3.
At the leading edge of the negative pulse Q1 gets very quickly in conduction and discharges C3. At the trailing edge of the pulse, Q1 gets out of conduction and C3 starts then charging up via R3. As soon the +5.6V level is reached Q2 starts conducting. A 1µs delayed positive pulse appears at the collector of Q2. D3 prevents saturation of the transistor.

d) Restoration method - Pulse stretcher (0.3µs).

In the *restoration clamping mode*, the clamping pulse starts at the start of the H sync and stops 0.3µs after the end of the horizontal pulse. This pulse is generated by the "*Pulse stretcher (0.3µs)*" circuit around Q7/ Q8 as follows.

At the first transition of the pulse applied at the gate of Q7, the latter starts conducting and C7 is charging up towards the +5V.
Q8, was in conduction, is now getting out of conduction as its base is at ground level and the emitter goes positive. The collector of Q8 jumps from -0.3V to +5V.
At the second transition of the pulse , Q7 gets out of conduction again and C7 discharges towards the -12V via R19. As soon the voltage at the emitter reaches -0.6V, Q8 gets back into conduction and its collector drops back to -0.3V. The delay (mainly determined by C7/R19) is such that the generated pulse is as long as : the sync pulse + 0.3µs.(= 0.3µs stretcher).

This means that the pulse width includes the delay of the sync separator or sync stripper as well.

3. Selection of the clamp trigger pulse.

There are each time two multiplexers (selectors) in row ,IC2 and IC3, involved. Each multiplexer has two selection pins referred to as “0” and “1”. These selecting pins are supplied with switching voltages : *+VID, +RGsB* etc...
The possible input signals are applied to the inputs referred to as “0”, “1”, “2” and “3”. The combination of the two selection input voltages allows selection of one of the four inputs.
For your reference you find hereafter the truth table related to the input selection. It can be of further help for a better understanding and for trouble shooting.

level selection “0” (pin 14)	level selection “1” (pin 1)	selected inputs.
0	0	“0” (pin 6,10)
1	0	“1” (pin 5,11)
0	1	“2” (pin 4,12)
1	1	“3” (pin 3,13)

0 : low level
1 : high level.

The first multiplexer of IC2 is used to forward bias D4/D5 if needed (to force the *SC* in case there is no sync in RGB), and, the second multiplexer is the selection of the trigger pulse.
The first multiplexer in IC3 selects the trigger pulse (the second selection in row) and the second multiplexer is responsible for the “video mute enable”.

a. Video- Svideo.

The first multiplexer of IC2 selects pin 4 which is ground and thereby blocking the diodes D4/D5.The two selection pins are thus low level.
IC2 selects pin 12 which is the *SC_TDA2579* and IC3 selects pin 6 since its two selection pins are low level. Consequently, pin 7 output is the delayed pulse based on the *SC_TDA2579.*

b. Video line doubled.

In this case the *SCANDOUBLER_ON* line is high and IC3 selects pin 5 input.

At pin 7 output we have now pulses derived from the *SC* which is delivered by the TDA2595 (obviously at double the video line frequency !).

c. RGBS - RGsB .

In the RGBS mode the *+VID* and *+RGsB* lines are low and pin 10 is selected , this is the positive *H sync* pulse which is then further selected by IC3 and available at pin 7 output.

In the RGsB mode the *"0"* input selection is high now, pin 11 is selected by IC2 this is the negative *H sync* pulses.
As a conclusion, we find at the output pin 7 positive pulses in RGBS and negative pulses in the RGsB mode.

d) HDTV.

The HDTV line being high now, the 1µs delayed pulses from Q2 are selected by IC3.

Note that the second part of the multiplexer IC2 selects pin 6 or the output of the automatic detector. Suppose there are no *H sync* pulses, then the output pin 7 is high and forward biases D4/D5 in order to select the sandcastle SC (see automatic detection par 2.b.)

Up to now, we only discussed the selection of the trigger pulse. Next step is the generation of the pulse itself and more precisely its width.

Note that the monostable Q9-Q12 determines the clamp pulse width in the normal mode. The pulse for the restoration mode is NOT generated by the monostable, but, by the pulse stretching circuit around Q7/Q8 as discussed earlier.

4. Clamp pulse monostable multivibrator (Q9-Q12).

The base of Q12 is connected to the +5V line with R25 and is consequently in conduction in a steady state. Its low collector voltage keeps Q9 in the blocked state via the resistors R24/R28. The trigger pulse at pin 7 of IC3 is differentiated with C8/R21 and the positive swing forward biases Q9's base via D13. The voltage drop at its collector is coupled with C10 to the base of Q12 turning the latter off and its collector voltage goes thereby high and keeps the base of Q9 high.
However, C10 starts charging up via R25, R26, R27 or a combination of these resistors. The base of Q12 increases exponential until the threshold level of 0.6V is reached. The start condition is restored at that time. The slope of the exponential increase is determined by C10 and the

charging resistors R25, R26 R27. The faster the capacitor is charged the smaller the pulse...
The *CLAMP_WIDTH 1* and *CLAMP_WIDTH 2 voltages*, generated by IC601 (PCF8574) switch on and off the Mosfets Q10 and Q11 and hence can determine the clamp width : 0.4 - 0.6 - 1 - 2 µs.
Here again D11 and D12 prevent saturation of the switching transistors.

5. Selection of the clamping method.

With the first multiplexer in IC5 three possible inputs can be selected :

°*normal clamping* method : the selection pins 14 and 2 are both low and input “0” is selected.
This is the pulse generated by the above discussed monostable multivibrator.

° *restoration method* : both selection voltages are high and the input “3” is selected.
This is the pulse from the *“Pulse stretche*r”, or, a pulse that is 0.3µs longer than the *H sync* pulse.

° combination of both (not used at this moment) : or a clamp pulse for the restoration method which is however adjustable in width.
This is realised with IC4(1,2,3) (**not used at this moment**)

The output pin 7 is a pulse *CP* passing the gate IC6(1,2,3) and D14 and leaving the board to be applied to the “RGB DRIVE” board.
This pulse is also sent to the *“EN”* input of the second multiplexer acting as an inverter and delivering *the CP_INV* pulse.

6. Color switching on / off - Insert - video mute.

The picture can be blanked with following signals :

- by the user (software), in the Color Select menu (RED_OFF, GREEN_OFF and BLUE_OFF).
- when inserting signals from the controller to insert a text box (INSERT).
- no sync in RGB (NO_SYNC).
- no videosignal in video mode (VIDEO_MUTE).
- with the INV_CP pulse.

All above lines are high when inactive and (can) switch low to blank the picture. They are combined with IC8, IC9 and IC7.

* The *RED,GREEN,BLUE_OFF* lines are the P1, P2 and P3 outputs of

the PFC8574A (IC602) controlled by software.

* *NO_SYNC* is low when the automatic sync detector does not detect *H sync* pulses.

* *VIDEO_MUTE* : is low level when the VIDEO TRANSMITTER IDENTIFICATION (pin 13) of the video sync processor TDA2579A (IC 801) does not detect a video signal input.

This line can (and may) only be used to blank the picture when it is video composite and the optional line doubler is not active ! This condition is implemented by passing the +*VID* voltage through the multiplexer IC3. Output pin 9 of this multiplexer is high only when the scan doubler is NOT active and it is not a tri-level HDTV (= both selection lines are low then).

This voltage is inverted by IC1(11, 10) and is referred to as *“VIDEO MUTE ENABLE”* in the schematics.
The mentioned *“VIDEO MUTE ENABLE”* line can block D23 to release the *“VIDEO_MUTE”* line from the sync processor TDA2579A.
In all other modes, pin 9 is low and D23 is forward biased. The VIDEO_MUTE voltage from the TDA2579A is then overruled and now unable to pull low the inputs of the NAND gates.

* *INV_CP* pulse : in order not to “deteriorate” the clamping later (especially with the text from the processor board) there is blanking during the *INV_CP* time.

The red LED D19 is driven with the *VIDEO_MUTE* and *NO_SYNC* lines. The LED is ON when the video sync processor TDA2579A is not locked or there is no sync at *HS_NEG*.

Note that there is still a coincidence detection and red LED indication on the UN SYNC + VERT DEFL board as well.

IC7 now combines the *INSERT* signal with the outputs of the NAND gates IC8/IC9. If an output (eg. pin 4) switches low the corresponding color must be blanked, in this case the red color.
The low output means that there is no current flowing through R36 (base of Q14 is at ground level) and the RED_MUTE line is hence at -5V. Above circuit is a DC level shift necessary for the very fast switcher MSWA2-20 using these MUTE signals (sheet 6,7,8). Obviously, the same applies for the green and blue channels.
The CONTRAST H/L is not used at this moment.

7. Video matrix (sheet 5).

* General :

These current sources must ‘bring’ the component input signals (from the BNC inputs) either to the optional line doubler, if present, or, straight to the video matrix for saturation control and de-matrixing.
An R/G/B analog input at 15khz can also be line doubled. In this case the RGB signals must be combined to (=matrixed) (R-Y), Y and (B-Y) prior to apply these to the line doubler (as the line doubler only accepts color difference signals...).

* Component video input :

The line *RGB_MATRIX* is high now : Q100, Q101, Q104, Q107 are blocked. The (B-Y) signal is applied to pin 5 of J401 via Q108 / Q109.The + RGB voltage biases Q108 with R123/R124. The Y and (R -Y) signals pass in an analog way to the connector J401.

* RGB analog input ---> component for LIDO :

The *RGB_MATRIX* line is low now : Q102 is blocked and Q100,Q101, Q103, Q104, Q105, Q106, Q107, Q108, Q109 are forward biased.

The Y signal is made by adding the R, G and B with R102, R103, R104 and the common R105. We find the (-Y) at the base of Q103 from where it is sent to pin 3 of the J401 connector. The (-Y) signal is coupled to the bases of Q104 and Q107 via C104. These transistors invert the signal and add it to the R and B at the emitters of Q105 , Q108 respectively. The matrixed signals finally will feed the line doubler via the connector J401. If there is no LIDO installed, J401 is straight connected to J402 except for the diode D105 in the sync line.

8. Color saturation control (sheet 5).

The (R-Y) and (B-Y) signals are passing first the attenuators built around IC101, before dematrixing to R, G and B. We discuss the saturation control of the (R-Y) signal.
The (R-Y) signal is applied to the base of the “emitter-transistor” of IC101 (12,13,14). The emitter current is shared by the two collector currents and this share depends on the base (difference) voltages of the transistor pair. The (R-Y) voltage is consequently converted to a current flow in R151 and the voltage across it is coupled via C119 to Q113.

This base difference voltage is got as follows :

From the +5V a stable +2V is derived with the divider R130/R131 and the buffer OPAMP IC100(8,9,10). This is the voltage for one base of the differential pair.

The *SAT* voltage from IC604 (sheet 2) is divided by R138/R139 and then buffered with IC100(1,2,3) before it is applied to the bases of the transistors.
IC100(5,6,7) compares this *SAT* voltage with a 1.05V ref and if lower, the output pin 7 pulls the *SAT* voltage to zero. This will guarantee a 100% black / white picture at low saturation levels.
The dematrix circuit is built up the classic way and does not need further explanations.

The signals, obtained from the matrix, are referred to as *R_MATRIX, G_MATRIX* and *B_MATRIX* to differentiate them from the RGB analog inputs.
They further proceed to the signal selection circuit and to the clamping (see sheets 6, 7 and 8).

9. RGB input channels - Clamping (sheet 6,7 and 8).

- <u>Input selection</u> :

The Red, Green and Blue channels (sheets 6, 7 and 8) are completely identical. We discuss again the red channel, sheet 6 of the schematics.

There are three possible inputs :
* the *R IN* : R (red analog) or *(R-Y)* from the BNC input.
* *R (2RGB)* : red from the 2nd RGB input (D9 input connector).
* *R MATRIX* : red being the result from the video matrix (see “video matrix”, paragraph 8).

a) No selection of an external source (selection of an internal pattern) :

Then, the three “gating” or series diodes D206, D207 and D208 are all blocked as follows :

The shunt diode D202 is in conduction via R204, R205. The cathodes of D200, D202 and D203 are at -0.6V. Hence D200 is blocked as its anode is at -12V via R202. The input signal, if any, cannot get through to the base of Q200. The base voltage of Q220 is thus approximately 0V. The emitter of Q200 and the anode of D206 is then at -06v and its cathode is minimum 0V. As a result, D206 is a second ‘isolation’ in row

for the input signal, if any. It is obvious that Q201 also is blocked since the base is at -0.6Vdc.
The second input from the Port 3 is not going through neither because the +Port 3 voltage is absent and the negative -12V provides a full blocking of Q202 and D207.
Finally, the *R MATRIX* signal cannot get through because the *+MATRIX* voltage is absent and the -12V blocks Q203 and D208.

With the selection of an RGB input the *+RGB* voltage is active together with *+NOT_MATRIX*. D200 and D203 are both now forward biased and the base of Q200 is biased at approximately +5V. The red signal passes through to R224.
If the input signal is (R-Y) or the user has switched the line doubler active in the RGB mode, then, the *+NOT MATRIX* switches inactive and *-NOT MATRIX* switches active high. The signal is buffered with Q201 and applied to the video matrix (see par.7) as it may not pass to Q200.
Note that the signal, if it is component, will now pass through the video matrix and return at the *R MATRIX* input (see same sheet 6), that will be discussed later.
If it must be scan doubled, it will first be matrixed and then line doubled by the LIDO (LIne DOubler). The output of the latter, being component will once again pass to the video matrix for de-matrixing. The obtained R signal is referred to as *R MATRIX* .

When the second RGB input is selected, *+PORT* becomes active and the red signal passes through via D207 to R224. This signal cannot be line doubled.

The *R MATRIX* signal is the red signal from the video matrix passing through each time the matrixing is required where the +MATRIX line is high.

- Amplifier x2.

IC200 (HFA1100) is a high bandwidth amplifier. The gain is adjusted with P200 in the feedback. C209/R248 , C210/R227 and C211/R228 improves the response at high frequencies. The output is now applied to the fast switcher IC201.

- Video switch.

IC201 (DC-2GHz) is a very fast GaAs switcher mainly used in a 50 Ohm system (R232 and R234 in parallel is 50 Ohm). To close a switch in this IC the corres-
ponding control line CTRL1 or 2 must be at 0V. To open the switch

(=blanking), the line must be at -5V. Switching time is 3ns.

The RED_MUTE line is at -5V when the red video is inactive (= blanking), and the switch 5 --> 2 is open then. When however the RED_MUTE line is 0V, the line is closed and the red video is not blanked.

If text must be displayed, the RED_MUTE is the INSERT signal, the text information is supplied via R234 to the connector J250, thus behind the switcher.

The signal is connected now to the RGB DRIVER via a 50 Ohm coaxial cable.
If the CONTRAST H/L line would switch at 0V, the resistor R233 is added in parallel and the amplitude is lower (this line is inactive at this moment, only for future expansions).

- Clamping.

** General.*

The output signal at connector J250, leaving the INPUT board must be clamped accurately at 0V. Therefore, the output signal is applied to a clamp comparator IC202 via R231, the other input, pin 2, is 0V.
The method of clamping can be selected by the user. The time constant of the hold circuit depends on the selected clamping method.
The width of the clamp pulse is set to a standard value for each clamping method. In theory, one can select between 4 different widths in the normal clamping mode with the aid of some “switching lines” or voltages, generated by the I²C interface IC601 (sheet 2). In practice, the selection by software (menu) is very limited to facilitate the installation.
The clamp comparator CA3080 compares the input levels the moment a *CLAMP_PULSE* is sent to pin 5. When the pulse is high level there flows a current via Q204 into the pin 5. A current will then flow into or out of the pin 6 depending on the voltage difference at the inputs.

** Normal clamp mode :*

INV_CLAMP_MODE is high and *CLAMP_MODE 1* is low.
Q205 is saturated with the positive *INV_CLAMP_MODE* voltage. Hence, current from or into the output pin 6 can charge or discharge capacitor C220 as D210 is shorted.
Only when the clamp pulse time is 2µs (video or S-video) the line *CLAMP_TIME_CONSTANT* is switched high (see sheet 2) and Q206 is switched on in order to add C221 and increase the time constant. This avoids stripes in the picture with noisy signals

** Restoration mode :*

Here *INV_CLAMP_MODE* is low and *CLAMP_MODE 1* is high.
Q205 is not conducting , hence, D210 is not shorted any more. Q207 is conducting and connects R243+RR44 to ground. The capacitor C220 discharges slowly via these resistors in the time between two clamping pulses.

When the clamp comparator is active, its output can only charge up this capacitor via the (one way) diode D210.
As explained, in the restoration mode a stretched clamping pulse is used. Now, during the sync time, the clamp comparator output is a negative current (current into the pin6) . This current cannot flow through D210 , thus, cannot discharge C220 . The current into pin 6 will flow in stead through D211 thereby avoiding saturation of the output transistor of the CA3080. This saturation would slow down the speed of the clamper in this mode.
IC203 (1,2,3) buffers the voltage of C220 and installs via D211a small voltage of 0.6V approx. at the output pin 6. This again avoids a delay in the switcher that might be caused when the output swing would be too high.

The voltage variations across C220 are buffered with Q208 and converted to a current through R245 / Q209. The current flowing into R246 drives Q210. The current flow in this transistor causes a voltage change over R225.
Above circuit allows a perfect clamping of the video black level at 0V in the two clamping modes and with two time constants.

10. Video and sync inputs.

- Video and Svideo inputs.

The 5 input circuits (except the C input) are build up in a similar way. We'll limit the explanation to the video input.
When no input at all is selected, or no video in this case, the diode D502 is forward biased and installs -0.5V at the base of Q500 (current delivered by the -12V through R504). The anode of D500 is at -12V via R502 and because its cathode is at -0.5V the latter is blocked. This all means that a series blocking diode together with a shunting diode D502 guarantuees a perfect isolation of the video input, if any, from the *VID/LUMA* line.

If the *VID_Select* line is high at a video input selection, the current flow from *VID_select* via R501, D500, R502, R504, -12V forward biases

Q500 receiving the video signal at its base. The inverted video at its collector is once again inverted by Q501 and leaves the input module as a current.
The chrominance is inverted by Q503 and leaves the input via this current transistor. Via R515 the DC level of the chrominance input can be measured and is sent via IC600 (buffer) to IC601 (PCF8574). Herby, it will be possible to switch the corresponding video format 16:9 / 4:3 in the future (this DC level is not a standard yet and this feature is not implemented at this moment).

- Sync inputs.

The sync inputs are switched on and off just like the video and luma inputs . The diodes D514...D519, D520...D525 limit the amplitude of the outputs in case of high input signals. The *"sync_detect"* line is used for the automatic sync detection (sync on green or separate sync).

- Text insertion from the µP.

The *R*, *G* and *B_INSERT* signals at TTL level are AND-ed with the *INV_CP* pulse in IC500. The outputs are thereby forced at zero level during the pulse time in order to avoid faulty clamping with internal patterns or gen - locked patterns.
The *_*TXT* signals are then proceeding via R234, R334, R434 to the connector outputs J250, J350, J450 (see sheets 6,7,8).

11. Switching voltages (sheet 2).

The input module is driven by two I²C interfaces PCF8574 and PCF8574A and a Bella (Barco custom made). The data line (SDA) of IC601can however be
disconnected from the bus by means of Q602. The chip select signal is delivered by P4 of the other IC602 interface. If P4 output port is high, Q603 is saturated and the gate of Q602 is low. IC601 is then disconnected from the bus. This system allows the use of two PCF8574's with the same address in one and the same projector. The other one is on the RGB driver board (R762720).

<u>IC601 : output/input ports.</u>

- ports P0 - P3 --> clamping switching :

CLAMP_WIDTH_1	CLAMP_WIDTH_2	width of the clamp pulse.
0	0	0.3µs
1	0	0.5µs
0	1	1µs
1	1	2µs (big time constant)

CLAMP_MODE_1	CLAMP_MODE_2	clamping mode
0	1	normal
1	0	restoration (variable width)
0	1	normal
1	0	restoration (0.3µs fixed)

- port 4 : *NOT_1200_MODE :*

0 : RGB driver *1200 series
1 : RGB driver *808S series.

- port 5 : *ENABLE CHROMA FILTERS.*

0 : S-video input.
1 : composite video input

If this output is low , Q614 is forward biased and this turns on Q615 to put a high on the +*S VID* line.
(With this +*S-VID* voltage, the decoder can be switched to video composite or S-VIDEO. At the selection of S-video (source 2) it is possible to toggle to “video” and obviously apply a video composite signal at the Y input of the S-VIDEO connector.
Hence, the projector can accept two selectable video composite sources.

- Port 6 : SCAN_DOUBLER_ON.

  0 : line doubler off
  1 : line doubler on .

In order to switch the line doubler really active, the PLL on the line doubler must be LOCKED as well (see description of the LINE DOUBLER).

- Port 7 : WIDE IDENTIFICATION.

not used at this moment and not supported by the software.

IC602 : output/input ports.

- *P0 / P1 / P2* : to switch off one or more colors. If the output is high, the corresponding color is on, a low output means that the color is muted via software control.

- *P4* : is used to connect (or disconnect) the SDA data lijn of IC601 to the I²C bus.

- *P5 / P6 / P7*. : input source selection according following table :

P7	P6	P8	source.
0	0	0	video
0	0	1	S-Video
0	1	0	Port 3 (2nd RGB)
0	1	1	RGB (RGBS or RGsB)
1	0	0	Component Video
1	0	1	HDTV
1	1	0	Component video + HDTV
1	1	1	internal pattern

The above 3 bit are further decoded by the multiplexer into a “decimal value” by IC603.

Each time one output is switched low to activate the corresponding switching transistor and hence activate the **_*select* lines.These lines are only used to select the input signals.
Note that the *+S-VIDEO* voltage is high on condition the *ENABLE CHROMA FILTERS* output (P5 of IC601) is low.

* RGB analog input (BNC)

At the selection of an RGB analog source (not “port3”), pin 12 comes low and Q613 conducts.
The seperate sync input now is also applied to the base of Q609 for automatic sync detection.
If there are no pulses at the HS/CS input, Q610 remains blocked and Q611 switches the *+RGB* voltage to the *“RGsB_select”* line. The high level now on this line makes Q619 also active and feeds the *+RGsB* line

If there are sync pulses (CS or HS), they are amplified with Q609. A peak detector provides the required gate-source voltage,and, Q610 is now conducting. C615 is charged up to the +12V and Q611 is off.

* Component input :

At component video selection, pin 1 is low. Via D611 the *+RGB* line is active and via D616, D615, the base of Q621 is pulled low. The base of Q622 is at +12V and via D621 the *+MATRIX* line is high. As Q625 is off, the *+/- NOT_MATRIX* lines are both high impedant.

* HDTV :

Pin 5 is low. The *+RGB selection* line is high now via D610 and through D613 the *HDTV* line is switched to +5V.

IC604 :

The potentiometers 0 , 1 and 2 receive a +1V and +3V reference voltage. This range is fine for the saturation control but must be level shifted to +2V ...+4V for the HUE control on the decoder (R658, R660, R659).

Potentiometer output VO2 is used to saturate Q627 with +3V on the base. The *+RGB_MATRIX* line is then low (see sheet 5 of the schematics).

11. Sync processing.

a. Horizontal and composite sync processing.

1. Separate horizontal sync.

The *RGsB.select* line is low, Q815 is not conducting and the “0” selection pin is high with R867.Selection pin “1” is low. Input pin 5 is selected, this is the HSYNC from the BNC input.

2. Sync on green.

The RGsB.select line is high and hence selection input “0” is low. The G/G-Y input is selected.

3. Port 3 (sync).

+PORT 3 is high and the *HS* sync at the pins 2/4 is selected.

After buffering with Q816, the selected signal is sent to the sync stripper IC806. The output amplitude at pin 1 is divided by R870/R887 and reshaped with two Schmitt triggers.With R872/C827 the average value is measured.

When the syn is negative polarity, the average value at pin 5 is high and its output low. The sync at pin 1 of IC808 is not inverted.
If the sync is negative, the polarity is corrected with the EXOR. Consequently, at pin 3 (*HS NEG*) the sync is always negative and always postive at pin 6.

The pulses are now divided by R873/R875 and the average value is set at +2,5V with R874/R875. Note that this DC level is the biasing voltage for Q813 and Q805 (on condition *HS_ POS* is selected).
The *HS_POS* sync is buffered with Q813 and then applied to the current driver Q814 where they can further be used in the optional Line Doubler (in case the input is RGB 15khz).
The *HS_NEG* pulses are used to make the clamping pulses (see sheet 4).

The same *+PORT 3* voltage is dropped to TTL level and applied to input pin 5 of the OR gate IC4, putting a high at the G4 input of the multiplexer. The outputs of the latter are swiched off (=high impedant).
Note that the *SYNC DISABLE* line, if high, can also switch off the outputs of the muliplexer. This will later be used to switch over from the 4/3 to the 16/9 ratio.
The + PORT3 voltage also switches off Q807 and hence Q806.The supply voltage for the sync output stages diasappears and the outputs are

“free” for the sync from the 2nd analog input board.

4. Internal pattern.

As there is no input selected, there is no sync at *HS_POS.* However Q805 is biased from the divider R874/R875 and the *HS INT* sync from the controller can proceed to the output.

b. Vertical sync processing.

The *V SYNC* is buffered with Q817. The lowest level of the sync is clamped at +5V with C828/R878/IC809(5-6-7)/D812. As soon pin 6 is below the +5V, the output charges up C828 via D812. The highest level is measured by IC810(2-3-6) and put on hold in capacitor C829. Indeed, as soon input 3 is higher than the voltage at C829, the output charges C829 untill both inputs are same. R879 is the discharging resistor for the hold capacitor.

The buffered top value is now used to determine, together with R880,R881, R882, D814, a voltage which is 50% of this top-top value. The diode D814 installs an offset to avoid oscillations when no sync is applied.
The stripped sync pulses at the output pin 1 are reshaped and passing an autopolarity correction circuit (similar to the HS).
The *VS_POS* pulses further proceed via Q810 / Q812 to the output *VS* and thus to the Vert Defl board.
In case of an internal pattern, the *VS INT* sync pulses drive the current sourcer Q812 via Q811 in a similar way as Q810.

c. Sync processing in video.

The sync on the line *SYNC_DEC* is coming from the decoder (because of the delay introduced by the comb filter) or from the optional line doubler.
This sync is buffered with Q800 and proceeding to the video sync processor TDA2579A and the inverter Q803.
If the *scandoubler_ON* line is high active, the sync at the collector of Q803 is choosen by the multiplexer IC804.
If the line oubler is not active (or when there is no line doubler installed) the sync (composite video) proceeds to the *Video In* of IC801.
The TDA2579A is choosen here for its very stable vertical sync even in case of a bad tape signal, and, its stable sandcastle (generated by a PLL system).

The vertical sync is generated by an internal divider (625 or 525) and its

ST output (pin 3) is used to trigger the monoflop IC803. The *SC* output is first passing Q802. Since its base is at +5V, only the top of the sandcastle appears at the collector and triggers the mono.
Hor flyback pulses are simulated with Q801 and IC802. The free running frequency of the oscillator is adjusted with P800 to the standard video line frequency.

The internal coincidence circuit puts a “high” at the *50/60Hz* output (pin 13) as soon the PLL’s are locked, both horizontal and vertical.
This line, referred to as *VIDEO MUTE* is used to inhibit the monoflops in IC803 when there is no video at the input or as long the PLL is not locked. This required since the TDA2579A can give pulses even when the input signal is not correct.
The same *VIDEO MUTE* is also used to blank the picture (see “blanking” sheet 4 or par. 6 of the description).

The smaller pulses of the composite SC pulses, taken from pin 17, are found accross R824 and trigger the monoflop in IC803. The output at pin 6 is further dropped to 2,5V and presented to the multiplexer IC804.

The vertical pulses are taken from pin 3 (ST) and passed to a monoflop before being presented to the multiplexer.
As a conclusion :

The <u>first multiplexer</u> (horizontal or composite sync selection) of IC803 can select from :
* HS_POS : this is the G/G-Y, H_SYNC, HS (2nd RGB) sync from the sync stripper.
* SC_TDA2579A : stable SC from the TDA2579, in video mode, no scan doubling.
* SYNC_DEC : sync generated by the line doubler.

The <u>second multiplexer</u> selects the corresponding vertical sync :

* Stable vertical sync, obtained by a divider, if it is video composite.
* VS_POS : separate vertical sync input.

Parts listing R762719

SIT.	ITEM NO.	DESCRIPTION	QUANTITY
150	A576297	SPR L 6 M 3 H 5 NBRNI	3
200	R133076	HTSN@A TO5 MNT PAD 3P	2
80	R133085	HTSN@A GEN I_SHT CRA 30	0,0003
180	R3631049	SCR Z933 M 3 X 6 SS	3
60	R3631059	SCR Z933 M 3 X 8 SS	2
170	R3661026	NUT D934 M 3 SS	3
50	R3674391	RVT BLND_R3,2C 3,2WSTAL	2
160	R367502	SPR D6798AD 3,2D 6 STZN	3
10	R367699	RVT AVTRON2,5L 8,1 AL	4
110	R367699	RVT AVTRON2,5L 8,1 AL	2
100	R722276	LOCK49 PCB UN CPL	1
30	R802629	HTSN G800 RGB PR-AMP	1
40	R802692	HTSN G800 FIX HTSN	2
70	V1330681	HTSN@A TO220 SPG DUAL	2
C 1	P210213	C# Y5V MU 100N Z 25 0805	1
C 2	P210213	C# Y5V MU 100N Z 25 0805	1
C 3	P210081	C# COG MU 180P J 50 0805	1
C 4	P210021	C# COG MU 100P J 50 0805	1
C 5	P210018	C# COG MU 33P J 50 0805	1
C 6	P210213	C# Y5V MU 100N Z 25 0805	1
C 7	P210001	C# COG MU 10P C 50 0805	1
C 8	P210081	C# COG MU 180P J 50 0805	1
C 9	P210213	C# Y5V MU 100N Z 25 0805	1
C 10	P210081	C# COG MU 180P J 50 0805	1
C 11	P210213	C# Y5V MU 100N Z 25 0805	1
C 12	P210213	C# Y5V MU 100N Z 25 0805	1
C 13	P210213	C# Y5V MU 100N Z 25 0805	1
C 14	P210213	C# Y5V MU 100N Z 25 0805	1
C 15	P210213	C# Y5V MU 100N Z 25 0805	1
C 16	P210213	C# Y5V MU 100N Z 25 0805	1
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C 20	P210213	C# Y5V MU 100N Z 25 0805	1
C 21	P210213	C# Y5V MU 100N Z 25 0805	1
C 22	P210213	C# Y5V MU 100N Z 25 0805	1
C 23	P210213	C# Y5V MU 100N Z 25 0805	1
C 24	P210213	C# Y5V MU 100N Z 25 0805	1
C 25	P210213	C# Y5V MU 100N Z 25 0805	1
C100	P210178	C# Y5V MU 1M Z 16 1206	1
C101	P210178	C# Y5V MU 1M Z 16 1206	1
C102	P210178	C# Y5V MU 1M Z 16 1206	1
C103	P210178	C# Y5V MU 1M Z 16 1206	1
C104	P210178	C# Y5V MU 1M Z 16 1206	1
C105	P210213	C# Y5V MU 100N Z 25 0805	1
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C107	P210213	C# Y5V MU 100N Z 25 0805	1
C108	P210213	C# Y5V MU 100N Z 25 0805	1
C109	P210213	C# Y5V MU 100N Z 25 0805	1
C110	P210178	C# Y5V MU 1M Z 16 1206	1
C111	P210178	C# Y5V MU 1M Z 16 1206	1
C112	P210021	C# COG MU 100P J 50 0805	1
C113	R111510	C EL RA 22M M 25E2 85	1
C114	P210213	C# Y5V MU 100N Z 25 0805	1
C115	P210213	C# Y5V MU 100N Z 25 0805	1
C116	P210178	C# Y5V MU 1M Z 16 1206	1
C117	P210021	C# COG MU 100P J 50 0805	1
C118	P210213	C# Y5V MU 100N Z 25 0805	1
C119	P210178	C# Y5V MU 1M Z 16 1206	1
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C122	P210213	C# Y5V MU 100N Z 25 0805	1
C123	P210213	C# Y5V MU 100N Z 25 0805	1
C124	R111510	C EL RA 22M M 25E2 85	1
C200	P210213	C# Y5V MU 100N Z 25 0805	1
C201	R111678	C EL BRA 10M M 25E2 85	
C202	P210213	C# Y5V MU 100N Z 25 0805	1
C203	P210213	C# Y5V MU 100N Z 25 0805	1
C204	P210178	C# Y5V MU 1M Z 16 1206	1
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C208	P210213	C# Y5V MU 100N Z 25 0805	1
C209	P210213	C# Y5V MU 100N Z 25 0805	1
C210	P210115	C# COG MU 6P8D 50 0805	1
C211	P210131	C# COG MU 2P7D 50 0805	1
C212	P210213	C# Y5V MU 100N Z 25 0805	1
C213	P210213	C# Y5V MU 100N Z 25 0805	1
C214	P210213	C# Y5V MU 100N Z 25 0805	1
C215	P210213	C# Y5V MU 100N Z 25 0805	1
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C220	P210213	C# Y5V MU 100N Z 25 0805	1
C221	P210178	C# Y5V MU 1M Z 16 1206	1
C222	P210213	C# Y5V MU 100N Z 25 0805	1
C223	P210213	C# Y5V MU 100N Z 25 0805	1
C224	P210035	C# X7R MU 1N K 50 0805	1
C300	P210213	C# Y5V MU 100N Z 25 0805	1
C301	R111678	C EL BRA 10M M 25E2 85	
C302	P210213	C# Y5V MU 100N Z 25 0805	1
C303	P210213	C# Y5V MU 100N Z 25 0805	1
C304	P210178	C# Y5V MU 1M Z 16 1206	1
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C307	P210178	C# Y5V MU 1M Z 16 1206	1
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C311	P210131	C# COG MU 2P7D 50 0805	1
C312	P210213	C# Y5V MU 100N Z 25 0805	1
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C314	P210213	C# Y5V MU 100N Z 25 0805	1
C315	P210213	C# Y5V MU 100N Z 25 0805	1
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C318	P210213	C# Y5V MU 100N Z 25 0805	1
C319	P210213	C# Y5V MU 100N Z 25 0805	1
C320	P210213	C# Y5V MU 100N Z 25 0805	1
C321	P210178	C# Y5V MU 1M Z 16 1206	1
C322	P210213	C# Y5V MU 100N Z 25 0805	1
C323	P210213	C# Y5V MU 100N Z 25 0805	1
C324	P210035	C# X7R MU 1N K 50 0805	1
C400	P210213	C# Y5V MU 100N Z 25 0805	1
C401	R111678	C EL BRA 10M M 25E2 85	
C402	P210213	C# Y5V MU 100N Z 25 0805	1
C403	P210213	C# Y5V MU 100N Z 25 0805	1
C404	P210178	C# Y5V MU 1M Z 16 1206	1
C405	P210178	C# Y5V MU 1M Z 16 1206	1
C406	P210213	C# Y5V MU 100N Z 25 0805	1
C407	P210178	C# Y5V MU 1M Z 16 1206	1
C408	P210213	C# Y5V MU 100N Z 25 0805	1
C409	P210213	C# Y5V MU 100N Z 25 0805	1

SIT.	ITEM NO.	DESCRIPTION	QUANTITY
C410	P210115	C# COG MU 6P8D 50 0805	1
C411	P210131	C# COG MU 2P7D 50 0805	1
C412	P210213	C# Y5V MU 100N Z 25 0805	1
C413	P210213	C# Y5V MU 100N Z 25 0805	1
C414	P210213	C# Y5V MU 100N Z 25 0805	1
C415	P210213	C# Y5V MU 100N Z 25 0805	1
C416	P210213	C# Y5V MU 100N Z 25 0805	1
C417	P210213	C# Y5V MU 100N Z 25 0805	1
C418	P210213	C# Y5V MU 100N Z 25 0805	1
C419	P210213	C# Y5V MU 100N Z 25 0805	1
C420	P210213	C# Y5V MU 100N Z 25 0805	1
C421	P210178	C# Y5V MU 1M Z 16 1206	1
C422	P210213	C# Y5V MU 100N Z 25 0805	1
C423	P210213	C# Y5V MU 100N Z 25 0805	1
C424	P210035	C# X7R MU 1N K 50 0805	1
C500	R111678	C EL BRA 10M M 25E2 85	
C501	P210213	C# Y5V MU 100N Z 25 0805	1
C502	R111678	C EL BRA 10M M 25E2 85	
C503	P210213	C# Y5V MU 100N Z 25 0805	1
C504	P210213	C# Y5V MU 100N Z 25 0805	1
C505	P210213	C# Y5V MU 100N Z 25 0805	1
C506	R111678	C EL BRA 10M M 25E2 85	
C507	P210213	C# Y5V MU 100N Z 25 0805	1
C508	R111678	C EL BRA 10M M 25E2 85	
C509	P210213	C# Y5V MU 100N Z 25 0805	1
C510	P210213	C# Y5V MU 100N Z 25 0805	1
C600	P210213	C# Y5V MU 100N Z 25 0805	1
C601	P210213	C# Y5V MU 100N Z 25 0805	1
C602	P210213	C# Y5V MU 100N Z 25 0805	1
C603	P210136	C# Y5V MU 330N Z 50 1206	1
C604	R111532	REPLACED BY V1114855	
C605	P210213	C# Y5V MU 100N Z 25 0805	1
C606	R111532	REPLACED BY V1114855	
C607	P210136	C# Y5V MU 330N Z 50 1206	1
C608	R111532	REPLACED BY V1114855	
C609	P210213	C# Y5V MU 100N Z 25 0805	1
C610	P210136	C# Y5V MU 330N Z 50 1206	1
C611	P210213	C# Y5V MU 100N Z 25 0805	1
C612	R111532	REPLACED BY V1114855	
C613	P210178	C# Y5V MU 1M Z 16 1206	1
C614	P210136	C# Y5V MU 330N Z 50 1206	1
C615	R111532	REPLACED BY V1114855	
C616	P210213	C# Y5V MU 100N Z 25 0805	1
C617	P210213	C# Y5V MU 100N Z 25 0805	1
C618	P210213	C# Y5V MU 100N Z 25 0805	1
C619	P210213	C# Y5V MU 100N Z 25 0805	1
C620	P210213	C# Y5V MU 100N Z 25 0805	1
C621	P210213	C# Y5V MU 100N Z 25 0805	1
C622	P210213	C# Y5V MU 100N Z 25 0805	1
C623	P210213	C# Y5V MU 100N Z 25 0805	1
C624	R111532	REPLACED BY V1114855	
C625	P210213	C# Y5V MU 100N Z 25 0805	1
C700	R113724	C POMERA 100N K 63E2 85	1
C800	R111531	C EL RA 10M M 35E2 85	
C801	P210213	C# Y5V MU 100N Z 25 0805	1
C802	P210022	C# COG MU 150P J 50 0805	1
C803	R111550	C EL RA 4M7M 50E2 85	
C804	P210122	C# X7R MU 100N K 50 1206	1
C805	R115926	C PP RA 2N7J100E2 85	
C806	P210035	C# X7R MU 1N K 50 0805	1
C807	R111510	C EL RA 22M M 25E2 85	
C808	P210041	C# X7R MU 10N K 50 0805	1
C809	R111548	C EL RA 2M2M 50E2 85	
C810	R111510	C EL RA 22M M 25E2 85	
C811	P210045	C# X7R MU 47N K 50 1206	1
C812	P210122	C# X7R MU 100N K 50 1206	1
C813	P210213	C# Y5V MU 100N Z 25 0805	1
C814	P210213	C# Y5V MU 100N Z 25 0805	1
C815	R111510	C EL RA 22M M 25E2 85	
C816	P210035	C# X7R MU 1N K 50 0805	1
C817	P210035	C# X7R MU 1N K 50 0805	1
C818	P210124	C# X7R MU 100N K 50 0805	1
C819	P210213	C# Y5V MU 100N Z 25 0805	1
C820	R111510	C EL RA 22M M 25E2 85	
C821	P210213	C# Y5V MU 100N Z 25 0805	1
C822	P210213	C# Y5V MU 100N Z 25 0805	1
C823	R111510	C EL RA 22M M 25E2 85	
C824	P210213	C# Y5V MU 100N Z 25 0805	1
C825	P210213	C# Y5V MU 100N Z 25 0805	1
C826	P210213	C# Y5V MU 100N Z 25 0805	1
C827	P210041	C# X7R MU 10N K 50 0805	1
C828	P210122	C# X7R MU 100N K 50 1206	1
C829	P210148	C# Y5V MU 470N Z 25 1206	1
C830	P210213	C# Y5V MU 100N Z 25 0805	1
C831	P210041	C# X7R MU 10N K 50 0805	1
C832	P210213	C# Y5V MU 100N Z 25 0805	1
C833	P210213	C# Y5V MU 100N Z 25 0805	1
C834	P210213	C# Y5V MU 100N Z 25 0805	1
C835	P210213	C# Y5V MU 100N Z 25 0805	1
C836	P210213	C# Y5V MU 100N Z 25 0805	1
C837	P210213	C# Y5V MU 100N Z 25 0805	1
C838	P210213	C# Y5V MU 100N Z 25 0805	1
C839	P210213	C# Y5V MU 100N Z 25 0805	1
C840	P210213	C# Y5V MU 100N Z 25 0805	1
C841	P210025	C# COG MU 470P J 63 0805	1
D 1	P234099	D#4148 R DMMELF	1
D 2	P234099	D#4148 R DMMELF	1
D 3	P234055	D#BAT54 SCH SOT23	1
D 4	P234099	D#4148 R DMMELF	1
D 5	P234099	D#4148 R DMMELF	1
D 6	P234099	D#4148 R DMMELF	1
D 7	P234099	D#4148 R DMMELF	1
D 8	P234099	D#4148 R DMMELF	1
D 9	P234099	D#4148 R DMMELF	1
D 10	P234055	D#BAT54 SCH SOT23	1
D 11	P234055	D#BAT54 SCH SOT23	1
D 12	P234055	D#BAT54 SCH SOT23	1
D 13	P234099	D#4148 R DMMELF	1
D 14	P234055	D#BAT54 SCH SOT23	1
D 15	P234099	D#4148 R DMMELF	1
D 16	P234099	D#4148 R DMMELF	1
D 17	P234099	D#4148 R DMMELF	1
D 18	P234099	D#4148 R DMMELF	1
D 19	P234040	D#LED LSS260 RED SOT23	1
D 20	P234099	D#4148 R DMMELF	1
D 21	P234099	D#4148 R DMMELF	1
D 22	P234099	D#4148 R DMMELF	1
D 23	P234099	D#4148 R DMMELF	1
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D102	P234099	D#4148 R DMMELF	1
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D104	P234099	D#4148 R DMMELF	1
D106	P234099	D#4148 R DMMELF	1
D200	P234259	D#BA682 S035A1 DMMELF	1
D201	P234099	D#4148 R DMMELF	1
D202	P234099	D#4148 R DMMELF	1
D203	P234259	D#BA682 S035A1 DMMELF	1
D204	P234099	D#4148 R DMMELF	1
D205	P234259	D#BA682 S035A1 DMMELF	1
D206	P234259	D#BA682 S035A1 DMMELF	1
D207	P234259	D#BA682 S035A1 DMMELF	1
D208	P234259	D#BA682 S035A1 DMMELF	1

SIT.	ITEM NO.	DESCRIPTION	QUANTITY
D209	P234099	D#4148 R DMMELF	1
D210	P234055	D#BAT54 SCH SOT23	1
D211	P234055	D#BAT54 SCH SOT23	1
D300	P234259	D#BA682 S035A1 DMMELF	1
D301	P234099	D#4148 R DMMELF	1
D302	P234099	D#4148 R DMMELF	1
D303	P234259	D#BA682 S035A1 DMMELF	1
D304	P234099	D#4148 R DMMELF	1
D305	P234259	D#BA682 S035A1 DMMELF	1
D306	P234259	D#BA682 S035A1 DMMELF	1
D307	P234259	D#BA682 S035A1 DMMELF	1
D308	P234259	D#BA682 S035A1 DMMELF	1
D309	P234099	D#4148 R DMMELF	1
D310	P234055	D#BAT54 SCH SOT23	1
D311	P234055	D#BAT54 SCH SOT23	1
D400	P234259	D#BA682 S035A1 DMMELF	1
D401	P234099	D#4148 R DMMELF	1
D402	P234099	D#4148 R DMMELF	1
D403	P234259	D#BA682 S035A1 DMMELF	1
D404	P234099	D#4148 R DMMELF	1
D405	P234259	D#BA682 S035A1 DMMELF	1
D406	P234259	D#BA682 S035A1 DMMELF	1
D407	P234259	D#BA682 S035A1 DMMELF	1
D408	P234259	D#BA682 S035A1 DMMELF	1
D409	P234099	D#4148 R DMMELF	1
D410	P234055	D#BAT54 SCH SOT23	1
D411	P234055	D#BAT54 SCH SOT23	1
D500	P234099	D#4148 R DMMELF	1
D501	P234099	D#4148 R DMMELF	1
D502	P234099	D#4148 R DMMELF	1
D503	P234099	D#4148 R DMMELF	1
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D614	P234099	D#4148 R DMMELF	1
D615	P234055	D#BAT54 SCH SOT23	1
D616	P234055	D#BAT54 SCH SOT23	1
D617	P234055	D#BAT54 SCH SOT23	1
D619	P234063	D#LED LGS260 GRE SOT23	1
D620	P234063	D#LED LGS260 GRE SOT23	1
D621	P234099	D#4148 R DMMELF	1
D622	P234063	D#LED LGS260 GRE SOT23	1
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D625	P234063	D#LED LGS260 GRE SOT23	1
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D627	P234063	D#LED LGS260 GRE SOT23	1
D628	P234055	D#BAT54 SCH SOT23	1
D629	P234063	D#LED LGS260 GRE SOT23	1
D630	P234055	D#BAT54 SCH SOT23	1
D631	P234055	D#BAT54 SCH SOT23	1
D632	P234099	D#4148 R DMMELF	1
D633	P234219	D#BZV87-1V4 STA DMMELF	1
D634	P234063	D#LED LGS260 GRE SOT23	1
D700	P234099	D#4148 R DMMELF	1
D701	P234099	D#4148 R DMMELF	1
D702	P234099	D#4148 R DMMELF	1
D703	P234099	D#4148 R DMMELF	1
D800	P234055	D#BAT54 SCH SOT23	1
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D802	P234099	D#4148 R DMMELF	1
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D814	P234099	D#4148 R DMMELF	1
D815	P234099	D#4148 R DMMELF	1
D816	P234055	D#BAT54 SCH SOT23	1
I 1	P230021	U#74HC04 SO14 I	1
I 2	P230628	U#74HCT153 SO16 I	1
I 3	P230628	U#74HCT153 SO16 I	1
I 4	P230153	U#74HC32 SO14 I	1
I 5	P230628	U#74HCT153 SO16 I	1
I 6	P230231	U#74HC08 SO14 I	1
I 7	P230343	U#74AC02 SO14 I	1
I 8	P230287	U#74HC20 SO14 I	1
I 9	P230287	U#74HC20 SO14 I	1
I100	P230328	U#064 TL SO14 I	1
I101	P231013	U#3046 CA SO14 I	1
I200	P231233	U#1100 HFA SO8 I	1
I201	P231230	U#2-20 MSWA SO8 I	1
I202	P230100	U#3080 CA SO8 P	1
I203	P230006	U#062 TL SO8 P	1
I300	P231233	U#1100 HFA SO8 I	1
I301	P231230	U#2-20 MSWA SO8 I	1
I302	P230100	U#3080 CA SO8 P	1
I303	P230006	U#062 TL SO8 P	1
I400	P231233	U#1100 HFA SO8 I	1

SIT.	ITEM NO.	DESCRIPTION	QUANTITY
I401	P231230	U#2-20 MSWA SO8 I	1
I402	P230100	U#3080 CA SO8 P	1
I403	P230006	U#062 TL SO8 P	1
I500	P230344	U#74AC08 SO14 I	1
I600	P230328	U#064 TL SO14 I	1
I601	P230543	U#8574 PCF SOL16 P	1
I602	P230911	U#8574A PCF SOL16 P	1
I603	P230886	U#74HC4051 SO16 I	1
I604	P230653	U#BELLA 4 SOL28 P	1
I605	R134001	U 7805 TO220 P	1
I606	R134011	U 7905C TO220 P	1
I607	R134016	U 7912 TO220 P	1
I608	R134002	U 7812 TO220 P	1
I801	R132874	U 2579A TDA DIP18 P	1
I802	P230220	U#74HC4538 SO16 I	1
I803	P230220	U#74HC4538 SO16 I	1
I804	P230713	U#74HC4052 SO16 I	1
I805	P230064	U#4052 SO16 I	1
I806	P230969	U#1881 LM SO8 P	1
I807	P230173	U#74HC14 SO14 I	1
I808	P230218	U#74HC86 SO14 I	1
I809	P230028	U#393 LM SO8 P	1
I810	P230453	U#34081 MC SO8 P	1
I811	P230006	U#062 TL SO8 P	1
J 3	R313927	J CT H MBT P 7 M2SN WH	1
J 6	R313927	J CT H MBT P 7 M2SN WH	1
J 7	R313929	J CT H MBT P 9 M2SN WH	1
J 6A	R313531	J EUR2C MBS P64 E1C3S 1,6	1
J 6B	R313531	J EUR2C MBS P64 E1C3S 1,6	1
J250	R3132862	J MD1 C MBT P 2 E1SN 6,7	1
J350	R3132862	J MD1 C MBT P 2 E1SN 6,7	1
J400	R313932	J CT H MBT P12 M2SN WH	1
J400	Z3484120	CD CT FTFT P12 120	1
J401	R313928	J CT H MBT P 8 M2SN WH	1
J401	Z3495082	CD CT FTFT P 8 150	1
J402	R313928	J CT H MBT P 8 M2SN WH	1
J402	Z3495082	CD CT FTFT P 8 150	1
J405	R313927	J CT H MBT P 7 M2SN WH	1
J405	R34840710	CD CT FTFT P 7 120	1
J450	R3132862	J MD1 C MBT P 2 E1SN 6,7	1
J741	R313928	J CT H MBT P 8 M2SN WH	1
L601	R348105	WU JUMP 0,6 15	1
L602	R3061322	CH AX NS 10 UH	1
L603	R348105	WU JUMP 0,6 15	1
M200	R313729	J TESTEYE D2.1 H3.1 SN BK	1
M300	R313729	J TESTEYE D2.1 H3.1 SN BK	1
M400	R313729	J TESTEYE D2.1 H3.1 SN BK	1
M800	R313729	J TESTEYE D2.1 H3.1 SN BK	1
M803	R313729	J TESTEYE D2.1 H3.1 SN BK	1
M807	R313729	J TESTEYE D2.1 H3.1 SN BK	1
M808	R313729	J TESTEYE D2.1 H3.1 SN BK	1
MP 1	R313729	J TESTEYE D2.1 H3.1 SN BK	1
MP10	R313729	J TESTEYE D2.1 H3.1 SN BK	1
P200	P201392	R#TCE H200E M 0W25 S4 TS	1
P300	P201392	R#TCE H200E M 0W25 S4 TS	1
P400	P201392	R#TCE H200E M 0W25 S4 TS	1
P800	P201370	R#TCE H 10K M 0W1 S4 TS	1
PC	R780550	PCB G808S RGB I+DEC	1
Q 1	P232044	Q#BC859B P SS SOT23	1
Q 2	P232044	Q#BC859B P SS SOT23	1
Q 3	P232044	Q#BC859B P SS SOT23	1
Q 4	P232044	Q#BC859B P SS SOT23	1
Q 5	P232044	Q#BC859B P SS SOT23	1
Q 6	P232044	Q#BC859B P SS SOT23	1
Q 7	P232079	Q#BSS84 F SS SOT23	1
Q 8	P232043	Q#BC849B N SS SOT23	1
Q 9	P232043	Q#BC849B N SS SOT23	1
Q 10	P232079	Q#BSS84 F SS SOT23	1
Q 11	P232079	Q#BSS84 F SS SOT23	1
Q 12	P232043	Q#BC849B N SS SOT23	1
Q 13	P232044	Q#BC859B P SS SOT23	1
Q 14	P232044	Q#BC859B P SS SOT23	1
Q 15	P232044	Q#BC859B P SS SOT23	1
Q 16	P232044	Q#BC859B P SS SOT23	1
Q100	P232044	Q#BC859B P SS SOT23	1
Q101	P232043	Q#BC849B N SS SOT23	1
Q102	P232043	Q#BC849B N SS SOT23	1
Q103	P232044	Q#BC859B P SS SOT23	1
Q104	P232044	Q#BC859B P SS SOT23	1
Q105	P232043	Q#BC849B N SS SOT23	1
Q106	P232044	Q#BC859B P SS SOT23	1
Q107	P232044	Q#BC859B P SS SOT23	1
Q108	P232043	Q#BC849B N SS SOT23	1
Q109	P232044	Q#BC859B P SS SOT23	1
Q110	P232043	Q#BC849B N SS SOT23	1
Q111	P232044	Q#BC859B P SS SOT23	1
Q112	P232044	Q#BC859B P SS SOT23	1
Q113	P232044	Q#BC859B P SS SOT23	1
Q114	P232044	Q#BC859B P SS SOT23	1
Q200	P232090	Q#BFR92A N SS SOT23	1
Q201	P232043	Q#BC849B N SS SOT23	1
Q202	P232076	Q#BFS17 N SS SOT23	1
Q203	P232043	Q#BC849B N SS SOT23	1
Q204	P232044	Q#BC859B P SS SOT23	1
Q205	P232046	Q#BSS123 F SS SOT23	1
Q206	P232046	Q#BSS123 F SS SOT23	1
Q207	P232046	Q#BSS123 F SS SOT23	1
Q208	P232046	Q#BSS123 F SS SOT23	1
Q209	P232044	Q#BC859B P SS SOT23	1
Q210	P232043	Q#BC849B N SS SOT23	1
Q300	P232090	Q#BFR92A N SS SOT23	1
Q301	P232076	Q#BFS17 N SS SOT23	1
Q302	P232076	Q#BFS17 N SS SOT23	1
Q303	P232043	Q#BC849B N SS SOT23	1
Q304	P232044	Q#BC859B P SS SOT23	1
Q305	P232046	Q#BSS123 F SS SOT23	1
Q306	P232046	Q#BSS123 F SS SOT23	1
Q307	P232046	Q#BSS123 F SS SOT23	1
Q308	P232046	Q#BSS123 F SS SOT23	1
Q309	P232044	Q#BC859B P SS SOT23	1
Q310	P232043	Q#BC849B N SS SOT23	1
Q400	P232090	Q#BFR92A N SS SOT23	1
Q401	P232076	Q#BFS17 N SS SOT23	1
Q402	P232076	Q#BFS17 N SS SOT23	1
Q403	P232043	Q#BC849B N SS SOT23	1
Q404	P232044	Q#BC859B P SS SOT23	1
Q405	P232046	Q#BSS123 F SS SOT23	1
Q406	P232046	Q#BSS123 F SS SOT23	1
Q407	P232046	Q#BSS123 F SS SOT23	1
Q408	P232046	Q#BSS123 F SS SOT23	1
Q409	P232044	Q#BC859B P SS SOT23	1
Q410	P232043	Q#BC849B N SS SOT23	1
Q500	P232043	Q#BC849B N SS SOT23	1
Q501	P232044	Q#BC859B P SS SOT23	1
Q502	P232043	Q#BC849B N SS SOT23	1
Q503	P232044	Q#BC859B P SS SOT23	1
Q504	P232043	Q#BC849B N SS SOT23	1
Q505	P232043	Q#BC849B N SS SOT23	1

SIT.	ITEM NO.	DESCRIPTION	QUANTITY
Q601	P232046	Q#BSS123 F SS SOT23	1
Q602	P232046	Q#BSS123 F SS SOT23	1
Q603	P232043	Q#BC849B N SS SOT23	1
Q604	P232043	Q#BC849B N SS SOT23	1
Q605	P232043	Q#BC849B N SS SOT23	1
Q606	P232042	Q#BC807-25 P SS SOT23	1
Q607	P232043	Q#BC849B N SS SOT23	1
Q608	P232042	Q#BC807-25 P SS SOT23	1
Q609	P232043	Q#BC849B N SS SOT23	1
Q610	P232079	Q#BSS84 F SS SOT23	1
Q611	P232042	Q#BC807-25 P SS SOT23	1
Q612	P232043	Q#BC849B N SS SOT23	1
Q613	P232042	Q#BC807-25 P SS SOT23	1
Q614	P232043	Q#BC849B N SS SOT23	1
Q615	P232042	Q#BC807-25 P SS SOT23	1
Q616	P232043	Q#BC849B N SS SOT23	1
Q617	P232042	Q#BC807-25 P SS SOT23	1
Q619	P232043	Q#BC849B N SS SOT23	1
Q620	P232042	Q#BC807-25 P SS SOT23	1
Q621	P232054	Q#BCV27 DN SS SOT23	1
Q622	P232043	Q#BC849B N SS SOT23	1
Q623	P232043	Q#BC849B N SS SOT23	1
Q624	P232044	Q#BC859B P SS SOT23	1
Q625	P232044	Q#BC859B P SS SOT23	1
Q626	P232043	Q#BC849B N SS SOT23	1
Q627	P232043	Q#BC849B N SS SOT23	1
Q800	P232043	Q#BC849B N SS SOT23	1
Q801	P232043	Q#BC849B N SS SOT23	1
Q802	P232044	Q#BC859B P SS SOT23	1
Q803	P232043	Q#BC849B N SS SOT23	1
Q805	P232044	Q#BC859B P SS SOT23	1
Q806	P232044	Q#BC859B P SS SOT23	1
Q807	P232043	Q#BC849B N SS SOT23	1
Q808	P232044	Q#BC859B P SS SOT23	1
Q809	P232043	Q#BC849B N SS SOT23	1
Q810	P232043	Q#BC849B N SS SOT23	1
Q811	P232043	Q#BC849B N SS SOT23	1
Q812	P232044	Q#BC859B P SS SOT23	1
Q813	P232043	Q#BC849B N SS SOT23	1
Q814	P232044	Q#BC859B P SS SOT23	1
Q815	P232046	Q#BSS123 F SS SOT23	1
Q816	P232043	Q#BC849B N SS SOT23	1
Q817	P232043	Q#BC849B N SS SOT23	1
R 1	P201135	R# CE H100K F 0W12 0805	1
R 2	P201135	R# CE H100K F 0W12 0805	1
R 3	P201110	R# CE H 9K1 F 0W12 0805	1
R 4	P201127	R# CE H 47K F 0W12 0805	1
R 5	P201127	R# CE H 47K F 0W12 0805	1
R 6	P201127	R# CE H 47K F 0W12 0805	1
R 7	P201129	R# CE H 56K F 0W12 0805	1
R 8	P201129	R# CE H 56K F 0W12 0805	1
R 9	P201127	R# CE H 47K F 0W12 0805	1
R 10	P201127	R# CE H 47K F 0W12 0805	1
R 11	P201123	R# CE H 33K F 0W12 0805	1
R 12	P201115	R# CE H 15K F 0W12 0805	1
R 13	P201135	R# CE H100K F 0W12 0805	1
R 14	P201063	R# CE H100E F 0W12 0805	1
R 15	P201123	R# CE H 33K F 0W12 0805	1
R 16	P201115	R# CE H 15K F 0W12 0805	1
R 17	P201135	R# CE H100K F 0W12 0805	1
R 18	P201063	R# CE H100E F 0W12 0805	1
R 19	P201099	R# CE H 3K3 F 0W12 0805	1
R 20	P201095	R# CE H 2K2 F 0W12 0805	1
R 21	P201087	R# CE H 1K F 0W12 0805	1
R 22	P201079	R# CE H470E F 0W12 0805	1
R 23	P201101	R# CE H 3K9 F 0W12 0805	1

SIT.	ITEM NO.	DESCRIPTION	QUANTITY
R 24	P201103	R# CE H 4K7 F 0W12 0805	1
R 25	P201115	R# CE H 15K F 0W12 0805	1
R 26	P201115	R# CE H 15K F 0W12 0805	1
R 27	P201104	R# CE H 5K1 F 0W12 0805	1
R 28	P201111	R# CE H 10K F 0W12 0805	1
R 29	P201103	R# CE H 4K7 F 0W12 0805	1
R 30	P201081	R# CE H560E F 0W12 0805	1
R 31	P201081	R# CE H560E F 0W12 0805	1
R 32	P201079	R# CE H470E F 0W12 0805	1
R 33	P201114	R# CE H 13K F 0W12 0805	1
R 34	P201115	R# CE H 15K F 0W12 0805	1
R 35	P201127	R# CE H 47K F 0W12 0805	1
R 36	P201114	R# CE H 13K F 0W12 0805	1
R 37	P201115	R# CE H 15K F 0W12 0805	1
R 38	P201114	R# CE H 13K F 0W12 0805	1
R 39	P201115	R# CE H 15K F 0W12 0805	1
R 40	P201114	R# CE H 13K F 0W12 0805	1
R 41	P201115	R# CE H 15K F 0W12 0805	1
R 42	P201081	R# CE H560E F 0W12 0805	1
R 43	P201079	R# CE H470E F 0W12 0805	1
R 44	P201127	R# CE H 47K F 0W12 0805	1
R 45	P201079	R# CE H470E F 0W12 0805	1
R 46	P201107	R# CE H 6K8 F 0W12 0805	1
R 47	P201107	R# CE H 6K8 F 0W12 0805	1
R 48	P201079	R# CE H470E F 0W12 0805	1
R100	P201127	R# CE H 47K F 0W12 0805	1
R101	P201127	R# CE H 47K F 0W12 0805	1
R102	P201092	R# CE H 1K6 F 0W12 0805	1
R103	P201085	R# CE H820E F 0W12 0805	1
R104	P201102	R# CE H 4K3 F 0W12 0805	1
R105	P201111	R# CE H 10K F 0W12 0805	1
R106	P201137	R# CE H120K F 0W12 0805	1
R107	P201143	R# CE H220K F 0W12 0805	1
R108	P201151	R# CE H470K F 0W12 0805	1
R109	P201127	R# CE H 47K F 0W12 0805	1
R110	P201131	R# CE H 68K F 0W12 0805	1
R111	P201143	R# CE H220K F 0W12 0805	1
R112	P201079	R# CE H470E F 0W12 0805	1
R113	P201079	R# CE H470E F 0W12 0805	1
R114	P201079	R# CE H470E F 0W12 0805	1
R115	P201059	R# CE H 68E F 0W12 0805	1
R116	P201143	R# CE H220K F 0W12 0805	1
R117	P201151	R# CE H470K F 0W12 0805	1
R118	P201143	R# CE H220K F 0W12 0805	1
R119	P201077	R# CE H390E F 0W12 0805	1
R120	P201079	R# CE H470E F 0W12 0805	1
R121	P201079	R# CE H470E F 0W12 0805	1
R122	P201059	R# CE H 68E F 0W12 0805	1
R123	P201151	R# CE H470K F 0W12 0805	1
R124	P201143	R# CE H220K F 0W12 0805	1
R125	P201077	R# CE H390E F 0W12 0805	1
R126	P201079	R# CE H470E F 0W12 0805	1
R127	P201079	R# CE H470E F 0W12 0805	1
R128	P200693	R# CE H 4E7 J 0W12 0805	1
R129	P201059	R# CE H 68E F 0W12 0805	1
R130	P201122	R# CE H 30K F 0W12 0805	1
R131	P201118	R# CE H 20K F 0W12 0805	1
R132	P201039	R# CE H 10E F 0W12 0805	1
R133	P201135	R# CE H100K F 0W12 0805	1
R134	P201122	R# CE H 30K F 0W12 0805	1
R135	P201352	R# CE H 10M K 0W12 0805	1
R136	P201151	R# CE H470K F 0W12 0805	1
R137	P201111	R# CE H 10K F 0W12 0805	1
R138	P201149	R# CE H390K F 0W12 0805	1
R139	P201135	R# CE H100K F 0W12 0805	1
R140	P201039	R# CE H 10E F 0W12 0805	1
R141	P201139	R# CE H150K F 0W12 0805	1

SIT.	ITEM NO.	DESCRIPTION	QUANTITY
R142	P201123	R# CE H 33K F 0W12 0805	1
R143	P201073	R# CE H270E F 0W12 0805	1
R144	P201081	R# CE H560E F 0W12 0805	1
R145	P201055	R# CE H 47E F 0W12 0805	1
R146	P201139	R# CE H150K F 0W12 0805	1
R147	P201123	R# CE H 33K F 0W12 0805	1
R148	P201073	R# CE H270E F 0W12 0805	1
R149	P201055	R# CE H 47E F 0W12 0805	1
R150	P200693	R# CE H 4E7 J 0W12 0805	1
R151	P201081	R# CE H560E F 0W12 0805	1
R152	P201133	R# CE H 82K F 0W12 0805	1
R153	P201137	R# CE H120K F 0W12 0805	1
R154	P201133	R# CE H 82K F 0W12 0805	1
R155	P201137	R# CE H120K F 0W12 0805	1
R156	P201075	R# CE H330E F 0W12 0805	1
R157	P201073	R# CE H270E F 0W12 0805	1
R158	P201090	R# CE H 1K3 F 0W12 0805	1
R159	P201081	R# CE H560E F 0W12 0805	1
R160	P201073	R# CE H270E F 0W12 0805	1
R161	P201123	R# CE H 33K F 0W12 0805	1
R162	P201039	R# CE H 10E F 0W12 0805	1
R163	P201081	R# CE H560E F 0W12 0805	1
R164	P201073	R# CE H270E F 0W12 0805	1
R165	P201060	R# CE H 75E F 0W12 0805	1
R166	P201060	R# CE H 75E F 0W12 0805	1
R167	P201060	R# CE H 75E F 0W12 0805	1
R168	P201065	R# CE H120E F 0W12 0805	1
R169	P201103	R# CE H 4K7 F 0W12 0805	1
R170	P201099	R# CE H 3K3 F 0W12 0805	1
R171	P201114	R# CE H 13K F 0W12 0805	1
R172	P201114	R# CE H 13K F 0W12 0805	1
R200	R1015231	R MF H 75E F 0W4 E3	1
R201	P201105	R# CE H 5K6 F 0W12 0805	1
R202	P201143	R# CE H220K F 0W12 0805	1
R203	R101524	R MF H100E F 0W4 E3	1
R204	P201119	R# CE H 22K F 0W12 0805	1
R205	P201119	R# CE H 22K F 0W12 0805	1
R206	P201105	R# CE H 5K6 F 0W12 0805	1
R207	P201143	R# CE H220K F 0W12 0805	1
R208	P201039	R# CE H 10E F 0W12 0805	1
R209	P201103	R# CE H 4K7 F 0W12 0805	1
R210	P201103	R# CE H 4K7 F 0W12 0805	1
R211	P201087	R# CE H 1K F 0W12 0805	1
R212	P201039	R# CE H 10E F 0W12 0805	1
R213	P201087	R# CE H 1K F 0W12 0805	1
R214	P201060	R# CE H 75E F 0W12 0805	1
R215	P201105	R# CE H 5K6 F 0W12 0805	1
R216	P201063	R# CE H100E F 0W12 0805	1
R217	P201119	R# CE H 22K F 0W12 0805	1
R218	P201039	R# CE H 10E F 0W12 0805	1
R219	P201111	R# CE H 10K F 0W12 0805	1
R220	P201129	R# CE H 56K F 0W12 0805	1
R221	P201143	R# CE H220K F 0W12 0805	1
R222	P201039	R# CE H 10E F 0W12 0805	1
R223	P201111	R# CE H 10K F 0W12 0805	1
R224	P201079	R# CE H470E F 0W12 0805	1
R225	P201079	R# CE H470E F 0W12 0805	1
R226	P201087	R# CE H 1K F 0W12 0805	1
R227	P201093	R# CE H 1K8 F 0W12 0805	1
R228	P201085	R# CE H820E F 0W12 0805	1
R229	P201071	R# CE H220E F 0W12 0805	1
R230	P201079	R# CE H470E F 0W12 0805	1
R231	P201087	R# CE H 1K F 0W12 0805	1
R232	P201057	R# CE H 56E F 0W12 0805	1
R233	P201057	R# CE H 56E F 0W12 0805	1
R234	P201076	R# CE H360E F 0W12 0805	1
R235	P201095	R# CE H 2K2 F 0W12 0805	1
R236	P201087	R# CE H 1K F 0W12 0805	1
R237	P201063	R# CE H100E F 0W12 0805	1
R238	P201063	R# CE H100E F 0W12 0805	1
R239	P201063	R# CE H100E F 0W12 0805	1
R240	P201063	R# CE H100E F 0W12 0805	1
R241	P201039	R# CE H 10E F 0W12 0805	1
R242	P201039	R# CE H 10E F 0W12 0805	1
R243	P201159	R# CE H 1M F 0W12 0805	1
R244	P201159	R# CE H 1M F 0W12 0805	1
R245	P201111	R# CE H 10K F 0W12 0805	1
R246	P201111	R# CE H 10K F 0W12 0805	1
R247	P201063	R# CE H100E F 0W12 0805	1
R248	P201065	R# CE H120E F 0W12 0805	1
R249	P200363	R# CE H 10E F 0W25 1206	1
R250	P200363	R# CE H 10E F 0W25 1206	1
R300	R1015231	R MF H 75E F 0W4 E3	1
R301	P201105	R# CE H 5K6 F 0W12 0805	1
R302	P201143	R# CE H220K F 0W12 0805	1
R303	R101524	R MF H100E F 0W4 E3	1
R304	P201119	R# CE H 22K F 0W12 0805	1
R305	P201119	R# CE H 22K F 0W12 0805	1
R306	P201105	R# CE H 5K6 F 0W12 0805	1
R307	P201143	R# CE H220K F 0W12 0805	1
R308	P201039	R# CE H 10E F 0W12 0805	1
R309	P201103	R# CE H 4K7 F 0W12 0805	1
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R329	P201071	R# CE H220E F 0W12 0805	1
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R334	P201076	R# CE H360E F 0W12 0805	1
R335	P201095	R# CE H 2K2 F 0W12 0805	1
R336	P201087	R# CE H 1K F 0W12 0805	1
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R350	P200363	R# CE H 10E F 0W25 1206	1
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SIT.	ITEM NO.	DESCRIPTION	QUANTITY
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R405	P201119	R# CE H 22K F 0W12 0805	1
R406	P201105	R# CE H 5K6 F 0W12 0805	1
R407	P201143	R# CE H220K F 0W12 0805	1
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R409	P201103	R# CE H 4K7 F 0W12 0805	1
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R529	R1015231	R MF H 75E F 0W4 E3	1
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SIT.	ITEM NO.	DESCRIPTION	QUANTITY
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R653	P201055	R# CE H 47E F 0W12 0805	1
R654	P201095	R# CE H 2K2 F 0W12 0805	1
R655	P201118	R# CE H 20K F 0W12 0805	1
R656	P201118	R# CE H 20K F 0W12 0805	1
R657	P201111	R# CE H 10K F 0W12 0805	1
R658	P201135	R# CE H100K F 0W12 0805	1
R659	P201135	R# CE H100K F 0W12 0805	1
R660	P201158	R# CE H910K F 0W12 0805	1
R661	P201103	R# CE H 4K7 F 0W12 0805	1
R700	P201055	R# CE H 47E F 0W12 0805	1
R701	P201079	R# CE H470E F 0W12 0805	1
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R706	P201127	R# CE H 47K F 0W12 0805	1
R800	P200693	R# CE H 4E7 J 0W12 0805	1
R801	P201135	R# CE H100K F 0W12 0805	1
R802	P201125	R# CE H 39K F 0W12 0805	1
R803	P201095	R# CE H 2K2 F 0W12 0805	1
R804	P200411	R# CE H 1K F 0W25 1206	1
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R808	P200371	R# CE H 22E F 0W25 1206	1
R809	P200429	R# CE H 5K6 F 0W25 1206	1
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R870	P201107	R# CE H 6K8 F 0W12 0805	1
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SR 5	R1011907	R CFFH E1 K 0W35	⚠ 1
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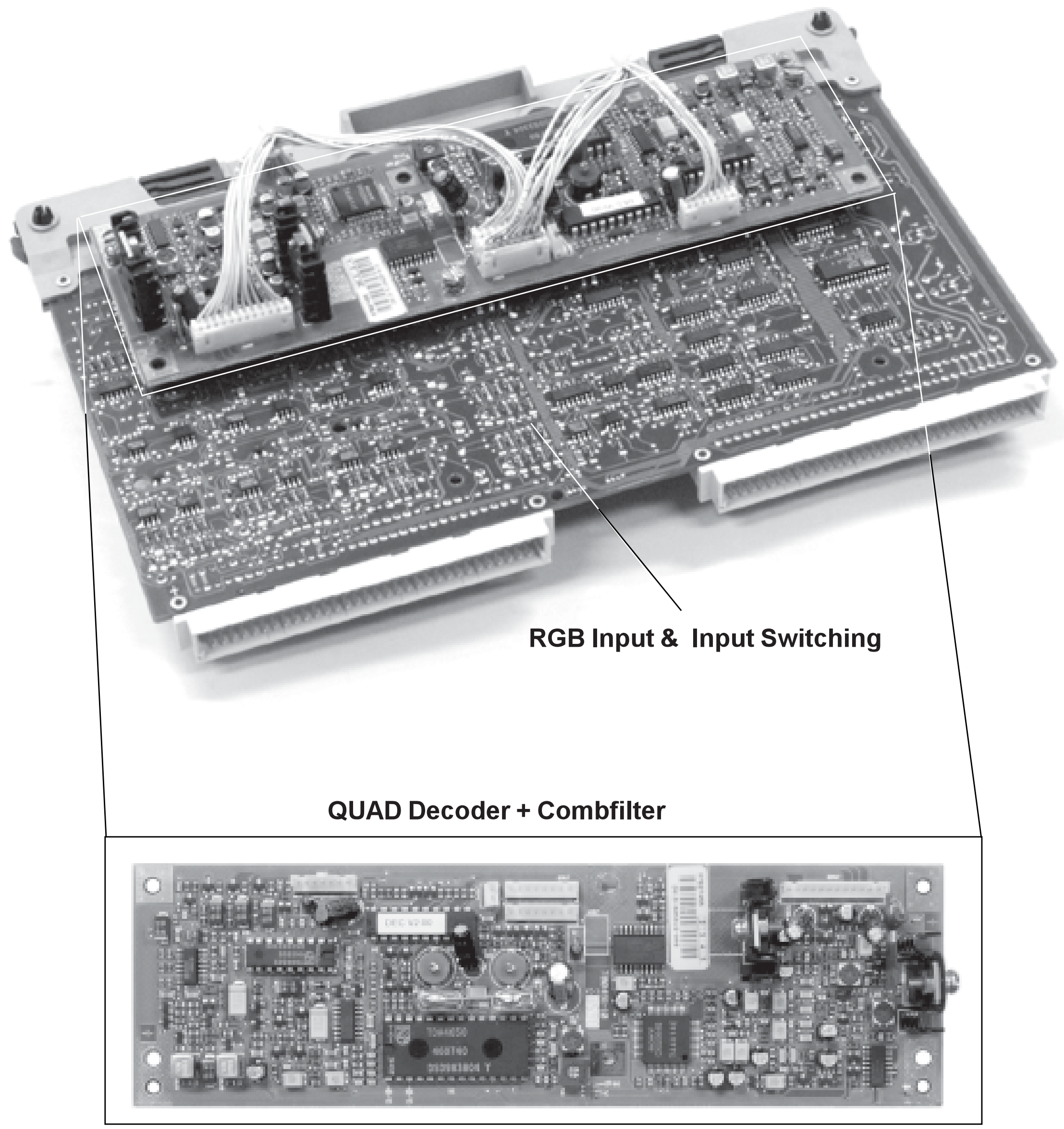
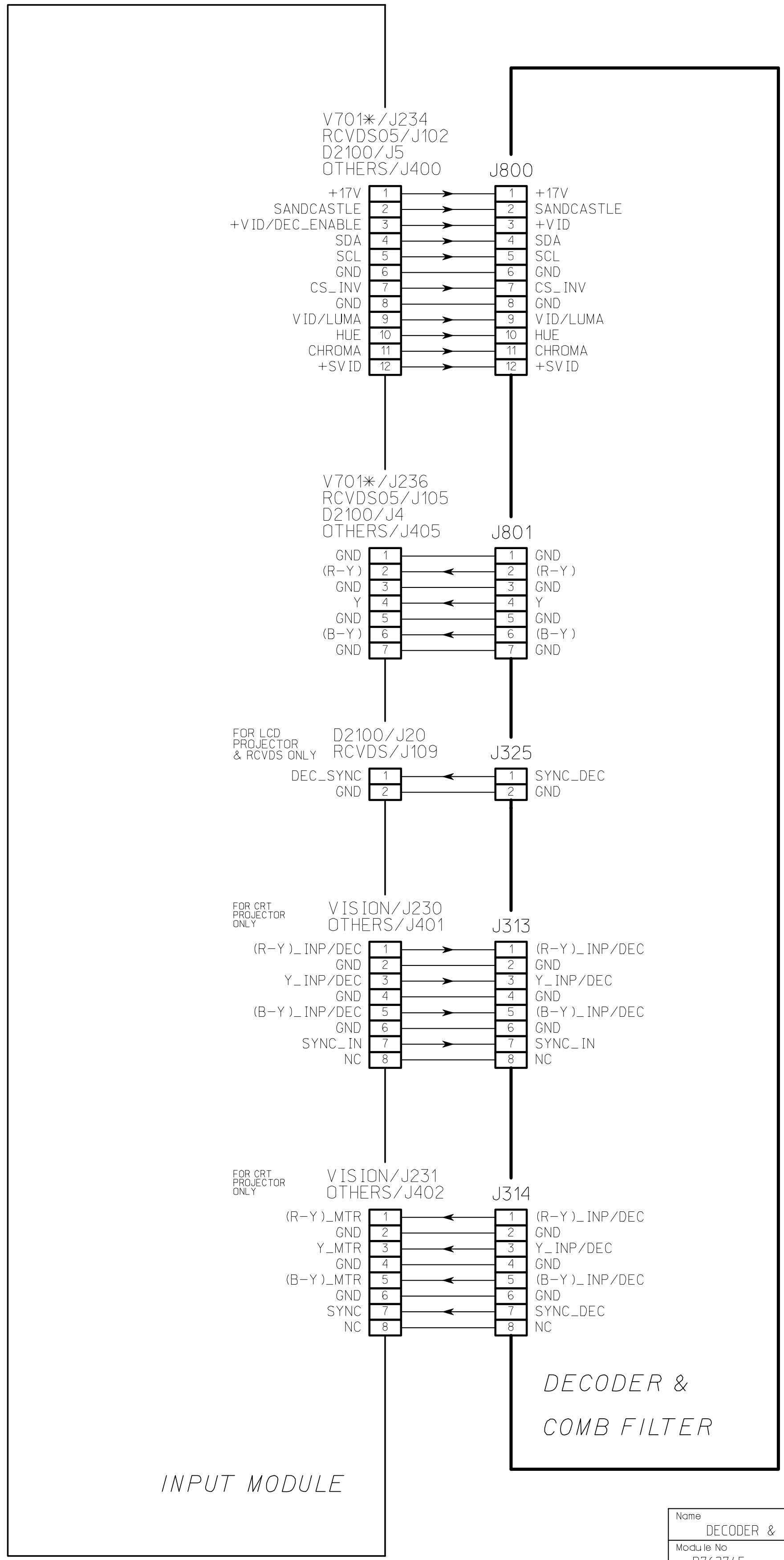
PRODUCT SAFETY NOTICE

Components identified by ⚠ have SPECIAL CHARACTERISTICS IMPORTANT TO SAFETY. Before replacing any of these components, read carefully the service safety precautions.

QUAD Decoder + Combfilter R7627455

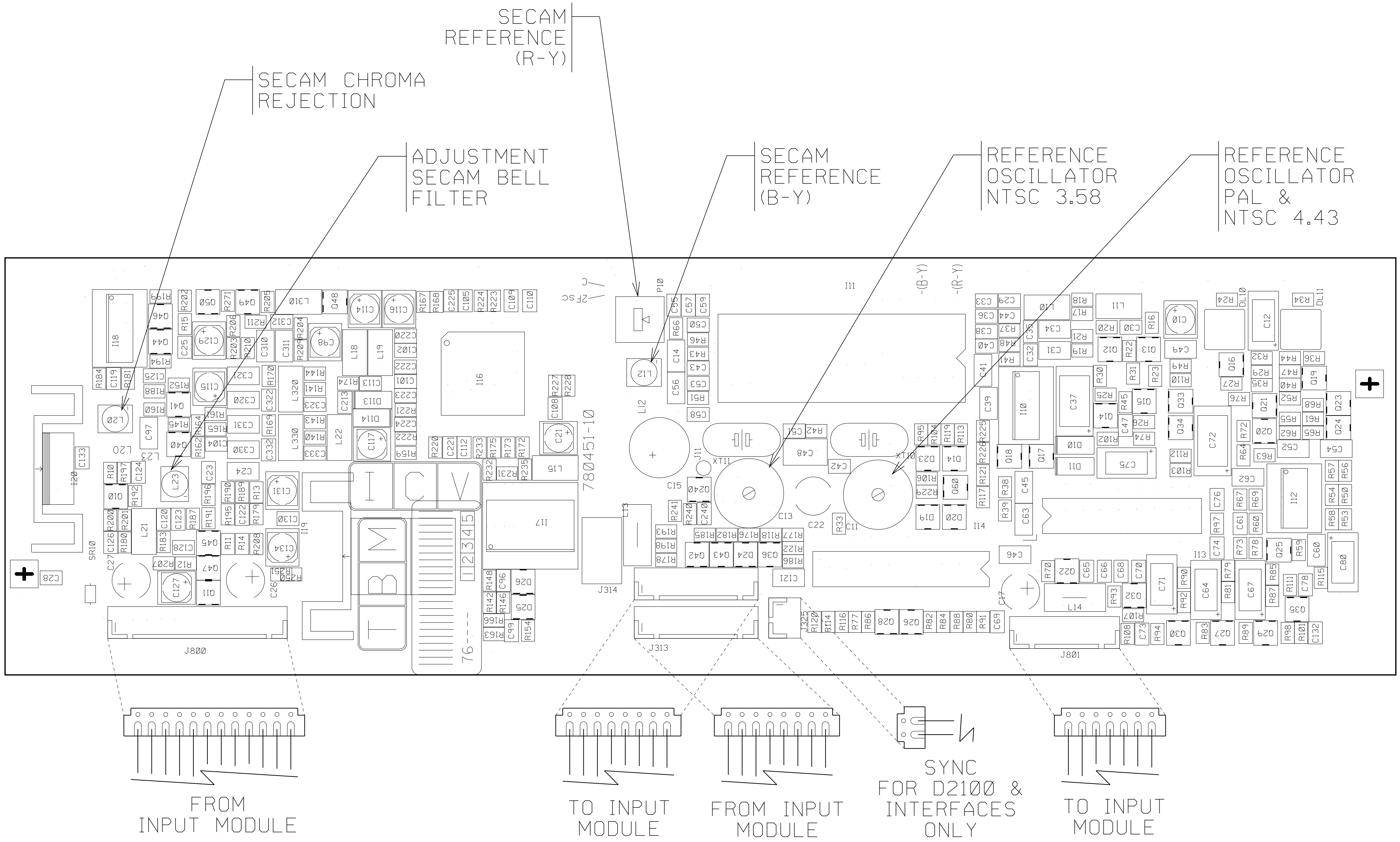




BARCO

Name			Sheet
DECODER & COMB FILTER			1/1
Module No: R762745	Index: – 1	PCB No: R780451	Rev: – 4
Date: 20-03-1997	Drawn: JV		Checked: JVST
BARCO NV			Division: BPS

Modifications reserved



Modifications reserved

Name		Sheet
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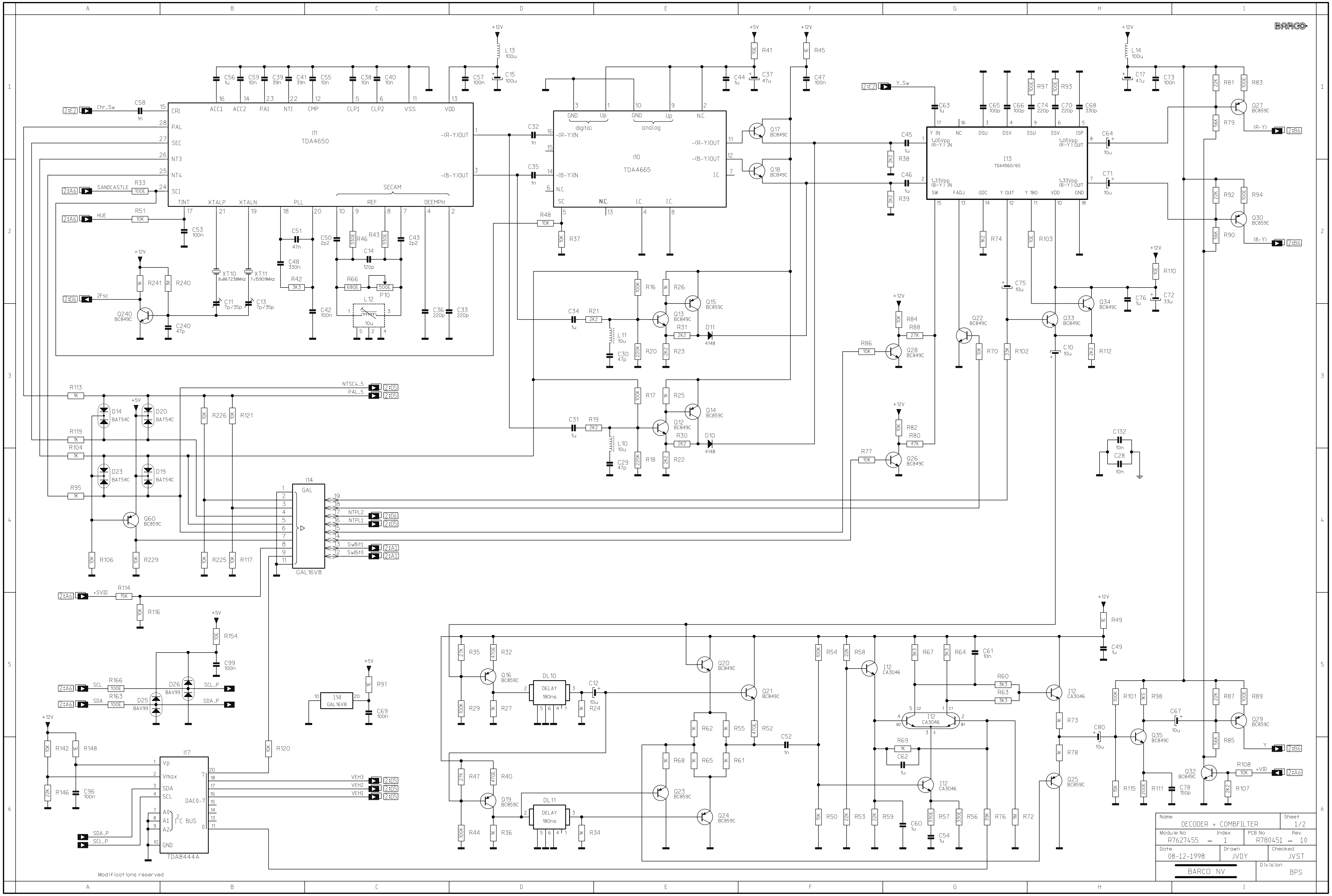
Module No R7627455	Index 1	PCB No R780451 — Rev 10
Date 08-12-1998	Drawn JVDY	Checked JVST

BARCO PROJECTION SYSTEMS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Index
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PCB No
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Rev
10
Date
08-12-1998
Drawn
JVDY
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Division
BPS
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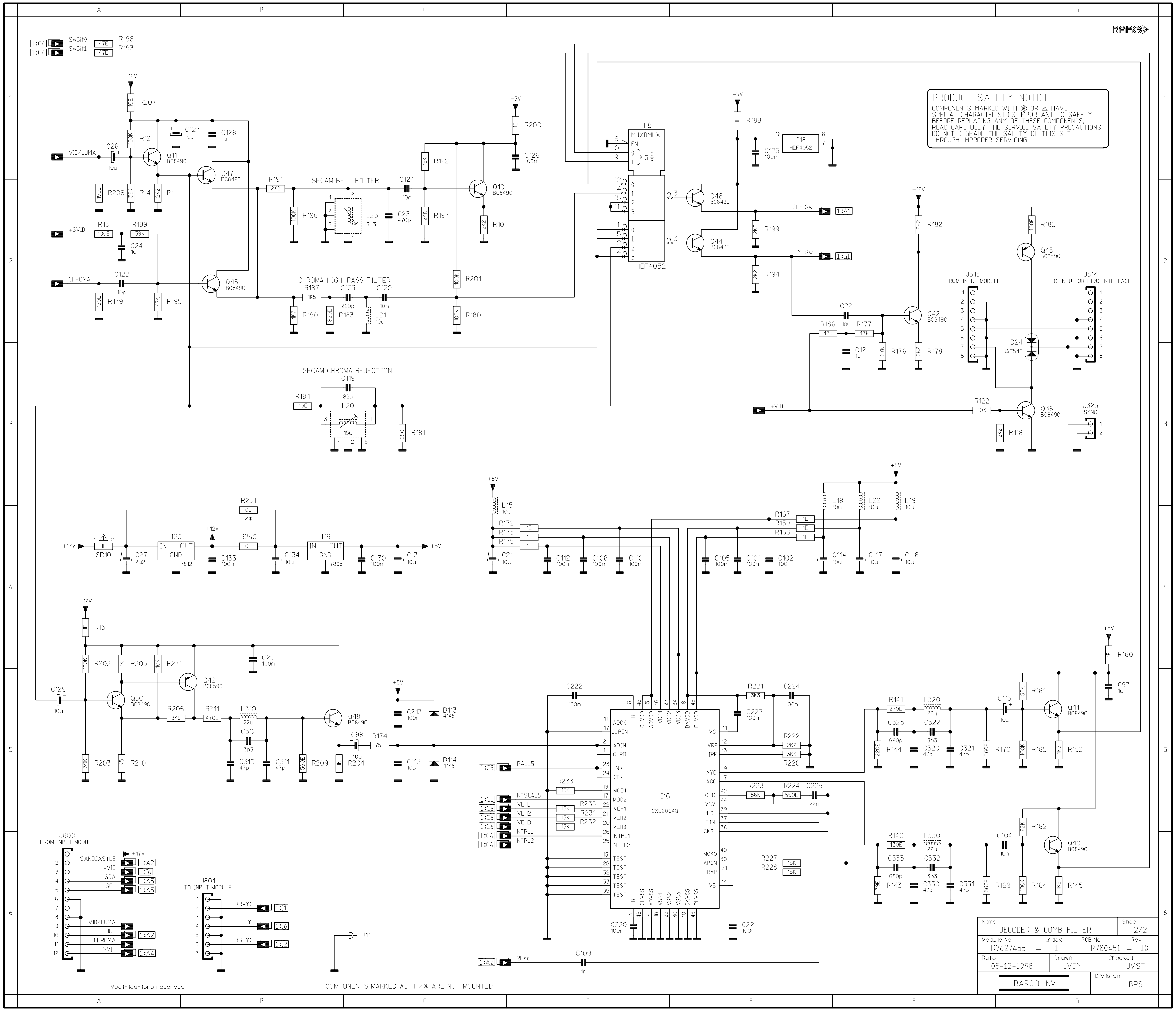

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C23	C2	2
C24	A2	2
C25	B4	2
C26	A1	2
C27	A4	2
C28	H4	1
C29	E4	1
C30	E3	1
C31	D3	1
C32	D1	1
C33	D3	1
C34	D3	1
C35	D2	1
C36	C3	1
C37	F1	1
C38	C1	1
C39	B1	1
C40	C1	1
C41	B1	1
C42	C3	1
C43	C2	1
C44	E1	1
C45	G1	1
C46	G2	1
C47	F1	1
C48	B2	1
C49	H5	1
C50	C2	1
C51	B2	1
C52	F6	1
C53	B2	1
C54	G6	1
C55	C1	1
C56	B1	1
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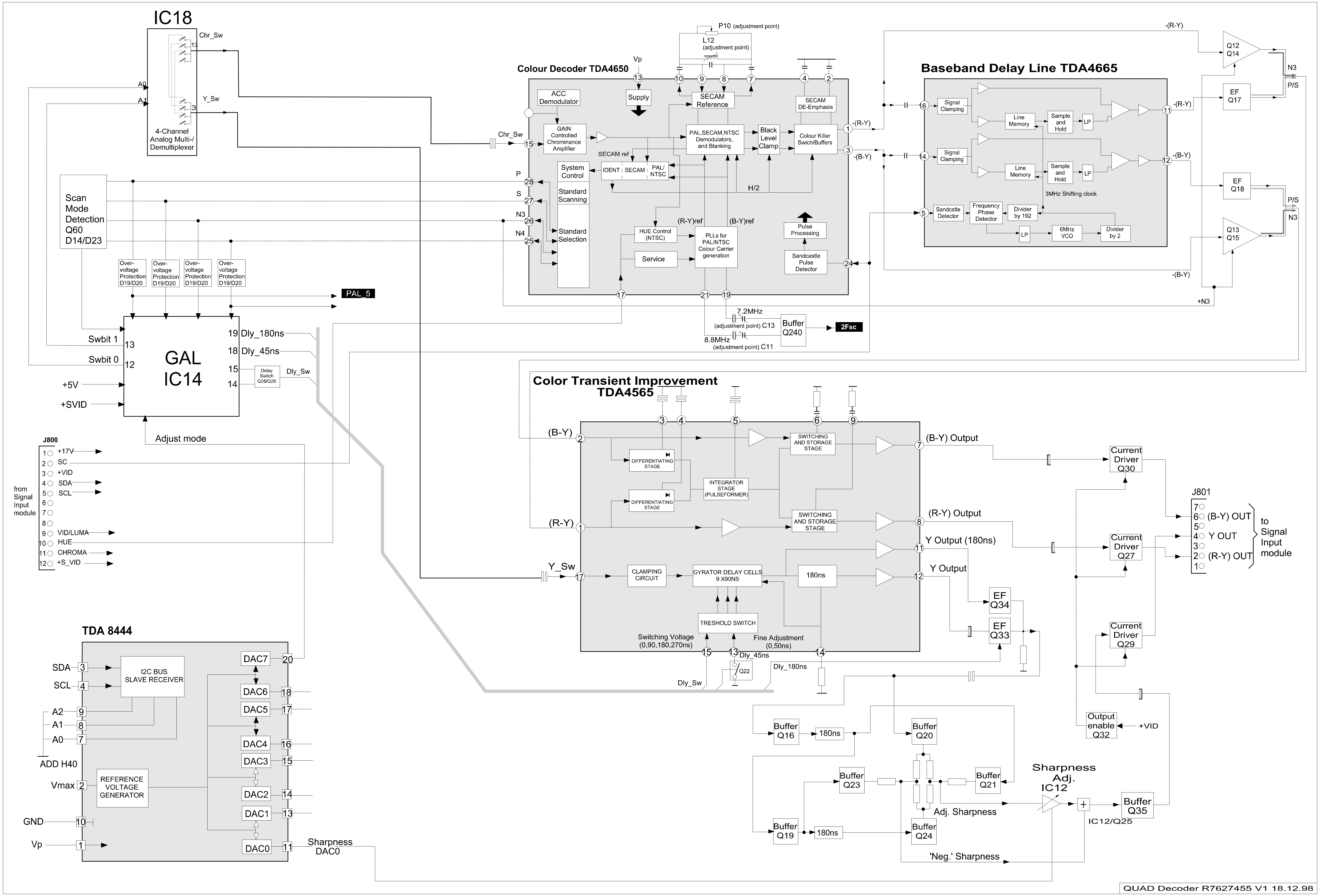
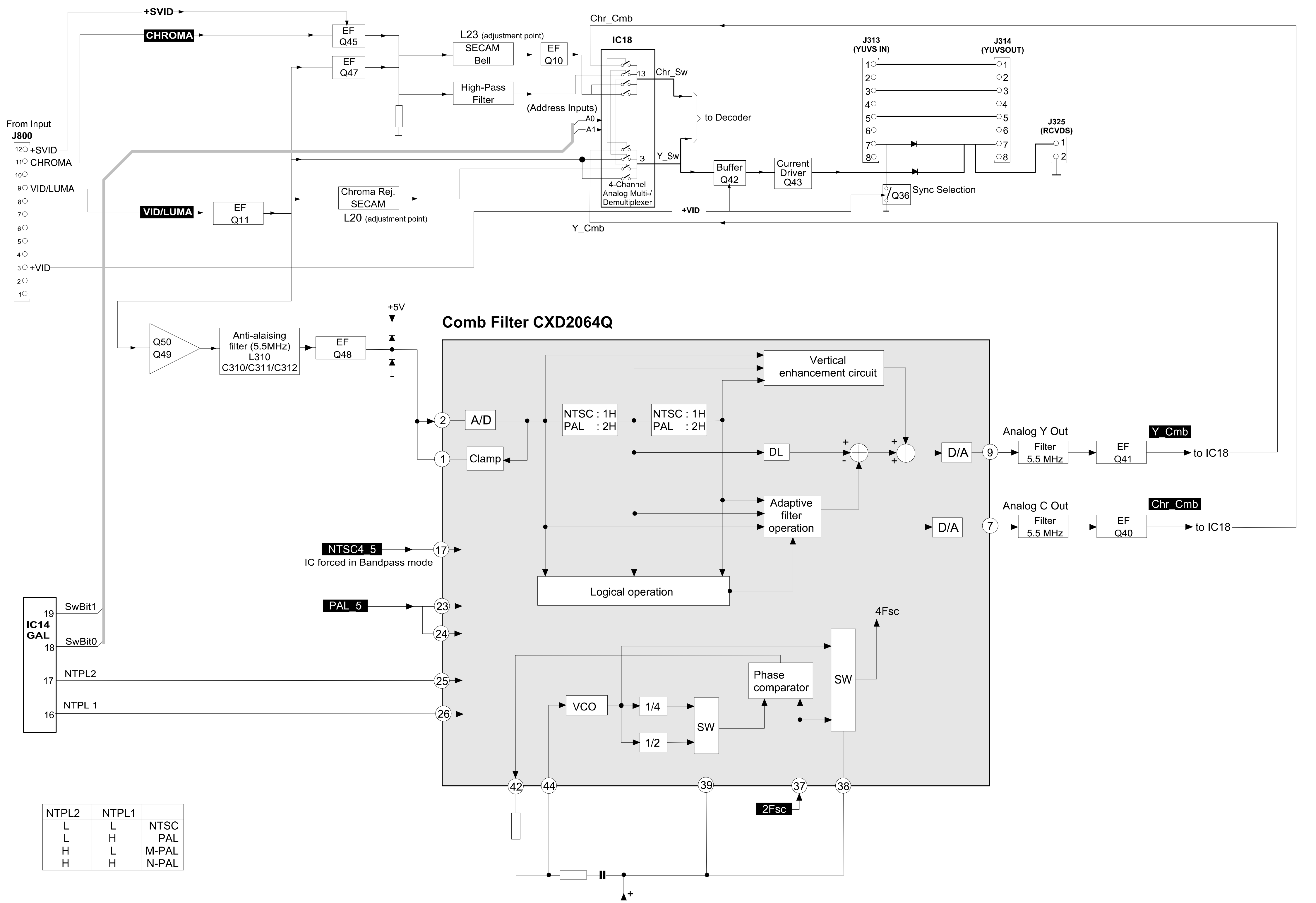
C58	A1	1
C59	B1	1
C60	G6	1
C61	G5	1
C62	G6	1
C63	G1	1
C64	H1	1
C65	G1	1
C66	G1	1
C67	I5	1
C68	H1	1
C69	C5	1
C70	H1	1
C71	H2	1
C72	H2	1
C73	H1	1
C74	H1	1
C75	G2	1
C76	H2	1
C78	I6	1
C80	H5	1
C96	A6	1
C97	G5	2
C98	C5	2
C99	B5	1
C101	E4	2
C102	E4	2
C104	G6	2
C105	E4	2
C108	D4	2
C109	D6	2
C110	D4	2
C112	D4	2
C113	C5	2
C114	F4	2
C115	G5	2
C116	F4	2
C117	F4	2
C119	C3	2
C120	C2	2
C121	F3	2
C122	A2	2
C123	C2	2
C124	C2	2
C125	E1	2
C126	D1	2
C127	B1	2
C128	B1	2
C129	A5	2
C130	C4	2
C131	C4	2
C132	H3	1
C133	B4	2
C134	B4	2
C213	C5	2
C220	D6	2
C221	E6	2
C222	D5	2
C223	E5	2
C224	E5	2
C225	E5	2
C240	B3	1
C310	B5	2
C311	B5	2
C312	B5	2
C320	F5	2
C321	F5	2
C322	F5	2
C323	F5	2
C330	F6	2
C331	F6	2
C332	F6	2
C333	F6	2
D10	E3	1
D11	E3	1
D14	A3	1
D19	A4	1
D20	A3	1
D23	A4	1
D24	G3	2
D25	A5	1
D26	B5	1
D113	C5	2
D114	C5	2
DL10	D5	1
DL11	D6	1
I10	E2	1
I11	C1	1
I12	G5	1
I12	G6	1
I12	H5	1
I13	G2	1
I14	B4	1
I14	C5	1
I16	D5	2
I17	B6	1
I18	E1	2
I19	B4	2
I20	A4	2

COMP.	LOC.	SH.
J11	C6	2
J313	F2	2
J314	G2	2
J325	G3	2
J800	A6	2
J801	B6	2
L10	E3	1
L11	E3	1
L12	C2	1
L13	D1	1
L14	H1	1
L15	C4	2
L18	F3	2
L19	F3	2
L20	C3	2
L21	C2	2
L22	F3	2
L23	C2	2
L310	B5	2
L320	F5	2
L330	F6	2
P10	C2	1
Q10	C2	2
Q11	A1	2
Q12	E3	1
Q13	E3	1
Q14	E3	1
Q15	E5	1
Q16	D5	1
Q17	F1	1
Q18	G2	1
Q19	D6	1
Q20	E5	1
Q21	F5	1
Q22	G3	1
Q23	E6	1
Q24	E6	1
Q25	H6	1
Q26	G4	1
Q27	I1	1
Q28	G3	1
Q29	I5	1
Q30	I2	1
Q32	I6	1
Q33	H3	1
Q34	H2	1
Q35	H5	1
Q36	G3	2
Q40	G6	2
Q41	G5	2
Q42	F2	2
Q43	G2	2
Q44	E2	2
Q45	B2	2
Q46	E2	2
Q47	B1	2
Q48	C5	2
Q49	B5	2
Q50	A5	2
Q60	A4	1
Q240	A3	1
R10	C2	2
R11	A2	2
R12	A1	2
R13	A2	2
R14	A2	2
R15	A4	2
R16	E2	1
R17	E3	1
R18	E4	1
R19	E4	1
R20	D3	1
R21	D3	1
R22	E4	1
R23	E4	1
R24	D5	1
R25	E3	1
R26	E2	1
R27	D5	1
R28	D5	1
R29	D5	1
R30	E3	1
R31	E3	1
R32	D5	1
R33	A2	1
R34	D6	1
R35	D5	1
R36	D6	1
R37	D2	1
R38	G2	1
R39	G2	1
R40	D6	1
R41	F1	1
R42	B2	1
R43	C2	1
R44	D6	1
R45	F1	1
R46	C2	1
R47	D6	1
R48	D5	1
R49	H5	1
R50	F6	1
R51	A2	1
R52	F5	1
R53	F6	1
R54	F5	1
R55	G6	1
R56	G6	1
R57	G6	1
R58	F5	1
R59	F6	1
R60	G5	1
R61	E6	1
R62	E6	1
R63	G5	1
R64	G5	1
R65	E6	1
R66	C2	1
R67	E5	1
R68	E6	1
R69	G6	1
R70	G6	1
R72	G6	1
R73	H5	1
R74	G2	1
R76	G6	1
R77	F4	1
R78	H6	1
R79	I1	1
R80	G3	1
R81	I1	1
R82	G3	1
R83	I1	1
R84	G3	1
R85	I6	1
R86	F3	1
R87	I5	1
R88	G3	1
R89	I1	1
R90	I5	1
R91	C5	1
R92	I2	1
R93	H1	1
R94	I2	1
R95	A4	1
R97	H1	1
R98	H5	1

COMP.	LOC.	SH.
R101	H5	1
R102	G3	1
R103	H2	1
R104	A4	1
R106	A4	1
R107	I6	1
R108	I6	1
R110	H2	1
R111	H6	1
R112	H3	1
R113	A3	1
R114	A4	1
R115	H6	1
R116	A5	1
R117	B4	1
R118	G3	2
R119	A3	1
R120	B6	1
R121	B3	1
R122	F3	2
R140	F6	2
R141	F5	2
R142	A6	1
R143	F6	2
R144	F5	2
R145	G6	2
R146	A6	1
R148	A6	1
R152	G5	2
R154	B5	1
R159	E4	2
R160	G4	2
R161	G5	2
R162	G5	2
R163	A5	1
R164	G6	2
R165	G5	2
R166	A5	1
R167	E4	2
R168	E4	2
R169	G6	2
R170	G5	2
R172	D4	2
R173	D4	2
R174	C5	2
R175	D4	2
R176	F3	2
R177	F2	2
R178	F3	2
R179	A2	2
R180	C2	2
R181	C3	2
R182	F2	2
R183	B2	2
R184	B3	2
R185	G2	2
R186	E2	2
R187	B2	2
R188	E1	2
R189	A2	2
R190	B2	2
R191	B2	2
R192	C1	2
R193	A1	2
R194	E2	2
R195	A2	2
R196	B2	2
R197	C2	2
R198	A1	2
R199	E2	2
R200	D1	2
R201	C2	2
R202	A4	2
R203	A5	2
R204	C5	2
R205	A4	2
R206	A5	2
R207	A1	2
R208	A2	2
R209	B5	2
R210	A5	2
R211	B5	2
R220	E5	2
R221	E5	2
R222	E5	2
R223	E5	2
R224	E5	2
R225	B4	1
R226	B3	1
R227	E6	2
R228	E6	2
R229	A4	1
R231	D5	2
R232	D5	2
R233	D5	2
R235	D5	2
R240	B2	1
R241	A2	1
R250	B4	2
R251	B3	2
R271	A4	2
SR10	A4	2
XT10	B2	1
XT11	B2	1



IC18
4-Channel Analog Multi-/Demultiplexer
Chr_Sw
Y_Sw
Colour Decoder TDA4650
ACC Demodulator
GAIN Controlled Chrominance Amplifier
Supply
SECAM Reference
PAL,SECAM,NTSC Demodulators, and Blanking
Black Level Clamp
SECAM DE-Emphasis
Colour Killer Swich/Buffers
System Control
Standard Scanning
Standard Selection
IDENT
SECAM
PAL/NTSC
SECAM ref
H/2
HUE Control (NTSC)
Service
PLLs for PAL/NTSC Colour Carrier generation
(R-Y)ref
(B-Y)ref
Pulse Processing
Sandcastle Pulse Detector
P10 (adjustment point)
L12 (adjustment point)
Baseband Delay Line TDA4665
Signal Clamping
Line Memory
Sample and Hold
LP
Sandcastle Detector
Frequency Phase Detector
Divider by 192
6MHz VCO
Divider by 2
3MHz Shifting clock
EF Q17
EF Q18
Q12 Q14
Q13 Q15
N3
P/S
+N3
Scan Mode Detection Q60 D14/D23
Over-voltage Protection D19/D20
PAL_5
GAL IC14
Swbit 1
Swbit 0
+5V
+SVID
Dly_180ns
Dly_45ns
Delay Switch Q28/Q26
Dly_Sw
Adjust mode
7.2MHz (adjustment point) C13
8.8MHz (adjustment point) C11
Buffer Q240
2Fsc
J800
from Signal Input module
+17V
SC
+VID
SDA
SCL
VID/LUMA
HUE
CHROMA
+S_VID
Color Transient Improvement TDA4565
(B-Y)
(R-Y)
Y_Sw
DIFFERENTIATING STAGE
INTEGRATOR STAGE (PULSEFORMER)
SWITCHING AND STORAGE STAGE
CLAMPING CIRCUIT
GYRATOR DELAY CELLS 9 X90NS
180ns
TRESHOLD SWITCH
Switching Voltage (0,90,180,270ns)
Fine Adjustment (0,50ns)
Q22
(B-Y) Output
(R-Y) Output
Y Output (180ns)
Y Output
EF Q34
EF Q33
Current Driver Q30
Current Driver Q27
Current Driver Q29
Output enable Q32
J801
(B-Y) OUT
Y OUT
(R-Y) OUT
to Signal Input module
TDA 8444
I2C BUS SLAVE RECEIVER
REFERENCE VOLTAGE GENERATOR
DAC0
DAC1
DAC2
DAC3
DAC4
DAC5
DAC6
DAC7
ADD H40
Vmax
GND
Vp
Sharpness DAC0
Buffer Q16
Buffer Q19
Buffer Q20
Buffer Q21
Buffer Q23
Buffer Q24
Adj. Sharpness
'Neg.' Sharpness
Sharpness Adj. IC12
IC12/Q25
Buffer Q35
QUAD Decoder R7627455 V1 18.12.98



NTPL2	NTPL1	
L	L	NTSC
L	H	PAL
H	L	M-PAL
H	H	N-PAL

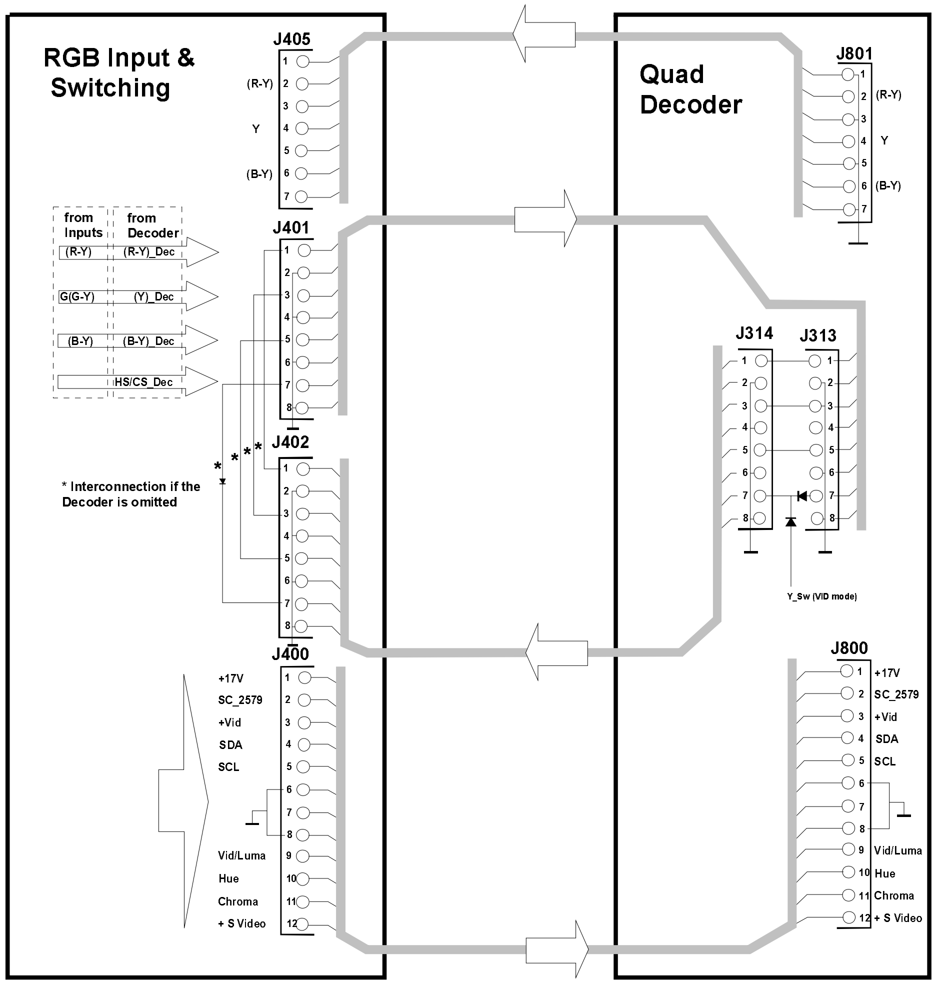
4-Channel Analog Multi-/Demultiplexer IC18

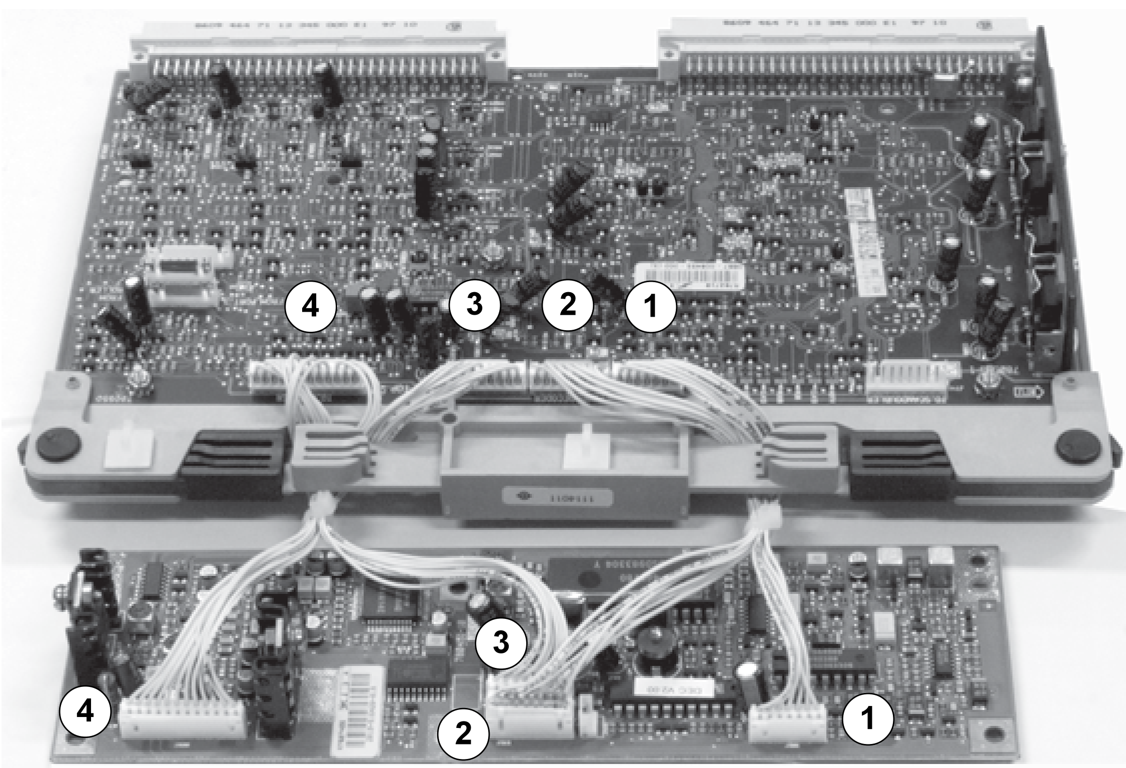
Filter Switching

Mode		Chroma
Scanning	all pass	High pass
SVideo PAL, NTSC3.58,NTSC4.43	all pass	High pass
SVideo SECAM	all pass	Bell filter
Video SECAM	4.43MHz Rejector	Bell filter
Video PAL,NTSC3.58	Luma Comb	Chroma Comb
Video NTSC4.43	Luma Comb	Chroma Comb

(The Comb Filter is switched to Bandpass filter in case of Video NTSC4.43)

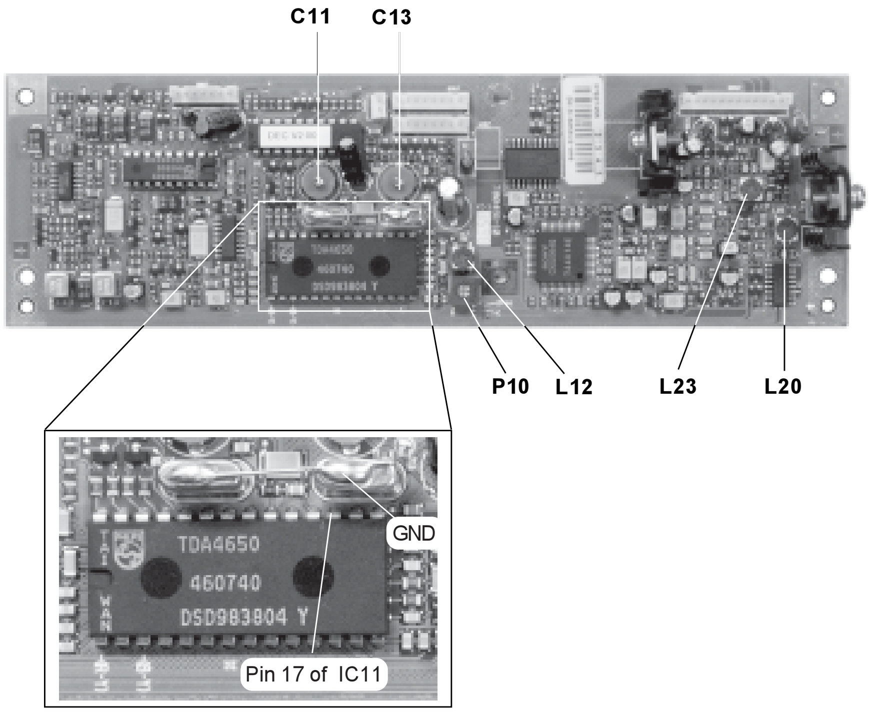
Interconnection RGB Input/Switching and Quad Decoder





ADJUSTMENT PROCEDURE

Location of controls



1. Reference Oscillator NTSC3.58

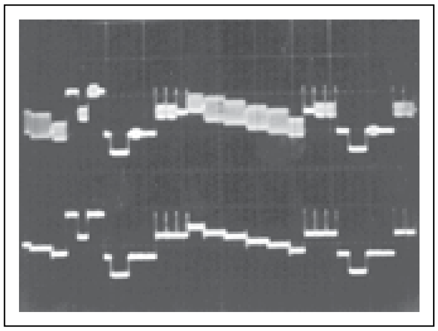
- Connect to the VIDEO input e.g. an electronic **NTSC3.58** color test video signal.
- Switch the projector in the VIDEO MODE. Press digit button 1 on RCU.
- if there is no colour, adjust trimming capacitor C13 for color display.
- short circuit pin 17 of IC11 to ground.
- adjust trimming capacitor C13 for a colour zero beat.
- remove the short-circuit.

2. Reference Oscillator PAL

- Connect to the VIDEO input e.g. an electronic **PAL** test video signal.
- if there is no colour, adjust trimming capacitor C11 for color display.
- short circuit pin 17 of IC11 to ground.
- adjust trimming capacitor C11 for a colour zero beat.
- remove the short-circuit.

3. Chroma rejector Secam L20

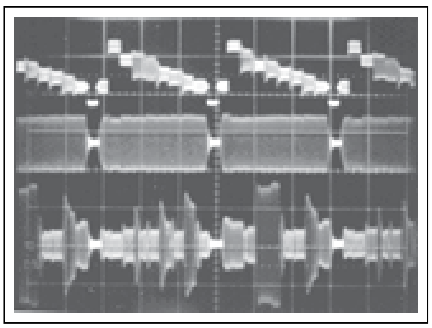
- Connect to the VIDEO input e.g. an electronic **SECAM** test video signal.
- connect an oscilloscope to the capacitor C22.
- adjust the core of coil L20 for a minimum of chroma in the video signal.



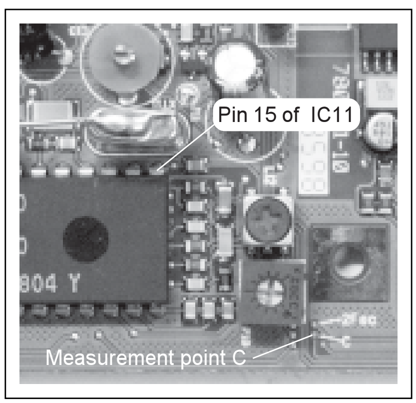
UPPER TRACK: VIEWED VIDEO LINE
LOWER TRACK: Y SIGNAL

4. SECAM BELL Filter L23

- Connect to the VIDEO input e.g. an electronic **SECAM** test video signal.
- connect an oscilloscope to the provided **Measurement point C** or to pin 15 of IC11 (Chr_Sw).
- adjust L23 for a flat amplitude of the signal during two successive lines.

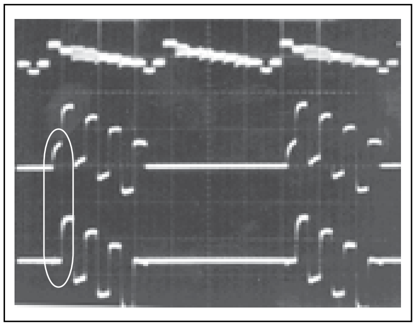


UPPER TRACK: VIEWED VIDEO LINE
LOWER TRACK:
1: CORRECT SETTING
2: INCORRECT SETTING

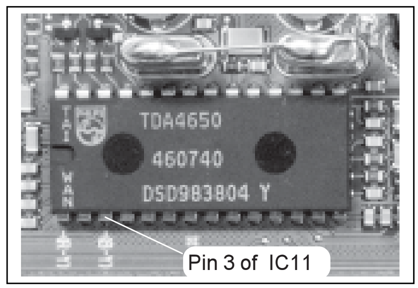


5. Secam Reference circuit (L12 - P10)

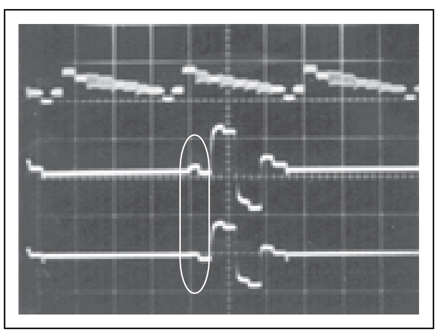
- Connect to the VIDEO input e.g. an electronic **SECAM** test video signal.
- connect the oscilloscope to pin 3 of IC11 (B-Y).
- adjust L12 so that the level of the (B-Y) signal without colour information is the same as the level during blanking.



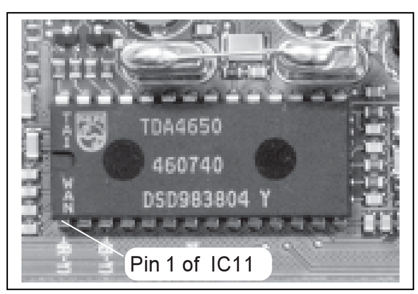
UPPER TRACK: VIEWED VIDEO LINE
LOWER TRACK:
1: INCORRECT SETTING
2: CORRECT SETTING



- connect the oscilloscope to the coil pin 1 of IC11 (R-Y).
- adjust P10 so that the level of the (R-Y) signal without colour information is the same as the level during blanking.



UPPER TRACK: VIEWED VIDEO LINE
LOWER TRACK:
1: INCORRECT SETTING
2: CORRECT SETTING



- If necessary the level in (B-Y) channel has to readjust to zero with the coil L12.

TECHNICAL DESCRIPTION

General.

This board carries the same number of the former R762745 version with digital comb filter, only a /5 is added. This simply means that this board is a fully downwards compatible and redesigned board.

The decoder section of this board with comb filtering uses the decoder chips TDA4650 / TDA4665 / TDA 4565.

The new digital comb filter IC integrates all the necessary circuits for the sampling clock and the adaptive intra-field Y/C separation. There is no more a separate IC for sync processing.

General Signal Flow

The composite video must always be split into it's luminance and chrominance components. The filter used for this Y/C split depends on the colour system.
For PAL and NTSC 3.58 this is done by an adaptive digital comb filter. For SECAM this is done by passive filtering (like in the former decoder). For NTSC4.43 the digital comb filter is forced in bandpass mode.

If the input is S-Video, this split is no more necessary.

The multistandard Decoder chip IC 11 is sequentially checking the color burst on the backporch of the horizontal sync. As soon the right system is identified, the appropriate output PAL/SECAM/NTSC4.43 or NTSC3.58 of the TDA4650 is put at a high level.

These switching outputs are supplied to a GAL (IC14), where the decoder mode will be recognized. The programmed GAL IC14 ensures, using the two outputs SwBit0 and SwBit1 as address inputs for the IC18, that the correct signal on the 4-channel Analog Multi-/Demultiplexer IC18 is switched through.

The two output signals of the 4-channel Analog Multi-/Demultiplexer IC18, respectively Chr_Sw and Y_Sw, are the supply signals for the Decoder IC's. The selected chrominance signal is applied to the decoder IC which provides the colour difference signals -(R-Y) and -(B-Y).

These output signals are then sent to the "baseband delay line" IC13 where the chrominance information of two subsequent lines is added using a CCD analog delay line.
This adding means in NTSC that the IC acts like an analog comb filtering. But, when it is NTSC3.58 the digital comb filter has already done a similar action. Therefore, the delay line IC is bypassed for NTSC3.58.

The next IC13 is supplied in any case with the colour difference signals and the luminance *Y_sw*. The colour undergoes an CTI (Colour Transient Improvement) and the delay of the luminance is adjusted per color standard (DC controlled delay).

Finally, the luminance passes a "sharpness control" and the three signals leave the decoder via current sources.

Comb Filter CXD2064Q

The CXD2064Q is an adaptive intra-field comb filter compatible with NTSC, PAL, PAL-M and PAL-N systems, and can provide high precision Y/C separation with a single chip.
To generate the sampling clock, which should be locked to the color subcarrier, the PLL in the chip must receive a reference. Here, the ***2Fsc*** oscillator signal is used as it is available from the crystal oscillator of the color decoder. It is taken via Q240 and fed to pin 37 via C109. To tell the IC that the *FIN* is **2**Fsc, pins 38 and 39 are both high level.

The IC can work in three different modes

- adaptive processing mode (digital comb filtering)
- BPF (BandPass Filtering) separation mode (NTSC4.43)
- Through mode (not applicable).

The mode is determined by the voltage level of pin17 (MOD2) and pin 19 (MOD1).
Here, pin 19 is ground level and pin 17 is the *'NTSC 4.5'* line.
When this line is high level (=NTSC4.43) the IC works in the BPF mode
In the adaptive processing mode, the Y/C separation is performed by detecting the correlation between three consecutive lines and switching between comb filter and BPF processing.
In the BPF separation mode, the Y/C separation is performed only by BPF processing.

The video signal supplied to pin 2 of the comb filter, has passed through an anti-alaising filter that suppresses all frequenties above 5,5 MHz.

The AYO (luminance) output at pin 9 passes through a low pass filter and is then buffered with Q41 to feed the 4-channel Analog Multi-/Demultiplexer IC18, at pin A1 with Y_Comb.
The filter prevent the clock frequencies of the DA converter to pass through.

The ACO (Chrominance) output undergoes also a frequency limitation for the same reason, before supplying Chr_Comb to the pin B1 of the 4-channel Analog Multi-/ Demultiplexer IC18.

The voltage at pin 12 and the current at pin 13 determines the amplitude of the output current-sources for chrominance (pin 7) and luminance (pin 9).

NTPL1 on pin 25 and NTPL2 pin 26 tell the IC which colour system is used.

NTPL 1	NTPL 2	
L	L	NTSC
H	L	PAL
L	H	PAL-M
H	H	PAL-N

The vertical enhancing setting is here not implemented, the corresponding three lines VEH are not used.

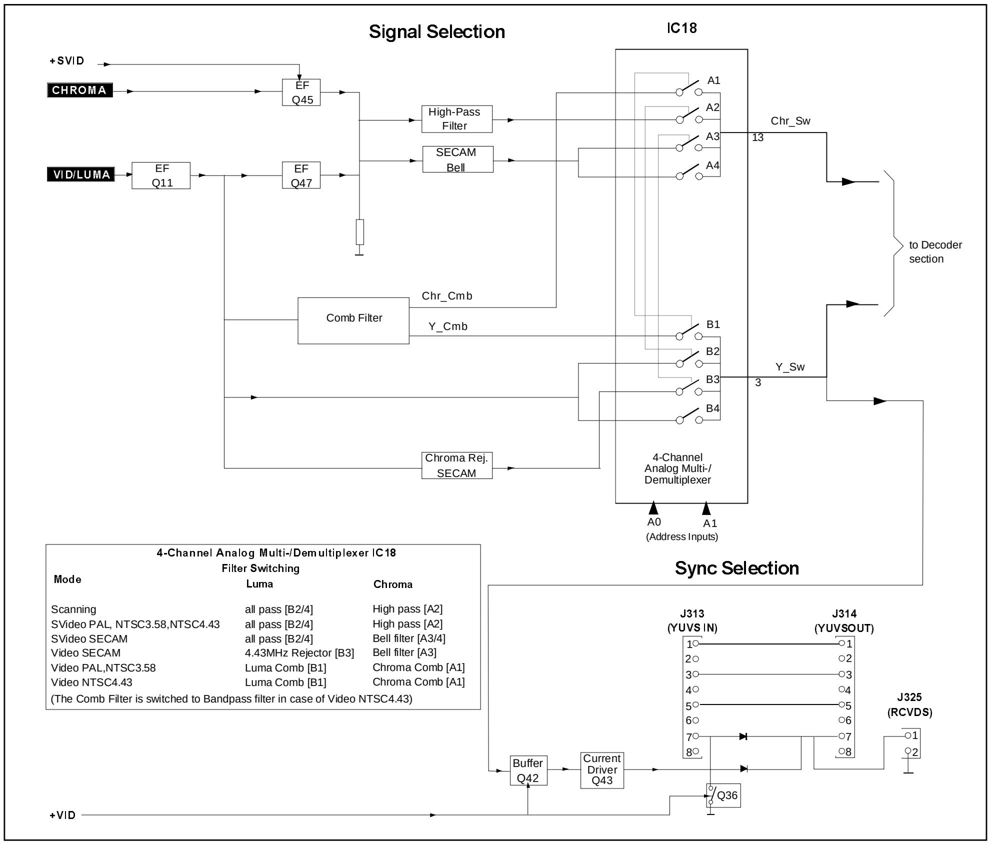
Filter Switching

a) Video or S-Video

A first selection is the switching between composite video and S-Video.
In case of S-Video the *+S-Video* line is high. This voltage forward biases Q45 and the CHROMA is sent to the *HIGH-PASS FILTER* and *SECAM BELL* filter.
For composite video the *+S-Video* line is low, which causes Q45 to be reverse biased and the CHROMA signal is not sent on.
In both cases the VID/LUMA signal is sent to the CHROMA REJECTOR and to pin 2 and 4 of IC18.

b) Filter Switching

Depending on the color standard selected by the decoder, the filters are switched in the following way:



4-Channel Analog Multi-/Demultiplexer IC18
Filter Switching

Mode	Luma	Chroma
Scanning	all pass [B2/4]	High pass [A2]
SVideo PAL, NTSC3.58,NTSC4.43	all pass [B2/4]	High pass [A2]
SVideo SECAM	all pass [B2/4]	Bell filter [A3/4]
Video SECAM	4.43MHz Rejector [B3]	Bell filter [A3]
Video PAL,NTSC3.58	Luma Comb [B1]	Chroma Comb [A1]
Video NTSC4.43	Luma Comb [B1]	Chroma Comb [A1]

(The Comb Filter is switched to Bandpass filter in case of Video NTSC4.43)

Synchronisation.

The first selection of the sync signal is done in the source input selection. The result of this selection is the SYNC-EX which is available at pin 7 of the J313 connector.

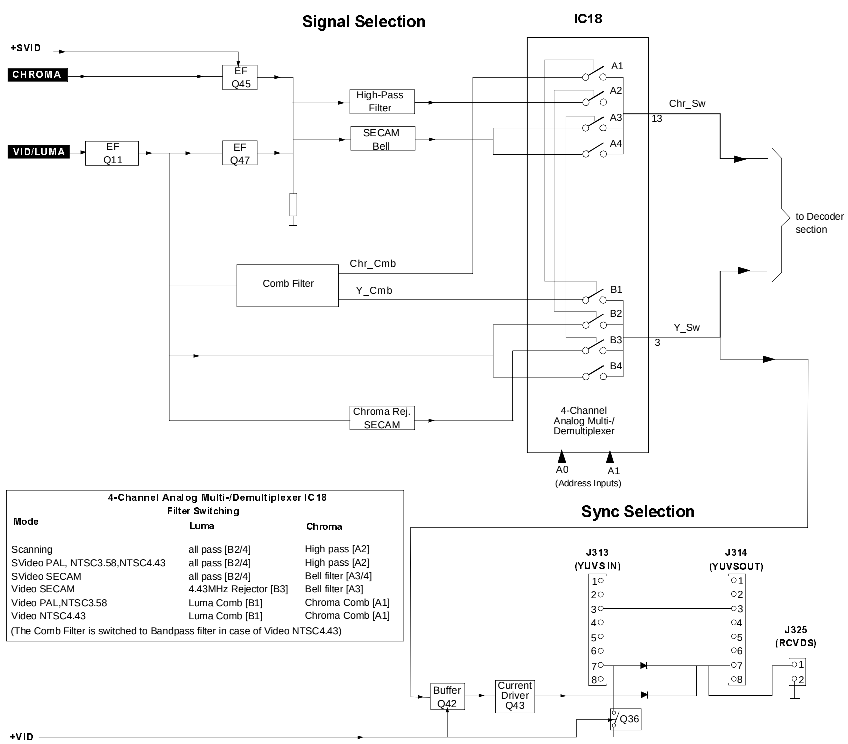
a) Video / S-Video :

When a video composite or S-Video source is selected the +VID voltage is high and the transistor Q42 gets forward biased just like Q43. Pin 7 of the connector J314 then receives the *Y_sw* signal, selected by the multiplexer, via these transistors. This signal may have undergone some delays depending on the standard.
To ensure that the SYNC-EX does not get through, Q36 is saturated to short the SYNC-EX line to ground. The collector DC voltage of Q43 is blocked with D24.

b) RGB .

The selection of an RGB source simply means that the SYNC-EX signal is passed through D24 and feeds the Synchronisation board.

Sync Switching



4-Channel Analog Multi-/Demultiplexer IC18
Filter Switching

Mode	Luma	Chroma
Scanning	all pass [B2/4]	High pass [A2]
SVideo PAL, NTSC3.58,NTSC4.43	all pass [B2/4]	High pass [A2]
SVideo SECAM	all pass [B2/4]	Bell filter [A3/4]
Video SECAM	4.43MHz Rejector [B3]	Bell filter [A3]
Video PAL,NTSC3.58	Luma Comb [B1]	Chroma Comb [A1]
Video NTSC4.43	Luma Comb [B1]	Chroma Comb [A1]

(The Comb Filter is switched to Bandpass filter in case of Video NTSC4.43)

CTI - Luminance delay

The (B-Y) and (R-Y) colour difference channels consist of a buffer amplifier at the input, a switching stage and an output amplifier.
The switching stages, which are controlled by transient detection stages (differentiators) switch to a value that has been stored at the beginning of the transients. Two parallel storage stages are incorporated in which the color difference signals are stored during the transient time of the signal. After a time of about 600ns they are switched immediately to the outputs.

The other part of this IC consists of a DC adjustable delay for the luminance signal. The luminance is capacitively coupled to the clamping circuit. Gyrator delay cells provide a maximum delay of 810 ns including the additional delay of 45 ns via the *Fine Adj* pin 13 (when Q22 is saturated). As seen in the bloc diagram, three delay cells are switched with interstage switches controlled by the voltage at pin 15. The *DLsw* voltage is made from two GAL outputs and the transistors Q26 /Q28. This GAL receives the color standard information to install the correct delay for each standard. Two other GAL outputs are used for respectively the additional 45ns delay via the *FADJ* pin and a delay of 180 ns on the Yout by forward or reverse biasing Q33.

The initial level of it's emitter voltage is set by the DC output of pin 11. Q33 is conducting from the moment it's base voltage is 0.6V higher As seen in the bloc diagram, output 12 has an additional delay compared with the pin 11 output. As a conclusion, with 4 GAL outputs the required delay per standard is installed in an automatic way.

Decoder - Sharpness

This sharpness control is designed to enhance or diminish sharpness. We foresee the possibilty to dimish sharpness (= negative sharpness) in order to reduce eventual noise on the signal. To realize this we start from a signal with maximum negative sharpness and add then a variable "sharpness" signal.

This signal with maximum negative sharpness is formed at the node R62, R65 and R68.
This signal is composed of :

- the original one, via buffer Q20
- delayed by 180ns but opposite polarity, via Q23.
- delayed by 2x180ns via Q24.

Q16 and Q19 restore the amplitudes and adapt the signal to the impedance (1k) of the delay lines.
The "sharpness" signal is then applied as current source to the differential amplifier in IC12. The signal is split into the two collector resistors.
Pin 5 is decoupled by C61. This will prevent DC variations in the Y signal when adjusting the SHARPNESS.
At the node R73 / R78 the sharpness signal from the amplifier and the original negative sharpness signal are mixed and inverted/amplified with Q35.
The three outputs signals are now output via current drivers.
In case the decoder is not active (indicated by a low level on the *+VID* line), Q32 is not active, which causes the outputs to be disabled.

PARTS LISTING

SIT.	ITEM NO.	DESCRIPTION	QUANTITY
10	R133072	HTSN Q TO220 24X 7 L 20	2
30	R3661026	NUT D934 M 3 SS	2
40	B360862	SCR Z$7985M 3 X 8 STZY	2
100	R348110	WU JUMP 0,6 27,5	1
C 10	P213508	C# EL RA 10M M 16 85	1
C 11	R117001	C T 7 -35P 160	1
C 12	P212018	C# TA 10M M 16 6032	1
C 13	R117001	C T 7 -35P 160	1
C 14	P210161	C# C0G MU 120P J 50 1206	1
C 15	K1114777	C EL RA 100M M 25E2 105	1
C 17	V1115119	C EL RA 47M M 25E2 105	1
C 21	P213508	C# EL RA 10M M 16 85	1
C 22	V111679	C EL BRA 10M M 25E2 105	1
C 23	P210025	C# C0G MU 470P J 50 0805	1
C 24	P210178	C# Y5V MU 1M Z 16 1206	1
C 25	P210213	C# Y5V MU 100N Z 25 0805	1
C 26	V1115319	C EL RA 10M M 50E2 105	1
C 27	V1115489	C EL RA 2M2M 50E2 105	1
C 28	P210041	C# X7R MU 10N K 50 0805	1
C 29	P210019	C# C0G MU 47P J 50 0805	1
C 30	P210019	C# C0G MU 47P J 50 0805	1
C 31	P210178	C# Y5V MU 1M Z 16 1206	1
C 32	P210035	C# X7R MU 1N K 50 0805	1
C 33	P210071	C# C0G MU 220P F 50 0805	1
C 34	P210178	C# Y5V MU 1M Z 16 1206	1
C 35	P210035	C# X7R MU 1N K 50 0805	1
C 36	P210071	C# C0G MU 220P F 50 0805	1
C 37	P212005	C# TA 47M M 10 7343	1
C 38	P210041	C# X7R MU 10N K 50 0805	1
C 39	P210005	C# X7R MU 39N K 50 1206	1
C 40	P210041	C# X7R MU 10N K 50 0805	1
C 41	P210005	C# X7R MU 39N K 50 1206	1
C 42	P210124	C# X7R MU 100N K 50 0805	1
C 43	P210130	C# C0G MU 2P2D 50 0805	1
C 44	P210295	C# Y5V MU 1M Z 16 0805	1
C 45	P210178	C# Y5V MU 1M Z 16 1206	1
C 46	P210178	C# Y5V MU 1M Z 16 1206	1
C 47	P210213	C# Y5V MU 100N Z 25 0805	1
C 48	P210095	C# X7R MU 330N M 50 1812	1
C 49	P210178	C# Y5V MU 1M Z 16 1206	1
C 50	P210130	C# C0G MU 2P2D 50 0805	1
C 51	P210111	C# X7R MU 47N K 50 0805	1
C 52	P210007	C# C0G MU 1N F 50 1206	1
C 53	P210124	C# X7R MU 100N K 50 0805	1
C 54	P210178	C# Y5V MU 1M Z 16 1206	1
C 55	P210041	C# X7R MU 10N K 50 0805	1
C 56	P210178	C# Y5V MU 1M Z 16 1206	1
C 57	P210124	C# X7R MU 100N K 50 0805	1
C 58	P210035	C# X7R MU 1N K 50 0805	1
C 59	P210041	C# X7R MU 10N K 50 0805	1
C 60	P210178	C# Y5V MU 1M Z 16 1206	1
C 61	P210041	C# X7R MU 10N K 50 0805	1
C 62	P210178	C# Y5V MU 1M Z 16 1206	1
C 63	P210178	C# Y5V MU 1M Z 16 1206	1
C 64	P212018	C# TA 10M M 16 6032	1
C 65	P210021	C# C0G MU 100P J 50 0805	1
C 66	P210021	C# C0G MU 100P J 50 0805	1
C 67	P212018	C# TA 10M M 16 6032	1
C 68	P210024	C# C0G MU 330P J 50 0805	1
C 69	P210213	C# Y5V MU 100N Z 25 0805	1
C 70	P210023	C# C0G MU 220P J 50 0805	1
C 71	P212018	C# TA 10M M 16 6032	1
C 72	P212015	C# TA 33M K 16 7343	1
C 73	P210213	C# Y5V MU 100N Z 25 0805	1
C 74	P210023	C# C0G MU 220P J 50 0805	1
C 75	P212018	C# TA 10M M 16 6032	1
C 76	P210295	C# Y5V MU 1M Z 16 0805	1
C 78	P210022	C# C0G MU 150P J 50 0805	1
C 80	P212018	C# TA 10M M 16 6032	1
C 96	P210213	C# Y5V MU 100N Z 25 0805	1
C 97	P210178	C# Y5V MU 1M Z 16 1206	1
C 98	P213508	C# EL RA 10M M 16 85	1
C 99	P210213	C# Y5V MU 100N Z 25 0805	1
C101	P210213	C# Y5V MU 100N Z 25 0805	1
C102	P210213	C# Y5V MU 100N Z 25 0805	1
C104	P210041	C# X7R MU 10N K 50 0805	1
C105	P210213	C# Y5V MU 100N Z 25 0805	1
C108	P210213	C# Y5V MU 100N Z 25 0805	1
C109	P210035	C# X7R MU 1N K 50 0805	1
C110	P210213	C# Y5V MU 100N Z 25 0805	1
C112	P210213	C# Y5V MU 100N Z 25 0805	1
C113	P210001	C# C0G MU 10P G 50 0805	1
C114	P213508	C# EL RA 10M M 16 85	1
C115	P213508	C# EL RA 10M M 16 85	1
C116	P213508	C# EL RA 10M M 16 85	1
C117	P213508	C# EL RA 10M M 16 85	1
C119	P210217	C# C0G MU 82P J 50 0805	1
C120	P210041	C# X7R MU 10N K 50 0805	1
C121	P210178	C# Y5V MU 1M Z 16 1206	1
C122	P210041	C# X7R MU 10N K 50 0805	1
C123	P210023	C# C0G MU 220P J 50 0805	1
C124	P210041	C# X7R MU 10N K 50 0805	1
C125	P210213	C# Y5V MU 100N Z 25 0805	1
C126	P210213	C# Y5V MU 100N Z 25 0805	1
C127	P213508	C# EL RA 10M M 16 85	1
C128	P210295	C# Y5V MU 1M Z 16 0805	1
C129	P213508	C# EL RA 10M M 16 85	1
C130	P210213	C# Y5V MU 100N Z 25 0805	1
C131	P213508	C# EL RA 10M M 16 85	1
C132	P210041	C# X7R MU 10N K 50 0805	1
C133	P210213	C# Y5V MU 100N Z 25 0805	1
C134	P213508	C# EL RA 10M M 16 85	1
C213	P210213	C# Y5V MU 100N Z 25 0805	1
C220	P210213	C# Y5V MU 100N Z 25 0805	1
C221	P210213	C# Y5V MU 100N Z 25 0805	1
C222	P210213	C# Y5V MU 100N Z 25 0805	1
C223	P210213	C# Y5V MU 100N Z 25 0805	1
C224	P210213	C# Y5V MU 100N Z 25 0805	1
C225	P210043	C# X7R MU 22N K 50 0805	1
C240	P2100190	C# C0G MU 47P J 50 0805	1
C310	P210117	C# C0G MU 47P G 50 1206	1
C311	P210117	C# C0G MU 47P G 50 1206	1
C312	P210132	C# C0G MU 3P3D 50 0805	1
C320	P210117	C# C0G MU 47P G 50 1206	1
C321	P210117	C# C0G MU 47P G 50 1206	1
C322	P210132	C# C0G MU 3P3D 50 0805	1
C323	P210070	C# C0G MU 680P J 50 0805	1
C330	P210117	C# C0G MU 47P G 50 1206	1
C331	P210117	C# C0G MU 47P G 50 1206	1
C332	P210132	C# C0G MU 3P3D 50 0805	1
C333	P210070	C# C0G MU 680P J 50 0805	1
D 10	P234099	D#4148 R DMMELF	1
D 11	P234099	D#4148 R DMMELF	1
D 14	P234205	D#BAT54C SCH SOT23	1
D 19	P234205	D#BAT54C SCH SOT23	1
D 20	P234205	D#BAT54C SCH SOT23	1
D 23	P234205	D#BAT54C SCH SOT23	1
D 24	P234205	D#BAT54C SCH SOT23	1

SIT.	ITEM NO.	DESCRIPTION	QUANTITY
D 25	P234047	D#BAV99 SER SOT23	1
D 26	P234047	D#BAV99 SER SOT23	1
D113	P234099	D#4148 R DMMELF	1
D114	P234099	D#4148 R DMMELF	1
DL10	V306541	DL 180NS 1K	1
DL11	V306541	DL 180NS 1K	1
I 10	P231329	U#4665 TDA SO16 P	1
I 11	R132828	U 4650 TDA DIP28 P	1
I 12	P231013	U#3046 CA SO14 I	1
I 13	R132773	U 4565 TDA DIP18 P	1
I 14	R32858600	US G808S DEC 200	1
I 16	P231830	U#2064 CXD QFP48 P	1
I 17	P230936	U#8444A TDA SOL20 P	1
I 18	P230064	U#4052 SO16 I	1
I 19	R134001	U 7805 TO220 P	1
I 20	R134002	U 7812 TO220 P	1
J313	R313928	J CT H MBT P 8 M2SN WH	1
J314	R313928	J CT H MBT P 8 M2SN WH	1
J325	R313922	J CT H MBT P 2 M2SN WH	1
J800	R313932	J CT H MBT P12 M2SN WH	1
J801	R313927	J CT H MBT P 7 M2SN WH	1
L 10	P250583	CH# 10 UH L1812	1
L 11	P250583	CH# 10 UH L1812	1
L 12	P250586	CH# 10 UH TOKO614	1
L 13	R3061341	CH AX NS 100 UH	1
L 14	R3061341	CH AX NS 100 UH	1
L 15	P250583	CH# 10 UH L1812	1
L 18	P250583	CH# 10 UH L1812	1
L 19	P250583	CH# 10 UH L1812	1
L 20	P250588	CH# 15 UH TOKO614	1
L 21	P250583	CH# 10 UH L1812	1
L 22	P250583	CH# 10 UH L1812	1
L 23	P250587	CH# 3.3 UH TOKO614	1
L310	P250511	CH# 22 UH L1812	1
L320	P250511	CH# 22 UH L1812	1
L330	P250511	CH# 22 UH L1812	1
P 10	R107005	R TCE H500E K 0W5 S 7TS	1
PC	R780451	PCB *701 DEC_COMB	1
Q 10	P232004	Q#BC849C N SS SOT23	1
Q 11	P232004	Q#BC849C N SS SOT23	1
Q 12	P232004	Q#BC849C N SS SOT23	1
Q 13	P232004	Q#BC849C N SS SOT23	1
Q 14	P232101	Q#BC859C P SS SOT23	1
Q 15	P232101	Q#BC859C P SS SOT23	1
Q 16	P232101	Q#BC859C P SS SOT23	1
Q 17	P232004	Q#BC849C N SS SOT23	1
Q 18	P232004	Q#BC849C N SS SOT23	1
Q 19	P232101	Q#BC859C P SS SOT23	1
Q 20	P232004	Q#BC849C N SS SOT23	1
Q 21	P232004	Q#BC849C N SS SOT23	1
Q 22	P232004	Q#BC849C N SS SOT23	1
Q 23	P232101	Q#BC859C P SS SOT23	1
Q 24	P232101	Q#BC859C P SS SOT23	1
Q 25	P232101	Q#BC859C P SS SOT23	1
Q 26	P232004	Q#BC849C N SS SOT23	1
Q 27	P232101	Q#BC859C P SS SOT23	1
Q 28	P232004	Q#BC849C N SS SOT23	1
Q 29	P232101	Q#BC859C P SS SOT23	1
Q 30	P232101	Q#BC859C P SS SOT23	1
Q 32	P232004	Q#BC849C N SS SOT23	1
Q 33	P232004	Q#BC849C N SS SOT23	1
Q 34	P232004	Q#BC849C N SS SOT23	1
Q 35	P232004	Q#BC849C N SS SOT23	1
Q 36	P232004	Q#BC849C N SS SOT23	1
Q 40	P232004	Q#BC849C N SS SOT23	1
Q 41	P232004	Q#BC849C N SS SOT23	1
Q 42	P232004	Q#BC849C N SS SOT23	1
Q 43	P232101	Q#BC859C P SS SOT23	1
Q 44	P232004	Q#BC849C N SS SOT23	1
Q 45	P232004	Q#BC849C N SS SOT23	1
Q 46	P232004	Q#BC849C N SS SOT23	1
Q 47	P232004	Q#BC849C N SS SOT23	1
Q 48	P232004	Q#BC849C N SS SOT23	1
Q 49	P232101	Q#BC859C P SS SOT23	1
Q 50	P232004	Q#BC849C N SS SOT23	1
Q 60	P232101	Q#BC859C P SS SOT23	1
Q240	P232004	Q#BC849C N SS SOT23	1
R 10	P201095	R# CE H 2K2 F 0W12 0805	1
R 11	P201095	R# CE H 2K2 F 0W12 0805	1
R 12	P201135	R# CE H100K F 0W12 0805	1
R 13	P201063	R# CE H100E F 0W12 0805	1
R 14	P201125	R# CE H 39K F 0W12 0805	1
R 15	P201015	R# CE H 1E F 0W12 0805	1
R 16	P201135	R# CE H100K F 0W12 0805	1
R 17	P201135	R# CE H100K F 0W12 0805	1
R 18	P201143	R# CE H220K F 0W12 0805	1
R 19	P201095	R# CE H 2K2 F 0W12 0805	1
R 20	P201143	R# CE H220K F 0W12 0805	1
R 21	P201095	R# CE H 2K2 F 0W12 0805	1
R 22	P201095	R# CE H 2K2 F 0W12 0805	1
R 23	P201095	R# CE H 2K2 F 0W12 0805	1
R 24	P201087	R# CE H 1K F 0W12 0805	1
R 25	P201087	R# CE H 1K F 0W12 0805	1
R 26	P201087	R# CE H 1K F 0W12 0805	1
R 27	P201087	R# CE H 1K F 0W12 0805	1
R 29	P201135	R# CE H100K F 0W12 0805	1
R 30	P201095	R# CE H 2K2 F 0W12 0805	1
R 31	P201095	R# CE H 2K2 F 0W12 0805	1
R 32	P201079	R# CE H470E F 0W12 0805	1
R 33	P201063	R# CE H100E F 0W12 0805	1
R 34	P201087	R# CE H 1K F 0W12 0805	1
R 35	P201121	R# CE H 27K F 0W12 0805	1
R 36	P201087	R# CE H 1K F 0W12 0805	1
R 37	P201111	R# CE H 10K F 0W12 0805	1
R 38	P201095	R# CE H 2K2 F 0W12 0805	1
R 39	P201095	R# CE H 2K2 F 0W12 0805	1
R 40	P201079	R# CE H470E F 0W12 0805	1
R 41	P201039	R# CE H 10E F 0W12 0805	1
R 42	P201099	R# CE H 3K3 F 0W12 0805	1
R 43	P201075	R# CE H330E F 0W12 0805	1
R 44	P201135	R# CE H100K F 0W12 0805	1
R 45	P201015	R# CE H 1E F 0W12 0805	1
R 46	P201075	R# CE H330E F 0W12 0805	1
R 47	P201121	R# CE H 27K F 0W12 0805	1
R 48	P201111	R# CE H 10K F 0W12 0805	1
R 49	P201015	R# CE H 1E F 0W12 0805	1
R 50	P201115	R# CE H 15K F 0W12 0805	1
R 51	P201111	R# CE H 10K F 0W12 0805	1
R 52	P201079	R# CE H470E F 0W12 0805	1
R 53	P201119	R# CE H 22K F 0W12 0805	1
R 54	P201135	R# CE H100K F 0W12 0805	1
R 55	P201087	R# CE H 1K F 0W12 0805	1
R 56	P201075	R# CE H330E F 0W12 0805	1
R 57	P201075	R# CE H330E F 0W12 0805	1
R 58	P201119	R# CE H 22K F 0W12 0805	1
R 59	P201119	R# CE H 22K F 0W12 0805	1
R 60	P201099	R# CE H 3K3 F 0W12 0805	1

SIT.	ITEM NO.	DESCRIPTION	QUANTITY
R 61	P201087	R# CE H 1K F 0W12 0805	1
R 62	P201087	R# CE H 1K F 0W12 0805	1
R 63	P201099	R# CE H 3K3 F 0W12 0805	1
R 64	P201099	R# CE H 3K3 F 0W12 0805	1
R 65	P201087	R# CE H 1K F 0W12 0805	1
R 66	P201083	R# CE H680E F 0W12 0805	1
R 67	P201099	R# CE H 3K3 F 0W12 0805	1
R 68	P201087	R# CE H 1K F 0W12 0805	1
R 69	P201087	R# CE H 1K F 0W12 0805	1
R 70	P201111	R# CE H 10K F 0W12 0805	1
R 72	P201159	R# CE H 1M F 0W12 0805	1
R 73	P201087	R# CE H 1K F 0W12 0805	1
R 74	P201089	R# CE H 1K2 F 0W12 0805	1
R 76	P201125	R# CE H 39K F 0W12 0805	1
R 77	P201111	R# CE H 10K F 0W12 0805	1
R 78	P201087	R# CE H 1K F 0W12 0805	1
R 79	P201129	R# CE H 56K F 0W12 0805	1
R 80	P201127	R# CE H 47K F 0W12 0805	1
R 81	P201119	R# CE H 22K F 0W12 0805	1
R 82	P201111	R# CE H 10K F 0W12 0805	1
R 83	P201063	R# CE H100E F 0W12 0805	1
R 84	P201111	R# CE H 10K F 0W12 0805	1
R 85	P201129	R# CE H 56K F 0W12 0805	1
R 86	P201111	R# CE H 10K F 0W12 0805	1
R 87	P201119	R# CE H 22K F 0W12 0805	1
R 88	P201121	R# CE H 27K F 0W12 0805	1
R 89	P201063	R# CE H100E F 0W12 0805	1
R 90	P201129	R# CE H 56K F 0W12 0805	1
R 91	P201015	R# CE H 1E F 0W12 0805	1
R 92	P201119	R# CE H 22K F 0W12 0805	1
R 93	P201063	R# CE H100E F 0W12 0805	1
R 94	P201063	R# CE H100E F 0W12 0805	1
R 95	P201087	R# CE H 1K F 0W12 0805	1
R 97	P201063	R# CE H100E F 0W12 0805	1
R 98	P201091	R# CE H 1K5 F 0W12 0805	1
R101	P201135	R# CE H100K F 0W12 0805	1
R102	P201123	R# CE H 33K F 0W12 0805	1
R103	P201039	R# CE H 10E F 0W12 0805	1
R104	P201087	R# CE H 1K F 0W12 0805	1
R106	P201111	R# CE H 10K F 0W12 0805	1
R107	P201095	R# CE H 2K2 F 0W12 0805	1
R108	P201111	R# CE H 10K F 0W12 0805	1
R110	P201039	R# CE H 10E F 0W12 0805	1
R111	P201070	R# CE H200E F 0W12 0805	1
R112	P201095	R# CE H 2K2 F 0W12 0805	1
R113	P201087	R# CE H 1K F 0W12 0805	1
R114	P201115	R# CE H 15K F 0W12 0805	1
R115	P201115	R# CE H 15K F 0W12 0805	1
R116	P201111	R# CE H 10K F 0W12 0805	1
R117	P201111	R# CE H 10K F 0W12 0805	1
R118	P201095	R# CE H 2K2 F 0W12 0805	1
R119	P201087	R# CE H 1K F 0W12 0805	1
R120	P201111	R# CE H 10K F 0W12 0805	1
R121	P201111	R# CE H 10K F 0W12 0805	1
R122	P201111	R# CE H 10K F 0W12 0805	1
R140	P201078	R# CE H430E F 0W12 0805	1
R141	P201073	R# CE H270E F 0W12 0805	1
R142	P201111	R# CE H 10K F 0W12 0805	1
R143	P201053	R# CE H 39E F 0W12 0805	1
R144	P201071	R# CE H220E F 0W12 0805	1
R145	P201091	R# CE H 1K5 F 0W12 0805	1
R146	P201119	R# CE H 22K F 0W12 0805	1
R148	P201015	R# CE H 1E F 0W12 0805	1
R152	P201091	R# CE H 1K5 F 0W12 0805	1
R154	P201039	R# CE H 10E F 0W12 0805	1
R159	P201015	R# CE H 1E F 0W12 0805	1
R160	P201015	R# CE H 1E F 0W12 0805	1
R161	P201129	R# CE H 56K F 0W12 0805	1
R162	P201130	R# CE H 62K F 0W12 0805	1
R163	P201063	R# CE H100E F 0W12 0805	1
R164	P201135	R# CE H100K F 0W12 0805	1
R165	P201135	R# CE H100K F 0W12 0805	1
R166	P201063	R# CE H100E F 0W12 0805	1
R167	P201015	R# CE H 1E F 0W12 0805	1
R168	P201015	R# CE H 1E F 0W12 0805	1
R169	P201081	R# CE H560E F 0W12 0805	1
R170	P201081	R# CE H560E F 0W12 0805	1
R172	P201015	R# CE H 1E F 0W12 0805	1
R173	P201015	R# CE H 1E F 0W12 0805	1
R174	P201060	R# CE H 75E F 0W12 0805	1
R175	P201015	R# CE H 1E F 0W12 0805	1
R176	P201121	R# CE H 27K F 0W12 0805	1
R177	P201127	R# CE H 47K F 0W12 0805	1
R178	P201095	R# CE H 2K2 F 0W12 0805	1
R179	P201067	R# CE H150E F 0W12 0805	1
R180	P201135	R# CE H100K F 0W12 0805	1
R181	P201083	R# CE H680E F 0W12 0805	1
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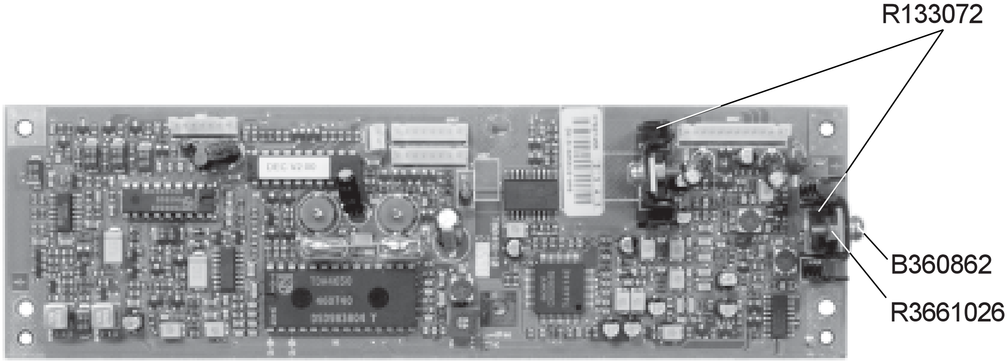
R183	P201085	R# CE H820E F 0W12 0805	1
R184	P201039	R# CE H 10E F 0W12 0805	1
R185	P201063	R# CE H100E F 0W12 0805	1
R186	P201127	R# CE H 47K F 0W12 0805	1
R187	P201091	R# CE H 1K5 F 0W12 0805	1
R188	P201015	R# CE H 1E F 0W12 0805	1
R189	P201125	R# CE H 39K F 0W12 0805	1
R190	P201103	R# CE H 4K7 F 0W12 0805	1
R191	P201095	R# CE H 2K2 F 0W12 0805	1
R192	P201115	R# CE H 15K F 0W12 0805	1
R193	P201055	R# CE H 47E F 0W12 0805	1
R194	P201095	R# CE H 2K2 F 0W12 0805	1
R195	P201127	R# CE H 47K F 0W12 0805	1
R196	P201135	R# CE H100K F 0W12 0805	1
R197	P201120	R# CE H 24K F 0W12 0805	1
R198	P201055	R# CE H 47E F 0W12 0805	1
R199	P201095	R# CE H 2K2 F 0W12 0805	1
R200	P201015	R# CE H 1E F 0W12 0805	1
R201	P201135	R# CE H100K F 0W12 0805	1
R202	P201135	R# CE H100K F 0W12 0805	1
R203	P201125	R# CE H 39K F 0W12 0805	1
R204	P201087	R# CE H 1K F 0W12 0805	1
R205	P201087	R# CE H 1K F 0W12 0805	1
R206	P201101	R# CE H 3K9 F 0W12 0805	1
R207	P201039	R# CE H 10E F 0W12 0805	1
R208	P201067	R# CE H150E F 0W12 0805	1
R209	P201081	R# CE H560E F 0W12 0805	1
R210	P201091	R# CE H 1K5 F 0W12 0805	1
R211	P201079	R# CE H470E F 0W12 0805	1
R220	P201099	R# CE H 3K3 F 0W12 0805	1
R221	P201099	R# CE H 3K3 F 0W12 0805	1
R222	P201095	R# CE H 2K2 F 0W12 0805	1
R223	P201129	R# CE H 56K F 0W12 0805	1
R224	P201081	R# CE H560E F 0W12 0805	1
R225	P201111	R# CE H 10K F 0W12 0805	1
R226	P201111	R# CE H 10K F 0W12 0805	1
R227	P201115	R# CE H 15K F 0W12 0805	1
R228	P201115	R# CE H 15K F 0W12 0805	1
R229	P201111	R# CE H 10K F 0W12 0805	1
R231	P201115	R# CE H 15K F 0W12 0805	1
R232	P201115	R# CE H 15K F 0W12 0805	1
R233	P201115	R# CE H 15K F 0W12 0805	1
R235	P201115	R# CE H 15K F 0W12 0805	1
R240	P201159	R# CE H 1M F 0W12 0805	1
R241	P201087	R# CE H 1K F 0W12 0805	1
R250	P201354	R# CE H 0E 0W12 0805	1

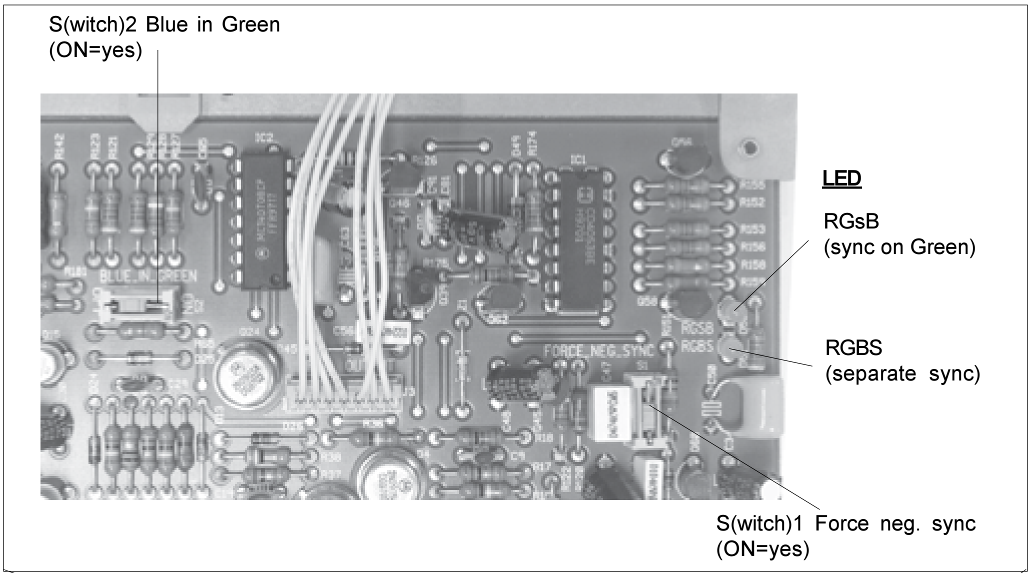
SIT.	ITEM NO.	DESCRIPTION		QUANTITY
R271	P201111	R# CE H 10K F 0W12 0805		1
SR10	R1012009	R CFFH 1E J 0W5	⚠	1
XT10	R306816	X 8M867238 20 HC49		1
XT11	R306849	X 7M159090 20 HC49		1

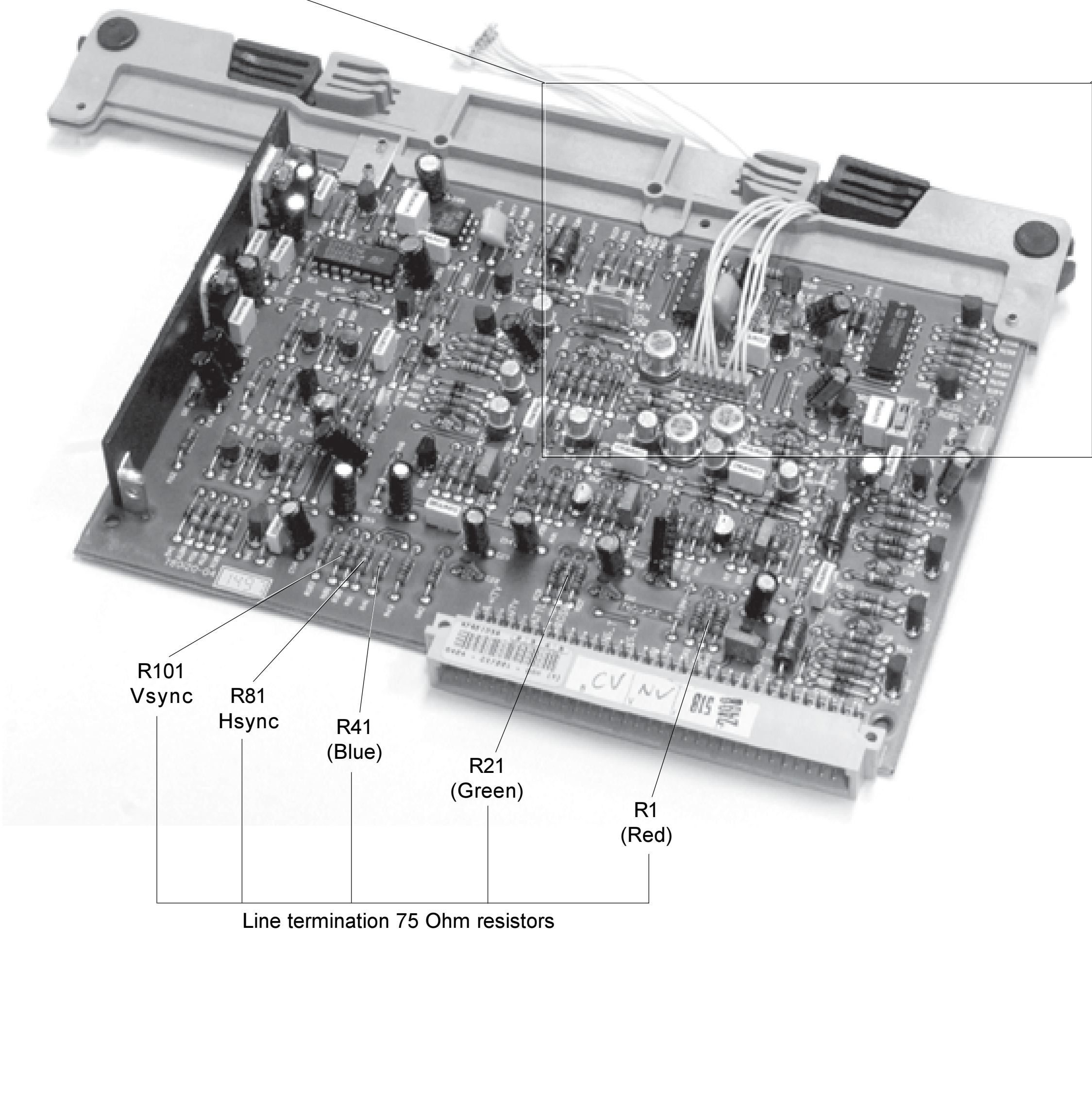


PRODUCT SAFETY NOTICE

Components identified by ⚠ have SPECIAL CHARACTERISTICS IMPORTANT TO SAFETY. Before replacing any of these components, read carefully the service safety precautions.

RGB Input Aut Sync Track R7621055





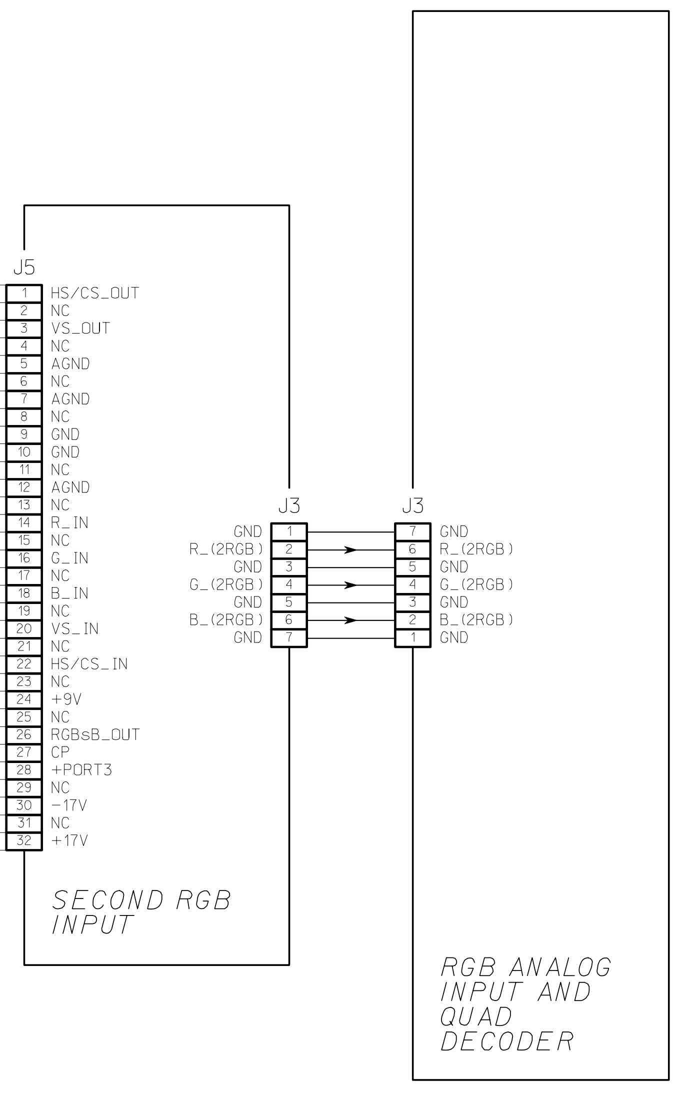
R7621055_r01

BARCO

1200 SERIES: J4A VERTICAL DEFLECTION MODULE	1200 SERIES: J6B ANALOG RGB INPUT & QUAD DECODER	1200 SERIES: J7B RGB DRIVER MODULE	1200 SERIES: J8B SWITCH MODE POWER SUPPLY MODULE	1200 SERIES: J11 PORT 3 (SECOND ANALOG RGB INPUT)	800 SERIES: J4A VERTICAL DEFLECTION MODULE	800 SERIES: J6B ANALOG RGB INPUT & QUAD DECODER	800 SERIES: J7B RGB DRIVER MODULE	800 SERIES: J8B SWITCH MODE POWER SUPPLY MODULE	800 SERIES: J11 PORT 3 (SECOND ANALOG RGB INPUT)	Direction	J5	Signal
23	4				15	4				←	1	HS/CS_OUT
											2	NC
2	2				13	2				←	3	VS_OUT
											4	NC
				7					7	→	5	AGND
											6	NC
				6					6	→	7	AGND
											8	NC
			17	1				17	1		9	GND
			18	1				17	1		10	GND
											11	NC
				2					2		12	AGND
											13	NC
				3					3	→	14	R_IN
											15	NC
				4					4	→	16	G_IN
											17	NC
				5					5	→	18	B_IN
											19	NC
				9					9	→	20	VS_IN
											21	NC
				8					8	→	22	HS/CS_IN
											23	NC
			12					21		→	24	+9V
											25	NC
	28	3				28	24			←	26	RGBsB_OUT
	1	28				1	23			→	27	CP
	26					26				→	28	+PORT3
											29	NC
			7					1		→	30	−17V
											31	NC
			8					4		→	32	+17V

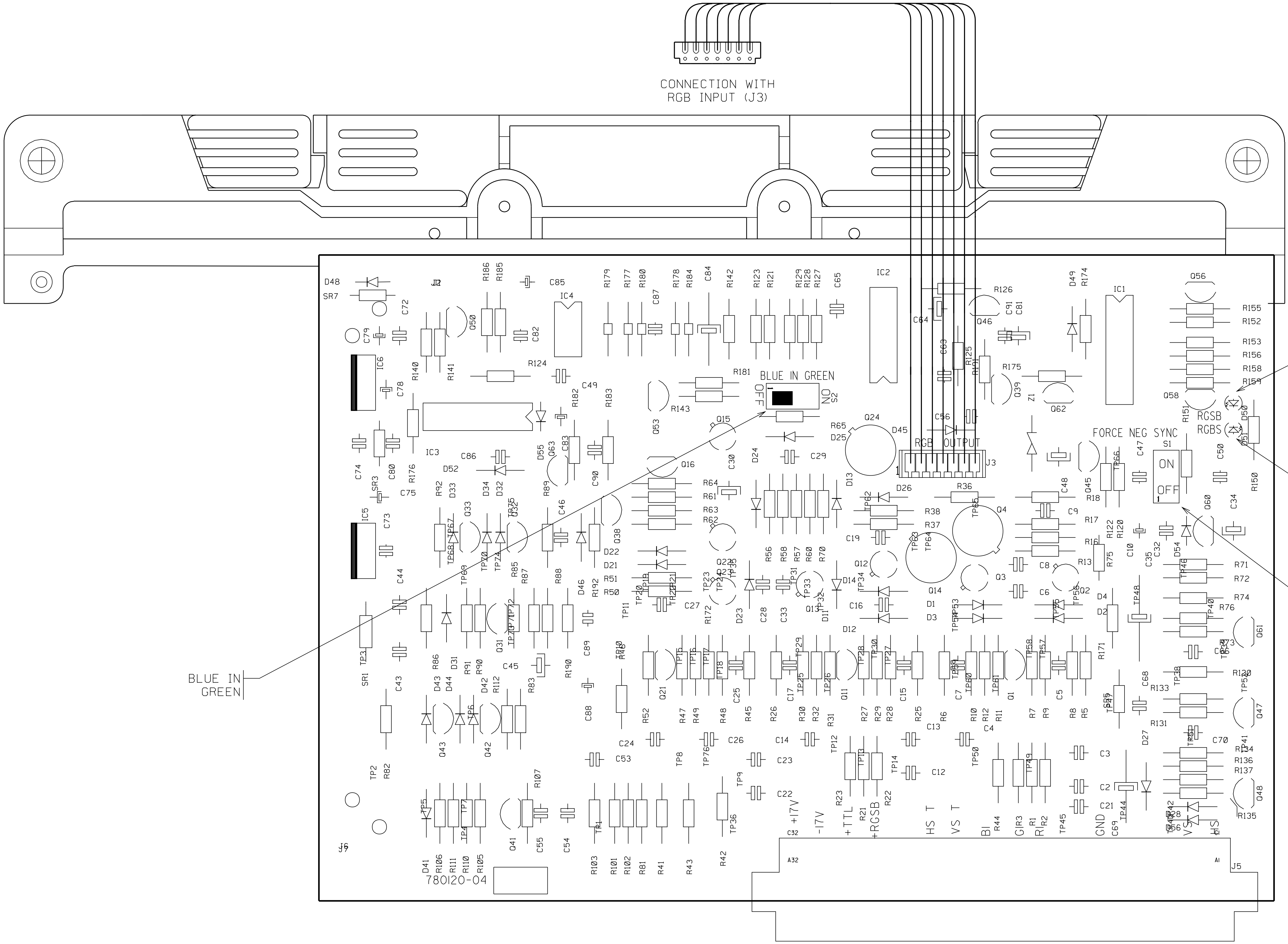
1200 SERIES

800 SERIES



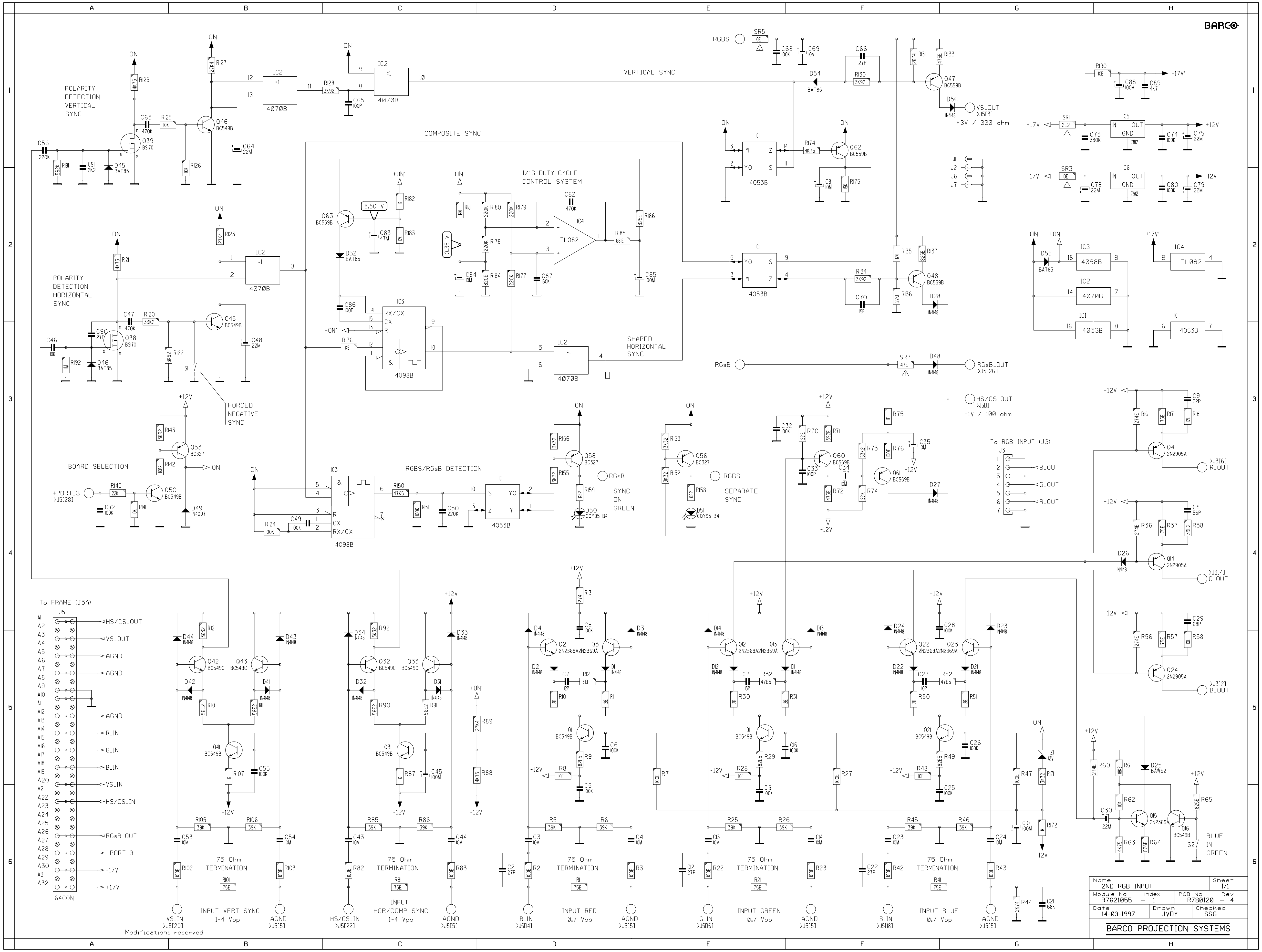
Modifications reserved

Name			Sheet
SECOND RGB INPUT			1/1
Module No R7621055	Index – 1	PCB No R780120	Rev – 4
Date 20-10-1997	Drawn JVDY	Checked SSG	
BARCO NV		Division BPS	



Name SECOND RGB INPUT			Sheet 1/1
Module No R7621055 —	Index 1	PCB No R780120 —	Rev 4
Date 20-10-1997	Drawn JVDY		Checked SSG

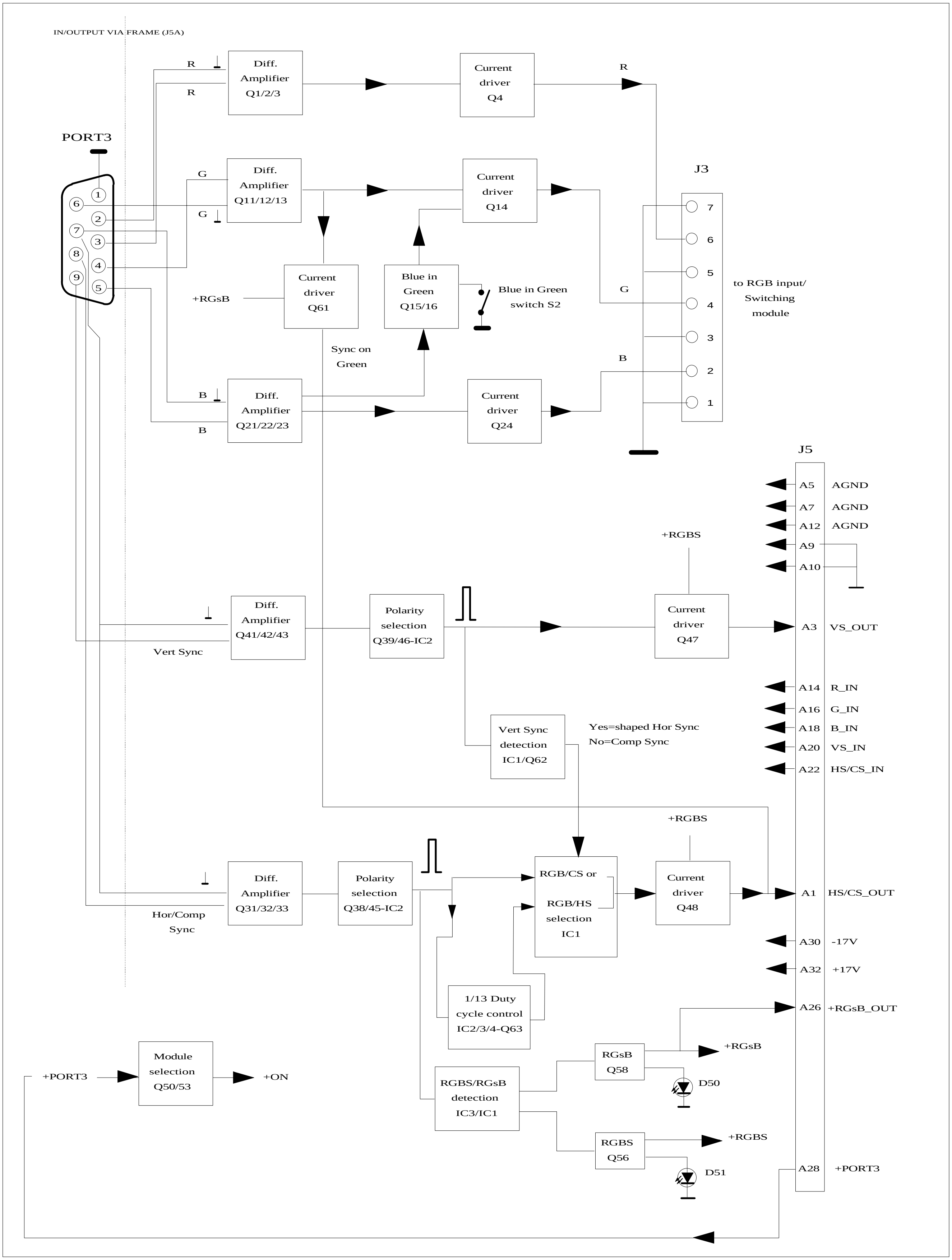
BARCO PROJECTION SYSTEMS



COMP.	LOC.
C2	D 6
C3	D 6
C4	E 6
C5	D 5
C6	D 5
C7	D 5
C8	D 4
C9	H 3
C10	G 6
C12	E 6
C13	E 6
C14	F 6
C15	E 6
C16	F 5
C17	E 5
C19	H 4
C21	G 6
C22	F 6
C23	F 6
C24	G 6
C25	G 6
C26	G 5
C27	F 5
C28	G 4
C29	H 4
C30	H 6
C32	E 3
C33	F 3
C34	F 3
C35	F 3
C43	C 6
C44	C 6
C45	C 5
C46	A 3
C47	A 2
C48	B 3
C49	B 4
C50	C 4
C53	B 6
C54	B 6
C55	B 5
C56	A 1
C63	A 1
C64	B 1
C65	C 1
C66	F 1
C68	E 1
C69	F 1
C70	F 2
C72	A 4
C73	G 1
C74	H 1
C75	H 1
C78	G 2
C79	H 2
C80	H 2
C81	F 2
C82	D 2
C83	C 2
C84	C 2
C85	E 2
C86	C 2
C87	D 2
C88	H 1
C89	H 1
C90	A 3
C91	A 1
D1	D 5
D2	D 5
D3	E 4
D4	D 4
D11	F 5
D12	E 5
D13	F 4
D14	E 4
D21	G 5
D22	F 5
D23	G 4
D24	F 4
D25	H 5
D26	H 4
D27	F 4
D28	F 2
D31	C 5
D32	C 5
D33	C 5
D34	C 5
D41	B 5
D42	B 5
D43	B 5
D44	B 5
D45	A 1
D46	A 3
D48	F 3
D49	B 4
D50	D 4
D51	E 4
D52	C 2
D54	F 1
D55	G 2
D56	G 1
IC1	D 4
IC1	E 2
IC1	H 2
IC1	G 2
IC1	H 2
IC1	H 2
IC1	E 1
IC2	D 3
IC2	B 2
IC2	B 1
IC2	C 1
IC2	H 2
IC2	G 2
IC3	C 2
IC3	C 3
IC3	G 2
IC3	H 2
IC4	D 2
IC4	H 2
IC4	H 2
IC5	H 1
IC6	H 1
J1	G 1
J2	G 1
J3	G 3
J5	A 4
J6	G 2
J7	G 2
Q1	D 5
Q2	D 5
Q3	D 5
Q4	H 3
Q11	E 5
Q12	E 5
Q13	E 5
Q14	H 4
Q15	H 6
Q16	H 6

COMP.	LOC.
Q21	F 5
Q22	F 5
Q23	G 5
Q24	H 5
Q31	C 5
Q32	C 5
Q33	C 5
Q38	A 3
Q39	A 1
Q41	B 5
Q42	B 5
Q43	B 5
Q45	B 2
Q46	B 1
Q47	G 1
Q48	F 2
Q50	A 4
Q53	B 3
Q56	E 3
Q58	D 3
Q60	F 3
Q61	F 3
Q62	F 1
Q63	B 2
R1	D 6
R2	D 6
R3	E 6
R5	D 6
R6	D 6
R7	E 5
R8	D 5
R9	D 5
R10	D 5
R11	D 5
R12	D 5
R13	D 4
R16	H 3
R17	H 3
R18	H 3
R21	E 6
R22	E 6
R23	F 6
R25	E 6
R26	E 6
R27	F 5
R28	E 5
R29	E 5
R30	E 5
R31	F 5
R32	E 5
R36	H 4
R37	H 4
R38	H 4
R41	F 6
R42	F 6
R43	G 6
R44	G 6
R45	F 6
R46	G 6
R47	G 5
R48	F 5
R49	G 5
R50	F 5
R51	G 5
R52	G 5
R56	H 5
R57	H 5
R58	H 5
R60	H 5
R61	H 5
R62	H 6
R63	H 6
R64	H 6
R65	H 6
R70	F 3
R71	F 3
R72	F 4
R73	F 3
R74	F 4
R75	F 3
R76	F 3
R81	C 6
R82	C 6
R83	C 6
R85	C 6
R86	C 6
R87	C 5
R88	D 5
R89	D 5
R90	C 5
R91	C 5
R92	C 4
R101	B 6
R102	B 6
R103	B 6
R105	B 6
R106	B 6
R107	B 5
R110	B 5
R111	B 5
R112	B 4
R120	A 2
R121	A 2
R122	B 3
R123	B 2
R124	B 4
R125	A 1
R126	B 1
R127	B 1
R128	C 1
R129	A 1
R130	F 1
R131	F 1
R133	G 1
R134	F 2
R135	F 2
R136	F 2
R137	F 2
R140	A 4
R141	A 4
R142	A 3
R143	A 3
R150	C 4
R151	C 4
R152	E 3
R153	E 3
R155	D 3
R156	D 3
R158	E 4
R159	D 4
R171	G 5
R172	G 6
R174	F 1
R175	F 2
R176	C 3
R177	D 2
R178	D 2
R179	D 2
R180	D 2
R181	C 2
R182	C 2
R183	C 2

COMP.	LOC.
R184	D 2
R185	D 2
R186	E 2
R190	H 1
R191	A 1
R192	A 3
S1	B 3
S2	H 6
SR1	G 1
SR3	G 1
SR5	E 1
SR7	F 3
Z1	G 5



IN/OUTPUT VIA FRAME (J5A)
PORT3
R
R
Diff. Amplifier Q1/2/3
Current driver Q4
G
G
Diff. Amplifier Q11/12/13
Current driver Q14
J3
+RGsB
Current driver Q61
Blue in Green Q15/16
Blue in Green switch S2
Sync on Green
B
B
Diff. Amplifier Q21/22/23
Current driver Q24
to RGB input/ Switching module
J5
A5 AGND
A7 AGND
A12 AGND
A9
A10
+RGBS
Diff. Amplifier Q41/42/43
Vert Sync
Polarity selection Q39/46-IC2
Current driver Q47
A3 VS_OUT
A14 R_IN
A16 G_IN
A18 B_IN
A20 VS_IN
A22 HS/CS_IN
Vert Sync detection IC1/Q62
Yes=shaped Hor Sync
No=Comp Sync
+RGBS
Diff. Amplifier Q31/32/33
Hor/Comp Sync
Polarity selection Q38/45-IC2
RGB/CS or RGB/HS selection IC1
Current driver Q48
A1 HS/CS_OUT
A30 -17V
A32 +17V
A26 +RGsB_OUT
1/13 Duty cycle control IC2/3/4-Q63
+RGsB
+PORT3
Module selection Q50/53
+ON
RGsB Q58
D50
RGBS/RGsB detection IC3/IC1
RGBS Q56
+RGBS
D51
A28 +PORT3

TECHNICAL DESCRIPTION SECOND RGB INPUT 76 21055

Introduction.

With this board a second RGB analog input can be selected through the D9 (former TTL input) connector next to the first input . Since this board occupies the former TTL connector, the sync polarity must be corrected automatically and the board must also select automatically between “Sync on Green” and “Separate Sync”.
In case of a separate sync input HS the sync width pulse is also set to 1/13th of the line period.
The R, G and B output signals are sent to the “RGB INPUT + SW “ module. The sync outputs VS OUT (if any) and / or the HS / Comp Sync are sent to the VERT DEFL board for further processing.

Red, Green and Blue Inputs.

Three identical differential amplifiers are switched to “active” with the ON voltage. This ON voltage is obtained from the +PORT 3 voltage arriving at contact 28 (=former +TTL voltage) and the transistors Q50 and Q53. Note that the 75 Ohm termination is not switchable.

The **Red** signal is taken from the collector of Q2 and fed to the current driver Q4. The collector resistor of the latter is on the RGB SW + Input board. G OUT and B OUT are got in a similar way.
The green signal is also sent to Q60 and used for synchronisation if “Sync on Green” has been detected (see further).
The blue output at Q23 is also supplying Q15. When the Blue in Green switch S2 is in a closed position, Q16 is blocked and Q15 adds some amount of blue into the green channel via D25 . If however S2 is open Q16 is saturated and Q15 does not get enough base voltage and is consequently blocked.

Note : The “Blue in Green” of the first analog input is switchable via the remote control, thus via software control. Here, the blue in green is switched with S2 and is not affected by the software.

Vertical Sync Input - Automatic Polarity.

If separate vertical sync pulses are available and applied to the Q41 / Q43 input they arrive on the Q39 amplifier / inverter. The inverted pulses are now inverted or not inverted depending on the voltage level of pin 12.
Assume the pulses at the drain are positive. Then Q46 is regularly switched on by these pulses and the average voltage at the collector or at pin 12 is low. In such case the output pin 11 follows the input pin 13 , which means that the pulses are positive at pin 11.

If the pulses are of a negative polarity at the drain, Q39 never gets in conduction and the level at pin 12 is “high” through R127. The input pulses are inverted by the exclusive OR gate.
The polarity of the pulses at pin 11 is thus always positive irrelevant of the input polarity.
These pulses are proceeding to the base of Q47 via D54 and to the multiplexer / demultiplexer 4053B, pin 11. The +RGBS voltage provides the necessary biasing for Q47.
The 4053B is triple two-channel multiplexer, having three separate digital control inputs. One of these control inputs is pin 11.
If VS pulses are applied to the input, then the HS/CS output must be the HS input. The selection between HS or CS happens in the second multiplexer. On other words, as soon VS pulses are applied, the HS pulses must also be selected.
The presence of the VS pulses determine the correct voltage at pin 9 in order to select the pin 3 input (Shaped Horizontal Sync).

Horizontal Sync/Composite Sync.

The HS / CS signal, taken from the collector of Q32 , is passing a similar automatic polarity circuit as the VS pulses.
When no pulses at all are applied to this circuit, the monoflop IC3 is never re-triggered and the output remains all the time "low". This output is filtered and is the control voltage of the multiplexer.
The "0" output is then connected to pin 15 which is at ground level. This all means that Q58 is saturated and the **+RGsB** voltage becomes available for further switching. The LED D50 comes on to indicate the RGsB mode.
When the monoflop is constantly triggered with pulses the output is switched "high" and then the "1" output of the multiplexer is connected to the grounded input (pin 15). This now provides the +RGBS voltage instead.

When no VS pulses are available, the "0" input pin 5 of the multiplexer is chosen. The "1/13 DUTY-CYCLE Control System " circuit cannot be used in this case due to the presence of the VS pulses in the composite sync.

1/13 Duty-Cycle Control System.

When separate HS pulses are used for synchronisation, the width of the pulses is all the time adjusted to 1/13th of the line period.
Positive horizontal pulses are applied to the leading edge input pin 12.
The output pulses are integrated by R177/C87 and applied to the non-inverting input pin 3 of the (Miller-integrating) OPAMP IC4. The other input is installed at a voltage set by R180/R178 (6 volts).

This integrated voltage is proportional with the width of the pulses and inversely proportional with the line period. The output of the Miller-integrator (=OPAMP) determines the current flowing in Q63.
This all means that the width of the sync pulse depends on the line period and the feedback systems provides a setting to 1/13th of the line period.

These SHAPED HORIZONTAL SYNC pulses proceed now to the multiplexer and if VS is available, these pulses are selected and Q48 brings them to the output.

Parts listing R7621055

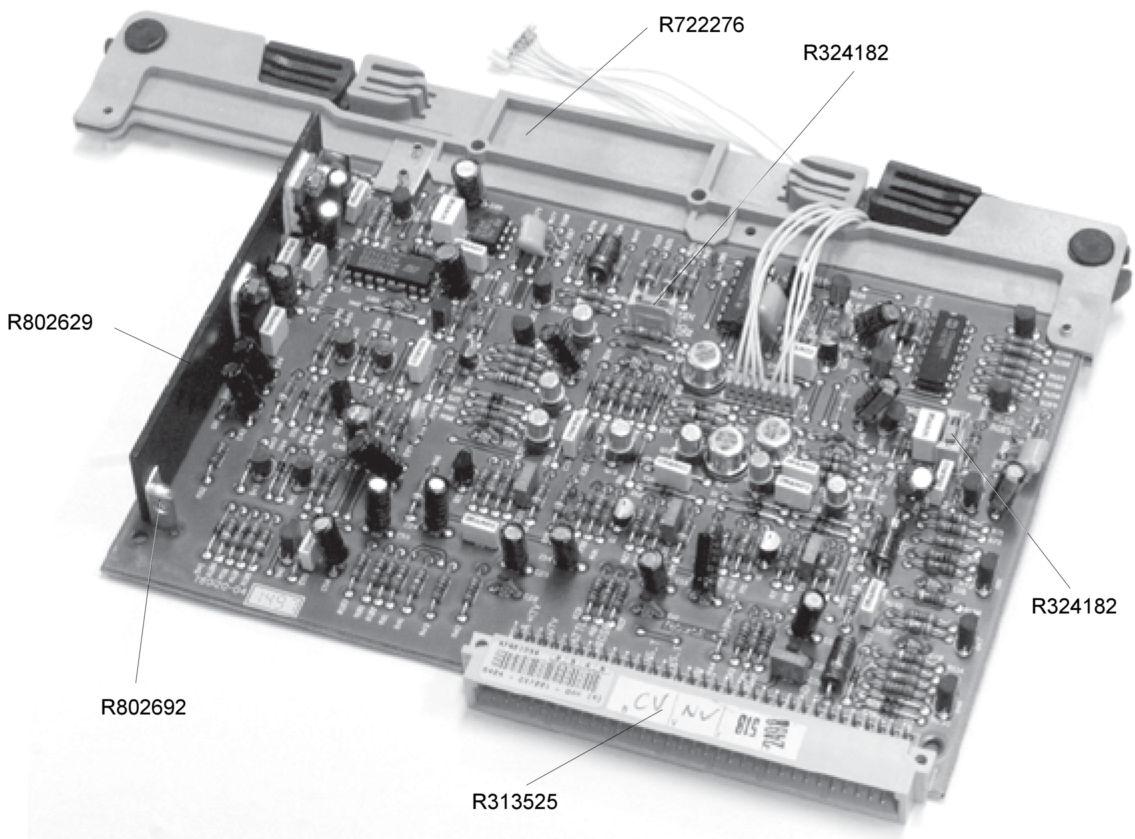
SIT.	ITEM NO.	DESCRIPTION	QUANTITY
31	R1330291	HTSN@A TO220 I_MICA°15X19	1
30	R1330292	HTSN@A TO220 I_BUSH REC	1
60	R133076	HTSN@A TO5 MNT PAD 3P	3
10	R302108	CORE TUBE 3,5 /1,3 X 3	7
	R3484074	CD CT FTMT P 7 170	1
32	R3620226	SCR D84 M 3 X 8 SS	1
40	R3620226	SCR D84 M 3 X 8 SS	1
34	R3661026	NUT D934 M 3 SS	2
42	R3661026	NUT D934 M 3 SS	2
33	R367502	SPR D6798AD 3,2D 6 STZN	1
41	R367502	SPR D6798AD 3,2D 6 STZN	1
50	R367699	RVT AVTRON2,5L 8,1 AL	2
1000	R722276	LOCK49 PCB UN CPL	1
20	R802629	HTSN C PJ49 RGB PR-AMP	1
22	R802692	HTSN C PJ49 FIX HTSN	2
1010	R803238	LOCK51 PCB RGB_A AUT	1
C 2	R112235	C NP0 MI 27P G100E2	
C 3	R111678	C EL BRA 10M M 25E2 85	
C 4	R111678	C EL BRA 10M M 25E2 85	
C 5	R113724	C POMERA 100N K 63E2 85	1
C 6	R113724	C POMERA 100N K 63E2 85	
C 7	R112231	C NP0 MI 12P G100E2	1
C 8	R113724	C POMERA 100N K 63E2 85	
C 9	R112234	C NP0 MI 22P G100E2	1
C 10	R111477	C EL RA 100M M 25E2 85	
C 12	R112235	C NP0 MI 27P G100E2	
C 13	R111678	C EL BRA 10M M 25E2 85	
C 14	R111678	C EL BRA 10M M 25E2 85	
C 15	R113724	C POMERA 100N K 63E2 85	1
C 16	R113724	C POMERA 100N K 63E2 85	
C 17	R112232	C NP0 MI 15P G100E2	1
C 19	R112239	C NP0 MI 56P G100E2	1
C 21	R113722	C POMERA 68N K 63E2 85	
C 22	R112235	C NP0 MI 27P G100E2	
C 23	R111678	C EL BRA 10M M 25E2 85	
C 24	R111678	C EL BRA 10M M 25E2 85	
C 25	R113724	C POMERA 100N K 63E2 85	1
C 26	R113724	C POMERA 100N K 63E2 85	
C 27	R112230	C NP0 MI 10P G100E2	1
C 28	R113724	C POMERA 100N K 63E2 85	
C 29	R112240	C NP0 MI 68P G100E2	
C 30	R111532	REPLACED BY V1114855	
C 32	R113724	C POMERA 100N K 63E2 85	
C 33	R112242	C NP0 MI 100P G100E2	
C 34	R111531	C EL RA 10M M 35E2 85	
C 35	R1111565	C EL AX 10M T 25E6 85	1
C 43	R111678	C EL BRA 10M M 25E2 85	
C 44	R111678	C EL BRA 10M M 25E2 85	
C 45	R111466	C EL RA 100M M 16E2 85	
C 46	R1137121	C POMERA 10N K250E2 85	
C 47	R113732	C POMERA 470N K 63E2 85	
C 48	R111532	REPLACED BY V1114855	
C 49	R113724	C POMERA 100N K 63E2 85	
C 50	R113728	C POMERA 220N K 63E2 85	1
C 53	R111678	C EL BRA 10M M 25E2 85	
C 54	R111678	C EL BRA 10M M 25E2 85	
C 55	R113724	C POMERA 100N K 63E2 85	
C 56	R113728	C POMERA 220N K 63E2 85	
C 63	R113732	C POMERA 470N K 63E2 85	1

ITEM NO.	SIT.	DESCRIPTION	
C 64	R111532	REPLACED BY V1114855	
C 65	R112242	C NP0 MI 100P G100E2	
C 66	R112235	C NP0 MI 27P G100E2	
C 68	R113724	C POMERA 100N K 63E2 85	
C 69	R1111565	C EL AX 10M T 25E6 85	
C 70	R112232	C NP0 MI 15P G100E2	1
C 72	R113724	C POMERA 100N K 63E2 85	
C 73	R113730	C POMERA 330N K 63E2 85	
C 74	R113724	C POMERA 100N K 63E2 85	
C 75	R111510	C EL RA 22M M 25E2 85	
C 78	R111510	C EL RA 22M M 25E2 85	
C 79	R111510	C EL RA 22M M 25E2 85	
C 80	R113724	C POMERA 100N K 63E2 85	
C 81	R111531	C EL RA 10M M 35E2 85	
C 82	R113732	C POMERA 470N K 63E2 85	
C 83	R111476	C EL RA 47M M 25E2 85	
C 84	R1111565	C EL AX 10M T 25E6 85	
C 85	R111477	C EL RA 100M M 25E2 85	
C 86	R112242	C NP0 MI 100P G100E2	
C 87	R113726	C POMERA 150N K 63E2 85	1
C 88	R111477	C EL RA 100M M 25E2 85	
C 89	R112747	C CE MI 4N7K100E2 85	
C 90	R112235	C NP0 MI 27P G100E2	1
C 91	R112743	C CE MI 2N2K100E2	1
D 1	R131621	D S 1N4148 075150 DO35	
D 2	R131621	D S 1N4148 075150 DO35	
D 3	R131621	D S 1N4148 075150 DO35	
D 4	R131621	D S 1N4148 075150 DO35	
D 11	R131621	D S 1N4148 075150 DO35	
D 12	R131621	D S 1N4148 075150 DO35	
D 13	R131621	D S 1N4148 075150 DO35	
D 14	R131621	D S 1N4148 075150 DO35	
D 21	R131621	D S 1N4148 075150 DO35	
D 22	R131621	D S 1N4148 075150 DO35	
D 23	R131621	D S 1N4148 075150 DO35	
D 24	R131621	D S 1N4148 075150 DO35	
D 25	R131628	D S BAW62 075200 DO35	
D 26	R131621	D S 1N4148 075150 DO35	
D 27	R131621	D S 1N4148 075150 DO35	
D 28	R131621	D S 1N4148 075150 DO35	
D 31	R131621	D S 1N4148 075150 DO35	
D 32	R131621	D S 1N4148 075150 DO35	
D 33	R131621	D S 1N4148 075150 DO35	
D 34	R131621	D S 1N4148 075150 DO35	
D 41	R131621	D S 1N4148 075150 DO35	
D 42	R131621	D S 1N4148 075150 DO35	
D 43	R131621	D S 1N4148 075150 DO35	
D 44	R131621	D S 1N4148 075150 DO35	
D 45	R1316361	D Y BAT85 030200 DO34	
D 46	R1316361	D Y BAT85 030200 DO34	
D 48	R131621	D S 1N4148 075150 DO35	1
D 49	R131646	D R 1N4007 10201A DO41	
D 50	R131667	D LED D3 T GN	1
D 51	R131667	D LED D3 T GN	1
D 52	R1316361	D Y BAT85 030200 DO34	
D 54	R1316361	D Y BAT85 030200 DO34	
D 55	R1316361	D Y BAT85 030200 DO34	
D 56	R131621	D S 1N4148 075150 DO35	
I 1	R137391	U 4053B DIP16 P	1
I 2	R137392	U 4070B DIP14 P	1
I 3	R1373325	U 4098B DIP16 P	1
I 4	R134124	U 082 TL DIP8 P	1
I 5	R134002	U 7812 TO220 P	1

I 6	R134016	U 7912 TO220 P	1
J 5	R313525	J EUR2C MBS P64 E1C2S 1,6	1
PC	R780120	PCB G1200 INP RGB PS2	1
Q 1	R1314295	Q BC549B N SS TO92	1
Q 2	V132504	Q 2N2369A N SS TO18	1
Q 3	V132504	Q 2N2369A N SS TO18	1
Q 4	R132904	Q 2N2905A P SS TO39	1
Q 11	R1314295	Q BC549B N SS TO92	1
Q 12	V132504	Q 2N2369A N SS TO18	1
Q 13	V132504	Q 2N2369A N SS TO18	1
Q 14	R132904	Q 2N2905A P SS TO39	1
Q 15	V132504	Q 2N2369A N SS TO18	1
Q 16	R1314295	Q BC549B N SS TO92	
Q 21	R1314295	Q BC549B N SS TO92	1
Q 22	V132504	Q 2N2369A N SS TO18	1
Q 23	V132504	Q 2N2369A N SS TO18	1
Q 24	R132904	Q 2N2905A P SS TO39	1
Q 31	R1314295	Q BC549B N SS TO92	1
Q 32	R131411	Q BC549C N SS TO92	1
Q 33	R131411	Q BC549C N SS TO92	1
Q 38	R1329105	Q BS170 FN SS TO92	1
Q 39	R132910	Q BS170 FN SS TO92	1
Q 41	R1314295	Q BC549B N SS TO92	
Q 42	R131411	Q BC549C N SS TO92	1
Q 43	R131411	Q BC549C N SS TO92	1
Q 45	R1314295	Q BC549B N SS TO92	
Q 46	R1314295	Q BC549B N SS TO92	
Q 47	R1314181	Q BC559B P SS TO92	
Q 48	R1314181	Q BC559B P SS TO92	
Q 50	R1314295	Q BC549B N SS TO92	
Q 53	R1314311	Q BC327 P SS TO92	
Q 56	R1314311	Q BC327 P SS TO92	
Q 58	R1314311	Q BC327 P SS TO92	
Q 60	R1314181	Q BC559B P SS TO92	
Q 61	R1314181	Q BC559B P SS TO92	
Q 62	R1314181	Q BC559B P SS TO92	
Q 63	R1314181	Q BC559B P SS TO92	
R 1	V1026844	R MF H 75E F 0W6 E4	
R 2	V1026005	R MF H100E F 0W6 E4	
R 3	V1026005	R MF H100E F 0W6 E4	
R 5	V1026587	R MF H 39K F 0W6 E4	
R 6	V1026587	R MF H 39K F 0W6 E4	
R 7	V1026005	R MF H100E F 0W6 E4	
R 8	V1026004	R MF H 10E F 0W6 E4	
R 9	V1026884	R MF H 82E5 F 0W6 E4	
R 10	V1026085	R MF H121E F 0W6 E4	
R 11	V1026085	R MF H121E F 0W6 E4	
R 12	V1026684	R MF H 51E1 F 0W6 E4	1
R 13	V1026425	R MF H274E F 0W6 E4	
R 16	V1026425	R MF H274E F 0W6 E4	
R 17	V1026844	R MF H 75E F 0W6 E4	
R 18	V1026085	R MF H121E F 0W6 E4	
R 21	V1026844	R MF H 75E F 0W6 E4	
R 22	V1026005	R MF H100E F 0W6 E4	
R 23	V1026005	R MF H100E F 0W6 E4	
R 25	V1026587	R MF H 39K F 0W6 E4	
R 26	V1026587	R MF H 39K F 0W6 E4	
R 27	V1026005	R MF H100E F 0W6 E4	
R 28	V1026004	R MF H 10E F 0W6 E4	
R 29	V1026884	R MF H 82E5 F 0W6 E4	
R 30	V1026085	R MF H121E F 0W6 E4	
R 31	V1026085	R MF H121E F 0W6 E4	
R 32	V1026654	R MF H 47E5 F 0W6 E4	
R 36	V1026425	R MF H274E F 0W6 E4	

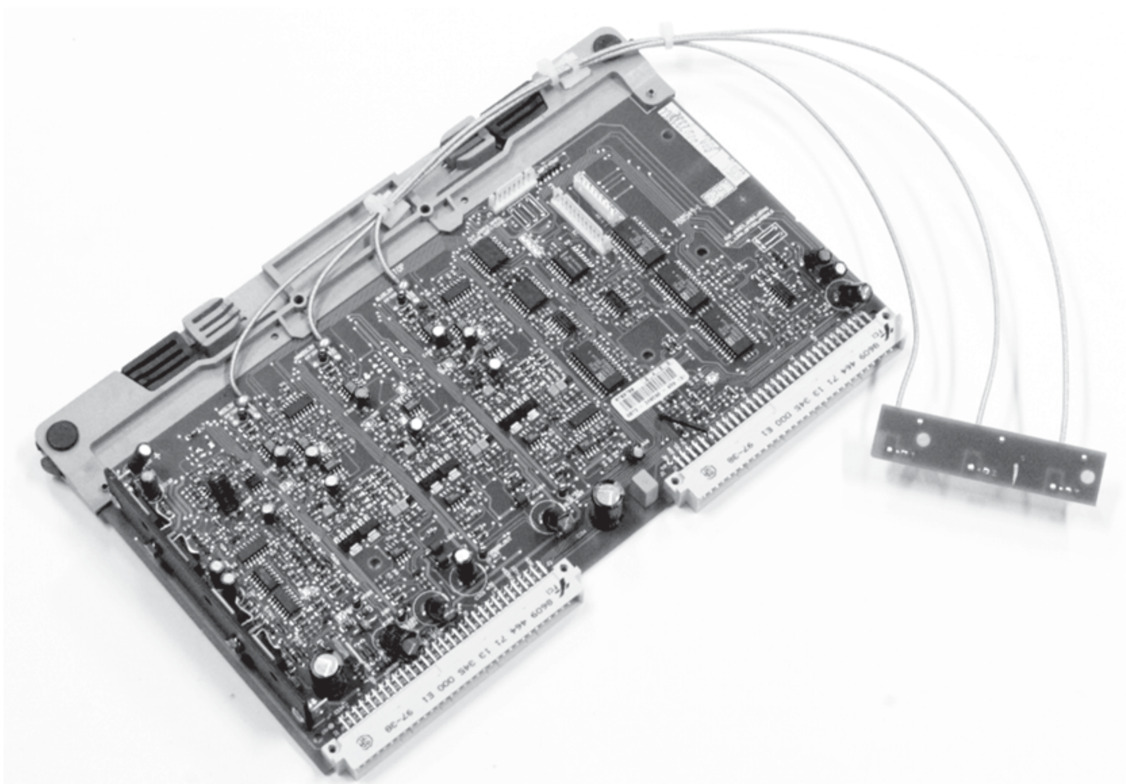
R 37	V1026844	R MF H 75E F 0W6 E4
R 38	V1026574	R MF H 39E2 F 0W6 E4
R 41	V1026844	R MF H 75E F 0W6 E4
R 42	V1026005	R MF H100E F 0W6 E4
R 43	V1026005	R MF H100E F 0W6 E4
R 44	V1026426	R MF H 2K74F 0W6 E4
R 45	V1026587	R MF H 39K F 0W6 E4
R 46	V1026587	R MF H 39K F 0W6 E4
R 47	V1026005	R MF H100E F 0W6 E4
R 48	V1026004	R MF H 10E F 0W6 E4
R 49	V1026884	R MF H 82E5 F 0W6 E4
R 50	V1026085	R MF H121E F 0W6 E4
R 51	V1026085	R MF H121E F 0W6 E4
R 52	V1026654	R MF H 47E5 F 0W6 E4
R 56	V1026425	R MF H274E F 0W6 E4
R 57	V1026844	R MF H 75E F 0W6 E4
R 58	V1026004	R MF H 10E F 0W6 E4
R 60	V1026425	R MF H274E F 0W6 E4
R 61	V1026257	R MF H 18K2 F 0W6 E4
R 62	V1026007	R MF H 10K F 0W6 E4
R 63	V1026656	R MF H 4K75F 0W6 E4
R 64	V1026885	R MF H825E F 0W6 E4
R 65	V1026885	R MF H825E F 0W6 E4
R 70	V1026335	R MF H221E F 0W6 E4
R 71	V1026575	R MF H392E F 0W6 E4
R 72	V1026655	R MF H475E F 0W6 E4
R 73	V1026507	R MF H 33K2 F 0W6 E4
R 74	V1026338	R MF H221K F 0W6 E4
R 75	R1011008	R CFFH 1E J 0W25
R 76	V1026005	R MF H100E F 0W6 E4
R 81	V1026844	R MF H 75E F 0W6 E4
R 82	V1026005	R MF H100E F 0W6 E4
R 83	V1026005	R MF H100E F 0W6 E4
R 85	V1026587	R MF H 39K F 0W6 E4
R 86	V1026587	R MF H 39K F 0W6 E4
R 87	V1026006	R MF H 1K F 0W6 E4
R 88	V1026656	R MF H 4K75F 0W6 E4
R 89	V1026427	R MF H 27K4 F 0W6 E4
R 90	V1026724	R MF H 56E2 F 0W6 E4
R 91	V1026724	R MF H 56E2 F 0W6 E4
R 92	V1026506	R MF H 3K32F 0W6 E4
R101	V1026844	R MF H 75E F 0W6 E4
R102	V1026005	R MF H100E F 0W6 E4
R103	V1026005	R MF H100E F 0W6 E4
R105	V1026587	R MF H 39K F 0W6 E4
R106	V1026587	R MF H 39K F 0W6 E4
R107	V1026006	R MF H 1K F 0W6 E4
R110	V1026724	R MF H 56E2 F 0W6 E4
R111	V1026724	R MF H 56E2 F 0W6 E4
R112	V1026506	R MF H 3K32F 0W6 E4
R120	V1026507	R MF H 33K2 F 0W6 E4
R121	V1026656	R MF H 4K75F 0W6 E4
R122	V1026576	R MF H 3K92F 0W6 E4
R123	V1026427	R MF H 27K4 F 0W6 E4
R124	V1026008	R MF H100K F 0W6 E4
R125	V1026007	R MF H 10K F 0W6 E4
R126	V1026007	R MF H 10K F 0W6 E4
R127	V1026427	R MF H 27K4 F 0W6 E4
R128	V1026576	R MF H 3K92F 0W6 E4
R129	V1026656	R MF H 4K75F 0W6 E4
R130	V1026576	R MF H 3K92F 0W6 E4
R131	V1026426	R MF H 2K74F 0W6 E4
R133	V1026655	R MF H475E F 0W6 E4
R134	V1026576	R MF H 3K92F 0W6 E4
R135	V1026087	R MF H 12K1 F 0W6 E4
R136	V1026337	R MF H 22K1 F 0W6 E4
R137	V1026885	R MF H825E F 0W6 E4
R140	V1026337	R MF H 22K1 F 0W6 E4

R141	V1026007	R MF H 10K F 0W6 E4	
R142	V1026256	R MF H 1K82F 0W6 E4	
R143	V1026576	R MF H 3K92F 0W6 E4	
R150	V1026657	R MF H 47K5 F 0W6 E4	
R151	V1026008	R MF H100K F 0W6 E4	
R152	V1026506	R MF H 3K32F 0W6 E4	
R153	V1026506	R MF H 3K32F 0W6 E4	
R155	V1026506	R MF H 3K32F 0W6 E4	
R156	V1026506	R MF H 3K32F 0W6 E4	
R158	V1026256	R MF H 1K82F 0W6 E4	
R159	V1026256	R MF H 1K82F 0W6 E4	
R171	V1026506	R MF H 3K32F 0W6 E4	
R172	V1026006	R MF H 1K F 0W6 E4	
R174	V1026656	R MF H 4K75F 0W6 E4	
R175	V1026177	R MF H 15K F 0W6 E4	
R176	V1026176	R MF H 1K5 F 0W6 E4	
R177	R101564	R MF H220K F 0W4 E3	
R178	R101564	R MF H220K F 0W4 E3	
R179	R101564	R MF H220K F 0W4 E3	
R180	R101564	R MF H220K F 0W4 E3	
R181	V1026087	R MF H 12K1 F 0W6 E4	1
R182	V1026006	R MF H 1K F 0W6 E4	
R183	V1026087	R MF H 12K1 F 0W6 E4	
R184	R101535	R MF H820E F 0W4 E3	
R185	V1026805	R MF H681E F 0W6 E4	
R186	V1026885	R MF H825E F 0W6 E4	
R190	V1026004	R MF H 10E F 0W6 E4	
R191	V1026728	R MF H562K F 0W6 E4	
R192	V1026009	R MF H 1M F 0W6 E4	
S 1	R324182	SW DIP SLD 1A P 1 BT SN	1
S 2	R324182	SW DIP SLD 1A P 1 BT SN	1
SR 1	R1011046	R CFFH 2E2 J 0W35	1 ⚠
SR 3	R1011129	R CFFH 10E J 0W25	1 ⚠
SR 5	R1011129	R CFFH 10E J 0W25	1 ⚠
SR 7	R1011209	R CFFH 47E J 0W25	1 ⚠
Z 1	R131740	D ZEN 12V 0W5 C DO35	



PRODUCT SAFETY NOTICE

Components identified by ⚠ have SPECIAL CHARACTERISTICS IMPORTANT TO SAFETY. Before replacing any of these components, read carefully the service safety precautions.



BARCO

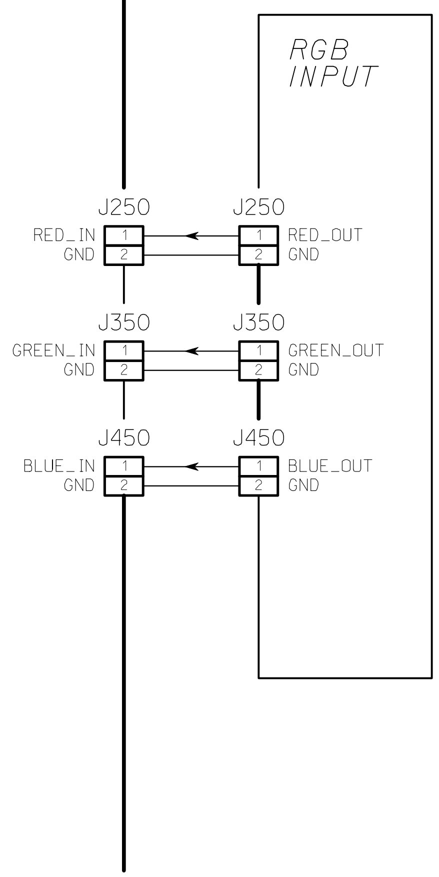
RGB DRIVER

J7A

Pin	Signal	Dir	J1A CONVERGENCE MODULE	J2A HORIZONTAL SHIFT MODULE	J2B HORIZONTAL SHIFT MODULE	J3A HORIZONTAL DEFLECTION MODULE	J4A VERTICAL DEFLECTION + SYNC MODULE	J4B VERTICAL DEFLECTION + SYNC MODULE	J5A SECOND RGB ANALOG INPUT MODULE	J6B RGB ANALOG INPUT	J8B SWITCH MODE POWER SUPPLY	J30 CONTROLLER MODULE	J132 CRT SOCKET MODULE (RED)	J134 CRT SOCKET MODULE (GREEN)	J138 CRT SOCKET MODULE (BLUE)	J133 RGB OUTPUT MODULE (RED)	J135 RGB OUTPUT MODULE (GREEN)	J137 RGB OUTPUT MODULE (BLUE)	J148 EHT MODULE
1	+VID	→								29									
2	NC																		
3	NC																		
4	NC																		
5	NC																		
6	NC																		
7	+12V	←														6	6	6	
8	NC																		
9	NC																		
10	NC																		
11	SC	→					23												
12	NC																		
13	NC																		
14	NC																		
15	NC																		
16	+12V	←														6	6	6	
17	NC																		
18	NC																		
19	SC	←								21									
20	NC																		
21	NC																		
22	GND										17								
23	NC																		
24	NC																		
25	NC																		
26	NC																		
27	NC																		
28	NC																		
29	SF	←																	4
30	SCL	↔	29		24		7					1							
31	SDA	↔	30		9		8					2							
32	SF	→			17														

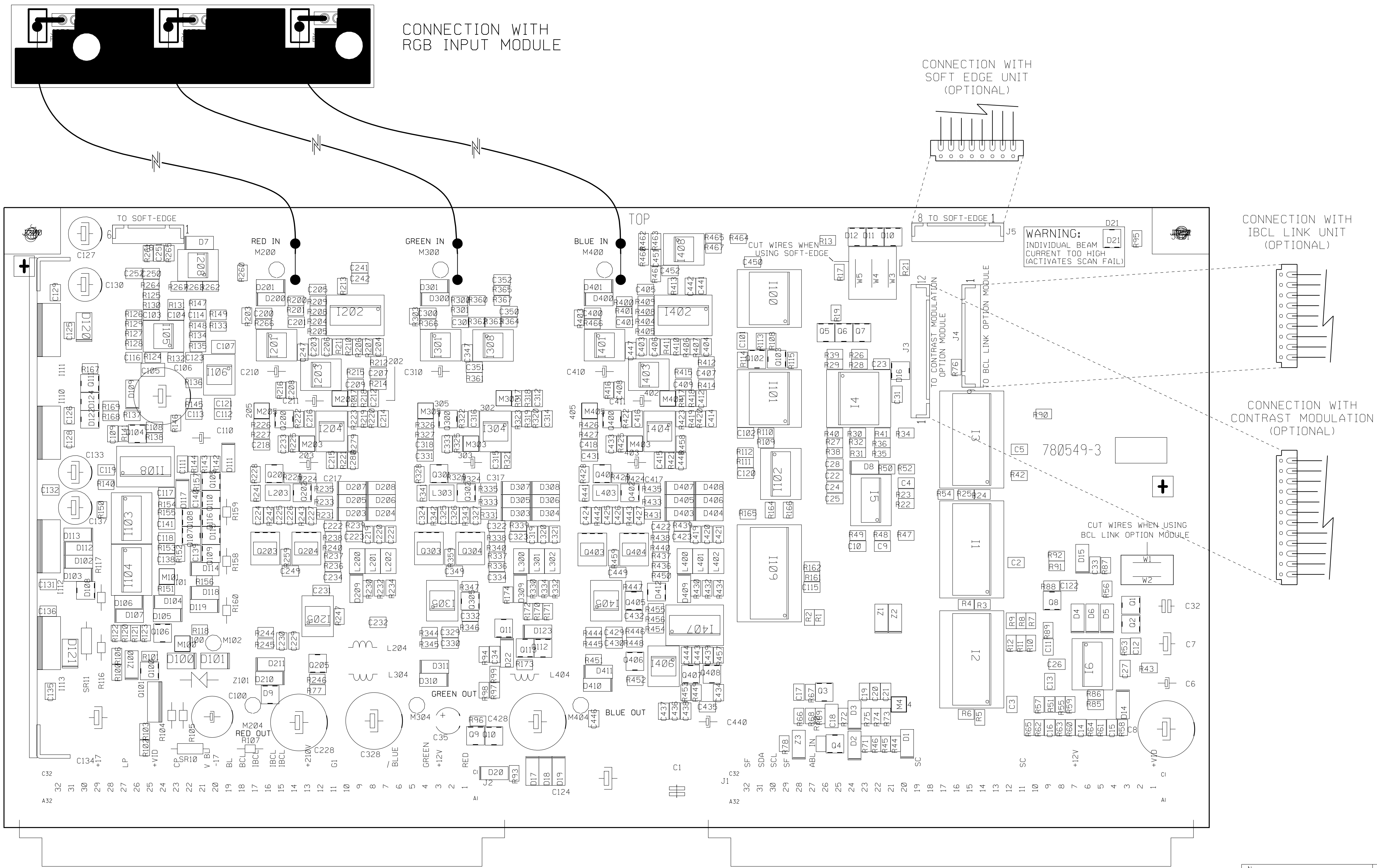
J7B

Pin	Signal	Dir	J1A	J2A	J2B	J3A	J4A	J4B	J5A	J6B	J8B	J30	J132	J134	J138	J133	J135	J137	J148
1	R_OUT	←														2			
2	GND										17					1			
3	+12V	←														6	6	6	
4	G_OUT	←															2		
5	GND										17						1		
6	NC																		
7	B_OUT	←																2	
8	GND										17							1	
9	GND1_801	→																	
10	NC																		
11	G1	←											3	3	3				
12	NC																		
13	+210V	→									8								
14	NC																		
15	IBCL_R	→														3			
16	IBCL_G	→															3		
17	IBCL_B	→																3	
18	BCL	←																	11
19	BL	←														5	5	5	
20	-17V	→									1								
21	V_BL	→						26											
22	SC	→					23												
23	CP	→							27	1									
24	NC																		
25	+VID	→								29									
26	NC																		
27	LP	→	4	23		30		24											
28	NC																		
29	+17V	→									4								
30	NC																		
31	NC																		
32	NC																		



Name		Sheet
RGB DRIVER		1/1
Module No R762720	Index 4	PCB No R780549 Rev 3
Date 06-01-1998	Drawn JVDY	Checked PDGY
BARCO NV		Division BPS

Modifications reserved

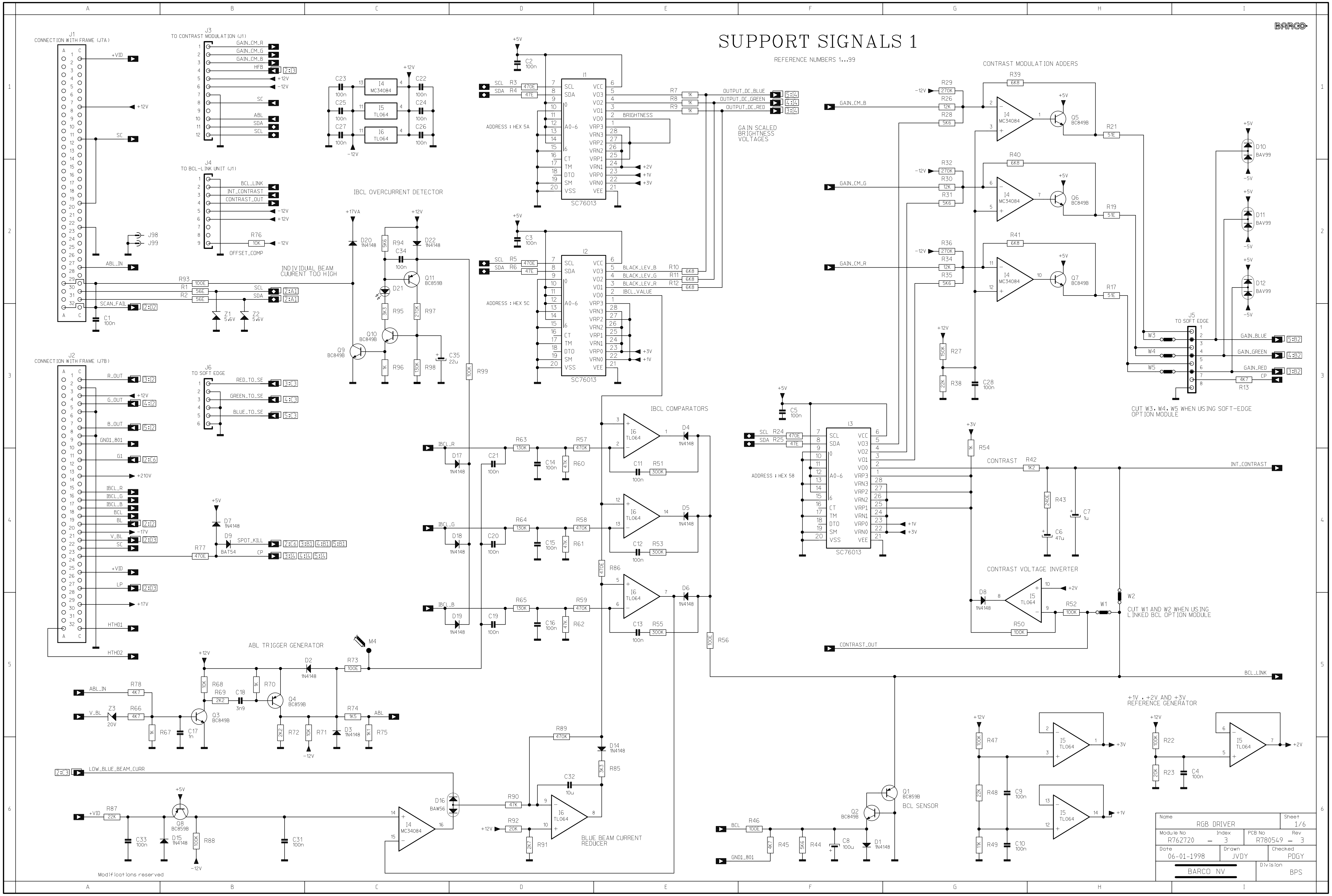


Name			Sheet
RGB DRIVER MODULE			1 / 1
Module No R762720	Index — 4	PCB No R780549	Rev — 3
Date 09-12-1998	Drawn JVDY		Checked PDGY
BARCO PROJECTION SYSTEMS			

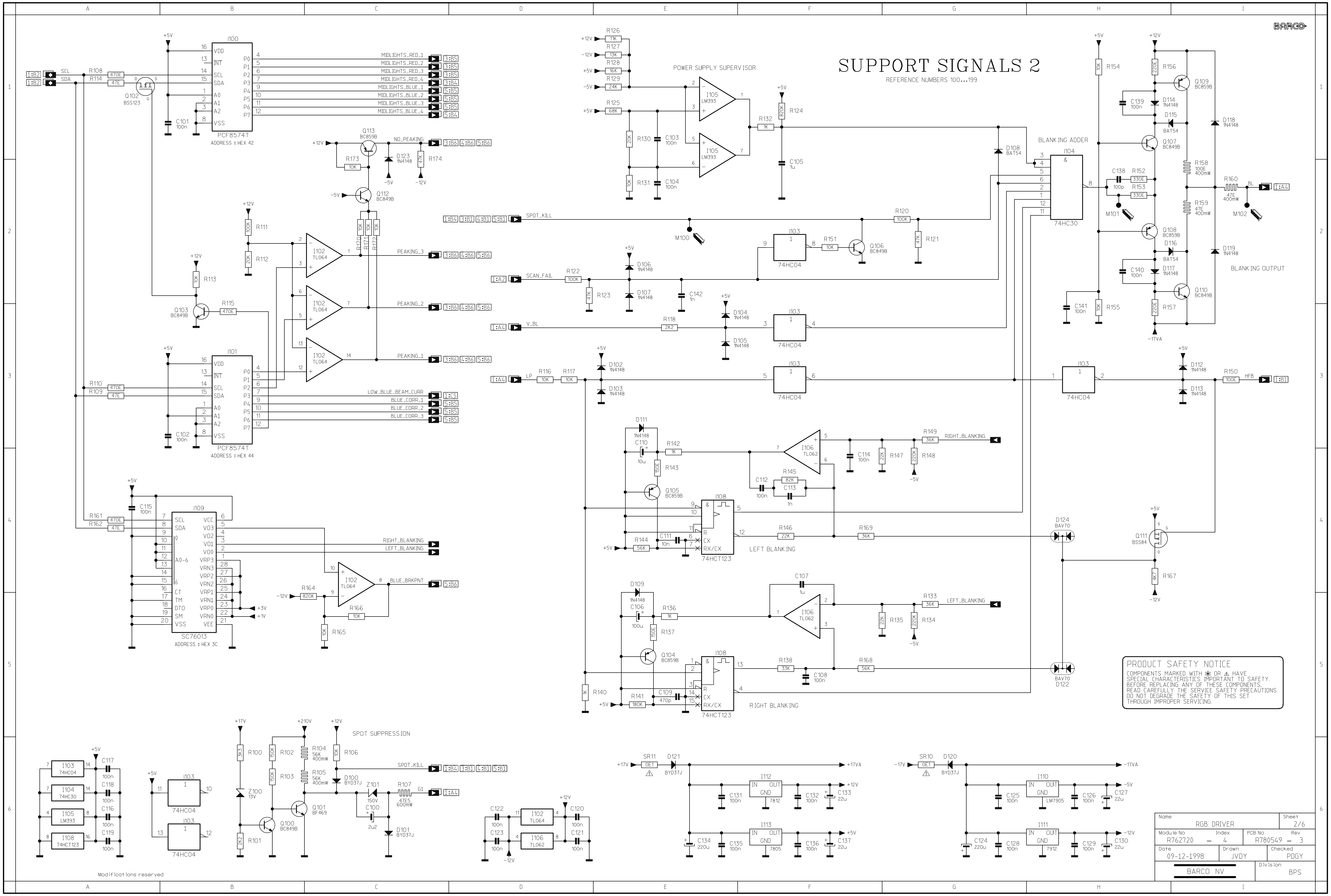
Modifications reserved

SUPPORT SIGNALS 1

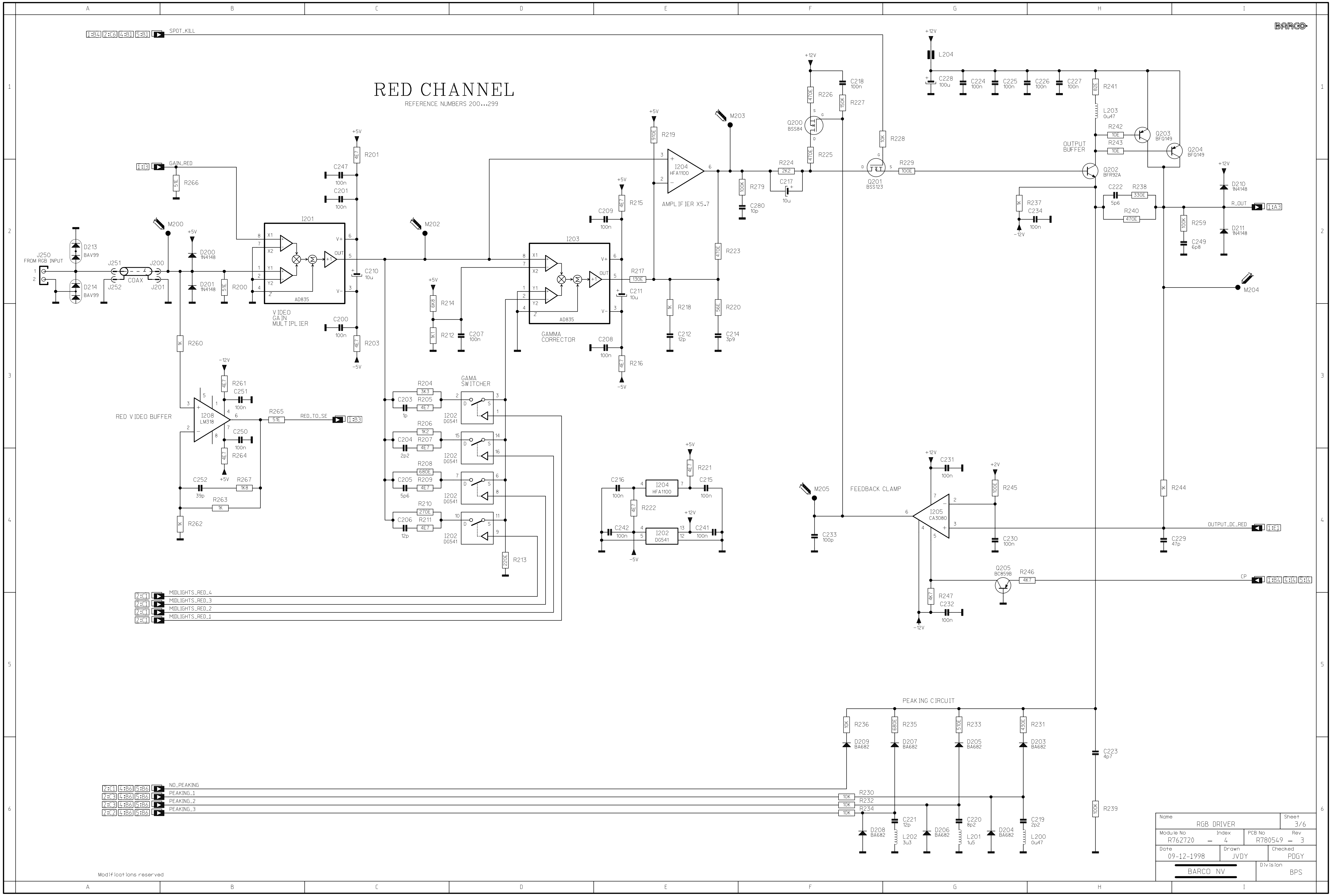
REFERENCE NUMBERS 1...99



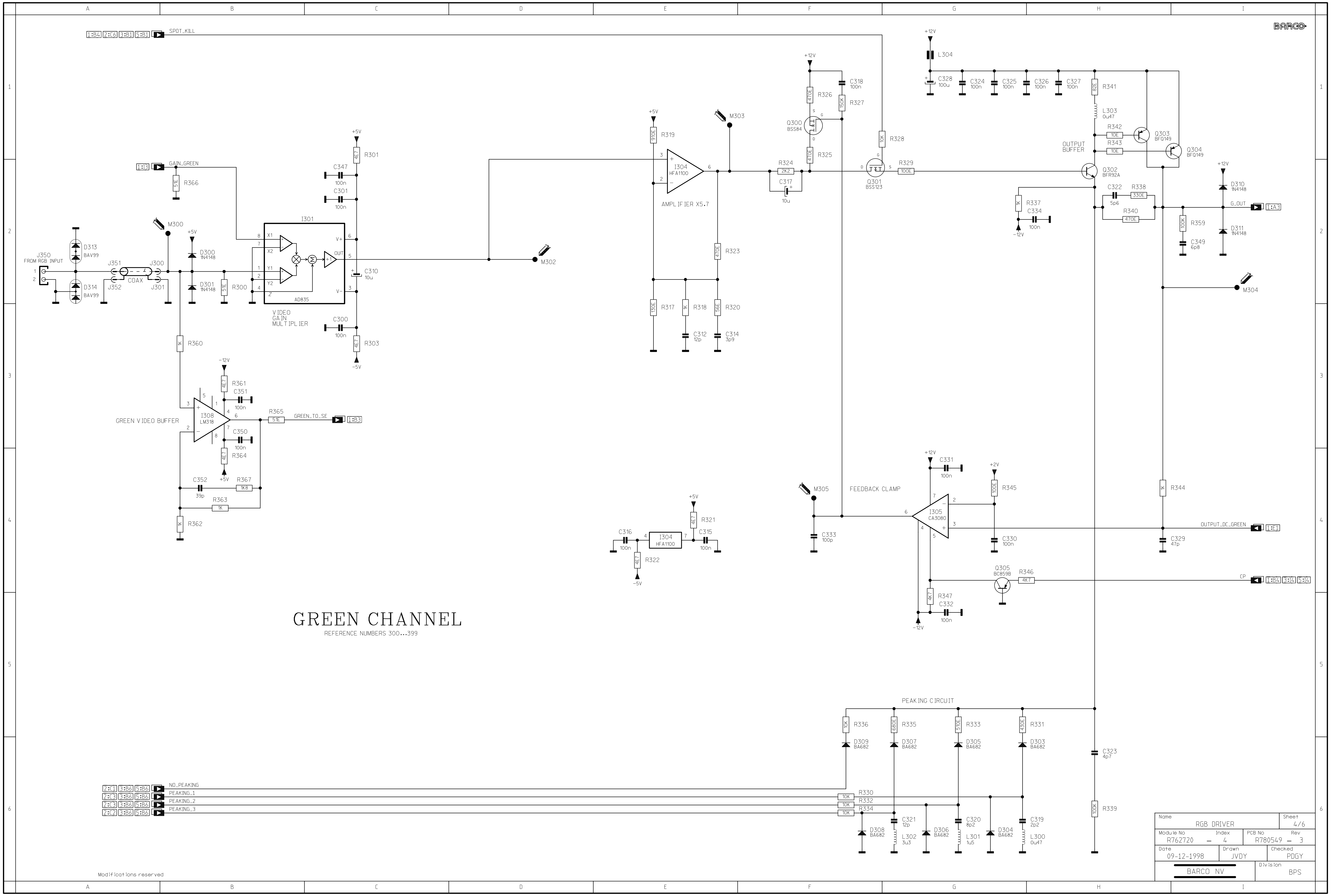
Name	RGB DRIVER		Sheet 1/6
Module No R762720	Index 3	PCB No R780549	Rev 3
Date 06-01-1998	Drawn JVDY		Checked PDGY
BARCO NV			Division BPS



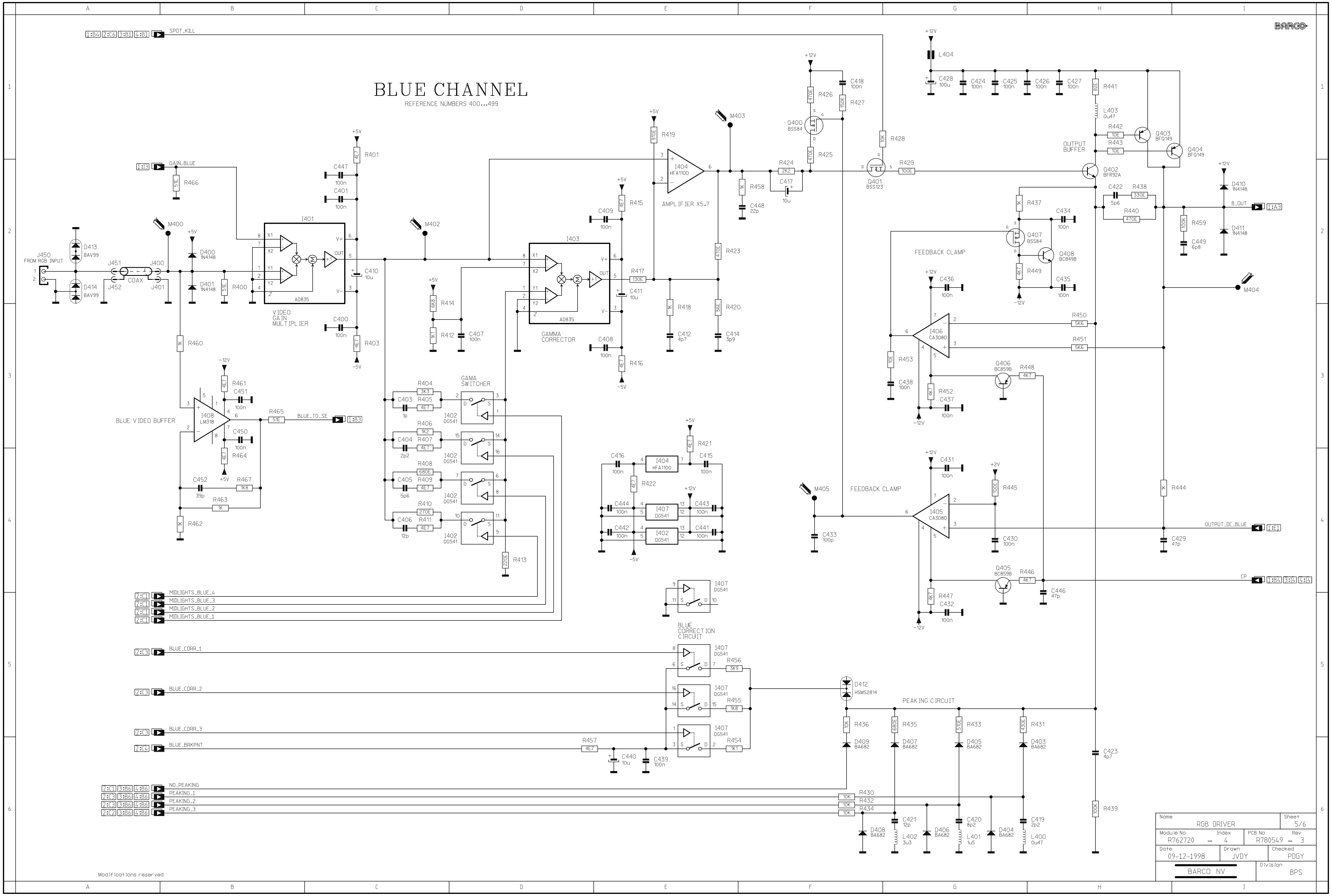
SUPPORT SIGNALS 2
REFERENCE NUMBERS 100...199
POWER SUPPLY SUPERVISOR
BLANKING ADDER
BLANKING OUTPUT
LEFT BLANKING
RIGHT BLANKING
SPOT SUPPRESSION
PCF8574T
ADDRESS : HEX 42
ADDRESS : HEX 44
SC76013
ADDRESS : HEX 3C
MIDLIGHTS_RED_1
MIDLIGHTS_RED_2
MIDLIGHTS_RED_3
MIDLIGHTS_RED_4
MIDLIGHTS_BLUE_1
MIDLIGHTS_BLUE_2
MIDLIGHTS_BLUE_3
MIDLIGHTS_BLUE_4
NO_PEAKING
PEAKING_3
PEAKING_2
PEAKING_1
LOW_BLUE_BEAM_CURR
BLUE_CORR_1
BLUE_CORR_2
BLUE_CORR_3
SPOT_KILL
SCAN_FAIL
V_BL
LP
HFB
BL
RIGHT_BLANKING
LEFT_BLANKING
BLUE_BRKPNT
SCL
SDA
PRODUCT SAFETY NOTICE
COMPONENTS MARKED WITH ✳ OR ⚠ HAVE SPECIAL CHARACTERISTICS IMPORTANT TO SAFETY. BEFORE REPLACING ANY OF THESE COMPONENTS, READ CAREFULLY THE SERVICE SAFETY PRECAUTIONS. DO NOT DEGRADE THE SAFETY OF THIS SET THROUGH IMPROPER SERVICING.
Modifications reserved
Name RGB DRIVER
Sheet 2/6
Module No R762720
Index 4
PCB No R780549
Rev 3
Date 09-12-1998
Drawn JVDY
Checked PDGY
BARCO NV
Division BPS



Name	RGB DRIVER			Sheet	3/6
Module No	R762720	Index	4	PCB No	R780549 — Rev 3
Date	09-12-1998	Drawn	JVDY	Checked	PDGY
BARCO NV		Division	BPS		



GREEN CHANNEL
REFERENCE NUMBERS 300...399
SPOT_KILL
GAIN_GREEN
J350 FROM RGB INPUT
COAX
I301
VIDEO GAIN MULTIPLIER
AD835
AMPLIFIER X5.7
I304 HFA1100
OUTPUT BUFFER
G_OUT
OUTPUT_DC_GREEN
CP
FEEDBACK CLAMP
I305 CA3080
GREEN VIDEO BUFFER
I308 LM318
GREEN_TO_SE
PEAKING CIRCUIT
NO_PEAKING
PEAKING_1
PEAKING_2
PEAKING_3
Modifications reserved
Name RGB DRIVER
Sheet 4/6
Module No R762720
Index 4
PCB No R780549
Rev 3
Date 09-12-1998
Drawn JVDY
Checked PDGY
Division BPS
BARCO NV


BLUE CHANNEL
REFERENCE NUMBERS 400...499
SPOT_KILL
GAIN_BLUE
FROM RGB INPUT
COAX
VIDEO GAIN MULTIPLIER
AD835
BLUE VIDEO BUFFER
LM318
BLUE_TO_SE
GAMA SWITCHER
GAMMA CORRECTOR
AMPLIFIER X5.7
HFA1100
OUTPUT BUFFER
FEEDBACK CLAMP
CA3080
B_OUT
OUTPUT_DC_BLUE
CP
MIDLIGHTS_BLUE_4
MIDLIGHTS_BLUE_3
MIDLIGHTS_BLUE_2
MIDLIGHTS_BLUE_1
BLUE CORRECTION CIRCUIT
BLUE_CORR_1
BLUE_CORR_2
BLUE_CORR_3
BLUE_BRKPNT
PEAKING CIRCUIT
NO_PEAKING
PEAKING_1
PEAKING_2
PEAKING_3
Modifications reserved
Name RGB DRIVER
Sheet 5/6
Module No R762720
Index 4
PCB No R780549
Rev 3
Date 09-12-1998
Drawn JVDY
Checked PDGY
BARCO NV
Division BPS

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C3	D2	1
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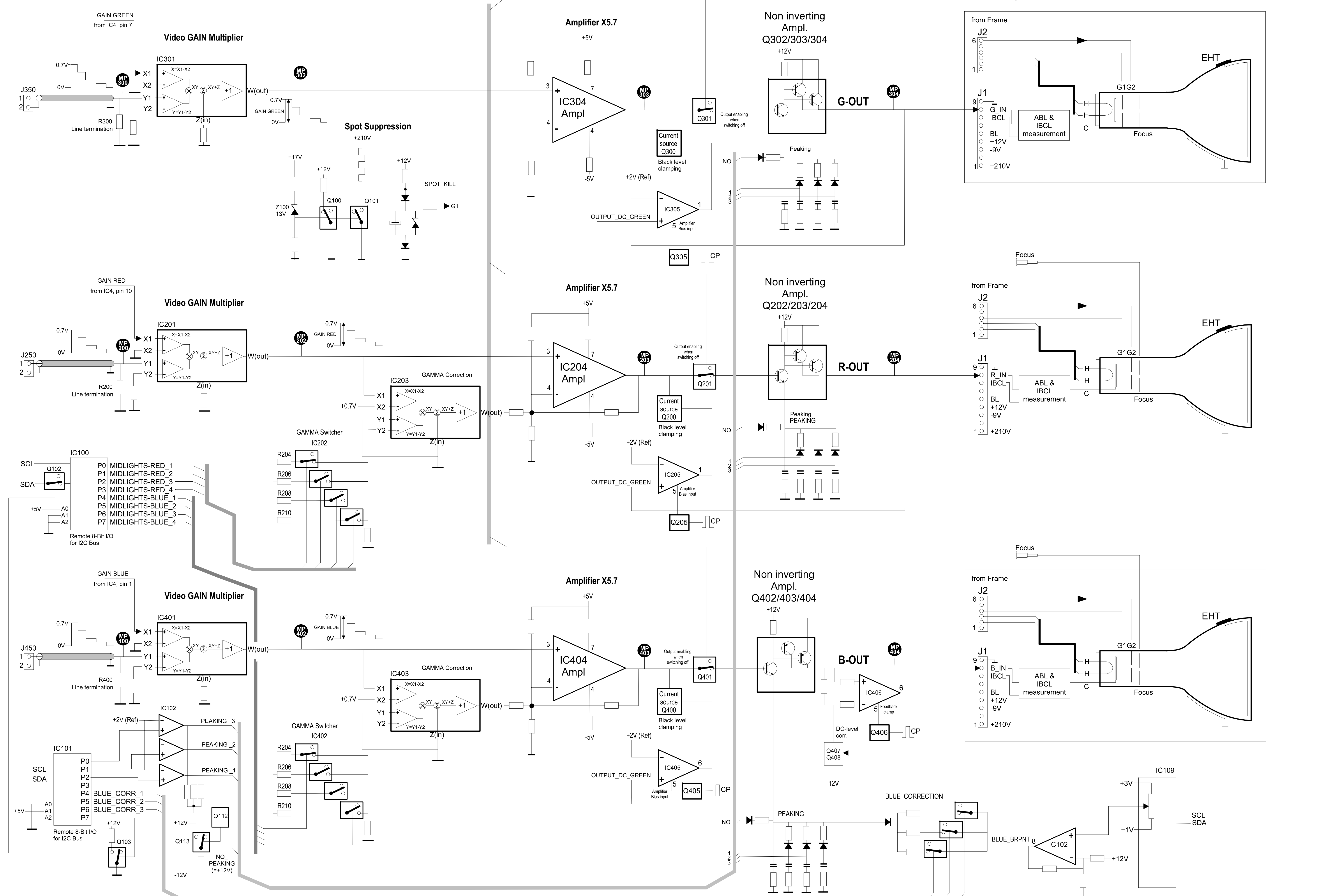
W5	H3	1
Z1	B3	1
Z2	B3	1
Z3	A5	1
Z100	B6	2
Z101	C6	2

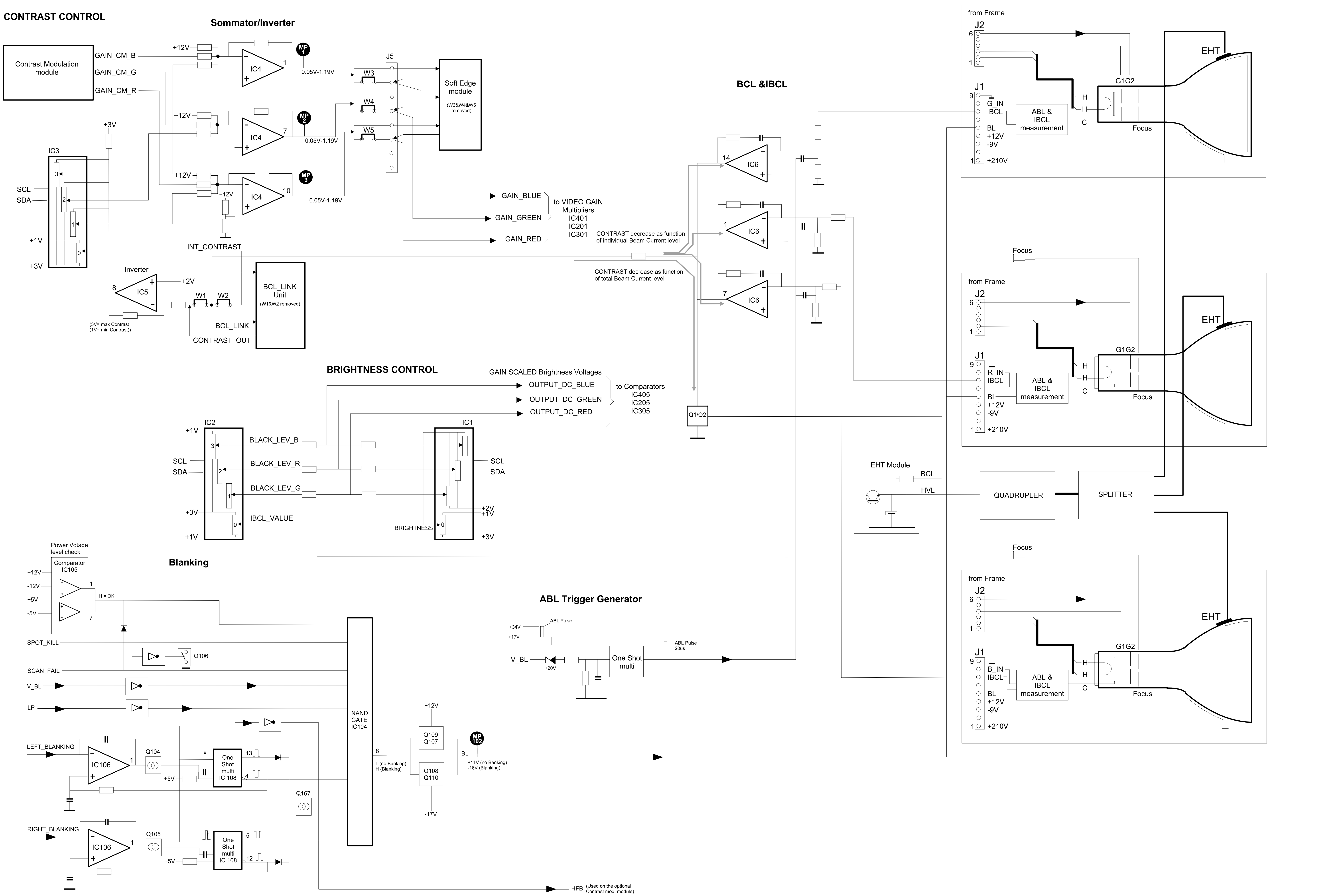
Modifications reserved

Name			Sheet
RGB DRIVER			6/6
Module No R762720	Index 4	PCB No R780549	Rev 3
Date 09-12-1998	Drawn JVDY		Checked PDGY
BARCO NV		Division BPS	

Blockdiagram RGB Driver R762720_r00

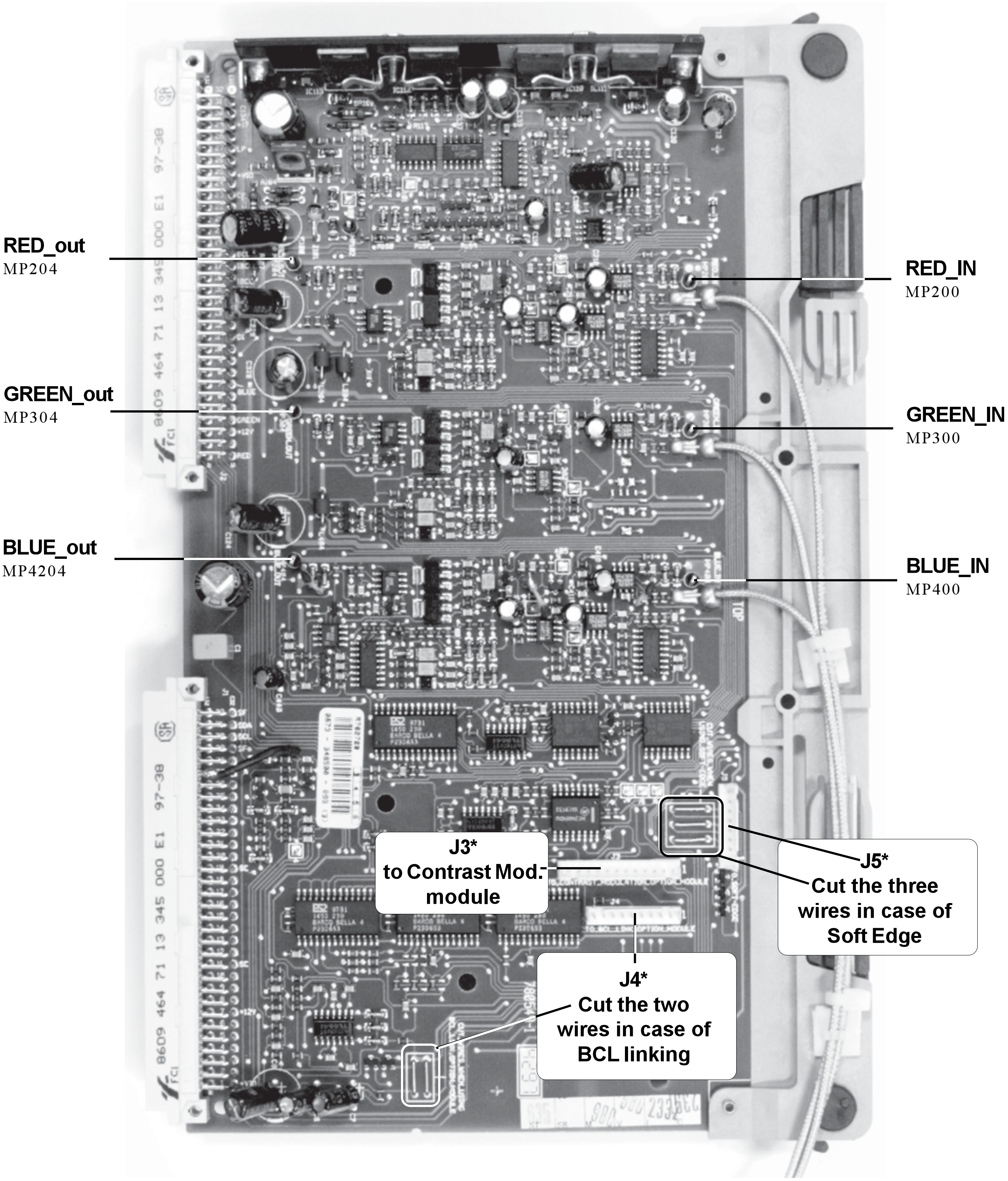


Blockdiagram RGB Driver R762720_r00



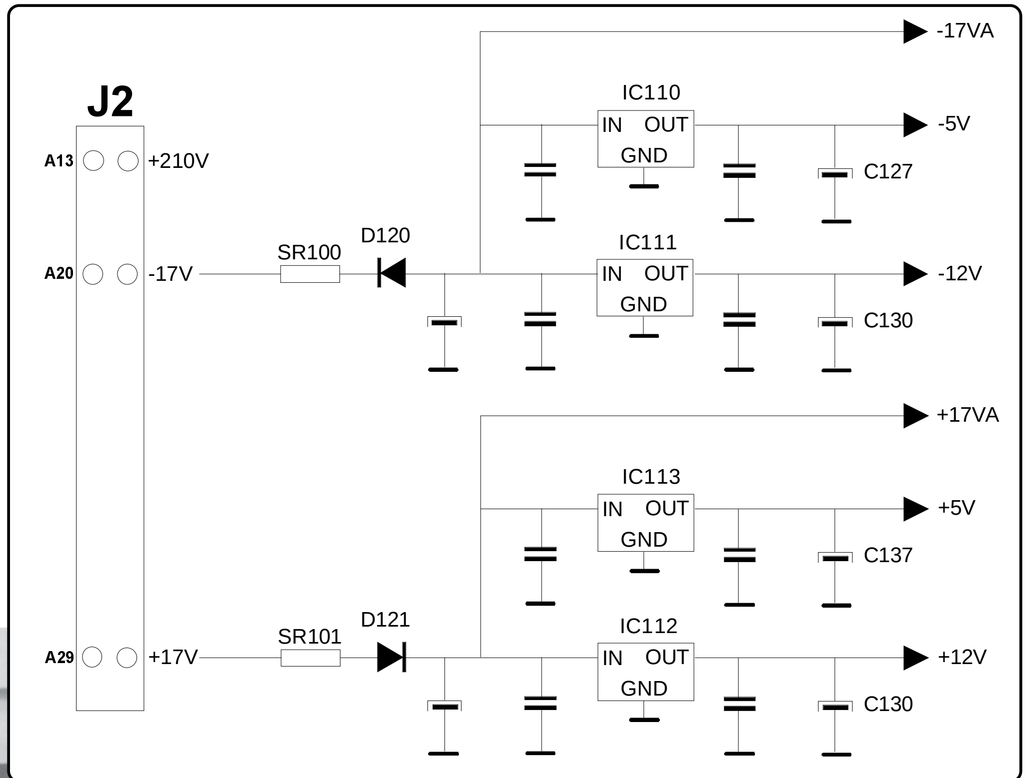
RGB Driver R762720_B_r00

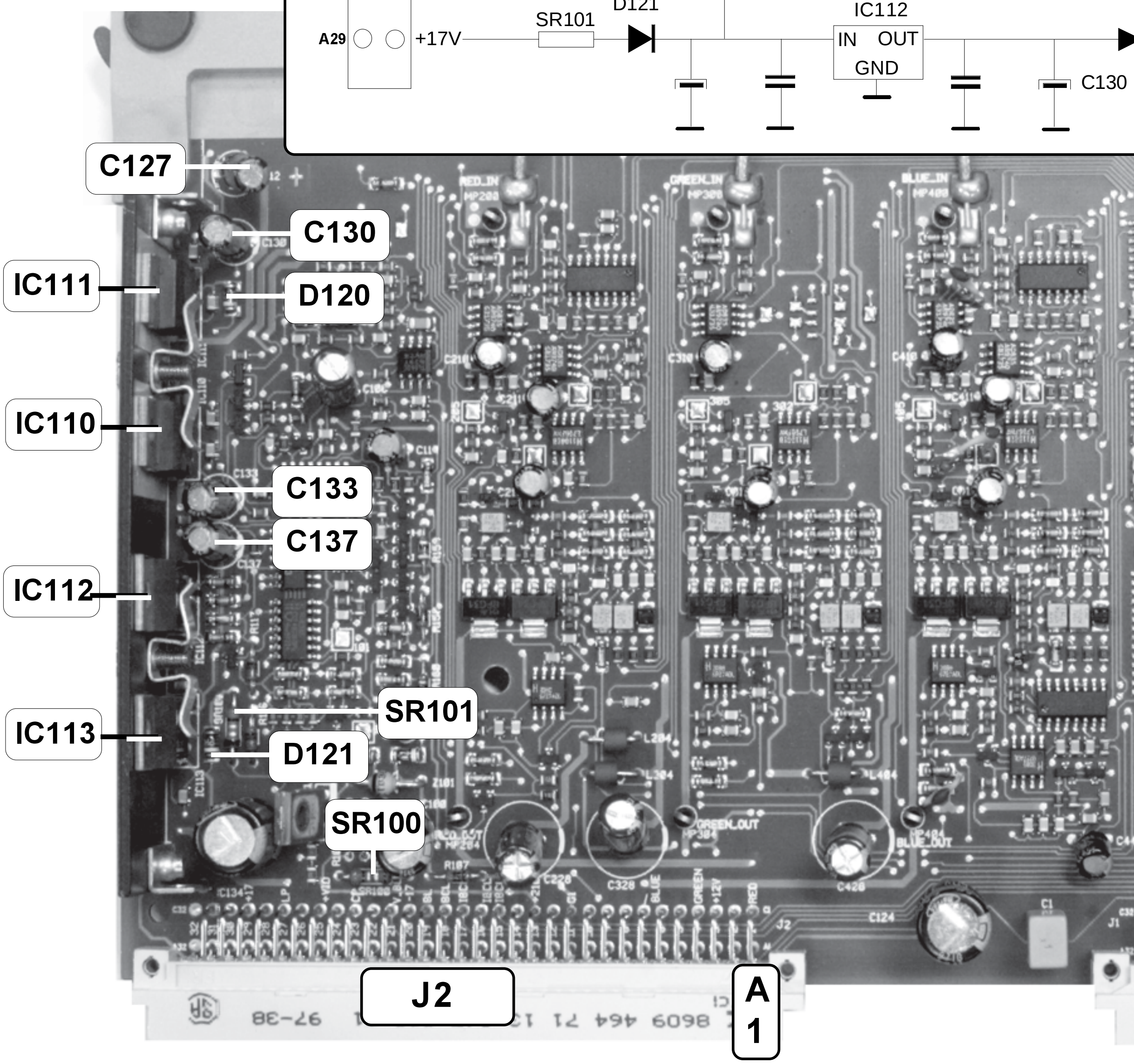
Measurement contacts and Connector location



J3*: interconnection with the optional Contrast modulation module
J4*: interconnection with the optional BCL Linking module
J5*: interconnection with the optional Soft Edge module

Power Supply





Technical description of the R-G-B driver R762720

Introduction

The RGB Driver module contains the following parts:
- Red Video driver channel
- Green Video driver channel
- Blue Video driver channel
- Generation of support signals

General.

The black level of the Red, Green and Blue signals have been clamped at zero volt and the amplitude adjusted to 0.7V on the Input board. The signal is now ready to undergone the Brightness and Contrast controls before reaching the video power amplifiers. The optional contrast modulation can also be added to the contrast voltages if implemented.
Furthermore, as a colour temperature adjustment is also possible, the gain and black levels are controllable per colour and tracked is some way to maintain the colour temperature over the full range.
The red, green and blue colours are passing through identical circuits, but, as a gamma correction is implemented, the red and blue channels are a bit different from the green (master) channel. We'll discuss first the green channel and limit the discussion of the red and blue to the differences with the green.

Green video channel.

a) Contrast / Green Gain / Contrast Modulation.

The videosignal is terminated at 50 Ohm with R300 (coax cable is 50 Ohm) , clamped at 0V and has an amplitude of 0.7V on the input board. IC301 is an analog multiplier and its output $W = (X1-X2) \times (Y1-Y2) + Z$.

The videosignal at pin Y1 is thus multiplied with the voltage at pin X1, since X2 and Y2 are both at zero level.
The Z input is at this moment connected to ground level, consequently, the black level at the output is also 0V.
The *GAIN_GREEN* voltage changes from 0.05V ---> 1.2V. This voltage is the result of the general contrast, the individual gain adjustment of the green channel and the contrast modulation board. IC304 (HF A100) amplifies this signal 5.7 times.

b) Brightness / Black level offset controls.

The positive bias voltage obtained by R319/R317 installs a negative black level output in order to use the full output swing if this amplifier. This black level is then again pulled up with R324 and the current generator Q300. C317 means a bypass for the video frequencies.
Via Q301 and R329 the green video is applied to the base of Q302. The latter is, together with Q303/Q304, an non-inverting amplifier with a low impedance drive output, necessary to match the 75 Ohm cable impedance realising the connection with the video output amplifier.
The required biasing current is obtained with R337, which determines together with R340 the gain of this amplifier.
The output signal *G_OUT* and the current from the *DC_GREEN* voltage (= black level offset voltage) is compared with the reference of +2V in IC305(2,3,6) during the *CP* pulse time window.
If, for example, the output voltage is too high, the output of the comparator increases and the current generator Q300 draws less current through R324. The voltage drop across this resistor decreases and compensates the too high DC output level.

c) Peaking adjustment.

By adding an overshoot and undershoot to the video transitions, the picture looks sharper. If these over/undershoots are adjustable in amplitude and width, we can adjust an overshoot matching the bandwidth and the scanning frequency of the signal.
If for example the *PEAKING_1* line is high, there is a current flowing in R330/D303/R331 towards the emitter of Q302. The RLC circuit L33/C319/R331 is then in parallel across the emitter resistor. A critically damped sinus peak is seen at the output.
PEAKING_1 gives the smallest peak and must be selected for the highest scanning frequencies.
Three selections are possible related to the scanning frequencies : low / mid and high range.
If no peaking is wanted, R336 means a compensation, in order not to change the gain of this stage.

d) Spot killer.

During operation, the gate of Q301 is at +12V and the latter is fully conducting (5 Ohm resistance). At switching off the projector, the *SPOT_KILL* line is dropped very quickly to 0V and Q301 is immediately blocked. This avoids any undesired voltage peaks that could cause a spot on the CRT.

Red video channel.

The in- and output circuits are identical to the green channel. In between the contrast adjustment and the x 5.7 amplifier, a gamma correction network is incorporated. This gamma correction is based on the red CRT characteristic which is different from the green one.

The relation light output / drive voltage for the red CRT is more linear for the red CRT phosphor than for the green phosphor.
With IC202/IC203 a non-linear correction in the mid-grey zones is now possible.

The (original) video signal is applied to the X1 (pin 8) input of the multiplier IC203
Pin 7 (X2) is fixed at 0.7V with R212/R214.

The same videosignal is, on the other hand, sent through a step attenuator. By switching on one of the switchers of IC202 the video signal is divided with R204, R206, R208, R210 and the common R213. With the *MIDLIGHTS_1, 2, 3 , 4* lines one can select between 15 possible steps. The attenuated signal is then applied to the Y2 input whereas the Y1 is at 0V.
The output W, pin 5, is (X1-X2) x (Y1-Y2).

Assume the input is a linear ramp from 0 -100% or from 0 - 0.7V. The output of the multiplier is then a positive parabola with a maximum at 50% of the ramp and zero at 0 and 100% of the ramp. The amplitude of this parabola is determined by the step attenuator. This parabola is sent to the inverting input of IC204 via R217 and subtracted from the original ramp.
As a result, we obtain a new non-linear ramp where the 50% zone has a decreased amplitude and the 0 and 100% zones are not affected. With this step attenuator, the light output / drive voltage of the red CRT tube can be adjusted to match the green one.

Blue video channel.

a) Gamma correction.

The light output / drive voltage of the blue CRT is less linear than the green one. We can obtain a matching when the polarity of the parabola is inverted compared to the red

one. This is got by swapping the Y1 and Y2 inputs of the multiplier IC403.
If we assume again a linear ramp input, the parabola of the output W of IC403 is negative. The final result at output pin 6 of IC404 is a non-linear ramp with an increased amplitude in the grey zones.

b) Blue correction circuit.

The blue phosphor saturates from some drive voltage onwards. This saturation point depends on the CRT phosphor, the spot size, frequency of scanning, temperature, etc...
To resolve this problem, the blue signal undergoes an increased gain from some level onwards (the breakpoint level) .

This level can be adjusted by software and is the *BLUE_BRKPNT* voltage. As soon the emitter voltage of Q402 exceeds the *BLUE_BRKPNT* level with 0.3V diode voltage drop), the diode D412 gets forward biased and R456 is added to the emitter load. The slope of the correction is further adjusted by means of the *BLUE_CORR 1,2,3* voltages. This will add to the emitter load one of the feedback resistor(s) R454, R455, R456 or a combination of these.

c) DC stabilisation, additional clamping.

Without further measures, the DC level of the emitter voltage would not be very stable. It is very much temperature dependent and it varies with the bias current through the stage. An additional clamping is required.
This clamper compares the output voltage with the emitter voltage during the *CP* timing window. The output voltage drives Q407 which is part of the biasing resistor (drain connected to -12V).
Q408 provides a lower impedance for the source of Q407, as the current flow through R437 and Q407 depends also on the video signal.

Blanking.

The composite blanking pulses are the result of the sum of different individual blanking informations added together in the NAND IC104 after modelling to the correct TTL amplitude.
If there is no blanking necessary, the output pin 8 of the NAND is low level and this forward biases Q107 and Q109. The current flowing through the latter installs around +11V at the *BL* output.

In case of blanking, the TTL high level output of IC104 forward biases Q108 now and through Q110 the BL output is at around -16V.

D114 - D117 avoid saturation of the transistors and hence improve the switching.
Following blanking informations are an input to the NAND gate IC104 :

- *LP* (line pulses) :
  are dropped in amplitude with R116/R117/R140 limited with D102/D103, inverted by IC103 (5,6) and input to pin 1.
  (note : the same negative line pulses are inverted again with IC103(1,2) and then referred to as *HFB* to be used in the optional Contrast modulation board.
- *V BL* (Vertical Blanking) :
  these pulses are also dropped to TTL level, inverted and applied to pin 2.
- *SPOT_KILL* (pin 5) :
  The line SPOT_KILL is +12V during operation and drops to zero level at switching off the projector to blank the picture.

- *SCAN FAIL* (pin 6):
  This line is high when there is no scan fail and drops to zero when scan fail has been detected.
  (note : The scan fail condition also drops the SPOT_KILL line to an active low level and hence switches off the video output stages of the UN DRIVE board.
- Supply voltages controls (pin 3,4) :
  The +/- 12V and +/-5V supply voltages are checked with the window detector IC105. If one voltage fails or is not within the desired window, the output switches low and the same pins 3, 4 are pulled low level. Note that this will mean a scan fail condition and the SPOT_KILL line will be active as well.
- *LEFT/RIGHT* blanking :
  The blanking pulses for the beginning of the scan (left blanking) are generated by IC108 (output 4) by triggering the monoflop on the positive transition of the *LP* pulses. The output pulse train of pin 13 is integrated with R138/C108 and compared with the *LEFT_BLANKING* voltage. The output of the Miller integrator drives the current source Q104 which determines the pulse width of the blanking pulses.

  The pulses for the end of the scan are generated by the other monoflop in IC108. Here, the monoflop is triggered by the negative transition and the positive pulses at pin 5 output are used. Consequently, the low level of these pulses is the blanking time. It is obvious that, in this case, the negative pulses at pin 12 are integrated and the obtained voltage is used to adapt the pulse width in conjunction with the *RIGHT_BLANKING* voltage.

  The integration of the pulses (average voltage) means a tracking of the range with the line frequency. The absolute value of the required blanking is much smaller for the higher scanning than for the lower scanning signals.
  Another tracking is also got by a correction current via D122 and D124 by switching on Q111 with *HFB* pulses.

I²C Interfacing.

IC100 : the *MIDLIGHTS_RED* and *_BLUE* switching on/off voltages.

IC101 : 3 outputs are the *PEAKING* adjustments.

If no peaking is needed, the three outputs are at approx. -11V and hence Q112 and Q113 are both conducting. The output *NO_PEAKING* is then at about +12V.
As soon one output of a comparator switches to a positive high, due to the resistive dividers R171/R172/R173, the emitter of Q112 jumps at -3.5V and the latter gets blocked. The *NO_PEAKING* line is then at about -5V and D123 is forward biased to keep the impedance of the *NO_PEAKING* line low and avoid distortions in the RGB DRIVE stages.

IC100 uses the same address of IC601 on the INPUT board. The data line *SDA* of either one of these I²C interfaces can be disconnected via a switching Mosfet. To select this IC100, output port P7 of IC101 must be low level, blocking Q103 and via R113, Q102 is forward biased.

IC109 :
two outputs are used for the Left/Right blankings and VO3 is the Blue breakpoint output. The DC range is corrected with IC102 (8, 9, 10).

7. Spot suppression

There are two actions at switching off the projector :

- via the **G1 grid** :

The G1 grid voltage is at approximately 0V via D101. During normal operation and on condition the +17V is correct (sufficiently high) Q100 is saturated and Q101 is off as its base is lower than 0.6V. The collector of Q101 is then at 150V or the voltage drop across Z101. C100 is consequently charged up to 150V.
At switching off, the +17V drops very quickly to zero and the +210V rather decays slowly. The moment Q100 shuts off and Q101 gets forward biased, the collector of the latter drops to zero and the - of the capacitor C100 drops also instantly with the same amplitude to -150V. The G1's are dropped to -150V and the CRT's are blanked.

- via the **cathodes** (drive voltage) :

The *SPOT_KILL* line is in normal operation at +12V via R106. When the projector is switched off, the line is dropped to 0V via D100. This zero level cuts the output via the mosfets Q201, Q301, Q401.

Contrast, brightness and gain adjustments

Contrast / Gain.

The general (common) contrast and the individual gain controls are first combined with the (optional) contrast modulation waveforms and as such used in a multiplier (a variable gain amplifier) to adjust the amplitudes.

The contrast voltage is generated by the IC3 *VO0* output and ranges from +1V (minimum) to +3V (maximum). The multiplier requires just the opposite, hence, the contrast voltage is inverted by IC5 (8,9,10). R54 and D8 avoid this contrast voltage from exceeding the +3V as this would mean that the multiplier inverts the polarity of the videosignal.
This contrast voltage is now three time multiplied with the gain control of each colour. This is relised by using the contrast voltage as the *VRP3, VRP2* and *VRP1* supply for the potentiometers *1, 2* and *3* of the Bella IC3 and the other end of the potentiometers *(VRN*)* is connected to the +3V, or the minimum contrast.
The outputs *VO1,2,3* are thus the result of the general contrast and the individual gain controls.
The output range of the Bella's in not what is needed by the multipliers. Therefor the OPAMP's / inverters in IC4 adapt the range to 0.05V <---> 1.19V which is the needed range of the multipliers.

BCL / IBCL / Drive modes.

The contrast voltage can be reduced by the *BCL* and *IBCL* informations. The negative *BCL* voltage from the EHT board drives Q2 on from the -0.6V level onwards and this will turn on Q1. The *INT*ernal *CONTRAST* voltage or the *BCL_LINK* voltage cannot further increase in this case.
The *IBCL* voltages are slightly smoothed and compared to an adjustable voltage *(IBCL_VALUE)* from the potentiometer *"0"* of IC2. This value depends on the Eco / Normal / Boost mode drive, set by software.
As soon an *IBCL_** voltage reaches the *IBCL_VALUE* the corresponding comparator drops the contrast through one or more of the conducting diodes D4, D5, D6.

ABL trigger generator.

The ABL circuits of the RGB video amplifiers are triggered by a pulse of 20 µS and an

amplitude of 12V. This pulse is added to the *IBCL* lines as these lines are not carrying any valid information during this time. The *ABL* pulse is here ac coupled to the lines through C19, C20 and C21.
As the ABL trigger pulse is generated on the *UN SYNC+ VERT DEFL* board and superposed on the *V BL* (has an amplitude from 17V - 34V), the *V BL* is dropped by 20V with Z3 and Q3 will conduct during this *V BL* pulse time.
The differentiator C18/R70 drives Q4 into conduction for 20µS and via R73/C19, C20, C21 they are AC coupled into the IBCL lines.

Brightness / Black Level.

Introduction.

The brightness control is about identical to the contrast. The general brightness is combined with the individual *BLACK_LEVEL_** and the resulting *OUTPUT_DC_** voltage is an offset of the reference black level of +2V.
At 50% brightness setting, the black level of the output signal of the *RGB DRIVE* board must be clamped at +2V. This condition is translated into a 2V output for the potentiometers *VO1, VO2, VO3* of IC1 **and** IC2. Only then, there is no current flow in R7, R8, R9, R10, R11 and R12. The +2V *OUTPUT_DC* is now the same as the reference voltage of the inverters/sommators (=comparators) IC205, IC305, IC405.

Circuit Implementation.

As *VRN0* = +3V and *VRP0* = +1V the brightness voltage at *VO0* of IC1 changes from +3V (min. brightness) to +1V(max. brightness). This brightness voltage is applied again to the *VRP1,2,3* of three potentiometers in IC1. The other end *VRN1,2,3* of these potentiometers is the reference voltage **+2V.**
These three potentiometers in IC1 obtain the same settings of the gain controls in IC3. If now the brightness voltage is +2V (50%) the outputs *VO1,2,3* of IC1 are ALWAYS at +2V, irrelevant the gain setting.
Any change of the brightness and gain settings change the output voltage(s). With above **“gain scaled brightness voltages”** the black level is tracked with the gain adjustment in order not to deteriorate the colour temperature with contrast.

We can however add to these “gain scaled brightness voltages” an extra offset via R10, R11, R12 to adjust the low lights.

Parts listing RGB Driver R762720

SIT.	ITEM NO.	DESCRIPTION	QUANTITY
150	A556392	SPR PCB L12,6D3,8D3,8DUAL	2
80	R133085	HTSN@A GEN I_SHT CRA 30	0,00014
160	R34698902	SLVU SHR D 1,2/0,6 BK 20	1
60	R3631059	SCR Z933 M 3 X 8 SS	2
50	R3674391	RVT BLND_R3,2C 3,2WSTAL	2
10	R367699	RVT AVTRON2,5L 8,1 AL	4
110	R367699	RVT AVTRON2,5L 8,1 AL	2
100	R722276	LOCK49 PCB UN CPL	1
30	R802629	HTSN G800 RGB PR-AMP	1
40	R802692	HTSN G800 FIX HTSN	
70	V1330681	HTSN@A TO220 SPG DUAL	2
151	Z3495427	CBLU COA RG178 BU 50E 400	3
C 1	V1140426	C POMERA 100N K250E2 85	
C 2	P210227	C# Z5U MU 100N Z 50 0805	1
C 3	P210227	C# Z5U MU 100N Z 50 0805	1
C 4	P210227	C# Z5U MU 100N Z 50 0805	1
C 5	P210227	C# Z5U MU 100N Z 50 0805	1
C 6	R111476	C EL RA 47M M 25E2 85	
C 7	R111546	C EL RA 1M M 50E2 85	
C 8	R111477	C EL RA 100M M 25E2 85	
C 9	P210227	C# Z5U MU 100N Z 50 0805	1
C 10	P210227	C# Z5U MU 100N Z 50 0805	1
C 11	P210227	C# Z5U MU 100N Z 50 0805	1
C 12	P210227	C# Z5U MU 100N Z 50 0805	1
C 13	P210227	C# Z5U MU 100N Z 50 0805	1
C 14	P210227	C# Z5U MU 100N Z 50 0805	1
C 15	P210227	C# Z5U MU 100N Z 50 0805	1
C 16	P210227	C# Z5U MU 100N Z 50 0805	1
C 17	P210035	C# X7R MU 1N K 50 0805	1
C 18	P210106	C# X7R MU 3N9J 50 1206	1
C 19	P210227	C# Z5U MU 100N Z 50 0805	1
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C 22	P210227	C# Z5U MU 100N Z 50 0805	1
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C 27	P210227	C# Z5U MU 100N Z 50 0805	1
C 28	P210227	C# Z5U MU 100N Z 50 0805	1
C100	R111568	C EL RA 2M2M250E2 85	1
C101	P210227	C# Z5U MU 100N Z 50 0805	1
C102	P210227	C# Z5U MU 100N Z 50 0805	1
C103	P210227	C# Z5U MU 100N Z 50 0805	1
C104	P210227	C# Z5U MU 100N Z 50 0805	1
C105	P210178	C# Y5V MU 1M Z 16 1206	1
C106	R111466	C EL RA 100M M 16E2 85	
C107	P210178	C# Y5V MU 1M Z 16 1206	1
C108	P210227	C# Z5U MU 100N Z 50 0805	1
C109	P210025	C# COG MU 470P J 63 0805	1
C110	R1115935	C EL5 RA 10M M 35E2 85	
C111	P210041	C# X7R MU 10N K 50 0805	1
C112	P210227	C# Z5U MU 100N Z 50 0805	1
C113	P210035	C# X7R MU 1N K 50 0805	1
C114	P210227	C# Z5U MU 100N Z 50 0805	1
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C122	P210227	C# Z5U MU 100N Z 50 0805	1
C123	P210227	C# Z5U MU 100N Z 50 0805	1
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C125	P210227	C# Z5U MU 100N Z 50 0805	1
C126	P210227	C# Z5U MU 100N Z 50 0805	1
C127	R111532	REPLACED BY V1114855	1
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C132	P210227	C# Z5U MU 100N Z 50 0805	1
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C135	P210227	C# Z5U MU 100N Z 50 0805	1
C136	P210227	C# Z5U MU 100N Z 50 0805	1
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C138	P210021	C# COG MU 100P J 50 0805	1
C139	P210227	C# Z5U MU 100N Z 50 0805	1
C140	P210227	C# Z5U MU 100N Z 50 0805	1
C141	P210227	C# Z5U MU 100N Z 50 0805	1
C200	P210227	C# Z5U MU 100N Z 50 0805	1
C201	P210227	C# Z5U MU 100N Z 50 0805	1
C202	P210227	C# Z5U MU 100N Z 50 0805	1
C203	P210091	C# COG MU 1P D 50 0805	1
C204	P210130	C# COG MU 2P2D 50 0805	1
C205	P210134	C# COG MU 5P6D 50 0805	1
C206	P210182	C# COG MU 12P J 50 0805	1
C207	P210227	C# Z5U MU 100N Z 50 0805	1
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C209	P210227	C# Z5U MU 100N Z 50 0805	1
C210	R1115935	C EL5 RA 10M M 35E2 85	
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C212	P210061	C# COG MU 4P7D 50 0805	1
C214	P210133	C# COG MU 3P9D 50 0805	1
C215	P210227	C# Z5U MU 100N Z 50 0805	1
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C217	R1115935	C EL5 RA 10M M 35E2 85	
C218	P210227	C# Z5U MU 100N Z 50 0805	1
C219	P210130	C# COG MU 2P2D 50 0805	1
C220	P210135	C# COG MU 8P2D 50 0805	1
C221	P210182	C# COG MU 12P J 50 0805	1
C222	P210134	C# COG MU 5P6D 50 0805	1
C223	P210061	C# COG MU 4P7D 50 0805	1
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C228	R111466	C EL RA 100M M 16E2 85	
C229	P210019	C# COG MU 47P J 50 0805	1
C230	P210227	C# Z5U MU 100N Z 50 0805	1
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C232	P210227	C# Z5U MU 100N Z 50 0805	1
C233	P210021	C# COG MU 100P J 50 0805	1
C234	P210227	C# Z5U MU 100N Z 50 0805	1
C241	P210227	C# Z5U MU 100N Z 50 0805	1
C242	P210227	C# Z5U MU 100N Z 50 0805	1
C245	P201354	R# CE H 0E J 0W12 0805	1
C247	P210227	C# Z5U MU 100N Z 50 0805	1
C247	P210227	C# Z5U MU 100N Z 50 0805	1

SIT.	ITEM NO.	DESCRIPTION	QUANTITY
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C301	P210227	C# Z5U MU 100N Z 50 0805	1
C302	P210227	C# Z5U MU 100N Z 50 0805	1
C310	R1115935	C EL5 RA 10M M 35E2 85	
C312	P210061	C# COG MU 4P7D 50 0805	1
C314	P210133	C# COG MU 3P9D 50 0805	1
C315	P210227	C# Z5U MU 100N Z 50 0805	1
C316	P210227	C# Z5U MU 100N Z 50 0805	1
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C318	P210227	C# Z5U MU 100N Z 50 0805	1
C319	P210130	C# COG MU 2P2D 50 0805	1
C320	P210135	C# COG MU 8P2D 50 0805	1
C321	P210182	C# COG MU 12P J 50 0805	1
C322	P210134	C# COG MU 5P6D 50 0805	1
C323	P210061	C# COG MU 4P7D 50 0805	1
C324	P210227	C# Z5U MU 100N Z 50 0805	1
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C327	P210227	C# Z5U MU 100N Z 50 0805	1
C328	R111466	C EL RA 100M M 16E2 85	
C329	P210019	C# COG MU 47P J 50 0805	1
C330	P210227	C# Z5U MU 100N Z 50 0805	1
C331	P210227	C# Z5U MU 100N Z 50 0805	1
C332	P210227	C# Z5U MU 100N Z 50 0805	1
C333	P210021	C# COG MU 100P J 50 0805	1
C334	P210227	C# Z5U MU 100N Z 50 0805	1
C345	P201354	R# CE H 0E J 0W12 0805	1
C400	P210227	C# Z5U MU 100N Z 50 0805	1
C401	P210227	C# Z5U MU 100N Z 50 0805	1
C402	P210227	C# Z5U MU 100N Z 50 0805	1
C403	P210091	C# COG MU 1P D 50 0805	1
C404	P210130	C# COG MU 2P2D 50 0805	1
C405	P210134	C# COG MU 5P6D 50 0805	1
C406	P210182	C# COG MU 12P J 50 0805	1
C407	P210227	C# Z5U MU 100N Z 50 0805	1
C408	P210227	C# Z5U MU 100N Z 50 0805	1
C409	P210227	C# Z5U MU 100N Z 50 0805	1
C410	R1115935	C EL5 RA 10M M 35E2 85	
C411	R1115935	C EL5 RA 10M M 35E2 85	
C412	P210061	C# COG MU 4P7D 50 0805	1
C414	P210133	C# COG MU 3P9D 50 0805	1
C415	P210227	C# Z5U MU 100N Z 50 0805	1
C416	P210227	C# Z5U MU 100N Z 50 0805	1
C417	R1115935	C EL5 RA 10M M 35E2 85	
C418	P210227	C# Z5U MU 100N Z 50 0805	1
C419	P210130	C# COG MU 2P2D 50 0805	1
C420	P210135	C# COG MU 8P2D 50 0805	1
C421	P210182	C# COG MU 12P J 50 0805	1
C422	P210134	C# COG MU 5P6D 50 0805	1
C423	P210061	C# COG MU 4P7D 50 0805	1
C424	P210227	C# Z5U MU 100N Z 50 0805	1
C425	P210227	C# Z5U MU 100N Z 50 0805	1
C426	P210227	C# Z5U MU 100N Z 50 0805	1
C427	P210227	C# Z5U MU 100N Z 50 0805	1
C428	R111466	C EL RA 100M M 16E2 85	
C429	P210019	C# COG MU 47P J 50 0805	1
C430	P210227	C# Z5U MU 100N Z 50 0805	1
C431	P210227	C# Z5U MU 100N Z 50 0805	1
C432	P210227	C# Z5U MU 100N Z 50 0805	1
C433	P210021	C# COG MU 100P J 50 0805	1
C434	P210227	C# Z5U MU 100N Z 50 0805	1
C435	P210227	C# Z5U MU 100N Z 50 0805	1
C436	P210227	C# Z5U MU 100N Z 50 0805	1
C437	P210227	C# Z5U MU 100N Z 50 0805	1
C438	P210227	C# Z5U MU 100N Z 50 0805	1
C439	P210227	C# Z5U MU 100N Z 50 0805	1
C440	R1115935	C EL5 RA 10M M 35E2 85	

SIT.	ITEM NO.	DESCRIPTION	QUANTITY
C441	P210227	C# Z5U MU 100N Z 50 0805	1
C442	P210227	C# Z5U MU 100N Z 50 0805	1
C443	P210227	C# Z5U MU 100N Z 50 0805	1
C444	P210227	C# Z5U MU 100N Z 50 0805	1
C445	P201354	R# CE H 0E J 0W12 0805	1
C446	R112238	C NP0 MI 47P G100E2	1
C447	P210227	C# Z5U MU 100N Z 50 0805	1
C447	P210227	C# Z5U MU 100N Z 50 0805	1
C448	R112230	C NP0 MI 10P G100E2	1
C448	R112230	C NP0 MI 10P G100E2	1
C449	R112238	C NP0 MI 47P G100E2	1
D 1	P234099	D#4148 R DMMELF	1
D 2	P234099	D#4148 R DMMELF	1
D 3	P234099	D#4148 R DMMELF	1
D 4	P234099	D#4148 R DMMELF	1
D 5	P234099	D#4148 R DMMELF	1
D 6	P234099	D#4148 R DMMELF	1
D 7	P234099	D#4148 R DMMELF	1
D 8	P234099	D#4148 R DMMELF	1
D 9	P234055	D#BAT54 SCH SOT23	1
D 10	P234047	D#BAV99 SER SOT23	1
D 11	P234047	D#BAV99 SER SOT23	1
D 12	P234047	D#BAV99 SER SOT23	1
D100	P234196	D#BYD37J AVA SOD87	1
D101	P234196	D#BYD37J AVA SOD87	1
D102	P234099	D#4148 R DMMELF	1
D103	P234099	D#4148 R DMMELF	1
D104	P234099	D#4148 R DMMELF	1
D105	P234099	D#4148 R DMMELF	1
D106	P234099	D#4148 R DMMELF	1
D107	P234099	D#4148 R DMMELF	1
D108	P234055	D#BAT54 SCH SOT23	1
D109	P234099	D#4148 R DMMELF	1
D111	P234099	D#4148 R DMMELF	1
D112	P234099	D#4148 R DMMELF	1
D113	P234099	D#4148 R DMMELF	1
D114	P234099	D#4148 R DMMELF	1
D115	P234055	D#BAT54 SCH SOT23	1
D116	P234055	D#BAT54 SCH SOT23	1
D117	P234099	D#4148 R DMMELF	1
D118	P234099	D#4148 R DMMELF	1
D119	P234099	D#4148 R DMMELF	1
D120	P234196	D#BYD37J AVA SOD87	1
D121	P234196	D#BYD37J AVA SOD87	1
D122	P234004	D#BAV70 C-C SOT23	1
D123	P234099	D#4148 R DMMELF	1
D124	P234004	D#BAV70 C-C SOT23	1
D200	P234099	D#4148 R DMMELF	1
D201	P234099	D#4148 R DMMELF	1
D203	P234259	D#BA682 S035A1 DMMELF	1
D204	P234259	D#BA682 S035A1 DMMELF	1
D205	P234259	D#BA682 S035A1 DMMELF	1
D206	P234259	D#BA682 S035A1 DMMELF	1
D207	P234259	D#BA682 S035A1 DMMELF	1
D208	P234259	D#BA682 S035A1 DMMELF	1
D209	P234259	D#BA682 S035A1 DMMELF	1
D210	P234099	D#4148 R DMMELF	1
D211	P234099	D#4148 R DMMELF	1
D300	P234099	D#4148 R DMMELF	1
D301	P234099	D#4148 R DMMELF	1
D303	P234259	D#BA682 S035A1 DMMELF	1
D304	P234259	D#BA682 S035A1 DMMELF	1
D305	P234259	D#BA682 S035A1 DMMELF	1
D306	P234259	D#BA682 S035A1 DMMELF	1
D307	P234259	D#BA682 S035A1 DMMELF	1
D308	P234259	D#BA682 S035A1 DMMELF	1

SIT.	ITEM NO.	DESCRIPTION	QUANTITY
D309	P234259	D#BA682 S035A1 DMMELF	1
D310	P234099	D#4148 R DMMELF	1
D311	P234099	D#4148 R DMMELF	1
D400	P234099	D#4148 R DMMELF	1
D401	P234099	D#4148 R DMMELF	1
D403	P234259	D#BA682 S035A1 DMMELF	1
D404	P234259	D#BA682 S035A1 DMMELF	1
D405	P234259	D#BA682 S035A1 DMMELF	1
D406	P234259	D#BA682 S035A1 DMMELF	1
D407	P234259	D#BA682 S035A1 DMMELF	1
D408	P234259	D#BA682 S035A1 DMMELF	1
D409	P234259	D#BA682 S035A1 DMMELF	1
D410	P234099	D#4148 R DMMELF	1
D411	P234099	D#4148 R DMMELF	1
D412	P234289	D#HSMS2814 SCH SOT23	1
I 1	P230653	U#BELLA 4 SOL28 P	1
I 2	P230653	U#BELLA 4 SOL28 P	1
I 3	P230653	U#BELLA 4 SOL28 P	1
I 4	P230705	U#34084 MC SOL16 P	1
I 5	P230328	U#064 TL SO14 I	1
I 6	P230328	U#064 TL SO14 I	1
I100	P230543	U#8574 PCF SOL16 P	1
I101	P230543	U#8574 PCF SOL16 P	1
I102	P230328	U#064 TL SO14 I	1
I103	P230021	U#74HC04 SO14 I	1
I104	P230206	U#74HC30 SO14 I	1
I105	P230028	U#393 LM SO8 P	1
I106	P230006	U#062 TL SO8 P	1
I108	P230073	U#74HCT123 SO16 I	1
I109	P230653	U#BELLA 4 SOL28 P	1
I110	R134011	U 7905C TO220 P	1
I111	R134016	U 7912 TO220 P	1
I112	R134002	U 7812 TO220 P	1
I113	R134001	U 7805 TO220 P	1
I201	P231489	U#835 AD SO8 I	1
I202	P231526	U#541 DG SO16 I	1
I203	P231489	U#835 AD SO8 I	1
I204	P231233	U#1100 HFA SO8 I	1
I205	P230100	U#3080 CA SO8 P	1
I301	P231489	U#835 AD SO8 I	1
I304	P231233	U#1100 HFA SO8 I	1
I305	P230100	U#3080 CA SO8 P	1
I401	P231489	U#835 AD SO8 I	1
I402	P231526	U#541 DG SO16 I	1
I403	P231489	U#835 AD SO8 I	1
I404	P231233	U#1100 HFA SO8 I	1
I405	P230100	U#3080 CA SO8 P	1
I406	P230100	U#3080 CA SO8 P	1
I407	P231526	U#541 DG SO16 I	1
J 1	R313531	J EUR2C MBS P64 E1C3S 1,6	1
J 2	R313531	J EUR2C MBS P64 E1C3S 1,6	1
J 3	R313932	J CT H MBT P12 M2SN WH	1
J 4	R313929	J CT H MBT P 9 M2SN WH	1
J 5	R313928	J CT H MBT P 8 M2SN WH	1
J250	V3136372	J MD1 C FBT P 2 E1SN 8,5	1
J350	V3136372	J MD1 C FBT P 2 E1SN 8,5	1
J450	V3136372	J MD1 C FBT P 2 E1SN 8,5	1
L200	P250005	L# FFECH 0,47M M160	1
L201	P250509	CH# 1.5 UH L1210	1
L202	P250516	CH# 3.3 UH L1210	1
L203	P250005	L# FFECH 0,47M M160	1
L204	R302108	CORE TUBE 3,5 /1,3 X 3	1
L204	Z34501104	WU CUSN 0,60 MM 40	1
L300	P250005	L# FFECH 0,47M M160	1
L301	P250509	CH# 1.5 UH L1210	1
L302	P250516	CH# 3.3 UH L1210	1
L303	P250005	L# FFECH 0,47M M160	1
L304	R302108	CORE TUBE 3,5 /1,3 X 3	1
L304	Z34501104	WU CUSN 0,60 MM 40	1
L400	P250005	L# FFECH 0,47M M160	1
L401	P250509	CH# 1.5 UH L1210	1
L402	P250516	CH# 3.3 UH L1210	1
L403	P250005	L# FFECH 0,47M M160	1
L404	R302108	CORE TUBE 3,5 /1,3 X 3	1
L404	Z34501104	WU CUSN 0,60 MM 40	1
M102	R313729	J TESTEYE D2.1 H3.1 SN BK	1
M200	R313729	J TESTEYE D2.1 H3.1 SN BK	1
M204	R313729	J TESTEYE D2.1 H3.1 SN BK	1
M300	R313729	J TESTEYE D2.1 H3.1 SN BK	1
M304	R313729	J TESTEYE D2.1 H3.1 SN BK	1
M400	R313729	J TESTEYE D2.1 H3.1 SN BK	1
M404	R313729	J TESTEYE D2.1 H3.1 SN BK	1
PC	R780549	PCB G808S RGB DVR	1
Q 1	P232044	Q#BC859B P SS SOT23	1
Q 2	P232043	Q#BC849B N SS SOT23	1
Q 3	P232043	Q#BC849B N SS SOT23	1
Q 4	P232044	Q#BC859B P SS SOT23	1
Q100	P232043	Q#BC849B N SS SOT23	1
Q101	R131471	Q BF458 N P TO126	1
Q102	P232046	Q#BSS123 F SS SOT23	1
Q103	P232043	Q#BC849B N SS SOT23	1
Q104	P232044	Q#BC859B P SS SOT23	1
Q105	P232044	Q#BC859B P SS SOT23	1
Q106	P232043	Q#BC849B N SS SOT23	1
Q107	P232043	Q#BC849B N SS SOT23	1
Q108	P232044	Q#BC859B P SS SOT23	1
Q109	P232044	Q#BC859B P SS SOT23	1
Q110	P232043	Q#BC849B N SS SOT23	1
Q111	P232079	Q#BSS84 F SS SOT23	1
Q112	P232043	Q#BC849B N SS SOT23	1
Q113	P232044	Q#BC859B P SS SOT23	1
Q200	P232079	Q#BSS84 F SS SOT23	1
Q201	P232046	Q#BSS123 F SS SOT23	1
Q202	P232090	Q#BFR92A N SS SOT23	1
Q203	P232109	Q#BFG31 P SS SOT223	1
Q204	P232109	Q#BFG31 P SS SOT223	1
Q205	P232044	Q#BC859B P SS SOT23	1
Q300	P232079	Q#BSS84 F SS SOT23	1
Q301	P232046	Q#BSS123 F SS SOT23	1
Q302	P232090	Q#BFR92A N SS SOT23	1
Q303	P232109	Q#BFG31 P SS SOT223	1
Q304	P232109	Q#BFG31 P SS SOT223	1
Q305	P232044	Q#BC859B P SS SOT23	1
Q400	P232079	Q#BSS84 F SS SOT23	1
Q401	P232046	Q#BSS123 F SS SOT23	1
Q402	P232090	Q#BFR92A N SS SOT23	1
Q403	P232109	Q#BFG31 P SS SOT223	1
Q404	P232109	Q#BFG31 P SS SOT223	1
Q405	P232044	Q#BC859B P SS SOT23	1
Q406	P232044	Q#BC859B P SS SOT23	1
Q407	P232079	Q#BSS84 F SS SOT23	1
Q408	P232043	Q#BC849B N SS SOT23	1
R 1	P201057	R# CE H 56E F 0W12 0805	1
R 2	P201057	R# CE H 56E F 0W12 0805	1
R 3	P201079	R# CE H470E F 0W12 0805	1
R 4	P201055	R# CE H 47E F 0W12 0805	1
R 5	P201079	R# CE H470E F 0W12 0805	1

SIT.	ITEM NO.	DESCRIPTION	QUANTITY
R 6	P201055	R# CE H 47E F 0W12 0805	1
R 7	P201087	R# CE H 1K F 0W12 0805	1
R 8	P201087	R# CE H 1K F 0W12 0805	1
R 9	P201087	R# CE H 1K F 0W12 0805	1
R 10	P201107	R# CE H 6K8 F 0W12 0805	1
R 11	P201107	R# CE H 6K8 F 0W12 0805	1
R 12	P201107	R# CE H 6K8 F 0W12 0805	1
R 16	P201084	R# CE H750E F 0W12 0805	1
R 18	P201084	R# CE H750E F 0W12 0805	1
R 20	P201084	R# CE H750E F 0W12 0805	1
R 22	P201135	R# CE H100K F 0W12 0805	1
R 23	P201118	R# CE H 20K F 0W12 0805	1
R 24	P201079	R# CE H470E F 0W12 0805	1
R 25	P201055	R# CE H 47E F 0W12 0805	1
R 26	P201113	R# CE H 12K F 0W12 0805	1
R 27	P201139	R# CE H150K F 0W12 0805	1
R 28	P201105	R# CE H 5K6 F 0W12 0805	1
R 29	P201129	R# CE H 56K F 0W12 0805	1
R 30	P201113	R# CE H 12K F 0W12 0805	1
R 31	P201105	R# CE H 5K6 F 0W12 0805	1
R 32	P201129	R# CE H 56K F 0W12 0805	1
R 34	P201113	R# CE H 12K F 0W12 0805	1
R 35	P201105	R# CE H 5K6 F 0W12 0805	1
R 36	P201129	R# CE H 56K F 0W12 0805	1
R 38	P201119	R# CE H 22K F 0W12 0805	1
R 39	P201099	R# CE H 3K3 F 0W12 0805	1
R 40	P201099	R# CE H 3K3 F 0W12 0805	1
R 41	P201099	R# CE H 3K3 F 0W12 0805	1
R 42	P201089	R# CE H 1K2 F 0W12 0805	1
R 43	P201072	R# CE H240E F 0W12 0805	1
R 44	P201105	R# CE H 5K6 F 0W12 0805	1
R 45	P201103	R# CE H 4K7 F 0W12 0805	1
R 46	P201063	R# CE H100E F 0W12 0805	1
R 47	P201135	R# CE H100K F 0W12 0805	1
R 48	P201119	R# CE H 22K F 0W12 0805	1
R 49	P201112	R# CE H 11K F 0W12 0805	1
R 50	P201135	R# CE H100K F 0W12 0805	1
R 51	P201146	R# CE H300K F 0W12 0805	1
R 52	P201135	R# CE H100K F 0W12 0805	1
R 53	P201146	R# CE H300K F 0W12 0805	1
R 54	P201087	R# CE H 1K F 0W12 0805	1
R 55	P201146	R# CE H300K F 0W12 0805	1
R 56	P201063	R# CE H100E F 0W12 0805	1
R 57	P201151	R# CE H470K F 0W12 0805	1
R 58	P201151	R# CE H470K F 0W12 0805	1
R 59	P201151	R# CE H470K F 0W12 0805	1
R 60	P201127	R# CE H 47K F 0W12 0805	1
R 61	P201127	R# CE H 47K F 0W12 0805	1
R 62	P201127	R# CE H 47K F 0W12 0805	1
R 63	P201138	R# CE H130K F 0W12 0805	1
R 64	P201138	R# CE H130K F 0W12 0805	1
R 65	P201138	R# CE H130K F 0W12 0805	1
R 66	P201103	R# CE H 4K7 F 0W12 0805	1
R 67	P201087	R# CE H 1K F 0W12 0805	1
R 68	P201111	R# CE H 10K F 0W12 0805	1
R 69	P201095	R# CE H 2K2 F 0W12 0805	1
R 70	P201087	R# CE H 1K F 0W12 0805	1
R 71	P201111	R# CE H 10K F 0W12 0805	1
R 72	P201095	R# CE H 2K2 F 0W12 0805	1
R 73	P201063	R# CE H100E F 0W12 0805	1
R 74	P201091	R# CE H 1K5 F 0W12 0805	1
R 75	P201088	R# CE H 1K1 F 0W12 0805	1
R 76	P201111	R# CE H 10K F 0W12 0805	1
R 77	P201079	R# CE H470E F 0W12 0805	1
R 78	R101544	R MF H 4K7 F 0W4 E3	1
R100	P201099	R# CE H 3K3 F 0W12 0805	1
R101	P201095	R# CE H 2K2 F 0W12 0805	1
R102	P201139	R# CE H150K F 0W12 0805	1
R103	P201139	R# CE H150K F 0W12 0805	1
R104	R101557	R MF H 56K F 0W4 E3	1
R105	R101557	R MF H 56K F 0W4 E3	1
R106	P201111	R# CE H 10K F 0W12 0805	1
R107	R101524	R MF H100E F 0W4 E3	1
R108	P201079	R# CE H470E F 0W12 0805	1
R109	P201055	R# CE H 47E F 0W12 0805	1
R110	P201079	R# CE H470E F 0W12 0805	1
R111	P201135	R# CE H100K F 0W12 0805	1
R112	P201118	R# CE H 20K F 0W12 0805	1
R113	P201111	R# CE H 10K F 0W12 0805	1
R114	P201055	R# CE H 47E F 0W12 0805	1
R115	P201079	R# CE H470E F 0W12 0805	1
R116	R101548	R MF H 10K F 0W4 E3	1
R117	R101548	R MF H 10K F 0W4 E3	1
R118	P201095	R# CE H 2K2 F 0W12 0805	1
R120	P201135	R# CE H100K F 0W12 0805	1
R121	P201127	R# CE H 47K F 0W12 0805	1
R122	P201135	R# CE H100K F 0W12 0805	1
R123	P201127	R# CE H 47K F 0W12 0805	1
R124	P201157	R# CE H820K F 0W12 0805	1
R125	P201131	R# CE H 68K F 0W12 0805	1
R126	P201112	R# CE H 11K F 0W12 0805	1
R127	P201114	R# CE H 13K F 0W12 0805	1
R128	P201116	R# CE H 16K F 0W12 0805	1
R129	P201120	R# CE H 24K F 0W12 0805	1
R130	P201118	R# CE H 20K F 0W12 0805	1
R131	P201111	R# CE H 10K F 0W12 0805	1
R132	P201087	R# CE H 1K F 0W12 0805	1
R133	P201124	R# CE H 36K F 0W12 0805	1
R134	P201143	R# CE H220K F 0W12 0805	1
R135	P201119	R# CE H 22K F 0W12 0805	1
R136	P201087	R# CE H 1K F 0W12 0805	1
R137	P201067	R# CE H150E F 0W12 0805	1
R138	P201123	R# CE H 33K F 0W12 0805	1
R140	P201087	R# CE H 1K F 0W12 0805	1
R141	P201141	R# CE H180K F 0W12 0805	1
R142	P201087	R# CE H 1K F 0W12 0805	1
R143	P201067	R# CE H150E F 0W12 0805	1
R144	P201129	R# CE H 56K F 0W12 0805	1
R145	P201133	R# CE H 82K F 0W12 0805	1
R146	P201119	R# CE H 22K F 0W12 0805	1
R147	P201119	R# CE H 22K F 0W12 0805	1
R148	P201143	R# CE H220K F 0W12 0805	1
R149	P201124	R# CE H 36K F 0W12 0805	1
R150	P201063	R# CE H100E F 0W12 0805	1
R151	P201111	R# CE H 10K F 0W12 0805	1
R152	P201075	R# CE H330E F 0W12 0805	1
R153	P201075	R# CE H330E F 0W12 0805	1
R154	P201111	R# CE H 10K F 0W12 0805	1
R155	P201111	R# CE H 10K F 0W12 0805	1
R156	P201071	R# CE H220E F 0W12 0805	1
R157	P201071	R# CE H220E F 0W12 0805	1
R158	R101524	R MF H100E F 0W4 E3	1
R159	R101520	R MF H 47E F 0W4 E3	1
R160	R101520	R MF H 47E F 0W4 E3	1
R161	P201079	R# CE H470E F 0W12 0805	1
R162	P201055	R# CE H 47E F 0W12 0805	1
R164	P201157	R# CE H820K F 0W12 0805	1
R165	P201111	R# CE H 10K F 0W12 0805	1
R166	P201111	R# CE H 10K F 0W12 0805	1
R167	P201103	R# CE H 4K7 F 0W12 0805	1
R168	P201129	R# CE H 56K F 0W12 0805	1
R169	P201124	R# CE H 36K F 0W12 0805	1
R170	P201111	R# CE H 10K F 0W12 0805	1
R171	P201111	R# CE H 10K F 0W12 0805	1

SIT.	ITEM NO.	DESCRIPTION	QUANTITY
R172	P201111	R# CE H 10K F 0W12 0805	1
R173	P201111	R# CE H 10K F 0W12 0805	1
R174	P201127	R# CE H 47K F 0W12 0805	1
R200	P201056	R# CE H 51E F 0W12 0805	1
R201	P200693	R# CE H 4E7 J 0W12 0805	1
R202	P201063	R# CE H100E F 0W12 0805	1
R203	P200693	R# CE H 4E7 J 0W12 0805	1
R204	P201099	R# CE H 3K3 F 0W12 0805	1
R205	P201031	R# CE H 4E7 F 0W12 0805	1
R206	P201089	R# CE H 1K2 F 0W12 0805	1
R207	P201031	R# CE H 4E7 F 0W12 0805	1
R208	P201083	R# CE H680E F 0W12 0805	1
R209	P201031	R# CE H 4E7 F 0W12 0805	1
R210	P201073	R# CE H270E F 0W12 0805	1
R211	P201031	R# CE H 4E7 F 0W12 0805	1
R212	P201088	R# CE H 1K1 F 0W12 0805	1
R213	P201071	R# CE H220E F 0W12 0805	1
R214	P201107	R# CE H 6K8 F 0W12 0805	1
R215	P200693	R# CE H 4E7 J 0W12 0805	1
R216	P200693	R# CE H 4E7 J 0W12 0805	1
R217	P201066	R# CE H130E F 0W12 0805	1
R218	P201135	R# CE H100K F 0W12 0805	1
R219	P201086	R# CE H910E F 0W12 0805	1
R220	P201057	R# CE H 56E F 0W12 0805	1
R221	P200693	R# CE H 4E7 J 0W12 0805	1
R222	P200693	R# CE H 4E7 J 0W12 0805	1
R223	P201079	R# CE H470E F 0W12 0805	1
R224	P201095	R# CE H 2K2 F 0W12 0805	1
R225	P201079	R# CE H470E F 0W12 0805	1
R226	P201079	R# CE H470E F 0W12 0805	1
R227	P201139	R# CE H150K F 0W12 0805	1
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R229	P201063	R# CE H100E F 0W12 0805	1
R230	P201111	R# CE H 10K F 0W12 0805	1
R231	P201078	R# CE H430E F 0W12 0805	1
R232	P201111	R# CE H 10K F 0W12 0805	1
R233	P201080	R# CE H510E F 0W12 0805	1
R234	P201111	R# CE H 10K F 0W12 0805	1
R235	P201083	R# CE H680E F 0W12 0805	1
R236	P201111	R# CE H 10K F 0W12 0805	1
R237	P201087	R# CE H 1K F 0W12 0805	1
R238	P201075	R# CE H330E F 0W12 0805	1
R239	P201135	R# CE H100K F 0W12 0805	1
R240	P201079	R# CE H470E F 0W12 0805	1
R241	P201061	R# CE H 82E F 0W12 0805	1
R242	P201039	R# CE H 10E F 0W12 0805	1
R243	P201039	R# CE H 10E F 0W12 0805	1
R244	P201087	R# CE H 1K F 0W12 0805	1
R245	P201063	R# CE H100E F 0W12 0805	1
R246	P201103	R# CE H 4K7 F 0W12 0805	1
R247	P201103	R# CE H 4K7 F 0W12 0805	1
R300	P201056	R# CE H 51E F 0W12 0805	1
R301	P200693	R# CE H 4E7 J 0W12 0805	1
R302	P201063	R# CE H100E F 0W12 0805	1
R303	P200693	R# CE H 4E7 J 0W12 0805	1
R317	P201066	R# CE H130E F 0W12 0805	1
R318	P201135	R# CE H100K F 0W12 0805	1
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R321	P200693	R# CE H 4E7 J 0W12 0805	1
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R346	P201103	R# CE H 4K7 F 0W12 0805	1
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R400	P201056	R# CE H 51E F 0W12 0805	1
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R403	P200693	R# CE H 4E7 J 0W12 0805	1
R404	P201099	R# CE H 3K3 F 0W12 0805	1
R405	P201031	R# CE H 4E7 F 0W12 0805	1
R406	P201089	R# CE H 1K2 F 0W12 0805	1
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R408	P201083	R# CE H680E F 0W12 0805	1
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R410	P201073	R# CE H270E F 0W12 0805	1
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R412	P201088	R# CE H 1K1 F 0W12 0805	1
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R414	P201107	R# CE H 6K8 F 0W12 0805	1
R415	P200693	R# CE H 4E7 J 0W12 0805	1
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R417	P201066	R# CE H130E F 0W12 0805	1
R418	P201135	R# CE H100K F 0W12 0805	1
R419	P201086	R# CE H910E F 0W12 0805	1
R420	P201057	R# CE H 56E F 0W12 0805	1
R421	P200693	R# CE H 4E7 J 0W12 0805	1
R422	P200693	R# CE H 4E7 J 0W12 0805	1
R423	P201079	R# CE H470E F 0W12 0805	1
R424	P201095	R# CE H 2K2 F 0W12 0805	1
R425	P201079	R# CE H470E F 0W12 0805	1
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R427	P201139	R# CE H150K F 0W12 0805	1
R428	P201111	R# CE H 10K F 0W12 0805	1
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R435	P201083	R# CE H680E F 0W12 0805	1
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R437	P201087	R# CE H 1K F 0W12 0805	1
R438	P201075	R# CE H330E F 0W12 0805	1
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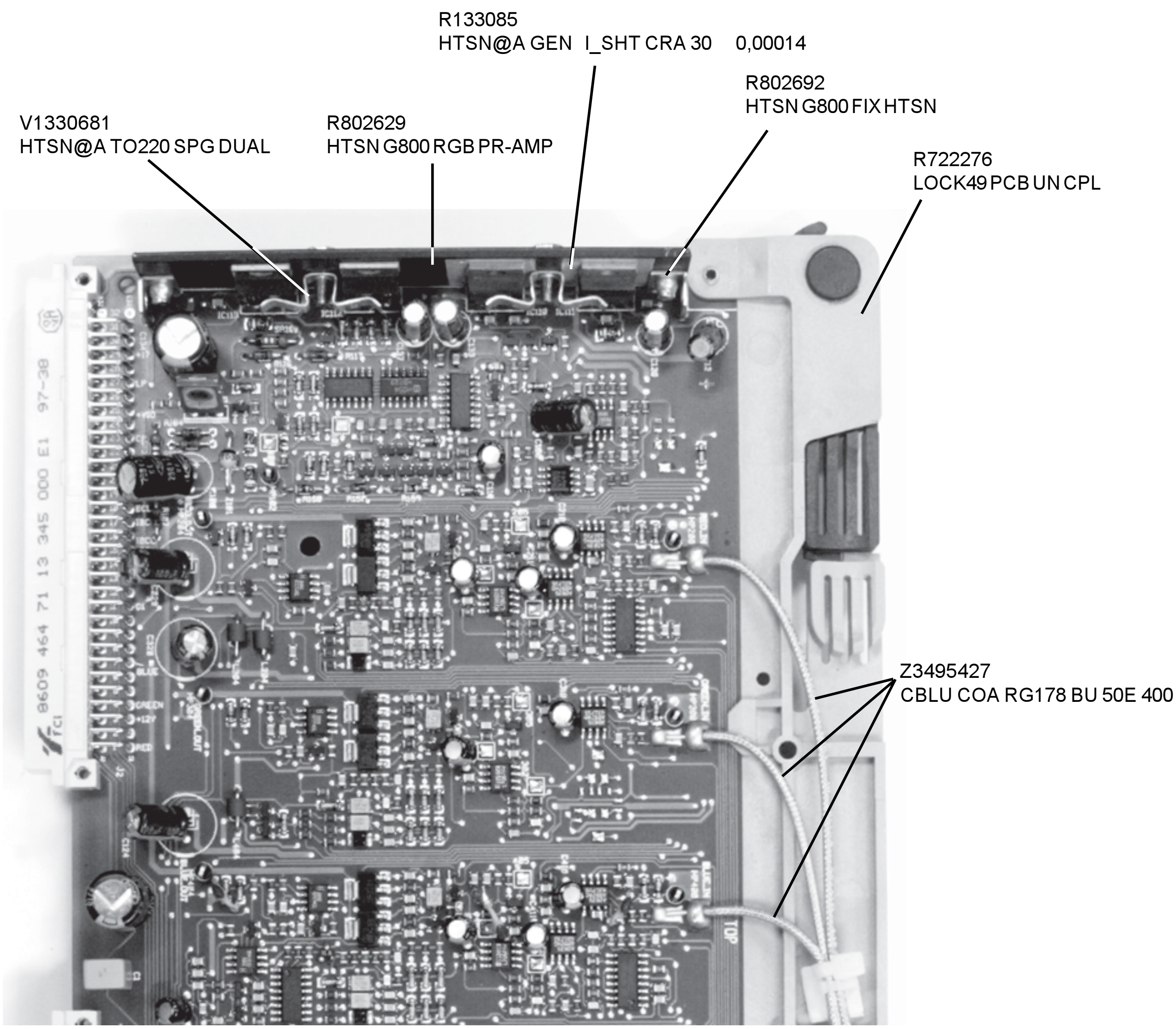
R440	P201079	R# CE H470E F 0W12 0805	1
R441	P201061	R# CE H 82E F 0W12 0805	1
R442	P201039	R# CE H 10E F 0W12 0805	1
R443	P201039	R# CE H 10E F 0W12 0805	1
R444	P201087	R# CE H 1K F 0W12 0805	1
R445	P201063	R# CE H100E F 0W12 0805	1
R446	P201103	R# CE H 4K7 F 0W12 0805	1
R447	P201103	R# CE H 4K7 F 0W12 0805	1

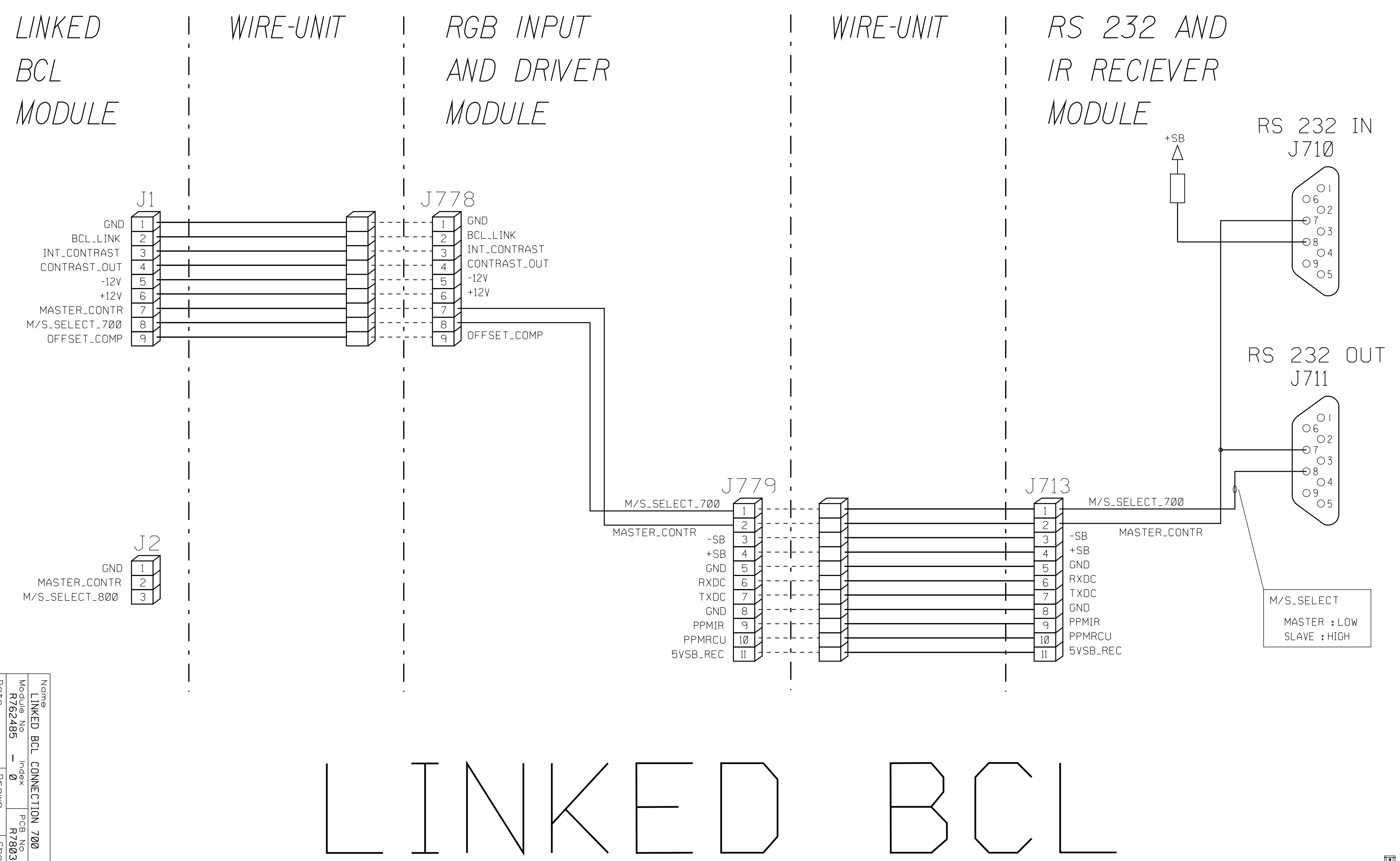
SIT.	ITEM NO.	DESCRIPTION	QUANTITY
R448	P201103	R# CE H 4K7 F 0W12 0805	1
R449	P201103	R# CE H 4K7 F 0W12 0805	1
R450	P201105	R# CE H 5K6 F 0W12 0805	1
R451	P201105	R# CE H 5K6 F 0W12 0805	1
R452	P201103	R# CE H 4K7 F 0W12 0805	1
R453	P201039	R# CE H 10E F 0W12 0805	1
R454	P201088	R# CE H 1K1 F 0W12 0805	1
R455	P201093	R# CE H 1K8 F 0W12 0805	1
R456	P201101	R# CE H 3K9 F 0W12 0805	1
R457	P200693	R# CE H 4E7 J 0W12 0805	1
R458	R101519	R MF H 39E F 0W4 E3	1
R458	R101519	R MF H 39E F 0W4 E3	1

SIT.	ITEM NO.	DESCRIPTION	QUANTITY
SR10	R1011907	R CFFH E1 K 0W35	⚠ 1
SR11	R1011907	R CFFH E1 K 0W35	⚠ 1
Z 1	P234164	D#ZEN 5V6 0W5 C DMMELF	1
Z 2	P234164	D#ZEN 5V6 0W5 C DMMELF	1
Z 3	P234179	D#ZEN 20V 0W5 C DMMELF	1
Z100	P234089	D#ZEN 13V 0W5 C DMMELF	1
Z101	R131771	D ZEN 150V 3W25 C SOD57	1

PRODUCT SAFETY NOTICE

Components identified by ⚠ have SPECIAL CHARACTERISTICS IMPORTANT TO SAFETY. Before replacing any of these components, read carefully the ser-vice safety precautions.



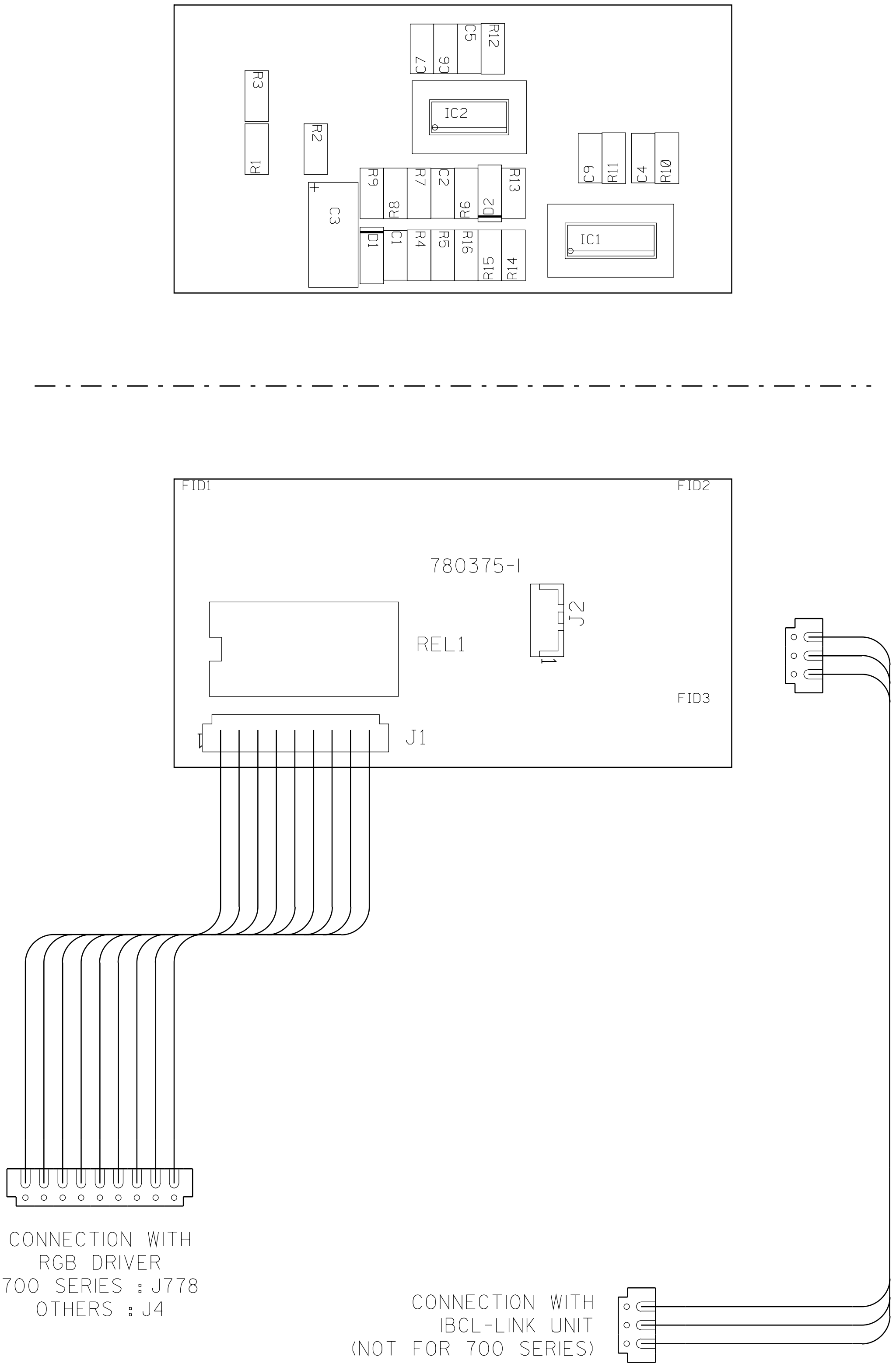


Modifications reserved

Name: LINKED BCL CONNECTION 700		Sheet: 1/1
Module No: R762485	Index: 0	PCB No: R780375 Rev: 1
Date: 26-11-1997	Drawn: JVDY	Checked: PDGY

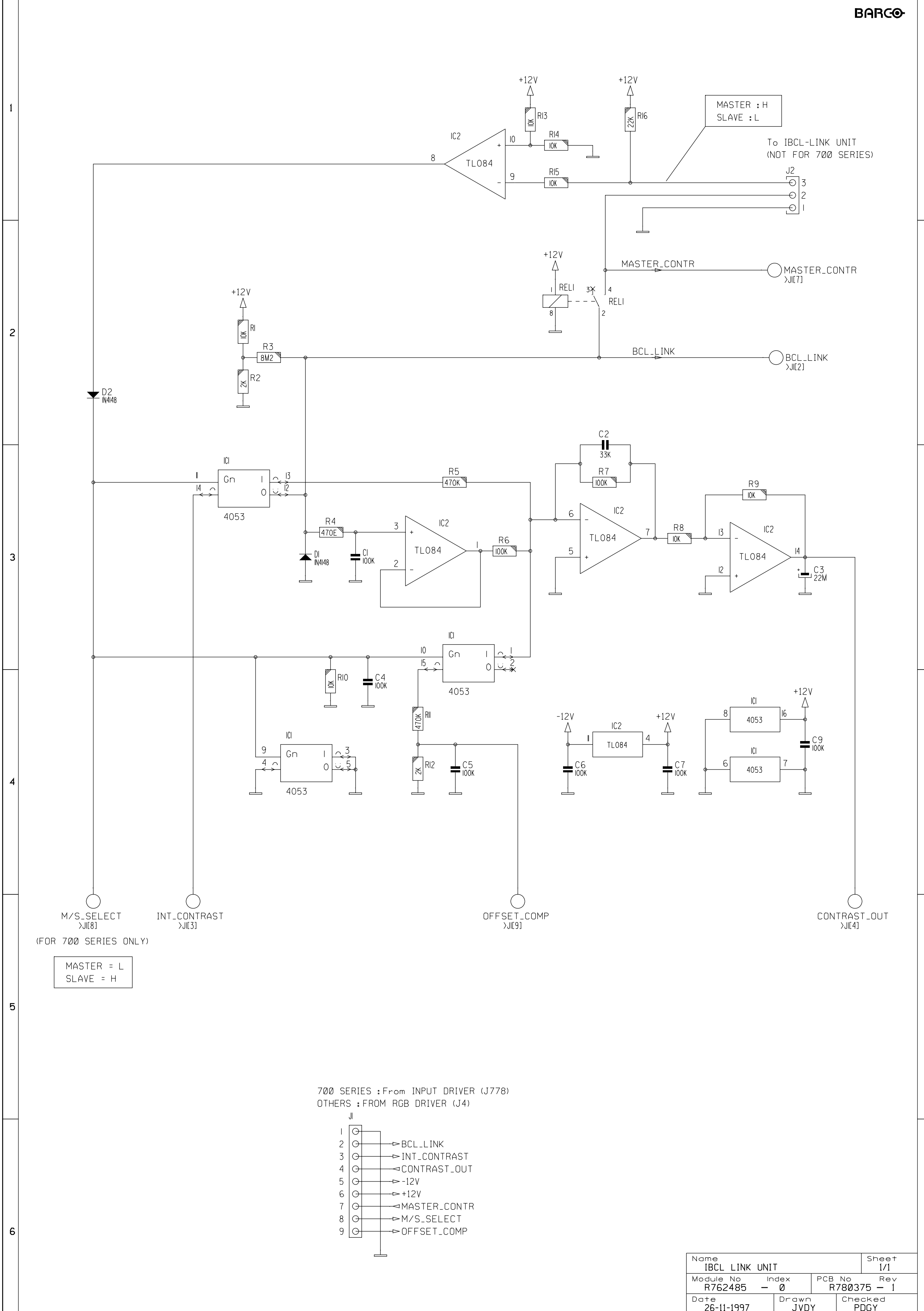
BARCO PROJECTION SYSTEMS

BARCO



Name				Sheet
LINKED BCL UNIT				1 / 1
Module No R762485	Index — 0	PCB No R780375	Rev — 1	
Date 26-11-1997	Drawn JVDY	Checked PDGY		
BARCO PROJECTION SYSTEMS				

Modifications reserved



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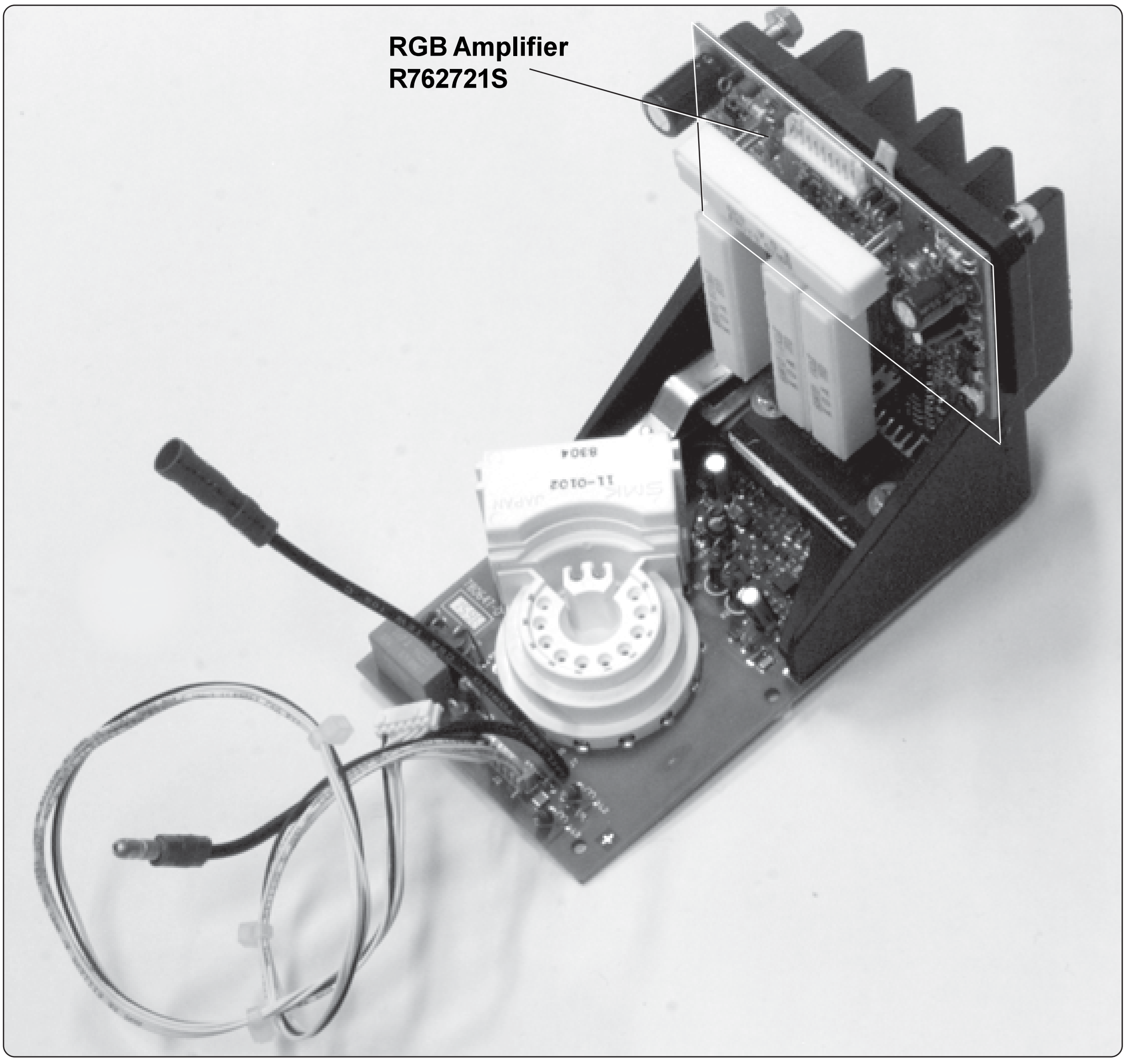
Module No R762485	Index – 0	PCB No R780375 Rev – 1
Date 26-11-1997	Drawn JVDY	Checked PDGY

BARCO PROJECTION SYSTEMS

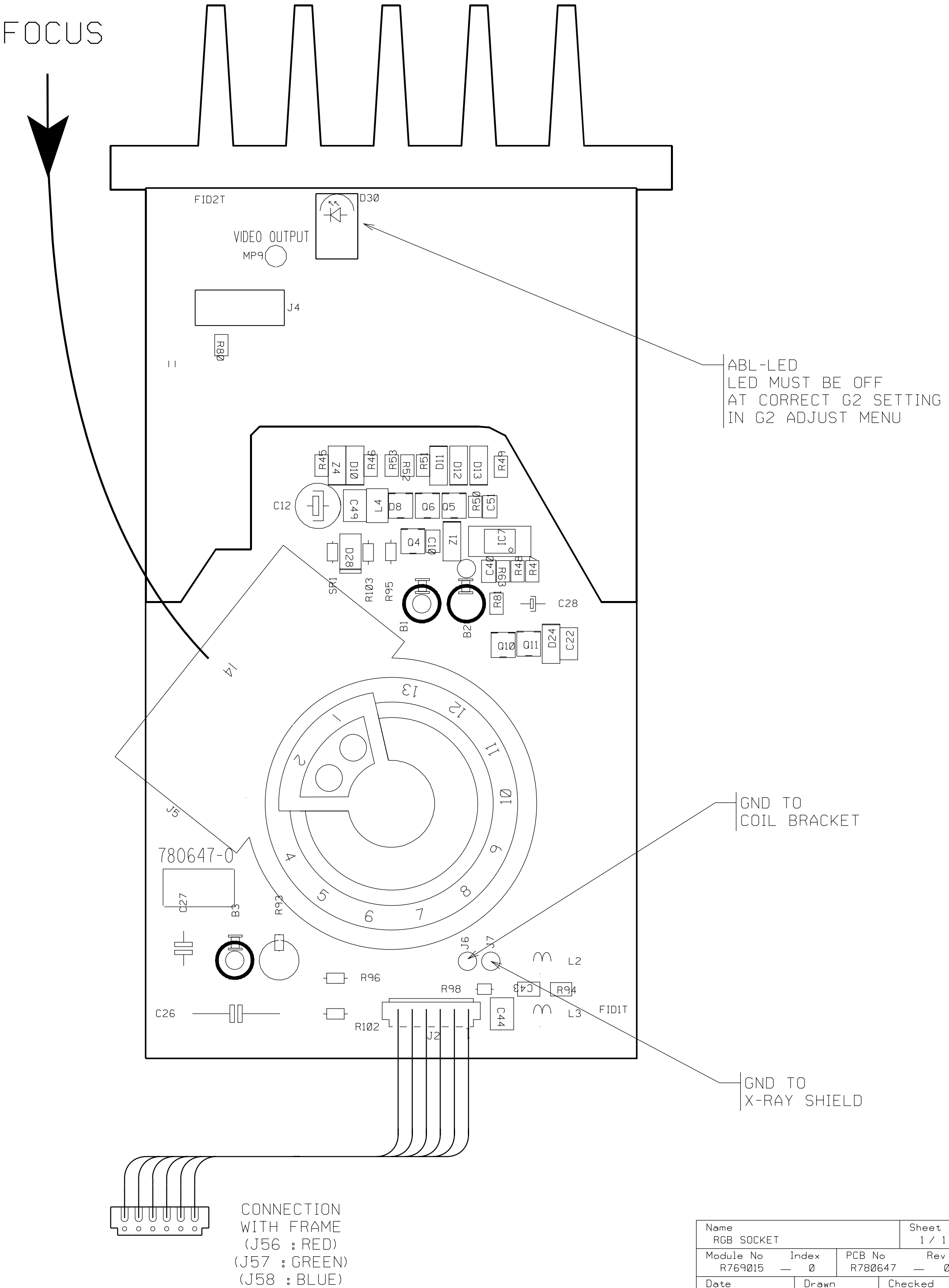
Modifications reserved


RGB Amplifier
R762721S

BARCO

RGB SOCKET

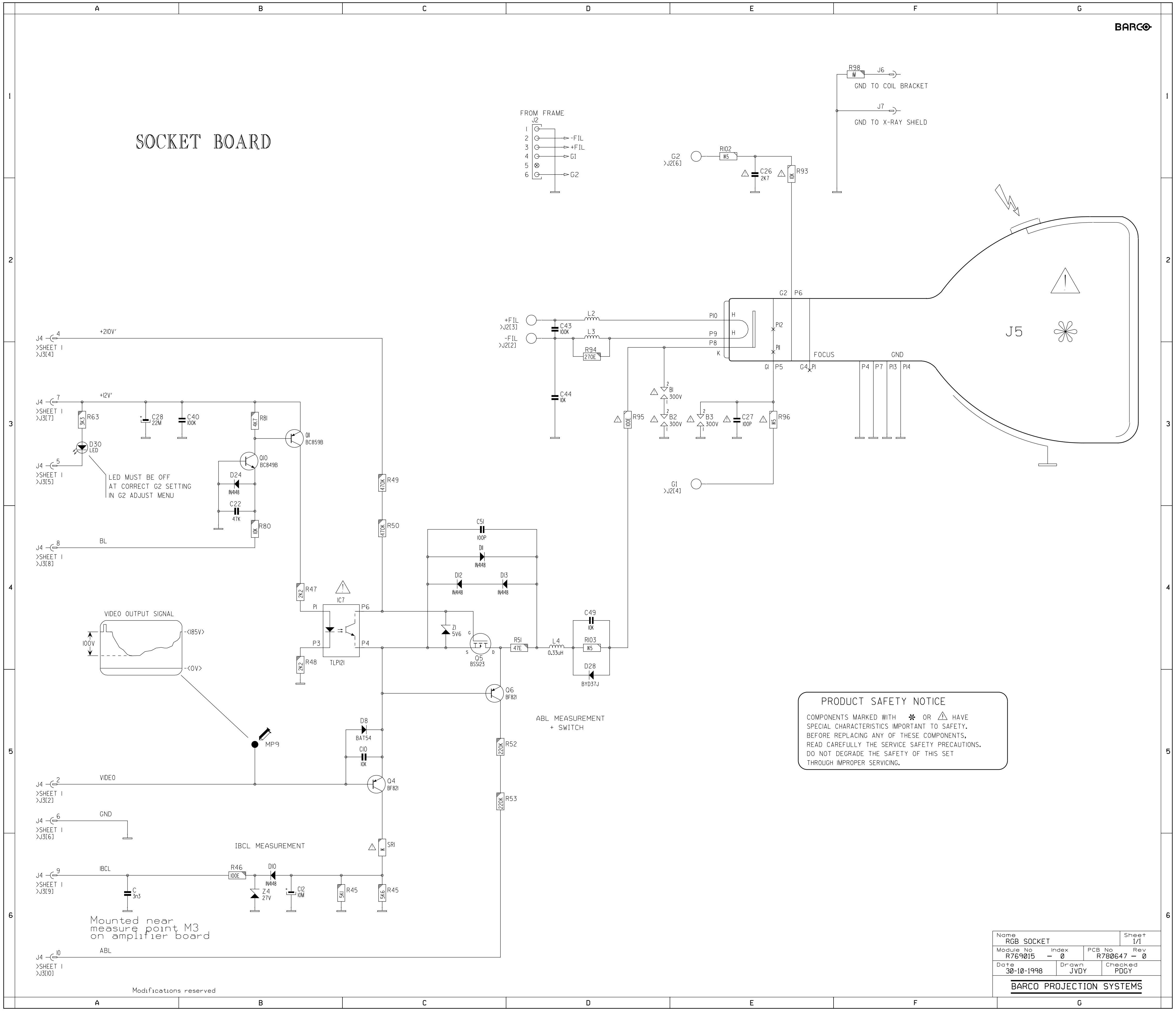
TOP VIEW



Modifications reserved

Name			Sheet
RGB SOCKET			1 / 1
Module No	Index	PCB No	Rev
R769015	0	R780647	0
Date	Drawn	Checked	
30-10-1998	JVDY	PDGY	

BARCO PROJECTION SYSTEMS



COMP.	LOC.	SHT.
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B3	E 3	2
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C2	D 3	1
C3	D 2	1
C5	D 4	1
C6	E 3	1
C7	E 3	1
C8	F 1	1
C10	C 5	2
C12	B 6	2
C13	H 6	1
C14	F 6	1
C15	F 6	1
C16	G 3	1
C17	H 5	1
C18	H 5	1
C19	E 4	1
C20	C 4	1
C21	C 5	1
C22	B 3	2
C23	A 1	1
C24	C 1	1
C25	C 1	1
C26	E 1	2
C27	E 3	2
C28	A 3	2
C29	I 2	1
C30	G 1	1
C31	I 1	1
C32	I 2	1
C33	I 2	1
C34	H 1	1
C35	H 2	1
C36	H 2	1
C37	G 2	1
C38	G 2	1
C39	G 1	1
C40	B 3	2
C41	G 2	1
C42	H 2	1
C43	D 2	2
C44	D 3	2
C45	D 4	1
C46	D 2	1
C47	D 2	1
C48	D 2	1
C49	D 4	2
C50	E 3	1
C51	C 4	2
C52	D 3	1
D1	B 2	1
D2	B 3	1
D3	B 3	1
D4	E 2	1
D5	E 2	1
D6	E 3	1
D7	E 3	1
D8	C 5	2
D10	B 6	2
D11	C 4	2
D12	C 4	2
D13	C 4	2
D14	H 6	1
D15	H 6	1
D16	F 6	1
D17	F 6	1
D18	F 6	1
D22	H 4	1
D23	H 4	1
D24	B 3	2
D25	A 1	1
D26	F 1	1
D27	F 3	1
D28	D 4	2
D30	A 3	2
IC1	D 3	1
IC2	B 2	1
IC2	B 3	1
IC2	I 2	1
IC2	I 2	1
IC2	I 2	1
IC3	E 4	1
IC3	G 1	1
IC3	D 4	1
IC4	E 4	1
IC4	F 3	1
IC4	G 5	1
IC4	I 2	1
IC4	I 2	1
IC5	G 2	1
IC5	H 3	1
IC5	H 4	1
IC6	G 3	1
IC6	G 2	1
IC6	C 1	1
IC7	B 4	2
IC8	H 1	1
IC9	G 4	1
IC9	G 2	1
IC9	H 5	1
IC10	A 5	1
IC10	G 1	1
IC10	B 5	1
J1	A 6	1
J2	D 1	2
J3	B 1	1
J3	B 1	1
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J3	B 1	1
J3	I 6	1
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J3	I 3	1
J3	I 4	1
J4	A 3	2
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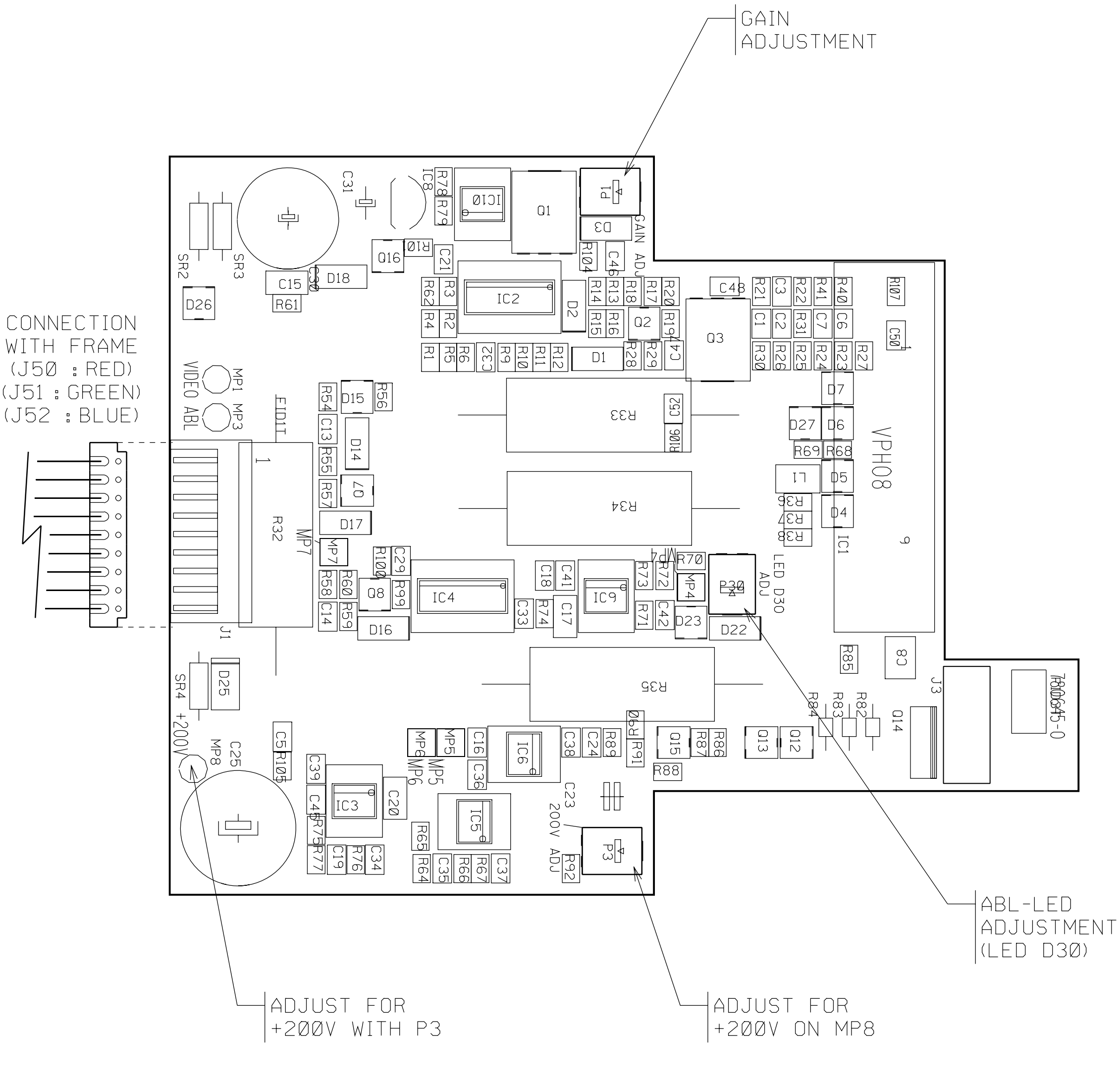
J4	A 5	2
J4	A 5	2
J4	A 4	2
J4	A 3	2
J4	A 6	2
J4	A 6	2
J5	G 2	2
J6	F 1	2
J7	F 1	2
L1	E 1	1
L2	D 2	2
L3	D 2	2
L4	D 4	2
MP1	B 3	1
MP3	I 6	1
MP4	F 4	1
MP5	C 4	1
MP6	E 6	1
MP7	G 6	1
MP8	D 1	1

COMP.	LOC.	SHT.
MP9	B 5	2
P1	C 3	1
P3	D 2	1
P30	F 4	1
Q1	B 3	1
Q2	C 3	1
Q3	D 2	1
Q4	C 5	2
Q5	C 4	2
Q6	D 5	2
Q7	H 6	1
Q8	F 6	1
Q10	B 3	2
Q11	B 3	2
Q12	C 1	1
Q13	C 1	1
Q14	C 1	1
Q15	C 1	1
Q16	C 5	1
R1	A 3	1
R2	A 3	1
R3	A 3	1
R4	A 3	1
R5	A 3	1
R6	B 3	1
R9	A 2	1
R10	A 2	1
R11	A 2	1
R12	A 2	1
R13	C 2	1
R14	C 2	1
R15	C 3	1
R16	C 3	1
R17	C 3	1
R18	C 3	1
R19	C 2	1
R20	C 2	1
R21	D 3	1
R22	D 3	1
R23	D 3	1
R24	D 3	1
R25	D 3	1
R26	D 3	1
R27	D 3	1
R28	D 3	1
R29	D 3	1
R30	C 3	1
R31	D 3	1
R32	E 1	1
R33	E 1	1
R34	E 1	1
R35	E 1	1
R36	E 1	1
R37	E 1	1
R38	E 1	1
R40	E 3	1
R41	E 3	1
R45	C 6	2
R46	B 6	2
R47	B 4	2
R48	B 4	2
R49	C 3	2
R50	C 4	2
R51	D 4	2
R52	D 5	2
R53	D 5	2
R54	H 6	1
R55	H 6	1
R56	H 6	1
R57	H 6	1
R58	F 6	1
R59	F 6	1
R60	F 6	1
R61	F 6	1
R62	F 6	1
R63	A 3	2
R64	H 3	1
R65	H 3	1
R66	H 4	1
R67	H 4	1
R68	F 3	1
R69	F 3	1
R70	F 3	1
R71	H 5	1
R72	G 5	1
R73	G 5	1
R74	H 5	1
R75	D 4	1
R76	D 4	1
R77	D 4	1
R78	C 5	1
R79	B 5	1
R80	B 4	2
R81	B 3	2
R82	C 1	1
R83	C 1	1
R84	C 1	1
R85	C 1	1
R86	C 1	1
R87	C 1	1
R88	C 2	1
R89	C 1	1
R90	D 1	1
R91	D 1	1
R92	D 2	1
R93	E 1	2
R94	D 3	2
R95	D 3	2
R96	E 3	2
R98	F 1	2
R99	H 2	1
R100	H 2	1
R101	C 5	1
R102	E 1	2
R103	D 4	2
R104	B 3	1
R105	D 4	1
R106	D 3	1
R107	E 3	1
SR1	C 6	2
SR2	G 1	1
SR3	A 1	1
SR4	A 1	1
Z1	C 4	2
Z4	B 6	2

RGB OUTPUT AMPLIFIER



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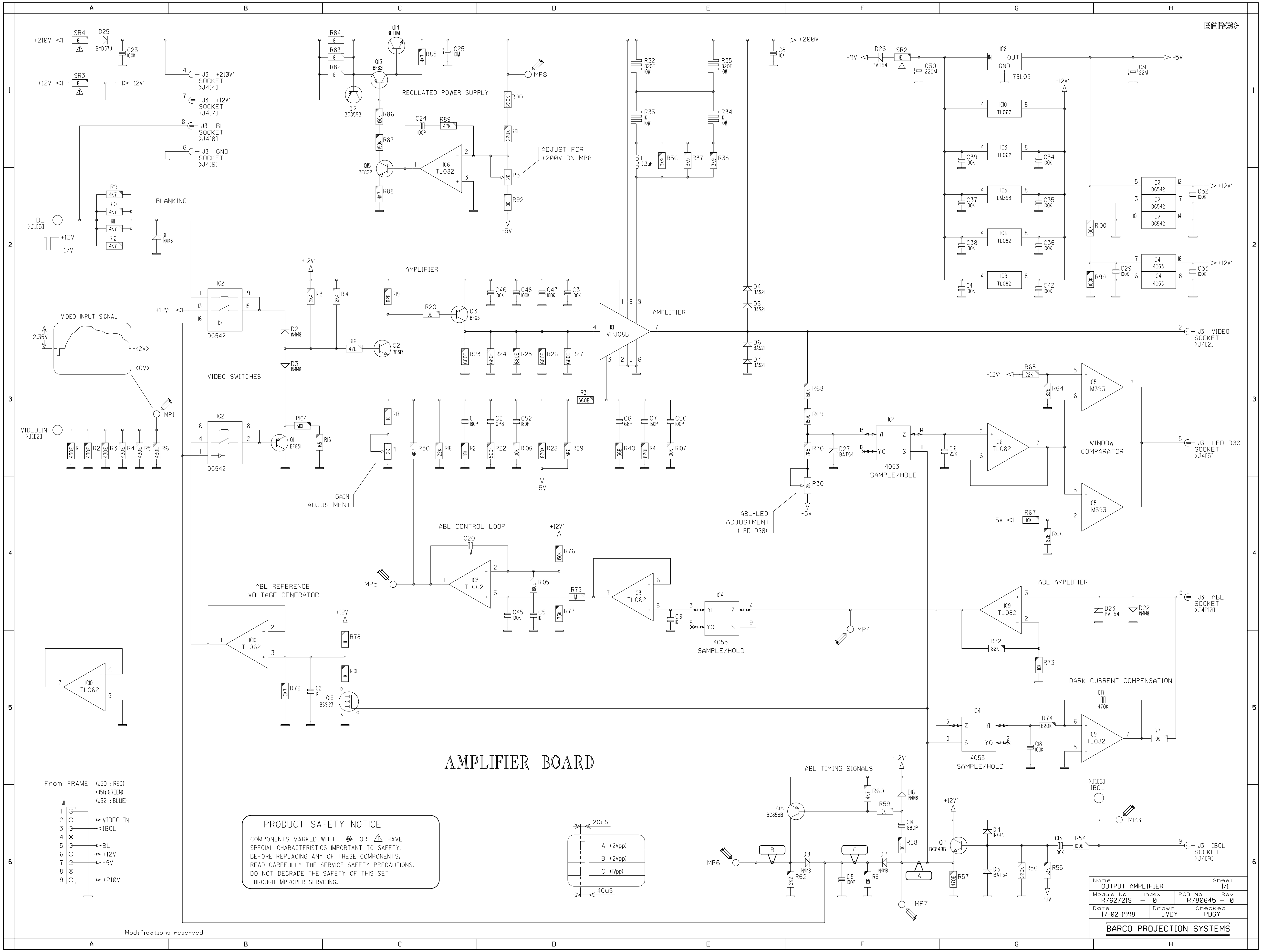
Module No R762721S	Index — 0	PCB No R780645	Rev — 0
Date 02-03-1998	Drawn JVDY	Checked PDGY	
BARCO PROJECTION SYSTEMS			

Modifications reserved



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OUTPUT AMPLIFIER		1/1
Module No R762721S	Index Ø	PCB No R780645	Rev Ø
Date 17-02-1998	Drawn JVDY	Checked PDGY

BARCO PROJECTION SYSTEMS

COMP.	LOC.
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C2	D 3
C3	D 2
C5	D 4
C6	D 3
C7	E 3
C8	E 1
C13	G 6
C14	F 6
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C16	G 3
C17	H 5
C18	G 5
C19	E 4
C20	C 4
C21	B 5
C23	A 1
C24	C 1
C25	C 1
C29	H 2
C30	F 1
C31	H 1
C32	H 2
C33	H 2
C34	G 1
C35	G 2
C36	G 2
C37	G 2
C38	G 2
C39	G 1
C41	G 2
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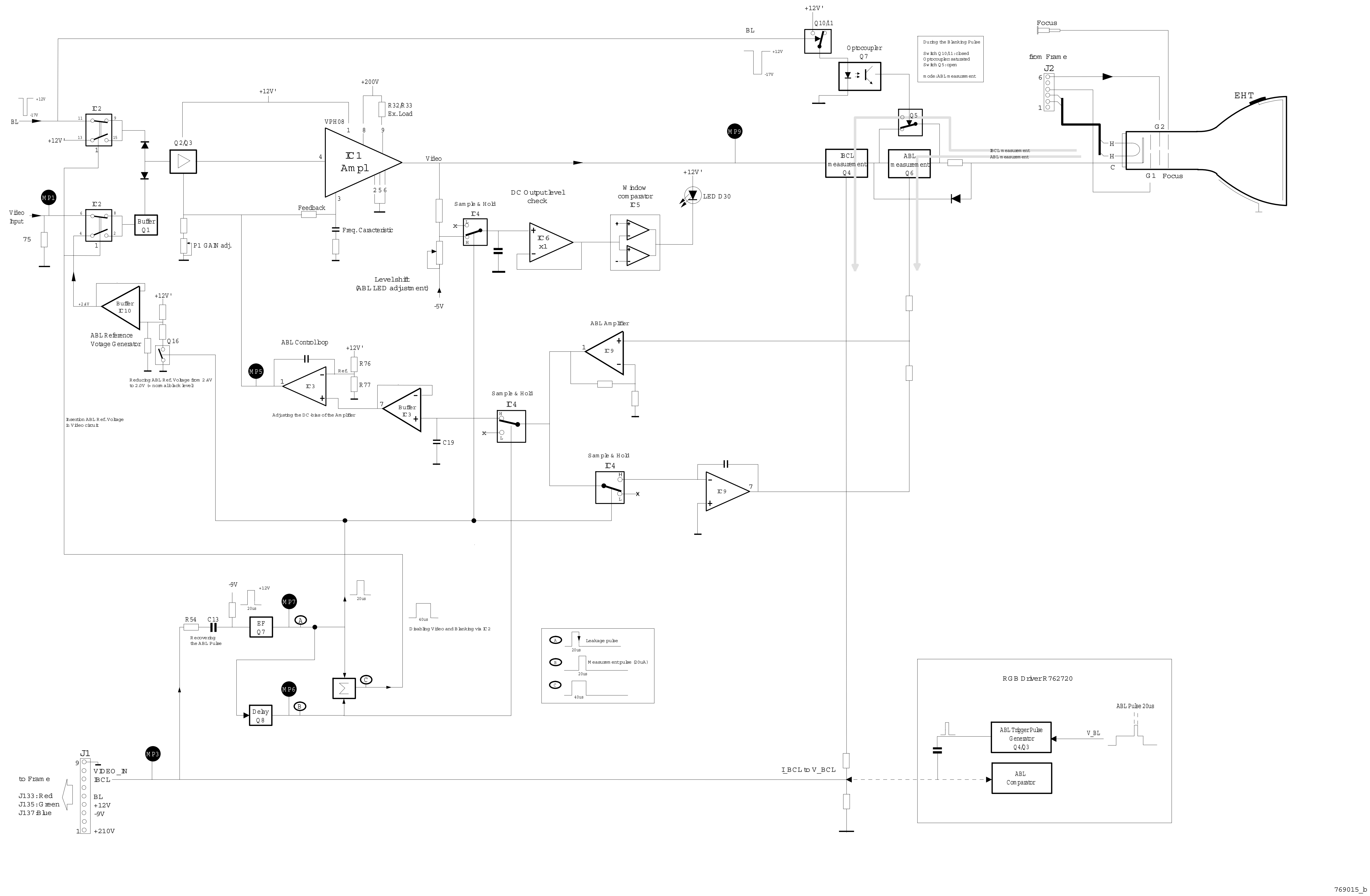
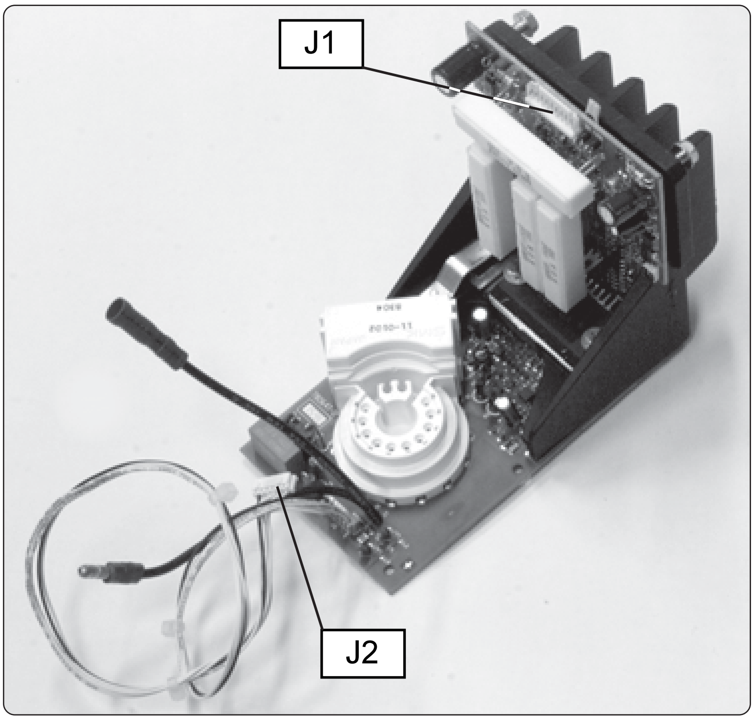
IC2	H 2
IC2	H 2
IC2	H 2
IC3	E 4
IC3	C 4
IC3	G 1
IC4	F 3
IC4	E 4
IC4	G 5
IC4	H 2
IC4	H 2
IC5	G 2
IC5	G 4
IC5	G 3
IC6	C 1
IC6	G 3
IC6	G 2
IC8	G 1
IC9	G 5
IC9	G 4
IC9	G 2
IC10	B 5
IC10	A 5
IC10	G 1
J1	A 6
J3	B 1
J3	B 1
J3	B 1
J3	B 1
J3	H 6
J3	H 3
J3	H 3
J3	H 4
L1	E 1
MP1	A 3
MP3	H 6
MP4	F 4
MP5	C 4
MP6	E 6
MP7	F 6
MP8	D 1
P1	C 3
P3	D 2
P30	F 4
Q1	B 3
Q2	C 3
Q3	C 2
Q7	G 6
Q8	E 6
Q12	C 1
Q13	C 1
Q14	C 1
Q15	C 1
Q16	C 5
R1	A 3
R2	A 3
R3	A 3
R4	A 3
R5	A 3
R6	A 3
R9	A 2
R10	A 2
R11	A 2
R12	A 2
R13	B 2
R14	C 2
R15	C 3
R16	C 3
R17	C 3
R18	C 3
R19	C 2
R20	C 2
R21	C 3
R22	D 3
R23	C 3
R24	D 3
R25	D 3

COMP.	LOC.
R26	D 3
R27	D 3
R28	D 3
R29	D 3
R30	C 3
R31	D 3
R32	E 1
R33	E 1
R34	E 1
R35	E 1
R36	E 1
R37	E 1
R38	E 1
R40	D 3
R41	E 3
R54	G 6
R55	G 6
R56	G 6
R57	G 6
R58	F 6
R59	F 6
R60	F 6
R61	F 6
R62	F 6
R64	G 3
R65	G 3
R66	G 4
R67	G 4
R68	F 3
R69	F 3
R70	F 3
R71	H 5
R72	G 5
R73	G 5
R74	G 5
R75	D 4
R76	D 4
R77	D 4
R78	C 5
R79	B 5
R82	C 1
R83	C 1
R84	C 1
R85	C 1
R86	C 1
R87	C 1
R88	C 2
R89	C 1
R90	D 1
R91	D 1
R92	D 2
R99	H 2
R100	H 2
R101	C 5
R104	B 3
R105	D 4
R106	D 3
R107	E 3
SR2	F 1
SR3	A 1
SR4	A 1

Blockdiagram RGB Output+Socket



Interconnections



Connector J1				
Pin naming	**Pin NR**	**In/Output**	**Description**	**Signal specifications**
VIDEO_IN	2	IN	Video input signal from RGB driver	Black:2V Video: 4Vpp
IBCL	3	OUT	IBCL info to driver	0.7V DC
		IN	ABL trigger Pulse (AC coupled)	12Vpp/20us
BL	5	IN	Composite Blanking pulses	12V: no Blanking -17V: Blanking
+12V	6		Power Voltage +12V	+12V DC
-9V	7		Power Voltage -9V	-9V DC
+210V	9		Power Voltage +210V	+210V DC

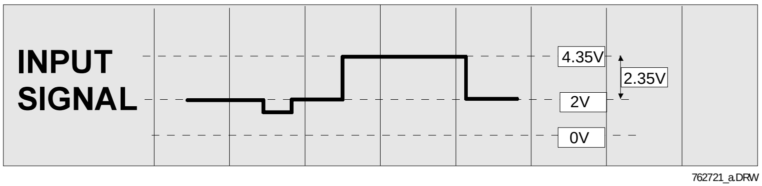
Connector J2				
Pin naming	**Pin NR**	**In/Output**	**Description**	**Signal specifications**
-FIL	2	IN	Heater voltage floating on the 100V	6.3V
+FIL	3	IN	Heater voltage floating on the 100V	6.3V
G1	4	IN	G1 Voltage	+0.7V normal -150V when power down
G2	6		G2 Voltage	+500...1000V DC

Adjustment procedure

Preparation

Supply an external signal to the projector (e.g. a color bar signal)

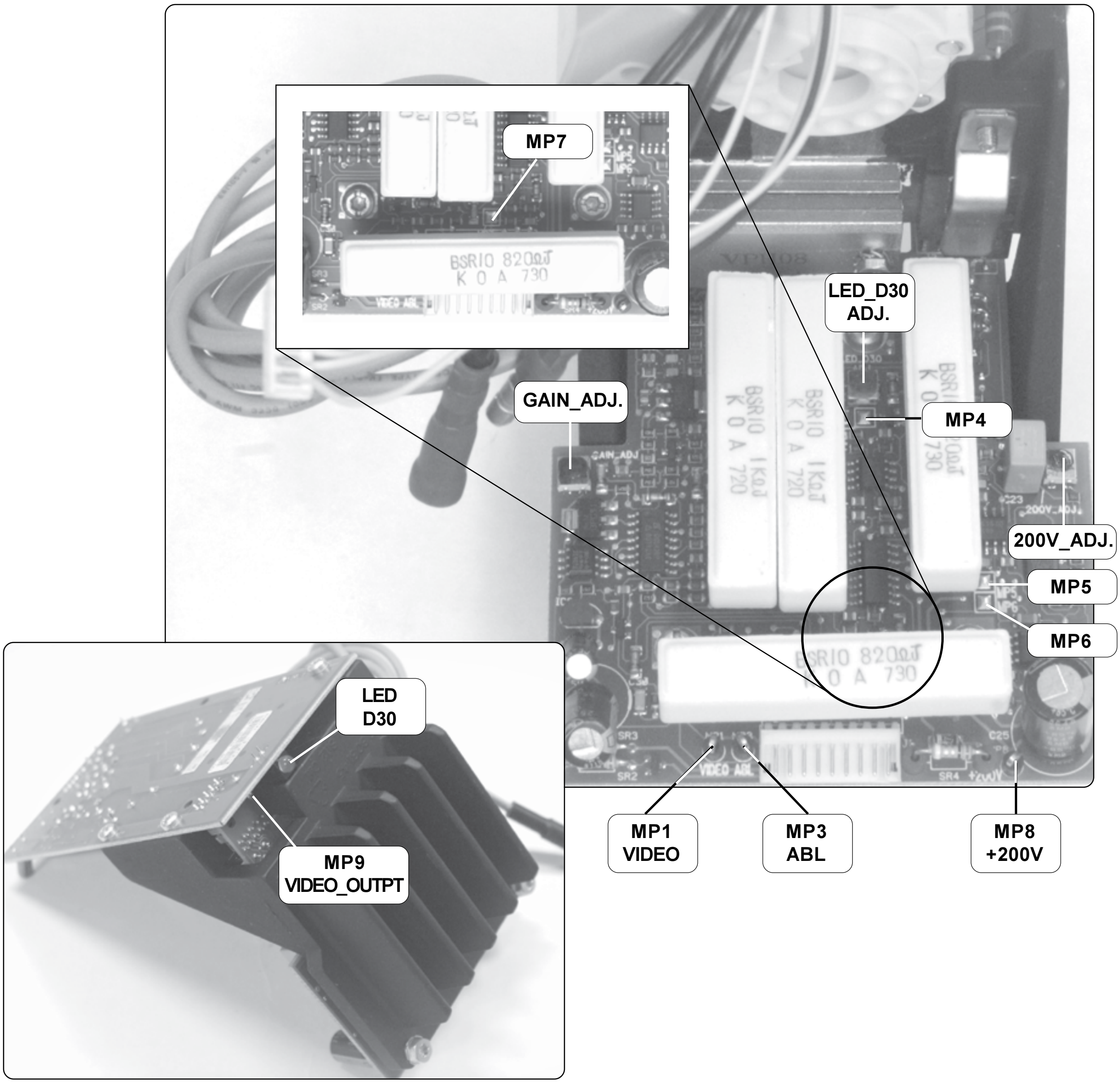
Connect the first measuring probe to the video input signal, testpoint TP1 'VIDEO_IN'.



Adjust the projector brightness control until the DC blacklevel of the video input signal reaches 2V.

Adjust the contrast control until the video input signal information reaches an amplitude of 2.35V.

Location of controls



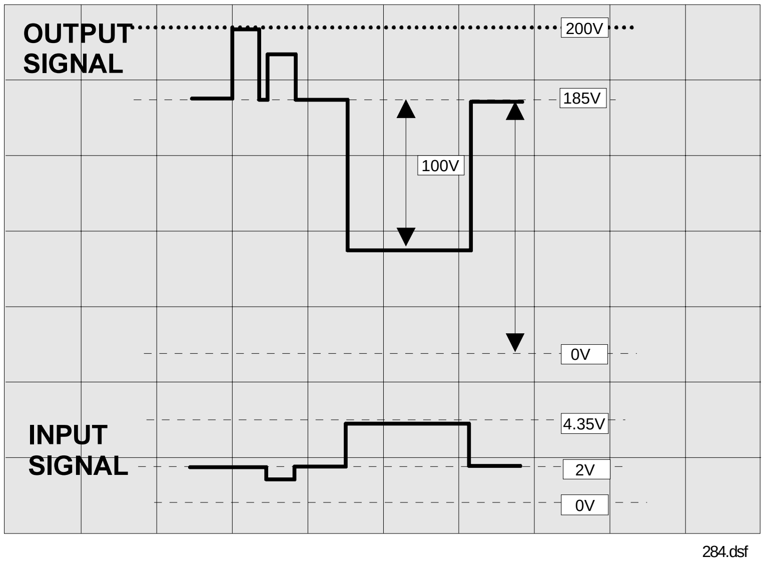
Adjustments

Adjustment of the +200V (Regulated Power Supply)

- Connect a voltmeter to the measurement Eye contact MP8.
- Adjust the potentiometer P3 for +200V on MP8.

Adjustment of the signal GAIN for each output Amplifier

- Connect the oscilloscope probe to the measurement Eye contact MP9 'VIDEO OUT'
- Adjust the potentiometer P1 for an amplitude of the output signal of 100Vpp



UPPER TRACK:
e.g. Green output signal

LOWER TRACK:
e.g. Green input signal

Adjustment of the ABL_LED

IMPORTANT: No oscilloscope probe connected to the Eye contact of the respective picture tube.

Adjust the potentiometer P30 until the LED D30 'ABL_LED' just stops lighting up.

Technical description Video Amplifier R769015

Video Amplifier

The video signal arrives at pin 2 of J1 and is terminated into 75Ω the resistors R1...6. The first half of IC2 switches the base of Q2 between this video signal (no ABL-Automatic Black Level) and the reference voltage on pin 1 of IC10 (during ABL).

Via buffer Q1 and D3, the signal is fed to the input of a non-inverting amplifier formed by Q2 and Q3. The diode D3 serves as protection for Q1 against high inverse Vbe voltage during blanking. The resistors R13, R14 form together with R15 and R104 a divider that is chosen to limit the voltage at the emitter of the transistor Q1 during overdrive conditions of the input. This prevents saturation of the amplifier.

The amplified signal arrives at pin 4 of the VPH08. Feedback for the previous amplifier is taken from pin 3 of the VPH08. The potentiometer P1 determines the GAIN and C1/R21 improve the frequency response.
IC1 (VPH08) is a cascode class A amplifier with built in buffer stage and external load resistor, formed by R32...35.
Via pin 2 of J3 and J4, the signal goes to the IBCL (Individual Beam Current Limiting) and ABL measurements stages and finally arrives at the cathode of the CRT. The components D4..D7,C49, R103, D28, B1, B2 and R95 protect the amplifier against arcing.

IBCL measurement

With the transistor Q4, the mean cathode current is measured. The current flows via D12, D13 and Q5 and through Q4 to R45. There, the current is converted into a voltage and is sent to the RGB driver module. The capacitor C10 prevents high frequency currents to flow through Q4. The resistor R46 and zener Z4 form a protection network.

ABL measurement+ Switch

During the non-ABL period, the base-emitter junction of the transistor Q6 is shorted by the transistor Q5. The cathode current flows through R51 and Q5 to the IBCL measurement stage. If the cathode current is high, the voltage drop across the resistor R51 increases and D12/D13 also come into conduction. The gate of Q5 is held at +5.6V with Z1 and R49/R50.
During the ABL interval, the optocoupler IC7 comes into conduction and shorts the gate-source of Q5. Now the cathode current can flow through the transistor Q6, R52 and R53 to the ABL control loop. By shorting the transistor Q6 outside the ABL interval, smearing is prevented.
The optocoupler is controlled by the circuit around the transistors Q10 and Q11. During the blanking, the BL-signal (Blanking) is negative (-15V). The pulse is integrated by R80/C22. During the blanking, the BL-signal is wide enough to get Q10, Q11 and IC7 into conduction until some time after the vertical blanking.

ABL Control Loop

This circuit has to keep the cathode current just above the black level constant. The ABL measurement is performed at the end of the vertical flyback, when the electon beam is moved outside the phosphor screen of the CRT in order not to see these measurements lines.
The ABL interval is initiated by a 12V pulse of 20µs, which is AC coupled on the IBCL line. The pulse is coupled via R54 and C13 to the base of Q7. The resistor R55 keeps the diode D15 into conduction if there is no pulse to prevent false triggering. The pulse at the emitter of Q7 and MP7 is used to perform the leakage current measurement and is now called leakage pulse. With the trailing edge of this pulse, the transistor Q8 starts to conduct through the network C14, R59 and R60 for about 20µs. This pulse at MP6 is now called the measurement pulse. The total ABL interval is 40µs wide and is electrically formed by D17, D18 on R61 and C15.

This pulse is used to inhibit the blanking and to switch Q1 to the reference voltage. This voltage is formed by R78 and R79 during the measurement pulse and is then +2.4V.

During the leakage measurement is transistor Q16 in conduction and lowers this reference with R101 to +2.0V. IC10 buffers this voltage and can sink the base current of Q1.
The leakage current enters the control loop through pin 10 ofJ3/J4 and is converted to a voltage with R71. This voltage is first amplified with IC9 pins 1, 2 and 3 with a factor 90. The diodes D22 and D23 limit the input levels.

During the leakage measurement the emitter of the transistor Q7 is high and pins 1, 10 of the switch IC4 are closed. The amplified voltage comes on C18 and is compared with ground by IC9, pins 5, 6 and 7 which adjusts the bottom of R71 until steady state. This system compensates for leakage currents that might flow out of the cathode.

During the measurement pulse is the level at MP6 high and the switch IC4 pin 3, 4 and 9 is closed. The input reference is now 2.4V at the base of the transistor Q1 and this should give a cathode current of about 20µs.

The amplified voltage that corresponds to this current comes on capacitor C19 and is buffered by IC3 pin 5, 6 and 7. The voltage is compared by IC3 pin 1, 2 and 3 with a reference and adjusts the output DC level at the collector of Q3 trough R30.

During the leakage measurement the input voltage at Q1 is equal to 2V, and the output voltage should be 185V. This voltage is divided with R68, R69, R70 and P30 to 0V. This voltage is buffered by IC6 pins 5, 6, 7, and compared by the comparators IC5 with 2 references. The potentiometer P30 is aligned so that the LED D30 is turned off at an output black level of +185V. The G2 potentiometers can then easily be adjusted (if the LED D30 turns off, the G2 is at the correct level because the cathode is at 185V black level.

Regulated Power Supply

The Power Supply had to be regulated to guarantee the performance of the VPH08 and to eliminate variations on the +210V Power Supply. The +200V is divided by R90, R91, R92 and P3 to 0V and compared with ground by IC6 pins 1, 2 and 3. If the output voltage is too low, pin 1 goes higher and more current is flowing through Q15, Q13 and Q14 as to raise the output until steady state. The transistor Q12 limits the peak current.

Parts listing RGB Out/ABL+CRT R769015

SIT.	ITEM NO.	DESCRIPTION	QUANTITY
	R348019	CBLA TIE B L100 W2,4 -	3
	R721632	D ACC SPR D5 LED	3
	R762721S	**UN G808S RGB AMP**	**1**
B 1	R1312651	SURGE ARRESTER 300V RA	1
B 2	R1312651	SURGE ARRESTER 300V RA	1
B 3	R1312651	SURGE ARRESTER 300V RA	1
C	R115928	C PP RA 3N3J 63E2 85	1
C 10	P210041	C# X7R MU 10N K 50 0805	1
C 12	R111531	C EL RA 10M M 35E2 85	1
C 22	P210045	C# X7R MU 47N K 50 1206	1
C 26	R1117674	C PPMERA 2N7J162E6 HV	1
C 27	R1120902	C CE DI 100P K202E3 HV	1
C 28	R111510	C EL RA 22M M 25E2 85	1
C 40	P210227	C# Z5U MU 100N Z 50 0805	1
C 43	P210227	C# Z5U MU 100N Z 50 0805	1
C 44	P210220	C# X7R MU 10N K500 1210	1
C 49	P210220	C# X7R MU 10N K500 1210	1
C 51	P210021	C# C0G MU 100P J 50 0805	1
D 8	P234055	D#BAT54 SCH SOT23	1
D 10	P234099	D#4148 R DMMELF	1
D 11	P234099	D#4148 R DMMELF	1
D 12	P234099	D#4148 R DMMELF	1
D 13	P234099	D#4148 R DMMELF	1
D 24	P234099	D#4148 R DMMELF	1
D 28	P234196	D#BYD37J AVA SOD87	1
D 30	R133206	D LED D5 S GN HLDR	1
I 7	P230677	U#121GB TLP MINISO4P	1
J 2	Z3484066	CD CT $FTMT P 6 400	1
J 4	A503437	J MD2 C FBT P10 E1AU 7,0	1
J 5	R311046	J CRT FBT T180 SKT	1
J 6	R3421903	CD PIN 1015AWG18BK 90	1
J 7	R3421902	CD SO 1015AWG18BK 90	1
L 2	R3061222	CH AX NS 1.5 UH	1
L 3	R3061222	CH AX NS 1.5 UH	1
L 4	P250533	CH# 330.00NH L1210	1
MP 9	R313729	J TESTEYE D2,1 H3,1 SN BK	1
PC	R780647	PCB G1209S RGB O+S	1
Q 4	P232149	Q#BF821 P SS SOT23	1
Q 5	P232046	Q#BSS123 F SS SOT23	1
Q 6	P232149	Q#BF821 P SS SOT23	1
Q 10	P232043	Q#BC849B N SS SOT23	1
Q 11	P232044	Q#BC859B P SS SOT23	1
R 45	R1015451	R MF H 5K1 F 0W4 E3	1
R 45	P201105	R# CE H 5K6 F 0W12 0805	1
R 46	P201087	R# CE H 1K F 0W12 0805	1
R 47	P201095	R# CE H 2K2 F 0W12 0805	1
R 48	P201095	R# CE H 2K2 F 0W12 0805	1
R 49	P201151	R# CE H470K F 0W12 0805	1
R 50	P201151	R# CE H470K F 0W12 0805	1
R 51	P201055	R# CE H 47E F 0W12 0805	1
R 52	P201143	R# CE H220K F 0W12 0805	1
R 53	P201143	R# CE H220K F 0W12 0805	1
R 63	P201099	R# CE H 3K3 F 0W12 0805	1
R 80	P201111	R# CE H 10K F 0W12 0805	1
R 81	P201103	R# CE H 4K7 F 0W12 0805	1
R 93	R102148	R CC H 10K K 1W E8	1
R 94	P201073	R# CE H270E F 0W12 0805	1
R 95	V102024	R CC H100E K 0W5 E6	1
R 96	R102038	R CC H 1K5 K 0W5 E6	1
R 98	R101572	R MF H 1M F 0W4 E3	1
R102	R102038	R CC H 1K5 K 0W5 E6	1
R103	R102038	R CC H 1K5 K 0W5 E6	1
SR 1	R1011369	R CFFH 1K J 0W25	1 ⚠
Z 1	P234164	D#ZEN 5V6 0W5 C DMMELF	1
Z 4	P234185	D#ZEN 27V 0W5 C DMMELF	1

Parts listing RGB Out/ABL+CRT R762721S

SIT.	ITEM NO.	DESCRIPTION	QUANTITY
	B360987	SCR $7500CM 3 X 8 STZW	6
	R302108	CORE TUBE 3,5 /1,3 X 3	2
	R3631079	SCR Z933 M 3 X 12 SS	1
	R3631089	SCR Z933 M 3 X 16 SS	2
	R3661026	NUT D934 M 3 SS	2
	R804674	HTSN A GEN SPG1 M3 SS SH	1
	R808145	HTSN G808S RGB OUT	1
	V3623197	SCR $7500DM 4 X 8 STZN	2
	V3673761	SPR D9021 D 3,2D 9 STZN	2
C 1	P210081	C# C0G MU 180P J 50 0805	1
C 2	P210115	C# C0G MU 6P8D 50 0805	1
C 3	P210227	C# Z5U MU 100N Z 50 0805	1
C 5	P210035	C# X7R MU 1N K 50 0805	1
C 6	P210020	C# C0G MU 68P J 50 0805	1
C 7	P210022	C# C0G MU 150P J 50 0805	1
C 8	P210220	C# X7R MU 10N K500 1210	1
C 13	P210227	C# Z5U MU 100N Z 50 0805	1
C 14	P210070	C# C0G MU 680P J 50 0805	1
C 15	P210137	C# C0G MU 100P J 50 1206	1
C 16	P210043	C# X7R MU 22N K 50 0805	1
C 17	P210148	C# Y5V MU 470N Z 25 1206	1
C 18	P210227	C# Z5U MU 100N Z 50 0805	1

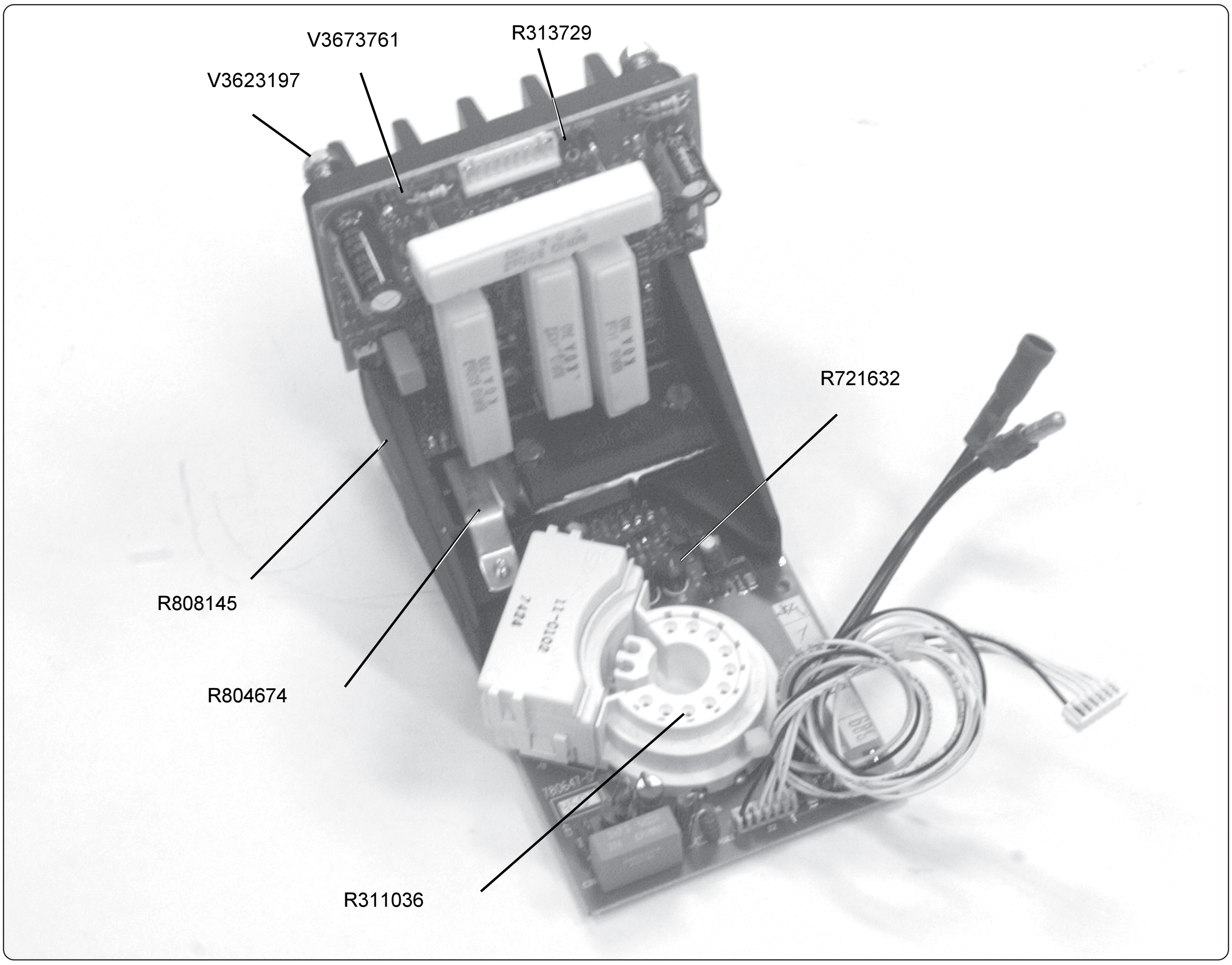
C 19	P210035	C# X7R MU 1N K 50 0805	1
C 20	P210290	C# Y5V MU 4M7Z 16 1206	1
C 21	P210035	C# X7R MU 1N K 50 0805	1
C 23	V1140426	C POMERA 100N K250E2 85	1
C 24	P210021	C# C0G MU 100P J 50 0805	1
C 25	R1115695	C EL RA 10M M250E2 85	1
C 29	P210227	C# Z5U MU 100N Z 50 0805	1
C 30	R111467	C EL RA 220M M 16E2 105	1
C 31	R111510	C EL RA 22M M 25E2 85	1
C 32	P210227	C# Z5U MU 100N Z 50 0805	1
C 33	P210227	C# Z5U MU 100N Z 50 0805	1
C 34	P210227	C# Z5U MU 100N Z 50 0805	1
C 35	P210227	C# Z5U MU 100N Z 50 0805	1
C 36	P210227	C# Z5U MU 100N Z 50 0805	1
C 37	P210227	C# Z5U MU 100N Z 50 0805	1
C 38	P210227	C# Z5U MU 100N Z 50 0805	1
C 39	P210227	C# Z5U MU 100N Z 50 0805	1
C 41	P210227	C# Z5U MU 100N Z 50 0805	1
C 42	P210227	C# Z5U MU 100N Z 50 0805	1
C 45	P210296	C# X7R MU 220N K 16 0805	1
C 46	P210227	C# Z5U MU 100N Z 50 0805	1
C 47	P210227	C# Z5U MU 100N Z 50 0805	1
C 48	P210227	C# Z5U MU 100N Z 50 0805	1
C 50	P210021	C# C0G MU 100P J 50 0805	1
C 52	P210081	C# C0G MU 180P J 50 0805	1
D 1	P234099	D#4148 R DMMELF	1
D 2	P234099	D#4148 R DMMELF	1
D 3	P234099	D#4148 R DMMELF	1
D 4	P234195	D#BAS21 SW SOT23	1
D 5	P234195	D#BAS21 SW SOT23	1
D 6	P234195	D#BAS21 SW SOT23	1
D 7	P234195	D#BAS21 SW SOT23	1
D 14	P234099	D#4148 R DMMELF	1
D 15	P234055	D#BAT54 SCH SOT23	1
D 16	P234099	D#4148 R DMMELF	1
D 17	P234099	D#4148 R DMMELF	1
D 18	P234099	D#4148 R DMMELF	1
D 22	P234099	D#4148 R DMMELF	1
D 23	P234055	D#BAT54 SCH SOT23	1
D 25	P234196	D#BYD37J AVA SOD87	1
D 26	P234055	D#BAT54 SCH SOT23	1
D 27	P234055	D#BAT54 SCH SOT23	1
I 1	B134308	U 08B VPJ	1
I 2	P231479	U#542 DG SO16 I	1
I 3	P230006	U#062 TL SO8 P	1
I 4	P230030	U#4053 SO16 I	1
I 5	P230028	U#393 LM SO8 P	1
I 6	P230293	U#082 TL SO8 P	1
I 8	R134035	U 79L05A TO92 P	1
I 9	P230293	U#082 TL SO8 P	1
I 10	P230006	U#062 TL SO8 P	1
J 1	R313949	J CT H MBS P 9 M2SN WH	1
J 3	A503159	J MD2 C MBS P100E1AU 6,7	0,1
L 1	P250516	CH# 3.3 UH L1210	1
MP 1	R313729	J TESTEYE D2,1 H3,1 SN BK	1
MP 3	R313729	J TESTEYE D2,1 H3,1 SN BK	1
MP 8	R313729	J TESTEYE D2,1 H3,1 SN BK	1
P 1	P201390	R#TCE H 2K M 0W25 S4 TS	1
P 3	P201390	R#TCE H 2K M 0W25 S4 TS	1
P 30	P201390	R#TCE H 2K M 0W25 S4 TS	1
PC	R780645	PCB G808S RGB AMPL	1

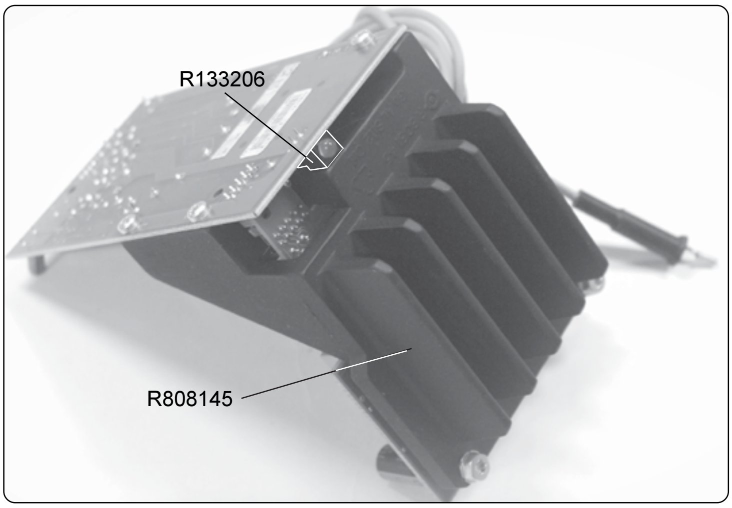
Q 1	P232109	Q#BFG31 P SS SOT223	1
Q 2	P232076	Q#BFS17 N SS SOT23	1
Q 3	P232109	Q#BFG31 P SS SOT223	1
Q 7	P232043	Q#BC849B N SS SOT23	1
Q 8	P232044	Q#BC859B P SS SOT23	1
Q 12	P232044	Q#BC859B P SS SOT23	1
Q 13	P232149	Q#BF821 P SS SOT23	1
Q 14	V1325851	Q BUT11AF N P SOT186	1
Q 15	P232150	Q#BF822 N SS SOT23	1
Q 16	P232046	Q#BSS123 F SS SOT23	1
R 1	P201078	R# CE H430E F 0W12 0805	1
R 2	P201078	R# CE H430E F 0W12 0805	1
R 3	P201078	R# CE H430E F 0W12 0805	1
R 4	P201078	R# CE H430E F 0W12 0805	1
R 5	P201078	R# CE H430E F 0W12 0805	1
R 6	P201078	R# CE H430E F 0W12 0805	1
R 9	P201103	R# CE H 4K7 F 0W12 0805	1
R 10	P201103	R# CE H 4K7 F 0W12 0805	1
R 11	P201103	R# CE H 4K7 F 0W12 0805	1
R 12	P201103	R# CE H 4K7 F 0W12 0805	1
R 13	P201096	R# CE H 2K4 F 0W12 0805	1
R 14	P201096	R# CE H 2K4 F 0W12 0805	1
R 15	P201091	R# CE H 1K5 F 0W12 0805	1
R 16	P201055	R# CE H 47E F 0W12 0805	1
R 17	P201087	R# CE H 1K F 0W12 0805	1
R 18	P201119	R# CE H 22K F 0W12 0805	1
R 19	P201061	R# CE H 82E F 0W12 0805	1
R 20	P201039	R# CE H 10E F 0W12 0805	1
R 21	P201117	R# CE H 18K F 0W12 0805	1
R 22	P201081	R# CE H560E F 0W12 0805	1
R 23	P201083	R# CE H680E F 0W12 0805	1
R 24	P201083	R# CE H680E F 0W12 0805	1
R 25	P201083	R# CE H680E F 0W12 0805	1
R 26	P201083	R# CE H680E F 0W12 0805	1
R 27	P201083	R# CE H680E F 0W12 0805	1
R 28	P201157	R# CE H820K F 0W12 0805	1
R 29	P201105	R# CE H 5K6 F 0W12 0805	1
R 30	P201103	R# CE H 4K7 F 0W12 0805	1
R 31	P201081	R# CE H560E F 0W12 0805	1
R 32	V1034342	R MO H820E J10W E14	1
R 33	V1034362	R MO H 1K J10W E14	1
R 34	V1034362	R MO H 1K J10W E14	1
R 35	V1034342	R MO H820E J10W E14	1
R 36	P201101	R# CE H 3K9 F 0W12 0805	1
R 37	P201101	R# CE H 3K9 F 0W12 0805	1
R 38	P201101	R# CE H 3K9 F 0W12 0805	1
R 40	P201052	R# CE H 36E F 0W12 0805	1
R 41	P201085	R# CE H820E F 0W12 0805	1
R 54	P201063	R# CE H100E F 0W12 0805	1
R 55	P201123	R# CE H 33K F 0W12 0805	1
R 56	P201143	R# CE H220K F 0W12 0805	1
R 57	P201079	R# CE H470E F 0W12 0805	1
R 58	P201063	R# CE H100E F 0W12 0805	1
R 59	P201115	R# CE H 15K F 0W12 0805	1
R 60	P201103	R# CE H 4K7 F 0W12 0805	1
R 61	P201111	R# CE H 10K F 0W12 0805	1
R 62	P201095	R# CE H 2K2 F 0W12 0805	1
R 64	P201061	R# CE H 82E F 0W12 0805	1
R 65	P201119	R# CE H 22K F 0W12 0805	1
R 66	P201061	R# CE H 82E F 0W12 0805	1
R 67	P201111	R# CE H 10K F 0W12 0805	1
R 68	P201139	R# CE H150K F 0W12 0805	1
R 69	P201139	R# CE H150K F 0W12 0805	1
R 70	P201108	R# CE H 7K5 F 0W12 0805	1
R 71	P201111	R# CE H 10K F 0W12 0805	1
R 72	P201133	R# CE H 82K F 0W12 0805	1
R 73	P201111	R# CE H 10K F 0W12 0805	1

R 74	P201157	R# CE H820K F 0W12 0805	1
R 75	P201167	R# CE H 2M2 F 0W12 0805	1
R 76	P201139	R# CE H150K F 0W12 0805	1
R 77	P201123	R# CE H 33K F 0W12 0805	1
R 78	P201112	R# CE H 11K F 0W12 0805	1
R 79	P201097	R# CE H 2K7 F 0W12 0805	1
R 82	R101500	R MF H 1E F 0W4 E3	1
R 83	R101500	R MF H 1E F 0W4 E3	1
R 84	R101500	R MF H 1E F 0W4 E3	1
R 85	P201103	R# CE H 4K7 F 0W12 0805	1
R 86	P201139	R# CE H150K F 0W12 0805	1
R 87	P201139	R# CE H150K F 0W12 0805	1
R 88	P201103	R# CE H 4K7 F 0W12 0805	1
R 89	P201127	R# CE H 47K F 0W12 0805	1
R 90	P201143	R# CE H220K F 0W12 0805	1
R 91	P201143	R# CE H220K F 0W12 0805	1
R 92	P201111	R# CE H 10K F 0W12 0805	1
R 99	P201135	R# CE H100K F 0W12 0805	1
R100	P201135	R# CE H100K F 0W12 0805	1
R101	P201112	R# CE H 11K F 0W12 0805	1
R104	P201080	R# CE H510E F 0W12 0805	1
R105	P201069	R# CE H180E F 0W12 0805	1
R106	P201135	R# CE H100K F 0W12 0805	1
R107	P201135	R# CE H100K F 0W12 0805	1
SR 2	R1011008	R CFFH 1E J 0W25	1 ⚠
SR 3	R1011008	R CFFH 1E J 0W25	1 ⚠
SR 4	R1011008	R CFFH 1E J 0W25	1 ⚠

PRODUCT SAFETY NOTICE

Components identified by ⚠ have SPECIAL CHARACTERISTICS IMPORTANT TO SAFETY. Before replacing any of these components, read carefully the ser-vice safety precautions.

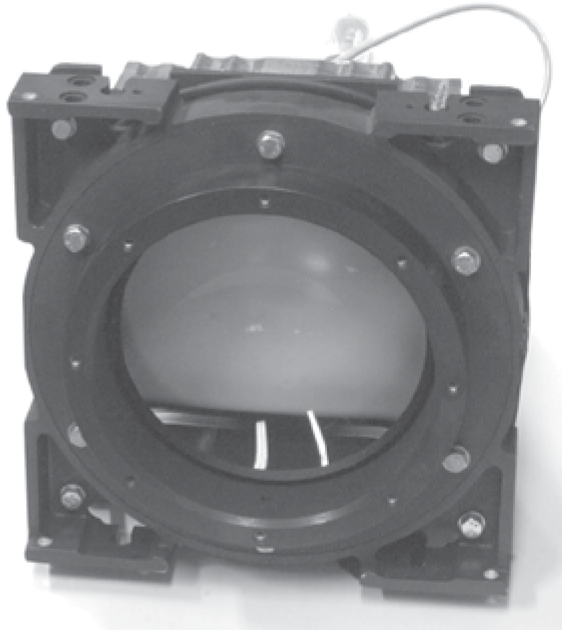

V3673761
R313729
V3623197
R721632
R808145
R804674
R311036


R133206
R808145

CRT UNIT R812 M12M HD219

RED	R7629632
GREEN	R7629635
BLUE	R7629636

CRT Replacement part



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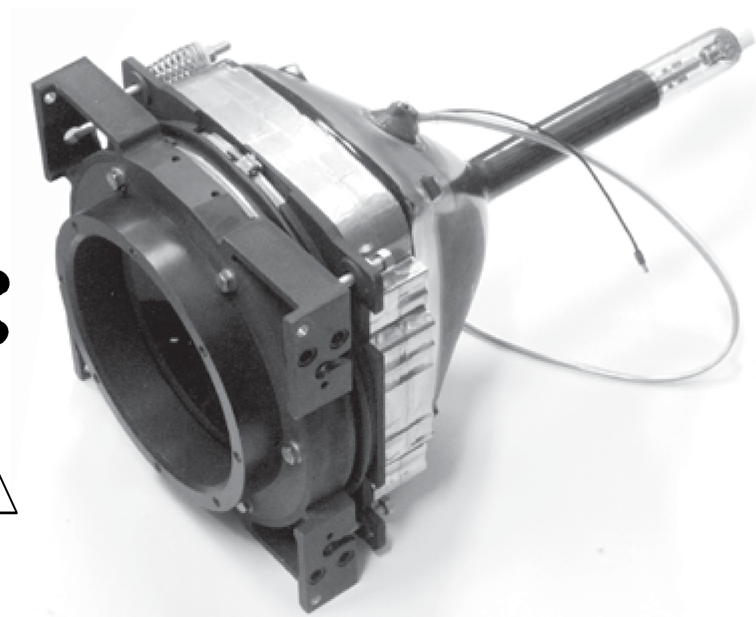
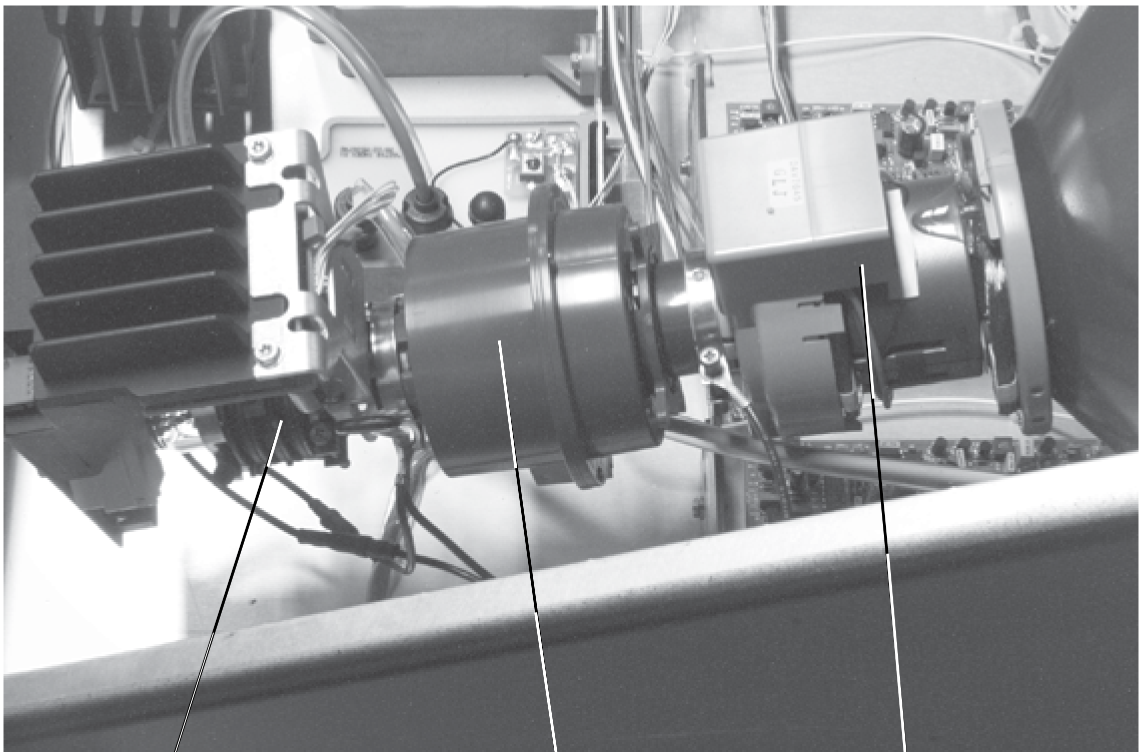


Order NO CRT	
Red CRT	R7629632
Green CRT	R7629635
Blue CRT	R7629636

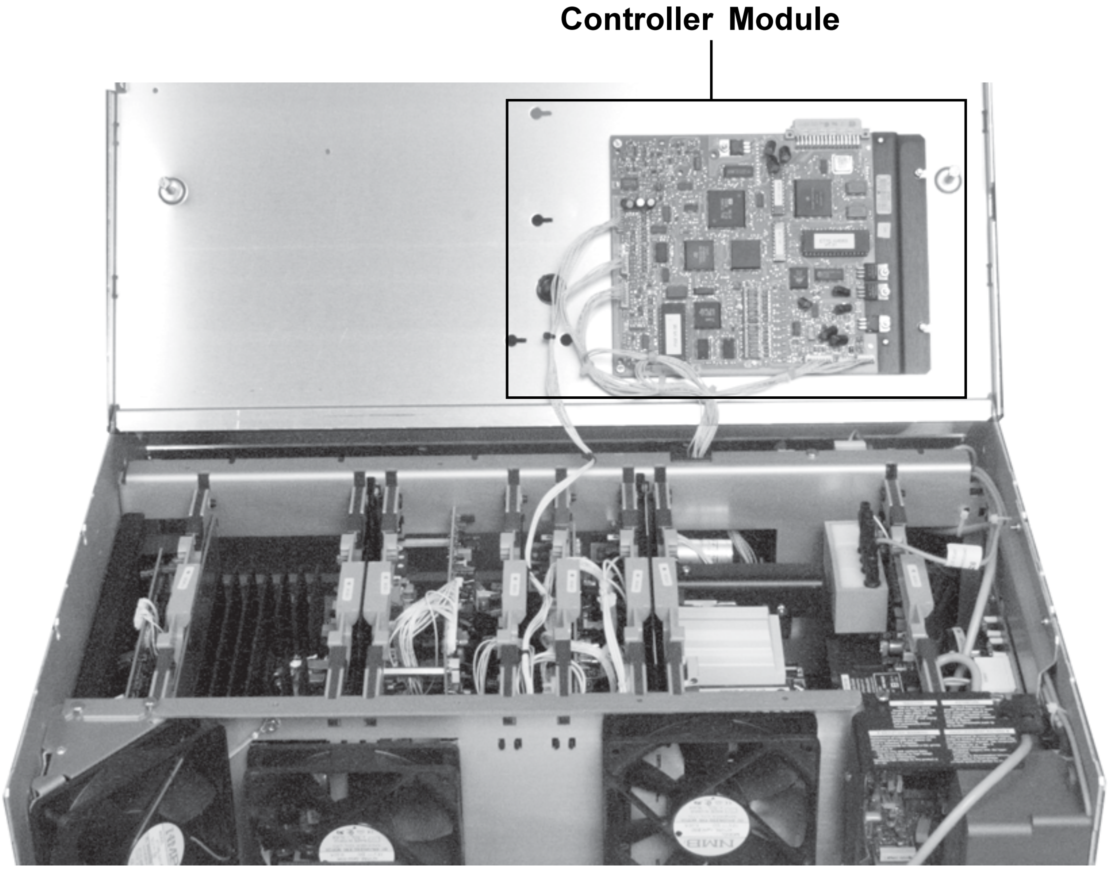
CRT neck components



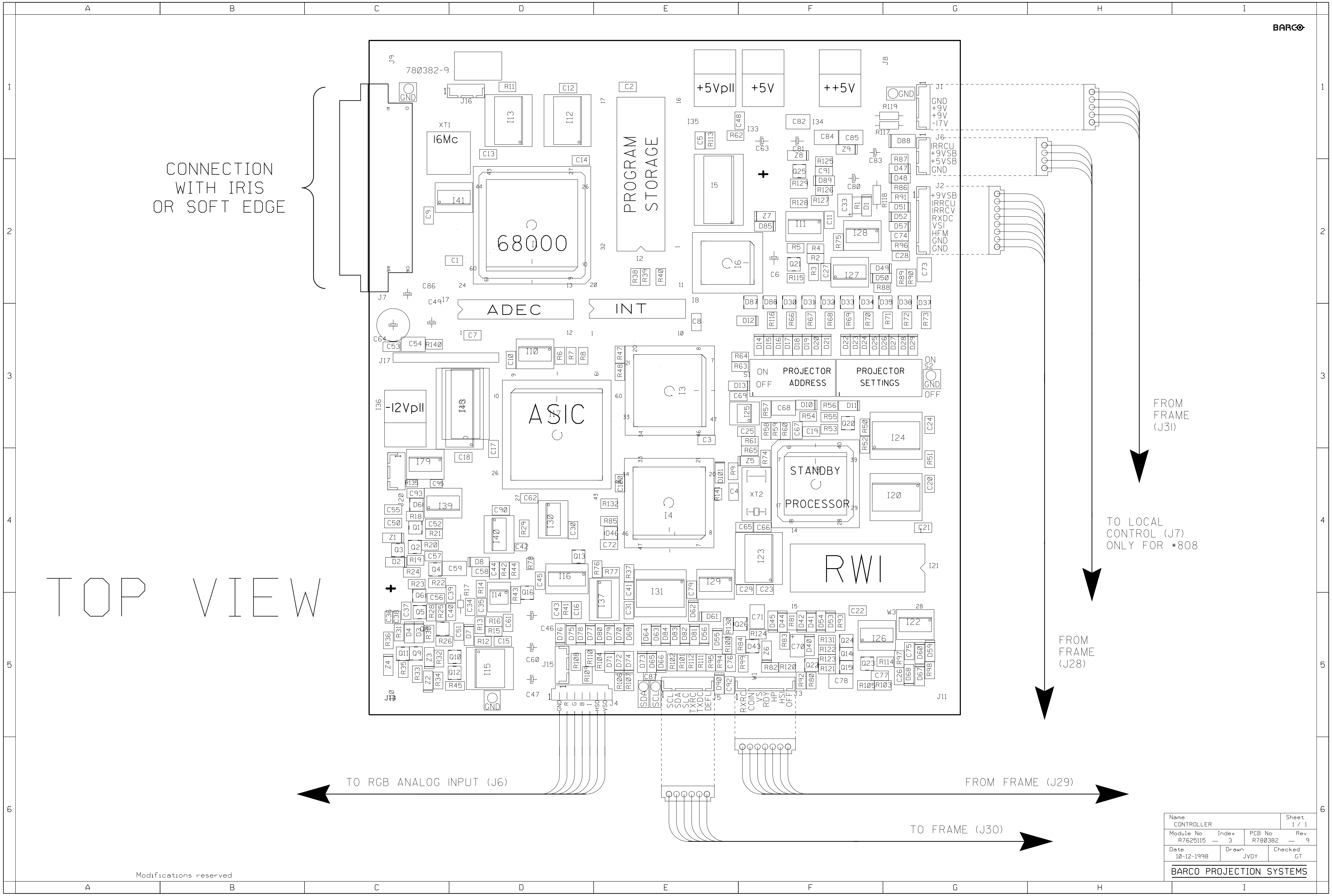
2P/4P Magnets unit
R306661

Dynamic Focus Unit
R306665

Deflection Unit
R306648

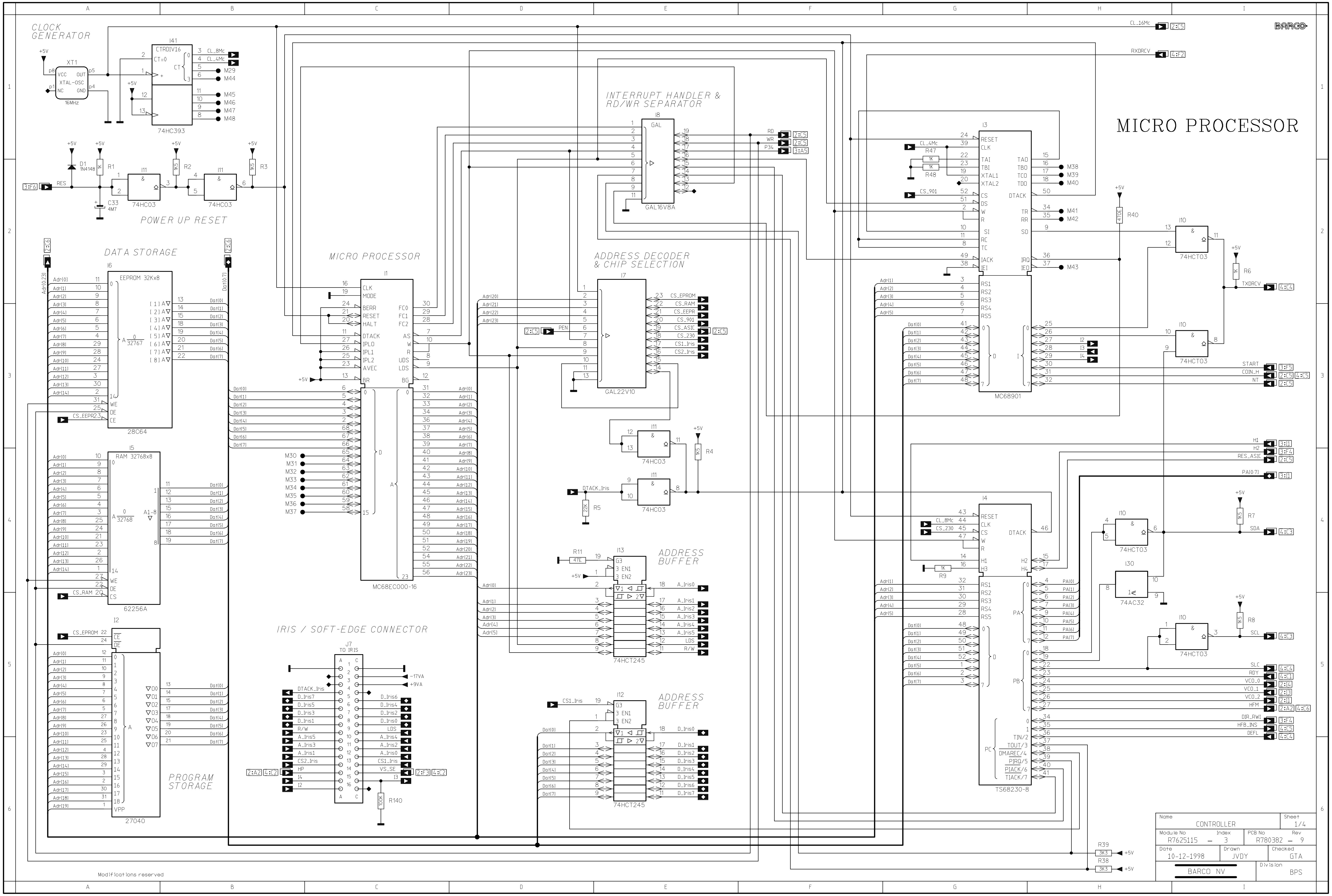


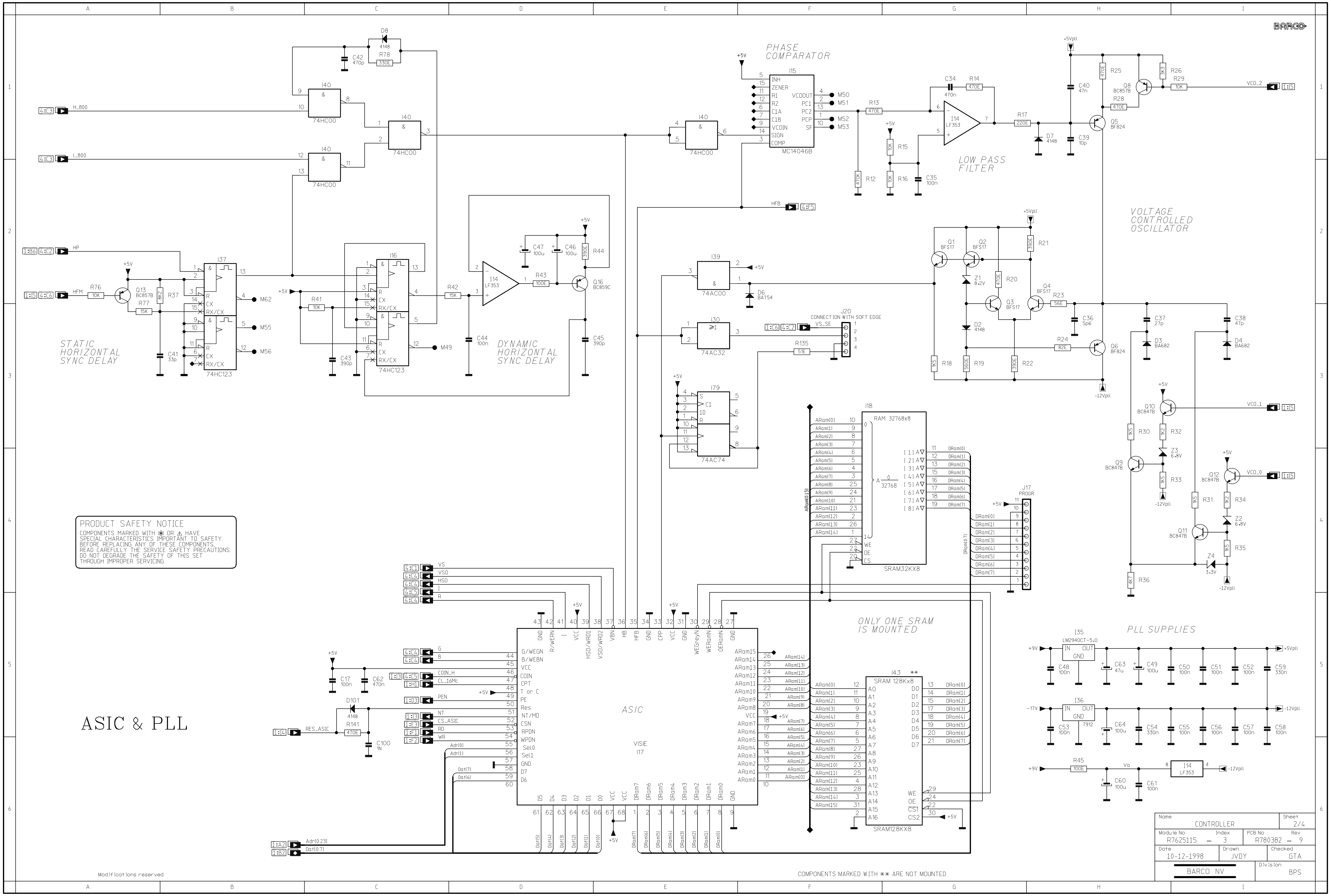
R7625115-r00



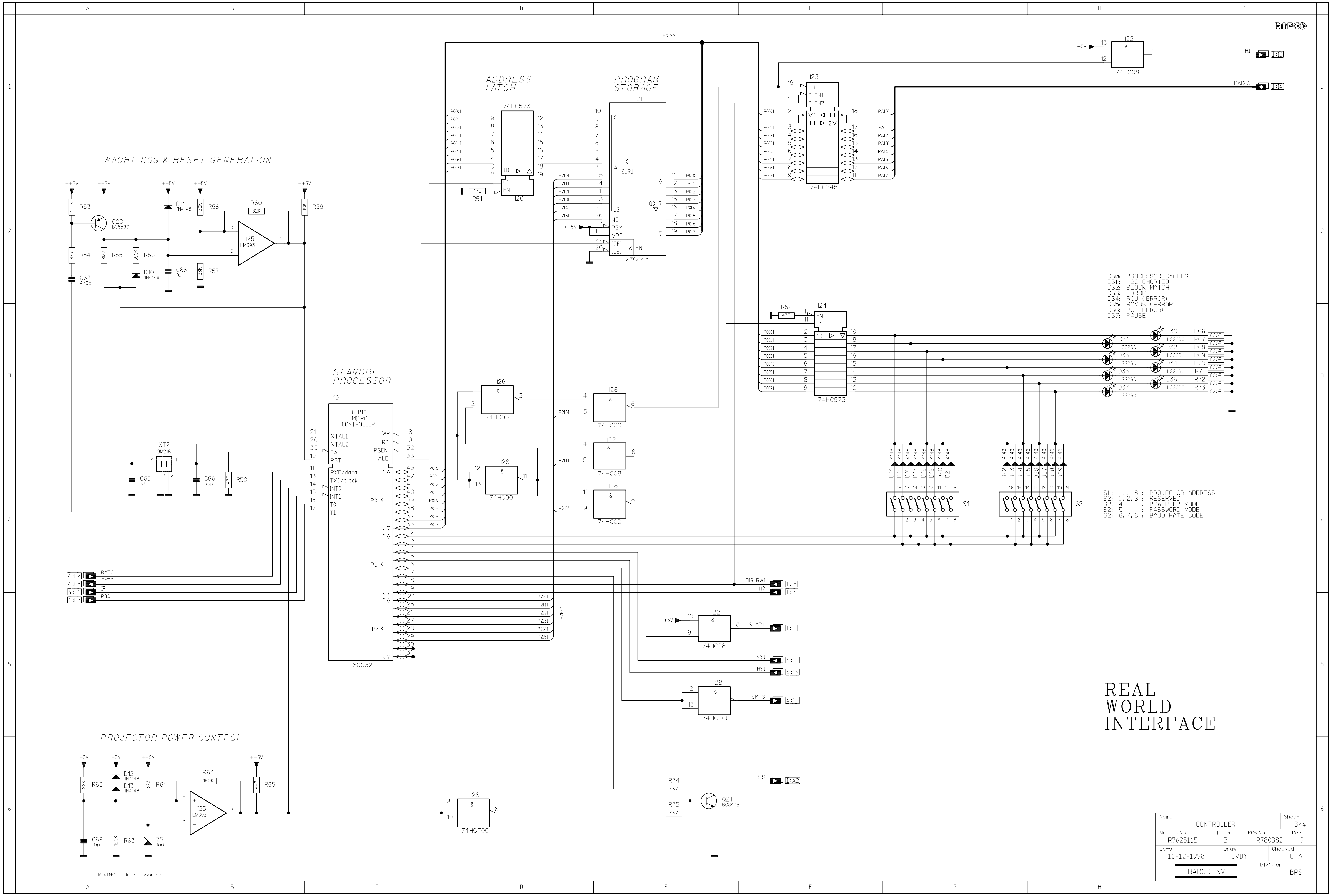
Name			Sheet
CONTROLLER			1 / 1
Module No R7625115	Index — 3	PCB No R780382	Rev — 9
Date 10-12-1998	Drawn JVDY	Checked GT	

BARCO PROJECTION SYSTEMS

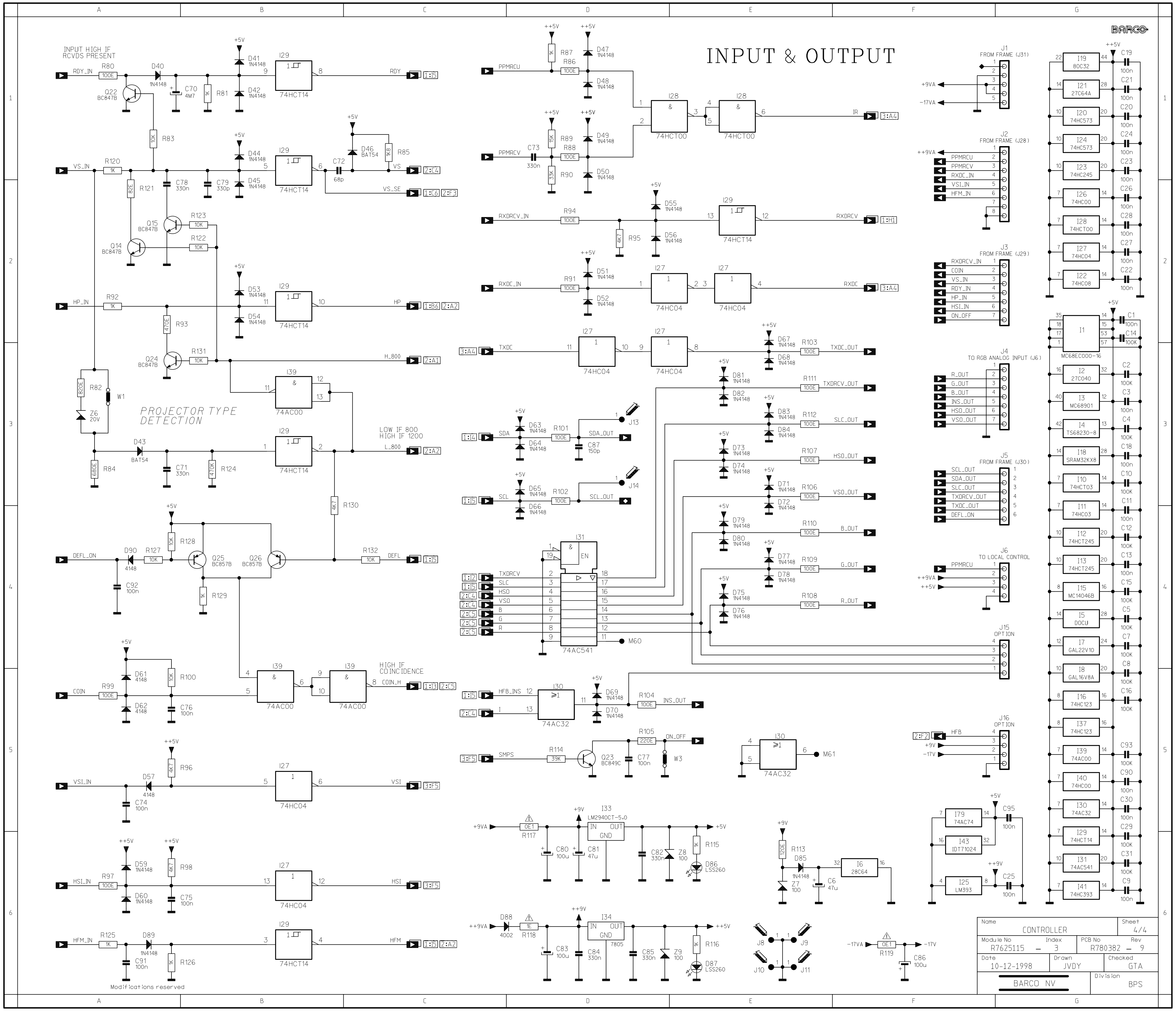

MICRO PROCESSOR
CLOCK GENERATOR
POWER UP RESET
DATA STORAGE
MICRO PROCESSOR
INTERRUPT HANDLER & RD/WR SEPARATOR
ADDRESS DECODER & CHIP SELECTION
ADDRESS BUFFER
IRIS / SOFT-EDGE CONNECTOR
PROGRAM STORAGE
MC68EC000-16
MC68901
TS68230-8
GAL16V8A
GAL22V10
74HC393
74HCT245
28C64
62256A
27040
Modifications reserved
Name CONTROLLER
Sheet 1/4
Module No R7625115 – Index 3
PCB No R780382 – Rev 9
Date 10-12-1998
Drawn JVDY
Checked GTA
BARCO NV
Division BPS



ASIC & PLL
PHASE COMPARATOR
LOW PASS FILTER
VOLTAGE CONTROLLED OSCILLATOR
STATIC HORIZONTAL SYNC DELAY
DYNAMIC HORIZONTAL SYNC DELAY
ONLY ONE SRAM IS MOUNTED
PLL SUPPLIES
ASIC
VISIE
I17
RAM 32768x8
SRAM32KX8
SRAM 128Kx8
SRAM128KX8
MC14046B
74HC00
74HC123
74AC00
74AC32
74AC74
LF353
CONNECTION WITH SOFT EDGE
PRODUCT SAFETY NOTICE
COMPONENTS MARKED WITH ❀ OR ⚠ HAVE SPECIAL CHARACTERISTICS IMPORTANT TO SAFETY. BEFORE REPLACING ANY OF THESE COMPONENTS, READ CAREFULLY THE SERVICE SAFETY PRECAUTIONS. DO NOT DEGRADE THE SAFETY OF THIS SET THROUGH IMPROPER SERVICING.
COMPONENTS MARKED WITH ✱✱ ARE NOT MOUNTED
Modifications reserved
Name CONTROLLER
Sheet 2/4
Module No R7625115
Index 3
PCB No R780382
Rev 9
Date 10-12-1998
Drawn JVDY
Checked GTA
BARCO NV
Division BPS



WACHT DOG & RESET GENERATION
ADDRESS LATCH
PROGRAM STORAGE
STANDBY PROCESSOR
8-BIT MICRO CONTROLLER
80C32
27C64A
74HC573
74HC245
PROJECTOR POWER CONTROL
D30: PROCESSOR CYCLES
D31: I2C CHORTED
D32: BLOCK MATCH
D33: ERROR
D34: RCU (ERROR)
D35: RCVDS (ERROR)
D36: PC (ERROR)
D37: PAUSE
S1: 1...8 : PROJECTOR ADDRESS
S2: 1,2,3 : RESERVED
S2: 4 : POWER UP MODE
S2: 5 : PASSWORD MODE
S2: 6,7,8 : BAUD RATE CODE
REAL WORLD INTERFACE
Modifications reserved
Name CONTROLLER
Sheet 3/4
Module No R7625115
Index 3
PCB No R780382
Rev 9
Date 10-12-1998
Drawn JVDY
Checked GTA
BARCO NV
Division BPS



COMP.	LOC.	SH.
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C3	G3	4
C4	G3	4
C5	G4	4
C6	E6	4
C7	G4	4
C8	G4	4
C9	G6	4
C1Ø	G3	4
C11	G3	4
C12	G4	4
C13	G4	4
C14	G2	4
C15	G4	4
C16	G5	4
C17	C5	2
C18	G3	4
C19	G1	4
C2Ø	G1	4
C21	G1	4
C22	G2	4
C23	G1	4
C24	G1	4
C25	G6	4
C26	G2	4
C27	G2	4
C28	G2	4
C29	G5	4
C3Ø	G5	4
C31	G6	4
C33	A2	1
C34	G1	2
C35	G2	2
C36	H3	2
C37	H3	2
C38	I3	2
C39	H1	2
C4Ø	H1	2
C41	B3	2
C42	C1	2
C43	C3	2
C44	D3	2
C45	D3	2
C46	D2	2
C47	D2	2
C48	H5	2
C49	H5	2
C5Ø	I5	2
C51	I5	2
C52	I5	2
C53	H5	2
C54	H5	2
C55	I5	2
C56	I5	2
C57	I5	2
C58	I5	2
C59	I5	2
C6Ø	H6	2
C61	H6	2
C62	C5	2
C63	H5	2
C64	H5	2
C65	A4	3
C66	B4	3
C67	A2	3
C68	B2	3
C69	A6	3
C7Ø	B1	4
C71	A3	4
C72	B1	4
C73	D1	4
C74	A5	4
C75	B6	4
C76	B5	4
C77	D5	4
C78	A2	4
C79	B2	4
C8Ø	D6	4
C81	D6	4
C82	D6	4
C83	D6	4
C84	D6	4
C85	D6	4
C86	F6	4
C87	D3	4
C9Ø	G5	4
C91	A6	4
C92	A4	4
C93	G5	4
C95	G5	4
C1ØØ	C6	2
D1	A2	1
D2	G3	2
D3	H3	2
D4	I3	2
D6	F2	2
D7	H1	2
D8	C1	2
D1Ø	A2	3
D11	B2	3
D12	A6	3
D13	A6	3
D14	G4	3
D15	G4	3
D16	G4	3
D17	G4	3
D18	G4	3
D19	G4	3
D2Ø	G4	3
D21	G4	3
D22	G4	3
D23	G4	3
D24	G4	3
D25	G4	3
D26	H4	3
D27	H4	3
D28	H4	3
D29	H4	3
D3Ø	H3	3
D31	H3	3
D32	H3	3
D33	H3	3
D34	H3	3
D35	H3	3
D36	H3	3
D37	H3	3
D4Ø	A1	4
D41	B1	4
D42	B1	4
D43	A3	4
D44	B1	4
D45	B2	4
D46	C1	4
D47	D1	4
D48	D1	4
D49	D1	4
D5Ø	D1	4
D51	D2	4
D52	D2	4
D53	B2	4
D54	B2	4
D55	D2	4
D56	D2	4
D57	A5	4
D59	A6	4
D6Ø	A6	4
D61	A5	4
D62	A5	4

COMP.	LOC.	SH.
D63	D3	4
D64	D3	4
D65	D3	4
D66	D4	4
D67	E3	4
D68	E3	4
D69	D5	4
D7Ø	D5	4
D71	E3	4
D72	E3	4
D73	E3	4
D74	E3	4
D75	E4	4
D76	E4	4
D77	E4	4
D78	E4	4
D79	E4	4
D8Ø	E4	4
D81	E3	4
D82	E3	4
D83	E3	4
D84	E3	4
D85	E6	4
D86	E6	4
D87	E6	4
D88	D6	4
D89	A6	4
D9Ø	A4	4
D1Ø1	C5	2
I1	C2	1
I1	G2	4
I2	A5	1
I2	G3	4
I3	G1	1
I3	G3	4
I4	G4	1
I4	G3	4
I5	A4	1
I5	G4	4
I6	A2	1
I6	F6	4
I7	E2	1
I7	G4	4
I8	E1	1
I8	G5	4
I1Ø	I2	1
I1Ø	I2	1
I1Ø	H4	1
I1Ø	I5	1
I1Ø	G3	4
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I11	B2	1
I11	E1	1
I11	E4	1
I11	G4	4
I12	E5	1
I12	G4	4
I13	E4	1
I13	G4	4
I14	D2	2
I14	G1	2
I14	I6	2
I15	F1	2
I15	G4	4
I16	C2	2
I16	G5	4
I17	E6	2
I18	C3	2
I18	G3	4
I19	C3	3
I19	G1	4
I2Ø	D2	3
I2Ø	G1	4
I21	E1	3
I21	G1	4
I22	E3	3
I22	E5	3
I22	H1	3
I22	G2	4
I23	F1	3
I23	G1	4
I24	F3	3
I24	G1	4
I25	B6	3
I25	D6	3
I25	G4	4
I26	D3	3
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I26	D4	3
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I27	B5	4
I27	D2	4
I27	D4	4
I27	E2	4
I27	E4	4
I27	G2	4
I28	E5	3
I28	D6	3
I28	D1	4
I28	E1	4
I28	G1	4
I29	B1	4
I29	B2	4
I29	E2	4
I29	B6	4
I29	B3	4
I29	G6	4
I29	[illegible]	[illegible]
I3Ø	H4	1
I3Ø	E3	2
I3Ø	D6	2
I3Ø	E5	4
I3Ø	G5	4
I31	D5	4
I31	G5	4
I33	D6	4
I34	D6	4
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I36	H5	2
I37	B5	2
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I39	C5	4
I39	G5	4
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I4Ø	C2	2
I4Ø	E1	2
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I4Ø	G5	4
I41	B1	4
I41	G6	4
I43	G5	2
I43	F6	4
I79	E3	2
I79	F5	4
J1	G1	4
J2	G1	4
J3	G2	4
J4	G3	4
J5	G3	4
J6	G4	4
J7	C5	1
J8	E6	4
J9	E6	4

COMP.	LOC.	SH.
J1Ø	E6	4
J11	E6	4
J13	D3	4
J14	D3	4
J15	G4	4
J16	G5	4
J17	G4	2
J2Ø	F3	2
M29	B1	1
M3Ø	B4	1
M31	B4	1
M32	B4	1
M33	B4	1
M34	B4	1
M35	B4	1
M36	B4	1
M37	B4	1
M38	H2	1
M39	H2	1
M4Ø	H2	1
M41	H2	1
M42	H2	1
M43	H2	1
M44	B1	1
M45	B1	1
M46	B1	1
M47	B1	1
M48	B1	1
M49	C3	2
M5Ø	F1	2
M51	F1	2
M52	F1	2
M53	F1	2
M55	B3	2
M56	B3	2
M6Ø	D4	4
M61	E5	4
M62	B2	2
Q1	G2	2
Q2	G2	2
Q3	G2	2
Q4	H2	2
Q5	H1	2
Q6	H3	2
Q8	H1	2
Q9	H4	2
Q1Ø	H3	2
Q11	I4	2
Q12	I4	2
Q13	A2	2
Q14	A2	4
Q15	A2	4
Q16	D2	2
Q2Ø	A2	3
Q21	E6	3
Q22	A1	4
Q23	D5	4
Q24	A3	4
Q25	B4	4
Q26	B4	4
R1	A2	1
R2	B2	1
R3	B2	1
R4	E4	1
R5	D4	1
R6	I2	1
R7	I4	1
R8	I5	1
R9	G4	1
R11	D4	1
R12	F2	2
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R14	G1	2
R15	G1	2
R16	G2	2
R17	G1	2
R18	G3	2
R19	G3	2
R2Ø	G2	2
R21	H2	2
R22	G3	2
R23	H2	2
R24	H3	2
R25	H1	2
R26	H1	2
R28	H1	2
R29	I1	2
R3Ø	H3	2
R31	I4	2
R32	H3	2
R33	H4	2
R34	I4	2
R35	I4	2
R36	H4	2
R37	B2	2
R38	H6	1
R39	H6	1
R4Ø	H2	1
R41	C2	2
R42	D2	2
R43	D2	2
R44	D2	2
R45	H6	2
R47	G1	1
R48	G2	1
R5Ø	B4	3
R51	D2	3
R52	F3	3
R53	A2	3
R54	A2	3
R55	A2	3
R56	A2	3
R57	B2	3
R58	B2	3
R59	C2	3
R6Ø	B2	3
R61	A6	3
R62	A6	3
R63	A6	3
R64	B6	3
R65	B6	3
R66	I3	3
R67	I3	3
R68	I3	3
R69	I3	3
R7Ø	I3	3
R71	I3	3
R72	I3	3
R73	I3	3
R74	E6	3
R75	E6	3
R76	A2	2
R77	A3	2
R78	C1	2
R8Ø	A1	4
R81	B1	4
R82	A3	4
R83	A1	4
R84	A3	4
R85	C1	4
R86	D1	4
R87	D1	4
R88	D1	4
R89	D1	4
R9Ø	D1	4
R91	D2	4
R92	A2	4

COMP.	LOC.	SH.
R93	A2	4
R94	D2	4
R95	D2	4
R96	B5	4
R97	A6	4
R98	B6	4
R99	A5	4
R1ØØ	B5	4
R1Ø1	D3	4
R1Ø2	D3	4
R1Ø3	E3	4
R1Ø4	D5	4
R1Ø5	D5	4
R1Ø6	E3	4
R1Ø7	E3	4
R1Ø8	E4	4
R1Ø9	E4	4
R11Ø	E4	4
R111	E3	4
R112	E3	4
R113	E6	4
R114	D5	4
R115	E6	4
R116	E6	4
R117	D6	4
R118	D6	4
R119	F6	4
R12Ø	A1	4
R121	A2	4
R122	B2	4
R123	B2	4
R124	B3	4
R125	A6	4
R126	B6	4
R127	A4	4
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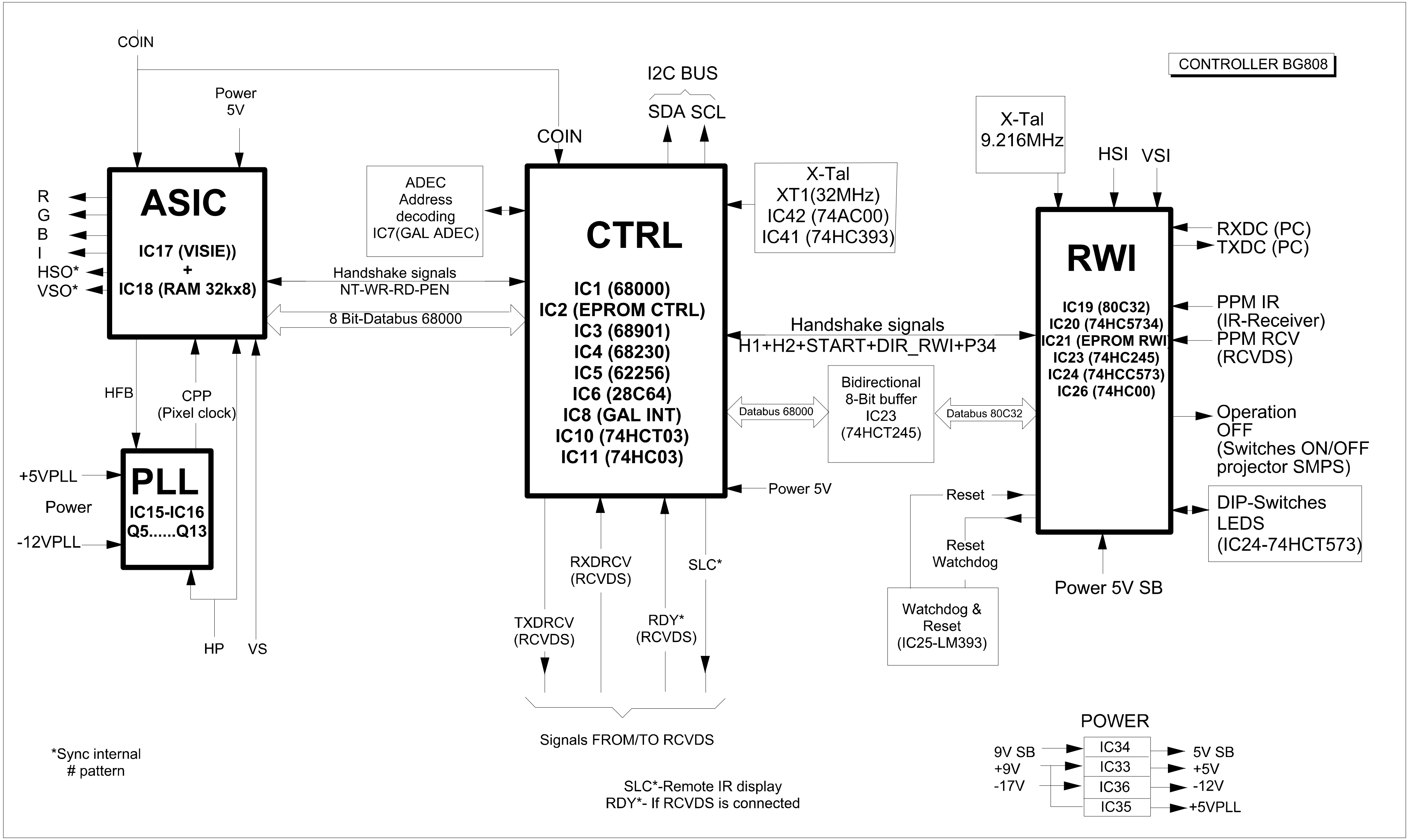
R129	B4	4
R13Ø	C4	4
R131	B3	4
R132	C4	4
R135	F3	2
R14Ø	C6	1
R141	C5	2
S1	G4	3
S2	H4	3
W1	A3	4
W3	E5	4
XT1	A1	1
XT2	B4	3
Z1	G2	2
Z2	I4	2
Z3	H4	2
Z4	I4	2
Z5	A6	3
Z6	A3	4
Z7	E6	4
Z8	E6	4
Z9	E6	4


CONTROLLER BG808
COIN
Power 5V
ASIC
IC17 (VISIE))
+
IC18 (RAM 32kx8)
R
G
B
I
HSO*
VSO*
ADEC
Address
decoding
IC7(GAL ADEC)
Handshake signals
NT-WR-RD-PEN
8 Bit-Databus 68000
COIN
I2C BUS
SDA SCL
CTRL
IC1 (68000)
IC2 (EPROM CTRL)
IC3 (68901)
IC4 (68230)
IC5 (62256)
IC6 (28C64)
IC8 (GAL INT)
IC10 (74HCT03)
IC11 (74HC03)
X-Tal
XT1(32MHz)
IC42 (74AC00)
IC41 (74HC393)
X-Tal
9.216MHz
HSI VSI
RWI
IC19 (80C32)
IC20 (74HC5734)
IC21 (EPROM RWI
IC23 (74HC245)
IC24 (74HCC573)
IC26 (74HC00)
RXDC (PC)
TXDC (PC)
PPM IR
(IR-Receiver)
PPM RCV
(RCVDS)
Operation
OFF
(Switches ON/OFF
projector SMPS)
DIP-Switches
LEDS
(IC24-74HCT573)
Power 5V SB
Handshake signals
H1+H2+START+DIR_RWI+P34
Databus 68000
Bidirectional
8-Bit buffer
IC23
(74HCT245)
Databus 80C32
Power 5V
Reset
Reset
Watchdog
Watchdog &
Reset
(IC25-LM393)
HFB
CPP
(Pixel clock)
+5VPLL
Power
-12VPLL
PLL
IC15-IC16
Q5......Q13
HP
VS
TXDRCV
(RCVDS)
RXDRCV
(RCVDS)
RDY*
(RCVDS)
SLC*
Signals FROM/TO RCVDS
SLC*-Remote IR display
RDY*- If RCVDS is connected
*Sync internal
pattern
POWER
9V SB
+9V
-17V
IC34
IC33
IC36
IC35
5V SB
+5V
-12V
+5VPLL

TECHNICAL DESCRIPTION " CONTROLLER "

Introduction.

The controller module can be divided into four blocks : the RWI (Real World Interface), CTRL (Controller), ASIC and PLL.

Each block has a typical function, but, needs information from the other blocks. These connections are realised by the address / data bus or by "handshake" signals. Address and data are split by a GAL - ADEC (**A**ddress DECoder).
The schematic diagram consists of 4 sheets : Sheet 1=Controller , Sheet 2=ASIC+PLL, Sheet 3=RWI and Sheet 4=I/O + Power Supplies.

Real World Interface

The RWI is responsible for the communication with the peripheral circuitry of the projector, more in particular the PPM (Pulse Position Modulated) commands. These commands can come in via the IR receiver, coming straight from the attached keypad, via the PC communication (RS232) port or the RCVDS port.
This electronic part must be supplied from the +9V**SB** supply line, as it must be ready in stand-by to respond to an ON command. The state of the switching transistor Q23 (on the I/O) is determined by the *"SMPS"* line. This is the output pin 11 of IC28, which is supplied from the micro-controller IC19. Whether this line is high or low at the moment the mains is supplied, depends on the DIP switch position "Power ON/OFF" (S2, switch 4).
The data bus of the RWI micro-controller IC19 is connected with the main controller IC2 via a bi-directional buffer IC23.
The multiplexed address/data bus P0 of the microcontroller drives the LEDs D30 - D37 and the DIP switches via the buffer IC24 (74HCT573).

Watchdog - 9 Volt Watch

The watchdog is built around IC25 pins 1 - 2 - 3 and Q20 transistor. At switching on the projector, the +5VSB is supplied to this circuit. As C68 is not charged at switching on, the output pin 1 is high for a moment in order to reset the microcontroller at pin 10 of IC19 (RST). Pin 3 of IC25 is set at half the supply voltage. The microcontroller triggers the watchdog via C67 in order to keep charged the capacitor C68 by conduction of Q20. If the processor gets blocked for any reason, the level detector output pin 1 comes high and resets the controller as described before. The watchdog has as task to restart the controller when it gets blocked for some reason.
When, during an arcing in a CRT the +5V supply is temporarily shorted, the microprocessor can get in trouble. For that reason, the other level detector in IC25 monitors the 9V (9VWATCH). The output of this detector is connected to the **INT0** of the processor.

Controller (CTRL)

The Controller is built aroound the chipset 68000=microprocessor, 68230 and 68901. The chip 68230 and 68901 provide the in-/output bit (e.g. PLL-drive, I^2C coincidence...), the bus connection with the RWI, the serial communication with the RCVDS and the interrupt-inputs.
The Gal IC7 is the address decoder; all I/O are memory mapped. At the same time IC7 provides the DTACK (data acknowledge) of the other components to the 68000.
The Gal IC8 provides for the interrupt management and separates RD and WR from RD/WR.
The information adjusted by the user regarding the settings of the different blocks (memory blocks) are stocked in the E²PROM IC6.

The clockgenerator is built around IC1/XT1. The buffered TXDRCV and RXDRCV are

the communication lines with the switcher / selector RCVDS800 or RCVDS05.
The RDY line (Ready line) informs the microprocessor on the status of the switcher (powered up or powered down).

ASIC

The ASIC IC17 integrates different functions and is custom made for this application. This chip is amongst others responsible for the generation and synchronisation of the text that must be projected on request. The text or pixel information is loaded by the controller into the RAM IC18. Eight bytes are loaded into the RAM via the ASIC during the HFB time. (For that reason, the controller cannot start up when there are no HFB pulses available from the ASIC).

When an external source is selected, the ASIC measures 'frequently' the line and vertical frequencies and informs the main processor if there are changes (change of resolution mode or change of source....).
The pixelclock, generated by the VCO of the PLL, is sent to the ASIC where it is divided down to *HFB* and returned to the phase comparator of the PLL.

When an internal pattern is selected, required by the user or automatically at starting up, the ASIC generates sync signals HSO and VSO.
The R, G and B together with the INSERT are buffered with IC31 and further proceed to the RGB INPUT + SW module.

PLL

The PLL consists of the digitally edge controlled phase comparator IC15, the low pass filter around IC14, the VCO (Q1 - Q12) and the internal divider in the ASIC. The VCO is a sawtooth generator. C36 is charged up via Q5, driven in the base with the low pass filter output. Note that 0 volts on the base means the maximum frequency. The VCO_0/1/2 lines can turn on transistors and then additional current is available for the generator.
Via the emitterfollower Q1 and the buffer in IC39, the pixelclock is applied to the CPP input of the ASIC. The PLL phase comparator has a double task. Tune the frequency of the VCO to a multiple of the line frequency and lock the position of the text to the deflection.
The active line period is divided into 256 pixels to position 32 characters on a line in the low frequency range and into 512 pixels (64 characters) in the high freq. range (see Hor defl module) .
The *HFM* line informs the processor and thus the PLL on the flyback time, this information is needed to determine the pixel frequency of the PLL.

Coincidence

The coincidence of the line oscillator is an important information for the controller. At starting up, the controller <u>always generates first internal sync</u>, which must lead to a coincidence situation.
If an external source is selected then, the controller waits for coincidence and the timings of the selected source. These timings are needed to choose the memory block corresponding with the source. If the coincidence is not active, the projector remains blanked (black screen).

Spare parts Controller module

SIT.	ITEM NO.	DESCRIPTION	QUANTITY
70	R3132539	J U0.6 FBT P28 E1AU TLP	1
60	R313487	J U0.6 FBT P32 E1AU TLP	1
31	R3631069	SCR Z933 M 3 X 10 SS	4
40	R3661026	NUT D934 M 3 SS	4
50	R3674391	RVT BLND_R3,2C 3,2WSTAL	2
20	R367502	SPR D6798AD 3,2D 6 STZN	4
	R367699	RVT AVTRON2,5L 8,1 AL	2
10	R805856	HTSN C PJ56 G808 CTRL	1
C 1	P210122	C# X7R MU 100N K 50 1206	1
C 2	P210122	C# X7R MU 100N K 50 1206	1
C 3	P210122	C# X7R MU 100N K 50 1206	1
C 4	P210122	C# X7R MU 100N K 50 1206	1
C 5	P210122	C# X7R MU 100N K 50 1206	1
C 6	R111476	C EL RA 47M M 25E2 85	1
C 7	P210122	C# X7R MU 100N K 50 1206	1
C 8	P210122	C# X7R MU 100N K 50 1206	1
C 9	P210122	C# X7R MU 100N K 50 1206	1
C 10	P210122	C# X7R MU 100N K 50 1206	1
C 11	P210122	C# X7R MU 100N K 50 1206	1
C 12	P210122	C# X7R MU 100N K 50 1206	1
C 13	P210122	C# X7R MU 100N K 50 1206	1
C 14	P210122	C# X7R MU 100N K 50 1206	1
C 15	P210122	C# X7R MU 100N K 50 1206	1
C 16	P210122	C# X7R MU 100N K 50 1206	1
C 17	P210122	C# X7R MU 100N K 50 1206	1
C 18	P210122	C# X7R MU 100N K 50 1206	1
C 19	P210122	C# X7R MU 100N K 50 1206	1
C 20	P210122	C# X7R MU 100N K 50 1206	1
C 21	P210122	C# X7R MU 100N K 50 1206	1
C 22	P210122	C# X7R MU 100N K 50 1206	1
C 23	P210122	C# X7R MU 100N K 50 1206	1
C 24	P210122	C# X7R MU 100N K 50 1206	1
C 25	P210122	C# X7R MU 100N K 50 1206	1
C 26	P210122	C# X7R MU 100N K 50 1206	1
C 27	P210122	C# X7R MU 100N K 50 1206	1
C 28	P210122	C# X7R MU 100N K 50 1206	1
C 29	P210122	C# X7R MU 100N K 50 1206	1
C 30	P210122	C# X7R MU 100N K 50 1206	1
C 31	P210122	C# X7R MU 100N K 50 1206	1
C 33	P212006	C# TA 4M7M 16 3528	1
C 34	P210148	C# Y5V MU 470N Z 25 1206	1
C 35	P210122	C# X7R MU 100N K 50 1206	1
C 36	P210134	C# COG MU 5P6D 50 0805	1
C 37	P210141	C# COG MU 27P J 50 1206	1
C 38	P210019	C# COG MU 47P J 50 0805	1
C 39	P210138	C# COG MU 10P J 50 1206	1
C 40	P210045	C# X7R MU 47N K 50 1206	1
C 41	P210139	C# COG MU 33P J 50 1206	1
C 43	P210185	C# COG MU 390P J 50 1206	1
C 44	P210122	C# X7R MU 100N K 50 1206	1
C 45	P210185	C# COG MU 390P J 50 1206	1
C 46	R111477	C EL RA 100M M 25E2 85	1
C 47	R111477	C EL RA 100M M 25E2 85	1
C 48	P210122	C# X7R MU 100N K 50 1206	1
C 49	R111477	C EL RA 100M M 25E2 85	1
C 50	P210122	C# X7R MU 100N K 50 1206	1
C 51	P210122	C# X7R MU 100N K 50 1206	1
C 52	P210122	C# X7R MU 100N K 50 1206	1
C 53	P210122	C# X7R MU 100N K 50 1206	1
C 54	P210095	C# X7R MU 330N M 50 1812	1
C 55	P210122	C# X7R MU 100N K 50 1206	1
C 56	P210122	C# X7R MU 100N K 50 1206	1

SIT.	ITEM NO.	DESCRIPTION	QUANTITY
C 57	P210122	C# X7R MU 100N K 50 1206	1
C 58	P210122	C# X7R MU 100N K 50 1206	1
C 59	P210095	C# X7R MU 330N M 50 1812	1
C 60	R111477	C EL RA 100M M 25E2 85	1
C 61	P210122	C# X7R MU 100N K 50 1206	1
C 62	P210148	C# Y5V MU 470N Z 25 1206	1
C 63	R111476	C EL RA 47M M 25E2 85	1
C 64	R111477	C EL RA 100M M 25E2 85	1
C 65	P210139	C# COG MU 33P J 50 1206	1
C 66	P210139	C# COG MU 33P J 50 1206	1
C 67	P210102	C# COG MU 470P J 50 1206	1
C 68	P210153	C# Z5U MU 1M M 63 1812	1
C 69	P210092	C# X7R MU 10N K 50 1206	1
C 70	P212006	C# TA 4M7M 16 3528	1
C 71	P210095	C# X7R MU 330N M 50 1812	1
C 72	P210010	C# COG MU 68P J 50 1206	1
C 73	P210095	C# X7R MU 330N M 50 1812	1
C 74	P210122	C# X7R MU 100N K 50 1206	1
C 75	P210122	C# X7R MU 100N K 50 1206	1
C 76	P210122	C# X7R MU 100N K 50 1206	1
C 77	P210122	C# X7R MU 100N K 50 1206	1
C 78	P210095	C# X7R MU 330N M 50 1812	1
C 79	P210121	C# COG MU 330P J 50 1206	1
C 80	R111477	C EL RA 100M M 25E2 85	1
C 81	R111476	C EL RA 47M M 25E2 85	1
C 82	P210095	C# X7R MU 330N M 50 1812	1
C 83	R111477	C EL RA 100M M 25E2 85	1
C 84	P210095	C# X7R MU 330N M 50 1812	1
C 85	P210095	C# X7R MU 330N M 50 1812	1
C 86	R111477	C EL RA 100M M 25E2 85	1
C 87	P210022	C# COG MU 150P J 50 0805	1
C 90	P210122	C# X7R MU 100N K 50 1206	1
C 91	P210122	C# X7R MU 100N K 50 1206	1
C 92	P210122	C# X7R MU 100N K 50 1206	1
C 93	P210122	C# X7R MU 100N K 50 1206	1
C 94	P210122	C# X7R MU 100N K 50 1206	1
D 1	P234099	D#4148 R DMMELF	1
D 2	P234099	D#4148 R DMMELF	1
D 3	P234259	D#BA682 S035A1 DMMELF	1
D 4	P234259	D#BA682 S035A1 DMMELF	1
D 6	P234055	D#BAT54 SCH SOT23	1
D 7	P234099	D#4148 R DMMELF	1
D 10	P234099	D#4148 R DMMELF	1
D 11	P234099	D#4148 R DMMELF	1
D 12	P234099	D#4148 R DMMELF	1
D 13	P234099	D#4148 R DMMELF	1
D 14	P234099	D#4148 R DMMELF	1
D 15	P234099	D#4148 R DMMELF	1
D 16	P234099	D#4148 R DMMELF	1
D 17	P234099	D#4148 R DMMELF	1
D 18	P234099	D#4148 R DMMELF	1
D 19	P234099	D#4148 R DMMELF	1
D 20	P234099	D#4148 R DMMELF	1
D 21	P234099	D#4148 R DMMELF	1
D 22	P234099	D#4148 R DMMELF	1
D 23	P234099	D#4148 R DMMELF	1
D 24	P234099	D#4148 R DMMELF	1
D 25	P234099	D#4148 R DMMELF	1
D 26	P234099	D#4148 R DMMELF	1
D 27	P234099	D#4148 R DMMELF	1
D 28	P234099	D#4148 R DMMELF	1
D 29	P234099	D#4148 R DMMELF	1
D 30	P234040	D#LED LSS260 RED SOT23	1
D 31	P234040	D#LED LSS260 RED SOT23	1

SIT.	ITEM NO.	DESCRIPTION	QUANTITY
D 32	P234040	D#LED LSS260 RED SOT23	1
D 33	P234040	D#LED LSS260 RED SOT23	1
D 34	P234040	D#LED LSS260 RED SOT23	1
D 35	P234040	D#LED LSS260 RED SOT23	1
D 36	P234040	D#LED LSS260 RED SOT23	1
D 37	P234040	D#LED LSS260 RED SOT23	1
D 40	P234099	D#4148 R DMMELF	1
D 41	P234099	D#4148 R DMMELF	1
D 42	P234099	D#4148 R DMMELF	1
D 43	P234055	D#BAT54 SCH SOT23	1
D 44	P234099	D#4148 R DMMELF	1
D 45	P234099	D#4148 R DMMELF	1
D 46	P234055	D#BAT54 SCH SOT23	1
D 47	P234099	D#4148 R DMMELF	1
D 48	P234099	D#4148 R DMMELF	1
D 49	P234099	D#4148 R DMMELF	1
D 50	P234099	D#4148 R DMMELF	1
D 51	P234099	D#4148 R DMMELF	1
D 52	P234099	D#4148 R DMMELF	1
D 53	P234099	D#4148 R DMMELF	1
D 54	P234099	D#4148 R DMMELF	1
D 55	P234099	D#4148 R DMMELF	1
D 56	P234099	D#4148 R DMMELF	1
D 57	P234099	D#4148 R DMMELF	1
D 59	P234099	D#4148 R DMMELF	1
D 60	P234099	D#4148 R DMMELF	1
D 61	P234099	D#4148 R DMMELF	1
D 62	P234099	D#4148 R DMMELF	1
D 63	P234099	D#4148 R DMMELF	1
D 64	P234099	D#4148 R DMMELF	1
D 65	P234099	D#4148 R DMMELF	1
D 66	P234099	D#4148 R DMMELF	1
D 67	P234099	D#4148 R DMMELF	1
D 68	P234099	D#4148 R DMMELF	1
D 69	P234099	D#4148 R DMMELF	1
D 70	P234099	D#4148 R DMMELF	1
D 71	P234099	D#4148 R DMMELF	1
D 72	P234099	D#4148 R DMMELF	1
D 73	P234099	D#4148 R DMMELF	1
D 74	P234099	D#4148 R DMMELF	1
D 75	P234099	D#4148 R DMMELF	1
D 76	P234099	D#4148 R DMMELF	1
D 77	P234099	D#4148 R DMMELF	1
D 78	P234099	D#4148 R DMMELF	1
D 79	P234099	D#4148 R DMMELF	1
D 80	P234099	D#4148 R DMMELF	1
D 81	P234099	D#4148 R DMMELF	1
D 82	P234099	D#4148 R DMMELF	1
D 83	P234099	D#4148 R DMMELF	1
D 84	P234099	D#4148 R DMMELF	1
D 85	P234099	D#4148 R DMMELF	1
D 86	P234040	D#LED LSS260 RED SOT23	1
D 87	P234040	D#LED LSS260 RED SOT23	1
D 88	P234056	D#4002 R DMELF	1
D 89	P234099	D#4148 R DMMELF	1
D 90	P234099	D#4148 R DMMELF	1
I 1	P2309910	U#68EC000-16 MC PLCC68 P	1
I 3	P230506	U#68901 MK PLCC52 P	1
I 4	P230625	U#68230-8 TS PLCC52 P	1
I 5	P230756	U#SRAM 32KX8 70FP28 P	1
I 6	P231055	U#28C64B -15PLCC32 P	1
I 7	R32833001	U_S G 808 ADEC V301 GB	1
I 8	R328331	U_S G 808 INT V100	1
I 10	P230498	U#74HCT03 SO14 I	1
I 11	P230222	U#74HC03 SO14 I	1
I 12	P230051	U#74HCT245 SOL20 I	1
I 13	P230051	U#74HCT245 SOL20 I	1
I 14	P230266	U#353 LF SO8 P	1
I 15	P2300090	U#14046B MC SOL16 I	1
I 16	P230025	U#74HC123 SO16 I	1
I 17	R132882	U#1 TG PLCC68 P	1
I 18	P231268	U#SRAM 32KX8 15SOJ28 P	1
I 19	P230372	U#80C32 PLCC44 P	1
I 20	P230164	U#74HC573 SOL20 I	1
I 21	R32831308	U_S G1208 RWI V508	1
I 22	P230231	U#74HC08 SO14 I	1
I 23	P230318	U#74HC245 SOL20 I	1
I 24	P230164	U#74HC573 SOL20 I	1
I 25	P230028	U#393 LM SO8 P	1
I 26	P230072	U#74HC00 SO14 I	1
I 27	P230021	U#74HC04 SO14 I	1
I 28	P230102	U#74HCT00 SO14 I	1
I 29	P230499	U#74HCT14 SO14 I	1
I 30	P230526	U#74AC32 SO14 I	1
I 31	P230754	U#74AC541 SOL20 I	1
I 33	R134030	U 2940CT05LM TO220 P	1
I 34	R134001	U 7805 TO220 P	1
I 35	R134030	U 2940CT05LM TO220 P	1
I 36	R134016	U 7912 TO220 P	1
I 37	P230025	U#74HC123 SO16 I	1
I 39	P230384	U#74AC00 SO14 I	1
I 40	P230072	U#74HC00 SO14 I	1
I 41	P230046	U#74HC393 SO14 I	1
J 1	R313925	J CT H MBT P 5 M2SN WH	1
J 2	R313928	J CT H MBT P 8 M2SN WH	1
J 3	R313927	J CT H MBT P 7 M2SN WH	1
J 5	R313926	J CT H MBT P 6 M2SN WH	1
J 6	R313924	J CT H MBT P 4 M2SN WH	1
J 7	V3135931	J EUR2R2FBS P32 E1C2S 1,6	1
J 8	R315302	J PIN PR D1,3L 5,5+3	1
J 9	R315302	J PIN PR D1,3L 5,5+3	1
J 10	R315302	J PIN PR D1,3L 5,5+3	1
J 11	R315302	J PIN PR D1,3L 5,5+3	1
J 13	R315302	J PIN PR D1,3L 5,5+3	1
J 14	R315302	J PIN PR D1,3L 5,5+3	1
PC	R780382	PCB *800 CTRL 68000	1
Q 1	P232076	Q#BFS17 N SS SOT23	1
Q 2	P232076	Q#BFS17 N SS SOT23	1
Q 3	P232076	Q#BFS17 N SS SOT23	1
Q 4	P232076	Q#BFS17 N SS SOT23	1
Q 5	P232158	Q#BF824 P SS SOT23	1
Q 6	P232158	Q#BF824 P SS SOT23	1
Q 8	P232050	Q#BC857B P SS SOT23	1
Q 9	P232051	Q#BC847B N SS SOT23	1
Q 10	P232051	Q#BC847B N SS SOT23	1
Q 11	P232051	Q#BC847B N SS SOT23	1
Q 12	P232051	Q#BC847B N SS SOT23	1
Q 13	P232050	Q#BC857B P SS SOT23	1
Q 14	P232051	Q#BC847B N SS SOT23	1
Q 15	P232051	Q#BC847B N SS SOT23	1
Q 16	P232101	Q#BC859C P SS SOT23	1
Q 20	P232101	Q#BC859C P SS SOT23	1
Q 21	P232051	Q#BC847B N SS SOT23	1
Q 22	P232051	Q#BC847B N SS SOT23	1
Q 23	P232004	Q#BC849C N SS SOT23	1
Q 24	P232051	Q#BC847B N SS SOT23	1
Q 25	P232050	Q#BC857B P SS SOT23	1
Q 26	P232050	Q#BC857B P SS SOT23	1
R 1	P200411	R# CE H 1K F 0W12 1206	1

SIT.	ITEM NO.	DESCRIPTION	QUANTITY
R 2	P200415	R# CE H 1K5 F 0W12 1206	1
R 3	P200415	R# CE H 1K5 F 0W12 1206	1
R 4	P200415	R# CE H 1K5 F 0W12 1206	1
R 5	P200443	R# CE H 22K F 0W12 1206	1
R 6	P200411	R# CE H 1K F 0W12 1206	1
R 7	P200415	R# CE H 1K5 F 0W12 1206	1
R 8	P200415	R# CE H 1K5 F 0W12 1206	1
R 9	P200411	R# CE H 1K F 0W12 1206	1
R 11	P200379	R# CE H 47E F 0W12 1206	1
R 12	P200475	R# CE H470K F 0W12 1206	1
R 13	P200403	R# CE H470E F 0W12 1206	1
R 14	P200403	R# CE H470E F 0W12 1206	1
R 15	P200435	R# CE H 10K F 0W12 1206	1
R 16	P200435	R# CE H 10K F 0W12 1206	1
R 17	R101528	R MF H220E F 0W4 E3	1
R 18	P200415	R# CE H 1K5 F 0W12 1206	1
R 19	P200405	R# CE H560E F 0W12 1206	1
R 20	P200403	R# CE H470E F 0W12 1206	1
R 21	P200401	R# CE H390E F 0W12 1206	1
R 22	P200401	R# CE H390E F 0W12 1206	1
R 23	P200381	R# CE H 56E F 0W12 1206	1
R 24	P200385	R# CE H 82E F 0W12 1206	1
R 25	P200403	R# CE H470E F 0W12 1206	1
R 26	P200423	R# CE H 3K3 F 0W12 1206	1
R 28	P200403	R# CE H470E F 0W12 1206	1
R 29	P200435	R# CE H 10K F 0W12 1206	1
R 30	P200415	R# CE H 1K5 F 0W12 1206	1
R 31	P200415	R# CE H 1K5 F 0W12 1206	1
R 32	P200413	R# CE H 1K2 F 0W12 1206	1
R 33	P200415	R# CE H 1K5 F 0W12 1206	1
R 34	P200413	R# CE H 1K2 F 0W12 1206	1
R 35	P200415	R# CE H 1K5 F 0W12 1206	1
R 36	P200427	R# CE H 4K7 F 0W12 1206	1
R 37	P200433	R# CE H 8K2 F 0W12 1206	1
R 38	P200423	R# CE H 3K3 F 0W12 1206	1
R 39	P200423	R# CE H 3K3 F 0W12 1206	1
R 40	P200423	R# CE H 3K3 F 0W12 1206	1
R 41	P200435	R# CE H 10K F 0W12 1206	1
R 42	P200439	R# CE H 15K F 0W12 1206	1
R 43	P200387	R# CE H100E F 0W12 1206	1
R 44	P200401	R# CE H390E F 0W12 1206	1
R 45	P202228	R# MF H100E F 0W25 MMELF	1
R 47	P200411	R# CE H 1K F 0W12 1206	1
R 48	P200411	R# CE H 1K F 0W12 1206	1
R 50	P200379	R# CE H 47E F 0W12 1206	1
R 51	P200379	R# CE H 47E F 0W12 1206	1
R 52	P200379	R# CE H 47E F 0W12 1206	1
R 53	P200459	R# CE H100K F 0W12 1206	1
R 54	P200427	R# CE H 4K7 F 0W12 1206	1
R 55	P200505	R# CE H 8M2 F 0W12 1206	1
R 56	P200473	R# CE H390K F 0W12 1206	1
R 57	P200447	R# CE H 33K F 0W12 1206	1
R 58	P200449	R# CE H 39K F 0W12 1206	1
R 59	P200435	R# CE H 10K F 0W12 1206	1
R 60	P200457	R# CE H 82K F 0W12 1206	1
R 61	P200423	R# CE H 3K3 F 0W12 1206	1
R 62	P200443	R# CE H 22K F 0W12 1206	1
R 63	P200463	R# CE H150K F 0W12 1206	1
R 64	P200465	R# CE H180K F 0W12 1206	1
R 65	P200427	R# CE H 4K7 F 0W12 1206	1
R 66	P200409	R# CE H820E F 0W12 1206	1
R 67	P200409	R# CE H820E F 0W12 1206	1
R 68	P200409	R# CE H820E F 0W12 1206	1
R 69	P200409	R# CE H820E F 0W12 1206	1
R 70	P200409	R# CE H820E F 0W12 1206	1
R 71	P200409	R# CE H820E F 0W12 1206	1
R 72	P200409	R# CE H820E F 0W12 1206	1
R 73	P200409	R# CE H820E F 0W12 1206	1
R 74	P200427	R# CE H 4K7 F 0W12 1206	1
R 75	P200427	R# CE H 4K7 F 0W12 1206	1
R 76	P200435	R# CE H 10K F 0W12 1206	1
R 77	P200439	R# CE H 15K F 0W12 1206	1
R 78	P201354	R# CE H 0E J 0W1 0805	1
R 80	P200387	R# CE H100E F 0W12 1206	1
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R 82	P200409	R# CE H820E F 0W12 1206	1
R 83	P200435	R# CE H 10K F 0W12 1206	1
R 84	P200407	R# CE H680E F 0W12 1206	1
R 85	P200417	R# CE H 1K8 F 0W12 1206	1
R 86	P200387	R# CE H100E F 0W12 1206	1
R 87	P200411	R# CE H 1K F 0W12 1206	1
R 88	P200387	R# CE H100E F 0W12 1206	1
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R 90	P200447	R# CE H 33K F 0W12 1206	1
R 91	P200387	R# CE H100E F 0W12 1206	1
R 92	P200411	R# CE H 1K F 0W12 1206	1
R 93	P200403	R# CE H470E F 0W12 1206	1
R 94	P200387	R# CE H100E F 0W12 1206	1
R 95	P200427	R# CE H 4K7 F 0W12 1206	1
R 96	P200427	R# CE H 4K7 F 0W12 1206	1
R 97	P200387	R# CE H100E F 0W12 1206	1
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R104	P200387	R# CE H100E F 0W12 1206	1
R105	P200395	R# CE H220E F 0W12 1206	1
R106	P200387	R# CE H100E F 0W12 1206	1
R107	P200387	R# CE H100E F 0W12 1206	1
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R111	P200387	R# CE H100E F 0W12 1206	1
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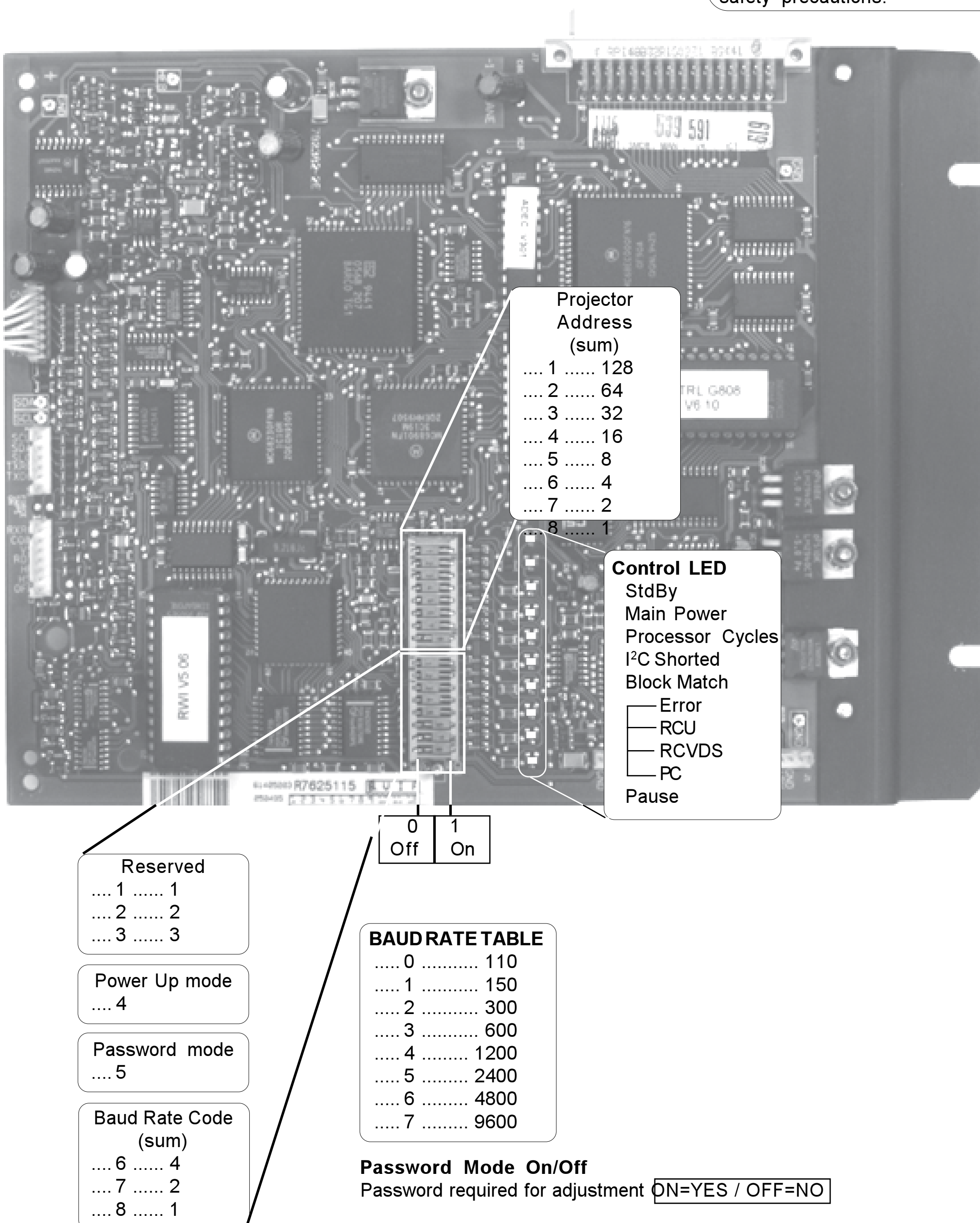
R113	P200389	R# CE H120E F 0W12 1206	1
R114	P200449	R# CE H 39K F 0W12 1206	1
R115	P200411	R# CE H 1K F 0W12 1206	1
R116	P200411	R# CE H 1K F 0W12 1206	1
R117	R1011907	R CFFH E1 K 0W35	1
R118	R1011008	R CFFH 1E J 0W25	1
R119	R1011907	R CFFH E1 K 0W35	1
R120	P200411	R# CE H 1K F 0W12 1206	1
R121	P200385	R# CE H 82E F 0W12 1206	1
R122	P200435	R# CE H 10K F 0W12 1206	1
R123	P200435	R# CE H 10K F 0W12 1206	1
R124	P200475	R# CE H470K F 0W12 1206	1
R125	P200411	R# CE H 1K F 0W12 1206	1
R126	P200411	R# CE H 1K F 0W12 1206	1
R127	P200435	R# CE H 10K F 0W12 1206	1
R128	P200435	R# CE H 10K F 0W12 1206	1
R129	P200411	R# CE H 1K F 0W12 1206	1
R130	P200427	R# CE H 4K7 F 0W12 1206	1
R131	P200435	R# CE H 10K F 0W12 1206	1
R132	P200435	R# CE H 10K F 0W12 1206	1
R133	R101560	R MF H100K F 0W4 E3	1
S 1	R324184	SW DIP SLD 1A P 8 BT SN	1 ⚠
S 2	R324184	SW DIP SLD 1A P 8 BT SN	1 ⚠
XT 1	A573058	XO 16M000000 TN-10DIP 8M	1
XT 2	P252512	X# 9,216 MHZ MG3A	1

SIT.	ITEM NO.	DESCRIPTION	QUANTITY
Z 1	P234057	D#ZEN 8V2 0W5 C DMMELF	1
Z 2	P234268	D#ZEN 6V8 0W5 C DMMELF	1
Z 3	P234268	D#ZEN 6V8 0W5 C DMMELF	1
Z 4	P234213	D#ZEN 3V3 0W5 C DMMELF	1
Z 5	P234164	D#ZEN 5V6 0W5 C DMMELF	1
Z 6	P234179	D#ZEN 20V 0W5 C DMMELF	1
Z 7	P234164	D#ZEN 5V6 0W5 C DMMELF	1
Z 8	P234164	D#ZEN 5V6 0W5 C DMMELF	1
Z 9	P234164	D#ZEN 5V6 0W5 C DMMELF	1

PRODUCT SAFETY NOTICE

Components identified by ⚠ have SPECIAL CHARACTERISTICS IMPORTANT TO SAFETY. Before replacing any of these components, read carefully the service safety precautions.

Module SET-UP and Controls



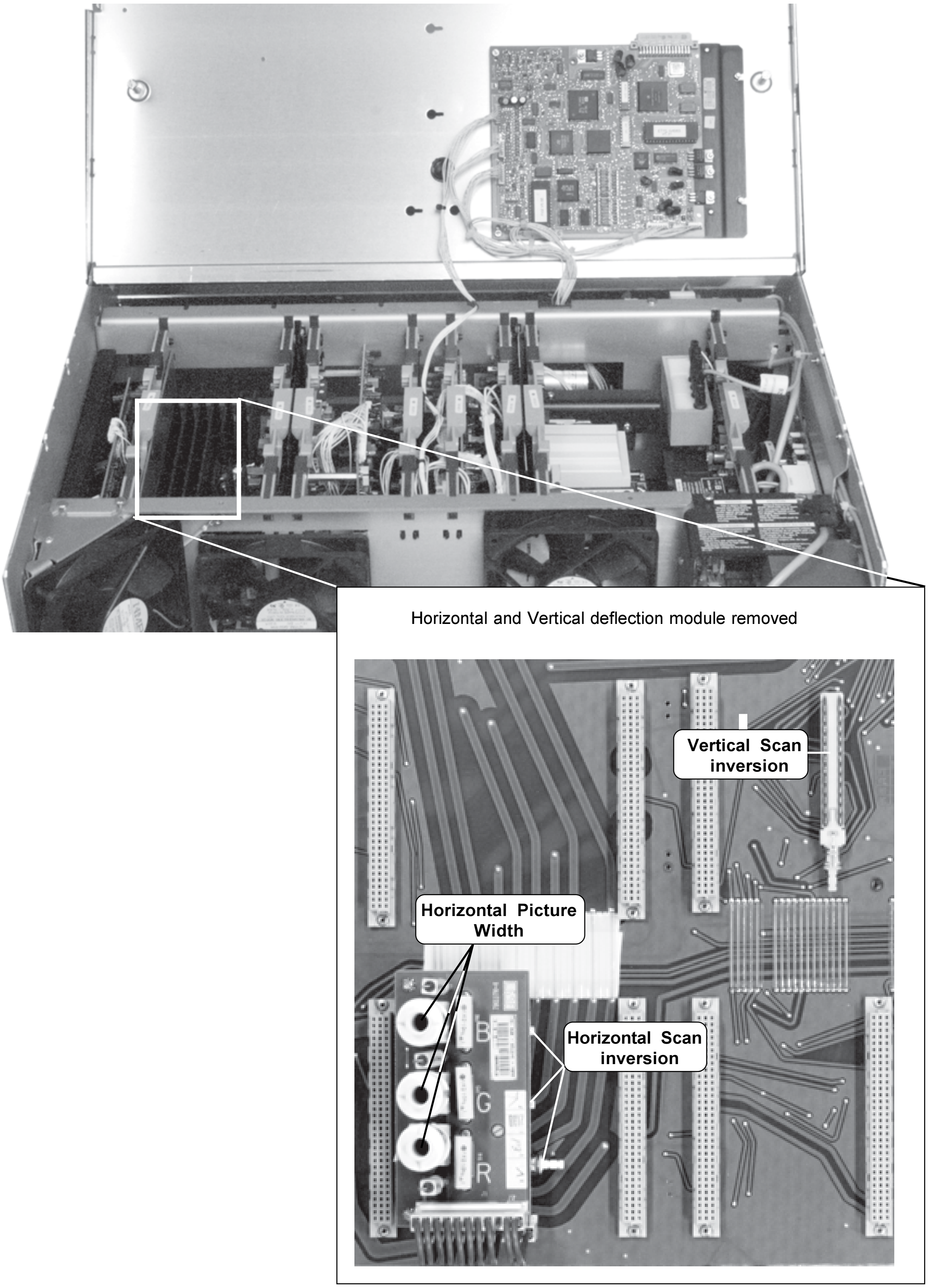
BAUD RATE TABLE

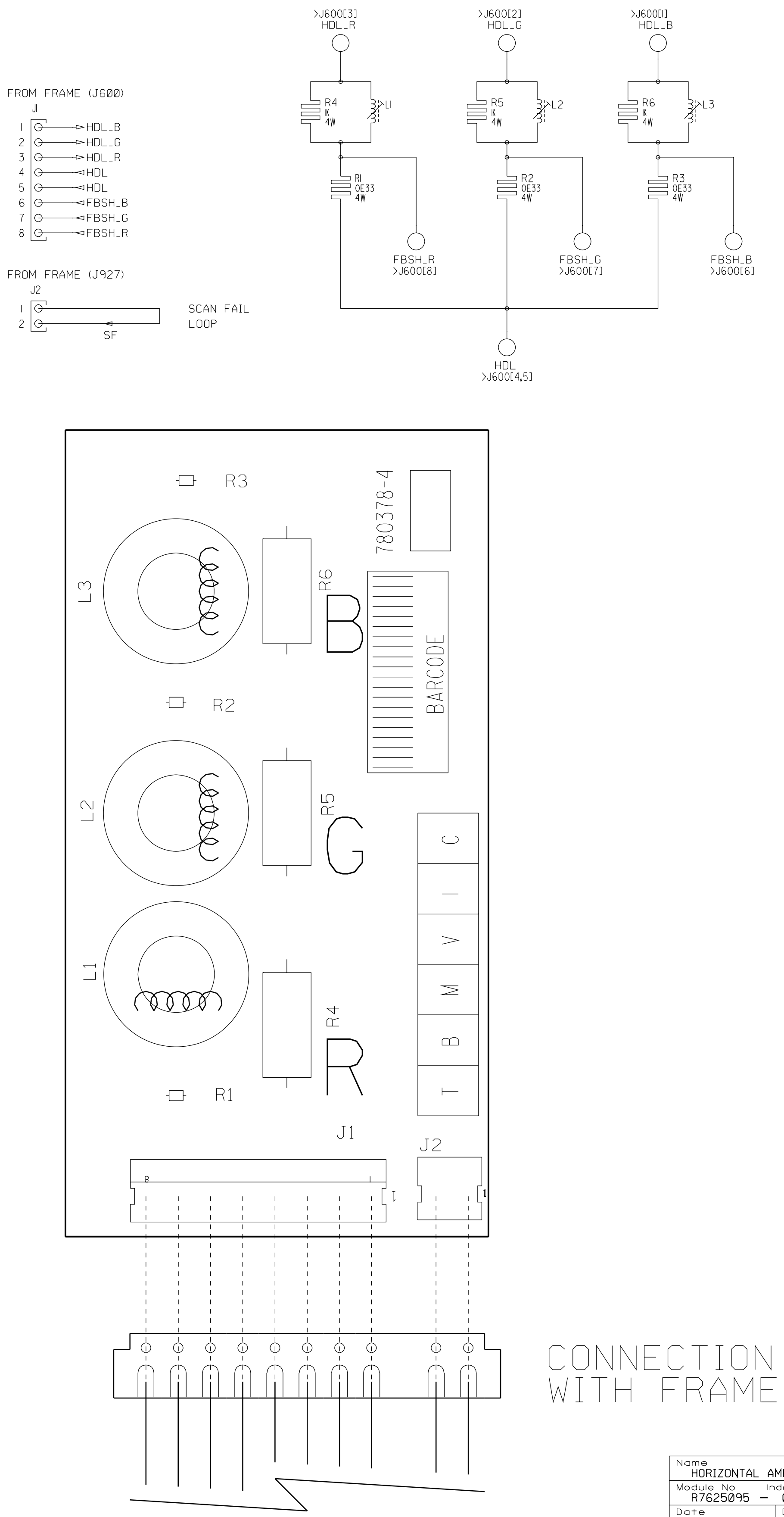
..... 0	110
..... 1	150
..... 2	300
..... 3	600
..... 4	1200
..... 5	2400
..... 6	4800
..... 7	9600

Password Mode On/Off
Password required for adjustment ON=YES / OFF=NO

Power Up Mode On/Off
Operation mode when Power is switched On ON=PLAYING / OFF=STDBY

Deflection Switching/Hor. Amplitude module R7625095



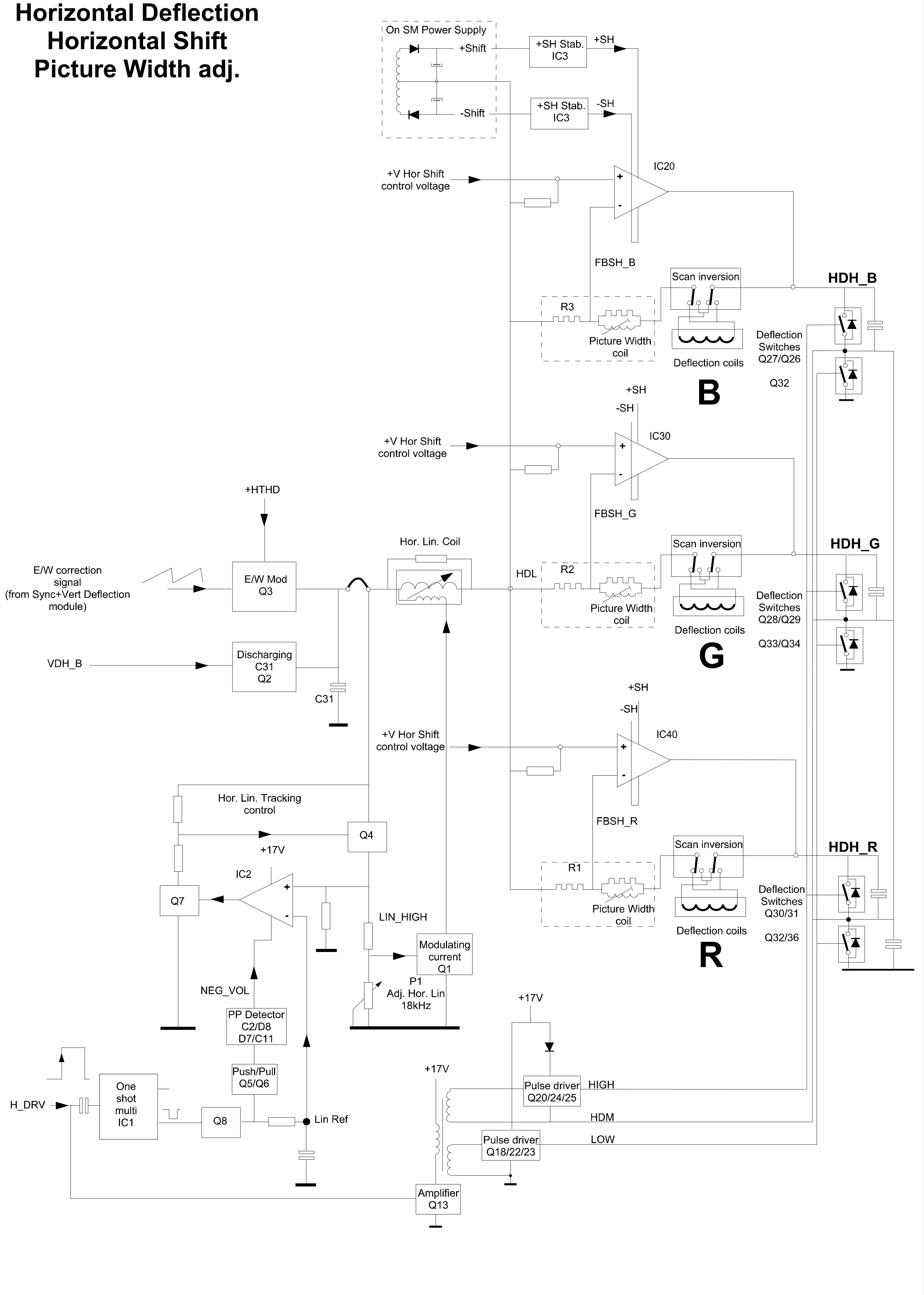


Name: HORIZONTAL AMPLITUDE COILS			Sheet: 1/1
Module No: R7625095	Index: 0	PCB No: R780378	Rev: 4
Date: 04-04-1997	Drawn: JVDY	Checked: KC	

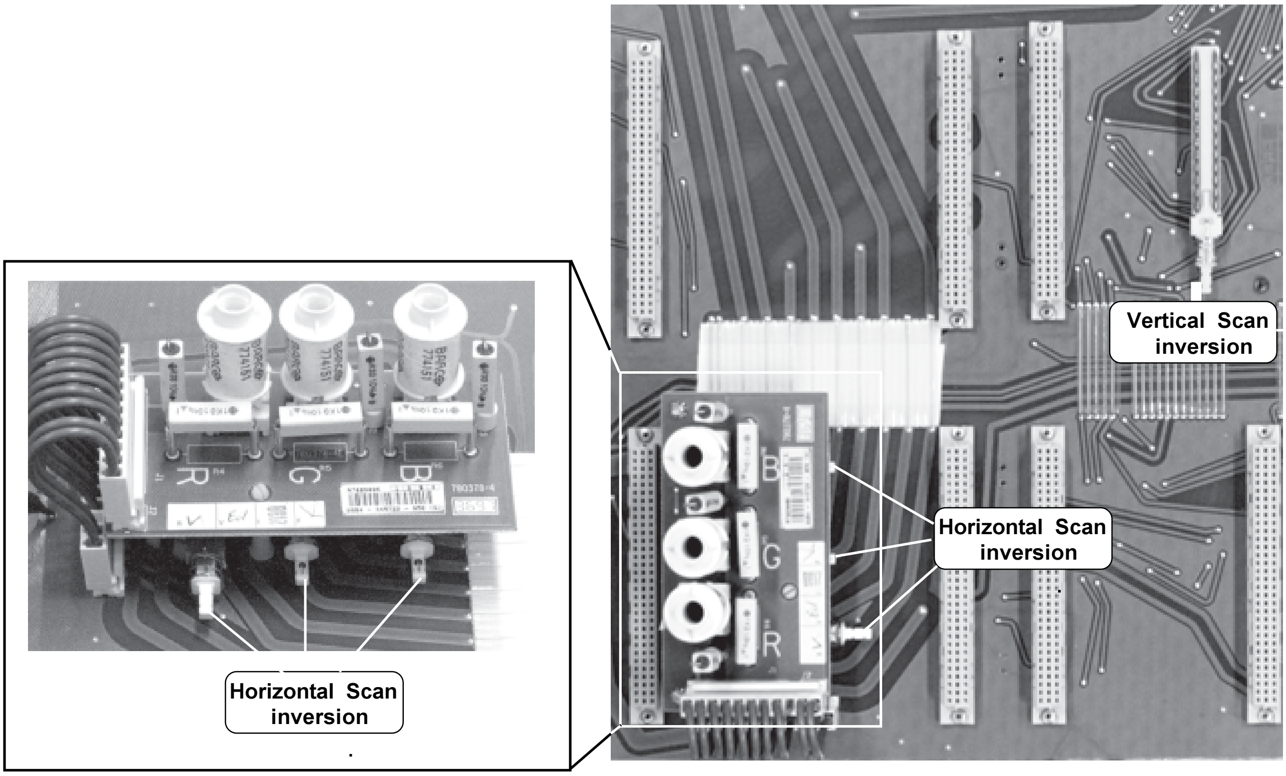
BARCO PROJECTION SYSTEMS

Modifications reserved

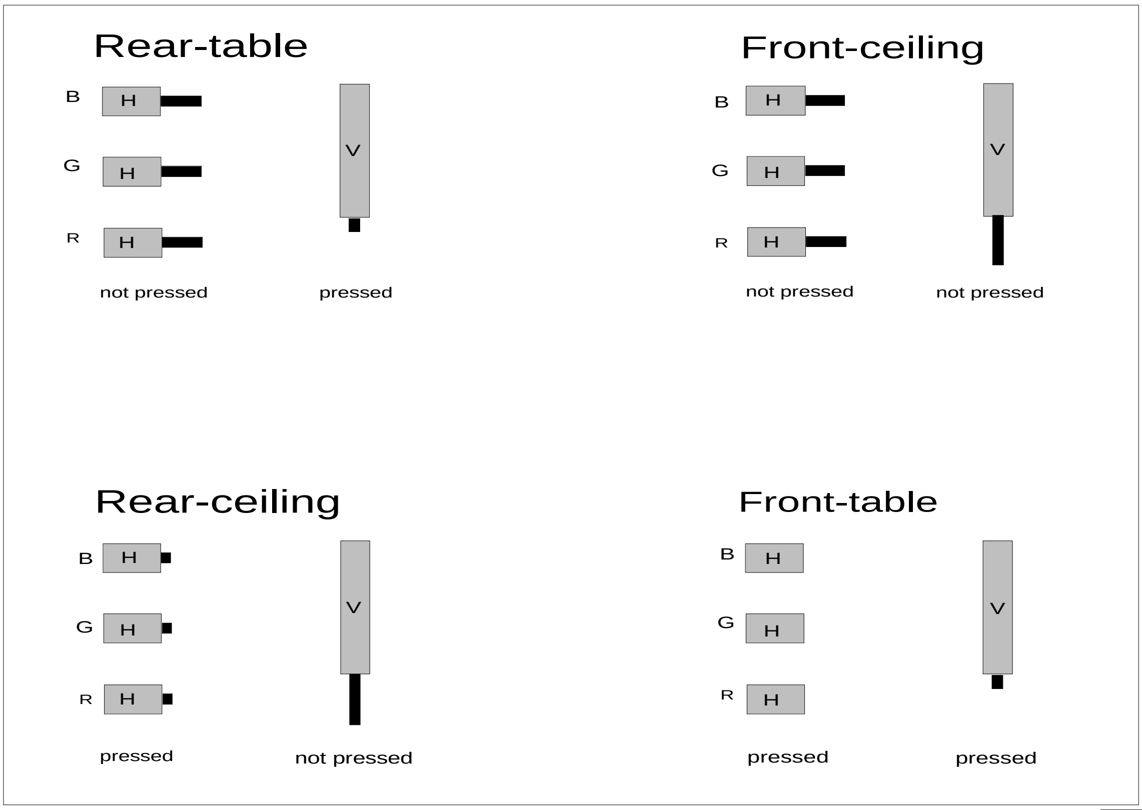
Blockdiagram Horizontal Deflection Horizontal Shift Picture Width adj.



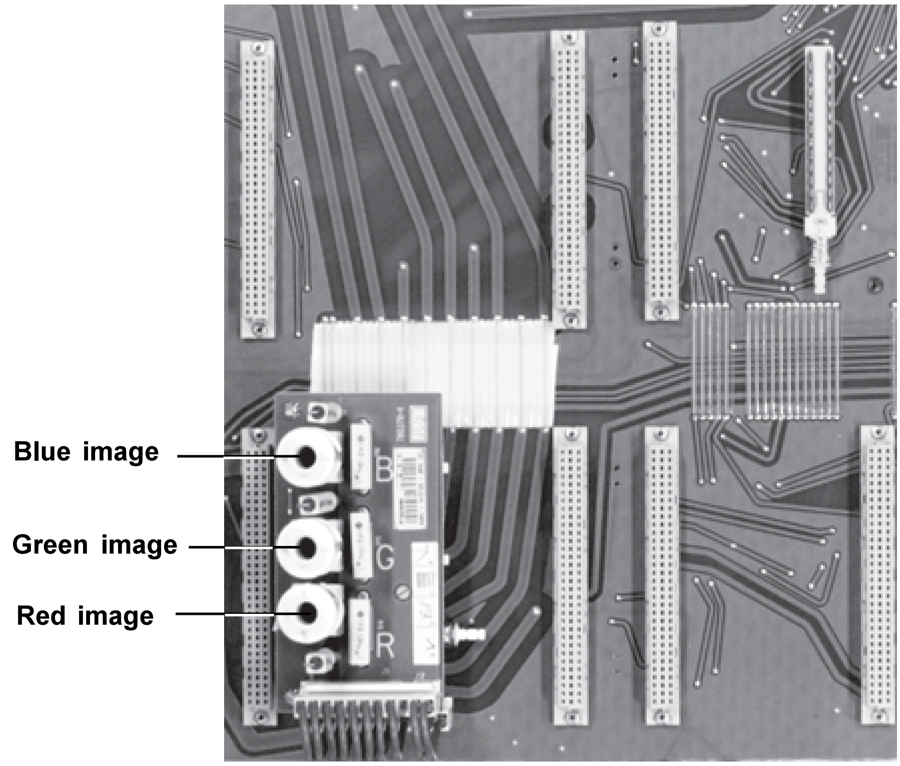
Projector configuration: deflection switches set up



Deflection switches set up



Adjustment procedure for the *Image Width* adjustment Coils



Adjustment procedure

- Decrease the contrast and increase the brightness to reveal the (background) raster.

- Provide either an internally or externally generated source with the highest line to the projector.

- Disable the convergence by entering the Geometry mode and select the Raster Shift adjustment (refer to owner's manual).

- Gently turn the cores of **L1 (R)**, **L2 (G)** and **L3 (B)** in a clockwise direction until there is no more adjustment, i.e. core is fully turned in.

- Identify which raster (R,G or B) has the smallest raster width and adjust the remaining raster via **L1**, **L2** or **L3** in a counter clockwise manner to match the raster with the smallest width. In order to facilitate these adjustments, you may wish to use the horizontal shift control for the raster (R,G or B) that you are adjusting. Disregard any horizontal static convergence errors at this time, they will be corrected later.

Scan inversion

S1, S2 and S3 allow the horizontal scan to be inverted to adapt the projector for a front or rear projection.

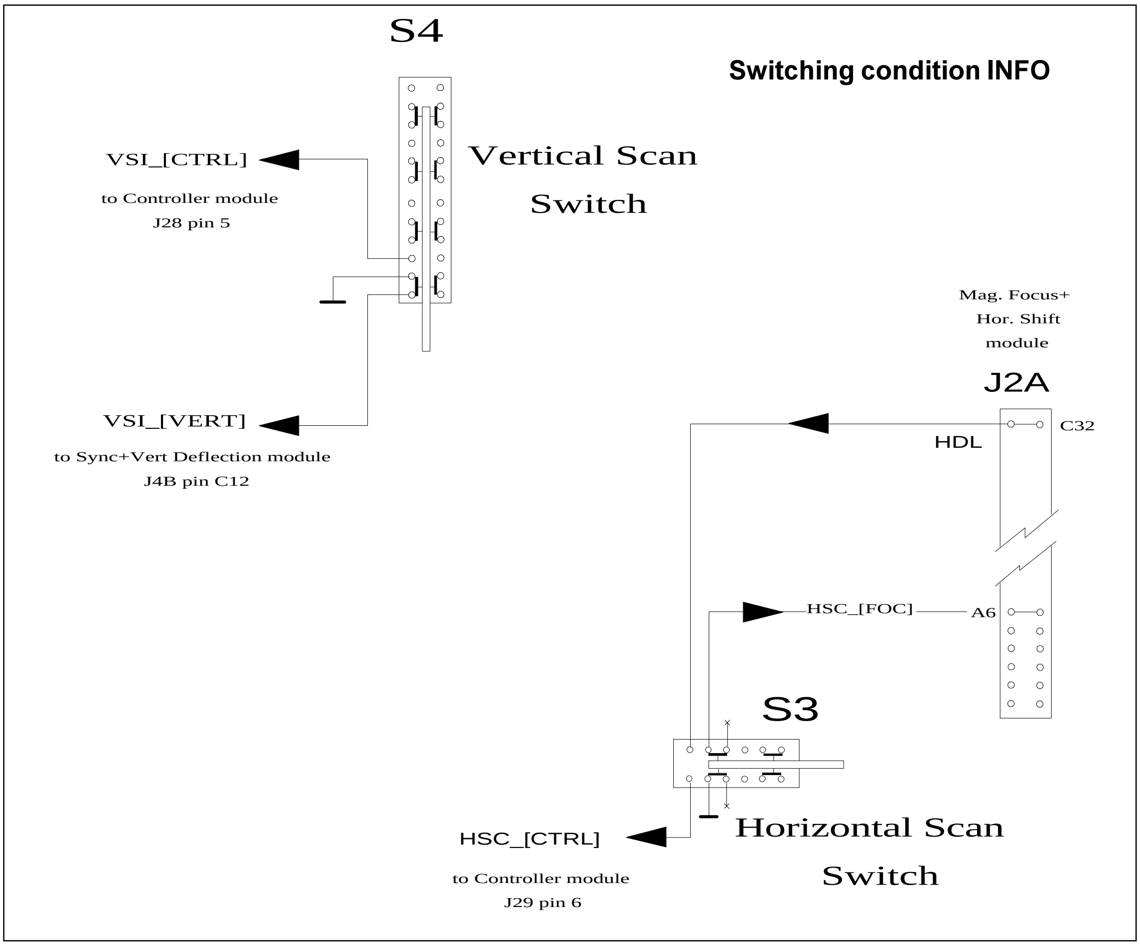
S3 is also used to provide the HSI_[CTRL] information to the controller board , so that the controller board will know the configuration of the horizontal scan switches.

S3 is also used to provide the HSI_[FOC] information to the "HOR SHIFT" module and is used by Q1 and Q2 to invert the shift voltages on P1 and P2 (horizontal shift Red and Blue).

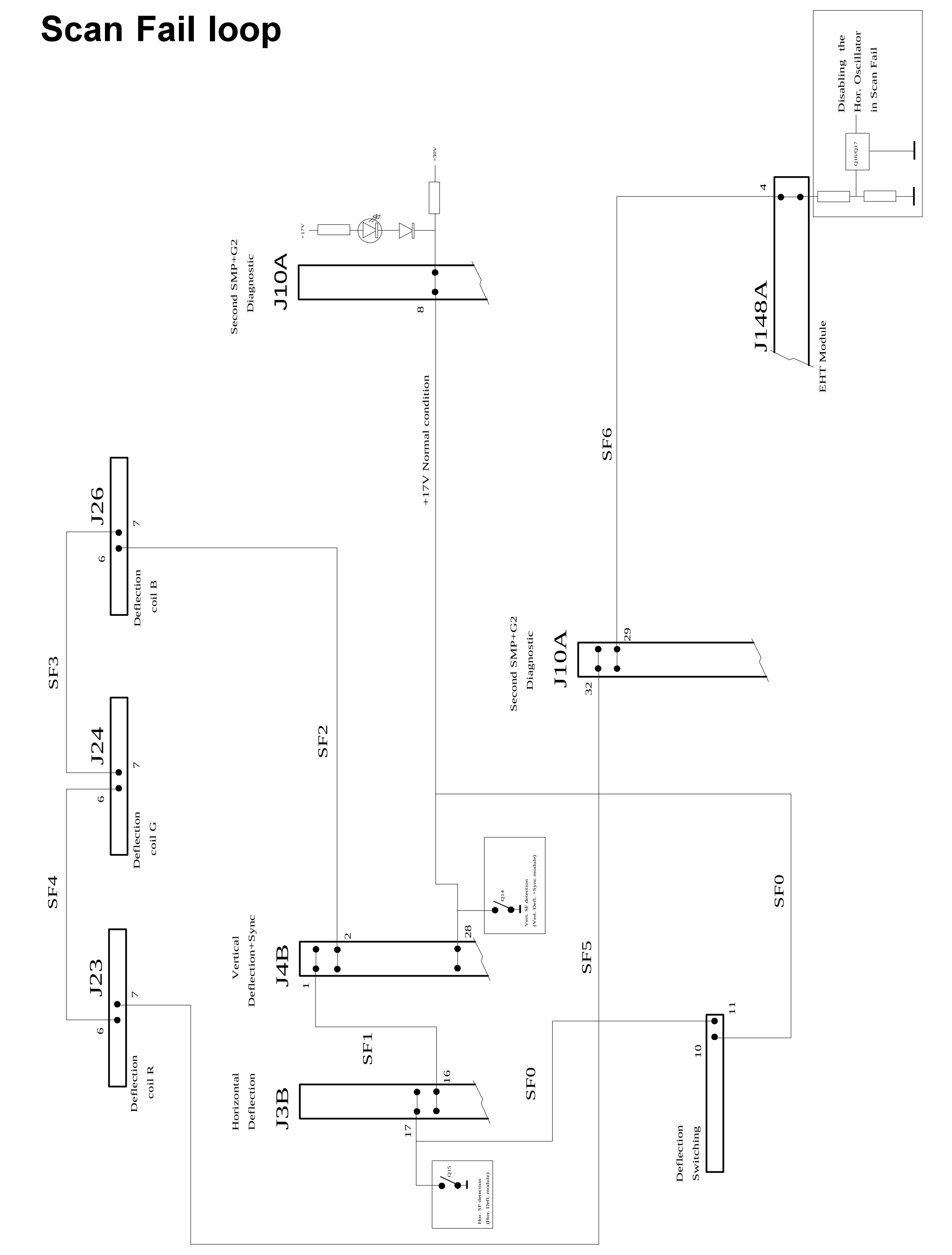
Note that the main board also contains the switch for the inversion of the vertical scan. The VSI [CTRL] info is used for the controller and the VSI [VERT] info for the Vert Defl board (similar to Hor Defl).

The Scan Fail loop (SF0-SF1-SF2-SF3-SF4-SF5-SF6) passes through two contacts of the deflection connectors and two contacts of the connector on the Deflection Switching module. In the event that one of these yoke connectors or Deflection Switching module is disconnected, the projector will go into scan fail, terminating the EHT.

Note: HDM is the midpoint of the two series connected deflection MOSFETS. HDL is the common connection to the three horizontal yoke windings, that supplies the yokes with the +HTHD voltage, after passing through Q3 and the linearity coil.



Scan Fail loop

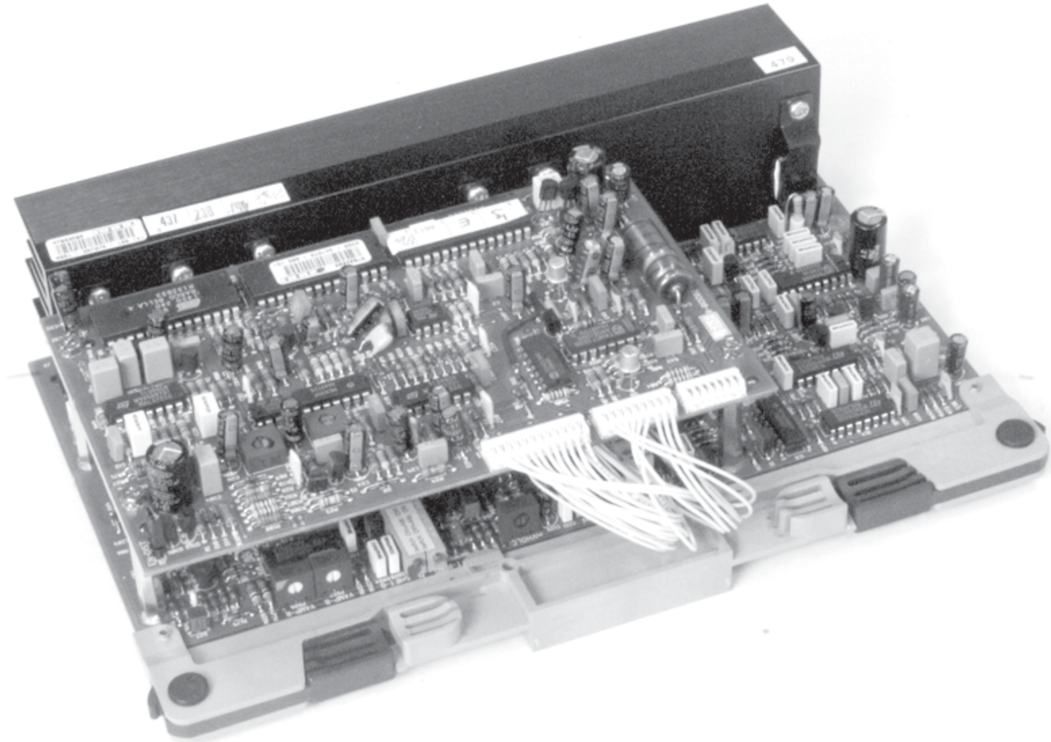


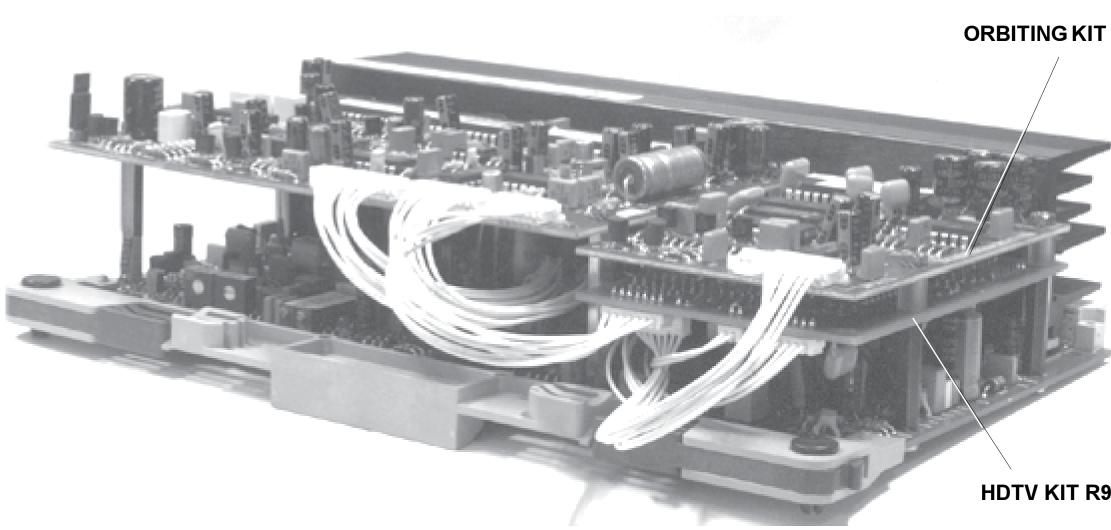
Deflection Switching/Hor. Amplitude module R7625095

Parts listing

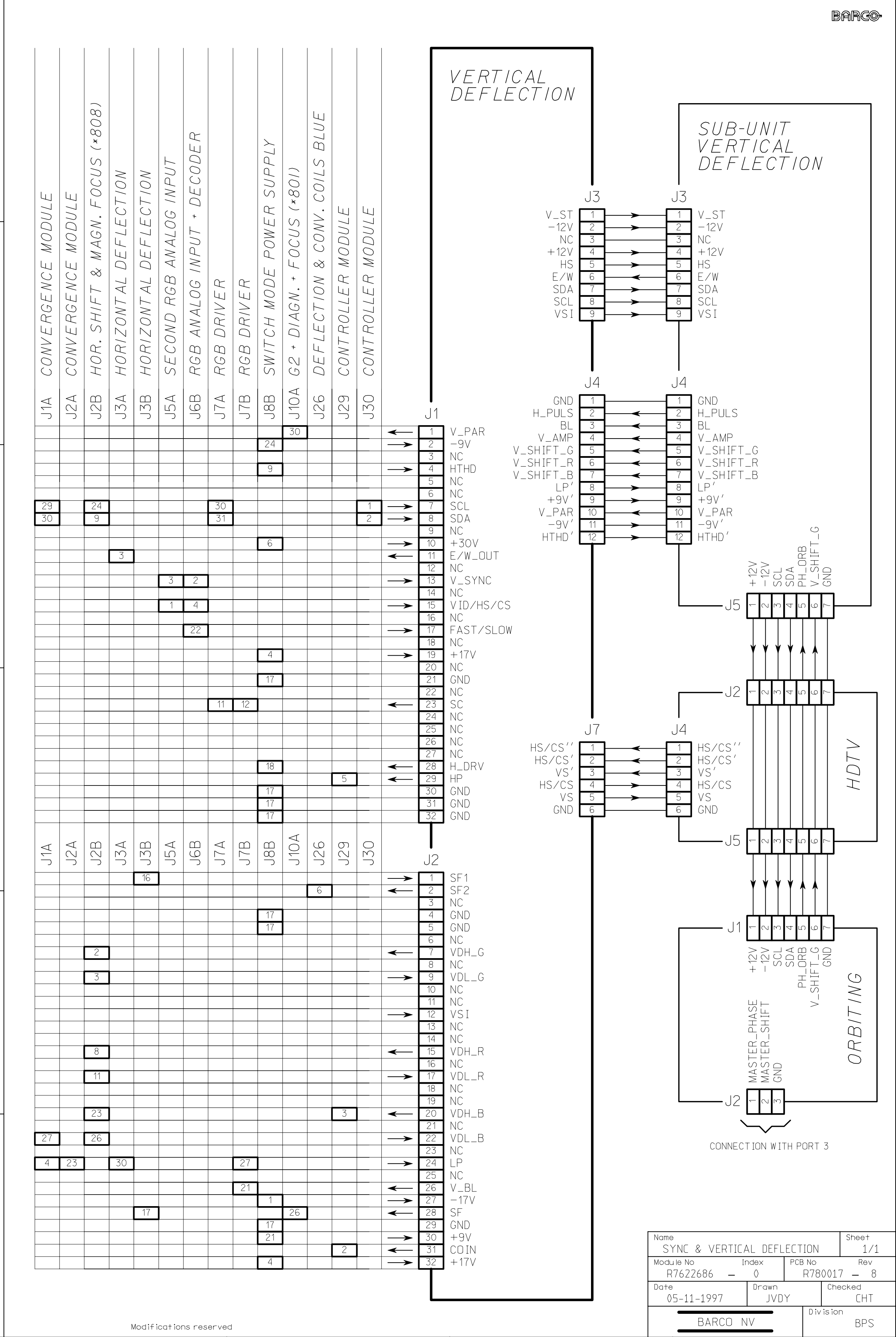
SIT.	ITEM NO.	DESCRIPTION	QUANTITY
20	R133036	SPR L 6 D 6 D 2.4 C	3
10	R315315	J RVT MBT D 2 L14	6
J 1	R3136078	J SL FL MBT P 8 M3,96 RP	1
L 1	R774151	COIL AMP PJ45 HOR DATA	1
L 2	R774151	COIL AMP PJ45 HOR DATA	1
L 3	R774151	COIL AMP PJ45 HOR DATA	1

ITEM NO.	SIT.	DESCRIPTION	
PC	R780378	PCD EP49 G808 H_AMPLITUDE	1
R 1	R103606	R WW H E33K 4W	1
R 2	R103606	R WW H E33K 4W	1
R 3	R103606	R WW H E33K 4W	1
R 4	R103660	R WW H 1K K 3W5	1
R 5	R103660	R WW H 1K K 3W5	1
R 6	R103660	R WW H 1K K 3W5	1

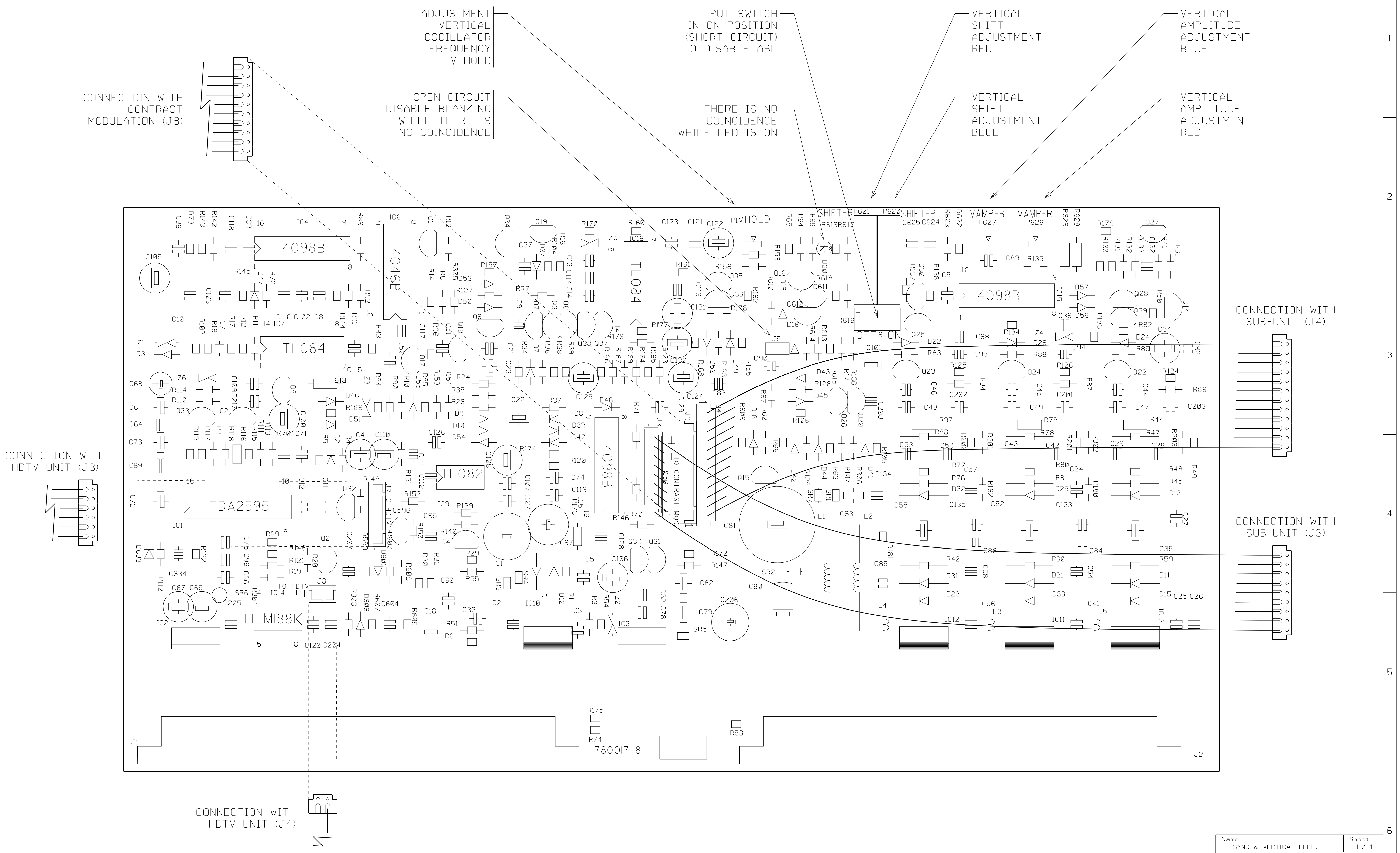




R7622686_r00



Name: SYNC & VERTICAL DEFLECTION			Sheet: 1/1
Module No: R7622686	Index: 0	PCB No: R780017	Rev: 8
Date: 05-11-1997	Drawn: JVDY	Checked: CHT	
BARCO NV		Division: BPS	

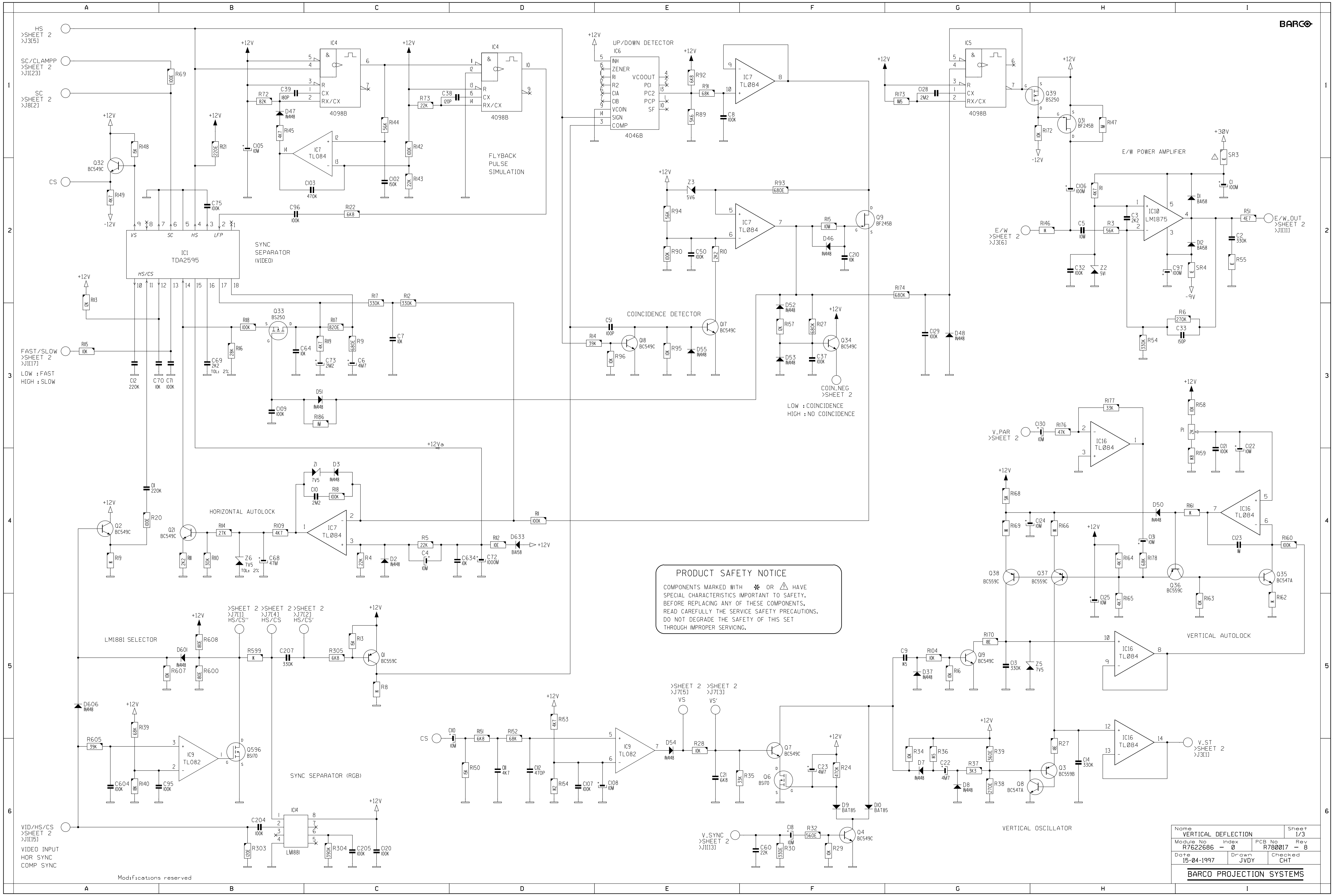


BARCO

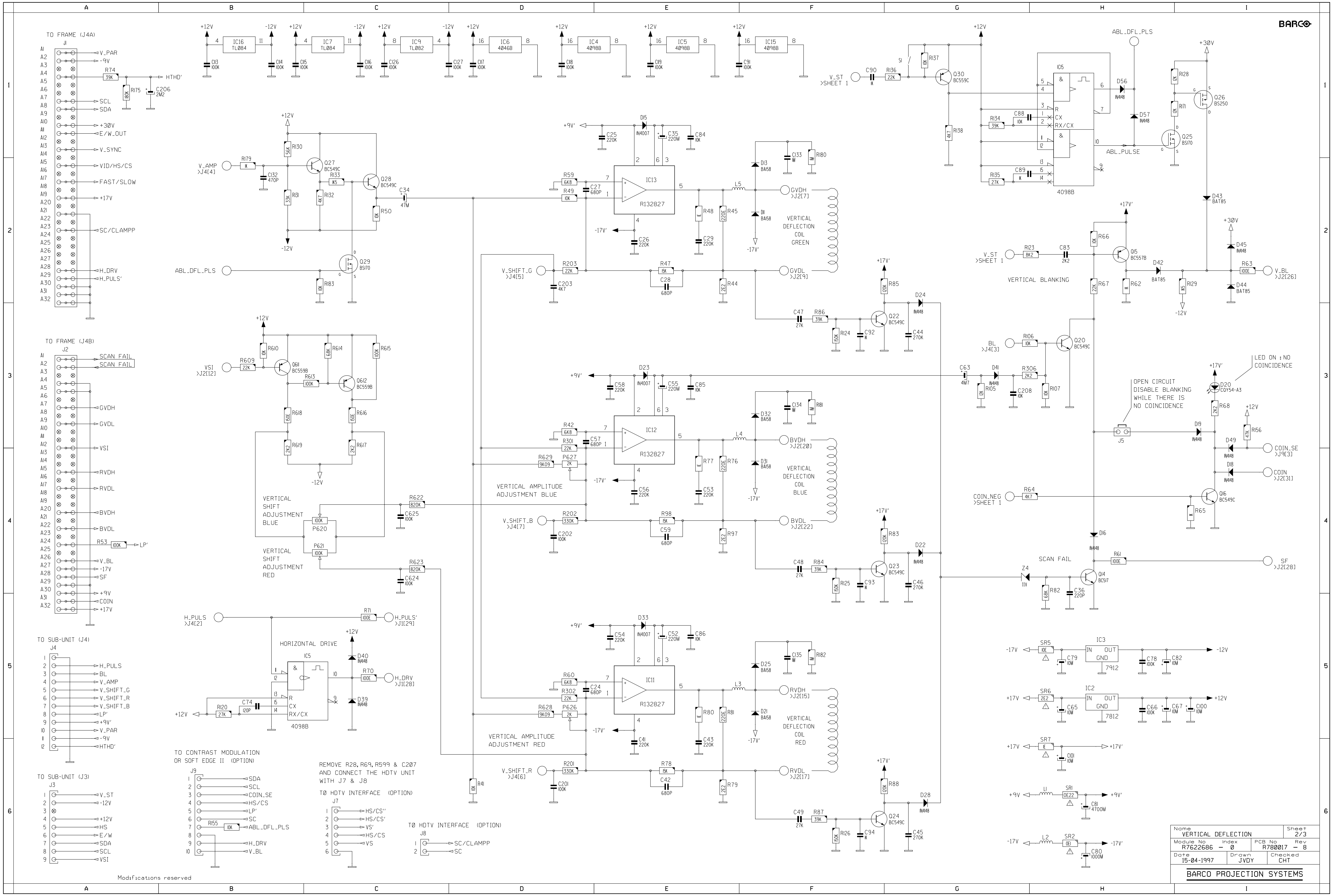
Modifications reserved

Name		Sheet
SYNC & VERTICAL DEFL.		1 / 1
Module No R7622686	Index 0	PCB No R780017 — Rev 8
Date 05-11-1997	Drawn JVDY	Checked CHT

BARCO PROJECTION SYSTEMS



PRODUCT SAFETY NOTICE
COMPONENTS MARKED WITH ✻ OR ⚠ HAVE SPECIAL CHARACTERISTICS IMPORTANT TO SAFETY. BEFORE REPLACING ANY OF THESE COMPONENTS, READ CAREFULLY THE SERVICE SAFETY PRECAUTIONS. DO NOT DEGRADE THE SAFETY OF THIS SET THROUGH IMPROPER SERVICING.
SYNC SEPARATOR (VIDEO)
FLYBACK PULSE SIMULATION
UP/DOWN DETECTOR
COINCIDENCE DETECTOR
E/W POWER AMPLIFIER
HORIZONTAL AUTOLOCK
LM1881 SELECTOR
SYNC SEPARATOR (RGB)
VERTICAL AUTOLOCK
VERTICAL OSCILLATOR
LOW : COINCIDENCE
HIGH : NO COINCIDENCE
LOW : FAST
HIGH : SLOW
VIDEO INPUT
HOR SYNC
COMP SYNC
Modifications reserved
Name VERTICAL DEFLECTION
Sheet 1/3
Module No R7622686
Index 0
PCB No R780017
Rev 8
Date 15-04-1997
Drawn JVDY
Checked CHT
BARCO PROJECTION SYSTEMS
BARCO


BARCO
TO FRAME (J4A)
TO FRAME (J4B)
TO SUB-UNIT (J4)
TO SUB-UNIT (J3)
VERTICAL DEFLECTION COIL GREEN
VERTICAL DEFLECTION COIL BLUE
VERTICAL DEFLECTION COIL RED
VERTICAL AMPLITUDE ADJUSTMENT BLUE
VERTICAL AMPLITUDE ADJUSTMENT RED
VERTICAL SHIFT ADJUSTMENT BLUE
VERTICAL SHIFT ADJUSTMENT RED
HORIZONTAL DRIVE
VERTICAL BLANKING
SCAN FAIL
OPEN CIRCUIT DISABLE BLANKING WHILE THERE IS NO COINCIDENCE
LED ON : NO COINCIDENCE
TO CONTRAST MODULATION OR SOFT EDGE II (OPTION)
REMOVE R28, R69, R599 & C207 AND CONNECT THE HDTV UNIT WITH J7 & J8
TØ HDTV INTERFACE (OPTION)
TØ HDTV INTERFACE (OPTION)
Modifications reserved
Name VERTICAL DEFLECTION
Sheet 2/3
Module No R7622686
Index Ø
PCB No R780017
Rev 8
Date 15-04-1997
Drawn JVDY
Checked CHT
BARCO PROJECTION SYSTEMS

BARCO

COMP.	LOC.	SHT.
C1	I 2	1
C2	I 2	1
C3	H 2	1
C4	C 4	1
C5	H 2	1
C6	C 3	1
C7	C 3	1
C8	E 1	1
C9	G 5	1
C10	C 4	1
C11	A 4	1
C12	A 3	1
C13	G 5	1
C14	H 6	1
C18	F 6	1
C21	E 6	1
C22	G 6	1
C23	F 6	1
C24	D 5	2
C25	E 1	2
C26	E 2	2
C27	D 2	2
C28	E 2	2
C29	E 2	2
C32	H 2	1
C33	I 3	1
C34	C 2	2
C35	E 1	2
C36	H 4	2
C37	F 3	1
C38	C 1	1
C39	B 1	1
C41	E 5	2
C42	E 6	2
C43	E 5	2
C44	G 3	2
C45	G 6	2
C46	G 4	2
C47	F 3	2
C48	F 4	2
C49	F 6	2
C50	E 2	1
C51	E 3	1
C52	E 5	2
C53	E 4	2
C54	E 5	2
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C56	E 4	2
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C58	E 3	2
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C63	G 3	2
C64	B 3	1
C65	H 5	2
C66	H 5	2
C67	H 5	2
C68	B 4	1
C69	B 3	1
C70	A 3	1
C71	B 3	1
C72	D 4	1
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C74	B 5	2
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C78	H 5	2
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C80	H 6	2
C81	H 6	2
C82	H 5	2
C83	H 2	2
C84	E 1	2
C85	E 3	2
C86	E 5	2
C88	G 1	2
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C95	B 6	1
C96	B 2	1
C97	H 2	1
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C103	C 2	1
C105	B 1	1
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C108	E 6	1
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C110	C 5	1
C111	D 6	1
C112	D 6	1
C113	B 1	2
C114	B 1	2
C115	B 1	2
C116	C 1	2
C117	D 1	2
C118	D 1	2
C119	E 1	2
C120	C 6	1
C121	I 3	1
C122	I 3	1
C123	I 4	1
C124	H 4	1
C125	H 5	1
C126	C 1	2
C127	D 1	2
C128	G 1	1
C129	G 3	1
C130	H 3	1
C131	H 4	1
C132	B 2	2
C133	F 1	2
C134	F 3	2
C135	F 5	2
C201	D 6	2
C202	D 4	2
C203	D 2	2
C204	B 6	1
C205	C 6	1
C206	A 1	2
C207	B 5	1
C208	G 3	2
C210	F 2	1
C604	A 6	1
C624	C 4	2
C625	C 4	2
C634	D 4	1
D1	I 2	1
D2	C 4	1
D3	C 4	1
D7	G 6	1
D8	G 6	1
D9	F 6	1
D10	F 6	1
D11	F 2	2
D12	I 2	1
D13	F 2	2

COMP.	LOC.	SHT.
D15	E 1	2
D16	H 4	2
D18	I 4	2
D19	I 3	2
D20	I 3	2
D21	F 5	2
D22	G 4	2
D23	E 3	2
D24	G 2	2
D25	F 5	2
D28	G 6	2
D31	F 4	2
D32	F 3	2
D33	E 5	2
D37	G 5	1
D39	C 5	2
D40	C 5	2
D41	G 3	2
D42	H 2	2
D43	I 2	2
D44	I 2	2
D45	I 2	2
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D47	B 1	1
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D52	F 3	1
D53	F 3	1
D54	E 6	1
D55	E 3	1
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D57	H 1	2
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D633	D 4	1
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IC5	C 5	2
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IC7	F 1	1
IC7	C 4	1
IC7	C 1	2
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IC9	B 6	1
IC9	C 1	2
IC10	H 2	1
IC11	E 5	2
IC12	E 3	2
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IC14	B 6	1
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IC15	H 1	2
IC16	H 3	1
IC16	H 5	1
IC16	I 4	1
IC16	H 5	1
IC16	B 1	2
J1	A 1	2
J2	A 3	2
J3	A 6	2
J4	A 5	2
J5	H 3	2
J7	C 6	2
J8	C 6	2
J9	B 6	2
L1	H 6	2
L2	H 6	2
L3	E 5	2
L4	E 3	2
L5	E 2	2
P1	I 3	1
P620	C 4	2
P621	C 4	2
P626	D 5	2
P627	D 4	2
Q1	C 5	1
Q2	A 4	1
Q3	H 6	1
Q4	F 6	1
Q6	F 6	1
Q7	F 6	1
Q8	G 6	1
Q9	F 2	1
Q14	H 4	2
Q15	H 2	2
Q16	I 4	2
Q17	E 3	1
Q18	E 3	1
Q19	G 5	1
Q20	H 3	2
Q21	B 4	1
Q22	G 3	2
Q23	G 4	2
Q24	G 6	2
Q25	I 1	2
Q26	I 1	2
Q27	C 2	2
Q28	C 2	2
Q29	C 2	2
Q30	G 1	2
Q31	H 1	1
Q32	A 2	1
Q33	B 3	1
Q34	F 3	1
Q35	I 4	1
Q36	H 4	1
Q37	H 4	1
Q38	G 4	1
Q39	H 1	1
Q596	B 6	1
Q611	B 3	2
Q612	C 3	2
R1	H 2	1
R3	H 2	1
R4	C 4	1
R5	C 4	1
R6	I 3	1
R8	C 5	1
R9	C 3	1
R10	E 2	1
R11	D 4	1
R12	C 2	1
R13	C 5	1
R14	D 3	1
R15	F 2	1
R16	G 5	1

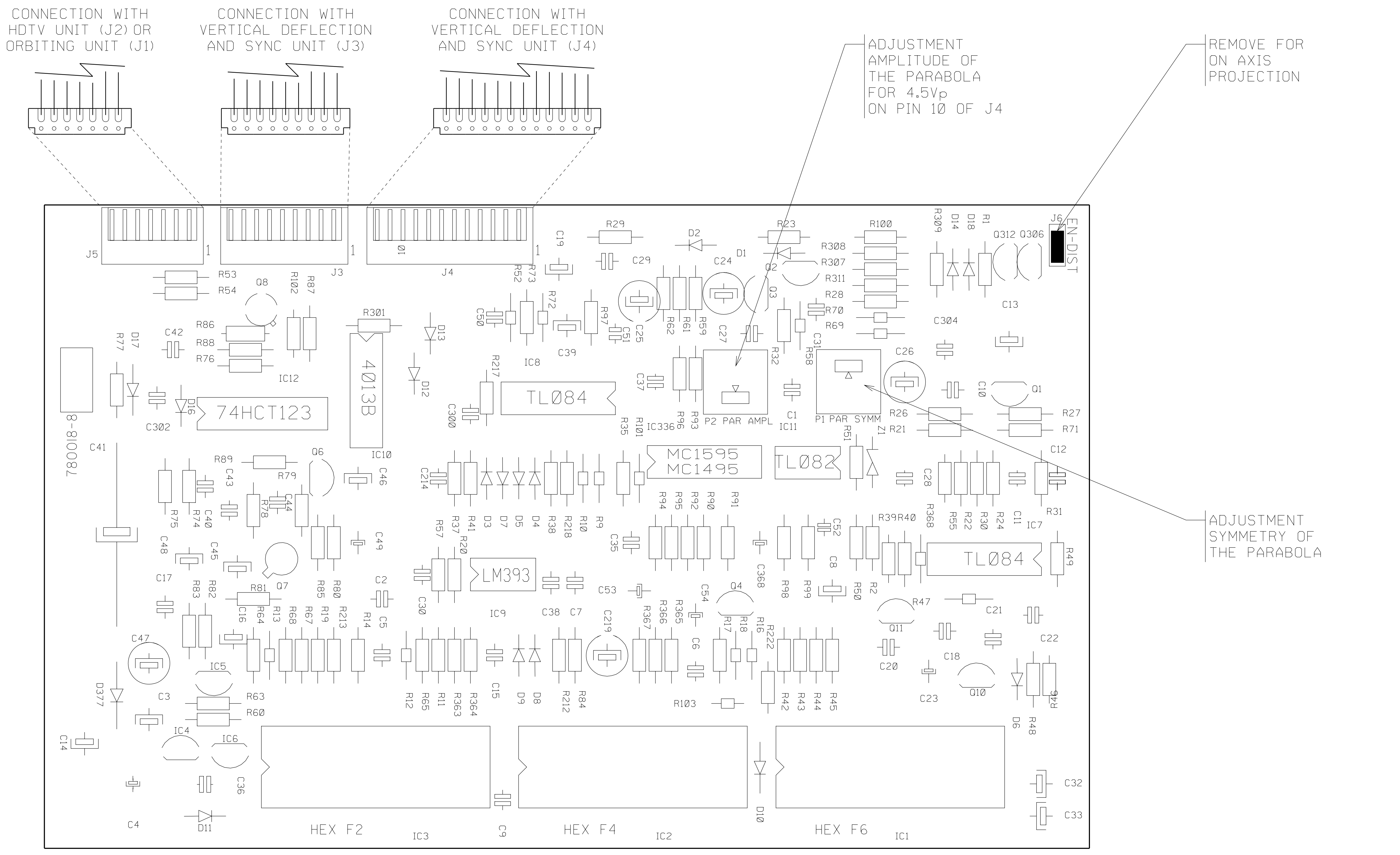
COMP.	LOC.	SHT.
R17	C 2	1
R18	C 4	1
R19	A 4	1
R20	A 4	1
R24	F 6	1
R27	H 6	1
R28	E 6	1
R29	F 6	1
R30	F 6	1
R32	F 6	1
R34	G 6	1
R35	F 6	1
R36	G 6	1
R37	G 6	1
R38	G 6	1
R39	G 6	1
R41	D 6	2
R42	D 3	2
R44	E 2	2
R45	E 2	2
R47	E 2	2
R48	E 2	2
R49	D 2	2
R50	C 2	2
R51	I 2	1
R53	A 4	2
R54	H 3	1
R55	I 2	1
R59	D 2	2
R60	D 5	2
R61	H 4	2
R62	H 2	2
R63	I 2	2
R64	G 4	2
R65	I 4	2
R66	H 2	2
R67	H 2	2
R68	I 3	2
R69	B 1	1
R70	C 5	2
R71	C 5	2
R72	B 1	1
R73	C 1	1
R74	A 1	2
R76	E 4	2
R77	E 4	2
R78	E 6	2
R79	E 6	2
R80	E 5	2
R81	E 5	2
R82	H 4	2
R83	G 4	2
R84	F 4	2
R85	G 2	2
R86	F 3	2
R87	F 6	2
R88	G 6	2
R89	E 1	1
R90	E 2	1
R91	E 1	1
R92	E 1	1
R93	F 2	1
R94	E 2	1
R95	E 3	1
R96	E 3	1
R97	E 4	2
R98	E 4	2
R104	G 5	1
R105	G 3	2
R106	G 3	2
R107	H 3	2
R109	B 4	1
R110	B 4	1
R111	B 4	1
R112	D 4	1
R113	A 2	1
R114	B 4	1
R115	A 3	1
R116	B 3	1
R117	C 3	1
R118	B 3	1
R119	C 3	1
R120	B 5	2
R121	B 1	1
R122	C 2	1
R123	G 2	2
R124	F 3	2
R125	F 4	2
R126	F 6	2
R127	F 3	1
R128	I 1	2
R129	I 2	2
R130	B 1	2
R131	B 2	2
R132	C 2	2
R133	C 2	2
R134	G 1	2
R135	G 2	2
R136	G 1	2
R137	G 1	2
R138	G 1	2
R139	A 5	1
R140	A 6	1
R142	C 1	1
R143	C 2	1
R144	C 1	1
R145	B 1	1
R146	H 2	1
R147	H 1	1
R148	A 1	1
R149	A 2	1
R150	D 6	1
R151	D 5	1
R152	D 5	1
R153	D 5	1
R154	D 6	1
R155	B 6	2
R156	I 3	2
R157	F 3	1
R158	I 3	1
R159	I 4	1
R160	I 4	1
R161	I 4	1
R162	I 5	1
R163	I 5	1
R164	H 4	1
R165	H 5	1
R166	H 4	1
R168	G 4	1
R169	G 4	1
R170	G 5	1
R171	I 1	2
R172	H 1	1
R173	G 1	1
R174	G 2	1
R175	A 1	2
R176	H 3	1
R177	H 3	1
R178	H 4	1
R179	B 1	2
R180	F 1	2
R181	F 3	2
R182	F 5	2

COMP.	LOC.	SHT.
R183	C 2	2
R186	C 3	1
R201	D 6	2
R202	D 4	2
R203	D 2	2
R301	D 3	2
R302	D 5	2
R303	B 6	1
R304	C 6	1
R305	C 5	1
R306	G 3	2
R599	B 5	1
R600	B 5	1
R605	A 5	1
R607	B 5	1
R608	B 5	1
R609	B 3	2
R610	B 3	2
R613	C 3	2
R614	C 3	2
R615	C 3	2
R616	C 3	2
R617	C 3	2
R618	B 3	2
R619	B 3	2
R622	C 4	2
R623	C 4	2
R628	D 5	2
R629	D 4	2
S1	G 1	2
SR1	H 6	2
SR2	H 6	2
SR3	I 1	1
SR4	I 2	1
SR5	H 5	2
SR6	H 5	2
SR7	H 5	2
Z1	C 4	1
Z2	H 2	1
Z3	E 2	1
Z4	G 4	2
Z5	H 5	1
Z6	B 4	1

Name			Sheet
VERTICAL DEFLECTION			3/3
Module No: R7622686	Index: 0	PCB No: R780017	Rev: 8
Date: 15-04-1997	Drawn: JVDY	Checked: CHT	

BARCO PROJECTION SYSTEMS

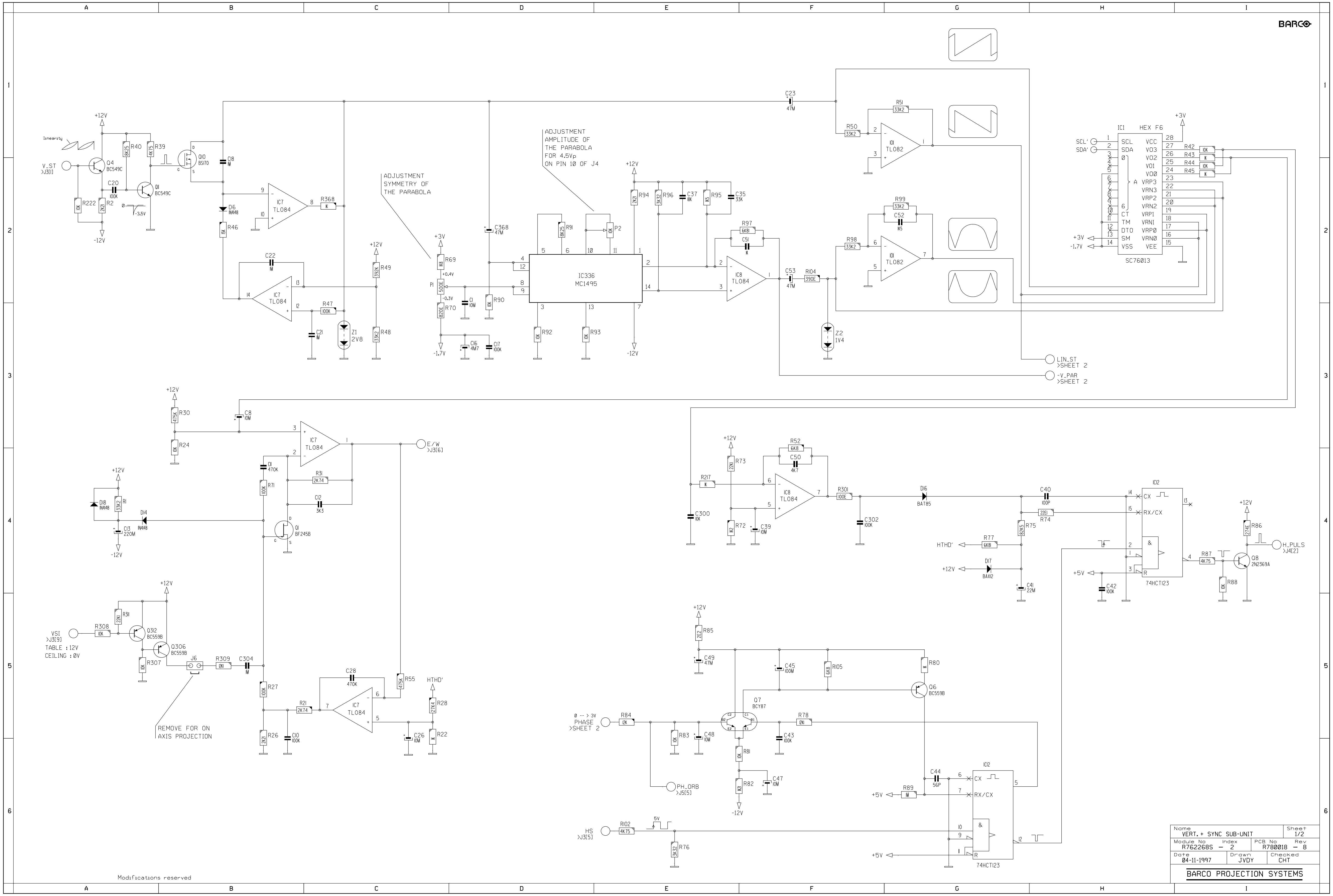
Modifications reserved



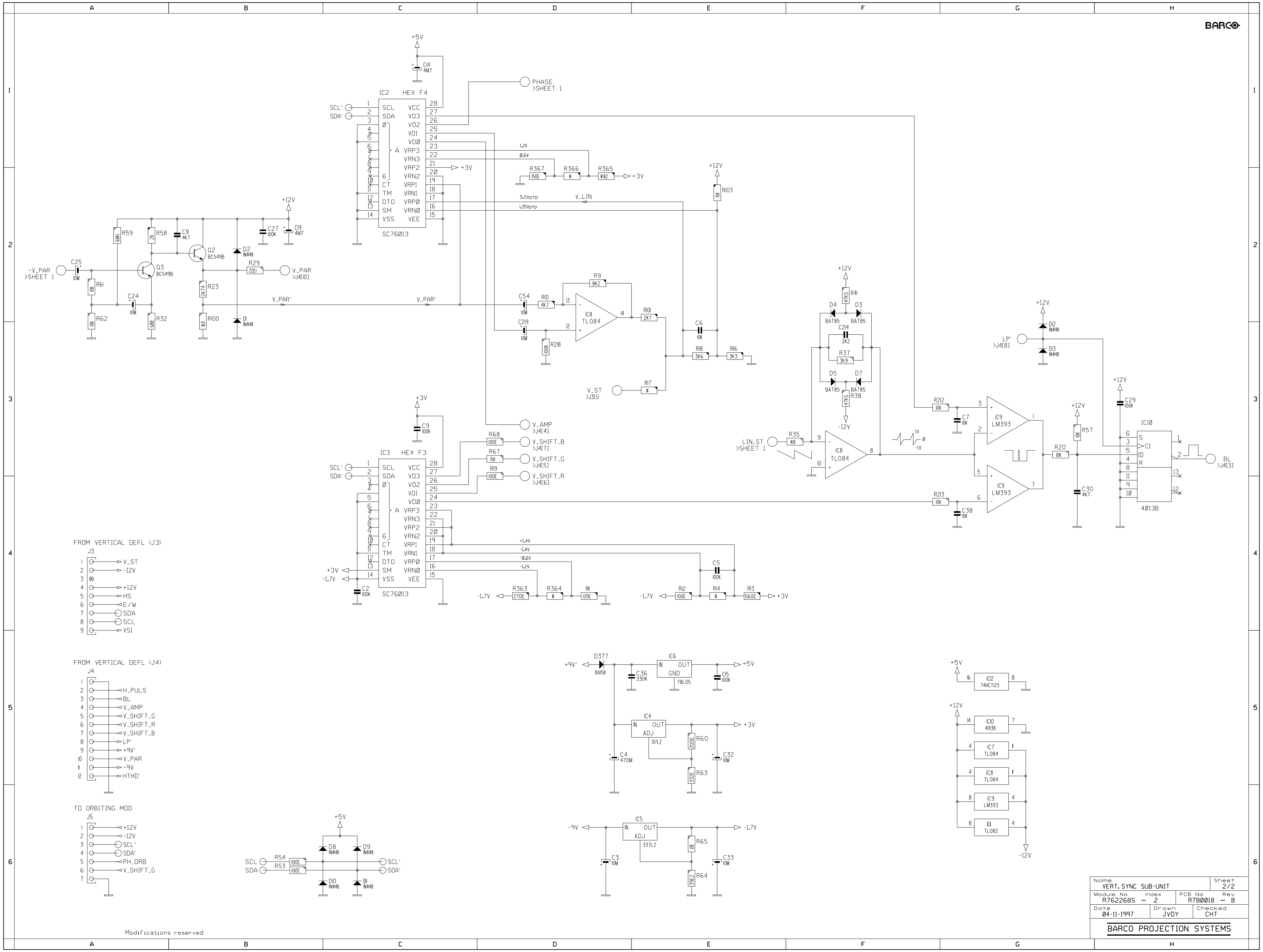
Modifications reserved

Name		Sheet
SUB-UNIT VERTICAL DEFL.		1 / 1
Module No R762268S —	Index 2	PCB No R780018 — Rev 8
Date 04-11-1997	Drawn JVDY	Checked CHT

BARCO PROJECTION SYSTEMS



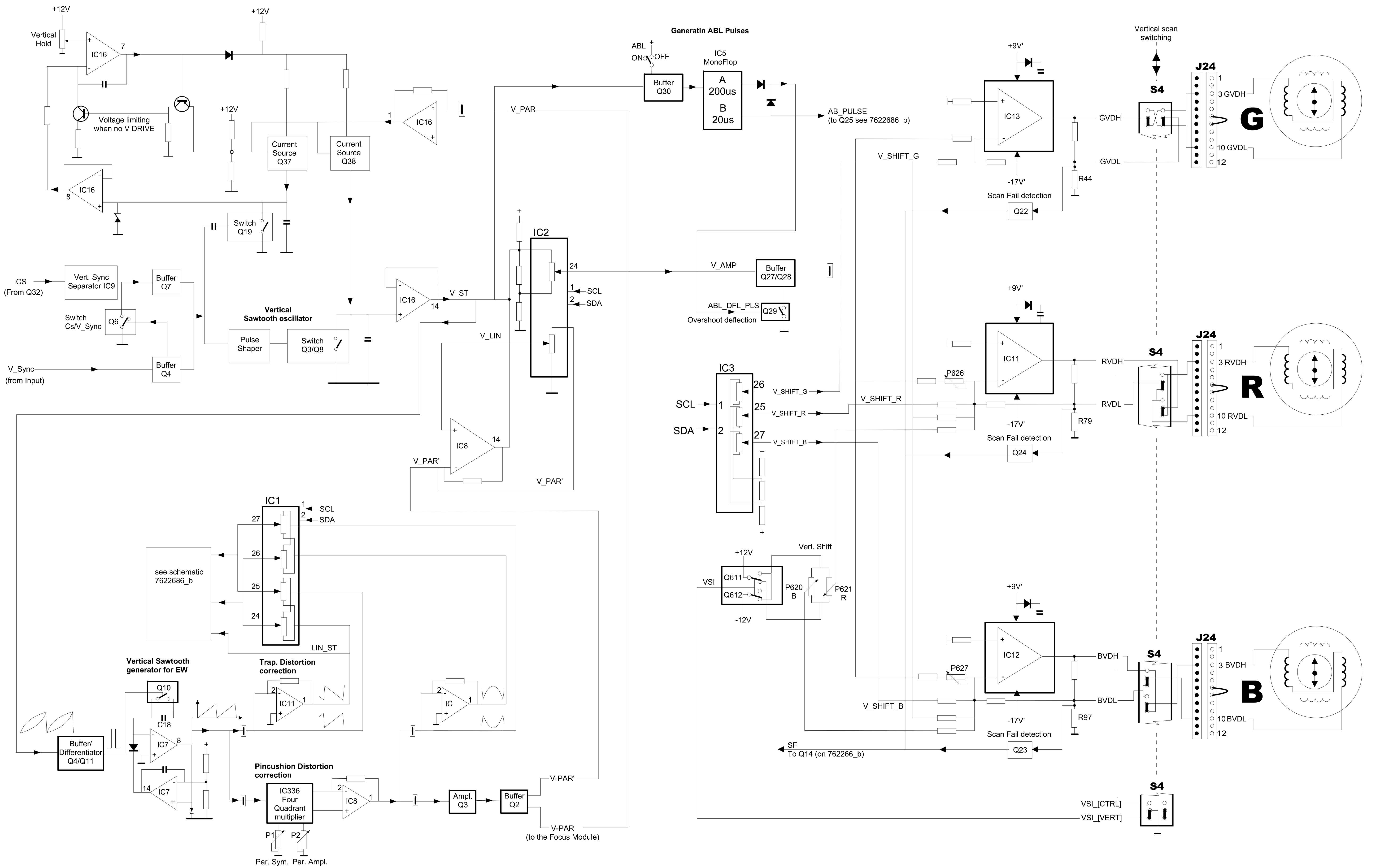
BARCO
ADJUSTMENT AMPLITUDE OF THE PARABOLA FOR 4.5Vp ON PIN 10 OF J4
ADJUSTMENT SYMMETRY OF THE PARABOLA
REMOVE FOR ON AXIS PROJECTION
V_ST >J3[1]
VSI >J3[9]
TABLE :12V
CEILING :0V
E/W >J3[6]
LIN_ST >SHEET 2
-V_PAR >SHEET 2
0 -- > 3V PHASE >SHEET 2
PH_ORB >J5[5]
HS >J3[5]
H_PULS >J4[2]
IC336 MC1495
SC76013
HEX F6
74HCT123
Modifications reserved
Name VERT.+ SYNC SUB-UNIT
Sheet 1/2
Module No R762268S
Index 2
PCB No R780018
Rev 8
Date 04-11-1997
Drawn JVDY
Checked CHT
BARCO PROJECTION SYSTEMS



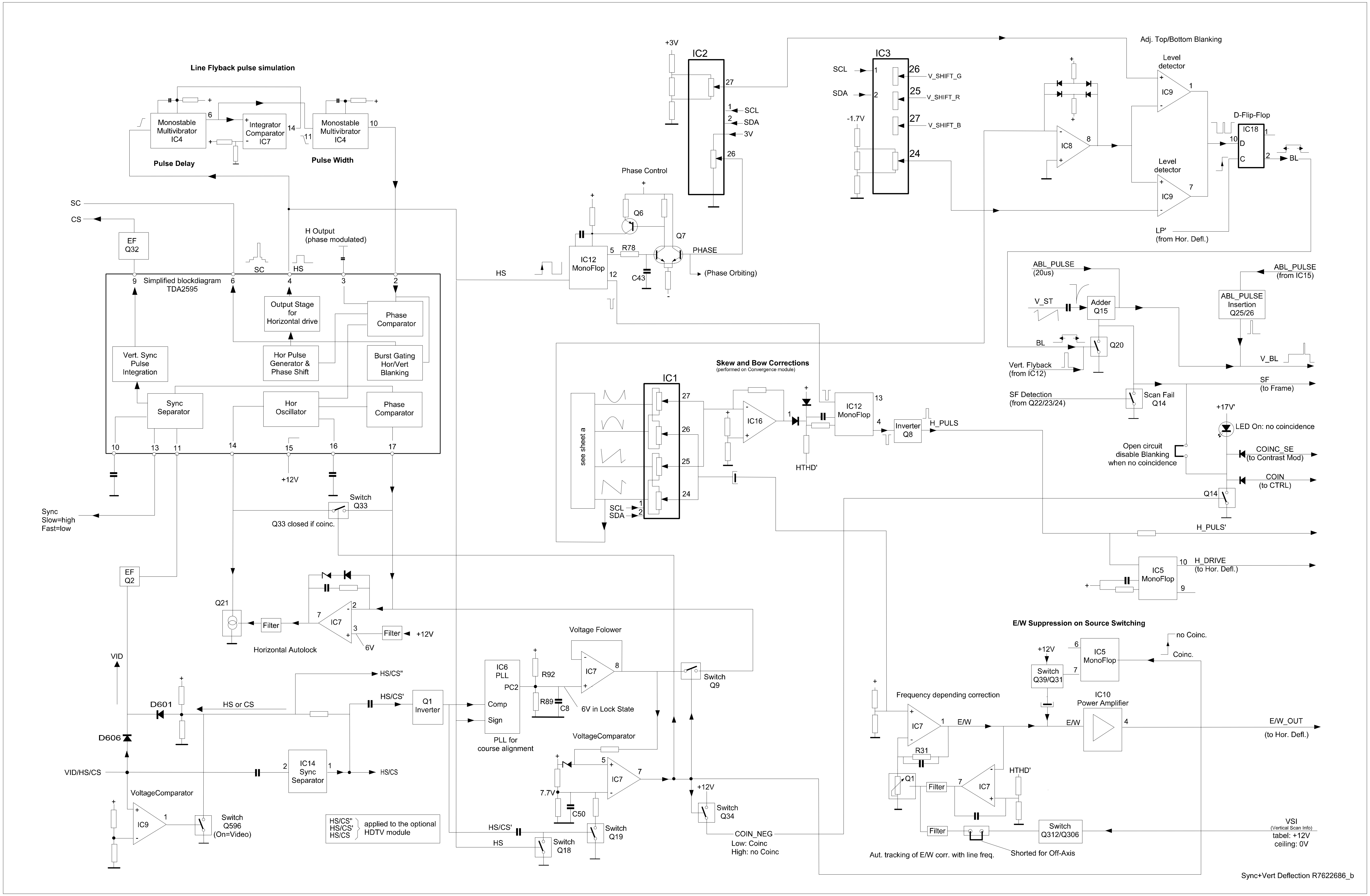
Name		Sheet
VERT. SYNC SUB-UNIT		2/2
Module No R762268S	Index 2	PCB No R780018 Rev 8
Date 04-11-1997	Drawn JVDY	Checked CHT

BARCO PROJECTION SYSTEMS

COMP.	LOC.	SHT.
C1	D 2	1
C2	C 4	2
C3	D 6	2
C4	D 5	2
C5	E 4	2
C6	E 2	2
C7	G 3	2
C8	B 3	1
C9	C 3	2
C10	B 5	1
C11	B 4	1
C12	C 4	1
C13	A 4	1
C14	C 1	2
C15	E 5	2
C16	D 3	1
C17	D 3	1
C18	B 2	1
C19	B 2	2
C20	A 2	1
C21	C 3	1
C22	B 2	1
C23	F 1	1
C24	A 2	2
C25	A 2	2
C26	C 5	1
C27	B 2	2
C28	C 5	1
C29	H 3	2
C30	G 4	2
C31	B 2	2
C32	E 5	2
C33	E 6	2
C35	E 2	1
C36	E 5	2
C37	E 2	1
C38	G 4	2
C39	F 4	1
C40	H 4	1
C41	G 4	1
C42	H 4	1
C43	F 5	1
C44	G 6	1
C45	F 5	1
C47	F 6	1
C48	E 5	1
C49	E 5	1
C50	F 4	1
C51	F 2	1
C52	G 2	1
C53	F 2	1
C54	D 2	2
C214	F 3	2
C219	D 2	2
C300	E 4	1
C302	F 4	1
C304	B 5	1
C368	D 2	1
D1	B 2	2
D2	B 2	2
D3	F 2	2
D4	F 2	2
D5	F 3	2
D6	B 2	1
D7	F 3	2
D8	C 6	2
D9	C 6	2
D10	C 6	2
D11	C 6	2
D12	G 3	2
D13	G 3	2
D14	A 4	1
D16	G 4	1
D17	G 4	1
D18	A 4	1
D377	D 5	2
IC1	H 1	1
IC2	C 1	2
IC3	C 3	2
IC4	E 5	2
IC5	E 6	2
IC6	E 5	2
IC7	C 5	1
IC7	B 2	1
IC7	B 2	1
IC7	C 3	1
IC7	G 5	2
IC8	F 4	1
IC8	E 2	1
IC8	F 3	2
IC8	G 5	2
IC8	D 2	2
IC9	G 4	2
IC9	G 3	2
IC9	G 6	2
IC10	G 5	2
IC10	H 3	2
IC11	G 2	1
IC11	G 1	1
IC11	G 6	2
IC12	G 6	1
IC12	H 4	1
IC12	G 5	2
IC336	D 2	1
J3	A 4	2
J4	A 5	2
J5	A 6	2
J6	B 5	1
P1	C 2	1
P2	E 2	1
Q1	B 4	1
Q2	B 2	2
Q3	A 2	2
Q4	A 2	1
Q6	G 5	1
Q7	F 5	1
Q8	I 4	1
Q10	B 1	1
Q11	A 2	1
Q306	B 5	1
Q312	A 5	1
R1	A 4	1
R2	A 2	1
R9	D 2	2
R10	D 2	2
R11	D 4	2
R12	E 4	2
R13	E 4	2
R14	E 4	2
R16	E 3	2
R17	E 3	2
R18	E 3	2
R19	D 3	2
R20	G 3	2
R21	B 5	1
R22	C 5	1
R23	B 2	2
R24	B 3	1
R26	B 5	1
R27	B 5	1
R28	C 5	1
R29	B 2	2
R30	B 3	1
R31	C 4	1
R32	A 2	2
R35	F 3	2
R37	F 3	2
R38	F 3	2
R39	A 1	1
R40	A 1	1
R41	F 2	2
R42	I 1	1
R43	I 1	1
R44	I 2	1
R45	I 2	1
R46	B 2	1
R47	C 3	1
R48	C 3	1
R49	C 2	1
R50	F 1	1
R51	G 1	1
R52	F 3	1
R53	B 6	2
R54	B 6	2
R55	C 5	1
R57	G 3	2
R58	A 2	2
R59	A 2	2
R60	E 5	2
R61	A 2	2
R62	A 2	2
R63	E 5	2
R64	E 6	2
R65	E 6	2
R67	D 3	2
R68	D 3	2
R69	C 2	1
R70	C 3	1
R71	B 4	1
R72	E 4	1
R73	E 4	1
R74	H 4	1
R75	G 4	1
R76	E 6	1
R77	G 4	1
R78	F 5	1
R80	G 5	1
R81	F 6	1
R82	F 6	1
R83	E 5	1
R84	E 5	1
R85	E 5	1
R86	I 4	1
R87	I 4	1
R88	I 4	1
R89	G 6	1
R90	D 2	1
R91	D 2	1
R92	D 3	1
R93	D 3	1
R94	E 2	1
R95	E 2	1
R96	E 2	1
R97	F 2	1
R98	F 2	1
R99	G 2	1
R100	B 2	2
R101	E 2	2
R102	E 6	1
R103	E 2	2
R104	F 2	1
R105	F 5	1
R212	F 3	2
R213	F 4	2
R217	E 4	1
R218	D 3	2
R222	A 2	1
R301	F 4	1
R307	A 5	1
R308	A 5	1
R309	B 5	1
R311	A 5	1
R363	D 4	2
R364	D 4	2
R365	D 1	2
R366	D 1	2
R367	D 1	2
R368	C 2	1
Z1	C 3	1
Z2	F 3	1



Sync+Vert Deflection R7622686_a



Line Flyback pulse simulation
Monostable Multivibrator IC4
Pulse Delay
Integrator Comparator IC7
Monostable Multivibrator IC4
Pulse Width
SC
CS
EF Q32
H Output (phase modulated)
Simplified blockdiagram TDA2595
Output Stage for Horizontal drive
Phase Comparator
Vert. Sync Pulse Integration
Hor Pulse Generator & Phase Shift
Burst Gating Hor/Vert Blanking
Sync Separator
Hor Oscillator
Phase Comparator
+12V
Sync Slow=high Fast=low
Switch Q33
Q33 closed if coinc.
EF Q2
Q21
Filter
IC7
Filter
6V
Horizontal Autolock
VID
D601
D606
HS or CS
HS/CS''
HS/CS'
Q1 Inverter
VID/HS/CS
IC14 Sync Separator
HS/CS
VoltageComparator
IC9
Switch Q596 (On=Video)
HS/CS'' HS/CS' HS/CS applied to the optional HDTV module
IC6 PLL
PC2
Comp
Sign
PLL for course alignment
R92
R89
C8
6V in Lock State
Voltage Folower
IC7
Switch Q9
VoltageComparator
IC7
7.7V
C50
HS/CS'
HS
Switch Q18
Switch Q19
Switch Q34
COIN_NEG Low: Coinc High: no Coinc
+3V
IC2
SCL
SDA
3V
Phase Control
Q6
Q7
PHASE
(Phase Orbiting)
IC12 MonoFlop
R78
C43
HS
IC3
V_SHIFT_G
V_SHIFT_R
V_SHIFT_B
-1.7V
Skew and Bow Corrections
(performed on Convergence module)
IC1
see sheet a
IC16
HTHD'
IC12 MonoFlop
Inverter Q8
H_PULS
Adj. Top/Bottom Blanking
Level detector
IC9
IC8
D-Flip-Flop
IC18
BL
LP' (from Hor. Defl.)
ABL_PULSE (20us)
ABL_PULSE (from IC15)
V_ST
Adder Q15
ABL_PULSE Insertion Q25/26
BL
Q20
Vert. Flyback (from IC12)
V_BL
SF Detection (from Q22/23/24)
Scan Fail Q14
SF (to Frame)
+17V'
LED On: no coincidence
Open circuit disable Blanking when no coincidence
COINC_SE (to Contrast Mod)
COIN (to CTRL)
Q14
H_PULS'
IC5 MonoFlop
H_DRIVE (to Hor. Defl.)
E/W Suppression on Source Switching
no Coinc.
Coinc.
Switch Q39/Q31
IC5 MonoFlop
Frequency depending correction
IC7
E/W
R31
IC10 Power Amplifier
E/W_OUT (to Hor. Defl.)
Q1
Filter
IC7
HTHD'
Filter
Switch Q312/Q306
VSI (Vertical Scan Info) tabel: +12V ceiling: 0V
Aut. tracking of E/W corr. with line freq.
Shorted for Off-Axis
Sync+Vert Deflection R7622686_b

Adjustment procedure 'VERTICAL DEFLECTION+SYNC MODULE'

Introduction

The following adjustments are provided on the **main module**:

a. Vertical HOLD P1.

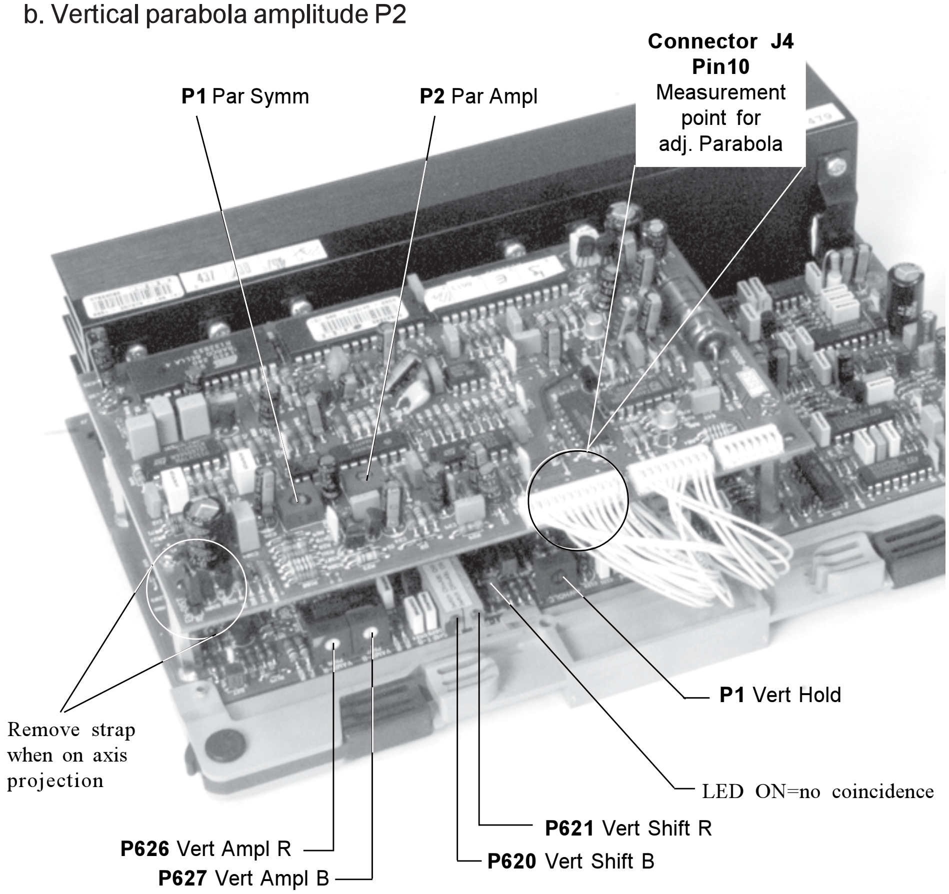
b. Vertical SHIFT adjustment for RED - P621 and BLUE - P620 image

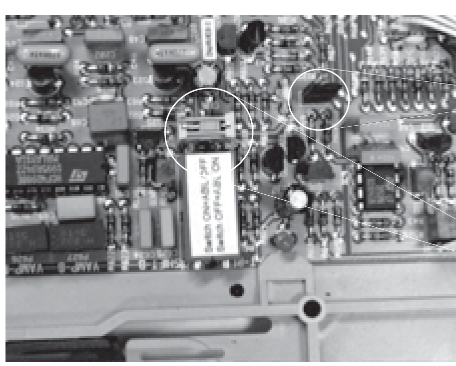
C. Vertical amplitude correction for RED - P626 and BLUE - P627 image

The following adjustments are provided on the **sub module**:

a. Vertical parabola symmetry P1

b. Vertical parabola amplitude P2





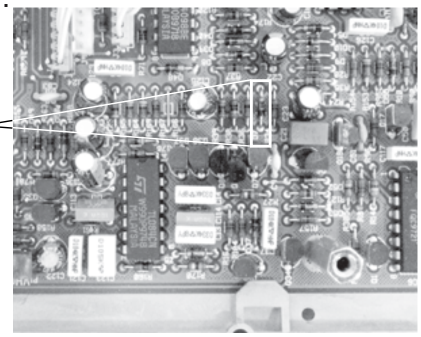
Adjustments on the main module

a. Vertical Hold P1

Important: to adjust the Vertical Hold, switch the projector on the connected source with the highest Vertical frequency.

Alignment:

- Short-circuit the anode of the diode D7 to ground.
- Adjust P1 for a slowly rolling up of the picture (ceiling mounted projector).
- Remove the short-circuit.



b. Main Vertical SHIFT adjustment for RED and BLUE image

Note:These are factory set coarse alignments of vertical shift, to compensate for the shift caused by the stigmators on the CRT necks. These potentiometers also are used to minimize the range of the digital potentiometers for the vertical shift, allowing for a more accurate center convergence.

Preparation

Adjust the vertical raster centering controls for Red and Blue in their mid position. The numeric indicator under the respective bar scale indicates 50.
(Refer to the Owner's manual of the projector - Guided or Random adjustment mode).

Alignment

Use the vertical shift controls P621 for RED and P620 for BLUE to shift vertically the Red and Blue image until the horizontal center line coincides with this of the Green image.

c. Vertical amplitude correction for RED and BLUE image

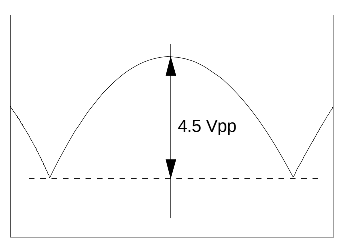
Adjust potentiometer P626 for the Red image and P627 for the Blue image to obtain the same vertical amplitude as the Green image.

Adjustments on the sub module

Vertical parabola symmetry P1 and amplitude P2

Adjustment **Symmetry** of the vertical parabola **P1**

- Projector has to operate on a signal with standard frequency.
- Connect the oscilloscope to pin 10 of connector J4 on the sub module.
- Adjust P1 for a symmetrical curve of the parabola signal.



Adjustment **Amplitude** of the vertical parabola **P2**

- Projector has to operate on a signal with standard frequency.
- Connect the oscilloscope to pin 10 of connector J4 on the sub module.
- Adjust P2 for an amplitude of the parabola signal of 4.5 Vpp

TECHNICAL DESCRIPTION "UN SYNC + VERT DEFL" 7622685.

Introduction.

On this board and its subunit we find :

- the sync separators
- the autolock circuits for driving the line and vertical oscillators
- the vertical power output stages
- the top / bottom blanking
- the preparation of the waveforms for the east-west correction.
- preparation of the horizontal drive pulses, including the phase and skew / bow.
- generation of the pulses for the ABL (Automatic Black Level).

A (Barco) customer-made IC, comprising four (4) digital potentiometers, and driven by an I²C bus is used to adjust waveforms and DC voltages.

I. The vertical Oscillator.

a) Vertical Oscillator

The principle of the oscillator is to determine the appropriated charging current of the real oscillator, proportional to the vertical frequency, by generating a stable simulated vertical sawtooth.

We find two current sources Q38,and Q37 driven by the output of the Miller integrator output pin 7 of IC16. The minimum or initial charge current is determined by R168. The capacitor C13 is charged up and discharged when Q19 is driven on with the V Syn pulse. The sawtooth is buffered and integrated (= average) and the obtained voltage is compared with the level set by P1 (ADJUSTMENT VERTICAL HOLD). The charging current is adapted via R161 / D50 until both voltages at the input are identical. When the feedback is stable, the two current sources send current to two circuits :

1. Sawtooth simulator as explained above for vert. autolock.
2. Second sawtooth oscillator for the V_ST signal.

With P1 we can adjust the average output voltage of the integrator. The potentiometer must be adjusted in order to obtain vertical lock, the frequency is irrelevant.

The sawtooth is buffered and feeds one potentiometers in IC2. The VO0 output is buffered with Q27/28 and AC coupled to the power amplifiers.
The linearity control is built around the diff. Amplifier IC8, which receives at the non inverting input the V_PAR' signal and at the other the adjusted V_PAR'. The output, pin 14, is added to the V_ST signal in order to compress or decompress the ramp at the top or bottom. The linearity is controlled by a potentiometer in IC2.

The Vertical oscillator is synchronized as follows:

1) By means of the composite sync :

The composite video **(VID)** , composite sync **(CS)** or Hor Sync **(HS)** is, at any time, applied to pin 2 of IC14, a typical sync separator. The output pin 1 serves the digital PLL IC6 for all modes.

If D606 is in conduction (depends on the DC level of the input signal) the video composite also passes on to Q2, for serving the TDA2595. In this case D601 is blocked and the output pin 1 of the LM1881 is not used.

The TDA2595 is used as sync separator for video composite since its input is noise - integrating. In that case the transistor Q596 is saturated and D601 is blocked.

If the sync input is HS or CS, then , the LM1881 is used as sync separator since it has no integrator at the input.
The composite sync output HS / CS, pin 1, is proceeding to IC1 via a buffer Q2 (Q596 is not saturated then).

The output pin 9 of IC1 is providing composite sync pulses which are now sent to the base of Q7 through the Vert. Sync separator circuit, built around the OP AMP IC9 with output pin 7. If we assume that the switcher Q6 is conducting (see later), the negative pulses on the collector of Q7 can trigger the vertical oscillator.

The oscillator can also be triggered by means of the vertical pulses **V Sync,** which come straight from an BNC input (via the differential input, at the base of Q4.

Note that an optional HDTV interface with tri-level sync may be connected to the J7 connector.

2) By means of the vertical pulses VSync, if applied separately.

These vertical pulses enter the board at contact 13 of the J4A connector and are capacitively coupled to the base of Q4.

The amplified negative pulses on the collector trigger the oscillator now via D10 / D7.

To prevent triggering via Q7, the fet Q6 is now blocked as follows:

Each time a VS pulse arrives on the base of Q4, capacitor C23 is charged via D9 / Q4. Consequently, the gate of Q6 is low and Q6 is blocked, to disconnect the emitter of Q7.

c) Barco made IC : 4 x digital controlled potentiometer.

The voltage or waveform, applied between **VRPx** and **VRNx,** the two extremities of a potentiometer**,** is adjustable in 128 steps through the remote control (I2C bus). The output, or, the 'slider' voltage is available at **VOx**. The corresponding pins are eg. VRP**1,** VRN**1** and VO**1.**

We find **4** of such potentiometers **in one chip**, and there are three of these chips on the subunit : IC1, IC2 and IC3 , which we will meet in the explanations hereafter.

The output waveform or voltage is controlled by the **SCL** (Serial Clock) and **SDA** (Serial Data) lines which are connected to the microprocessor of the controller board.

The address info, arriving via the data SDA line, is identified by a hardware connection of the address pins of the chip (the address pins are differently connected for each chip).

Obviously, as there are 4 potentiometers, the address of the chip is followed by a '*slave- address*' to drive the requested potentiometer in the chip itself.

d) Vertical Linearity control.

The V PAR (Vertical Parabola) signal at the emitter of Q2 is divided by R23 / R100 and applied to the potentiometer "1" of IC2 (pin 19). The adjusted parabola at output VO1 , pin 25, is now sent to the non-inverting input of IC8 whereas the full amplitude of the parabola is applied to the inverting input of the OPAMP
(voltage difference amplifier). The output is then added to the V ST (Vertical Sawtooth) at pin 17 of the same IC2.

e) Generation of ABL pulses.

Two pulses are generated with the two monoflops in IC15. The first monoflop is triggered with V_ST and the second one with the inverted output pulse of the first one.
*<u>ABL DEFL PULSE :</u> this pulse causes an overshoot in the vertical deflection at the end of the vertical retrace time in order to make invisible the spot, as, during this time the blanking is disabled.

*<u>ABL PULSE</u> : this pulse determines the exact time of implementation of the black current and the measurement of this implemented current.

f) Vertical output stages - Vertical shift - Vertical amplitude.

Vertical amplitude - ABL Deflection Overshoot:

The vertical sawtooth V_STat the buffer output pin 14 is leaving the main board and reaches the subunit to be applied to IC2 (VRN0 and VRP0). The output is VO0 (pin 24) and is coming back to the board at J4 (4) of the edge connector.
It is now buffered twice with Q27 and Q28.
The switcher Q29 at the base of Q28 is driven with the ABL DEFL PULSE in order to cause an overshoot in the vertical deflection during the time the ABL circuit is active.

It is now capacitively coupled to the inverting inputs of the power amplifiers IC11 / IC12 / IC13 together with a DC-voltage (Vertical Shift voltage).

The amplitudes for the red and blue can be adjusted by P626 and P627 to allow a matching with the green and to minimize the convergence corrections.

Vertical shifts :

These DC voltages are adjusted in IC3 of the subunit (outputs 25, 26, 27).

The big tolerances on the deflection units and the stigmators require a coarse alignment of the shift for red and blue in order to improve the resolution of the digital potentiometers.

This pre-alignment or coarse alignment is done by the multiturn potentiometers P620 and P621. The voltages applied to the extremities of these potentiometers are inversed when moving the vertical scan inversion switch (switching from ceiling to table or vice versa).

An " **VS I** " info is therefore sent to the switching transistors Q611 / Q612.

This "VS I " is at ground level or not at ground (= 'open'). It is a info coming from the contact of the vertical scan inversion switch on the frame.
One of the two transistors is in conduction, depending on the voltage at Q611's base.

When the green raster is moving on the screen, the red and blue rasters move also allowing a quick adjustment of the three colours.

Vertical output stages :

The amplified sawtooth output currents flow in the respective scan coils and find their way back to ground through the feedback resistors R44 / R97 / R79.

The amplitude of the waveforms across these resistors is proportional with the vertical amplitude and can obviously be utilized as feedback to stabilize the vertical amplitude.

The TDA8172 has an internal boost up circuit which allows a short vertical retrace time by boosting the supply voltage during the retrace time.

At the end of the scan time, the voltage across the capacitors C35, C55 and C52 is switched in series with the supply voltage of +8 volts by means of a transistor in the chip .

As a result, the voltage during flyback is approximately
8 + (8+17) = **33 volts.**

This boosting up means a possible **rapid change** of the current in the coils in order to realize a short flyback time.

g) Vertical scan fail detection.

The sawtooth waveforms across the feedback resistors of 2E2 are capacitively coupled to the base of a transistor. The conduction time of these transistors is proportional with the amplitude of the sawtooth. In normal scanning conditions, the average DC voltages on the three collectors is too low to forward bias Q14.
As soon one amplitude is too low or absent, Q14 is saturated and the SF line is dropped to ground level.

On the other hand, the diode D16 and the saturated Q14 **cause a permanent conduction of the Q15** transistor (via D16).

The **V BL** (Vertical Blanking) output is obviously permanently high and this means also a total blanking or **cut-off of the three crt's.**

h) Vertical blanking during retrace :

Vertical flyback pulses are picked up at pin 6 of the blue output stage and are applied through C63, D41 and R306 at the base of Q20. D41 prevents the BL pulses to penetrate into the vertical output stages.

On the same base arrive the pulses **BL** for the top and bottom blanking. These pulses are adjusted on the subunit (see further top / bottom blanking).

Tr Q20 drives Q15 and the **V BL** pulses leave at A,C(26) of the J4B edge connector to the decoder, where they are mixed up with the horizontal blanking pulses.

A differentiated vertical sawtooth is added to the base of Q15 in order to blank from the start of the flyback. Indeed, the flyback pulse from the output stage is slightly delayed.

II. EAST - WEST Correction

a) Generation of a frequency independent vertical sawtooth :

This generator is built up around Q4 / Q11 / Q10 / IC7. The vertical sawtooth **"V ST"** is buffered and then differentiated to get pulses driving on and off the switching Fet Q10.

When this Fet is on, the output is shorted to the input. This input is approximately ground level since the other input of the OPAMP, pin 10, is connected to ground. The time that Q10 is not in conduction, C18 is charged up from the output voltage at pin 8 via D6 / R46 towards the negative voltage at pin 14 of IC7.
The charging current depends obviously upon this negative voltage and the latter is the averaged sawtooth obtained by integration.

By doing this, a constant sawtooth amplitude of 1.9Vpp is got at pin 8. The sawtooth starts from 0 volts due to the clamping transistor Q10.

b) Trapezoidal distortion correction (on the subunit) :

The sawtoothed waveform at pin 8 of IC7, is applied to the inverting pin 2 of IC7 in order to obtain two opposite phase sawtoothed waveforms.

These two signals are now entered into a digital potentiometer in IC1 (pins 16 / 17 or VRN**0** and VRP**0**). The corresponding output is VO**0** and via R45 the adjusted sawtooth (in amplitude and phase) reaches the adder- amplifier TL084, pin 5.

c) Parabolic or pincushion distortion correction :

To generate the parabolic waveform, a multiplier is used.

The MC1495 is a wideband monolithic four-quadrant multiplier. The output is a linear product of the two input voltages.
In this case the two input signals are the same (a sawtooth voltage).
One of the sawtooths is applied between pins 4 and 8 , whereas the second (and same sawtooth) one is applied between pins 9 and 12.
But, since the pins 4 - 12 and 9 - 8 are connected together, the output is a nice parabolic shaped waveform (= product of two linear ramps).
The open collector outputs are pulled up to the + supply line and sent to an OPAMP in IC8

The parabolic signal is then capacitively coupled to an inverter - OPAMP . The two opposite phased signals are then sent to a digital potentiometer in IC1 for the pincushion correction.

The output VO2 is now mixed up with the previously discussed sawtooth output and passing the line frequency depending amplifier described hereafter.
The parabolic waveform is also amplified by Q3 and led out by the buffer Q2 to the focus board.

d) Frequency depending correction :

The gain of the OP AMP in IC7 is variable and depends on the divider R31 / Q1. The Fet Q1 is biased by the output of another OP AMP (integrator-comparator) in IC7 (pin 1).

The DC level of the non-inverting input, pin 3, is set by R30 / R24. This DC voltage now is amplified by a factor determined by the ratio R31 / Q1. The east - west waveform obviously 'undergoes' the same gain.

The output now (sum of DC and east-west waveforms) is sent to a 'comparator' in IC7. But the east - west waveform is filtered out by the R55 / C28 network. This resulting amplified dc voltage is compared to a portion (R28 / R22) of the HTHD' voltage which is applied to the non-inverting input. The output of the comparator is sent now to the gate of Q1 via a filter network.

This filter network also depends on the state of Q306. The VSI line can switch on and off Q306 in order to add or disconnect R309 / C304. There is thus a correction depending upon the ceiling table position.

NOTE : The J6 contacts must be shorted for an off-axis projection.
For IN - AXIS projection it is recommended to remove the strap to guarantee an optimum geometry.

This gate voltage changes or adapts the gain of the named amplifier as long as the voltages at the comparator inputs are not the same.
An increase of the line frequency means also an increase of the +HTHD' voltage, thus an increase of pin 5 voltage, so, a change of the Q1 / R31 ratio or of the gain. By this looped circuit we obtain an automatic tracking of the east-west correction with the line frequency without any alignment.

d) Power amplifier :

The sum of the corrections is now sent back to the motherboard to be amplified by IC10 (TDA2030) before reaching the 'hor. defl.' board to modulate the scan voltage HTHD for the horizontal deflection circuits.

III. Phase control - Skew and Bow

Introduction

The midline bow and skew dynamic corrections are added to the DC phase control of the picture. These corrections change in a dynamic manner the horizontal phase of the picture during the vertical scan.
The position of the HS pulse at pin 4 of the TDA2595 is determined by the position of the pulse sent to pin 2 (Flyback Pulse Simulation). The second PLL of the TDA2595 adjusts then the Hor drive output pin 4 " back in the time" in accordance with the position of the simulated pulse.
The original pulse may now be delayed in the time to determine the start of the scanning with respect to the reference video (= phase control).
This delay happens in two steps by means of two monoflops. The first one realizes the phase control itself. The second one the skew and bow corrections. The width of the final pulse **"H PULS"** is significant for the total delay and the falling edge of this pulse triggers a third monoflop IC5 on the main board which also sets the width of the real horizontal drive pulse.

The same pulse H PULS' is also sent to the microprocessor board to lock the text and generate the pixelclock.,

a) Phase control (IC12)

The HS pulse at pin 4 triggers the monoflop IC12 on the positive going edge. The absolute value of the phase control may be lower for the high scanning line frequencies than for the low scanning frequencies. This is automatically realized by a loop system :
The pulse train at pin 5 's output is integrated with R78 / C43. The obtained DC voltage across C43 is proportional with the width of the pulses (= adjusted phase) and the line frequency. The required phase shift is applied to the base of Q7 via R84 coming from IC2.
The voltage difference between the two collectors of Q7 is now the base-emitter voltage of Q6.
This transistor is the current source for pin 7 (Rx / Cx) and automatically adapts the length of the output pulse to the line frequency.

The width of the output pulse is regulated by the current generator as long as the voltages at the bases of Q7 are not the same (balanced).

b) Skew and Bow Corrections

The sawtooth (skew), adjusted at 50%, and parabolic (bow) waveforms are added with R44 and R42, and sent to an inverting OP AMP in IC8.

The monoflop in IC12 is triggered on the positive going edge of the pulse of pin 12. The width of the output pulse is modulated by the waveform applied via D16. Here again, the range is tracked with the line frequency by applying the HTHD' voltage through R77 / R75.

The output pulse of pin 4 is now inverted with Q8 and the **"H PULS"** is sent to the last monoflop (IC5) in the row located on the main board.

Note: Skew and Bow are performed by the convergence board.

V. Horizontal oscillator - Horizontal autolock.

a) Horizontal autolock :

The sync separator IC14 serves Q1 with composite sync.

The amplified sync is then split to the PLL (IC6) and transistor Q17 of the coincidence detector.

The line oscillator in the TDA2595 is locked to its exact frequency by a PLL in the chip. Unfortunately, the latter has a very limited lock range of approx. 1.2 khz only and cannot lock the range from 15 to 92 khz.

An extra PLL is utilized, the **4046** (IC6), for the **coarse alignment**. The fine tuning is performed by the PLL in the TDA2595 itself.

This PLL - IC consists of two phase comparators, and a VCO.

For this application the second phase comparator only is used, the VCO is not used either.

The **‘signal input’** (pin 14) is the line oscillator of the TDA2595 (squared hor. drive output of the TDA2595) and the **‘comparator input ‘** (pin 3) is the composite sync having been inverted by Q1.
The corresponding output is pin 13, a three-state output, and, initially biased at 6 volts with R89 / R92.

If the output is ‘high impedant or open’ (in the locked state) the voltage is **set at 6 volts** with R92/89.

This voltage is buffered by a voltage follower in IC7 and then reaching pin 5 of another OPAMP, acting as a voltage comparator, in IC7.

The other input, pin 6 of IC7 is set at approximately 7.7 volts with R94 / R90.

Consequently, the **COIN NEG (pin 7) is low in the locked position.**

b) Line oscillator lower than the horizontal sync :

If we assume that the local oscillator frequency is lower than the hor. sync pulses, then , the voltage on C8 decreases (pull down state). This voltage is now buffered and sent to pin 5 of IC7. But, because of the zener Z3, this voltage cannot decrease and stays at approximately 6 volts.

The other pin 6 is initially at 7.7 volts (divider R90/R94). This voltage now decreases because the transistor Q17 discharges the capacitor C97 as follows:

The squared hor. drive of pin 4 switches on and off Q18.

When the frequency of the local line oscillator is different from the hor sync (as we assumed), some pulses arrive on the base of Q17 at the moment Q18 is not saturated.

These hor sync pulses turn on Q17 and C97 is discharged. The voltage at pin 6 drops and becomes lower than the other input ,pin 5.

The output **COIN NEG (pin 7) switches ‘high’ in the unlocked state.**

The gate of the mosfet Q9 is now positive and Q9 conducts to connect the output pin 8 of the PLL (IC7) to the inverting input pin 2 of the next 'proportional - integrating' OP AMP.

The decreasing voltage output of the PLL is inverted by IC7 and transistor Q21 draws more current out of pin 14 of the TDA2595 in order to increase the frequency of the line oscillator.

As the line oscillator frequency is increasing, the PLL output increases also.

This continues up to the moment there is coincidence between the hor. drive and the hor. sync at the base of Q17.

Once coincidence is reached, the voltage at pin 6 is again 7.7 volts and the state of the Mosfet Q9 changes again to a stable and blocked position.

All this means, we have reached now the capture range of the PLL in the TDA2595.

From now onwards the PLL in the TDA2595 takes over as follows :
As long there is no coincidence, Q33 is blocked and the PLL output pin 17 is disconnected from the VCO input pin 14. Q33 is closed the moment there is coincidence.

The line frequency is fine tuned by the PLL output pin 17 of the TDA2595 , as long this PLL output has not reached the 6 volts installed at pin 3 of IC7.

Therefore, the pin 17 output is sent to the same pin 2 of the integrating OP AMP.

In the locked state of the PLL of the TDA2595 this output is indeed 6 volts.

Any change in frequency is now compensated or corrected by the PLL of the TDA2595, and the 4046 is switched off.

Above circuit does not require any alignment as it is completely self-aligning, and guarantees a correct locking to the center of the lock range of the PLL system in the TDA2595.

c) Line oscillator higher than the hor sync :

A similar explanation is valuable here, although, in this case the PLL's output is increasing now. The zener diode Z3 does not limit the voltage because the voltage across it is not 6 volts. Pin 5 'follows' the PLL output.

As there is no coincidence as well, the other input of the comparator goes down resulting in a 'high' output for pin 7.

Q9 is turned on and the PLL output can correct the line oscillator frequency.

VI. Adjustable TOP/ BOTTOM BLANKING

On the subunit, blanking pulses are generated for an adjustable blanking of the top and the bottom of the picture by the user.

To achieve a high accuracy, the sawtooth is passed into a so-called **‘dead band response amplifier’** built up around an OP AMP in IC8.

The sawtooth is entered at pin 9 of IC8. The output is inverted and the ramp is steepened at the start and the end.

Two clipping levels are installed by clamping circuits in order to obtain a complete feedback between these levels (= center of the screen).

As soon the first clipping level is reached, the output is invariable. and obviously no change any more in the output is noticed.

The transformed waveform is now sent to two level detectors in IC9.

The voltage clipping levels of the other inputs of the comparators are regulated by the potentiometers in IC2 and IC3.

VII. Simulation of the Flyback pulse for the PLL of the TDA2595.

By means of the monoflops in IC4 a ‘simulated’ line (flyback) pulse is generated. The first monoflop introduces a small delay for the pulse and the second one determines the width.

The introduced delay is used to 'mislead' the PLL and consequently to allow a ‘negative’ phase alignment. Indeed, this phase comparator (PLL) determines the phase of the squared output at pin 4.
It normally has to compensate for the delays in the power switching of the deflection circuits. If we can mislead this PLL by giving a 'wrong' info, the hor. output at pin 4 is anticipating the reference (video).
This allows now a range for the phase going from a 'negative' phase shift to a positive one.

VIII. BLANKING - COINCIDENCE.

In the event of a non - coincidence, the transistor Q16 gets in complete saturation since the **COIN NEG** signal is at a high level.

This results in :

- Led D20 comes on to show the non - coincidence situation.

- if the strap J5 is in position, the transistor Q15 is also in saturation and causes a total blanking of the three crt's.

Parts listing Sync+Vertical Deflection module 76 22686

SIT.	ITEM NO.	DESCRIPTION	QUANTITY
4130	R133039	SPR L 8 D 1,2D 4 CE	5
4100	R133074	HTSN@A I_SIL W30	0,15
4090	R3133921	J MD SHUNT F P2 E1SN I RD	1
4060	R3631049	SCR Z933 M 3 X 6 SS	8
4050	R3631059	SCR Z933 M 3 X 8 SS	3
4120	R367699	RVT AVTRON2,5L 8,1 AL	6
4110	R722276	LOCK49 PCB UN CPL	1
	R762268S	**UN G801 VER+S V_HOLD**	**1**
4080	R802628	HTSN A GEN SPG 1X 3.1	6
4020	R802644	HTSN D800 VER+SYN	1
4030	R802645	HTSN D800 FIX LATH	1
4040	R805147	FRM49 VER SCRN FIX	1
4061	V3621217	SCR $7500CM 3 X 6 STZN	6
4070	Z3676041	SPR L37 M 3 H 5,5IBRNI	4
C 1	R111487	C EL RA 100M M 50E2 85	1
C 2	R113730	C POMERA 330N K 63E2 85	
C 3	R112743	C CE MI 2N2K100E2	
C 4	R111531	C EL RA 10M M 35E2 85	
C 5	R111678	C EL BRA 10M M 25E2 85	1
C 6	R111550	C EL RA 4M7M 50E2 85	1
C 7	R112763	C CE MI 10N Z 63E2 85	1
C 8	R113724	C POMERA 100N K 63E2 85	
C 9	R112741	C CE MI 1N5K100E2	1
C 10	V114098	C POMERA 2M2M 50E2 85	1
C 11	R113728	C POMERA 220N K 63E2 85	
C 12	R113728	C POMERA 220N K 63E2 85	
C 13	R114085	C POMERA 330N K 63E2 85	
C 14	R114085	C POMERA 330N K 63E2 85	
C 18	R111531	C EL RA 10M M 35E2 85	
C 21	R115936	C PP RA 6N8J 63E2 85	
C 22	R111550	C EL RA 4M7M 50E2 85	
C 23	R111550	C EL RA 4M7M 50E2 85	1
C 24	R112737	C CE MI 680P K100E2	
C 25	R113728	C POMERA 220N K 63E2 85	
C 26	R113728	C POMERA 220N K 63E2 85	
C 27	R112737	C CE MI 680P K100E2	
C 28	R112737	C CE MI 680P K100E2	1
C 29	R113728	C POMERA 220N K 63E2 85	
C 32	R113724	C POMERA 100N K 63E2 85	
C 33	R112364	C N750MI 150P G100E2	
C 34	R111476	C EL RA 47M M 25E2 85	
C 35	R111488	C EL RA 220M M 50E2 85	1
C 36	R112366	C N750MI 220P G100E2	
C 37	R113724	C POMERA 100N K 63E2 85	
C 38	R112363	C N750MI 120P G100E2	1
C 39	R112365	C N750MI 180P G100E2	
C 41	R113728	C POMERA 220N K 63E2 85	
C 42	R112737	C CE MI 680P K100E2	1
C 43	R113728	C POMERA 220N K 63E2 85	
C 44	R113729	C POMERA 270N K 63E2 85	
C 45	R113729	C POMERA 270N K 63E2 85	
C 46	R113729	C POMERA 270N K 63E2 85	
C 47	R1137171	C POMERA 27N K100E2 85	
C 48	R1137171	C POMERA 27N K100E2 85	
C 49	R1137171	C POMERA 27N K100E2 85	
C 50	R113724	C POMERA 100N K 63E2 85	
C 51	R112362	C N750MI 100P G100E2	1
C 52	R111488	C EL RA 220M M 50E2 85	1
C 53	R113728	C POMERA 220N K 63E2 85	1
C 54	R113728	C POMERA 220N K 63E2 85	
C 55	R111488	C EL RA 220M M 50E2 85	1
C 56	R113728	C POMERA 220N K 63E2 85	
C 57	R112737	C CE MI 680P K100E2	
C 58	R113728	C POMERA 220N K 63E2 85	
C 59	R112737	C CE MI 680P K100E2	1
C 60	R1137161	C POMERA 22N K100E2 85	
C 63	R111550	C EL RA 4M7M 50E2 85	1
C 64	R114068	C POMERA 10N M 63E2 85	
C 65	R111531	C EL RA 10M M 35E2 85	
C 66	R113724	C POMERA 100N K 63E2 85	
C 67	R111531	C EL RA 10M M 35E2 85	
C 68	R111476	C EL RA 47M M 25E2 85	
C 69	V1151632	C PP RA 2N2H100E2 85	1
C 70	R114068	C POMERA 10N M 63E2 85	1
C 71	R113724	C POMERA 100N K 63E2 85	
C 72	R111469	C EL RA1000M M 16E2 85	1
C 73	R111548	C EL RA 2M2M 50E2 85	
C 74	R112363	C N750MI 120P G100E2	1
C 75	R113724	C POMERA 100N K 63E2 85	
C 78	R113724	C POMERA 100N K 63E2 85	
C 79	R111531	C EL RA 10M M 35E2 85	
C 80	V1114718	C EL RA1000M M 25E2 SM	1
C 81	R1114729	C EL RA4700M M 16E3 105	1
C 82	R111531	C EL RA 10M M 35E2 85	
C 83	R112743	C CE MI 2N2K100E2	
C 84	R112763	C CE MI 10N Z 63E2 85	1
C 85	R112763	C CE MI 10N Z 63E2 85	
C 86	R112763	C CE MI 10N Z 63E2 85	1
C 88	R115940	C PP RA 10N J 63E2 85	
C 89	R1159161	C PP RA 1N J100E2 85	
C 90	R112739	C CE MI 1N K100E2	1
C 91	R113724	C POMERA 100N K 63E2 85	
C 92	R112739	C CE MI 1N K100E2	
C 93	R112739	C CE MI 1N K100E2	1
C 94	R112739	C CE MI 1N K100E2	
C 95	R113724	C POMERA 100N K 63E2 85	
C 96	R113724	C POMERA 100N K 63E2 85	
C 97	R111477	C EL RA 100M M 25E2 85	
C100	R111531	C EL RA 10M M 35E2 85	
C101	R111531	C EL RA 10M M 35E2 85	
C102	R113726	C POMERA 150N K 63E2 85	
C103	R113732	C POMERA 470N K 63E2 85	
C105	R111531	C EL RA 10M M 35E2 85	1
C106	R111477	C EL RA 100M M 25E2 85	1
C107	R113724	C POMERA 100N K 63E2 85	
C108	R111531	C EL RA 10M M 35E2 85	
C109	R113724	C POMERA 100N K 63E2 85	
C110	R111531	C EL RA 10M M 35E2 85	
C111	R112747	C CE MI 4N7K100E2 85	1
C112	R112735	C CE MI 470P K100E2	
C113	R113724	C POMERA 100N K 63E2 85	1
C114	R113724	C POMERA 100N K 63E2 85	1
C115	R113724	C POMERA 100N K 63E2 85	
C116	R113724	C POMERA 100N K 63E2 85	
C117	R113724	C POMERA 100N K 63E2 85	
C118	R113724	C POMERA 100N K 63E2 85	1
C119	R113724	C POMERA 100N K 63E2 85	
C120	R113724	C POMERA 100N K 63E2 85	
C121	R113724	C POMERA 100N K 63E2 85	
C122	R111531	C EL RA 10M M 35E2 85	
C123	R114090	C POMERA 1M K 63E2 85	
C124	R111531	C EL RA 10M M 35E2 85	1

SIT.	ITEM NO.	DESCRIPTION	QUANTITY
C125	R111531	C EL RA 10M M 35E2 85	
C126	R113724	C POMERA 100N K 63E2 85	
C127	R113724	C POMERA 100N K 63E2 85	
C128	V114098	C POMERA 2M2M 50E2 85	
C129	R113724	C POMERA 100N K 63E2 85	
C130	R111531	C EL RA 10M M 35E2 85	1
C131	R111531	C EL RA 10M M 35E2 85	1
C132	R112735	C CE MI 470P K100E2	1
C133	R114090	C POMERA 1M K 63E2 85	
C134	R114090	C POMERA 1M K 63E2 85	
C135	R114090	C POMERA 1M K 63E2 85	
C201	R113724	C POMERA 100N K 63E2 85	
C202	R113724	C POMERA 100N K 63E2 85	
C203	R112747	C CE MI 4N7K100E2 85	
C204	R113724	C POMERA 100N K 63E2 85	
C205	R113724	C POMERA 100N K 63E2 85	
C206	R111568	C EL RA 2M2M250E2 85	1
C207	R113730	C POMERA 330N K 63E2 85	
C208	R114068	C POMERA 10N M 63E2 85	1
C210	R114068	C POMERA 10N M 63E2 85	
C604	R113724	C POMERA 100N K 63E2 85	
C624	R113724	C POMERA 100N K 63E2 85	
C625	R113724	C POMERA 100N K 63E2 85	
C634	R112763	C CE MI 10N Z 63E2 85	
D 1	R131637	D R BA158 600400 DO7	
D 2	R131621	D S 1N4148 075150 DO35	
D 3	R131621	D S 1N4148 075150 DO35	
D 7	R131621	D S 1N4148 075150 DO35	
D 8	R131621	D S 1N4148 075150 DO35	
D 9	R1316361	D Y BAT85 030200 DO34	
D 10	R1316361	D Y BAT85 030200 DO34	
D 11	R131637	D R BA158 600400 DO7	
D 12	R131637	D R BA158 600400 DO7	
D 13	R131637	D R BA158 600400 DO7	
D 15	R131646	D R 1N4007 10201A DO41	
D 16	R131621	D S 1N4148 075150 DO35	
D 18	R131621	D S 1N4148 075150 DO35	
D 19	R131621	D S 1N4148 075150 DO35	
D 20	R131662	D LED D3 T RD	1
D 21	R131637	D R BA158 600400 DO7	
D 22	R131621	D S 1N4148 075150 DO35	
D 23	R131646	D R 1N4007 10201A DO41	
D 24	R131621	D S 1N4148 075150 DO35	
D 25	R131637	D R BA158 600400 DO7	
D 28	R131621	D S 1N4148 075150 DO35	
D 31	R131637	D R BA158 600400 DO7	
D 32	R131637	D R BA158 600400 DO7	
D 33	R131646	D R 1N4007 10201A DO41	
D 37	R131621	D S 1N4148 075150 DO35	
D 39	R131621	D S 1N4148 075150 DO35	
D 40	R131621	D S 1N4148 075150 DO35	
D 41	R131621	D S 1N4148 075150 DO35	
D 42	R1316361	D Y BAT85 030200 DO34	
D 43	R1316361	D Y BAT85 030200 DO34	
D 44	R1316361	D Y BAT85 030200 DO34	
D 45	R131621	D S 1N4148 075150 DO35	
D 46	R131621	D S 1N4148 075150 DO35	
D 47	R131621	D S 1N4148 075150 DO35	
D 48	R131621	D S 1N4148 075150 DO35	
D 49	R131621	D S 1N4148 075150 DO35	
D 50	R131621	D S 1N4148 075150 DO35	
D 51	R131621	D S 1N4148 075150 DO35	
D 52	R131621	D S 1N4148 075150 DO35	
D 53	R131621	D S 1N4148 075150 DO35	
D 54	R131621	D S 1N4148 075150 DO35	
D 55	R131621	D S 1N4148 075150 DO35	

SIT.	ITEM NO.	DESCRIPTION	QUANTITY
D 56	R131621	D S 1N4148 075150 DO35	
D 57	R131621	D S 1N4148 075150 DO35	
D601	R131621	D S 1N4148 075150 DO35	
D606	R131621	D S 1N4148 075150 DO35	
D633	R131637	D R BA158 600400 DO7	
I 1	R132762	U 2595 TDA DIP18 P	1
I 2	R134002	U 7812 TO220 P	1
I 3	R134016	U 7912 TO220 P	1
I 4	R1373325	U 4098B DIP16 P	1
I 5	R1373325	U 4098B DIP16 P	1
I 6	R137602	U 4046B DIP16 I	1
I 7	R134113	U 084 TL DIP14 P	1
I 9	R134124	U 082 TL DIP8 P	1
I 10	R132788	U 1875 LM TO220 P	1
I 11	R132827	U 8172 TDA H_W P	1
I 12	R132827	U 8172 TDA H_W P	1
I 13	R132827	U 8172 TDA H_W P	1
I 14	R132817	U 1881 LM DIP8 P	1
I 15	R1373325	U 4098B DIP16 P	1
I 16	R134113	U 084 TL DIP14 P	1
J 1	R313525	J EUR2C MBS P64 E1C2S 1,6	1
J 2	R313525	J EUR2C MBS P64 E1C2S 1,6	1
J 3	R3484096	CD CT FTMT P 9 140	1
J 4	R3484124	CD CT FTMT P12 140	1
J 5	R3132862	J MD1 C MBT P 2 E1SN 6,7	1
J 7	R313926	J CT H MBT P 6 M2SN WH	1
J 8	R313922	J CT H MBT P 2 M2SN WH	1
J 9	R313930	J CT H MBT P10 M2SN WH	1
L 1	R305913	CH MNS AX 12 UH 3A	1
L 2	R305913	CH MNS AX 12 UH 3A	1
L 3	R3061222	CH AX NS 1.5 UH	1
L 4	R3061222	CH AX NS 1.5 UH	1
L 5	R3061222	CH AX NS 1.5 UH	1
P 1	R106827	R TCE V 2K K 0W5 S10SS	1
P620	R107534	R MCE H100K K 0W75 M20SS	1
P621	R107534	R MCE H100K K 0W75 M20SS	1
P626	R106827	R TCE V 2K K 0W5 S10SS	1
P627	R106827	R TCE V 2K K 0W5 S10SS	1
PC	R780017	PCB G801 VER+S	1
Q 1	R1314182	Q BC559C P SS TO92	
Q 2	R131411	Q BC549C N SS TO92	
Q 3	R1314181	Q BC559B P SS TO92	1
Q 4	R131411	Q BC549C N SS TO92	
Q 6	R132910	Q BS170 FN SS TO92	1
Q 7	R131411	Q BC549C N SS TO92	
Q 8	R1314072	Q BC547A N SS TO92	
Q 9	R1314651	Q BF245B FN SS TO92	
Q 14	V132575	Q BC517 DN SS TO92	1
Q 15	R1314131	Q BC557B P SS TO92	
Q 16	R131411	Q BC549C N SS TO92	
Q 17	R131411	Q BC549C N SS TO92	
Q 18	R131411	Q BC549C N SS TO92	
Q 19	R131411	Q BC549C N SS TO92	
Q 20	R131411	Q BC549C N SS TO92	
Q 21	R131411	Q BC549C N SS TO92	
Q 22	R131411	Q BC549C N SS TO92	
Q 23	R131411	Q BC549C N SS TO92	
Q 24	R131411	Q BC549C N SS TO92	
Q 25	R132910	Q BS170 FN SS TO92	1
Q 26	R132916	Q BS250 FN SS TO92	1

SIT.	ITEM NO.	DESCRIPTION	QUANTITY
Q 27	R131411	Q BC549C N SS TO92	1
Q 28	R131411	Q BC549C N SS TO92	1
Q 29	R132910	Q BS170 FN SS TO92	1
Q 30	R1314182	Q BC559C P SS TO92	1
Q 31	R1314651	Q BF245B FN SS TO92	
Q 32	R131411	Q BC549C N SS TO92	
Q 33	R132916	Q BS250 FN SS TO92	1
Q 34	R131411	Q BC549C N SS TO92	
Q 35	R1314072	Q BC547A N SS TO92	1
Q 36	R1314182	Q BC559C P SS TO92	
Q 37	R1314182	Q BC559C P SS TO92	
Q 38	R1314182	Q BC559C P SS TO92	1
Q 39	R132916	Q BS250 FN SS TO92	1
Q596	R132910	Q BS170 FN SS TO92	1
Q611	R1314181	Q BC559B P SS TO92	1
Q612	R1314181	Q BC559B P SS TO92	
R 1	R101544	R MF H 4K7 F 0W4 E3	
R 3	R101557	R MF H 56K F 0W4 E3	
R 4	R101552	R MF H 22K F 0W4 E3	
R 5	R101552	R MF H 22K F 0W4 E3	
R 6	R101565	R MF H270K F 0W4 E3	
R 8	R101536	R MF H 1K F 0W4 E3	
R 9	R101534	R MF H680E F 0W4 E3	
R 10	R101540	R MF H 2K2 F 0W4 E3	
R 11	R101560	R MF H100K F 0W4 E3	
R 12	R101566	R MF H330K F 0W4 E3	
R 13	R101550	R MF H 15K F 0W4 E3	
R 14	R101555	R MF H 39K F 0W4 E3	
R 15	V1026000	R MF H 10M F 0W6 E4	
R 16	R101548	R MF H 10K F 0W4 E3	
R 17	R101566	R MF H330K F 0W4 E3	
R 18	R101560	R MF H100K F 0W4 E3	
R 19	R101536	R MF H 1K F 0W4 E3	
R 20	R101524	R MF H100E F 0W4 E3	
R 24	R101568	R MF H470K F 0W4 E3	
R 27	R101515	R MF H 18E F 0W4 E3	
R 28	R101548	R MF H 10K F 0W4 E3	
R 29	R101548	R MF H 10K F 0W4 E3	
R 30	R101530	R MF H330E F 0W4 E3	
R 32	R101533	R MF H560E F 0W4 E3	
R 34	R101548	R MF H 10K F 0W4 E3	
R 35	R101554	R MF H 33K F 0W4 E3	
R 36	R101538	R MF H 1K5 F 0W4 E3	
R 37	R101542	R MF H 3K3 F 0W4 E3	
R 38	R101529	R MF H270E F 0W4 E3	
R 39	R1015311	R MF H360E F 0W4 E3	
R 41	R101548	R MF H 10K F 0W4 E3	
R 42	R101546	R MF H 6K8 F 0W4 E3	
R 44	R101404	R MF H 2E2 J 2W E7	1
R 45	R101528	R MF H220E F 0W4 E3	
R 47	R101550	R MF H 15K F 0W4 E3	
R 48	R101500	R MF H 1E F 0W4 E3	
R 49	R101548	R MF H 10K F 0W4 E3	
R 50	R101548	R MF H 10K F 0W4 E3	
R 51	R101508	R MF H 4E7 F 0W4 E3	
R 53	R101560	R MF H100K F 0W4 E3	
R 54	R101566	R MF H330K F 0W4 E3	
R 55	R101500	R MF H 1E F 0W4 E3	
R 59	R101546	R MF H 6K8 F 0W4 E3	
R 60	R101546	R MF H 6K8 F 0W4 E3	
R 61	R101524	R MF H100E F 0W4 E3	1
R 62	R101536	R MF H 1K F 0W4 E3	
R 63	R101524	R MF H100E F 0W4 E3	
R 64	R101544	R MF H 4K7 F 0W4 E3	
R 65	R101536	R MF H 1K F 0W4 E3	
R 66	R101548	R MF H 10K F 0W4 E3	
R 67	R101552	R MF H 22K F 0W4 E3	
R 68	R101540	R MF H 2K2 F 0W4 E3	1
R 69	R101524	R MF H100E F 0W4 E3	
R 70	R101524	R MF H100E F 0W4 E3	
R 71	R101524	R MF H100E F 0W4 E3	
R 72	R101559	R MF H 82K F 0W4 E3	
R 73	R101552	R MF H 22K F 0W4 E3	1
R 74	R101555	R MF H 39K F 0W4 E3	
R 76	R101528	R MF H220E F 0W4 E3	
R 77	R101500	R MF H 1E F 0W4 E3	
R 78	R101550	R MF H 15K F 0W4 E3	
R 79	R101404	R MF H 2E2 J 2W E7	1
R 80	R101500	R MF H 1E F 0W4 E3	
R 81	R101528	R MF H220E F 0W4 E3	
R 82	R101558	R MF H 68K F 0W4 E3	
R 83	R101561	R MF H120K F 0W4 E3	
R 84	R101555	R MF H 39K F 0W4 E3	
R 85	R101561	R MF H120K F 0W4 E3	
R 86	R101555	R MF H 39K F 0W4 E3	
R 87	R101555	R MF H 39K F 0W4 E3	
R 88	R101561	R MF H120K F 0W4 E3	
R 89	R101545	R MF H 5K6 F 0W4 E3	
R 90	R101560	R MF H100K F 0W4 E3	
R 91	R101558	R MF H 68K F 0W4 E3	
R 92	R101546	R MF H 6K8 F 0W4 E3	
R 93	R101534	R MF H680E F 0W4 E3	
R 94	R101557	R MF H 56K F 0W4 E3	
R 95	R101548	R MF H 10K F 0W4 E3	
R 96	R101548	R MF H 10K F 0W4 E3	
R 97	R101404	R MF H 2E2 J 2W E7	1
R 98	R101550	R MF H 15K F 0W4 E3	
R104	R101548	R MF H 10K F 0W4 E3	
R105	R101549	R MF H 12K F 0W4 E3	
R106	R101548	R MF H 10K F 0W4 E3	
R107	R101548	R MF H 10K F 0W4 E3	
R109	R101544	R MF H 4K7 F 0W4 E3	
R110	R1015541	R MF H 30K F 0W4 E3	1
R111	R101540	R MF H 2K2 F 0W4 E3	1
R112	R101512	R MF H 10E F 0W4 E3	
R113	R101549	R MF H 12K F 0W4 E3	
R114	R101553	R MF H 27K F 0W4 E3	
R115	R101548	R MF H 10K F 0W4 E3	
R116	V1026437	R MF H 28K F 0W6 E4	1
R117	R101535	R MF H820E F 0W4 E3	
R118	R101560	R MF H100K F 0W4 E3	
R119	R101544	R MF H 4K7 F 0W4 E3	
R120	R101553	R MF H 27K F 0W4 E3	1
R121	R101528	R MF H220E F 0W4 E3	
R122	R101546	R MF H 6K8 F 0W4 E3	
R123	R101547	R MF H 8K2 F 0W4 E3	
R124	R101562	R MF H150K F 0W4 E3	
R125	R101562	R MF H150K F 0W4 E3	
R126	R101562	R MF H150K F 0W4 E3	
R127	R101570	R MF H680K F 0W4 E3	
R128	R101549	R MF H 12K F 0W4 E3	
R129	R101538	R MF H 1K5 F 0W4 E3	
R130	R101557	R MF H 56K F 0W4 E3	
R131	R101554	R MF H 33K F 0W4 E3	
R132	R101544	R MF H 4K7 F 0W4 E3	
R133	R101538	R MF H 1K5 F 0W4 E3	
R134	R101555	R MF H 39K F 0W4 E3	
R135	R101553	R MF H 27K F 0W4 E3	
R136	R101552	R MF H 22K F 0W4 E3	
R137	R101548	R MF H 10K F 0W4 E3	
R138	R101544	R MF H 4K7 F 0W4 E3	
R139	R101558	R MF H 68K F 0W4 E3	
R140	R101551	R MF H 18K F 0W4 E3	

SIT.	ITEM NO.	DESCRIPTION	QUANTITY
R142	R101560	R MF H100K F 0W4 E3	
R143	R101552	R MF H 22K F 0W4 E3	
R144	R101557	R MF H 56K F 0W4 E3	
R145	R101544	R MF H 4K7 F 0W4 E3	
R146	R101536	R MF H 1K F 0W4 E3	
R147	R101572	R MF H 1M F 0W4 E3	
R148	R101550	R MF H 15K F 0W4 E3	
R149	R101544	R MF H 4K7 F 0W4 E3	
R150	R101550	R MF H 15K F 0W4 E3	
R151	R101546	R MF H 6K8 F 0W4 E3	
R152	R101558	R MF H 68K F 0W4 E3	1
R153	R101544	R MF H 4K7 F 0W4 E3	
R154	R101537	R MF H 1K2 F 0W4 E3	
R155	R101548	R MF H 10K F 0W4 E3	
R156	R101556	R MF H 47K F 0W4 E3	
R157	R101549	R MF H 12K F 0W4 E3	
R158	R101548	R MF H 10K F 0W4 E3	
R159	R101539	R MF H 1K8 F 0W4 E3	
R160	R101560	R MF H100K F 0W4 E3	
R161	R101536	R MF H 1K F 0W4 E3	
R162	R101536	R MF H 1K F 0W4 E3	
R163	R101548	R MF H 10K F 0W4 E3	
R164	R101544	R MF H 4K7 F 0W4 E3	
R165	R101544	R MF H 4K7 F 0W4 E3	
R166	R101548	R MF H 10K F 0W4 E3	
R167	R348102	WU JUMP 0,6 7,5	
R168	R1015571	R MF H 51K F 0W4 E3	1
R169	R101548	R MF H 10K F 0W4 E3	
R170	R101515	R MF H 18E F 0W4 E3	
R171	R101549	R MF H 12K F 0W4 E3	
R172	R101548	R MF H 10K F 0W4 E3	
R173	V1026179	R MF H 1M5 F 0W6 E4	1
R174	R101570	R MF H680K F 0W4 E3	
R175	R101563	R MF H180K F 0W4 E3	
R176	R101556	R MF H 47K F 0W4 E3	
R177	R101554	R MF H 33K F 0W4 E3	
R178	R101558	R MF H 68K F 0W4 E3	
R179	R101536	R MF H 1K F 0W4 E3	
R180	R101572	R MF H 1M F 0W4 E3	
R181	R101572	R MF H 1M F 0W4 E3	
R182	R101572	R MF H 1M F 0W4 E3	
R183	R101548	R MF H 10K F 0W4 E3	
R186	R101572	R MF H 1M F 0W4 E3	
R201	R101566	R MF H330K F 0W4 E3	
R202	R101566	R MF H330K F 0W4 E3	
R203	R101552	R MF H 22K F 0W4 E3	
R301	R101552	R MF H 22K F 0W4 E3	
R302	R101552	R MF H 22K F 0W4 E3	
R303	R101525	R MF H120E F 0W4 E3	
R304	R101567	R MF H390K F 0W4 E3	
R305	R101546	R MF H 6K8 F 0W4 E3	
R306	R101540	R MF H 2K2 F 0W4 E3	
R599	R101536	R MF H 1K F 0W4 E3	
R600	R101527	R MF H180E F 0W4 E3	
R605	R101555	R MF H 39K F 0W4 E3	
R607	R101548	R MF H 10K F 0W4 E3	
R608	R101527	R MF H180E F 0W4 E3	
R609	R101552	R MF H 22K F 0W4 E3	
R610	R101548	R MF H 10K F 0W4 E3	
R613	R101560	R MF H100K F 0W4 E3	
R614	R101558	R MF H 68K F 0W4 E3	
R615	R101560	R MF H100K F 0W4 E3	
R616	R101526	R MF H150E F 0W4 E3	
R617	R101540	R MF H 2K2 F 0W4 E3	
R618	R101526	R MF H150E F 0W4 E3	
R619	R101540	R MF H 2K2 F 0W4 E3	
R622	R101571	R MF H820K F 0W4 E3	
R623	R101571	R MF H820K F 0W4 E3	
R628	V1026926	R MF H 9K09F 0W6 E4	
R629	V1026926	R MF H 9K09F 0W6 E4	1
S 1	R324182	SW DIP SLD 1A P 1 BT SN	1
SR 1	R1011917	R CFFH E22K 0W35	⚠ 1
SR 2	R1001909	R CFFV E1 K 0W4 E1	⚠ 1
SR 3	R1003009	R CFFV 1E J 0W25 E1	⚠ 1
SR 4	R1003009	R CFFV 1E J 0W25 E1	⚠ 1
SR 5	R1011129	R CFFH 10E J 0W25	⚠ 1
SR 6	R1011046	R CFFH 2E2 J 0W35	⚠ 1
SR 7	R1003009	R CFFV 1E J 0W25 E1	⚠ 1
Z 1	R131768	D ZEN 7V5 0W5 B DO35	
Z 2	R131716	D ZEN 5V1 0W5 C DO35	
Z 3	R131734	D ZEN 5V6 0W5 B DO35	
Z 4	R131728	D ZEN 11V 0W5 C DO35	
Z 5	R131756	D ZEN 7V5 0W5 C DO35	
Z 6	R131768	D ZEN 7V5 0W5 B DO35	

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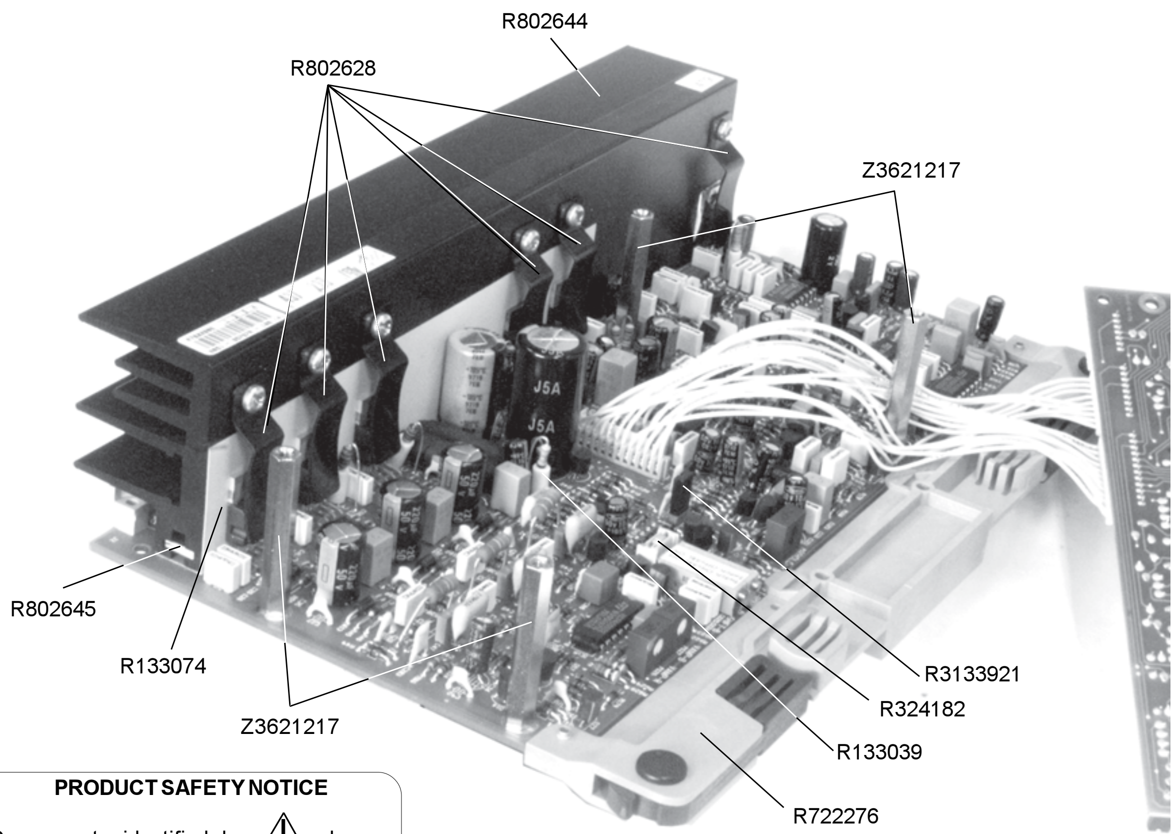
SIT.	ITEM NO.	DESCRIPTION	QUANTITY
10	R3133921	J MD SHUNT F P2 E1SN I RD	1
	Z34698903	SLVU SHR D 1,2/0,6 BK 30	
C 1	R111678	C EL BRA 10M M 25E2 85	
C 2	R113724	C POMERA 100N K 63E2 85	
C 3	R111531	C EL RA 10M M 35E2 85	
C 4	R111468	C EL RA 470M M 16E2 85	1
C 5	R113724	C POMERA 100N K 63E2 85	
C 6	R1137121	C POMERA 10N K250E2 85	1
C 7	R1137121	C POMERA 10N K250E2 85	
C 8	R111531	C EL RA 10M M 35E2 85	
C 9	R113724	C POMERA 100N K 63E2 85	1
C 10	R113724	C POMERA 100N K 63E2 85	
C 11	R113732	C POMERA 470N K 63E2 85	
C 12	R113819	C POMERA 3N3J250E2 85	1
C 13	R1114885	C EL RA 220M M 50E2 85	1
C 14	R111550	C EL RA 4M7M 50E2 85	
C 15	R113724	C POMERA 100N K 63E2 85	
C 16	R111550	C EL RA 4M7M 50E2 85	1
C 17	R113724	C POMERA 100N K 63E2 85	
C 18	R114090	C POMERA 1M K 63E2 85	1
C 19	R111550	C EL RA 4M7M 50E2 85	
C 20	R113724	C POMERA 100N K 63E2 85	
C 21	R114090	C POMERA 1M K 63E2 85	1
C 22	R114090	C POMERA 1M K 63E2 85	1
C 23	R111476	C EL RA 47M M 25E2 85	
C 24	R111531	C EL RA 10M M 35E2 85	
C 25	R111531	C EL RA 10M M 35E2 85	
C 26	R111531	C EL RA 10M M 35E2 85	1
C 27	R113724	C POMERA 100N K 63E2 85	
C 28	R113732	C POMERA 470N K 63E2 85	
C 29	R113724	C POMERA 100N K 63E2 85	
C 30	R112747	C CE MI 4N7K100E2 85	1
C 31	R112747	C CE MI 4N7K100E2 85	1
C 32	R111531	C EL RA 10M M 35E2 85	

SIT.	ITEM NO.	DESCRIPTION	QUANTITY
C 33	R111531	C EL RA 10M M 35E2 85	
C 35	R1137181	C POMERA 33N K100E2 85	1
C 36	R113730	C POMERA 330N K 63E2 85	
C 37	R1137151	C POMERA 18N K100E2 85	
C 38	R1137121	C POMERA 10N K250E2 85	
C 39	R111531	C EL RA 10M M 35E2 85	
C 40	R112242	C NP0 MI 100P G100E2	
C 41	R111230	C EL AX 22M T160E12 85	1
C 42	R113724	C POMERA 100N K 63E2 85	
C 43	R113724	C POMERA 100N K 63E2 85	1
C 44	R112239	C NP0 MI 56P G100E2	
C 45	R111477	C EL RA 100M M 25E2 85	
C 47	R111531	C EL RA 10M M 35E2 85	1
C 48	R111531	C EL RA 10M M 35E2 85	
C 49	R111476	C EL RA 47M M 25E2 85	
C 50	R112747	C CE MI 4N7K100E2 85	1
C 51	R112739	C CE MI 1N K100E2	
C 52	R112741	C CE MI 1N5K100E2	
C 53	R111476	C EL RA 47M M 25E2 85	1
C 54	R1115935	C EL5 RA 10M M 35E2 85	1
C214	R112743	C CE MI 2N2K100E2	1
C219	R111531	C EL RA 10M M 35E2 85	
C300	R1137121	C POMERA 10N K250E2 85	1
C302	R113724	C POMERA 100N K 63E2 85	
C304	R114090	C POMERA 1M K 63E2 85	1
C368	R111476	C EL RA 47M M 25E2 85	
D 1	R131621	D S 1N4148 075150 DO35	
D 2	R131621	D S 1N4148 075150 DO35	
D 3	R1316361	D Y BAT85 030200 DO34	
D 4	R1316361	D Y BAT85 030200 DO34	
D 5	R1316361	D Y BAT85 030200 DO34	
D 6	R131621	D S 1N4148 075150 DO35	
D 7	R1316361	D Y BAT85 030200 DO34	
D 8	R131621	D S 1N4148 075150 DO35	
D 9	R131621	D S 1N4148 075150 DO35	
D 10	R131621	D S 1N4148 075150 DO35	1
D 11	R131621	D S 1N4148 075150 DO35	
D 12	R131621	D S 1N4148 075150 DO35	
D 13	R131621	D S 1N4148 075150 DO35	
D 14	R131621	D S 1N4148 075150 DO35	
D 16	R1316361	D Y BAT85 030200 DO34	
D 17	R131639	D S BAX12 090400 DO35	1
D 18	R131621	D S 1N4148 075150 DO35	
D377	R131637	D R BA158 600400 DO7	
I 1	R132833	U BELLA 4 DIP28 P	1
I 2	R132833	U BELLA 4 DIP28 P	1
I 3	R132833	U BELLA 4 DIP28 P	1
I 4	R134028	U 317LZ LM TO92 P	1
I 5	R134029	U 337LZ TO92 P	1
I 6	R134032	U 78L05AC TO92 P	1
I 7	R134113	U 084 TL DIP14 P	1
I 8	R134113	U 084 TL DIP14 P	1
I 9	R134114	U 393 LM DIP8 P	1
I 10	R137397	U 4013B DIP14 P	1
I 11	R134124	U 082 TL DIP8 P	1
I 12	R137552	U 74HCT123 DIP16 P	1
I336	R134222	U 1495 MC DIP14 P	1
J 3	R313949	J CT H MBS P 9 M2SN WH	1
J 4	R313952	J CT H MBS P12 M2SN WH	1
J 5	R313947	J CT H MBS P 7 M2SN WH	1
J 5	R314007	J CT C FWT P 7 M2SN	1
J 6	R3132862	J MD1 C MBT P 2 E1SN 6,7	1
P 1	R106725	R TCE H500E K 0W5 S10TS	1

SIT.	ITEM NO.	DESCRIPTION	QUANTITY
P 2	R106729	R TCE H 10K K 0W5 S10TS	1
PC	R780018	PCB *800 VER+S SUB	1
Q 1	R1314651	Q BF245B FN SS TO92	1
Q 2	R1314295	Q BC549B N SS TO92	1
Q 3	R1314295	Q BC549B N SS TO92	
Q 4	R131411	Q BC549C N SS TO92	
Q 6	R1314181	Q BC559B P SS TO92	1
Q 7	R132944	Q BCY87 2N SS TO71	1
Q 8	V132504	Q 2N2369A N SS TO18	1
Q 10	R1329105	Q BS170 FN SS TO92	1
Q 11	R131411	Q BC549C N SS TO92	
Q306	R1314181	Q BC559B P SS TO92	
Q312	R1314181	Q BC559B P SS TO92	1
R 1	V1026507	R MF H 33K2 F 0W6 E4	
R 2	V1026336	R MF H 2K21F 0W6 E4	
R 9	R101547	R MF H 8K2 F 0W4 E3	
R 10	R101544	R MF H 4K7 F 0W4 E3	
R 11	R101525	R MF H120E F 0W4 E3	
R 12	R101524	R MF H100E F 0W4 E3	
R 13	R101533	R MF H560E F 0W4 E3	
R 14	V1026006	R MF H 1K F 0W6 E4	
R 16	R101542	R MF H 3K3 F 0W4 E3	
R 17	V1026006	R MF H 1K F 0W6 E4	
R 18	R1015431	R MF H 3K6 F 0W4 E3	
R 19	V1026005	R MF H100E F 0W6 E4	
R 20	V1026007	R MF H 10K F 0W6 E4	
R 21	V1026426	R MF H 2K74F 0W6 E4	
R 22	V1026006	R MF H 1K F 0W6 E4	
R 23	V1026426	R MF H 2K74F 0W6 E4	1
R 24	V1026007	R MF H 10K F 0W6 E4	
R 26	V1026336	R MF H 2K21F 0W6 E4	
R 27	V1026008	R MF H100K F 0W6 E4	
R 28	V1026427	R MF H 27K4 F 0W6 E4	
R 29	V1026334	R MF H 22E1 F 0W6 E4	
R 30	V1026658	R MF H475K F 0W6 E4	
R 31	V1026426	R MF H 2K74F 0W6 E4	
R 32	V1026805	R MF H681E F 0W6 E4	
R 35	R101539	R MF H 1K8 F 0W4 E3	
R 37	R101543	R MF H 3K9 F 0W4 E3	
R 38	V1026657	R MF H 47K5 F 0W6 E4	
R 39	V1026656	R MF H 4K75F 0W6 E4	
R 40	V1026886	R MF H 8K25F 0W6 E4	
R 41	V1026657	R MF H 47K5 F 0W6 E4	
R 42	V1026007	R MF H 10K F 0W6 E4	
R 43	V1026006	R MF H 1K F 0W6 E4	
R 44	V1026007	R MF H 10K F 0W6 E4	
R 45	V1026006	R MF H 1K F 0W6 E4	
R 46	V1026177	R MF H 15K F 0W6 E4	
R 47	R101560	R MF H100K F 0W4 E3	
R 48	V1026507	R MF H 33K2 F 0W6 E4	
R 49	V1026578	R MF H392K F 0W6 E4	
R 50	V1026507	R MF H 33K2 F 0W6 E4	
R 51	V1026507	R MF H 33K2 F 0W6 E4	
R 52	R101546	R MF H 6K8 F 0W4 E3	
R 53	V1026005	R MF H100E F 0W6 E4	
R 54	V1026005	R MF H100E F 0W6 E4	
R 55	V1026658	R MF H475K F 0W6 E4	
R 57	V1026007	R MF H 10K F 0W6 E4	
R 58	R1015401	R MF H 2K F 0W4 E3	
R 59	V1026807	R MF H 68K1 F 0W6 E4	
R 60	R1015281	R MF H200E F 0W4 E3	
R 61	V1026007	R MF H 10K F 0W6 E4	
R 62	V1026087	R MF H 12K1 F 0W6 E4	
R 63	V1026505	R MF H332E F 0W6 E4	

SIT.	ITEM NO.	DESCRIPTION	QUANTITY
R 64	V1026574	R MF H 39E2 F 0W6 E4	
R 65	V1026085	R MF H121E F 0W6 E4	
R 67	V1026177	R MF H 15K F 0W6 E4	
R 68	V1026005	R MF H100E F 0W6 E4	
R 69	R101539	R MF H 1K8 F 0W4 E3	
R 70	R101535	R MF H820E F 0W4 E3	
R 71	V1026008	R MF H100K F 0W6 E4	
R 72	R101537	R MF H 1K2 F 0W4 E3	
R 73	V1026337	R MF H 22K1 F 0W6 E4	
R 74	V1026334	R MF H 22E1 F 0W6 E4	
R 75	V1026887	R MF H 82K5 F 0W6 E4	
R 76	V1026506	R MF H 3K32F 0W6 E4	
R 77	V1026806	R MF H 6K81F 0W6 E4	
R 78	V1026087	R MF H 12K1 F 0W6 E4	
R 79	R3481031	WU JUMP 0,51 10 ISO RD	1
R 80	R101536	R MF H 1K F 0W4 E3	
R 81	R101548	R MF H 10K F 0W4 E3	
R 82	V1026086	R MF H 1K21F 0W6 E4	
R 83	V1026007	R MF H 10K F 0W6 E4	
R 84	R101549	R MF H 12K F 0W4 E3	
R 85	R101504	R MF H 2E2 F 0W4 E3	1
R 86	V1026425	R MF H274E F 0W6 E4	
R 87	V1026656	R MF H 4K75F 0W6 E4	
R 88	V1026007	R MF H 10K F 0W6 E4	
R 89	V1026009	R MF H 1M F 0W6 E4	
R 90	V1026007	R MF H 10K F 0W6 E4	
R 91	V1026886	R MF H 8K25F 0W6 E4	
R 92	V1026007	R MF H 10K F 0W6 E4	
R 93	V1026007	R MF H 10K F 0W6 E4	
R 94	V1026336	R MF H 2K21F 0W6 E4	

SIT.	ITEM NO.	DESCRIPTION	QUANTITY
R 95	V1026176	R MF H 1K5 F 0W6 E4	
R 96	V1026506	R MF H 3K32F 0W6 E4	
R 97	V1026806	R MF H 6K81F 0W6 E4	
R 98	V1026507	R MF H 33K2 F 0W6 E4	
R 99	V1026507	R MF H 33K2 F 0W6 E4	
R100	V1026086	R MF H 1K21F 0W6 E4	1
R101	R101541	R MF H 2K7 F 0W4 E3	1
R102	V1026656	R MF H 4K75F 0W6 E4	
R103	R101550	R MF H 15K F 0W4 E3	1
R104	R101531	R MF H390E F 0W4 E3	1
R105	R101546	R MF H 6K8 F 0W4 E3	1
R212	V1026007	R MF H 10K F 0W6 E4	
R213	V1026007	R MF H 10K F 0W6 E4	
R217	V1026006	R MF H 1K F 0W6 E4	
R218	V1026008	R MF H100K F 0W6 E4	
R222	V1026007	R MF H 10K F 0W6 E4	1
R301	V1026005	R MF H100E F 0W6 E4	
R307	V1026007	R MF H 10K F 0W6 E4	
R308	V1026007	R MF H 10K F 0W6 E4	
R309	V1026087	R MF H 12K1 F 0W6 E4	
R311	V1026337	R MF H 22K1 F 0W6 E4	
R363	R101529	R MF H270E F 0W4 E3	
R364	V1026006	R MF H 1K F 0W6 E4	
R365	V1026256	R MF H 1K82F 0W6 E4	
R366	V1026006	R MF H 1K F 0W6 E4	
R367	V1026175	R MF H150E F 0W6 E4	
R368	R101536	R MF H 1K F 0W4 E3	1
Z 1	R131704	D STB 2V6 0W33 DO35	1
Z 2	R131714	D STB 1V4 0W33 DO35	1



PRODUCT SAFETY NOTICE

Components identified by ⚠ have SPECIAL CHARACTERISTICS IMPORTANT TO SAFETY. Before replacing any of these components, read carefully the ser-vice safety precautions.

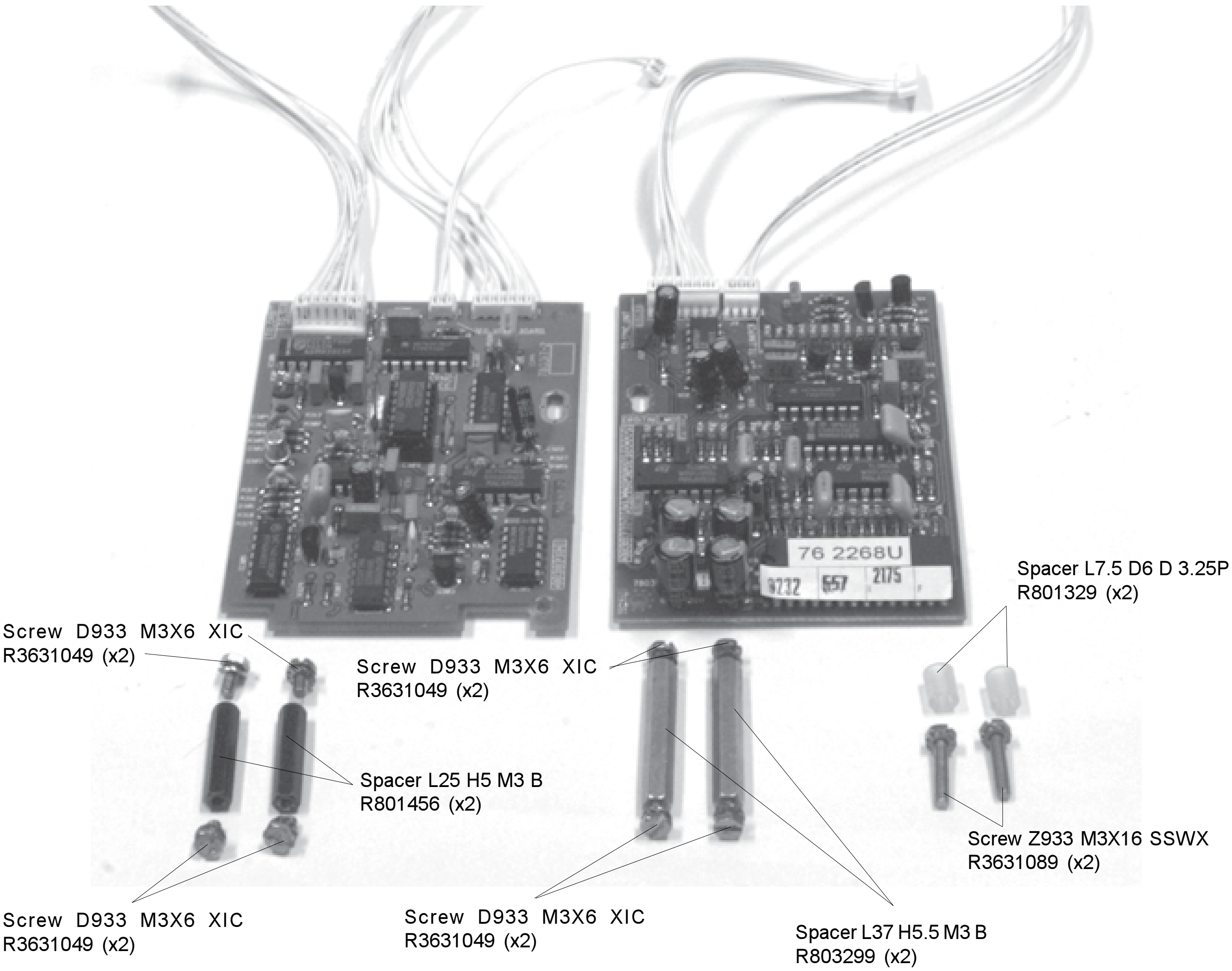
Mounting the interfaces HDTV and/or ORBITING on the Sync+Vertical Deflection module

HDTV Interface
R762268T

Art. NO Kit: R9828040

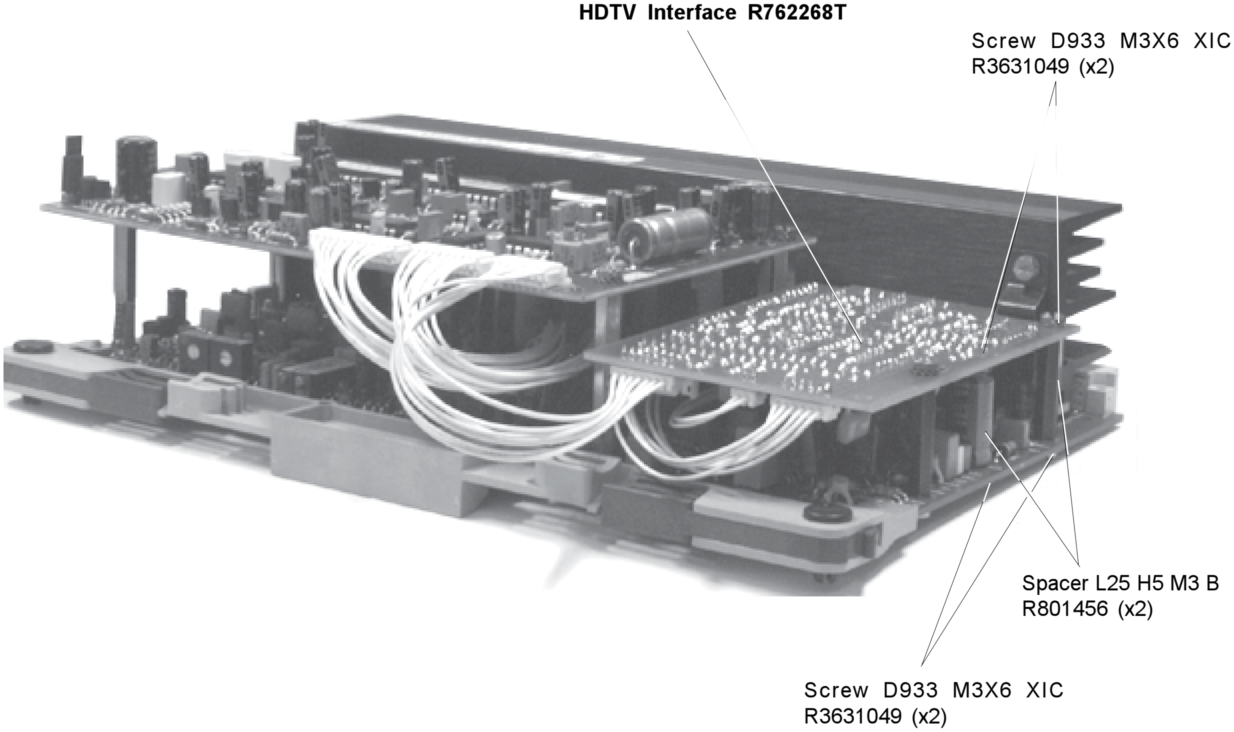
ORBITING Interface
R762268U

Art. NO Kit: R9827781

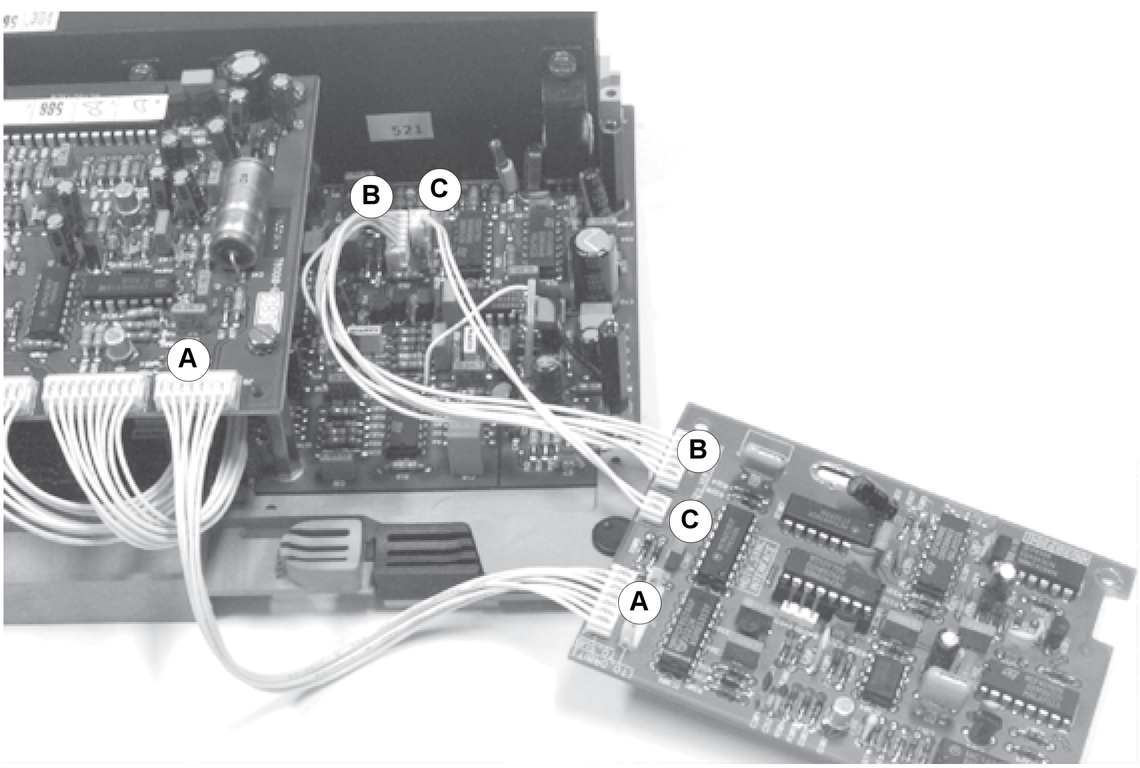


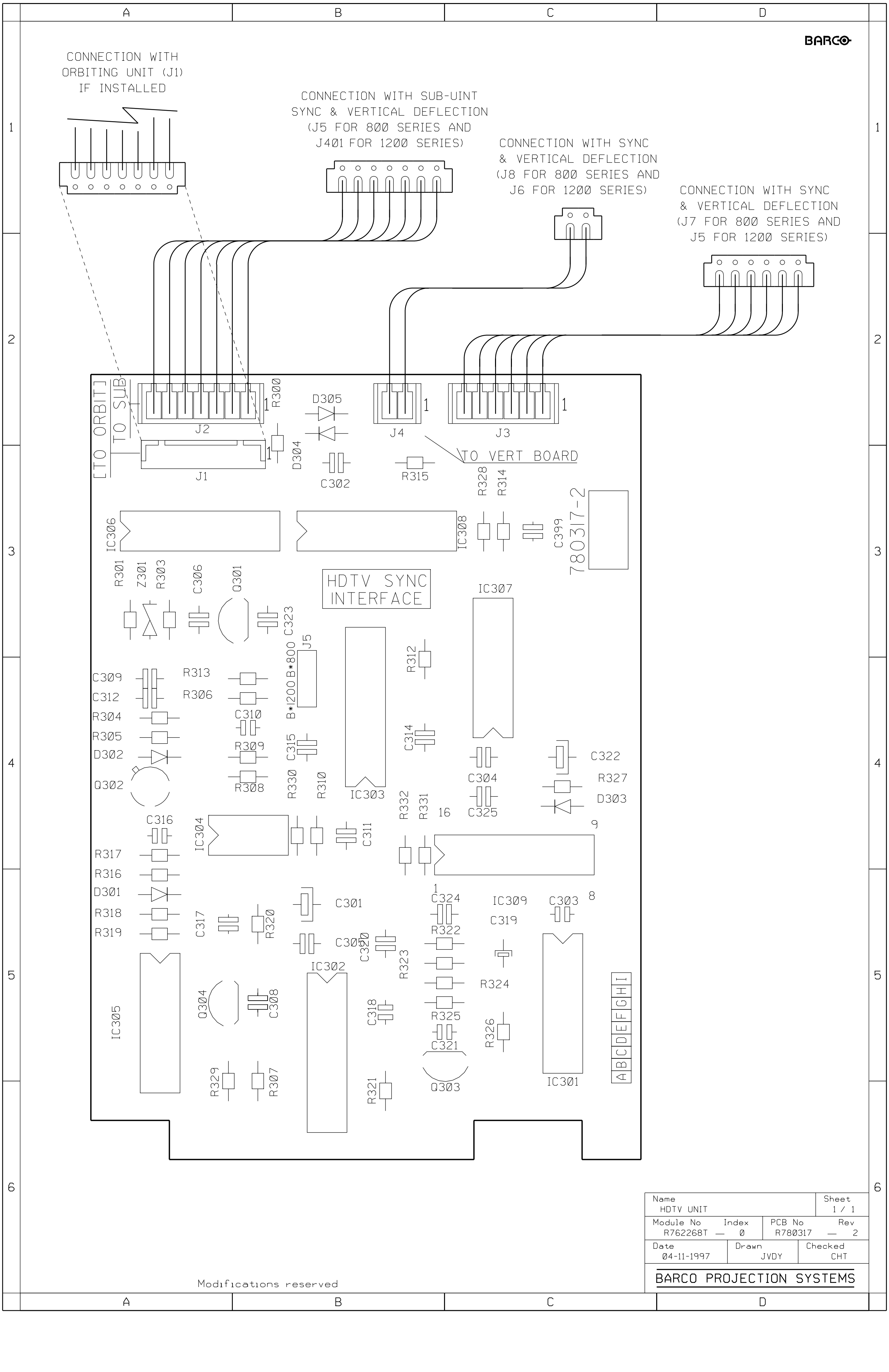
Mounting the interface HDTV R762268T on the Sync+Vertical Deflection module

Mechanical mounting



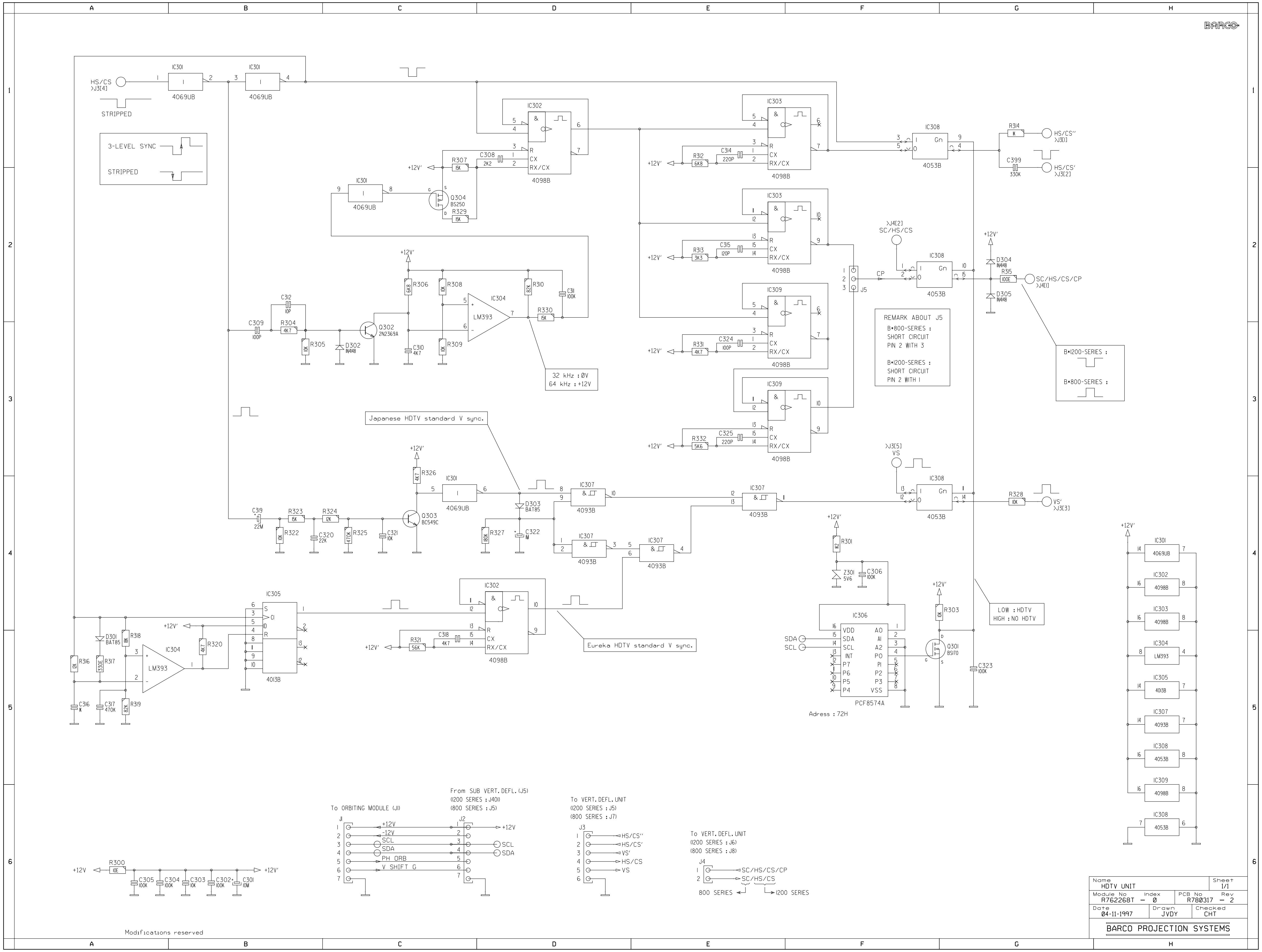
Electrical interconnection





Name HDTV UNIT				Sheet 1 / 1
Module No R762268T	Index 0	PCB No R780317		Rev 2
Date 04-11-1997	Drawn JVDY		Checked CHT	
BARCO PROJECTION SYSTEMS				

Modifications reserved



COMP.	LOC.
C301	B 6
C302	B 6
C303	B 6
C304	A 6
C305	A 6
C306	F 4
C308	D 1
C309	B 2
C310	C 3
C311	D 2
C312	B 2
C314	E 1
C315	E 2
C316	A 5
C317	A 5
C318	C 5
C319	B 4
C320	B 4
C321	C 4
C322	D 4
C323	G 5
C324	E 3
C325	E 3
C399	G 1
D301	A 5
D302	C 3
D303	D 4
D304	G 2
D305	G 2
IC301	B 1
IC301	B 1
IC301	C 2
IC301	C 4
IC301	H 4
IC302	D 1
IC302	H 4
IC302	D 4
IC303	E 2
IC303	E 1
IC303	H 4
IC304	A 5
IC304	D 2
IC304	H 5
IC305	B 4
IC305	H 5
IC306	F 4
IC307	H 5
IC307	E 4
IC307	E 4
IC307	D 4
IC307	D 4
IC308	H 5
IC308	H 6
IC308	F 4
IC308	F 1
IC308	F 2
IC309	H 5
IC309	E 3
IC309	E 2
J1	C 6
J2	C 6
J3	D 6
J4	E 6
J5	F 2
Q301	G 5
Q302	C 3
Q303	C 4
Q304	C 2
R300	A 6
R301	F 4
R303	G 4
R304	B 2
R305	B 3
R306	C 2
R307	C 1
R308	C 2
R309	C 3
R310	D 2
R312	E 1
R313	E 2
R314	G 1
R315	G 2
R316	A 5
R317	A 5
R318	A 5
R319	A 5
R320	B 5
R321	C 5
R322	B 4
R323	B 4
R324	C 4
R325	C 4
R326	C 3
R327	D 4
R328	G 4
R329	C 2
R330	D 2
R331	E 3
R332	E 3
Z301	F 4

Parts listing Kit Interface HDTV R9828040

SIT.	ITEM NO.	DESCRIPTION	QUANTITY
	R3631089	SCR Z933 M 3 X 16 SS	2
	R5930361	BOX509AST 325X180X 80 2NB	1
	R593545	BAG ASTSH 203X 305	1
	R5975337	MAN INS G801 HDTV	1
	R762268T	**UN G801 VER+S HDTV**	**1**
	R801329	SPRCL 7,5 D 3,2D 6 PL	2
	R806106	BOXF BAR 265X165X 25 REC	1

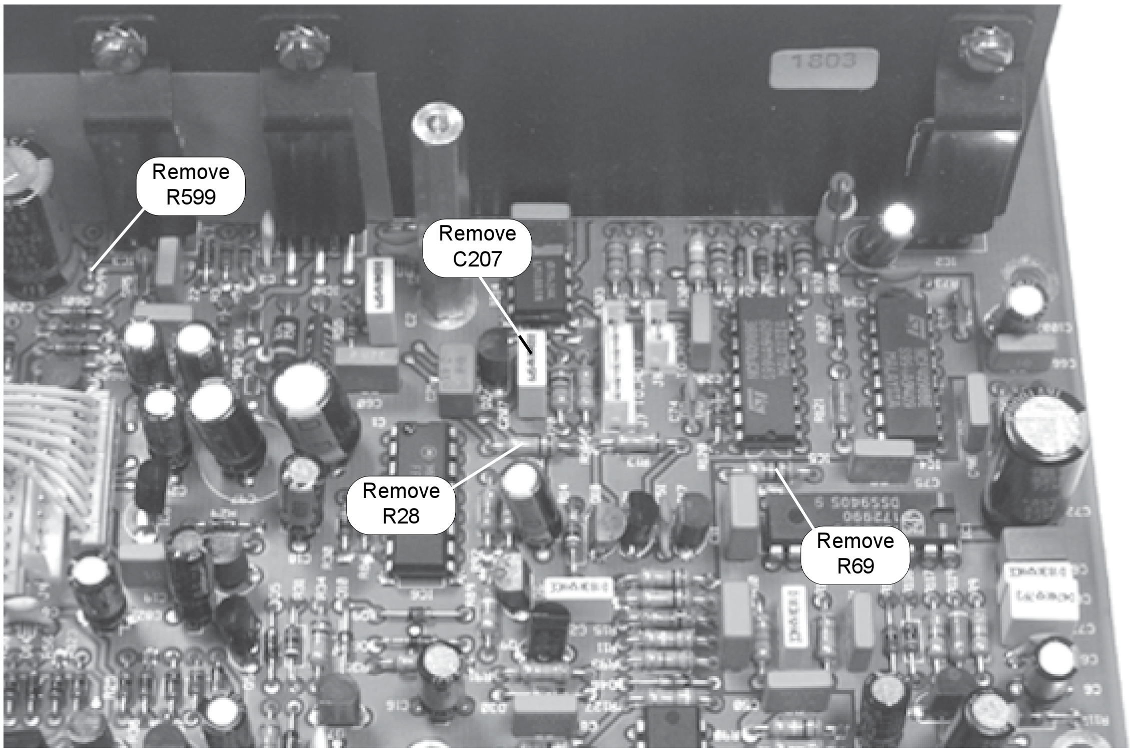
Parts listing HDTV module R762268T

SIT.	ITEM NO.	DESCRIPTION	QUANTITY
100	A576211	SPR L25 M 3 H 5 IBRNI	2
200	R3133921	J MD SHUNT F P2 E1SN I RD	1
101	R3631049	SCR Z933 M 3 X 6 SS	4
C301	R111531	C EL RA 10M M 35E2 85	
C302	R113724	C POMERA 100N K 63E2 85	
C303	R112763	C CE MI 10N Z 63E2 85	
C304	R113724	C POMERA 100N K 63E2 85	1
C305	R113724	C POMERA 100N K 63E2 85	
C306	R113724	C POMERA 100N K 63E2 85	
C308	R112743	C CE MI 2N2K100E2	
C309	R112242	C NP0 MI 100P G100E2	
C310	R112747	C CE MI 4N7K100E2 85	
C311	R113724	C POMERA 100N K 63E2 85	
C312	R112230	C NP0 MI 10P G100E2	1
C314	R112366	C N750MI 220P G100E2	
C315	R112243	C NP0 MI 120P G100E2	
C316	R112739	C CE MI 1N K100E2	
C317	R113732	C POMERA 470N K 63E2 85	
C318	R112747	C CE MI 4N7K100E2 85	
C319	R111510	C EL RA 22M M 25E2 85	
C320	R1137161	C POMERA 22N K100E2 85	
C321	R112763	C CE MI 10N Z 63E2 85	
C322	R111546	C EL RA 1M M 50E2 85	
C323	R113724	C POMERA 100N K 63E2 85	
C324	R112362	C N750MI 100P G100E2	
C325	R112366	C N750MI 220P G100E2	
C399	R113730	C POMERA 330N K 63E2 85	
D301	R1316361	D Y BAT85 030200 DO34	
D302	R131621	D S 1N4148 075150 DO35	
D303	R1316361	D Y BAT85 030200 DO34	
D304	R131621	D S 1N4148 075150 DO35	
D305	R131621	D S 1N4148 075150 DO35	
I301	R137325	U 4069UB DIP14 I	1
I302	R1373325	U 4098B DIP16 P	1
I303	R1373325	U 4098B DIP16 P	1
I304	R134114	U 393 LM DIP8 P	1
I305	R137397	U 4013B DIP14 P	1
I306	R132832	U 8574A PCF DIP16 P	1
I307	R137394	U 4093B DIP14 P	1
I308	R137391	U 4053B DIP16 P	1
I309	R1373325	U 4098B DIP16 P	1
J 1	R313927	J CT H MBT P 7 M2SN WH	1
J 2	R3484071	CD CT FTMS P 7 110	1
J 3	R3485066	CD CT FTMS P 6 150	1
J 4	R34840215	CD CT FTMS P 2 150	1
J 5	R313286	J MO1 C MBT P 3 R1SN 7,5	1
PC	R780317	PCB G801 HDTV	1
Q301	R132910	Q BS170 FN SS TO92	1
Q302	V132504	Q 2N2369A N SS TO18	1
Q303	R131411	Q BC549C N SS TO92	
Q304	R132916	Q BS250 FN SS TO92	1
R300	R101512	R MF H 10E F 0W4 E3	
R301	R101537	R MF H 1K2 F 0W4 E3	
R303	R101548	R MF H 10K F 0W4 E3	
R304	R101544	R MF H 4K7 F 0W4 E3	
R305	R101548	R MF H 10K F 0W4 E3	
R306	R101546	R MF H 6K8 F 0W4 E3	
R307	R101550	R MF H 15K F 0W4 E3	
R308	R101548	R MF H 10K F 0W4 E3	
R309	R101548	R MF H 10K F 0W4 E3	
R310	R101559	R MF H 82K F 0W4 E3	
R312	R101546	R MF H 6K8 F 0W4 E3	
R313	R101542	R MF H 3K3 F 0W4 E3	
R314	R101536	R MF H 1K F 0W4 E3	
R315	R101524	R MF H100E F 0W4 E3	
R316	R101549	R MF H 12K F 0W4 E3	
R317	R101530	R MF H330E F 0W4 E3	
R318	R101551	R MF H 18K F 0W4 E3	
R319	R101559	R MF H 82K F 0W4 E3	
R320	R101544	R MF H 4K7 F 0W4 E3	
R321	R101557	R MF H 56K F 0W4 E3	
R322	R101548	R MF H 10K F 0W4 E3	
R323	R101550	R MF H 15K F 0W4 E3	
R324	R101549	R MF H 12K F 0W4 E3	
R325	R101568	R MF H470K F 0W4 E3	
R326	R101544	R MF H 4K7 F 0W4 E3	
R327	R101563	R MF H180K F 0W4 E3	
R328	R101548	R MF H 10K F 0W4 E3	
R329	R101550	R MF H 15K F 0W4 E3	
R330	R101550	R MF H 15K F 0W4 E3	
R331	R101544	R MF H 4K7 F 0W4 E3	
R332	R101545	R MF H 5K6 F 0W4 E3	
Z301	R131744	D ZEN 5V6 0W5 C DO35	

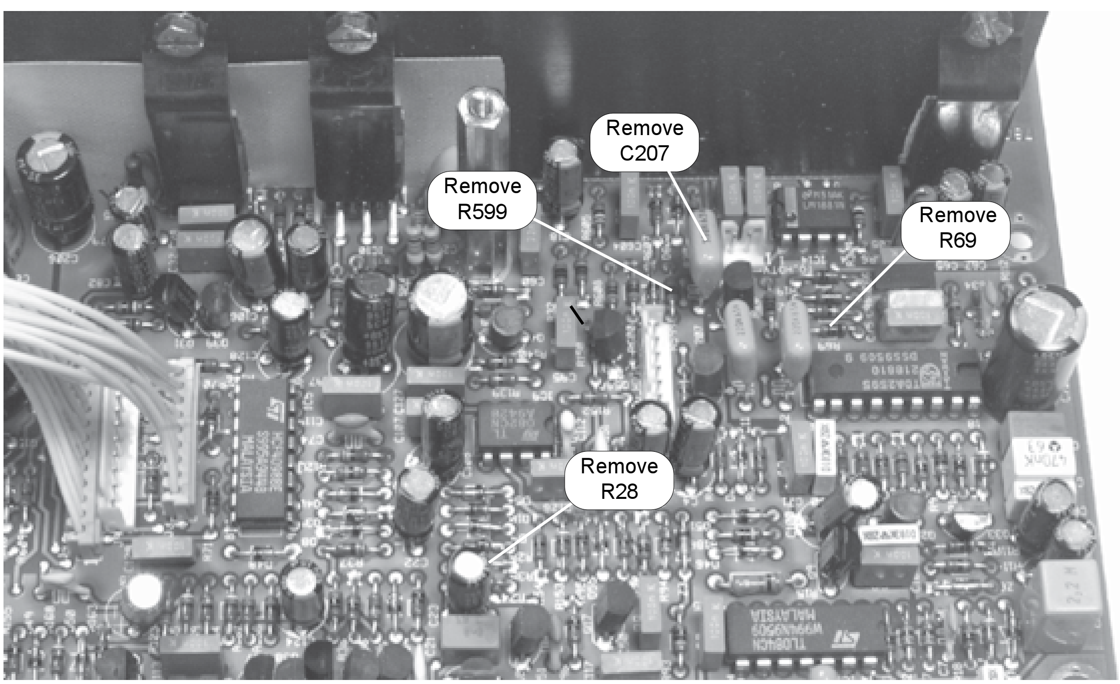
Adaptation of the main board for HDTV operation

Remove on the main module: - the resistors R28, R69 and R599
- the capacitor C207

** print version 78017S5*



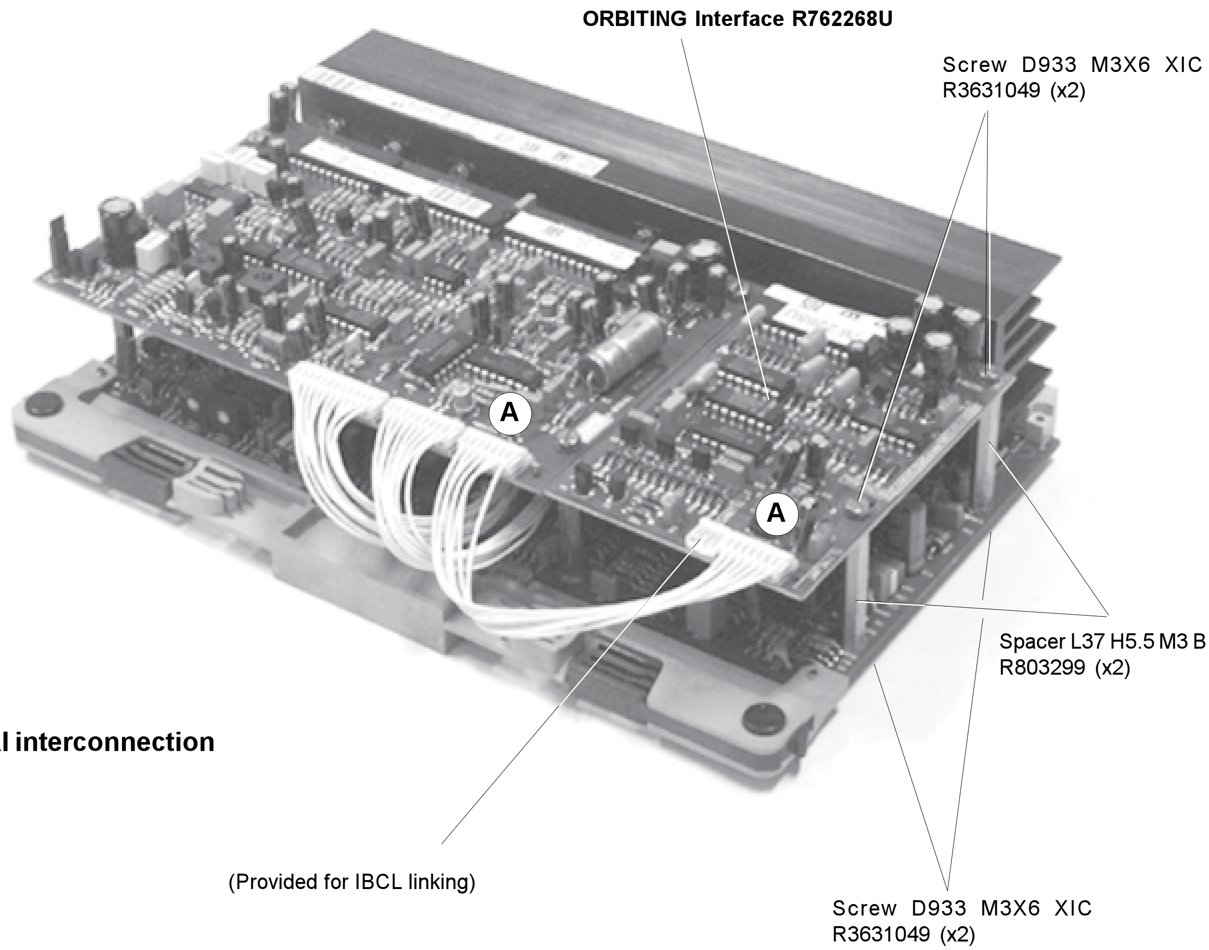
** from print version 78017S7*



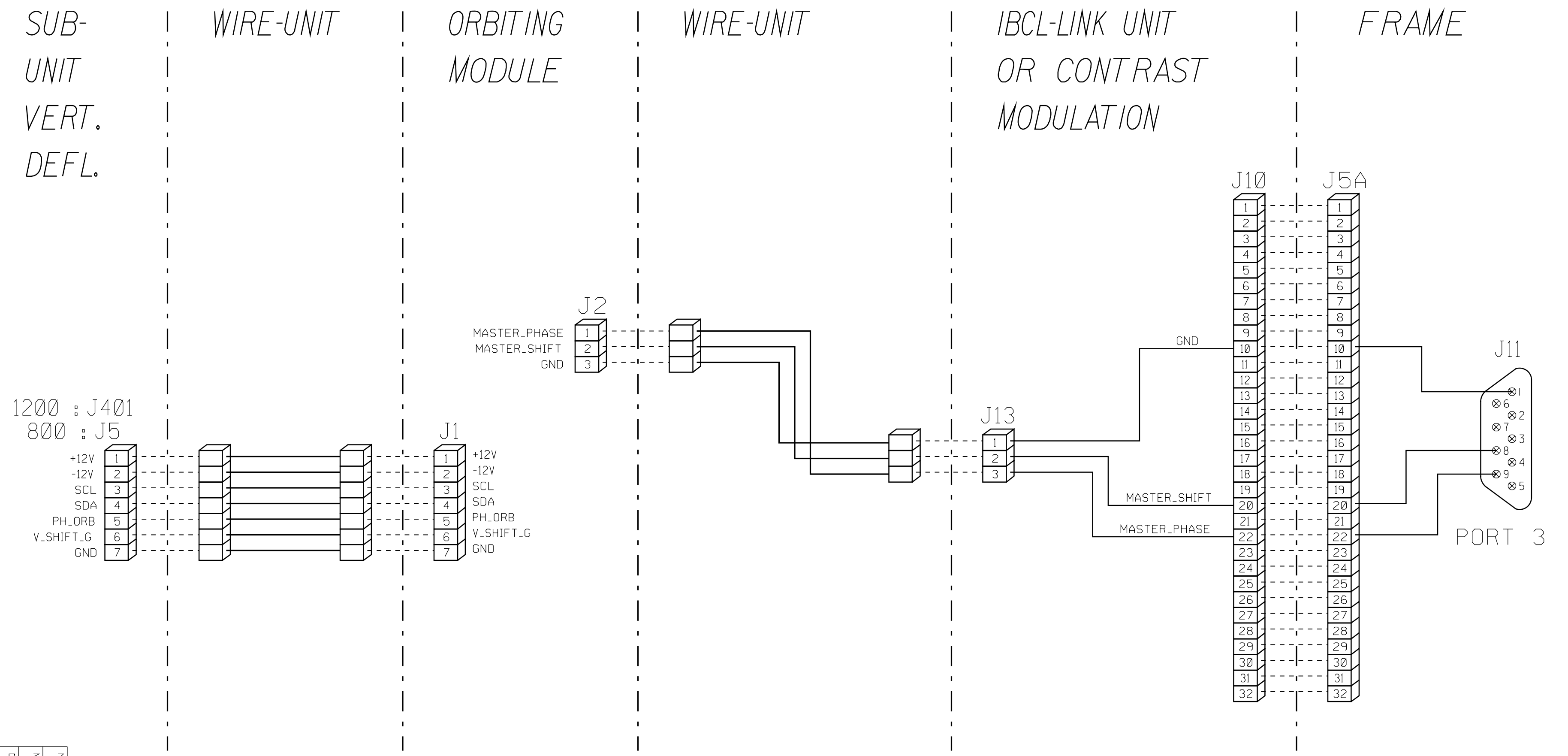
** number of the printed circuit version is printed on the copper site of the module*

Mounting the interface ORBITING R762268U on the Sync+Vertical Deflection module

Mechanical mounting



Electrical interconnection



ORBITING LINK

BARCO

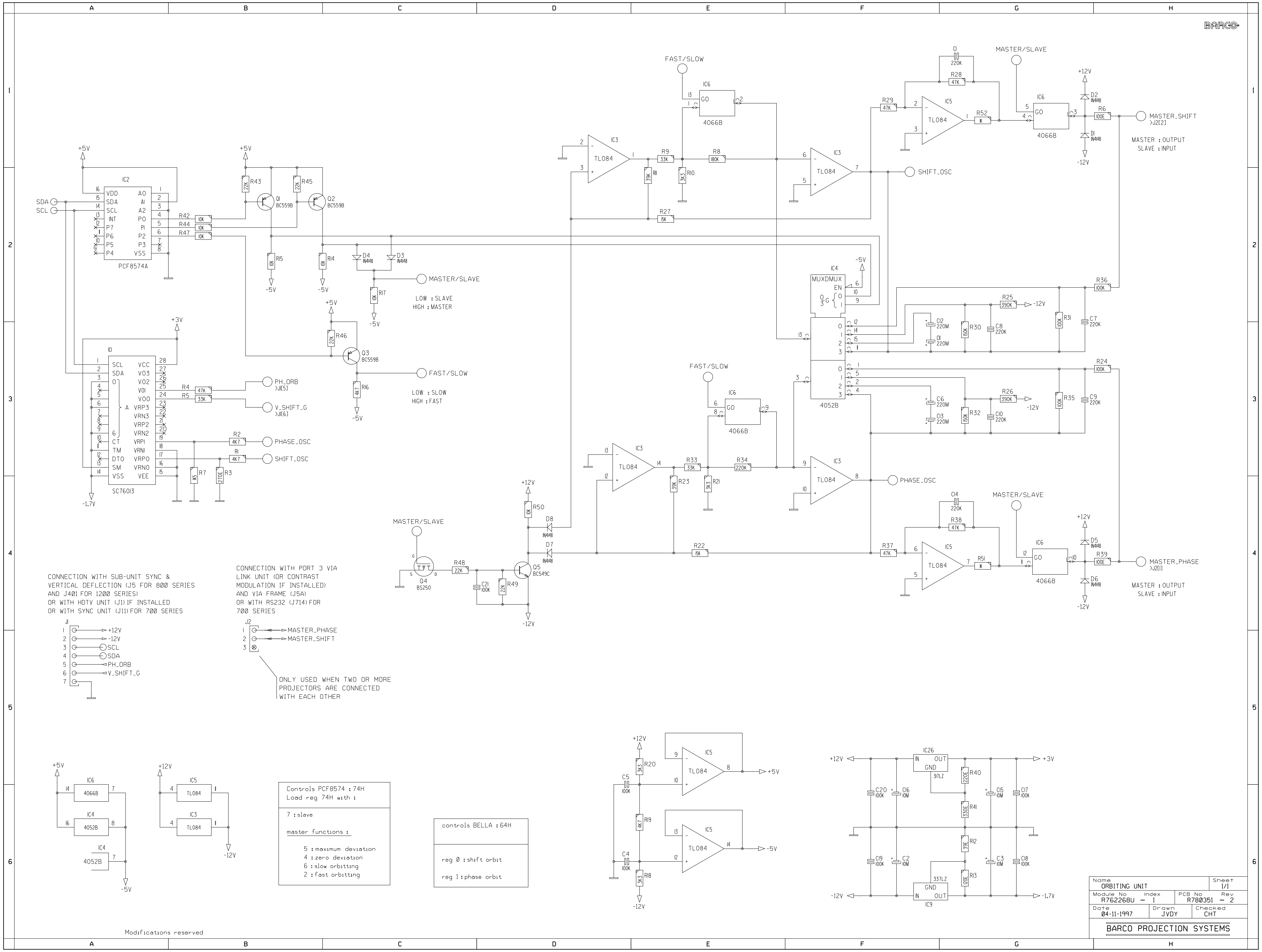
Modifications reserved

Name	Sheet
ORBITING 800 & 1200 SERIES	1/1

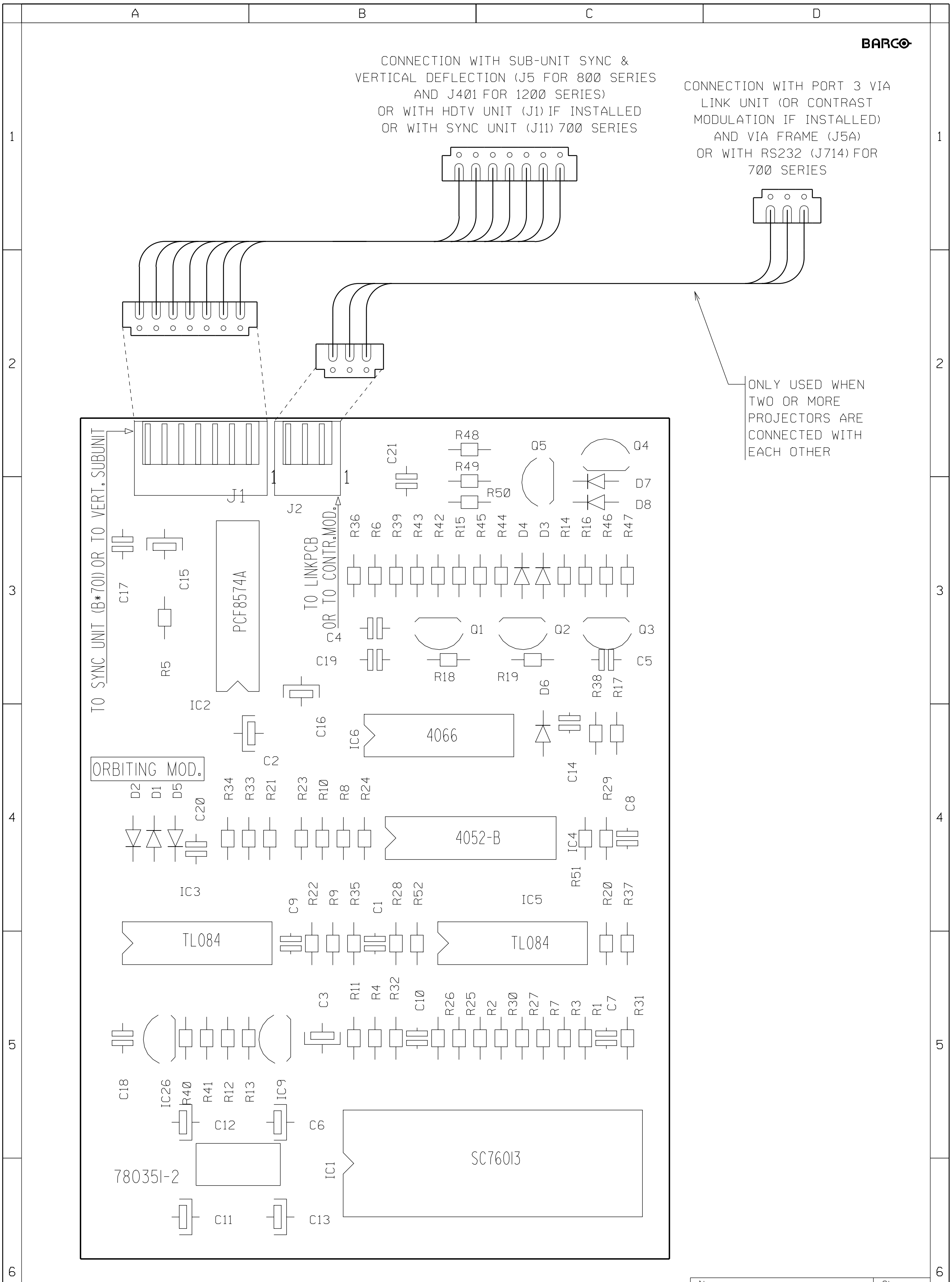
Module No	Index	PCB No	Rev
R762268U	1	R780351	2

Date	Drawn	Checked
26-11-1997	JVDY	CHT

BARCO PROJECTION SYSTEMS



COMP.	LOC.
C1	G 1
C2	F 6
C3	G 6
C4	D 6
C5	D 5
C6	F 3
C7	G 2
C8	G 3
C9	G 3
C10	G 3
C11	F 3
C12	F 2
C13	F 3
C14	G 4
C15	G 6
C16	F 6
C17	G 6
C18	G 6
C19	F 6
C20	F 6
C21	D 4
D1	G 1
D2	G 1
D3	C 2
D4	C 2
D5	G 4
D6	G 4
D7	D 4
D8	D 4
IC1	A 3
IC2	A 2
IC3	B 6
IC3	E 3
IC3	F 3
IC3	F 1
IC3	D 1
IC4	A 6
IC4	A 6
IC4	F 2
IC5	G 1
IC5	G 4
IC5	E 6
IC5	E 5
IC5	B 5
IC6	G 1
IC6	G 4
IC6	A 5
IC6	E 3
IC6	E 1
IC9	F 6
IC26	F 5
J1	A 4
J2	B 4
Q1	B 2
Q2	C 2
Q3	C 3
Q4	C 4
Q5	D 4
R1	B 3
R2	B 3
R3	B 3
R4	B 3
R5	B 3
R6	H 1
R7	B 3
R8	E 1
R9	E 1
R10	E 2
R11	E 2
R12	G 6
R13	G 6
R14	C 2
R15	B 2
R16	C 3
R17	C 2
R18	E 6
R19	E 6
R20	E 5
R21	E 4
R22	E 4
R23	E 4
R24	H 3
R25	G 2
R26	G 3
R27	E 2
R28	G 1
R29	F 1
R30	G 3
R31	G 2
R32	G 3
R33	E 3
R34	E 3
R35	G 3
R36	H 2
R37	F 4
R38	G 4
R39	H 4
R40	G 5
R41	G 6
R42	B 2
R43	B 2
R44	B 2
R45	B 2
R46	C 3
R47	B 2
R48	C 4
R49	D 4
R50	D 4
R51	G 4
R52	G 1



Name		Sheet
ORBITING UNIT		1 / 1
Module No R762268U	Index 1	PCB No R780351 — Rev 2
Date 05-11-1997	Drawn JVDY	Checked CHT

BARCO PROJECTION SYSTEMS

Modifications reserved

Parts listing Kit Interface ORBITING R9827781

SIT.	ITEM NO.	DESCRIPTION	QUANTITY
	R3485075	CD CT FT P 7 180	1
	V1026337	R MF H 22K1 F 0W6 E4	1
	V1026337	R MF H 22K1 F 0W6 E4	1
	V1026337	R MF H 22K1 F 0W6 E4	1
	V1026337	R MF H 22K1 F 0W6 E4	1
	V1026886	R MF H 8K25F 0W6 E4	1
	V1026177	R MF H 15K F 0W6 E4	1
	V1026007	R MF H 10K F 0W6 E4	1
	R367609	SPR L17 D 4,2D 6 AL	4
	R3631089	SCR Z933 M 3 X 16 SS	2
	R362033	SCR D84 M 3 X 45 STZN	2
	R3661026	NUT D934 M 3 SS	2
	R3631109	SCR Z933 M 3 X 25 SS	2
	R367502	SPR D6798AD 3,2D 6 STZN	2
	R801329	SPRCL 7,5 D 3,2D 6 PL	2
	R762268U	**UN *801 VER+S ORBIT3**	**1**
	R761838	**UN *800 BCL IBCL LINK**	**1**
	R3485023	CD CT FTFT P 2 800	1
	R348265	CD DE09P/DE09S+P 200	1
	R5975385	MAN INS G801 ORBIT	1
	R5930361	BOX509AST 325X180X 80 2NB	1
	R593545	BAG ASTSH 203X 305	1
	R806106	BOXF BAR 265X165X 25 REC	1

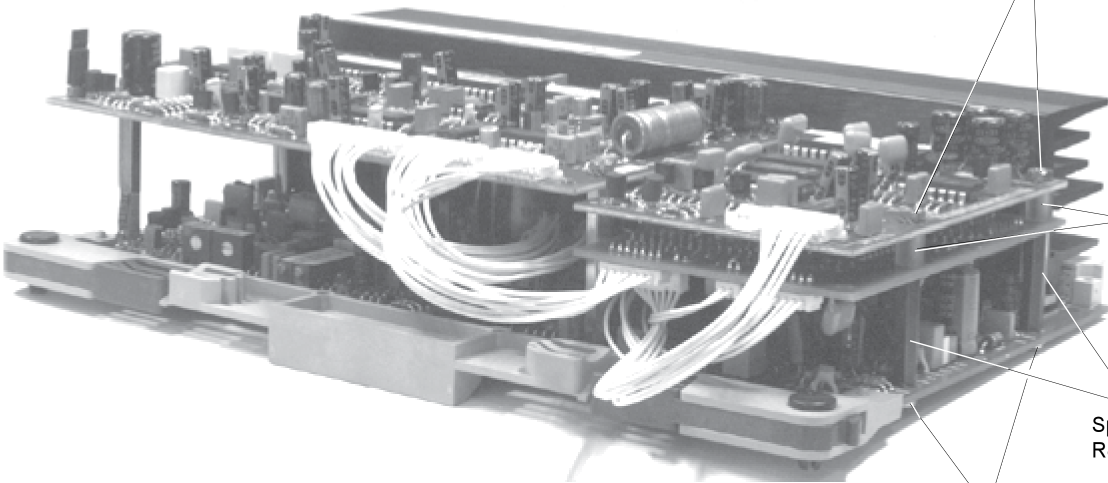
Parts listing Orbiting module 76 2268U (Option)

SIT.	ITEM NO.	DESCRIPTION	QUANTITY
	R34840710	CD CT FTFT P 7 120	1
	R3485037	CD CT $FTFT P 3 200	1
	R3631049	SCR Z933 M 3 X 6 SS	4
	Z3676041	SPR L37 M 3 H 5,5IBRNI	2
C 1	R113728	C POMERA 220N K 63E2 85	1
C 2	R111531	C EL RA 10M M 35E2 85	
C 3	R111531	C EL RA 10M M 35E2 85	
C 4	R113724	C POMERA 100N K 63E2 85	
C 5	R113724	C POMERA 100N K 63E2 85	
C 6	R111478	C EL RA 220M M 25E2 85	
C 7	R113728	C POMERA 220N K 63E2 85	1
C 8	R113728	C POMERA 220N K 63E2 85	1
C 9	R113728	C POMERA 220N K 63E2 85	1
C 10	R113728	C POMERA 220N K 63E2 85	1
C 11	R111478	C EL RA 220M M 25E2 85	
C 12	R111478	C EL RA 220M M 25E2 85	
C 13	R111478	C EL RA 220M M 25E2 85	
C 14	R113728	C POMERA 220N K 63E2 85	
C 15	R111531	C EL RA 10M M 35E2 85	
C 16	R111531	C EL RA 10M M 35E2 85	
C 17	R113724	C POMERA 100N K 63E2 85	
C 18	R113724	C POMERA 100N K 63E2 85	
C 19	R113724	C POMERA 100N K 63E2 85	
C 20	R113724	C POMERA 100N K 63E2 85	
C 21	R113724	C POMERA 100N K 63E2 85	
D 1	R131621	D S 1N4148 075150 DO35	
D 2	R131621	D S 1N4148 075150 DO35	
D 3	R131621	D S 1N4148 075150 DO35	
D 4	R131621	D S 1N4148 075150 DO35	
D 5	R131621	D S 1N4148 075150 DO35	
D 6	R131621	D S 1N4148 075150 DO35	
D 7	R131621	D S 1N4148 075150 DO35	
D 8	R131621	D S 1N4148 075150 DO35	
I 1	R132833	U BELLA 4 DIP28 P	1
I 2	R132832	U 8574A PCF DIP16 P	1
I 3	R134113	U 084 TL DIP14 P	1
I 4	R137600	U 4052B DIP16 P	1
I 5	R134113	U 084 TL DIP14 P	1
I 6	R137303	U 4066B DIP14 P	1
I 9	R134029	U 337LZ TO92 P	1
I 26	R134028	U 317LZ LM TO92 P	1
J 1	R313947	J CT H MBS P 7 M2SN WH	1
J 2	R313943	J CT H MBS P 3 M2SN WH	1
PC	R780351	PCB *800 ORBIT 2	1
Q 1	R1314181	Q BC559B P SS TO92	
Q 2	R1314181	Q BC559B P SS TO92	
Q 3	R1314181	Q BC559B P SS TO92	
Q 4	R132916	Q BS250 FN SS TO92	1
Q 5	R131411	Q BC549C N SS TO92	
R 1	R101544	R MF H 4K7 F 0W4 E3	
R 2	R101544	R MF H 4K7 F 0W4 E3	
R 3	R101529	R MF H270E F 0W4 E3	
R 4	R101556	R MF H 47K F 0W4 E3	
R 5	R101554	R MF H 33K F 0W4 E3	
R 6	R101524	R MF H100E F 0W4 E3	
R 7	R101538	R MF H 1K5 F 0W4 E3	
R 8	R101563	R MF H180K F 0W4 E3	
R 9	R101554	R MF H 33K F 0W4 E3	
R 10	R101542	R MF H 3K3 F 0W4 E3	
R 11	R101555	R MF H 39K F 0W4 E3	
R 12	R101519	R MF H 39E F 0W4 E3	
R 13	R101525	R MF H120E F 0W4 E3	
R 14	R101548	R MF H 10K F 0W4 E3	
R 15	R101548	R MF H 10K F 0W4 E3	
R 16	R101544	R MF H 4K7 F 0W4 E3	
R 17	R101548	R MF H 10K F 0W4 E3	
R 18	R101542	R MF H 3K3 F 0W4 E3	
R 19	R101544	R MF H 4K7 F 0W4 E3	
R 20	R101542	R MF H 3K3 F 0W4 E3	
R 21	R101542	R MF H 3K3 F 0W4 E3	
R 22	R101550	R MF H 15K F 0W4 E3	
R 23	R101555	R MF H 39K F 0W4 E3	
R 24	R101560	R MF H100K F 0W4 E3	
R 25	R101567	R MF H390K F 0W4 E3	
R 26	R101567	R MF H390K F 0W4 E3	
R 27	R101550	R MF H 15K F 0W4 E3	
R 28	R101556	R MF H 47K F 0W4 E3	
R 29	R101556	R MF H 47K F 0W4 E3	
R 30	R101562	R MF H150K F 0W4 E3	
R 31	R101560	R MF H100K F 0W4 E3	

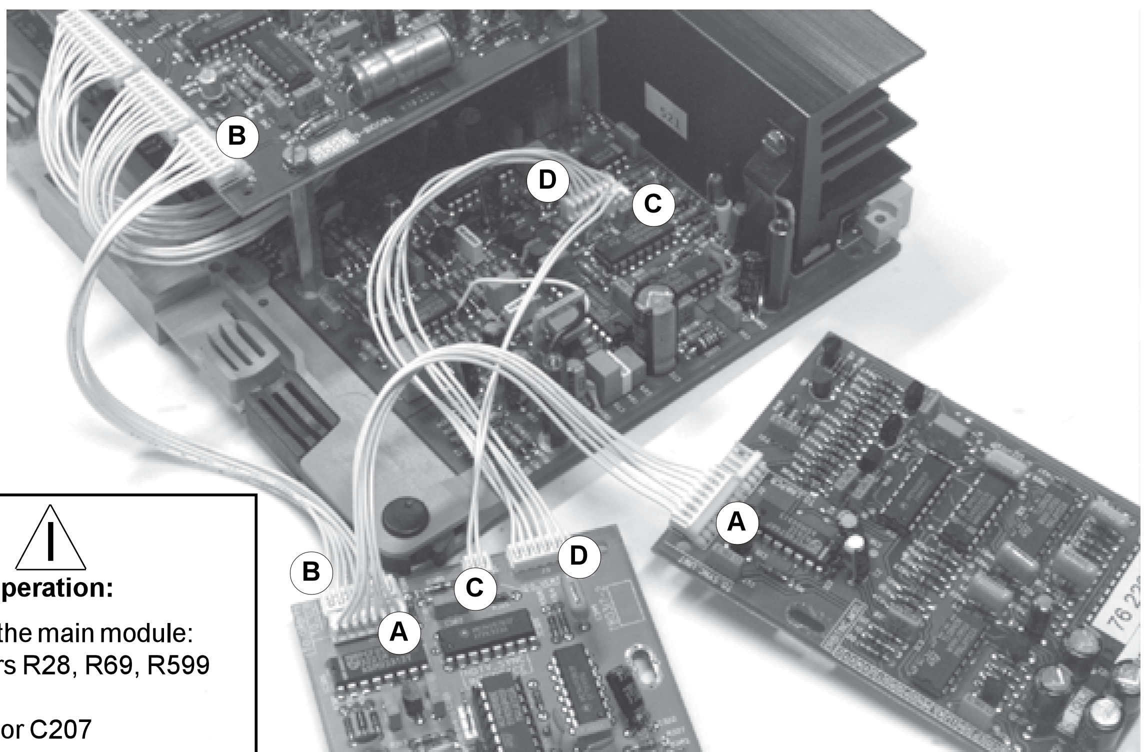
SIT.	ITEM NO.	DESCRIPTION	QUANTITY
R 32	R101562	R MF H150K F 0W4 E3	
R 33	R101554	R MF H 33K F 0W4 E3	
R 34	R101564	R MF H220K F 0W4 E3	
R 35	R101560	R MF H100K F 0W4 E3	
R 36	R101560	R MF H100K F 0W4 E3	
R 37	R101556	R MF H 47K F 0W4 E3	
R 38	R101556	R MF H 47K F 0W4 E3	
R 39	R101524	R MF H100E F 0W4 E3	
R 40	R1015281	R MF H200E F 0W4 E3	
R 41	R101530	R MF H330E F 0W4 E3	
R 42	R101548	R MF H 10K F 0W4 E3	
R 43	R101552	R MF H 22K F 0W4 E3	
R 44	R101548	R MF H 10K F 0W4 E3	
R 45	R101552	R MF H 22K F 0W4 E3	
R 46	R101552	R MF H 22K F 0W4 E3	
R 47	R101548	R MF H 10K F 0W4 E3	
R 48	R101552	R MF H 22K F 0W4 E3	
R 49	R101552	R MF H 22K F 0W4 E3	
R 50	R101548	R MF H 10K F 0W4 E3	
R 51	R101536	R MF H 1K F 0W4 E3	
R 52	R101536	R MF H 1K F 0W4 E3	

Mounting the interface ORBITING R762268U and HDTV R762268T on the Sync+Vertical Deflection module

Mechanical mounting



Electrical interconnection

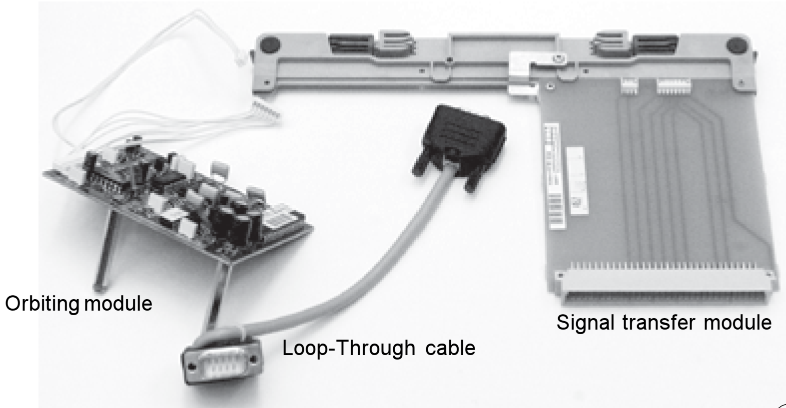


For HDTV operation:

Remove on the main module:
- the resistors R28, R69, R599 and
- the capacitor C207

see page chapter 'mounting HDTV interface' for component location

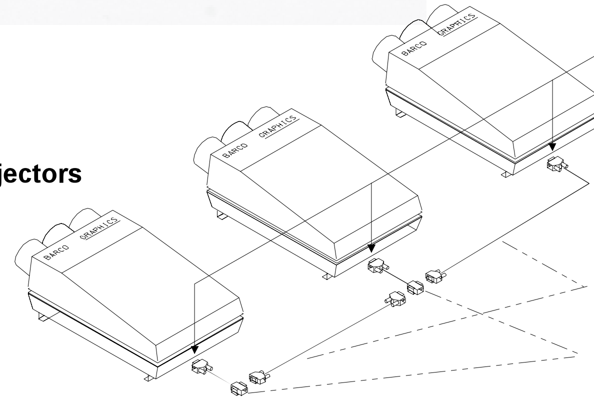
Mounting the Signal Transfer module R761838 to link Orbiting with other Projectors



Kit for Orbiting linking

(Projector settings for Orbiting linking: see Orbiting Kit R9827781)

Linked projectors



to PORT 3
pin 1: GND
pin 4: Slave/Master
pin 8: Phase
pin 9: Shift

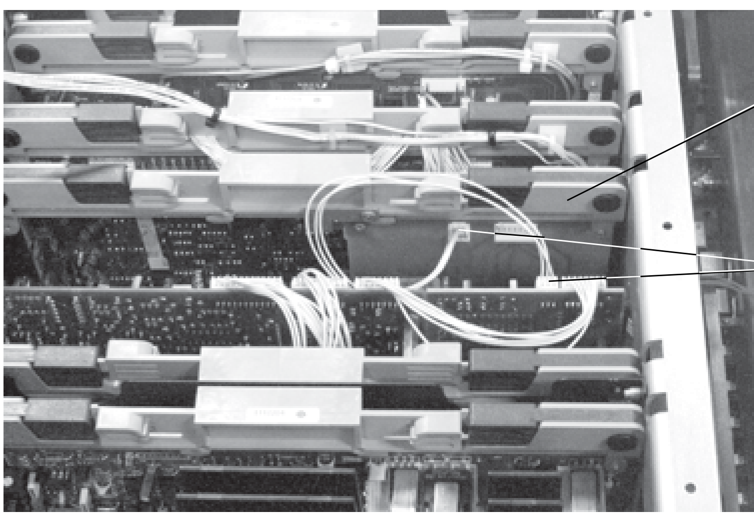
Communication cable (D9 male/female)

98 27770 (5m/15') or
98 27560 (15m/46') or
98 27570 (30m/91')

Loop-through (D9 female/2xmale)

98 27760

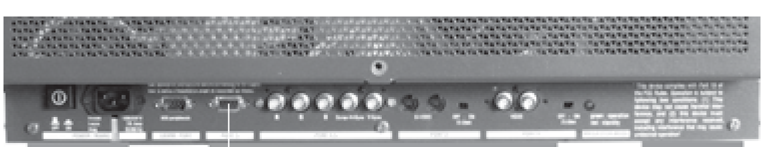
Installing Orbiting linking via PORT 3



1 Remove the Input RGB Analog module R7621055 and insert on its place the signal transfer module R761838

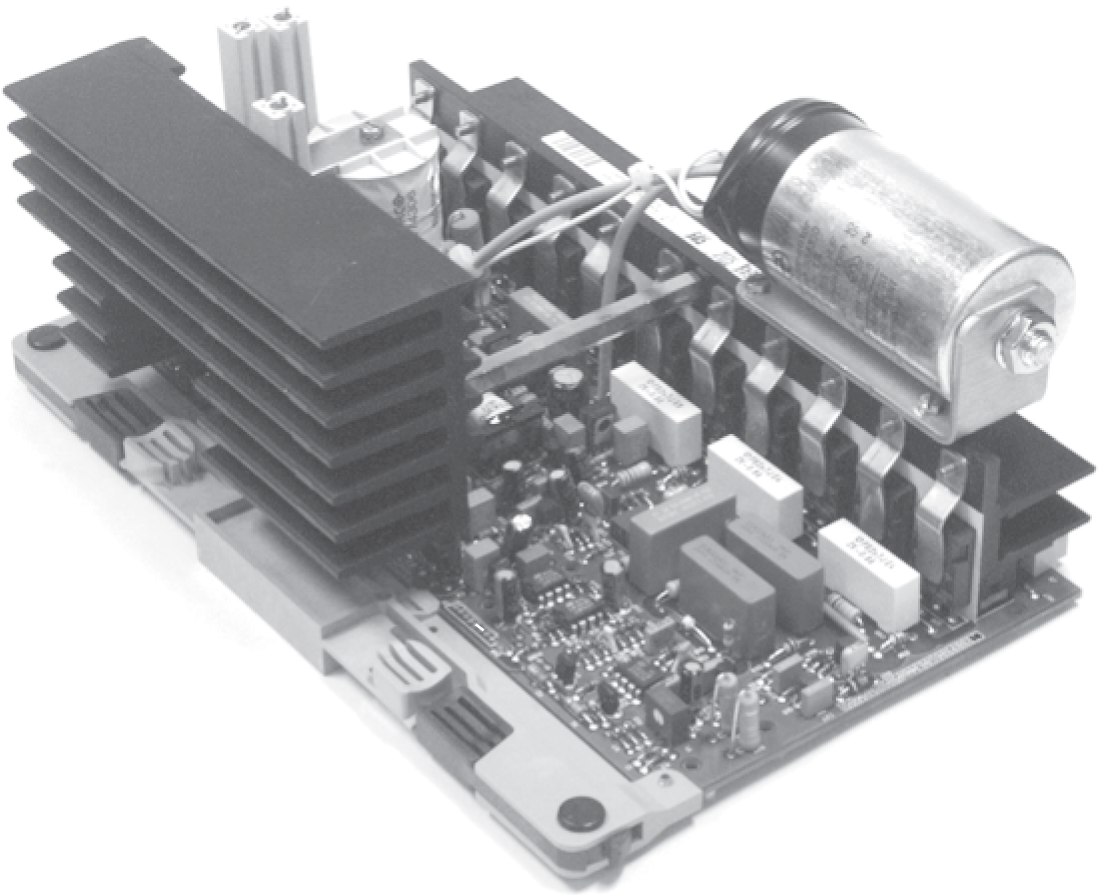
2 Install the linking between both inserted modules using the 3-pins connection cable

Input panel



PORT3

Horizontal deflection R76226715



R7622675_r02

BARCO

HORIZONTAL DEFLECTION

J6

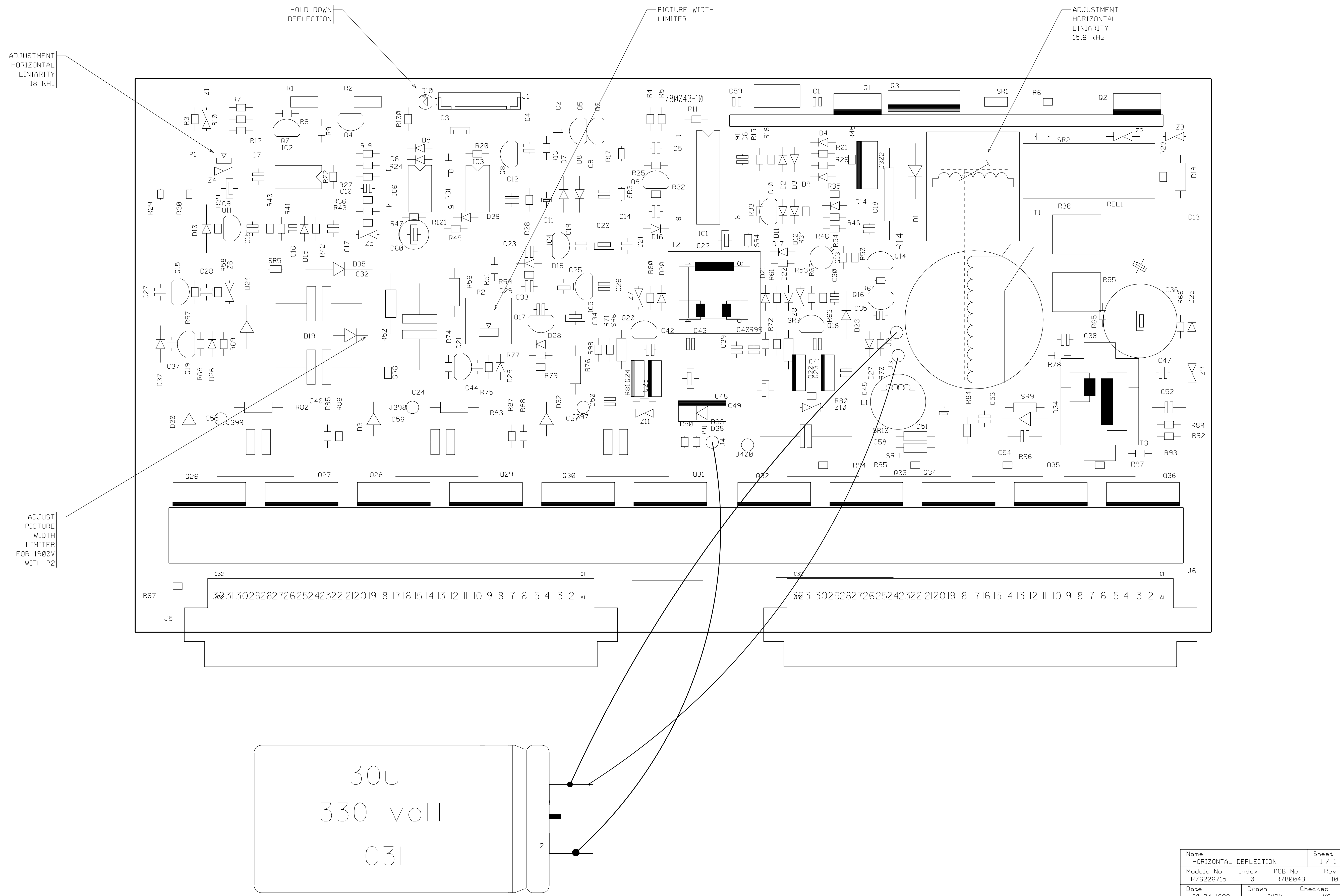
J1A CONVERGENCE MODULE	J2A HORIZONTAL SHIFT + MAG. FOCUS	J2B SYNC & VERTICAL DEFLECTION	J4A SYNC & VERTICAL DEFLECTION	J4B RGB DRIVER	J7B RGB DRIVER	J8B SWITCH MODE POWER SUPPLY	J10A G2 + DIAGN. + FOCUS (*801)	J29 CONTROLLER MODULE		J6	
						9			→	1	HTHD
										2	NC
			11						→	3	E/W
										4	NC
		23		20				3	→	5	VDH_B
										6	NC
										7	NC
										8	NC
										9	NC
						17				10	GND
						17				11	GND
						17				12	GND
										13	NC
						32			←	14	FBHD
										15	NC
										16	NC
										17	NC
			28						→	18	H_DRV
										19	NC
						4			→	20	+17V
										21	NC
										22	NC
	3								←	23	HDH_R
	4								←	24	HDH_R
										25	NC
										26	NC
										27	NC
										28	NC
										29	NC
4	23			24	27				←	30	L_PULSE
										31	NC
										32	NC

J5

J1A	J2A	J2B	J4A	J4B	J7B	J8B	J10A	J29		J5	
						17				1	GND
						17				2	GND
						17				3	GND
						17				4	GND
										5	NC
										6	NC
	31					15			←	7	HDL
	32					16			←	8	HDL
										9	NC
										10	NC
										11	NC
	17								←	12	HDH_G
	17								←	13	HDH_G
										14	NC
										15	NC
				1					←	16	SF1
				28			26		→	17	SF0
										18	NC
										19	NC
										20	NC
										21	NC
	27								←	22	HDH_B
	27								←	23	HDH_B
										24	NC
										25	NC
						17				26	GND
						17				27	GND
										28	NC
										29	NC
										30	NC
										31	NC
		19				3				32	H_AMP

Modifications reserved

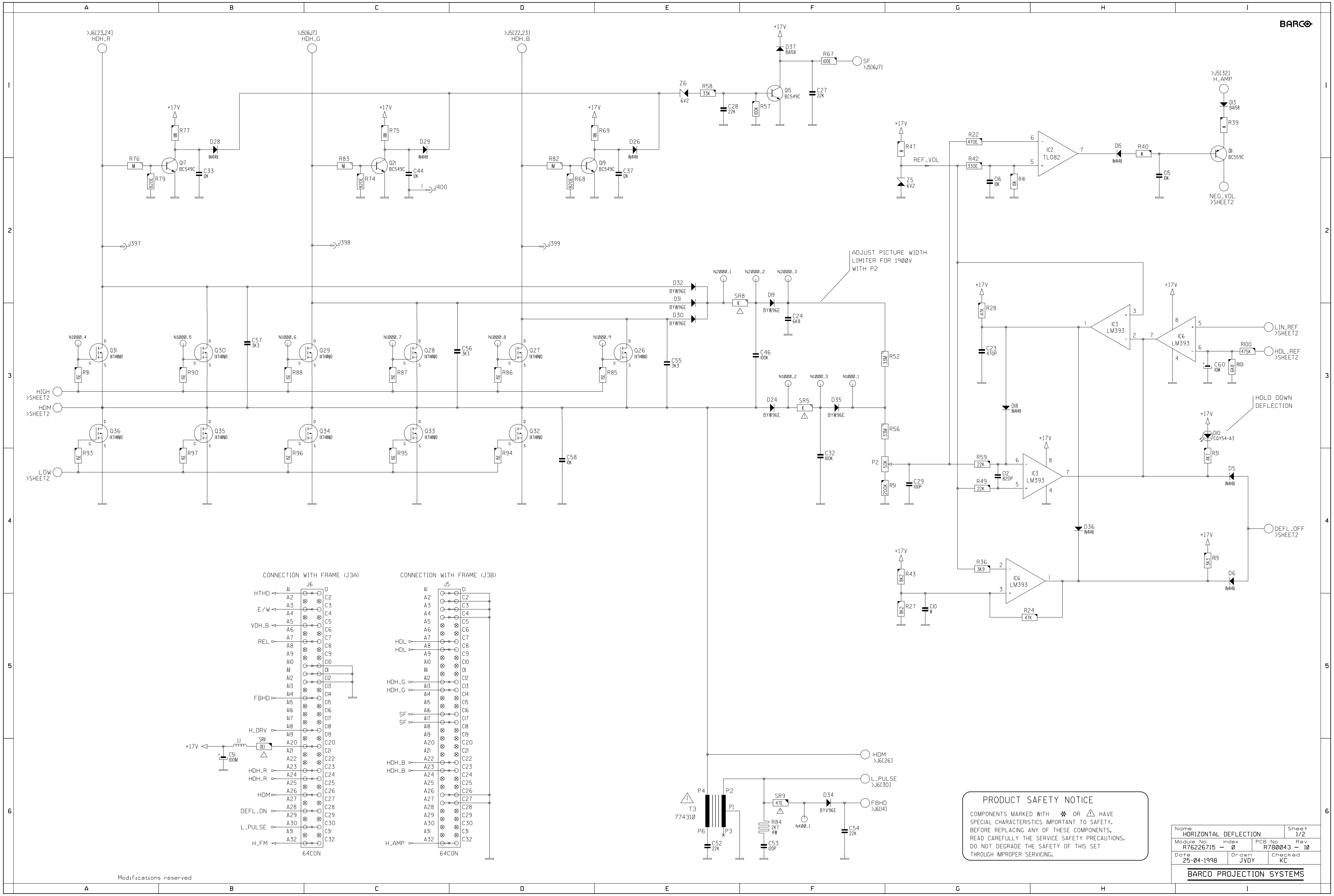
Name			Sheet
HORIZONTAL DEFLECTION			1/1
Module No: R76226715	Index: 0	PCB No: R780043	Rev: 10
Date: 25-04-1998	Drawn: JVDY	Checked: KC	
BARCO NV		Division: BPS	



Modifications reserved

Name: HORIZONTAL DEFLECTION			Sheet: 1 / 1
Module No: R76226715	Index: 0	PCB No: R780043	Rev: 10
Date: 30-04-1998	Drawn: JVDY	Checked: KC	

BARCO PROJECTION SYSTEMS

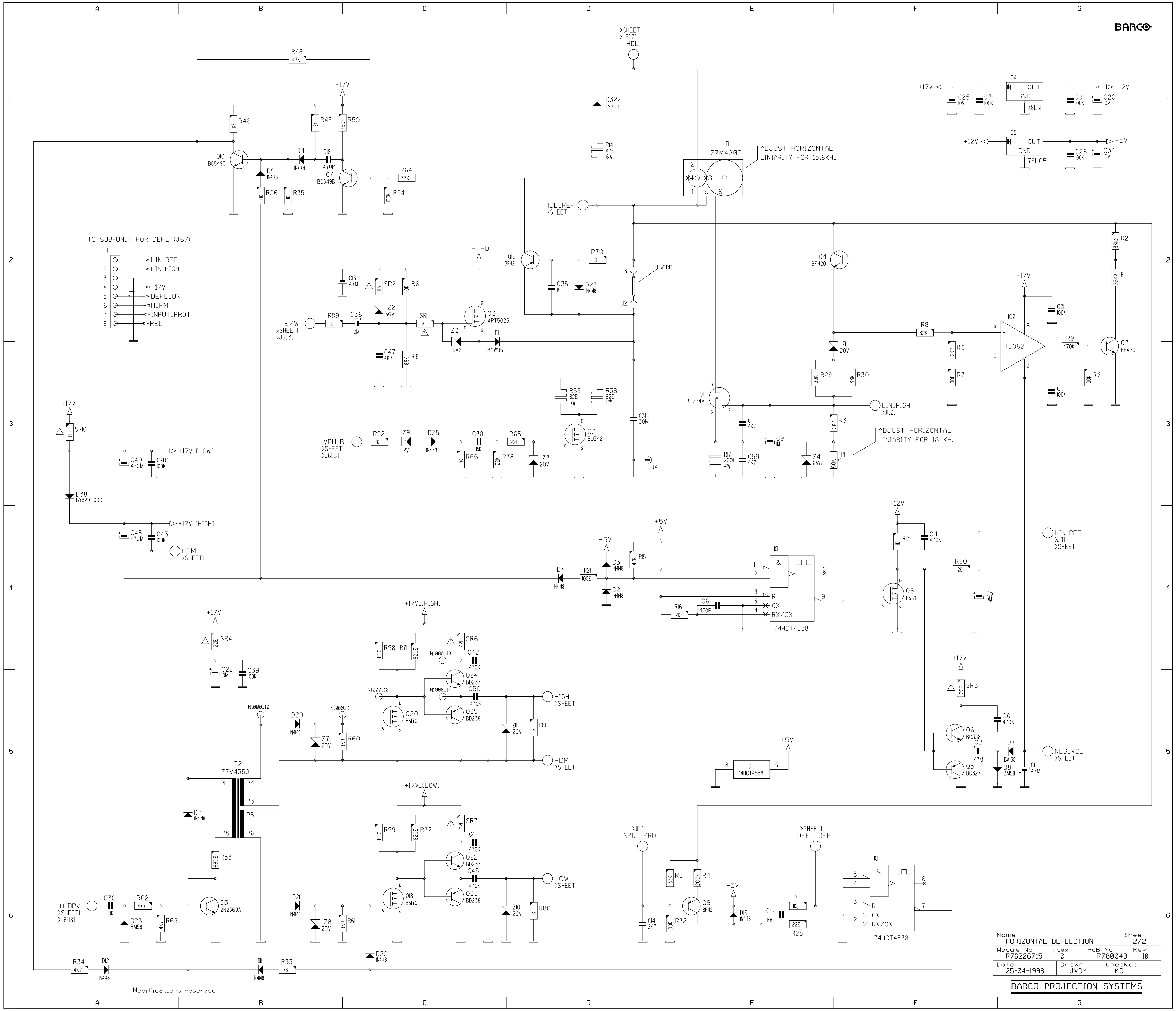


PRODUCT SAFETY NOTICE

COMPONENTS MARKED WITH ✻ OR ⚠ HAVE SPECIAL CHARACTERISTICS IMPORTANT TO SAFETY. BEFORE REPLACING ANY OF THESE COMPONENTS, READ CAREFULLY THE SERVICE SAFETY PRECAUTIONS. DO NOT DEGRADE THE SAFETY OF THIS SET THROUGH IMPROPER SERVICING.

Name			Sheet
HORIZONTAL DEFLECTION			1/2
Module No	Index	PCB No	Rev
R76226715	0	R780043	10
Date	Drawn	Checked	
25-04-1998	JVDY	KC	

BARCO PROJECTION SYSTEMS

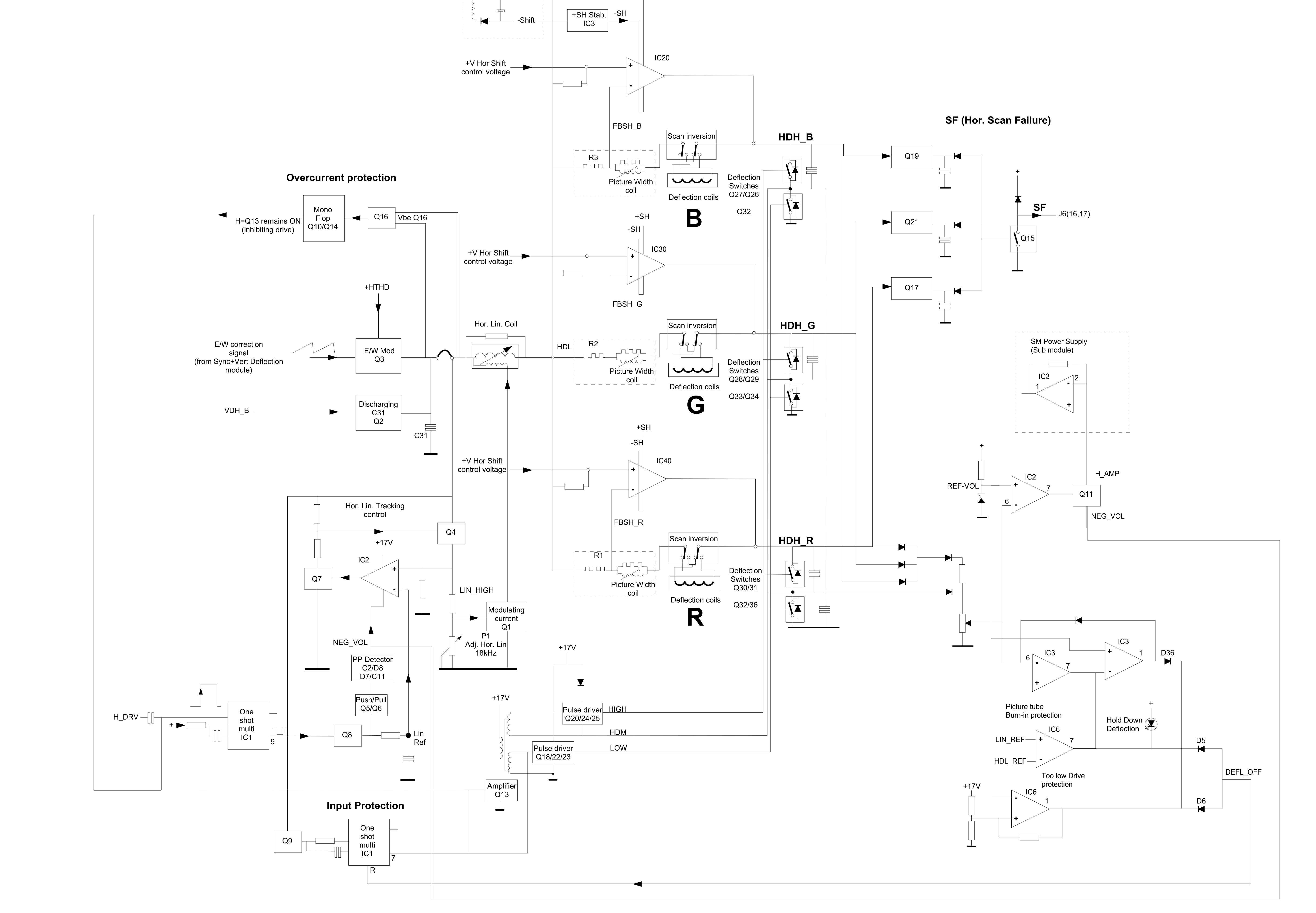


COMP.	LOC.	SHT.
C1	E 3	2
C2	F 5	2
C3	F 4	2
C4	F 4	2
C5	E 6	2
C6	E 4	2
C7	G 3	2
C8	G 5	2
C9	E 3	2
C1Ø	G 5	1
C11	G 5	2
C12	G 4	1
C13	C 2	2
C14	D 6	2
C15	H 2	1
C16	G 2	1
C17	F 1	2
C18	B 1	2
C19	G 1	2
C2Ø	G 1	2
C21	G 2	2
C22	B 4	2
C23	G 3	1
C24	F 3	1
C25	F 1	2
C26	G 1	2
C27	F 1	1
C28	E 1	1
C29	G 4	1
C3Ø	A 6	2
C31	D 3	2
C32	F 4	1
C33	B 2	1
C34	G 1	2
C35	D 2	2
C36	C 2	2
C37	E 2	1
C38	C 3	2
C39	B 4	2
C4Ø	A 3	2
C41	C 5	2
C42	C 4	2
C43	A 4	2
C44	C 2	1
C45	C 6	2
C46	F 3	1
C47	C 3	2
C48	A 4	2
C49	A 3	2
C5Ø	C 5	2
C51	B 6	1
C52	E 6	1
C53	F 6	1
C54	F 6	1
C55	E 3	1
C56	D 3	1
C57	B 3	1
C58	D 4	1
C59	E 3	2
C6Ø	I 3	1
D1	C 2	2
D2	D 4	2
D3	D 4	2
D4	D 4	2
D5	I 4	1
D6	I 4	1
D7	G 5	2
D8	G 5	2
D9	B 1	2
D1Ø	I 3	1
D11	B 6	2
D12	A 6	2
D13	I 1	1
D14	B 1	2
D15	H 1	1
D16	E 6	2
D17	B 5	2
D18	G 3	1
D19	F 2	1
D2Ø	B 5	2
D21	B 6	2
D22	C 6	2
D23	A 6	2
D24	F 3	1
D25	C 3	2
D26	E 1	1
D27	D 2	2
D28	B 1	1
D29	C 1	1
D3Ø	E 3	1
D31	E 2	1
D32	E 2	1
D33	A 3	2
D34	F 6	1
D35	F 3	1
D36	H 4	1
D37	F 1	1
D38	A 3	2
IC1	E 4	2
IC1	F 6	2
IC1	E 5	2
IC2	H 1	1
IC2	G 2	2
IC3	H 3	1
IC3	H 4	1
IC4	G 1	2
IC5	G 1	2
IC6	G 4	1
IC6	I 3	1
J1	A 2	2
J2	D 2	2
J3	D 2	2
J4	D 3	2
J5	C 4	1
J6	C 4	1
L1	B 6	1
P1	F 3	2
P2	F 4	1
Q1	E 3	2
Q2	D 3	2
Q3	C 2	2
Q4	E 2	2
Q5	F 5	2
Q6	F 5	2
Q7	G 2	2
Q8	F 4	2
Q9	E 6	2
Q1Ø	B 1	2
Q11	I 1	1
Q13	B 6	2
Q14	B 1	2
Q15	F 1	1
Q16	D 2	2
Q17	B 2	1
Q18	C 6	2
Q19	E 2	1
Q2Ø	C 5	2

COMP.	LOC.	SHT.
Q21	C 2	1
Q22	C 6	2
Q23	C 6	2
Q24	C 5	2
Q25	C 5	2
Q26	E 3	1
Q27	D 3	1
Q28	C 3	1
Q29	C 3	1
Q3Ø	B 3	1
Q31	A 3	1
Q32	D 3	1
Q33	C 3	1
Q34	C 3	1
Q35	B 3	1
Q36	A 3	1
R1	G 2	2
R2	G 2	2
R3	F 3	2
R4	E 6	2
R5	E 6	2
R6	C 2	2
R7	F 3	2
R8	F 2	2
R9	G 2	2
R1Ø	F 3	2
R11	E 6	2
R12	G 3	2
R13	F 4	2
R14	D 1	2
R15	D 4	2
R16	E 4	2
R17	E 3	2
R18	C 3	2
R19	I 4	1
R2Ø	F 4	2
R21	D 4	2
R22	G 1	1
R23	F 1	2
R24	G 5	1
R25	E 6	2
R26	B 2	2
R27	G 5	1
R28	G 3	1
R29	E 3	2
R3Ø	F 3	2
R31	I 4	1
R32	E 6	2
R33	B 6	2
R34	A 6	2
R35	B 2	2
R36	G 4	1
R38	D 3	2
R39	I 1	1
R4Ø	H 1	1
R41	G 2	1
R42	G 1	1
R43	G 4	1
R45	B 1	2
R46	B 1	2
R47	G 1	1
R48	B 1	2
R49	G 4	1
R5Ø	C 1	2
R51	G 4	1
R52	G 3	1
R53	B 6	2
R54	C 2	2
R55	D 3	2
R56	G 3	1
R57	F 1	1
R58	E 1	1
R59	G 4	1
R6Ø	C 5	2
R61	C 6	2
R62	A 6	2
R63	A 6	2
R64	C 1	2
R65	D 3	2
R66	C 3	2
R67	F 1	1
R68	D 2	1
R69	E 1	1
R7Ø	D 2	2
R71	C 4	2
R72	C 5	2
R74	C 2	1
R75	C 1	1
R76	A 1	1
R77	B 1	1
R78	C 3	2
R79	A 2	1
R8Ø	D 6	2
R81	D 5	2
R82	D 1	1
R83	C 1	1
R84	F 6	1
R85	E 3	1
R86	D 3	1
R87	C 3	1
R88	B 3	1
R89	B 2	2
R9Ø	B 3	1
R91	A 3	1
R92	C 3	2
R93	A 4	1
R94	D 4	1
R95	C 4	1
R96	B 4	1
R97	B 4	1
R98	C 4	2
R99	C 5	2
R1ØØ	I 3	1
R1Ø1	I 3	1
REL1	F 1	2
REL1	E 1	2
SR1	C 2	2
SR2	C 2	2
SR3	F 5	2
SR4	B 4	2
SR5	F 3	1
SR6	C 4	2
SR7	C 5	2
SR8	E 2	1
SR9	F 6	1
SR1Ø	A 3	2
SR11	B 5	1
T1	E 1	2
T2	B 5	2
T3	E 6	1
Z1	F 3	2
Z2	C 2	2
Z3	D 3	2
Z4	E 3	2
Z5	G 2	1
Z6	E 1	1
Z7	B 5	2
Z8	B 6	2

COMP.	LOC.	SHT.
Z9	C 3	2
Z1Ø	D 6	2
Z11	D 5	2
Z12	C 2	2

Blockdiagram Horizontal Deflection



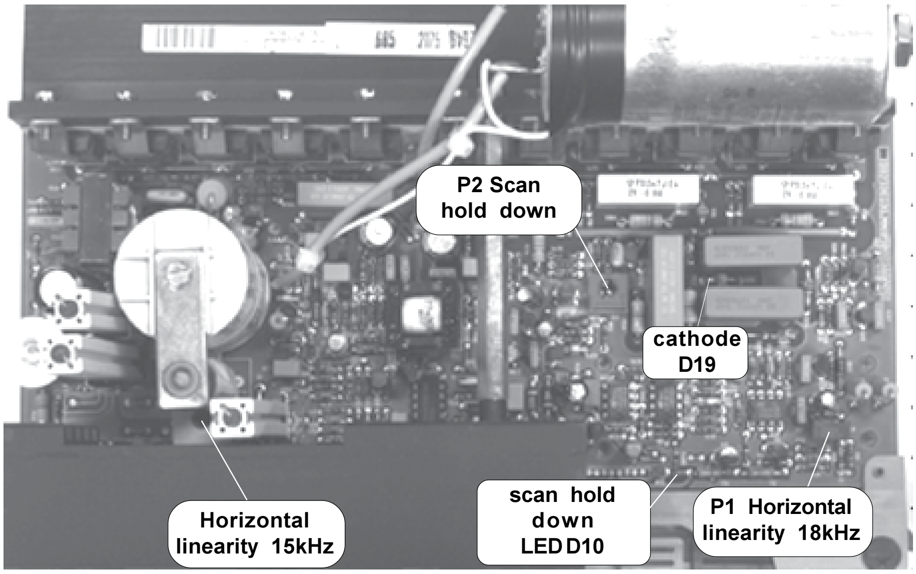
7622675_a_r00

Introduction

The following adjustments are provided on the module:

a: Overvoltage protection (=scan hold down) P2

b: Horizontal linearity adj. at 15 kHz (linearity coil) and **at 18 kHz (P1)**



Overvoltage protection

Preparation

Switch **OFF** the projector
Adjust P2 and P2 "MAX HOR. AMPL." **on the SM Power Supply** to its minimum (turning counter-clockwise).

Adjustment

Switch **ON** the projector.
With respect to chassis ground, measure the dc voltage at the cathode of D19 (use a digital multimeter capable of measuring the voltage of more than 1000V).
Adjust P2 **on the SM Power Supply** for 1950Vdc.
Adjust P2 (turning clockwise) until the scan hold down LED D10 lights up. (Projector in hold down)
Reduce the HOR. AMPL. P2 setting (turning counter-clockwise)

Restart the projector (power switching Off/On)

Adjust P2 as explained in the adjustment procedure of the SM Power Supply (refer to corresponding service scheet)

Horizontal linearity

The Linearity adjustments corrects for improper horizontal grid spacing on an image (Select therefore a grid test pattern).

1. Adjust the core of the linearity coil using a 15 kHz input source for equal horizontal grid spaces.
2. Adjust P1 using a 18 kHz input source for equal horizontal grid spaces.

Note: If a 18 kHz input source is not available, then any source close to 18 kHz may be used.

HORIZONTAL DEFLECTION 76 226715

Introduction.

On this board we find the MOSFET switching transistors, acting as switches to start and stop the currents through the deflection coils. As we need a very short retrace time, the amplitude of the flyback pulse is bigger than the maximum of one Mosfet. Therefore, two Mosfet switches are used in series.

Furthermore, on this board , we find the required protection circuits such as *“scan hold down”* and *“scan failure”.*

Preparation of the drive pulses.

The horizontal deflection circuit uses two MOSFETS in series in order to be capable of handling more than 1000 volt pulses. Therefore, two drive pulses on different ground reference levels are required.
The “bottom” MOSFETS are driven by a pulse train referenced to ground or chassis ground, the “top” MOSFETS by drive pulses referenced to the mid-point of the two series connected MOSFETs, the **HDM** point.
The power supply for generating the “top drive pulses” is taken from the +17 volt via diode D33 to block the pulses, as HDM, the reference ground for the top drive pulses, carries line pulses.
The hor. drive pulses, prepared on the *“UN SYNC+VERT DEFL”* board, are sent to the amplifier Q13. By using a transformer T2, a "floating" drive pulse referred to HDM for the top Mosfets can easily be obtained.
When the flyback pulse is present during retrace, D33 becomes reversed biased and act like an open circuit to the 17VDC line. At that time, the drive circuit receives its voltage supply from the charge stored in C48.
The "high" drive pulses reach the gate-source of the top Mosfets, and the "low" drive pulses drive the bottom Mosfet switches.

Modulation of the scan voltage East-West correction

The +HTHD voltage from the SMPS board is modulated in Q3 by the East-West correction signal prepared on the “Sync + Vert Defl” board. Z2 protects the transistor and SR2 limits the charging current of this coupling capacitor through the zener. Transistor Q2 is used to discharge the boosting capacitor C31 at the start of a vertical scan. A vertical flyback pulse, derived from VDH B (Vertical Deflection High Blue) is sent to the gate. This minimizes keystone problems at the top due to a remaining charge on C31 after the vertical retrace. It causes the charge on C31 to always start from the same amplitude after each vertical retrace, regardless of the voltage that was built up at the end of the vertical scan.

Horizontal linearity tracking control.

The problem we meet with such a big frequency range, is the frequency dependent characteristic of the linearity coil. At a higher scanning frequency, the impedance of the linearity coil would increase.
To overcome this, a second coil T1 is magnetically coupled to the standard linearity coil. This current in this modulating coil is delivered by a Mosfet Q1.

The needed current for tracking is got via the biasing circuit of the gate of Q1 (LIN HIGH) as follows.
The drive pulses trigger a one-shot in IC1 at the positive going transient input. The output pulses are then applied to the gate of a Mosfet Q8 and at the drain split to two circuits :

- the simple integrator R20 / C3, the obtained voltage across the capacitor is consequently a voltage proportional with the line frequency labelled *"LIN REF".*
- the push-pull Q5 / Q6 and the top/top detector just to obtain a negative voltage to supply amongst others the OPAMP IC2.

The DC level of this LIN REF voltage is not correct to drive the Mosfet Q1 and a level shift is realised with the OPAMP 1-2-3 of IC2.
This OPAMP receives at the inverting input a voltage that is proportional with the line frequency, the amplitude adjustment does not affect this LIN REF voltage.
The other non-inverting input receives a voltage that is proportional with the scan voltage. This voltage is proportional with the line frequency and with the amplitude adjustment. The influence of the amplitude adjustment must be minimized and this done as follows.
For one typical frequency, we obtain one typical LIN REF voltage. The HTHD voltage however depends also on the horizontal amplitude. Any change in the emitter voltage of Q4 is compensated via the feedback Q7 - base Q4.

Protection circuits.

a) Overcurrent protection.

If the sum of the currents of the three scan coils exceeds a pre-determined level, the drive is inhibited as follows :
The wire J2-J3 in series with the three scan coils , acts as a low value resistor and is connected across the base-emitter of Q16. When a 0.6 volt or greater voltage is dropped across the wire, Q16 starts to conduct and triggers the monoflop Q10/ Q14.As long Q10 is blocked, the drive transistor Q13 remains "on", inhibiting the drive. BY re-applying the drive pulse to the base of Q10 via D9 (a kind of feedback), a faster reaction on the overcurrent can be obtained.

b) Overvoltage protection.

The sum of flyback pulses on each of the series connected Mosfets are checked by a rectifier network consisting of diodes D30, D31 and D32 and common decoupling capacitors. The pulses at the node of the two Mosfets (HDM) are rectified with D24 . This voltage must be half of the total flyback voltage in order to protect the mosfets against overvoltage. This is realised with the circuit R73/C46/ D24/SR5/ R56/C32.
The rectified voltage is dropped with R52 / P2 / R51 and sent to two level detectors. The threshold level is set by a zener at 6.2 volt with Z5. At the moment pin 6 of IC2 exceeds the threshold, the horizontal amplitude is reduced with Q11. This will avoid the action of the "Hold Down Deflection" protection circuit.
If for any reason, the 1950V level is reached the HOLD DOWN DEFLECTION circuit is activated.

1) The drive is inhibited through the DEFL OFF.
2) The input pin 6 remains "high" as transistor Q12 is blocked and D18 conducts via R28 to keep pin 6 of IC1 high. This requires that the set be powered off to reset this circuit.
3) The red LED D10 (HOLD DOWN DEFLECTION) is illuminated in order to show that "scan hold down" has occurred.
4) As the deflection is stopped, there is also a horizontal scan failure and the associated circuit will drop the EHT voltage and blank the three CRT's to prevent damage to the CRT phosphorus.

c) Too low drive protection (+17V monitoring).

It is imperative that the Mosfets are fully switched on, so that the internal resistance will be as low as possible. Due to the large deflection current, even a small amount of excess resistance, will cause the Mosfets to generate too much heat.
This Mosfet drive pulse amplitude depends in part on the **+17 volt** supply and the

voltage supplied from the +17VDC line . The drive signals are developed from the 17VDC and to prevent damage, due to insufficient drive, if this voltage becomes too low, IC1 pin 3 gets low and inhibits the drive signal via the 'DEFL OFF'.
The DEFL OFF is connected with the R(eset) of the monoflop in IC1. The function of the latter will be explained hereafter.

d) Input protection :

The H DR from the UN SYNC + VERT DEFL has as task to start and stop the conduction of the Mosfets. If however the Mosfets are in conduction and there is a "stop" that does not arrive, there is a risk of damaging the power switchers.
In such case, a stop pulse will be automatically generated by the monoflop in IC1, output 7. This output remains low as low the input is retriggered at pin 5. When such a trigger pulse is absent, the output switches high after a time determined by the time constant R25 / C5 + current delivered by Q9. This current is tracked with the line frequency by using the scan voltage as emitter supply.

e) Horizontal scan failure.

Horizontal pulses are fed into the transistors Q17, Q21 and Q19. As long as there are horizontal pulses on the base of these transistors, they are conducting for each horizontal period, and the collectors are held "low" by C33, C44 and C37. These smoothed collector voltages keep the gating diodes D28, D29 and D26 blocked. If either one of the pulses or all pulses are missing, Q15 transistor gets in conduction and turns its collector at low level. The SF line will be pulled low and the scan fail condition will be met.

Feedback to the SMPS (to stabilise the horizontal width).

The scan voltage +HTHD has to track the line frequency in order to regulate the horizontal width of the picture. The amplitude of the flyback pulses at the connection of the top and bottom Mosfets (=HDM) is a direct result of the horizontal width and can be taken as a reference. These pulses are coupled and isolated by transformer T3, rectified by D34 and the **FBHD** voltage is sent to the SMPS, to regulate the HTHD.
This voltage is proportional to the width of the raster on the CRT faceplate.

Picture tube burn-in protection

When the module with the horizontal width coils is not connected, the deflection circuit is limited to the Horizontal shift circuitry, causing burning-in of the picture tubes (SF can not be detected).
This situation is protected with the OPAMP IC6. The inverting input (pin 5) receives the LIN_REF voltage (a voltage proportional with the line frequency) and the non-inverting input the HDL _REf voltage (+HTHD voltage modulated by the E-W correction signal).
When the module is not connected, the HDL_REF voltage becomes higher than the LIN_REF and consequently the "scan hold down" circuit is activated, indicated by the illumination of the red LED D10.

Parts listing R76226715

SIT.	ITEM NO.	DESCRIPTION	QUANTITY
50	R133036	SPR L 6 D 2,4D 6 CE	1
110	R133036	SPR L 6 D 2,4D 6 CE	1
460	R133063	HTSN@A SOT93 I_MICA 28X25	2
350	R133074	HTSN@A I_SIL W30	0,23
470	R133074	HTSN@A I_SIL W30	0,015
100	R313220	R ACC HLDR H10 WW V	2
	R34214430	WU UL1007 AWG24 SO YE 300	1
	R342199110	WU UL1015 AWG18 ST GY 100	1
	R342199112	WU UL1015 AWG18 ST GY 120	1
1000	R34700802	SLVU GLCL OIL D 1,5RD 20	1
	R348019	CBLA TIE B L100 W2,4 -	2
	R348101	WU JUMP 0,6 5	2
	R3481107	WU JUMP 0,51 27,5 ISO RD	1
	R3481122	WU JUMP 0,51 32,5 ISO	1
	R3481135	WU JUMP 0,51 35 ISO	1
240	R362020	SCR D84 M 3 X 4 STZN	2
230	R3631059	SCR Z933 M 3 X 8 SS	1
420	R3631059	SCR Z933 M 3 X 8 SS	2
450	R3631059	SCR Z933 M 3 X 8 SS	3
510	R3631059	SCR Z933 M 3 X 8 SS	2
412	R3631239	SCR Z933 M 4 X 10 SS	1
241	R367502	SPR D6798AD 3,2D 6 STZN	2
411	R367608	SPR L70 M 4 H 7 NBRNI	1
610	R367699	RVT AVTRON2,5L 8,1 AL	6
600	R722276	LOCK49 PCB UN CPL	1
210	R802665	FRM49 HOR CORE LIN FIX	1
300	R802691	HTSN D800 HOR A GRAP	1
500	R802741	HTSN D800 HOR F.CAP	1
220	R802751	COIL LIN PJ49 POSITION	1
200	R802827	FRM V700 LIN CTRL CPL	1
441	R804525	HTSN A GEN SPG1 3,1 SS SH	1
320	R804674	HTSN A GEN SPG1 M3 SS SH	11
440	R804831	HTSN A GEN SPG1 3,1 SS LG	2
221	R805060	SPRCL 1 D 6 D10 FIYE	1
410	R805848	HTSN D801 HOR BG	1
330	V3621227	SCR $7500CM 3 X 8 STZN	11
340	V3621227	SCR $7500CM 3 X 8 STZN	3
C 1	R112747	C CE MI 4N7K100E2 85	
C 2	R111476	C EL RA 47M M 25E2 85	1
C 3	R111531	C EL RA 10M M 35E2 85	
C 4	R113732	C POMERA 470N K 63E2 85	
C 5	R115922	C PP RA 1N8J100E2 85	1
C 6	R1159081	C PP RA 470P J100E2 85	
C 7	R113724	C POMERA 100N K 63E2 85	
C 8	R113732	C POMERA 470N K 63E2 85	
C 9	R111546	C EL RA 1M M 50E2 85	
C 10	R112739	C CE MI 1N K100E2	1
C 11	R111476	C EL RA 47M M 25E2 85	
C 12	R1159141	C PP RA 820P J100E2 85	1
C 13	R1116491	C EL RA 47M T385SKT 85	1
C 14	R112797	C CE DI 2N7K500E2	1
C 15	R1137121	C POMERA 10N K250E2 85	1
C 16	R112763	C CE MI 10N Z 63E2 85	1
C 17	R113724	C POMERA 100N K 63E2 85	
C 18	R1159081	C PP RA 470P J100E2 85	
C 19	R113724	C POMERA 100N K 63E2 85	
C 20	R111531	C EL RA 10M M 35E2 85	
C 21	R113724	C POMERA 100N K 63E2 85	

SIT.	ITEM NO.	DESCRIPTION	QUANTITY
C 22	R111531	C EL RA 10M M 35E2 85	
C 23	R112735	C CE MI 470P K100E2	1
C 24	R1117201	C PPMERA 6N8J202E9 HV	1
C 25	R111531	C EL RA 10M M 35E2 85	
C 26	R113724	C POMERA 100N K 63E2 85	
C 27	R1137161	C POMERA 22N K100E2 85	
C 28	R1137161	C POMERA 22N K100E2 85	1
C 29	R112242	C NP0 MI 100P G100E2	1
C 30	R112763	C CE MI 10N Z 63E2 85	1
C 31	R114799	C PPMERA 30M J220BS 85	1
C 32	R114603	C POMERA 100N M102E9 HV	1
C 33	R1137131	C POMERA 12N K100E2 85	1
C 34	R111531	C EL RA 10M M 35E2 85	
C 35	R112739	C CE MI 1N K100E2	
C 36	R1114169	C EL RA 10M M350E2 105	1
C 37	R1137131	C POMERA 12N K100E2 85	1
C 38	R1137141	C POMERA 15N K100E2 85	
C 39	R113724	C POMERA 100N K 63E2 85	
C 40	R113724	C POMERA 100N K 63E2 85	
C 41	R113732	C POMERA 470N K 63E2 85	
C 42	R113732	C POMERA 470N K 63E2 85	
C 43	R113724	C POMERA 100N K 63E2 85	
C 44	R1137131	C POMERA 12N K100E2 85	1
C 45	R113732	C POMERA 470N K 63E2 85	
C 46	R114603	C POMERA 100N M102E9 HV	1
C 47	R112833	C CE DI 4N7S400E3 85	1
C 48	R111479	C EL RA 470M M 25E2 85	1
C 49	R111479	C EL RA 470M M 25E2 85	1
C 50	R113732	C POMERA 470N K 63E2 85	
C 51	R111477	C EL RA 100M M 25E2 85	
C 52	R114154	C POMERA 22N K400E4 85	1
C 53	R112692	C N750MI 120P G500E2	1
C 54	R114154	C POMERA 22N K400E4 85	1
C 55	R111769	C PPMERA 3N3J162E9 HV	1
C 56	R111769	C PPMERA 3N3J162E9 HV	1
C 57	R111769	C PPMERA 3N3J162E9 HV	1
C 58	R111722	C PPMERA 10N J162E9 HV	1
C 59	R112747	C CE MI 4N7K100E2 85	
C 60	R111531	C EL RA 10M M 35E2 85	1
D 1	R131952	D R BYW96E 10203A SOD64	1
D 2	R131621	D S 1N4148 075150 DO35	
D 3	R131621	D S 1N4148 075150 DO35	
D 4	R131621	D S 1N4148 075150 DO35	
D 5	R131621	D S 1N4148 075150 DO35	
D 6	R131621	D S 1N4148 075150 DO35	
D 7	R131637	D R BA158 600400 DO7	1
D 8	R131637	D R BA158 600400 DO7	1
D 9	R131621	D S 1N4148 075150 DO35	
D 10	R131662	D LED D3 T RD	1
D 11	R131621	D S 1N4148 075150 DO35	
D 12	R131621	D S 1N4148 075150 DO35	
D 13	R131637	D R BA158 600400 DO7	
D 14	R131621	D S 1N4148 075150 DO35	
D 15	R131621	D S 1N4148 075150 DO35	
D 16	R131621	D S 1N4148 075150 DO35	
D 17	R131621	D S 1N4148 075150 DO35	
D 18	R131621	D S 1N4148 075150 DO35	
D 19	R131952	D R BYW96E 10203A SOD64	1
D 20	R131621	D S 1N4148 075150 DO35	
D 21	R131621	D S 1N4148 075150 DO35	
D 22	R131621	D S 1N4148 075150 DO35	
D 23	R131637	D R BA158 600400 DO7	
D 24	R131952	D R BYW96E 10203A SOD64	1
D 25	R131621	D S 1N4148 075150 DO35	

Horizontal deflection R76226715

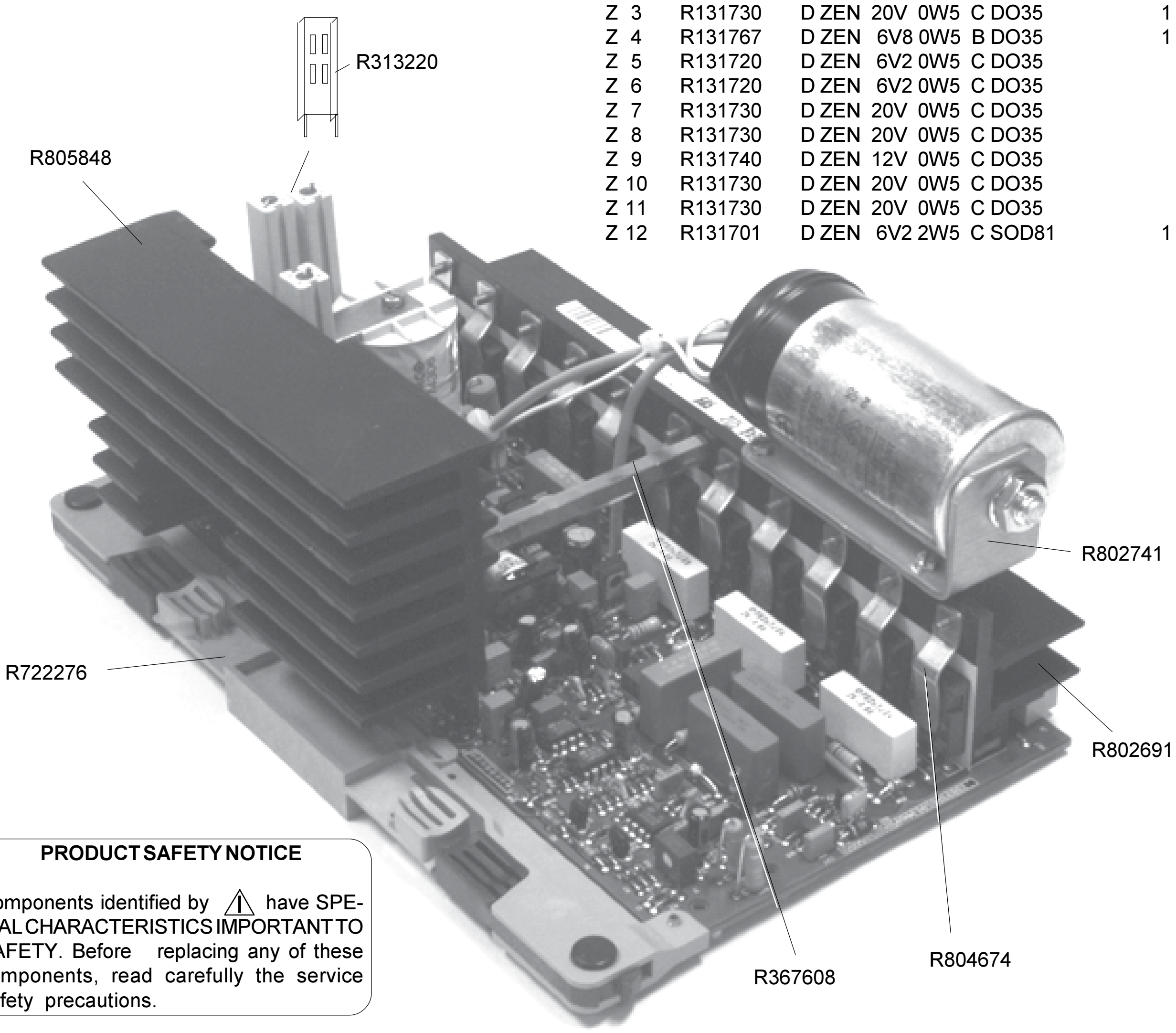
SIT.	ITEM NO.	DESCRIPTION	QUANTITY
D 26	R131621	D S 1N4148 075150 DO35	
D 27	R131621	D S 1N4148 075150 DO35	
D 28	R131621	D S 1N4148 075150 DO35	
D 29	R131621	D S 1N4148 075150 DO35	
D 30	R131952	D R BYW96E 10203A SOD64	1
D 31	R131952	D R BYW96E 10203A SOD64	1
D 32	R131952	D R BYW96E 10203A SOD64	1
D 34	R131906	D R BYV96E 1021A5 SOD57	1
D 35	R131952	D R BYW96E 10203A SOD64	1
D 36	R131621	D S 1N4148 075150 DO35	
D 37	R131637	D R BA158 600400 DO7	1
D 38	R131913	D R BY329 10208A TO220C	1
D322	R131913	D R BY329 10208A TO220C	1
I 1	R137098	U 74HCT4538 DIP16 P	1
I 2	R134124	U 082 TL DIP8 P	1
I 3	R134114	U 393 LM DIP8 P	1
I 4	R134033	U 78L12AC TO92 P	1
I 5	R134032	U 78L05AC TO92 P	1
I 6	R134114	U 393 LM DIP8 P	1
J 1	Z3481006	WU JUMP 0,51 5 ISO	1
J 5	R313525	J EUR2C MBS P64 E1C2S 1,6	1
J 6	R313525	J EUR2C MBS P64 E1C2S 1,6	1
L 1	R305913	CH MNS AX NS 12 UH 3A	1
P 1	R106832	R TCE V 50K K 0W5 S10SS	1
P 2	R106732	R TCE H 50K K 0W5 S10TS	1
PC	R780043	PCB G800 HOR	1
Q 1	R132593	Q BUZ74A FN P TO220	1
Q 2	R132591	Q BUZ42 FN P TO220	1
Q 3	R132974	Q APT5025BN FN P TO247	1
Q 4	R132973	Q BF420 N SS TO92	1
Q 5	R1314311	Q BC327 P SS TO92	
Q 6	R131424	Q BC338 N SS TO92	
Q 7	R132973	Q BF420 N SS TO92	1
Q 8	R132910	Q BS170 FN SS TO92	1
Q 9	R132972	Q BF421 P SS TO92	1
Q 10	R131411	Q BC549C N SS TO92	1
Q 11	R1314182	Q BC559C P SS TO92	1
Q 13	V132504	Q 2N2369A N SS TO18	1
Q 14	R1314295	Q BC549B N SS TO92	1
Q 15	R131411	Q BC549C N SS TO92	
Q 16	R132972	Q BF421 P SS TO92	1
Q 17	R131411	Q BC549C N SS TO92	
Q 18	R132910	Q BS170 FN SS TO92	1
Q 19	R131411	Q BC549C N SS TO92	1
Q 20	R132910	Q BS170 FN SS TO92	1
Q 21	R131411	Q BC549C N SS TO92	1
Q 22	R1314446	Q BD237 N P TO126	1
Q 23	R1314451	Q BD238 P P TO126	1
Q 24	R1314446	Q BD237 N P TO126	1
Q 25	R1314451	Q BD238 P P TO126	1
Q 26	R132951	Q IXTH11N100 FN P TO247	1
Q 27	R132951	Q IXTH11N100 FN P TO247	1
Q 28	R132951	Q IXTH11N100 FN P TO247	1
Q 29	R132951	Q IXTH11N100 FN P TO247	1
Q 30	R132951	Q IXTH11N100 FN P TO247	1
Q 31	R132951	Q IXTH11N100 FN P TO247	1
Q 32	R132951	Q IXTH11N100 FN P TO247	1
Q 33	R132951	Q IXTH11N100 FN P TO247	1
Q 34	R132951	Q IXTH11N100 FN P TO247	1
Q 35	R132951	Q IXTH11N100 FN P TO247	1
Q 36	R132951	Q IXTH11N100 FN P TO247	1

SIT.	ITEM NO.	DESCRIPTION	QUANTITY
R 1	V1026507	R MF H 33K2 F 0W6 E4	
R 2	V1026507	R MF H 33K2 F 0W6 E4	1
R 3	R101541	R MF H 2K7 F 0W4 E3	1
R 4	R1015641	R MF H200K F 0W4 E3	1
R 5	R101554	R MF H 33K F 0W4 E3	
R 6	V1026007	R MF H 10K F 0W6 E4	1
R 7	R101524	R MF H100E F 0W4 E3	
R 8	R101559	R MF H 82K F 0W4 E3	
R 9	R101568	R MF H470K F 0W4 E3	
R 10	R101541	R MF H 2K7 F 0W4 E3	
R 11	R101539	R MF H 1K8 F 0W4 E3	
R 12	R101560	R MF H100K F 0W4 E3	
R 13	R101536	R MF H 1K F 0W4 E3	
R 14	V103420	R MO H 47E J 6W	1
R 15	R101556	R MF H 47K F 0W4 E3	
R 16	R101549	R MF H 12K F 0W4 E3	
R 17	R103640	R WW H220E J 4W E10	1
R 18	R103158	R MO H 68K J 1W	1
R 19	R101542	R MF H 3K3 F 0W4 E3	
R 20	R101549	R MF H 12K F 0W4 E3	1
R 21	R101524	R MF H100E F 0W4 E3	
R 22	R101532	R MF H470E F 0W4 E3	
R 23	R101524	R MF H100E F 0W4 E3	
R 24	R101556	R MF H 47K F 0W4 E3	
R 25	R101516	R MF H 22E F 0W4 E3	
R 26	R101548	R MF H 10K F 0W4 E3	
R 27	R101547	R MF H 8K2 F 0W4 E3	
R 28	R101556	R MF H 47K F 0W4 E3	
R 29	R103254	R MO H 33K J 2W E10	1
R 30	R103254	R MO H 33K J 2W E10	1
R 31	R101544	R MF H 4K7 F 0W4 E3	
R 32	R101560	R MF H100K F 0W4 E3	
R 33	R101539	R MF H 1K8 F 0W4 E3	
R 34	R101544	R MF H 4K7 F 0W4 E3	
R 35	R101536	R MF H 1K F 0W4 E3	
R 36	R101543	R MF H 3K9 F 0W4 E3	
R 38	R104446	R WW V 82E K17W	1
R 39	R101536	R MF H 1K F 0W4 E3	
R 40	R101536	R MF H 1K F 0W4 E3	
R 41	R101548	R MF H 10K F 0W4 E3	
R 42	R101530	R MF H330E F 0W4 E3	
R 43	R101547	R MF H 8K2 F 0W4 E3	
R 45	R101549	R MF H 12K F 0W4 E3	
R 46	R101539	R MF H 1K8 F 0W4 E3	
R 47	R101536	R MF H 1K F 0W4 E3	
R 48	R101556	R MF H 47K F 0W4 E3	
R 49	R101552	R MF H 22K F 0W4 E3	
R 50	R101531	R MF H390E F 0W4 E3	
R 51	R1015641	R MF H200K F 0W4 E3	1
R 52	R104690	R HV H 33M J 0W5 3500	1
R 53	R101534	R MF H680E F 0W4 E3	
R 54	R101560	R MF H100K F 0W4 E3	
R 55	R104446	R WW V 82E K17W	1
R 56	R104690	R HV H 33M J 0W5 3500	1
R 57	R101560	R MF H100K F 0W4 E3	
R 58	R101554	R MF H 33K F 0W4 E3	
R 59	R101552	R MF H 22K F 0W4 E3	
R 60	R101543	R MF H 3K9 F 0W4 E3	
R 61	R101543	R MF H 3K9 F 0W4 E3	
R 62	R101544	R MF H 4K7 F 0W4 E3	
R 63	R101544	R MF H 4K7 F 0W4 E3	
R 64	R103254	R MO H 33K J 2W E10	1
R 65	R101516	R MF H 22E F 0W4 E3	
R 66	R101548	R MF H 10K F 0W4 E3	
R 67	R101524	R MF H100E F 0W4 E3	
R 68	R101535	R MF H820E F 0W4 E3	1
R 69	R101551	R MF H 18K F 0W4 E3	

Horizontal deflection R76226715

SIT.	ITEM NO.	DESCRIPTION	QUANTITY
R 70	R101536	R MF H 1K F 0W4 E3	
R 71	R101535	R MF H820E F 0W4 E3	
R 72	R101535	R MF H820E F 0W4 E3	
R 74	R101535	R MF H820E F 0W4 E3	1
R 75	R101551	R MF H 18K F 0W4 E3	
R 76	R104654	R HV H 1M J 0W5 3500	1
R 77	R101551	R MF H 18K F 0W4 E3	
R 78	R101552	R MF H 22K F 0W4 E3	
R 79	R101535	R MF H820E F 0W4 E3	1
R 80	R101536	R MF H 1K F 0W4 E3	
R 81	R101536	R MF H 1K F 0W4 E3	
R 82	R104654	R HV H 1M J 0W5 3500	1
R 83	R104654	R HV H 1M J 0W5 3500	1
R 84	R103341	R MO H 2K7 J 4W E10	1
R 85	R101514	R MF H 15E F 0W4 E3	
R 86	R101514	R MF H 15E F 0W4 E3	
R 87	R101514	R MF H 15E F 0W4 E3	
R 88	R101514	R MF H 15E F 0W4 E3	
R 89	R101500	R MF H 1E F 0W4 E3	
R 90	R101514	R MF H 15E F 0W4 E3	1
R 91	R101514	R MF H 15E F 0W4 E3	1
R 92	R101536	R MF H 1K F 0W4 E3	
R 93	R101514	R MF H 15E F 0W4 E3	
R 94	R101514	R MF H 15E F 0W4 E3	1
R 95	R101514	R MF H 15E F 0W4 E3	1
R 96	R101514	R MF H 15E F 0W4 E3	

SIT.	ITEM NO.	DESCRIPTION	QUANTITY
R 97	R101514	R MF H 15E F 0W4 E3	
R 98	R101535	R MF H820E F 0W4 E3	
R 99	R101535	R MF H820E F 0W4 E3	
R100	V1026658	R MF H475K F 0W6 E4	1
R101	R101546	R MF H 6K8 F 0W4 E3	1
SR 1	R103224	R MO H100E J 2W	1 ⚠
SR 1	R34699302	SLVU SHR D 9,6/4,8 BK 20	1 ⚠
SR 2	V1026176	R MF H 1K5 F 0W6 E4	1 ⚠
SR 3	R1011169	R CFFH 22E J 0W25	1 ⚠
SR 4	R1003169	R CFFV 22E J 0W25 E1	1 ⚠
SR 5	R1003009	R CFFV 1E J 0W25 E1	1 ⚠
SR 6	R1011169	R CFFH 22E J 0W25	1 ⚠
SR 7	R1011169	R CFFH 22E J 0W25	1 ⚠
SR 8	R1003009	R CFFV 1E J 0W25 E1	1 ⚠
SR 9	R1011209	R CFFH 47E J 0W25	1 ⚠
SR10	R1011907	R CFFH E1 K 0W35	⚠
SR11	R1011907	R CFFH E1 K 0W35	⚠
T 1	R774306	T G800 LIN CTRL	1 ⚠
T 2	R774350	T G801 HOR DVR	1 ⚠
T 3	R774310	T D800 HOR DEF	1 ⚠
T 2E	R774153	COIL LIN PJ45 HOR DHR	1 ⚠
Z 1	R131730	D ZEN 20V 0W5 C DO35	1
Z 2	V131711	D ZEN 56V 1W3 C DO41	1
Z 3	R131730	D ZEN 20V 0W5 C DO35	1
Z 4	R131767	D ZEN 6V8 0W5 B DO35	1
Z 5	R131720	D ZEN 6V2 0W5 C DO35	
Z 6	R131720	D ZEN 6V2 0W5 C DO35	
Z 7	R131730	D ZEN 20V 0W5 C DO35	
Z 8	R131730	D ZEN 20V 0W5 C DO35	
Z 9	R131740	D ZEN 12V 0W5 C DO35	
Z 10	R131730	D ZEN 20V 0W5 C DO35	
Z 11	R131730	D ZEN 20V 0W5 C DO35	
Z 12	R131701	D ZEN 6V2 2W5 C SOD81	1

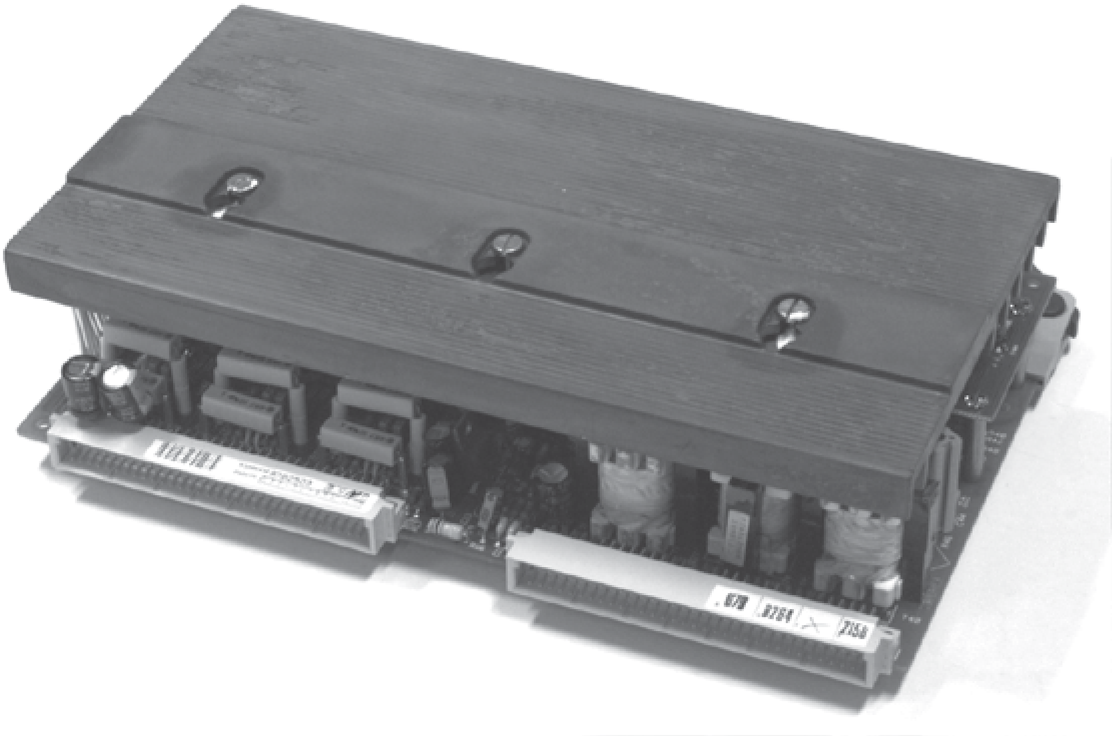


PRODUCT SAFETY NOTICE

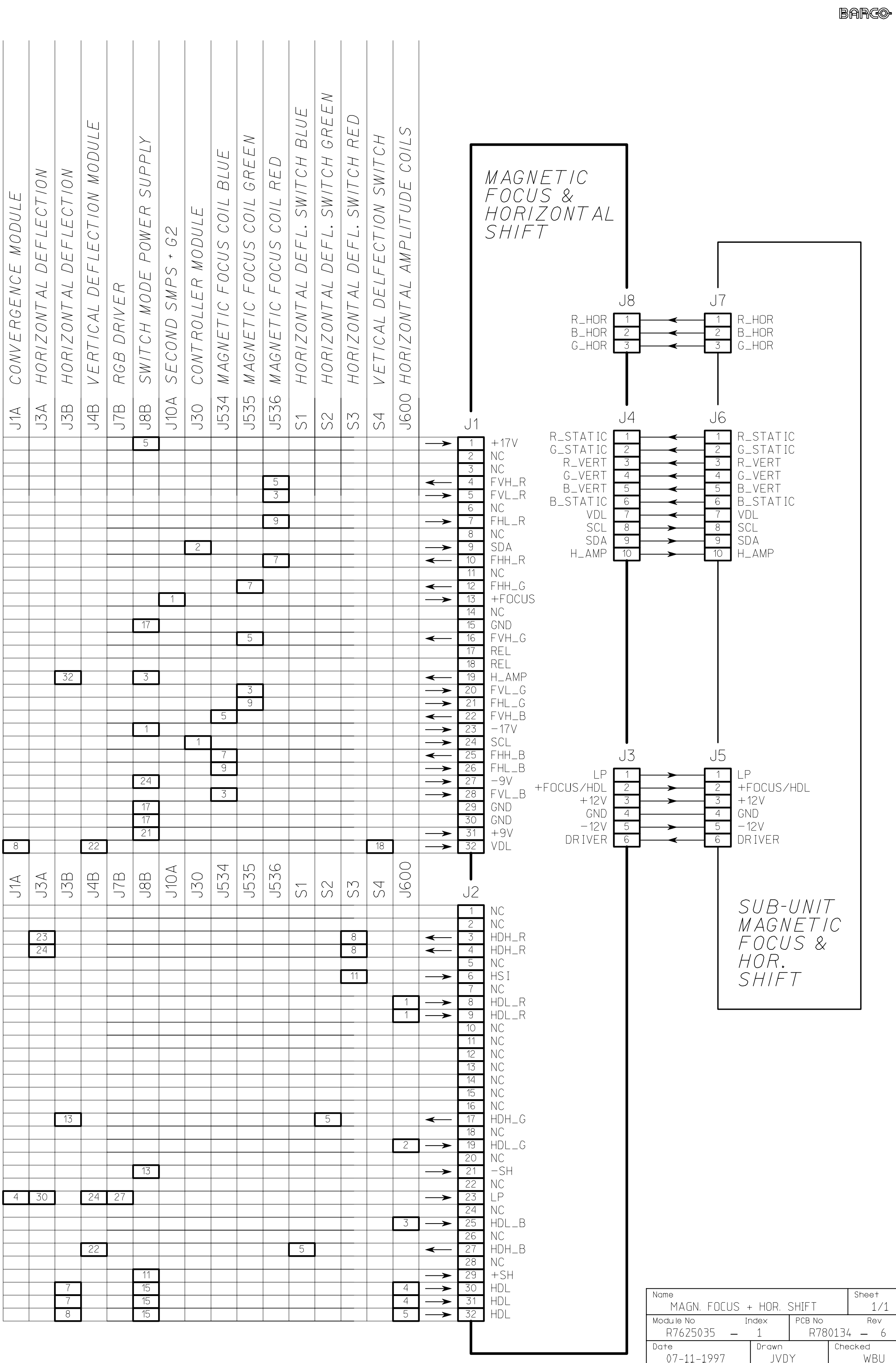
Components identified by ⚠ have SPECIAL CHARACTERISTICS IMPORTANT TO SAFETY. Before replacing any of these components, read carefully the service safety precautions.

Electromagnetic Focus+Hor Shift R7625035

Sub module R7625035S

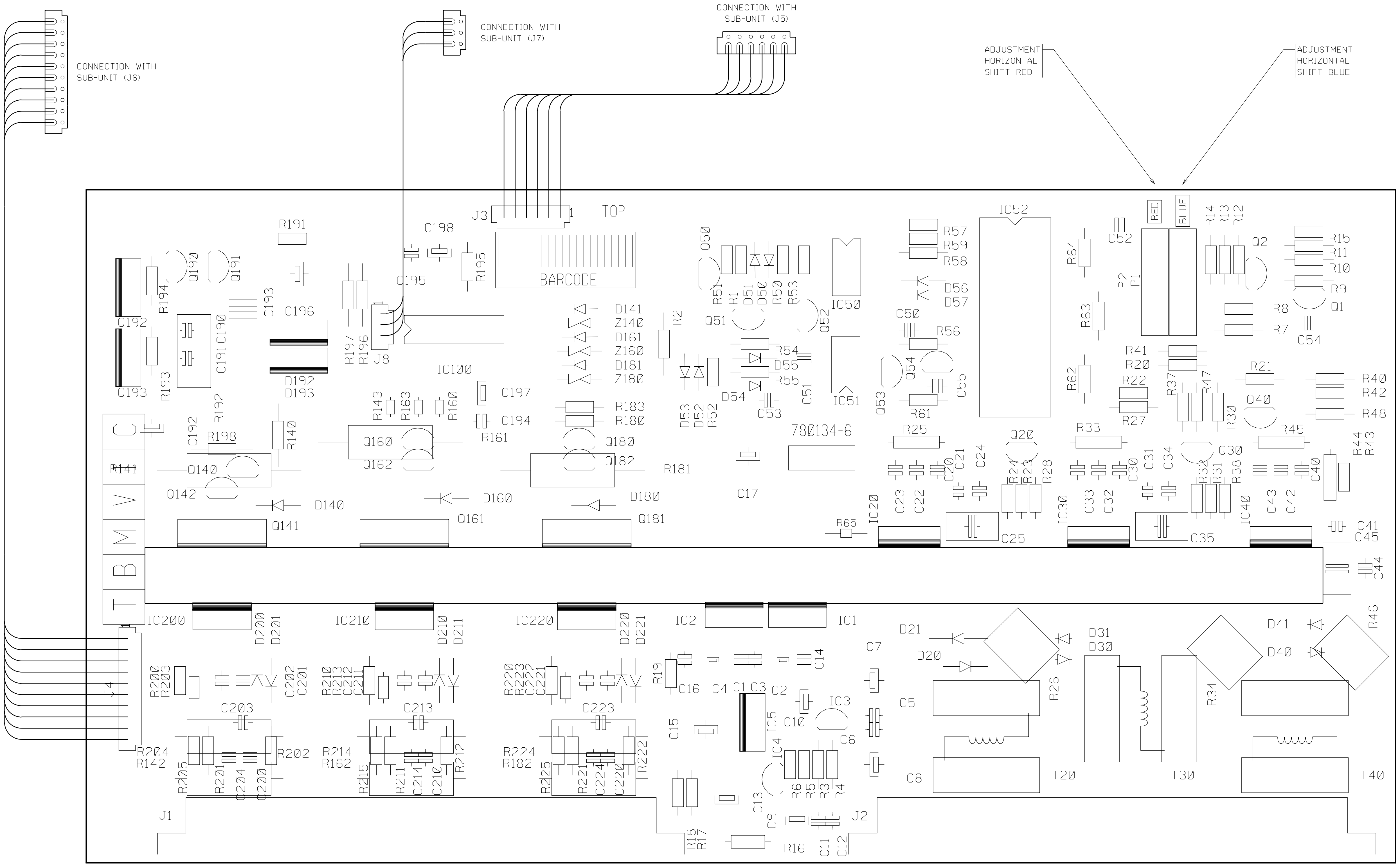


R7625035_r00



Modifications reserved

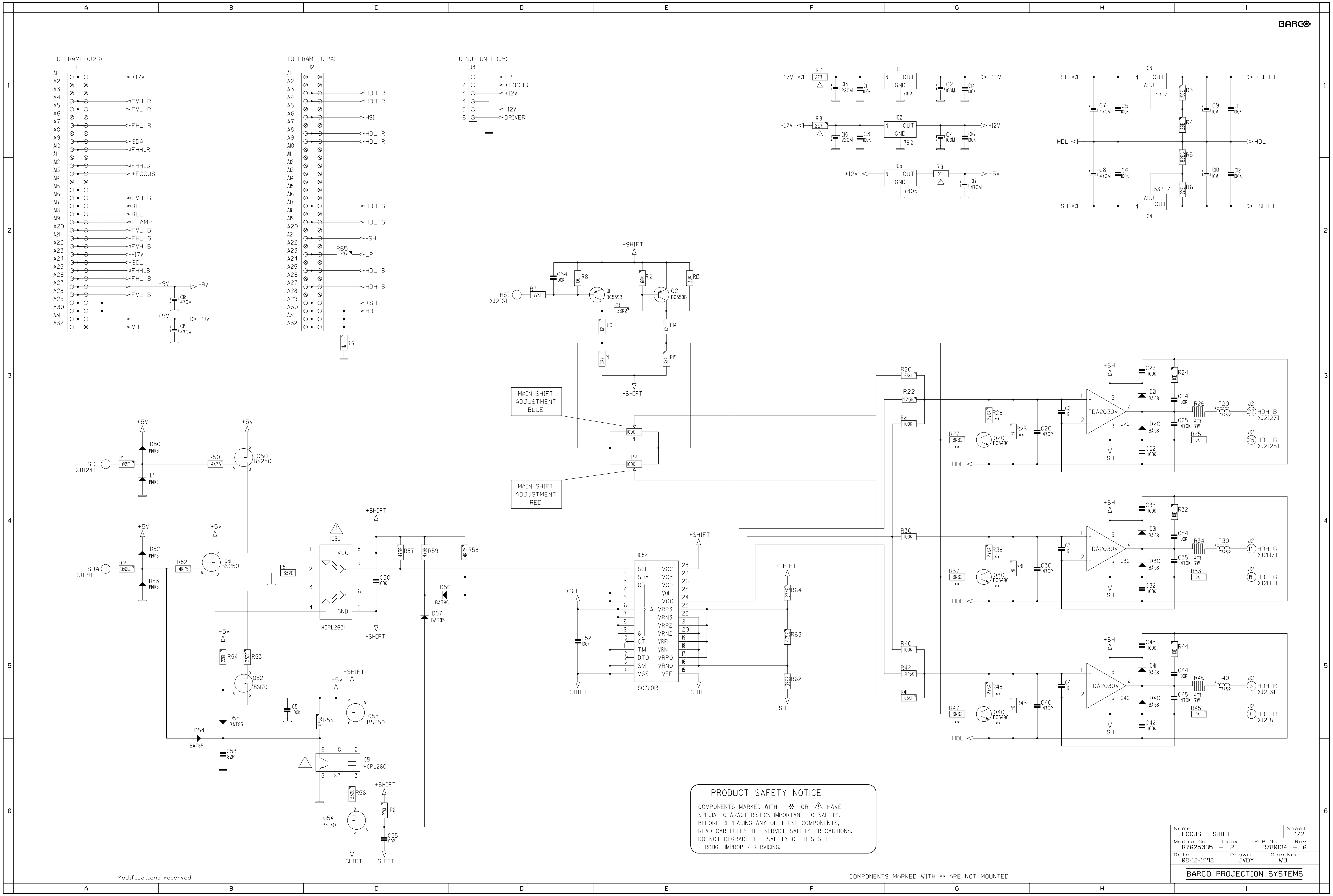
Name			Sheet
MAGN. FOCUS + HOR. SHIFT			1/1
Module No	Index	PCB No	Rev
R7625035 –	1	R780134 –	6
Date	Drawn	Checked	
07-11-1997	JVDY	WBU	
BARCO NV		Division	BPS



Name			Sheet
MAG. FOCUS + HOR. SHIFT			1 / 1
Module No R7625035 —	Index 2	PCB No R780134 —	Rev 6
Date 08-12-1998	Drawn JVDY	Checked WBU	

BARCO PROJECTION SYSTEMS

Modifications reserved

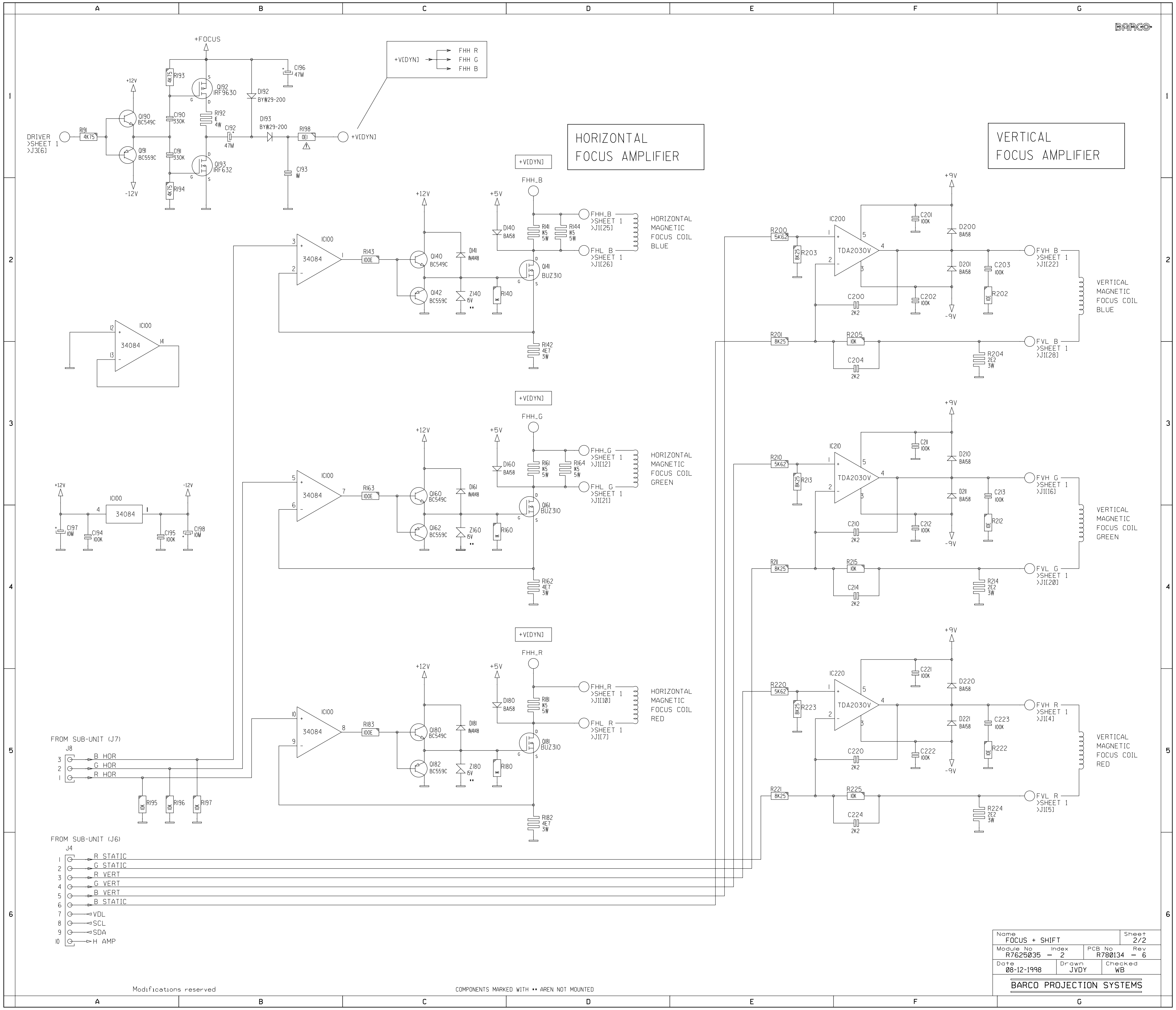


PRODUCT SAFETY NOTICE

COMPONENTS MARKED WITH ✻ OR ⚠ HAVE SPECIAL CHARACTERISTICS IMPORTANT TO SAFETY. BEFORE REPLACING ANY OF THESE COMPONENTS, READ CAREFULLY THE SERVICE SAFETY PRECAUTIONS. DO NOT DEGRADE THE SAFETY OF THIS SET THROUGH IMPROPER SERVICING.

Name: FOCUS + SHIFT		Sheet: 1/2
Module No: R7625035	Index: 2	PCB No: R780134 – Rev: 6
Date: 08-12-1998	Drawn: JVDY	Checked: WB

BARCO PROJECTION SYSTEMS

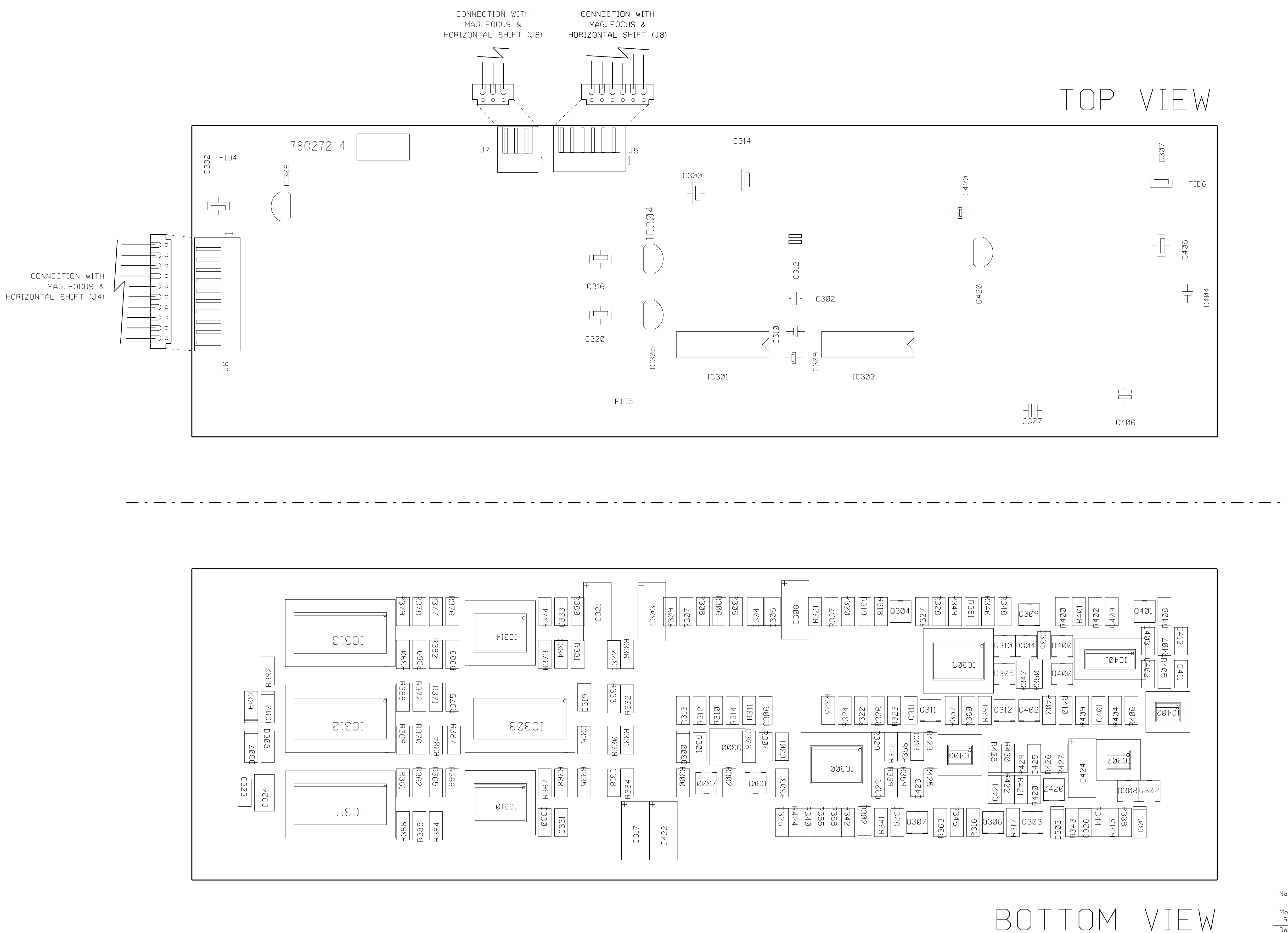


Name		Sheet
FOCUS + SHIFT		2/2
Module No / Index	PCB No / Rev	
R7625035 – 2	R780134 – 6	
Date	Drawn	Checked
08-12-1998	JVDY	WB

BARCO PROJECTION SYSTEMS

COMP.	LOC.	SHT.
C1	F 1	1
C2	G 1	1
C3	F 1	1
C4	G 1	1
C5	H 1	1
C6	H 2	1
C7	H 1	1
C8	H 2	1
C9	I 1	1
C10	I 2	1
C11	I 1	1
C12	I 2	1
C13	F 1	1
C14	G 1	1
C15	F 1	1
C16	G 1	1
C17	G 2	1
C18	B 2	1
C19	B 3	1
C20	H 3	1
C21	H 3	1
C22	H 3	1
C23	H 3	1
C24	I 3	1
C25	I 3	1
C30	H 4	1
C31	H 4	1
C32	H 4	1
C33	H 4	1
C34	I 4	1
C35	I 4	1
C40	H 5	1
C41	H 5	1
C42	H 5	1
C43	H 5	1
C44	I 5	1
C45	I 5	1
C50	C 4	1
C51	B 5	1
C52	D 5	1
C53	B 6	1
C54	D 2	1
C55	C 6	1
C190	A 1	2
C191	A 1	2
C192	B 1	2
C193	B 1	2
C194	A 4	2
C195	A 4	2
C196	B 1	2
C197	A 4	2
C198	B 4	2
C200	F 2	2
C201	F 2	2
C202	F 2	2
C203	F 2	2
C204	F 3	2
C210	F 4	2
C211	F 3	2
C212	F 4	2
C213	F 3	2
C214	F 4	2
C220	F 5	2
C221	F 4	2
C222	F 5	2
C223	F 5	2
C224	F 5	2
D20	H 3	1
D21	H 3	1
D30	H 4	1
D31	H 4	1
D40	H 5	1
D41	H 5	1
D50	A 3	1
D51	A 4	1
D52	A 4	1
D53	A 4	1
D54	B 5	1
D55	B 5	1
D56	C 4	1
D57	C 5	1
D140	C 2	2
D141	C 2	2
D160	C 3	2
D161	C 3	2
D180	C 5	2
D181	C 5	2
D192	B 1	2
D193	B 1	2
D200	F 2	2
D201	F 2	2
D210	F 3	2
D211	F 3	2
D220	F 5	2
D221	F 5	2
IC1	G 1	1
IC2	G 1	1
IC3	H 1	1
IC4	H 2	1
IC5	G 2	1
IC20	H 3	1
IC30	H 4	1
IC40	H 5	1
IC50	C 4	1
IC51	C 6	1
IC52	E 4	1
IC100	B 2	2
IC100	A 2	2
IC100	B 5	2
IC100	A 3	2
IC100	A 3	2
IC100	B 3	2
IC200	E 2	2
IC210	E 3	2
IC220	E 5	2
J1	A 1	1
J2	C 1	1
J3	D 1	1
J4	A 6	2
J8	A 5	2
P1	E 3	1
P2	E 4	1
Q1	E 2	1
Q2	E 2	1
Q20	G 3	1
Q30	G 4	1
Q40	G 5	1
Q50	B 4	1
Q51	B 4	1
Q52	B 5	1
Q53	C 5	1
Q54	C 6	1
Q140	C 2	2
Q141	D 2	2
Q142	C 2	2
Q160	C 3	2
Q161	D 3	2
Q162	C 4	2

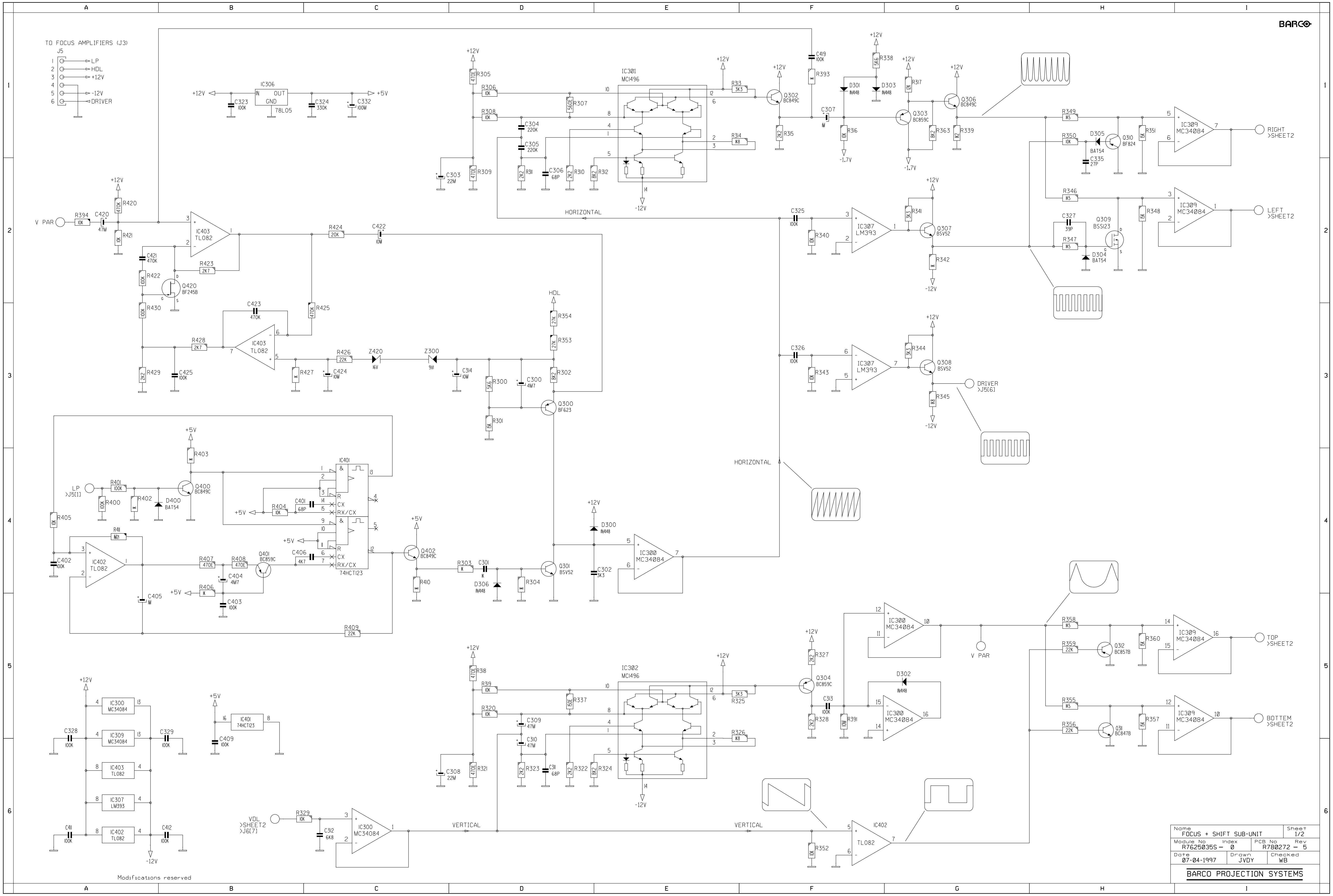
COMP.	LOC.	SHT.
Q180	C 5	2
Q181	D 5	2
Q182	C 5	2
Q190	A 1	2
Q191	A 1	2
Q192	B 1	2
Q193	B 1	2
R1	A 4	1
R2	A 4	1
R3	I 1	1
R4	I 1	1
R5	I 1	1
R6	I 2	1
R7	D 2	1
R8	D 2	1
R9	E 3	1
R10	E 3	1
R11	E 3	1
R12	E 2	1
R13	E 2	1
R14	E 3	1
R15	E 3	1
R16	C 3	1
R17	F 1	1
R18	F 1	1
R19	G 2	1
R20	G 3	1
R21	G 3	1
R22	G 3	1
R23	G 3	1
R24	I 3	1
R25	I 3	1
R26	I 3	1
R27	G 3	1
R28	G 3	1
R30	G 4	1
R31	G 4	1
R32	I 4	1
R33	I 4	1
R34	I 4	1
R37	G 4	1
R38	G 4	1
R40	G 5	1
R41	G 5	1
R42	G 5	1
R43	G 5	1
R44	I 5	1
R45	I 5	1
R46	I 5	1
R47	G 5	1
R48	G 5	1
R50	B 4	1
R51	B 4	1
R52	B 4	1
R53	B 5	1
R54	B 5	1
R55	C 5	1
R56	C 6	1
R57	C 4	1
R58	D 4	1
R59	C 4	1
R61	C 6	1
R62	F 5	1
R63	F 5	1
R64	F 4	1
R65	C 2	1
R140	C 2	2
R141	D 2	2
R142	D 3	2
R143	C 2	2
R144	D 2	2
R160	C 4	2
R161	D 3	2
R162	D 4	2
R163	C 3	2
R164	D 3	2
R180	C 5	2
R181	D 5	2
R182	D 5	2
R183	C 5	2
R191	A 1	2
R192	B 1	2
R193	A 1	2
R194	A 2	2
R195	A 5	2
R196	A 5	2
R197	B 5	2
R198	B 1	2
R200	E 2	2
R201	E 2	2
R202	F 2	2
R203	E 2	2
R204	F 3	2
R205	F 2	2
R210	E 3	2
R211	E 4	2
R212	F 4	2
R213	E 3	2
R214	F 4	2
R215	F 4	2
R220	E 5	2
R221	E 5	2
R222	F 5	2
R223	E 5	2
R224	F 5	2
R225	F 5	2
T20	I 3	1
T30	I 4	1
T40	I 5	1
Z140	C 2	2
Z160	C 4	2
Z180	C 5	2



Modifications reserved

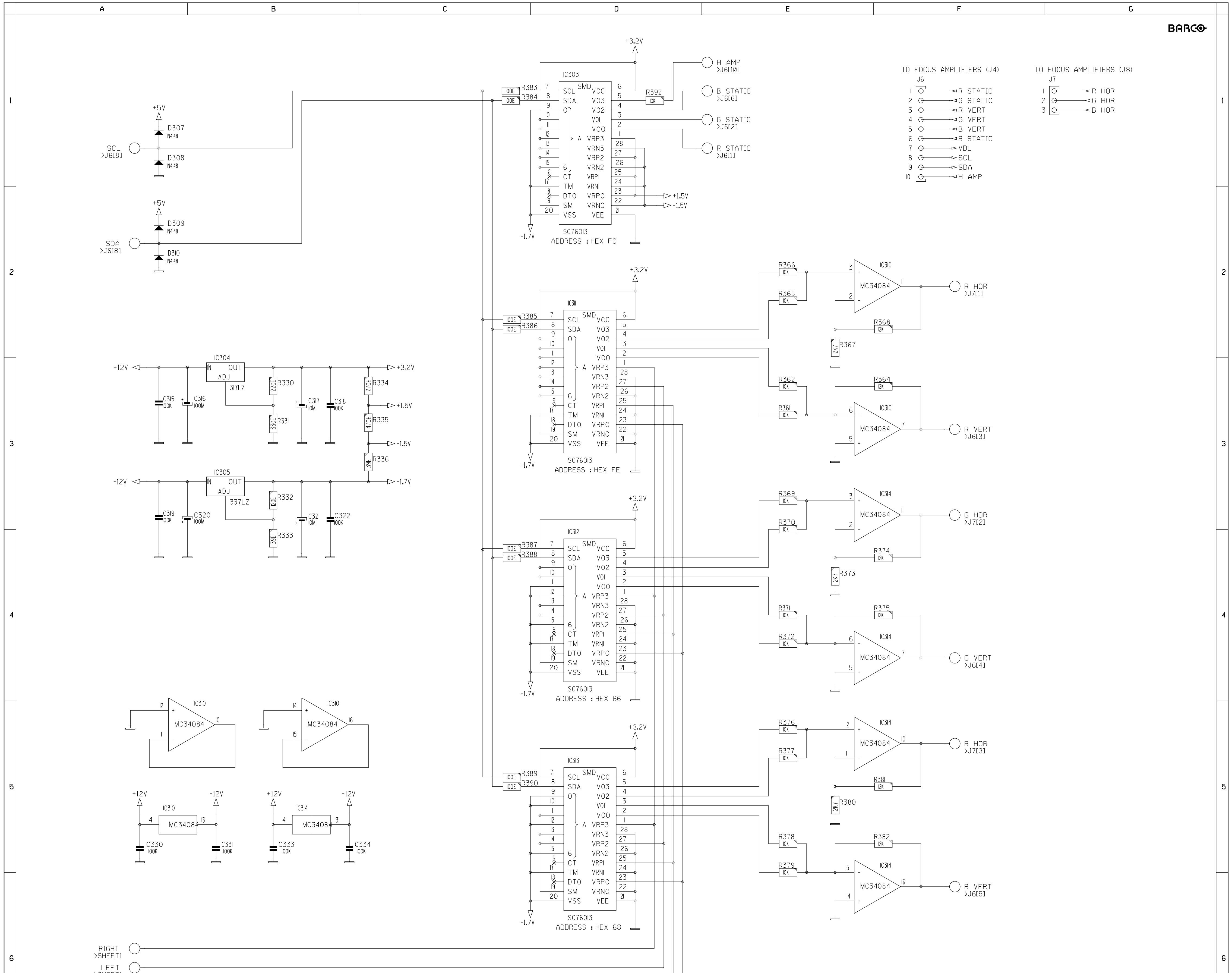
Name		Sheet
SUB MAG. FOC. & HOR. SHIFT		1 / 1
Module No R7625035S	Index 0	PCB No R780272 — Rev 5
Date 12-11-1997	Drawn JVDY	Checked WBU

BARCO PROJECTION SYSTEMS



Name			Sheet
FOCUS + SHIFT SUB-UNIT			1/2
Module No	Index	PCB No	Rev
R7625035S	0	R780272	5
Date	Drawn	Checked	
07-04-1997	JVDY	WB	

BARCO PROJECTION SYSTEMS



Name		Sheet
FOCUS + SHIFT SUB-UNIT		2/2
Module No / Index	PCB No	Rev
R7625035S – 0	R780272	– 5
Date	Drawn	Checked
07-04-1997	JVDY	WB

BARCO PROJECTION SYSTEMS

COMP.	LOC.	SHT.
C300	D 3	1
C301	D 4	1
C302	E 4	1
C303	C 2	1
C304	D 1	1
C305	D 1	1
C306	D 2	1
C307	F 1	1
C308	C 6	1
C309	D 5	1
C310	D 5	1
C311	D 6	1
C312	C 6	1
C313	F 5	1
C314	D 3	1
C315	A 3	2
C316	B 3	2
C317	B 3	2
C318	B 3	2
C319	A 3	2
C320	B 3	2
C321	B 3	2
C322	B 3	2
C323	B 1	1
C324	C 1	1
C325	F 2	1
C326	F 3	1
C327	H 2	1
C328	A 5	1
C329	B 5	1
C330	A 5	2
C331	B 5	2
C332	C 1	1
C333	B 5	2
C334	B 5	2
C335	H 1	1
C401	B 4	1
C402	A 4	1
C403	B 5	1
C404	B 4	1
C405	A 5	1
C406	B 4	1
C409	B 5	1
C411	A 6	1
C412	B 6	1
C419	F 1	1
C420	A 2	1
C421	A 2	1
C422	C 2	1
C423	B 2	1
C424	C 3	1
C425	B 3	1
D300	E 4	1
D301	F 1	1
D302	G 5	1
D303	F 1	1
D304	H 2	1
D305	H 1	1
D306	D 4	1
D307	A 1	2
D308	A 1	2
D309	A 2	2
D310	A 2	2
D400	B 4	1
IC300	E 4	1
IC300	G 5	1
IC300	G 5	1
IC300	A 5	1
IC300	C 6	1
IC301	E 1	1
IC302	E 5	1
IC303	D 1	2
IC304	B 2	2
IC305	B 3	2
IC306	B 1	1
IC307	F 2	1
IC307	F 3	1
IC307	A 6	1
IC309	I 5	1
IC309	I 5	1
IC309	A 5	1
IC309	I 1	1
IC309	I 2	1
IC310	B 5	2
IC310	A 5	2
IC310	A 5	2
IC310	F 3	2
IC310	B 5	2
IC310	F 2	2
IC311	D 2	2
IC312	D 4	2
IC313	D 5	2
IC314	B 5	2
IC314	B 5	2
IC314	F 5	2
IC314	F 3	2
IC314	F 4	2
IC314	F 5	2
IC401	C 4	1
IC401	B 5	1
IC402	F 6	1
IC402	A 6	1
IC402	A 4	1
IC403	B 3	1
IC403	B 2	1
IC403	A 6	1
J5	A 1	1
J6	F 1	2
J7	G 1	2
Q300	D 3	1
Q301	D 4	1
Q302	F 1	1
Q303	G 1	1
Q304	F 5	1
Q306	G 1	1
Q307	G 2	1
Q308	G 3	1
Q309	H 2	1
Q310	H 1	1
Q311	H 5	1
Q312	H 5	1
Q400	B 4	1
Q401	B 4	1
Q402	C 4	1
Q420	B 2	1
R300	D 3	1
R301	D 3	1
R302	D 3	1
R303	D 4	1
R304	D 4	1
R305	D 1	1
R306	D 1	1
R307	D 1	1
R308	D 1	1
R309	D 2	1
R310	D 2	1
R311	D 2	1
R312	E 2	1

COMP.	LOC.	SHT.
R313	E 1	1
R314	E 1	1
R315	F 1	1
R316	F 1	1
R317	G 1	1
R318	D 5	1
R319	D 5	1
R320	D 5	1
R321	D 6	1
R322	D 6	1
R323	D 6	1
R324	E 6	1
R325	E 5	1
R326	E 5	1
R327	F 5	1
R328	F 5	1
R329	B 6	1
R330	B 3	2
R331	B 3	2
R332	B 3	2
R333	B 4	2
R334	C 3	2
R335	C 3	2
R336	C 3	2
R337	D 5	1
R338	F 1	1
R339	G 1	1
R340	F 2	1
R341	G 2	1
R342	G 2	1
R343	F 3	1
R344	G 3	1
R345	G 3	1
R346	H 2	1
R347	H 2	1
R348	H 2	1
R349	H 1	1
R350	H 1	1
R351	H 1	1
R352	F 6	1
R353	D 3	1
R354	D 3	1
R355	H 5	1
R356	H 5	1
R357	H 5	1
R358	H 5	1
R359	H 5	1
R360	H 5	1
R361	E 3	2
R362	E 3	2
R363	G 1	1
R364	F 3	2
R365	E 2	2
R366	E 2	2
R367	E 2	2
R368	F 2	2
R369	E 3	2
R370	E 3	2
R371	E 4	2
R372	E 4	2
R373	E 4	2
R374	F 4	2
R375	F 4	2
R376	E 5	2
R377	E 5	2
R378	E 5	2
R379	E 5	2
R380	E 5	2
R381	F 5	2
R382	F 5	2
R383	C 1	2
R384	C 1	2
R385	C 2	2
R386	C 2	2
R387	C 4	2
R388	C 4	2
R389	C 5	2
R390	C 5	2
R391	F 5	1
R392	D 1	2
R393	F 1	1
R394	A 2	1
R400	A 4	1
R401	A 4	1
R402	A 4	1
R403	B 4	1
R404	B 4	1
R405	A 4	1
R406	B 4	1
R407	B 4	1
R408	B 4	1
R409	C 5	1
R410	C 4	1
R411	A 4	1
R420	A 2	1
R421	A 2	1
R422	A 2	1
R423	B 2	1
R424	C 2	1
R425	C 3	1
R426	C 3	1
R427	B 3	1
R428	B 3	1
R429	A 3	1
R430	A 3	1
Z300	C 3	1
Z420	C 3	1

Adjustment procedure

Introduction

The following adjustments are provided on the **main module**:

Horizontal SHIFT adjustment for RED - P2 and BLUE - P1 image

P2 Hor Shift RED

P1 Hor Shift BLUE

Adjustments

Horizontal SHIFT adjustment for RED and BLUE image

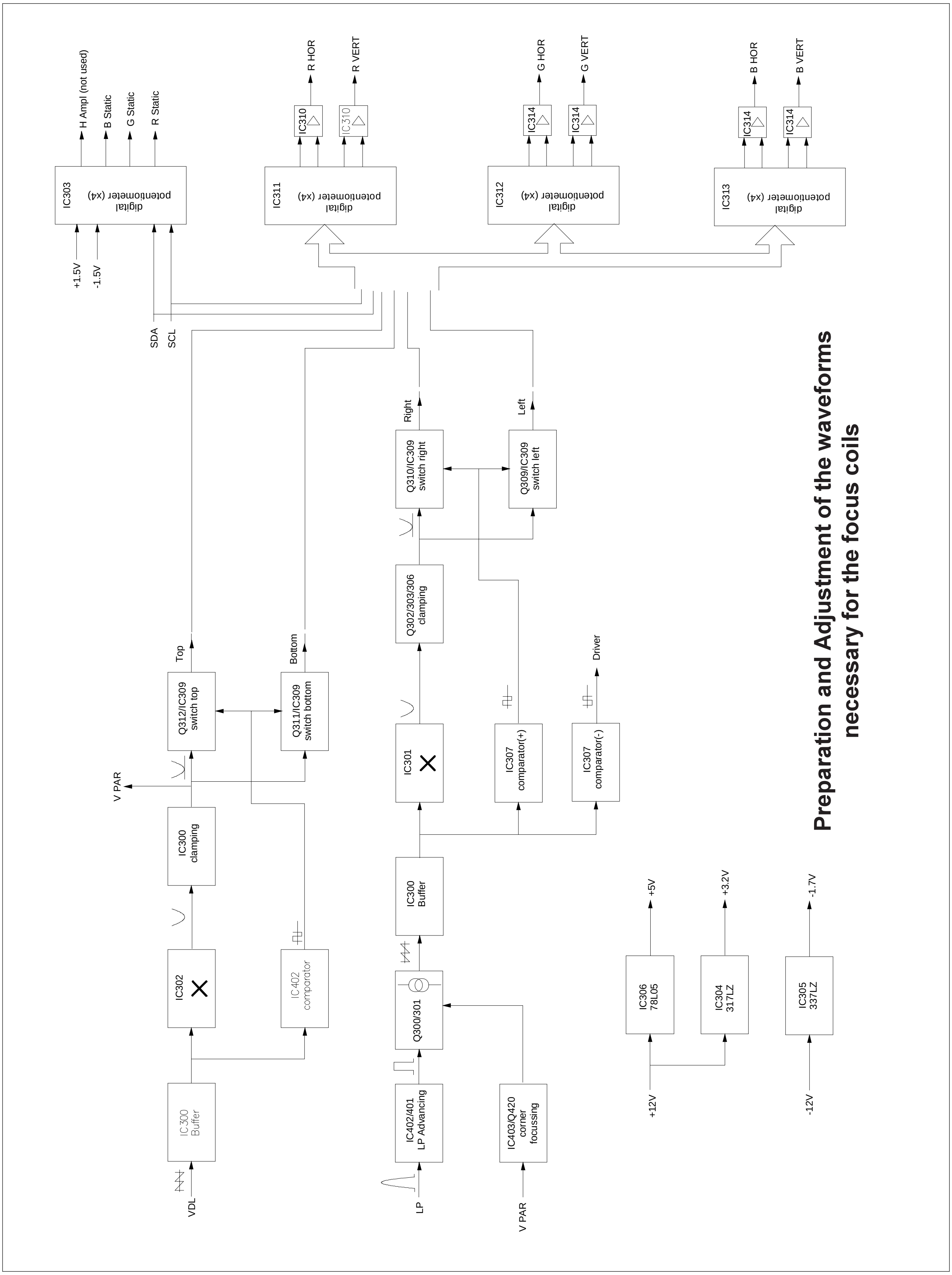
Note: the mentioned adjustments are Horizontal shift 'course' adjustments for the Red and Blue picture tube.

Preparation

Adjust the Horizontal raster centering controls for Red and Blue in their mid position by means of the Remote Control Unit. The numeric indicator under the respective bar scale indicates 50.
(Refer to the Owner's manual of the projector - Guided or Random adjustment mode).

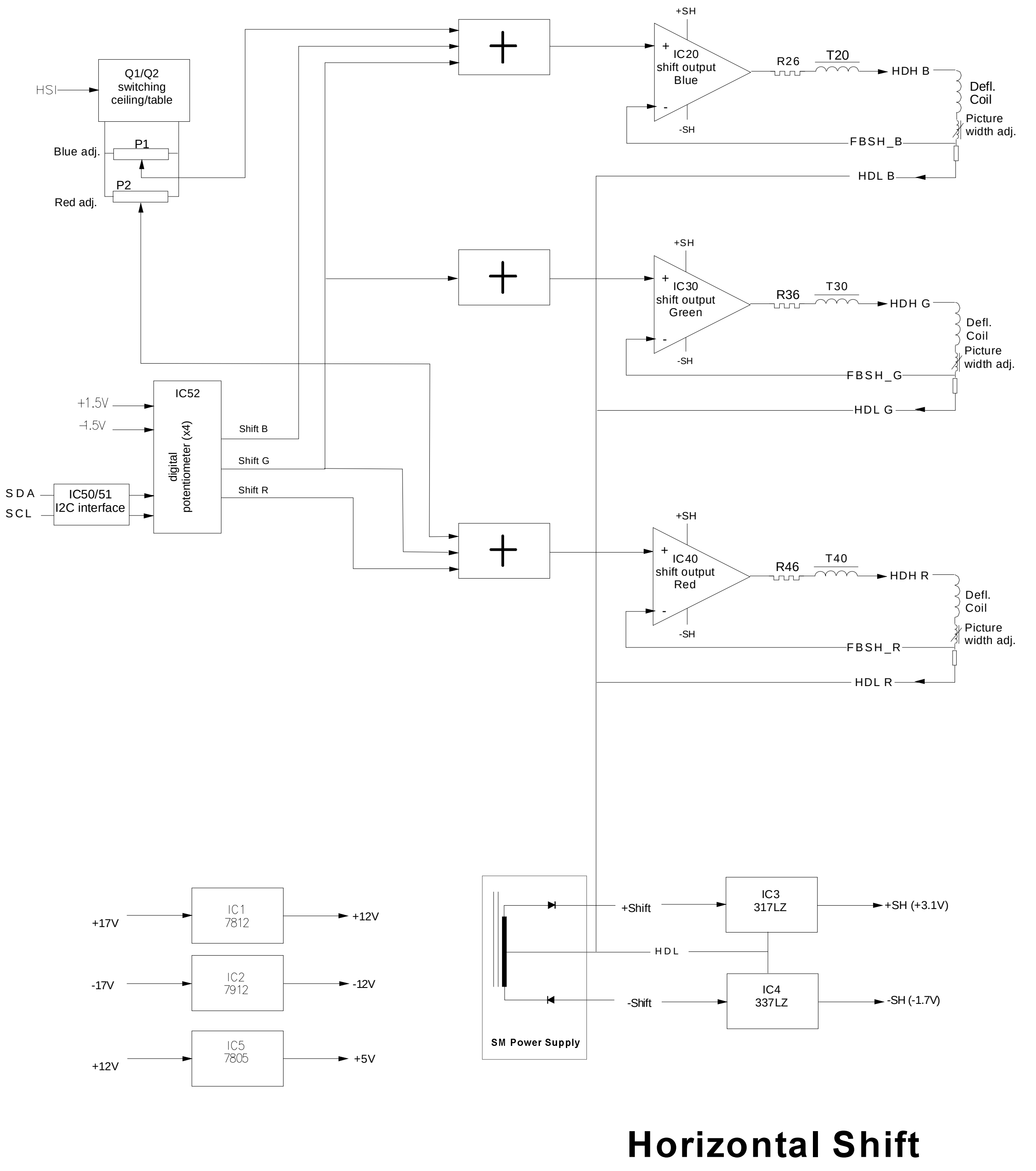
Alignment

Use the Horizontal shift controls P2 for RED and P1 for BLUE to shift horizontally the Red and Blue image until the center coincides with the center of the Green image.

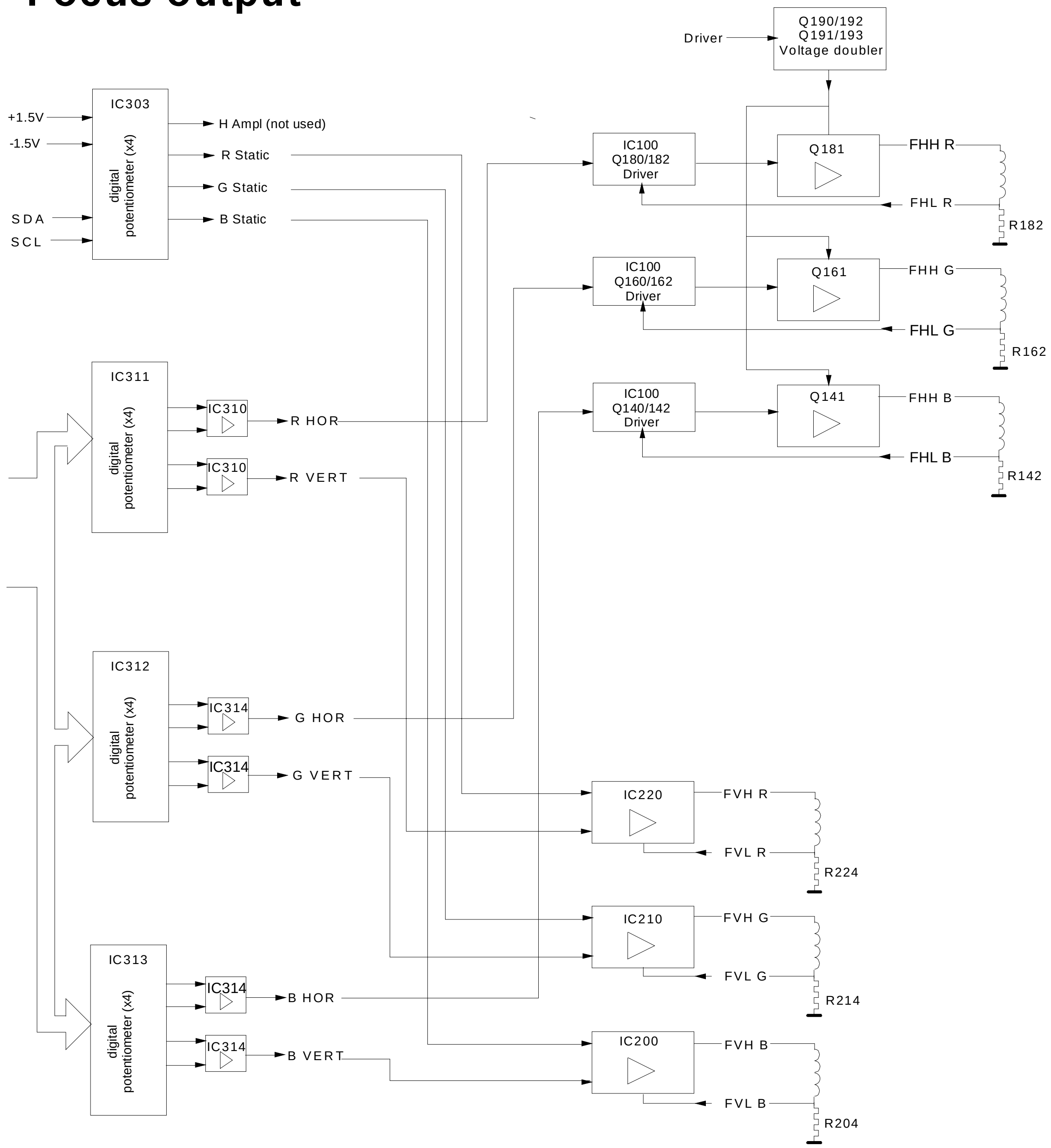


Preparation and Adjustment of the waveforms necessary for the focus coils
IC303 digital potentiometer (x4)
H Ampl (not used)
B Static
G Static
R Static
+1.5V
-1.5V
SDA
SCL
IC311 digital potentiometer (x4)
IC310
R HOR
R VERT
IC312 digital potentiometer (x4)
IC314
G HOR
G VERT
IC313 digital potentiometer (x4)
B HOR
B VERT
VDL
IC300 Buffer
IC302
IC402 comparator
IC300 clamping
V PAR
Q312/IC309 switch top
Q311/IC309 switch bottom
Top
Bottom
LP
IC402/401 LP Advancing
Q300/301
IC300 Buffer
IC301
Q302/303/306 clamping
Q310/IC309 switch right
Q309/IC309 switch left
Right
Left
IC307 comparator(+)
IC307 comparator(-)
Driver
V PAR
IC403/Q420 corner focussing
+12V
IC306 78L05
+5V
IC304 317LZ
+3.2V
-12V
IC305 337LZ
-1.7V

Horizontal Shift



Focus output



TECHNICAL DESCRIPTION "FOCUS - SHIFT"

Introduction.

Two completely independent functions are performed on this board and its subunit, the electromagnetic focus and the horizontal shift.
On the main board we find the Horizontal shift circuits and the power stages to drive the focus coils.
The preparation and adjustment of the waveforms necessary for the focus coils are accomplished on the sub-unit.

To obtain an independent left/right and top/bottom adjustment of the electromagnetic focus, the waveforms are clamped during one half of a scan period.

A. Electromagnetic Focus **principle.**

In this form of focusing, a strong magnetic field produced by an electromagnet or a permanent magnet mounted behind the yoke on the neck of the CRT forces divergent electrons to take a helical (coil-like) path to reach the CRT faceplate. The helical path is usually only one turn long. With the proper magnetic field strength oppositely divergent electrons will move forward along coil-like paths that rotate in opposite directions and meet at the phosphor screen, thereby bringing the electrons together again to form a small spot.

a) At line frequency :

A sawtooth generator is built around Q300 / 301. C302 charges up via the variable (line tracked) current generator Q300, and discharges via Q301 when a horizontal pulse is sent to its base. This pulse starts slightly before the end of the horizontal scan in order to obtain sufficient energy at the start of the horizontal scanning. The trigger pulse is generated in two steps by the two monoflops of IC401. By an integration (= averaging) of the pulse train at the output pin 13, an automatic tracking of the trigger moment with the line frequency is got.
C302 then charges, and its rate of charge is determined by the condition of the current generator Q300. Q300 is supplied with the **+ FOC**us voltage from the SMPS, which is in some way proportional to the line frequency. A vertical parabola is added to this charging current via C422.
Because of this, a tracking of the amplitude sawtooth signal with the line and vertical frequencies is developed.

The sawtooth signal is now applied to :

- a multiplier IC301 in order to generate a symmetrical parabolic waveform, regardless of the line frequency.
- a level detector in IC307 pins 3, 2 and 1 to produce a left-right squarewave which is buffered by Q307 and feeds the switchers-clampers Q309 and Q310 with a correct DC level (note that Q307 is supplied with + / - 12 volts).
- the inverting input of another level detector of IC307, pin 6, to produce a left-right squarewave (DRIVER) opposite in phase to the one on pin 1 of IC307. This squarewave is used on the main board to boost up the supply voltage of the line power amplifiers during the second half of the horizontal scan (see further).

The parabolic signal from the multiplier, IC301 is buffered with Q302, clamped and buffered. The signal then goes to the non-inverting inputs of two voltage-followers in IC309 (MC34084).

Obviously, the clamper Q310 shorts to ground the parabolic waveform, during the first half of the horizontal scan, and Q309 shorts the signal during the second half of scan.

The buffered signals are now adjusted in amplitude with IC311, IC312 and IC313 for the three colours. The outputs are summed and sent to the power amplifiers on a suitable level.

b) At vertical frequency :

The vertical sawtooth **"VDL"** is DC coupled to a buffer IC308 pin 3 and then applied to :

- the multiplier IC302 to generate a vertical parabola.
  The parabola is inverted with Q304, clamped, buffered, and feeds two buffers in IC309.

- a level detector IC308 input, pin 5, to produce a top-bottom squarewave. The output is buffered and feeds the clampers Q311 / Q312 with a correct DC level for grounding the input at either the top or bottom half of the raster.

The two remaining potentiometers of IC311, IC312, IC313 are used to adjust the top / bottom waveforms which are again summed and leave the subunit to be amplified by the power amplifiers on the main board.

c) Static or average focus (centre focus).

Three voltages **R STATIC , G STATIC and B STATIC**, adjustable between + / - 1.5 volts with potentiometers in IC303 are added to the feedback of the vertical focus power amplifiers.

d) Power amplifiers :

1. CORNER - H .

The left / right adjusted waveforms, summed on the subunit IC309 output, are now amplified to generate the required magnetic field for focusing of the beam during the horizontal scan. Because of the high scanning range, a good slew rate of these amplifiers is necessary. This is especially critical during the second part of the horizontal scan. This can be realised by boosting up the supply voltage during this time.
This boosting up of the +FOC voltage is got with the circuit around Q190 - 193. The squarewave drives the push-pull stage Q190 / Q191, which on its turn drives the MOSFETs Q192 - Q193 . The +FOC voltage is boosted up during the second part of the horizontal scan and is now referred to as **+V[DYN].**

Three identical amplifier stages with feedback to the inverting input of the OPAMPs in IC100, deliver the required current to the horizontal focus coils.

2. CORNER - V / STATIC.

Since the vertical scanning frequencies are much lower than the horizontal frequencies, a TDA2030 may be used. For stability reasons, a similar feedback voltage is applied on the inverting input, together with a DC-voltage (=static, for the centre).

B. Horizontal SHIFT

The + / - SHIFT voltages are not returned to chassis ground, but to the **HDL** (Horizontal Deflection Low, which is basically HTHD). Therefore, the adjusted shift voltages may not be referenced to chassis ground, but to the same HDL.
The digital potentiometer IC (IC52) has to be supplied with the + / - SHIFT voltages from the SMPS.
The I2C-bus lines **SDA** and **SCL** must drive the above-mentioned chip via an isolation circuit, using an opto-coupler.
The opto-coupler IC50 is used to isolate the SDA and SCL lines, referenced to a cold (chassis) ground, from the shift circuits in IC52.
The SCL pulses are sent to pin 1 of IC52 via an opto-coupler in IC50, whereas the SDA data line is connected with pin 2 through the other opto-coupler in IC50.
At the moment an “Acknowledgment” bit is returned to the Controller, another opto-coupler IC51 takes over. To avoid a return to IC52 via the first opto-coupler, MOSFETs are automatically switched on and off.

The **HSI** (Horizontal Scan Identification) information from one of the horizontal scan switches on the “Scan Switching” module, allows an inversion of the supply voltages for the multiturn potentiometers P1 and P2. These potentiometers are the factory set *coarse alignments* of the shift, to be adjusted prior to the digital control.
The SHIFT voltages control an average DC current through the horizontal yoke windings in order to horizontally shift the rasters.

Parts listing R7625035 CPL

SIT.	ITEM NO.	DESCRIPTION	QUANTITY
40	B360589	SCR $7500CM 3 X 16 STZN	5
41	B360589	SCR $7500CM 3 X 16 STZN	8
130	R133039	SPR L 8 D 1,2D 4 CE	32
	R133039	SPR L 8 D 1,2D 4 CE	4
10	R133063	HTSN@A SOT93 I_MICA 28X25	14
310	R3153151	J RVT MBT D 2.3L12.7	
	R348320	CD SLL VTBS 0,44 BK 45	1
3010	R34840313	CD CT FTMT P 3 90	1
	R3484100	CD CT FTMT P10 110	1
3000	R3485064	CD CT FTMT P 6 100	1
60	R3620127	SCR D84 M 2,5X 6 SS	6
70	R362670	SCR D921 M 3 X 10 SS	3
50	R3631059	SCR Z933 M 3 X 8 SS	1
80	R3631059	SCR Z933 M 3 X 8 SS	2
90	R3631089	SCR Z933 M 3 X 16 SS	2
160	R366988	NUT TRAD M 3 EDGE PLBK	1
100	R367528	SPR D6798AD 2,7D 5,5 STZN	6
120	R367615	SPR L22 M 2,5H 5 IBRNI	3
350	R367699	RVT AVTRON2,5L 8,1 AL	6
210	R721620	SPRCL 5 D 4 D 8 PLGY	2
140	R722276	LOCK49 PCB UN CPL	1
	R7625035S	**UN G808 FOC+SH VH/P**	**1**
300	R780298	PCB G1200 M_FOC PROT	1
35	R804674	HTSN A GEN SPG 1XM3 SH	2
30	R804831	HTSN A GEN SPG 1X 3.1LG	3
20	R804832	HTSN A GEN SPG 1XM3 LG	8
1000	R805835	HTSN C PJ56 G808 FOC A	1
1100	R805836	HTSN C PJ56 G808 FOC B	1
1200	R805839	FRM G808 E FOC BRKT	1
50	V3621217	SCR $7500CM 3 X 6 STZN	2
81	V3621227	SCR $7500CM 3 X 8 STZN	2
45	V3621229	SCR $7500CM 3 X 20 STZN	3
C 1	V1127830	C X7R MU 100N K 50E2 125	
C 2	R111477	C EL RA 100M M 25E2 85	
C 3	V1127830	C X7R MU 100N K 50E2 125	
C 4	R111477	C EL RA 100M M 25E2 85	
C 5	V1127830	C X7R MU 100N K 50E2 125	
C 6	V1127830	C X7R MU 100N K 50E2 125	
C 7	R111479	C EL RA 470M M 25E2 85	1
C 8	R111479	C EL RA 470M M 25E2 85	1
C 9	R111531	C EL RA 10M M 35E2 85	
C 10	R111531	C EL RA 10M M 35E2 85	
C 11	V1127830	C X7R MU 100N K 50E2 125	
C 12	V1127830	C X7R MU 100N K 50E2 125	
C 13	R111478	C EL RA 220M M 25E2 85	1
C 14	V1127830	C X7R MU 100N K 50E2 125	
C 15	R111478	C EL RA 220M M 25E2 85	1
C 16	V1127830	C X7R MU 100N K 50E2 125	
C 17	R111458	C EL RA 470M M 10E2 85	1
C 18	R111468	C EL RA 470M Z 16E2 85	1
C 19	R111468	C EL RA 470M Z 16E2 85	1
C 20	R112735	C CE MI 470P K100E2	
C 21	R112739	C CE MI 1N K100E2	
C 22	R113724	C POMERA 100N K 63E2 85	
C 23	R113724	C POMERA 100N K 63E2 85	
C 24	R113724	C POMERA 100N K 63E2 85	
C 25	R113732	C POMERA 470N K 63E2 85	
C 30	R112735	C CE MI 470P K100E2	
C 31	R112739	C CE MI 1N K100E2	
C 32	R113724	C POMERA 100N K 63E2 85	
C 33	R113724	C POMERA 100N K 63E2 85	
C 34	R113724	C POMERA 100N K 63E2 85	
C 35	R113732	C POMERA 470N K 63E2 85	
C 40	R112735	C CE MI 470P K100E2	
C 41	R112739	C CE MI 1N K100E2	
C 42	R113724	C POMERA 100N K 63E2 85	
C 43	R113724	C POMERA 100N K 63E2 85	
C 44	R113724	C POMERA 100N K 63E2 85	
C 45	R113732	C POMERA 470N K 63E2 85	
C 50	R113724	C POMERA 100N K 63E2 85	
C 51	R113724	C POMERA 100N K 63E2 85	
C 52	V1127830	C X7R MU 100N K 50E2 125	
C 53	R1122415	C NP0 MI 82P G100E2	
C 54	R113724	C POMERA 100N K 63E2 85	
C 55	R112364	C N750MI 150P G100E2	
C190	R114085	C POMERA 330N K 63E2 85	
C191	R114085	C POMERA 330N K 63E2 85	
C192	R1113889	C EL RA 47M M100E2 85	1
C193	R114144	C POMERA 1M K250E9 85	1
C194	V1127830	C X7R MU 100N K 50E2 125	
C195	V1127830	C X7R MU 100N K 50E2 125	
C196	R1113889	C EL RA 47M M100E2 85	1
C197	R111531	C EL RA 10M M 35E2 85	
C198	R111531	C EL RA 10M M 35E2 85	
C200	R112743	C CE MI 2N2K100E2	
C201	R113724	C POMERA 100N K 63E2 85	
C202	R113724	C POMERA 100N K 63E2 85	
C203	R113724	C POMERA 100N K 63E2 85	
C204	R112743	C CE MI 2N2K100E2	
C210	R112743	C CE MI 2N2K100E2	
C211	R113724	C POMERA 100N K 63E2 85	
C212	R113724	C POMERA 100N K 63E2 85	
C213	R113724	C POMERA 100N K 63E2 85	
C214	R112743	C CE MI 2N2K100E2	
C220	R112743	C CE MI 2N2K100E2	
C221	R113724	C POMERA 100N K 63E2 85	
C222	R113724	C POMERA 100N K 63E2 85	
C223	R113724	C POMERA 100N K 63E2 85	
C224	R112743	C CE MI 2N2K100E2	
D 20	R131637	D R BA158 600400 DO7	1
D 21	R131637	D R BA158 600400 DO7	
D 30	R131637	D R BA158 600400 DO7	1
D 31	R131637	D R BA158 600400 DO7	1
D 40	R131637	D R BA158 600400 DO7	1
D 41	R131637	D R BA158 600400 DO7	1
D 50	R131621	D S 1N4148 075150 DO35	
D 51	R131621	D S 1N4148 075150 DO35	
D 52	R131621	D S 1N4148 075150 DO35	
D 53	R131621	D S 1N4148 075150 DO35	
D 54	R1316361	D Y BAT85 030200 DO34	1
D 55	R1316361	D Y BAT85 030200 DO34	1
D 56	R1316361	D Y BAT85 030200 DO34	1
D 57	R1316361	D Y BAT85 030200 DO34	1
D140	R131637	D R BA158 600400 DO7	1
D141	R131621	D S 1N4148 075150 DO35	
D160	R131637	D R BA158 600400 DO7	1
D161	R131621	D S 1N4148 075150 DO35	
D180	R131637	D R BA158 600400 DO7	1

SIT.	ITEM NO.	DESCRIPTION	QUANTITY
D181	R131621	D S 1N4148 075150 DO35	
D192	R131954	D R BYW29 20008A TO220	1
D193	R131954	D R BYW29 20008A TO220	1
D200	R131637	D R BA158 600400 DO7	1
D201	R131637	D R BA158 600400 DO7	1
D210	R131637	D R BA158 600400 DO7	1
D211	R131637	D R BA158 600400 DO7	1
D220	R131637	D R BA158 600400 DO7	1
D221	R131637	D R BA158 600400 DO7	1
I 1	R134002	U 7812 TO220 P	1
I 2	R134016	U 7912 TO220 P	1
I 3	R134028	U 317LZ LM TO92 P	1
I 4	R134029	U 337LZ TO92 P	1
I 5	R134001	U 7805 TO220 P	1
I 20	R132751	U 2030V TDA TO220T P	1
I 30	R132751	U 2030V TDA TO220T P	1
I 40	R132751	U 2030V TDA TO220T P	1
I 50	B133338	U 2631 HCPL DIP8 P	1
I 51	R131683	U 2601 HCPL DIP8 P	1
I 52	R132833	U BELLA 4 DIP28 P	1
I100	R134125	U 34084 DIP14 P	1
I200	R132751	U 2030V TDA TO220T P	1
I210	R132751	U 2030V TDA TO220T P	1
I220	R132751	U 2030V TDA TO220T P	1
J 1	R313525	J EUR2C MBS P64 E1C2S 1,6	1
J 2	R313525	J EUR2C MBS P64 E1C2S 1,6	1
P 1	R107534	R MCE H100K K 0W75 M20SS	1
P 2	R107534	R MCE H100K K 0W75 M20SS	1
PC	R780134	PCB G1200 M_FOC+SHF	1
Q 1	R1314181	Q BC559B P SS TO92	
Q 2	R1314181	Q BC559B P SS TO92	
Q 50	R132916	Q BS250 FN SS TO92	1
Q 51	R132916	Q BS250 FN SS TO92	1
Q 52	R1329105	Q BS170 FN SS TO92	1
Q 53	R132916	Q BS250 FN SS TO92	1
Q 54	R1329105	Q BS170 FN SS TO92	1
Q140	R131411	Q BC549C N SS TO92	
Q141	R132900	Q BUZ310 FN P TO218	1
Q142	R1314182	Q BC559C P SS TO92	
Q160	R131411	Q BC549C N SS TO92	
Q161	R132900	Q BUZ310 FN P TO218	1
Q162	R1314182	Q BC559C P SS TO92	
Q180	R131411	Q BC549C N SS TO92	
Q181	R132900	Q BUZ310 FN P TO218	1
Q182	R1314182	Q BC559C P SS TO92	
Q190	R131411	Q BC549C N SS TO92	1
Q191	R1314182	Q BC559C P SS TO92	1
Q192	R132942	Q IRF9630 FP P TO220	1
Q193	R132941	Q IRF632 FN P TO220	1
R 1	V1026005	R MF H100E F 0W6 E4	
R 2	V1026005	R MF H100E F 0W6 E4	
R 3	V1026175	R MF H150E F 0W6 E4	
R 4	V1026335	R MF H221E F 0W6 E4	
R 5	V1026884	R MF H 82E5 F 0W6 E4	
R 6	V1026335	R MF H221E F 0W6 E4	
R 7	V1026337	R MF H 22K1 F 0W6 E4	
R 8	V1026007	R MF H 10K F 0W6 E4	
R 9	V1026507	R MF H 33K2 F 0W6 E4	
R 10	V1026086	R MF H 1K21F 0W6 E4	
R 11	V1026336	R MF H 2K21F 0W6 E4	1
R 12	V1026807	R MF H 68K1 F 0W6 E4	
R 13	V1026587	R MF H 39K F 0W6 E4	
R 14	V1026086	R MF H 1K21F 0W6 E4	
R 15	V1026336	R MF H 2K21F 0W6 E4	1
R 16	R104654	R HV H 1M J 0W5 3500	1
R 17	R1011059	R CFFH 2E7 J 0W25	1
R 18	R1011059	R CFFH 2E7 J 0W25	1
R 19	R1011129	R CFFH 10E J 0W25	
R 20	V1026807	R MF H 68K1 F 0W6 E4	
R 21	V1026008	R MF H100K F 0W6 E4	
R 22	V1026658	R MF H475K F 0W6 E4	
R 23	V1026177	R MF H 15K F 0W6 E4	
R 24	V1026004	R MF H 10E F 0W6 E4	
R 25	V1026007	R MF H 10K F 0W6 E4	
R 26	R104212	R WW V 4E7 K 7W	1
R 30	V1026008	R MF H100K F 0W6 E4	
R 31	V1026117	R MF H 13K F 0W6 E4	
R 32	V1026004	R MF H 10E F 0W6 E4	
R 33	V1026007	R MF H 10K F 0W6 E4	
R 34	R104212	R WW V 4E7 K 7W	1
R 40	V1026008	R MF H100K F 0W6 E4	
R 41	V1026807	R MF H 68K1 F 0W6 E4	
R 42	V1026658	R MF H475K F 0W6 E4	
R 43	V1026177	R MF H 15K F 0W6 E4	
R 44	V1026004	R MF H 10E F 0W6 E4	
R 45	V1026007	R MF H 10K F 0W6 E4	
R 46	R104212	R WW V 4E7 K 7W	1
R 50	V1026656	R MF H 4K75F 0W6 E4	
R 51	V1026505	R MF H332E F 0W6 E4	
R 52	V1026656	R MF H 4K75F 0W6 E4	
R 53	V1026505	R MF H332E F 0W6 E4	
R 54	V1026337	R MF H 22K1 F 0W6 E4	
R 55	V1026655	R MF H475E F 0W6 E4	
R 56	V1026505	R MF H332E F 0W6 E4	
R 57	V1026655	R MF H475E F 0W6 E4	
R 58	V1026656	R MF H 4K75F 0W6 E4	
R 59	V1026655	R MF H475E F 0W6 E4	
R 61	V1026337	R MF H 22K1 F 0W6 E4	
R 62	V1026574	R MF H 39E2 F 0W6 E4	
R 63	V1026655	R MF H475E F 0W6 E4	
R 64	V1026425	R MF H274E F 0W6 E4	
R 65	R101556	R MF H 47K F 0W4 E3	
R140	V1026006	R MF H 1K F 0W6 E4	
R141	R103742	R WW H 1K5 K 5W	1
R142	R103620	R WW H 4E7 K 4W E10	1
R143	R100124	R MF V100E J 0W6 E2	1
R160	R100136	R MF V 1K J 0W6 E2	
R161	R103742	R WW H 1K5 K 5W	1
R162	R103620	R WW H 4E7 K 4W E10	1
R163	R100124	R MF V100E J 0W6 E2	1
R180	V1026006	R MF H 1K F 0W6 E4	
R181	R103742	R WW H 1K5 K 5W	1
R182	R103620	R WW H 4E7 K 4W E10	1
R183	V1026005	R MF H100E F 0W6 E4	
R191	V1026656	R MF H 4K75F 0W6 E4	
R192	R103612	R WW H 1E K 4W E10	1
R193	V1026656	R MF H 4K75F 0W6 E4	
R194	V1026656	R MF H 4K75F 0W6 E4	1
R195	V1026007	R MF H 10K F 0W6 E4	
R196	V1026007	R MF H 10K F 0W6 E4	
R197	V1026007	R MF H 10K F 0W6 E4	
R198	R1011907	R CFFH E1 K 0W35	1
R200	V1026726	R MF H 5K62F 0W6 E4	
R201	V1026886	R MF H 8K25F 0W6 E4	
R202	V1026004	R MF H 10E F 0W6 E4	
R203	V1026886	R MF H 8K25F 0W6 E4	1
R204	R103616	R WW H 2E2 K 4W E10	1
R205	V1026007	R MF H 10K F 0W6 E4	

SIT.	ITEM NO.	DESCRIPTION	QUANTITY
R210	V1026726	R MF H 5K62F 0W6 E4	
R211	V1026886	R MF H 8K25F 0W6 E4	
R212	V1026004	R MF H 10E F 0W6 E4	
R213	V1026886	R MF H 8K25F 0W6 E4	1
R214	R103616	R WW H 2E2 K 4W E10	1
R215	V1026007	R MF H 10K F 0W6 E4	
R220	V1026726	R MF H 5K62F 0W6 E4	
R221	V1026886	R MF H 8K25F 0W6 E4	
R222	V1026004	R MF H 10E F 0W6 E4	
R223	V1026886	R MF H 8K25F 0W6 E4	1
R224	R103616	R WW H 2E2 K 4W E10	1
R225	V1026007	R MF H 10K F 0W6 E4	
T 20	R774312	COIL G800 HOR SHF	1
T 30	R774312	COIL G800 HOR SHF	1
T 40	R774312	COIL G800 HOR SHF	1

Parts listing R7625035S

SIT.	ITEM NO.	DESCRIPTION	QUANTITY
	Z348090	SLV SHR D 2,4/1,2 BK VW1	1
	Z34809003	SLVU SHR D 2,4/1,2 BK 30	1
C300	R111550	C EL RA 4M7M 50E2 85	
C301	P210013	C# COG MU 1N J 50 1206	1
C302	R115928	C PP RA 3N3J 63E2 85	
C303	P212031	C# TA 22M M 16 7343	1
C304	P210169	C# X7R MU 220N K 50 1210	1
C305	P210169	C# X7R MU 220N K 50 1210	1
C306	P210010	C# COG MU 68P J 50 1206	1
C307	R111546	C EL RA 1M M 50E2 85	
C308	P212031	C# TA 22M M 16 7343	1
C309	R111476	C EL RA 47M M 25E2 85	
C310	R111476	C EL RA 47M M 25E2 85	
C311	P210010	C# COG MU 68P J 50 1206	1
C312	R114685	C PO RA 6N8K100E2 85	1
C313	P210122	C# X7R MU 100N K 50 1206	1
C314	R111531	C EL RA 10M M 35E2 85	
C315	P210122	C# X7R MU 100N K 50 1206	1
C316	R111466	C EL RA 100M M 16E2 85	
C317	P212024	C# TA 10M M 35 7343	1
C318	P210122	C# X7R MU 100N K 50 1206	1
C319	P210122	C# X7R MU 100N K 50 1206	1
C320	R111466	C EL RA 100M M 16E2 85	
C321	P212024	C# TA 10M M 35 7343	1
C322	P210122	C# X7R MU 100N K 50 1206	1
C323	P210122	C# X7R MU 100N K 50 1206	1
C324	P210095	C# X7R MU 330N M 50 1812	1
C325	P210122	C# X7R MU 100N K 50 1206	1
C326	P210122	C# X7R MU 100N K 50 1206	1
C327	R112237	C NP0 MI 39P G100E2	
C328	P210122	C# X7R MU 100N K 50 1206	1
C329	P210122	C# X7R MU 100N K 50 1206	1
C330	P210122	C# X7R MU 100N K 50 1206	1
C331	P210122	C# X7R MU 100N K 50 1206	1
C332	R111466	C EL RA 100M M 16E2 85	
C333	P210122	C# X7R MU 100N K 50 1206	1
C334	P210122	C# X7R MU 100N K 50 1206	1
C335	P210141	C# COG MU 27P J 50 1206	1
C401	P210010	C# COG MU 68P J 50 1206	1
C402	P210122	C# X7R MU 100N K 50 1206	1
C403	P210122	C# X7R MU 100N K 50 1206	1
C404	R1115915	C EL5 RA 4M7M 35E2 85	
C405	R111546	C EL RA 1M M 50E2 85	
C406	R115932	C PP RA 4N7J 63E2 85	
C409	P210122	C# X7R MU 100N K 50 1206	1
C411	P210122	C# X7R MU 100N K 50 1206	1
C412	P210122	C# X7R MU 100N K 50 1206	1
C419	R113724	C POMERA 100N K 63E2 85	1
C420	R111476	C EL RA 47M M 25E2 85	
C421	P210148	C# Y5V MU 470N Z 25 1206	1
C422	P212024	C# TA 10M M 35 7343	1
C423	P210148	C# Y5V MU 470N Z 25 1206	1
C424	P212024	C# TA 10M M 35 7343	1
C425	P210122	C# X7R MU 100N K 50 1206	1
D300	P234099	D#4148 R DMMELF	1
D301	P234099	D#4148 R DMMELF	1
D302	P234099	D#4148 R DMMELF	1
D303	P234099	D#4148 R DMMELF	1
D304	P234055	D#BAT54 SCH SOT23	1
D305	P234055	D#BAT54 SCH SOT23	1
D306	P234099	D#4148 R DMMELF	1
D307	P234099	D#4148 R DMMELF	1
D308	P234099	D#4148 R DMMELF	1
D309	P234099	D#4148 R DMMELF	1
D310	P234099	D#4148 R DMMELF	1
D400	P234055	D#BAT54 SCH SOT23	1
I300	P230705	U#34084 MC SOL16 P	1
I301	R132765	U 1496 LM DIP14 P	1
I302	R132765	U 1496 LM DIP14 P	1
I303	P230653	U#BELLA 4 SOL28 P	1
I304	R134028	U 317LZ LM TO92 P	1
I305	R134029	U 337LZ TO92 P	1
I306	R134032	U 78L05AC TO92 P	1
I307	P230028	U#393 LM SO8 P	1
I309	P230705	U#34084 MC SOL16 P	1
I310	P230705	U#34084 MC SOL16 P	1
I311	P230653	U#BELLA 4 SOL28 P	1
I312	P230653	U#BELLA 4 SOL28 P	1
I313	P230653	U#BELLA 4 SOL28 P	1
I314	P230705	U#34084 MC SOL16 P	1
I401	P230073	U#74HCT123 SO16 I	1
I402	P230293	U#082 TL SO8 P	1
I403	P230293	U#082 TL SO8 P	1
J 5	R313946	J CT H MBS P 6 M2SN WH	1
J 6	R313950	J CT H MBS P10 M2SN WH	1
J 7	R313943	J CT H MBS P 3 M2SN WH	1
PC	R780272	PCB G1200M_FOC+SHF	1
Q300	P232092	Q#BF623 P SS SOT89	1
Q301	P232033	Q#BSV52 N SS SOT23	1
Q302	P232004	Q#BC849C N SS SOT23	1
Q303	P232101	Q#BC859C P SS SOT23	1
Q304	P232101	Q#BC859C P SS SOT23	1
Q306	P232004	Q#BC849C N SS SOT23	1
Q307	P232033	Q#BSV52 N SS SOT23	1
Q308	P232033	Q#BSV52 N SS SOT23	1
Q309	P232046	Q#BSS123 F SS SOT23	1
Q310	P232158	Q#BF824 P SS SOT23	1
Q311	P232051	Q#BC847B N SS SOT23	1

SIT.	ITEM NO.	DESCRIPTION	QUANTITY
Q312	P232050	Q#BC857B P SS SOT23	1
Q400	P232004	Q#BC849C N SS SOT23	1
Q401	P232101	Q#BC859C P SS SOT23	1
Q402	P232004	Q#BC849C N SS SOT23	1
Q420	R1314651	Q BF245B FN SS TO92	
R300	P200429	R# CE H 5K6 F 0W12 1206	1
R301	P200439	R# CE H 15K F 0W12 1206	1
R302	P200433	R# CE H 8K2 F 0W12 1206	1
R303	P200411	R# CE H 1K F 0W12 1206	1
R304	P200411	R# CE H 1K F 0W12 1206	1
R305	P200403	R# CE H470E F 0W12 1206	1
R306	P200435	R# CE H 10K F 0W12 1206	1
R307	P200405	R# CE H560E F 0W12 1206	1
R308	P200435	R# CE H 10K F 0W12 1206	1
R309	P200403	R# CE H470E F 0W12 1206	1
R310	P200419	R# CE H 2K2 F 0W12 1206	1
R311	P200419	R# CE H 2K2 F 0W12 1206	1
R312	P200433	R# CE H 8K2 F 0W12 1206	1
R313	P200423	R# CE H 3K3 F 0W12 1206	1
R314	P200417	R# CE H 1K8 F 0W12 1206	1
R315	P200419	R# CE H 2K2 F 0W12 1206	1
R316	P200435	R# CE H 10K F 0W12 1206	1
R317	P200437	R# CE H 12K F 0W12 1206	1
R318	P200403	R# CE H470E F 0W12 1206	1
R319	P200435	R# CE H 10K F 0W12 1206	1
R320	P200435	R# CE H 10K F 0W12 1206	1
R321	P200403	R# CE H470E F 0W12 1206	1
R322	P200419	R# CE H 2K2 F 0W12 1206	1
R323	P200419	R# CE H 2K2 F 0W12 1206	1
R324	P200433	R# CE H 8K2 F 0W12 1206	1
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R327	P200419	R# CE H 2K2 F 0W12 1206	1
R328	P200419	R# CE H 2K2 F 0W12 1206	1
R329	P200435	R# CE H 10K F 0W12 1206	1
R330	P200395	R# CE H220E F 0W12 1206	1
R331	P200399	R# CE H330E F 0W12 1206	1
R332	P200389	R# CE H120E F 0W12 1206	1
R333	P200377	R# CE H 39E F 0W12 1206	1
R334	P200397	R# CE H270E F 0W12 1206	1
R335	P200403	R# CE H470E F 0W12 1206	1
R336	P200377	R# CE H 39E F 0W12 1206	1
R337	P200391	R# CE H150E F 0W12 1206	1
R338	P200429	R# CE H 5K6 F 0W12 1206	1
R339	P200413	R# CE H 1K2 F 0W12 1206	1
R340	P200435	R# CE H 10K F 0W12 1206	1
R341	P200423	R# CE H 3K3 F 0W12 1206	1
R342	P200411	R# CE H 1K F 0W12 1206	1
R343	P200435	R# CE H 10K F 0W12 1206	1
R344	P200423	R# CE H 3K3 F 0W12 1206	1
R345	P200417	R# CE H 1K8 F 0W12 1206	1
R346	P200415	R# CE H 1K5 F 0W12 1206	1
R347	P200415	R# CE H 1K5 F 0W12 1206	1
R348	P200439	R# CE H 15K F 0W12 1206	1
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R350	P200435	R# CE H 10K F 0W12 1206	1
R351	P200439	R# CE H 15K F 0W12 1206	1
R352	P200435	R# CE H 10K F 0W12 1206	1
R353	R101553	R MF H 27K F 0W4 E3	1
R354	R101553	R MF H 27K F 0W4 E3	1
R355	P200415	R# CE H 1K5 F 0W12 1206	1
R356	P200443	R# CE H 22K F 0W12 1206	1
R357	P200439	R# CE H 15K F 0W12 1206	1
R358	P200415	R# CE H 1K5 F 0W12 1206	1
R359	P200443	R# CE H 22K F 0W12 1206	1
R360	P200439	R# CE H 15K F 0W12 1206	1
R361	P200435	R# CE H 10K F 0W12 1206	1
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R363	P200433	R# CE H 8K2 F 0W12 1206	1
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R365	P200435	R# CE H 10K F 0W12 1206	1
R366	P200435	R# CE H 10K F 0W12 1206	1
R367	P200421	R# CE H 2K7 F 0W12 1206	1
R368	P200437	R# CE H 12K F 0W12 1206	1
R369	P200435	R# CE H 10K F 0W12 1206	1
R370	P200435	R# CE H 10K F 0W12 1206	1
R371	P200435	R# CE H 10K F 0W12 1206	1
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R373	P200421	R# CE H 2K7 F 0W12 1206	1
R374	P200437	R# CE H 12K F 0W12 1206	1
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R376	P200435	R# CE H 10K F 0W12 1206	1
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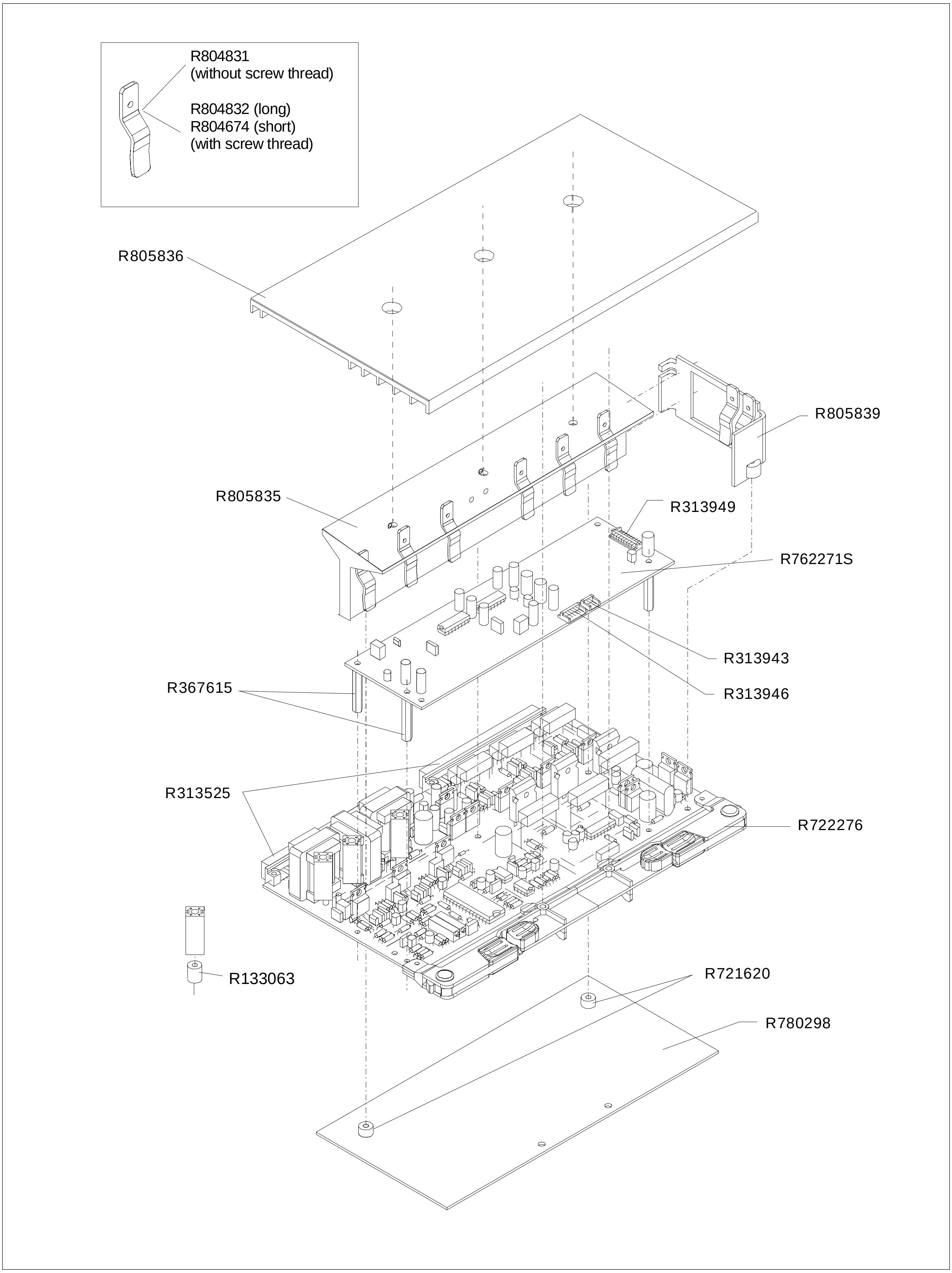
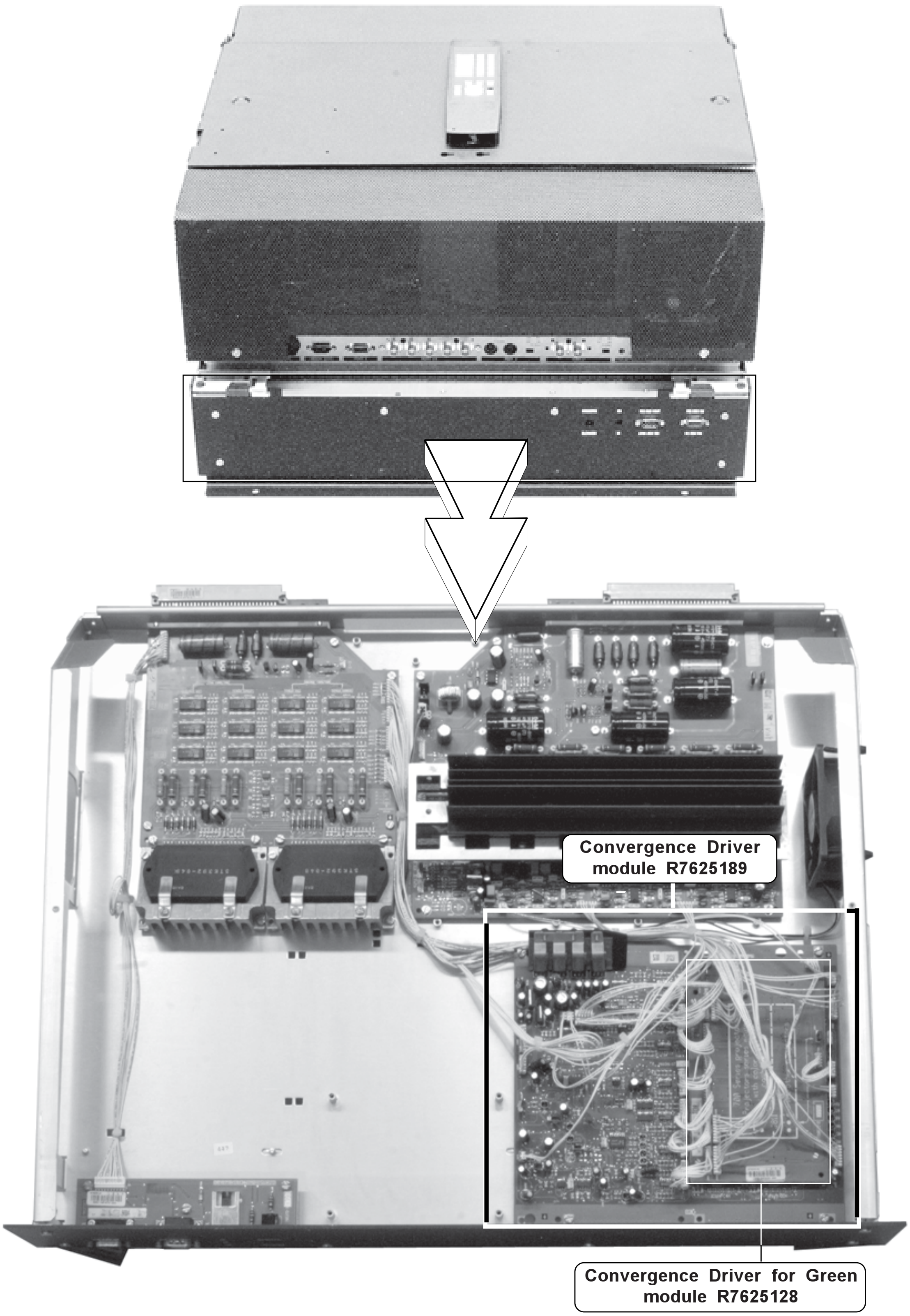
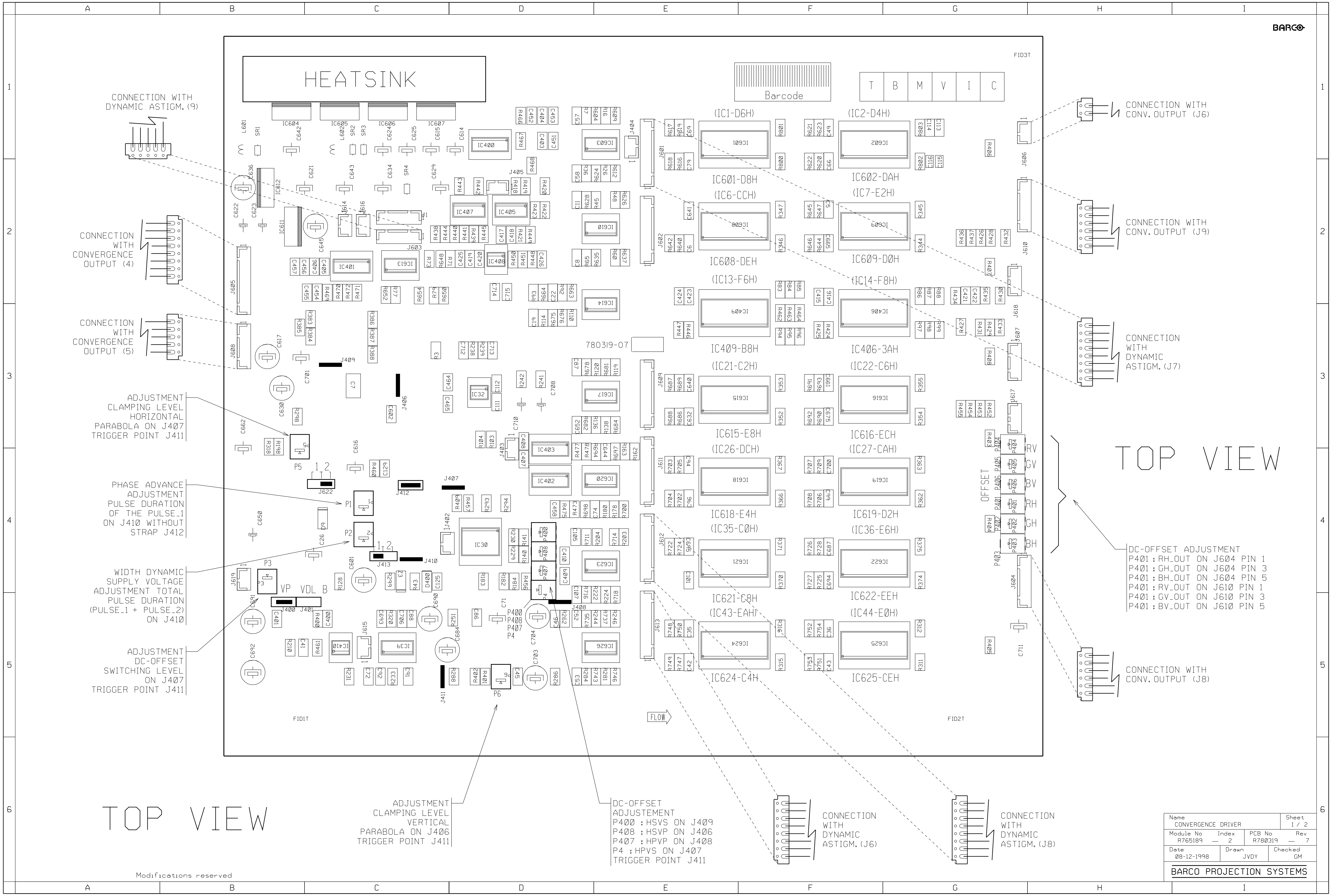
R379	P200435	R# CE H 10K F 0W12 1206	1
R380	P200421	R# CE H 2K7 F 0W12 1206	1
R381	P200437	R# CE H 12K F 0W12 1206	1
R382	P200437	R# CE H 12K F 0W12 1206	1
R383	P200387	R# CE H100E F 0W12 1206	1
R384	P200387	R# CE H100E F 0W12 1206	1
R385	P200387	R# CE H100E F 0W12 1206	1
R386	P200387	R# CE H100E F 0W12 1206	1
R387	P200387	R# CE H100E F 0W12 1206	1
R388	P200387	R# CE H100E F 0W12 1206	1
R389	P200387	R# CE H100E F 0W12 1206	1
R390	P200387	R# CE H100E F 0W12 1206	1
R391	P200507	R# CE H 10M F 0W12 1206	1
R392	P200435	R# CE H 10K F 0W12 1206	1
R393	V1026006	R MF H 1K F 0W6 E4	1
R394	R101548	R MF H 10K F 0W4 E3	1
R400	P200459	R# CE H100K F 0W12 1206	1
R401	P200459	R# CE H100K F 0W12 1206	1
R402	P200411	R# CE H 1K F 0W12 1206	1
R403	P200411	R# CE H 1K F 0W12 1206	1
R404	P200435	R# CE H 10K F 0W12 1206	1
R405	P200435	R# CE H 10K F 0W12 1206	1
R406	P200411	R# CE H 1K F 0W12 1206	1
R407	P200403	R# CE H470E F 0W12 1206	1
R408	P200403	R# CE H470E F 0W12 1206	1
R409	P200443	R# CE H 22K F 0W12 1206	1
R410	P200411	R# CE H 1K F 0W12 1206	1
R411	V1026089	R MF H 1M21F 0W6 E4	1
R420	P200475	R# CE H470K F 0W12 1206	1
R421	P200435	R# CE H 10K F 0W12 1206	1
R422	P200459	R# CE H100K F 0W12 1206	1
R423	P200421	R# CE H 2K7 F 0W12 1206	1
R424	P200442	R# CE H 20K F 0W12 1206	1
R425	P200475	R# CE H470K F 0W12 1206	1
R426	P200443	R# CE H 22K F 0W12 1206	1
R427	P200411	R# CE H 1K F 0W12 1206	1
R428	P200421	R# CE H 2K7 F 0W12 1206	1
R429	P200419	R# CE H 2K2 F 0W12 1206	1
R430	P200459	R# CE H100K F 0W12 1206	1
Z300	P234145	D#ZEN 9V1 0W3 C SOT23	1
Z420	P234124	D#ZEN 16V 0W3 C SOT23	1

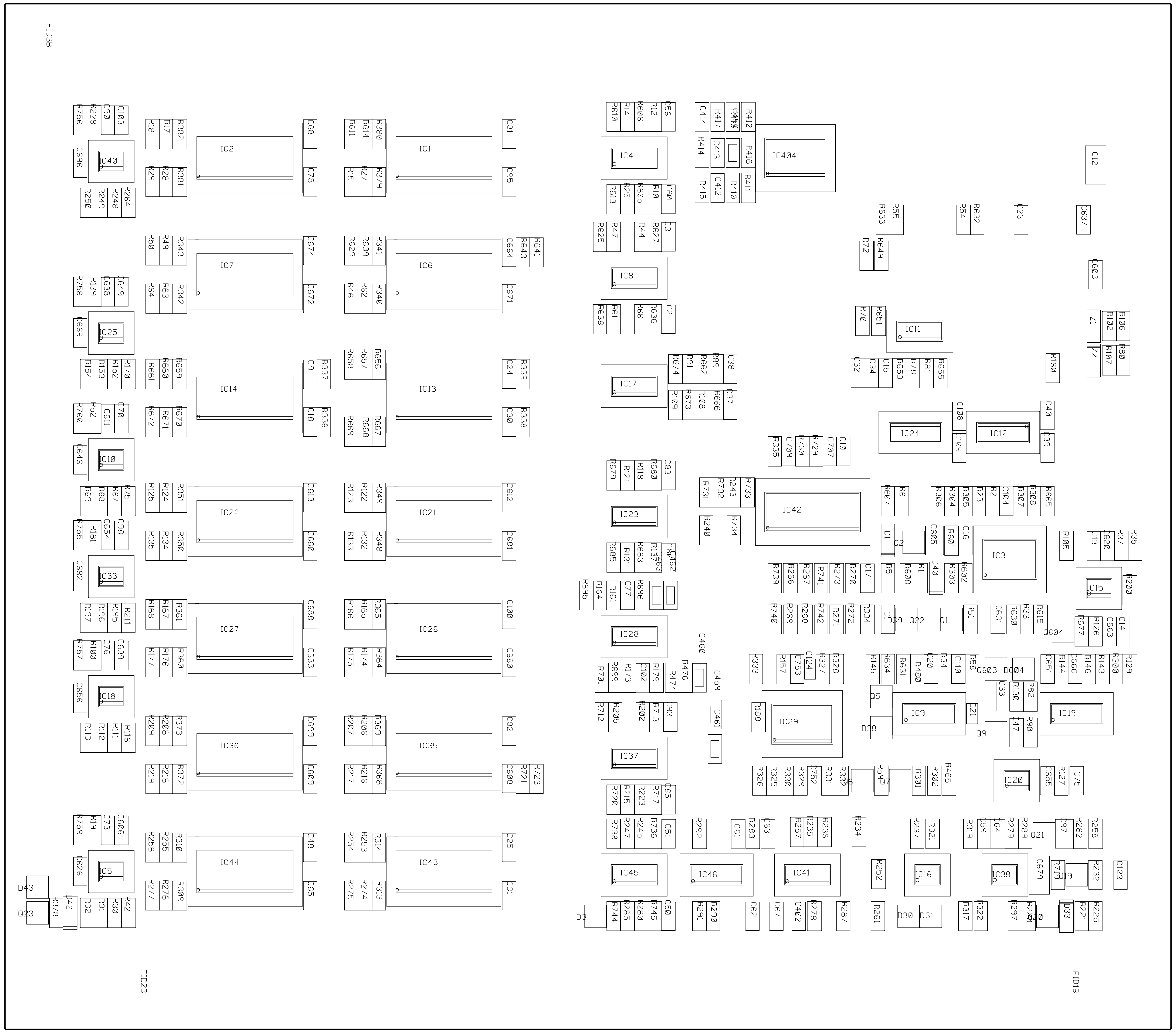


R804831
(without screw thread)
R804832 (long)
R804674 (short)
(with screw thread)
R805836
R805839
R805835
R313949
R762271S
R313943
R313946
R367615
R313525
R722276
R133063
R721620
R780298



R7625189_r00


HEATSINK
Barcode
T B M V I C
CONNECTION WITH DYNAMIC ASTIGM.(9)
CONNECTION WITH CONVERGENCE OUTPUT (4)
CONNECTION WITH CONVERGENCE OUTPUT (5)
ADJUSTMENT CLAMPING LEVEL HORIZONTAL PARABOLA ON J407 TRIGGER POINT J411
PHASE ADVANCE ADJUSTMENT PULSE DURATION OF THE PULSE_1 ON J410 WITHOUT STRAP J412
WIDTH DYNAMIC SUPPLY VOLTAGE ADJUSTMENT TOTAL PULSE DURATION (PULSE_1 + PULSE_2) ON J410
ADJUSTMENT DC-OFFSET SWITCHING LEVEL ON J407 TRIGGER POINT J411
TOP VIEW
ADJUSTMENT CLAMPING LEVEL VERTICAL PARABOLA ON J406 TRIGGER POINT J411
DC-OFFSET ADJUSTEMENT
P400 : HSVS ON J409
P408 : HSVP ON J406
P407 : HPVP ON J408
P4 : HPVS ON J407
TRIGGER POINT J411
CONNECTION WITH DYNAMIC ASTIGM.(J6)
CONNECTION WITH DYNAMIC ASTIGM.(J8)
CONNECTION WITH CONV.OUTPUT (J6)
CONNECTION WITH CONV.OUTPUT (J9)
CONNECTION WITH DYNAMIC ASTIGM.(J7)
CONNECTION WITH CONV.OUTPUT (J8)
TOP VIEW
OFFSET
DC-OFFSET ADJUSTMENT
P401 : RH_OUT ON J604 PIN 1
P401 : GH_OUT ON J604 PIN 3
P401 : BH_OUT ON J604 PIN 5
P401 : RV_OUT ON J610 PIN 1
P401 : GV_OUT ON J610 PIN 3
P401 : BV_OUT ON J610 PIN 5
780319-07
FLOW
Modifications reserved
Name CONVERGENCE DRIVER
Sheet 1 / 2
Module No R765189 — Index 2
PCB No R780319 — Rev 7
Date 08-12-1998
Drawn JVDY
Checked GM
BARCO PROJECTION SYSTEMS



BOTTOM VIEW

Modifications reserved

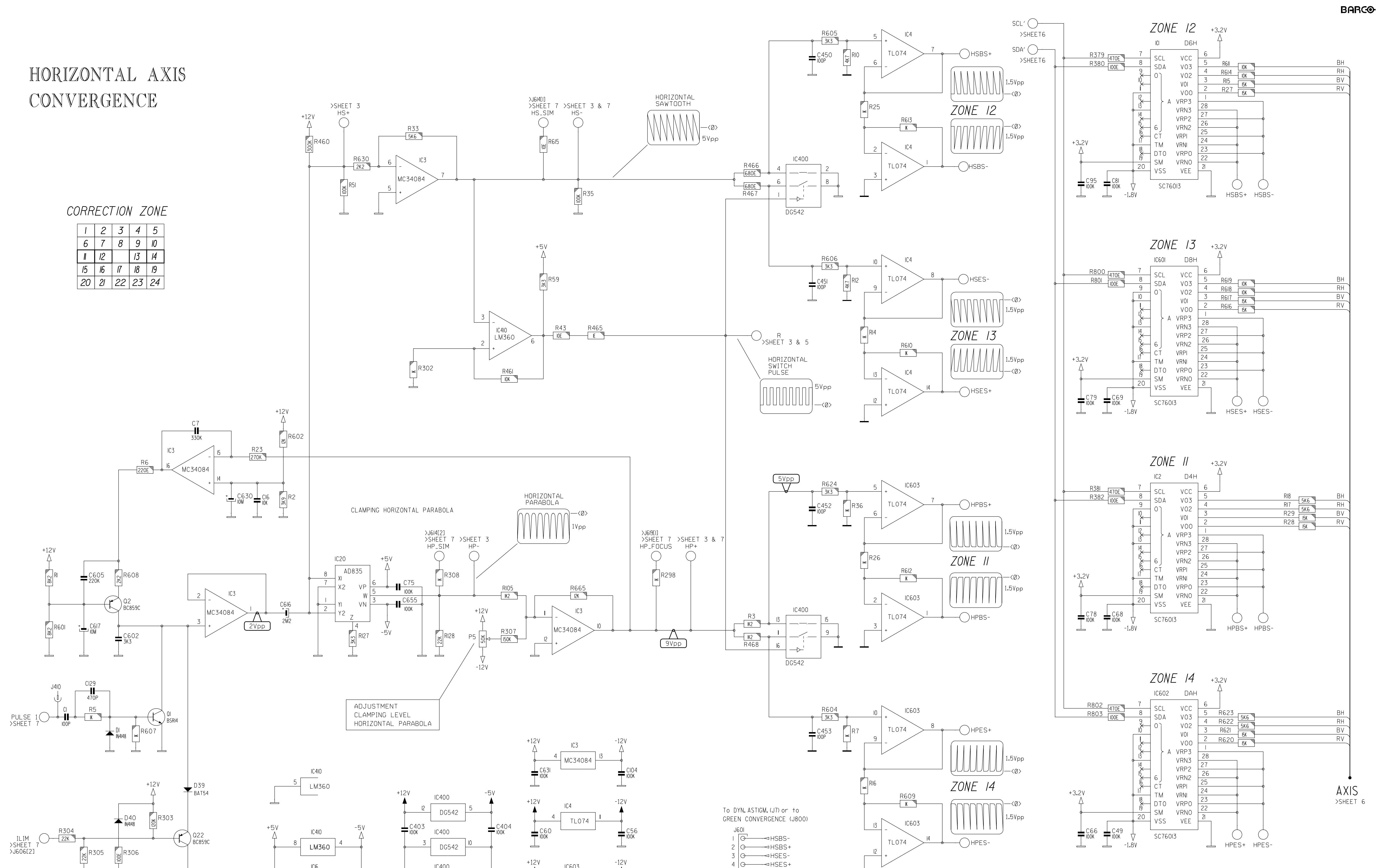
Name CONVERGENCE DRIVER			Sheet 2 / 2
Module No R765189	Index 2	PCB No R780319	Rev 7
Date 08-12-1998	Drawn JVDY		Checked GM

BARCO PROJECTION SYSTEMS

HORIZONTAL AXIS CONVERGENCE

CORRECTION ZONE

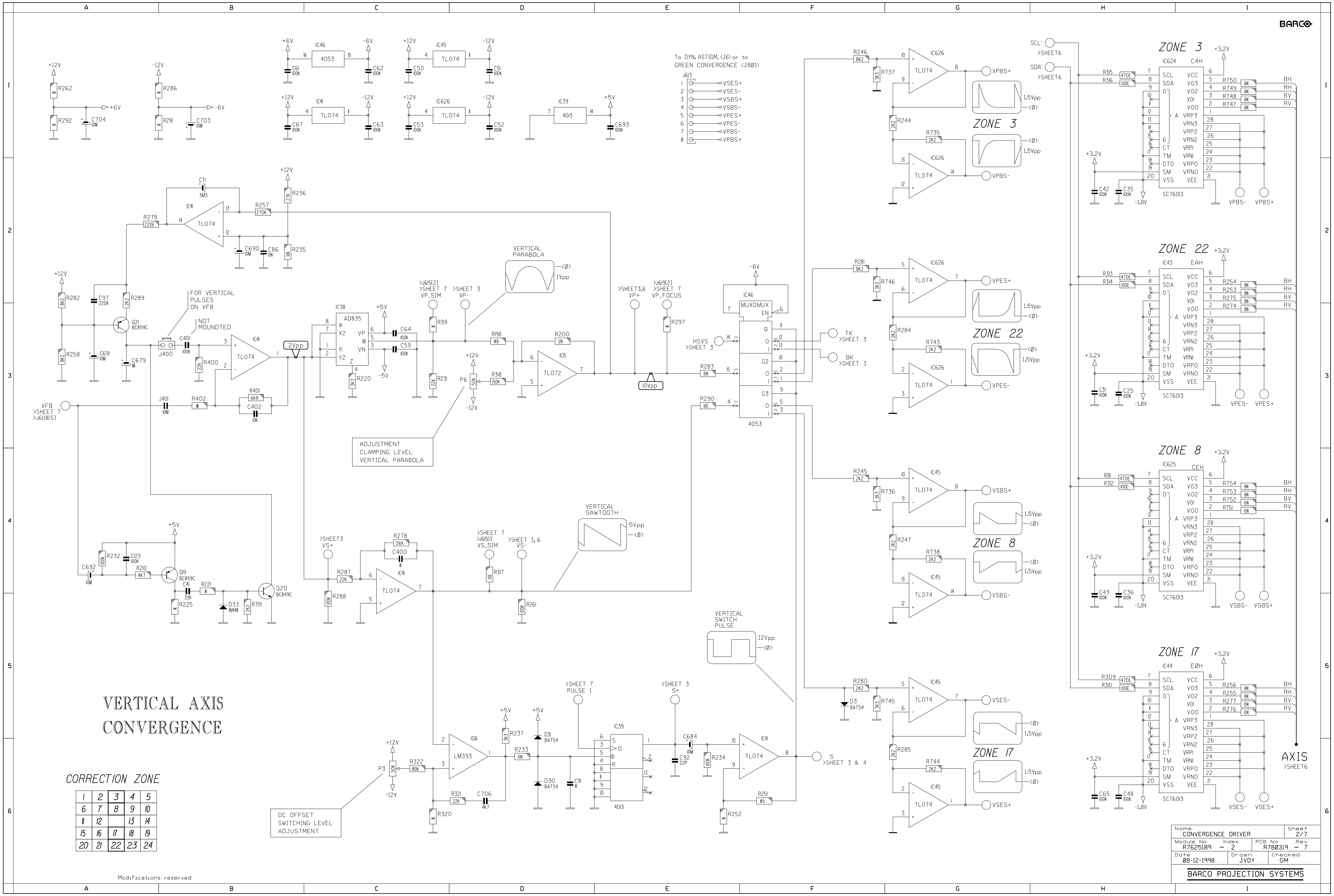
1	2	3	4	5
6	7	8	9	10
11	12		13	14
15	16	17	18	19
20	21	22	23	24



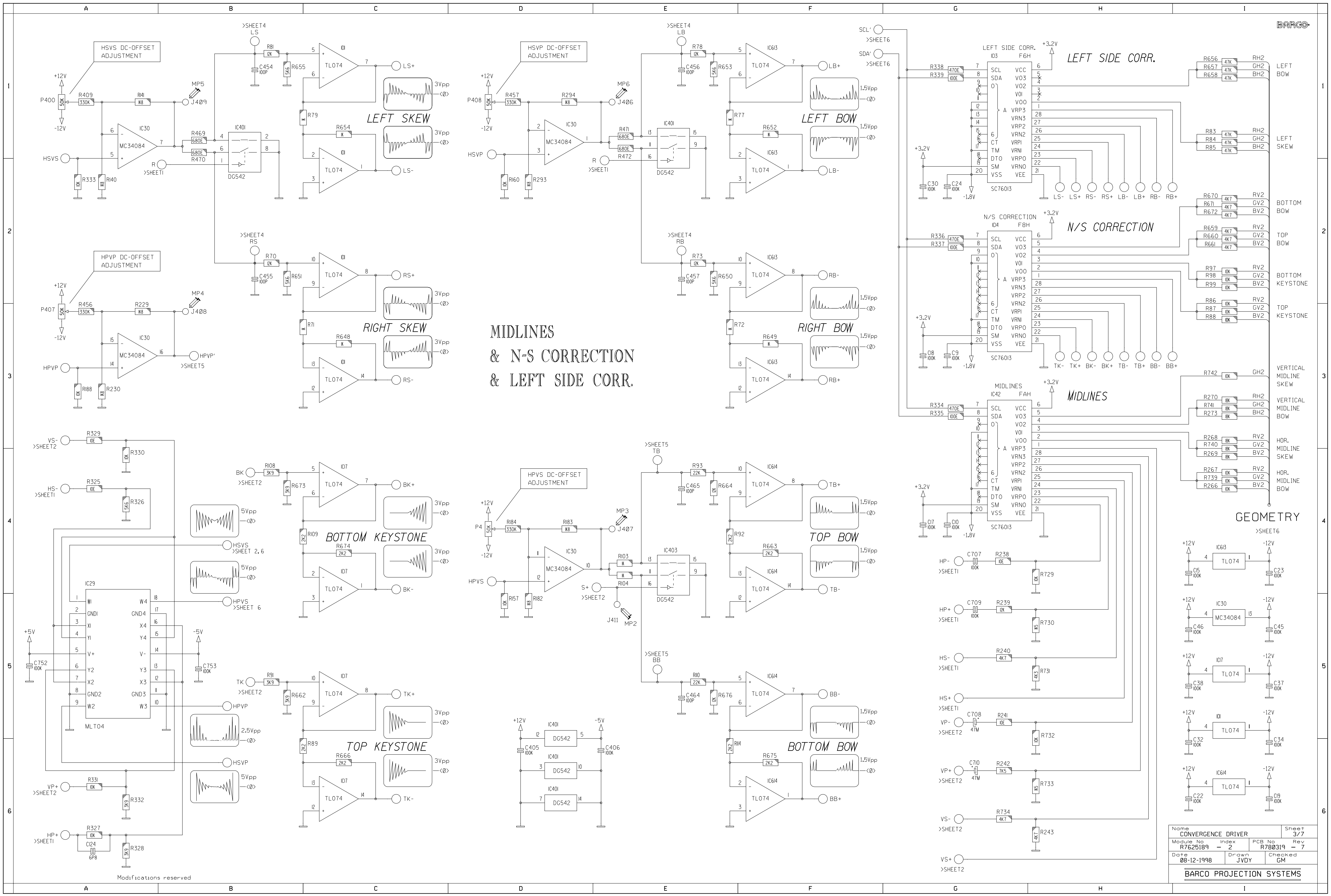
Modifications reserved

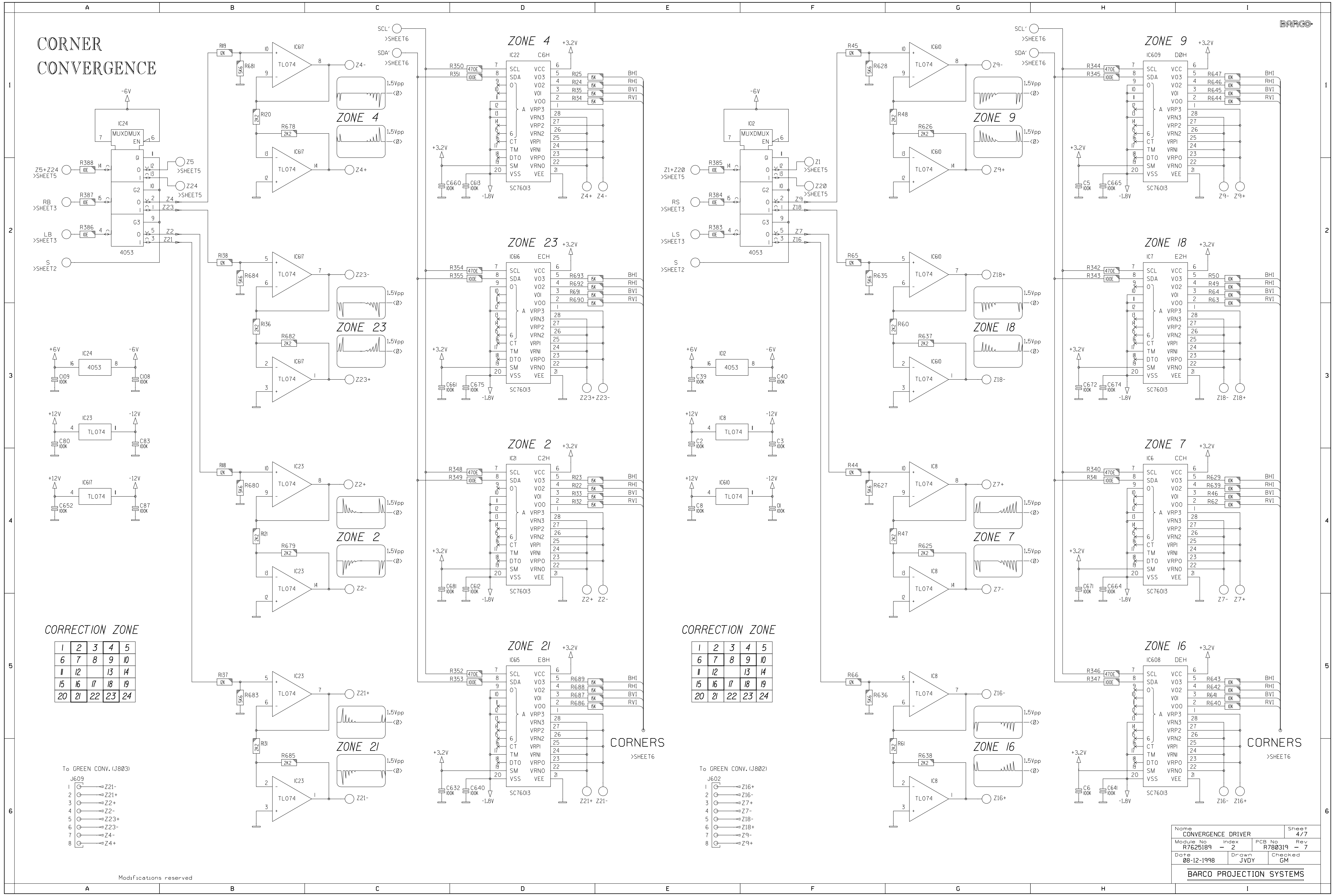
Name			Sheet
CONVERGENCE DRIVER			1/7
Module No R7625189	Index 2	PCB No R780319	Rev 7
Date 08-12-1998	Drawn JVDY	Checked GM	

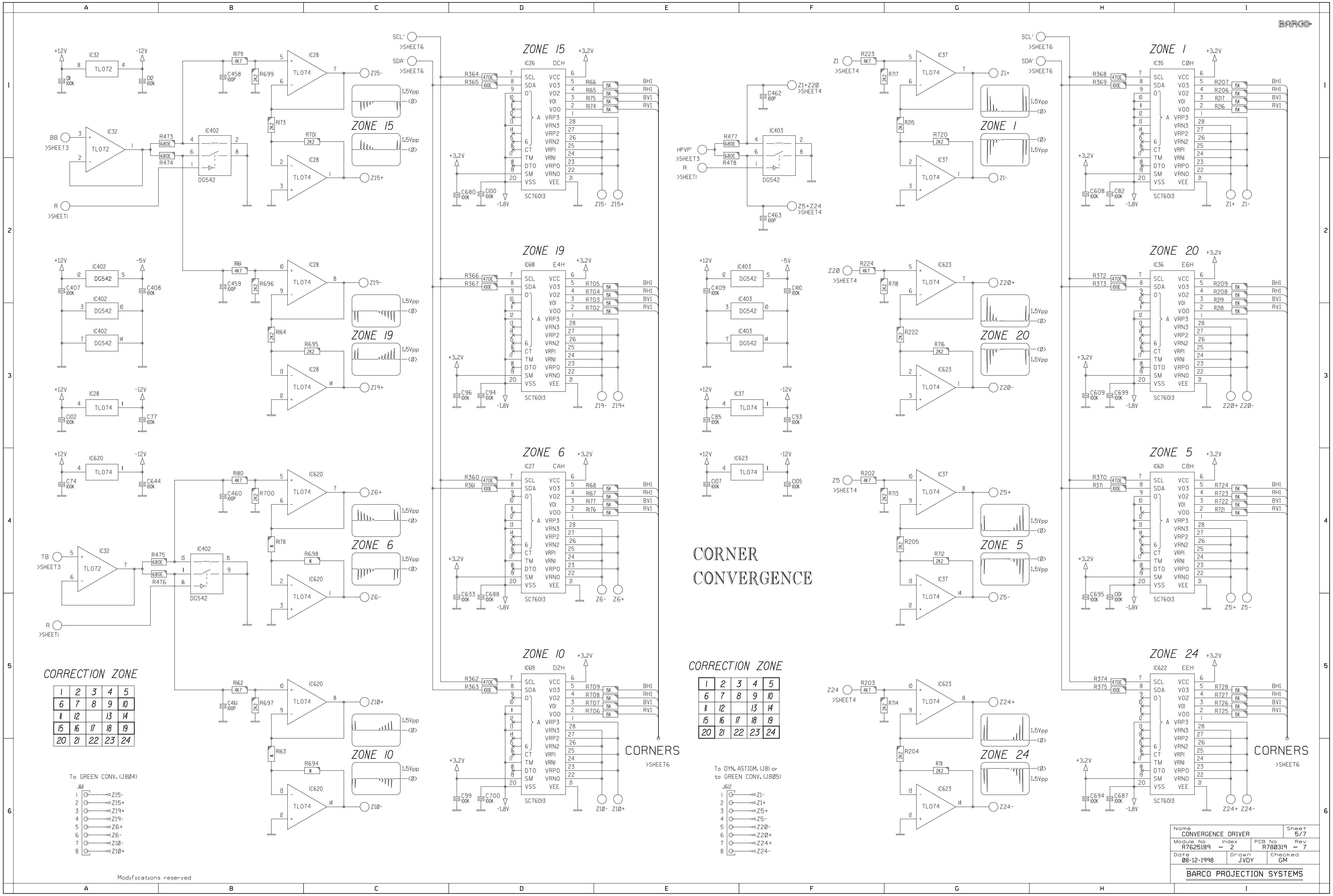
BARCO PROJECTION SYSTEMS



BARCO
VERTICAL AXIS
CONVERGENCE
CORRECTION ZONE
1 2 3 4 5
6 7 8 9 10
11 12 13 14
15 16 17 18 19
20 21 22 23 24
Modifications reserved
ZONE 3
ZONE 22
ZONE 8
ZONE 17
SC76013
TL074
TL072
LM393
AD835
4053
4013
MUXDMUX
To DYN.ASTIGM.(J6) or to
GREEN CONVERGENCE (J801)
J613
VSES+
VSES-
VSBS+
VSBS-
VPES+
VPES-
VPBS-
VPBS+
SCL' >SHEET6
SDA' >SHEET6
AXIS >SHEET6
VERTICAL PARABOLA 1Vpp
VERTICAL SAWTOOTH 5Vpp
VERTICAL SWITCH PULSE 12Vpp
ADJUSTMENT
CLAMPING LEVEL
VERTICAL PARABOLA
DC OFFSET
SWITCHING LEVEL
ADJUSTMENT
FOR VERTICAL
PULSES
ON VFB
NOT
MOUNDTED
VFB >SHEET 7 >J608[5]
HSVS >SHEET 3
TK >SHEET 3
BK >SHEET 3
S >SHEET 3 & 4
>SHEET 7 PULSE 1
>SHEET 3 S+
>SHEET3,6 VP+
>J619[2] >SHEET 7 VP_FOCUS
>J615[2] >SHEET 7 VP_SIM
>SHEET 3 VP-
>SHEET3 VS+
>SHEET 7 >J615[1] VS.SIM
>SHEET 3,6 VS-
Name
CONVERGENCE DRIVER
Sheet
2/7
Module No
R7625189
Index
2
PCB No
R780319
Rev
7
Date
08-12-1998
Drawn
JVDY
Checked
GM
BARCO PROJECTION SYSTEMS


MIDLINES
& N-S CORRECTION
& LEFT SIDE CORR.
HSVS DC-OFFSET ADJUSTMENT
HPVP DC-OFFSET ADJUSTMENT
HSVP DC-OFFSET ADJUSTMENT
HPVS DC-OFFSET ADJUSTMENT
LEFT SKEW
RIGHT SKEW
LEFT BOW
RIGHT BOW
BOTTOM KEYSTONE
TOP KEYSTONE
TOP BOW
BOTTOM BOW
LEFT SIDE CORR.
N/S CORRECTION
MIDLINES
GEOMETRY
LEFT BOW
LEFT SKEW
BOTTOM BOW
TOP BOW
BOTTOM KEYSTONE
TOP KEYSTONE
VERTICAL MIDLINE SKEW
VERTICAL MIDLINE BOW
HOR. MIDLINE SKEW
HOR. MIDLINE BOW
Modifications reserved
Name CONVERGENCE DRIVER
Sheet 3/7
Module No R7625189
Index 2
PCB No R780319
Rev 7
Date 08-12-1998
Drawn JVDY
Checked GM
BARCO PROJECTION SYSTEMS


CORNER
CONVERGENCE
ZONE 4
ZONE 23
ZONE 2
ZONE 21
ZONE 9
ZONE 18
ZONE 7
ZONE 16
CORRECTION ZONE
CORNERS
>SHEET6
To GREEN CONV.(J803)
To GREEN CONV.(J802)
Modifications reserved
Name
CONVERGENCE DRIVER
Sheet
4/7
Module No
R7625189
Index
2
PCB No
R780319
Rev
7
Date
08-12-1998
Drawn
JVDY
Checked
GM
BARCO PROJECTION SYSTEMS


CORNER CONVERGENCE
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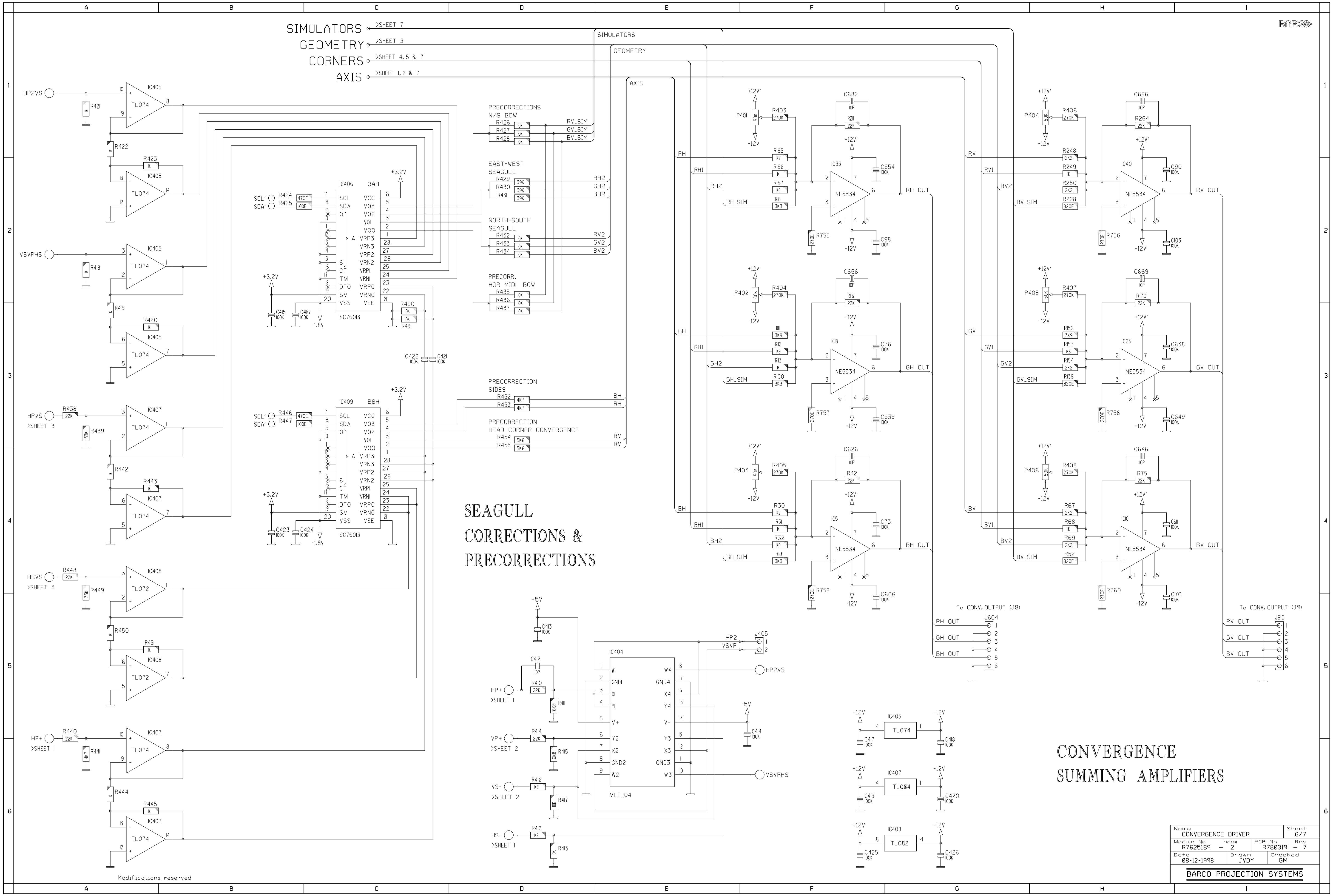
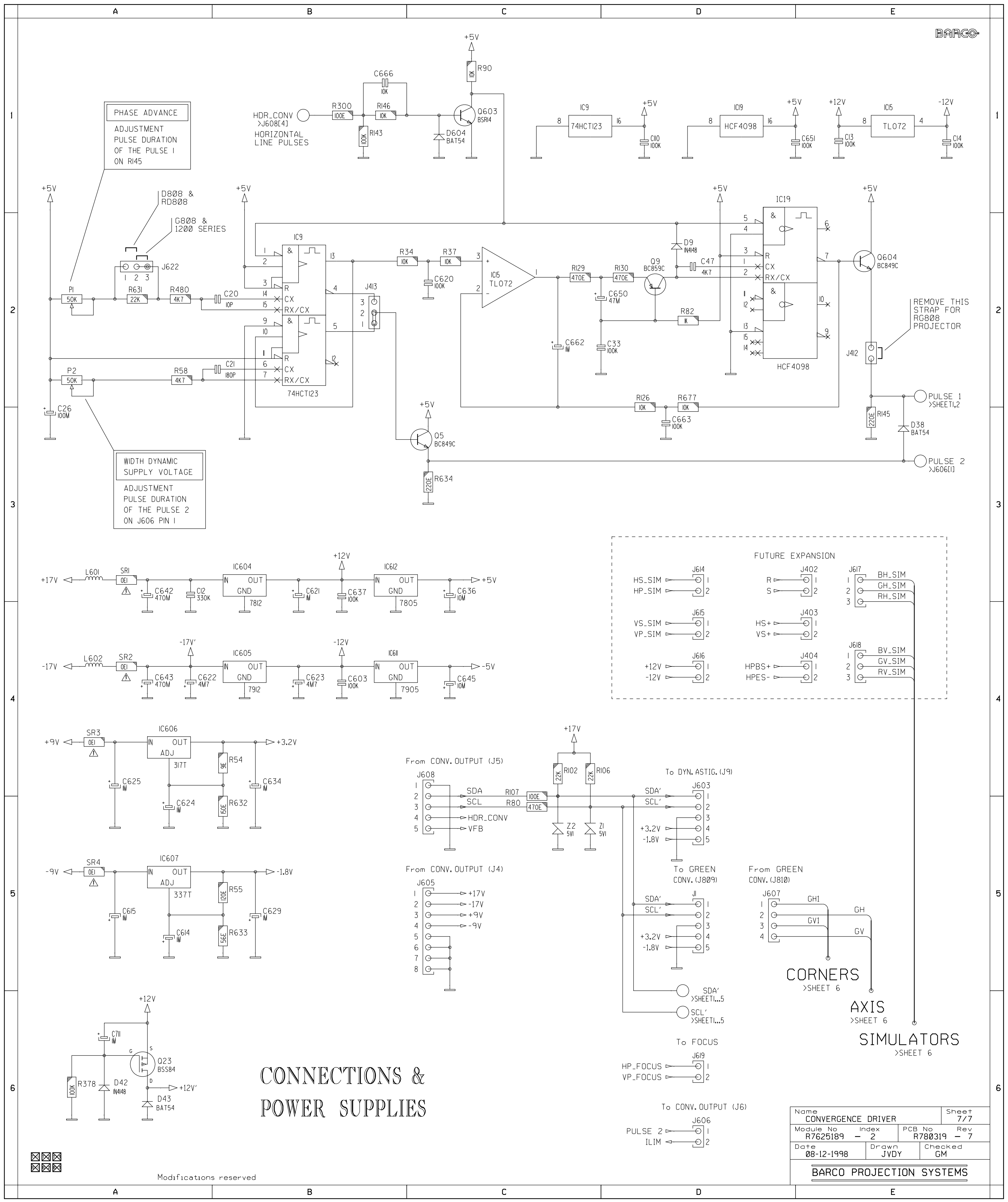
ZONE 19
ZONE 6
ZONE 10
ZONE 1
ZONE 20
ZONE 5
ZONE 24
CORRECTION ZONE
CORNERS >SHEET6
To GREEN CONV.(J804)
To DYN. ASTIGM.(J8) or to GREEN CONV.(J805)
Modifications reserved
Name CONVERGENCE DRIVER
Sheet 5/7
Module No R7625189
Index 2
PCB No R780319
Rev 7
Date 08-12-1998
Drawn JVDY
Checked GM
BARCO PROJECTION SYSTEMS



Name		Sheet
CONVERGENCE DRIVER		6/7
Module No / Index	PCB No / Rev	
R7625189 - 2	R780319 - 7	
Date	Drawn	Checked
08-12-1998	JVDY	GM

BARCO PROJECTION SYSTEMS



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R360	D 4	5
R361	D 4	5
R362	D 5	5
R363	D 5	5
R364	D 1	5
R365	D 1	5
R366	D 2	5
R367	D 2	5
R368	H 1	5
R369	H 1	5
R370	H 4	5
R371	H 4	5
R372	H 2	5
R373	H 2	5
R374	H 5	5
R375	H 5	5
R378	A 6	7
R379	H 1	1
R380	H 1	1
R381	H 4	1
R382	H 4	1
R383	E 2	4
R384	E 2	4
R385	E 2	4
R386	A 2	4
R387	A 2	4
R388	A 2	4
R400	B 3	2
R401	B 3	2
R402	B 3	2
R403	F 1	6
R404	F 2	6
R405	F 4	6
R406	H 1	6
R407	H 2	6
R408	H 4	6
R409	A 1	3
R410	D 5	6
R411	D 5	6
R412	D 6	6
R413	D 6	6
R414	D 5	6
R415	D 6	6
R416	D 6	6
R417	D 6	6
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R439	A 3	6
R440	A 5	6
R441	A 6	6
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R444	A 6	6
R445	A 6	6
R446	B 3	6
R447	B 3	6
R448	A 4	6
R449	A 4	6
R450	A 5	6
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R471	E 1	3
R472	E 1	3
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R476	A 4	5
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R478	E 2	5
R480	A 2	7
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R491	C 3	6
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R625	G 4	4
R626	G 1	4
R627	F 4	4
R628	F 1	4
R629	I 4	4
R630	C 2	1
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R632	B 5	7
R633	B 5	7
R634	C 3	7
R635	F 2	4
R636	F 5	4
R637	G 3	4
R638	G 6	4
R639	I 4	4
R640	I 5	4
R641	I 5	4
R642	I 5	4
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R645	I 1	4
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R648	C 3	3
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R650	E 2	3
R651	B 2	3
R652	F 1	3
R653	E 1	3
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R708	D 5	5
R709	D 5	5
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R713	G 4	5
R714	G 5	5
R716	G 3	5
R717	G 1	5
R718	G 2	5
R719	B 5	2
R720	G 1	5
R721	I 4	5
R722	I 4	5
R723	I 4	5
R724	I 4	5
R725	I 5	5
R726	I 5	5
R727	I 5	5
R728	I 5	5
R729	H 4	3
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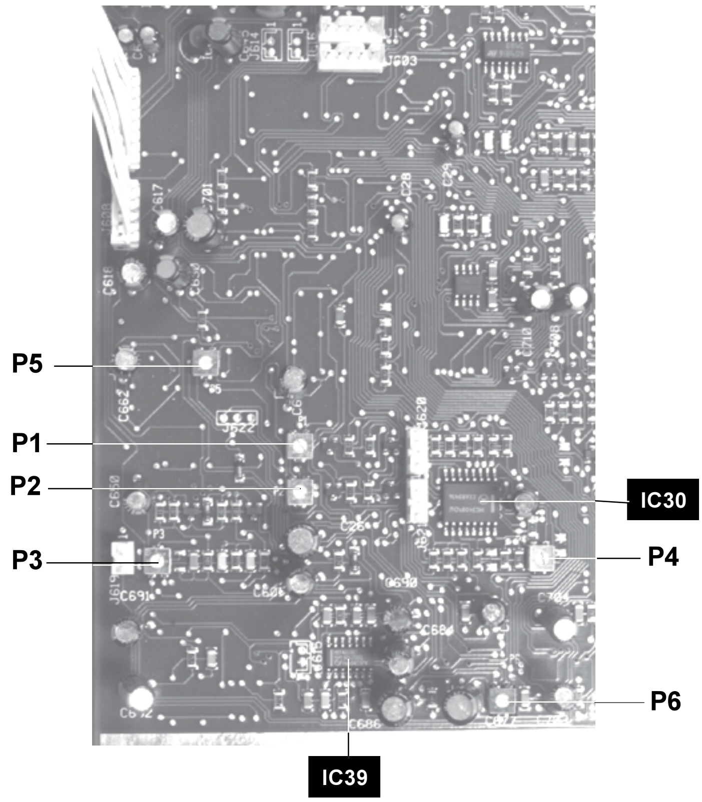
R731	H 5	3
R732	H 5	3
R733	H 6	3
R734	G 6	3
R735	G 1	2
R736	F 4	2
R737	F 1	2
R738	G 4	2
R739	I 4	3
R740	I 3	3
R741	I 3	3
R742	I 3	3
R743	G 3	2
R744	G 6	2
R745	F 5	2
R746	F 2	2
R747	I 1	2
R748	I 1	2
R749	I 1	2
R750	I 1	2
R751	I 4	2
R752	I 4	2
R753	I 4	2
R754	I 4	2
R755	F 2	6
R756	H 2	6
R757	F 3	6
R758	H 3	6
R759	F 4	6
R760	H 4	6
R800	H 2	1
R801	H 2	1
R802	H 5	1
R803	H 5	1
SR1	A 3	7
SR2	A 4	7
SR3	A 4	7
SR4	A 5	7
Z1	D 5	7
Z2	C 5	7

Adjustment procedure

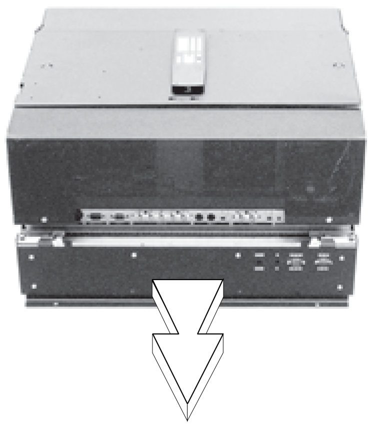
Adjustments

Location of adjustment controls



Preparation

- Remove the unit from the projector housing (See page 5 of Section "Partslist on Module level"). Insert the extension board and plug the unit on it. (See sheet 'Service Kit' for installation of it in Section "Service Information")



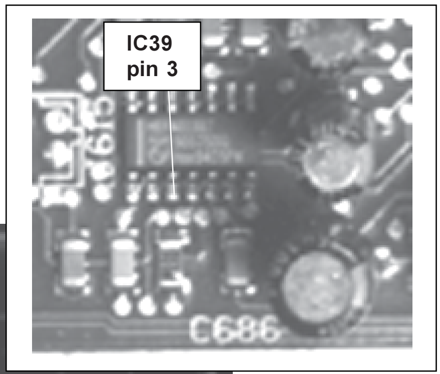
IMPORTANT

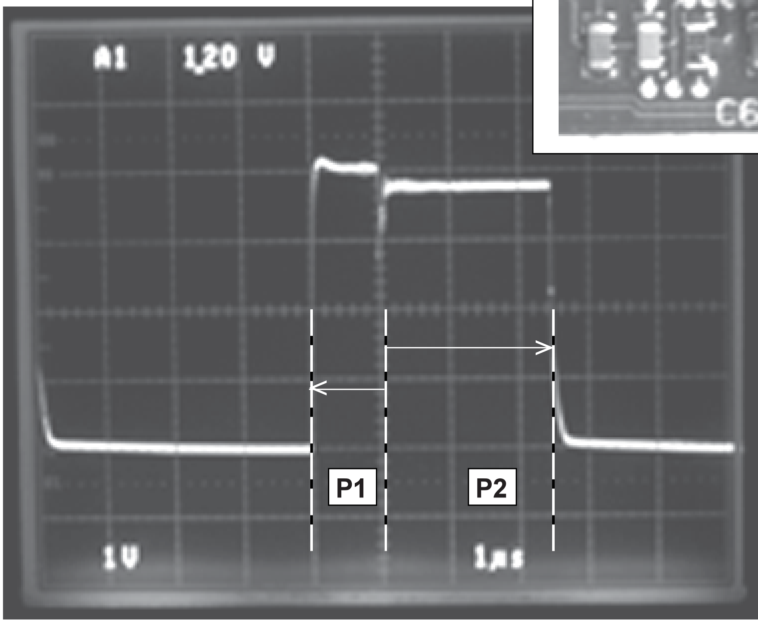
- For all the adjustments on the module, the projector has to operate on a signal with the highest **used** line frequency.

Adjustment

Adjustment of the pulse width PULSE 1 and PULSE 2

- Connect an oscilloscope to the pin 3 of the IC39.
- Adjust the potentiometer P1 for a pulse 1 duration of 1.0us.
- Adjust the potentiometer P2 for a pulse 2 duration of 2.5us.

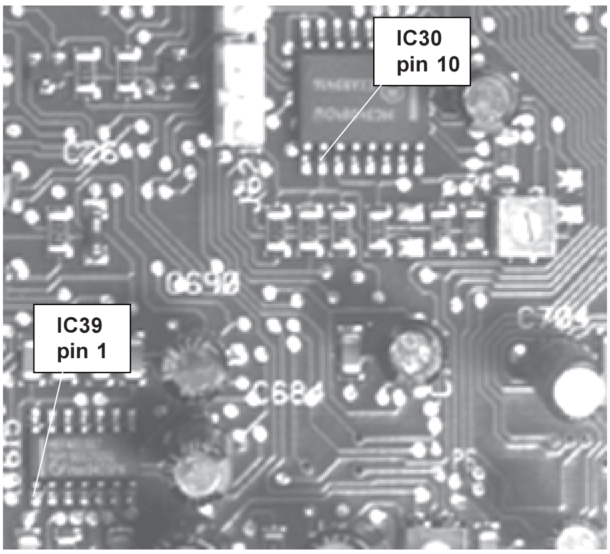




Adjustment of the potentiometers

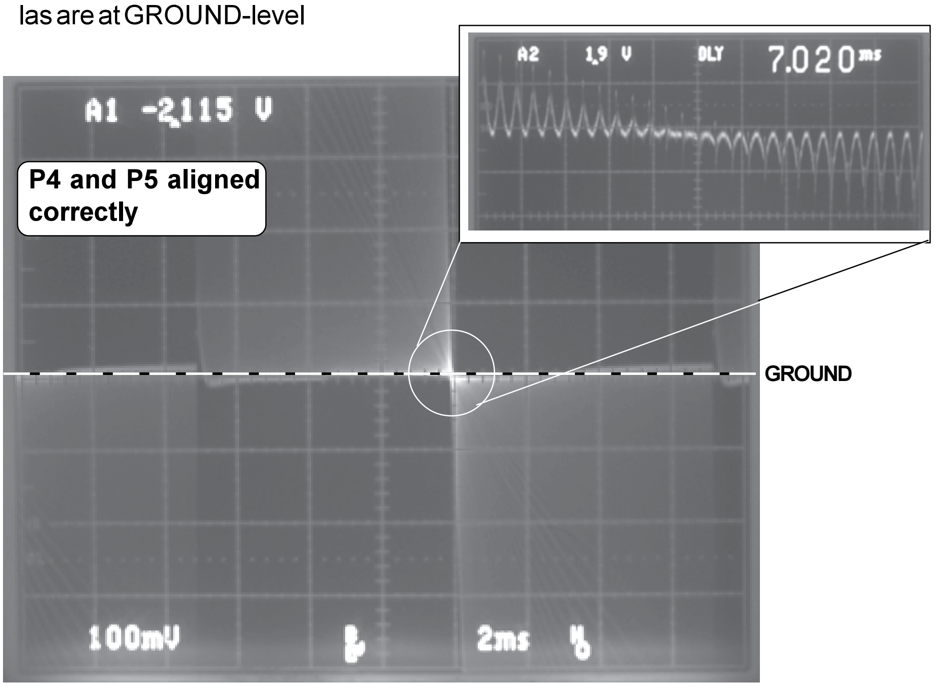
P3: DC Offset switching level
P4: Hor-Par/Vert-Sawt DC Offset
P5: Clamping level Hor Parabola

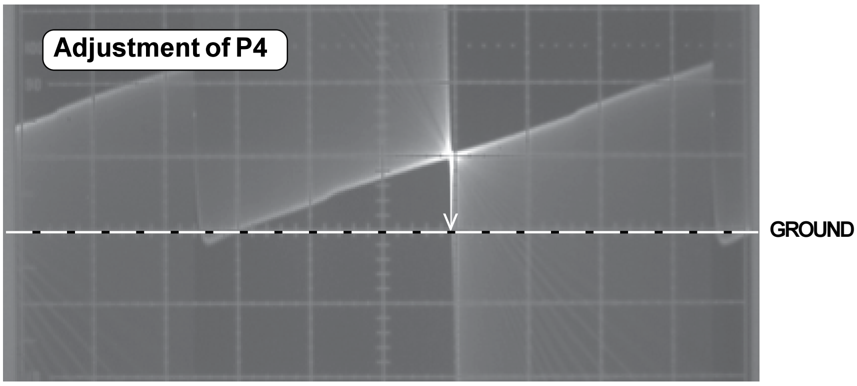
measurement points for the adjustments

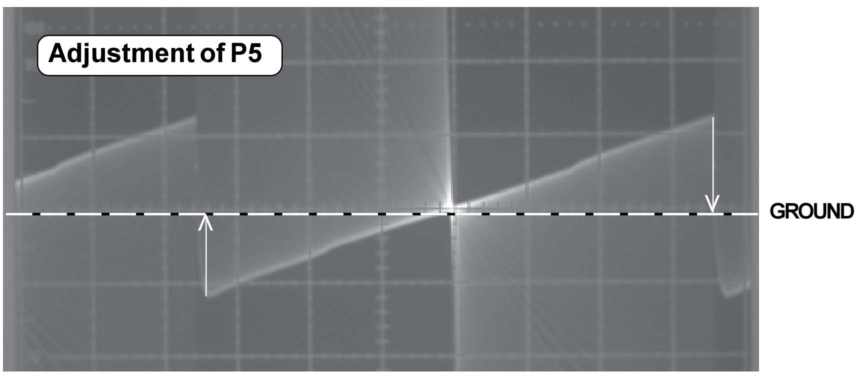


Adjustment of the potentiometer **P4: Hor-Par/Vert-Sawt DC Offset**
P5: Clamping level Hor Parabola

- Connect an oscilloscope to the pin 10 of the IC30.
- Adjust the potentiometer P4 until the DC Offset is at GROUND-level
- Adjust the potentiometer P5 until the clamping level of the Horizontal parabolas are at GROUND-level

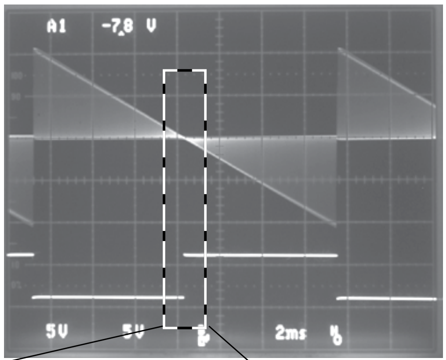




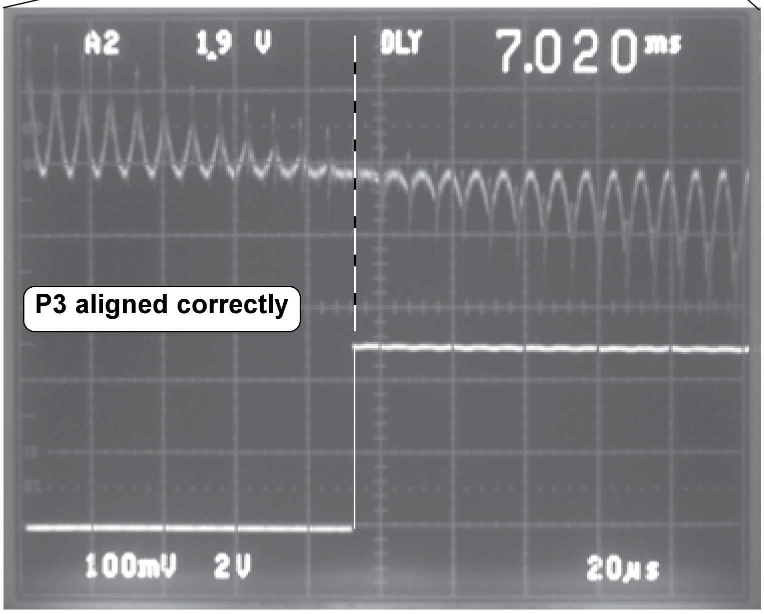


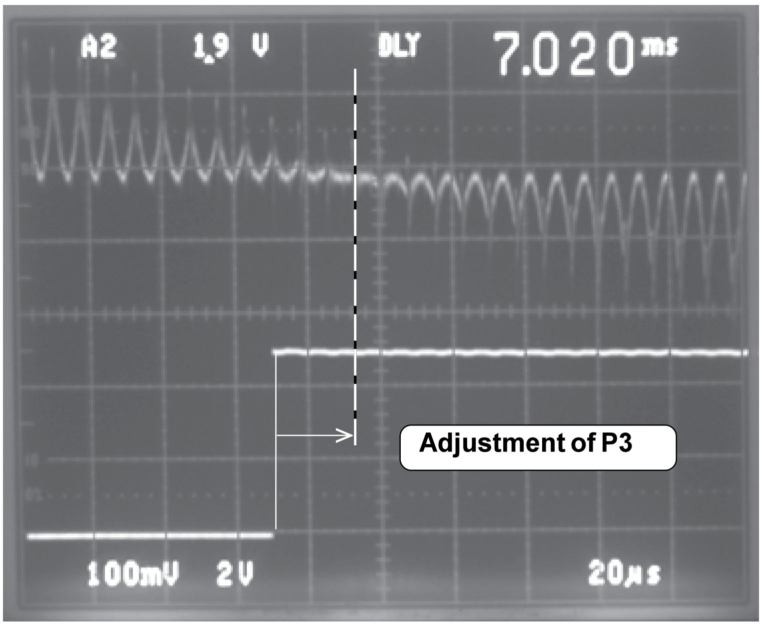
Adjustment of the potentiometers P3: DC Offset switching level

Attention: be sure that the input signal for adjustment operates on the highest <u>used</u> line frequency.



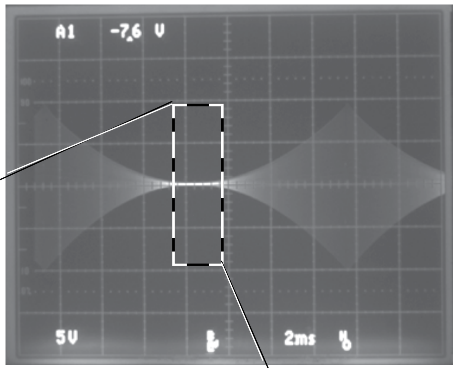
- Connect the second probe of the oscilloscope to the pin 1 of the IC39.
- Adjust the potentiometer P3 until the switching transient matches horizontal parabola inversion point.

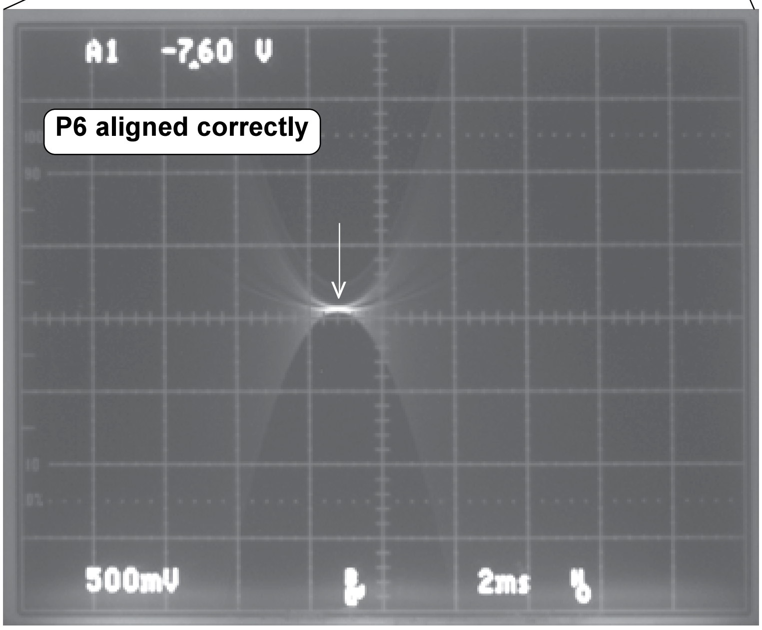


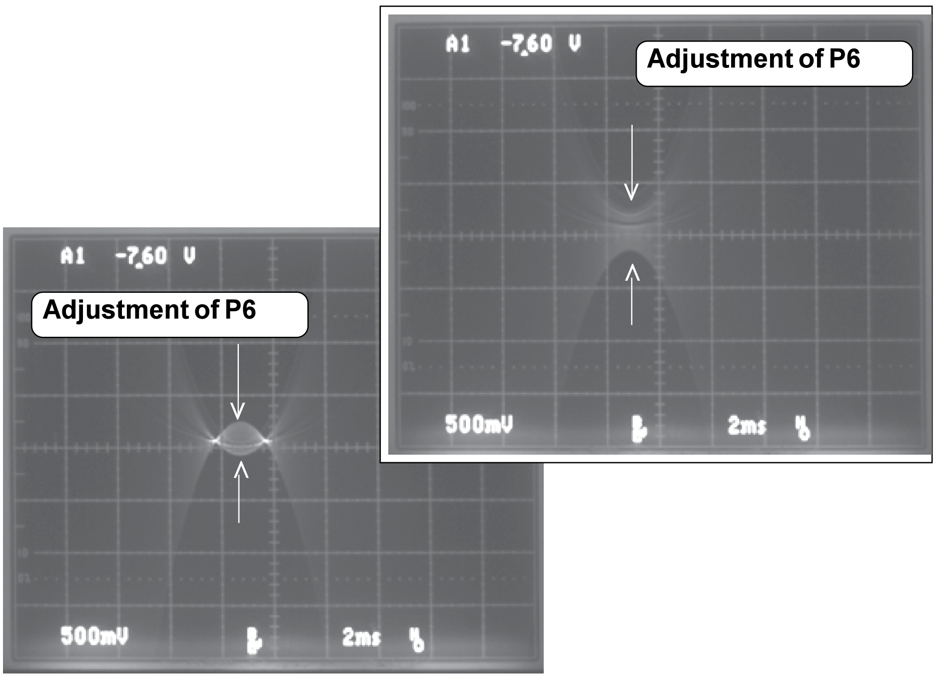


Adjustment of the potentiometer P6: Clamping level Vert Parabola

- Connect the probe of the oscilloscope to the pin 1 of the IC30.
- Adjust the potentiometer P6 for a correct clamping level of the Vertical parabola (see fig below).







Technical description 'CONVERGENCE DRIVER' module R7625189

Introduction.

The Surface Mounted Devices (SMD) technology applied in the driver module makes servicing of the module not easy and requires the correct tools. The description of the schematics will then also be limited to the essential functions.

Two trigger pulses are generated to trigger the sawtooth generator and the dynamic boosting up of the power supply of the end stages. The sawtooth waveforms are clamped to ground level during one part of the scanning (left/right or top/bottom) and adjusted in amplitude for a linear correction on the scan for red and blue colour (except when the "convergence on green " option is mounted).

Multipliers produce parabolic waveforms which undergo the same kind of flow for the non linear corrections. A combination of the clamped signals, and a modulation on either a sawtooth or parabola is needed for the corner convergence. All the waveforms for one colour are summed with an OPAMP and amplified by a DC amplifier in the OUTPUT module.

Trigger Pulse generation Pulse 1 and 2

The HDR_CONV is speeded up and inverted with Q603. The negative pulse at the collector triggers at its negative going transient the monoflops IC9 and IC19.

Pulse 1 : (trigger of the sawtooth generator).

The width of the positive output pulse at pin 13 of IC9 is adjusted with P1. The pulse train at the output pin 13 is integrated with R34/C620 and applied to one input (+) of the OPAMP IC15. It is obvious that the voltage across C620 is proportional with the width of the pulse and the line frequency. The output of this OPAMP determines the current of the current source Q9. This current adjusts the width of the pulse at the output pin 7 of IC19. The time constant of this one shot is designed to be a little less than the time period. That time constant needs to be tracked with the line frequency and this is realized as follows. The opposite polarity output pin 7 is integrated by R677 / C663 and applied to the inverting input of the same OPAMP.
The pulse at pin 7 *(Pulse 1)* starts consequently just before the end of the scanning and is used to trigger the horizontal sawtooth generator.

Pulse 2 : (dynamic boosting up power supply).

The pulse output at pin 13 triggers on the positive going transient the second monoflop in IC9. The width of the output pulse at pin 5 is adjusted with P2. Through the buffer Q5 the pulse is available for boosting up the supply voltage of the power end stages. Note that this pulse 2 is also added via D38 to pulse 1.

Horizontal axis convergence :

Horizontal sawtooth generator. (Sheet 1)

C602 is charged up by the current source Q2. In order to stabilize the amplitude, irrelevant the line frequency, the charging current is tracked with the line frequency as follows. The sawtooth is buffered and an average value of the amplitude is obtained by integration with IC3 / C7 . The resulting output voltage adjusts the charging current of the current source Q2. The amplitude is set by the voltage at the other input of the OPAMP, thus by R2 / R602.
The sawtooth is inhibited by the clamper Q22 when the current consumption of the power end amplifiers is too big (see Power Output stages).
OPAMP IC3 (5-6-7) amplifies the sawtooth in order to supply IC4, IC16 and the multiplier IC20.

Preparation of the waveforms .

The voltage comparator IC16 (5-6-7) transforms the sawtooth into a squared Horizontal 'Switch Pulse' of 24 V_{pp} (+ / - 12V). This switch signal is used to clamp either the sawtooth or the parabola during the first or second half of the horizontal scanning. Note that the clipping level is variable with the voltage that drives the current source of the sawtooth generator. The multiplier IC20 (AD633) generates a horizontal parabola **HP+** .

The next OPAMP shifts the DC level by clamping the middle of the parabola to a voltage adjusted by P5 (approx. 0 volts) in order to compensate the tolerances of the multiplier. The convergence at horizontal frequency with the ramp and parabola waveforms in the zones 11 - 14 are adjusted in IC1-IC2-IC601-IC602.
The waveforms are each time clamped with a clamping transistor served by the horizontal switch pulse. Two opposite phased waveform are each time applied to the potentiometers in the Bella's (digital potentiometer or D/A convertors).

Vertical axis convergence

The vertical sawtooth generator is generated in a similar way as the horizontal sawtooth generator, discussed above. The much lower frequencies here allow the use of the MUXDMUX IC46 (4053) in stead of the clampers.
The "Vertical Switch Pulse" is passed through the RS flip-flop IC39 which is clocked with the pulse 1 in order to make the transition coincide with the trigger or the start of the horizontal sawtooth. This avoids a jitter for interlaced signals.

North-South / East-West and Midline corrections.

For these corrections we need horizontal waveforms with an amplitude depending on the vertical position or vertical scanning. The horizontal waveforms must be modulated on a vertical sawtooth or parabola. This modulation is performed by IC29 (MLT04). The four different waveforms are all applied to the "X" and "Y" inputs and the modulated waveforms are the "W1 - W4" pins.
The corrections , called *GEOMETRY* corrections, are added to the *CORNER* and *AXIS* corrections in the "*Summing Amplifiers*".

East - West corrections :

Two kind of corrections (referred to as "skew" and "bow") are required to correct the projection angle and aberrations of the optical system.

The HSVS (**H**orizontal **S**awtooth modulated on a **V**ertical **S**awtooth) and HSVP are used for this purpose.

The HSVS is first amplified with an OPAMP in IC30 and then clamped with Q11 and Q10 which are 'served' with the "R" and "S" switching signals. The *LS+* and *LS-* (Left Skew) and *RS+ / RS-* (Right Skew) are fed to two digital potentiometers in IC13 and the adjusted outputs are sent simultaneously to the three convergence coils.

HSVP is first inverted and amplified and then clamped during the first or second half of the scan. The RB+/- and LB+/- are applied to the digital potentiometers in the same IC13 and the outputs also feed the three convergence coils.

North - South Corrections .

Two type of waveforms are modulated on a vertical sawtooth VS, Horizontal Sawtooth (HS) and Horizontal Parabola (HP).The HSVS from IC29 (sheet 3) is capacitively coupled to the MUX DMUX IC46 (sheet 2) and in stead of clamping, the signal it is

switched with the " vertical switch pulse " for a split of top and bottom.
The TK (**T**op **K**eystone) and BK (**B**ottom **K**eystone) signals are adjusted in IC14. Since there is a correction per colour the different outputs of the digital potentiometers are gathered per colour and will be added to the other corrections in the "summing amplifiers".

Midline Corrections.

For the vertical and horizontal midline skew and bow corrections, the non-modulated waveforms HP- / + , HS+ / - are adjusted in amplitude with IC42 and simultaneously applied to the vertical and horizontal convergence coils of the three crt's.

Corner convergence.

The four corners are further divided (split) into 4 zones. The generation of the convergence signals for the corners is similar for these four corners. The only difference is the clamping or switching period. A split top / bottom is realised with a MUXDMUX switcher and a left / right split with fast switching clamping transistors.
We limit the explanation to one corner and one zone **(Zone 1)** .
Zone 1 is the cross section of the extreme left vertical axis and the extreme top horizontal axis. We need to start with a Horizontal Parabola (=extreme left vertical axis) modulated on Vertical Parabola (= extreme top horizontal axis). This signal is called *HPVP'* in sheet 5. The clamping transistor Q16 clamps this signal during the second half of the horizontal scan and then the signal is called *Z1+Z20* . This signal is now split into top / bottom (Z1 and Z20) by the MUXDMUX IC12 (see sheet 4). Z1 and Z20 are now prepared for the digital potentiometer IC35 by the buffer - OPAMP IC37 to get *Z1+* and *Z1-* (same signal with opposite polarity). These signals are then adjusted in IC35 and used for red and blue. The outputs are added in the summing amplifier to the rest of the corrections. (*Geometry* and *Axis*).

Summing amplifiers.

All the corrections for the horizontal convergence coils are added per colour and amplified with an MC34081. These OPAMP's are supplied with + / - 12V and since the non-inverting input is at ground level, the average output of these OPAMPs is around zero volts. This is required by the output power amplifiers for a balanced load of the (complementary) output stage.

Parts listing Convergence module (Driver) 76 25189

SIT.	ITEM NO.	DESCRIPTION	QUANTITY
	B360862	SCR Z$7985M 3 X 8 STZY	3
	B360862	SCR Z$7985M 3 X 8 STZY	2
	R133085	HTSN A GEN I-SHT CRA 30	0,06
	R3133921	J MD SHUNT F P2 E1SN I	3
	R34700802	SLVU GLCL OIL D 1,5RD 20	1
	R804674	HTSN A GEN SPG1 M3 SS SH	1
	R804769	HTSN A GEN SPG3 M3 SS SH	1
	R805954	HTSN G808 CNVDVR	1
C 1	P210137	C# C0G MU 100P J 50 1206	1
C 2	P210122	C# X7R MU 100N K 50 1206	1
C 3	P210122	C# X7R MU 100N K 50 1206	1
C 5	P210122	C# X7R MU 100N K 50 1206	1
C 6	P210122	C# X7R MU 100N K 50 1206	1
C 7	P210095	C# X7R MU 330N M 50 1812	1
C 8	P210122	C# X7R MU 100N K 50 1206	1
C 9	P210122	C# X7R MU 100N K 50 1206	1
C 10	P210122	C# X7R MU 100N K 50 1206	1
C 11	P210122	C# X7R MU 100N K 50 1206	1
C 12	P210095	C# X7R MU 330N M 50 1812	1
C 13	P210122	C# X7R MU 100N K 50 1206	1
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C 15	P210122	C# X7R MU 100N K 50 1206	1
C 16	P210092	C# X7R MU 10N K 50 1206	1
C 17	P210122	C# X7R MU 100N K 50 1206	1
C 18	P210122	C# X7R MU 100N K 50 1206	1
C 19	P210122	C# X7R MU 100N K 50 1206	1
C 20	P210138	C# C0G MU 10P J 50 1206	1
C 21	P210081	C# C0G MU 180P J 50 0805	1
C 22	P210122	C# X7R MU 100N K 50 1206	1
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C 24	P210122	C# X7R MU 100N K 50 1206	1
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C 26	R111466	C EL RA 100M M 16E2 105	
C 30	P210122	C# X7R MU 100N K 50 1206	1
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C 41	P210097	C# X7R MU 33N K 50 1206	1
C 42	P210122	C# X7R MU 100N K 50 1206	1
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C 47	P210140	C# X7R MU 4N7K 50 1206	1
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C 68	P210122	C# X7R MU 100N K 50 1206	1
C 69	P210122	C# X7R MU 100N K 50 1206	1
C 70	P210122	C# X7R MU 100N K 50 1206	1
C 71	R111549	C EL RA 3M3M 50E2 85	
C 72	P210122	C# X7R MU 100N K 50 1206	1
C 73	P210122	C# X7R MU 100N K 50 1206	1
C 74	P210122	C# X7R MU 100N K 50 1206	1
C 75	P210122	C# X7R MU 100N K 50 1206	1
C 76	P210122	C# X7R MU 100N K 50 1206	1
C 77	P210122	C# X7R MU 100N K 50 1206	1
C 78	P210122	C# X7R MU 100N K 50 1206	1
C 79	P210122	C# X7R MU 100N K 50 1206	1
C 80	P210122	C# X7R MU 100N K 50 1206	1
C 81	P210122	C# X7R MU 100N K 50 1206	1
C 82	P210122	C# X7R MU 100N K 50 1206	1
C 83	P210122	C# X7R MU 100N K 50 1206	1
C 85	P210122	C# X7R MU 100N K 50 1206	1
C 86	P210092	C# X7R MU 10N K 50 1206	1
C 87	P210122	C# X7R MU 100N K 50 1206	1
C 88	P210122	C# X7R MU 100N K 50 1206	1
C 90	P210122	C# X7R MU 100N K 50 1206	1
C 91	P210013	C# C0G MU 1N J 50 1206	1
C 92	P210064	C# C0G MU 22P J 50 1206	1
C 93	P210122	C# X7R MU 100N K 50 1206	1
C 94	P210122	C# X7R MU 100N K 50 1206	1
C 95	P210122	C# X7R MU 100N K 50 1206	1
C 96	P210122	C# X7R MU 100N K 50 1206	1
C 97	P210169	C# X7R MU 220N K 50 1210	1
C 98	P210122	C# X7R MU 100N K 50 1206	1
C 99	P210122	C# X7R MU 100N K 50 1206	1
C100	P210122	C# X7R MU 100N K 50 1206	1
C101	P210122	C# X7R MU 100N K 50 1206	1
C102	P210122	C# X7R MU 100N K 50 1206	1
C103	P210122	C# X7R MU 100N K 50 1206	1
C104	P210122	C# X7R MU 100N K 50 1206	1
C105	P210122	C# X7R MU 100N K 50 1206	1
C107	P210122	C# X7R MU 100N K 50 1206	1
C108	P210122	C# X7R MU 100N K 50 1206	1
C109	P210122	C# X7R MU 100N K 50 1206	1
C110	P210122	C# X7R MU 100N K 50 1206	1
C111	P210122	C# X7R MU 100N K 50 1206	1
C112	P210122	C# X7R MU 100N K 50 1206	1
C123	P210122	C# X7R MU 100N K 50 1206	1
C124	P210115	C# C0G MU 6P8D 50 0805	1
C129	P210102	C# C0G MU 470P J 50 1206	1
C400	P210013	C# C0G MU 1N J 50 1206	1
C402	P210092	C# X7R MU 10N K 50 1206	1
C403	P210122	C# X7R MU 100N K 50 1206	1
C404	P210122	C# X7R MU 100N K 50 1206	1
C405	P210122	C# X7R MU 100N K 50 1206	1
C406	P210122	C# X7R MU 100N K 50 1206	1
C407	P210122	C# X7R MU 100N K 50 1206	1
C408	P210122	C# X7R MU 100N K 50 1206	1
C409	P210122	C# X7R MU 100N K 50 1206	1
C410	P210122	C# X7R MU 100N K 50 1206	1
C412	P210138	C# C0G MU 10P J 50 1206	1
C413	P210122	C# X7R MU 100N K 50 1206	1

SIT.	ITEM NO.	DESCRIPTION	QUANTITY
C414	P210122	C# X7R MU 100N K 50 1206	1
C415	P210122	C# X7R MU 100N K 50 1206	1
C416	P210122	C# X7R MU 100N K 50 1206	1
C417	P210122	C# X7R MU 100N K 50 1206	1
C418	P210122	C# X7R MU 100N K 50 1206	1
C419	P210122	C# X7R MU 100N K 50 1206	1
C420	P210122	C# X7R MU 100N K 50 1206	1
C421	P210122	C# X7R MU 100N K 50 1206	1
C422	P210122	C# X7R MU 100N K 50 1206	1
C423	P210122	C# X7R MU 100N K 50 1206	1
C424	P210122	C# X7R MU 100N K 50 1206	1
C425	P210122	C# X7R MU 100N K 50 1206	1
C426	P210122	C# X7R MU 100N K 50 1206	1
C450	P210137	C# C0G MU 100P J 50 1206	1
C451	P210137	C# C0G MU 100P J 50 1206	1
C452	P210137	C# C0G MU 100P J 50 1206	1
C453	P210137	C# C0G MU 100P J 50 1206	1
C454	P210137	C# C0G MU 100P J 50 1206	1
C455	P210137	C# C0G MU 100P J 50 1206	1
C456	P210137	C# C0G MU 100P J 50 1206	1
C457	P210137	C# C0G MU 100P J 50 1206	1
C458	P210137	C# C0G MU 100P J 50 1206	1
C459	P210137	C# C0G MU 100P J 50 1206	1
C460	P210137	C# C0G MU 100P J 50 1206	1
C461	P210137	C# C0G MU 100P J 50 1206	1
C462	P210137	C# C0G MU 100P J 50 1206	1
C463	P210137	C# C0G MU 100P J 50 1206	1
C464	P210137	C# C0G MU 100P J 50 1206	1
C465	P210137	C# C0G MU 100P J 50 1206	1
C602	P210150	C# X7R MU 3N3K 50 1206	1
C603	P210122	C# X7R MU 100N K 50 1206	1
C605	P210169	C# X7R MU 220N K 50 1210	1
C606	P210122	C# X7R MU 100N K 50 1206	1
C608	P210122	C# X7R MU 100N K 50 1206	1
C609	P210122	C# X7R MU 100N K 50 1206	1
C611	P210122	C# X7R MU 100N K 50 1206	1
C612	P210122	C# X7R MU 100N K 50 1206	1
C613	P210122	C# X7R MU 100N K 50 1206	1
C614	V1115469	C EL RA 1M M 50E2 105	
C615	V1115469	C EL RA 1M M 50E2 105	
C616	R111548	C EL RA 2M2M 50E2 85	
C617	R111531	C EL RA 10M M 35E2 85	
C620	P210122	C# X7R MU 100N K 50 1206	1
C621	V1115469	C EL RA 1M M 50E2 105	
C622	R1115915	C EL5 RA 4M7M 35E2 85	
C623	R1115915	C EL5 RA 4M7M 35E2 85	
C624	V1115469	C EL RA 1M M 50E2 105	
C625	V1115469	C EL RA 1M M 50E2 105	
C626	P210138	C# C0G MU 10P J 50 1206	1
C629	V1115469	C EL RA 1M M 50E2 105	
C630	R111531	C EL RA 10M M 35E2 85	
C631	P210122	C# X7R MU 100N K 50 1206	1
C632	P210122	C# X7R MU 100N K 50 1206	1
C633	P210122	C# X7R MU 100N K 50 1206	1
C634	V1115469	C EL RA 1M M 50E2 105	
C636	R111531	C EL RA 10M M 35E2 85	
C637	P210122	C# X7R MU 100N K 50 1206	1
C638	P210122	C# X7R MU 100N K 50 1206	1
C639	P210122	C# X7R MU 100N K 50 1206	1
C640	P210122	C# X7R MU 100N K 50 1206	1
C641	P210122	C# X7R MU 100N K 50 1206	1
C642	R111479	C EL RA 470M M 25E2 105	1
C643	R111479	C EL RA 470M M 25E2 105	1
C644	P210122	C# X7R MU 100N K 50 1206	1
C645	R111531	C EL RA 10M M 35E2 85	
C646	P210138	C# C0G MU 10P J 50 1206	1
C649	P210122	C# X7R MU 100N K 50 1206	1

SIT.	ITEM NO.	DESCRIPTION	QUANTITY
C650	R111476	C EL RA 47M M 25E2 85	
C651	P210122	C# X7R MU 100N K 50 1206	1
C652	P210122	C# X7R MU 100N K 50 1206	1
C654	P210122	C# X7R MU 100N K 50 1206	1
C655	P210122	C# X7R MU 100N K 50 1206	1
C656	P210138	C# C0G MU 10P J 50 1206	1
C660	P210122	C# X7R MU 100N K 50 1206	1
C661	P210122	C# X7R MU 100N K 50 1206	1
C662	V1115469	C EL RA 1M M 50E2 105	
C663	P210122	C# X7R MU 100N K 50 1206	1
C664	P210122	C# X7R MU 100N K 50 1206	1
C665	P210122	C# X7R MU 100N K 50 1206	1
C666	P210092	C# X7R MU 10N K 50 1206	1
C669	P210138	C# C0G MU 10P J 50 1206	1
C671	P210122	C# X7R MU 100N K 50 1206	1
C672	P210122	C# X7R MU 100N K 50 1206	1
C674	P210122	C# X7R MU 100N K 50 1206	1
C675	P210122	C# X7R MU 100N K 50 1206	1
C679	P210153	C# Z5U MU 1M M 50 1812	1
C680	P210122	C# X7R MU 100N K 50 1206	1
C681	P210122	C# X7R MU 100N K 50 1206	1
C682	P210138	C# C0G MU 10P J 50 1206	1
C684	R111531	C EL RA 10M M 35E2 85	
C687	P210122	C# X7R MU 100N K 50 1206	1
C688	P210122	C# X7R MU 100N K 50 1206	1
C690	R111531	C EL RA 10M M 35E2 85	
C691	R111531	C EL RA 10M M 35E2 85	
C692	R111531	C EL RA 10M M 35E2 85	
C693	P210122	C# X7R MU 100N K 50 1206	1
C694	P210122	C# X7R MU 100N K 50 1206	1
C695	P210122	C# X7R MU 100N K 50 1206	1
C696	P210138	C# C0G MU 10P J 50 1206	1
C699	P210122	C# X7R MU 100N K 50 1206	1
C700	P210122	C# X7R MU 100N K 50 1206	1
C701	R111486	C EL RA 47M M 50E2 85	
C703	R111531	C EL RA 10M M 35E2 85	
C704	R111531	C EL RA 10M M 35E2 85	
C706	P210140	C# X7R MU 4N7K 50 1206	1
C707	P210122	C# X7R MU 100N K 50 1206	1
C708	R111476	C EL RA 47M M 25E2 85	1
C709	P210122	C# X7R MU 100N K 50 1206	1
C710	R111476	C EL RA 47M M 25E2 85	
C711	V1115469	C EL RA 1M M 50E2 105	
C752	P210122	C# X7R MU 100N K 50 1206	1
C753	P210122	C# X7R MU 100N K 50 1206	1
D 1	P234099	D#4148 R DMMELF	1
D 3	P234055	D#BAT54 SCH SOT23	1
D 9	P234099	D#4148 R DMMELF	1
D 30	P234055	D#BAT54 SCH SOT23	1
D 31	P234055	D#BAT54 SCH SOT23	1
D 33	P234099	D#4148 R DMMELF	1
D 38	P234055	D#BAT54 SCH SOT23	1
D 39	P234055	D#BAT54 SCH SOT23	1
D 40	P234099	D#4148 R DMMELF	1
D 42	P234099	D#4148 R DMMELF	1
D 43	P234055	D#BAT54 SCH SOT23	1
D604	P234055	D#BAT54 SCH SOT23	1
I 1	P230653	U#BELLA 5 SOL28 P	1
I 2	P230653	U#BELLA 5 SOL28 P	1
I 3	P230705	U#34084 MC SOL16 P	1
I 4	P230095	U#074 TL SO14 P	1
I 5	P230768	U#5534 NE SO8 P	1
I 6	P230653	U#BELLA 5 SOL28 P	1
I 7	P230653	U#BELLA 5 SOL28 P	1
I 8	P230095	U#074 TL SO14 P	1

Convergence DRIVER module

GREEN Convergence module

SIT.	ITEM NO.	DESCRIPTION	QUANTITY
I 9	P230073	U#74HCT123 SO16 I	1
I 10	P230768	U#5534 NE SO8 P	1
I 11	P230095	U#074 TL SO14 P	1
I 12	P230030	U#4053 SO16 I	1
I 13	P230653	U#BELLA 5 SOL28 P	1
I 14	P230653	U#BELLA 5 SOL28 P	1
I 15	P230099	U#072 TL SO8 P	1
I 16	P230028	U#393 LM SO8 P	1
I 17	P230095	U#074 TL SO14 P	1
I 18	P230768	U#5534 NE SO8 P	1
I 19	P230451	U#4098 HCF SO16 I	1
I 20	P231489	U#835 AD SO8 I	1
I 21	P230653	U#BELLA 5 SOL28 P	1
I 22	P230653	U#BELLA 5 SOL28 P	1
I 23	P230095	U#074 TL SO14 P	1
I 24	P230030	U#4053 SO16 I	1
I 25	P230768	U#5534 NE SO8 P	1
I 26	P230653	U#BELLA 5 SOL28 P	1
I 27	P230653	U#BELLA 5 SOL28 P	1
I 28	P230095	U#074 TL SO14 P	1
I 29	P230912	U#04 MLT SOL18 I	1
I 30	P230705	U#34084 MC SOL16 P	1
I 32	P230099	U#072 TL SO8 P	1
I 33	P230768	U#5534 NE SO8 P	1
I 35	P230653	U#BELLA 5 SOL28 P	1
I 36	P230653	U#BELLA 5 SOL28 P	1
I 37	P230095	U#074 TL SO14 P	1
I 38	P231489	U#835 AD SO8 I	1
I 39	P230034	U#4013 SO14 I	1
I 40	P230768	U#5534 NE SO8 P	1
I 41	P230095	U#074 TL SO14 P	1
I 42	P230653	U#BELLA 5 SOL28 P	1
I 43	P230653	U#BELLA 5 SOL28 P	1
I 44	P230653	U#BELLA 5 SOL28 P	1
I 45	P230095	U#074 TL SO14 P	1
I 46	P230030	U#4053 SO16 I	1
I400	P231479	U#542 DG SO16 I	1
I401	P231479	U#542 DG SO16 I	1
I402	P231479	U#542 DG SO16 I	1
I403	P231479	U#542 DG SO16 I	1
I404	P230912	U#04 MLT SOL18 I	1
I405	P230095	U#074 TL SO14 P	1
I406	P230653	U#BELLA 5 SOL28 P	1
I407	P230095	U#074 TL SO14 P	1
I408	P230099	U#072 TL SO8 P	1
I409	P230653	U#BELLA 5 SOL28 P	1
I410	P231527	U#360 LM SO8 P	1
I601	P230653	U#BELLA 5 SOL28 P	1
I602	P230653	U#BELLA 5 SOL28 P	1
I603	P230095	U#074 TL SO14 P	1
I604	R134002	U 7812 TO220 P	1
I605	R134016	U 7912 TO220 P	1
I606	R134026	U 317T LM TO220 P	1
I607	R134027	U 337T TO220 P	1
I608	P230653	U#BELLA 5 SOL28 P	1
I609	P230653	U#BELLA 5 SOL28 P	1
I610	P230095	U#074 TL SO14 P	1
I611	R134011	U 7905C TO220 P	1
I612	R134001	U 7805 TO220 P	1
I613	P230095	U#074 TL SO14 P	1
I614	P230095	U#074 TL SO14 P	1
I615	P230653	U#BELLA 5 SOL28 P	1
I616	P230653	U#BELLA 5 SOL28 P	1
I617	P230095	U#074 TL SO14 P	1
I618	P230653	U#BELLA 5 SOL28 P	1
I619	P230653	U#BELLA 5 SOL28 P	1
I620	P230095	U#074 TL SO14 P	1

SIT.	ITEM NO.	DESCRIPTION	QUANTITY
I621	P230653	U#BELLA 5 SOL28 P	1
I622	P230653	U#BELLA 5 SOL28 P	1
I623	P230095	U#074 TL SO14 P	1
I624	P230653	U#BELLA 5 SOL28 P	1
I625	P230653	U#BELLA 5 SOL28 P	1
I626	P230095	U#074 TL SO14 P	1
J 1	R313925	J CT H MBT P 5 M2SN WH	1
J400	R3132862	J MD1 C MBT P 2 E1SN 6,7	1
J401	R111678	C EL BRA 10M M 25E2 85	1
J402	R313922	J CT H MBT P 2 M2SN WH	1
J403	R313922	J CT H MBT P 2 M2SN WH	1
J404	R313922	J CT H MBT P 2 M2SN WH	1
J405	R313922	J CT H MBT P 2 M2SN WH	1
J406	R315310	J TAB1 MBT H2,8S0,5 F1	1
J407	R315310	J TAB1 MBT H2,8S0,5 F1	1
J408	R315310	J TAB1 MBT H2,8S0,5 F1	1
J409	R315310	J TAB1 MBT H2,8S0,5 F1	1
J410	R315310	J TAB1 MBT H2,8S0,5 F1	1
J411	R315310	J TAB1 MBT H2,8S0,5 F1	1
J412	R3132862	J MD1 C MBT P 2 E1SN 6,7	1
J413	R313286	J MO1 C MBT P 3 R1SN 7,5	1
J601	R313928	J CT H MBT P 8 M2SN WH	1
J602	R313928	J CT H MBT P 8 M2SN WH	1
J603	R313925	J CT H MBT P 5 M2SN WH	1
J604	R313926	J CT H MBT P 6 M2SN WH	1
J605	R313928	J CT H MBT P 8 M2SN WH	1
J606	R313922	J CT H MBT P 2 M2SN WH	1
J607	R313924	J CT H MBT P 4 M2SN WH	1
J608	R313925	J CT H MBT P 5 M2SN WH	1
J609	R313928	J CT H MBT P 8 M2SN WH	1
J610	R313926	J CT H MBT P 6 M2SN WH	1
J611	R313928	J CT H MBT P 8 M2SN WH	1
J612	R313928	J CT H MBT P 8 M2SN WH	1
J613	R313928	J CT H MBT P 8 M2SN WH	1
J614	R313922	J CT H MBT P 2 M2SN WH	1
J615	R313922	J CT H MBT P 2 M2SN WH	1
J616	R313922	J CT H MBT P 2 M2SN WH	1
J617	R313923	J CT H MBT P 3 M2SN WH	1
J618	R313923	J CT H MBT P 3 M2SN WH	1
J619	R313922	J CT H MBT P 2 M2SN WH	1
J622	R313286	J MO1 C MBT P 3 R1SN 7,5	1
L601	R774154	CH D**HR HOR	1
L602	R774154	CH D**HR HOR	1
P 1	P201393	R#TCE H 50K M 0W25 S4 TS	1
P 2	P201393	R#TCE H 50K M 0W25 S4 TS	1
P 3	P201393	R#TCE H 50K M 0W25 S4 TS	1
P 4	P201393	R#TCE H 50K M 0W25 S4 TS	1
P 5	P201393	R#TCE H 50K M 0W25 S4 TS	1
P 6	P201393	R#TCE H 50K M 0W25 S4 TS	1
P400	P201393	R#TCE H 50K M 0W25 S4 TS	1
P401	P201393	R#TCE H 50K M 0W25 S4 TS	1
P402	P201393	R#TCE H 50K M 0W25 S4 TS	1
P403	P201393	R#TCE H 50K M 0W25 S4 TS	1
P404	P201393	R#TCE H 50K M 0W25 S4 TS	1
P405	P201393	R#TCE H 50K M 0W25 S4 TS	1
P406	P201393	R#TCE H 50K M 0W25 S4 TS	1
P407	P201393	R#TCE H 50K M 0W25 S4 TS	1
P408	P201393	R#TCE H 50K M 0W25 S4 TS	1
PC	R780319	PCB D700 CNV DVR	1
Q 1	P232066	Q#BSR14 N SS SOT23	1
Q 2	P232101	Q#BC859C P SS SOT23	1
Q 5	P232004	Q#BC849C N SS SOT23	1

SIT.	ITEM NO.	DESCRIPTION	QUANTITY
Q 9	P232101	Q#BC859C P SS SOT23	1
Q 19	P232101	Q#BC859C P SS SOT23	1
Q 20	P232004	Q#BC849C N SS SOT23	1
Q 21	P232101	Q#BC859C P SS SOT23	1
Q 22	P232101	Q#BC859C P SS SOT23	1
Q 23	P232079	Q#BSS84 F SS SOT23	1
Q603	P232066	Q#BSR14 N SS SOT23	1
Q604	P232004	Q#BC849C N SS SOT23	1
R 1	P200433	R# CE H 8K2 F 0W25 1206	1
R 2	P200425	R# CE H 3K9 F 0W25 1206	1
R 3	P200413	R# CE H 1K2 F 0W25 1206	1
R 5	P200411	R# CE H 1K F 0W25 1206	1
R 6	P200395	R# CE H220E F 0W25 1206	1
R 7	P200411	R# CE H 1K F 0W25 1206	1
R 10	P200427	R# CE H 4K7 F 0W25 1206	1
R 12	P200427	R# CE H 4K7 F 0W25 1206	1
R 14	P200411	R# CE H 1K F 0W25 1206	1
R 15	P200439	R# CE H 15K F 0W25 1206	1
R 16	P200411	R# CE H 1K F 0W25 1206	1
R 17	P200429	R# CE H 5K6 F 0W25 1206	1
R 18	P200429	R# CE H 5K6 F 0W25 1206	1
R 19	P200423	R# CE H 3K3 F 0W25 1206	1
R 23	P200469	R# CE H270K F 0W25 1206	1
R 25	P200411	R# CE H 1K F 0W25 1206	1
R 26	P200411	R# CE H 1K F 0W25 1206	1
R 27	P200439	R# CE H 15K F 0W25 1206	1
R 28	P200439	R# CE H 15K F 0W25 1206	1
R 29	P200439	R# CE H 15K F 0W25 1206	1
R 30	P200413	R# CE H 1K2 F 0W25 1206	1
R 31	P200411	R# CE H 1K F 0W25 1206	1
R 32	P200416	R# CE H 1K6 F 0W25 1206	1
R 33	P200429	R# CE H 5K6 F 0W25 1206	1
R 34	P200435	R# CE H 10K F 0W25 1206	1
R 35	P200459	R# CE H100K F 0W25 1206	1
R 36	P200411	R# CE H 1K F 0W25 1206	1
R 37	P200435	R# CE H 10K F 0W25 1206	1
R 42	P200443	R# CE H 22K F 0W25 1206	1
R 43	P200363	R# CE H 10E F 0W25 1206	1
R 44	P200437	R# CE H 12K F 0W25 1206	1
R 45	P200437	R# CE H 12K F 0W25 1206	1
R 46	P200435	R# CE H 10K F 0W25 1206	1
R 47	P200419	R# CE H 2K2 F 0W25 1206	1
R 48	P200419	R# CE H 2K2 F 0W25 1206	1
R 49	P200435	R# CE H 10K F 0W25 1206	1
R 50	P200435	R# CE H 10K F 0W25 1206	1
R 51	P200459	R# CE H100K F 0W25 1206	1
R 52	P200409	R# CE H820E F 0W25 1206	1
R 54	P200386	R# CE H 91E F 0W25 1206	1
R 55	P200389	R# CE H120E F 0W25 1206	1
R 58	P200427	R# CE H 4K7 F 0W25 1206	1
R 59	P200423	R# CE H 3K3 F 0W25 1206	1
R 60	P200419	R# CE H 2K2 F 0W25 1206	1
R 61	P200419	R# CE H 2K2 F 0W25 1206	1
R 62	P200435	R# CE H 10K F 0W25 1206	1
R 63	P200435	R# CE H 10K F 0W25 1206	1
R 64	P200435	R# CE H 10K F 0W25 1206	1
R 65	P200437	R# CE H 12K F 0W25 1206	1
R 66	P200437	R# CE H 12K F 0W25 1206	1
R 67	P200419	R# CE H 2K2 F 0W25 1206	1
R 68	P200411	R# CE H 1K F 0W25 1206	1
R 69	P200419	R# CE H 2K2 F 0W25 1206	1
R 70	P200437	R# CE H 12K F 0W25 1206	1
R 71	P200411	R# CE H 1K F 0W25 1206	1
R 72	P200411	R# CE H 1K F 0W25 1206	1
R 73	P200437	R# CE H 12K F 0W25 1206	1
R 75	P200443	R# CE H 22K F 0W25 1206	1
R 77	P200411	R# CE H 1K F 0W25 1206	1
R 78	P200437	R# CE H 12K F 0W25 1206	1
R 79	P200411	R# CE H 1K F 0W25 1206	1
R 80	P200403	R# CE H470E F 0W25 1206	1
R 81	P200437	R# CE H 12K F 0W25 1206	1
R 82	P200411	R# CE H 1K F 0W25 1206	1
R 83	P200451	R# CE H 47K F 0W25 1206	1
R 84	P200451	R# CE H 47K F 0W25 1206	1
R 85	P200451	R# CE H 47K F 0W25 1206	1
R 86	P200435	R# CE H 10K F 0W25 1206	1
R 87	P200435	R# CE H 10K F 0W25 1206	1
R 88	P200435	R# CE H 10K F 0W25 1206	1
R 89	P200419	R# CE H 2K2 F 0W25 1206	1
R 90	P200435	R# CE H 10K F 0W25 1206	1
R 91	P200425	R# CE H 3K9 F 0W25 1206	1
R 92	P200419	R# CE H 2K2 F 0W25 1206	1
R 93	P200443	R# CE H 22K F 0W25 1206	1
R 97	P200435	R# CE H 10K F 0W25 1206	1
R 98	P200435	R# CE H 10K F 0W25 1206	1
R 99	P200435	R# CE H 10K F 0W25 1206	1
R100	P200423	R# CE H 3K3 F 0W25 1206	1
R102	P200443	R# CE H 22K F 0W25 1206	1
R103	P200411	R# CE H 1K F 0W25 1206	1
R104	P200411	R# CE H 1K F 0W25 1206	1
R105	P200413	R# CE H 1K2 F 0W25 1206	1
R106	P200443	R# CE H 22K F 0W25 1206	1
R107	P200387	R# CE H100E F 0W25 1206	1
R108	P200425	R# CE H 3K9 F 0W25 1206	1
R109	P200419	R# CE H 2K2 F 0W25 1206	1
R110	P200443	R# CE H 22K F 0W25 1206	1
R111	P200425	R# CE H 3K9 F 0W25 1206	1
R112	P200417	R# CE H 1K8 F 0W25 1206	1
R113	P200411	R# CE H 1K F 0W25 1206	1
R114	P200419	R# CE H 2K2 F 0W25 1206	1
R116	P200443	R# CE H 22K F 0W25 1206	1
R118	P200437	R# CE H 12K F 0W25 1206	1
R119	P200437	R# CE H 12K F 0W25 1206	1
R120	P200419	R# CE H 2K2 F 0W25 1206	1
R121	P200419	R# CE H 2K2 F 0W25 1206	1
R122	P200439	R# CE H 15K F 0W25 1206	1
R123	P200439	R# CE H 15K F 0W25 1206	1
R124	P200439	R# CE H 15K F 0W25 1206	1
R125	P200439	R# CE H 15K F 0W25 1206	1
R126	P200435	R# CE H 10K F 0W25 1206	1
R127	P200423	R# CE H 3K3 F 0W25 1206	1
R128	P200443	R# CE H 22K F 0W25 1206	1
R129	P200403	R# CE H470E F 0W25 1206	1
R130	P200403	R# CE H470E F 0W25 1206	1
R131	P200419	R# CE H 2K2 F 0W25 1206	1
R132	P200439	R# CE H 15K F 0W25 1206	1
R133	P200439	R# CE H 15K F 0W25 1206	1
R134	P200439	R# CE H 15K F 0W25 1206	1
R135	P200439	R# CE H 15K F 0W25 1206	1
R136	P200419	R# CE H 2K2 F 0W25 1206	1
R137	P200437	R# CE H 12K F 0W25 1206	1
R138	P200437	R# CE H 12K F 0W25 1206	1
R139	P200409	R# CE H820E F 0W25 1206	1
R140	P200417	R# CE H 1K8 F 0W25 1206	1
R141	P200417	R# CE H 1K8 F 0W25 1206	1
R143	P200459	R# CE H100K F 0W25 1206	1
R145	P200395	R# CE H220E F 0W25 1206	1
R146	P200435	R# CE H 10K F 0W25 1206	1
R152	P200425	R# CE H 3K9 F 0W25 1206	1
R153	P200417	R# CE H 1K8 F 0W25 1206	1
R154	P200419	R# CE H 2K2 F 0W25 1206	1
R157	P200435	R# CE H 10K F 0W25 1206	1
R160	P200435	R# CE H 10K F 0W25 1206	1

Convergence DRIVER module

R7625189

GREEN Convergence module

R7625128

SIT.	ITEM NO.	DESCRIPTION	QUANTITY	SIT.	ITEM NO.	DESCRIPTION	QUANTITY
R161	P200427	R# CE H 4K7 F 0W25 1206	1	R247	P200419	R# CE H 2K2 F 0W25 1206	1
R162	P200427	R# CE H 4K7 F 0W25 1206	1	R248	P200419	R# CE H 2K2 F 0W25 1206	1
R163	P200411	R# CE H 1K F 0W25 1206	1	R249	P200411	R# CE H 1K F 0W25 1206	1
R164	P200419	R# CE H 2K2 F 0W25 1206	1	R250	P200419	R# CE H 2K2 F 0W25 1206	1
R165	P200439	R# CE H 15K F 0W25 1206	1	R251	P200415	R# CE H 1K5 F 0W25 1206	1
R166	P200439	R# CE H 15K F 0W25 1206	1	R252	P200411	R# CE H 1K F 0W25 1206	1
R167	P200439	R# CE H 15K F 0W25 1206	1	R253	P200441	R# CE H 18K F 0W25 1206	1
R168	P200439	R# CE H 15K F 0W25 1206	1	R254	P200441	R# CE H 18K F 0W25 1206	1
R170	P200443	R# CE H 22K F 0W25 1206	1	R255	P200441	R# CE H 18K F 0W25 1206	1
R173	P200419	R# CE H 2K2 F 0W25 1206	1	R256	P200441	R# CE H 18K F 0W25 1206	1
R174	P200439	R# CE H 15K F 0W25 1206	1	R257	P200469	R# CE H270K F 0W25 1206	1
R175	P200439	R# CE H 15K F 0W25 1206	1	R258	P200433	R# CE H 8K2 F 0W25 1206	1
R176	P200439	R# CE H 15K F 0W25 1206	1	R261	P200459	R# CE H100K F 0W25 1206	1
R177	P200439	R# CE H 15K F 0W25 1206	1	R262	P200411	R# CE H 1K F 0W25 1206	1
R178	P200411	R# CE H 1K F 0W25 1206	1	R264	P200443	R# CE H 22K F 0W25 1206	1
R179	P200427	R# CE H 4K7 F 0W25 1206	1	R266	P200435	R# CE H 10K F 0W25 1206	1
R180	P200427	R# CE H 4K7 F 0W25 1206	1	R267	P200435	R# CE H 10K F 0W25 1206	1
R181	P200423	R# CE H 3K3 F 0W25 1206	1	R268	P200441	R# CE H 18K F 0W25 1206	1
R182	P200417	R# CE H 1K8 F 0W25 1206	1	R269	P200441	R# CE H 18K F 0W25 1206	1
R183	P200417	R# CE H 1K8 F 0W25 1206	1	R270	P200441	R# CE H 18K F 0W25 1206	1
R184	P200471	R# CE H330K F 0W25 1206	1	R273	P200441	R# CE H 18K F 0W25 1206	1
R188	P200435	R# CE H 10K F 0W25 1206	1	R274	P200441	R# CE H 18K F 0W25 1206	1
R195	P200413	R# CE H 1K2 F 0W25 1206	1	R275	P200441	R# CE H 18K F 0W25 1206	1
R196	P200411	R# CE H 1K F 0W25 1206	1	R276	P200435	R# CE H 10K F 0W25 1206	1
R197	P200416	R# CE H 1K6 F 0W25 1206	1	R277	P200435	R# CE H 10K F 0W25 1206	1
R198	P200417	R# CE H 1K8 F 0W25 1206	1	R278	P200453	R# CE H 56K F 0W25 1206	1
R200	P200437	R# CE H 12K F 0W25 1206	1	R279	P200395	R# CE H220E F 0W25 1206	1
R202	P200427	R# CE H 4K7 F 0W25 1206	1	R280	P200419	R# CE H 2K2 F 0W25 1206	1
R203	P200427	R# CE H 4K7 F 0W25 1206	1	R281	P200433	R# CE H 8K2 F 0W25 1206	1
R204	P200419	R# CE H 2K2 F 0W25 1206	1	R282	P200433	R# CE H 8K2 F 0W25 1206	1
R205	P200419	R# CE H 2K2 F 0W25 1206	1	R283	P200435	R# CE H 10K F 0W25 1206	1
R206	P200439	R# CE H 15K F 0W25 1206	1	R284	P200419	R# CE H 2K2 F 0W25 1206	1
R207	P200439	R# CE H 15K F 0W25 1206	1	R285	P200419	R# CE H 2K2 F 0W25 1206	1
R208	P200439	R# CE H 15K F 0W25 1206	1	R286	P200411	R# CE H 1K F 0W25 1206	1
R209	P200439	R# CE H 15K F 0W25 1206	1	R287	P200443	R# CE H 22K F 0W25 1206	1
R210	P200427	R# CE H 4K7 F 0W25 1206	1	R288	P200459	R# CE H100K F 0W25 1206	1
R211	P200443	R# CE H 22K F 0W25 1206	1	R289	P200419	R# CE H 2K2 F 0W25 1206	1
R215	P200419	R# CE H 2K2 F 0W25 1206	1	R290	P200363	R# CE H 10E F 0W25 1206	1
R216	P200439	R# CE H 15K F 0W25 1206	1	R291	P200411	R# CE H 1K F 0W25 1206	1
R217	P200439	R# CE H 15K F 0W25 1206	1	R292	P200411	R# CE H 1K F 0W25 1206	1
R218	P200439	R# CE H 15K F 0W25 1206	1	R293	P200417	R# CE H 1K8 F 0W25 1206	1
R219	P200439	R# CE H 15K F 0W25 1206	1	R294	P200417	R# CE H 1K8 F 0W25 1206	1
R220	P200423	R# CE H 3K3 F 0W25 1206	1	R297	P200411	R# CE H 1K F 0W25 1206	1
R221	P200411	R# CE H 1K F 0W25 1206	1	R298	P200411	R# CE H 1K F 0W25 1206	1
R222	P200419	R# CE H 2K2 F 0W25 1206	1	R300	P200387	R# CE H100E F 0W25 1206	1
R223	P200427	R# CE H 4K7 F 0W25 1206	1	R302	P200411	R# CE H 1K F 0W25 1206	1
R224	P200427	R# CE H 4K7 F 0W25 1206	1	R303	P200461	R# CE H120K F 0W25 1206	1
R225	P200411	R# CE H 1K F 0W25 1206	1	R304	P200443	R# CE H 22K F 0W25 1206	1
R228	P200409	R# CE H820E F 0W25 1206	1	R305	P200443	R# CE H 22K F 0W25 1206	1
R229	P200417	R# CE H 1K8 F 0W25 1206	1	R306	P200387	R# CE H100E F 0W25 1206	1
R230	P200417	R# CE H 1K8 F 0W25 1206	1	R307	P200463	R# CE H150K F 0W25 1206	1
R231	P200443	R# CE H 22K F 0W25 1206	1	R308	P200411	R# CE H 1K F 0W25 1206	1
R232	P200459	R# CE H100K F 0W25 1206	1	R309	P200403	R# CE H470E F 0W25 1206	1
R233	P200435	R# CE H 10K F 0W25 1206	1	R310	P200387	R# CE H100E F 0W25 1206	1
R234	P200459	R# CE H100K F 0W25 1206	1	R311	P200403	R# CE H470E F 0W25 1206	1
R235	P200435	R# CE H 10K F 0W25 1206	1	R312	P200387	R# CE H100E F 0W25 1206	1
R236	P200445	R# CE H 27K F 0W25 1206	1	R313	P200403	R# CE H470E F 0W25 1206	1
R237	P200423	R# CE H 3K3 F 0W25 1206	1	R314	P200387	R# CE H100E F 0W25 1206	1
R238	P200363	R# CE H 10E F 0W25 1206	1	R315	P200403	R# CE H470E F 0W25 1206	1
R239	P200437	R# CE H 12K F 0W25 1206	1	R316	P200387	R# CE H100E F 0W25 1206	1
R240	P200427	R# CE H 4K7 F 0W25 1206	1	R317	P200363	R# CE H 10E F 0W25 1206	1
R241	P200363	R# CE H 10E F 0W25 1206	1	R318	P200463	R# CE H150K F 0W25 1206	1
R242	P200432	R# CE H 7K5 F 0W25 1206	1	R319	P200411	R# CE H 1K F 0W25 1206	1
R243	P200427	R# CE H 4K7 F 0W25 1206	1	R320	P200411	R# CE H 1K F 0W25 1206	1
R244	P200419	R# CE H 2K2 F 0W25 1206	1	R321	P200443	R# CE H 22K F 0W25 1206	1
R245	P200419	R# CE H 2K2 F 0W25 1206	1	R322	P200465	R# CE H180K F 0W25 1206	1
R246	P200433	R# CE H 8K2 F 0W25 1206	1	R325	P200363	R# CE H 10E F 0W25 1206	1

SIT.	ITEM NO.	DESCRIPTION	QUANTITY
R326	P200429	R# CE H 5K6 F 0W25 1206	1
R327	P200435	R# CE H 10K F 0W25 1206	1
R328	P200425	R# CE H 3K9 F 0W25 1206	1
R329	P200363	R# CE H 10E F 0W25 1206	1
R330	P200435	R# CE H 10K F 0W25 1206	1
R331	P200435	R# CE H 10K F 0W25 1206	1
R332	P200425	R# CE H 3K9 F 0W25 1206	1
R333	P200435	R# CE H 10K F 0W25 1206	1
R334	P200403	R# CE H470E F 0W25 1206	1
R335	P200387	R# CE H100E F 0W25 1206	1
R336	P200403	R# CE H470E F 0W25 1206	1
R337	P200387	R# CE H100E F 0W25 1206	1
R338	P200403	R# CE H470E F 0W25 1206	1
R339	P200387	R# CE H100E F 0W25 1206	1
R340	P200403	R# CE H470E F 0W25 1206	1
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R343	P200387	R# CE H100E F 0W25 1206	1
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R345	P200387	R# CE H100E F 0W25 1206	1
R346	P200403	R# CE H470E F 0W25 1206	1
R347	P200387	R# CE H100E F 0W25 1206	1
R348	P200403	R# CE H470E F 0W25 1206	1
R349	P200387	R# CE H100E F 0W25 1206	1
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R352	P200403	R# CE H470E F 0W25 1206	1
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R360	P200403	R# CE H470E F 0W25 1206	1
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R374	P200403	R# CE H470E F 0W25 1206	1
R375	P200387	R# CE H100E F 0W25 1206	1
R378	P200459	R# CE H100K F 0W25 1206	1
R379	P200403	R# CE H470E F 0W25 1206	1
R380	P200387	R# CE H100E F 0W25 1206	1
R381	P200403	R# CE H470E F 0W25 1206	1
R382	P200387	R# CE H100E F 0W25 1206	1
R383	P200363	R# CE H 10E F 0W25 1206	1
R384	P200363	R# CE H 10E F 0W25 1206	1
R385	P200363	R# CE H 10E F 0W25 1206	1
R386	P200363	R# CE H 10E F 0W25 1206	1
R387	P200363	R# CE H 10E F 0W25 1206	1
R388	P200363	R# CE H 10E F 0W25 1206	1
R400	P200443	R# CE H 22K F 0W25 1206	1
R401	P200431	R# CE H 6K8 F 0W25 1206	1
R402	P200436	R# CE H 11K F 0W25 1206	1
R403	P200469	R# CE H270K F 0W25 1206	1
R404	P200469	R# CE H270K F 0W25 1206	1
R405	P200469	R# CE H270K F 0W25 1206	1
R406	P200469	R# CE H270K F 0W25 1206	1
R407	P200469	R# CE H270K F 0W25 1206	1
R408	P200469	R# CE H270K F 0W25 1206	1
R409	P200471	R# CE H330K F 0W25 1206	1
R410	P200443	R# CE H 22K F 0W25 1206	1
R411	P200431	R# CE H 6K8 F 0W25 1206	1
R412	P200417	R# CE H 1K8 F 0W25 1206	1
R413	P200435	R# CE H 10K F 0W25 1206	1
R414	P200443	R# CE H 22K F 0W25 1206	1
R415	P200431	R# CE H 6K8 F 0W25 1206	1
R416	P200417	R# CE H 1K8 F 0W25 1206	1
R417	P200435	R# CE H 10K F 0W25 1206	1
R418	P200411	R# CE H 1K F 0W25 1206	1
R419	P200411	R# CE H 1K F 0W25 1206	1
R420	P200411	R# CE H 1K F 0W25 1206	1
R421	P200411	R# CE H 1K F 0W25 1206	1
R422	P200411	R# CE H 1K F 0W25 1206	1
R423	P200411	R# CE H 1K F 0W25 1206	1
R424	P200403	R# CE H470E F 0W25 1206	1
R425	P200387	R# CE H100E F 0W25 1206	1
R426	P200435	R# CE H 10K F 0W25 1206	1
R427	P200435	R# CE H 10K F 0W25 1206	1
R428	P200435	R# CE H 10K F 0W25 1206	1
R429	P200449	R# CE H 39K F 0W25 1206	1
R430	P200449	R# CE H 39K F 0W25 1206	1
R431	P200449	R# CE H 39K F 0W25 1206	1
R432	P200435	R# CE H 10K F 0W25 1206	1
R433	P200435	R# CE H 10K F 0W25 1206	1
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R435	P200435	R# CE H 10K F 0W25 1206	1
R436	P200435	R# CE H 10K F 0W25 1206	1
R437	P200435	R# CE H 10K F 0W25 1206	1
R438	P200443	R# CE H 22K F 0W25 1206	1
R439	P200447	R# CE H 33K F 0W25 1206	1
R440	P200443	R# CE H 22K F 0W25 1206	1
R441	P200427	R# CE H 4K7 F 0W25 1206	1
R442	P200411	R# CE H 1K F 0W25 1206	1
R443	P200411	R# CE H 1K F 0W25 1206	1
R444	P200411	R# CE H 1K F 0W25 1206	1
R445	P200411	R# CE H 1K F 0W25 1206	1
R446	P200403	R# CE H470E F 0W25 1206	1
R447	P200387	R# CE H100E F 0W25 1206	1
R448	P200443	R# CE H 22K F 0W25 1206	1
R449	P200447	R# CE H 33K F 0W25 1206	1
R450	P200411	R# CE H 1K F 0W25 1206	1
R451	P200411	R# CE H 1K F 0W25 1206	1
R452	P200427	R# CE H 4K7 F 0W25 1206	1
R453	P200427	R# CE H 4K7 F 0W25 1206	1
R454	P200429	R# CE H 5K6 F 0W25 1206	1
R455	P200429	R# CE H 5K6 F 0W25 1206	1
R456	P200471	R# CE H330K F 0W25 1206	1
R457	P200471	R# CE H330K F 0W25 1206	1
R460	P200470	R# CE H300K F 0W25 1206	1
R461	P200435	R# CE H 10K F 0W25 1206	1
R465	P200339	R# CE H 1E F 0W25 1206	1
R466	P200407	R# CE H680E F 0W25 1206	1
R467	P200407	R# CE H680E F 0W25 1206	1
R468	P200413	R# CE H 1K2 F 0W25 1206	1
R469	P200407	R# CE H680E F 0W25 1206	1
R470	P200407	R# CE H680E F 0W25 1206	1
R471	P200407	R# CE H680E F 0W25 1206	1
R472	P200407	R# CE H680E F 0W25 1206	1
R473	P200407	R# CE H680E F 0W25 1206	1
R474	P200407	R# CE H680E F 0W25 1206	1
R475	P200407	R# CE H680E F 0W25 1206	1
R476	P200407	R# CE H680E F 0W25 1206	1
R477	P200407	R# CE H680E F 0W25 1206	1
R478	P200407	R# CE H680E F 0W25 1206	1
R480	P200427	R# CE H 4K7 F 0W25 1206	1
R490	R101548	R MF H 10K F 0W4 E3	1
R491	R101548	R MF H 10K F 0W4 E3	1

SIT.	ITEM NO.	DESCRIPTION	QUANTITY
R601	P200433	R# CE H 8K2 F 0W25 1206	1
R602	P200437	R# CE H 12K F 0W25 1206	1
R604	P200423	R# CE H 3K3 F 0W25 1206	1
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R606	P200423	R# CE H 3K3 F 0W25 1206	1
R607	P200411	R# CE H 1K F 0W25 1206	1
R608	P200419	R# CE H 2K2 F 0W25 1206	1
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R612	P200411	R# CE H 1K F 0W25 1206	1
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R614	P200435	R# CE H 10K F 0W25 1206	1
R615	P200363	R# CE H 10E F 0W25 1206	1
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R617	P200439	R# CE H 15K F 0W25 1206	1
R618	P200435	R# CE H 10K F 0W25 1206	1
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R621	P200439	R# CE H 15K F 0W25 1206	1
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R623	P200429	R# CE H 5K6 F 0W25 1206	1
R624	P200423	R# CE H 3K3 F 0W25 1206	1
R625	P200419	R# CE H 2K2 F 0W25 1206	1
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R628	P200429	R# CE H 5K6 F 0W25 1206	1
R629	P200435	R# CE H 10K F 0W25 1206	1
R630	P200419	R# CE H 2K2 F 0W25 1206	1
R631	P200443	R# CE H 22K F 0W25 1206	1
R632	P200391	R# CE H150E F 0W25 1206	1
R633	P200381	R# CE H 56E F 0W25 1206	1
R634	P200395	R# CE H220E F 0W25 1206	1
R635	P200429	R# CE H 5K6 F 0W25 1206	1
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R658	P200451	R# CE H 47K F 0W25 1206	1
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R661	P200427	R# CE H 4K7 F 0W25 1206	1
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R693	P200439	R# CE H 15K F 0W25 1206	1
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R696	P200419	R# CE H 2K2 F 0W25 1206	1
R697	P200419	R# CE H 2K2 F 0W25 1206	1
R698	P200411	R# CE H 1K F 0W25 1206	1
R699	P200419	R# CE H 2K2 F 0W25 1206	1
R700	P200419	R# CE H 2K2 F 0W25 1206	1
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R708	P200439	R# CE H 15K F 0W25 1206	1
R709	P200439	R# CE H 15K F 0W25 1206	1
R711	P200419	R# CE H 2K2 F 0W25 1206	1
R712	P200419	R# CE H 2K2 F 0W25 1206	1
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R730	P200415	R# CE H 1K5 F 0W25 1206	1
R731	P200426	R# CE H 4K3 F 0W25 1206	1
R732	P200435	R# CE H 10K F 0W25 1206	1
R733	P200415	R# CE H 1K5 F 0W25 1206	1
R734	P200427	R# CE H 4K7 F 0W25 1206	1
R735	P200419	R# CE H 2K2 F 0W25 1206	1
R736	P200423	R# CE H 3K3 F 0W25 1206	1
R737	P200423	R# CE H 3K3 F 0W25 1206	1
R738	P200419	R# CE H 2K2 F 0W25 1206	1
R739	P200435	R# CE H 10K F 0W25 1206	1
R740	P200441	R# CE H 18K F 0W25 1206	1

SIT.	ITEM NO.	DESCRIPTION	QUANTITY
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R742	P200435	R# CE H 10K F 0W25 1206	1
R743	P200419	R# CE H 2K2 F 0W25 1206	1
R744	P200419	R# CE H 2K2 F 0W25 1206	1
R745	P200423	R# CE H 3K3 F 0W25 1206	1
R746	P200423	R# CE H 3K3 F 0W25 1206	1
R747	P200441	R# CE H 18K F 0W25 1206	1
R748	P200441	R# CE H 18K F 0W25 1206	1
R749	P200441	R# CE H 18K F 0W25 1206	1
R750	P200441	R# CE H 18K F 0W25 1206	1
R751	P200435	R# CE H 10K F 0W25 1206	1
R752	P200435	R# CE H 10K F 0W25 1206	1
R753	P200441	R# CE H 18K F 0W25 1206	1
R754	P200441	R# CE H 18K F 0W25 1206	1
R755	P200397	R# CE H270E F 0W25 1206	1
R756	P200397	R# CE H270E F 0W25 1206	1
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R801	P200387	R# CE H100E F 0W25 1206	1
R802	P200403	R# CE H470E F 0W25 1206	1
R803	P200387	R# CE H100E F 0W25 1206	1
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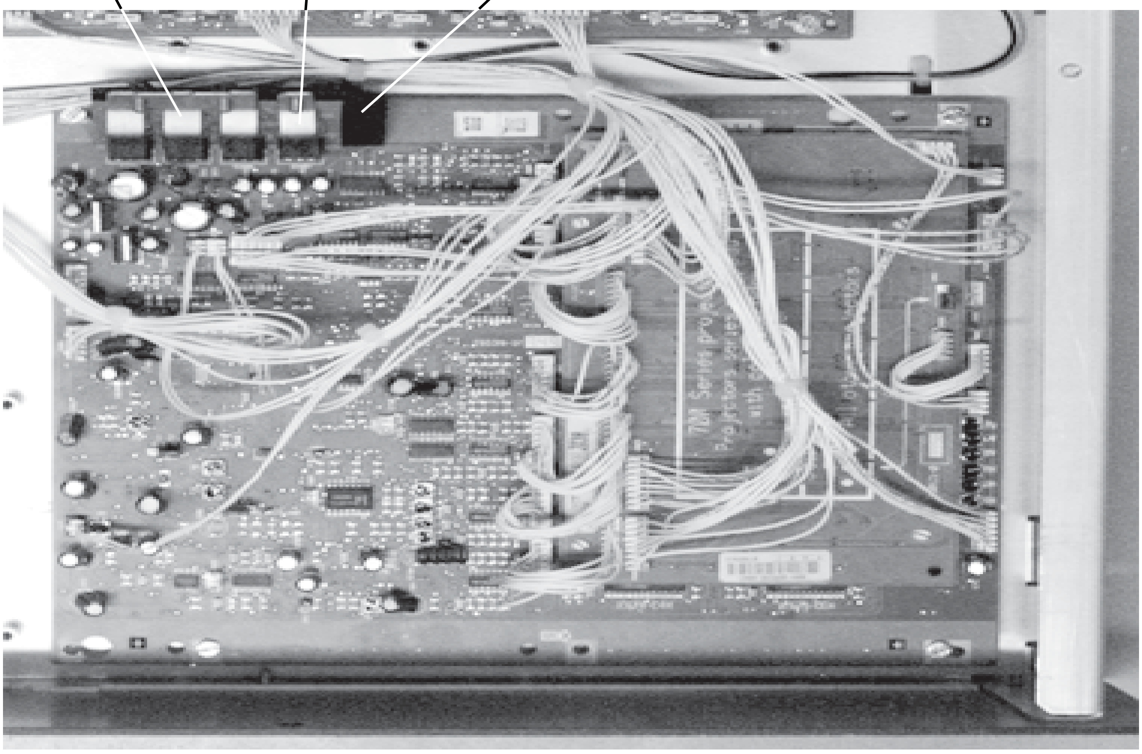
SR 2	R1001909	R CFFV E1 K 0W4 E1	1 ⚠
SR 3	R1001909	R CFFV E1 K 0W4 E1	1 ⚠
SR 4	R1001909	R CFFV E1 K 0W4 E1	1 ⚠
Z 1	P234127	D#ZEN 5V1 0W5 C DMMELF	1
Z 2	P234127	D#ZEN 5V1 0W5 C DMMELF	1

PRODUCT SAFETY NOTICE

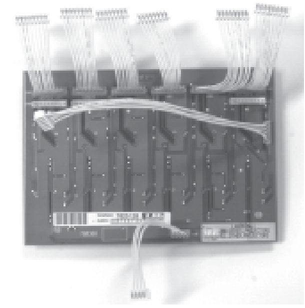
Components identified by ⚠ have SPECIAL CHARACTERISTICS IMPORTANT TO SAFETY. Before replacing any of these components, read carefully the service safety precautions.

R804769 Heatsink 3xM3 R804674 Heatsink 1xM3 R805954 Heatsink



Mounting guidelines for the GREEN convergence module R7625128

Green convergence module R7625128

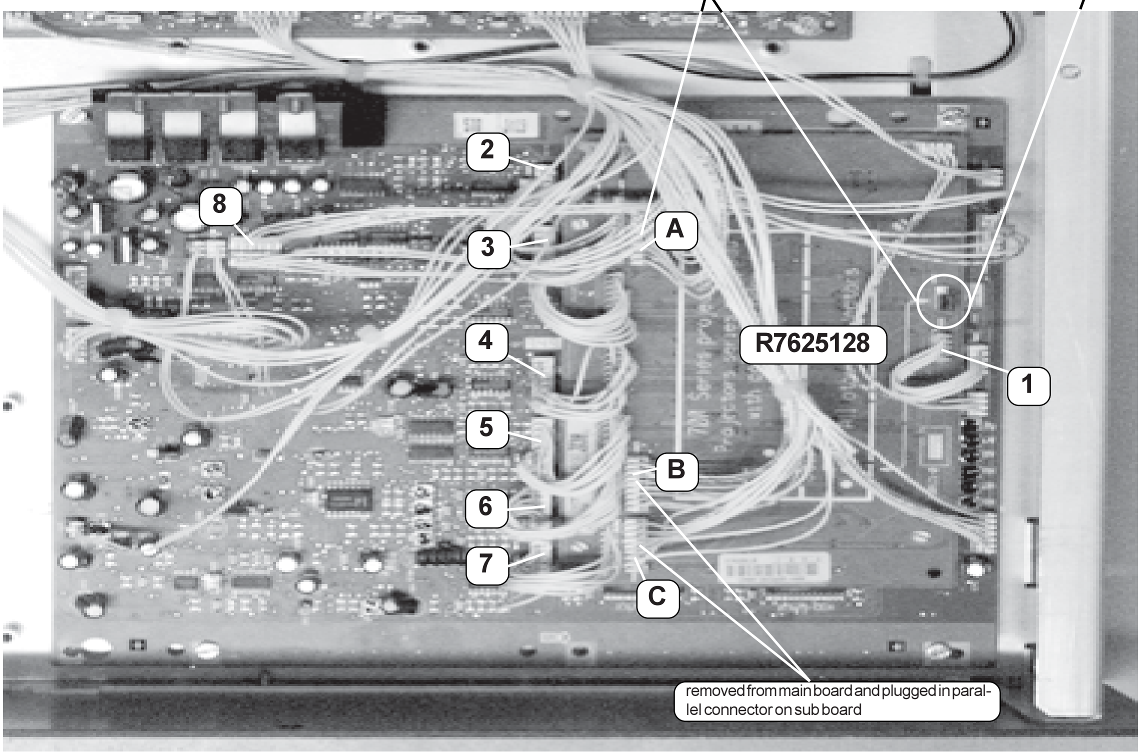


Adding the Green convergence module

- Disconnect the 3 connectors A, B and C from main module.
- Plug the module in the free connectors on the main module.
- Install connection to and from the green Convergence module by plugging in the respective connectors (see photo below).

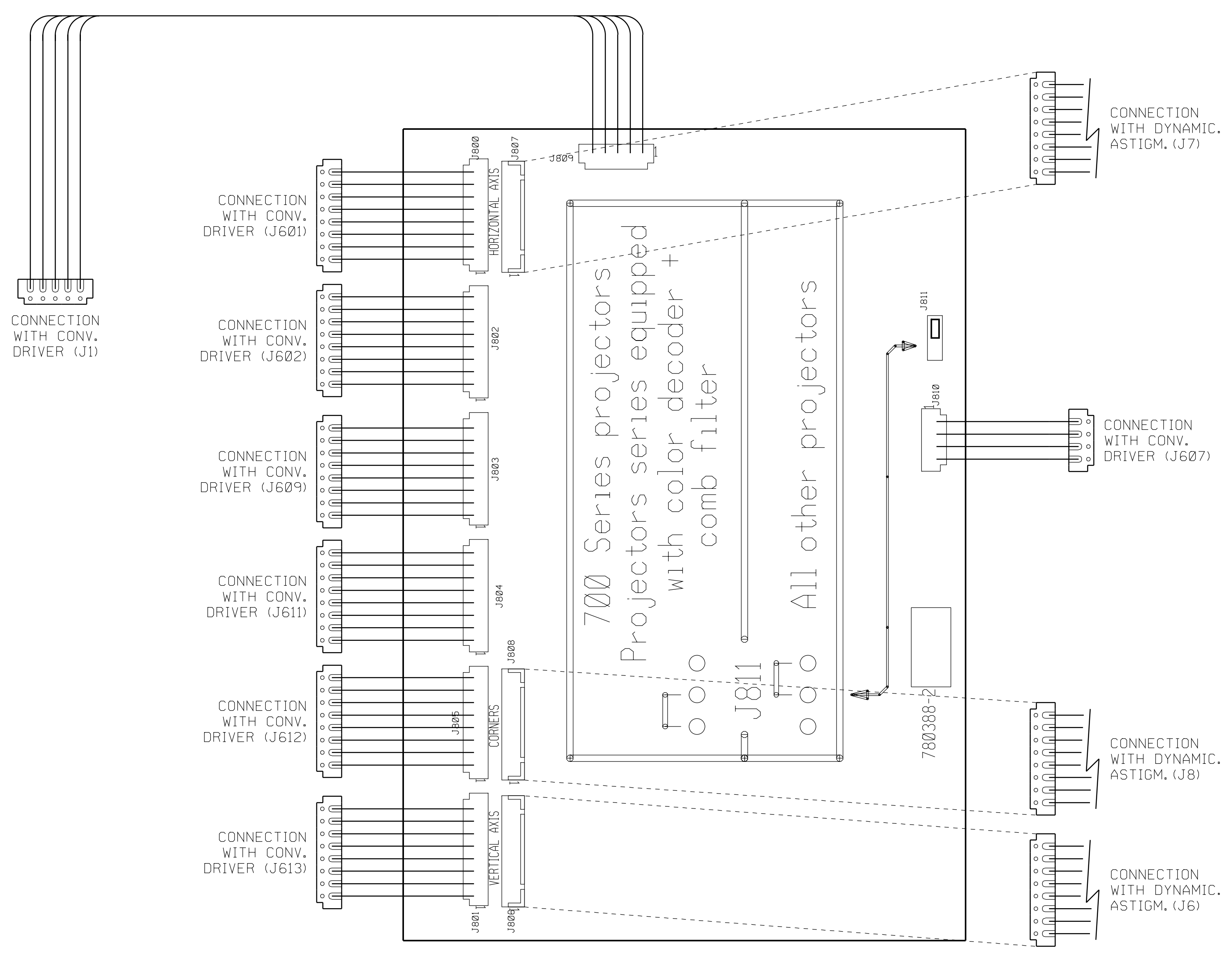
2 ● 1 ● 3 ●	Address setting (A5=1) for the Digital potentiometers on the Green convergence module Short-circuit pins 1 & 2, using the removable link.

removed from main board and plugged in parallel connector on sub board

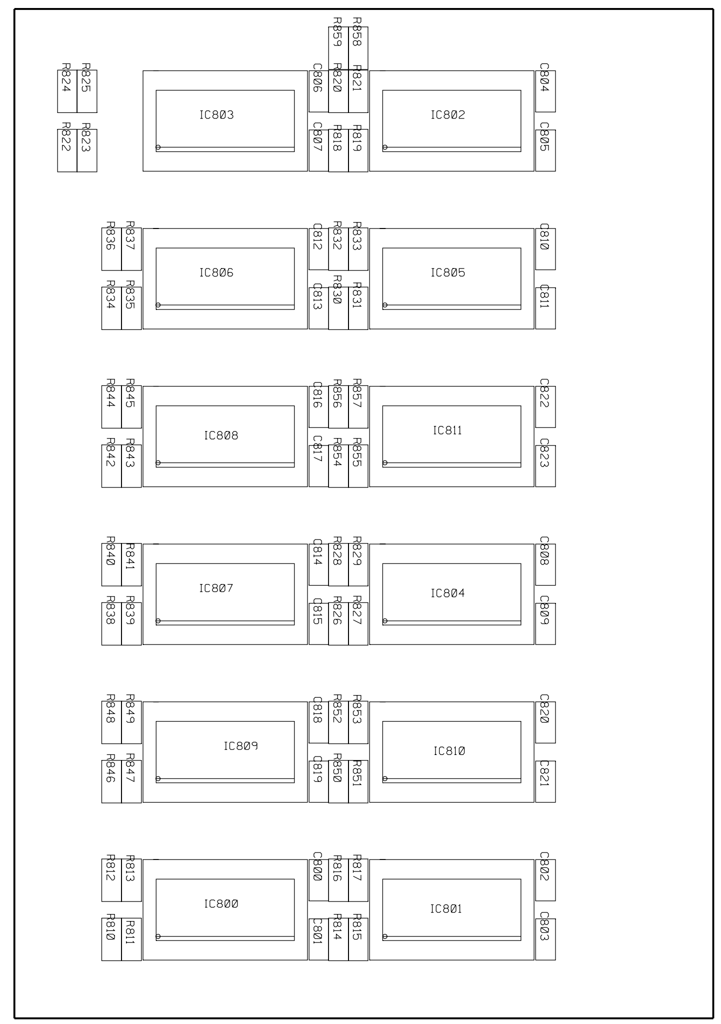


BARCO

TOP VIEW



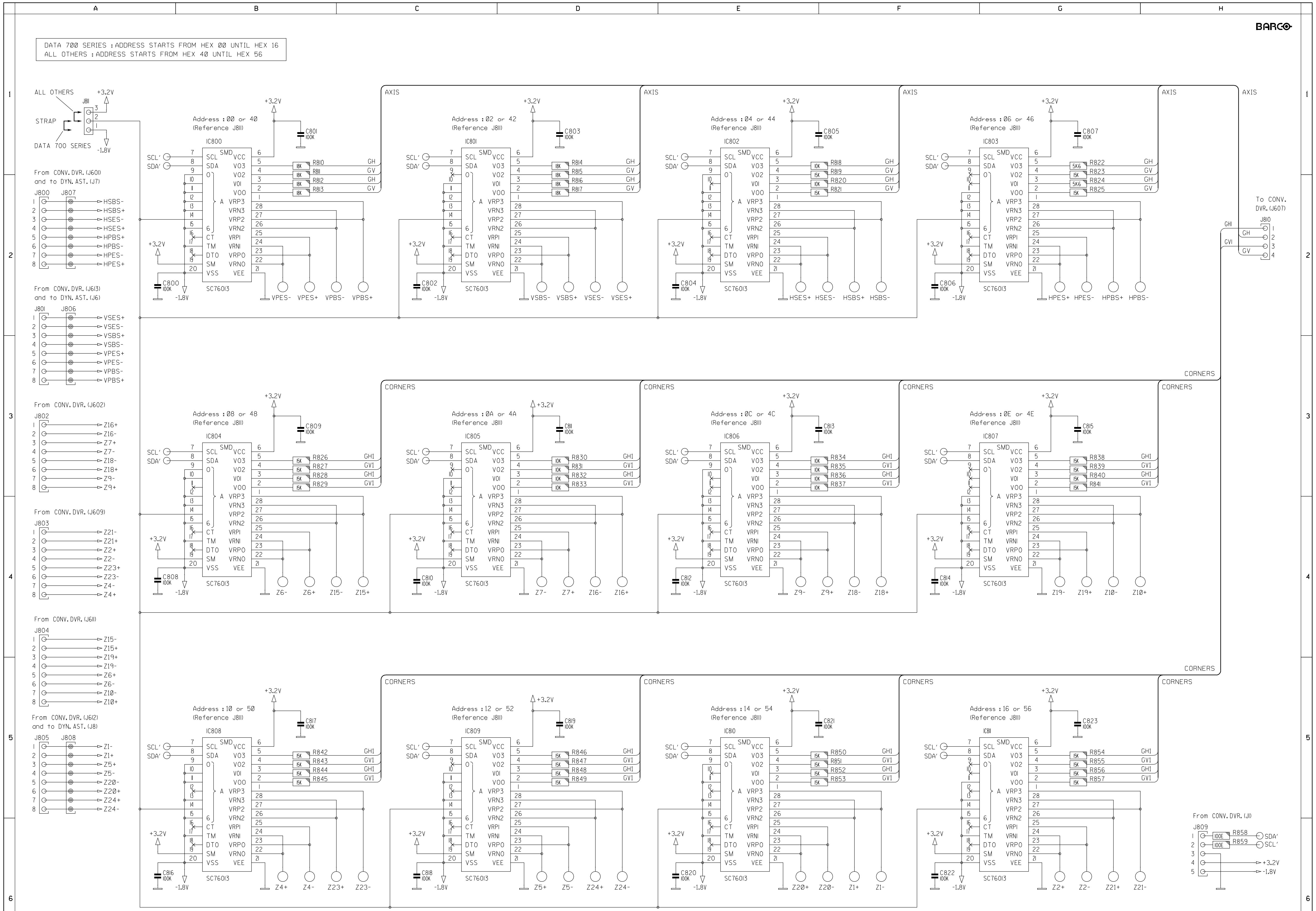
BOTTOM VIEW



Modifications reserved

Name			Sheet
GREEN CONVERGENCE			1 / 1
Module No R7625128	Index 0	PCB No R780388	Rev 2
Date 24-11-1997	Drawn JVDY	Checked GM	

BARCO PROJECTION SYSTEMS



Name	Sheet
GREEN CONVERGENCE	1/1

Module No	Index	PCB No	Rev
R7625128	0	R780388	2

Date	Drawn	Checked
24-11-1997	JVDY	GM

BARCO PROJECTION SYSTEMS

COMP.	LOC.
C800	A 2
C801	B 1
C802	C 2
C803	D 1
C804	E 2
C805	F 1
C806	F 2
C807	G 1
C808	A 4
C809	B 3
C810	C 4
C811	D 3
C812	E 4
C813	F 3
C814	F 4
C815	G 3
C816	A 6
C817	B 5
C818	C 6
C819	D 5
C820	E 6
C821	F 5
C822	F 6
C823	G 5
IC800	B 1
IC801	C 1
IC802	E 1
IC803	G 1
IC804	B 3
IC805	C 3
IC806	E 3
IC807	G 3
IC808	B 5
IC809	C 5
IC810	E 5
IC811	G 5
J800	A 2
J801	A 2
J802	A 3
J803	A 4
J804	A 4
J805	A 5
J806	A 2
J807	A 2
J808	A 5
J809	H 6
J810	H 2
J811	A 1
R810	B 1
R811	B 1
R812	B 2
R813	B 2
R814	D 1
R815	D 1
R816	D 2
R817	D 2
R818	F 1
R819	F 1
R820	F 2
R821	F 2
R822	G 1
R823	G 1
R824	G 2
R825	G 2
R826	B 3
R827	B 3
R828	B 3
R829	B 3
R830	D 3
R831	D 3
R832	D 3
R833	D 3
R834	F 3
R835	F 3
R836	F 3
R837	F 3
R838	G 3
R839	G 3
R840	G 3
R841	G 3
R842	B 5
R843	B 5
R844	B 5
R845	B 5
R846	D 5
R847	D 5
R848	D 5
R849	D 5
R850	F 5
R851	F 5
R852	F 5
R853	F 5
R854	G 5
R855	G 5
R856	G 5
R857	G 5
R858	H 6
R859	H 6

Parts listing Green Convergence module R7625128

SIT.	ITEM NO.	DESCRIPTION	QUANTITY
1000	R3133921	J MD JMP P 1 E1SN	1
1010	R312868	SPR PCB L 6.35 DLCBS	4
C800	P210122	C# X7R MU 100N K 50 1206	1
C801	P210122	C# X7R MU 100N K 50 1206	1
C802	P210122	C# X7R MU 100N K 50 1206	1
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C806	P210122	C# X7R MU 100N K 50 1206	1
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C808	P210122	C# X7R MU 100N K 50 1206	1
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C816	P210122	C# X7R MU 100N K 50 1206	1
C817	P210122	C# X7R MU 100N K 50 1206	1
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C820	P210122	C# X7R MU 100N K 50 1206	1
C821	P210122	C# X7R MU 100N K 50 1206	1
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C823	P210122	C# X7R MU 100N K 50 1206	1
I800	P230653	U#76013 SC SOL28 P	1
I801	P230653	U#76013 SC SOL28 P	1
I802	P230653	U#76013 SC SOL28 P	1
I803	P230653	U#76013 SC SOL28 P	1
I804	P230653	U#76013 SC SOL28 P	1
I805	P230653	U#76013 SC SOL28 P	1
I806	P230653	U#76013 SC SOL28 P	1
I807	P230653	U#76013 SC SOL28 P	1
I808	P230653	U#76013 SC SOL28 P	1
I809	P230653	U#76013 SC SOL28 P	1
I810	P230653	U#76013 SC SOL28 P	1
I811	P230653	U#76013 SC SOL28 P	1
J800	R348408	CD CT FTMT P 8 60	1
J801	R348408	CD CT FTMT P 8 60	1
J802	R348408	CD CT FTMT P 8 60	1
J803	R348408	CD CT FTMT P 8 60	1
J804	R348408	CD CT FTMT P 8 60	1
J805	R348408	CD CT FTMT P 8 60	1
J806	R313928	J CT H MBT P 8 M2SN	1
J807	R313928	J CT H MBT P 8 M2SN	1
J808	R313928	J CT H MBT P 8 M2SN	1
J809	R3485057	CD CT FTMT P 5 130	1
J810	R3484048	CD CT FTMT P 4 60	1
J811	R313286	J MO1 C MBT P 3 R1SN 7,5	1
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R812	P200103	R# CE H 18K J 0W12 1206	1
R813	P200103	R# CE H 18K J 0W12 1206	1
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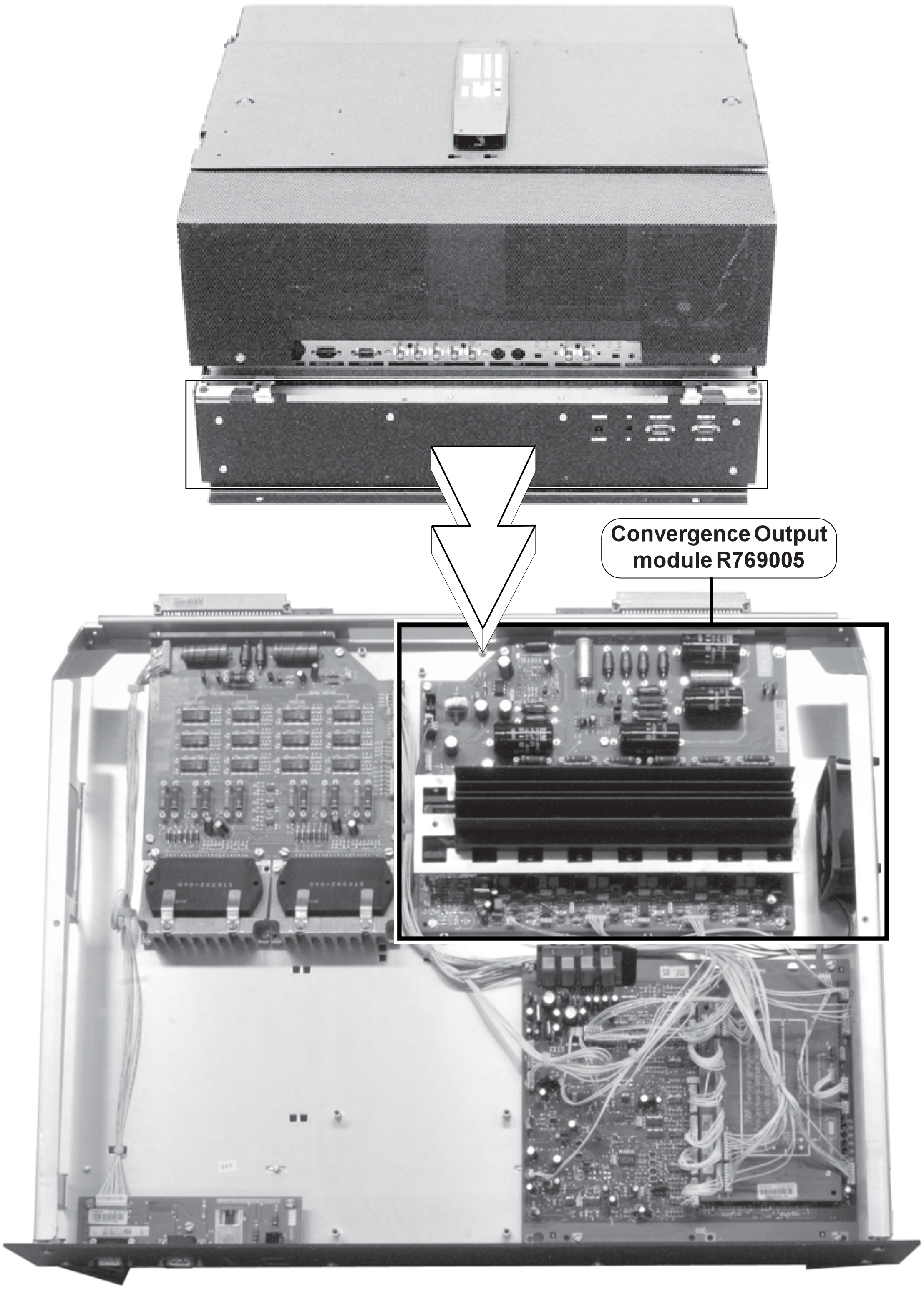
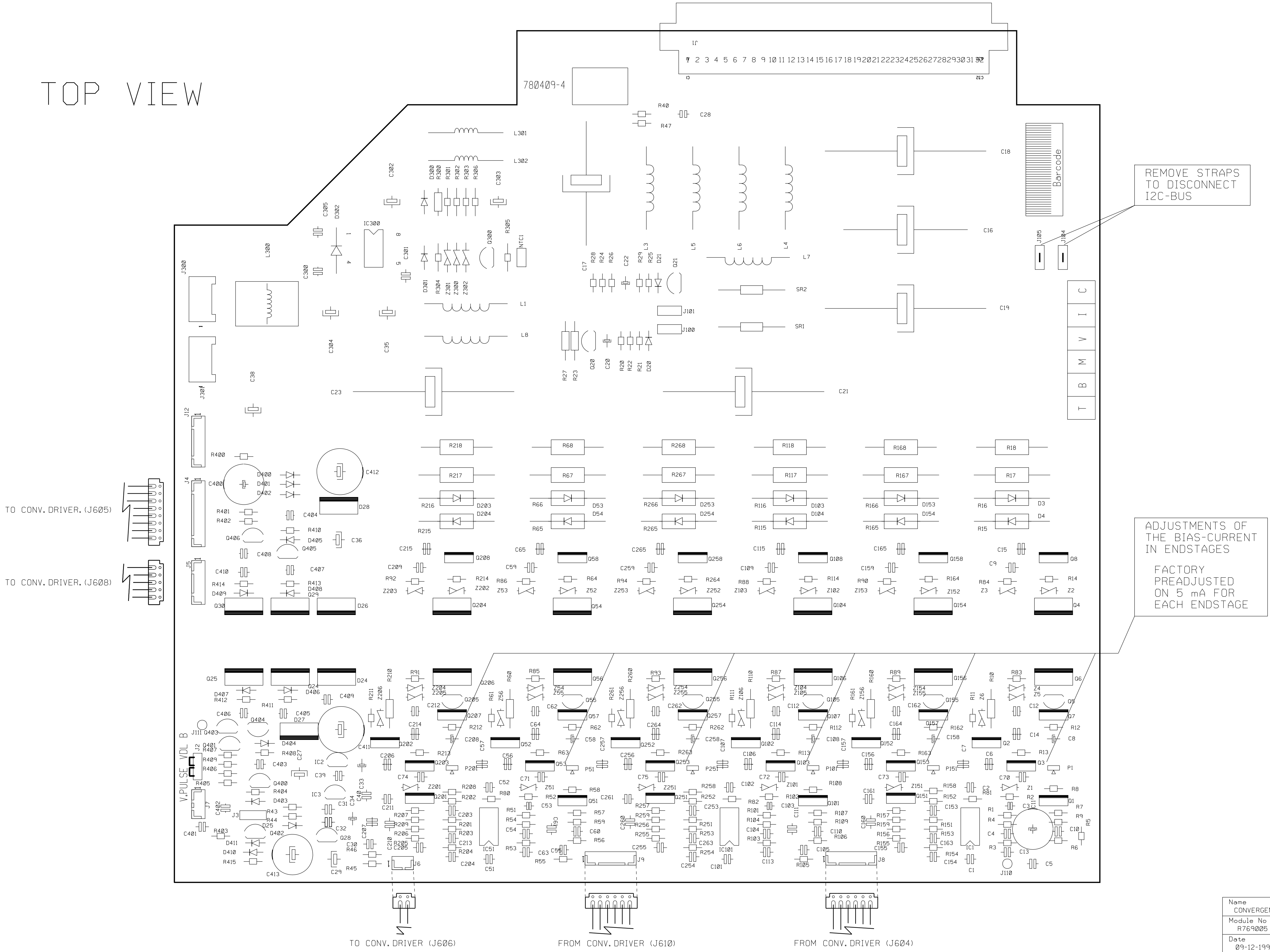
R856	P200101	R# CE H 15K J 0W12 1206	1
R857	P200101	R# CE H 15K J 0W12 1206	1
R858	P200049	R# CE H100E J 0W12 1206	1
R859	P200049	R# CE H100E J 0W12 1206	1

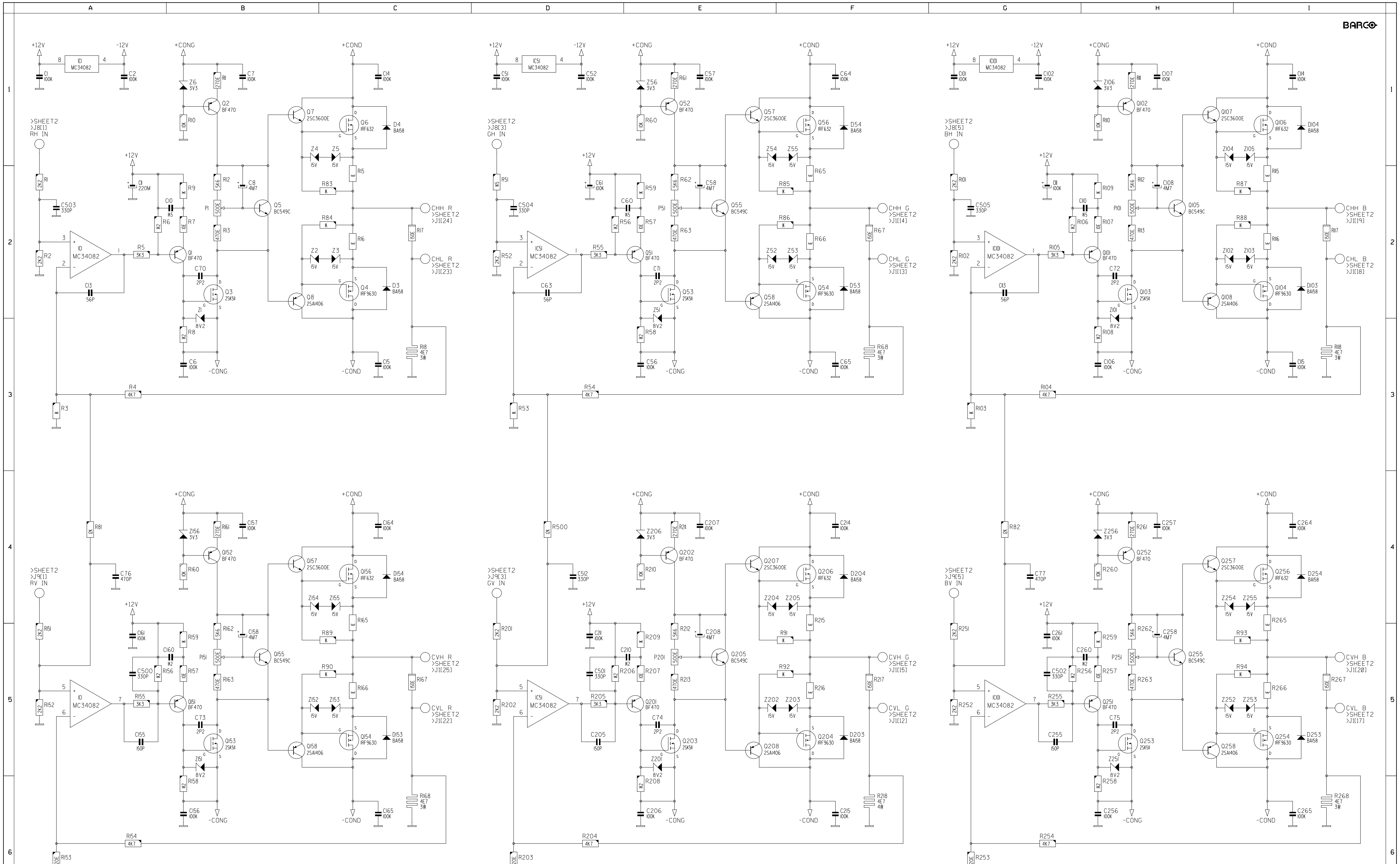

Convergence Output
module R769005



Modifications reserved

Name				Sheet
CONVERGENCE OUTPUT				1 / 1
Module No R769005	Index 0	PCB No R780409		Rev 4
Date 09-12-1998	Drawn JVDY		Checked GM	

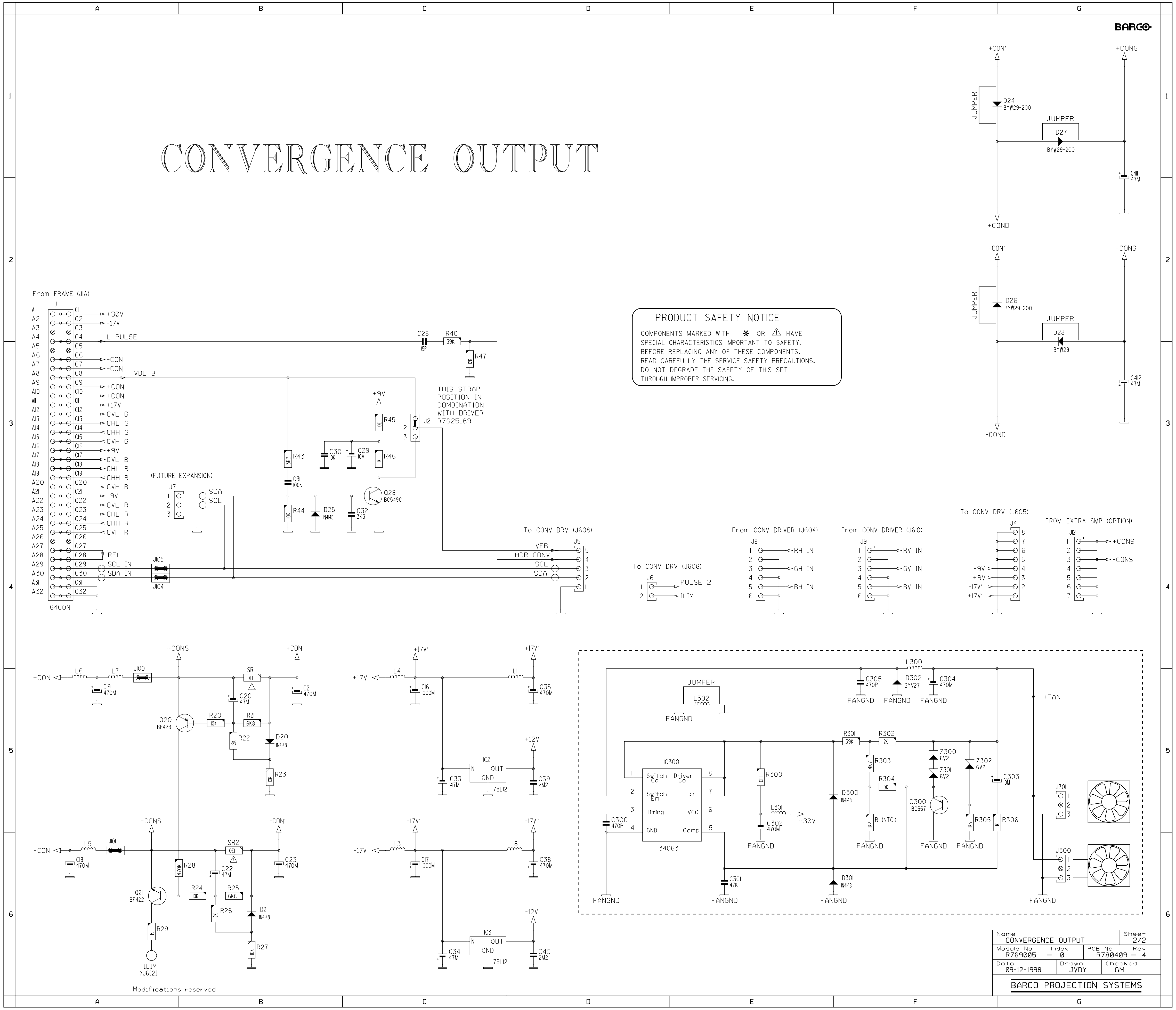
BARCO PROJECTION SYSTEMS



Name			Sheet
CONVERGENCE OUTPUT			1/2
Module No	Index	PCB No	Rev
R769005	0	R780409	4
Date	Drawn	Checked	
09-12-1998	JVDY	GM	

BARCO PROJECTION SYSTEMS

Modifications reserved

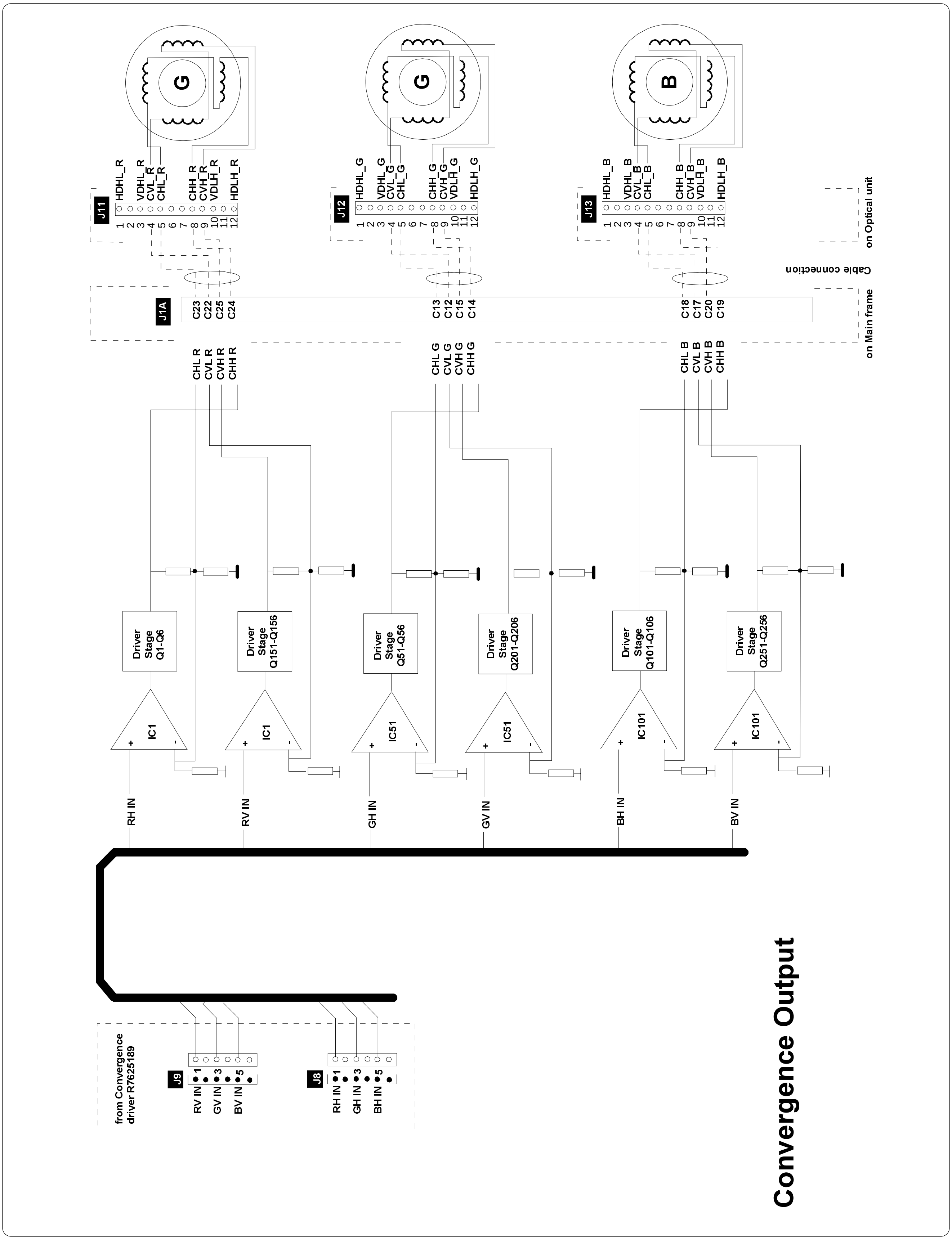


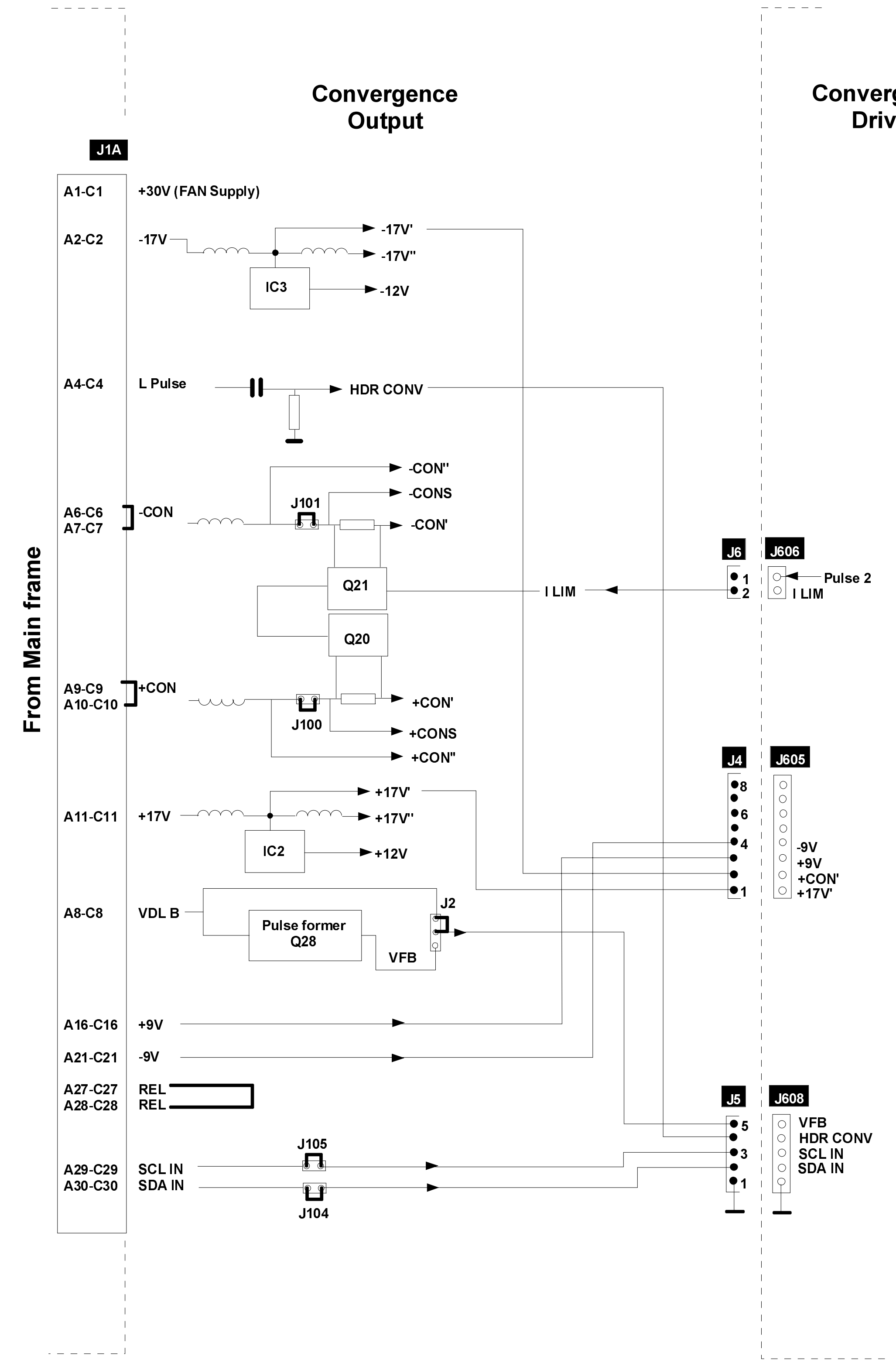
COMP.	LOC.	SHT.
C1	A 1	1
C2	A 1	1
C6	B 3	1
C7	B 1	1
C8	B 2	1
C10	A 2	1
C11	A 2	1
C13	A 2	1
C14	C 1	1
C15	C 3	1
C16	C 5	2
C17	C 6	2
C18	A 6	2
C19	A 5	2
C20	B 5	2
C21	B 5	2
C22	B 6	2
C23	B 6	2
C28	C 2	2
C29	C 3	2
C30	B 3	2
C31	B 3	2
C32	C 4	2
C33	C 5	2
C34	C 6	2
C35	D 5	2
C38	D 6	2
C39	D 5	2
C40	D 6	2
C51	D 1	1
C52	D 1	1
C56	E 3	1
C57	E 1	1
C58	E 2	1
C60	D 2	1
C61	D 2	1
C63	D 2	1
C64	F 1	1
C65	F 3	1
C70	B 2	1
C71	E 2	1
C72	H 2	1
C73	B 5	1
C74	E 5	1
C75	H 5	1
C76	A 4	1
C77	G 4	1
C101	G 1	1
C102	G 1	1
C106	H 3	1
C107	H 1	1
C108	H 2	1
C110	G 2	1
C111	G 2	1
C113	G 2	1
C114	I 1	1
C115	I 3	1
C155	A 5	1
C156	B 6	1
C157	B 4	1
C158	B 5	1
C160	A 5	1
C161	A 5	1
C164	C 4	1
C165	C 6	1
C205	D 5	1
C206	E 6	1
C207	E 4	1
C208	E 5	1
C210	D 5	1
C211	D 5	1
C214	F 4	1
C215	F 6	1
C255	G 5	1
C256	H 6	1
C257	H 4	1
C258	H 5	1
C260	G 5	1
C261	G 5	1
C264	I 4	1
C265	I 6	1
C300	D 5	2
C301	E 6	2
C302	E 5	2
C303	G 5	2
C304	F 5	2
C305	F 5	2
C411	G 1	2
C412	G 3	2
C500	A 5	1
C501	D 5	1
C502	G 5	1
C503	A 2	1
C504	D 2	1
C505	G 2	1
C512	D 4	1
D3	C 2	1
D4	C 1	1
D20	B 5	2
D21	B 6	2
D24	G 1	2
D25	B 4	2
D26	G 2	2
D27	G 1	2
D28	G 2	2
D53	F 2	1
D54	F 1	1
D103	I 2	1
D104	I 1	1
D153	C 5	1
D154	C 4	1
D203	F 5	1
D204	F 4	1
D253	I 5	1
D254	I 4	1
D300	F 5	2
D301	F 6	2
D302	F 5	2
IC1	A 1	1
IC1	A 2	1
IC1	A 5	1
IC2	C 5	2
IC3	C 6	2
IC51	D 1	1
IC51	D 5	1
IC51	D 2	1
IC101	G 2	1
IC101	G 1	1
IC101	G 5	1
IC300	D 5	2
J1	A 2	2
J2	C 3	2
J4	G 4	2
J5	D 4	2
J6	D 4	2
J7	A 3	2
J8	E 4	2
J9	F 4	2
J12	G 4	2
J100	A 4	2

COMP.	LOC.	SHT.
J101	A 6	2
J104	A 4	2
J105	A 4	2
J300	G 6	2
J301	G 5	2
L1	D 5	2
L3	C 6	2
L4	C 5	2
L5	A 6	2
L6	A 5	2
L7	A 5	2
L8	D 6	2
L300	F 4	2
L301	E 5	2
L302	E 5	2
NTC1	F 5	2
P1	B 2	1
P51	E 2	1
P101	H 2	1
P151	B 5	1
P201	E 5	1
P251	H 5	1
Q1	B 2	1
Q2	B 1	1
Q3	B 2	1
Q4	C 2	1
Q5	B 2	1
Q6	C 1	1
Q7	B 1	1
Q8	B 2	1
Q20	A 5	2
Q21	A 6	2
Q28	C 3	2
Q51	E 2	1
Q52	E 1	1
Q53	E 2	1
Q54	F 2	1
Q55	E 2	1
Q56	F 1	1
Q57	E 1	1
Q58	E 2	1
Q101	H 2	1
Q102	H 1	1
Q103	H 2	1
Q104	I 2	1
Q105	H 2	1
Q106	I 1	1
Q107	H 1	1
Q108	H 2	1
Q151	B 5	1
Q152	B 4	1
Q153	B 5	1
Q154	C 5	1
Q155	B 5	1
Q156	C 4	1
Q157	B 4	1
Q158	B 5	1
Q201	E 5	1
Q202	E 4	1
Q203	E 5	1
Q204	F 5	1
Q205	E 5	1
Q206	F 4	1
Q207	E 4	1
Q208	E 5	1
Q251	H 5	1
Q252	H 4	1
Q253	H 5	1
Q254	I 5	1
Q255	H 5	1
Q256	I 4	1
Q257	H 4	1
Q258	H 5	1
Q300	F 5	2
R1	A 2	1
R2	A 2	1
R3	A 3	1
R4	A 3	1
R5	A 2	1
R6	A 2	1
R7	B 2	1
R8	B 3	1
R9	B 2	1
R10	B 1	1
R11	B 1	1
R12	B 2	1
R13	B 2	1
R15	C 2	1
R16	C 2	1
R17	C 2	1
R18	C 3	1
R20	B 5	2
R21	B 5	2
R22	B 5	2
R23	B 5	2
R24	B 6	2
R25	B 6	2
R26	B 6	2
R27	B 6	2
R28	B 6	2
R29	A 6	2
R40	C 2	2
R43	B 3	2
R44	B 4	2
R45	C 3	2
R46	C 3	2
R47	C 3	2
R51	D 2	1
R52	D 2	1
R53	D 3	1
R54	D 3	1
R55	D 2	1
R56	D 2	1
R57	E 2	1
R58	E 3	1
R59	E 2	1
R60	E 1	1
R61	E 1	1
R62	E 2	1
R63	E 2	1
R65	F 2	1
R66	F 2	1
R67	F 2	1
R68	F 3	1
R81	A 4	1
R82	G 4	1
R83	C 2	1
R84	C 2	1
R85	F 2	1
R86	F 2	1
R87	I 2	1
R88	I 2	1
R89	C 5	1
R90	C 5	1
R91	F 5	1
R92	F 5	1
R93	I 5	1
R94	I 5	1

COMP.	LOC.	SHT.
R101	G 2	1
R102	G 2	1
R103	G 3	1
R104	G 3	1
R105	G 2	1
R106	G 2	1
R107	H 2	1
R108	H 3	1
R109	H 2	1
R110	H 1	1
R111	H 1	1
R112	H 2	1
R113	H 2	1
R115	I 2	1
R116	I 2	1
R117	I 2	1
R118	I 3	1
R151	A 5	1
R152	A 5	1
R153	A 6	1
R154	A 6	1
R155	A 5	1
R156	A 5	1
R157	B 5	1
R158	B 6	1
R159	B 5	1
R160	B 4	1
R161	B 4	1
R162	B 5	1
R163	B 5	1
R165	C 4	1
R166	C 5	1
R167	C 5	1
R168	C 6	1
R201	D 5	1
R202	D 5	1
R203	D 6	1
R204	D 6	1
R205	D 5	1
R206	D 5	1
R207	E 5	1
R208	E 6	1
R209	E 5	1
R210	E 4	1
R211	E 4	1
R212	E 5	1
R213	E 5	1
R215	F 4	1
R216	F 5	1
R217	F 5	1
R218	F 6	1
R251	G 5	1
R252	G 6	1
R253	G 6	1
R254	G 6	1
R255	G 5	1
R256	G 5	1
R257	H 5	1
R258	H 6	1
R259	H 5	1
R260	H 4	1
R261	H 4	1
R262	H 5	1
R263	H 5	1
R265	I 4	1
R266	I 5	1
R267	I 5	1
R268	I 6	1
R300	E 5	2
R301	F 5	2
R302	F 5	2
R303	F 5	2
R304	F 5	2
R305	F 5	2
R306	G 5	2
R500	D 4	1
SR1	B 4	2
SR2	B 6	2
Z1	B 2	1
Z2	B 2	1
Z3	C 2	1
Z4	B 1	1
Z5	C 1	1
Z6	B 1	1
Z51	E 2	1
Z52	E 2	1
Z53	F 2	1
Z54	E 1	1
Z55	F 1	1
Z56	E 1	1
Z101	H 2	1
Z102	H 2	1
Z103	I 2	1
Z104	H 1	1
Z105	I 1	1
Z106	H 1	1
Z151	B 5	1
Z152	B 5	1
Z153	C 5	1
Z154	B 4	1
Z155	C 4	1
Z156	B 4	1
Z201	E 5	1
Z202	E 5	1
Z203	F 5	1
Z204	E 4	1
Z205	F 4	1
Z206	E 4	1
Z251	H 5	1
Z252	H 5	1
Z253	I 5	1
Z254	H 4	1
Z255	I 4	1
Z256	H 4	1
Z300	F 5	2
Z301	F 5	2
Z302	F 5	2

Blockdiagram Power output stage convergences

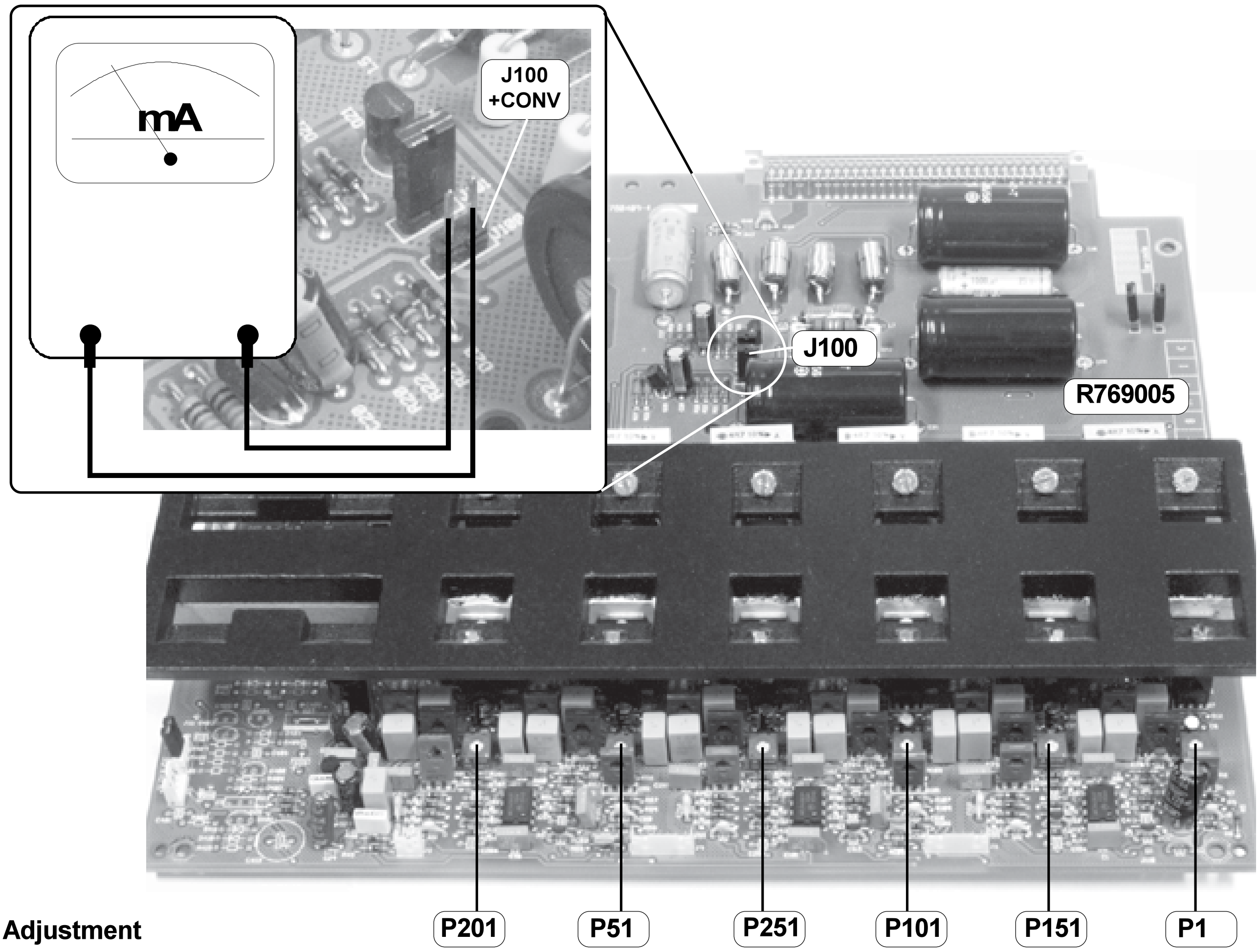



Convergence
Output
Convergence
Driver
From Main frame
J1A
A1-C1
+30V (FAN Supply)
A2-C2
-17V
-17V'
-17V''
IC3
-12V
A4-C4
L Pulse
HDR CONV
-CON''
-CONS
A6-C6
A7-C7
-CON
J101
-CON'
J6
J606
Q21
I LIM
1
2
Pulse 2
I LIM
Q20
A9-C9
A10-C10
+CON
+CON'
J100
+CONS
+CON''
J4
J605
+17V'
8
A11-C11
+17V
+17V''
6
IC2
+12V
4
-9V
+9V
+CON'
+17V'
1
A8-C8
VDL B
J2
Pulse former
Q28
VFB
A16-C16
+9V
A21-C21
-9V
A27-C27
A28-C28
REL
REL
J5
J608
J105
5
VFB
HDR CONV
SCL IN
SDA IN
3
A29-C29
A30-C30
SCL IN
SDA IN
1
J104

Adjustment procedure and explanation of the provided links

Adjustment procedure for the end-amplifiers

location of the controls



Adjustment

- Disconnect the Output module from the Driver module by pulling out the cable plugs **J604** and **J610** on the Driver module.

- Turn all the potentiometers in their minimum position, totally counter-clockwise.

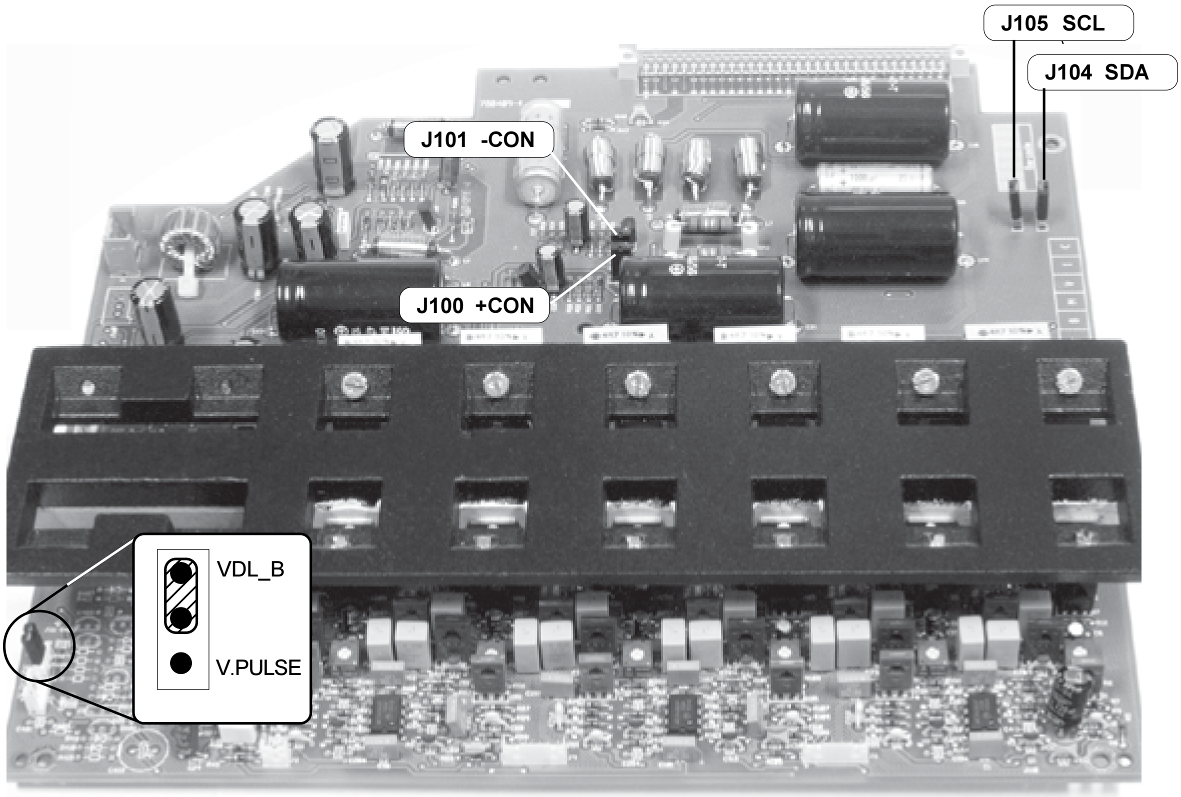
- Remove the strap on connector J100 and insert a current meter (Notice the correct value of the flowing current, in the range of 60 to 90 mA) .

- To adjust the output amplifiers, the projector has to operate on the highest line frequency (94 kHz).

Adjustment: - start up the projector.
- from the measured current value at start up, adjust consecutively the potentiometers P1, P51, P101, P151, P201 and P251 for each time a current incrementation of 5mA each time.
- remove the current meter and reinstall the strap on J100.
- reinstall the connection with the driver module (connection J604 and J610).

Explanations of the provided links (=circuit breakers to check overload)

J105: circuit breaker to check overload on the SCL line
J104: circuit breaker to check overload on the SDA line
J101: circuit breaker to check overload on the Power line -CON
J100: circuit breaker to check overload on the Power line +CON



Always the position VDL_B in combination with the convergence driver R7625189

Technical description " CONVERGENCE OUT" R769005

General

The purpose of this power stage is to amplify the adjusted waveforms from the "CONV DRIVER" to a sufficiently high level that the red, green and blue colours converge at each point of the screen.
Important hereby is that the DC drift must be as low as possible and that the signals must be carried to the coils without the use of coupling capacitors.

It is obvious that the coils react or behave differently on signals with variable scanning frequencies, as its impedance is frequency related. Much more power is required for the high frequency scanning than for the low frequency scanning signals for the same amount of deviation on the screen.
The power supply + / - COND for these power amplifiers is variable , this is ' line frequency tracked'.
Note that +CON, +CONV and +COND are in fact all the same since the diodes D27 and D28 are replaced by jumpers. The "D" here does not stand for "dynamic".
The voltages +/- CON are delivered by the "G2 + Diagnostic" board.

Output Amplifiers

Six identical amplifiers feed the six convergence coils, two for each picture tube. We 'll discuss only the amplifier served with *"RHin" (Red Horizontal)* and *CHH/L R* out- (Convergence Horinzontal High/Low) and respective input.

Note that "Horizontal " here relates to the moving direction (of lines of a crosshatch pattern) and not to the "horizontal" frequency. The " RHin " signal contains waveforms at line and vertical frequency.
That' s also the reason why the amplifier stages are identical.

The signal is first passed to the non-inverting input of an OPAMP MC34082, the inverting input is biased from a feedback signal from the output. The purpose of this stage is to stabilise the overall gain (DC and AC) of the amplifier.
The output of the OPAMP drives an inverting amplifier Q1 with high frequency compensation in the emitter.

The input signal to the OPAMP is approximately zero level, hence, Q1 is supplied with symmetrical +12V and -CONG voltages. The amplified signal is now inverted with Q3, which is supplied from a constant current source Q2 and the +CONG.

The purpose of Q5 is to install the required DC biasing voltage for the push-pull Mosfet stage. The collector-emitter voltage of Q5 is multiplied (Q5 is a Vbe-multiplier) and must be the sum of the (minimum) biasing gate-source voltages for the two MOSFET's in series (class B drive).

This biasing Q5 transistor is supplied from a current generator Q2 to provide a constant current in their biasing path.

The dropped voltage across R12 / P1 / R13 is partially applied to the base-emitter multiplier Q5 to provide sufficient voltage to drive Q4 / Q6 push-pull output stage via two emitter-followers. The zeners just limit the gate - source voltage for protection.

Excessive heating of an output transistor, because of an asymmetrical drive can lead to a breakdown. When this happens, inhibition of the sawtooth generator (see schematic "Horizontal Axis Convergence", sheet 1) can avoid breakdown of the mentioned transistor(s).

ILim Circuit

The electronic circuit that generates the *Ilim* is represented on sheet 2 of the "CONV OUT" schematic.

The current taken from the + CON' develops a voltage across SR1 that is applied to the base of Q20. The current taken from the - CON' does the same for Q21. As soon Q21 is switched on , the *Ilim* turns on Q22 (See sheet 1 of Horizontal Axis CONV) and the sawtooth generator is inhibited.

Fan - SMPS.

The circuit around IC300 regulates the speed of the fan(s) connected to J300/J301 by the NTC sensor. The speed of these fans is adjusted by the NTC sensor, mounted on the module, and sensing the ambient temperature in the convergence housing.

VLD to VFB

The trigger of the vertical oscillator is the VFB signal ; this means the link J2 is in the drawn position.

Parts listing Convergence module (Output) R769005

Sit.	Item NO.	Description	Quantity
	R133039	SPR L 8 D 1,2D 4 CE	52
	R133063	HTSN A SOT93 I-MICA 25X28	12
	R3133921	J MD SHUNT F P2 E1SN I	5
	R348019	CBLA TIE B L100 W2,4 -	1
	R348101	WU JUMP 0,6 5	4
	R348108	WU JUMP 0,6 22,5	1
	R3631249	SCR Z933 M 4 X 12 SS	4
	R367699	RVT AVTRON2,5L 8,1 AL	2
	R803243	HTSN A GEN SPG6 M3 CU CNV	4
	R810687	HTSN G1209S CNV SIM	1
	R812348	HTSN R812 CNV	1
	V3621227	SCR $7500CM 3 X 8 STZN	4
	V3621227	SCR $7500CM 3 X 8 STZN	12
C 1	R113724	C POMERA 100N K 63E2 85	
C 2	R113724	C POMERA 100N K 63E2 85	
C 6	V1140426	C POMERA 100N K250E2 85	
C 7	V1140426	C POMERA 100N K250E2 85	
C 8	R1115915	C EL5 RA 4M7M 35E2 85	
C 10	R112741	C CE MI 1N5K100E2	1
C 11	R111467	C EL RA 220M M 16E2 105	
C 13	R112239	C NP0 MI 56P G100E2	
C 14	V1140426	C POMERA 100N K250E2 85	
C 15	V1140426	C POMERA 100N K250E2 85	
C 16	R111164	C EL AX1000M T 25E14 85	1
C 17	R111164	C EL AX1000M T 25E14 85	1
C 18	R111223	C EL AX 470M T100E10 85	1
C 19	R111223	C EL AX 470M T100E10 85	1
C 20	R111476	C EL RA 47M M 25E2 85	
C 21	R111223	C EL AX 470M T100E10 85	1
C 22	R111476	C EL RA 47M M 25E2 85	
C 23	R111223	C EL AX 470M T100E10 85	1
C 28	R112681	C N750MI 15P G500E2	
C 29	R111531	C EL RA 10M M 35E2 85	
C 30	R1137121	C POMERA 10N K250E2 85	
C 31	R113724	C POMERA 100N K 63E2 85	
C 32	R112760	C CE MI 3N3K100E2	
C 33	R111476	C EL RA 47M M 25E2 85	
C 34	R111476	C EL RA 47M M 25E2 85	1
C 35	R111479	C EL RA 470M M 25E2 105	1
C 38	R111479	C EL RA 470M M 25E2 105	1
C 39	V1115489	C EL RA 2M2M 50E2 105	1
C 40	V1115489	C EL RA 2M2M 50E2 105	1
C 51	R113724	C POMERA 100N K 63E2 85	
C 52	R113724	C POMERA 100N K 63E2 85	
C 56	V1140426	C POMERA 100N K250E2 85	
C 57	V1140426	C POMERA 100N K250E2 85	
C 58	R1115915	C EL5 RA 4M7M 35E2 85	
C 60	R112741	C CE MI 1N5K100E2	1
C 61	R113724	C POMERA 100N K 63E2 85	
C 63	R112239	C NP0 MI 56P G100E2	
C 64	V1140426	C POMERA 100N K250E2 85	
C 65	V1140426	C POMERA 100N K250E2 85	
C 70	R112222	C NP0 MI 2P2C100E2	
C 71	R112222	C NP0 MI 2P2C100E2	
C 72	R112222	C NP0 MI 2P2C100E2	
C 73	R112222	C NP0 MI 2P2C100E2	
C 74	R112222	C NP0 MI 2P2C100E2	

Sit.	Item NO.	Description	Quantity
C 75	R112222	C NP0 MI 2P2C100E2	
C 76	R112735	C CE MI 470P K100E2	1
C 77	R112735	C CE MI 470P K100E2	1
C101	R113724	C POMERA 100N K 63E2 85	
C102	R113724	C POMERA 100N K 63E2 85	
C106	V1140426	C POMERA 100N K250E2 85	
C107	V1140426	C POMERA 100N K250E2 85	
C108	R1115915	C EL5 RA 4M7M 35E2 85	
C110	R112741	C CE MI 1N5K100E2	1
C111	R113724	C POMERA 100N K 63E2 85	
C113	R112239	C NP0 MI 56P G100E2	
C114	V1140426	C POMERA 100N K250E2 85	
C115	V1140426	C POMERA 100N K250E2 85	
C155	R112364	C N750MI 150P G100E2	1
C156	V1140426	C POMERA 100N K250E2 85	
C157	V1140426	C POMERA 100N K250E2 85	
C158	R1115915	C EL5 RA 4M7M 35E2 85	
C160	R112740	C CE MI 1N2K100E2	1
C161	R113724	C POMERA 100N K 63E2 85	
C164	V1140426	C POMERA 100N K250E2 85	
C165	V1140426	C POMERA 100N K250E2 85	
C205	R112364	C N750MI 150P G100E2	1
C206	V1140426	C POMERA 100N K250E2 85	1
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Q 5	R131411	Q BC549C N SS TO92	
Q 6	R132941	Q IRF632 FN P TO220	1
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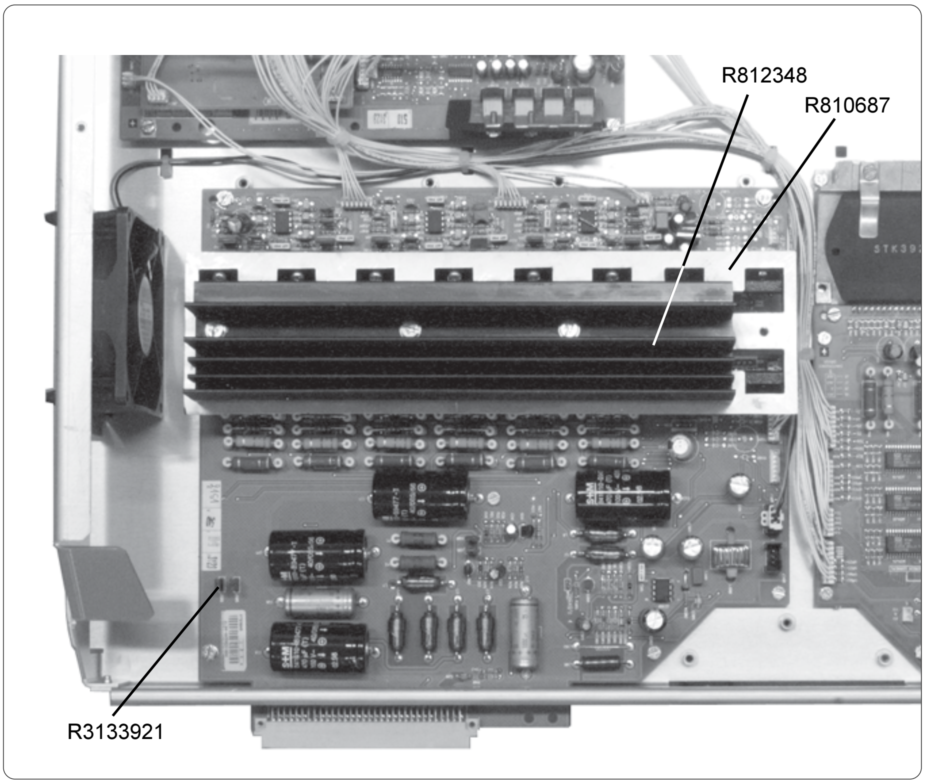
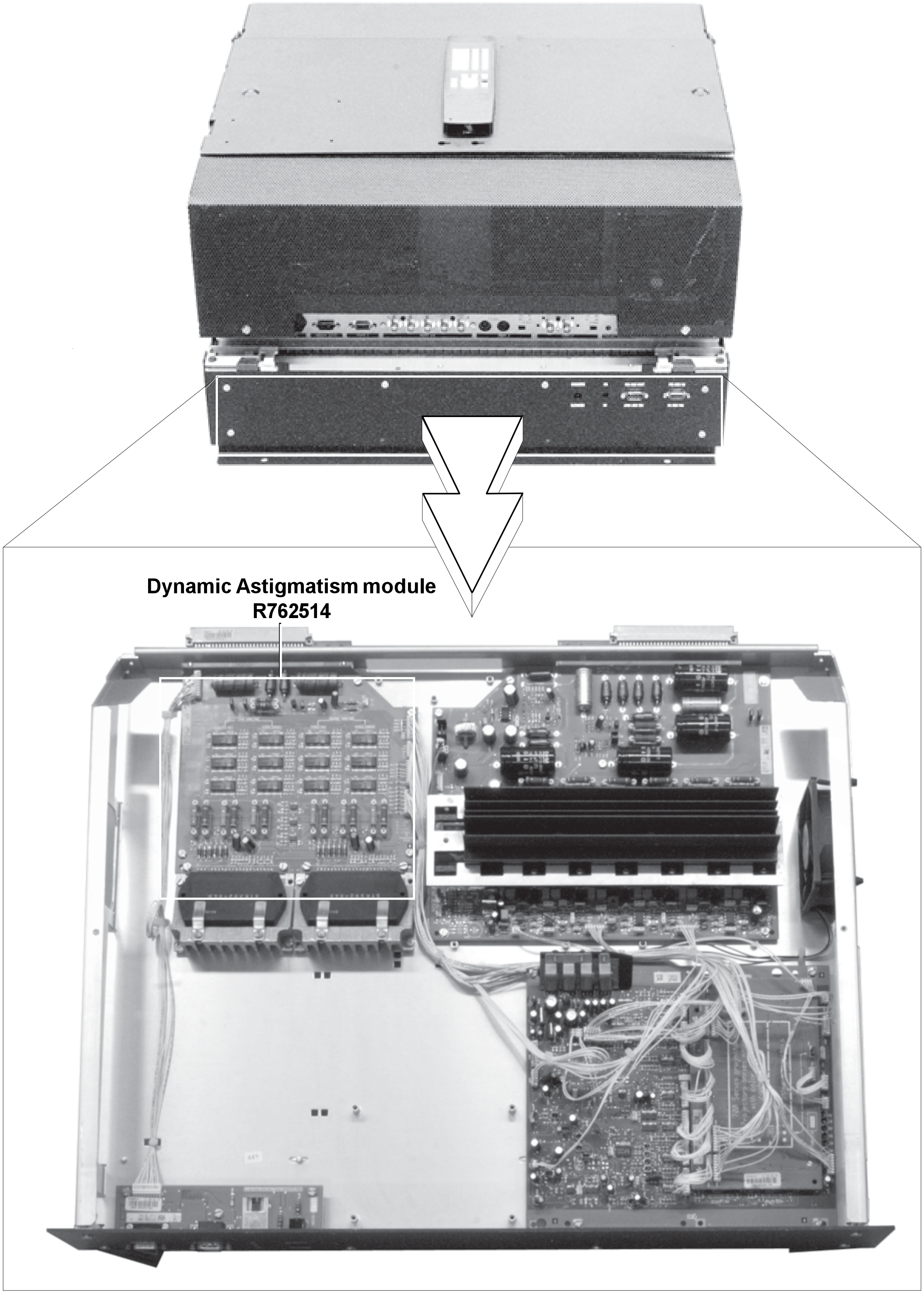
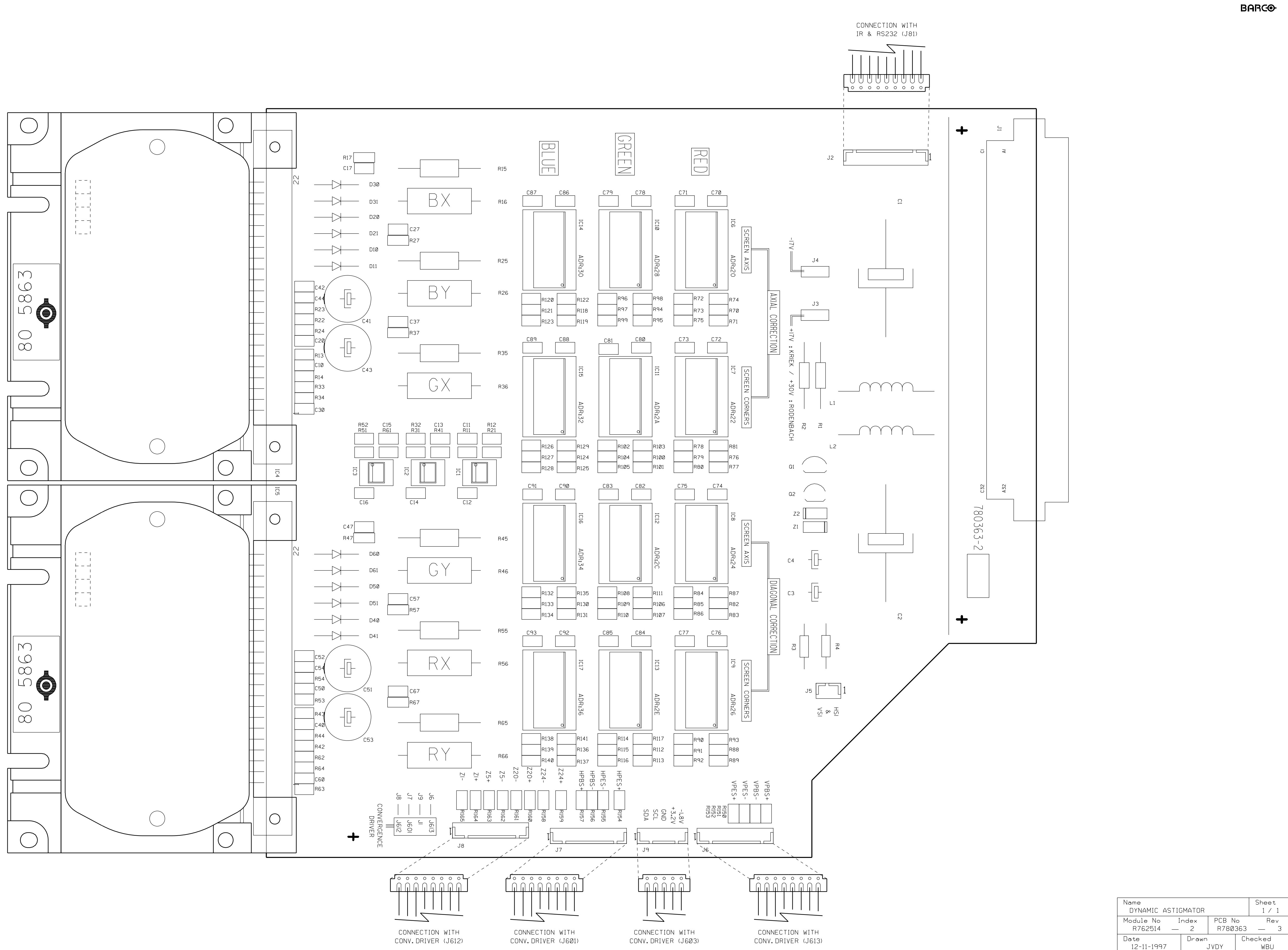
PRODUCT SAFETY NOTICE

Components identified by ⚠ have SPECIAL CHARACTERISTICS IMPORTANT TO SAFETY. Before replacing any of these components, read carefully the service safety precautions.



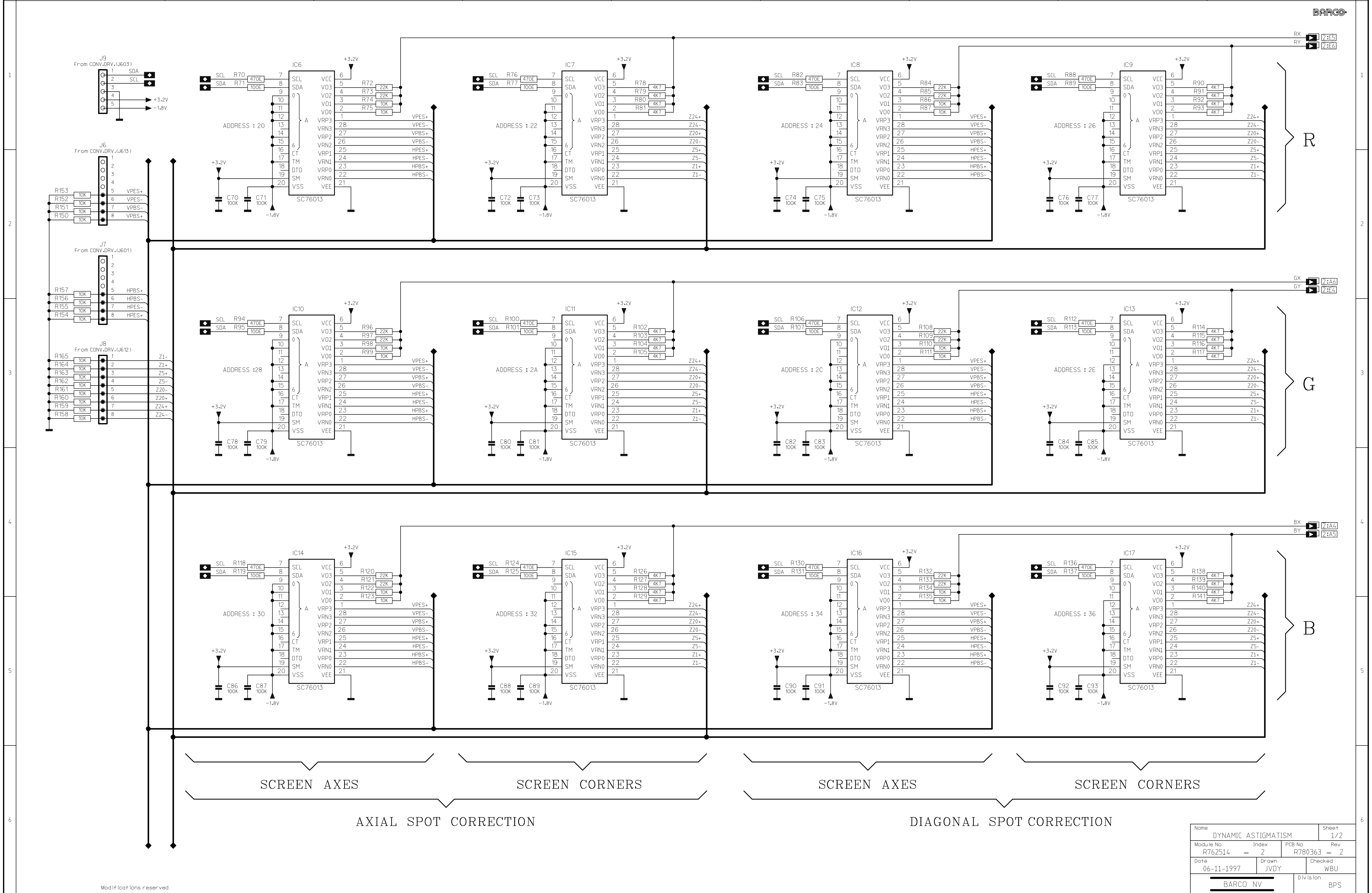

Dynamic Astigmatism module
R762514



Name DYNAMIC ASTIGMATOR			Sheet 1 / 1
Module No R762514	Index 2	PCB No R780363	Rev 3
Date 12-11-1997		Drawn JVDY	Checked WBU

BARCO PROJECTION SYSTEMS

Modifications reserved



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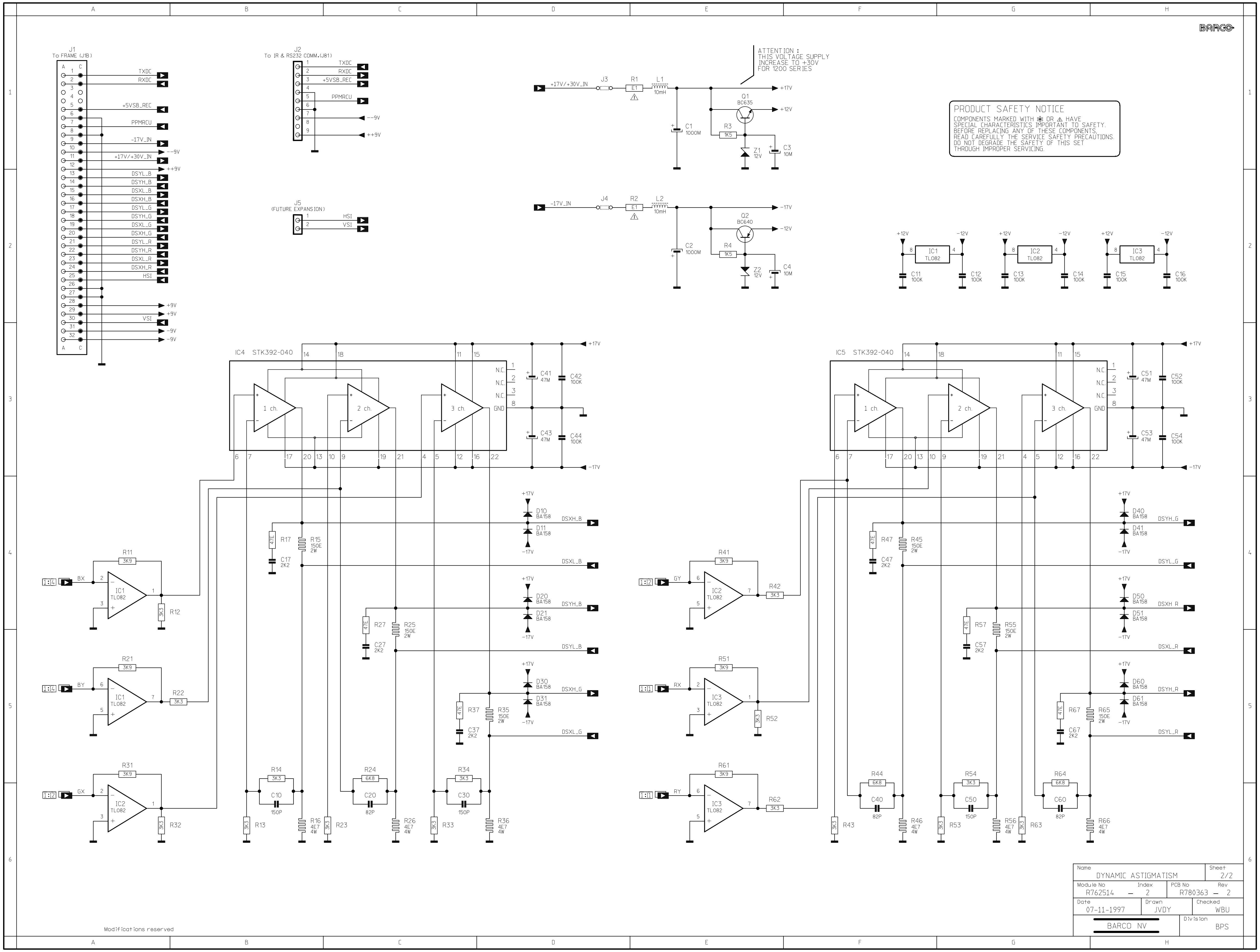
Date 06-11-1997	Drawn JVDY		Checked WBU
BARCO NV			Division BPS



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C17	B4	2
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C30	C6	2
C37	C5	2
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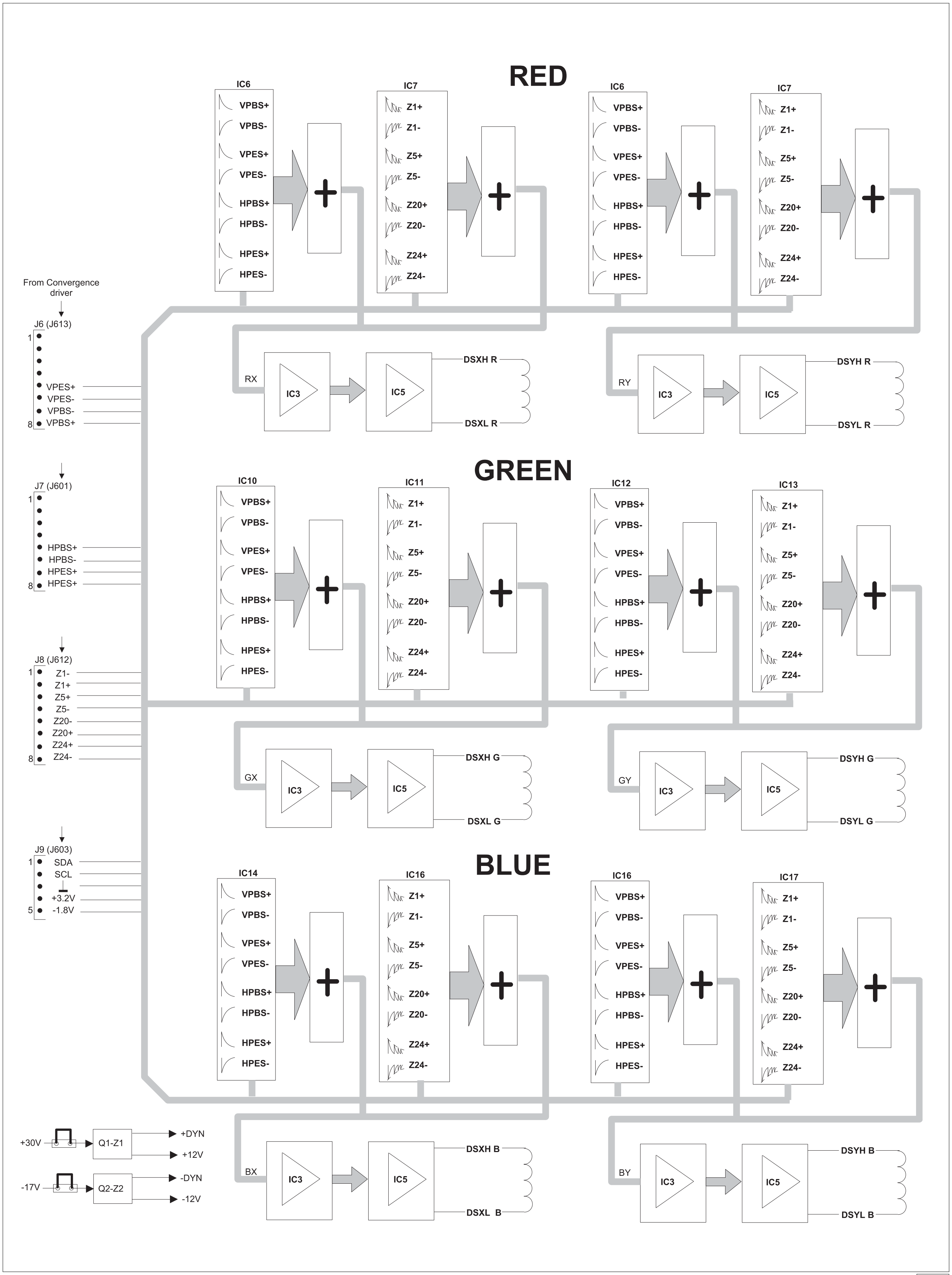
IC1	A5	2
IC1	F2	2
IC2	A6	2
IC2	E4	2
IC2	G2	2
IC3	E6	2
IC3	E5	2
IC3	H2	2
IC4	B3	2
IC5	F3	2
IC6	B1	1
IC7	D1	1
IC8	F1	1
IC9	H1	1
IC10	B3	1
IC11	D3	1
IC12	F3	1
IC13	H3	1
IC14	B4	1
IC15	D4	1
IC16	F4	1
IC17	H4	1
J1	A1	2
J2	B1	2
J3	D1	2
J4	D2	2
J5	B2	2
J6	A1	1
J7	A2	1
J8	A3	1
J9	A1	1
L1	E1	2
L2	E2	2
Q1	E1	2
Q2	E2	2
R1	E1	2
R2	E2	2
R3	E1	2
R4	E2	2
R11	A4	2
R12	B4	2
R13	B6	2
R14	B5	2
R15	B4	2
R16	B6	2
R17	B4	2
R21	A5	2
R22	B5	2
R23	C6	2
R24	C5	2
R25	C4	2
R26	C6	2
R27	C4	2
R31	A5	2
R32	B6	2
R33	C6	2
R34	C5	2
R35	D5	2
R36	D6	2
R37	C5	2
R41	E4	2
R42	E4	2
R43	F6	2
R44	F5	2
R45	F4	2
R46	F6	2
R47	F4	2
R51	E5	2
R52	E5	2
R53	G6	2
R54	G5	2
R55	G4	2
R56	G6	2
R57	G4	2
R61	E5	2
R62	E6	2
R63	G6	2

COMP.	LOC.	SH.
R64	G5	2
R65	H5	2
R66	H6	2
R67	G5	2
R70	B1	1
R71	B1	1
R72	C1	1
R73	C1	1
R74	C1	1
R75	C1	1
R76	D1	1
R77	D1	1
R78	E1	1
R79	E1	1
R80	E1	1
R81	E1	1
R82	F1	1
R83	F1	1
R84	G1	1
R85	G1	1
R86	G1	1
R87	G1	1
R88	H1	1
R89	H1	1
R90	H1	1
R91	H1	1
R92	H1	1
R93	H1	1
R94	B3	1
R95	B3	1
R96	C3	1
R97	C3	1
R98	C3	1
R99	C3	1
R100	D3	1
R101	D3	1
R102	E3	1
R103	E3	1
R104	E3	1
R105	E3	1
R106	F3	1
R107	F3	1
R108	G3	1
R109	G3	1
R110	G3	1
R111	G3	1
R112	H3	1
R113	H3	1
R114	H3	1
R115	H3	1
R116	H3	1
R117	H3	1
R118	B4	1
R119	B4	1
R120	C4	1
R121	C4	1
R122	C4	1
R123	C5	1
R124	D4	1
R125	D4	1
R126	E4	1
R127	E4	1
R128	E4	1
R129	E5	1
R130	F4	1
R131	F4	1
R132	G4	1
R133	G4	1
R134	G4	1
R135	G5	1
R136	H4	1
R137	H4	1
R138	H4	1
R139	H4	1
R140	H4	1
R141	H5	1
R150	A2	1
R151	A2	1
R152	A2	1
R153	A2	1
R154	A3	1
R155	A3	1
R156	A3	1
R157	A2	1
R158	A3	1
R159	A3	1
R160	A3	1
R161	A3	1
R162	A3	1
R163	A3	1
R164	A3	1
R165	A3	1
Z1	E1	2
Z2	E2	2



RED
GREEN
BLUE
IC6
IC7
IC10
IC11
IC12
IC13
IC14
IC16
IC17
VPBS+
VPBS-
VPES+
VPES-
HPBS+
HPBS-
HPES+
HPES-
Z1+
Z1-
Z5+
Z5-
Z20+
Z20-
Z24+
Z24-
From Convergence driver
J6 (J613)
VPES+
VPES-
VPBS-
VPBS+
J7 (J601)
HPBS+
HPBS-
HPES+
HPES+
J8 (J612)
Z1-
Z1+
Z5+
Z5-
Z20-
Z20+
Z24+
Z24-
J9 (J603)
SDA
SCL
+3.2V
-1.8V
RX
RY
GX
GY
BX
BY
IC3
IC5
DSXH R
DSXL R
DSYH R
DSYL R
DSXH G
DSXL G
DSYH G
DSYL G
DSXH B
DSXL B
DSYH B
DSYL B
+30V
Q1-Z1
+DYN
+12V
-17V
Q2-Z2
-DYN
-12V

Axial and Diagonal Corrections on screen per IC

VO0 IC7 + VO0 IC9 x	VO2 IC6 + VO2 IC8 x	VO1 IC7 + VO1 IC9 x
VO0 IC6 + VO0 IC8 x	**RED**	VO1 IC6 + VO1 IC8 x
VO2 IC7 + VO2 IC9 x	VO3 IC6 + VO3 IC8 x	VO3 IC7 + VO3 IC9 x

VO0 IC11 + VO0 IC13 x	VO2 IC10 + VO2 IC12 x	VO1 IC11 + VO1 IC13 x
VO0 IC10 + VO0 IC12 x	**GREEN**	VO1 IC10 + VO1 IC12 x
VO2 IC11 + VO2 IC13 x	VO3 IC10 + VO3 IC12 x	VO3 IC11 + VO3 IC13 x

VO0 IC15 + VO0 IC17 x	VO2 IC14 + VO2 IC16 x	VO1 IC15 + VO1 IC17 x
VO0 IC14 + VO0 IC16 x	**BLUE**	VO1 IC14 + VO1 IC16 x
VO2 IC15 + VO2 IC17 x	VO3 IC14 + VO3 IC16 x	VO3 IC15 + VO3 IC17 x

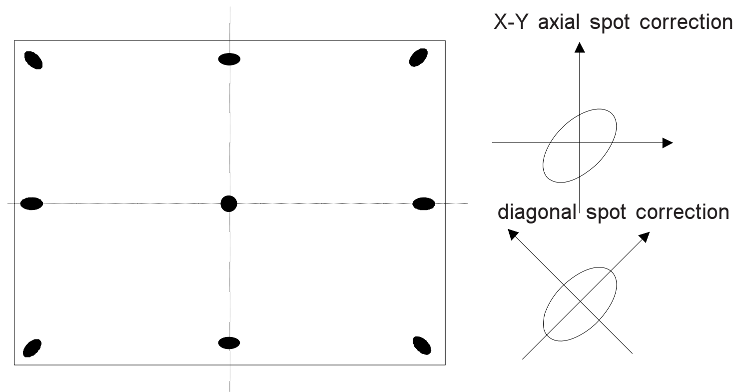
'+' :axial correction
'x' :diagonal correction

TECHNICAL DESCRIPTION
" DYNAMIC ASTIGMATISM " 76 2514

The waveforms for the dynamic astigmatism are parbolic and resemble the waveforms for the convergence corrections. It is then logic that the adjusted waveforms in the Bella's are delivered by, and coming from, the convergence driver board.

These waveforms are carried to the module via the connectors J6 / J7 / J8. These connectors carry the split (clamped) parabolic waveforms at horizontal and vertical frequency and opposite polarity.

Each correction consists of an orthogonal spot correction *(*X)* and a diagonal spot correction *(*Y)*. To facilitate the correction a separate centre or 'screen axis' and corner 'screen corners' is provided.



In sheet 1 of the schematics you find the 12 Bella's for these corrections. As the waveforms have opposite polarity, the supply voltages for these Bella's is +3.2V and -1.8V taken from the convergence board.

The " corner" and "axis" corrections are added per colour and then passed onto the power amplifiers. These power amplifiers are fully integrated hybrid amplifiers supplied with + / - DYN.
The supply voltage for these amplifiers is **+30V** (+ DYN) and **- 17V** (- DYN) **.**
Each time the output current flows in 150 Ohm damping resistor across the stigmator coils and a series feedback resistor of 4.7 Ohm. The voltage developed across this resistor is sent back to the inverting input of the amplifier for stability reasons.

Note that the jumpers J3 and J4 can be removed in order to isolate the power stages of the astigmatism and thus to investigate whether an excess of load on the supply voltages of the whole convergence board is caused by one of these amplifiers (or caused by another power amplifier of this convergence module).

Partslisting Dynamic Astigmatism module R762514

SIT.	ITEM NO.	DESCRIPTION	QUANTITY
60	R133039	SPR L 8 D 1,2D 4 CE	12
80	R133039	SPR L 8 D 1,2D 4 CE	16
50	R3133921	J MD SHUNT F P2 E1SN I RD	2
20	R3631049	SCR Z933 M 3 X 6 SS	4
10	R3631069	SCR Z933 M 3 X 10 SS	4
30	R3661026	NUT D934 M 3 SS	4
90	R367699	RVT AVTRON2,5L 8,1 AL	2
40	R804525	HTSN A GEN SPG 1X 3.1SH	4
70	R805863	HTSN C PJ56 G808 CNV 2	2
C 1	R111193	C EL AX1000M T 40E18 85	1
C 2	R111193	C EL AX1000M T 40E18 85	1
C 3	R111531	C EL RA 10M M 35E2 85	1
C 4	R111531	C EL RA 10M M 35E2 85	1
C 10	P210158	C# COG MU 150P J 50 1206	1
C 11	P210122	C# X7R MU 100N K 50 1206	1
C 12	P210122	C# X7R MU 100N K 50 1206	1
C 13	P210122	C# X7R MU 100N K 50 1206	1
C 14	P210122	C# X7R MU 100N K 50 1206	1
C 15	P210122	C# X7R MU 100N K 50 1206	1
C 16	P210122	C# X7R MU 100N K 50 1206	1
C 17	P210029	C# COG MU 2N2J 50 1206	1
C 20	P210073	C# COG MU 82P J 50 1206	1
C 27	P210029	C# COG MU 2N2J 50 1206	1
C 30	P210158	C# COG MU 150P J 50 1206	1
C 37	P210029	C# COG MU 2N2J 50 1206	1
C 40	P210073	C# COG MU 82P J 50 1206	1
C 41	R111486	C EL RA 47M M 50E2 85	1
C 42	P210122	C# X7R MU 100N K 50 1206	1
C 43	R111486	C EL RA 47M M 50E2 85	1
C 44	P210122	C# X7R MU 100N K 50 1206	1
C 47	P210029	C# COG MU 2N2J 50 1206	1
C 50	P210158	C# COG MU 150P J 50 1206	1
C 51	R111486	C EL RA 47M M 50E2 85	1
C 52	P210122	C# X7R MU 100N K 50 1206	1
C 53	R111486	C EL RA 47M M 50E2 85	1
C 54	P210122	C# X7R MU 100N K 50 1206	1
C 57	P210029	C# COG MU 2N2J 50 1206	1
C 60	P210073	C# COG MU 82P J 50 1206	1
C 67	P210029	C# COG MU 2N2J 50 1206	1
C 70	P210122	C# X7R MU 100N K 50 1206	1
C 71	P210122	C# X7R MU 100N K 50 1206	1
C 72	P210122	C# X7R MU 100N K 50 1206	1
C 73	P210122	C# X7R MU 100N K 50 1206	1
C 74	P210122	C# X7R MU 100N K 50 1206	1
C 75	P210122	C# X7R MU 100N K 50 1206	1
C 76	P210122	C# X7R MU 100N K 50 1206	1
C 77	P210122	C# X7R MU 100N K 50 1206	1
C 78	P210122	C# X7R MU 100N K 50 1206	1
C 79	P210122	C# X7R MU 100N K 50 1206	1
C 80	P210122	C# X7R MU 100N K 50 1206	1
C 81	P210122	C# X7R MU 100N K 50 1206	1
C 82	P210122	C# X7R MU 100N K 50 1206	1
C 83	P210122	C# X7R MU 100N K 50 1206	1
C 84	P210122	C# X7R MU 100N K 50 1206	1
C 85	P210122	C# X7R MU 100N K 50 1206	1
C 86	P210122	C# X7R MU 100N K 50 1206	1
C 87	P210122	C# X7R MU 100N K 50 1206	1
C 88	P210122	C# X7R MU 100N K 50 1206	1
C 89	P210122	C# X7R MU 100N K 50 1206	1
C 90	P210122	C# X7R MU 100N K 50 1206	1
C 91	P210122	C# X7R MU 100N K 50 1206	1

SIT.	ITEM NO.	DESCRIPTION	QUANTITY
C 92	P210122	C# X7R MU 100N K 50 1206	1
C 93	P210122	C# X7R MU 100N K 50 1206	1
D 10	R131637	D R BA158 600400 DO7	1
D 11	R131637	D R BA158 600400 DO7	1
D 20	R131637	D R BA158 600400 DO7	1
D 21	R131637	D R BA158 600400 DO7	1
D 30	R131637	D R BA158 600400 DO7	1
D 31	R131637	D R BA158 600400 DO7	1
D 40	R131637	D R BA158 600400 DO7	1
D 41	R131637	D R BA158 600400 DO7	1
D 50	R131637	D R BA158 600400 DO7	1
D 51	R131637	D R BA158 600400 DO7	1
D 60	R131637	D R BA158 600400 DO7	1
D 61	R131637	D R BA158 600400 DO7	1
I 1	P230293	U#082 TL SO8 P	1
I 2	P230293	U#082 TL SO8 P	1
I 3	P230293	U#082 TL SO8 P	1
I 4	R134303	U 392-040 STK PACK	1
I 5	R134303	U 392-040 STK PACK	1
I 6	P230653	U#BELLA 4 SOL28 P	1
I 7	P230653	U#BELLA 4 SOL28 P	1
I 8	P230653	U#BELLA 4 SOL28 P	1
I 9	P230653	U#BELLA 4 SOL28 P	1
I 10	P230653	U#BELLA 4 SOL28 P	1
I 11	P230653	U#BELLA 4 SOL28 P	1
I 12	P230653	U#BELLA 4 SOL28 P	1
I 13	P230653	U#BELLA 4 SOL28 P	1
I 14	P230653	U#BELLA 4 SOL28 P	1
I 15	P230653	U#BELLA 4 SOL28 P	1
I 16	P230653	U#BELLA 4 SOL28 P	1
I 17	P230653	U#BELLA 4 SOL28 P	1
J 1	R313525	J EUR2C MBS P64 E1C2S 1,6	1
J 2	R313929	J CT H MBT P 9 M2SN WH	1
J 3	R3132862	J MD1 C MBT P 2 E1SN 6,7	1
J 4	R3132862	J MD1 C MBT P 2 E1SN 6,7	1
J 5	R313922	J CT H MBT P 2 M2SN WH	1
J 6	R313928	J CT H MBT P 8 M2SN WH	1
J 7	R313928	J CT H MBT P 8 M2SN WH	1
J 8	R313928	J CT H MBT P 8 M2SN WH	1
J 9	R313925	J CT H MBT P 5 M2SN WH	1
L 1	R775164	CH AX NS 0,5 51	1
L 2	R775164	CH AX NS 0,5 51	1
PC	R780363	PCB D700 ASTIGMATISM	1
Q 1	R132557	Q BC635 N SS TO92	1
Q 2	R132968	Q BC640 P SS TO92	1
R 1	R1012997	R CFFH E1 K 0W7	1
R 2	R1012997	R CFFH E1 K 0W7	1
R 3	V1026176	R MF H 1K5 F 0W6 E4	1
R 4	V1026176	R MF H 1K5 F 0W6 E4	1
R 11	P200425	R# CE H 3K9 F 0W12 1206	1
R 12	P200423	R# CE H 3K3 F 0W12 1206	1
R 13	P200423	R# CE H 3K3 F 0W12 1206	1
R 14	P200423	R# CE H 3K3 F 0W12 1206	1
R 15	R103226	R MO H150E J 2W E10	1
R 16	R103620	R WW H 4E7 K 4W E10	1
R 17	P202220	R# MF H 47E F 0W25 MMELF	1
R 21	P200425	R# CE H 3K9 F 0W12 1206	1
R 22	P200423	R# CE H 3K3 F 0W12 1206	1

SIT.	ITEM NO.	DESCRIPTION	QUANTITY
R 23	P200423	R# CE H 3K3 F 0W12 1206	1
R 24	P200431	R# CE H 6K8 F 0W12 1206	1
R 25	R103226	R MO H150E J 2W E10	1
R 26	R103620	R WW H 4E7 K 4W E10	1
R 27	P202220	R# MF H 47E F 0W25 MMELF	1
R 31	P200425	R# CE H 3K9 F 0W12 1206	1
R 32	P200423	R# CE H 3K3 F 0W12 1206	1
R 33	P200423	R# CE H 3K3 F 0W12 1206	1
R 34	P200423	R# CE H 3K3 F 0W12 1206	1
R 35	R103226	R MO H150E J 2W E10	1
R 36	R103620	R WW H 4E7 K 4W E10	1
R 37	P202220	R# MF H 47E F 0W25 MMELF	1
R 41	P200425	R# CE H 3K9 F 0W12 1206	1
R 42	P200423	R# CE H 3K3 F 0W12 1206	1
R 43	P200423	R# CE H 3K3 F 0W12 1206	1
R 44	P200431	R# CE H 6K8 F 0W12 1206	1
R 45	R103226	R MO H150E J 2W E10	1
R 46	R103620	R WW H 4E7 K 4W E10	1
R 47	P202220	R# MF H 47E F 0W25 MMELF	1
R 51	P200425	R# CE H 3K9 F 0W12 1206	1
R 52	P200423	R# CE H 3K3 F 0W12 1206	1
R 53	P200423	R# CE H 3K3 F 0W12 1206	1
R 54	P200423	R# CE H 3K3 F 0W12 1206	1
R 55	R103226	R MO H150E J 2W E10	1
R 56	R103620	R WW H 4E7 K 4W E10	1
R 57	P202220	R# MF H 47E F 0W25 MMELF	1
R 61	P200425	R# CE H 3K9 F 0W12 1206	1
R 62	P200423	R# CE H 3K3 F 0W12 1206	1
R 63	P200423	R# CE H 3K3 F 0W12 1206	1
R 64	P200431	R# CE H 6K8 F 0W12 1206	1
R 65	R103226	R MO H150E J 2W E10	1
R 66	R103620	R WW H 4E7 K 4W E10	1
R 67	P202220	R# MF H 47E F 0W25 MMELF	1
R 70	P200403	R# CE H470E F 0W12 1206	1
R 71	P200387	R# CE H100E F 0W12 1206	1
R 72	P200443	R# CE H 22K F 0W12 1206	1
R 73	P200443	R# CE H 22K F 0W12 1206	1
R 74	P200435	R# CE H 10K F 0W12 1206	1
R 75	P200435	R# CE H 10K F 0W12 1206	1
R 76	P200403	R# CE H470E F 0W12 1206	1
R 77	P200387	R# CE H100E F 0W12 1206	1
R 78	P200427	R# CE H 4K7 F 0W12 1206	1
R 79	P200427	R# CE H 4K7 F 0W12 1206	1
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R 93	P200427	R# CE H 4K7 F 0W12 1206	1
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R 97	P200443	R# CE H 22K F 0W12 1206	1
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R100	P200403	R# CE H470E F 0W12 1206	1
R101	P200387	R# CE H100E F 0W12 1206	1
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R103	P200427	R# CE H 4K7 F 0W12 1206	1
R104	P200427	R# CE H 4K7 F 0W12 1206	1
R105	P200427	R# CE H 4K7 F 0W12 1206	1
R106	P200403	R# CE H470E F 0W12 1206	1
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R109	P200443	R# CE H 22K F 0W12 1206	1
R110	P200435	R# CE H 10K F 0W12 1206	1
R111	P200435	R# CE H 10K F 0W12 1206	1
R112	P200403	R# CE H470E F 0W12 1206	1
R113	P200387	R# CE H100E F 0W12 1206	1
R114	P200427	R# CE H 4K7 F 0W12 1206	1
R115	P200427	R# CE H 4K7 F 0W12 1206	1
R116	P200427	R# CE H 4K7 F 0W12 1206	1
R117	P200427	R# CE H 4K7 F 0W12 1206	1
R118	P200403	R# CE H470E F 0W12 1206	1
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R152	P200435	R# CE H 10K F 0W12 1206	1
R153	P200435	R# CE H 10K F 0W12 1206	1
R154	P200435	R# CE H 10K F 0W12 1206	1
R155	P200435	R# CE H 10K F 0W12 1206	1
R156	P200435	R# CE H 10K F 0W12 1206	1
R157	P200435	R# CE H 10K F 0W12 1206	1
R158	P200435	R# CE H 10K F 0W12 1206	1
R159	P200435	R# CE H 10K F 0W12 1206	1
R160	P200435	R# CE H 10K F 0W12 1206	1
R161	P200435	R# CE H 10K F 0W12 1206	1
R162	P200435	R# CE H 10K F 0W12 1206	1
R163	P200435	R# CE H 10K F 0W12 1206	1
R164	P200435	R# CE H 10K F 0W12 1206	1
R165	P200435	R# CE H 10K F 0W12 1206	1
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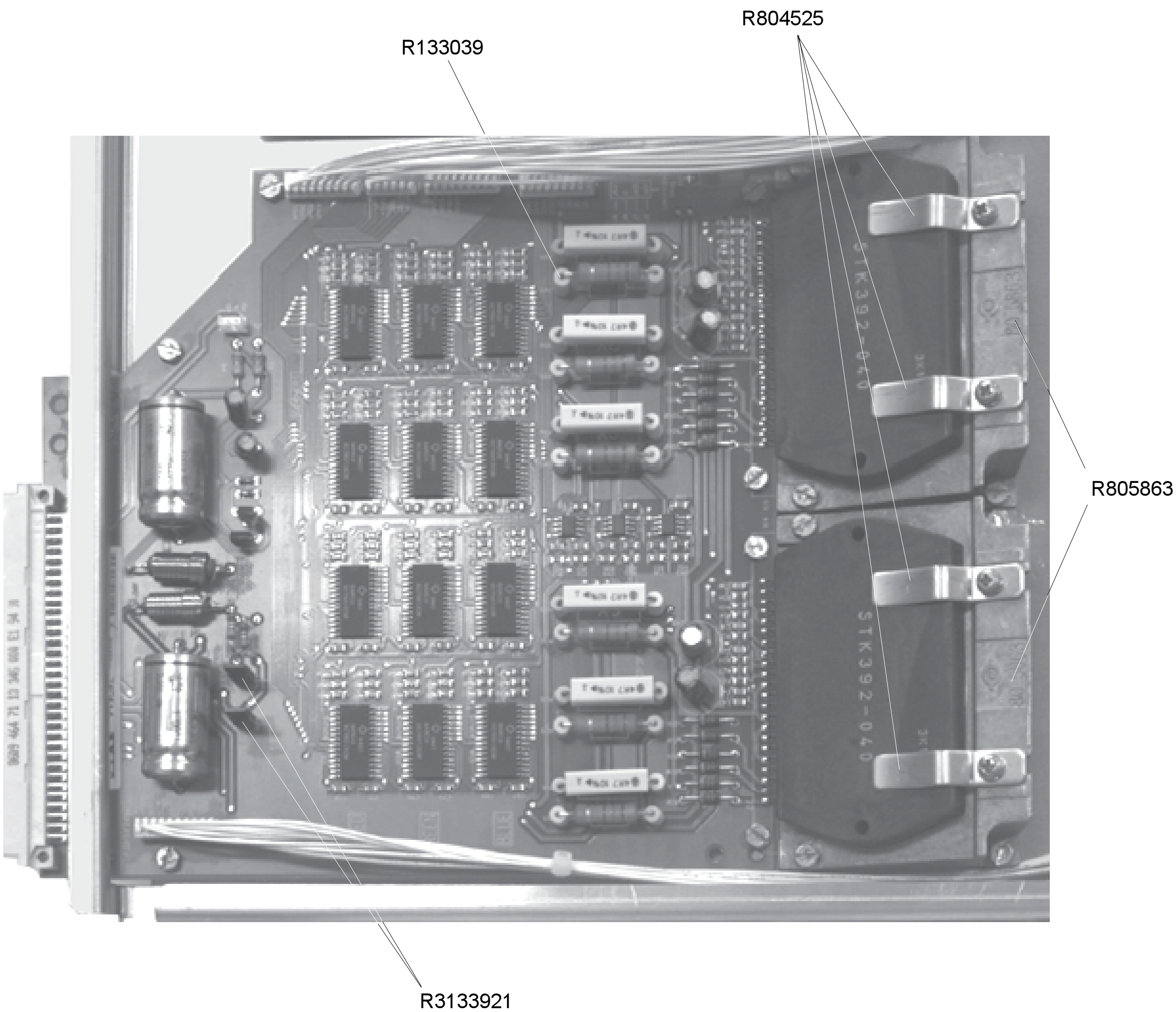
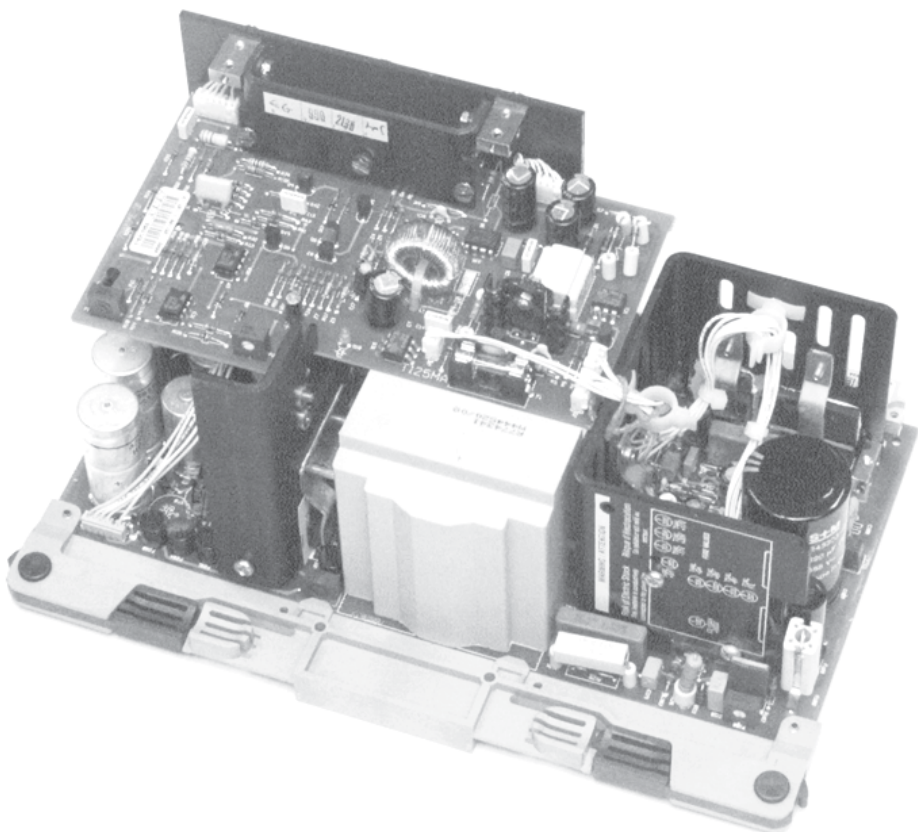
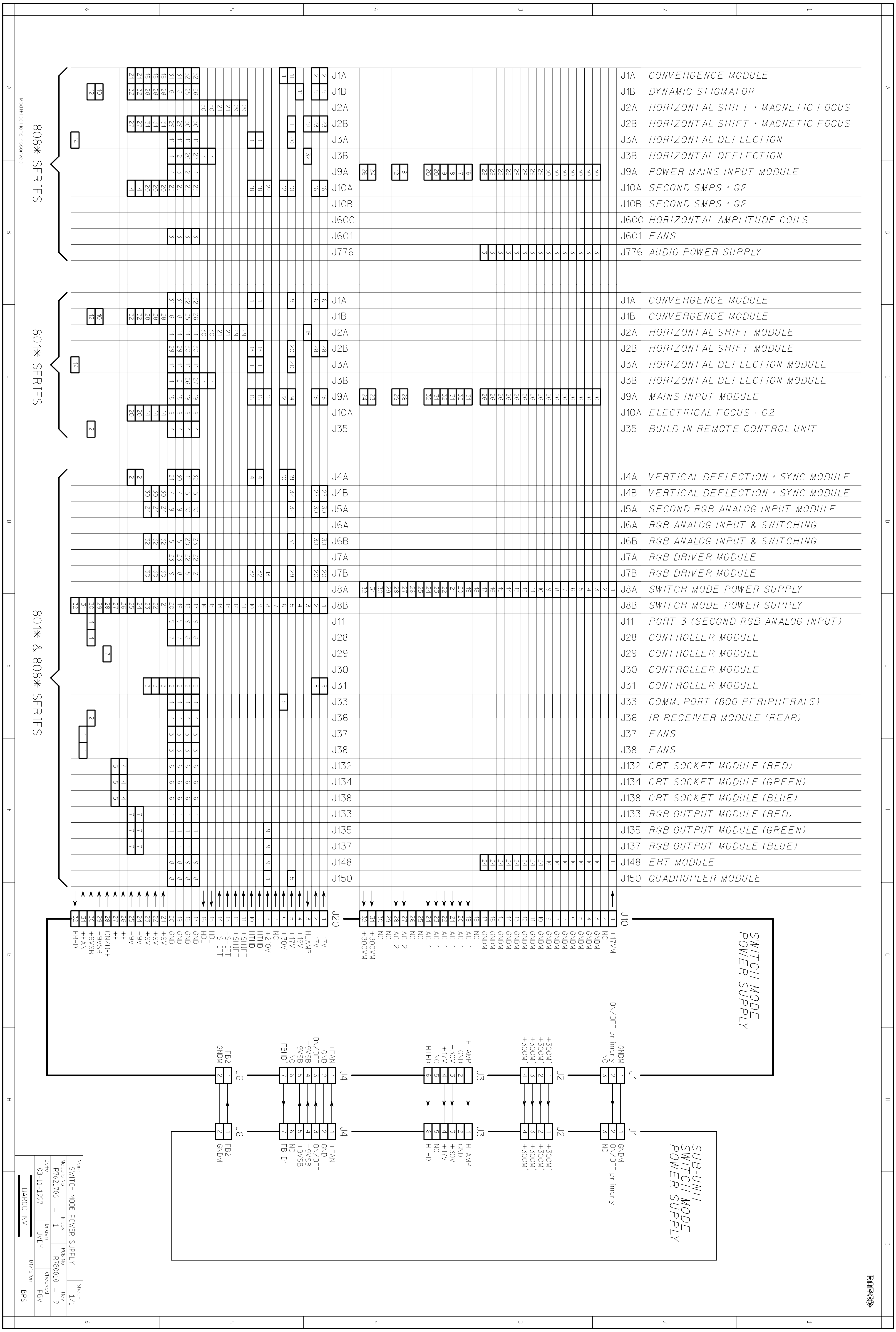
Z 2	P234046	D#ZEN 12V 0W5 C DMMELF	1


R804525
R133039
R805863
R3133921

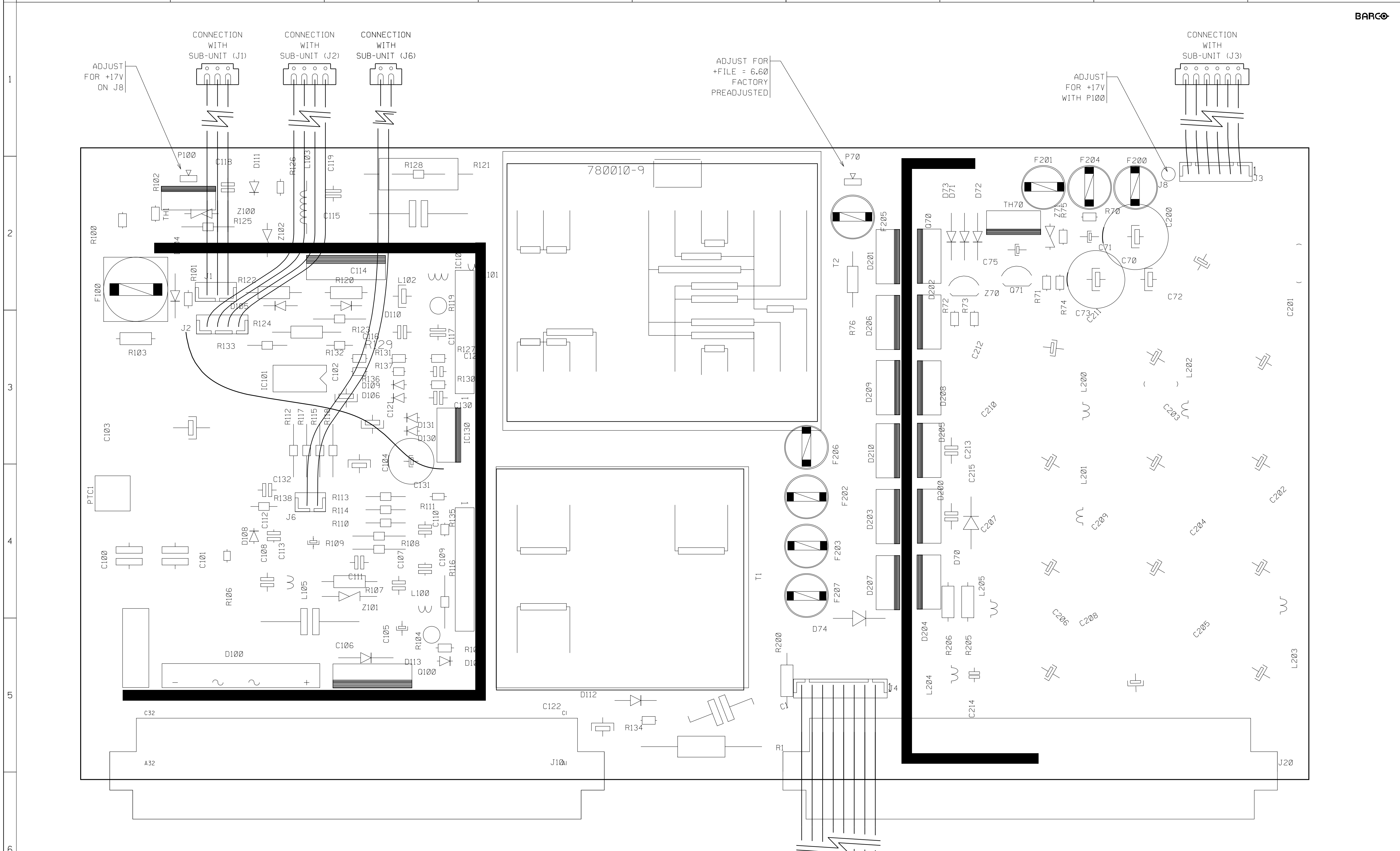
WARNING

THIS CIRCUIT BOARD IS HOT TO AC. THIS POWER SUPPLY, LIKE THE HIGH VOLTAGE POWER SUPPLY, DOES NOT USE A LINE ISOLATION TRANSFORMER, MEANING A PORTION OF THE CIRCUITRY IS HOT-TO-LINE AND SHOULD BE TREATED WITH CAUTION



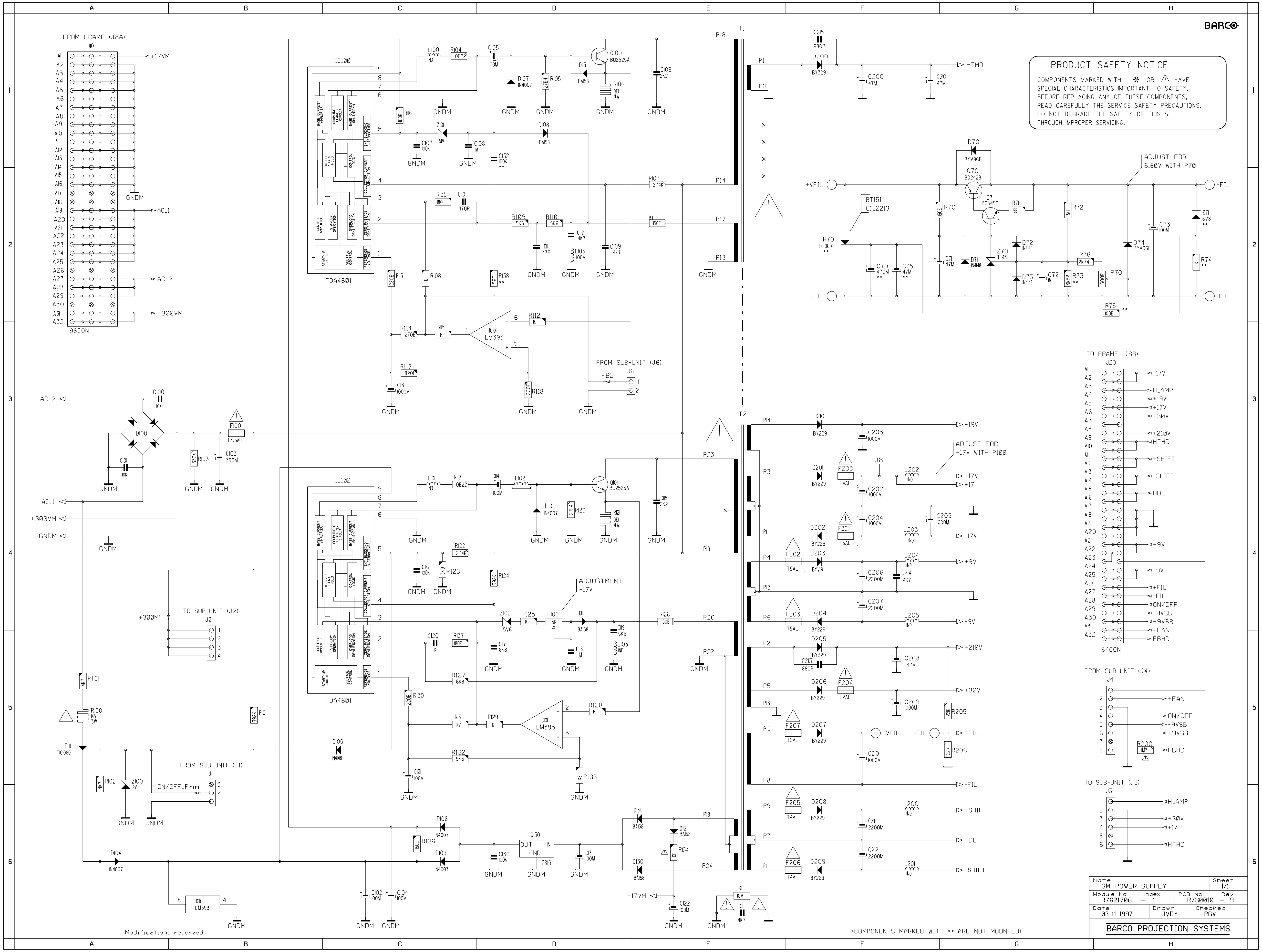


Name: SWITCH MODE POWER SUPPLY			Sheet 1/1
Module No R762706	Index 1	PCB No R780010	Rev 9
Date 03-11-1997	Drawn JVDY	Checked PGV	
BARCO NV		Division BPS	

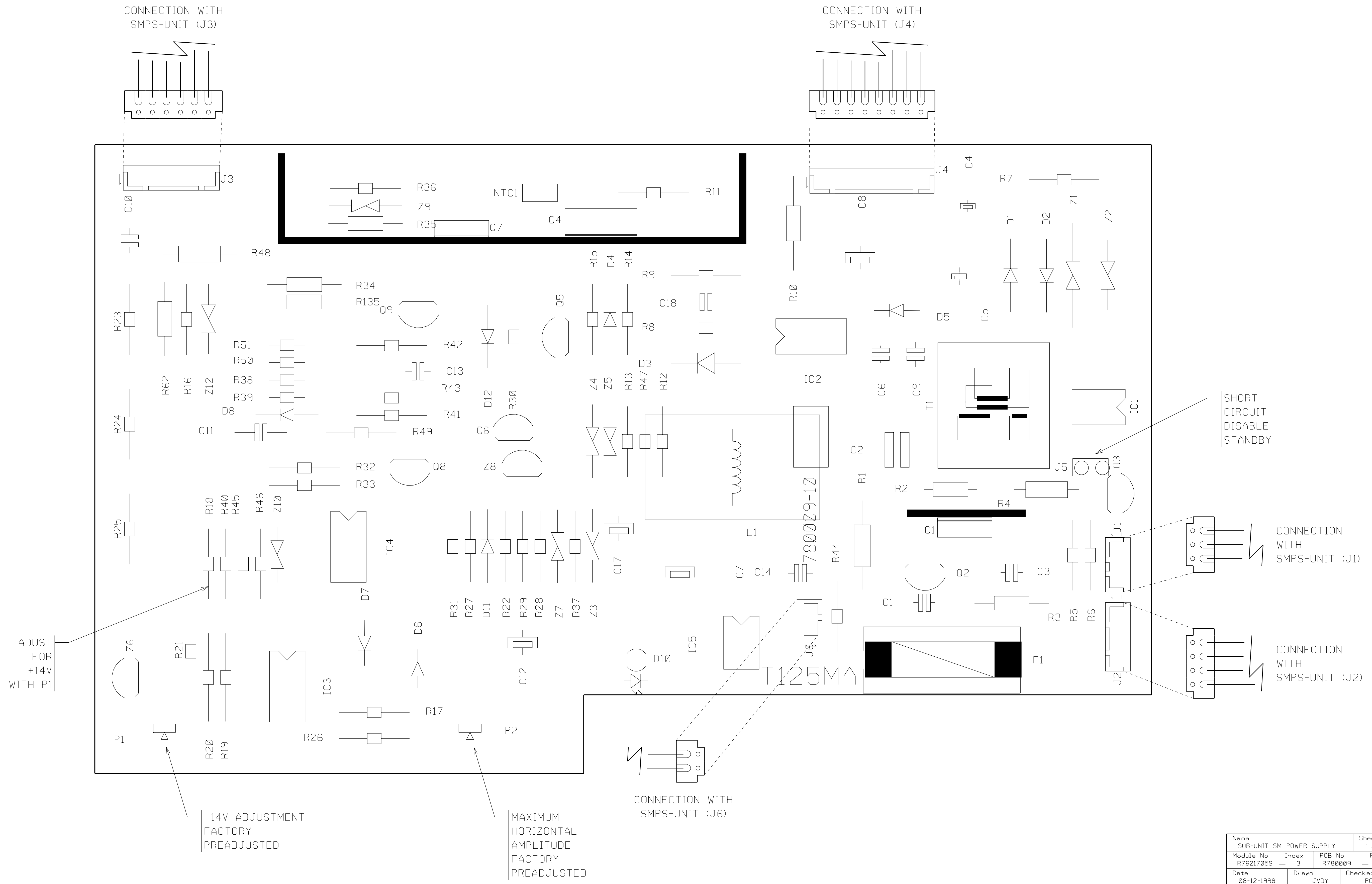


Name		Sheet
SWITCH MODE POWER SUPPLY		1 / 1
Module No R7621706	Index 1	PCB No R780010 — Rev 9
Date 03-11-1997	Drawn JVDY	Checked PGV

BARCO PROJECTION SYSTEMS



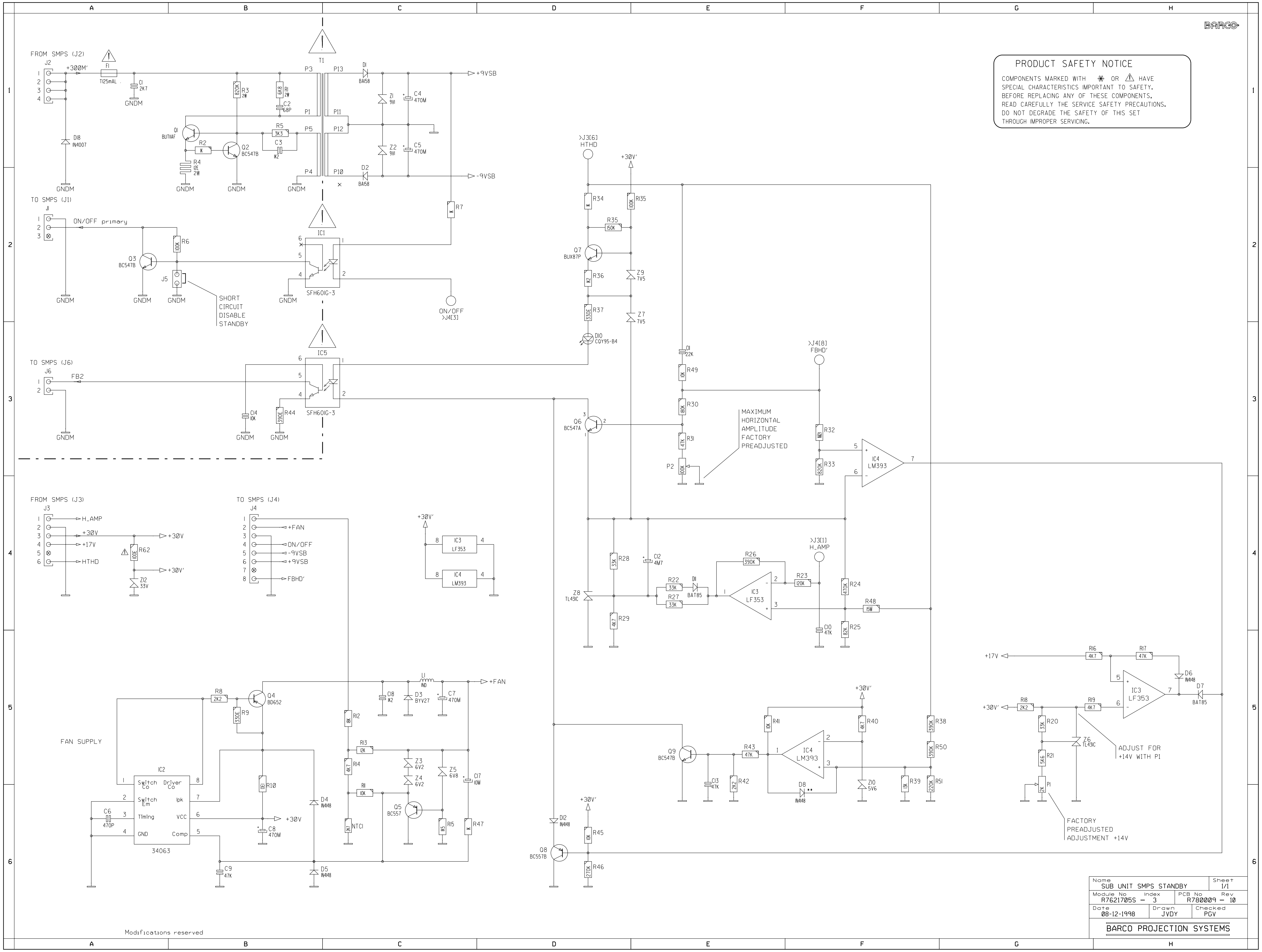
COMP.	LOC.
C1	E 6
C70	F 2
C71	G 2
C72	G 2
C73	H 2
C75	F 2
C100	A 3
C101	A 3
C102	C 6
C103	B 3
C104	C 6
C105	D 1
C106	E 1
C107	C 1
C108	C 1
C109	D 2
C110	C 2
C111	D 2
C112	D 2
C113	C 3
C114	D 3
C115	E 4
C116	C 4
C117	D 5
C118	D 5
C119	D 4
C120	C 5
C121	C 5
C122	E 6
C130	D 6
C131	D 6
C132	D 1
C200	F 1
C201	F 1
C202	F 4
C203	F 3
C204	F 4
C205	F 4
C206	F 4
C207	F 4
C208	F 5
C209	F 5
C210	F 5
C211	F 6
C212	F 6
C213	F 5
C214	F 4
C215	F 1
D70	G 1
D71	G 2
D72	G 2
D73	G 2
D74	H 2
D100	A 3
D104	A 6
D105	C 5
D106	C 6
D107	D 1
D108	D 1
D109	C 6
D110	D 4
D111	D 4
D112	E 6
D113	D 1
D130	E 6
D131	E 6
D200	F 1
D201	F 3
D202	F 4
D203	F 4
D204	F 4
D205	F 5
D206	F 5
D207	F 5
D208	F 6
D209	F 6
D210	F 3
F100	B 3
F200	F 3
F201	F 4
F202	F 4
F203	F 4
F204	F 5
F205	F 6
F206	F 6
F207	F 5
IC100	C 1
IC101	B 6
IC101	D 3
IC101	D 5
IC102	C 4
IC130	D 6
J1	B 5
J2	B 4
J3	H 6
J4	H 5
J6	D 3
J8	F 3
J10	A 1
J20	H 3
L100	C 1
L101	C 4
L102	D 4
L103	D 5
L105	D 2
L200	F 6
L201	F 6
L202	F 3
L203	F 4
L204	F 4
L205	F 4
P70	H 2
P100	D 4
PTC1	A 5
Q70	G 2
Q71	G 2
Q100	D 1
Q101	D 4
R1	E 6
R70	G 2
R71	G 2
R72	G 2
R73	G 2
R74	H 2
R75	H 2
R76	G 2
R100	A 5
R101	B 5
R102	A 5
R103	B 3
R104	C 1
R105	D 1
R106	D 1
R107	E 2
R108	C 2
R109	D 2
R110	D 2
R111	E 2
R112	D 2
R113	C 2
R114	C 3
R115	C 3
R116	C 1
R117	C 3
R118	D 3
R119	C 3
R120	D 4
R121	D 4
R122	C 4
R123	C 4
R124	D 4
R125	D 4
R126	E 4
R127	C 5
R128	D 5
R129	D 5
R130	C 5
R131	C 5
R132	C 5
R133	D 5
R134	E 6
R135	C 2
R136	C 6
R137	C 5
R138	D 2
R200	H 5
R205	G 5
R206	G 5
T1	E 1
T2	E 3
TH1	A 5
TH70	F 2
Z70	G 2
Z71	H 2
Z100	A 5
Z101	C 1
Z102	D 4



Modifications reserved

Name			Sheet
SUB-UNIT SM POWER SUPPLY			1 / 1
Module No	Index	PCB No	Rev
R76217055	3	R780009	10
Date	Drawn	Checked	
08-12-1998	JVDY	PGV	

BARCO PROJECTION SYSTEMS



COMP.	LOC.
C1	A 1
C2	B 1
C3	B 1
C4	C 1
C5	C 1
C6	A 6
C7	C 5
C8	B 6
C9	B 6
C10	F 4
C11	E 3
C12	E 4
C13	E 5
C14	B 3
C17	C 5
C18	C 5
D1	C 1
D2	C 1
D3	C 5
D4	B 6
D5	B 6
D6	H 5
D7	H 5
D8	F 5
D10	D 3
D11	E 4
D12	D 6
D18	A 1
F1	A 1
IC1	B 2
IC2	A 5
IC3	H 5
IC3	E 4
IC3	C 4
IC4	F 5
IC4	C 4
IC4	F 3
IC5	B 3
J1	A 2
J2	A 1
J3	A 4
J4	B 4
J5	A 2
J6	A 3
L1	C 5
NTC1	C 6
P1	G 5
P2	E 3
Q1	B 1
Q2	B 1
Q3	A 2
Q4	B 5
Q5	C 6
Q6	D 3
Q7	D 2
Q8	D 6
Q9	E 5
R1	B 1
R2	B 1
R3	B 1
R4	B 1
R5	B 1
R6	B 2
R7	C 2
R8	B 5
R9	B 5
R10	B 5
R11	C 5
R12	C 5
R13	C 5
R14	C 5
R15	C 6
R16	G 5
R17	H 5
R18	G 5
R19	G 5
R20	G 5
R21	G 5
R22	E 4
R23	F 4
R24	F 4
R25	F 4
R26	E 4
R27	E 4
R28	D 4
R29	D 4
R30	E 3
R31	E 3
R32	F 3
R33	F 3
R34	D 2
R35	D 2
R36	D 2
R37	D 2
R38	F 5
R39	F 5
R40	F 5
R41	E 5
R42	E 5
R43	E 5
R44	B 3
R45	D 6
R46	D 6
R47	C 6
R48	F 4
R49	E 3
R50	F 5
R51	F 5
R62	A 4
R135	E 2
T1	B 1
Z1	C 1
Z2	C 1
Z3	C 5
Z4	C 5
Z5	C 5
Z6	G 5
Z7	E 2
Z8	D 4
Z9	E 2
Z10	F 5
Z12	A 4

IMPORTANT

The SM POWER SUPPLY has to be adjusted when the projector displays a picture of the internal generated testpattern or of an input signal at standard line- and frame frequency.

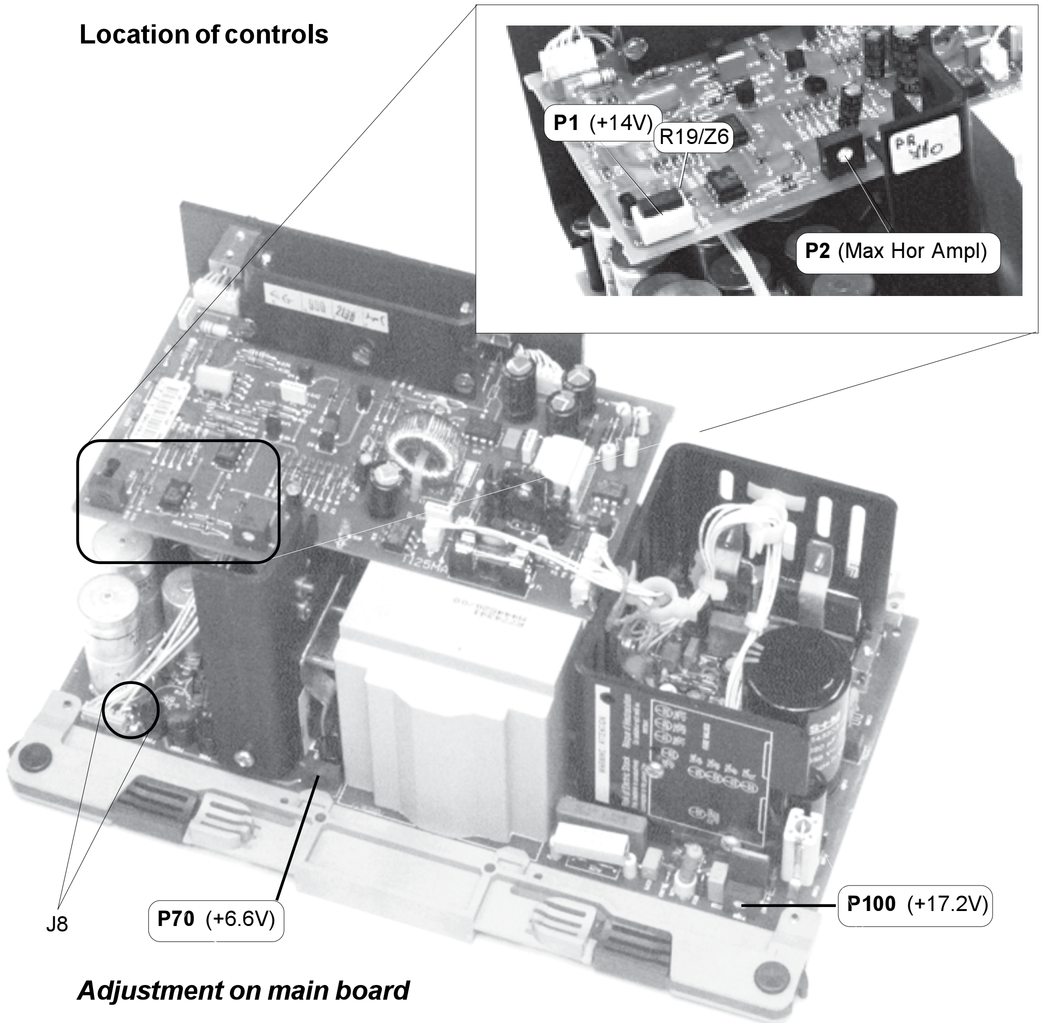
PREPARATION

Select the internal generated test pattern or an input source at standard frequency (refer to owner's and installation manual).

Put the BRIGHTNESS and CONTRAST level in mid-position (refer to owner's manual).

ADJUSTMENTS

Location of controls



Adjustment on main board

a) Adjusting Vout P100

Connect a voltmeter to the provided test point 'J8' (+17.2V).
Adjust potentiometer P100 for +17.2V on testpoint.

b) Adjusting +FiL Voltage P70

Important: P70 is factory pre-adjusted. A readjustment is only necessary after a replacement of a defective component in the Filament Voltage stabilization circuit.

Adjustment procedure: Connect a voltmeter between the +Fil and -Fil, respectively contact A26 and A27 of module connector J20.
Adjust potentiometer P70 for +6.6V Filament Voltage.

Adjustments on sub-board

b) Adjusting +14V P1

Important: P1 is factory pre-adjusted. A readjustment is only necessary after a replacement of a defective component in the +17V drop circuit.

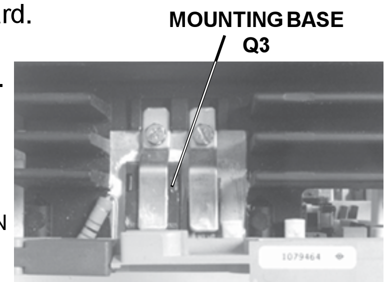
Adjustment procedure: Connect a voltmeter to the node R19/Z6.
Adjust potentiometer P1 for +14V on that node.

c) Adjusting MAX HOR AMPL P2 (at standard frequency)

Adjust the Horizontal Amplitude of the displayed picture by means of the RCU800 on its maximum (bar scale on screen indicates 99). (Refer to the owner's manual to select the corresponding menu).

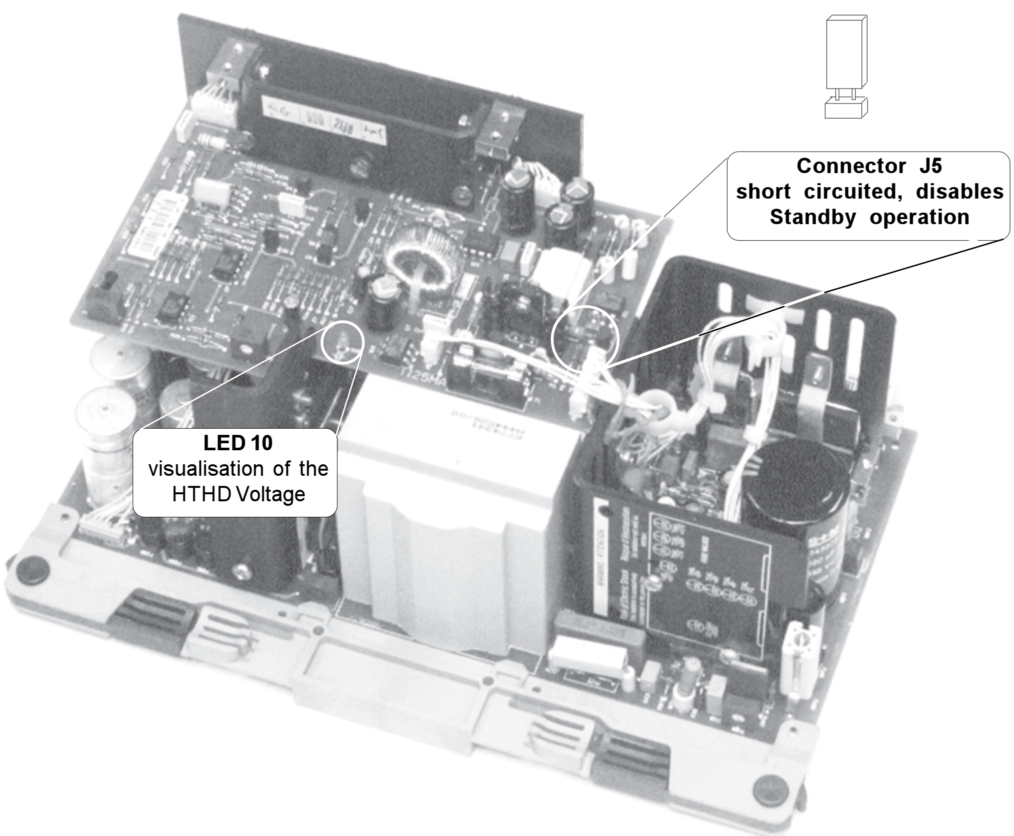
Connect a voltmeter to the collector (Collector connected to mounting base) of transistor Q13 (BDV65C) on the Hor. Defl. board.

Adjust potentiometer P2 for +48V on collector.



HORIZONTAL DEFLECTION
MODULE R7622675
(Top view)

Service points provided on the module



TECHNICAL DESCRIPTION SWITCHED MODE POWER SUPPLY (76 21706)

Introduction.

On the main board of this module we find the generation of all stable voltages, we mean voltages independent on the line frequency, and the variable +HTHD voltage (referred to as the second SMPS).

This second SMPS is linked via the subunit with the horizontal deflection board as the +HTHD voltage (horizontal scan voltage) is linearly proportional with the line frequency.

Because the ‘second’ SMPS utilizes the rectified voltage from the winding P22-P24, this SMPS totally depends on the ‘first’ one' , or in other words, if the first SMPS is down , the second one ‘follows’ .

The ON/OFF voltage delivered by the controller board can stop or start up these Switched Mode Power Supplies.

The subunit comprises the DC-fan control, the regulation circuit for the +HTHD, its Under- and Overvoltage protection circuits, the +17volts drop protection and the stand-by power supply.

Generation of the line frequency independent voltages.

The mains voltage is rectified by the bridge D100 and the +300 volts is now the supply voltage for the power switches Q100 and Q101 on the main board.

The connector J2 brings this voltage to the subunit where it is used for the production of the stand-by voltages (-) and (+) SB.

We assume that the thyristor TIC106D is conducting (its gate is not clamped at ground level, see later).

The positive halfwave of the mains voltage (START) charges C102 via D104 . The gate of the thyristor is set at 11 volts with the zener Z100 through R101 from the +300volts.

As soon as the capacitor voltage of C102 reaches approximately 12 volts, the IC can start up by driving the base of the power switch.

The diode D104 stops conducting as its anode is at about (11 + 0.6) volts.

The thyristor gets blocked as well, because its cathode equals the gate voltage.

In the meantime the IC102 has started up and the voltage at pin 9 receives its supply voltage now from the winding 24-22 of the T2 transformer via D109, stabilized with IC130.

The push-pull outputs, pins 7 and 8, drive the Q101 power switch and during the off time of the latter the accumulated energy in the primary winding is transferred to the secondary capacitors via the rectifying diodes (flyback principle).

The feedback winding 20-22 provides two informations for the control IC :

Firstly, the waveform is sent to pin 2 where the **zero passages** are detected, useful to drive the power switch on at the exact moment.

The base drive is delayed until the energy in the transformer has been completely transferred to the secondary side. By this measure, the current through the power switch is reduced to a minimum.

Secondly, the negative amplitude is rectified by D111 and compared with the reference 4 volts that is available at pin 1.

The error voltage is now sent to pin 3 and serves as a control voltage to adjust the duty cycle and frequency of the switcher.

The windings P18-P22 also serves as a help at starting up. This windings provides energy the moment the P22-P24 winding does not. The rectified voltage (D131) passes to pin 9 up to the moment that pin has reached 12 volts.

The current through the power switch is at all times checked and if too high (in the event of a short on the secondary side) the comparator 393 (IC101) output drops the error voltage in order to adapt the duty cycle of the switcher.

Note that a ”special” winding is provided, delivering **+17M**, or, a voltage related to the **Mains** ground and not the chassis ground. This voltage is utilized on the EHT board, because the drive circuit for the power switcher is **Mains ground and <u>not</u> Chassis ground**. (see description EHT board).

Generation of the +HTHD voltage (scan voltage).

This voltage is linked with the horizontal deflection board as it has to be adapted to the scanning frequency. A feedback voltage (FBHD) is for that reason arriving on the subunit.

This feedback voltage, at contact J4(8) (FBHD') of the subunit, is sent to the base of the error amplifier Q6. The potentiometer P2 allows an adjustment of this feedback, or in other words, the horizontal width can be aligned with P2.

The emitter of Q6 is set at a reference zener voltage, adjustable with the voltage at the regulating pin of Z8. This voltage is the result of the output of the DC-amplifier-buffer 353, combined with the +HTHD voltage.

By this measure, we reduce the range of the horizontal width at high scanning frequencies. Indeed, at standard video frequency we need much more range to overscan.

The collector current of the regulating transistor Q6 flows into the opto-coupler IC5 and the phototransistor of this insulating device (pin5-FB2) is now regulating via connector J6 (pin 1) the DC voltage at pin 3 of IC100, in order to stabilize the +HTHD voltage for one typical line frequency and amplitude setting.

The transistor Q7 is a 5mA current generator and D10 a **green** LED to visualise the +HTHD voltage.

Overvoltage protection.

Pin 2 of the 393 (IC4) is set at 5.6 volts with Z10 and, the other input, pin 3 is the scan voltage divided by R38/R50/R39.

As soon this input exceeds the zener voltage, the output switches high and saturates transistor Q9. The saturated transistor Q9 pulls pin 2 of IC5 at ground level. The incorporated Led has its max emission whereas pin 5 is pulled at ground level via R44. This ground level, applied to IC100, drops the +HTHD voltage to a low level.

The original overvoltage protection is now is causing an undervoltage protection.

Undervoltage protection.

The stabilized zener voltage with Z8 is used as reference voltage for the comparator 393, pin 6. Now, the other pin 5 is the +HTHD voltage.

If the pin 5 drops below the reference voltage, the output switches low, and the transistor Q8 saturates, pulling again pin 2 of IC5 low.

Protection against too low +17 volts.

If, for some reasons, the +17 volts (and all the other voltages as well) are, even temporarily, too low, it is then advised to shut down the +HTHD voltage (coming from the other SMPS).

The pin 6 of IC3 is preadjusted, ex factory, at 14 volts with P1 (refer to the adjustment procedure)

This happens with the comparator in IC3 and its output pin 7 saturates again Q8.

Stand-by / ON-OFF switching.

An oscillator is built up around Q1/Q2 and the transformer T1.
Q1 gets its base current via R3. The collector current of the latter flows in the winding 1-3 and induces a voltage in the winding 5-4 ' encouraging' the base current.

As soon the emitter voltage of Q1 can drive the Q2 and saturate it, this transistor clamps the base of Q1 at ground level and cuts off Q1. The cycle starts all-over again.

Two opposite polarity SB voltages (+/- 9 volts) are available at the secondary side.

a) Stand-by mode (OFF).

The voltage at contact 4 of the J4 connector (‘OFF’) is in this case ‘high’ and this means for the optocoupler IC1 that the phototransistor is not conducting.

The transistor Q3 is thus saturated as R6 can provide the required base-emitter current.

The collector 'ON/OFF primary' of Q3 is ‘low’. Furthermore, via connector J1 (pin 2), the pin 5 of IC102 is below its "active level" via the diode D105, disabling the drive output.

As a conclusion, only the stand-by voltages +/- 9 SB voltages are available.

b) Operational mode (ON).

The I/O block of the controller board (collector of a transistor) pulls now contact 4 of J4 at a low level 'ON' to light the LED in the opto-coupler IC1.

Now, the phototransistor of the latter is saturated and brings the base of Q3 at nearly ground level. This means now for this transistor an OFF state.
The zener Z100 on the motherboard can now install +11 volts at the gate of the thyristor allowing the charge of the capacitor C102.

DC Fan control of the fans. The speed of the fans is regulated by means of a sensor (NTC resistor) mounted close to the heatsink of the SMPS board.

IC2 is an integrated circuit regulating the speed of the fans by adapting the duty cycle of the output drive for the power transistor Q4. L1 and C7 filters the output voltage.

The feedback is applied to pin 5 which is protected against arcing with D4/D5.

MC34063 is a switching regulator. An oscillator trimmed with C6 is applied together with a dc voltage to an RS-flipflop via an AND gate. That DC voltage now is the result of a comparator output receiving an internal reference voltage of 1.25 volts and the feedback voltage at pin 5 (comp). Consequently, the duty cycle depends on the DC voltage that is built up as follows :

- it is determined by the output voltage via R13 / R14 / R11 in order to stabilize the latter for a well-determined value of the NTC resistor.
- it is equally influenced by any change of the NTC resistor itself, sensing the heatsink of the SMPS board.

The minimun voltage is set by Z5 at approximately 7.5 volts and the maximum speed by Z4 + Z4. at 15 volts.

The maximum current output is limited by R10, and an RC feedback straight from the output to pin 5 provides a more regular speed at any time.

Power supply for the EHT generator. The EHT generator is supplied directly from the rectified mains voltage. The +300M volts is leaving the board at the contacts 31/32 of the J8A connector for the EHT board (see description of that board)

By above measure, we eliminate the influence of the EHT load on the performance of the power supply, and the maximum peak current of the EHT generator is increased.

PARTS LISTING 76 21706

SIT.	ITEM NO.	DESCRIPTION		QUANTITY
51	R133036	SPR L 6 D 2,4D 6 CE		3
50	R133039	SPR L 8 D 1,2D 4 CE		2
121	R133063	HTSN@A SOT93 I_MICA 28X25		2
222	R133074	HTSN@A I_SIL W30		0,08
225	R133074	HTSN@A I_SIL W30		0,08
10	R302102	CORE TUBE 4,95/1,3 X40,5		1
60	R315302	J PIN PR D1,3L 5,5+3		1
	R34217209	WU UL1007 AWG24 ST RD 90		1
	R34699302	SLVU SHR D 9,6/4,8 BK 20		1
	R34704702	SLVU SHR D 6,4/3,2 BK 20		1
250	R348020	CBLA TIE B L110 W		1
140	R348086	CBLA TWIST LOCK D 8,9		2
	R3484022	CD CT FTMT P 2 240		1
	R3484036	CD CT $FTMT P 3 225		1
	R3484044	CD CT FTMT P 4 225		1
	R3484063	CD CT $FTMT P 6 175		1
213	R3619125	SCR D965 M 3 X 6 STZB		1
22	R3620226	SCR D84 M 3 X 8 SS		1
230	R3620226	SCR D84 M 3 X 8 SS		1
21	R3626696	SCR D921 M 3 X 8 SS		2
140	R3626696	SCR D921 M 3 X 8 SS		1
112	R3631059	SCR Z933 M 3 X 8 SS		3
302	R3631059	SCR Z933 M 3 X 8 SS		4
110	R367600	NUT TRAD M 3 BLOCK BRNI		2
210	R367600	NUT TRAD M 3 BLOCK BRNI		2
20	R3676091	SPR L17 M 3 H 5 IBRNI		1
10	R367699	RVT AVTRON2,5L 8,1 AL		4
1010	R367699	RVT AVTRON2,5L 8,1 AL		2
214	R7123024	SPRCL 1 D 3,2D 7 PLBK		1
1000	R722276	LOCK49 PCB UN CPL		1
	R7621705S	**UN G801 SMP STANDBY**		**1**
200	R802631	HTSN D800 SMP PART 2		1
123	R804831	HTSN A GEN SPG 1X 3.1LG		1
301	R804831	HTSN A GEN SPG 1X 3.1LG		1
120	R804832	HTSN A GEN SPG 1XM3 LG		3
220	R804833	HTSN A GEN SPG 2X 3.1LG		2
221	R804834	HTSN A GEN SPG 2XM3 LG		2
100	R805857	HTSN G808 SMP		1
111	V3621217	SCR $7500CM 3 X 6 STZN		4
122	V3621217	SCR $7500CM 3 X 6 STZN		4
211	V3621217	SCR $7500CM 3 X 6 STZN		1
223	V3621247	SCR $7500CM 3 X 12 STZN		4
	Z3485081	CD CT FTMT P 8 125		1
C 1	R1147009	C CE DI 4N7M400E5 Y1	⚠	1
C 71	R111476	C EL RA 47M M 25E2 85		1
C 72	R111546	C EL RA 1M M 50E2 85		1
C 73	R111477	C EL RA 100M M 25E2 85		1
C100	R112837	C CE DI 10N S500E3 85		1
C101	R112837	C CE DI 10N S500E3 85		1
C102	R111477	C EL RA 100M M 25E2 85		1
C103	R111576	C EL RA 390M M385E4 85		1
C104	R111477	C EL RA 100M M 25E2 85		1
C105	R111487	C EL RA 100M M 50E2 85		1
C106	R1150051	C PPMERA 2N2J162E9 HV		1

ITEM NO.	SIT.	DESCRIPTION	
C107	R113724	C POMERA 100N K 63E2 85	1
C108	R114090	C POMERA 1M M 63E2 85	1
C109	R115932	C PP RA 4N7J 63E2 85	1
C110	R112735	C CE MI 470P K100E2	1
C111	R112238	C NP0 MI 47P G100E2	1
C112	R115932	C PP RA 4N7J 63E2 85	1
C113	R111453	C EL RA1000M M 6E2 85	1
C114	R111487	C EL RA 100M M 50E2 85	1
C115	R1150051	C PPMERA 2N2J162E9 HV	1
C116	R113724	C POMERA 100N K 63E2 85	1
C117	R115936	C PP RA 6N8J 63E2 85	1
C118	R114090	C POMERA 1M M 63E2 85	1
C119	R115934	C PP RA 5N6J 63E2 85	1
C120	R112739	C CE MI 1N K100E2	1
C121	R111477	C EL RA 100M M 25E2 85	1
C122	R111477	C EL RA 100M M 25E2 85	1
C130	R113724	C POMERA 100N K 63E2 85	1
C131	R111487	C EL RA 100M M 50E2 85	1
C200	R1116491	C EL RA 47M T385SKT 85	1
C201	R1116491	C EL RA 47M T385SKT 85	1
C202	R111626	C EL RA1000M T 40SKT 85	1
C203	R111626	C EL RA1000M T 40SKT 85	1
C204	R111626	C EL RA1000M T 40SKT 85	1
C205	R111626	C EL RA1000M T 40SKT 85	1
C206	R111616	C EL RA2200M T 16SKT 85	1
C207	R111616	C EL RA2200M T 16SKT 85	1
C208	R1116491	C EL RA 47M T385SKT 85	1
C209	R111626	C EL RA1000M T 40SKT 85	1
C210	R111626	C EL RA1000M T 40SKT 85	1
C211	R111616	C EL RA2200M T 16SKT 85	1
C212	R111616	C EL RA2200M T 16SKT 85	1
C213	R111716	C CE DI 680P M202E3 HV	1
C214	R112762	C CE MI 4N7Z 63E2 85	1
C215	R111716	C CE DI 680P M202E3 HV	1
D 70	R131906	D R BYV96E 1021A5 SOD57	
D 71	R131621	D S 1N4148 075150 DO35	
D 72	R131621	D S 1N4148 075150 DO35	
D 73	R131621	D S 1N4148 075150 DO35	
D 74	R131906	D R BYV96E 1021A5 SOD57	
D100	R132029	D B D20B60 60020A	1
D104	R131646	D R 1N4007 10201A DO41	
D105	R131621	D S 1N4148 075150 DO35	
D106	R131646	D R 1N4007 10201A DO41	1
D107	R131646	D R 1N4007 10201A DO41	1
D108	R131637	D R BA158 600400 DO7	1
D109	R131646	D R 1N4007 10201A DO41	1
D110	R131646	D R 1N4007 10201A DO41	1
D111	R131637	D R BA158 600400 DO7	1
D112	R131637	D R BA158 600400 DO7	1
D113	R131637	D R BA158 600400 DO7	1
D130	R131637	D R BA158 600400 DO7	1
D131	R131637	D R BA158 600400 DO7	1
D200	R131913	D R BY329 10208A TO220C	1
D201	R131927	D R BY229 60007A TO220C	1
D202	R131927	D R BY229 60007A TO220C	1
D203	R131914	D Y 04510A TO220	1
D204	R131927	D R BY229 60007A TO220C	1
D205	R131913	D R BY329 10208A TO220C	1
D206	R131927	D R BY229 60007A TO220C	1
D207	R131927	D R BY229 60007A TO220C	1
D208	R131927	D R BY229 60007A TO220C	1
D209	R131927	D R BY229 60007A TO220C	1
D210	R131927	D R BY229 60007A TO220C	1

F100	R314147	F 5X20 F 3A15 H UL	⚠	1
F200	R314188	F TR5 T 4A L UL	⚠	1
F201	R314183	F TR5 T 5A L UL	⚠	1
F202	R314183	F TR5 T 5A L UL	⚠	1
F203	R314183	F TR5 T 5A L UL	⚠	1
F204	R314186	F TR5 T 2A L UL	⚠	1
F205	R314188	F TR5 T 4A L UL	⚠	1
F206	R314188	F TR5 T 4A L UL	⚠	1
F207	R314186	F TR5 T 2A L UL	⚠	1
H100	R314516	F A H+C 6A 5X20 BV B		1
I100	R132787	U 4601-5 TDA SIP9 P		1
I101	R134114	U 393 LM DIP8 P		1
I102	R132787	U 4601-5 TDA SIP9 P		1
I130	R134010	U 7815 TO220 P		1
J10	R314068	J EUR3C MBS P96 E1C2S 1,6		1
J20	R313525	J EUR2C MBS P64 E1C2S 1,6		1
L100	R302108	CORE TUBE 3,5 /1,3 X 3		1
L101	R302108	CORE TUBE 3,5 /1,3 X 3		1
L102	R302102	CORE TUBE 4,95/1,3 X40,5		1
L102	R348101	WU JUMP 0,6 5		1
L103	R3061322	CH AX NS 10 UH		1
L105	R3061322	CH AX NS 10 UH		1
L200	R305913	CH MNS AX 12 UH 3A		1
L201	R305913	CH MNS AX 12 UH 3A		1
L202	R305913	CH MNS AX 12 UH 3A		1
L203	R305913	CH MNS AX 12 UH 3A		1
L204	R305913	CH MNS AX 12 UH 3A		1
L205	R305913	CH MNS AX 12 UH 3A		1
P 70	R106825	R TCE V500E K 0W5 S10SS		1
P100	R106828	R TCE V 5K K 0W5 S10SS		1
PC	R780010	PCB *800 SMP		1
PTC1	R105211	R PTCR 5K 14MA		1
Q 70	A573379	Q BD242B P P TO220		1
Q 71	R131411	Q BC549C N SS TO92		1
Q100	V132599	Q BU2525A N P SOT93		1
Q101	V132599	Q BU2525A N P SOT93		1
R 1	R1046781	R HV H 10M J 1W 10000		1
R 70	V1026175	R MF H150E F 0W6 E4		1
R 71	V1026174	R MF H 15E F 0W6 E4		1
R 72	V1026686	R MF H 5K11F 0W6 E4		1
R 76	V1026426	R MF H 2K74F 0W6 E4		
R100	R1041698	R WWFV 1K5 K 2W		1
R101	V1026578	R MF H392K F 0W6 E4		1
R102	R100144	R MF V 4K7 J 0W6 E2		1
R103	V1026508	R MF H332K F 0W6 E4		1
R104	V1011984	R MF H E22J 0W6 E4		1
R105	V1026424	R MF H 27E4 F 0W6 E4		1
R106	R103600	R WW H E1 K 4W		1
R107	V1026428	R MF H274K F 0W6 E4		
R108	R101536	R MF H 1K F 0W4 E3		
R109	R101545	R MF H 5K6 F 0W4 E3		
R110	R101545	R MF H 5K6 F 0W4 E3		
R111	R103226	R MO H150E J 2W E10		1
R112	R101536	R MF H 1K F 0W4 E3		
R113	R101528	R MF H220E F 0W4 E3		
R114	R101529	R MF H270E F 0W4 E3		
R115	R101536	R MF H 1K F 0W4 E3		
R116	R101560	R MF H100K F 0W4 E3		
R117	R101535	R MF H820E F 0W4 E3		
R118	R1015281	R MF H200E F 0W4 E3		1
R119	V1011984	R MF H E22J 0W6 E4		1
R120	V1026424	R MF H 27E4 F 0W6 E4		1
R121	R103600	R WW H E1 K 4W		1
R122	V1026428	R MF H274K F 0W6 E4		
R123	R101543	R MF H 3K9 F 0W4 E3		
R124	V1026578	R MF H392K F 0W6 E4		1
R125	R1015491	R MF H 11K F 0W4 E3		
R126	R103226	R MO H150E J 2W E10		1
R127	R100146	R MF V 6K8 J 0W6 E2		1
R128	R101536	R MF H 1K F 0W4 E3		
R129	R101536	R MF H 1K F 0W4 E3		
R130	R100128	R MF V220E J 0W6 E2		1
R131	R100137	R MF V 1K2 J 0W6 E2		1
R132	R100145	R MF V 5K6 J 0W6 E2		1
R133	R101539	R MF H 1K8 F 0W4 E3		
R134	R1001909	R CFFV E1 K 0W4 E1		1
R135	R101527	R MF H180E F 0W4 E3		1
R136	V1026175	R MF H150E F 0W6 E4		1
R137	R101527	R MF H180E F 0W4 E3		1
R200	R104656	R HV H 1M2 J 0W5 3500		1
R205	V1026338	R MF H221K F 0W6 E4		
R206	V1026338	R MF H221K F 0W6 E4		
T 1	R774356	T G808 SMP VAR	⚠	1
T 2	R774341	T G801 SMP FIX	⚠	1
TH 1	R1322101	Q TIC106D TH P TO66		1
Z 70	R134031	U 431C TL TO92 P		1
Z100	R131740	D ZEN 12V 0W5 C DO35		
Z101	R131787	D ZEN 51V 0W5 C DO35		
Z102	R131734	D ZEN 5V6 0W5 B DO35		

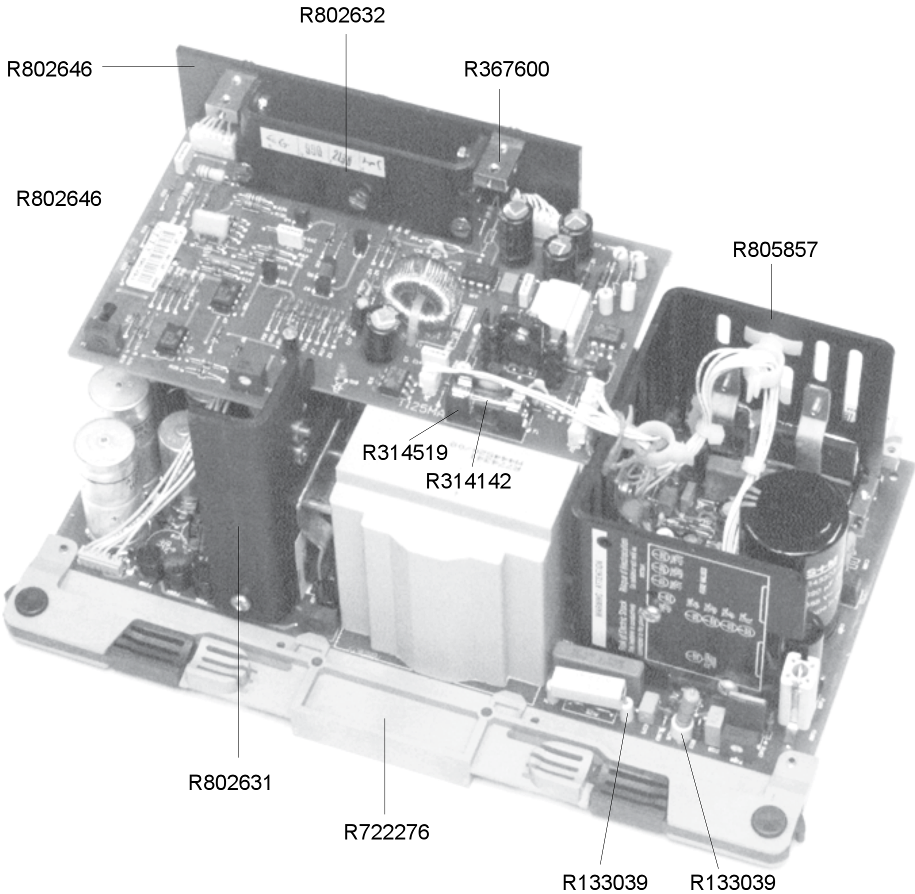
PARTS LISTING 76 21705S

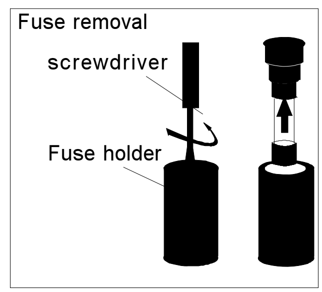
SIT.	ITEM NO.	DESCRIPTION	QUANTITY
60	R133039	SPR L 8 D 1,2D 4 CE	6
20	R133072	HTSN@ Q TO220 24X 7 L 20	1
120	R133074	HTSN@A I_SIL W30	
132	R133074	HTSN@A I_SIL W30	
152	R348019	CBLA TIE B L100 W2,5 -	1
21	R3631059	SCR Z933 M 3 X 8 SS	1
111	R3631059	SCR Z933 M 3 X 8 SS	4
131	R3631059	SCR Z933 M 3 X 8 SS	1
151	R3631059	SCR Z933 M 3 X 8 SS	2
22	R3661026	NUT D934 M 3 SS	1
41	R367434	RVT BLND_R2,4C 3,2 ALAL	2
23	R367502	SPR D6798AD 3,2D 6 STZN	1
110	R367600	NUT TRAD M 3 BLOCK BRNI	4
100	R802632	HTSN D800 SMP SUB	1
150	R802640	HTSN D801 SMP WSHR	2
40	R802646	FRM49 SMP SUB FIX	1
130	V1330681	HTSN@A TO220 SPG DUAL	1

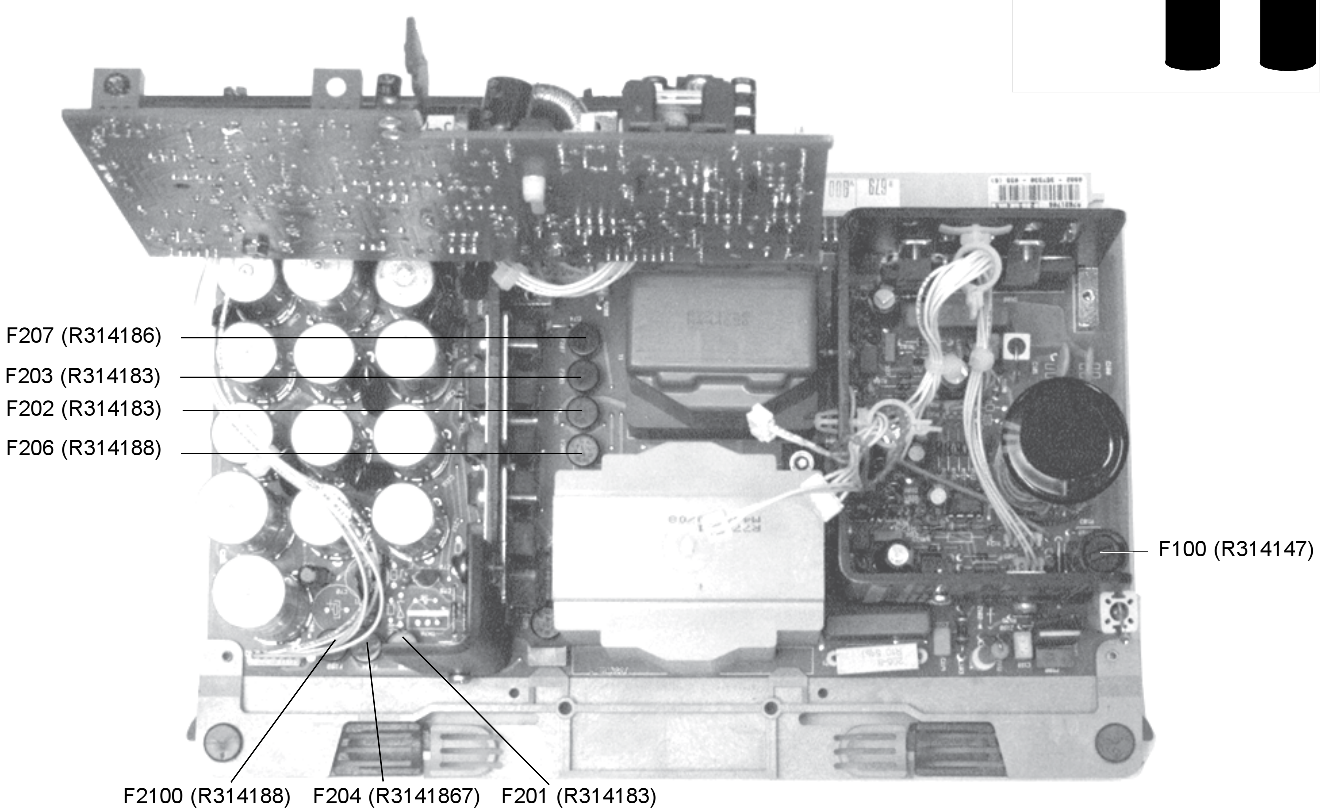
SIT.	ITEM NO.	DESCRIPTION	QUANTITY
C 1	R112830	C CE DI 2N7S400E3	1
C 2	R1128111	C N750DI 68P K102E3 HV	1
C 3	R112740	C CE MI 1N2K100E2	1
C 4	R111468	C EL RA 470M Z 16E2 85	1
C 5	R111468	C EL RA 470M Z 16E2 85	1
C 6	R1159081	C PP RA 470P J100E2 85	
C 7	R111479	C EL RA 470M M 25E2 85	1
C 8	R111489	C EL RA 470M M 35E2 85	1
C 9	R113720	C POMERA 47N K 63E2 85	
C 10	R113720	C POMERA 47N K 63E2 85	
C 11	R114154	C POMERA 22N K400E4 85	1
C 12	R111550	C EL RA 4M7M 50E2 85	
C 13	R113720	C POMERA 47N K 63E2 85	
C 14	R1137121	C POMERA 10N K250E2 85	
C 17	R111531	C EL RA 10M M 35E2 85	
C 18	R112740	C CE MI 1N2K100E2	1
D 1	R131637	D R BA158 600400 DO7	
D 2	R131637	D R BA158 600400 DO7	
D 3	R131950	D R BYV27 1502A0 SOD57	
D 4	R131621	D S 1N4148 075150 DO35	
D 5	R131621	D S 1N4148 075150 DO35	
D 6	R131621	D S 1N4148 075150 DO35	
D 7	R1316361	D Y BAT85 030200 DO34	
D 10	R131667	D LED D3 T GN	1
D 11	R1316361	D Y BAT85 030200 DO34	1
D 12	R131621	D S 1N4148 075150 DO35	
F 1	R314519	F A HLD 10A 5X20 BOD ⚠	1
F1 F	R314142	F 5X20 T 0A125L UL ⚠	1
I 1	R131691	U 601-3 SFH DIP6 P	1
I 2	R137625	U 34063 DIP8 P	1
I 3	R134116	U 353 LF DIP8 P	1
I 4	R134114	U 393 LM DIP8 P	1
I 5	R131691	U 601-3 SFH DIP6 P	1
J 1	R313923	J CT H MBT P 3 M2SN WH	1
J 2	R313924	J CT H MBT P 4 M2SN WH	1
J3	R313926	J CT H MBT P 6 M2SN WH	1
J4	R313928	J CT H MBT P 8 M2SN WH	1
J5	R3132862	J MD1 C MBT P 2 E1SN 6,7	1
J6	R313922	J CT H MBT P 2 M2SN WH	1
L 1	R305909	CH TOR V 1200 UH 2A	1
NTC1	R105016	R NTC 2K7 0W25	1
P 1	R106827	R TCE V 2K K 0W5 S10SS	1
P 2	R106833	R TCE V100K K 0W5 S10SS	1
PC	R780009	PCB *800 SMP SUB	1
Q 1	V1325851	Q BUT11AF N P SOT186	1
Q 2	R1314071	Q BC547B N SS TO92	
Q 3	R1314071	Q BC547B N SS TO92	
Q 4	R132909	Q BD652 DP P TO220	1
Q 5	R131413	Q BC557 P SS TO92	
Q 6	R1314072	Q BC547A N SS TO92	1
Q 7	B1329351	Q BUX87P N P SOT82	1
Q 8	R1314131	Q BC557B P SS TO92	
Q 9	R1314071	Q BC547B N SS TO92	
R 1	R101346	R MF H 6K8 J 1W E6	1
R 2	V1026006	R MF H 1K F 0W6 E4	
R 3	V1026888	R MF H825K F 0W6 E4	1
R 4	V102913	R MF H 12E J 2W E7	1
R 5	R101542	R MF H 3K3 F 0W4 E3	
R 6	R101560	R MF H100K F 0W4 E3	
R 7	R101536	R MF H 1K F 0W4 E3	
R 8	R101540	R MF H 2K2 F 0W4 E3	
R 9	R101530	R MF H330E F 0W4 E3	
R 10	R1011907	R CFFH E1 K 0W35	1
R 11	R101548	R MF H 10K F 0W4 E3	
R 12	R101551	R MF H 18K F 0W4 E3	
R 13	R101549	R MF H 12K F 0W4 E3	
R 14	R101544	R MF H 4K7 F 0W4 E3	
R 15	R101538	R MF H 1K5 F 0W4 E3	
R 16	R101544	R MF H 4K7 F 0W4 E3	
R 17	R101556	R MF H 47K F 0W4 E3	
R 18	R101540	R MF H 2K2 F 0W4 E3	
R 19	R101544	R MF H 4K7 F 0W4 E3	1
R 20	R101554	R MF H 33K F 0W4 E3	1
R 21	R101545	R MF H 5K6 F 0W4 E3	
R 22	R101554	R MF H 33K F 0W4 E3	
R 23	R101561	R MF H120K F 0W4 E3	
R 24	R101568	R MF H470K F 0W4 E3	
R 25	R101559	R MF H 82K F 0W4 E3	
R 26	R101567	R MF H390K F 0W4 E3	
R 27	R101554	R MF H 33K F 0W4 E3	
R 28	R101554	R MF H 33K F 0W4 E3	
R 29	R101544	R MF H 4K7 F 0W4 E3	
R 30	R101563	R MF H180K F 0W4 E3	
R 31	R101556	R MF H 47K F 0W4 E3	1
R 32	V1026089	R MF H 1M21F 0W6 E4	
R 33	R101571	R MF H820K F 0W4 E3	
R 34	V1026006	R MF H 1K F 0W6 E4	
R 35	V1026178	R MF H150K F 0W6 E4	
R 36	R101537	R MF H 1K2 F 0W4 E3	
R 37	R101530	R MF H330E F 0W4 E3	
R 38	R101567	R MF H390K F 0W4 E3	
R 39	R1015501	R MF H 13K F 0W4 E3	
R 40	R101544	R MF H 4K7 F 0W4 E3	
R 41	R101548	R MF H 10K F 0W4 E3	
R 42	R101540	R MF H 2K2 F 0W4 E3	
R 43	R101556	R MF H 47K F 0W4 E3	
R 44	R101531	R MF H390E F 0W4 E3	
R 45	R101548	R MF H 10K F 0W4 E3	
R 46	R101565	R MF H270K F 0W4 E3	
R 47	R101536	R MF H 1K F 0W4 E3	
R 48	R104682	R HV H 15M J 0W5 3500	1
R 49	R101548	R MF H 10K F 0W4 E3	
R 50	R101567	R MF H390K F 0W4 E3	
R 51	R101564	R MF H220K F 0W4 E3	
R 62	R1011246	R CFFH100E J 0W35	1
R135	V1026178	R MF H150K F 0W6 E4	1
R135	V1026178	R MF H150K F 0W6 E4	
T 1	R306718	T SMPS STAND-BY ⚠	1
Z 1	R131706	D ZEN 9V1 1W3 C DO41	1
Z 2	R131706	D ZEN 9V1 1W3 C DO41	1
Z 3	R131791	D ZEN 6V2 0W5 B DO35	1
Z 4	R131791	D ZEN 6V2 0W5 B DO35	1
Z 5	R131742	D ZEN 6V8 0W5 C DO35	
Z 6	R134031	U 431C TL TO92 P	1
Z 7	R131756	D ZEN 7V5 0W5 C DO35	
Z 8	R134031	U 431C TL TO92 P	1
Z 9	R131756	D ZEN 7V5 0W5 C DO35	
Z 10	V1317441	D ZEN 5V6 0W5 A DO35	1
Z 12	R131790	D ZEN 33V 1W3 C DO41	1

PRODUCT SAFETY NOTICE

Components identified by ⚠ have SPECIAL CHARACTERISTICS IMPORTANT TO SAFETY. Before replacing any of these components, read carefully the service safety precautions.

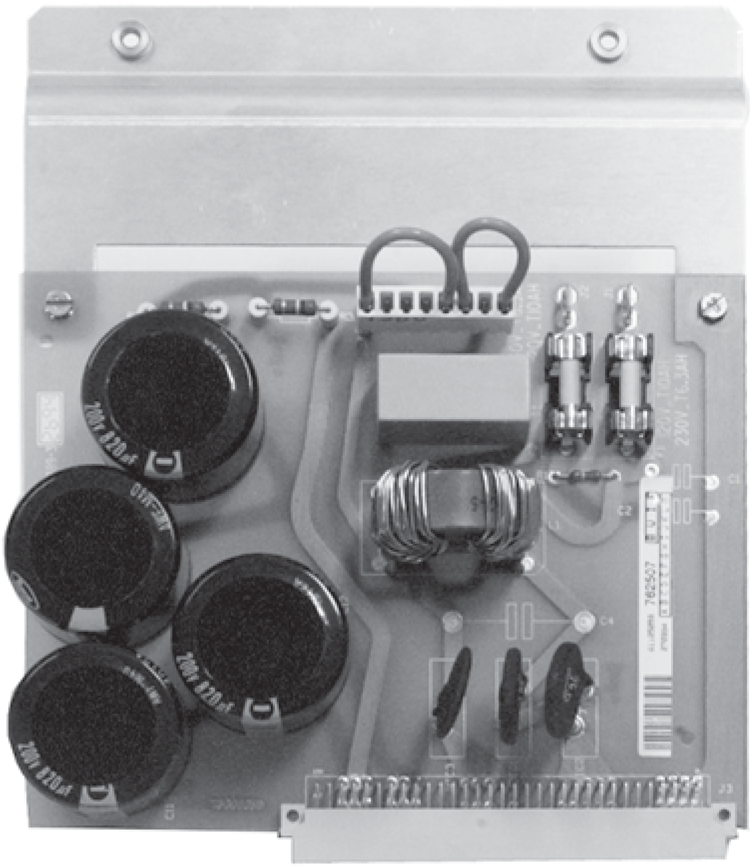






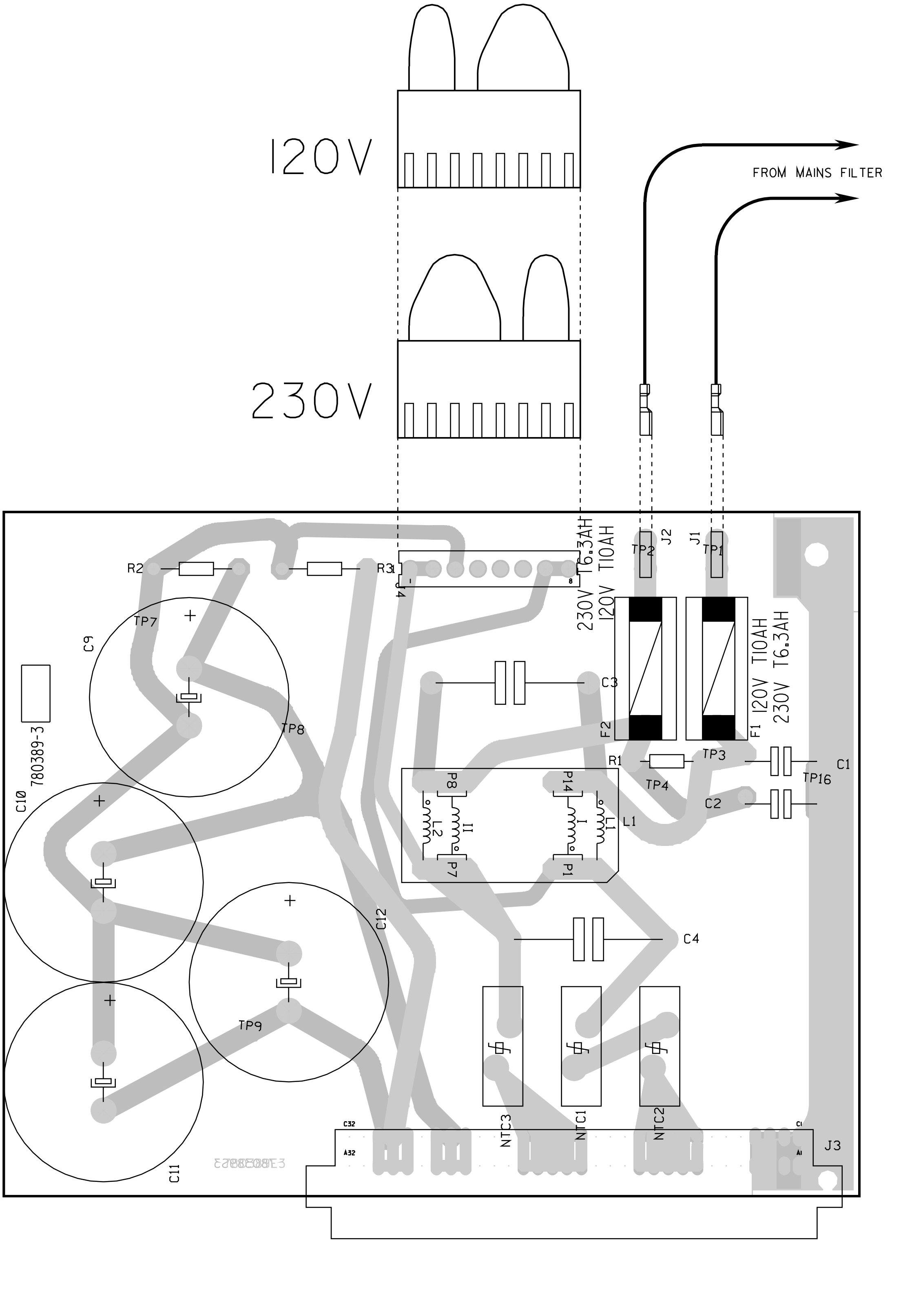
WARNING

THIS CIRCUIT BOARD IS HOT TO AC. THIS POWER INPUT DOES NOT USE A LINE ISOLATION TRANSFORMER, MEANING THE CIRCUITRY IS HOT-TO-LINE AND SHOULD BE TREATED WITH CAUTION.



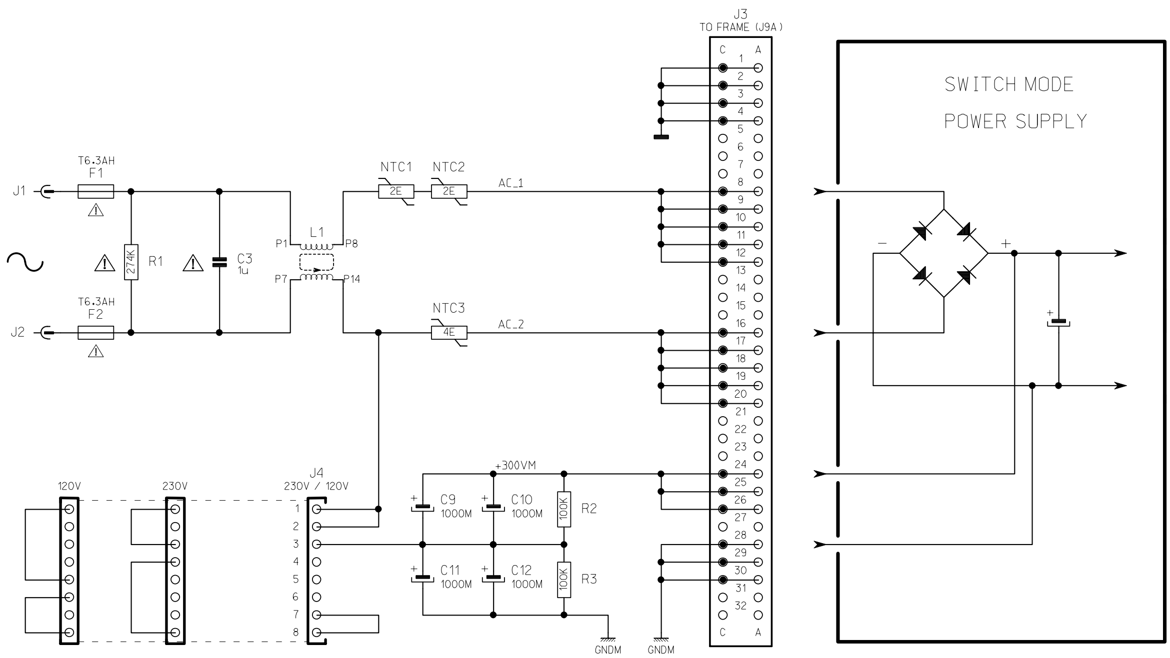
R762507_r02

BARCO



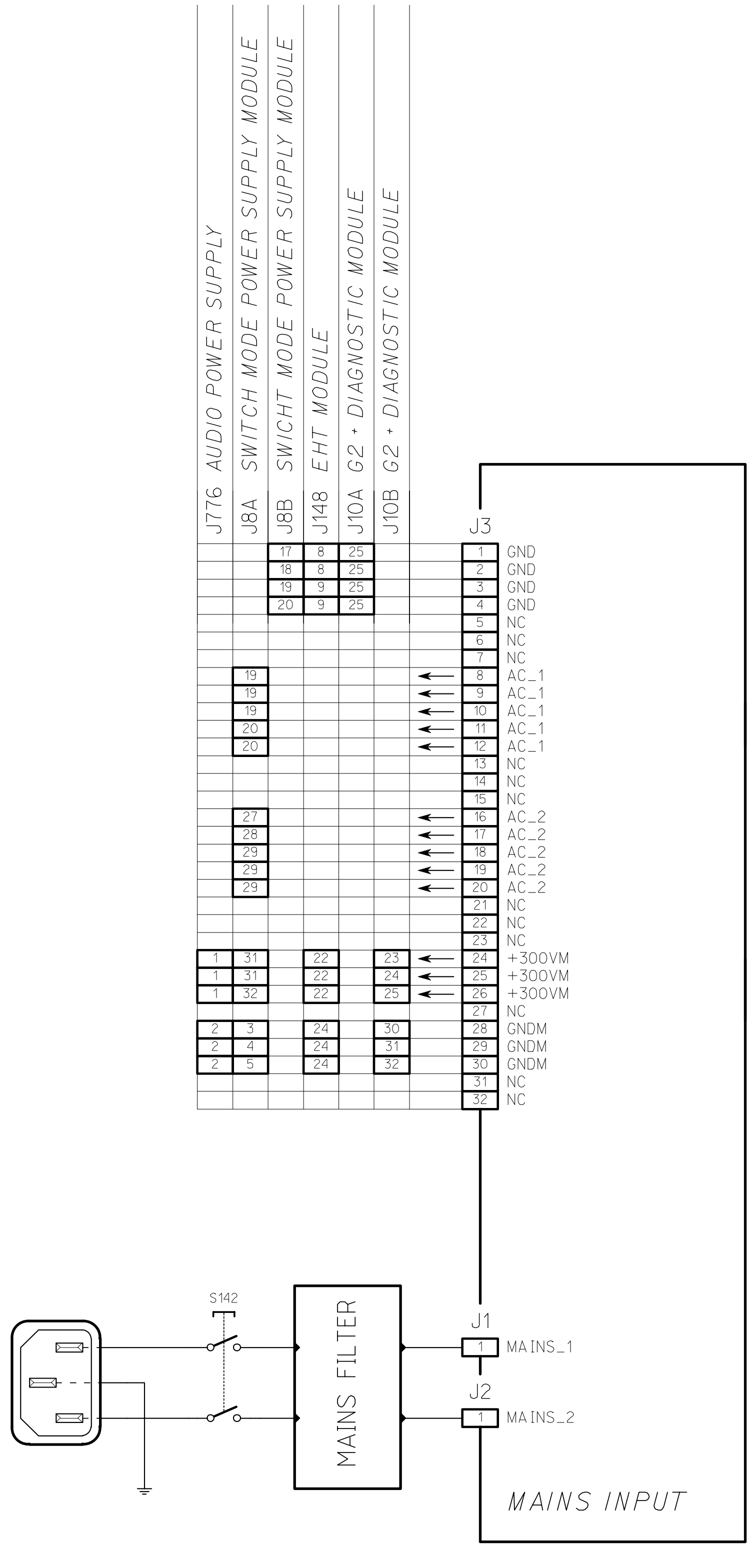
Name			Sheet
MAINS INPUT			1/1
Module No R762507	Index — 0	PCB No R780389	Rev — 3
Date 21-10-1997	Drawn JVDY		Checked PGV
BARCO PROJECTION SYSTEMS			

Modifications reserved



Modifications reserved

Name				Sheet
MAINS INPUT				1/1
Module No	Index	PCB No		Rev
R762507 –	0	R780389 –		3
Date	Drawn		Checked	
21-10-1997	JVDY		PGV	
BARCO NV			Division	BPS



Modifications reserved

Name			Sheet
MAINS INPUT			1/1
Module No R762507	Index – 0	PCB No R780389	Rev – 3
Date 21-10-1997	Drawn JVDY		Checked PGV
BARCO NV			Division BPS

The Power (Mains) Input provides protection against interference when operated in a commercial environment and contains the user setting for 230Vac or 120Vac.

1. Power (Mains) filter

The power filter consists of the coil L1 with four windings, and the capacitor C3. It is a filter, blocking all high and low frequency noise towards the outlet.

NTC-resistors NTC1, NTC2 and NTC3 limit the start up current. The fuses F1 and F2 prevent damage to the power Input board and the Switched Mode Power Supply in the event of short circuit or wrong 230/120Vac setting.

2. 230 Vac operation

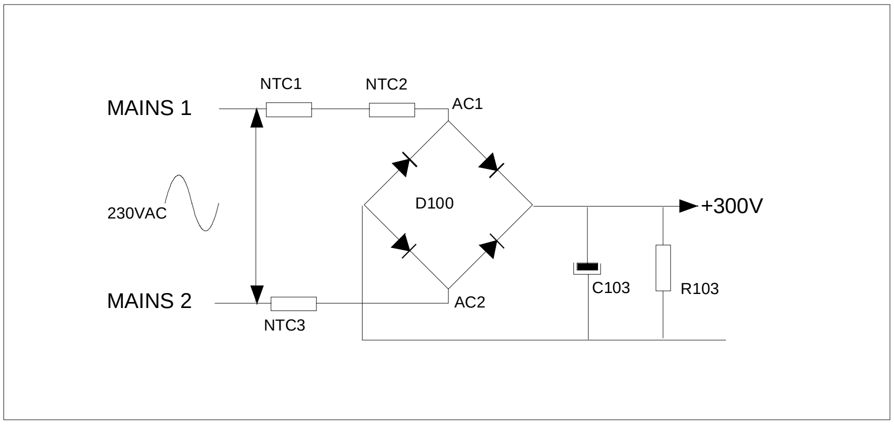


Figure 1. 230 Vac operation of the Power Input module

When we look how the diode bridge D100 of the Switch Mode Power Supply is connected to the power Input board (Figure 1), we can see how the 230Vac operation works.

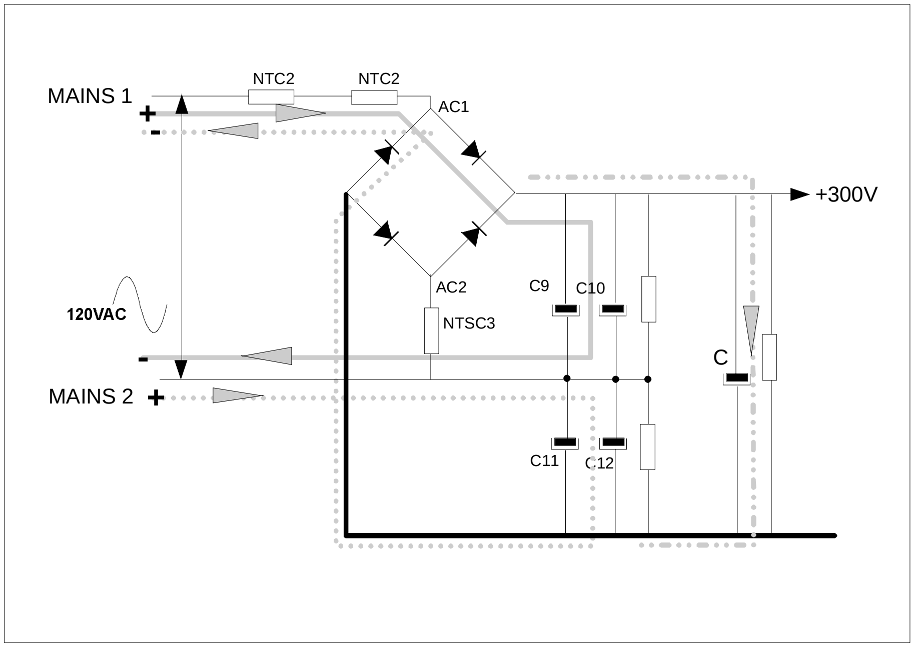
Diode bridge D100 operates as a bridge rectifier, and we get an output DC-voltage of approximately +300 Volts.

Capacitor C103 forms a capacitive load on the Switch Mode Power Supply, to flatten the AC-ripple on the +300 DC-voltage. Resistor R103 discharges this capacitor quickly when the projector is switched off.

3. 120 Vac operation

When we look again how the diode bridge of the Switch Mode Power Supply is connected to the Mains Input/Output board during 130Vac operation, we can draw the following schematic, figure 2.

To make it more comprehensive, we redraw this figure (Figure 3.), deleting NTC1, NTC2, and NTC3 that only play a roll during start up, and by deleting R3 and R4 that are only important while switching off.



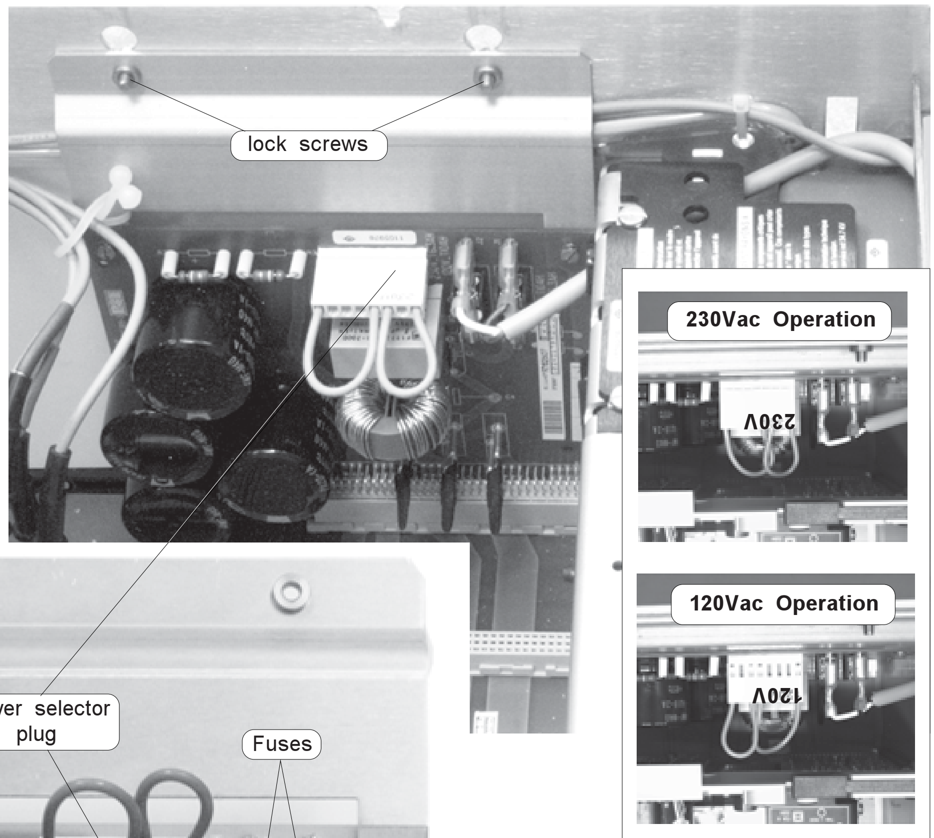
120Vac operation of the Mains Input/Output board

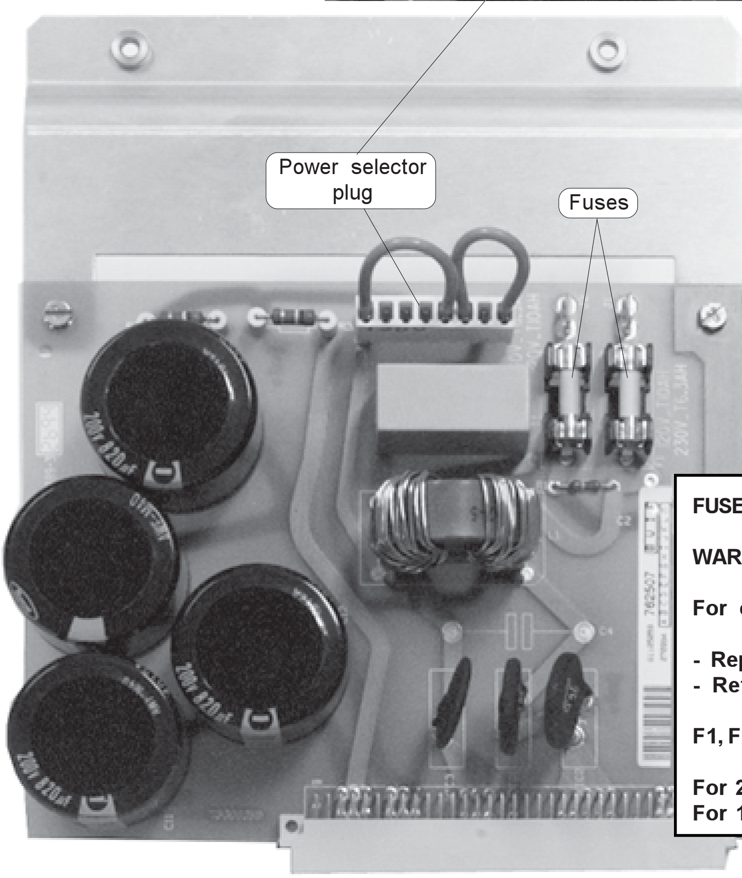
Now we see that the diode bridge operates as a voltage multiplier. During the negative half period of the power (mains) voltage, capacitors C11-C12 are charged through bridge rectifier. During the positive half of the power (mains) voltage, capacitors C9-C10 are charged, through bridge rectifier, on a voltage which is the input voltage together with the load on the capacitors C11/C12.

In this way an DC-voltage of again approximately +300 Volts is built across the capacitor C.

MAINS (POWER) ADAPTATION PROCEDURE:

1. Switch off the projector and unplug the power plug from the wall outlet.
2. Open the Top and the Module rack cover (refer to § Access to chassis for servicing)
3. Loosen the lock screw of the power input module and pull out this module.
4. Pull out the “POWER SELECTOR PLUG” and re-insert it as illustrated below depending of the wall outlet in the room.
5. Replace the fuses. (see table below)
6. Re-insert the power input module and secure it with the lock screw.
7. Reconnect the power cord with the wall outlet and switch on the projector.





FUSES

WARNING

For continued protection against fire hazard:

- **Replace with the same type of fuse**
- **Refer replacement to qualified service personnel**

F1, F2	**BARCO Ord. No.**
For 230Vac (2x) T6.3A H 250V	**31 4145**
For 120Vac (2x) T10A H 250V	**31 4154**

Parts listing Power input module R762507

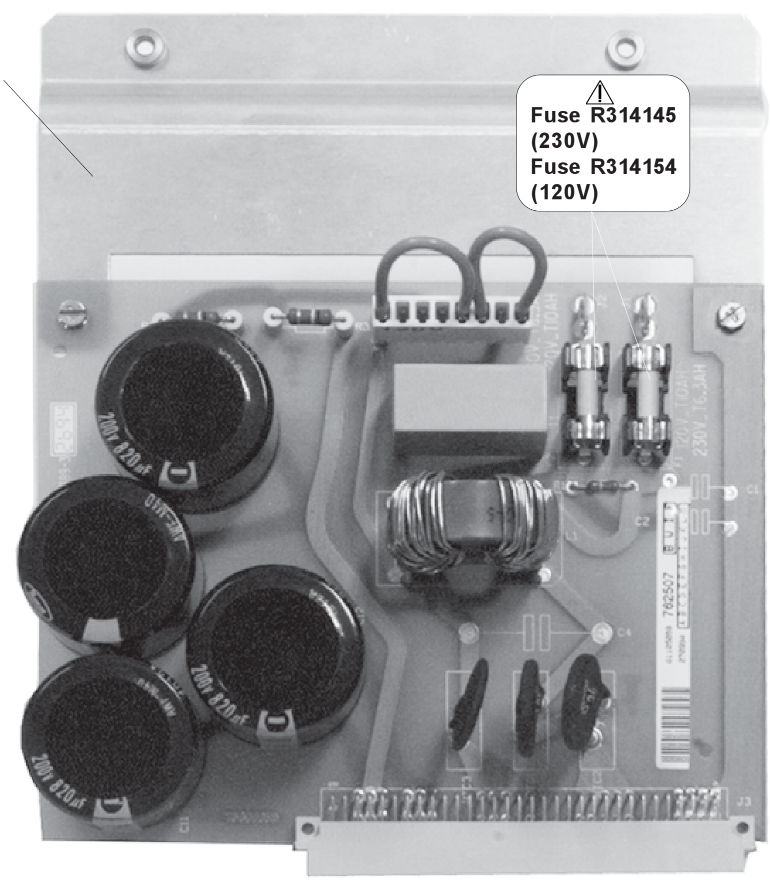
SIT.	ITEM NO.	DESCRIPTION	QUANTITY
20	R133039	SPR L 8 D 1,2D 4 CE	4
50	R315315	J RVT MBT D 2 L14	6
	R348316	CD SHUNT SL $FT 2P 8	1
10	R3615075	SCR HILO_R 3,2X 7,9STZB	1
130	R3631069	SCR Z933 M 3 X 10 SS	2
120	R805842	FRM G808 E CNN BR	1
C 3	R114716	C PO RA 1M K250E11 X2	⚠1
C 9	V111598	C EL RA1000M M200E4 85	1
C 10	V111598	C EL RA1000M M200E4 85	1
C 11	V111598	C EL RA1000M M200E4 85	1
C 12	V111598	C EL RA1000M M200E4 85	1
F 1	R314145	F 5X20 T 6A3 H UL	⚠1
F 2	R314145	F 5X20 T 6A3 H UL	⚠1
F1AC	R314519	F A HLD 10A 5X20 BOD	⚠1
F2AC	R314519	F A HLD 10A 5X20 BOD	⚠1

SIT.	ITEM NO.	DESCRIPTION	QUANTITY
J 1	R312934	J TAB1 MBT H6,3S0,8 BZ	1
J 2	R312934	J TAB1 MBT H6,3S0,8 BZ	1
J 4	R313726	J MTA MBT P 8 M3,96SN RO	1
J3A1	R313525	J EUR2C MBS P64 E1 C2S 1,6	1
J3A2	R367699	RVT AVTRON2,5L 8,1 AL	2
L 1	R305916	CH MNS 17 MH 2X-10APMF	1
NTC1	R105021	R NTCR 2E M 5W1 E3 UL	1
NTC2	R105021	R NTCR 2E M 5W1 E3 UL	1
NTC3	R105020	R NTCR 4E M 5W1 E3 UL	1
PC	R780389	PCB G808 MNS	1
R 1	V1026428	R MF H274K F 0W6 E4	1
R 2	R101460	R MF H100K J 2W E7	1
R 3	R101460	R MF H100K J 2W E7	1

PRODUCT SAFETY NOTICE

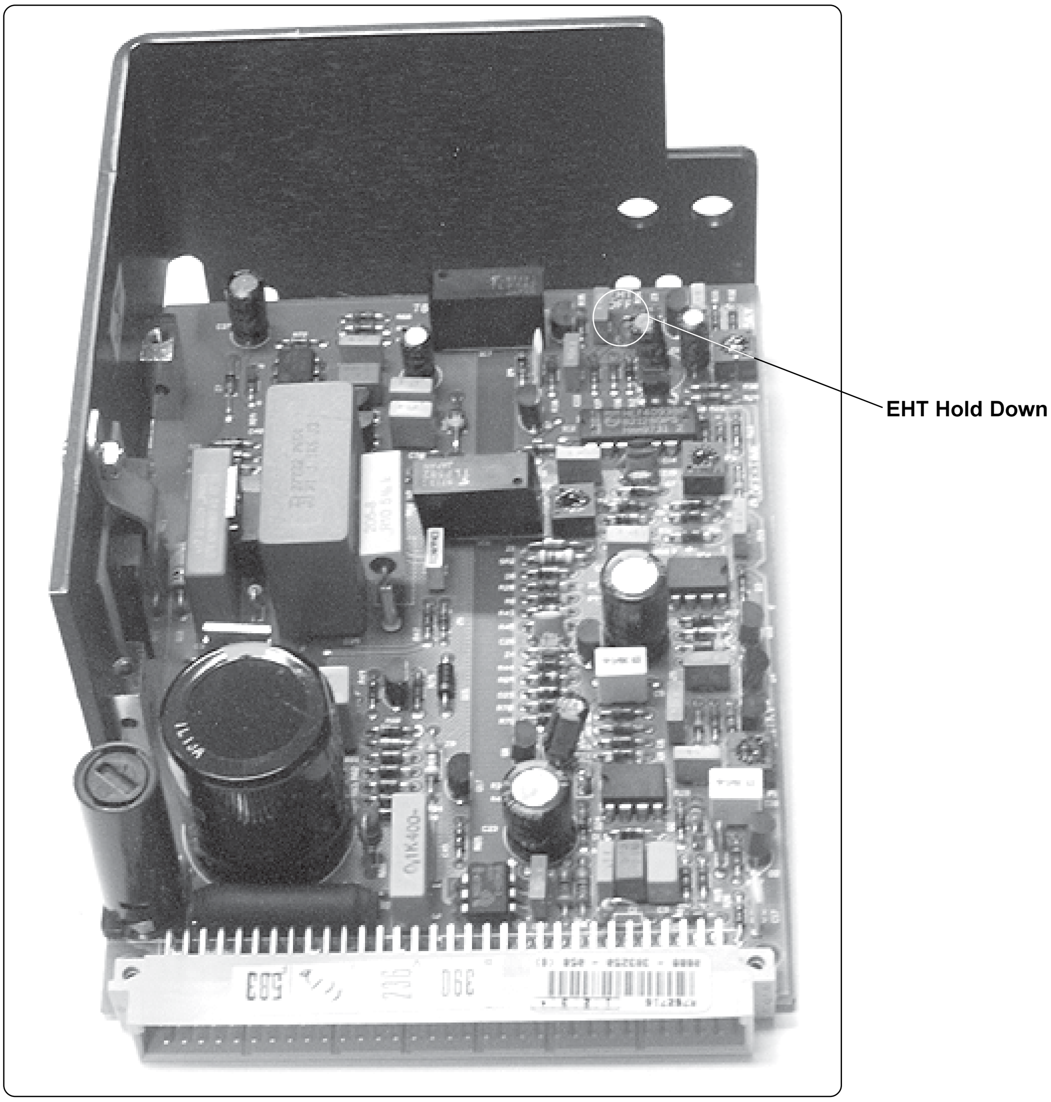
Components identified by ⚠ have SPECIAL CHARACTERISTICS IMPORTANT TO SAFETY. Before replacing any of these components, read carefully the ser-vice safety precautions.

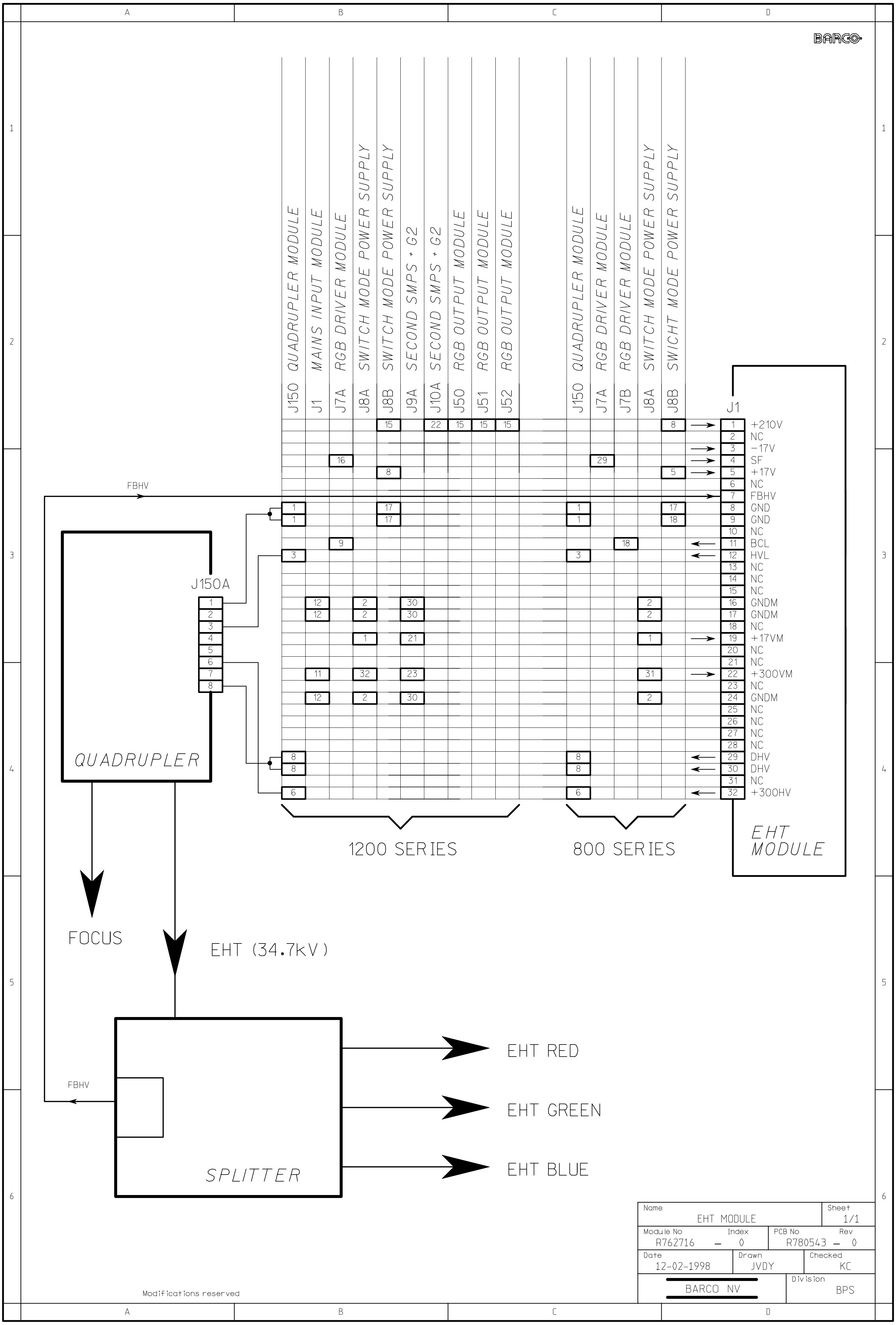
R805842



WARNING

THIS CIRCUIT BOARD IS HOT TO AC. THIS POWER SUPPLY, LIKE THE HIGH VOLTAGE POWER SUPPLY, DOES NOT USE A LINE ISOLATION TRANSFORMER, MEANING A PORTION OF THE CIRCUITRY IS HOT-TO-LINE AND SHOULD BE TREATED WITH CAUTION.



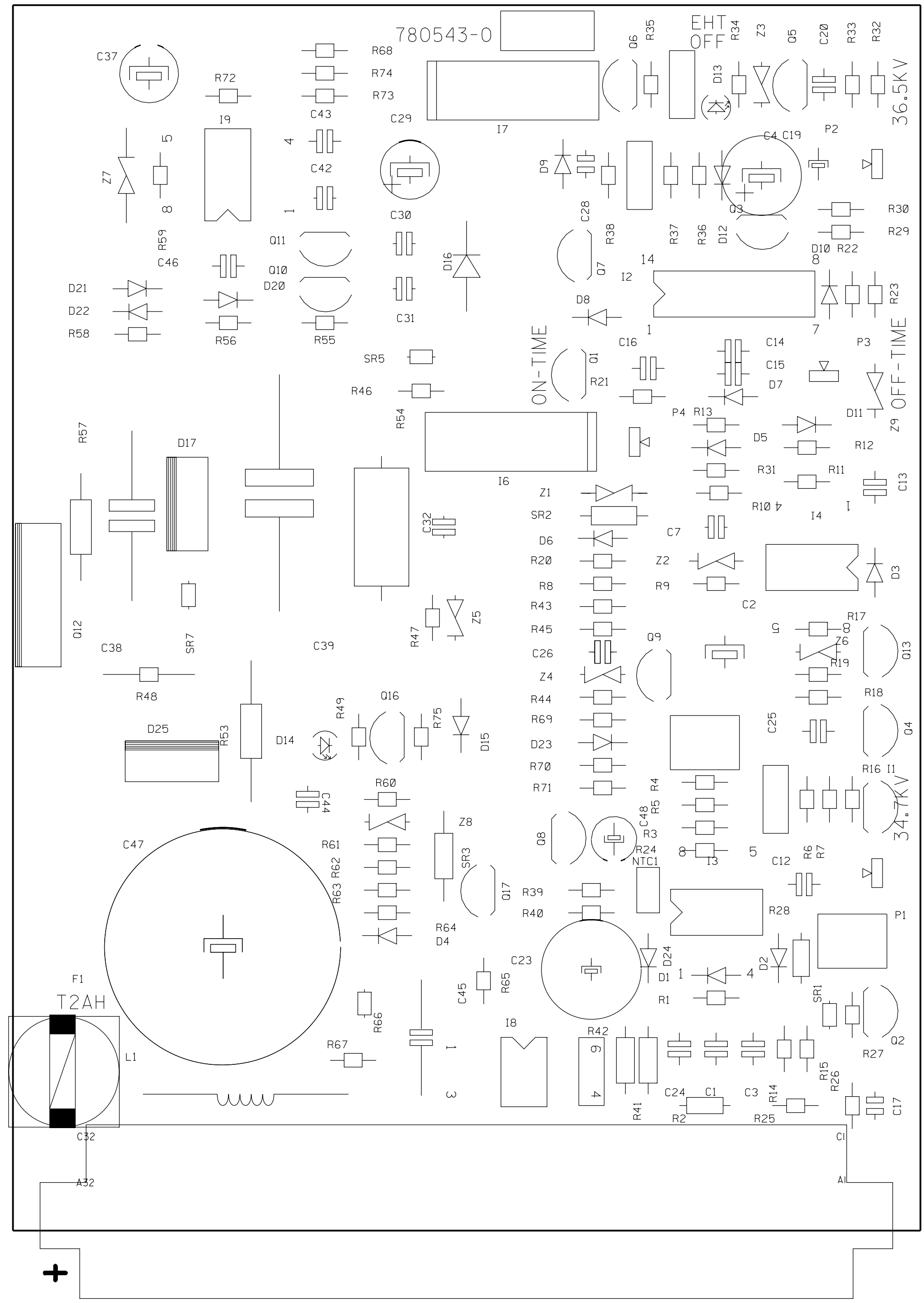


Name		Sheet
EHT MODULE		1/1
Module No / Index: R762716 – 0	PCB No / Rev: R780543 – 0	
Date: 12-02-1998	Drawn: JVDY	Checked: KC
BARCO NV	Division: BPS	

Modifications reserved

A	B	C	D

BARCO

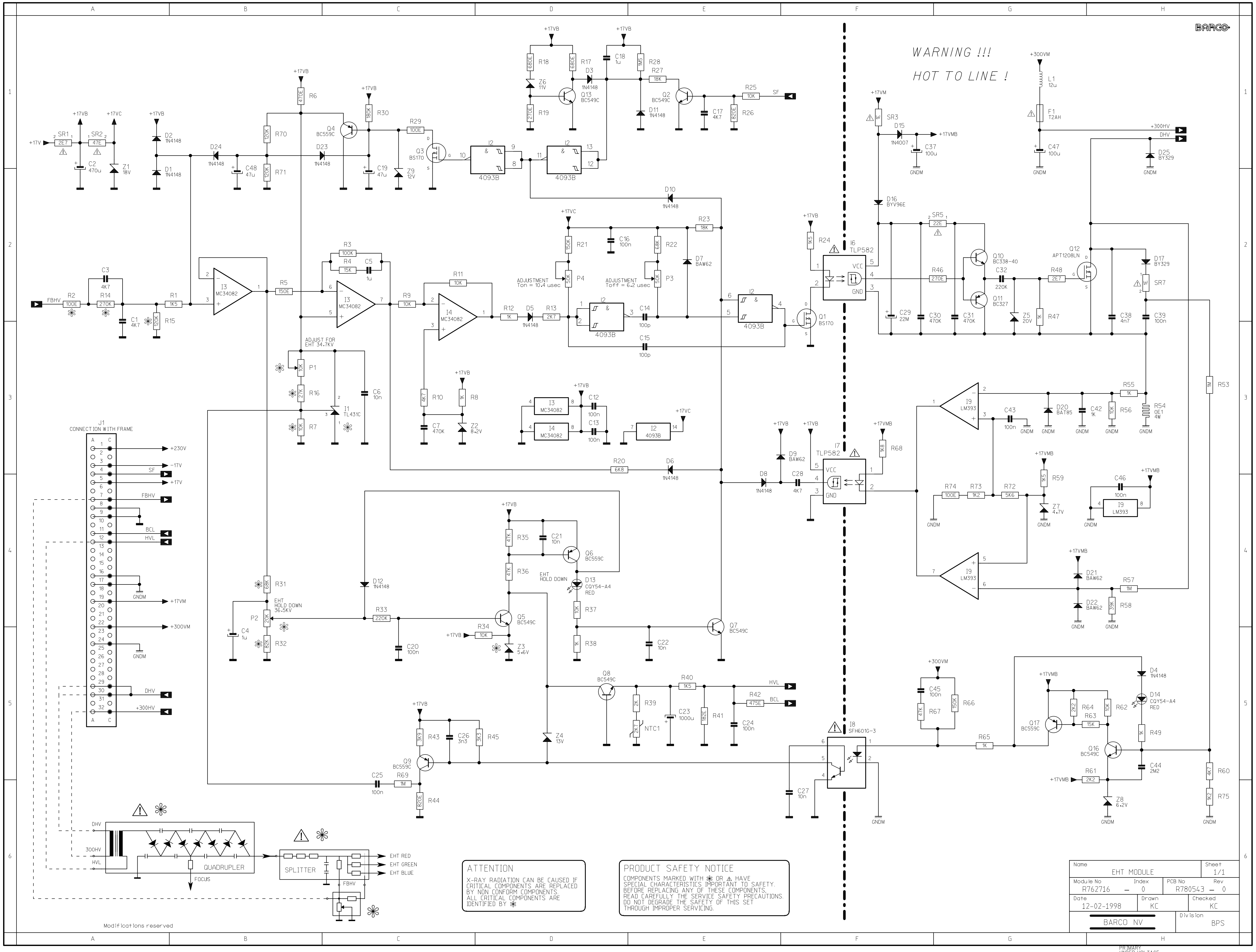


Name		Sheet
EHT MODULE		1 / 1
Module No R762716 — Index 0	PCB No R780543 — Rev 0	
Date 12-02-1998	Drawn JVDY	Checked KC

BARCO PROJECTION SYSTEMS

Modifications reserved

A	B	C	D



PRIMARY
UNDER VOLTAGE

COMP.	LOC.
C1	A2
C2	A1
C3	A2
C4	B5
C5	C2
C6	C3
C7	C3
C12	D3
C13	D3
C14	E2
C15	E3
C16	D2
C17	E1
C18	D1
C19	C2
C20	C5
C21	D4
C22	E5
C23	E5
C24	E5
C25	C5
C26	C5
C27	F6
C28	F4
C29	F2
C30	F2
C31	G2
C32	G2
C37	F1
C38	H2
C39	H2
C42	H3
C43	G3
C44	H5
C45	F5
C46	H4
C47	G1
C48	B2
D1	A2
D2	A1
D3	D1
D4	H5
D5	D2
D6	E3
D7	E2
D8	E4
D9	F3
D10	E2
D11	E1
D12	C4
D13	D4
D14	H5
D15	F1
D16	F2
D17	H2
D20	G3
D21	H4
D22	H4
D23	C1
D24	B1
D25	H1
F1	G1
I1	C3
I2	E3
I2	D2
I2	E2
I2	D1
I2	D1
I3	D3
I3	B2
I3	C2
I4	D3
I4	C2
I6	F2
I7	F3
I8	F5
I9	G3
I9	G4
I9	H4
J1	A3
L1	G1
NTC1	E5
P1	B3
P2	B4
P3	E2
P4	D2
Q1	F2
Q2	E1
Q3	C1
Q4	C1
Q5	D4
Q6	D4
Q7	E4
Q8	D5
Q9	C5
Q10	G2
Q11	G2
Q12	G2
Q13	D1
Q16	H5
Q17	G5
R1	B2
R2	A2
R3	C2
R4	C2
R5	B2
R6	B1
R7	B3
R8	C3
R9	C2
R10	C3
R11	C2
R12	D2
R13	D2
R14	A2
R15	A3
R16	B3
R17	D1
R18	D1
R19	D1
R20	D3
R21	D2
R22	E2
R23	E2
R24	F2
R25	E1
R26	E1
R27	E1
R28	E1
R29	C1
R30	C1
R31	B4
R32	B5
R33	C4
R34	D5
R35	D4
R36	D4
R37	D4
R38	D5
R39	E5
R40	E5

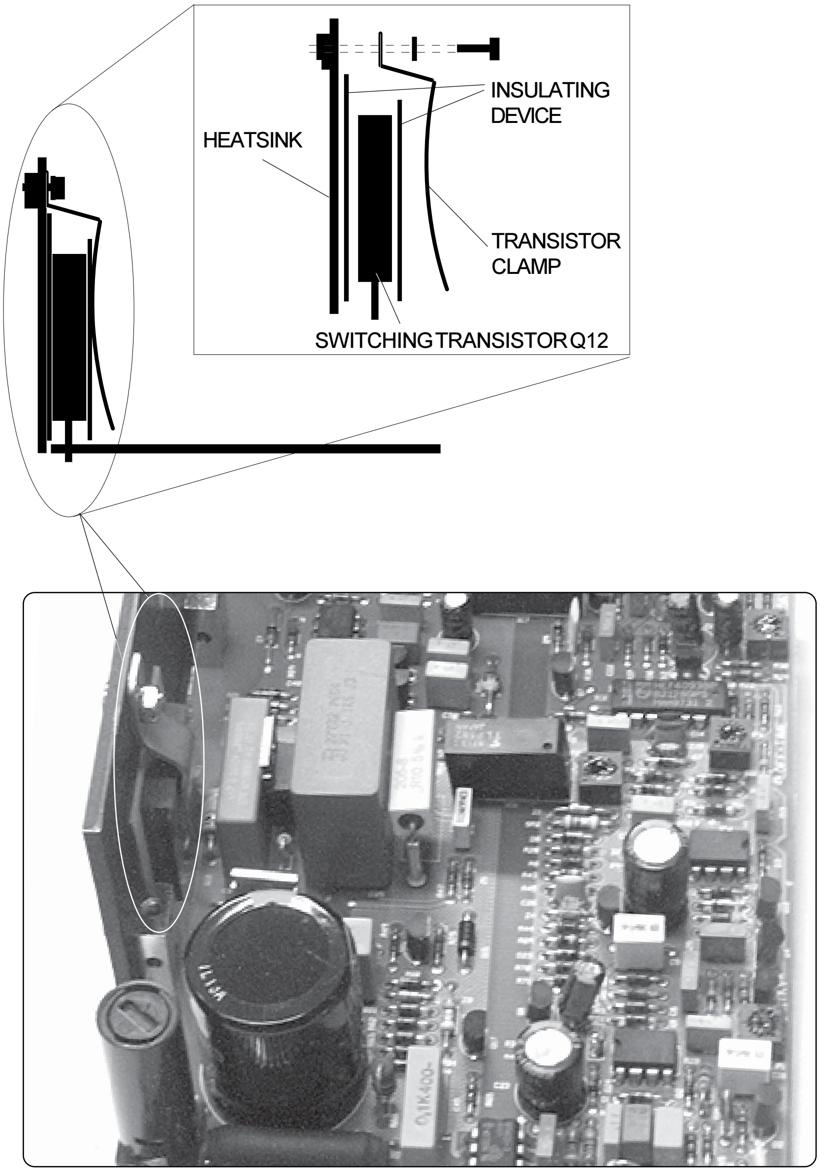
COMP.	LOC.
R41	E5
R42	E5
R43	C5
R44	C6
R45	D5
R46	G2
R47	G2
R48	G2
R49	H5
R53	H3
R54	H3
R55	H3
R56	H3
R57	H4
R58	H4
R59	G4
R60	H5
R61	H5
R62	H5
R63	H5
R64	G5
R65	G5
R66	G5
R67	F5
R68	F3
R69	C5
R70	B1
R71	B2
R72	G4
R73	G4
R74	G4
R75	H6
SR1	A1
SR2	A1
SR3	F1
SR5	G2
SR7	H2
Z1	A1
Z2	C3
Z3	D5
Z4	D5
Z5	G2
Z6	D1
Z7	G4
Z8	H6
Z9	C2

SAFETY PRECAUTION

SWITCHING TRANSISTOR Q12 REMOVAL/REPLACEMENT

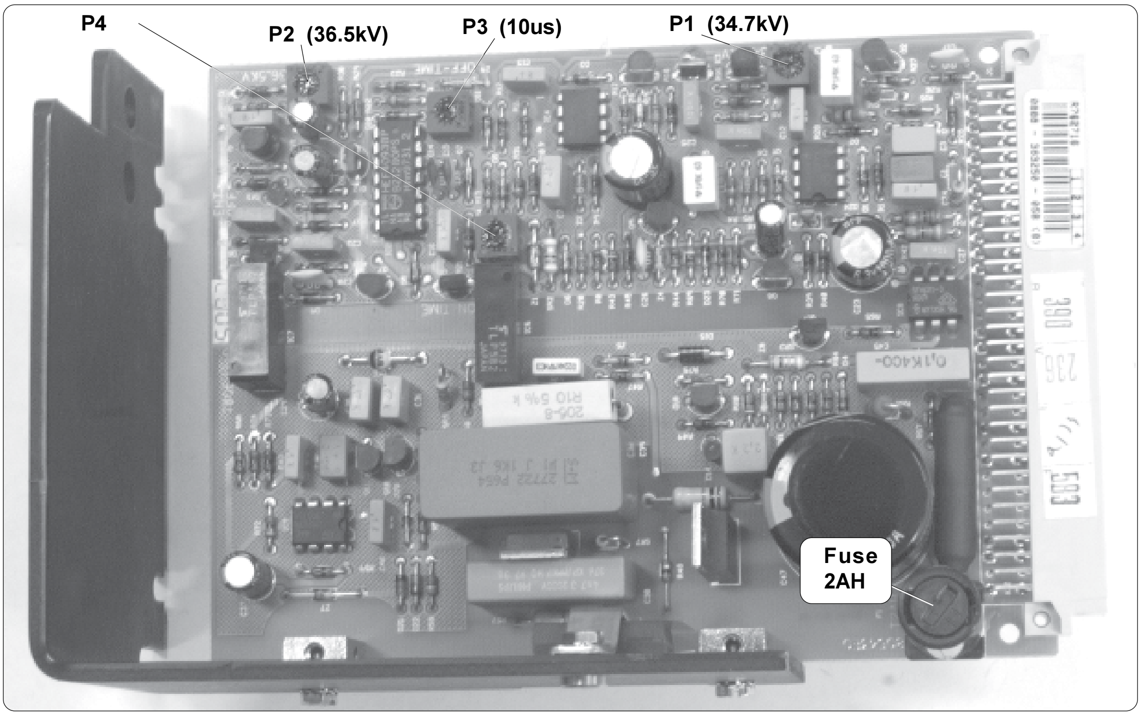
RE-INSTALL ALWAYS THE INSULATING DEVICE BETWEEN THE SWITCHING TRANSISTOR Q12 AND THE HEATSINK AND THE TRANSISTOR CLAMP.

PROCEED TO A LEAKAGE CURRENT HOT CHECK AS DESCRIBED IN THE SAFETY NOTICES



HIGH VOLTAGE WARNING

To avoid DANGER TO LIFE, do not attempt to service the chassis until all precautions necessary for working on HIGH VOLTAGE equipment have been observed. In order to prevent damage to solid state devices, do not arc pix tube anode lead to chassis or earth ground.



Preparation

Warning: The power must be OFF before removing any connector from circuit board or unit. Failure to do so may result in severe damage to the projection unit.

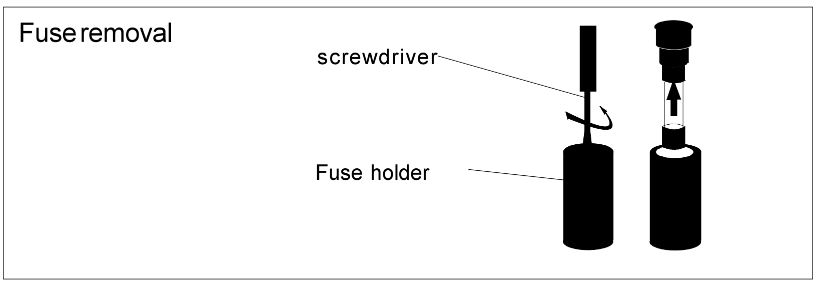
- Turn the projector off.
- Put the potentiometers P1 and P2 in their minimum position (turning clockwise!!) .
- Pull out one CRT-EHT cable of the EHT splitter.
- Insert in the free EHT connector the **precision** EHTprobe (ratio 1000/1).

Warning: read carefully all safety instructions, mentionned in the user's manual of the precision high voltage probe

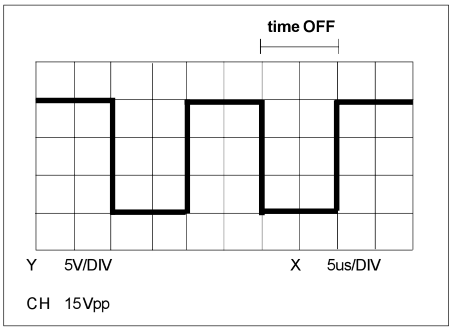
Adjustment

P3 Switching transistor time OFF

- Remove fuse "F-2A" out of fuseholder (see illustration "Fuse removal")



- Connect the oscilloscope to the resistor R47 (=gate switching transistor Q12)
- Switch on the projector.
- Adjust potentiometer P3 for a drive pulse 'time OFF' width of 6.2 us.



P1 High Voltage Adj.

P2 Hold Down

- Switch off the projector

- Put the fuse 2A in its place.

- Switch on the projector

- Adjust potentiometer P1 "High Voltage Adj." until the EHT voltage reaches 36.5kV.

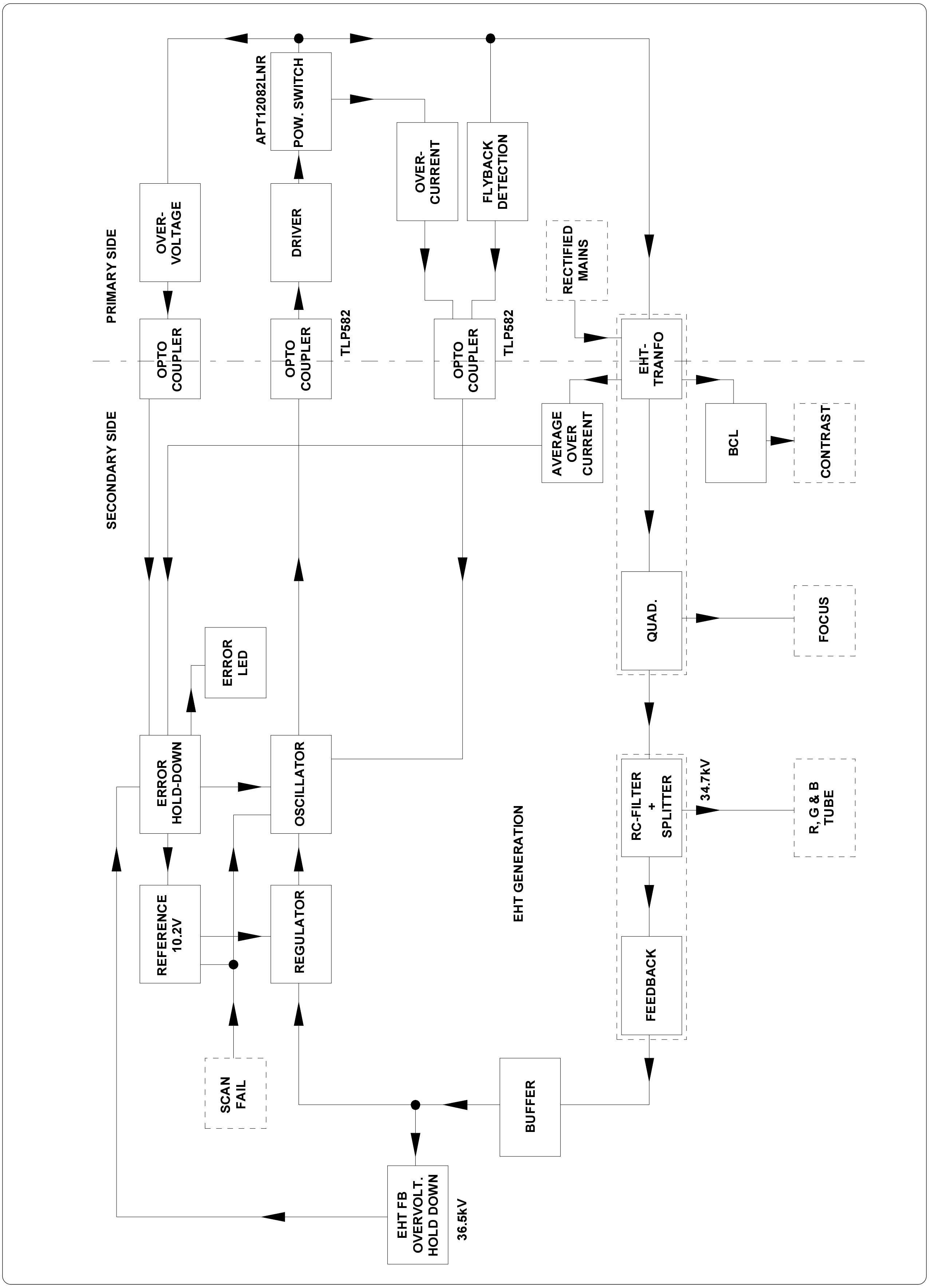
- Turn potentiometer P2 "Hold Down" until the Hold Down LED D13 lights up. The projector switches at that moment into the Hold Down mode, picture disapears.

- Put the potentiometer P1again in its minimum position (turning counter clockwise!!).

- Turn the power switch in its OFF position (not-pressed) and switch on the projector again (press the power switch).

- Adjust the potentiometer P1 for an EHT voltage of 34.7kV.

Important: The EHTsplitter, on which a potentiometer is mounted , leaves the factory as a factory pre-adjusted unit. A readjustment of the mentioned potentiometer is in no case allowed.



PRIMARY SIDE
SECONDARY SIDE
OVER-VOLTAGE
DRIVER
POW. SWITCH
APT12082LNR
OVER-CURRENT
FLYBACK DETECTION
RECTIFIED MAINS
OPTO COUPLER
OPTO COUPLER
TLP582
OPTO COUPLER
TLP582
EHT-TRANFO
AVERAGE OVER CURRENT
BCL
CONTRAST
QUAD.
FOCUS
ERROR LED
ERROR HOLD-DOWN
OSCILLATOR
RC-FILTER + SPLITTER
34.7kV
R, G & B TUBE
EHT GENERATION
REFERENCE 10.2V
REGULATOR
FEEDBACK
SCAN FAIL
BUFFER
EHT FB OVERVOLT. HOLD DOWN
36.5kV

Technical Description EHT module R762716

Introduction

On this board, the EHT drive pulses for the EHT power supply are generated. The primary circuit for the EHT power supply receives its 300VDC supply from the Mains. In the event of a failure, either because the EHT is too high, too much current in the EHT circuit or a horizontal or vertical scan failure condition exists, the EHT voltage is discontinued.
We will discuss the generation of the EHT pulses, its regulation, and, the different protection circuits.

DC controlled multivibrator

The EHT multivibrator is set up around two Schmidt Trigger NAND gates in IC2. The frequency of this oscillator is typically around 100 kHz. Two time constants are involved in this circuit : C14 / P3 + R22 and in the feedback loop C15 / (R21 + P4/ /(R12+R13)) voltage regulated.

The first time constant is invariable and determines the OFF time of the power switch Q12 and is tuned with P3 to 6.2 µS. The second time constant is variable and depends on the voltage level of IC4 (pin1.)
The buffer receives at its base the FBHV voltage (feedback voltage from the divider). This is the EHT voltage divided by a factor 1000 on the splitter. The pin 5 of IC3 is set at a reference of approximately +10.2 volts by zener IC1. The duty cycle or the on/off time of the power switcher Q12 is consequently regulated by the voltage difference detected by the regulator circuit.

The squared waveform at pin 4 of the NAND gate is, via a fast switching and inverting FET Q1, sent to the opto-coupler IC6. This opto-coupler is necessary because the remainder of the circuit is supplied with the +17M' and the +300M which are not isolated from the Mains. The +17M voltage is obtained from a special winding on the SMPS and the +300M is the rectified mains voltage (GNDM is mains or hot ground).

Caution: Any servicing on a board that uses both a Mains Ground and a Chassis ground should involve the use of an Isolation Transformer, especially when using an oscilloscope, or other equipment connected to the main AC source. Do not connect the Main and Chassis Ground together at any time.

As this board is supplied with the +300M as soon the Mains switch is pushed, it is not recommended to remove this board any more even when the projector is in a stand-by position. This can damage the contacts of the board.

The output of the opto-coupler IC6 drives the push-pull stage Q10/Q11. The pulses are capacitively coupled with C32 to the gate of Q12. The 20 volts zener Z5 has two purposes.
The negative level of the pulses is clamped at -0.6 volt, and on the other hand the gate-source voltage is limited (protected) to 20 volt DC, in order to protect the switcher Q12.

The drain (DHV) of the power switcher is connected with the primary winding of the EHT transformer. Transformer and quadrupler are in the same unit.
The +300M enters the board and is passing a filter L1/C47 and a fuse before it supplies the Transformer / Quadrupler unit.

Protections

a) EHT Hold down:

The EHT of the projector must be switched off in the event of a failure in the regulating circuit or an absence of the feedback voltage. Moreover, when the current in one or more tubes is excessively high (leaking of a tube), the projector must be switched off via the EHT Hold Down rather than via the main switch. As the spot suppression does not work, the CRTs could be damaged when switched off via the main switch.

1. EHT Hold Down due to fault in the regulating circuit (FBHV too high)

The slider voltage of P2 (“hold down adjust” potentiometer) is sent to the base of Q5 and its emitter is set at a threshold of 5.6 volt by Z3. As soon the EHT rises beyond 36.5kV, transistor Q5 starts conducting, turning on Q6. The collector of Q6 starts to drive the base of Q7 and this in turn stops the EHT multivibrator from oscillating, therefore halting the EHT. The collector of Q6 is placing the base of Q5 high hence the combination is locked down until the projector is powered off to reset the circuit.

2. EHT Hold Down due to a feedback loop fault condition

The EHT hold down protection must also operate when there is an “open loop”, or no EHT feedback voltage +FBHV from the splitter. If that were the condition, there would be no way to monitor the EHT, and it could go higher than the 36.5kV, since there is no FBHV voltage available. Another reason is that the maximum voltage on the MOSFET switcher is limited to 1150V as well. The detection for “open loop” is built around the EHT “flyback” pulses taken from the drain of Q12.

These pulses are rectified with D17 and the resulting pulsating DC is filtered by C39, divided down with R53/R60+R75 and applied to the base of Q16. A threshold level of 6.2 volt is installed at the emitter with Z8. From 6.8 volt base voltage onwards Q16 starts conducting, turning fully on Q17. In the LED of the opto-coupler there is small current flow from the +300M through R66. When Q17 gets forward biased, this current increases heavily and the output pin 5 drops. Via the forward biased Z4, the collector of Q5 is lowered and Q6 is turned on introducing the EHT HOLD DOWN .

Note that the same opto-coupler and transistor Q9 are used to remove the influence of the hum on the +300M supply via the feedback voltage. The +300M is, via a filter C45+R66/R67, supplying current to the opto-coupler (pin 1 of IC8.) The voltage , containing this mains hum, is taken from the collector of Q9 and capacitively added to the reference voltage.

3. EHT Hold Down in the event of an excessive amount of CRT beam currents

Finally, in the event of an excessive amount of CRT beam current, the negative HVL voltage can charge up C23 to the -0.6V threshold and Q8 conducts to introduce the EHT HOLD DOWN condition. The delay is determined by the time constant ((R40//R39+NTC1)/C23) and the amplitude of the HVL voltage.
Note that a beam current proportional voltage (BCL) is also sent to the RGB-Decoder drive board to reduce the contrast and brightness from some level onwards.

As a summary, the EHT Hold Down is active for :

- too high EHT, information coming from the feedback line FBHV
- too high EHT in "open loop" via Q16/Q17 and the opto-coupler IC8.
- too high beam current lasting for some time (short in a crt).

b) Switching off the EHT when a Horizontal or Vertical scan failure occurs.

In the event of a horizontal and/or vertical scan failure, the SF line is dropped to around zero volt. Q2 is blocked generating a low level on pin 11 of IC2 resulting in a switching off of the oscillator (IC2.) The reference will also become zero volts through Q3 and Q4.
When the scan fail line goes high again prior to switching off the projector, C18 has to charge up first. This prevent oscillations and further delays the action of the slow start circuit R30-C19 combination. When Q3 switches off C19 charges up, the resultant is a slow start up of the reference

c) Over current protection of the Q12 switcher.

The drain-source current of Q12 is measured by the resistor R54 in the source. This voltage developed across the sensing resistor is applied to the comparator IC9 (pin 2) via a divider R55/R56.

The purpose of the circuit is to protect Q12 from over current during a arc.

Slow start up of the EHT

When the projector is switched on, the EHT voltage must gradually be built up to prevent mechanical damage of the gun.
The reference voltage grows slowly because of the delay circuit around the base Q4. As soon the feedback voltage would like to rise above the reference voltage, pin 7 (IC3) is falling via R20-D6 and the oscillator is switched off temporary. When pin 5 of IC3 goes higher than the feedback the oscillator restarts, causing a increase in EHT. Consequently, the EHT rises to its maximum in a staircase manner.

When the unit is switched off, C19 is quickly discharged via Q3, taking the EHT reference voltage for IC1 quickly down, and therefore the EHT itself goes down.

Delay of the power switch drive

IC9 the comparator (pin 7) is used to keep a drive pulse from driving Q12, until the EHT pulse on the drain of Q12 has not fully dropped to its minimum. The EHT pulse is coupled to the comparator and opto-coupler holding the oscillator down during the flyback pulse, on the drain of Q12. As soon as the flyback pulse is over then a drive pulse is resumed on the gate of Q12. This prevents driving the power switch Q12 the moment the drain has not yet dropped to a minimum.

Parts listing EHT Module R762716

SIT	ITEM NO	DESCRIPTION	QUANTITY
10	R3153151	J RVT MBT D 2.3L12.7	
10	R367699	RVT AVTRON2,5L 8,1 AL	2
20	R802634	HTSN G800 EHT	1
30	R367600	NUT TRAD M 3 BLOCK BRNI	2
40	B360862	SCR Z$7985M 3 X 8 STZY	4
50	R804831	HTSN A GEN SPG1 3,1 SS LG	1
60	R3631049	SCR Z933 M 3 X 6 SS	1
70	R133074	HTSN@A I_SIL W30	1
80	R133074	HTSN@A I_SIL W30	1
90	R133063	HTSN@A SOT93 I_MICA 25X28	1
C 1	R115932	C PP RA 4N7J 63E2 85	1
C 2	R111479	C EL RA 470M M 25E2 105	1
C 3	R115932	C PP RA 4N7J 63E2 85	
C 4	V1115469	C EL RA 1M M 50E2 105	
C 5	R114090	C POMERA 1M K 63E2 85	
C 6	R1137121	C POMERA 10N K250E2 85	
C 7	R114087	C POMERA 470N K 63E2 85	
C 12	R113724	C POMERA 100N K 63E2 85	
C 13	R113724	C POMERA 100N K 63E2 85	
C 14	R112242	C NP0 MI 100P G100E2	
C 15	R112242	C NP0 MI 100P G100E2	1
C 16	R113724	C POMERA 100N K 63E2 85	
C 17	R112747	C CE MI 4N7K100E2 85	1
C 18	R114090	C POMERA 1M K 63E2 85	
C 19	R111476	C EL RA 47M M 25E2 85	
C 20	R113724	C POMERA 100N K 63E2 85	
C 21	R1137121	C POMERA 10N K250E2 85	
C 22	R1137121	C POMERA 10N K250E2 85	
C 23	R111453	C EL RA1000M M 10E2 85	1
C 24	R113724	C POMERA 100N K 63E2 85	
C 25	R113724	C POMERA 100N K 63E2 85	1
C 26	R112760	C CE MI 3N3K100E2	
C 27	R1137121	C POMERA 10N K250E2 85	
C 28	R112747	C CE MI 4N7K100E2 85	
C 29	R111532	REPLACED BY V1114855	
C 30	R114087	C POMERA 470N K 63E2 85	
C 31	R114087	C POMERA 470N K 63E2 85	
C 32	R113841	C POMERA 220N K 63E2 85	
C 37	R111477	C EL RA 100M M 25E2 85	
C 38	R111773	C PPMERA 4N7J162E9 HV	1
C 39	A552528	C PPMERA 100N M162E11 HV	1
C 42	R1159161	C PP RA 1N J100E2 85	
C 43	R113724	C POMERA 100N K 63E2 85	
C 44	V114098	C POMERA 2M2M 50E2 85	
C 45	V1140424	C POMERA 100N K400E6 85	1
C 46	R113724	C POMERA 100N K 63E2 85	
C 47	R111578	C EL RA 100M M400E4 105	1
C 48	R111476	C EL RA 47M M 25E2 85	
D 1	R131621	D S 1N4148 075150 DO35	
D 2	R131621	D S 1N4148 075150 DO35	
D 3	R131621	D S 1N4148 075150 DO35	
D 4	R131621	D S 1N4148 075150 DO35	
D 5	R131621	D S 1N4148 075150 DO35	
D 6	R131621	D S 1N4148 075150 DO35	
D 7	R131628	D BAW62 SW DO35	
D 8	R131621	D S 1N4148 075150 DO35	
D 9	R131628	D BAW62 SW DO35	
D 10	R131621	D S 1N4148 075150 DO35	
D 11	R131621	D S 1N4148 075150 DO35	
D 12	R131621	D S 1N4148 075150 DO35	
D 13	R131662	D LED D3 T RD	1

SIT	ITEM NO	DESCRIPTION	QUANTITY
D 14	R131662	D LED D3 T RD	1
D 15	R131646	D R 1N4007 10201A DO41	
D 16	R131906	D R BYV96E 1021A5 SOD57	
D 17	R131958	D R BY329 12208A TO220C	1
D 20	R1316361	D Y BAT85 030200 DO34	
D 21	R131628	D BAW62 SW DO35	
D 22	R131628	D BAW62 SW DO35	
D 23	R131621	D S 1N4148 075150 DO35	
D 24	R131621	D S 1N4148 075150 DO35	
D 25	R131958	D R BY329 12208A TO220C	1
F 1	R314516	F A H+C 6A 5X20 BV B	1
F 1F	R314116	F 5X20 T 2A H UL	1
I 1	R134031	U 431C TL TO92 P	1
I 2	R1373945	U 4093B DIP14 P	1
I 3	R134146	U 34082 MC DIP8 P	1
I 4	R134146	U 34082 MC DIP8 P	1
I 6	R134224	U 582 TLP 1119A1 P	1
I 7	R134224	U 582 TLP 1119A1 P	1
I 8	R131691	U 601-3 SFH DIP6 P	1
I 9	R134114	U 393 LM DIP8 P	1
J 1	R313525	J EUR2C MBS P64 E1C2S 1,6	1
L 1	R305913	CH MNS AX NS 12 UH 3A	1
NTC1	R105016	R NTC 2K7 0W25	1
P 1	R107009	R TCE H 10K K 0W5 S 7TS	1
P 2	R107010	R TCE H 20K K 0W5 S 7TS	1
P 3	R107012	R TCE H 50K K 0W5 S 7TS	1
P 4	R107012	R TCE H 50K K 0W5 S 7TS	1
PC	R780543	PCB G808S EHT	1
Q 1	R132910	Q BS170 FN SS TO92	
Q 2	R131411	Q BC549C N SS TO92	1
Q 3	R132910	Q BS170 FN SS TO92	
Q 4	R1314182	Q BC559C P SS TO92	
Q 5	R131411	Q BC549C N SS TO92	
Q 6	R1314182	Q BC559C P SS TO92	
Q 7	R131411	Q BC549C N SS TO92	
Q 8	R131411	Q BC549C N SS TO92	
Q 9	R1314182	Q BC559C P SS TO92	
Q 10	R1314245	Q BC338-40 N SS TO92	
Q 11	R1314311	Q BC327 P SS TO92	
Q 12	B133165	Q APT12082LVRFN P TO264	1
Q 13	R131411	Q BC549C N SS TO92	
Q 16	R131411	Q BC549C N SS TO92	
Q 17	R1314182	Q BC559C P SS TO92	
R 1	R101538	R MF H 1K5 F 0W4 E3	
R 2	V1026005	R MF H100E F 0W6 E4	1
R 3	R101560	R MF H100K F 0W4 E3	
R 4	R101550	R MF H 15K F 0W4 E3	
R 5	R101526	R MF H150E F 0W4 E3	
R 6	R101532	R MF H470E F 0W4 E3	
R 7	R101548	R MF H 10K F 0W4 E3	
R 8	R101536	R MF H 1K F 0W4 E3	
R 9	R101548	R MF H 10K F 0W4 E3	
R 10	R101544	R MF H 4K7 F 0W4 E3	

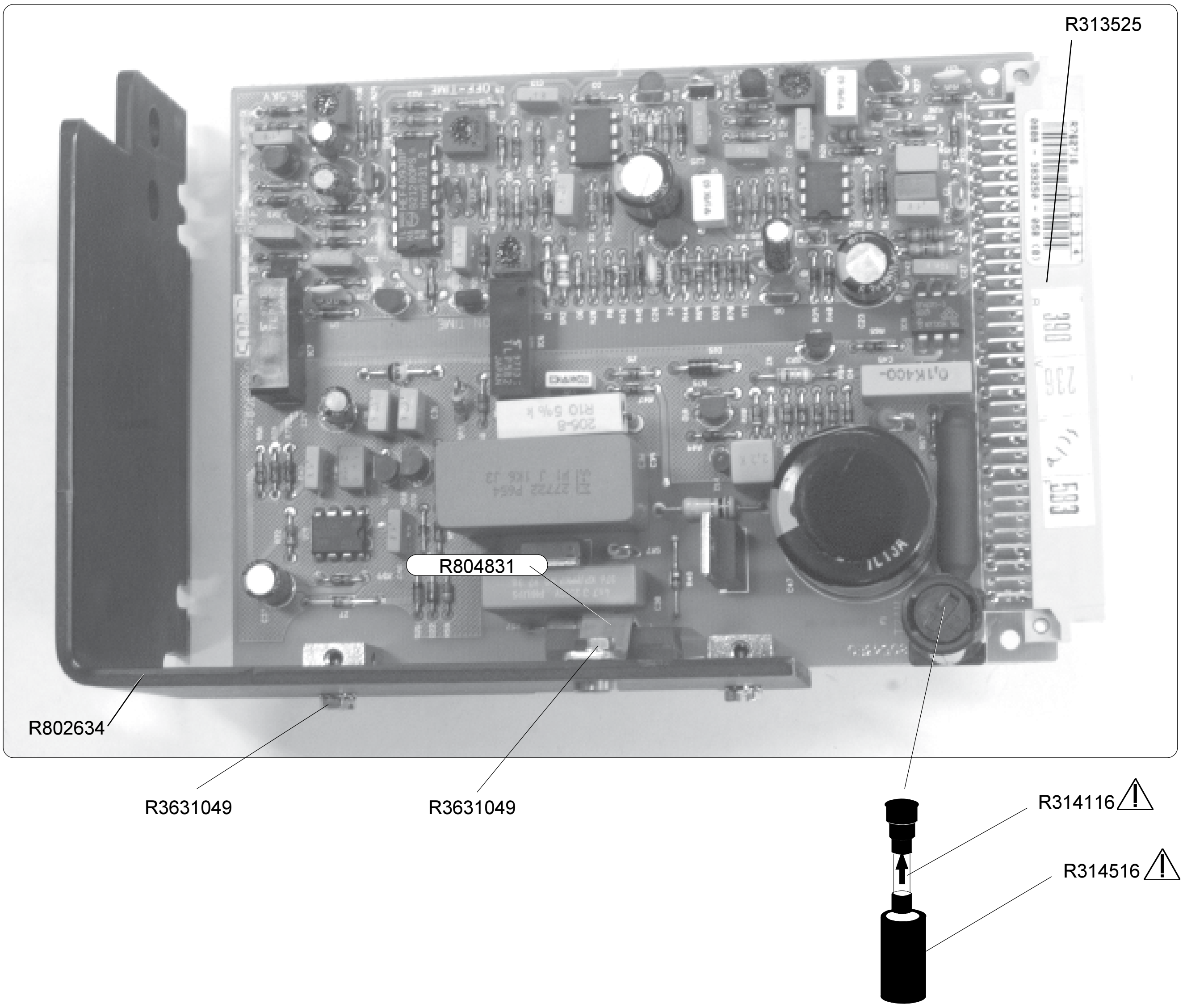
EHT Module R762716

SIT	ITEM NO	DESCRIPTION	QUANTITY
R 11	R101548	R MF H 10K F 0W4 E3	
R 12	R101536	R MF H 1K F 0W4 E3	
R 13	R101541	R MF H 2K7 F 0W4 E3	
R 14	R101565	R MF H270K F 0W4 E3	
R 15	R101561	R MF H120K F 0W4 E3	
R 16	R101553	R MF H 27K F 0W4 E3	
R 17	R101534	R MF H680E F 0W4 E3	
R 18	R101534	R MF H680E F 0W4 E3	
R 19	R101529	R MF H270E F 0W4 E3	
R 20	R101546	R MF H 6K8 F 0W4 E3	
R 21	R101562	R MF H150K F 0W4 E3	
R 22	R101558	R MF H 68K F 0W4 E3	
R 23	R101551	R MF H 18K F 0W4 E3	
R 24	R101538	R MF H 1K5 F 0W4 E3	
R 25	R101548	R MF H 10K F 0W4 E3	
R 26	R101535	R MF H820E F 0W4 E3	
R 27	R101551	R MF H 18K F 0W4 E3	
R 28	V1026179	R MF H 1M5 F 0W6 E4	1
R 29	R101524	R MF H100E F 0W4 E3	
R 30	R101563	R MF H180K F 0W4 E3	
R 31	R101558	R MF H 68K F 0W4 E3	
R 32	R101559	R MF H 82K F 0W4 E3	
R 33	R101564	R MF H220K F 0W4 E3	
R 34	R101548	R MF H 10K F 0W4 E3	
R 35	R101556	R MF H 47K F 0W4 E3	
R 36	R101556	R MF H 47K F 0W4 E3	
R 37	R101548	R MF H 10K F 0W4 E3	
R 38	R101536	R MF H 1K F 0W4 E3	
R 39	R1015401	R MF H 2K F 0W4 E3	
R 40	R101538	R MF H 1K5 F 0W4 E3	
R 41	V1026255	R MF H182E F 0W6 E4	
R 42	V1026655	R MF H475E F 0W6 E4	
R 43	R101543	R MF H 3K9 F 0W4 E3	
R 44	R101535	R MF H820E F 0W4 E3	
R 45	R101542	R MF H 3K3 F 0W4 E3	
R 46	R101529	R MF H270E F 0W4 E3	
R 47	R101536	R MF H 1K F 0W4 E3	
R 48	R101505	R MF H 2E7 F 0W4 E3	
R 49	R101536	R MF H 1K F 0W4 E3	
R 53	R104654	R HV H 1M J 0W5 3500	
R 54	R103600	R WW H E1 K 4W E10	1
R 55	R101536	R MF H 1K F 0W4 E3	
R 56	R101548	R MF H 10K F 0W4 E3	
R 57	R104654	R HV H 1M J 0W5 3500	
R 58	R101555	R MF H 39K F 0W4 E3	
R 59	R101538	R MF H 1K5 F 0W4 E3	
R 60	R101544	R MF H 4K7 F 0W4 E3	
R 61	R101540	R MF H 2K2 F 0W4 E3	
R 62	R101548	R MF H 10K F 0W4 E3	
R 63	R101550	R MF H 15K F 0W4 E3	
R 64	R101540	R MF H 2K2 F 0W4 E3	
R 65	R101536	R MF H 1K F 0W4 E3	
R 66	R101462	R MF H150K J 2W E7	1
R 67	R101556	R MF H 47K F 0W4 E3	
R 68	R101539	R MF H 1K8 F 0W4 E3	
R 69	R101572	R MF H 1M F 0W4 E3	
R 70	R101561	R MF H120K F 0W4 E3	
R 71	R101561	R MF H120K F 0W4 E3	
R 72	R101545	R MF H 5K6 F 0W4 E3	
R 73	R101537	R MF H 1K2 F 0W4 E3	
R 74	R101524	R MF H100E F 0W4 E3	
R 75	R101537	R MF H 1K2 F 0W4 E3	
SR 1	R1011059	R CFFH 2E7 J 0W25	1
SR 2	R1011209	R CFFH 47E J 0W25	
SR 3	R1011008	R CFFH 1E J 0W25	
SR 5	R1011169	R CFFH 22E J 0W25	1
SR 7	R1011008	R CFFH 1E J 0W25	1
Z 1	R131745	D ZEN 18V 1W3 C DO41	
Z 2	R131743	D ZEN 8V2 0W5 C DO35	
Z 3	R131734	D ZEN 5V6 0W5 B DO35	
Z 4	R131721	D ZEN 13V 0W5 C DO35	
Z 5	R131730	D ZEN 20V 0W5 C DO35	
Z 6	R131728	D ZEN 11V 0W5 C DO35	
Z 7	R131865	D ZEN 4V7 0W5 B DO35	
Z 8	R131791	D ZEN 6V2 0W5 B DO35	
Z 9	R131740	D ZEN 12V 0W5 C DO35	

EHT Module R762716

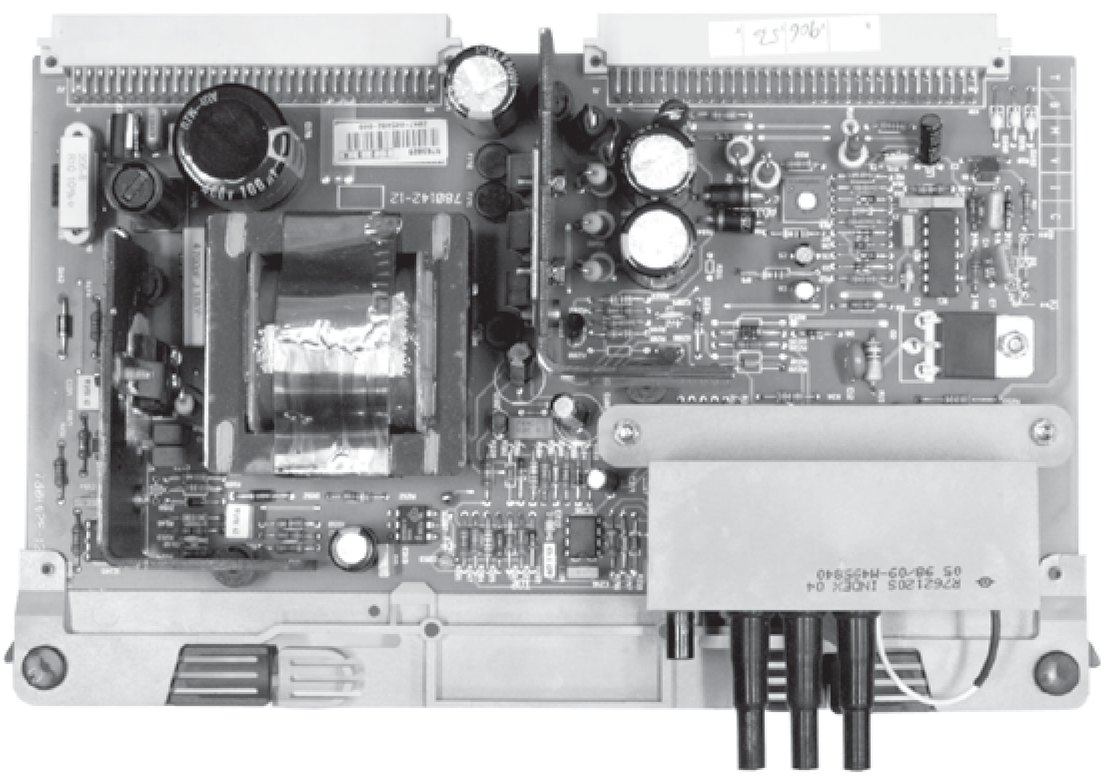
PRODUCT SAFETY NOTICE

Components identified by ⚠ have SPECIAL CHARACTERISTICS IMPORTANT TO SAFETY. Before replacing any of these components, read carefully the ser-vice safety precautions.

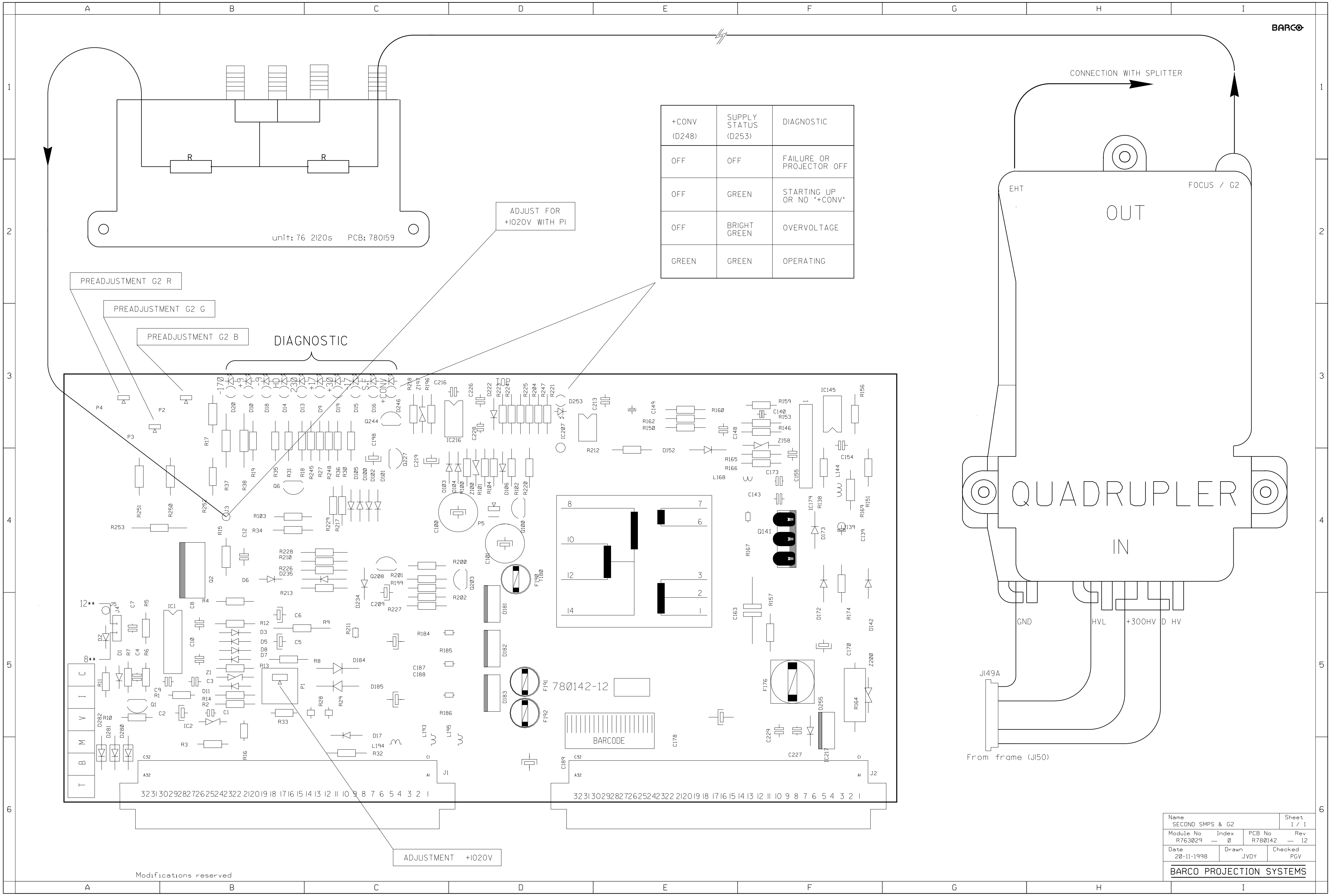


WARNING

THIS CIRCUIT BOARD IS HOT TO AC. THIS POWER SUPPLY, LIKE THE HIGH VOLTAGE POWER SUPPLY, DOES NOT USE A LINE ISOLATION TRANSFORMER, MEANING A PORTION OF THE CIRCUITRY IS HOT-TO-LINE AND SHOULD BE TREATED WITH CAUTION.



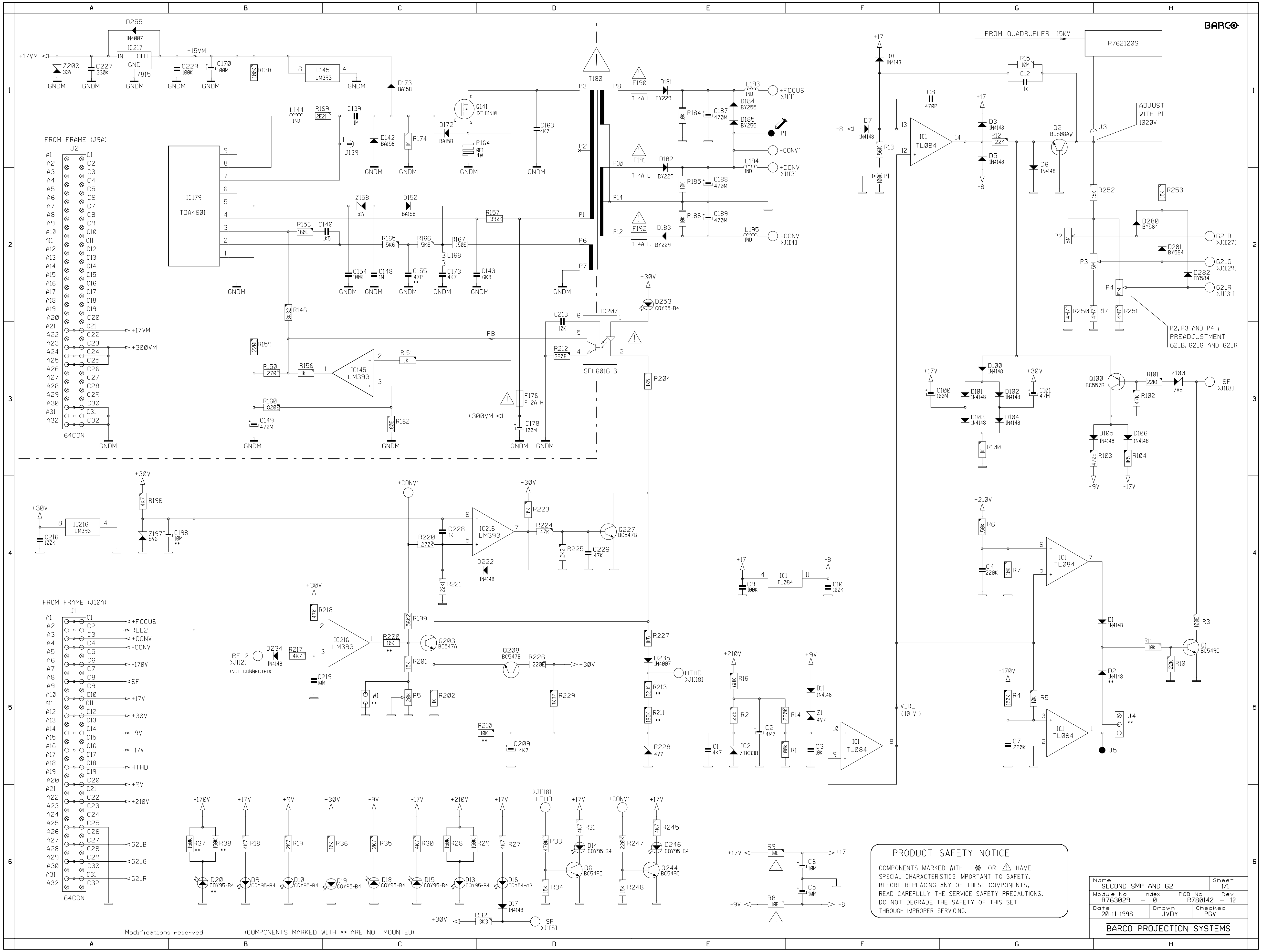
R763029_r00



+CONV (D248)	SUPPLY STATUS (D253)	DIAGNOSTIC
OFF	OFF	FAILURE OR PROJECTOR OFF
OFF	GREEN	STARTING UP OR NO "+CONV"
OFF	BRIGHT GREEN	OVERVOLTAGE
GREEN	GREEN	OPERATING

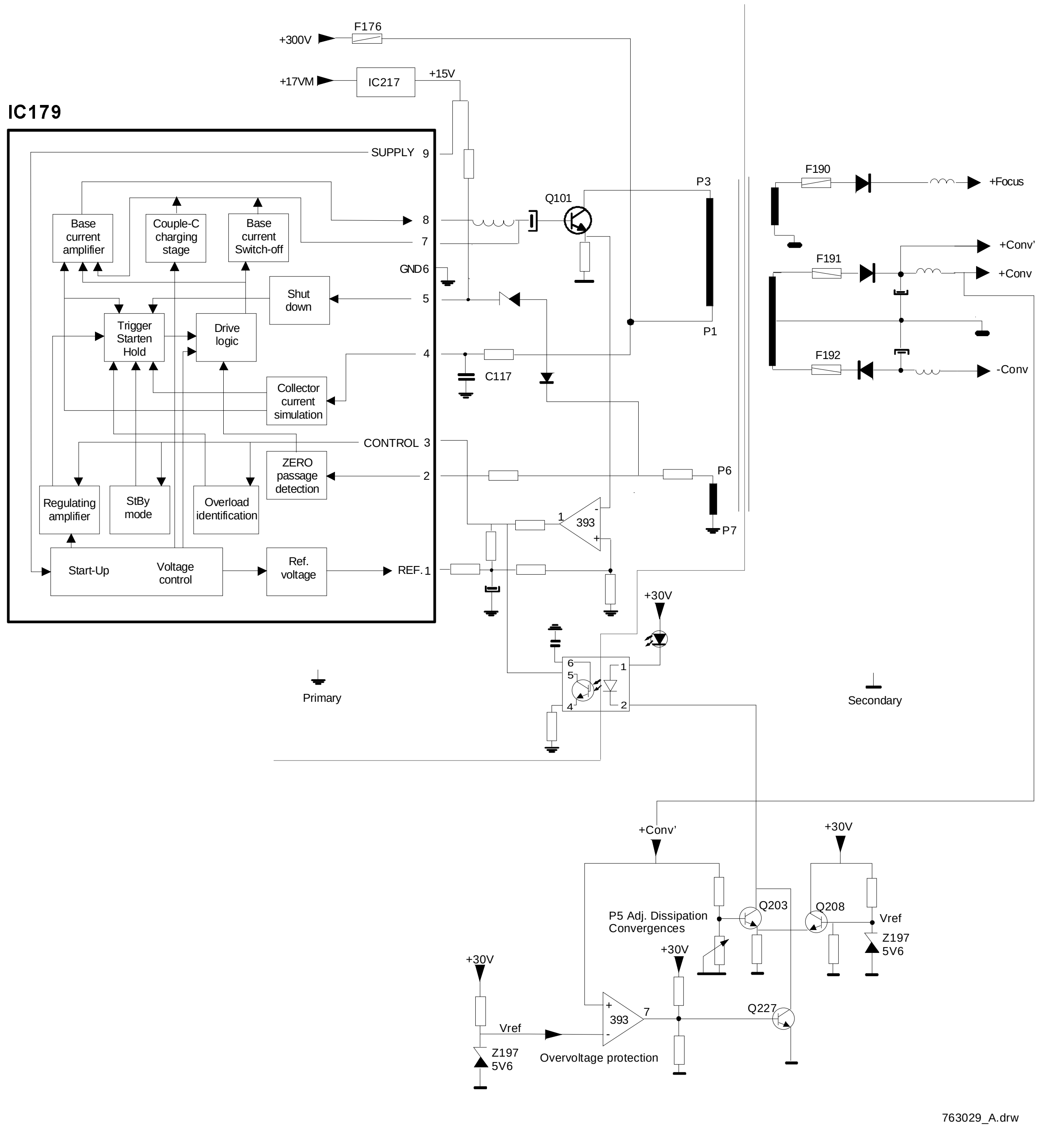
Name: SECOND SMPS & G2		Sheet: 1 / 1
Module No: R763029	Index: 0	PCB No: R780142 — Rev: 12
Date: 20-11-1998	Drawn: JVDY	Checked: PGV

BARCO PROJECTION SYSTEMS

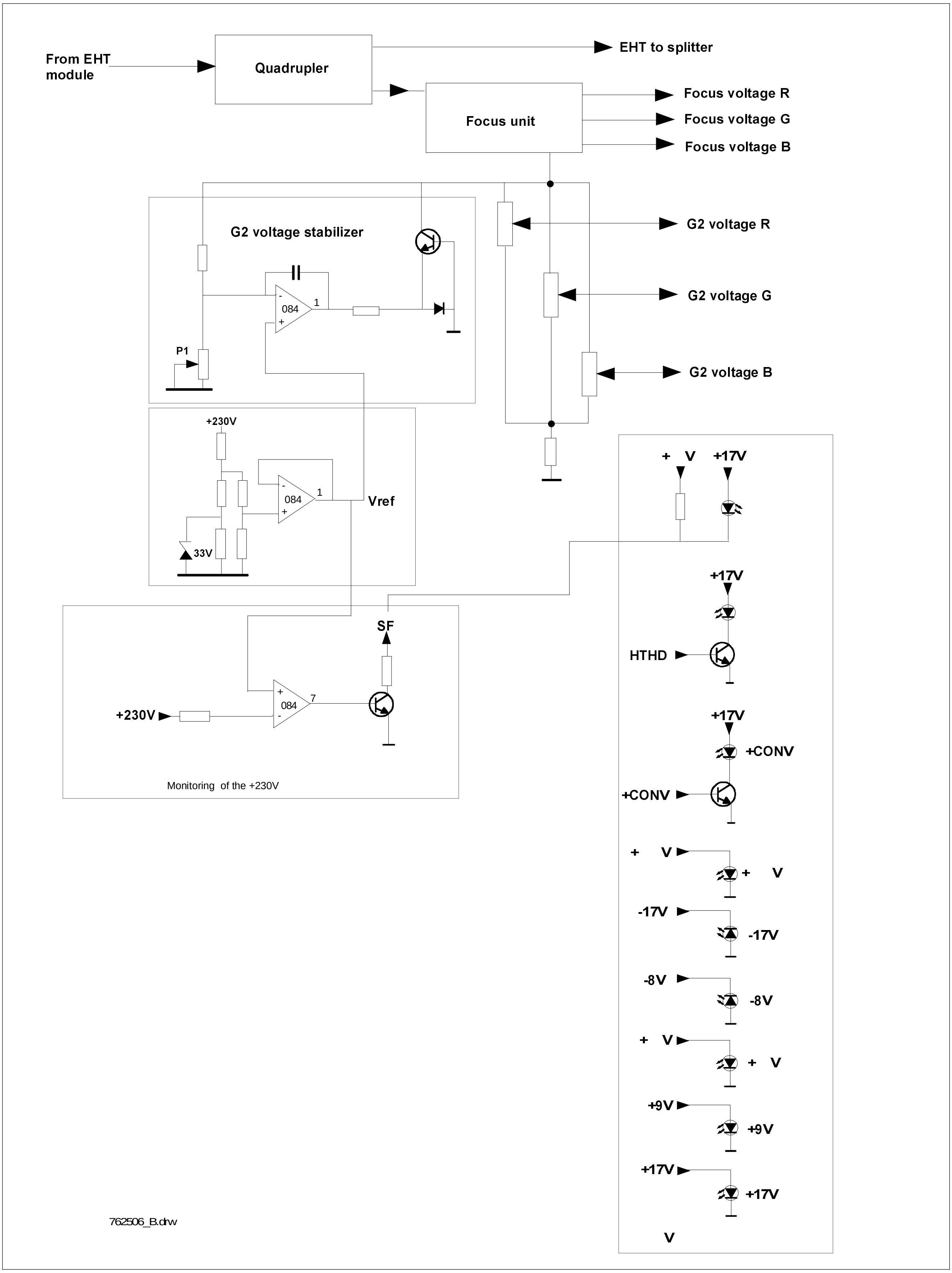


COMP.	LOC.
C1	E 5
C2	E 5
C3	F 5
C4	G 4
C5	F 6
C6	F 6
C7	G 5
C8	F 1
C9	E 4
C10	F 4
C12	G 1
C100	G 3
C101	G 3
C139	C 1
C140	B 2
C143	D 2
C148	C 2
C149	B 3
C154	C 2
C155	C 2
C163	D 1
C170	B 1
C173	C 2
C178	D 3
C187	E 1
C188	E 2
C189	E 2
C198	B 4
C209	D 5
C213	D 2
C216	A 4
C219	B 5
C226	D 4
C227	A 1
C228	C 4
C229	B 1
D1	H 4
D2	H 5
D3	G 1
D5	G 1
D6	G 1
D7	F 1
D8	F 1
D9	B 6
D10	B 6
D11	F 5
D13	C 6
D14	D 6
D15	C 6
D16	D 6
D17	D 6
D18	C 6
D19	C 6
D20	B 6
D100	G 3
D101	G 3
D102	G 3
D103	G 3
D104	G 3
D105	H 3
D106	H 3
D142	C 1
D152	C 2
D172	C 1
D173	C 1
D181	E 1
D182	E 1
D183	E 2
D184	E 1
D185	E 1
D222	D 4
D234	B 5
D235	E 5
D246	E 6
D253	E 2
D255	A 1
D280	H 2
D281	H 2
D282	H 2
F176	D 3
F190	E 1
F191	E 1
F192	E 2
IC1	G 4
IC1	E 4
IC1	F 1
IC1	F 5
IC1	G 5
IC2	E 5
IC145	B 1
IC145	C 3
IC179	B 2
IC207	D 2
IC216	C 5
IC216	D 4
IC216	A 4
IC217	A 1
J1	A 4
J2	A 1
J3	H 1
J4	H 5
J5	H 5
L144	B 1
L168	C 2
L193	E 1
L194	E 1
L195	E 2
P1	F 2
P2	G 2
P3	G 2
P4	H 2
P5	C 5
Q1	H 5
Q2	G 1
Q6	D 6
Q100	H 3
Q141	C 1
Q203	C 5
Q208	D 5
Q227	D 4
Q244	E 6
R1	F 5
R2	E 5
R3	H 4
R4	G 5
R5	G 5
R6	G 4
R7	G 4
R8	E 6
R9	E 6
R10	H 5
R11	H 5
R12	G 1
R13	F 1
R14	F 5

COMP.	LOC.
R15	G 1
R16	E 5
R17	H 2
R18	B 6
R19	B 6
R27	D 6
R28	C 6
R29	D 6
R30	C 6
R31	D 6
R32	D 6
R33	D 6
R34	D 6
R35	C 6
R36	C 6
R37	B 6
R38	B 6
R100	G 3
R101	H 3
R102	H 3
R103	H 3
R104	H 3
R138	B 1
R146	B 2
R150	B 3
R151	C 3
R153	B 2
R156	B 3
R157	D 2
R159	B 3
R160	B 3
R162	C 3
R164	D 1
R165	C 2
R166	C 2
R167	C 2
R169	B 1
R174	C 1
R184	E 1
R185	E 2
R186	E 2
R196	A 4
R199	C 4
R200	C 5
R201	C 5
R202	C 5
R204	E 3
R210	D 5
R211	E 5
R212	D 3
R213	E 5
R217	B 5
R218	B 4
R220	C 4
R221	C 4
R223	D 4
R224	D 4
R225	D 4
R226	D 5
R227	E 5
R228	E 5
R229	D 5
R245	E 6
R247	D 6
R248	D 6
R250	G 2
R251	H 2
R252	H 2
R253	H 2
T180	D 1
TP1	E 1
W1	C 5
Z1	F 5
Z100	H 3
Z158	C 2
Z197	A 4
Z200	A 1



+300V
F176
+17VM
IC217
+15V
IC179
SUPPLY 9
Base current amplifier
Couple-C charging stage
Base current Switch-off
8
7
GND 6
Shut down
5
Trigger Starten Hold
Drive logic
4
C117
Collector current simulation
CONTROL 3
ZERO passage detection
2
Regulating amplifier
StBy mode
Overload identification
Start-Up
Voltage control
Ref. voltage
REF. 1
Q101
P3
P1
P6
P7
393
+30V
Primary
Secondary
F190
+Focus
F191
+Conv'
+Conv
F192
-Conv
+Conv'
+30V
P5 Adj. Dissipation Convergences
Q203
Q208
Vref
Z197 5V6
+30V
+30V
Q227
Vref
Z197 5V6
Overvoltage protection
763029_A.drw



From EHT module
Quadrupler
EHT to splitter
Focus unit
Focus voltage R
Focus voltage G
Focus voltage B
G2 voltage stabilizer
084
1
P1
G2 voltage R
G2 voltage G
G2 voltage B
+230V
084
1
Vref
33V
SF
+230V
084
7
Monitoring of the +230V
+ V
+17V
+17V
HTHD
+17V
+CONV
+CONV
+ V
+ V
-17V
-17V
-8V
-8V
+ V
+ V
+9V
+9V
+17V
+17V
V
762506_B.drw

Technical description "SMPS-2+G2+DIAGNOSTIC" R763029

Introduction

This board is specially adapted to be used in projectors for simulation purposes and comprises:

- the SMPS for the convergence end stages and the Focus power stages
- the stabilization and alignment of the G2 voltages.
- monitoring circuit of the +210V to cause scan fail if absent.
- the LED's for diagnosis of the supply voltages and scan fail.

A. SMPS for +/- CONV and +FOC voltages.

This power supply uses the same TDA4601 as the main SMPS. We refer to the description of this module for more details. We just limit here to the differences and the control loop to generate the correct amplitudes of these voltages.

Because of the high scanning range of the projector, from 15khz to 105khz, the needed amplitude for the convergence corrections is much higher for the frequencies (let's say around 100khz) than for the standard frequency.

By supplying permanently a high power supply to the power end stages in the convergence, the dissipation in heat for the lower frequencies is quite high.
To limit the dissipation, a projector in a simulation chain operates mostly on one frequency, a potentiometer is inserted in the control loop.

The TDA4601 (IC179) totally relies on the +17 MAINS delivered by the first or main SMPS and the +300V. If for some reason the + 17 MAINS is not available , the SMPS cannot start up.
The +17 MAINS is stabilised to +15 volts with IC217 and supplies the pins 9 and 5.
The transformer and rectifier circuit provide the +FOCUS, +/- CONV and the +CONV' for the feedback control loop discussed hereafter.

B. Control loop / Feedback / Adaptation.

The +CONV' voltage is biasing the base of the Q203 amplifier. This bias voltage is adjustable with the potentiometer P5. Via an insulating opto-coupler, the collector current of Q203 is transferred to pin 3 of the regulating TDA4601. In this way, the dissipation of the power end stages in the convergence can be reduced to its minimum on the applied frequency (see adjustment procedure for P5).

The +CONV' voltage is also applied to another detector in IC216, pin 5. Pin 6 of the latter IC is set at 5.6 Volt with Z197. When an overvoltage situation occurs, Q227 is saturating and shortens the collector of Q203 at ground level. The SMPS switches into a safe loop, whereas the output voltage is dramatically dropped.

C. Monitoring the +210V

A very stable Vref voltage is formed with IC2 / Z1 and buffered with an OPAMP.
IC2 provides a 33 volts which is then divided with R14/R1 to exactly 10 volt and buffered to provide sufficient current.

If the +210V were absent, the Vref would disappear and the monitoring circuit cannot work. The +9V takes over in such case and installs a reference voltage via Z1.
This Vref of 10 volt is used for the level detectors monitoring the supply voltages of the video power stages : the +210V.

The absence of one or both of these voltages can damage the picture tubes. Scan Fail is becoming active with Q1 as soon one of the voltages drops below some level.

D. G2 voltages.

The G2 voltages must be very stable to avoid thermal drift, and, they must be adjustable between 400V and 1020 volt.
The voltage coming from the unit 76 2120S is already very stable since it is coming from a stabilised source, the EHT.

The series output resistor in the unit forms together with P2, P3, P4 and R17 a divider. If we stabilize the voltage at the node mentioned "Adjust for 1020V with P1" we have also a stable G2 voltage on the sliders.

That 1020 volt point is sensed with the divider R15 / R13/ P1. Since the Vref is 10 volt, the output of the OPAMP will change until pin 13 is at the same voltage level of 10 volt.

Any voltage difference due to a change of the 1020 volt is adjusted by Q2 which will feed a current from the node to the (negative) output of the OPAMP.
The Q2 is needed because the 1020 volt is a too high voltage for the OPAMP. A high voltage transistor such like the BU508A is therefore required.

E. LED's for diagnosis

The presence of the various voltages are all displayed with green LED's. The variable voltages like the +HTHD and +CONV' drive a LED through a transistor to obtain a constant light output of the LED.
The scan fail diode D16 is red and shows a problem in the horizontal or vertical deflection.

ADJUSTMENT PROCEDURE 'G2 CONTROL+DIAGNOSTIC MODULE'

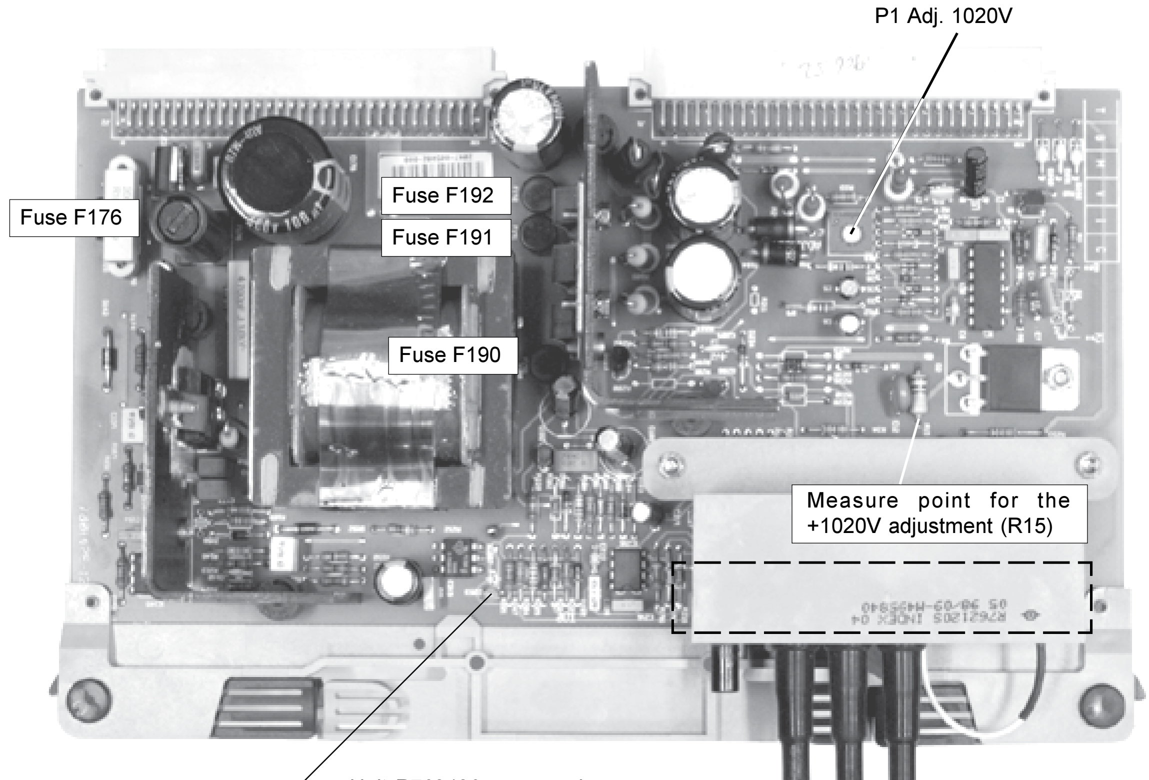
The alignment is restricted to the adjustment of :

- alignment of the +1020V
- pre-alignment of the BLACK BALANCE
- limiting the power consumption of the convergence assembly

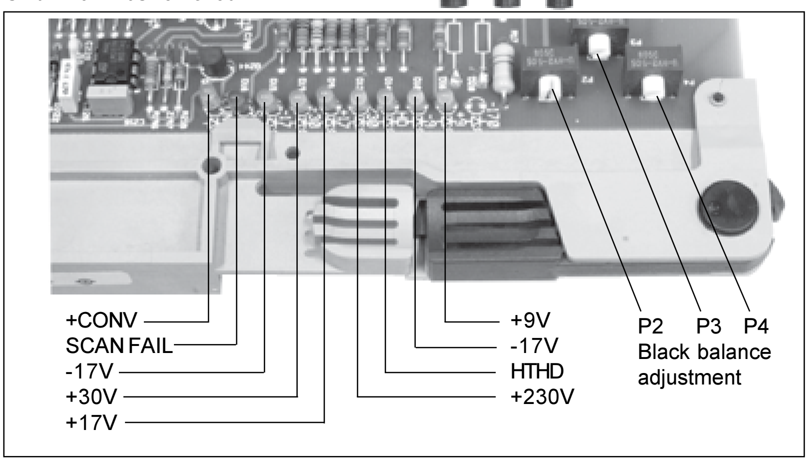
HIGH VOLTAGE WARNING

To avoid DANGER TO LIFE, do not attempt to service the chassis until all precautions necessary for working on HIGH VOLTAGE equipment have been observed.

Alignment



Unit R762120s removed



D253

Status of LED D253		
LED '+CONV'	LED D253	Diagnostic
OFF	OFF	Failure of Projector OFF
OFF	Green	Starting UP or No +CONV
OFF	Bright Green	Overvoltage
Green	Green	Operation

Preparation

WARNING: **The power must be OFF before removing any connector from circuit board or unit. Failure to do so may result in severe damage to the projection unit.**

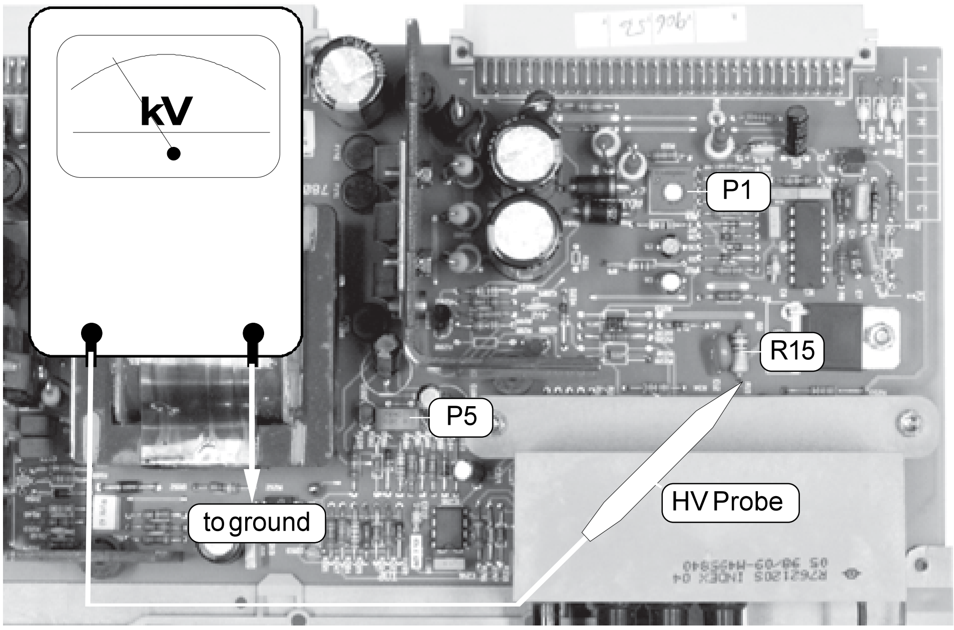
- Turn the projector off.
- Put the module on the extension boards.
- Connect to the VIDEO input e.g. an electronic colour test video signal.
- Switch the projector in the VIDEO MODE. Press digit button 1 of the RCU.

Alignment +1020V

- Connect to the resistor R15 (side wire soldering J3) the precision **focus (High Voltage)** probe of the used measuring instrument and connect the other probe to ground.

CAUTION: read carefully all safety instructions, mentioned in the user's manual of the precision focus probe.

- Switch on the projector.
- Adjust the potentiometer P1 for +1020V read out.



Alignment P5

Power Consumption limitation of the Convergence Assembly

Adjust the Convergences with max Power (Potentiometer P5 turned fully counter-clockwise).
Then, turn slowly the potentiometer P5 clockwise until convergence distortion occurs in the corners of the picture. Turn down P5 for just disappearing of the distortion.

G2 Adjustment

Access to the G2 adjustment controls and the respective control LED's on the Video output amplifiers

Access to the output amplifiers:
See Section 'Partslist on Module level, page 2'.

Access to the G2 adjustment controls:
See Section 'Partslist on Module level, page 9'.

Adjustment

Proceed to **Service mode** and highlight **G2 Adjustment.** Press **ENTER** to display the G2 ADJUSTMENT menu (refer to Installation manual of the projector)

Adjust successively and slowly the three potentiometers P2 (for Blue), P3 (for Green) and P4 (for Red) on the 'G2 + Diagnostic' module, see photo 1, until the LED on the corresponding Video output amplifier, see photo 2, goes OFF..

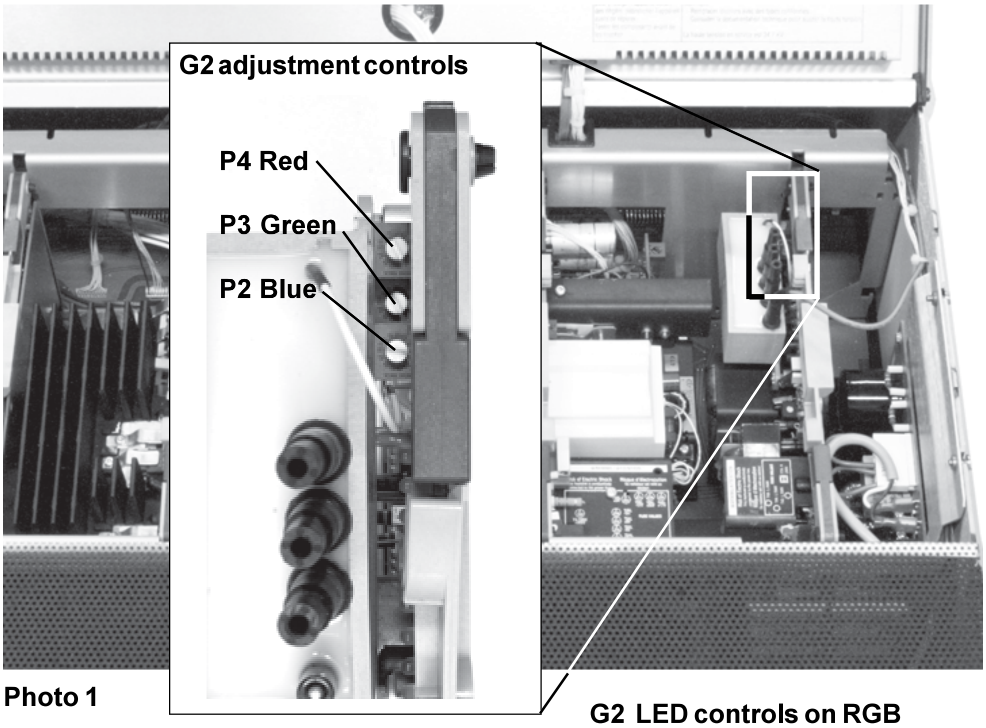


Photo 1

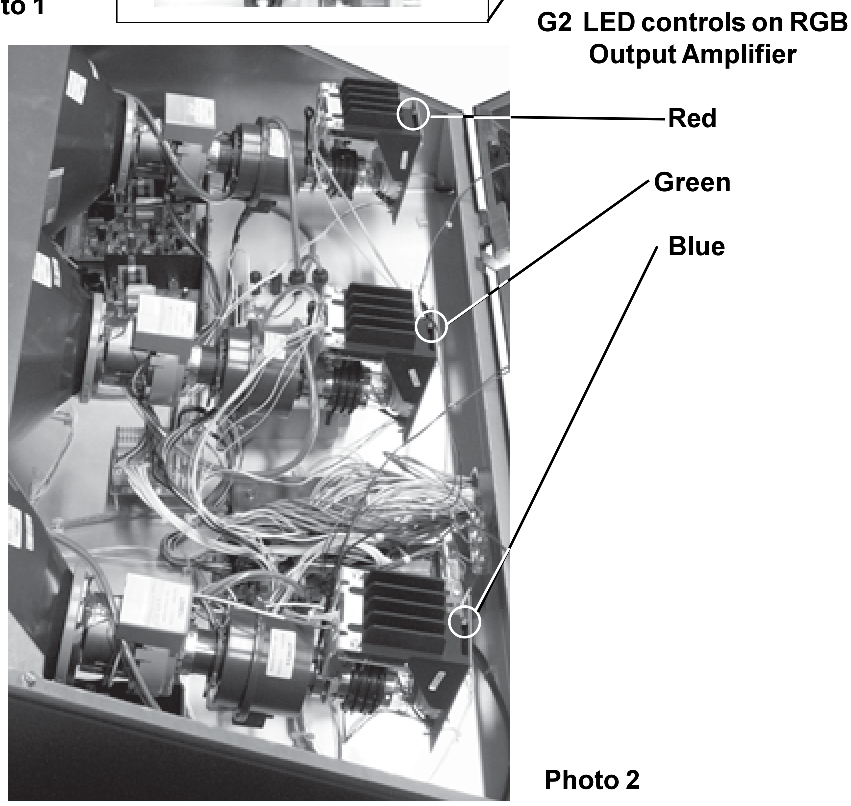


Photo 2

Parts Listing R763029

SIT.	ITEM NO.	DESCRIPTION	QUANTITY
	B360861	SCR Z$7985M 3 X 6 STZY	1
	B360862	SCR Z$7985M 3 X 8 STZY	3
	B360862	SCR Z$7985M 3 X 8 STZY	4
	R133036	SPR L 6 D 2,4D 6 CE	4
	R133036	SPR L 6 D 2,4D 6 CE	5
	R133063	HTSN A SOT93 I-MICA 25X28	1
	R133074	HTSN A I-SIL W30	0,04
	R313729	J TESTEYE D2,1 H3,1 SN BK	1
	R3631079	SCR Z933 M 3 X 12 SS	1
	R3631259	SCR Z933 M 4 X 16 SS	2
	R366241	NUT D985 M 3 STZN	1
	R366988	NUT TRAD M 3 EDGE PLBK	2
	R366988	NUT TRAD M 3 EDGE PLBK	2
	R367502	SPR D6798AD 3,2D 6 STZN	1
	R367699	RVT AVTRON2,5L 8,1 AL	4
	R367699	RVT AVTRON2,5L 8,1 AL	2
	R722276	LOCK49 PCB UN CPL	1
	R762120S	UN G1200 G2+CHK SUB	1
	R802858	SPRCL 8,25D 5,2D10 ALCH	2
	R803607	HTSN G808 SMP2+G2	1
	R804614	HTSN G808 SMP+G2	1
	R804832	HTSN A GEN SPG1 M3 SS LG	1
	R804834	HTSN A GEN SPG3 M3 SS LG	1
C 1	R112747	C CE MI 4N7K100E2 85	1
C 2	R111550	C EL RA 4M7M 50E2 85	
C 3	R1137121	C POMERA 10N K250E2 85	
C 4	R113728	C POMERA 220N K 63E2 85	1
C 5	R111531	C EL RA 10M M 35E2 85	
C 6	R111531	C EL RA 10M M 35E2 85	
C 7	R113841	C POMERA 220N K 63E2 85	
C 8	R112735	C CE MI 470P K100E2	
C 9	R113724	C POMERA 100N K 63E2 85	
C 10	R113724	C POMERA 100N K 63E2 85	
C 12	R111718	C CE DI 1N K302E3 HV	1
C100	R111477	C EL RA 100M M 25E2 85	
C101	R111486	C EL RA 47M M 50E2 85	
C139	R114090	C POMERA 1M K 63E2 85	
C140	R112741	C CE MI 1N5K100E2	1
C143	R115936	C PP RA 6N8J 63E2 85	
C148	R114090	C POMERA 1M K 63E2 85	
C149	R111468	C EL RA 470M M 16E2 105	1
C154	R113724	C POMERA 100N K 63E2 85	
C163	R111773	C PPMERA 4N7J162E9 HV	1
C170	R111477	C EL RA 100M M 25E2 85	
C173	R115932	C PP RA 4N7J 63E2 85	
C178	R111578	C EL RA 100M M400E4 105	1
C187	R111556	C EL RA 470M M100E3 85	1
C188	R111556	C EL RA 470M M100E3 85	1
C189	R111556	C EL RA 470M M100E3 85	1
C209	R112747	C CE MI 4N7K100E2 85	
C213	R1137121	C POMERA 10N K250E2 85	
C216	R113724	C POMERA 100N K 63E2 85	1
C219	R111531	C EL RA 10M M 35E2 85	
C226	R113720	C POMERA 47N K 63E2 85	1
C227	R114085	C POMERA 330N K 63E2 85	
C228	R112739	C CE MI 1N K100E2	
C229	R113724	C POMERA 100N K 63E2 85	

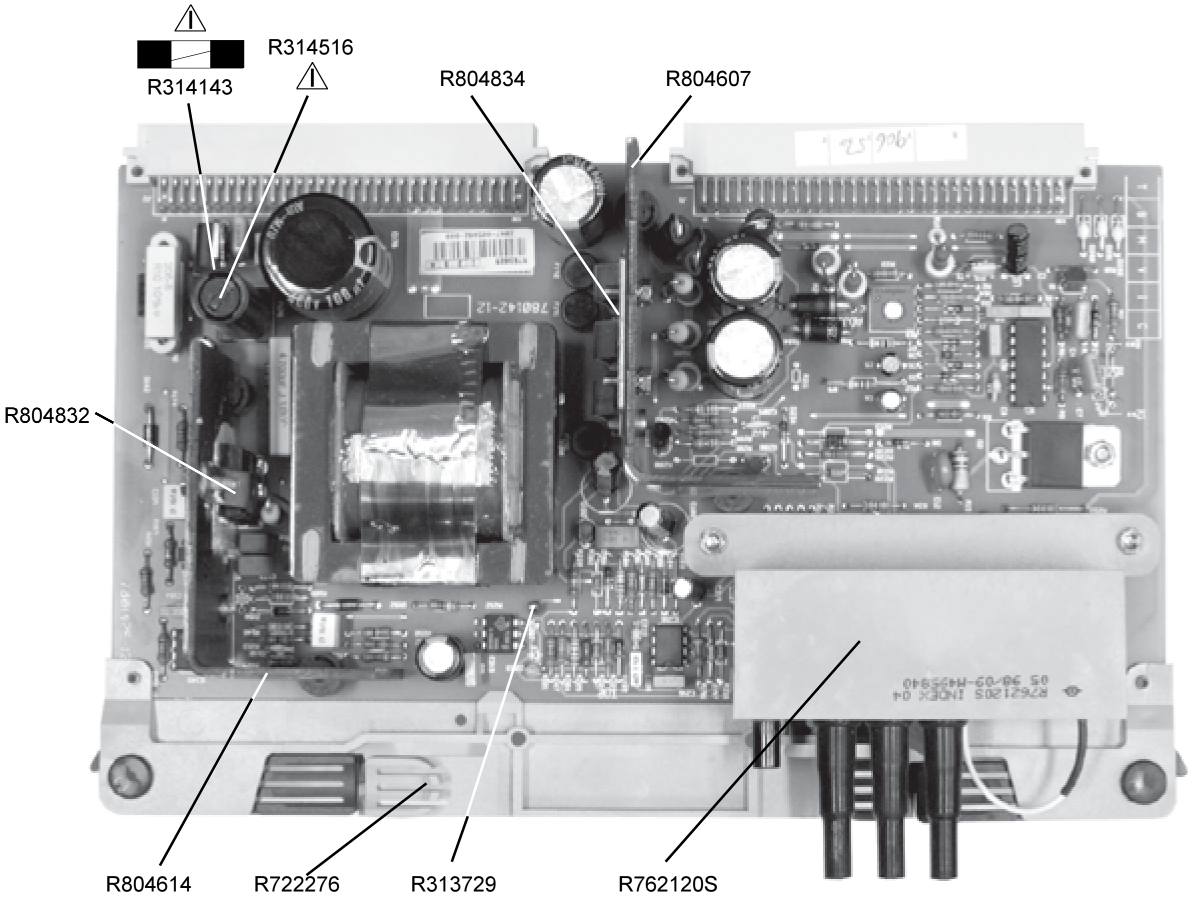
SIT.	ITEM NO.	DESCRIPTION	QUANTITY
D 1	R131621	D S 1N4148 075150 DO35	
D 3	R131621	D S 1N4148 075150 DO35	
D 5	R131621	D S 1N4148 075150 DO35	
D 6	R131621	D S 1N4148 075150 DO35	
D 7	R131621	D S 1N4148 075150 DO35	
D 8	R131621	D S 1N4148 075150 DO35	
D 9	R131667	D LED D3 T GN	1
D 10	R131667	D LED D3 T GN	1
D 11	R131621	D S 1N4148 075150 DO35	
D 13	R131667	D LED D3 T GN	1
D 14	R131667	D LED D3 T GN	1
D 15	R131667	D LED D3 T GN	1
D 16	R131662	D LED D3 T RD	1
D 17	R131621	D S 1N4148 075150 DO35	
D 18	R131667	D LED D3 T GN	1
D 19	R131667	D LED D3 T GN	1
D100	R131621	D S 1N4148 075150 DO35	
D101	R131621	D S 1N4148 075150 DO35	
D102	R131621	D S 1N4148 075150 DO35	
D103	R131621	D S 1N4148 075150 DO35	
D104	R131621	D S 1N4148 075150 DO35	
D105	R131621	D S 1N4148 075150 DO35	
D106	R131621	D S 1N4148 075150 DO35	
D142	R131637	D R BA158 600400 DO7	
D152	R131637	D R BA158 600400 DO7	
D172	R131637	D R BA158 600400 DO7	
D173	R131637	D R BA158 600400 DO7	
D181	R131927	D R BY229 60007A TO220C	1
D182	R131927	D R BY229 60007A TO220C	1
D183	R131927	D R BY229 60007A TO220C	1
D184	R1319025	D R BY255 1323A0 DO201	1
D185	R1319025	D R BY255 1323A0 DO201	1
D222	R131621	D S 1N4148 075150 DO35	
D234	R131621	D S 1N4148 075150 DO35	
D235	R131646	D R 1N4007 10201A DO41	
D246	R131667	D LED D3 T GN	1
D253	R131667	D LED D3 T GN	1
D255	R131646	D R 1N4007 10201A DO41	
D280	R131907	D R BY584 182085 SOD61A	
D281	R131907	D R BY584 182085 SOD61A	
D282	R131907	D R BY584 182085 SOD61A	1
F176	R314143	F 5X20 F 2A H UL	1 ⚠
F176	R314516	F A H+C 6A 5X20 BV B	1 ⚠
F190	R314188	F TR5 T 4A L UL	1 ⚠
F191	R314188	F TR5 T 4A L UL	1 ⚠
F192	R314188	F TR5 T 4A L UL	1 ⚠
I 1	R134113	U 084 TL DIP14 P	1
I 2	R132102	U 33B ZTK DO35	
I145	R134114	U 393 LM DIP8 P	1
I179	R132787	U 4601-5 TDA SIP9 P	1
I207	R131691	U 601-3 SFH DIP6 P	1
I216	R134114	U 393 LM DIP8 P	1
I217	R134010	U 7815 TO220 P	1
J 1	R313525	J EUR2C MBS P64 E1C2S 1,6	1
J 2	R313525	J EUR2C MBS P64 E1C2S 1,6	1
L144	R302108	CORE TUBE 3,5 /1,3 X 3	1
L144	Z34501104	WU CUSN 0,60 MM 40	1
L168	R3061322	CH AX NS 10 UH	1
L193	R305913	CH MNS AX NS 12 UH 3A	1
L194	R305913	CH MNS AX NS 12 UH 3A	1
L195	R305913	CH MNS AX NS 12 UH 3A	1

SMPS-2 + G2 + Voltage Diagnostics R763029

SIT.	ITEM NO.	DESCRIPTION	QUANTITY
P 1	R106733	R TCE H100K K 0W5 S10TS	1
P 2	R1076136	R THV V 5M M 0W5 1000	1
P 3	R1076136	R THV V 5M M 0W5 1000	1
P 4	R1076136	R THV V 5M M 0W5 1000	1
P 5	R106830	R TCE V 20K K 0W5 S10SS	1
PC	R780142	PCB G1200 G2+DIAGN	1
Q 1	R131411	Q BC549C N SS TO92	
Q 2	R1325093	Q BU508AW N P SOT429	1
Q 6	R131411	Q BC549C N SS TO92	
Q100	R1314131	Q BC557B P SS TO92	
Q141	R132951	Q IXTH11N100 FN P TO247	1
Q203	R1314072	Q BC547A N SS TO92	1
Q208	R1314071	Q BC547B N SS TO92	
Q227	R1314071	Q BC547B N SS TO92	
Q244	R131411	Q BC549C N SS TO92	
R 1	V1026008	R MF H100K F 0W6 E4	
R 2	V1026334	R MF H 22E1 F 0W6 E4	
R 3	V1026005	R MF H100E F 0W6 E4	
R 4	V1026178	R MF H150K F 0W6 E4	
R 5	V1026007	R MF H 10K F 0W6 E4	
R 6	V1026178	R MF H150K F 0W6 E4	
R 7	V1026007	R MF H 10K F 0W6 E4	
R 8	R1011129	R CFFH 10E J 0W25	
R 9	R1011129	R CFFH 10E J 0W25	
R 10	V1026337	R MF H 22K1 F 0W6 E4	
R 11	V1026007	R MF H 10K F 0W6 E4	
R 12	V1026337	R MF H 22K1 F 0W6 E4	
R 13	V1026727	R MF H 56K2 F 0W6 E4	
R 14	V1026338	R MF H221K F 0W6 E4	
R 15	R104678	R HV H 10M J 0W5 3500	1
R 16	R101358	R MF H 68K J 2W E7	1
R 17	R104670	R HV H 4M7 J 0W5 3500	1
R 18	V1026656	R MF H 4K75F 0W6 E4	
R 19	V1026426	R MF H 2K74F 0W6 E4	
R 27	V1026656	R MF H 4K75F 0W6 E4	
R 28	R101462	R MF H150K J 2W E7	1
R 29	R101462	R MF H150K J 2W E7	1
R 30	V1026656	R MF H 4K75F 0W6 E4	
R 31	V1026656	R MF H 4K75F 0W6 E4	
R 32	V1026506	R MF H 3K32F 0W6 E4	
R 33	V1026658	R MF H475K F 0W6 E4	
R 34	V1026177	R MF H 15K F 0W6 E4	
R 35	V1026426	R MF H 2K74F 0W6 E4	
R 36	V1026007	R MF H 10K F 0W6 E4	
R100	V1026006	R MF H 1K F 0W6 E4	
R101	V1026337	R MF H 22K1 F 0W6 E4	
R102	V1026657	R MF H 47K5 F 0W6 E4	
R103	V1026655	R MF H475E F 0W6 E4	
R104	V1026176	R MF H 1K5 F 0W6 E4	
R138	V1026008	R MF H100K F 0W6 E4	
R146	V1026506	R MF H 3K32F 0W6 E4	
R150	V1026425	R MF H274E F 0W6 E4	
R151	V1026006	R MF H 1K F 0W6 E4	
R153	V1026255	R MF H182E F 0W6 E4	
R156	V1026006	R MF H 1K F 0W6 E4	1
R157	V1026578	R MF H392K F 0W6 E4	
R159	V1026335	R MF H221E F 0W6 E4	
R160	V1026885	R MF H825E F 0W6 E4	
R162	V1026255	R MF H182E F 0W6 E4	
R164	R103600	R WW H E1 J 4W E10	1
R165	V1026726	R MF H 5K62F 0W6 E4	
R166	V1026726	R MF H 5K62F 0W6 E4	
R167	R103226	R MO H150E J 2W E10	1
R169	V1026333	R MF H 2E21F 0W6 E4	
R174	V1026006	R MF H 1K F 0W6 E4	
R184	R103248	R MO H 10K J 2W E10	1
R185	R103248	R MO H 10K J 2W E10	1
R186	R103248	R MO H 10K J 2W E10	1
R196	V1026656	R MF H 4K75F 0W6 E4	
R199	V1026727	R MF H 56K2 F 0W6 E4	
R201	V1026177	R MF H 15K F 0W6 E4	
R202	V1026006	R MF H 1K F 0W6 E4	
R204	V1026176	R MF H 1K5 F 0W6 E4	
R212	V1026575	R MF H392E F 0W6 E4	
R217	V1026656	R MF H 4K75F 0W6 E4	
R218	V1026657	R MF H 47K5 F 0W6 E4	
R220	V1026428	R MF H274K F 0W6 E4	
R221	V1026337	R MF H 22K1 F 0W6 E4	
R223	V1026007	R MF H 10K F 0W6 E4	
R224	V1026657	R MF H 47K5 F 0W6 E4	
R225	V1026336	R MF H 2K21F 0W6 E4	
R226	V1026335	R MF H221E F 0W6 E4	
R227	V1026176	R MF H 1K5 F 0W6 E4	
R228	R131721	D ZEN 13V 0W5 C DO35	
R229	V1026506	R MF H 3K32F 0W6 E4	
R245	V1026656	R MF H 4K75F 0W6 E4	
R247	V1026338	R MF H221K F 0W6 E4	
R248	V1026177	R MF H 15K F 0W6 E4	
R250	R104670	R HV H 4M7 J 0W5 3500	1
R251	R104670	R HV H 4M7 J 0W5 3500	1
R252	V1026177	R MF H 15K F 0W6 E4	
R253	V1026177	R MF H 15K F 0W6 E4	
T180	R774323	T G1200 SMP VAR	1 ⚠
Z 1	R131729	D ZEN 4V7 0W5 C DO35	
Z100	R131756	D ZEN 7V5 0W5 C DO35	
Z158	R131787	D ZEN 51V 0W5 C DO35	
Z197	R131734	D ZEN 5V6 0W5 B DO35	
Z200	A509022	D TVS 33V 1500WU DO201	1

PRODUCT SAFETY NOTICE

Components identified by ⚠ have SPECIAL CHARACTERISTICS IMPORTANT TO SAFETY. Before replacing any of these components, read carefully the service safety precautions.



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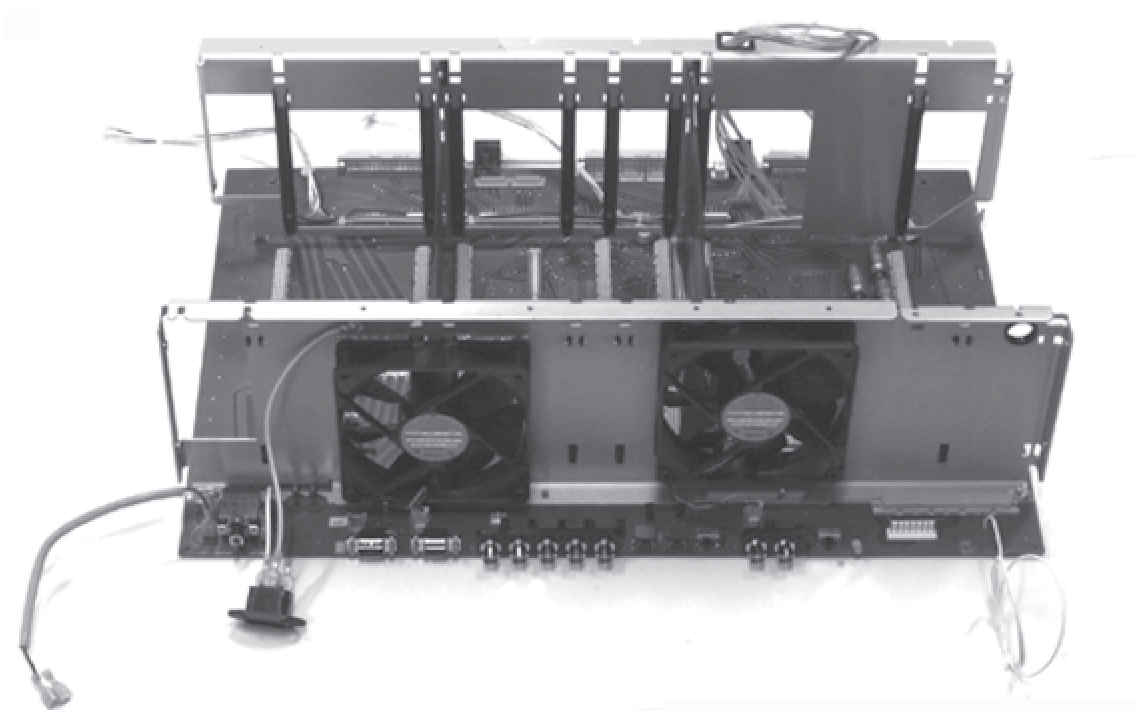
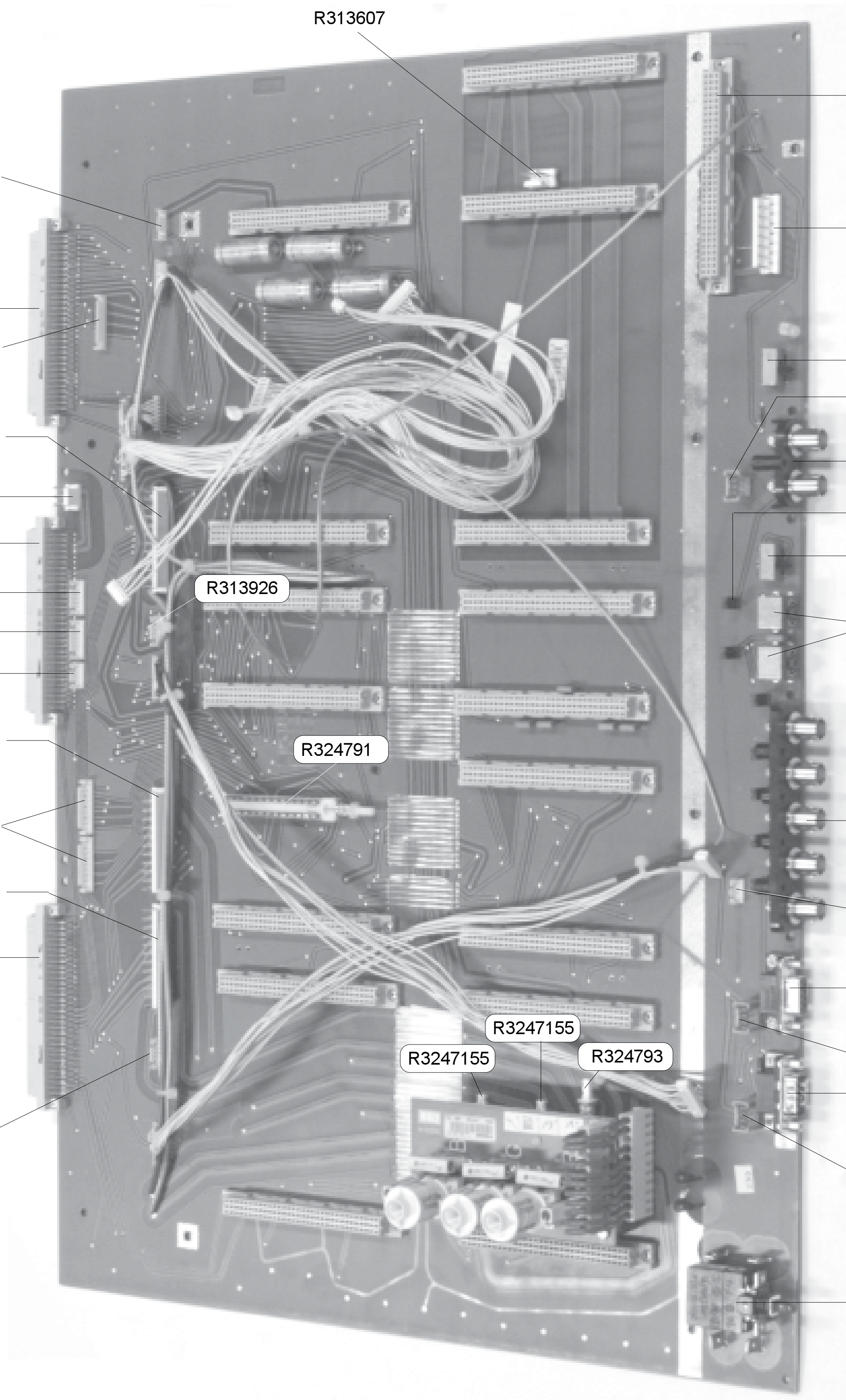
R314516
R804834
R804607
R804832
R804614
R722276
R313729
R762120S



Scan fail diagram
EHT drop diagram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R313526
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R313530
R314079
R324251
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R313607
R3132862(Conn)
R3133921(plug)
R313530
R324252
R313927
R313926
R313928
R313851
R313925
R3134685
R324791
R314079
R313896
R3134685
R313607
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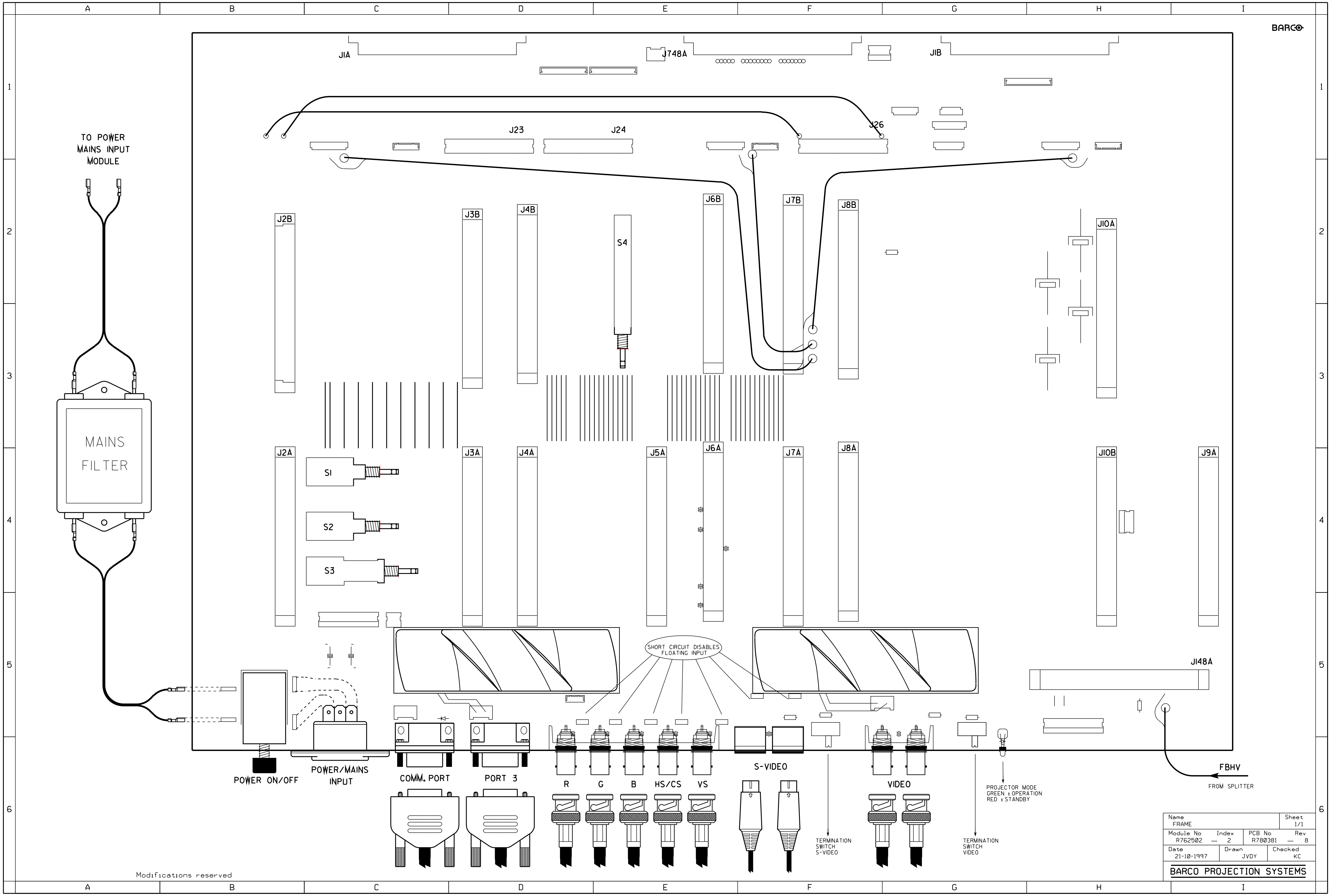
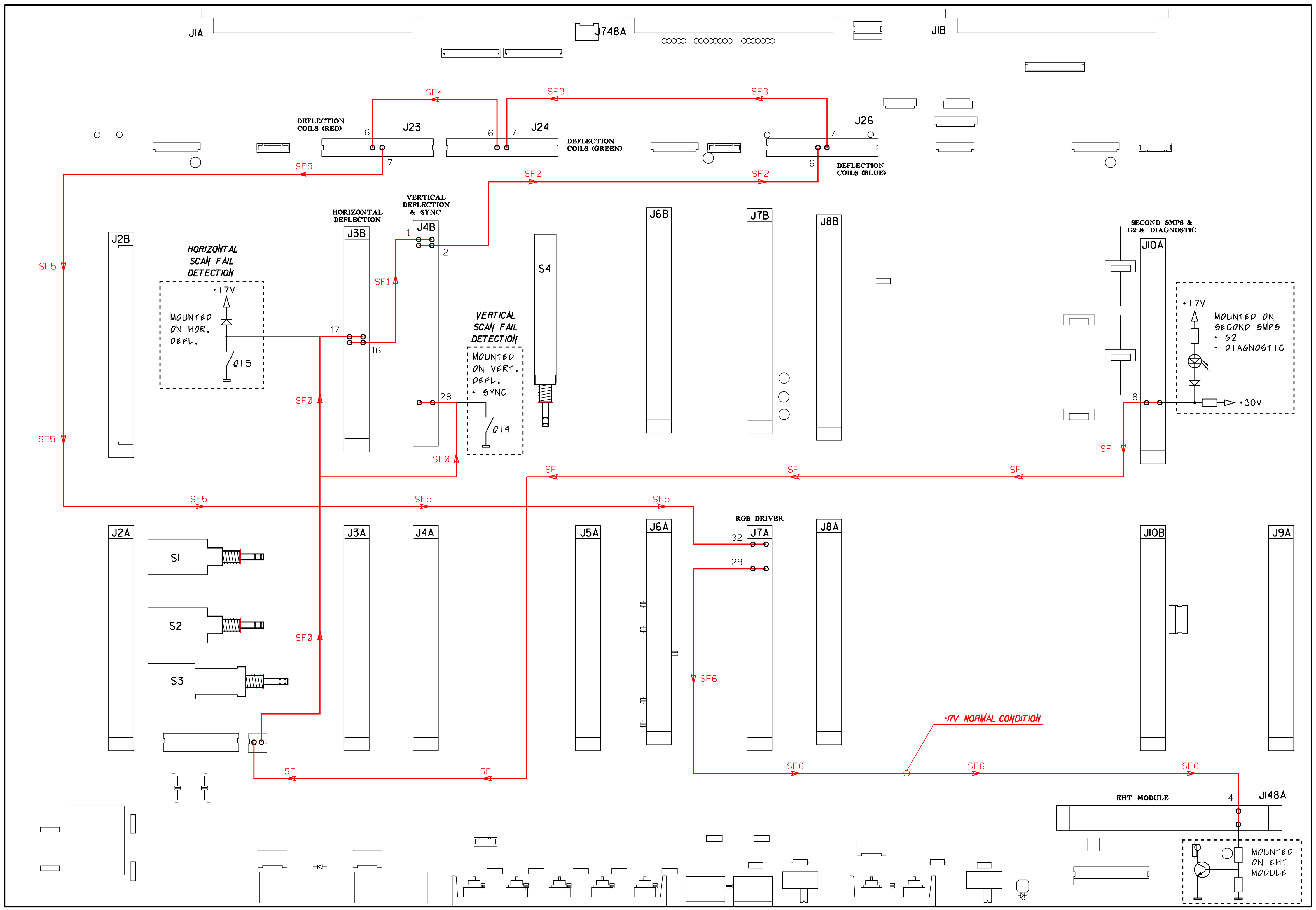
R324792



Name			Sheet
FRAME			1/1
Module No R762502	Index — 2	PCB No R780381	Rev — 8
Date 21-10-1997	Drawn JVDY		Checked KC

BARCO PROJECTION SYSTEMS

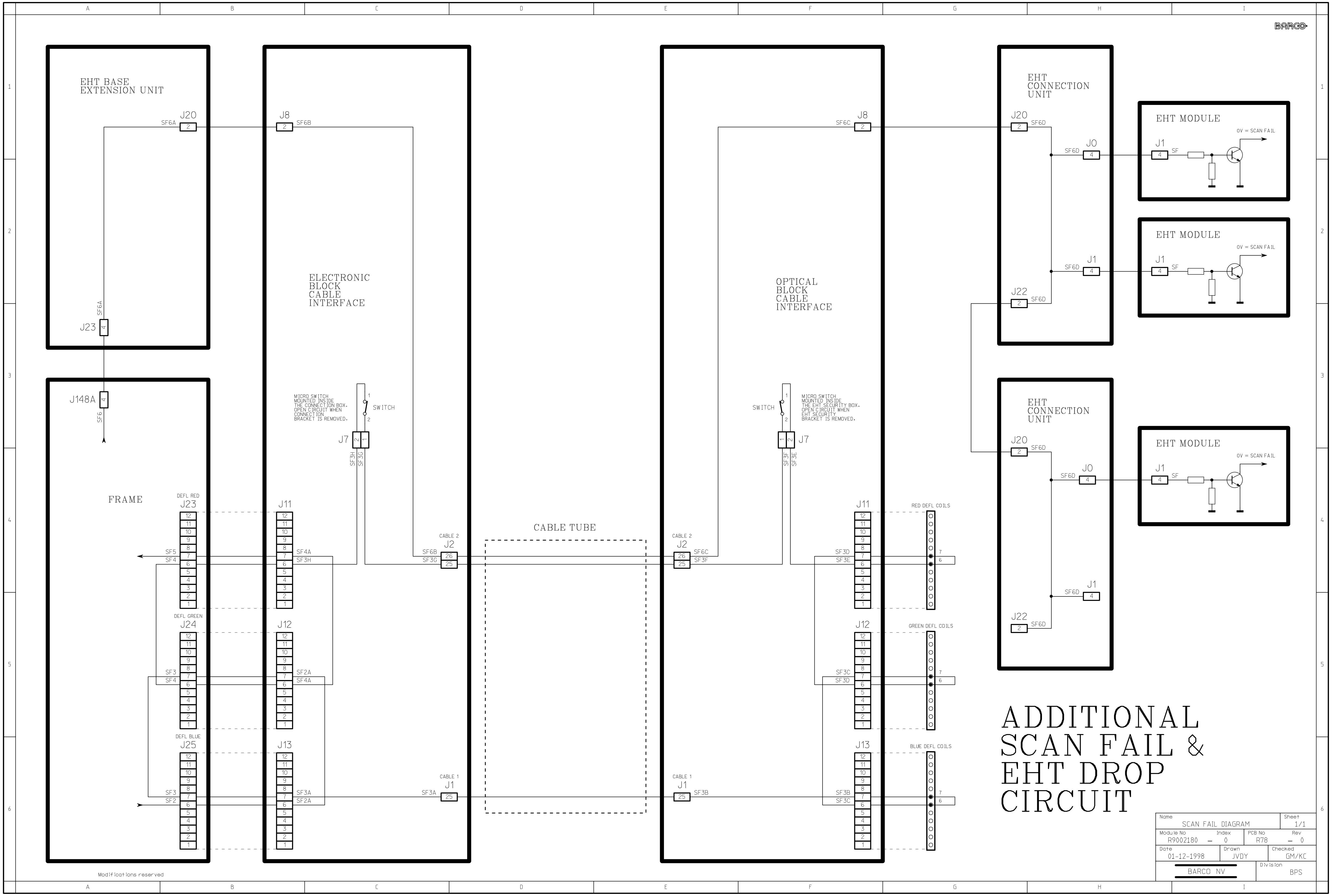


SCAN FAIL

Modifications reserved

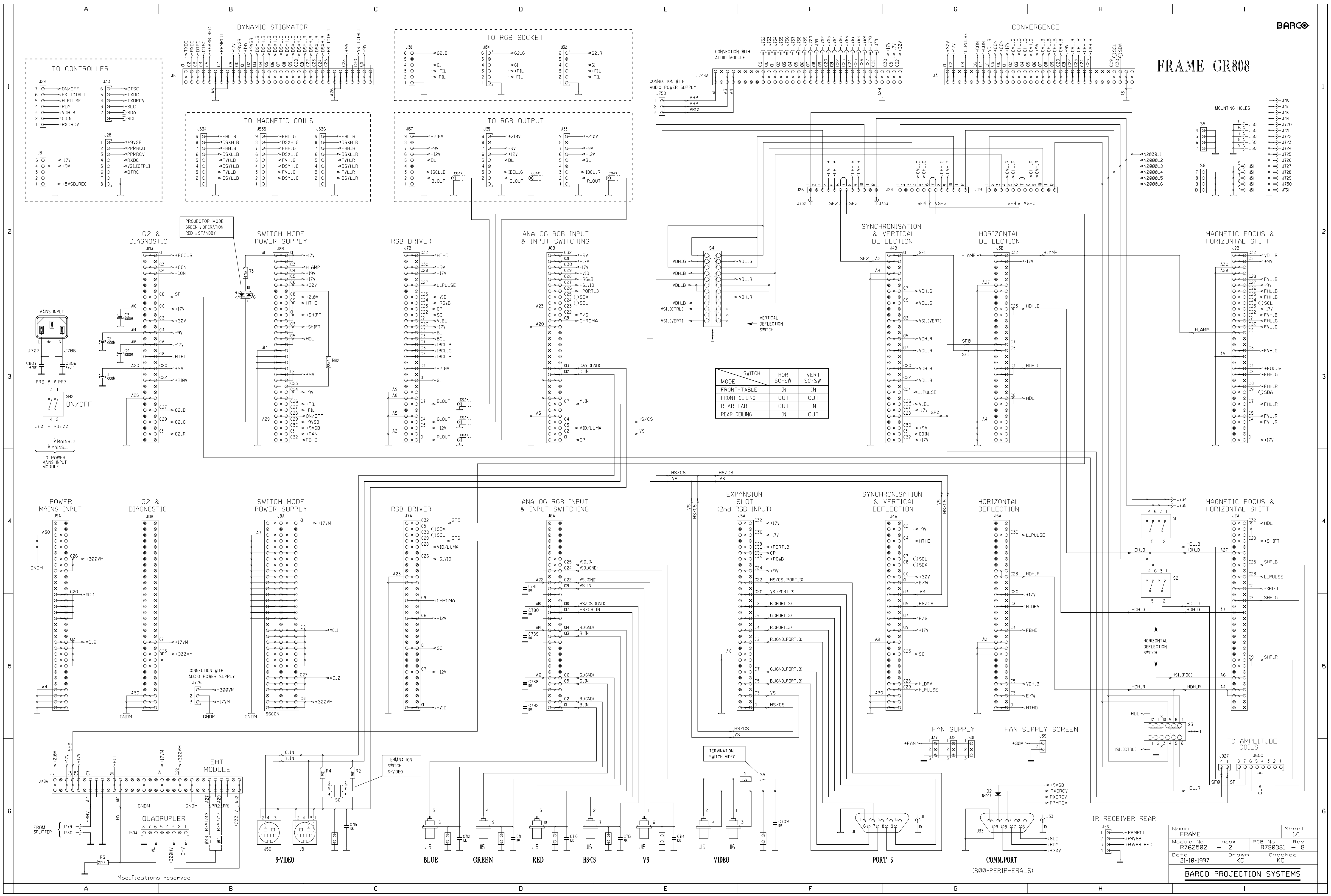
Name			Sheet
SCAN FAIL			1/1
Module No	Index	PCB No	Rev
R762502	— 2	R780381	— 8
Date	Drawn	Checked	
21-10-1997	JVDY	KC	

BARCO PROJECTION SYSTEMS



ADDITIONAL SCAN FAIL & EHT DROP CIRCUIT

Name	SCAN FAIL DIAGRAM		Sheet 1/1
Module No R9002180	Index — 0	PCB No R78	Rev — 0
Date 01-12-1998	Drawn JVDY	Checked GM/KC	
BARCO NV		Division BPS	



MODE \ SWITCH	HOR SC-SW	VERT SC-SW
FRONT-TABLE	IN	IN
FRONT-CEILING	OUT	OUT
REAR-TABLE	OUT	IN
REAR-CEILING	IN	OUT

Name			Sheet
FRAME			1/1
Module No	Index	PCB No	Rev
R762502	2	R780381	8
Date	Drawn	Checked	
21-10-1997	KC	KC	

BARCO PROJECTION SYSTEMS

Frame cpl R762501

Spare parts R9002180

ITEM NO.	DESCRIPTION	QUANTITY
A577456	SCR D933 M 6 X 30 STZN	8
B338023	J TTI H MWT P24 RECTA	2
B338024	J TTI H MWT P36 RECTA	4
B358749	BRG A SPR RING ZW 60X68	2
B590055	BOX901 1470X1130 9RB	2
B590057	BOX911 1490X1150X300 9RB	2
B590087	BOX201 840X 345X140 7RB	1
B590130	BOX501 1370X1030X 560 9RB	1
B592013	BOXF BAR 50X 50X600 PEF	4
R3137091	J HV HO MWT P 1 CUP	2
R3137092	J HV HO ACC SLEEVE	2
R3137093	J HV HO ACC SEAL	2
R32862000	CDRS CRT WIN CTRL STD 100	1
R348072	CBLA TIE B L450 W7,8	2
R348072	CBLA TIE B L450 W7,8	3
R366246	NUT D985 M 6 STZN	4
R367380	SPR D125A D 6,4D12,5 STZN	4
R592994	BAG PE 270X 380X0,06 WL	2
R593600	CORDSTRAP BUCKLE 16MM	3
R593601	CORDSTRAP W16 PE CC50/2	
R732352	PALLET 1500X1160X135 WD	1
R732374	BOARD 15MM 1370X1030	2
R762959	**UN R812HS FRMC OP**	**1**
R762962	**UN R812HS FRMC EL**	**1**
R791664	**UN RCU700 IR+LGT**	**1**
R803296	BOXF BAR 50X 50X150 PEF	13
R803297	BOXF BAR 150X120X100 PEF	4
R803317	BOXF SPEC STANDCOR PEF	10
R803862	LBL B BARCOGRAPH. 400X 60	2
R804792	LBL I UNPACKING 400X 60	1
R8052761	LBL B BPS PACKING 900X400	2
R806552	J HV HO ACC COVER D6,1	2
R809563	FRM D708HS TOOLING	1
R809916	BOX200 1470X1130X1150 9RB	1
V3673807	SPR D9021 D 6,4D18 SS	8
Z32630599	WU HV 50K AWG22ST 2120	1
Z3470823	SLV COR.ELBOW 90- PA PG48	1
Z3470824	SLV COR.CON.STR M PG48	1
Z3470840	CBLA NUT PG48 MS T5	2
Z347112	SLV BRD SHLD D 40	2,2
Z3480786	SLV COR.54,5/47 R70PG48	1,48
Z3480787	SLV COR.BUCH 43,5/69 G48	2
Z3483356	CD COA BNCM BNCM75 RD2170	1
Z3483357	CD COA BNCM BNCM75 GN2170	1
Z3483358	CD COA BNCM BNCM75 BL2170	1
Z3487711	CD COA TTITTI 50E 2100	5
Z349998	CDS 808S SPLIT PROJ.12"	1

Spare parts R762959 Optical parts

ITEM NO.	DESCRIPTION	QUANTITY
B360824	SCR $464 M 3 X 25 STZN	2
B360834	NUT D980V M 3 LOCK SS	2
B360861	SCR Z$7985M 3 X 6 STZY	39
R130816	LENS HD219	3
R306648	YOKE DEF DAV7645 CD1	3
R306661	YOKE ACC MAGN 2P/4P SHSP	3
R306665	YOKE FOC KF3205	3
R313328	BSHG SN D38 /33,3 P3,2UL	8
R324392D	FAN AX 12V 33LS 34DB L300	3
R348003	GRMT P1,5 D 9,5/8	1
R348005	CBLA TIE TWIST D 7,6/10	3
R34850421	CD CT FTFT P 4 1100	1
R3631239	SCR Z933 M 4 X 10 SS	54
R3631669	SCR Z933 M 6 X 16 SS	6
R3661036	NUT D934 M 4 SS	6
R3661106	NUT D934 M 2,5 SS	2
R366241	NUT D985 M 3 STZN	1
R366242	NUT D985 M 4 STZN	6
R367080	FSTN CLMP HS 35- 50 M4 SS	3
R367378	SPR D125A D 4,3D 9 STZN	6
R367434	RVT BLND_R2,4C 3,2 ALAL	2
R367611	SPR D137A D 5,3D10 STZN	1
R721280	FOOT C TV32 FS32	6
R722411	FSTNR PJ53 RGB OUT	3
R7621042D	**CDS G1200 CRT 09MX**	**3**
R762215	**UN V700 RX FR 900**	**1**
R762716	**UN G808S EHT**	**3**
R762717	**UN G808S EHT QDR**	**3**
R762718	**UN G808S EHT SPL**	**3**
R7627241	**UN IRIS2 CAM CCD MK2**	**1**
R762928	**UN R812HS EHT CNN**	**2**
R762929	**UN R812HS G2 CNN**	**1**
R762949	**UN D708HS EHT CNN**	**1**
R7629632	**UN R812HS CRT M12M 219 R**	**1**
R7629635	**UN R812HS CRT M12M 219 G**	**1**
R7629636	**UN R812HS CRT M12M 219 B**	**1**
R763007	**UN R812HS CNN EXT DEF-RGB**	**1**
R763008	**UN R812HS CNN EXT QDR**	**2**
R763009	**UN R812HS CNN OP**	**1**
R769015	**UN R762839 RGB O+S A**	**3**
R809001	SPG COMPR 20 D5,5D0,8 SS	1
R809153	SPG COMPR 14 D5,5D0,8 SS	1
R809320	FRM *808SHS CRT SPL	3
R810392	FRM G1209S BRKT RGB OUT	3
R810767	FRM R812HS AX FIX CRT+NUT	6
R811951	FRM R812HS BRKT CNN	1
R811952	FRM R812HS EHT BRKT SEC	1
R811953	FRM R812HS EHT FIX PLT	3
R811955	FRM R812HS BRKT IR	1
R811957	FRM R812HS EHT BRKT PCB	2
R811958	FRM R812HS EHT SEC	1
R811960	FRMC R812HS OP	1
V348073	CBLA TWIST LOCK+SN D10/12	32
V3673746	SPR D125A D 2,7D 6,5 SS	2
Z34303645	CBLU COA RG178 BU 50E 450	3
Z34401941	CD MDCIS 2AWG24P 2 CO 400	1
Z3440520	CD SLSL 3AWG20P 3 BL 900	1
Z3440521	CD SLSL 3AWG20P 3 BL 400	1
Z3483024	CD SLSL 4AWG22P 8 350	3
Z34860362	CD SHLD P 3 CTF CTF 1000	1
Z3486055	CD CT $FTFT P 5 800	1
Z3486056	CD CT $FTFT P 5 400	1
Z3486066	CD CT $FTFT P 6 350	1
Z3486092	CD CT $FTFT P 9 GN 400	1
Z3486093	CD CT $FTFT P 9 BL 700	1
Z3486094	CD CT $FTFT P 9 RD 400	1
Z348721	CD SW CT 2AWG26 P2 350	1
Z3487701	CD SL SL 10AWG20P 12 350	1
Z3624175	SCR D912 M 3 X 10 STZB	1

Spare parts R762962 Electronic part

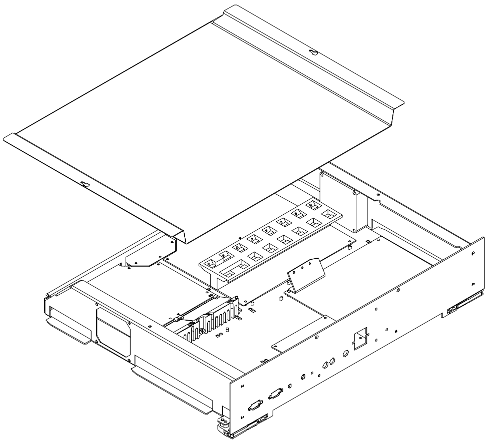
ITEM NO.	DESCRIPTION	QUANTITY
B360300	SCR D84 M 2 X 20 STZN	2
B360440	RVT BLND_R4,8C 6,4WSSAL	4
B360862	SCR Z$7985M 3 X 8 STZY	2
B360862	SCR Z$7985M 3 X 8 STZY	4
B360862	SCR Z$7985M 3 X 8 STZY	6
B360862	SCR Z$7985M 3 X 8 STZY	9
B360862	SCR Z$7985M 3 X 8 STZY	2
B360862	SCR Z$7985M 3 X 8 STZY	1
B360862	SCR Z$7985M 3 X 8 STZY	2
B360863	SCR Z$7985M 3 X 10 STZY	5
R305915	FLTR MNS 250V 10A T6	1
R312011	EMC FGR CMP 6,6X27,7 L500	1
R313326	BSHG SN MIN.D19/16 P1,6UL	1
R3133382	SPR PCB L22,1D3,8D3,9DUAL	1
R3420091	CBLA TIE FIX 5 TM2	1
R347965	FAN A FIX RUB L37 BK	4
R347968	CBLA SAD SN LWS 11X8 P3,2	3
R347972	CBLA EDG EH18U	1
R348019	CBLA TIE B L100 W2,4 -	13
R348019	CBLA TIE B L100 W2,4 -	4
R348019	CBLA TIE B L100 W2,4 -	4
R348019	CBLA TIE B L100 W2,4 -	4
R348019	CBLA TIE B L100 W2,4 -	1
R348024	CBLA SAD SN LWS 1,6	2
R3485056	CD CT FTFT P 5 520	2
R3485083	CD CT FTFT P 8 360	1
R3485086	CD CT FTFT P 8 520	1
R3485087	CD CT FTFT P 8 600	1
R3485094	CD CT FTFT P 9 480	1
R3489533	CD MNS 2AWG18 4REC 630	1
R3489534	CD MNS 2AWG18 4REC 230	1
R349504	CD CT FTFT P 4 400	1
R349504	CD CT FTFT P 4 400	1
R3495085	CD CT FTFT P 8 450	1
R3615075	SCR HILO_R 3,2X 8,5STZB	3
R3615085	SCR HILO_R 3,2X 16 STZB	3
R3615125	SCR HILO_R 4,2X 16 STZB	2
R3615125	SCR HILO_R 4,2X 16 STZB	2
R3619145	SCR D965 M 3 X 10 STZB	2
R3620127	SCR D84 M 2,5X 6 SS	4
R3626696	SCR D921 M 3 X 8 SS	2
R3626696	SCR D921 M 3 X 8 SS	6
R3626696	SCR D921 M 3 X 8 SS	2
R3631079	SCR Z933 M 3 X 12 SS	3
R3631079	SCR Z933 M 3 X 12 SS	4
R3631249	SCR Z933 M 4 X 12 SS	2
R3631249	SCR Z933 M 4 X 12 SS	2
R3631249	SCR Z933 M 4 X 12 SS	1
R3631249	SCR Z933 M 4 X 12 SS	12
R3631249	SCR Z933 M 4 X 12 SS	2
R3631249	SCR Z933 M 4 X 12 SS	2
R3631249	SCR Z933 M 4 X 12 SS	6
R3631249	SCR Z933 M 4 X 12 SS	8
R366101	NUT D934 M 2 STZN	2
R366241	NUT D985 M 3 STZN	2
R366242	NUT D985 M 4 STZN	2
R3674391	RVT BLND_R3,2C 3,2WSTAL	5
R3674411	RVT BLND_R3,2C 6,4WSTAL	2
R3674411	RVT BLND_R3,2C 6,4WSTAL	24
R3674411	RVT BLND_R3,2C 6,4WSTAL	1
R367502	SPR D6798AD 3,2D 6 STZN	3
R367528	SPR D6798AD 2,7D 5,5 STZN	4
R367600	NUT TRAD M 3 BLOCK BRNI	2
R367615	SPR L22 M 2,5H 5 IBRNI	2
R395363	TAPE RUB CC W30X 8 BK	0,02
R395390	TAPE GLUE W12 X0,13 T150°	
R722241	G PCB G800 CNV	4
R722603	HSG G808 CNV FIX R	1
R722604	HSG G808 CNV FIX L	1
R722872	HSG G808 RCU2 CVR UP RND	1
R722873	SW D5000 KYBD TX ROUND	1
R722876	FRM G808 RCU2 FOIL3	1
R7621055	**UN *1200 INP RGB S_TRACK**	**1**
R7621706	**UN G808 SMP1 MK2**	**1**
R76226715	**UN D1209S HOR 2,7USEC**	**1**
R7622686	**UN G80* VER+S MK2**	**1**
R762501	**UN G802 FRM -UN M180**	**1**
R7625035	**UN G808 FOC+SH HDL**	**1**
R762507	**UN G808 MNS**	**1**
R7625095	**UN *808S DEF AMPL COILS**	**1**
R762510	**UN G808 RS232**	**1**
R7625115	**UN G808 CTRL 68000**	**1**
R762514	**UN G808 AST DYN**	**1**
R7625189	**UN $1208/09 CNV DVR**	**1**
R762523	**UN G808 FAN**	**1**
R762719	**UN G808S RGB INP**	**1**
R762720	**UN G808S RGB DVR**	**1**
R762722	**UN IRIS2 CTRL**	**1**
R7627455	**UN *808S DEC COMB_F /2**	**1**
R762815	**UN R*808S CNN CNV**	**1**
R762927	**UN R812HS CNN EL**	**1**
R762929	**UN R812HS G2 CNN**	**1**
R762930	**UN R812HS EHT DUMMY**	**1**
R762949	**UN D708HS EHT CNN**	**1**
R763029	**UN G808S G2+CHK BSP**	**1**
R769005	**UN R762519 CNV OUT C**	**1**
R7916721	**UN **** RCU TX WIRE2**	**1**
R803085	BTN PUSH 49R *800 MNS	1
R805084	FRM G1200 PMF SCRN5	1
R805834	FRM G808 E FRM SCRN1	1
R806631	FRM R*808 CNV SLD	1
R806632	FRM R*808 CNV SCRN	1
R809333	FRMC *808SHS EL	1
R809564	FRM D708HS CBL FIX5	1
R809565	FRM *808SHS EL CNV FR	1
V367500	SPR D6798AD 2,2D 4,5 STZN	2
Z3440520	CD SLSL 3AWG20P 3 BL 900	1
Z3485029	CD CT FTFT P 2 250	1
Z3485068	CD CT FTFT P 6 250	1
Z34860362	CD SHLD P 3 CTF CTF 1000	1
Z3486057	CD CT $FTFT P 5 1100	1
Z3486061	CD CT FTFT P 6 330	1
Z3486065	CD CT $FTFT P 6 400	3
Z348721	CD SW CT 2AWG26 P2 350	1
Z3487701	CD SL SL 10AWG20P 12 350	3
Z349010	CD SPSP 9AWG24P 9 RD 350	3
Z3496636	CD HV20K 22ST 2SCK 650	1
Z3499091	CD SLSL 10AWG20P11 WH 70	1

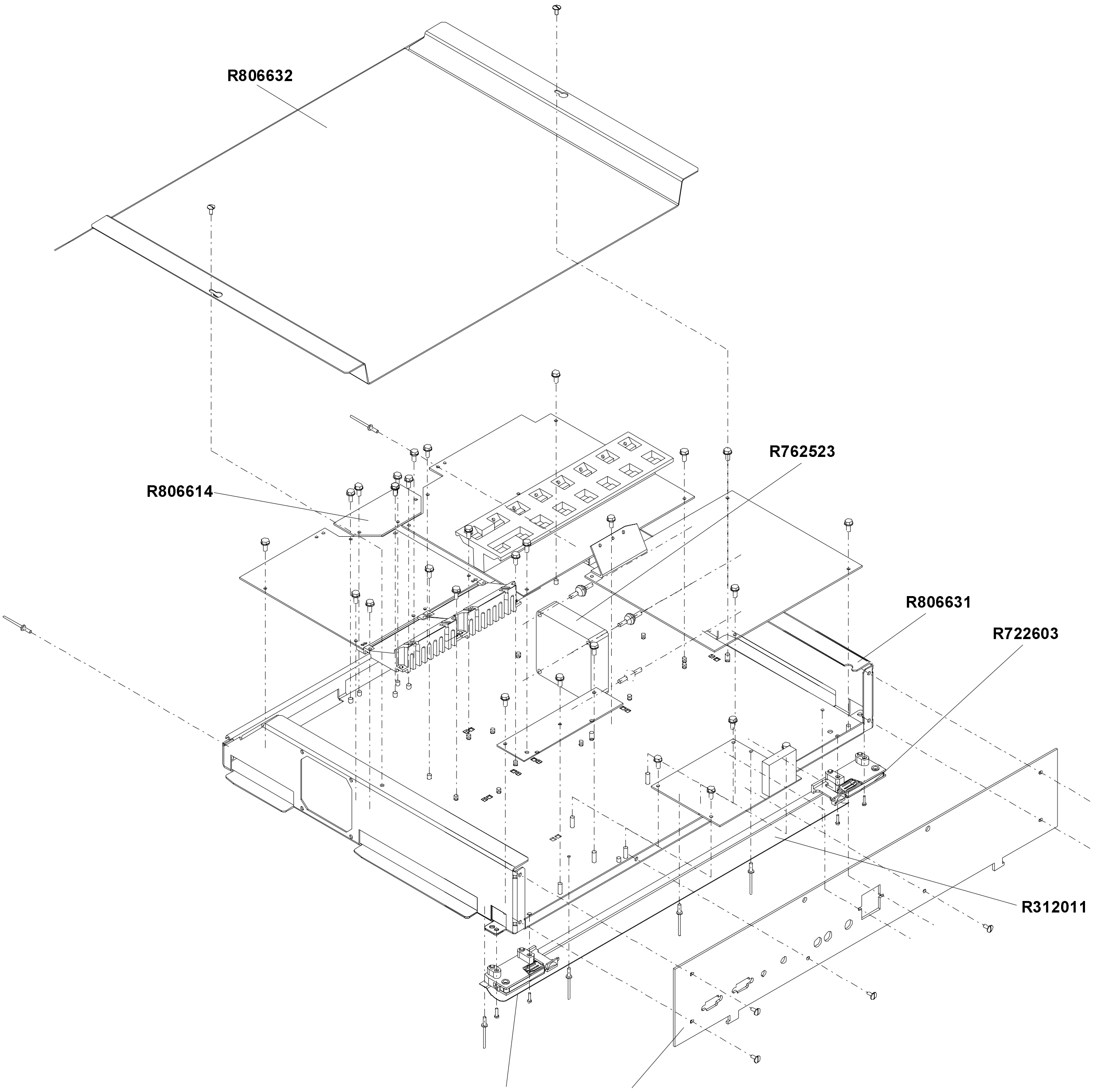
Spare parts Frame R762502

SIT.	ITEM NO.	DESCRIPTION	QUANTITY
	R342007	CBLU FLEXF.P12 R2,54 41	6
	R348019	CBLA TIE B L100 W2,4 -	6
	R367435	RVT BLND_R2,4C 6,4 ALAL	6
	R367462	RVT BLND_R2,4C 4,8 STAL	31
	Z34303626	CBLU COA RG178 BU 50E 260	1
	Z34303695	CBLU COA RG178 BU 50E 195	1
C 1	R111164	C EL AX1000M T 25E14 85	1
C 2	R111164	C EL AX1000M T 25E14 85	1
C 3	R111164	C EL AX1000M T 25E14 85	1
C 4	R111164	C EL AX1000M T 25E14 85	1
C709	R112763	C CE MI 10N Z 63E2 85	1
C710	R112763	C CE MI 10N Z 63E2 85	1
C711	R112763	C CE MI 10N Z 63E2 85	1
C712	R112763	C CE MI 10N Z 63E2 85	1
C713	R112763	C CE MI 10N Z 63E2 85	1
C714	R112763	C CE MI 10N Z 63E2 85	1
C715	R1137121	C POMERA 10N K250E2 85	1
C788	R1137121	C POMERA 10N K250E2 85	1
C789	R1137121	C POMERA 10N K250E2 85	1
C790	R1137121	C POMERA 10N K250E2 85	1
C791	R1137121	C POMERA 10N K250E2 85	1
C792	R1137121	C POMERA 10N K250E2 85	1
C806	R112098	C CE DI 470P M250E5 Y1	1
C807	R112098	C CE DI 470P M250E5 Y1	1
D 1	R131674	D LED D5 T RD/GN	1
D 2	R131646	D R 1N4007 10201A DO41	1
J	R3133921	J MD SHUNT F P2 E1SN I RD	7
J 11	R3135015	J DE P8 FBS P 9 FUMBLPGDB	1
J 15	B332142	J BNC FBS P5 SHLD SIP	1
J 16	B332143	J BNC FBS P2 SHLD SIP	1
J 1A	R313530	J*EUR2R FBS P64 E1C3S 1,6	1
J 1B	R313530	J*EUR2R FBS P64 E1C3S 1,6	1
J 23	R3134685	J MTA MBT P12 M3,96 FL RO	1
J 24	R3134685	J MTA MBT P12 M3,96 FL RO	1
J 26	R3134685	J MTA MBT P12 M3,96 FL RO	1
J 28	Z3484085	CD CT FTMT P 8 520	1
J 29	R3485079	CD CT FTMT P 7 380	1
J 2A	R313526	J EUR2C FBT P64 E1C2S 1,6	1
J 2B	R313526	J EUR2C FBT P64 E1C2S 1,6	1
J 30	R3485063	CD CT FTMT P 6 420	1
J 31	R3485054	CD CT FTMT P 5 520	1
J 33	R3135005	J DE P8 MBS P 9 FUMBLPGDB	1
J 36	R313924	J CT H MBT P 4 M2SN WH	1
J 37	R313572	J MT MBT P 3 R1 FL BK	1
J 38	R313572	J MT MBT P 3 R1 FL BK	1
J 3A	R313526	J EUR2C FBT P64 E1C2S 1,6	1
J 3B	R313526	J EUR2C FBT P64 E1C2S 1,6	1
J 4A	R313526	J EUR2C FBT P64 E1C2S 1,6	1
J 4B	R313526	J EUR2C FBT P64 E1C2S 1,6	1
J 50	R313851	J CIRC A FBS P 4 MDIN MS	1
J 51	R313851	J CIRC A FBS P 4 MDIN MS	1
J 5A	R313526	J EUR2C FBT P64 E1C2S 1,6	1
J 6A	R313526	J EUR2C FBT P64 E1C2S 1,6	1
J 6B	R313526	J EUR2C FBT P64 E1C2S 1,6	1
J 7A	R313526	J EUR2C FBT P64 E1C2S 1,6	1
J 7B	R313526	J EUR2C FBT P64 E1C2S 1,6	1
J 8A	R314069	J EUR3C FBT P96 E1C2S 2,5	1
J 8B	R313526	J EUR2C FBT P64 E1C2S 1,6	1
J 9A	R313526	J EUR2C FBT P64 E1C2S 1,6	1
J10A	R313526	J EUR2C FBT P64 E1C2S 1,6	1
J10B	R313526	J EUR2C FBT P64 E1C2S 1,6	1
J132	R313926	J CT H MBT P 6 M2SN WH	1
J133	R34840931	CD CT $FTMT P 9 340	1
J134	R313926	J CT H MBT P 6 M2SN WH	1
J135	R34840931	CD CT $FTMT P 9 340	1
J137	R34840931	CD CT $FTMT P 9 340	1
J138	R313926	J CT H MBT P 6 M2SN WH	1
J148	R313526	J EUR2C FBT P64 E1C2S 1,6	1
J150	R3136078	J MTA MBT P 8 M3,96 FL RO	1
J500	R312934	J TAB1 MBT H6,3S0,8 BZ	1
J501	R312934	J TAB1 MBT H6,3S0,8 BZ	1
J534	R314079	J SP MBT P 9 R1	1
J535	R314079	J SP MBT P 9 R1	1
J536	R314079	J SP MBT P 9 R1	1
J600	V3136081	J MTA MBT P11 M3,96 FL RO	1
J601	R313572	J MT MBT P 3 R1 FL BK	1
J706	R312934	J TAB1 MBT H6,3S0,8 BZ	1
J707	R312934	J TAB1 MBT H6,3S0,8 BZ	1
J734	Z34227200	WU UL1015 AWG20 ST RD 305	1
J735	Z34227635	WU UL1015 AWG20 ST BL 350	1
J737	R34302427	CBLU COA RG179 BU 75E 270	1
J741	R34302439	CBLU COA RG179 BU 75E 390	1
J747	R34302418	CBLU COA RG179 BU 75E 180	1
J748	R313530	J*EUR2R FBS P64 E1C3S 1,6	1
J750	R313607	J MTA MBT P 3 M3,96 FL RO	1
J776	R313607	J MTA MBT P 3 M3,96 FL RO	1
J780	R34303680	CBLU COA RG178 BU 50E 800	1
J781	R3132862	J MD1 C MBT P 2 E1SN 6,7	1
J782	R3132862	J MD1 C MBT P 2 E1SN 6,7	1
J783	R3132862	J MD1 C MBT P 2 E1SN 6,7	1
J784	R3132862	J MD1 C MBT P 2 E1SN 6,7	1
J785	R3132862	J MD1 C MBT P 2 E1SN 6,7	1
J786	R3132862	J MD1 C MBT P 2 E1SN 6,7	1
J787	R3132862	J MD1 C MBT P 2 E1SN 6,7	1
J900	R313927	J CT H MBT P 7 M2SN WH	1
J901	R313928	J CT H MBT P 8 M2SN WH	1
J902	R313925	J CT H MBT P 5 M2SN WH	1
PC	R780381	PCB G808 FRM	1
R 1	V1026844	R MF H 75E F 0W6 E4	1
R 2	V1026844	R MF H 75E F 0W6 E4	1
R 3	V1026655	R MF H475E F 0W6 E4	1
R 4	V1026844	R MF H 75E F 0W6 E4	1
R 5	V1026425	R MF H274E F 0W6 E4	1
R812	V1026507	R MF H 33K2 F 0W6 E4	1
S 1	R3247155	SW MNS NE18 2C	1
S 2	R3247155	SW MNS NE18 2C	1
S 3	R324793	SW MNS NE18 2C/2C	1
S 4	R324791	SW F 8C	1
S 5	R324251	SW SLD JSA 1C BS H 6	1
S 6	R324252	SW SLD JSA 2C BS H 6	1
S142	R324792	SW MNS JPZ 2A TV5 BS	1
W 43	R348102	WU JUMP 0,6 7,5	1

Spare parts Frame R762501

ITEM NO.	DESCRIPTION	QUANTITY
R3131302	J MNS MCT 10A TAB6,3 S UL	1
R313326	BSHG SN MIN.D19/16 P1,6UL	1
R34546008	CD REC6REC6 1672G22BK 80	1
R34546908	CD REC6REC6 1672G22WH 80	1
R347965	FAN A FIX RUB L37 BK	8
R347965	FAN A FIX RUB L37 BK	4
R347968	CBLA SAD SN LWS 11X8 P3,2	2
R347972	CBLA EDG EH18U	1
R3626696	SCR D921 M 3 X 8 SS	2
R3631069	SCR Z933 M 3 X 10 SS	1
R3661036	NUT D934 M 4 SS	2
R3674411	RVT BLND_R3,2C 6,4WSTAL	7
R3674411	RVT BLND_R3,2C 6,4WSTAL	2
R367503	SPR D6798AD 4,3D 8 STZN	3
R724031	NUT TRAD M 3 EDGE PLBK	1
R761740	CDS FAN PJ49 G800 L100	2
R761740	CDS FAN PJ49 G800 L100	1
R762502	UN G802 FRM CNN M180	1
R805807	FRMC G808 E FRM	1
R805841	FRM G808 FIX FAN	1
Z3420006	CD REC6RNG4 1015G18YG 180	1





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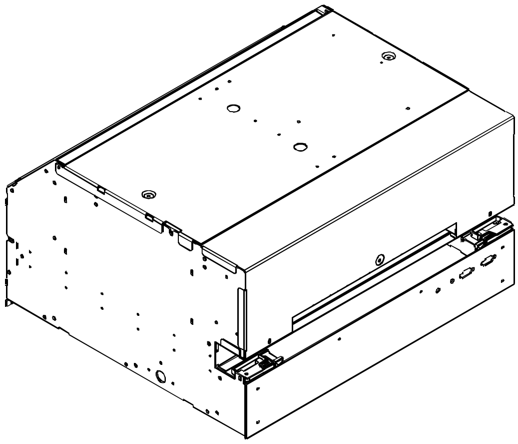
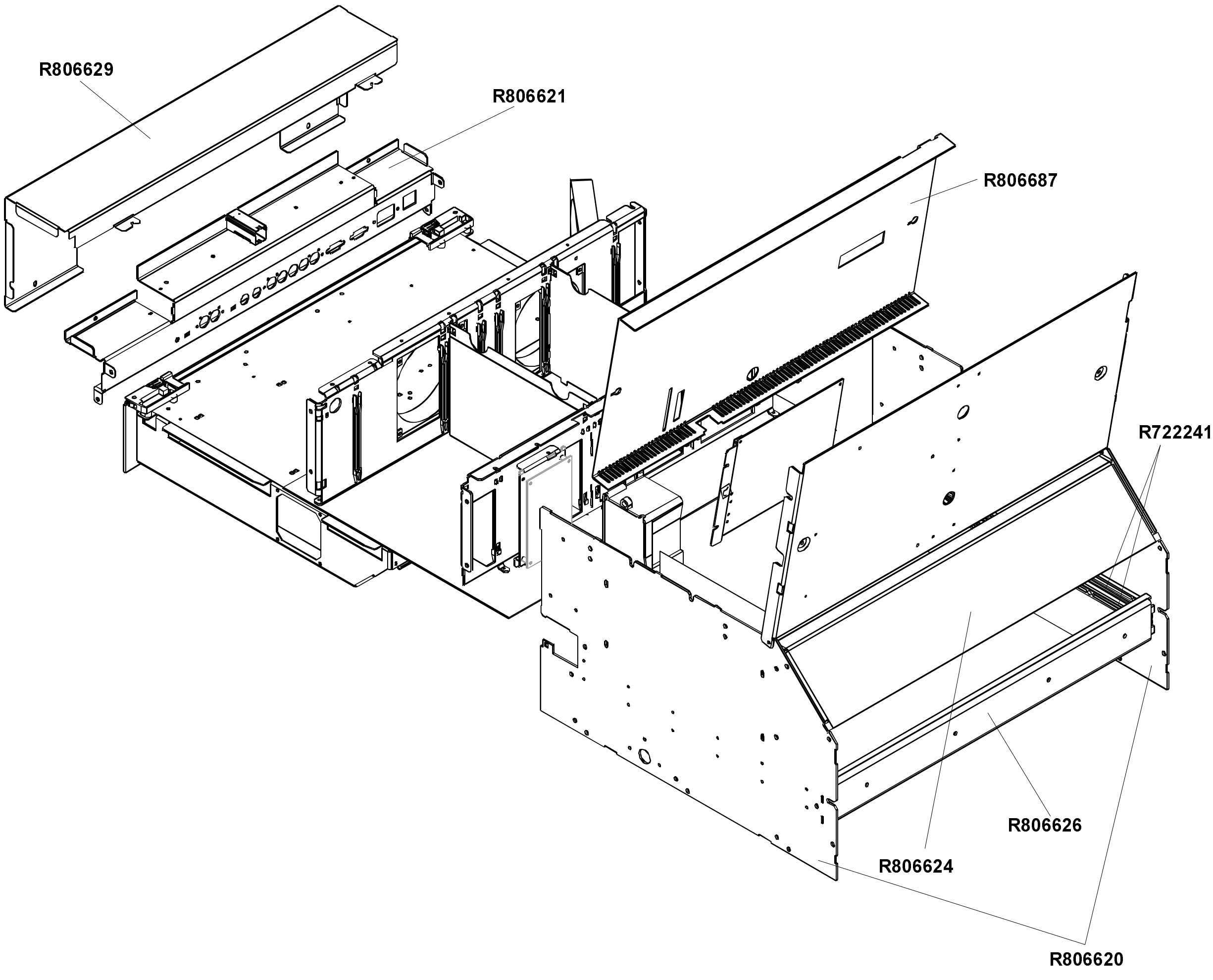
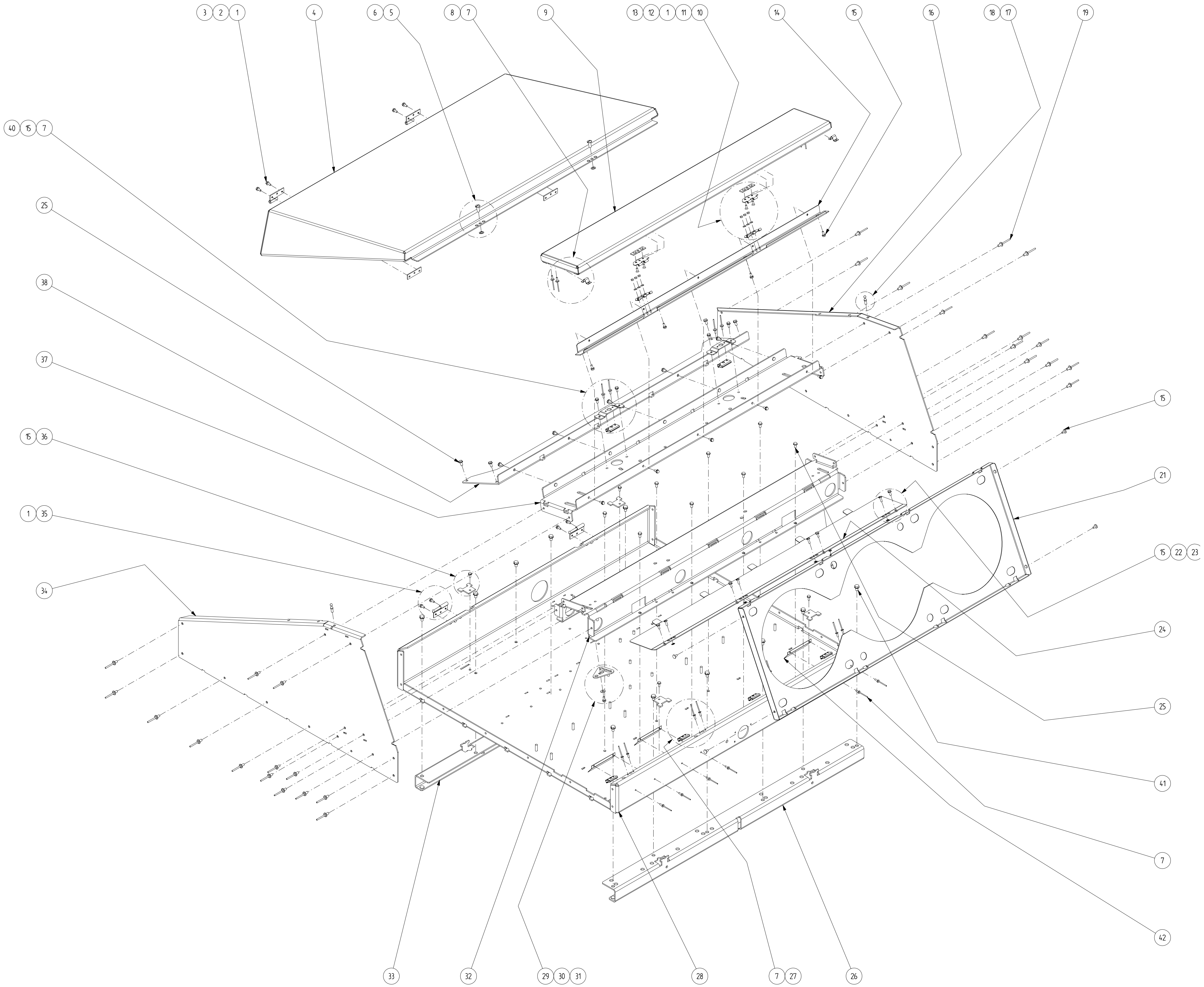
R722603
R312011
R722604
R806634

Frame cpl R762501







Nr.	Art.Nr.	Aa
1	R3619245	
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3	R811962	
4	R811938	
5	R3670861	
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7	R367456	
8	B360530	
9	R811935	
10	R811963	
11	R805567	
12	R366242	
13	R367378	
14	R811949	
15	R3631239	
16	R811940	
17	B360840	
18	R367379	
19	B360440	
20	-------	
21	R811945	
22	R367612	
23	R367613	
24	R811942	
25	R3631459	
26	R811946	
27	R367491	
28	R811939	
29	V3673776	
30	R3631219	
31	R811956	
32	R811943	
33	R811947	
34	R811941	
35	R3580621	
36	R811954	
37	R811944	
38	R811948	
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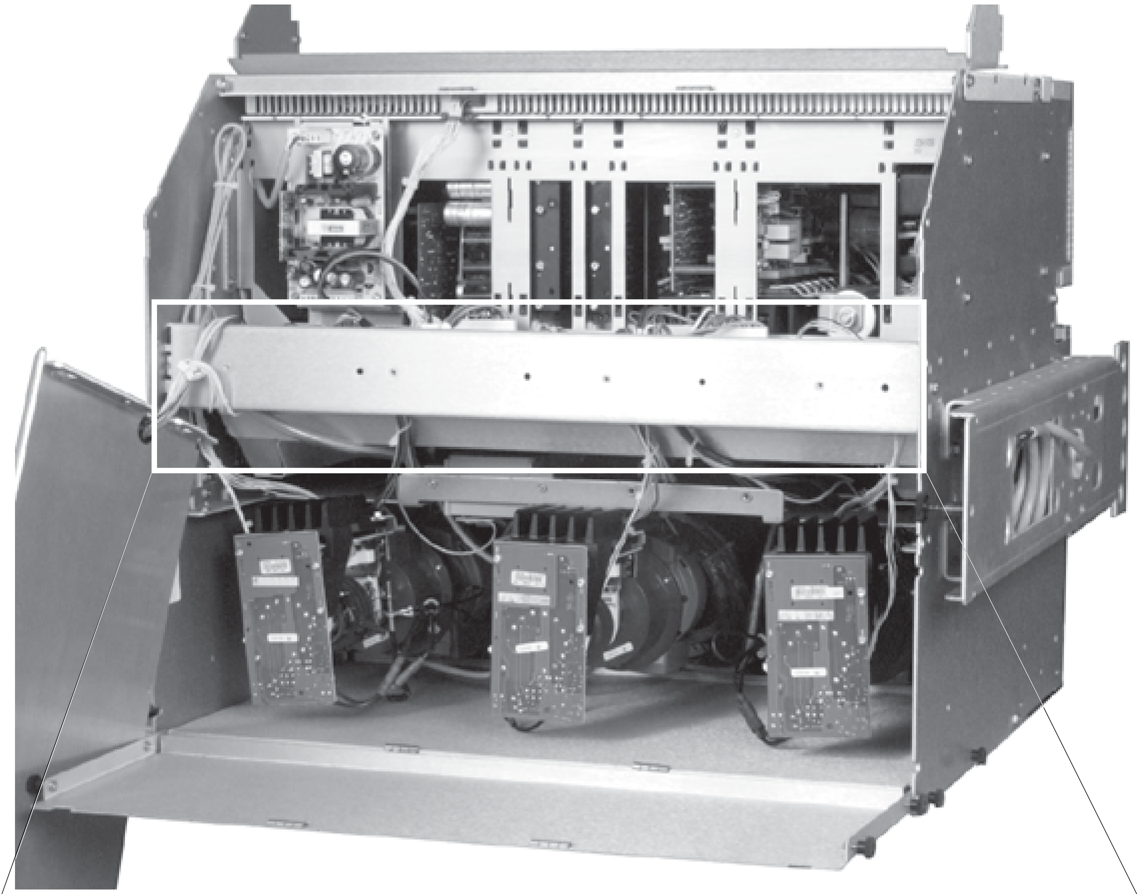
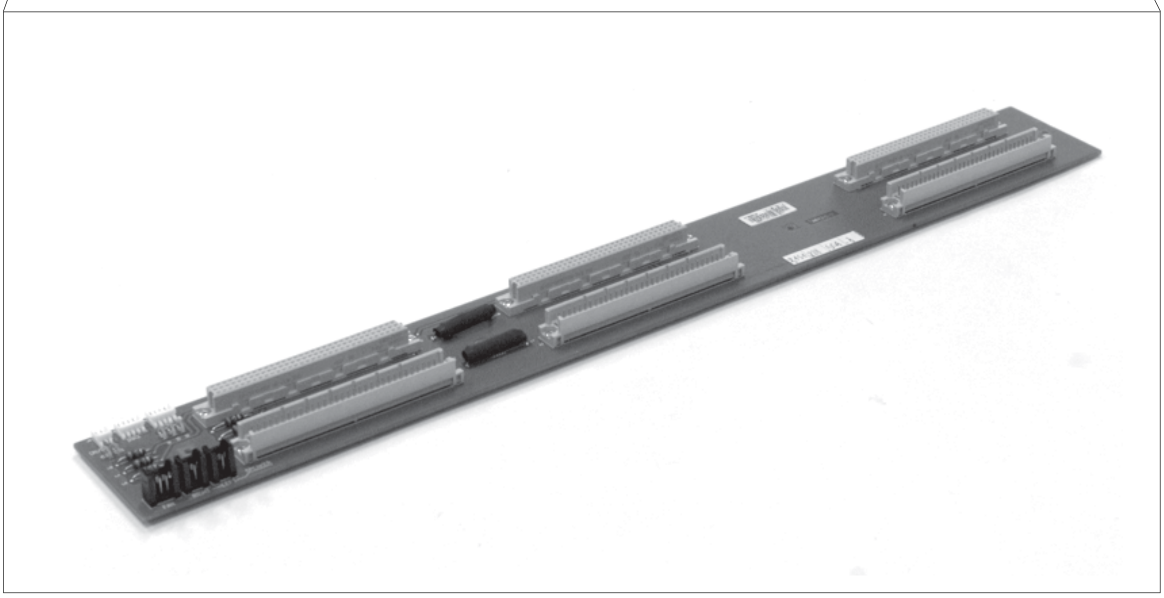
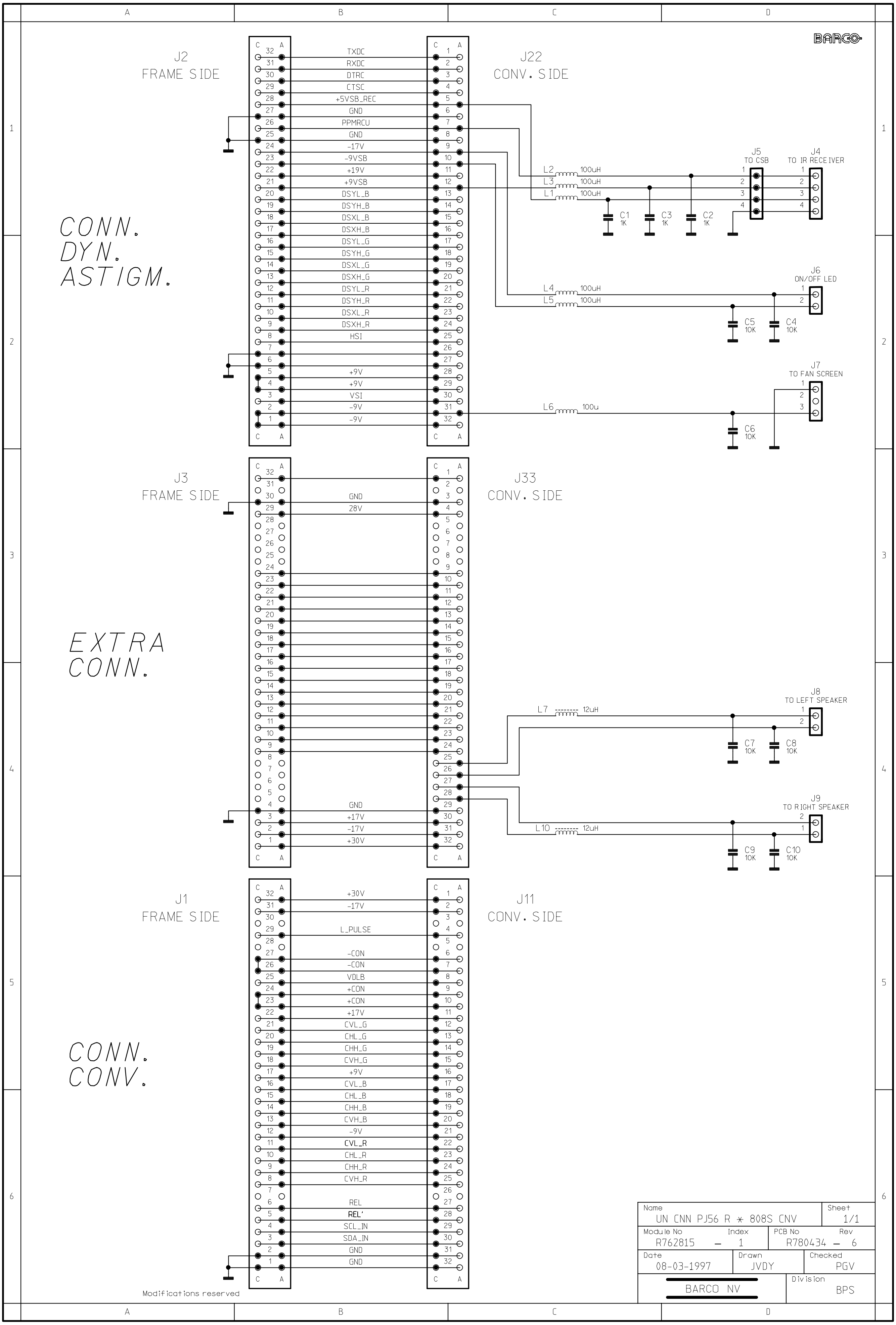
40	R811950	
41	R3631669	
42	R800996	

R812HS_1.dsf

Frame/Convergence Connection module R762815






BARCO
J2
FRAME SIDE
J22
CONV. SIDE
CONN.
DYN.
ASTIGM.
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RXDC
DTRC
CTSC
+5VSB_REC
GND
PPMRCU
GND
-17V
-9VSB
+19V
+9VSB
DSYL_B
DSYH_B
DSXL_B
DSXH_B
DSYL_G
DSYH_G
DSXL_G
DSXH_G
DSYL_R
DSYH_R
DSXL_R
DSXH_R
HSI
+9V
+9V
VSI
-9V
-9V
J5
TO CSB
J4
TO IR RECEIVER
L2 100uH
L3 100uH
L1 100uH
C1 1K
C3 1K
C2 1K
J6
ON/OFF LED
L4 100uH
L5 100uH
C5 10K
C4 10K
J7
TO FAN SCREEN
L6 100u
C6 10K
J3
FRAME SIDE
J33
CONV. SIDE
EXTRA
CONN.
GND
28V
J8
TO LEFT SPEAKER
L7 12uH
C7 10K
C8 10K
J9
TO RIGHT SPEAKER
L10 12uH
C9 10K
C10 10K
GND
+17V
-17V
+30V
J1
FRAME SIDE
J11
CONV. SIDE
CONN.
CONV.
+30V
-17V
L_PULSE
-CON
-CON
VDLB
+CON
+CON
+17V
CVL_G
CHL_G
CHH_G
CVH_G
+9V
CVL_B
CHL_B
CHH_B
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-9V
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CHL_R
CHH_R
CVH_R
REL
REL'
SCL_IN
SDA_IN
GND
GND
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1/1
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R762815
Index
– 1
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Rev
– 6
Date
08-03-1997
Drawn
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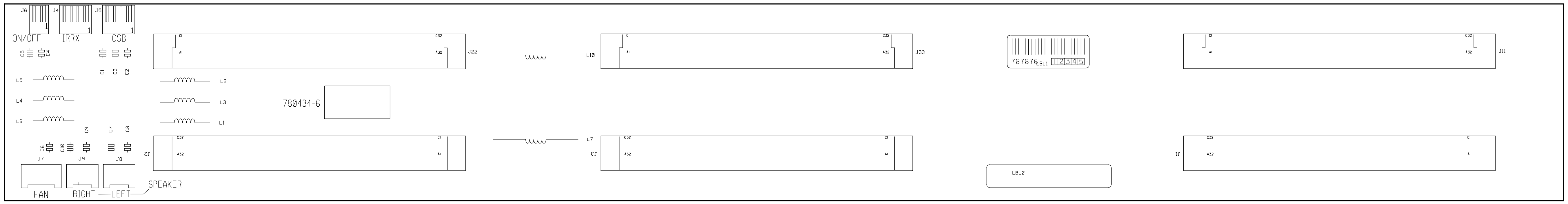
PGV
BARCO NV
Division
BPS



Modifications reserved

Name			Sheet
CONN.UNIT FRAME WITH CONV			1 / 1
Module No R762815	Index 1	PCB No R780434	Rev 6
Date 30-04-1998	Drawn JVDY		Checked PGV

BARCO PROJECTION SYSTEMS

Part listing Local Keypad R762815

SIT.	ITEM NO.	DESCRIPTION	QUANTITY
	R367462	RVT BLND_R2,4C 4,8 STAL	12
C 1	R112739	C CE MI 1N K100E2	1
C 2	R112739	C CE MI 1N K100E2	1
C 3	R112739	C CE MI 1N K100E2	1
C 4	R112763	C CE MI 10N Z 63E2 85	1
C 5	R112763	C CE MI 10N Z 63E2 85	1
C 6	R112763	C CE MI 10N Z 63E2 85	1
C 7	R112763	C CE MI 10N Z 63E2 85	1
C 8	R112763	C CE MI 10N Z 63E2 85	1
C 9	R112763	C CE MI 10N Z 63E2 85	1
C 10	R112763	C CE MI 10N Z 63E2 85	1
J 1	R313529	J EUR2R MBT P64 E1C2S 2,5	1
J 2	R313529	J EUR2R MBT P64 E1C2S 2,5	1
J 3	R313529	J EUR2R MBT P64 E1C2S 2,5	1
J 4	R313944	J CT H MBS P 4 M2SN WH	1
J 5	R313944	J CT H MBS P 4 M2SN WH	1
J 6	R313942	J CT H MBS P 2 M2SN WH	1
J 7	R313572	J MT MBT P 3 R1 FL BK	1
J 8	R313584	J MT I MBT P 2 R1 BK	1
J 9	R313584	J MT I MBT P 2 R1 BK	1
J 11	R313526	J EUR2C FBT P64 E1C2S 1,6	1
J 22	R313526	J EUR2C FBT P64 E1C2S 1,6	1
J 33	R313526	J EUR2C FBT P64 E1C2S 1,6	1
L 1	R3061341	CH AX NS 100 UH	1
L 2	R3061341	CH AX NS 100 UH	1
L 3	R3061341	CH AX NS 100 UH	1
L 4	R3061341	CH AX NS 100 UH	1
L 5	R3061341	CH AX NS 100 UH	1
L 6	R3061341	CH AX NS 100 UH	1
L 7	R305913	CH MNS AX NS 12 UH 3A	1
L 10	R305913	CH MNS AX NS 12 UH 3A	1
PC	R780434	PCB RG808 CNV CNN	1

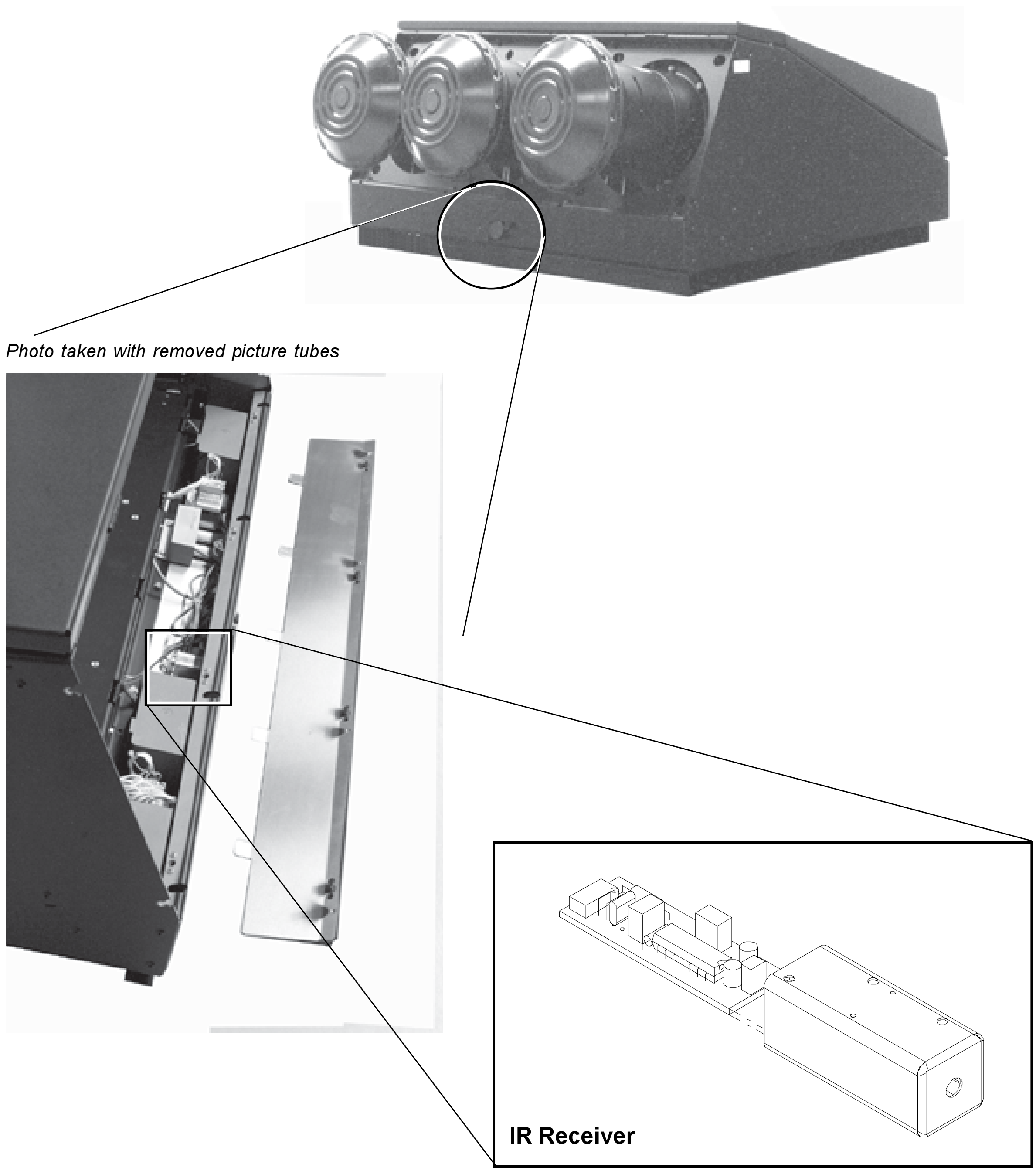
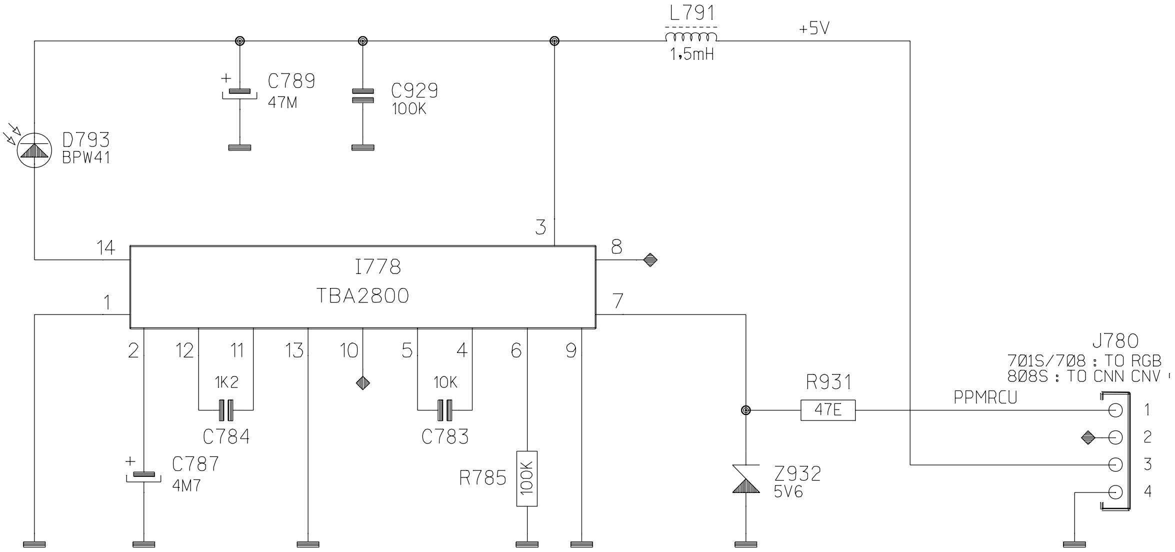
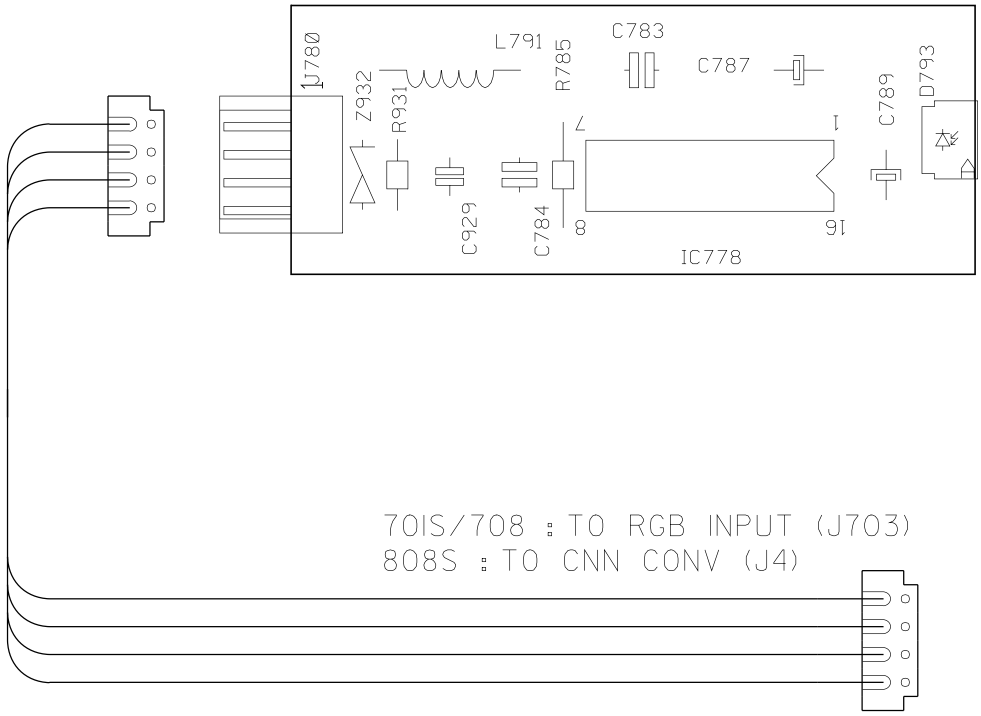


Photo taken with removed picture tubes
IR Receiver

BARCO





Name: INFRA RED RECEIVER			Sheet: 1 / 1
Module No: R762215	Index: 0	PCB No: R780185	Rev: 6
Date: 13-01-1998	Drawn: JVDY	Checked: SCG	

BARCO PROJECTION SYSTEMS

Modifications reserved

TBA2800 Infrared Preamplifier IC (14-Pin Plastic Package TO-116)

Bipolar integrated circuit intended as a receiver preamplifier for the infrared-remote control systems designed with the SAA1250 integrated circuit.

The TBA2800 preamplifier IC contains four main parts:

- Gain-controlled amplifier I
- Amplifier II
- Pulse-separating amplifier III and
- Inverter IV

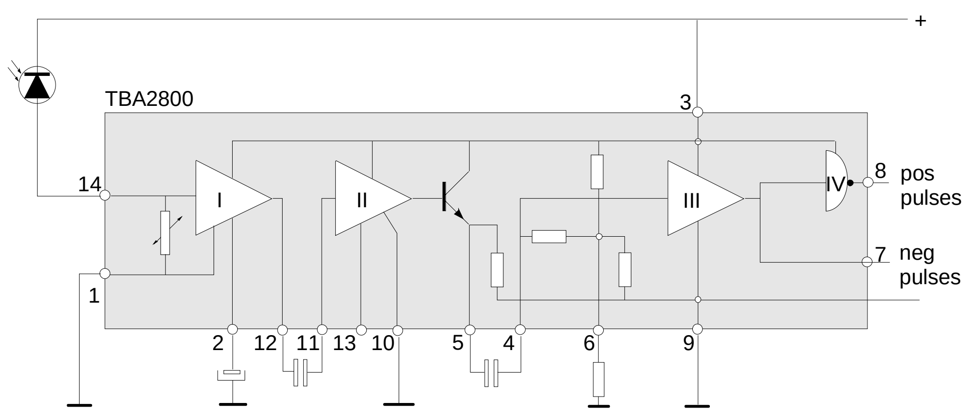
Amplifier I has a wide dynamic range and thus ensures interference-free operation, even at bright ambient light or at intensive infrared light as it comes from infrared sound transmissions or at bright 50 Hz modulated lights as it originates from fluorescent lamps.

It is also possible for the remote-control transmitter to be near the receiver without causing malfunctions by overdriving the receiver.

Amplifier II further amplifies the signal, and amplifier III separates the pulse-shaped intelligence signal from noise and other unwanted parts.

The additional inverter IV inverts the negative output pulses at pin 7 and thus delivers positive output pulses at pin 8.

If an additional resistor is inserted between pin 6 and GND, noise immunity is increased. But this is accompanied by decrease in sensitivity.

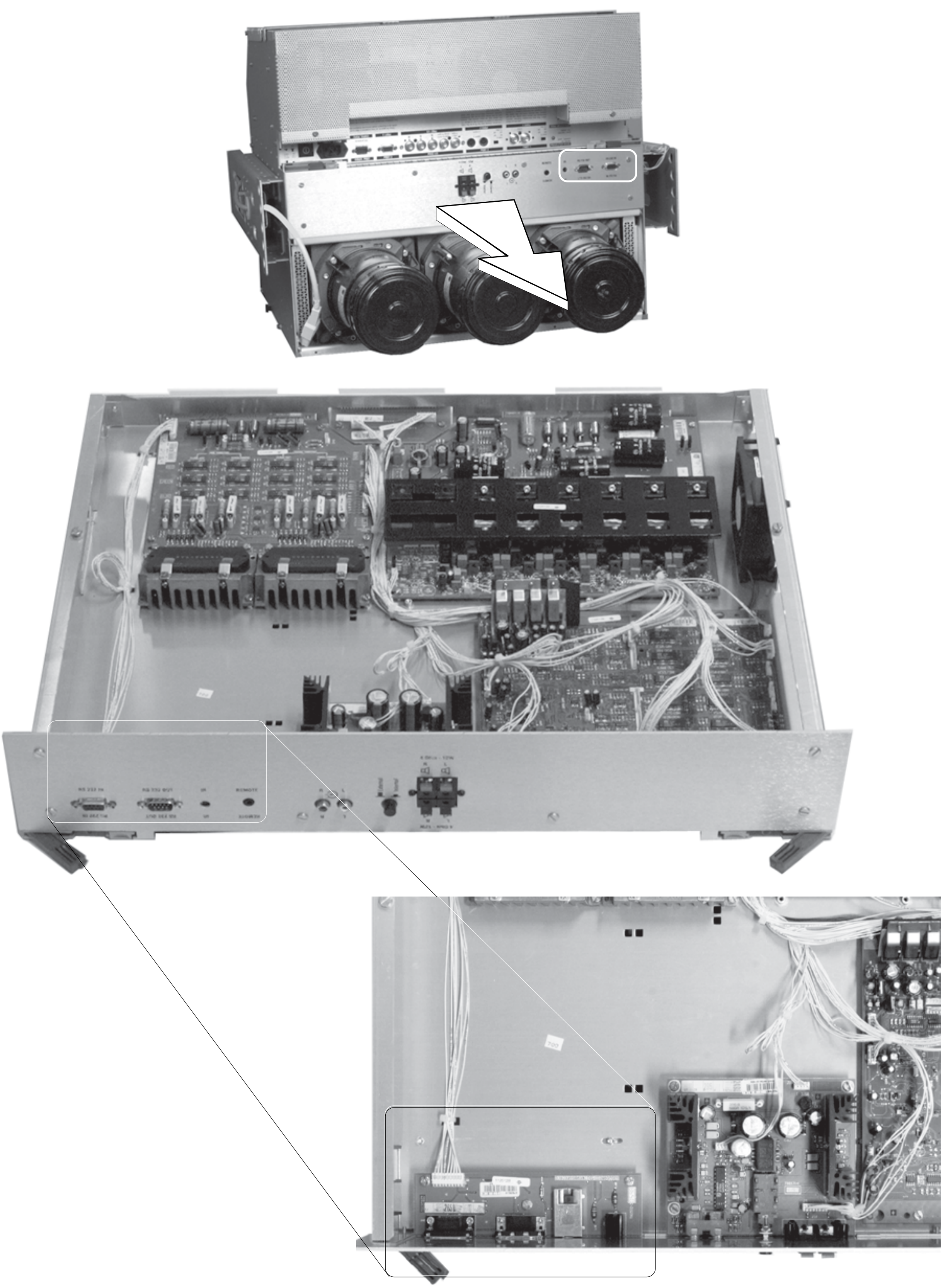


IR Receiver Module module R762215

Parts listing R762215

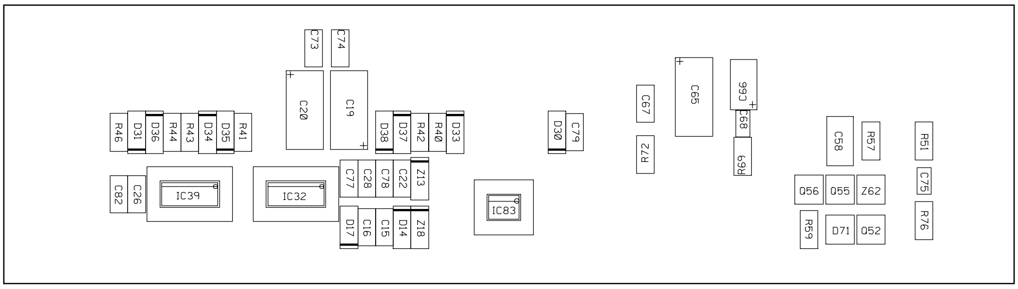
SIT.	ITEM NO.	DESCRIPTION
30	R315303	J REC FA T2,8 W0,2-0,35 A
4100	R803723	FRM V700 RX IR SCRN
C783	R115940	C PP RA 10N J 63E2 85
C784	R1159181	C PP RA 1N2J100E2 85
C787	R1115915	C EL5 RA 4M7M 35E2 85
C789	R111476	C EL RA 47M M 25E2 85
C929	R1127741	C Z5U MU 100N Z 50E2 85
D793	R131681	D O BPW41N PIN
I778	R132824	U 2800 TBA DIP14 P
J780	R313944	J CT H MBS P 4 M2SN WH
L791	R3061582	CH AX NS 1.5 MH
R785	R101560	R MF H100K F 0W4 E3
R931	R101520	R MF H 47E F 0W4 E3
Z932	R131744	D ZEN 5V6 OW5 C D035

IR+RS 232 Communication module R762510

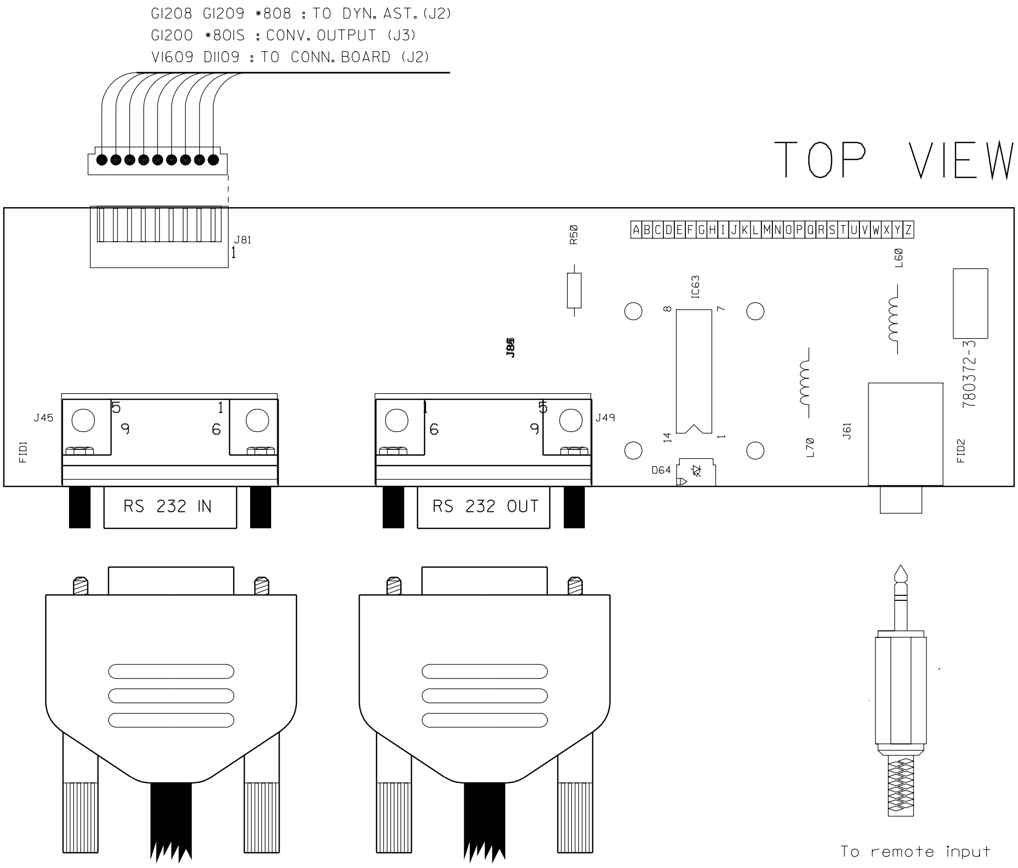


BARCO

BOTTOM VIEW



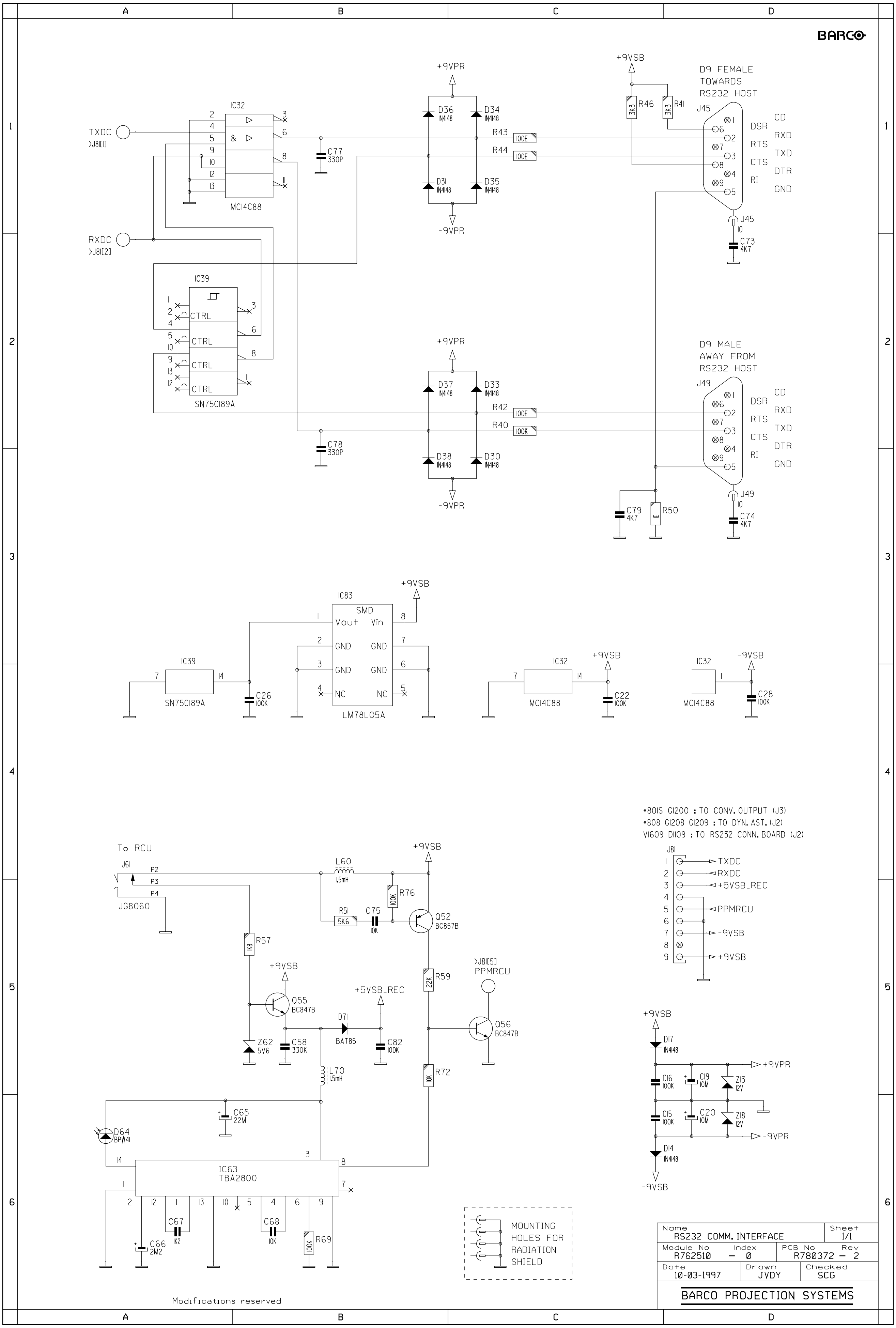
TOP VIEW

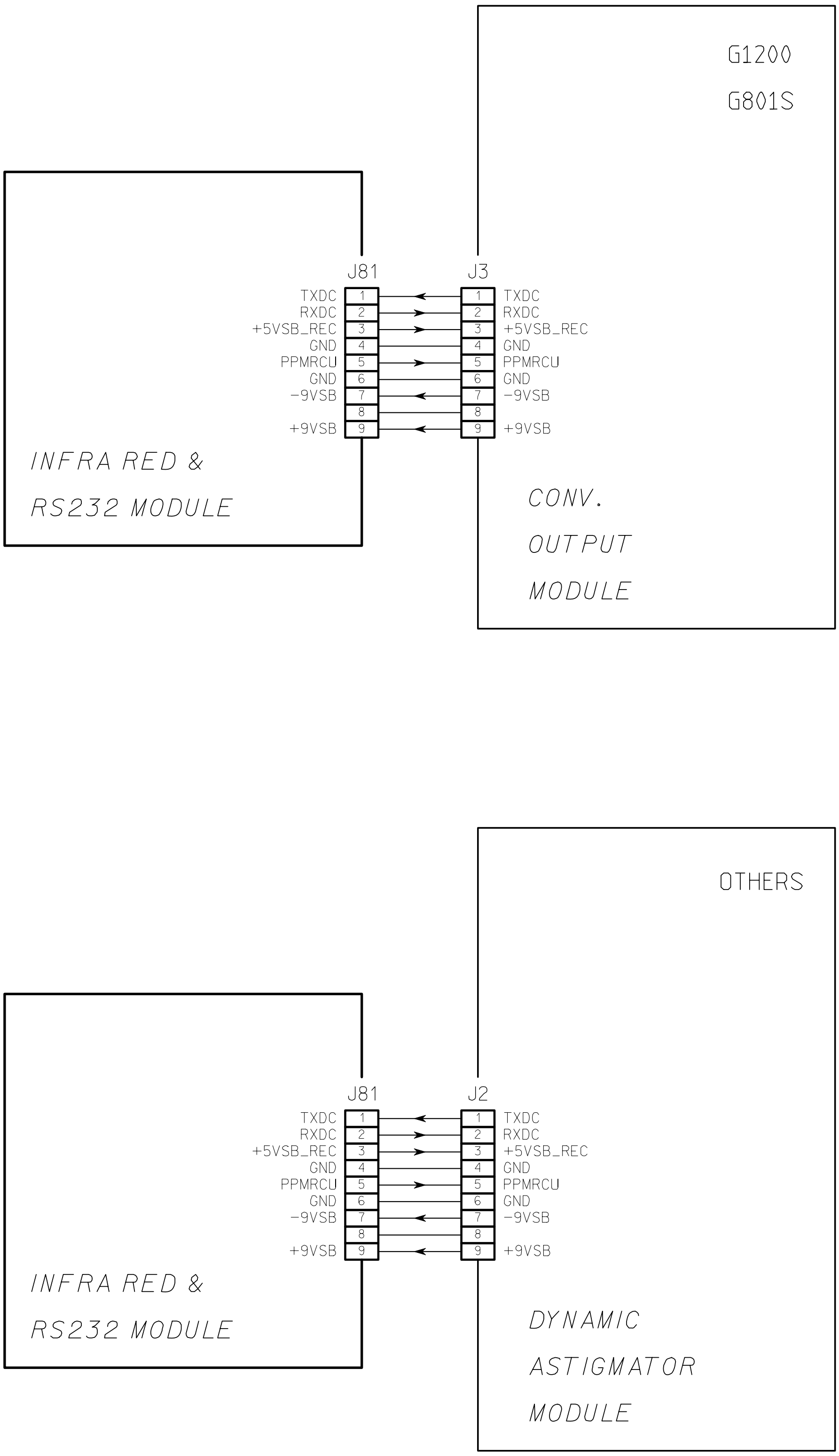


Name			Sheet
RS232 COMMUNICATION			
Module No R762510	Index — 0	PCB No R780372	Rev — 2
Date 22-10-1997	Drawn JVDY	Checked SCG	

BARCO PROJECTION SYSTEMS

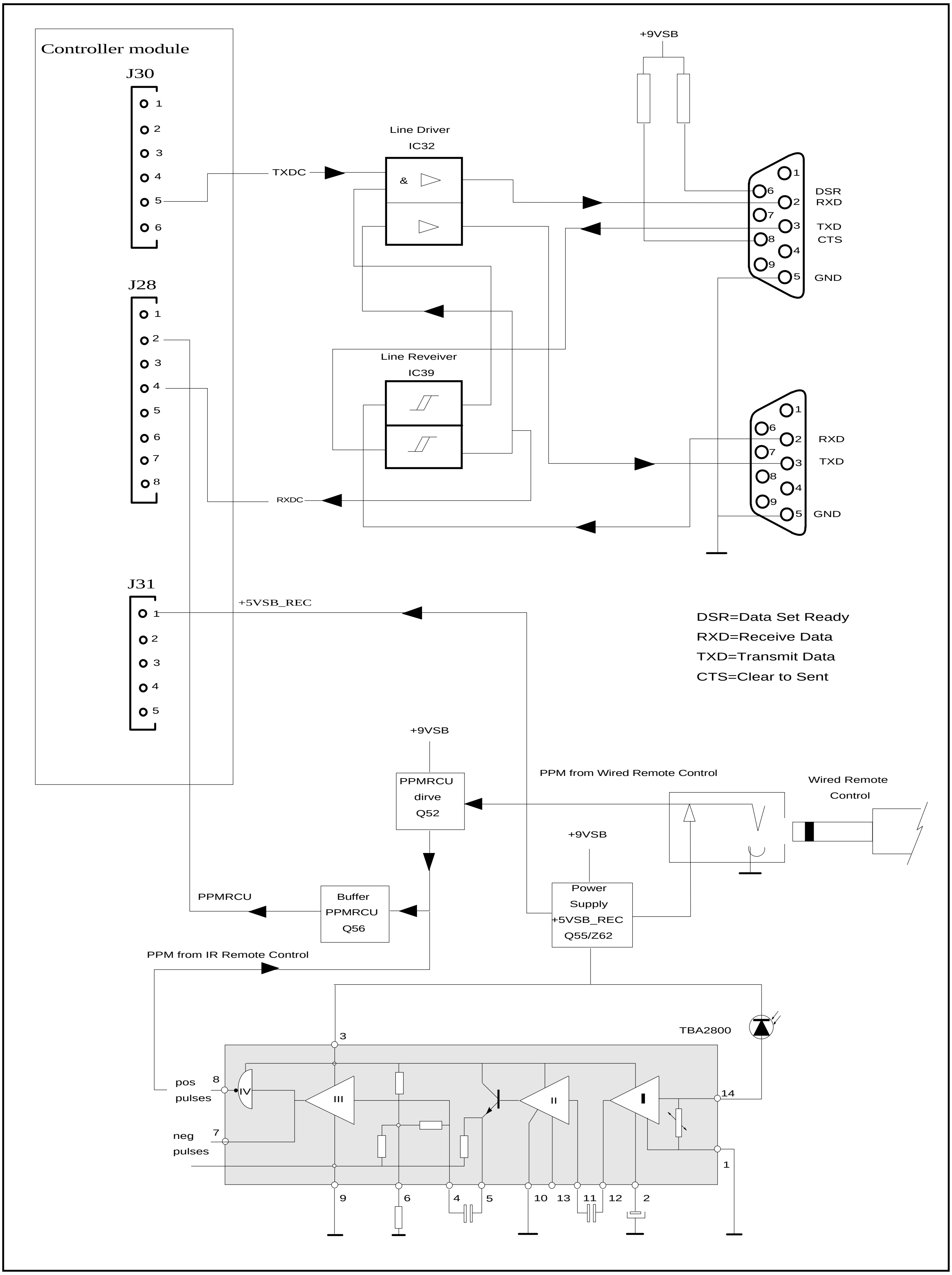
Modifications reserved


BARCO
+9VPR
-9VPR
+9VSB
-9VSB
D9 FEMALE
TOWARDS
RS232 HOST
J45
CD
DSR
RXD
RTS
TXD
CTS
DTR
RI
GND
TXDC
>J81[1]
RXDC
>J81[2]
IC32
MC14C88
IC39
CTRL
SN75C189A
R43
R44
R42
R40
100E
100K
R46
R41
3K3
C77
330P
C78
330P
D36
D34
D31
D35
D37
D33
D38
D30
1N4148
C73
4K7
D9 MALE
AWAY FROM
RS232 HOST
J49
C74
4K7
C79
4K7
R50
IC83
SMD
Vout
Vin
GND
NC
LM78L05A
C26
100K
C22
100K
C28
100K
•801S G1200 : TO CONV. OUTPUT (J3)
•808 G1208 G1209 : TO DYN. AST. (J2)
V1609 D1109 : TO RS232 CONN. BOARD (J2)
J81
TXDC
RXDC
+5VSB_REC
PPMRCU
-9VSB
+9VSB
To RCU
J61
JG8060
P2
P3
P4
L60
1.5mH
R76
100K
R51
5K6
C75
10K
Q52
BC857B
R57
1K8
Q55
BC847B
+5VSB_REC
D71
BAT85
C82
100K
R59
22K
>J81[5]
PPMRCU
Q56
BC847B
Z62
5V6
C58
330K
L70
1.5mH
R72
10K
D64
BPW41
C65
22M
IC63
TBA2800
C66
2M2
C67
1K2
C68
10K
R69
100K
D17
1N4148
C16
100K
C19
10M
Z13
12V
C15
100K
C20
10M
Z18
12V
D14
1N4148
+9VPR
-9VPR
MOUNTING
HOLES FOR
RADIATION
SHIELD
Name
RS232 COMM. INTERFACE
Sheet
1/1
Module No
R762510
Index
0
PCB No
R780372
Rev
2
Date
10-03-1997
Drawn
JVDY
Checked
SCG
BARCO PROJECTION SYSTEMS
Modifications reserved



Name: RS232 COMM. INTERFACE			Sheet: 1/1
Module No: R762510	Index: 0	PCB No: R780372	Rev: 2
Date: 31-10-1997	Drawn: JVDY		Checked: SCG
BARCO NV			Division: BPS

Modifications reserved



Controller module
J30
J28
J31
TXDC
RXDC
+5VSB_REC
Line Driver
IC32
Line Reveiver
IC39
+9VSB
DSR
RXD
TXD
CTS
GND
DSR=Data Set Ready
RXD=Receive Data
TXD=Transmit Data
CTS=Clear to Sent
PPMRCU
dirve
Q52
PPM from Wired Remote Control
Wired Remote
Control
Power
Supply
+5VSB_REC
Q55/Z62
PPMRCU
Buffer
PPMRCU
Q56
PPM from IR Remote Control
TBA2800
pos
pulses
neg
pulses

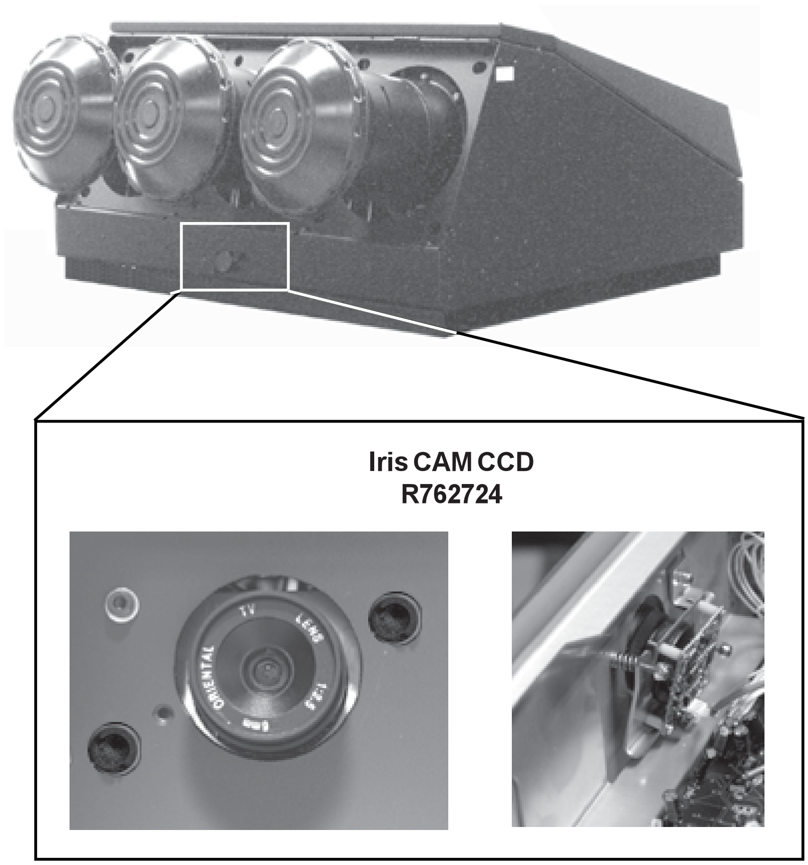
IR+RS 232 Communication module R762510

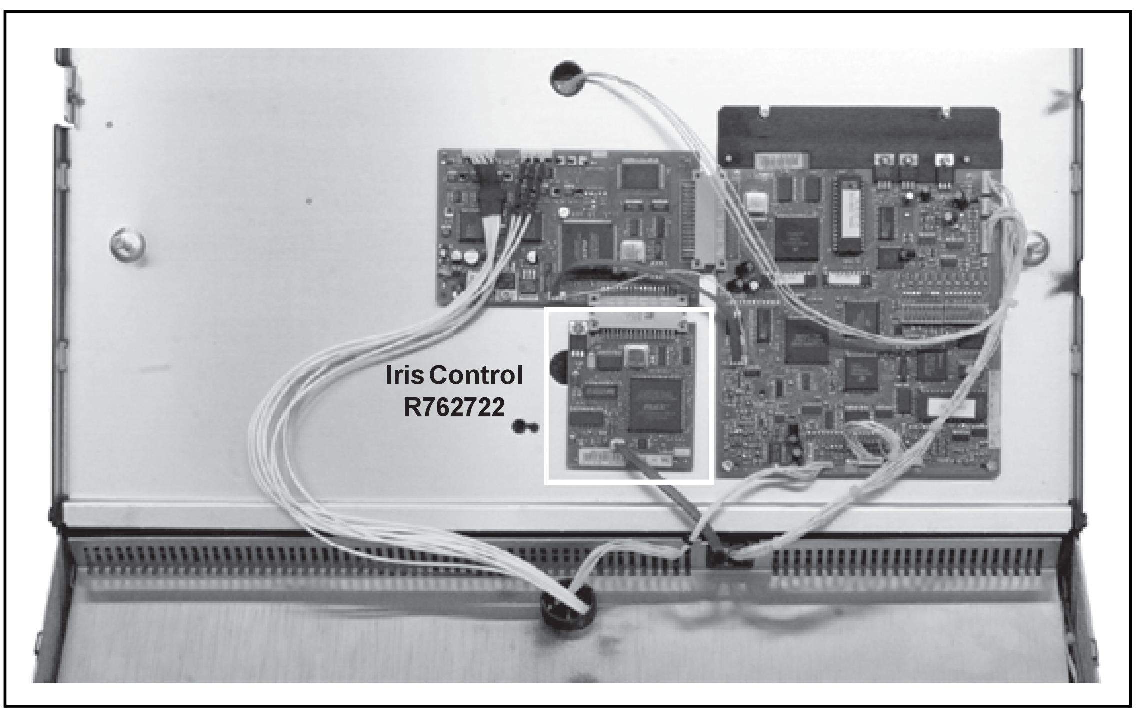
Partslisting IR+RS 232 communication module

SIT.	ITEM NO.	DESCRIPTION	QUANTITY
10	R805674	FRM V700 RX SCRN	1
	R762510P	UN G808 RS232	1
C 68	P210041	C# X7R MU 10N K 50 0805	1
C 75	P210041	C# X7R MU 10N K 50 0805	1
C 58	P210095	C# X7R MU 330N M 50 1812	1
C 67	P210112	C# COG MU 1N2J 50 1206	1
C 77	P210121	C# COG MU 330P J 50 1206	1
C 78	P210121	C# COG MU 330P J 50 1206	1
C 15	P210122	C# X7R MU 100N K 50 1206	1
C 16	P210122	C# X7R MU 100N K 50 1206	1
C 22	P210122	C# X7R MU 100N K 50 1206	1
C 26	P210122	C# X7R MU 100N K 50 1206	1
C 28	P210122	C# X7R MU 100N K 50 1206	1
C 82	P210122	C# X7R MU 100N K 50 1206	1
C 73	P210140	C# X7R MU 4N7K 50 1206	1
C 74	P210140	C# X7R MU 4N7K 50 1206	1
C 79	P210140	C# X7R MU 4N7K 50 1206	1
C 66	P212001	C# TA 2M2M 20 3528	1
C 19	P212024	C# TA 10M M 35 7343	1
C 20	P212024	C# TA 10M M 35 7343	1
C 65	P212031	C# TA 22M M 16 7343	1
D 71	P234055	D#BAT54 SCH SOT23	1
D 14	P234099	D#4148 R DMMELF	1
D 17	P234099	D#4148 R DMMELF	1
D 30	P234099	D#4148 R DMMELF	1
D 31	P234099	D#4148 R DMMELF	1
D 33	P234099	D#4148 R DMMELF	1
D 34	P234099	D#4148 R DMMELF	1
D 35	P234099	D#4148 R DMMELF	1
D 36	P234099	D#4148 R DMMELF	1
D 37	P234099	D#4148 R DMMELF	1
D 38	P234099	D#4148 R DMMELF	1
D 64	R131681	D O BPW41N PIN	1
I 83	P230062	U#78L05A LM SO8 P	1
I 32	P230561	U#14C88 MC SO14 P	1
I 39	P230652	U#75C189A SN SO14 P	1
I 63	R132824	U 2800 TBA DIP14 P	1
J 61	B338800	J PHN FBS D 3.5MON P	1
J 49	R3135005	J DE P8 MBS P 9 FUMBLPGDB	1
J 45	R3135015	J DE P8 FBS P 9 FUMBLPGDB	1
J 81	R313949	J CT H MBS P 9 M2SN WH	1
L 60	R3061582	CH AX NS 1.5 MH	1
L 70	R3061582	CH AX NS 1.5 MH	1
PC	R780372	PCB *800 RS232+RX	1
Q 52	P232050	Q#BC857B P SS SOT23	1
Q 55	P232051	Q#BC847B N SS SOT23	1
Q 56	P232051	Q#BC847B N SS SOT23	1
R 40	P200387	R# CE H100E F 0W25 1206	1
R 42	P200387	R# CE H100E F 0W25 1206	1
R 43	P200387	R# CE H100E F 0W25 1206	1
R 44	P200387	R# CE H100E F 0W25 1206	1
R 57	P200417	R# CE H 1K8 F 0W25 1206	1
R 41	P200423	R# CE H 3K3 F 0W25 1206	1
R 46	P200423	R# CE H 3K3 F 0W25 1206	1
R 51	P200429	R# CE H 5K6 F 0W25 1206	1
R 72	P200435	R# CE H 10K F 0W25 1206	1
R 59	P200443	R# CE H 22K F 0W25 1206	1
R 69	P200459	R# CE H100K F 0W25 1206	1
R 76	P200459	R# CE H100K F 0W25 1206	1
R 50	R1011008	R CFFH 1E J 0W25	1
Z 62	P234014	D#ZEN 5V6 0W3 C SOT23	1
Z 13	P234046	D#ZEN 12V 0W5 C DMMELF	1
Z 18	P234046	D#ZEN 12V 0W5 C DMMELF	1

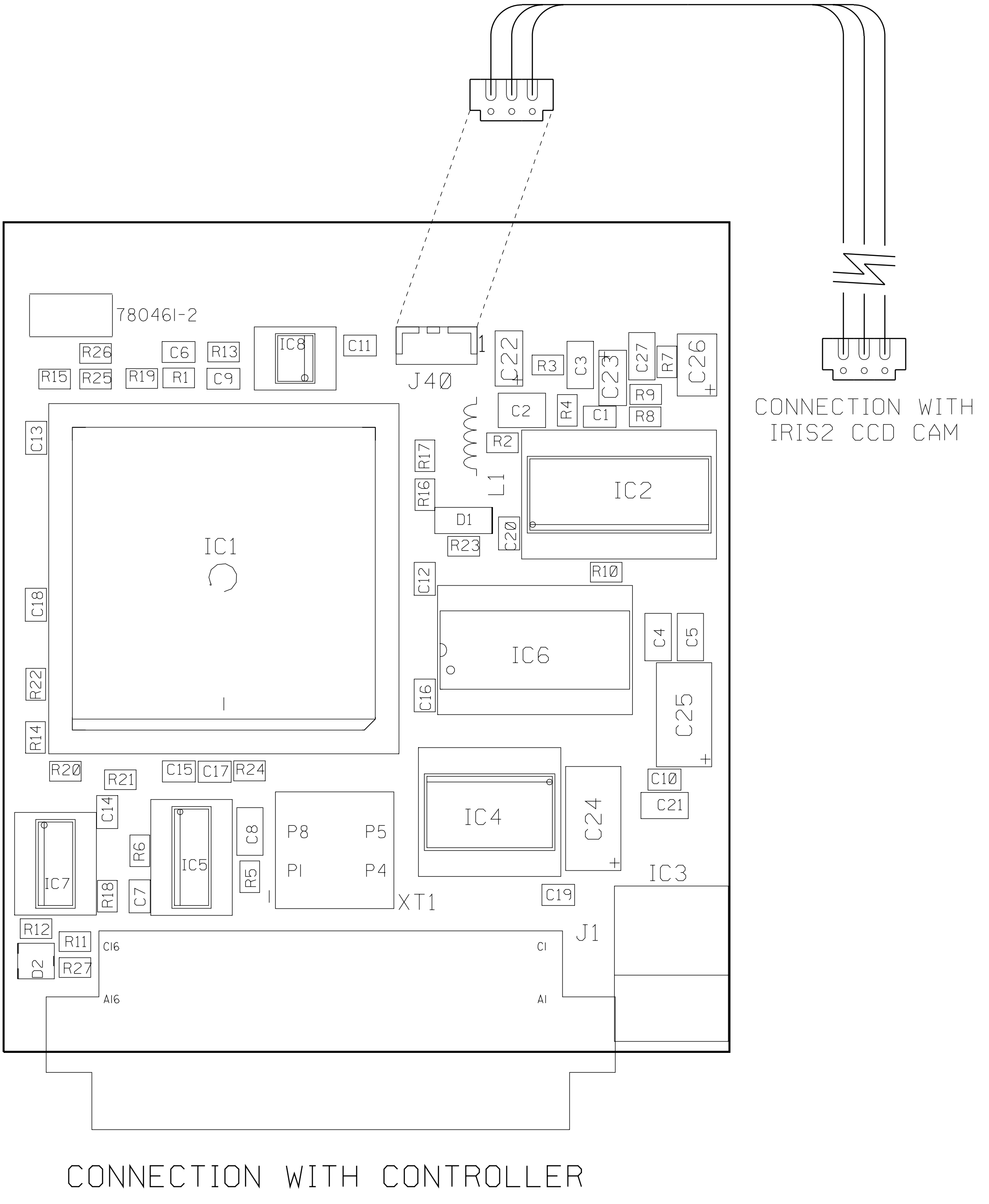
IRIS Control/CAM CCD

R762722
R762724





R762722_r00



Name		Sheet
IRIS 2 MODULE		1 / 1
Module No R762722	Index — 1	PCB No R780461 Rev — 2
Date 09-12-1998	Drawn JVDY	Checked CT

BARCO PROJECTION SYSTEMS

Modifications reserved

IRIS Control/CAM CCD

R762722
R762724

Parts listing Iris Control R762722

Prf	Itemno	Description	Qty
10	R3631059	SCR Z933 M 3 X 8 SS 1	
	R3661026	NUT D934 M 3 SS 1	
	R367502	SPR D6798AD 3,2D 6 STZN	1
	R367699	RVT AVTRON2,5L 8,1 AL	2
C 1	P210041	C# X7R MU 10N K 50 0805	1
C 2	P210169	C# X7R MU 220N K 50 1210	1
C 3	P210151	C# X7R MU 18N K 50 1206	1
C 4	P210068	C# X7R MU 22N K 50 1206	1
C 5	P210068	C# X7R MU 22N K 50 1206	1
C 6	P210018	C# COG MU 33P J 50 0805	1
C 7	P210016	C# COG MU 15P J 50 0805	1
C 8	P210073	C# COG MU 82P J 50 1206	1
C 9	P210213	C# Y5V MU 100N Z 25 0805	1
C 10	P210213	C# Y5V MU 100N Z 25 0805	1
C 11	P210213	C# Y5V MU 100N Z 25 0805	1
C 12	P210213	C# Y5V MU 100N Z 25 0805	1
C 13	P210213	C# Y5V MU 100N Z 25 0805	1
C 14	P210213	C# Y5V MU 100N Z 25 0805	1
C 15	P210213	C# Y5V MU 100N Z 25 0805	1
C 16	P210213	C# Y5V MU 100N Z 25 0805	1
C 17	P210213	C# Y5V MU 100N Z 25 0805	1
C 18	P210213	C# Y5V MU 100N Z 25 0805	1
C 19	P210213	C# Y5V MU 100N Z 25 0805	1
C 20	P210001	C# COG MU 10P C 50 0805	1
C 21	P210136	C# Y5V MU 330N Z 50 1206	1
C 22	P212009	C# TA 1M M 16 3216 1	
C 23	P212009	C# TA 1M M 16 3216 1	
C 24	P212005	C# TA 47M M 10 7343	1
C 25	P212040	C# TA 100M M6V3 7343	1
C 26	P212006	C# TA 4M7M 16 3528	1
C 27	P210029	C# COG MU 2N2J 50 1206	1
D 1	P234099	D#4148 R DMMELF	1
D 2	P234063	D#LED LGS260 GRE SOT23	1
I 1	P231121	U#8282A-4 EPF PLCC84 P	1
I 2	P231025	U#8709A TDA SOL28 P	1
I 3	R134001	U 7805 TO220 P 1	
I 4	P230051	U#74HCT245 SOL20 I	1
I 5	P230073	U#74HCT123 SO16 I1	
I 6	P231268	U#SRAM 32KX8 15SOJ28 P	1
I 7	P230096	U#74HCT02 SO14 I 1	
I 8	P230969	U#1881 LM SO8 P 1	
J 1	R314071	J EUR2C2MBS P32 E1C2S 1,6	1
J 40	R313923	J CT H MBT P 3 M2SN WH	1
L 1	R3061222	CH AX NS 1.5 UH 1	
PC	R780461	PCB IRIS2 CTRL 1	
R 1	P201063	R# CE H100E F 0W12 0805	1
R 2	P201075	R# CE H330E F 0W12 0805	1
R 3	P201107	R# CE H 6K8 F 0W12 0805	1
R 4	P201111	R# CE H 10K F 0W12 0805	1
R 5	P201111	R# CE H 10K F 0W12 0805	1
R 6	P201111	R# CE H 10K F 0W12 0805	1
R 7	P201060	R# CE H 75E F 0W12 0805	1
R 8	P201083	R# CE H680E F 0W12 0805	1
R 9	P201095	R# CE H 2K2 F 0W12 0805	1
R 10	P201047	R# CE H 22E F 0W12 0805	1
R 11	P201111	R# CE H 10K F 0W12 0805	1
R 13	P201155	R# CE H680K F 0W12 0805	1
R 14	P201087	R# CE H 1K F 0W12 0805	1
R 15	P201087	R# CE H 1K F 0W12 0805	1
R 16	P201087	R# CE H 1K F 0W12 0805	1
R 17	P201087	R# CE H 1K F 0W12 0805	1
R 18	P201087	R# CE H 1K F 0W12 0805	1
R 19	P201087	R# CE H 1K F 0W12 0805	1
R 20	P201103	R# CE H 4K7 F 0W12 0805	1
R 21	P201103	R# CE H 4K7 F 0W12 0805	1
R 22	P201103	R# CE H 4K7 F 0W12 0805	1
R 23	P201354	R# CE H 0E J 0W12 0805	1
R 26	P201354	R# CE H 0E J 0W12 0805	1
R 27	P201079	R# CE H470E F 0W12 0805	1
X 1	R307122	XO 32M000000 CN-10DIP 8M	1

Parts listing Iris CAM CCD R762724

Prf	Itemno	Description	Qty
1000	R322175	CAMERA CCD+LENS 6 MM 12V	1
1010	R811328	FRM G808 CNV FR IRISFIX/2	1
1020	B360425	SPR L 7,5 D 2,6D 4 PLWH	1
1030	V362004	SCR D84 M 2 X 10 STZN	1

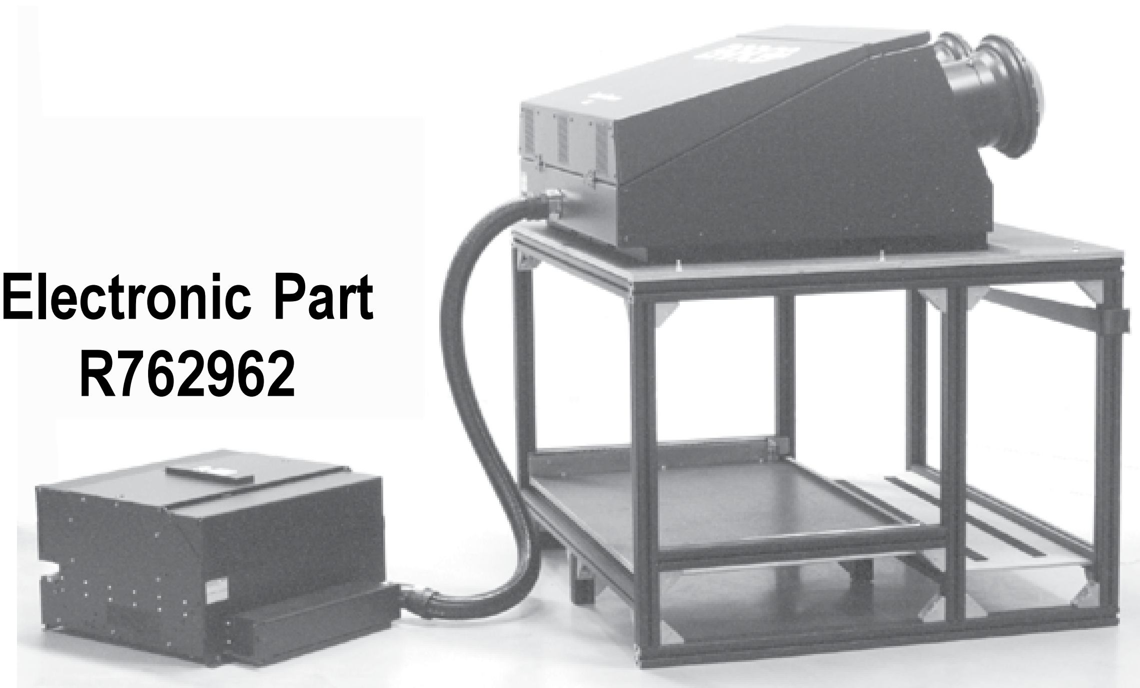
PRODUCT SAFETY NOTICE

Components identified by ⚠ have SPECIAL CHARACTERISTICS IMPORTANT TO SAFETY. Before replacing any of these components, read carefully the ser-vice safety precautions.

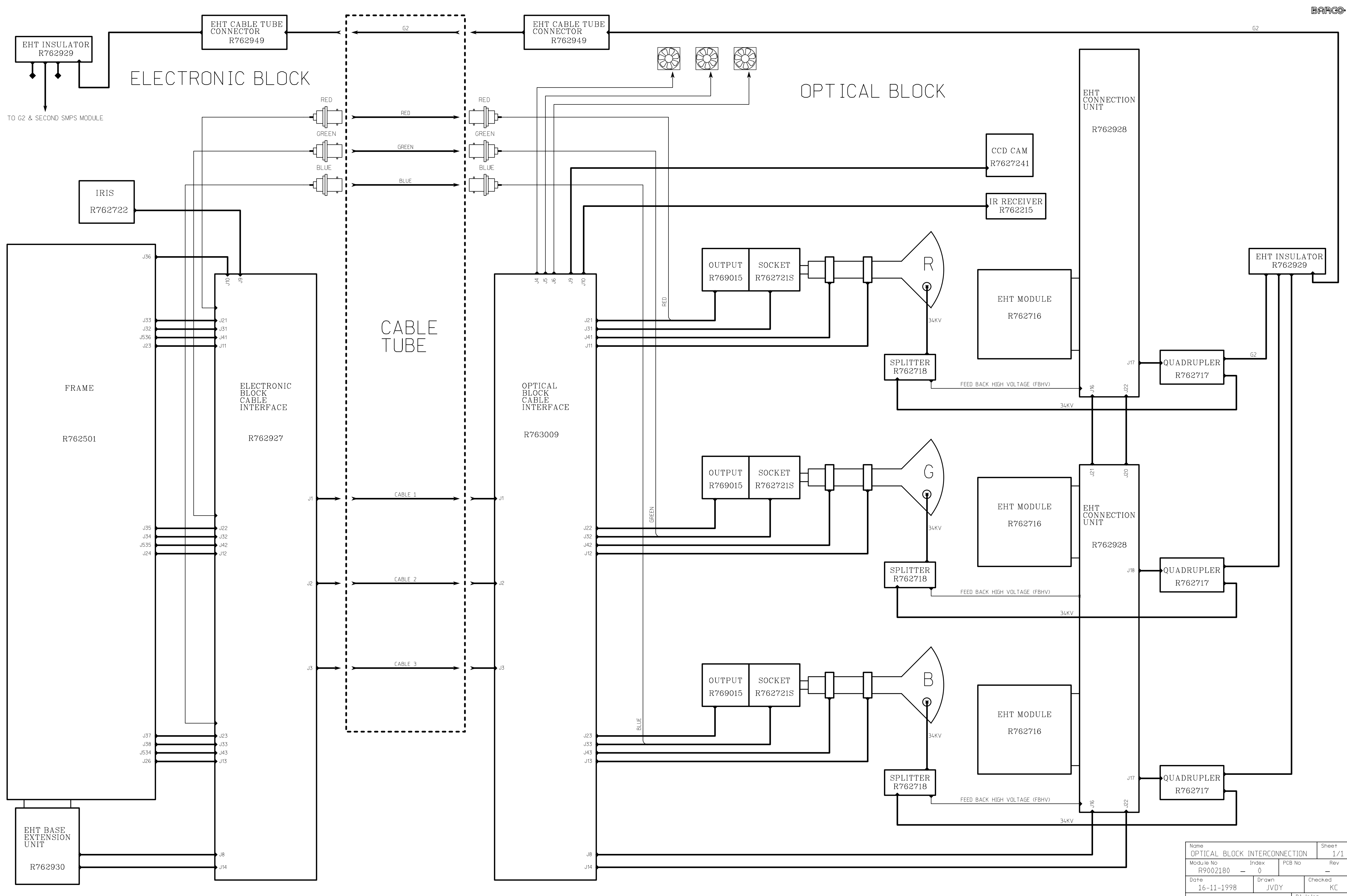
BarcoReality 812 HS

12" CRT Projector
Overview connector modules

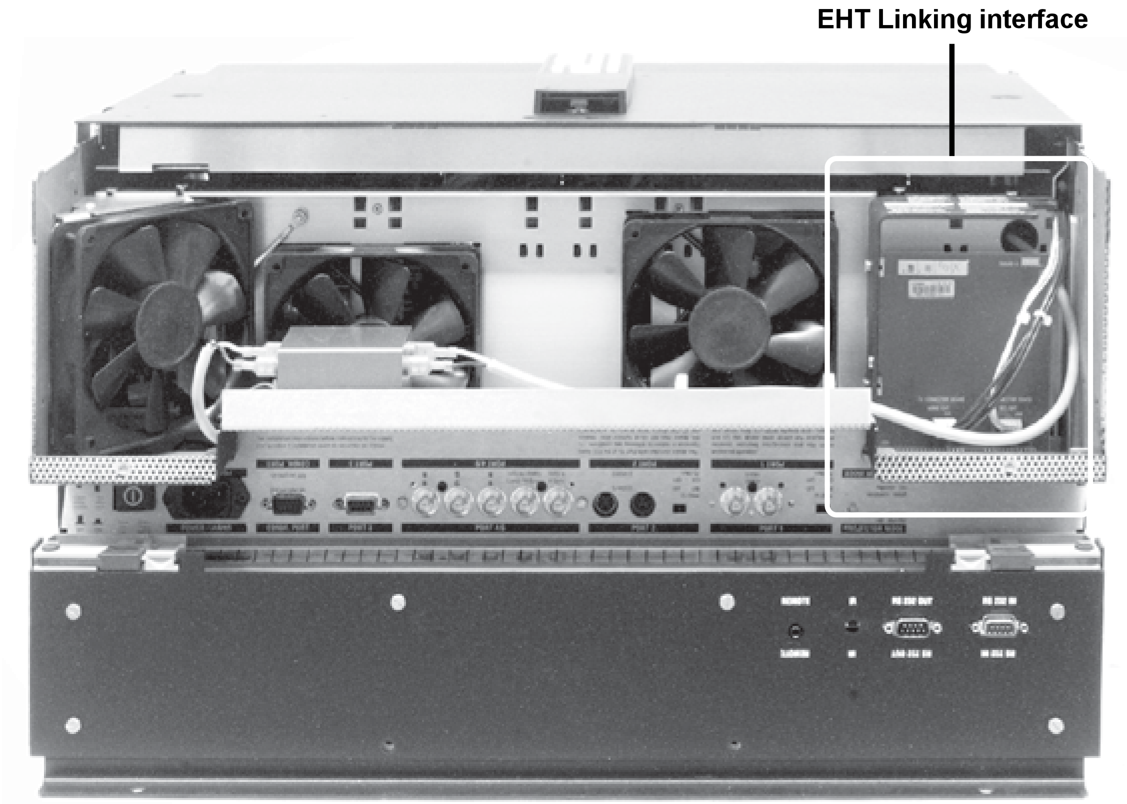
Optical Part
R762959

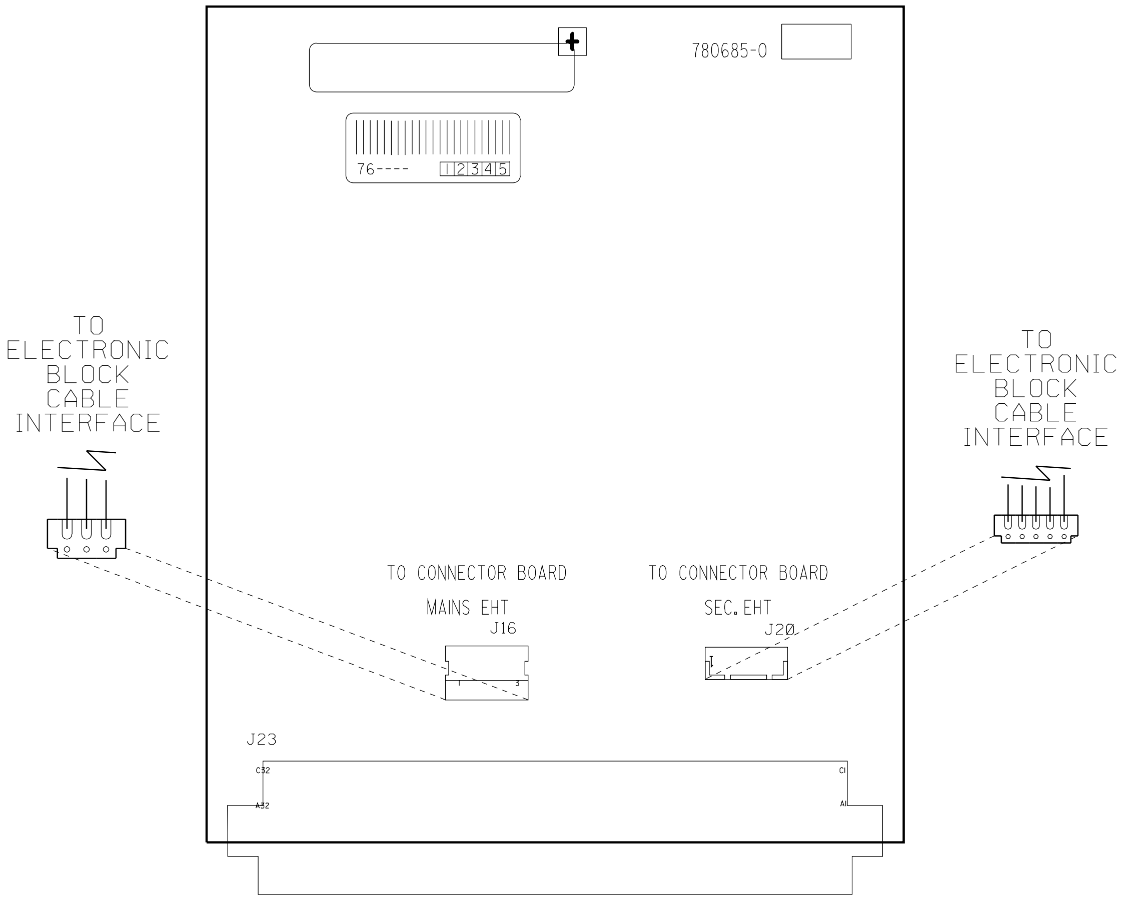


Contents:



Name			Sheet
OPTICAL BLOCK INTERCONNECTION			1/1
Module No R9002180	Index 0	PCB No	Rev –
Date 16-11-1998	Drawn JVDY		Checked KC
BARCO NV			Division BPS


EHT Linking interface

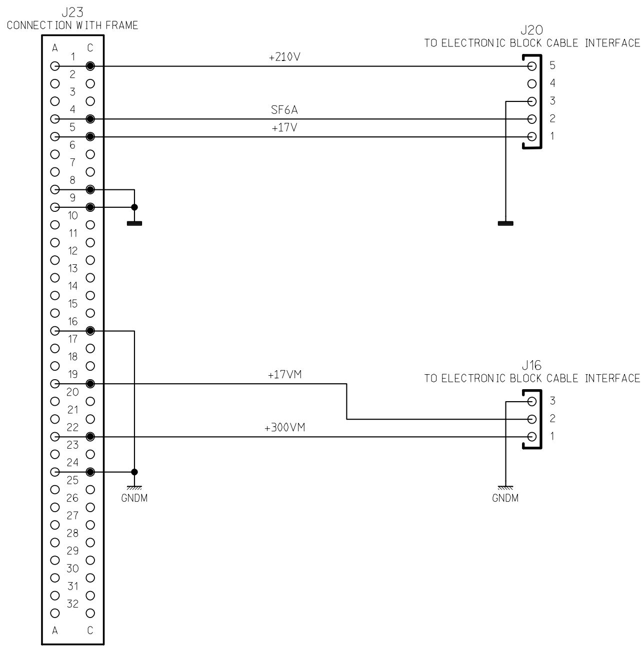


TOP VIEW

Name: EHT BASE EXTENSION UNIT			Sheet: 1 / 1
Module No: R762930	Index: — 0	PCB No: R780685	Rev: — 0
Date: 10-11-1998	Drawn: JVDY	Checked: KC	

BARCO PROJECTION SYSTEMS

Modifications reserved

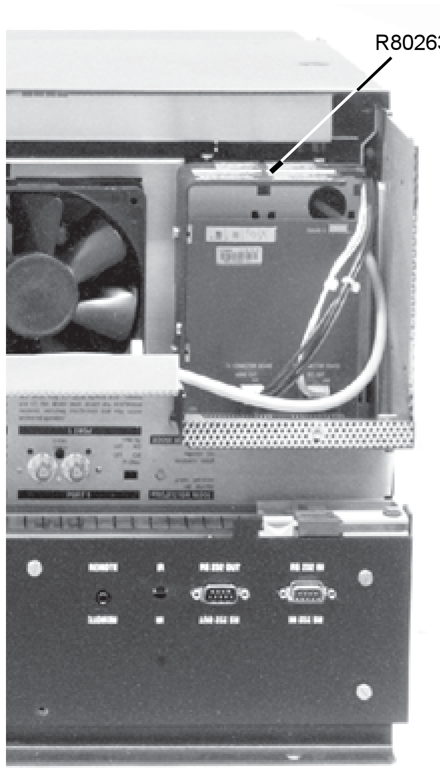


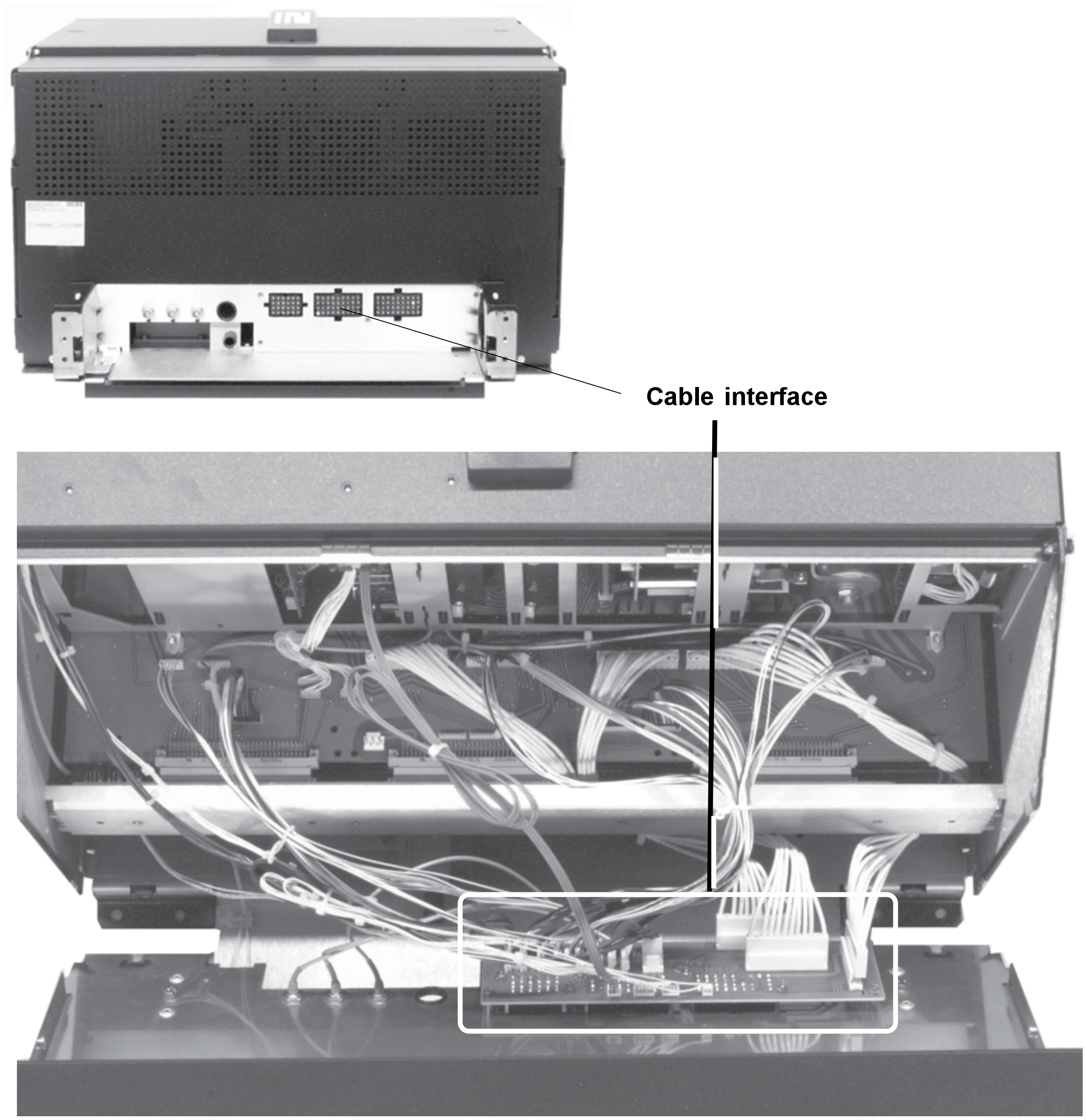
Modifications reserved

Name				Sheet
EHT BASE EXTENSION UNIT				1/1
Module No	Index	PCB No	Rev	
R762930 –	0	R780685 –	0	
Date	Drawn	Checked		
10-11-1998	JVDY	KC		
BARCO NV		Division	BPS	

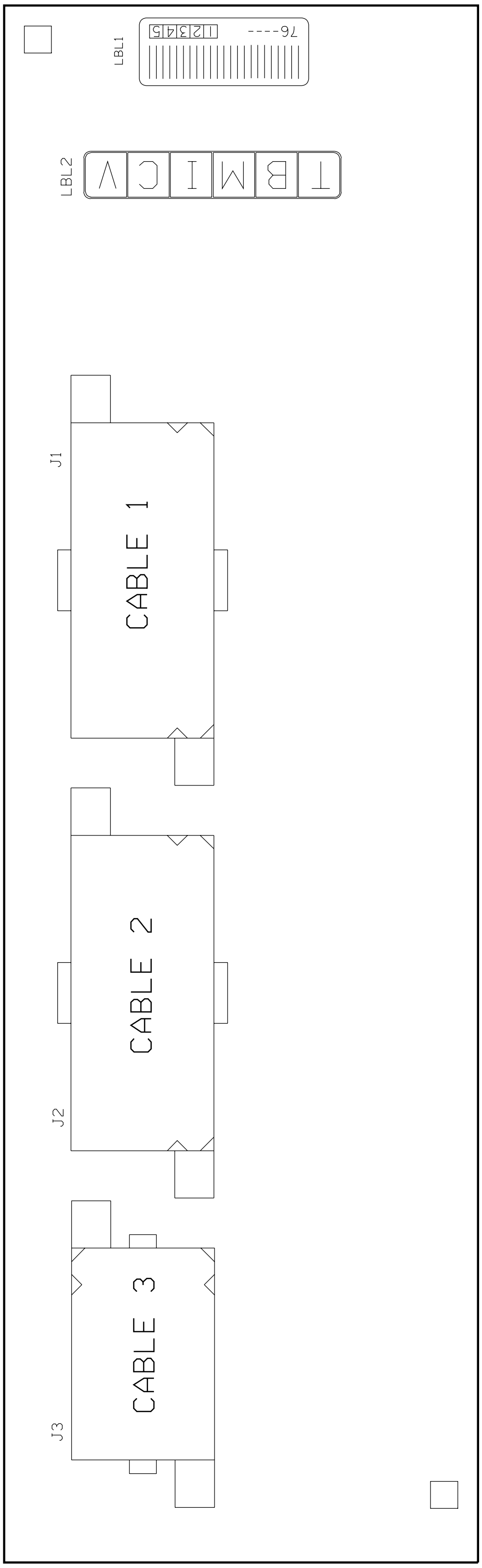
Partslisting EHT Linking interface T762930

SIT.	ITEM NO.	DESCRIPTION	QUANTITY	SIT.	ITEM NO.	DESCRIPTION	QUANTITY
	B360862	SCR Z$7985M 3 X 8 STZY	4	J 16	R313607	J MTA MBT P 3 M3,96 FL RO	1
	R367600	NUT TRAD M 3 BLOCK BRNI	2	J 20	R313925	J CT H MBT P 5 M2SN WH	1
	R367699	RVT AVTRON2,5L 8,1 AL	2	J 23	R313525	J EUR2C MBS P64 E1C2S 1,6	1
	R802634	HTSN G800 EHT	1	PC	R780685	PCB R812HS EHT DUMMY	1





Cable interface

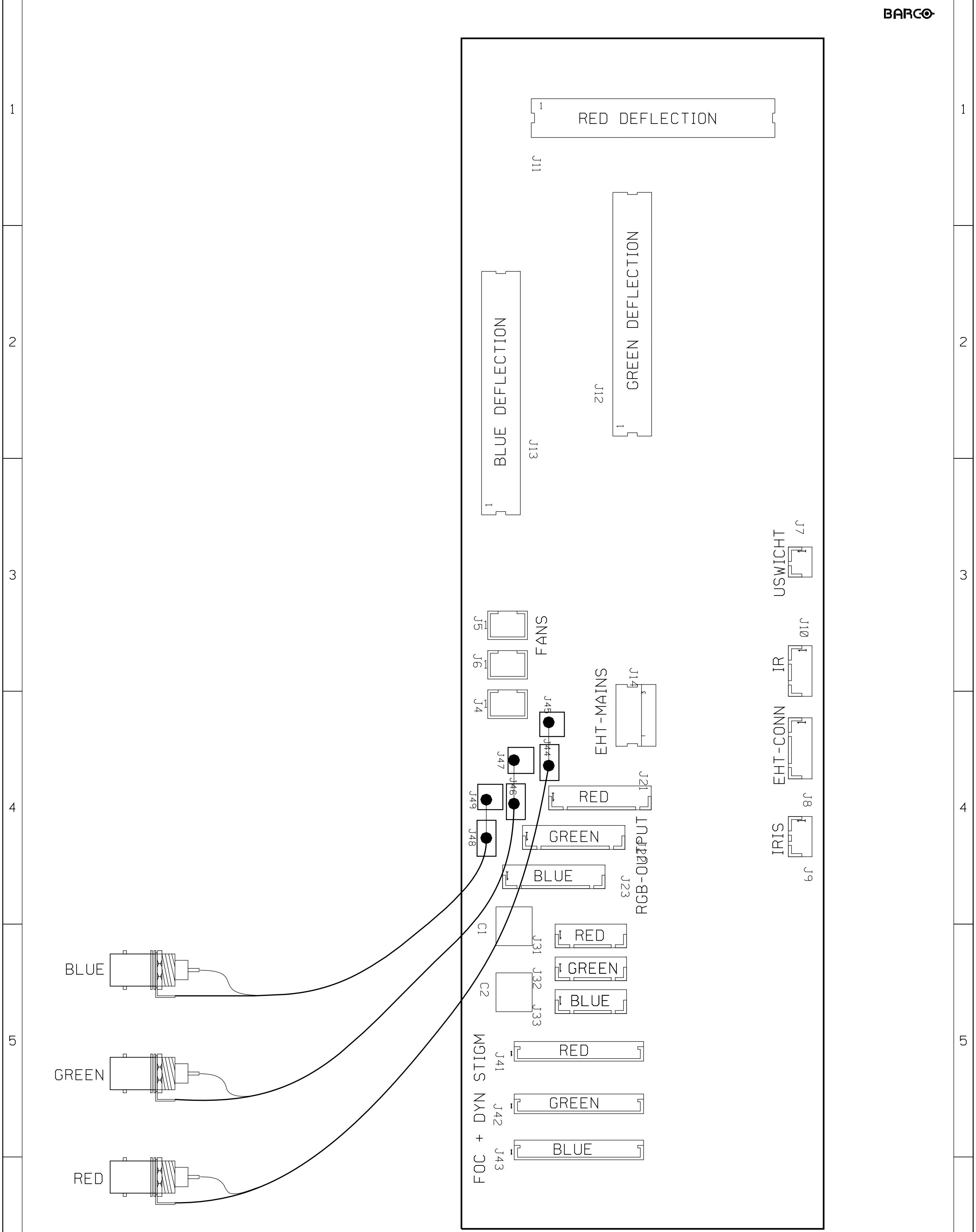


TOP VIEW

Modifications reserved

Name	ELEC. BLOCK CABLE INTERFAC			Sheet	1 / 2
Module No	R762927	Index — Ø	PCB No	R780766	Rev — Ø
Date	Ø5-11-1998	Drawn	JVDY	Checked	GM/KC

BARCO PROJECTION SYSTEMS



BOTTOM VIEW

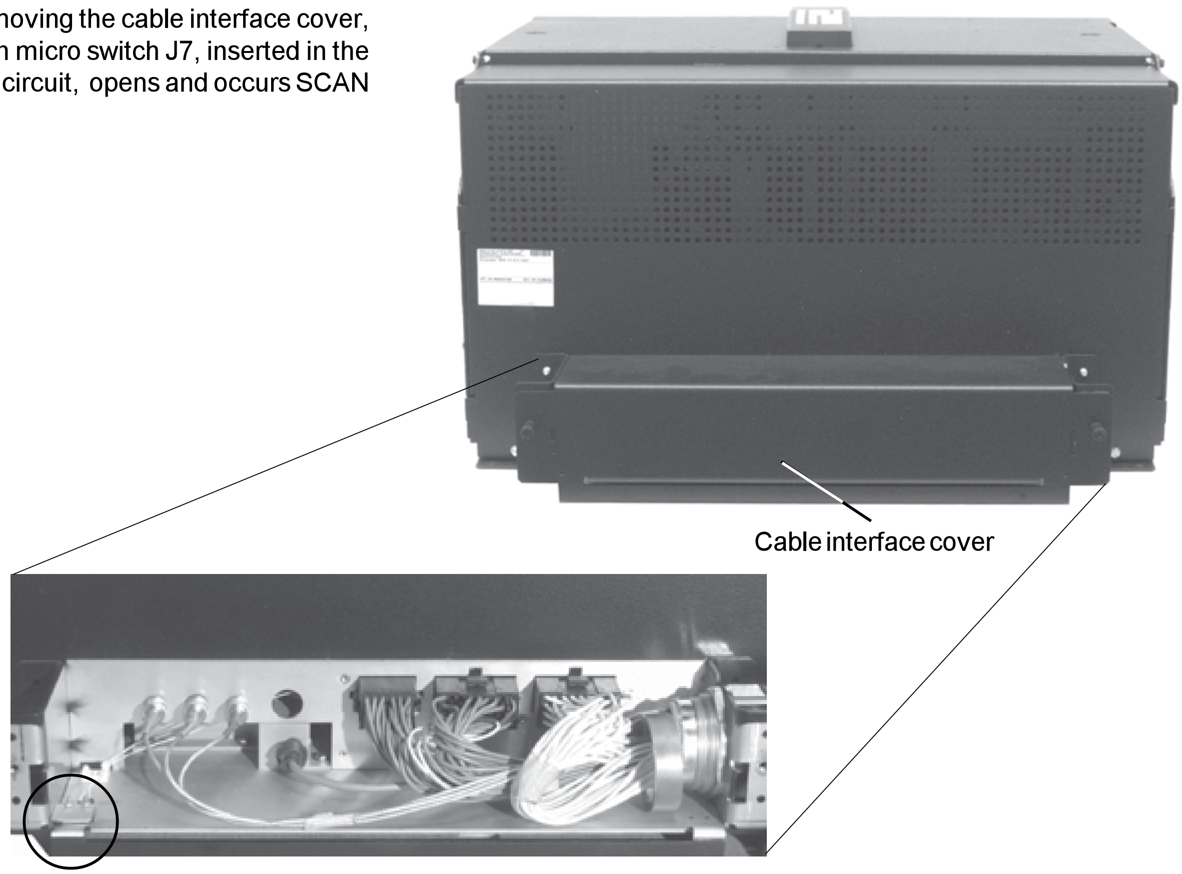
Modifications reserved

Name			Sheet
ELEC.BLOCK CABLE INTERFAC			2 / 2
Module No	Index	PCB No	Rev
R762927	— 0	R780766	— 0
Date	Drawn	Checked	
05-11-1998	JVDY	GM/KC	

BARCO PROJECTION SYSTEMS

SCAN FAIL

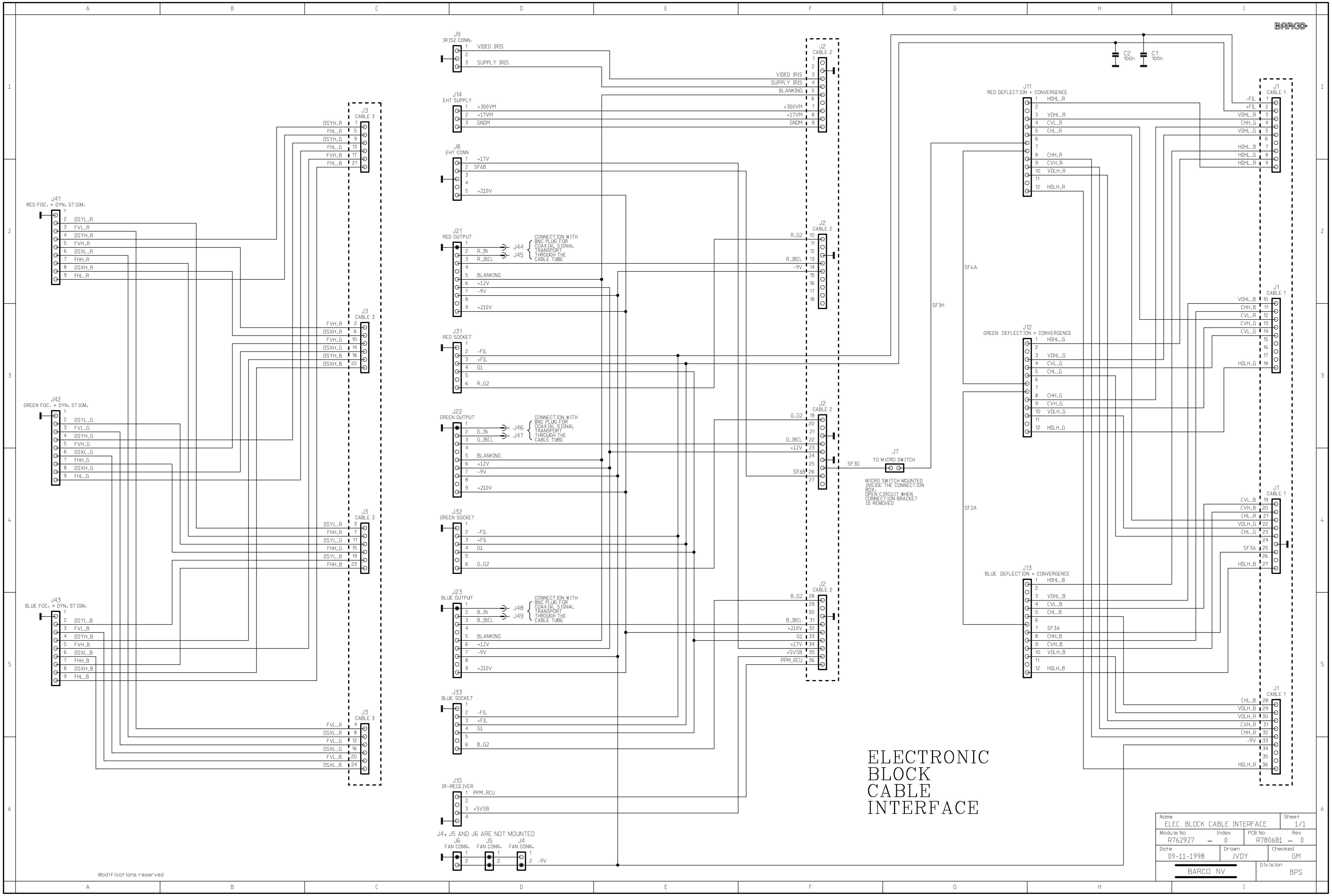
When removing the cable interface cover, the built-in micro switch J7, inserted in the Scan Fail circuit, opens and occurs SCAN FAIL.

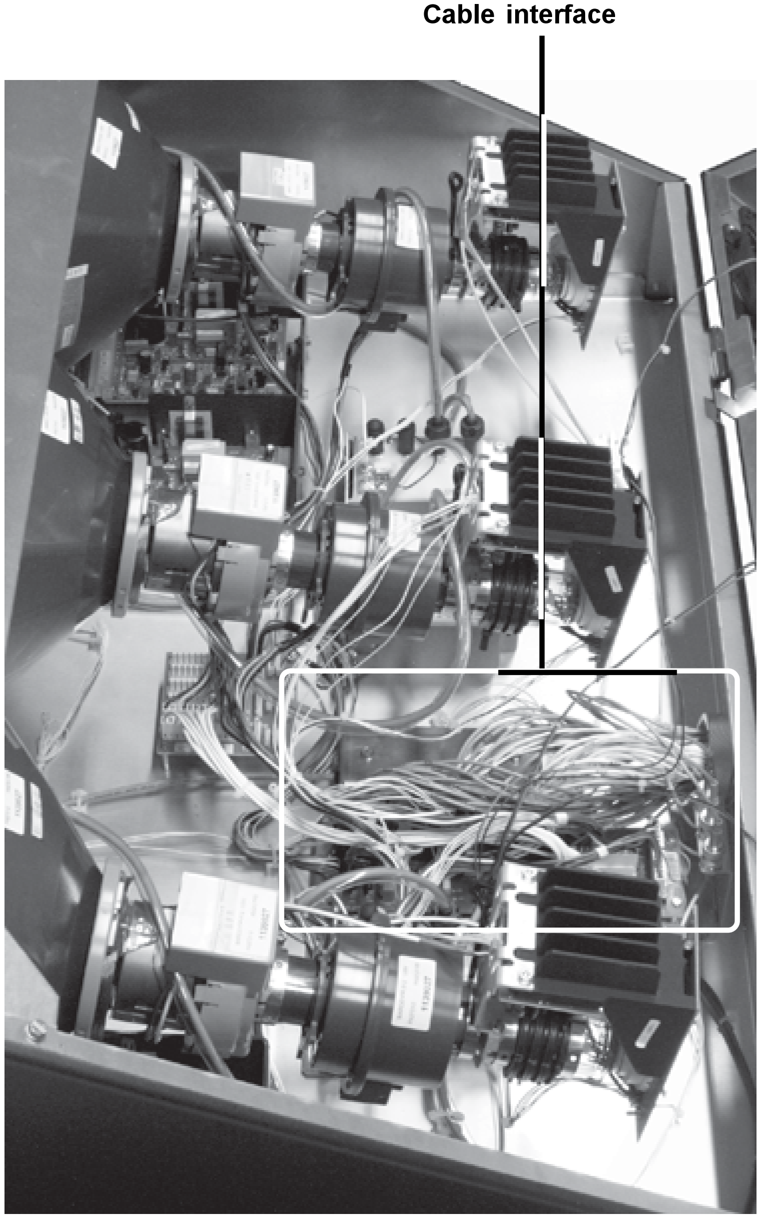


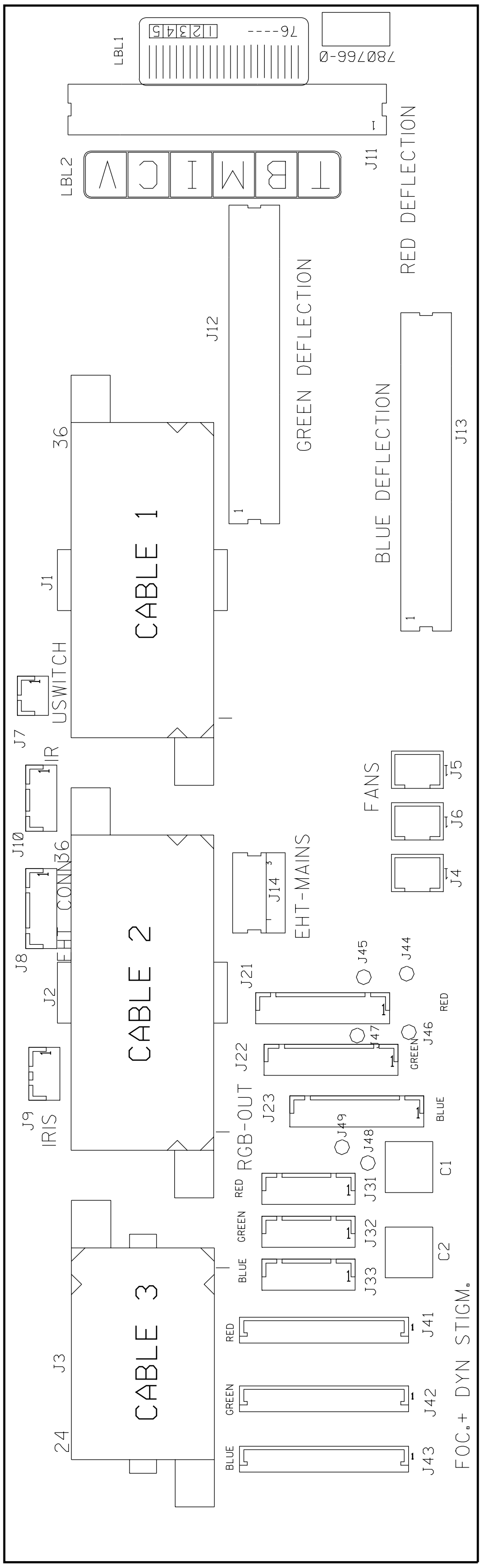
Partslisting Cable interface R762927

SIT.	ITEM NO.	DESCRIPTION	QUANTITY
	B338025	J TTI A DISCR KEY	2
	B360863	SCR Z$7985M 3 X 10 STZY	6
	R3661026	NUT D934 M 3 SS	6
	R367502	SPR D6798AD 3,2D 6 STZN	6
	Z3487127	CD BNCFT 75E BL 250	1
	Z3487128	CD BNCFT 75E GN 250	1
	Z3487129	CD BNCFT 75E RD 250	1
J 1	B338020	J TTI C FBT P36 AU T	1
J 2	B338020	J TTI C FBT P36 AU T	1
J 3	B338019	J TTI C FBT P24 AU T	1
J 7	R313922	J CT H MBT P 2 M2SN WH	1
J 8	R313925	J CT H MBT P 5 M2SN WH	1
J 9	R313923	J CT H MBT P 3 M2SN WH	1

SIT.	ITEM NO.	DESCRIPTION	QUANTITY
J 10	R313924	J CT H MBT P 4 M2SN WH	1
J 11	R3134685	J MTA MBT P12 M3,96 FL RO	1
J 12	R3134685	J MTA MBT P12 M3,96 FL RO	1
J 13	R3134685	J MTA MBT P12 M3,96 FL RO	1
J 14	R313607	J MTA MBT P 3 M3,96 FL RO	1
J 21	R313929	J CT H MBT P 9 M2SN WH	1
J 22	R313929	J CT H MBT P 9 M2SN WH	1
J 23	R313929	J CT H MBT P 9 M2SN WH	1
J 31	R313926	J CT H MBT P 6 M2SN WH	1
J 32	R313926	J CT H MBT P 6 M2SN WH	1
J 33	R313926	J CT H MBT P 6 M2SN WH	1
J 41	R314079	J SP MBT P 9 R1	1
J 42	R314079	J SP MBT P 9 R1	1
J 43	R314079	J SP MBT P 9 R1	1
PC	R780681	PCB R812HS CNN EL	1


ELECTRONIC
BLOCK
CABLE
INTERFACE
Name
ELEC. BLOCK CABLE INTERFACE
Sheet
1/1
Module No
R762927
Index
0
PCB No
R780681
Rev
0
Date
09-11-1998
Drawn
JVDY
Checked
GM
BARCO NV
Division
BPS
Modifications reserved
J4, J5 AND J6 ARE NOT MOUNTED
MICRO SWITCH MOUNTED INSIDE THE CONNECTION BOX. OPEN CIRCUIT WHEN CONNECTION BRACKET IS REMOVED

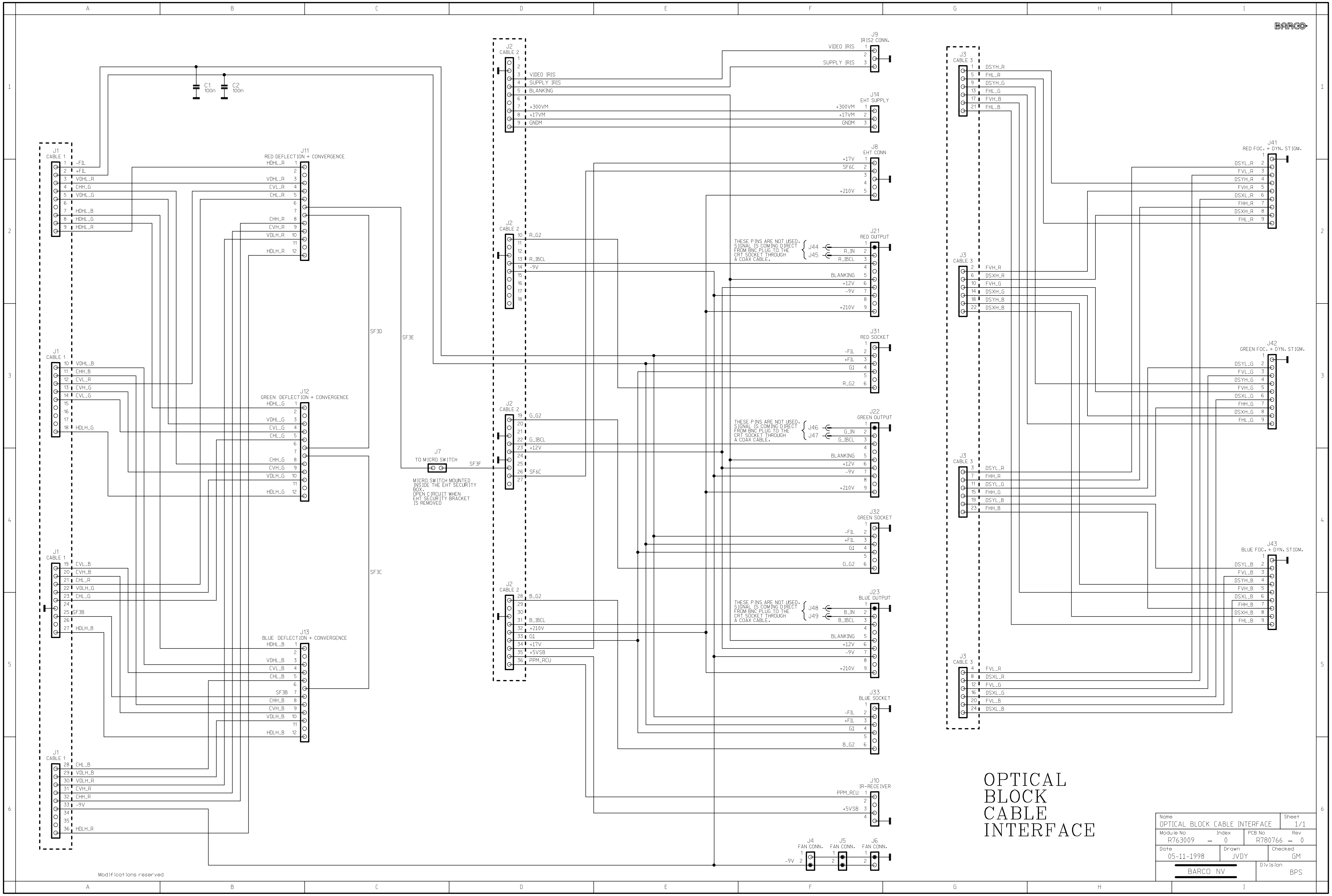

Cable interface



TOP VIEW

Modifications reserved

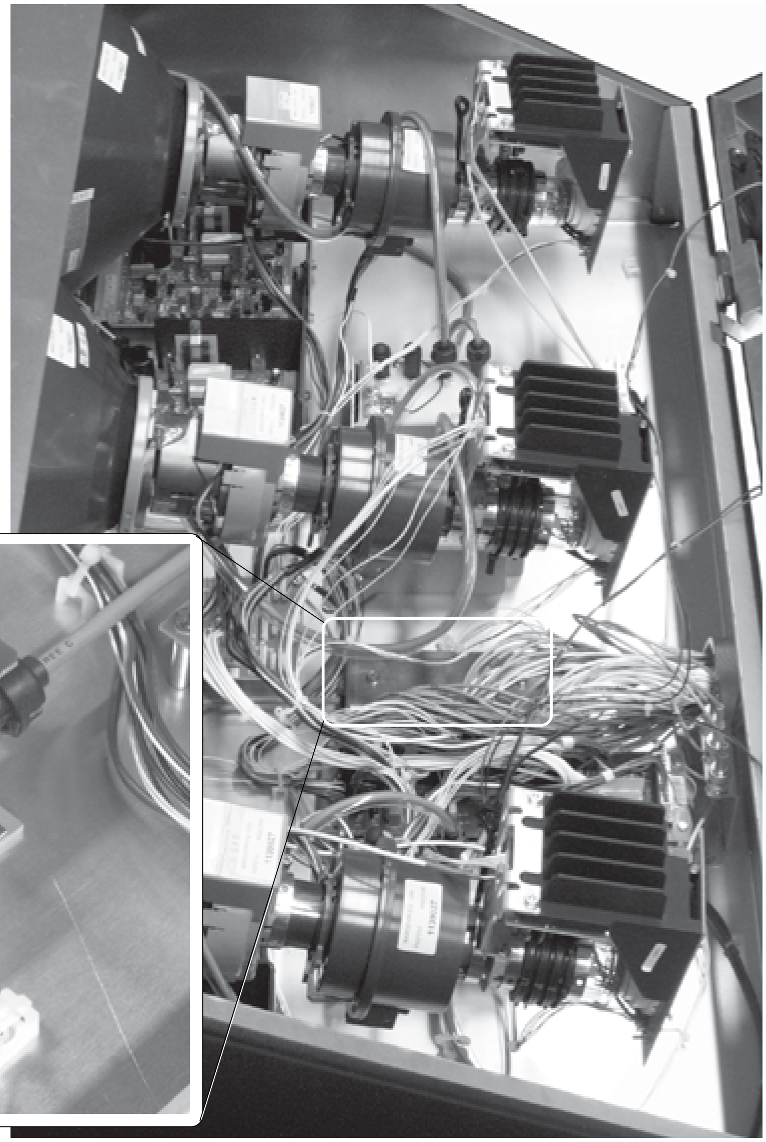
Name			Sheet
OPTICAL BLOCK CABLE INTERF			1 / 1
Module No R763009	Index — 0	PCB No R780766	Rev — 0
Date 05-11-1998	Drawn JVDY	Checked GM/KC	
BARCO PROJECTION SYSTEMS			



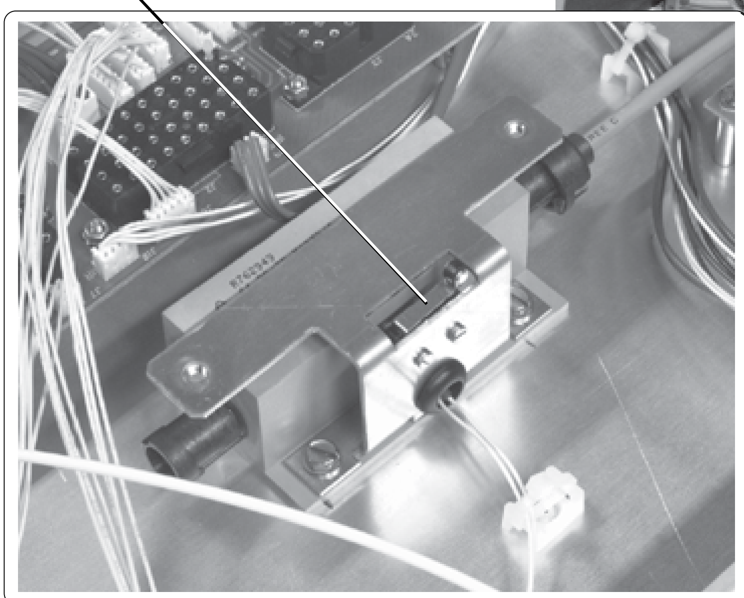
OPTICAL BLOCK CABLE INTERFACE
J1 CABLE 1
J2 CABLE 2
J3 CABLE 3
J11 RED DEFLECTION + CONVERGENCE
J12 GREEN DEFLECTION + CONVERGENCE
J13 BLUE DEFLECTION + CONVERGENCE
J7 TO MICRO SWITCH
MICRO SWITCH MOUNTED INSIDE THE EHT SECURITY BOX. OPEN CIRCUIT WHEN EHT SECURITY BRACKET IS REMOVED
J9 IRIS2 CONN.
J14 EHT SUPPLY
J8 EHT CONN
J21 RED OUTPUT
J31 RED SOCKET
J22 GREEN OUTPUT
J32 GREEN SOCKET
J23 BLUE OUTPUT
J33 BLUE SOCKET
J10 IR-RECEIVER
J4 FAN CONN.
J5 FAN CONN.
J6 FAN CONN.
THESE PINS ARE NOT USED. SIGNAL IS COMING DIRECT FROM BNC PLUG TO THE CRT SOCKET THROUGH A COAX CABLE.
J41 RED FOC. + DYN. STIGM.
J42 GREEN FOC. + DYN. STIGM.
J43 BLUE FOC. + DYN. STIGM.
C1 100n
C2 100n
SF3C
SF3D
SF3E
SF3F
Modifications reserved
Name OPTICAL BLOCK CABLE INTERFACE
Sheet 1/1
Module No R763009 — Index 0
PCB No R780766 — Rev 0
Date 05-11-1998
Drawn JVDY
Checked GM
BARCO NV
Division BPS

SCAN FAIL

When removing the cover of the EHT Cable tube connector, the built-in micro switch J7, inserted in the Scan Fail circuit, opens and occurs SCAN FAIL.

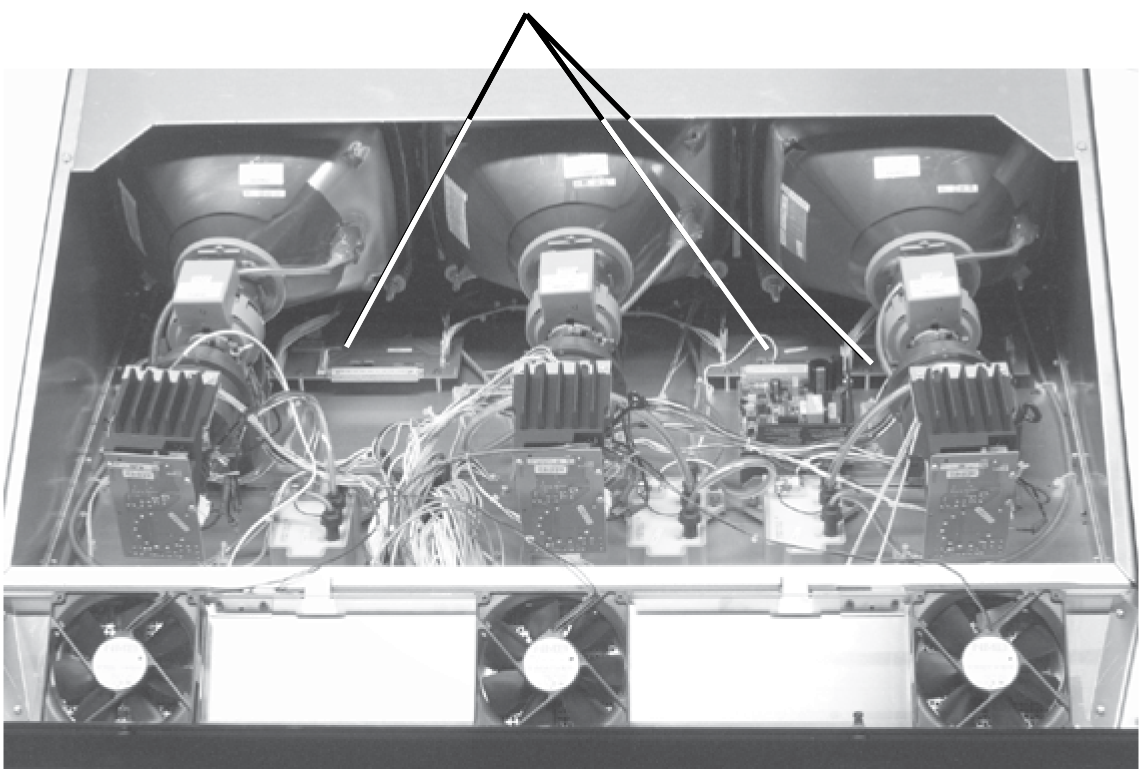


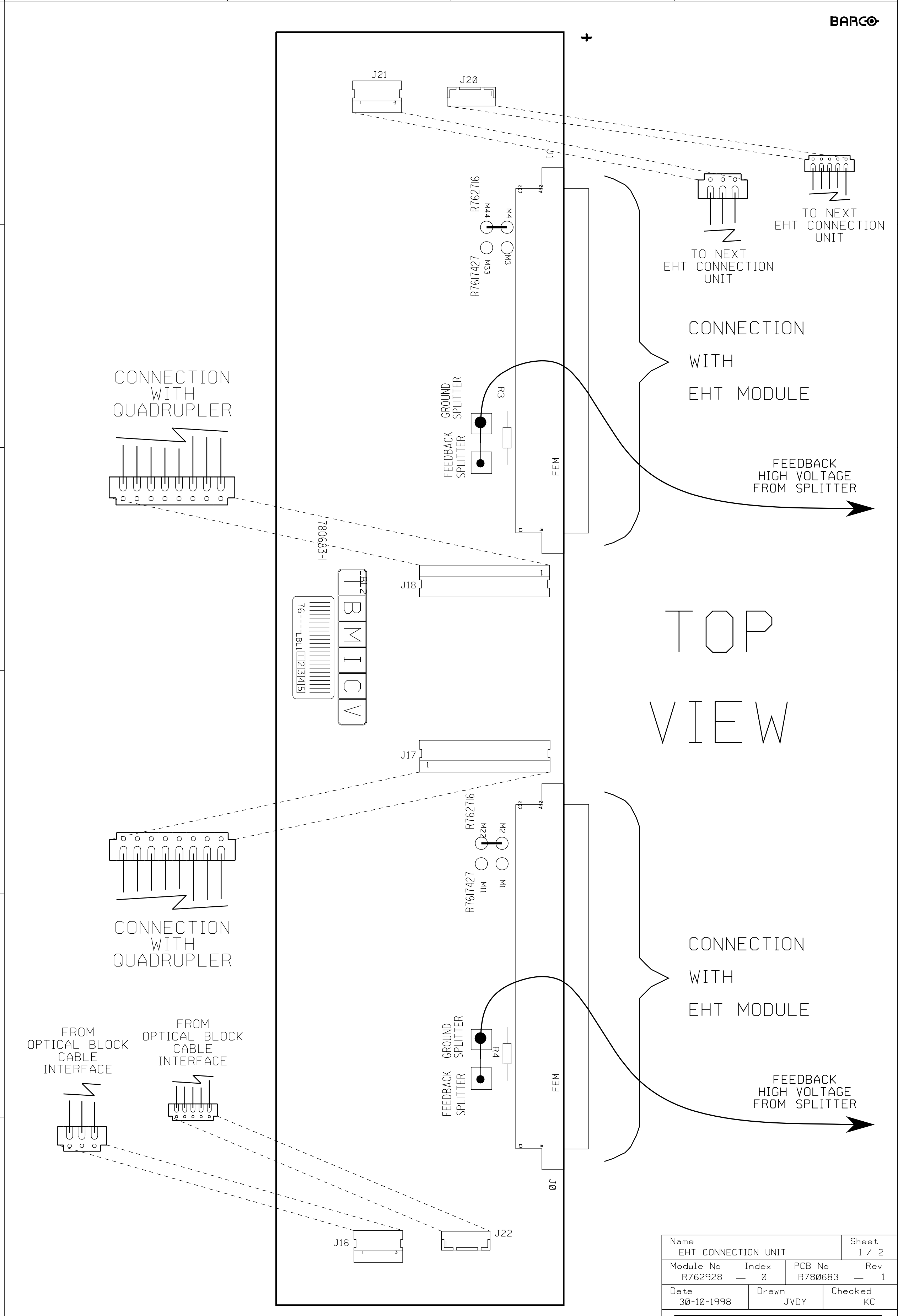
Micro Switch J7 (Cover removed)



Partslisting Cable interface R763009

SIT.	ITEM NO.	DESCRIPTION	QUANTITY
	B338025	J TTI A DISCR KEY	2
	B360863	SCR Z$7985M 3 X 10 STZY	6
	R3661026	NUT D934 M 3 SS	6
	R367502	SPR D6798AD 3,2D 6 STZN	6
C 1	V1140426	C POMERA 100N K250E2 85	1
C 2	V1140426	C POMERA 100N K250E2 85	1
J 1	B338020	J TTI C FBT P36 AU T	1
J 2	B338020	J TTI C FBT P36 AU T	1
J 3	B338019	J TTI C FBT P24 AU T	1
J 4	R3138850	J MD1 C MBT P 2 E1SN	1
J 5	R3138850	J MD1 C MBT P 2 E1SN	1
J 6	R3138850	J MD1 C MBT P 2 E1SN	1
J 7	R313922	J CT H MBT P 2 M2SN WH	1
J 8	R313925	J CT H MBT P 5 M2SN WH	1
J 9	R313923	J CT H MBT P 3 M2SN WH	1
J 10	R313924	J CT H MBT P 4 M2SN WH	1
J 11	R3134685	J MTA MBT P12 M3,96 FL RO	1
J 12	R3134685	J MTA MBT P12 M3,96 FL RO	1
J 13	R3134685	J MTA MBT P12 M3,96 FL RO	1
J 14	R313607	J MTA MBT P 3 M3,96 FL RO	1
J 21	R313929	J CT H MBT P 9 M2SN WH	1
J 22	R313929	J CT H MBT P 9 M2SN WH	1
J 23	R313929	J CT H MBT P 9 M2SN WH	1
J 31	R313926	J CT H MBT P 6 M2SN WH	1
J 32	R313926	J CT H MBT P 6 M2SN WH	1
J 33	R313926	J CT H MBT P 6 M2SN WH	1
J 41	R314079	J SP MBT P 9 R1	1
J 42	R314079	J SP MBT P 9 R1	1
J 43	R314079	J SP MBT P 9 R1	1
PC	R780766	PCB R812HS CNN OP	1

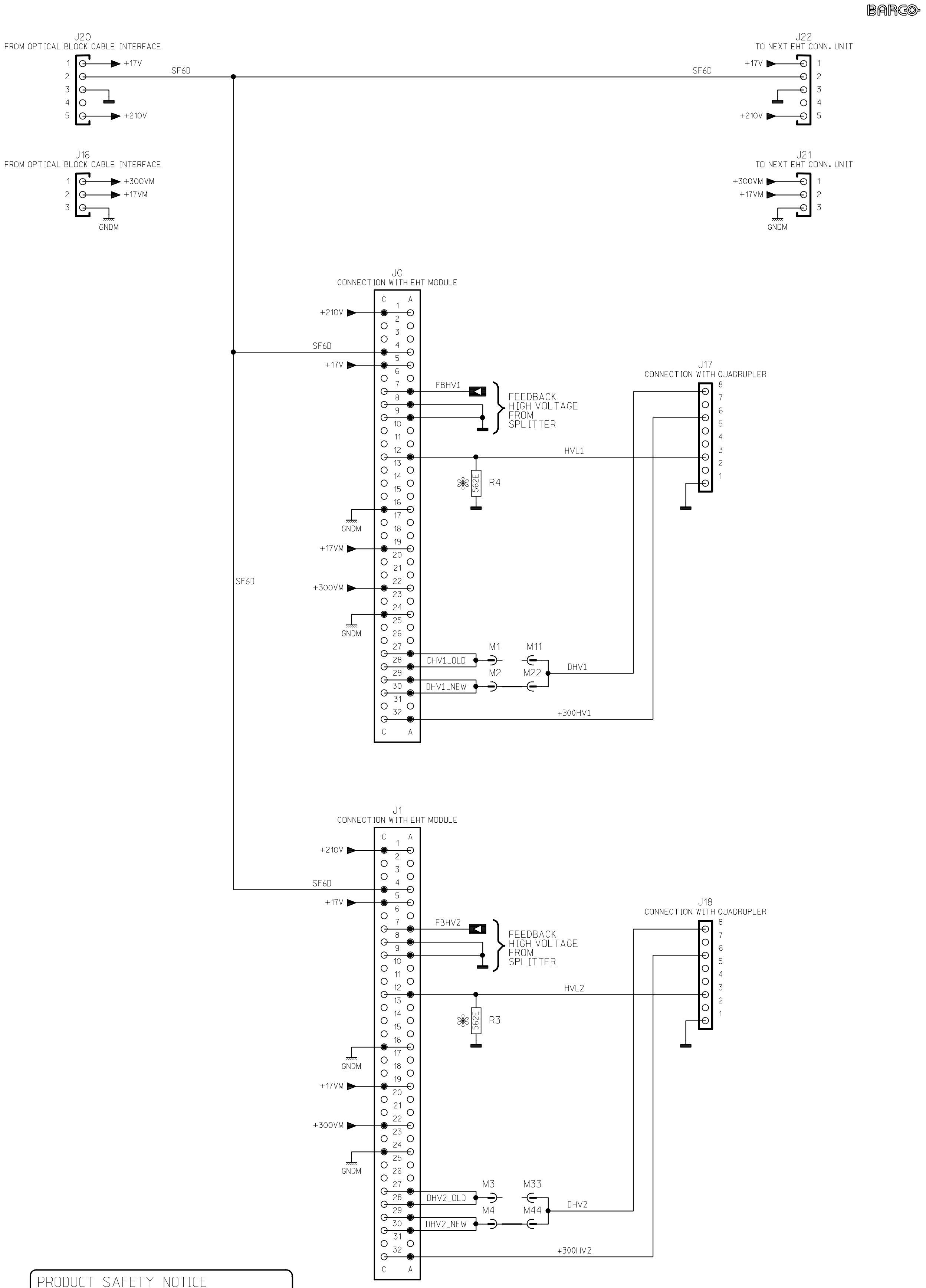

EHT interface



Name			Sheet
EHT CONNECTION UNIT			1 / 2
Module No R762928	Index — 0	PCB No R780683	Rev — 1
Date 30-10-1998	Drawn JVDY	Checked KC	

BARCO PROJECTION SYSTEMS

Modifications reserved



PRODUCT SAFETY NOTICE

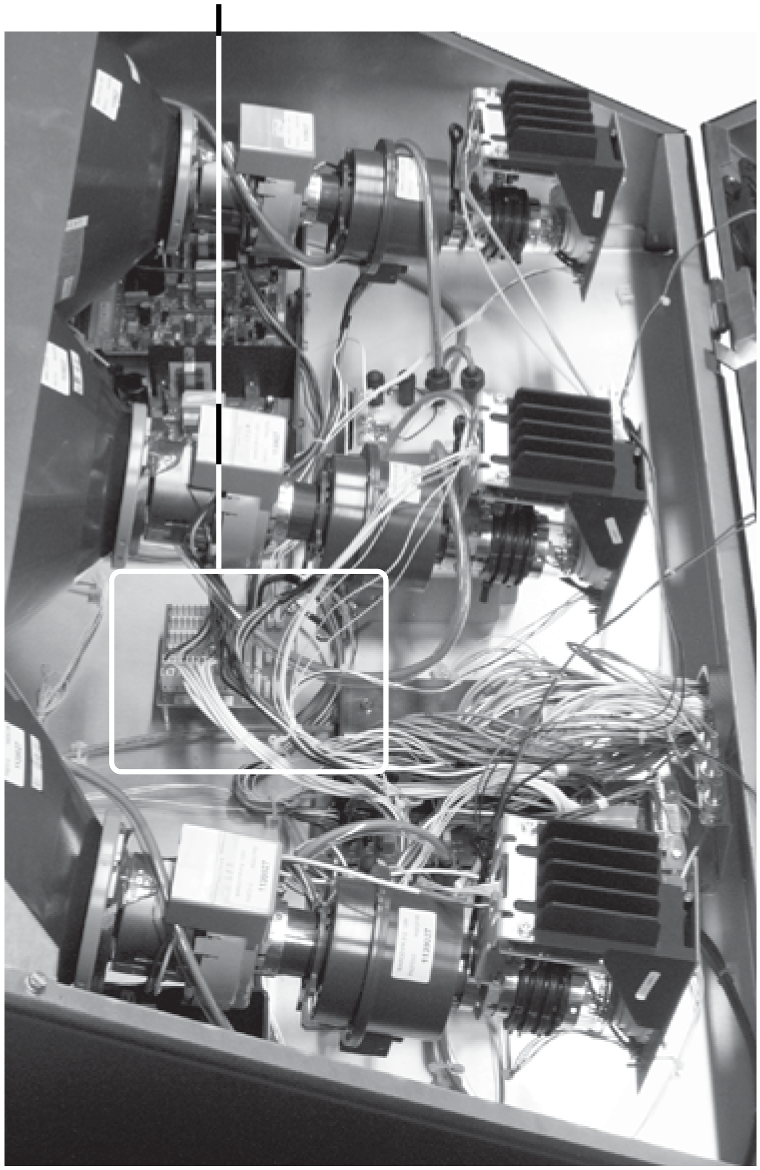
COMPONENTS MARKED WITH ❋ OR ⚠ HAVE SPECIAL CHARACTERISTICS IMPORTANT TO SAFETY. BEFORE REPLACING ANY OF THESE COMPONENTS, READ CAREFULLY THE SERVICE SAFETY PRECAUTIONS. DO NOT DEGRADE THE SAFETY OF THIS SET THROUGH IMPROPER SERVICING.

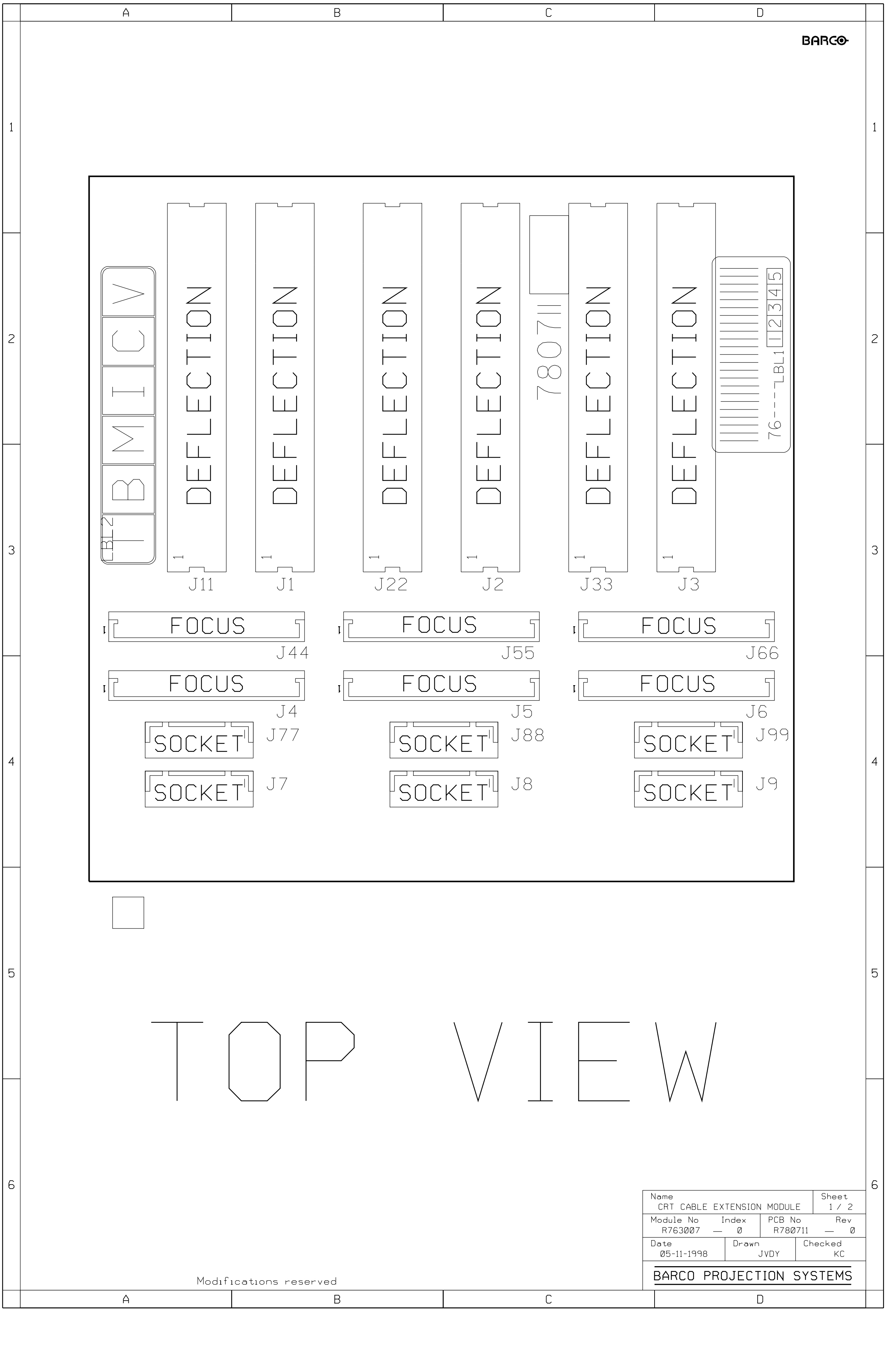
Modifications reserved

Name			Sheet
EHT CONNECTION UNIT			1/1
Module No: R762928	Index: 0	PCB No: R780683	Rev: 1
Date: 30-10-1998	Drawn: JVDY	Checked: KC	
BARCO NV		Division: BPS	

Partslisting EHT interface R762928

SIT.	ITEM NO.	DESCRIPTION	QUANTITY
	R348101	WU JUMP 0,6 5	2
	R367699	RVT AVTRON2,5L 8,1 AL	4
J 0	B334008	J EUR2R FBS P64 E1C2S 1,6	1
J 1	B334008	J EUR2R FBS P64 E1C2S 1,6	1
J 16	R313607	J MTA MBT P 3 M3,96 FL RO	1
J 17	R3136078	J MTA MBT P 8 M3,96 FL RO	1
J 18	R3136078	J MTA MBT P 8 M3,96 FL RO	1
J 20	R313925	J CT H MBT P 5 M2SN WH	1
J 21	R313607	J MTA MBT P 3 M3,96 FL RO	1
J 22	R313925	J CT H MBT P 5 M2SN WH	1
PC	R780683	PCB R812HS EHT CNN	1
R 3	V1026725	R MF H562E F 0W6 E4	1
R 4	V1026725	R MF H562E F 0W6 E4	1

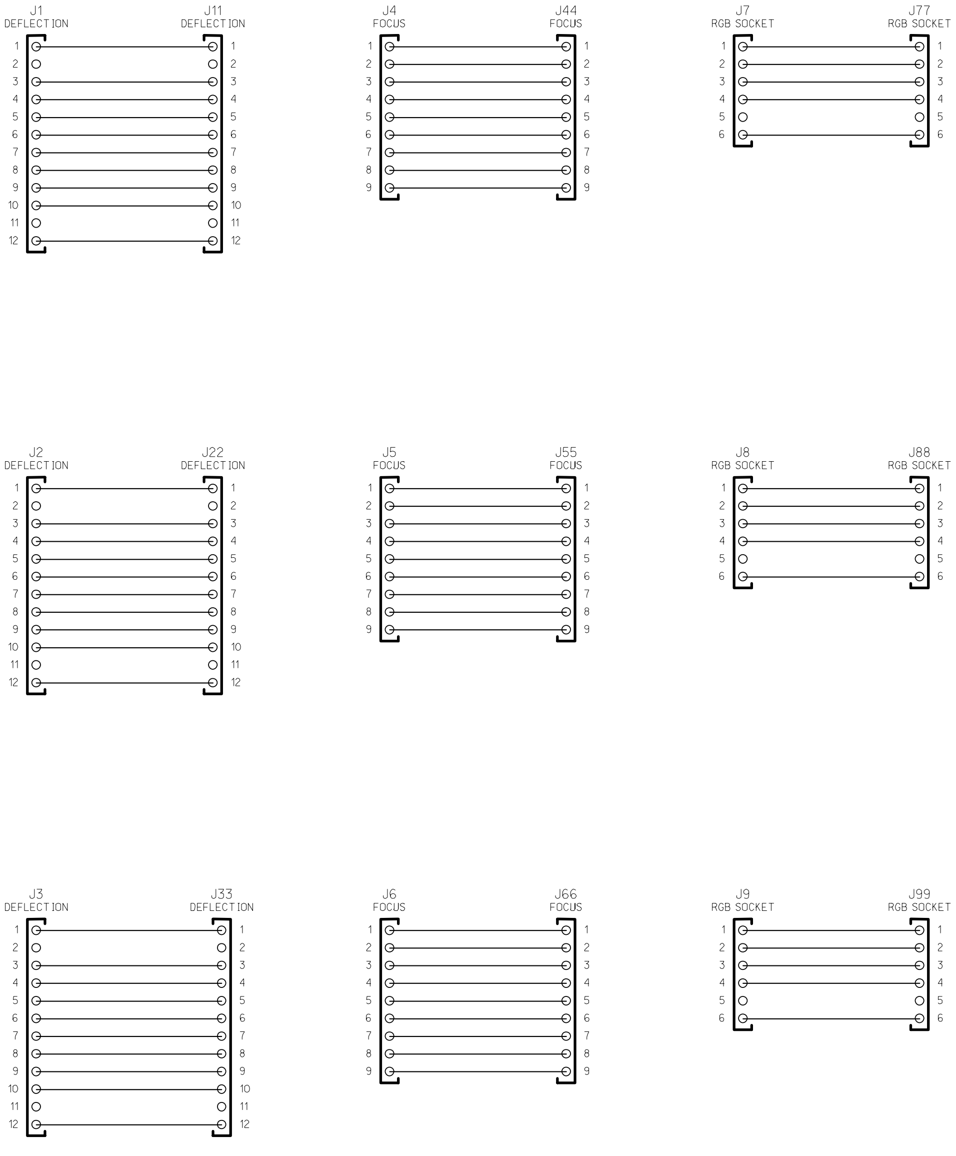

Delection/RGB interface



Modifications reserved

Name: CRT CABLE EXTENSION MODULE			Sheet: 1 / 2
Module No: R763007	Index: 0	PCB No: R780711	Rev: 0
Date: 05-11-1998	Drawn: JVDY	Checked: KC	

BARCO PROJECTION SYSTEMS

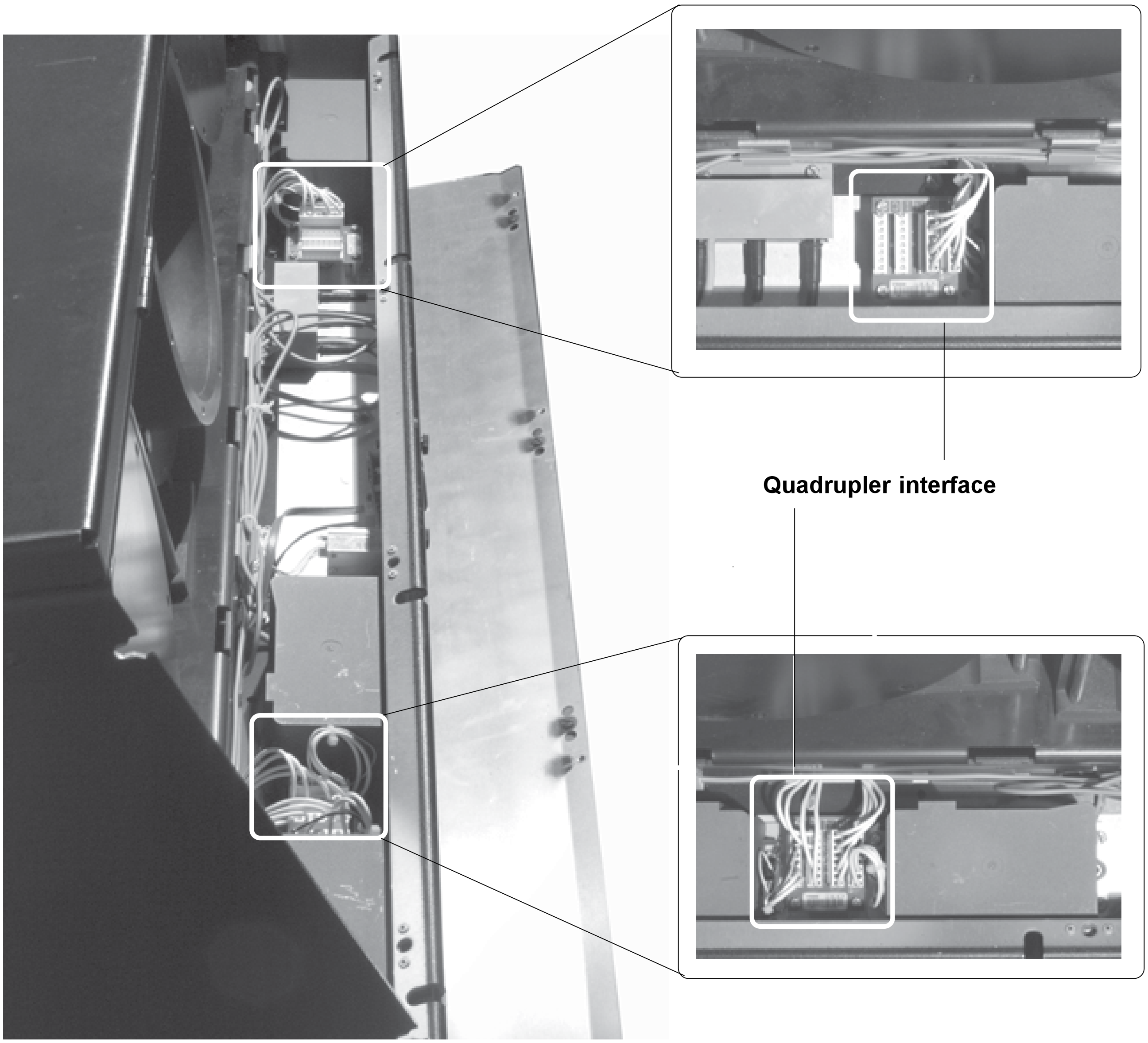


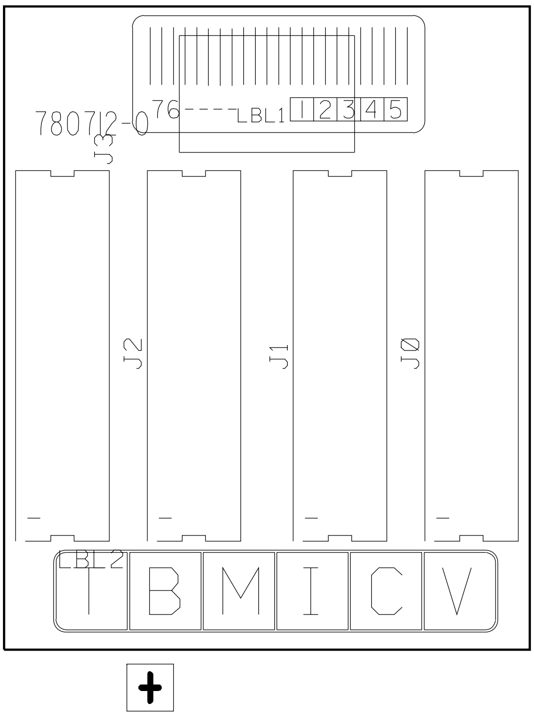
Modifications reserved

Name				Sheet
CRT CABLE EXTENSION MODULE				1/1
Module No: R763007	Index: – 0	PCB No: R780711	Rev: – 0	
Date: 30-10-1998	Drawn: JVDY	Checked: KC		
BARCO NV		Division: BPS		

Partslisting Cable interface R763007

SIT.	ITEM NO.	DESCRIPTION	QUANTITY
J 1	R3134685	J MTA MBT P12 M3,96 FL RO	1
J 2	R3134685	J MTA MBT P12 M3,96 FL RO	1
J 3	R3134685	J MTA MBT P12 M3,96 FL RO	1
J 4	R314079	J SP MBT P 9 R1	1
J 5	R314079	J SP MBT P 9 R1	1
J 6	R314079	J SP MBT P 9 R1	1
J 7	R313926	J CT H MBT P 6 M2SN WH	1
J 8	R313926	J CT H MBT P 6 M2SN WH	1
J 9	R313926	J CT H MBT P 6 M2SN WH	1
J 11	R3134685	J MTA MBT P12 M3,96 FL RO	1
J 22	R3134685	J MTA MBT P12 M3,96 FL RO	1
J 33	R3134685	J MTA MBT P12 M3,96 FL RO	1
J 44	R314079	J SP MBT P 9 R1	1
J 55	R314079	J SP MBT P 9 R1	1
J 66	R314079	J SP MBT P 9 R1	1
J 77	R313926	J CT H MBT P 6 M2SN WH	1
J 88	R313926	J CT H MBT P 6 M2SN WH	1
J 99	R313926	J CT H MBT P 6 M2SN WH	1
PC	R780711	PCB R812HS CNN EXT DEFRGB	1

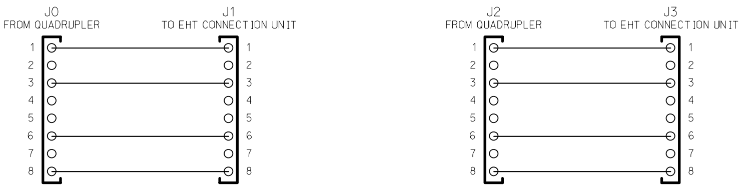

Quadrupler interface



TOP VIEW

Modifications reserved

Name: QUADRUPLER EXTENSION UNIT			Sheet: 1 / 2
Module No: R763008	Index: — Ø	PCB No: R780712	Rev: — Ø
Date: Ø9-11-1998	Drawn: JVDY	Checked: KC	
BARCO PROJECTION SYSTEMS			



Modifications reserved

Name: QUADRUPLER EXTENSION UNIT			Sheet: 1/1
Module No: R763008	Index: 0	PCB No: R780712	Rev: 0
Date: 09-11-1998	Drawn: JVDY	Checked: KC	
BARCO NV		Division: BPS	

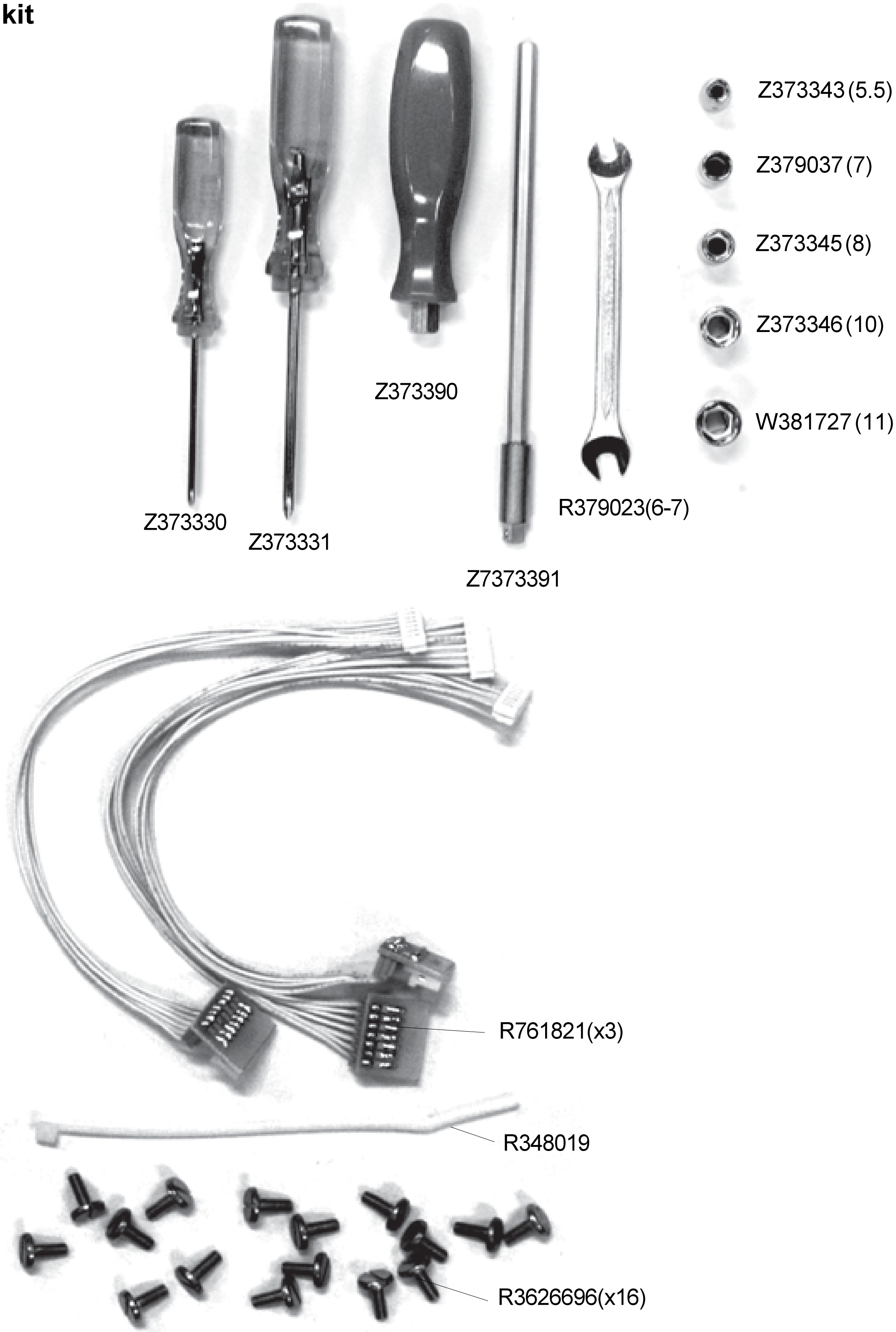
Partslisting Cable interface R763008

SIT.	ITEM NO.	DESCRIPTION	QUANTITY
J 0	R3136078	J MTA MBT P 8 M3,96 FL RO	1
J 1	R3136078	J MTA MBT P 8 M3,96 FL RO	1
J 2	R3136078	J MTA MBT P 8 M3,96 FL RO	1
J 3	R3136078	J MTA MBT P 8 M3,96 FL RO	1
PC	R780712	PCB R812HS CNN EXT QDR	1

Service Kit CRT projector R9827605

SAFETY NOTICE
Before servicing the projector, it is important that the service technician read and follow the 'SAFETY PRECAUTIONS' and 'PRODUCT SAFETY NOTICES' in the service manual.

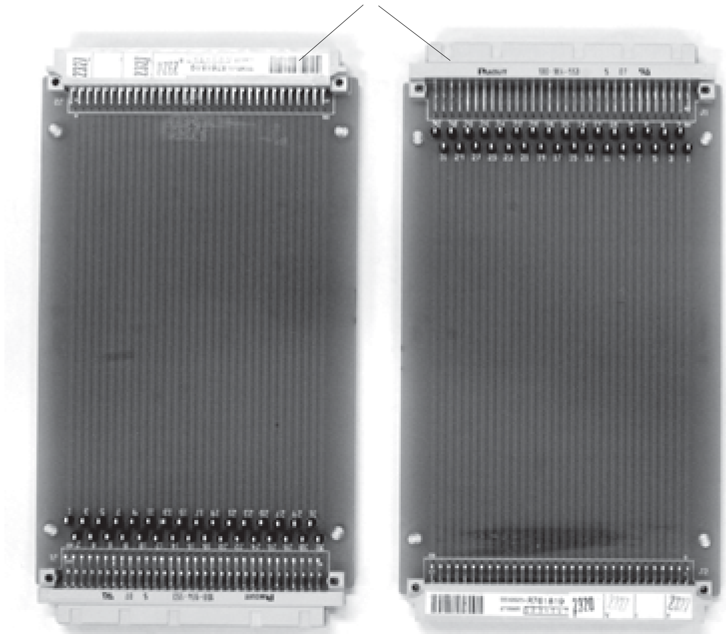
Contents of the kit

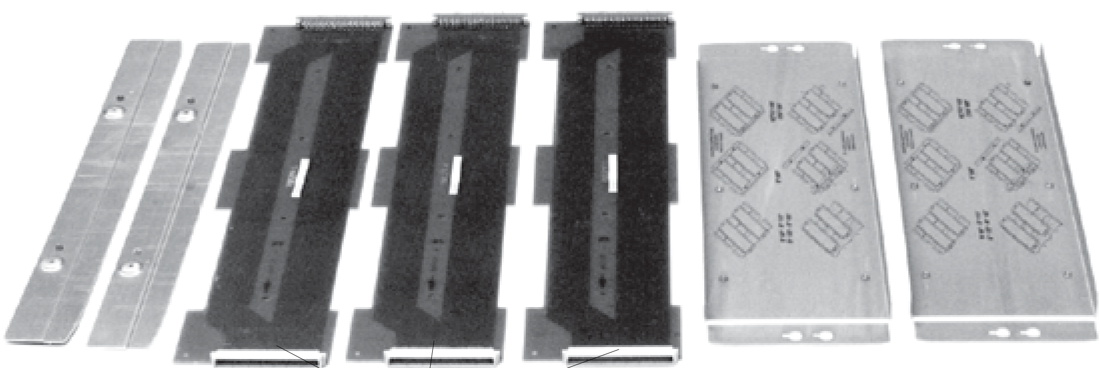


R5975737 Rev. 02

Contents of the kit (continuation)

R761819(x2)





R805868 (x2) R762806 (x3) R805869 (x2)

Parts listing Service Kit R9827605

ITEM NO.	DESCRIPTION	QUANTITY
R348019	CBLA TIE B L100 W2.5	1
R3626696	SCR D921 M 3 X 8 SS	16
R379023	SLEUTEL ZESK PLAT 6- 7	1
R379037	DOP ZESK 7 F32001	1
R5975737	MAN INS SERVICE KIT CRT	1
R761819	UN EXT_BD PJ49 *800 EURO	2
R761821	CDU EXT_CD PJ49 *800 RGB	3
R762806	UN EXT_BD *808 CNV	3

ITEM NO.	DESCRIPTION	QUANTITY
R805868	FRM G808 CNV PF EXT1	2
R805869	FRM G808 CNV PF EXT2	2
W381727	DOP ZESK 11 2400M	1
Z373330	SCHROEVENDR KRUIS PH0 60	1
Z373331	SCHROEVENDR KRUIS PH1 80	1
Z373343	DOP ZESK 5.5 2400M	1
Z373345	DOP ZESK 8 2400M	1
Z373346	DOP ZESK 10 2400M	1
Z373390	"BITHOUDER 1/4"" 281 "	1
Z373391	"BIT KOPP1/4""ZESK-VIER 175"	1

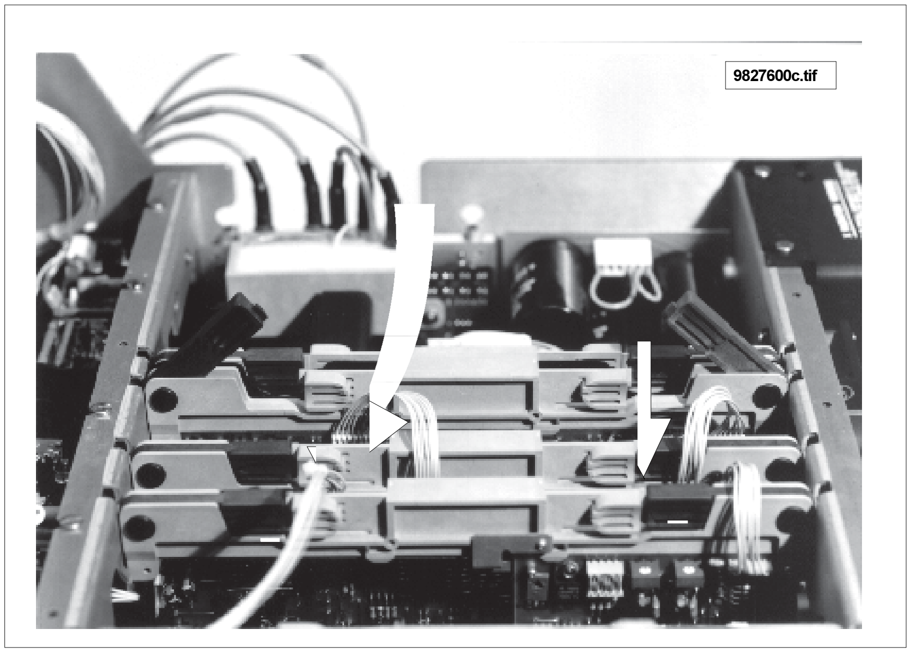
Introduction

Repairing the Barco 800 series projectors on component level is made posible by using the extension boards and the extensions cable units, delivered as **service kit**.

Using the extension boards for Euro cards

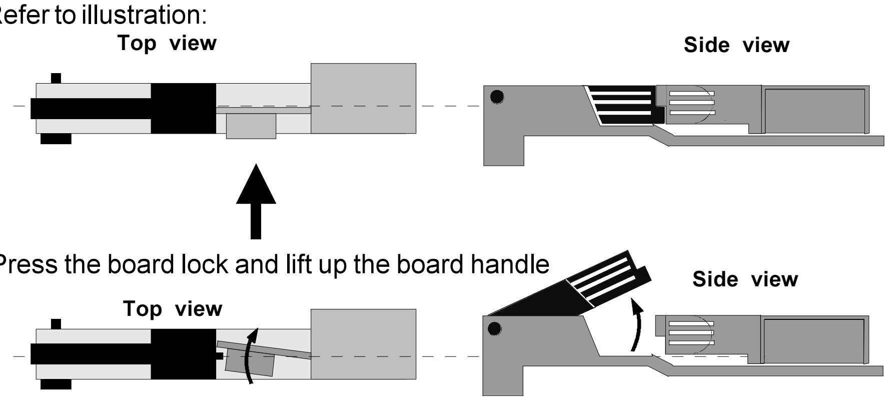
How to extract a module

Each board is locked in the main chassis on both sides.



To unlock the board, proceed as follows:

Refer to illustration:



Repeat this action on both sides of the module and extract the module out of the main frame.

Example: repairing the decoder module

- Unplug the two connection cables to and from the Decoder module.

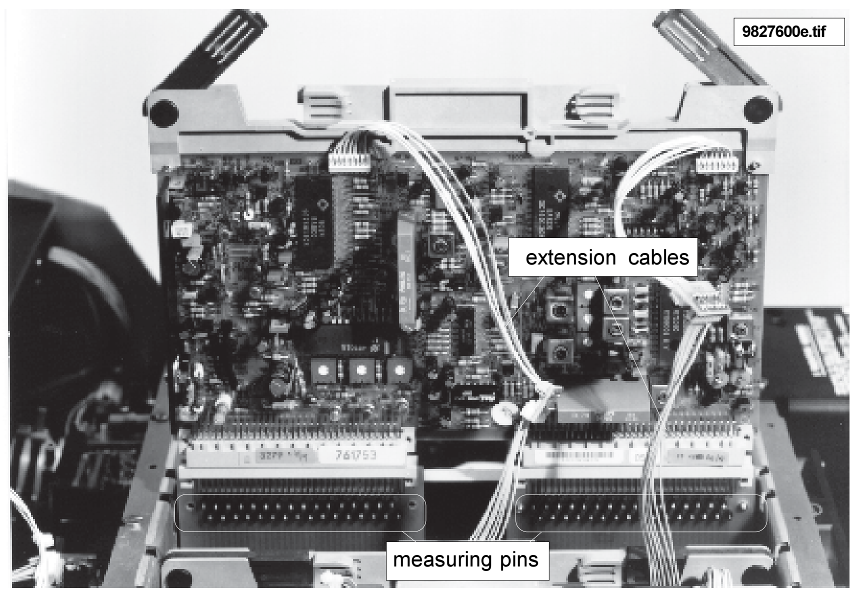
- Remove the Decoder module out of the main frame as already described.

- Plug the extension boards on the two decoder board connectors on the main frame.

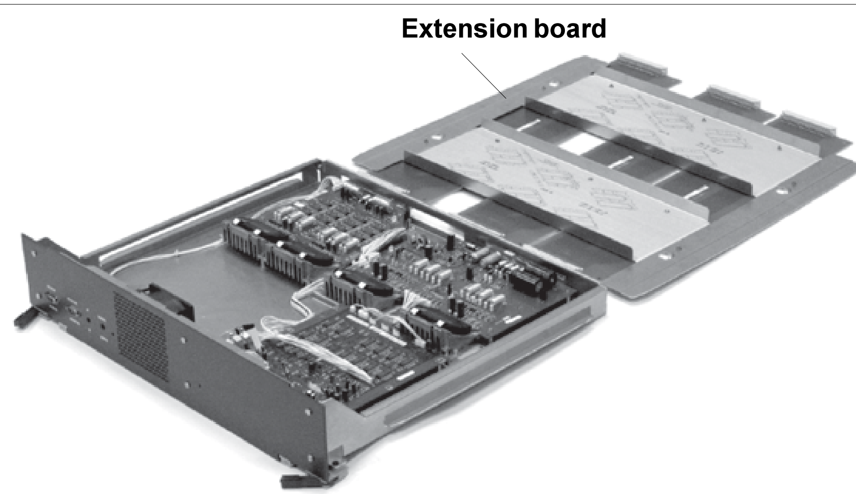
- Put the Decoder module on the extensions boards.

- Re-install the cable connection by inserting the extension cables.

Important: the extension board for Eurocard is provided on each printed circuit foil with measuring pins.



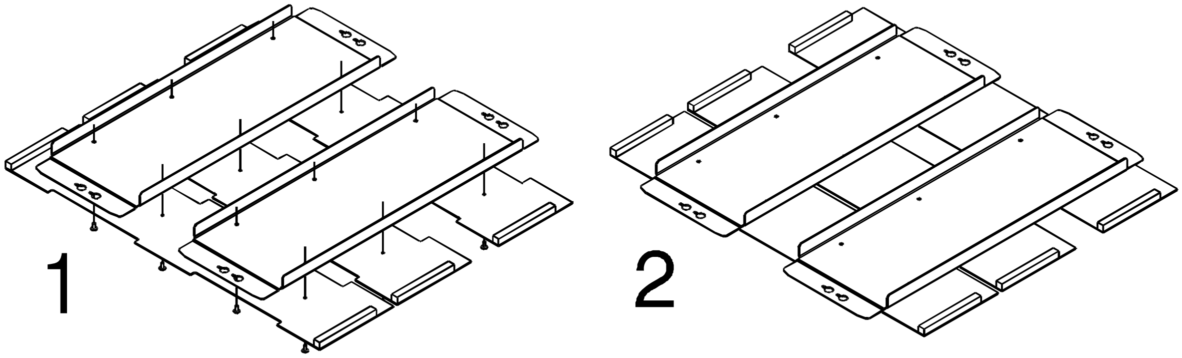
Using the extension board for the Convergence module



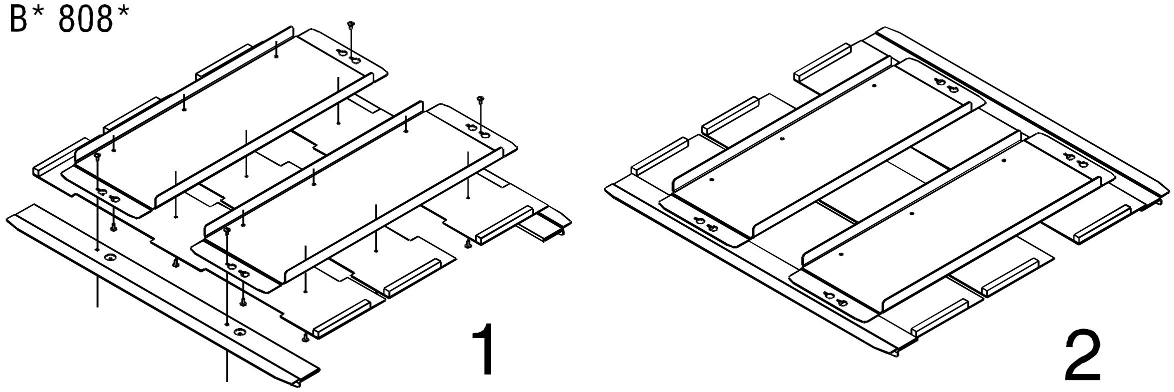
e.g B*808

Convergence Extension module assembly for different projector types

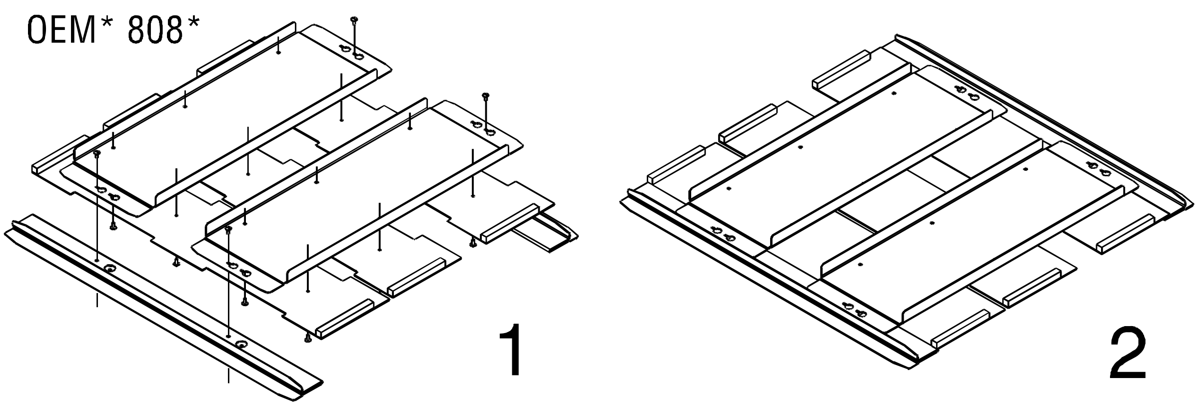
B* 80* - B* 110*
B* 120* - B* 160*



B* 808*



RETRO* 808*
OEM* 808*



B* BARCO-VISION/DATA AND GRAPHICS types **80*** Projectors 800 series

Removing the defective picture tube

Attention

WARNING: CRT HANDLING

The picture tube encloses a high vacuum and care must be taken not to bump or to scratch the picture tube as this may cause the tube to implode resulting in personal injury and property damage. Shatterproof goggles must always be worn by individuals while handling the CRT or installing it in the projector. Do not handle the CRT by the neck.

Preparations before CRT removal

CRT replacement requires the following parts to be removed before:

- **Lens of the defective picture tube**
- the **Shield**, covering the CRT units.
- the CRT neck components

How to remove Lens

To remove the Lens, proceed to the following steps:

Step	Action	Image
1	Loosen (**for the defective picture tube)** the 8 bolts **(A)** securing the lens to the CRT block.	Photo 1
2	Support the lens by hand and remove the lens bolts. Take care not to scrath the lens surfaces.	

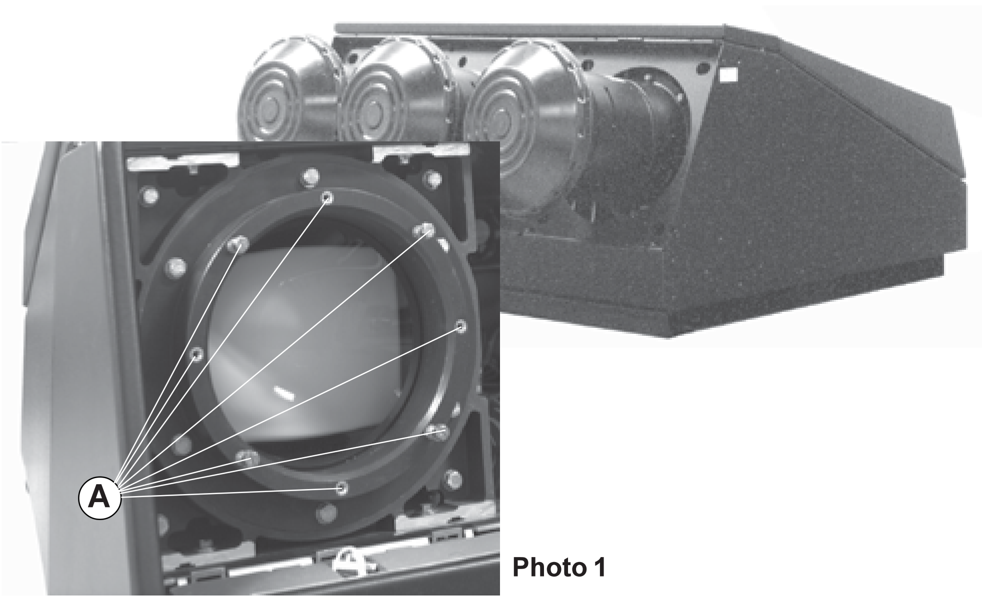


Photo 1

How to remove the CRT cover shield

To remove the CRT shield, proceed to the following steps:

Step	Action	Image
1	Loosen the 12 screws **(A)** securing the CRT cover to the Optical house.	Photo 1
2	Remove the cover by sliding the cover over the remaining lenses Note: the three lenses on Photo 2 & 3 are removed in order to indicate better the screws to be removed and the CRT fixation in its block.	Photo 2-3

Photo 1

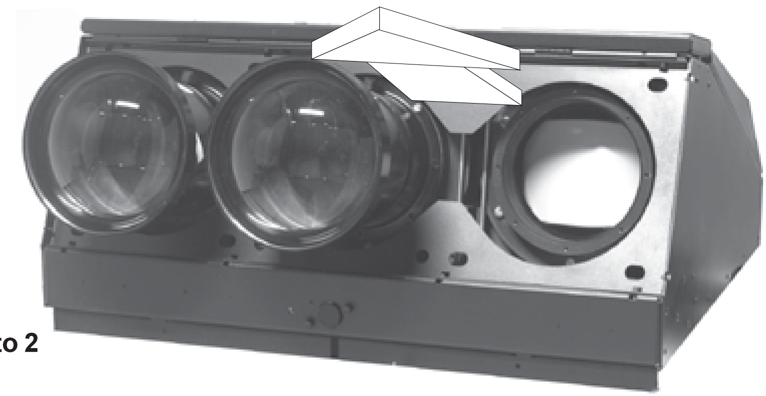


Photo 2

Photo 3

access to Optical and Electronic parts

To have access to the Optical and Electronic parts, proceed to the following steps:

Step	Action	Image
1	Pull the small cover (A) upwards to open. The three lock screws (B) of the top cover (C) become accessible (see photo 02).	Photo 1-2
2	Unlock, using a coin or a screwdriver, the three lock screws (B) of the top cover (C) by turning the screws a half turn counter-clockwise. Lift up the cover and pivot it carefully until the cover rest against the cable tube.	Photo 1-2

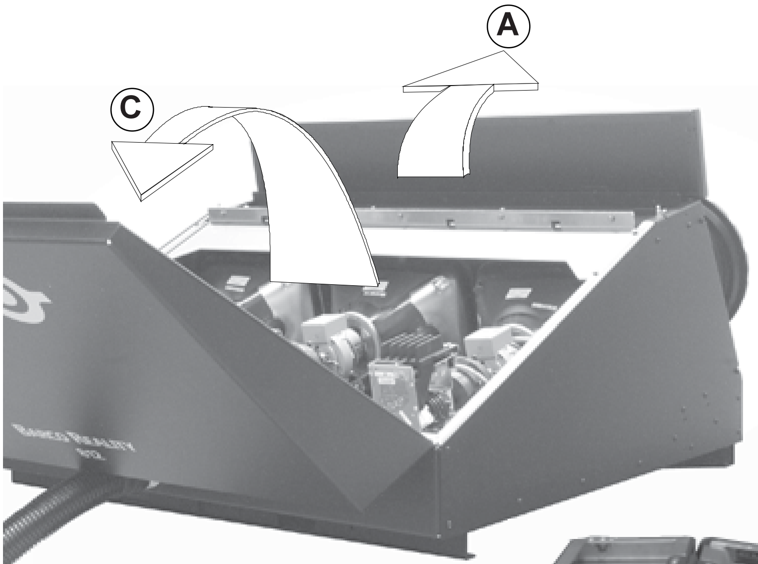


Photo 1

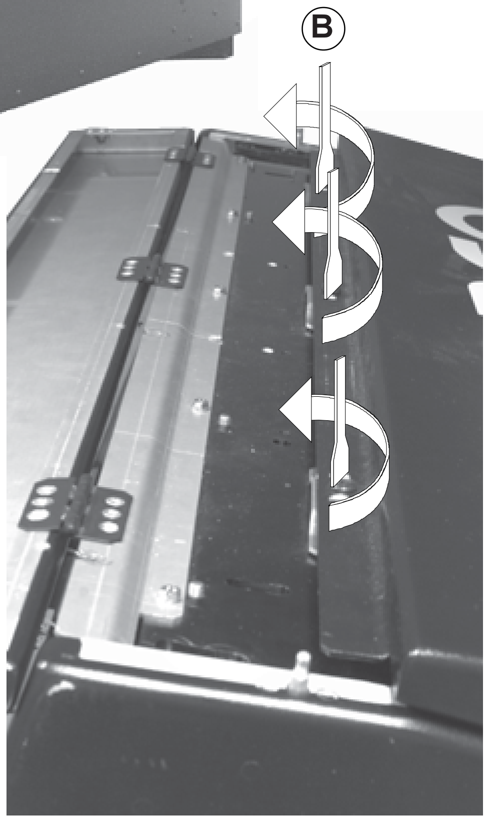


Photo 2

How to remove the CRT neck components

To remove the **CRT components**, proceed to the following steps:

Important: The components on the neck of the CRT, to be replaced, have only to be loosened and further to be slid from the neck when removing the picture tube.

The Units on the picture tube are clamped on the neck of the picture tube by means of a gear clamp. Follow the next steps to loosen:

Step	Action	Image
1	Loosen the gear clamp **(1)** of the **Magnetic unit**	Photo 1
2	Loosen the gear clamp **(2 & 3)** of the **Focus and Deflection unit** and the clasp ring **(4)** of the **Focus unit.**	Photo 1
3	Pull out on the EHT splitter the respective EHT lead **(5) of** the defective CRT.	Photo1-2
4	Disconnect the Aquadag connection by pulling out the male bullet from the female bullet **(6)**.	Photo 1

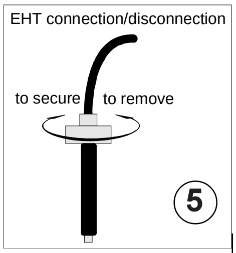


Photo 2

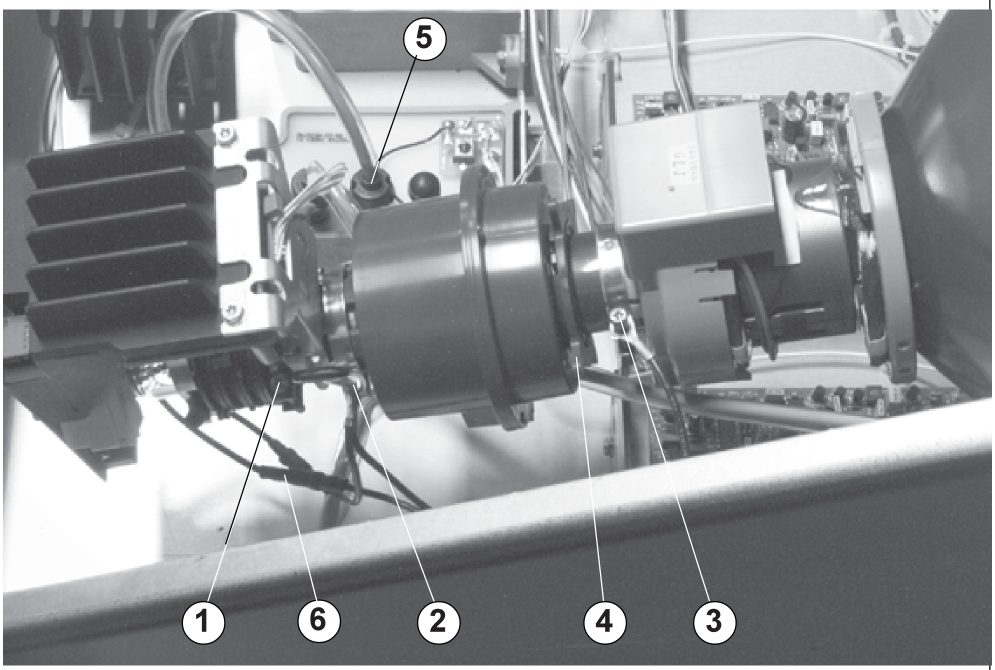


Photo 1

How to remove the defective CRT

To remove the **CRT** , proceed to the following steps:

Important: the defective picture tube will be removed from the optical house via the front.
Each picture tube block is fixed to the main frame on top and bottom by two bolts, accessible on top of the Optical Unit..

Step	Action	Image
1	Remove the 4 bolts (A) securing the CRT block of the defective picture tube to the main frame	Photo 1-2
2	Loosen the bolts (A) of the other picture tubes so that the CRT blocks do not stick in the main frame.	Photo 1-2
3	Take the defective picture tube out the main frame sliding the neck components off the neck.	

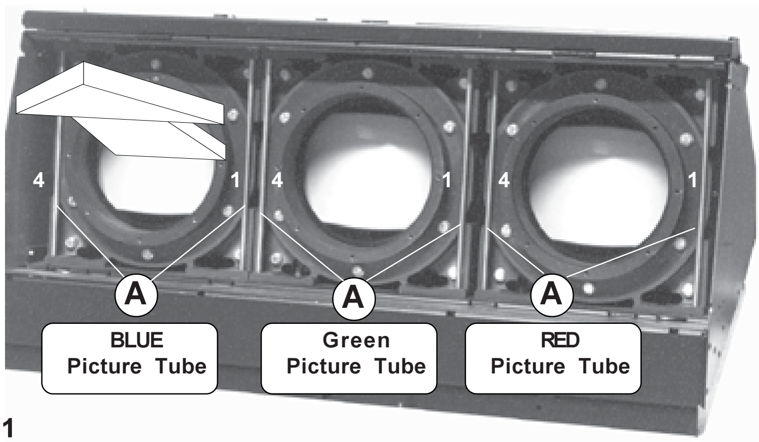


Photo 1

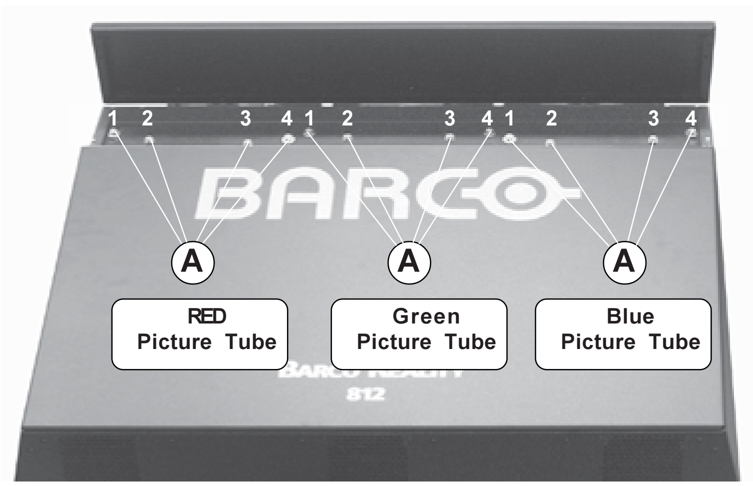


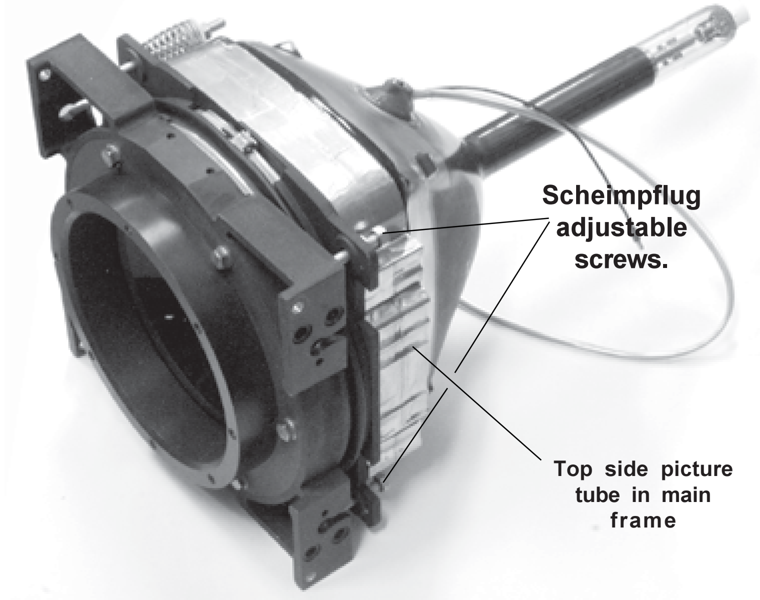
Photo 2

Installing the new picture tube

Order No new picture tube

A new picture tube unit can be ordered using the following spare numbers:

RED Picture tube: **R7629632**
GREEN Picture tube: **R7629635**
BLUE Picture tube: **R7629636**



Installing the new CRT

To install the **new CRT** , proceed to the following steps:

Important: The top side of the picture tube to be mounted is provided with the two Scheimpflug adjustable screws.

Step	Action	Page
1	Move the new CRT in the frame, simultaneously sliding the neck components again onto the neck of the picture tube.	Page 4-5
2	Secure the position of the CRT block, using the saved four bolts of the defective tube. **Do not forget to tighten the bolts of the other picture tubes.**	Page 5
3	Secure the position of the neck components on the CRT, insert the EHT lead in the EHT splitter and reinstall the aquadag connection.	Page 4
4	Reinstall the CRT cover and next the Lens.	Page 2
5	Proceed now to the adjustment of the replaced picture tube (see next pages)	Page 7

Picture tube alignment

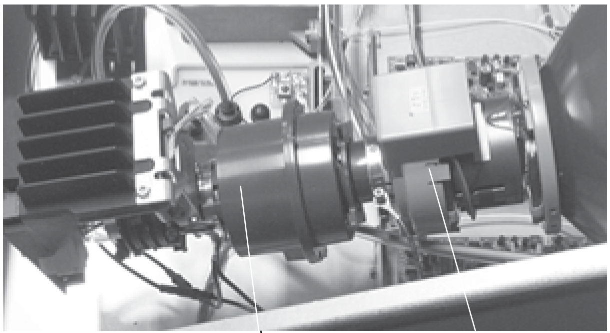
Before starting the alignment of the new picture tube, the projector must warm up for at least 15 minutes at a medium brightness and contrast.

Picture tube alignment

all picture tubes replaced

1 or 2 picture tubes replaced

projected picture of the non-defective tube can be used as reference



apply an external crosshatch pattern at 15 kHz or use the internal crosshatch

proceed to a quick optical and electrical focus

rotate the deflection yoke until the Horizontal midline is levelled - tighten the gear clamp

centre the picture on the CRT faceplate (refer to installation manual)

note: alignment of the stigmators will change again its position, if so, realign raster centring

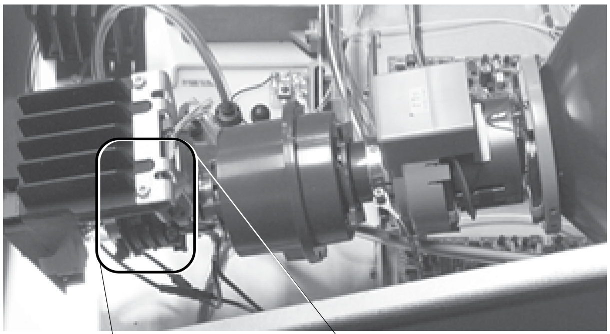
proceed to the following adjustments for each picture tube separately

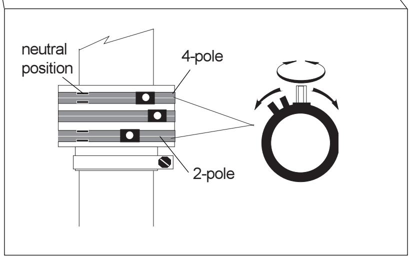
apply an external crosshatch pattern at 15 kHz or use the internal crosshatch

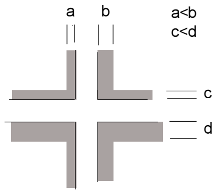
rotate the deflection yoke until the Horizontal midline is levelled - tighten the gear clamp

Set the midpoint focusing on 57 (see owner's manual) and the Contrast on 80

move the focus unit slowly for- or backwards for max focusing in the middle of the screen - tighten the gear clamp and the centring clamp

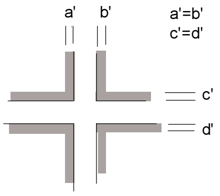






lower the Brightness and put the Contrast on its max with the RCU
Set the midpoint focusing on 0

adjust the 2-pole magnets rings by rotating one or both up to a point where 'shading' of both sides of the vertical and horizontal lines is equal.



realign the electrical and optical focus

select a source that generate a field of small dots and crosshairs

Set the midpoint focusing on 100

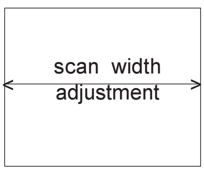
adjust the 4-pole rings until the defocused dots are circular.

realign the electrical and optical focus

reposition the raster as described earlier

due tu mutual influence between the stigmators, focus and centring, it is advised to repeat above a couple of times

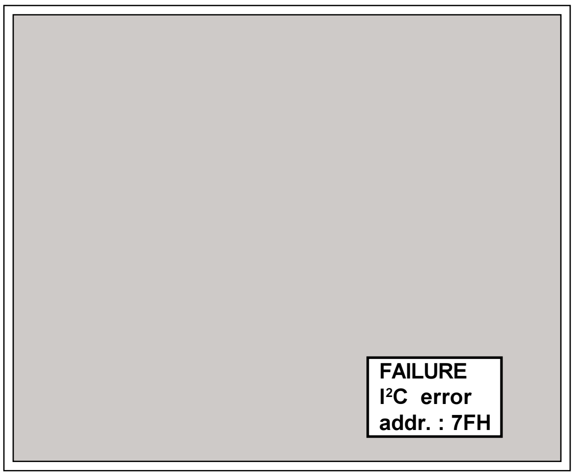
decrease the Contrast and Increase the Brightness to reveal the background raster



see service sheet 'Deflection switching/Hor Amplitude' in this manual for the alignment of the image width coils

Note: when only one tube has been replaced, the image width of one of the other tubes as a reference, and obviously limit the adjustment to the core of the corresponding replaced tube

I²C error is displayed on the screen together with the respective address, as illustrated on screen picture:

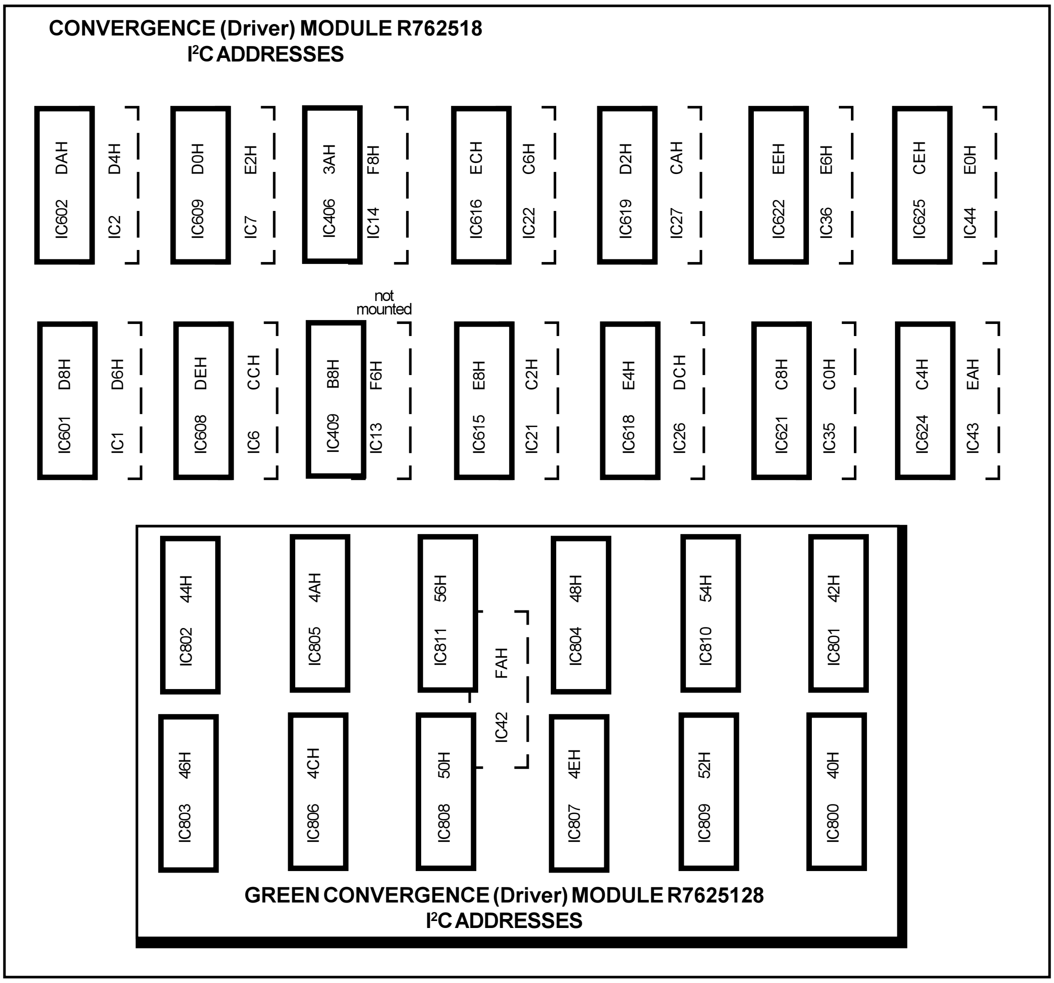


The table below indicates which IC corresponds to the displayed address . Replacement of the indicated IC solves the I²C error.

Convergence zones

1	2	3	4	5
6	7	8	9	10
11	12		13	14
15	16	17	18	19
20	21	22	23	24

Convergence module (Driver) R762518 - Green convergence sub module R7625128



Green convergencemain module R762518

HEX address	IC	CORRECTION	ZONE
D6H	IC1	R Horizontal/Vertical	12
		B Horizontal/Vertical	12
D8H	IC601	R Horizontal/Vertical	13
		B Horizontal/Vertical	13
D4H	IC2	R Horizontal/Vertical	11
		B Horizontal/Vertical	11
DAH	IC602	R Horizontal/Vertical	14
		B Horizontal/Vertical	14
C4H	IC624	R Horizontal/Vertical	3
		B Horizontal/Vertical	3
EAH	IC43	R Horizontal/Vertical	22
		B Horizontal/Vertical	22
CEH	IC625	R Horizontal/Vertical	8
		B Horizontal/Vertical	8
E0H	IC44	R Horizontal/Vertical	17
		B Horizontal/Vertical	17
D0H	IC609	R Horizontal/Vertical	9
		B Horizontal/Vertical	9
E2H	IC7	R Horizontal/Vertical	18
		B Horizontal/Vertical	18
CCH	IC6	R Horizontal/Vertical	7
		B Horizontal/Vertical	7
DEH	IC608	R Horizontal/Vertical	1
		B Horizontal/Vertical	1
C0H	IC35	R Horizontal/Vertical	1
		B Horizontal/Vertical	1
E6H	IC36	R Horizontal/Vertical	20
		B Horizontal/Vertical	20
C8H	IC621	R Horizontal/Vertical	5
		B Horizontal/Vertical	5
EEH	IC622	R Horizontal/Vertical	24
		B Horizontal/Vertical	24
C6H	IC22	R Horizontal/Vertical	4
		B Horizontal/Vertical	4
ECH	IC616	R Horizontal/Vertical	23
		B Horizontal/Vertical	23
C2H	IC21	R Horizontal/Vertical	2
		B Horizontal/Vertical	2
E8H	IC615	R Horizontal/Vertical	21
		B Horizontal/Vertical	21
DCH	IC26	R Horizontal/Vertical	15
		B Horizontal/Vertical	15
E4H	IC618	R Horizontal/Vertical	19
		B Horizontal/Vertical	19
CAH	IC27	R Horizontal/Vertical	6
		B Horizontal/Vertical	6
D2H	IC619	R Horizontal/Vertical	10
		B Horizontal/Vertical	10
F6H	IC13	R/G/B Left BOW (Hor)	Left side
		R/G/B Left SKEW (Hor)	Left side
F8H	IC14	R/G/B Bottom BOW (Vert)	N/S corr.
		R/G/B Top BOW (Vert)	N/S corr.
		R/G/B Bottom Keystone (Vert)	N/S corr.
		R/G/B Top Keystone (Vert)	N/S corr.
FAH	IC42	G Vertical Midline SKEW (H)	Midlines
		R/G/B Vertical Midline BOW (H)	Midlines
		R/G/B Vertical Midline SKEW (V)	Midlines
		R/G/B Vertical Midline BOW (V)	Midlines
3AH	IC406	R/G/B E/W Seagull	E/W
		R/G/B N/S Seagull	N/S
B8H	IC409	R/B Precorrections	Sides
		R/B Precorrections	Head Corner

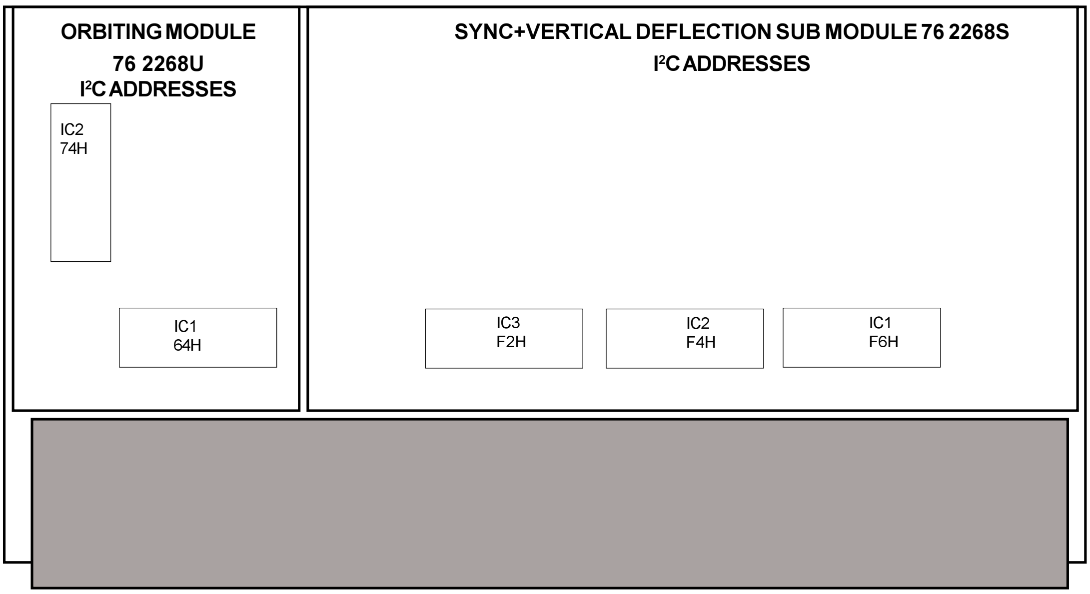
HEX address	IC	CORRECTION	ZONE	HEX address	IC	CORRECTION	ZONE
50H	IC808	G Horizontal/Vertical	23	54H	IC810	G Horizontal/Vertical	1
		G Horizontal/Vertical	4			G Horizontal/Vertical	20
52H	IC809	G Horizontal/Vertical	24	56H	IC811	G Horizontal/Vertical	21
		G Horizontal/Vertical	5			G Horizontal/Vertical	2

SYNC+VERTICAL DEFLECTION MODULE R7622686

HEX address	IC	CORRECTION	HEX address	IC	CORRECTION
F2H	IC3	bottom blanking	F6H	IC1	side keystone
		vertical shift red			side bow
		vertical shift green			left blanking
		vertical shift blue			right blanking
F4H	IC2	vertical amplitude			
		vertical linearity			
		horizontal phase			
		top blanking			

ORBITING

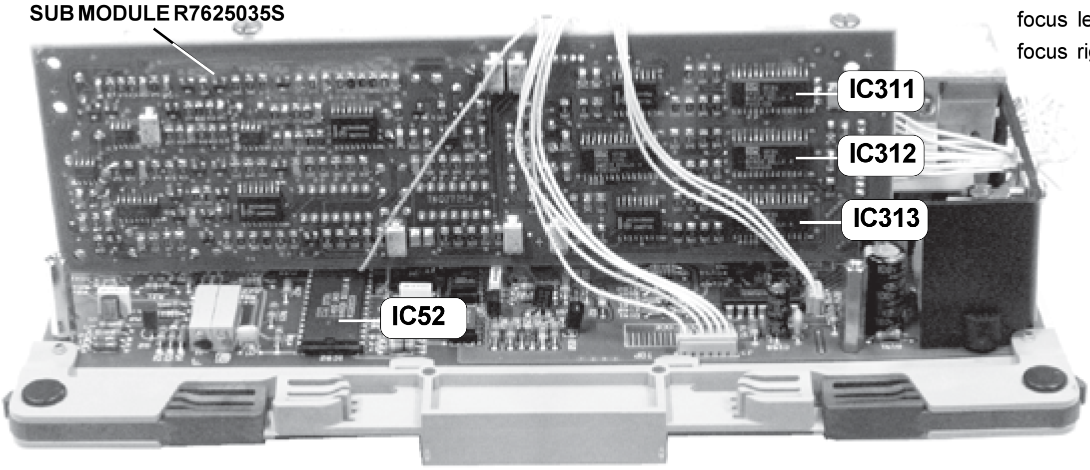
HEX address	IC	CORRECTION	HEX address	IC	CORRECTION
74H	IC2	max deviation	64H	IC1	shift orbit
		zero deviation			phase orbit
		slow orbiting			
		fast orbiting			



MAGNETICAL FOCUS+HOR SHIFT R7625035

HEX address	IC	CORRECTION
F0H	IC52	horizontall shift red
		horizontal shift green
		horizontal shift blue
FCH	IC303	focus Red center
		focus Green center
		focus Blue center
		H Amp (not used)

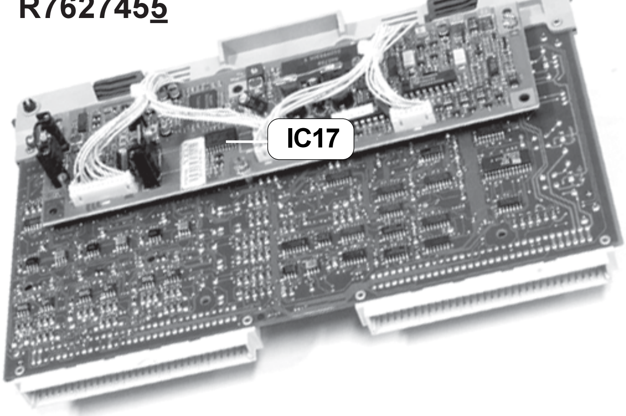
HEX address	IC	CORRECTION
FEH	IC311	focus bottom R
		focus top R
		focus left R
		focus right R
66H	IC312	focus bottom G
		focus top G
		focus left G
		focus right G
68H	IC313	focus bottom B
		focus top B
		focus left B
		focus right B



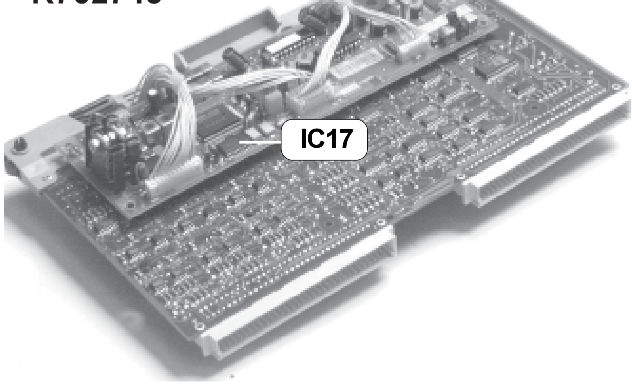
QUAD DECODER R762745 & R7627455

HEX address	IC	CORRECTION
40H	IC17	sharpness
		sharpness On

QUAD DECODER R7627455

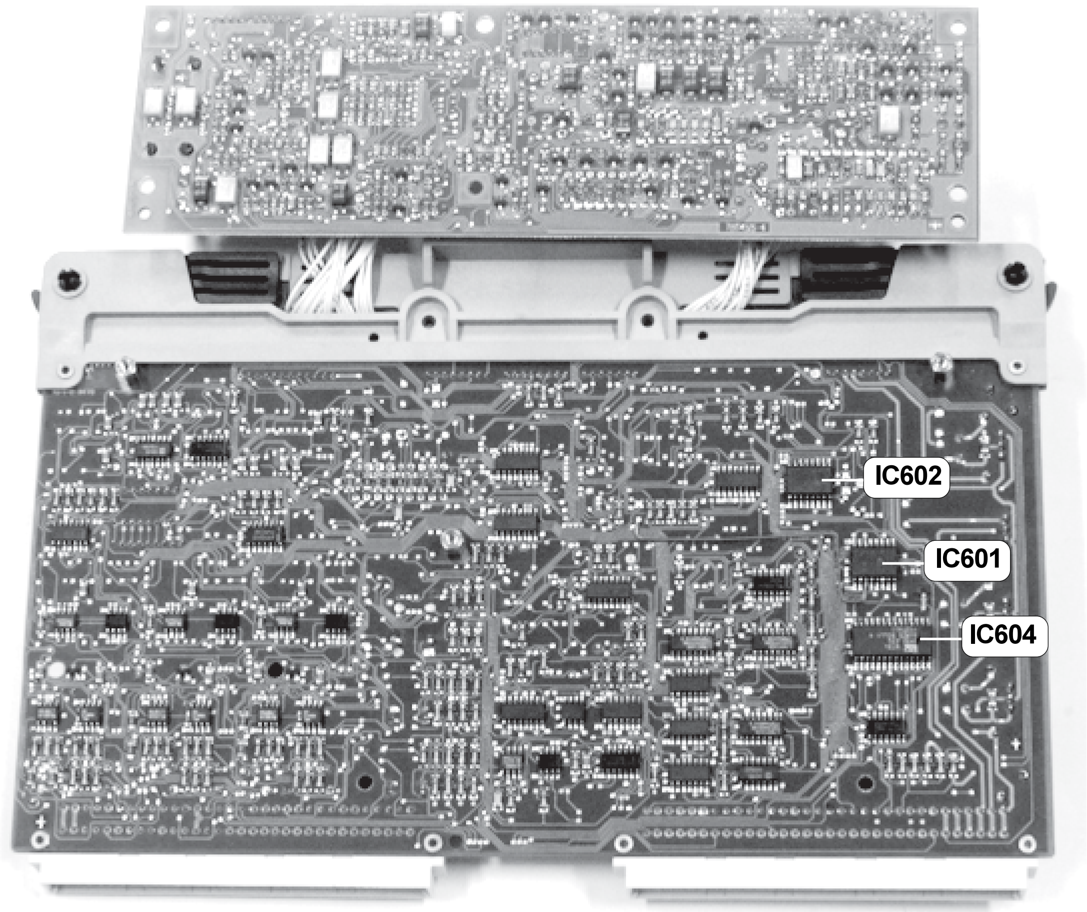


QUAD DECODER R762745



INPUT RGB+SWITCHING R762719

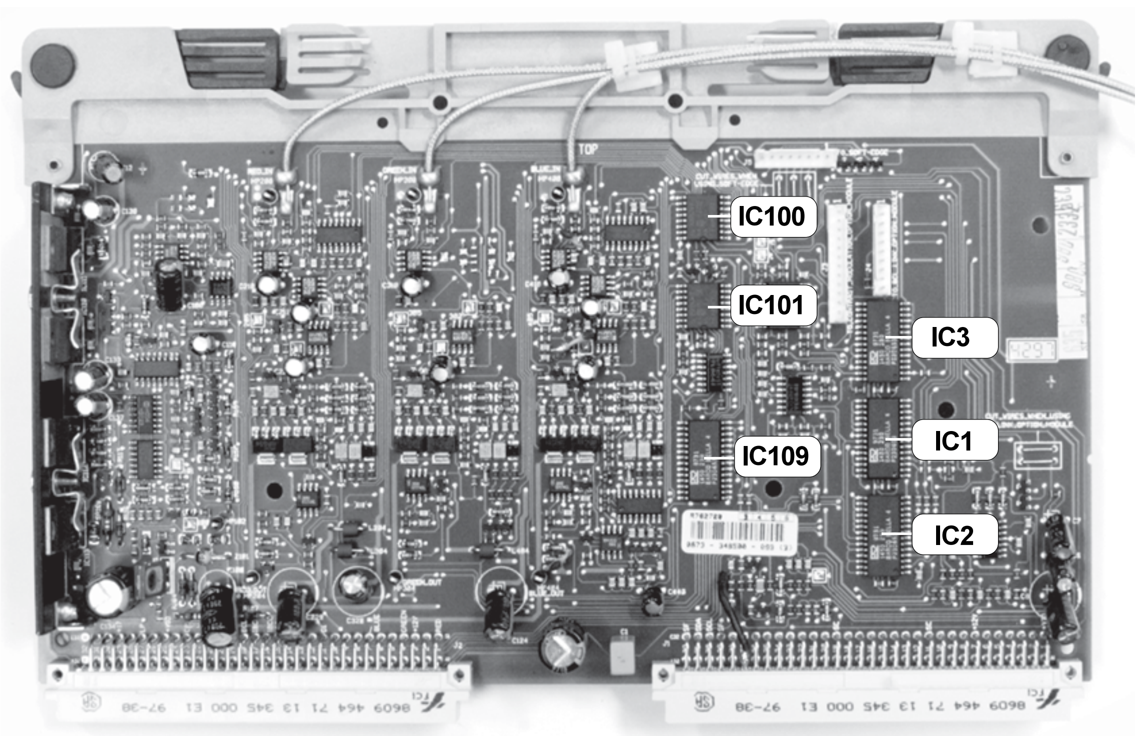
HEX address	IC	CORRECTION	HEX address	IC	CORRECTION
42H	IC601	Clamp Width 1 Clamp Width 2 Clamp Mode 1 Clamp Mode 2 (not 1200 mode) Enable CHROMA filters Scan Doubler On Width ident.	70H	IC602	Red on/off Green on/off Blue on/off Sync fast/slow IC601 SDA On/Off (P5-P7) Input Switch
3EH	IC604	RGB Matrix Saturation Hue (V03) not used			



RGB Driver R762720

HEX address	IC	CORRECTION
5AH	IC1	Bright. Red
		Bright.Green
		Bright. Blue
		Brightness
5CH	IC2	Cut off Red
		Cut off Green
		Cut off Blue
		IBCL Value
3C	IC109	Right Blanking
		Left Blanking
		Blue Breakpoint
		(4) not used

HEX address	IC	CORRECTION
58H	IC3	Red gain
		Blue gain
		Red cut off
		Blue cut off
42H	IC100	Midlights Red 1
		Midlights Red 2
		Midlights Red 3
		Midlights Red 4
		Midlights Blue 1
		Midlights Blue 2
		Midlights Blue 3
		Midlights Blue 4
44H	IC101	Peaking 1
		Peaking 2
		Peaking 3
		(P3) not used
		Blue correction 1
		Blue correction 2
		Blue correction 3
		IC100 SDA On/Off



I²C error messages in ascending order of address number

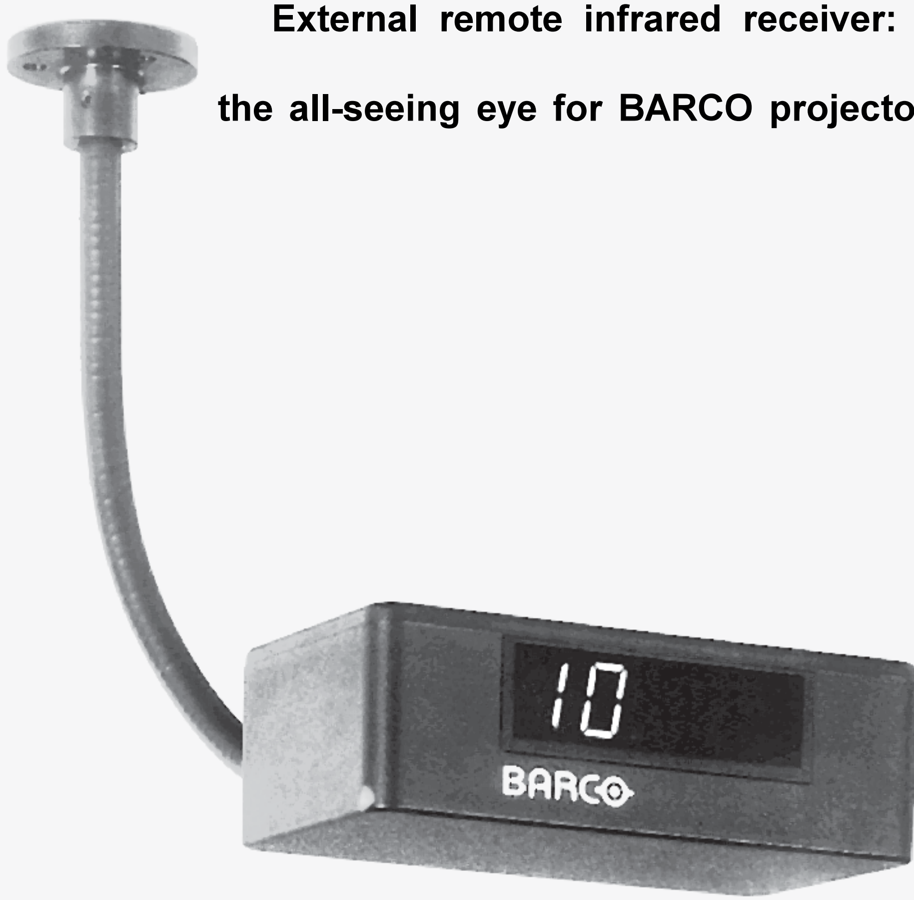
HEXaddress	IC	MODULE
40H	IC800	Convergence G R7625128
42H	IC801	Convergence G R7625128
44H	IC802	Convergence G R7625128
46H	IC803	Convergence G R7625128
48H	IC804	Convergence G R7625128
4AH	IC805	Convergence G R7625128
4CH	IC806	Convergence G R7625128
4EH	IC807	Convergence G R7625128
50H	IC808	Convergence G R7625128
52H	IC809	Convergence G R7625128
54H	IC810	Convergence G R7625128
56H	IC811	Convergence G R7625128
40H	IC17	QUAD Decoder R7621745
66H	IC312	Mag. Foc+Hor Shift R7625035
68H	IC313	Mag. Foc+Hor Shift R7625035
F0H	IC52	Mag. Foc+Hor Shift R7625035
FCH	IC303	Mag. Foc+Hor Shift R7625035
FEH	IC311	Mag. Foc+Hor Shift R7625035
42H	IC601	IN RGB+Switching R762719
70H	IC602	IN RGB+Switching R762719
3EH	IC604	IN RGB+Switching R762719
64H	IC1	Orbiting R762268U
74H	IC2	Orbiting R762268U
C0H	IC35	Convergence R762518
C2H	IC21	Convergence R762518
C4H	IC624	Convergence R762518
C6H	IC22	Convergence R762518
C8H	IC621	Convergence R762518
CAH	IC27	Convergence R762518
CCH	IC6	Convergence R762518
CEH	IC625	Convergence R762518

HEXaddress	IC	MODULE
D0H	IC609	Convergence R762518
D2H	IC619	Convergence R762518
D4H	IC2	Convergence R762518
D6H	IC1	Convergence R762518
D8H	IC601	Convergence R762518
DAH	IC602	Convergence R762518
DCH	IC26	Convergence R762518
DEH	IC608	Convergence R762518
E0H	IC44	Convergence R762518
E2H	IC7	Convergence R762518
E4H	IC618	Convergence R762518
E6H	IC36	Convergence R762518
E8H	IC615	Convergence R762518
EAH	IC43	Convergence R762518
ECH	IC616	Convergence R762518
EEH	IC622	Convergence R762518
F6H	IC13	Convergence R762518
F8H	IC14	Convergence R762518
FAH	IC42	Convergence R762518
3AH	IC406	Convergence 76 2518
B8H	IC409	Convergence 76 2518
F2H	IC3	Sync+Vert defl R7622686
F4H	IC2	Sync+Vert defl R7622686
F6H	IC1	Sync+Vert defl R7622686
42H	IC100	RGB DrIVE R762720
44H	IC101	RGB DrIVE R762720
58H	IC3	RGB DrIVE R762720
3CH	IC109	RGB DrIVE R762720
5AH	IC1	RGB DrIVE R762720
5CH	IC2	RGB DrIVE R762720

Refer to preceding pages for IC location on module and fault identification.

External remote infrared receiver:

the all-seeing eye for BARCO projectors

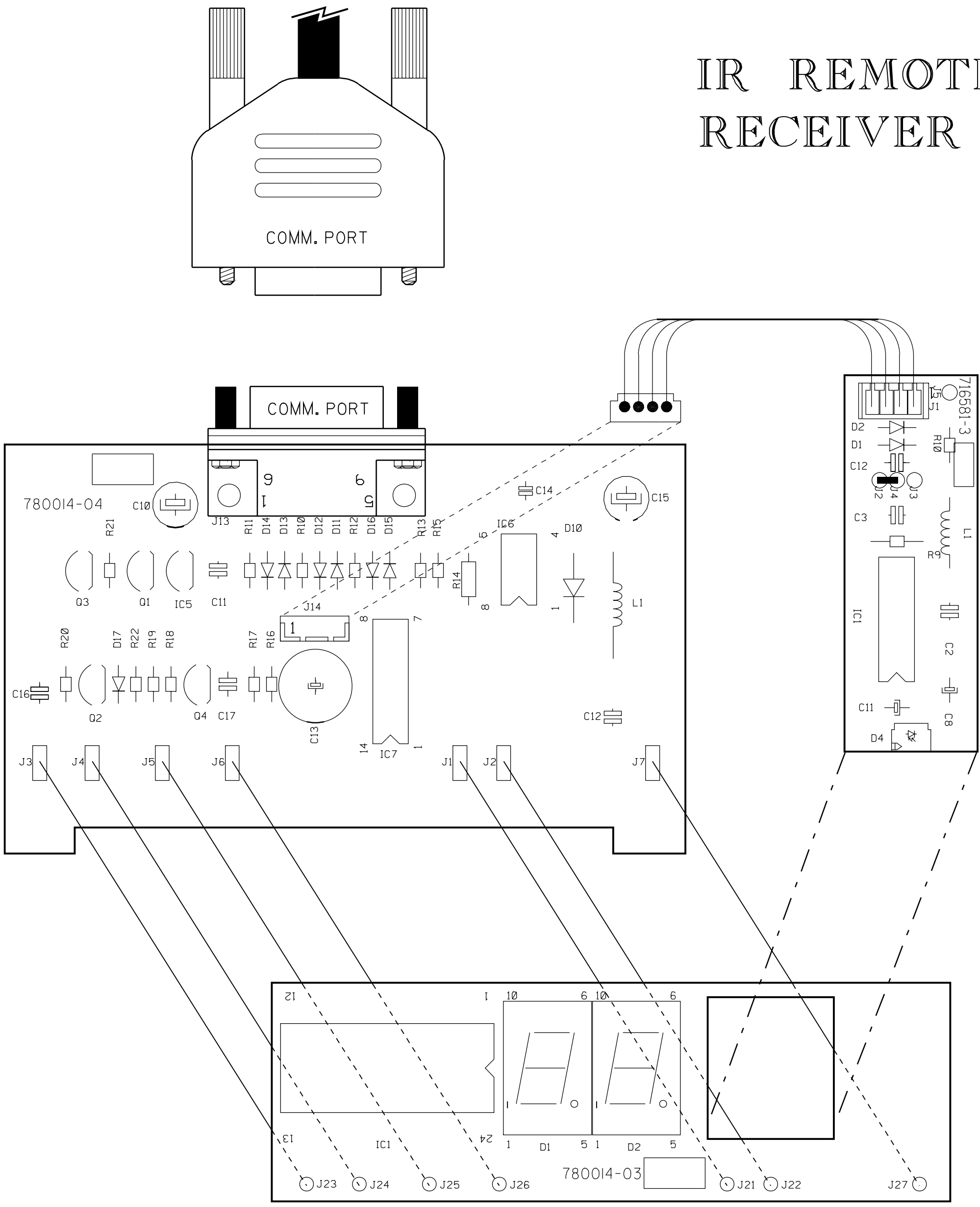


BARCO's external infrared remote receiver facilitates the use of the projector's infrared remote control in difficult installations.

The infrared receiver can be directly hardwired to any digitally controlled BARCO projector or through a switcher. A LED display indicates the selected source number. The special flexible fixation arm of the receiver allows to fix it in almost any position on the ceiling or wall.

BARCO

IR REMOTE RECEIVER

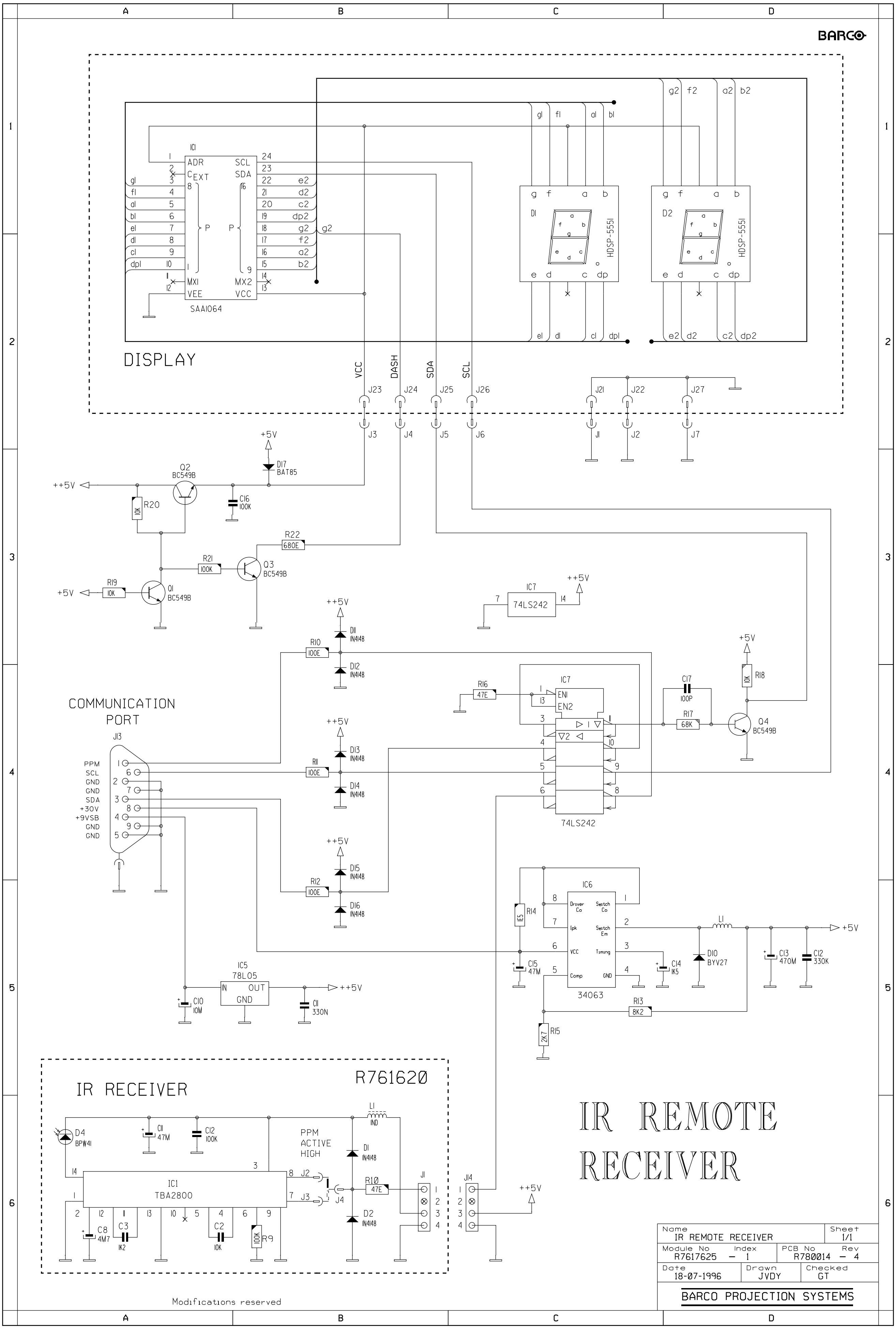


COMP.	LOC.	COMP.	LOC.	COMP.	LOC.
C10	A 2	IC5	A 3	L1	C 3
C11	B 3	IC6	B 2		
C12	C 3	IC7	B 3	Q1	A 3
C13	B 3			Q2	A 3
C14	C 2	J1	B 3	Q3	A 3
C15	C 2	J2	B 3	Q4	A 3
C16	A 3	J3	A 3		
C17	B 3	J4	A 3	R10	B 2
		J5	A 3	R11	B 2
D1	C 4	J6	B 3	R12	B 2
D2	C 4	J7	C 3	R13	B 3
D10	C 2	J13	B 2	R14	B 3
D11	B 2	J14	B 3	R15	B 3
D12	B 2	J21	C 5	R16	B 3
D13	B 2	J22	C 5	R17	B 3
D14	B 2	J23	B 5	R18	A 3
D15	B 2	J24	B 5	R19	A 3
D16	B 2	J25	B 5	R20	A 3
D17	A 3	J26	B 5	R21	A 3
		J27	D 5	R22	A 3
IC1	B 4				

Name			Sheet
IR REMOTE RECEIVER			1/1
Module No: R7617625	Index: 1	PCB No: R780014	Rev: – 4
Date: 18-07-1996	Drawn: JVDY	Checked: GT	

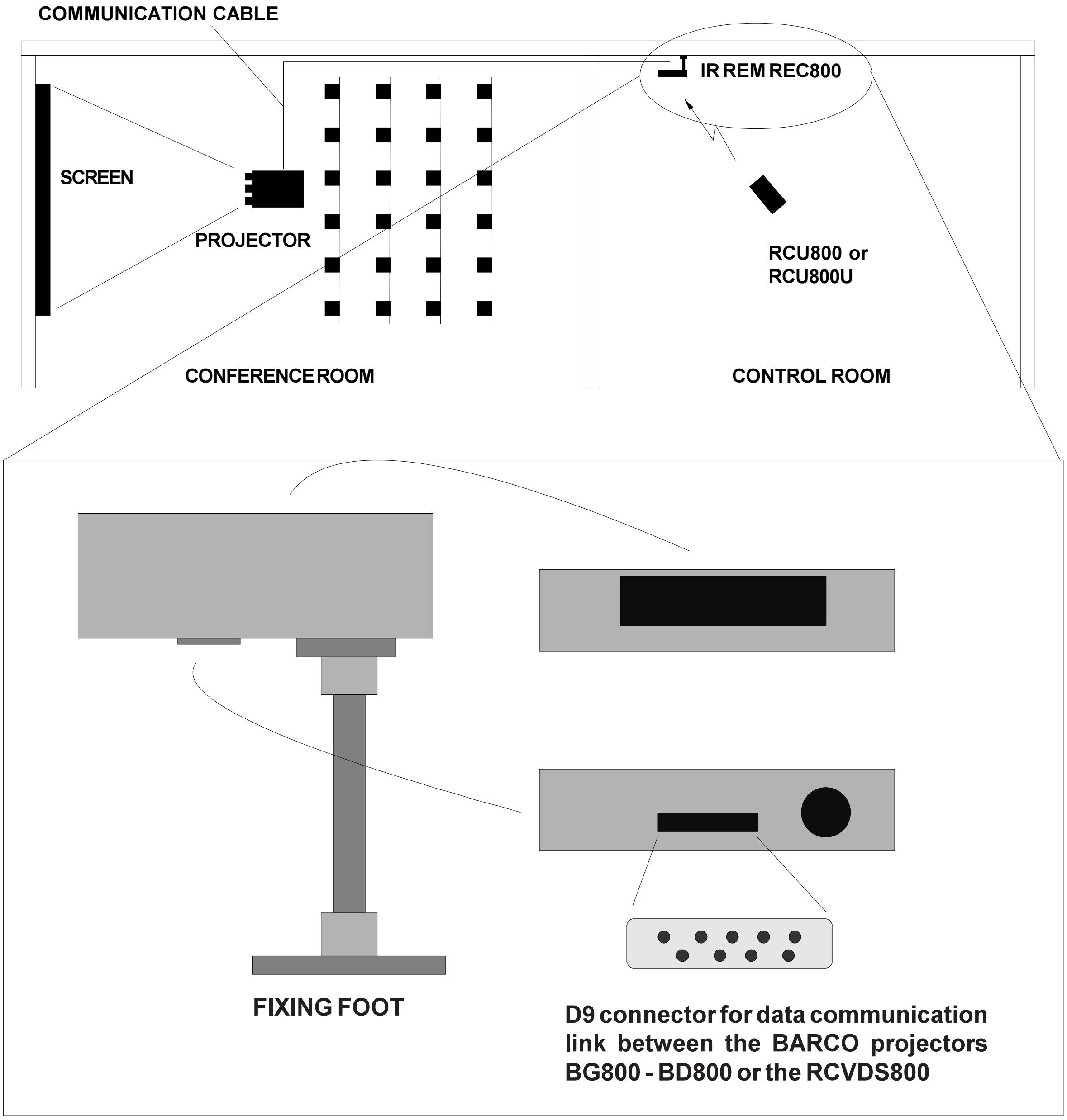
BARCO PROJECTION SYSTEMS

Modifications reserved


BARCO
DISPLAY
IC1
SAA1064
ADR
CEXT
SCL
SDA
MX1
MX2
VEE
VCC
D1
D2
HDSP-5551
VCC
DASH
SDA
SCL
J23
J24
J25
J26
J21
J22
J27
J3
J4
J5
J6
J1
J2
J7
+5V
++5V
D17
BAT85
Q2
BC549B
R20
10K
C16
100K
R22
680E
R21
100K
Q3
BC549B
R19
10K
Q1
BC549B
IC7
74LS242
COMMUNICATION
PORT
J13
PPM
SCL
GND
GND
SDA
+30V
+9VSB
GND
GND
R10
100E
R11
100E
R12
100E
D11
D12
D13
D14
D15
D16
1N4148
R16
47E
EN1
EN2
C17
100P
R17
68K
R18
10K
Q4
BC549B
IC6
34063
Driver Co
Switch Co
Ipk
Switch Em
VCC
Timing
Comp
GND
R14
E5
C15
47M
C14
1K5
L1
D10
BYV27
C13
470M
C12
330K
R13
8K2
R15
2K7
IC5
78L05
IN
OUT
GND
C10
10M
C11
330N
IR RECEIVER
R761620
D4
BPW41
C11
47M
C12
100K
PPM
ACTIVE
HIGH
L1
IND
D1
1N4148
D2
1N4148
R10
47E
IC1
TBA2800
C8
4M7
C3
1K2
C2
10K
R9
100K
J1
J14
IR REMOTE
RECEIVER
Name
IR REMOTE RECEIVER
Sheet
1/1
Module No
R7617625
Index
1
PCB No
R780014
Rev
4
Date
18-07-1996
Drawn
JVDY
Checked
GT
BARCO PROJECTION SYSTEMS
Modifications reserved

MOUNTING INSTRUCTIONS for the INFRA RED REMOTE RECEIVER 800 (98 27515)

This stand-alone IR Receiver connected to the BG 800 - BD800 projectors or the RCVDS800 with the available D9-D9 communication cable, refer to info sheet 59 75134, allows to transfer the IR signals from the RCU800 or RCU800U to the projector and displaying the selected input.

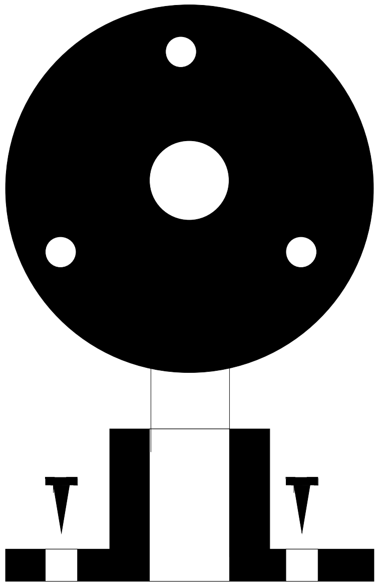


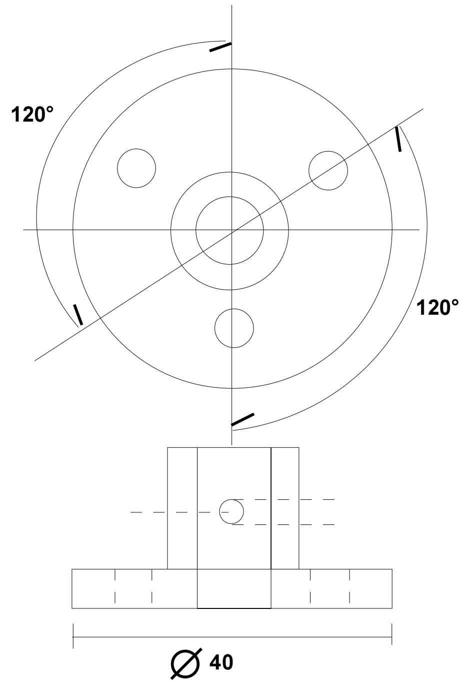
OPERATION

Point the IR transmitter RCU800 or RCU800U at the front side of the IR Remote Receiver 800 (face with window).

Refer to owner's manual of the respective projector or RCVDS800 for further instructions about the use of the IR remote control.

Mounting instructions:





Mount the fixing foot of the IR Remote Receiver on the wall by means of three screws.

Install the communication connection between IR REMOTE RECEIVER and the PROJECTOR 800 serie by means of the D9-D9 communication cable.

Parts listing R9827515

ITEM NO.	DESCRIPTION	QUANTITY
R593082	BOX201 245X 130X130 4RB	1
R593229	LS FOAM 700X140X15	1
R593545	BAG ASTSH 203X 305	1
R5975174	MAN INS PJ49 IR RX	1
R7617625	UN DSPL PJ49 G800 IR UNV	1

Parts listing 76 17625

SIT.	ITEM NO.	DESCRIPTION	QUANTITY
142	R3621195	SCR D7985 M 2.5X 10 STZB	3
131	R362188	SCR D916 M 3 X 4 STBK	3
141	R362188	SCR D916 M 3 X 4 STBK	3
143	R366110	NUT D934 M 2.5 STZN	3
150	R593526	BAG PE 160X 220X0.06 WL	1
110	R721800	WDW IR REC+DIS RCVDS	1
	R761620	UN RX EP49 RCVDS800 IR	1
130	R800738	HSGEP RCVDS3 IR RX FIX	1
140	R800739	HSGEP RCVDS3 IR RX FIX	1
120	R800740	HSGEP RCVDS3 IR RX FLX	1
100	R802926	HSG49C DSPL HSG	1
C 10	R111531	C EL RA 10M M 35E2 85	
C 11	R113730	C POMERA 330N K 63E2 85	
C 12	R113730	C POMERA 330N K 63E2 85	
C 13	R111468	C EL RA 470M Z 16E2 85	1
C 14	R112741	C CE MI 1N5K100E2	
C 15	R111486	C EL RA 47M M 50E2 85	
C 16	V1127830	C X7R MU 100N K 50E2 125	
C 17	R112242	C NP0 MI 100P G100E2	
D 1	R131685	LED 1DIG CA RD H 7.62	1
D 2	R131685	LED 1DIG CA RD H 7.62	1
D 10	R131950	D BYV27-150 AR SOD57	1
D 11	R131621	D S 1N4148 075150 DO35	
D 12	R131621	D S 1N4148 075150 DO35	
D 13	R131621	D S 1N4148 075150 DO35	
D 14	R131621	D S 1N4148 075150 DO35	
D 15	R131621	D S 1N4148 075150 DO35	
D 16	R131621	D S 1N4148 075150 DO35	
D 17	R1316361	D Y BAT85 030200 DO34	
I 1	R132825	U 1064 SAA DIP24 P	1
I 5	R134032	U 78L05AC TO92 P	1
I 6	R137625	U 34063 DIP8 P	1
I 7	R137516	U 74LS242 DIP14 P	1
J 1	R313284	J CIS MBS P 1 L6.2 RL	
J 2	R313284	J CIS MBS P 1 L6.2 RL	
J 3	R313284	J CIS MBS P 1 L6.2 RL	
J 4	R313284	J CIS MBS P 1 L6.2 RL	
J 5	R313284	J CIS MBS P 1 L6.2 RL	
J 6	R313284	J CIS MBS P 1 L6.2 RL	
J 7	R313284	J CIS MBS P 1 L6.2 RL	
J 13	R3135015	J DE P8 FBS P 9 FUMBLPGDB	1
J 14	R313924	J CT H MBT P 4 M2SN WH	1
L 1	R3061341	CH AX NS 100 UH	1
PC	R780014	PCB PJ49 800 DSPL IR1	1
Q 1	R1314295	Q BC549B N SS TO92	
Q 2	R1314295	Q BC549B N SS TO92	
Q 3	R1314295	Q BC549B N SS TO92	
Q 4	R1314295	Q BC549B N SS TO92	
R 10	R101524	R MF H100E F 0W4 E3	
R 11	R101524	R MF H100E F 0W4 E3	
R 12	R101524	R MF H100E F 0W4 E3	
R 13	R101547	R MF H 8K2 F 0W4 E3	
R 14	V1026173	R MF H 1E5 F 0W6 E4	
R 15	R101541	R MF H 2K7 F 0W4 E3	
R 16	R101520	R MF H 47E F 0W4 E3	
R 17	R101558	R MF H 68K F 0W4 E3	
R 18	R101548	R MF H 10K F 0W4 E3	
R 19	R101548	R MF H 10K F 0W4 E3	
R 20	R101548	R MF H 10K F 0W4 E3	
R 21	R101560	R MF H100K F 0W4 E3	
R 22	R101534	R MF H680E F 0W4 E3	

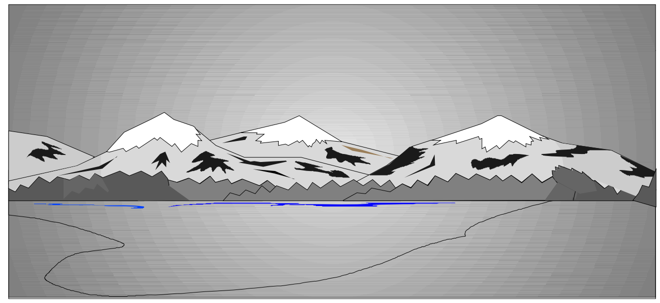
Parts listing 76 1620

SIT.	ITEM NO.	DESCRIPTION	QUANTITY
1	R805067	FRM52 RX IR SCRN FR BL	1
	R761620D	CD CT FTMS P 4 130	1
C 2	R115940	C PP RA 10N J 63E2 85	1
C 3	R1159181	C PP RA 1N2J100E2 85	1
C 8	R1115915	C EL5 RA 4M7M 35E2 85	1
C 11	R111476	C EL RA 47M M 25E2 85	1
C 12	R1127741	C Z5U MU 100N Z 50E2 85	1
D 2	R131744	D ZEN 5V6 0W5 C DO35	1
D 4	R131681	D O BPW41N PIN	1
I 1	R132824	U 2800 TBA DIP14 P	1
L 1	R3061582	CH AX NS 1.5 MH	1
PC	R716581	PCD EP49 RCVDS800 RX IR	1
R 9	R101560	R MF H100K F 0W4 E3	1
R 10	R101520	R MF H 47E F 0W4 E3	1

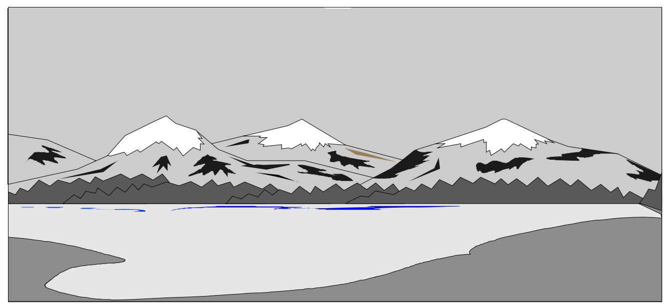
1. Introduction

Today, multi-screen installations are very popular for many applications (e.g. simulation, business). In these installations, the goal is to obtain a continuous matched image, forming one homogeneous field-of-view with overall light output uniformity.

The laws of physics applied to projection CRT and optics dictates that the center of the projected image will be brighter than the corners, this phenomenon is normally referred to as 'corner fall off'. Secondly, due to the normal off-axis projection of the red and blue images, CRT projection displays a phenomenon referred to as 'color shift', whereby one side of the screen is "redish" an the other "blueish".

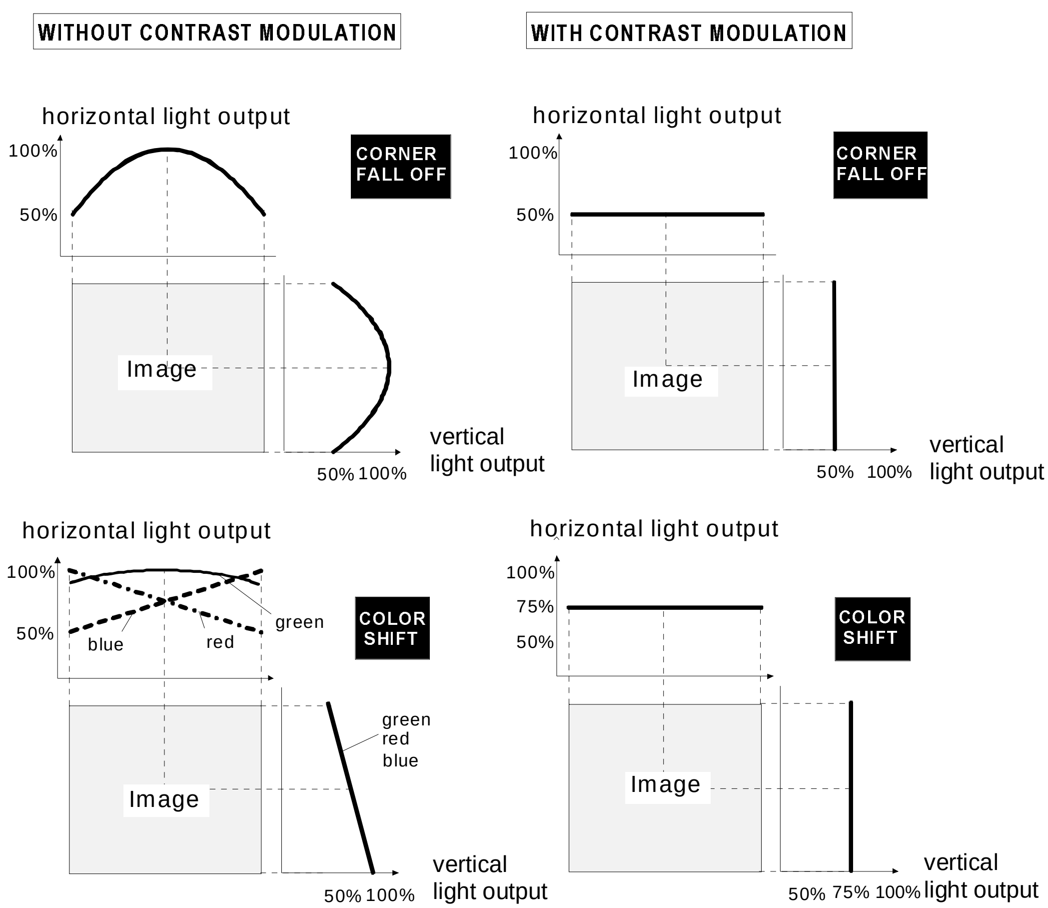


Picture without Contrast Modulation

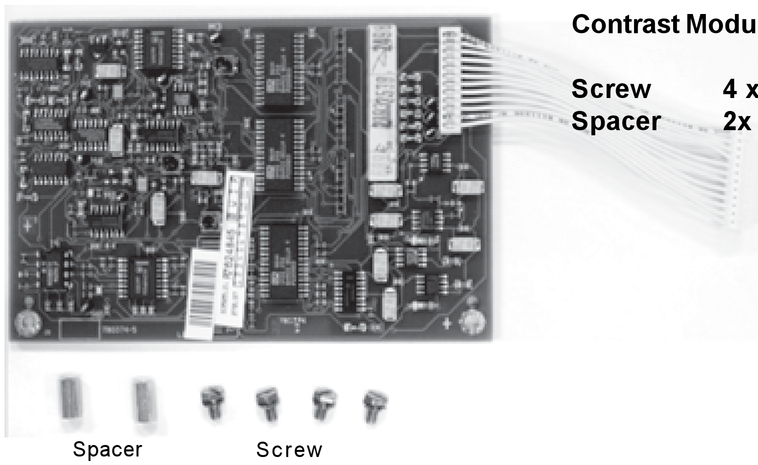


Picture with Contrast Modulation

2. Basic Concept



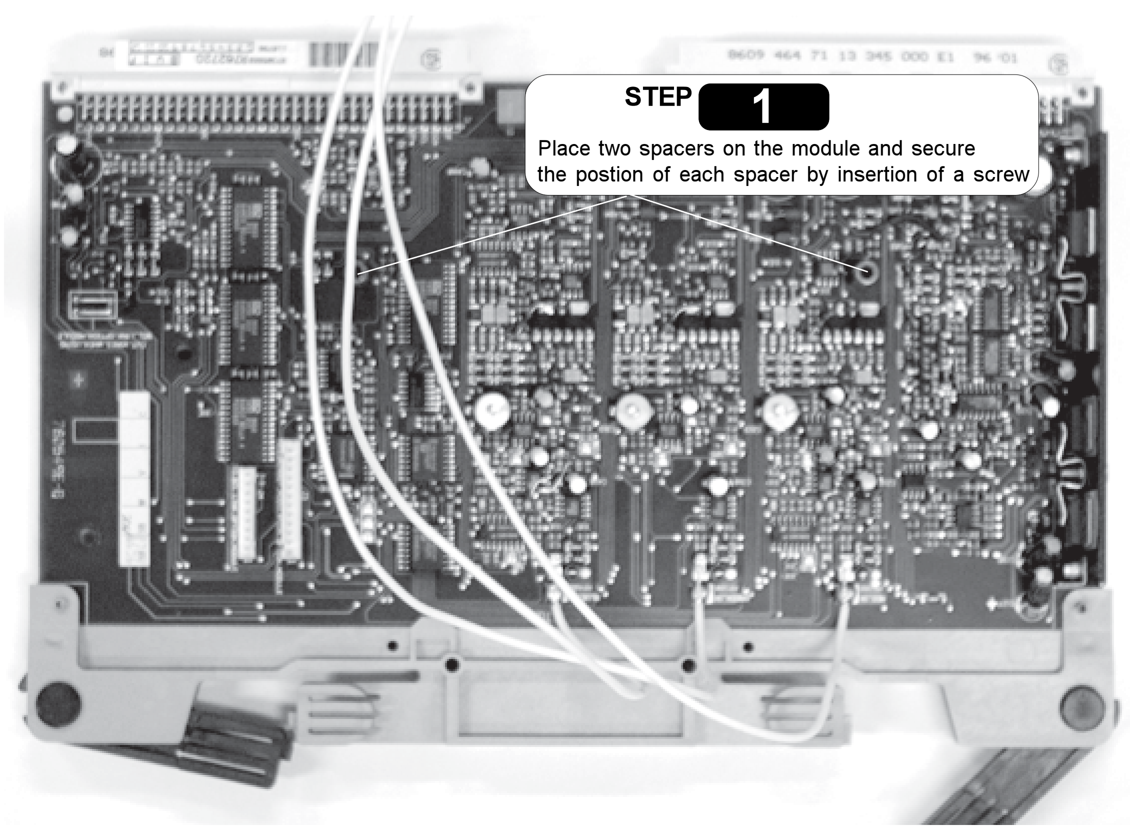
3. Contents of the Contrast Modulation Kit



Contrast Modulation Module		R7624845
Screw	4 x (M3 x6 SSWX)	R3631049
Spacer	2x (L10 M3 H5)	V367601

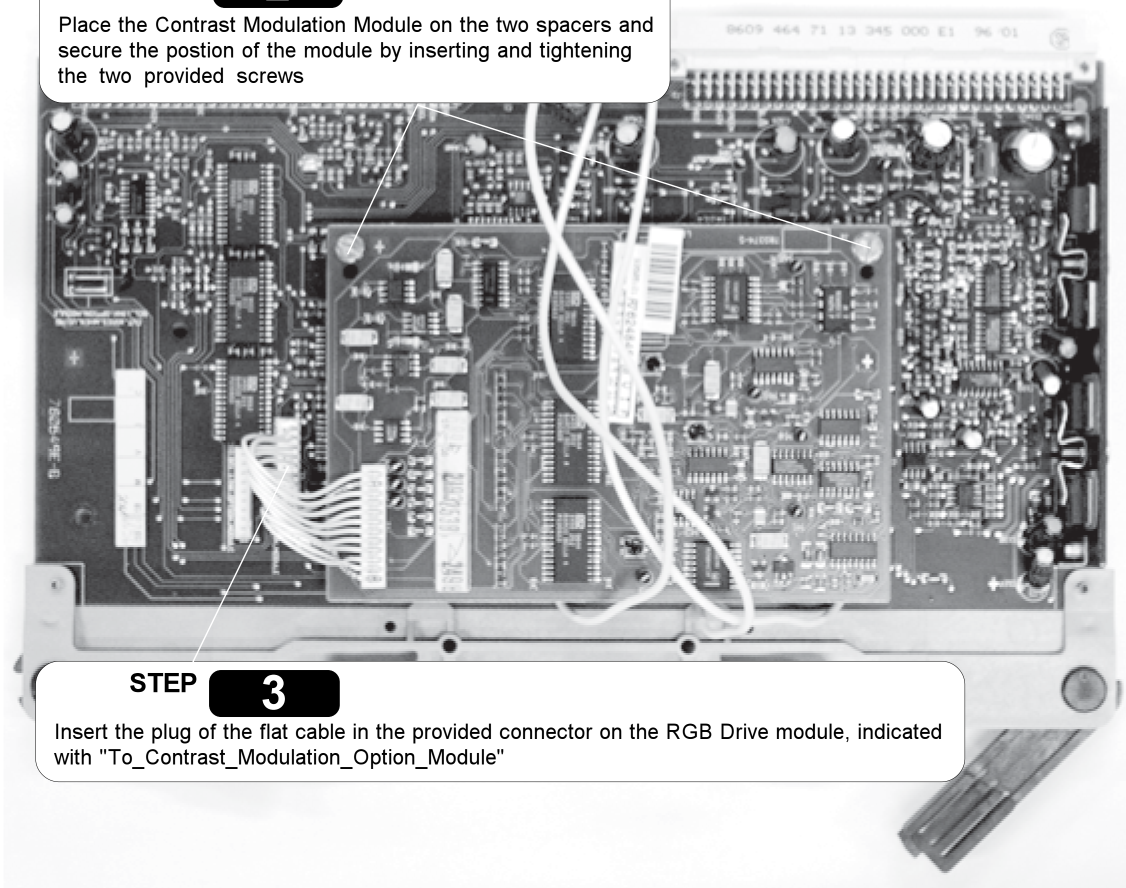
4. Installation of the Contrast Modulation Module

The Contrast Modulation Module R7624845 is mounted on the RGB DRIVER Module (R762720) of the B*808s Series projectors.



STEP 2

Place the Contrast Modulation Module on the two spacers and secure the postion of the module by inserting and tightening the two provided screws



STEP 3

Insert the plug of the flat cable in the provided connector on the RGB Drive module, indicated with "To_Contrast_Modulation_Option_Module"

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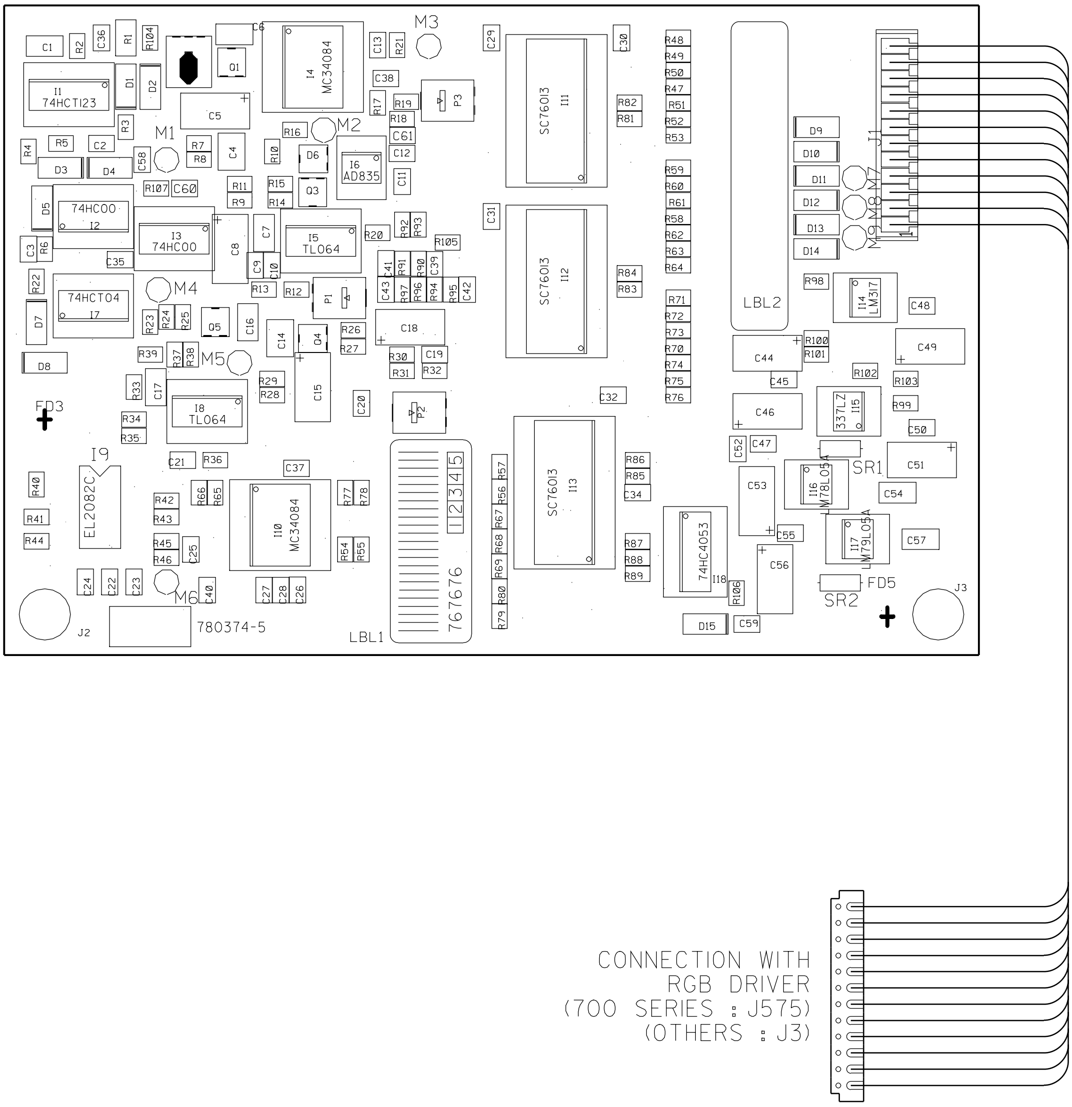
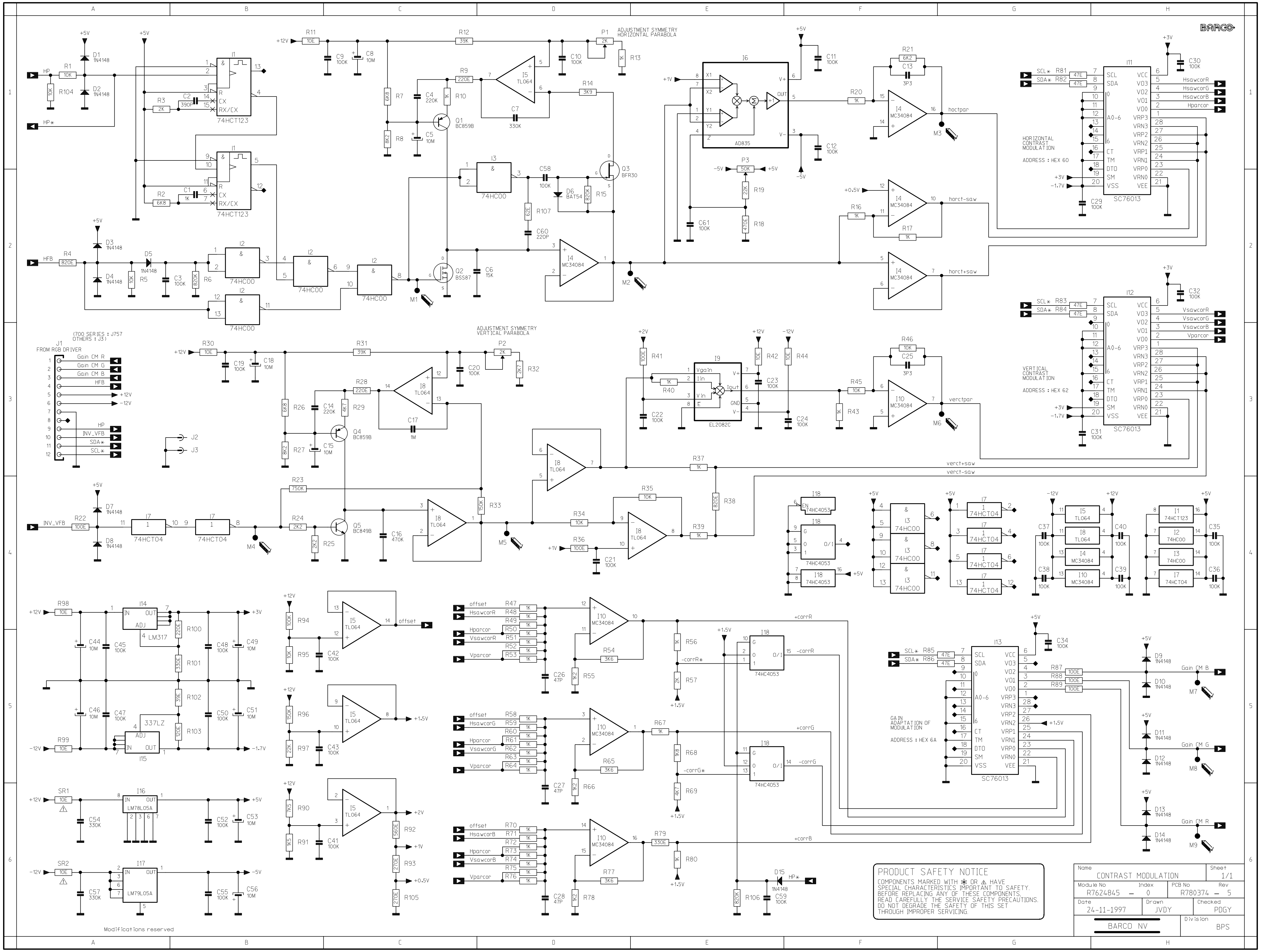


Modifications reserved

Name			Sheet
CONTRAST MODULATION			1 / 1
Module No R7624845 —	Index 0	PCB No R780374	Rev — 5
Date 24-11-1997	Drawn JVDY		Checked PDGY

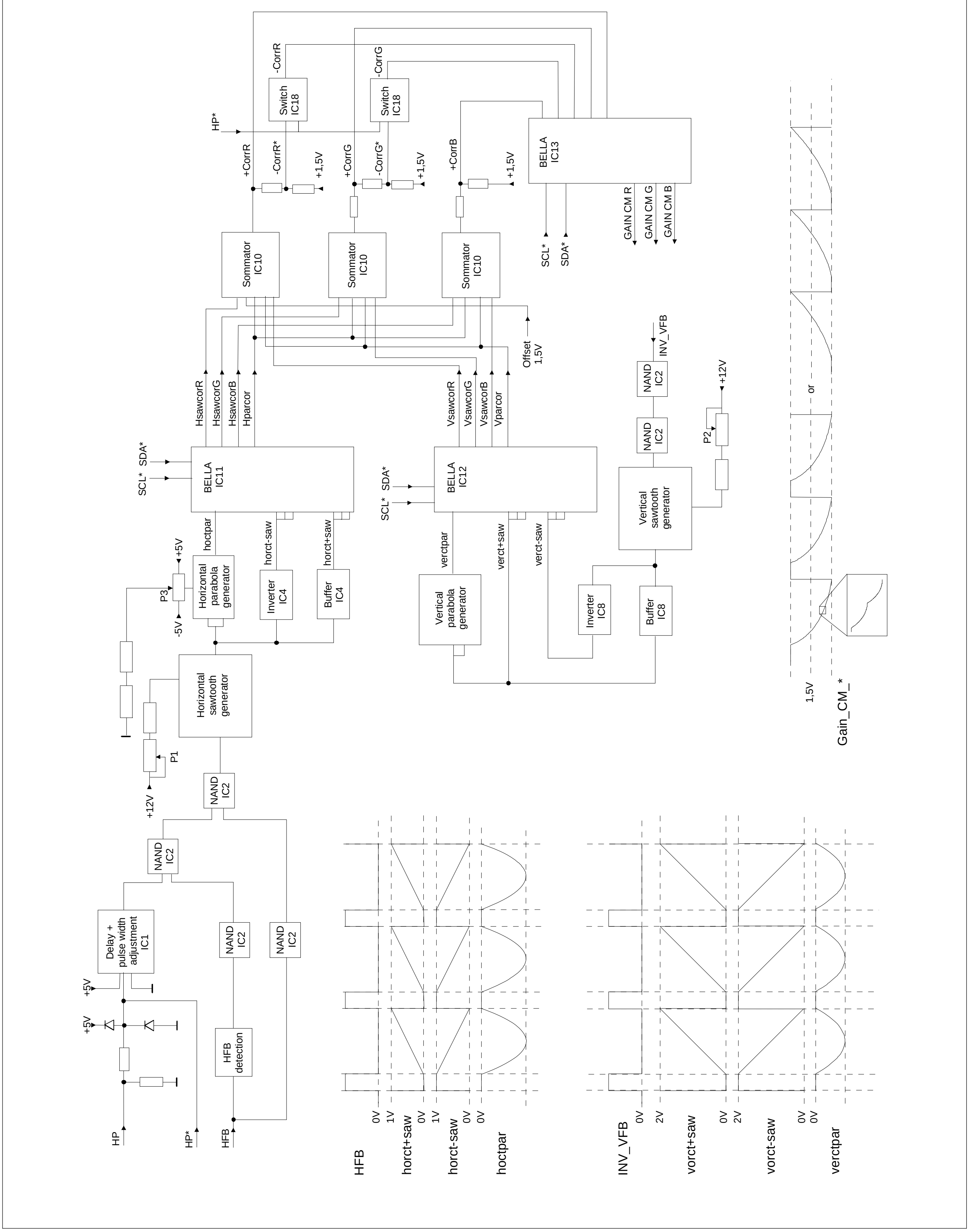
BARCO PROJECTION SYSTEMS



COMP.	LOC.
C1	B2
C2	B1
C3	B2
C4	C1
C5	C1
C6	D2
C7	D1
C8	C1
C9	C1
C10	D1
C11	F1
C12	F1
C13	F1
C14	C3
C15	C3
C16	C4
C17	C3
C18	B3
C19	B3
C20	C3
C21	D4
C22	E3
C23	E3
C24	F3
C25	F3
C26	D5
C27	D6
C28	D6
C29	H2
C30	H1
C31	H3
C32	H2
C34	G5
C35	H4
C36	H4
C37	G4
C38	G4
C39	H4
C40	H4
C41	C6
C42	C5
C43	C5
C44	A5
C45	A5
C46	A5
C47	A5
C48	B5
C49	B5
C50	B5
C51	B5
C52	B6
C53	B6
C54	A6
C55	B6
C56	B6
C57	A6
C58	D2
C59	E6
C60	D2
C61	E2
D1	A1
D2	A1
D3	A2
D4	A2
D5	A2
D6	D2
D7	A4
D8	A4
D9	H5
D10	H5
D11	H5
D12	H5
D13	H6
D14	H6
D15	E6
I1	B1
I1	B1
I1	H4
I2	B2
I2	B2
I2	C2
I2	B2
I2	H4
I3	D1
I3	F4
I3	F4
I3	F4
I3	H4
I4	D2
I4	F2
I4	F2
I4	F1
I4	G4
I5	D1
I5	C6
I5	C4
I5	C5
I5	G4
I6	E1
I7	G4
I7	G4
I7	G4
I7	B4
I7	A4
I7	G4
I7	H4
I8	C4
I8	D3
I8	E4
I8	C3
I8	G4
I9	E3
I10	D5
I10	D4
I10	D6
I10	F3
I10	G4
I11	H1
I12	H2
I13	G5
I14	A4
I15	A5
I16	A6
I17	A6
I18	F4
I18	F4
I18	F4
I18	E5
I18	E5
J1	A3
J2	B3
J3	B3
M1	C2
M2	E2
M3	G1
M4	B4
M5	D4
M6	G3
M7	H5
M8	H5
M9	H6
P1	D1
P2	D3
P3	E1

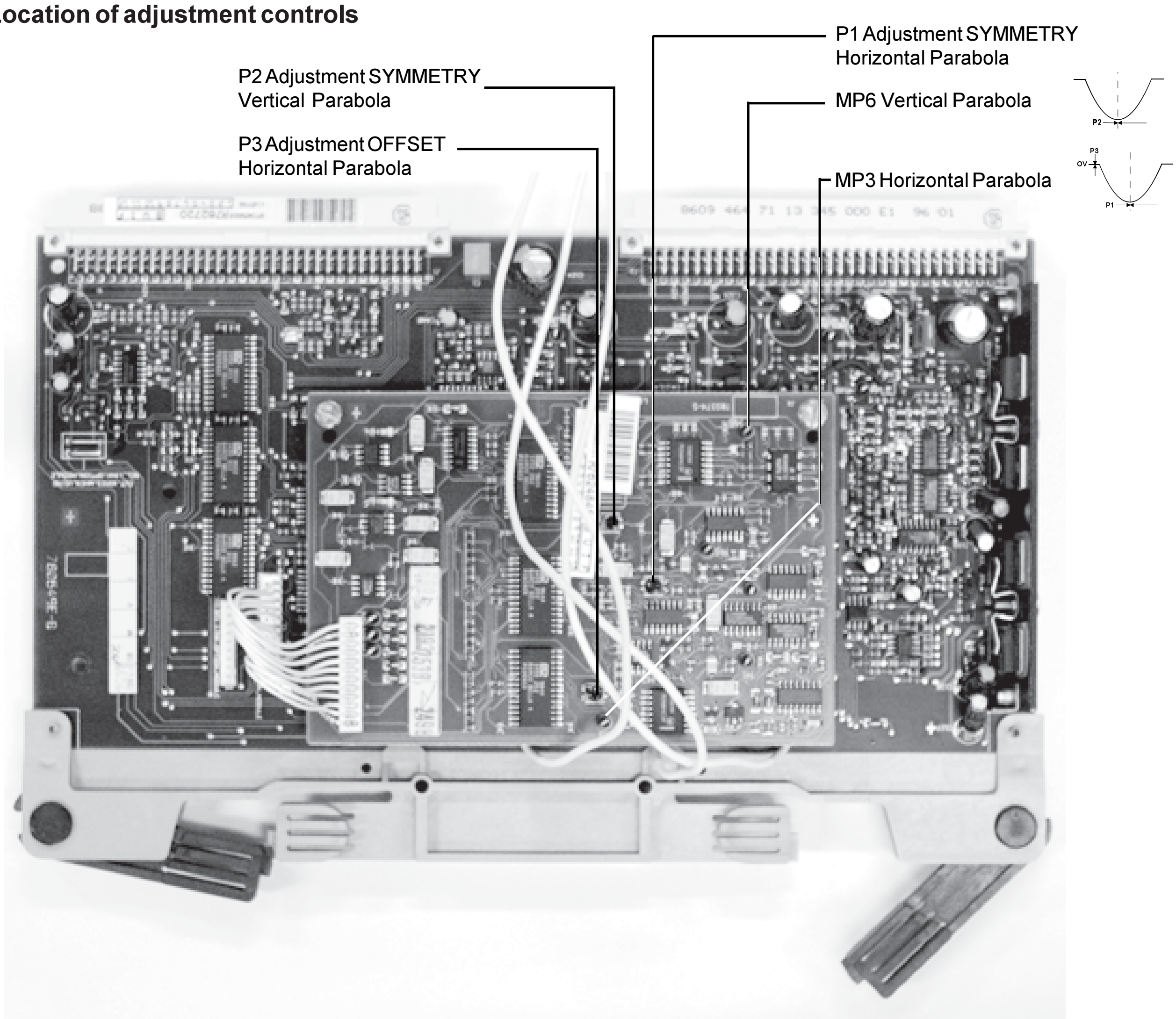
COMP.	LOC.
Q1	C1
Q2	C2
Q3	D2
Q4	C3
Q5	C4
R1	A1
R2	A2
R3	A1
R4	A2
R5	A2
R6	B2
R7	C1
R8	C1
R9	C1
R10	C1
R11	B1
R12	C1
R13	E1
R14	D1
R15	D2
R16	F2
R17	F2
R18	E2
R19	E2
R20	F1
R21	F1
R22	A4
R23	B4
R24	B4
R25	C4
R26	B3
R27	B3
R28	C3
R29	C3
R30	B3
R31	C3
R32	D3
R33	D4
R34	D4
R35	E4
R36	D4
R37	E3
R38	E4
R39	E4
R40	E3
R41	E3
R42	E3
R43	F3
R44	F3
R45	F3
R46	F3
R47	D4
R48	D4
R49	D4
R50	D5
R51	D5
R52	D5
R53	D5
R54	D5
R55	D5
R56	E5
R57	E5
R58	D5
R59	D5
R60	D5
R61	D5
R62	D5
R63	D5
R64	D5
R65	D5
R66	D6
R67	E5
R68	E5
R69	E6
R70	D6
R71	D6
R72	D6
R73	D6
R74	D6
R75	D6
R76	D6
R77	D6
R78	D6
R79	E6
R80	E6
R81	G1
R82	G1
R83	G2
R84	G2
R85	F5
R86	F5
R87	G5
R88	G5
R89	G5
R90	B6
R91	B6
R92	C6
R93	C6
R94	B4
R95	B5
R96	B5
R97	B5
R98	A4
R99	A5
R100	B5
R101	B5
R102	B5
R103	B5
R104	A1
R105	C6
R106	E6
R107	D2
SR1	A6
SR2	A6

Blockdiagram



Adjustment Procedure

Location of adjustment controls



Adjustments

- Connect a source to the projector and select the corresponding input (refer to owners manual of the projector)
- Connect the probe of the oscilloscope to MP3

Adjustment OFFSET

Adjust the potentiometer P3 so that the maximum level of the horizontal parabola is 0V

Adjustment horizontal sawtooth

Adjust the potentiometer P1 so that the horizontal parabola is symmetrical

Adjustment vertical sawtooth

Connect the probe of the oscilloscope to MP6
Adjust the potentiometer P2 so that the vertical parabola is symmetrical

Technical description of the Contrast Modulation circuit R7624845

General

The contrast modulation unit R7624845 has been designed to be integrated in the BV701MM / BD701 / BD708 of the 701 series and the *808S / *1208S / *1209S (new input boards).

The unit is electrically connected with the J757 connector of the RGB INPUT + DRIVER of the BV701MM/BD701S/BD708 series (attention, not the BV701S !).

If used in the 800/1200*S series equipped with the new input and driver boards, the CM unit is connected with J3 of the RGB DRIVER 762720.
This optional board generates waveforms which are added to the gain control voltages of the multipliers on the driver board.
The waveforms are composed of a sawtooth at horizontal and vertical frequency for the left/right respectively top/bottom color shift.
Horizontal and vertical parabola waveforms are used for the hot spot problem.
In the menu, these electronic waveforms and their adjustments are referred to as :

- For the hot spot : "Contrast Edge Correction"

Horizontal : "Left and right"
Vertical : "Top and bottom".

- For the Color shading or color shift : "Contrast Equalisation".

Horizontal : "Red Horizontal"
"Green Horizontal"
"Blue Horizontal"
Vertical : "Vertical"

Horizontal sawtooth generator

It is important that the sawtooth starts immediately after a flyback pulse and ends when the scanning ends or the flyback starts.

The available trigger information on the connector is the HP pulse in the 701/708 chassis and HFB in the 808/1208/1209 series.
The HP pulse in the 700 chassis is the Hor. Drive pulse and because of the delay in the switchers the flyback pulse itself is approximately 500ns delayed. Hence the trigger pulse must be delayed and its width must be adapted to the real flyback time of the projector (4.7µs).
The delay of 500ns is installed with the first monoflop in IC1, 74HCT123.
The pulse width adjustment is realised with the second monoflop of the same IC1.

However, the pulse output pin 5 is ONLY selected when there are no HFB pulses, since these always have priority. Consequently, the pulse will only pass through the gate (NAND gate IC2) on condition there are no HFB pulses available.

For that purpose, the HFB pulses are detected with D5/C3/R6.
In case no HFB pulses are present, pin 1,2 of IC2 is low and the output high or, pin 4 is high. The modified positive HP pulses, output pin 5, can pass through the gates and trigger Q2.

If HFB pulses are presented as it is the case in the 808S series, the HP pulses are not passing through any more, conversely, the HFB pulses are passing the NAND gate 8-9-10 of I2 and trigger Q2.

The ramp is stopped when Q2 is switched on and C6 is discharged through Q2. This is at the end of the scanning and it also means the end of the generated sawtooth.

The same positive trigger pulse is inverted by IC3(1-2-3) where, at the output, the negative pulses are clamped with C58/D6/R15 and keep Q3 off during the pulse or flyback time. This must make certain that the sawtooth only starts at the end of the flyback.

The sawtooth across C6 is buffered with IC4(1-2-3) and integrated with IC5 (5-6-7) to be compared with the adjusted voltage at input pin 5.

Although P1 adjusts the amplitude of the sawtooth to 1Vpp, the symmetry of the parabola is of utmost importance (see schematic ADJUSTMENT SYMMETRY HORIZONTAL PARABOLA).

The sawtooth is buffered with IC4(5-6-7) and also inverted and DC-shifted to 1V with IC4(10-11-12). These opposite phase outputs are supplied to the VRP* respectively VRN* inputs of three registers in the Bella IC11 for the color shift adjustments.

Horizontal parabola generator

The multiplier AD835 (IC6) generates a horizontal parabola by multiplying two sawtooth-signals.
The offset (zero output when both inputs are zero) is adjusted with P3. IC4(14-15-16) inverts the signal and applies some gain in order to match the range of the Bella's. This signal is supplied to the VRP0 input of the BELLA IC11.

Vertical sawtooth generator

Just like for the horizontal sawtooth generator, the load current of the current generator Q4 is adjusted in order to keep the top-top amplitude of the output constant, irrelevant the input frequency.

Here, C16 is charged up via Q4 and discharged as soon Q5 is switched on. The INV_VFB is shaped before triggering Q5.

IC8(5-6-7) buffers the sawtooth and feeds the VRP* inputs of three registers in IC12. The sawtooth is also DC shifted (lifted up) to a minimum of +2V, and, inverted with IC8(1-2-3) to match the Bella’s range.

This inverted vertical sawtooth feeds the VRN* inputs of the same three registers in IC12.

These controls are not accessible per color (see later, amplitude adjustments).

Vertical parabola generator

The multiplier IC9 (EL2082C) generates the parabola by multiplying two sawtooth-signals (same as for the horizontal parabola).

After inversion with IC10(5-6-7) the vertical parabola feeds the “0” register of IC12.

Amplitude adjustments

1. Horizontal

As the hot spot is not color related, the horizontal parabola is adjusted with register “0” of IC11 and the “Hparcor” is sent to the three adders.

For the color shift a Hsawcor* signals is sent for each color to the respective adders.

2. Vertical

The vertical hot spot is not color related and hence a Vparcor signal is sent to the three sommators.

The Vertical color shift per color is only required for special configurations. In a standard configuration the three registers receive exactly the same data thus generating 3 identical Vsawcor* signals.

Adders

The three adders combine the adjusted waveforms per color with the Hparcor and Vparcor waveforms.

Offset

If all waveforms are zero, the presence of the contrast modulation unit should not have any influence on the contrast of the projector.
Therefore, an offset voltage of +1.5V is added to the dynamic waveforms. This is the voltage choosen as the reference on the multipliers of the driver unit. Obviously, if all these waveforms are zero, only the DC offset is applied to the input of the OPAMP adder.

Compatibility 701/708 <------> 808S / 120*S

As there is a small difference in the range between the above chassis, an adaptation of the amplitudes is necessary as follows.

For red and green the full amplitude is applied to the VRP0 and VRP1 respectively. The VRN0 and VRN1 inputs are :

* +1.5V for the 800/1200 series
* reduced signals for the 700 series.

This selection is done by the multiplexer IC18 and based on the presence or absence of the HP pulses.
(As explained before, in the 700 chassis we must use HP pulses and in the 800/1200 we must use HFB pulses.)

For the blue there is no adaptation needed.

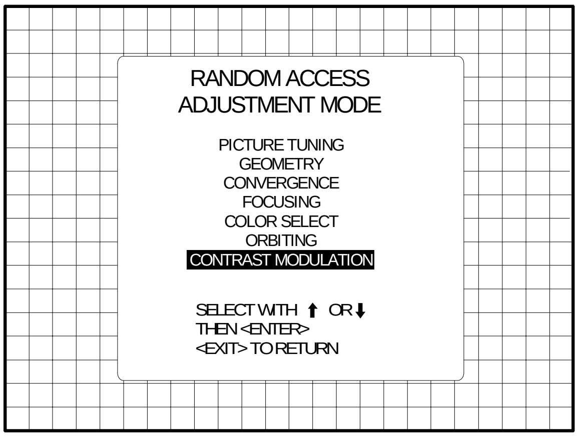
Amplitude adjustments of the composite waveforms

As the corrective waveforms are added to the original DC_ gain voltages (and not multiplied) we need to vary the amplitude in function of the gain setting in the RGB drive board.

The registers 0, 1, and 2 receive the same data as the gain settings of the RGB DRIVE board (see description of the board).

5. Contrast Modulation Adjustment.

The Contrast Modulation option is automatically added to the Random Access Adjustment Mode menu.
When the module is correctly installed, the projector software will detect this option and the selection line will be added in the menus.
Refer to your owner's manual to start up the adjustment mode and to select the Random Access Adjustment mode.



Notes:

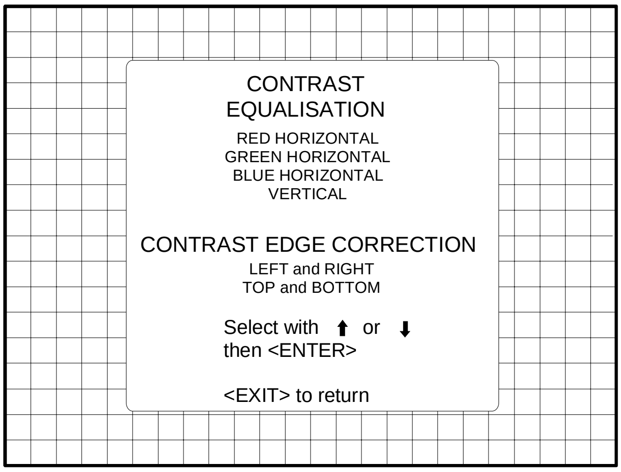
- An external generated white image will be useful during the following adjustments.

- Be sure the horizontal phase is correctly adjusted. The image must be centered on the raster with the horizontal phase adjustment, otherwise it is not possible to adjust the contrast modulation correctly.

"ENTER" selects the contrast modulation menu.
"EXIT" returns to the Path selection menu.
"ADJUST" returns to operational mode.

Highlight *CONTRAST MODULATION* with the arrow keys and press **"ENTER"** to select.

The first 3 adjustments (horizontal red, green, blue) are used for horizontal light equalisation for the three specific colors separately. This compensates the error due to the different horizontal position of the picture tubes. One side of the image is reddish and the other side is blueish. This phenomenon is called *Color shift*.



The *VERTICAL* adjustment affects the three colors at the same time and corrects the vertical error in light output due to the projection angle (10.5 degrees).

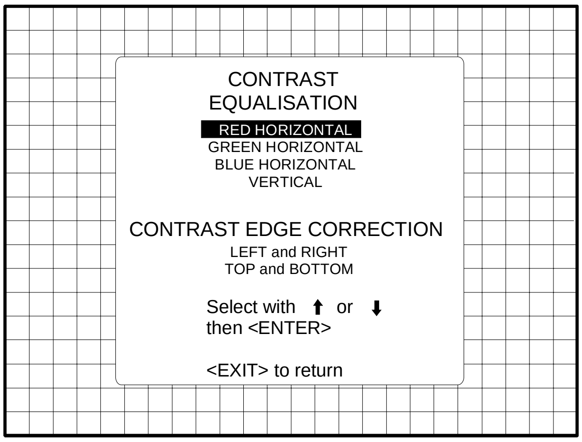
Left and right (horizontally) and top and bottom (vertically) adjustments improves the '*hot spot*' in the center of the screen.

5.a. Contrast equalisation ('Color Shift')

Highlight *RED HORIZONTAL* with the arrow keys and press **"ENTER"**.
Only a red image is displayed. Use the arrow keys to equalise the light output on the left and right side of the image. The best result is obtained by looking on the left and the right side until both are equal, or by using a very sensitive light meter.

"ENTER" returns to the contrast modulation menu.
Repeat this adjustment for green and blue by selecting first Green horizontal and than Blue horizontal.

Note: (only for non-ASIC controllers) When the end of adjustment range is reached for red and blue, the green image will also be displayed, to give you the message "end of adjustment range". The green image stays active until a new selection is made.

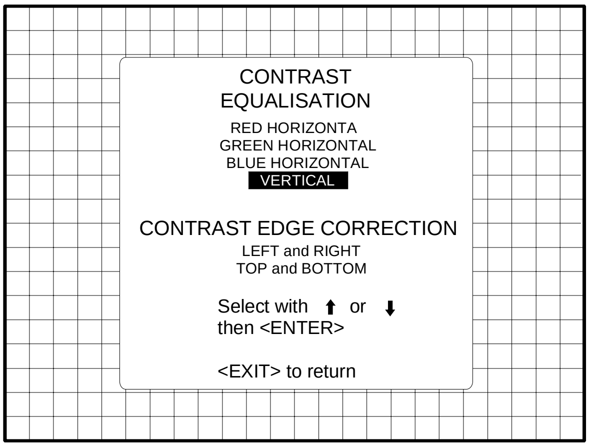


"ENTER" displays the red image.
"EXIT" returns to the Random access adjustment mode main menu
"ADJUST" returns to operational mode.

Highlight *VERTICAL* with the arrow keys and press **"ENTER"**. This adjustment is for all three colors at the same time.

Use the arrow keys to equalise the vertical light output and press **"ENTER"** to continue.

The best result is obtained on a white image by looking on the top and the bottom side until both are equal, or by using a very sensitive light meter.



"ENTER" selects the Vertical contrast equalisation option.
"EXIT" returns to the Random access adjustment mode main menu.
"ADJUST" returns to operational mode.

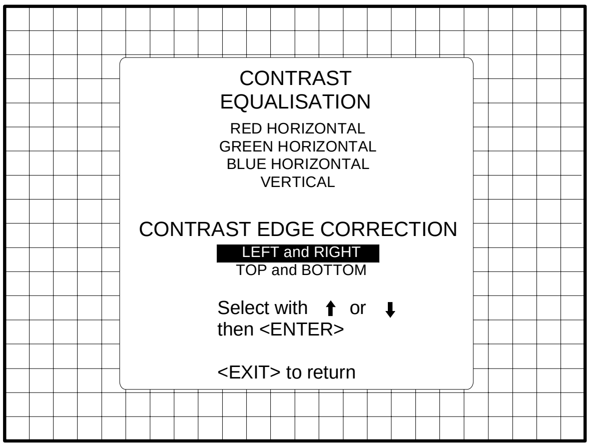
5.b. Contrast edge correction ('hot spot')

Highlight *LEFT-RIGHT* with the arrow keys and press **"ENTER"** to start the horizontal '*hot spot*' correction in the center of the screen. Adjust with the arrow keys for the same light output in the corners as in the center of the image.

This left-right adjustment must be done in combination with the top-bottom adjustment as both adjustments influence each other.

Note: these adjustments will reduce the total light output, so do not over adjust. A bar scale of 10 - 15 for both adjustments gives a good result.

Press **"ENTER"** to return to the contrast modulation menu.



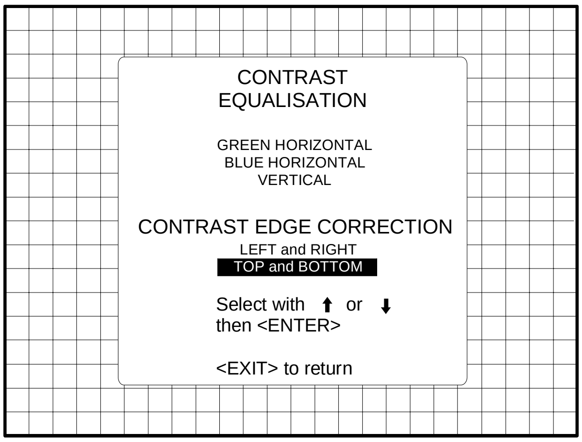
ENTER starts the left-right contrast edge correction.
EXIT returns to the Random Access adjustment main menu.
ADJUST returns to operational mode.

Highlight *TOP-BOTTOM* with the arrow keys and press **"ENTER"** to start the vertical '*hot spot*' correction in the center of the screen. Adjust with the arrow keys for the same light output in the corners as in the center of the image.

This top-bottom adjustment must be done in combination with the left-right adjustments as both adjustments influence each other.

Note : these adjustments will reduce the total light output, so do not over adjust. A bar scale of 10 - 15 for both adjustments gives a good result.

Press **"ENTER"** to return to the contrast modulation menu.



ENTER starts the top-bottom contrast edge correction.
EXIT returns to the Random Access adjustment main menu.
ADJUST returns to operational mode.

Spare parts Contrast modulation Kit R9828145

SIT.	ITEM NO.	DESCRIPTION	QUANTITY
	B360861	SCR Z$7985M 3 X 6 STZY	4
	P243003	BAG ASTSH 127X 203	1
	R593010	BAG PE 80X 120X0,06 WL	1
	R5930331	BOX509AST 200X150X 80 2NB	1
	R5975727	MAN INS ****S CTRS_MOD	1
	R7624845	**UN G808S C_M**	**1**
	R8046401	LBL B BPS PACKING 160X100	1
	V367601	SPR L10 M 3 H 5 IBRNI	2

Spare parts CM Module R7624845

SIT.	ITEM NO.	DESCRIPTION	QUANTITY
C 1	P210013	C# C0G MU 1N J 50 1206	1
C 2	P210055	C# C0G MU 390P F 50 0805	1
C 3	P210213	C# Y5V MU 100N Z 25 0805	1
C 4	P210169	C# X7R MU 220N K 50 1210	1
C 5	P212018	C# TA 10M M 16 6032	1
C 6	P210152	C# X7R MU 15N K 50 1206	1
C 7	P210136	C# Y5V MU 330N Z 25 1206	1
C 8	P212018	C# TA 10M M 16 6032	1
C 9	P210213	C# Y5V MU 100N Z 25 0805	1
C 10	P210213	C# Y5V MU 100N Z 25 0805	1
C 11	P210213	C# Y5V MU 100N Z 25 0805	1
C 12	P210213	C# Y5V MU 100N Z 25 0805	1
C 13	P210132	C# C0G MU 3P3D 50 0805	1
C 14	P210169	C# X7R MU 220N K 50 1210	1
C 15	P212018	C# TA 10M M 16 6032	1
C 16	P210148	C# Y5V MU 470N Z 25 1206	1
C 17	P210178	C# Y5V MU 1M Z 16 1206	1
C 18	P212018	C# TA 10M M 16 6032	1
C 19	P210213	C# Y5V MU 100N Z 25 0805	1
C 20	P210213	C# Y5V MU 100N Z 25 0805	1
C 21	P210213	C# Y5V MU 100N Z 25 0805	1
C 22	P210213	C# Y5V MU 100N Z 25 0805	1
C 23	P210213	C# Y5V MU 100N Z 25 0805	1
C 24	P210213	C# Y5V MU 100N Z 25 0805	1
C 25	P210132	C# C0G MU 3P3D 50 0805	1
C 26	P210019	C# C0G MU 47P J 50 0805	1
C 27	P210019	C# C0G MU 47P J 50 0805	1
C 28	P210019	C# C0G MU 47P J 50 0805	1
C 29	P210213	C# Y5V MU 100N Z 25 0805	1
C 30	P210213	C# Y5V MU 100N Z 25 0805	1
C 31	P210213	C# Y5V MU 100N Z 25 0805	1
C 32	P210213	C# Y5V MU 100N Z 25 0805	1
C 34	P210213	C# Y5V MU 100N Z 25 0805	1
C 35	P210213	C# Y5V MU 100N Z 25 0805	1
C 36	P210213	C# Y5V MU 100N Z 25 0805	1
C 37	P210213	C# Y5V MU 100N Z 25 0805	1
C 38	P210213	C# Y5V MU 100N Z 25 0805	1
C 39	P210213	C# Y5V MU 100N Z 25 0805	1
C 40	P210213	C# Y5V MU 100N Z 25 0805	1
C 41	P210213	C# Y5V MU 100N Z 25 0805	1
C 42	P210213	C# Y5V MU 100N Z 25 0805	1
C 43	P210213	C# Y5V MU 100N Z 25 0805	1
C 44	P212018	C# TA 10M M 16 6032	1
C 45	P210213	C# Y5V MU 100N Z 25 0805	1
C 46	P212018	C# TA 10M M 16 6032	1
C 47	P210213	C# Y5V MU 100N Z 25 0805	1
C 48	P210213	C# Y5V MU 100N Z 25 0805	1
C 49	P212018	C# TA 10M M 16 6032	1
C 50	P210213	C# Y5V MU 100N Z 25 0805	1
C 51	P212018	C# TA 10M M 16 6032	1
C 52	P210213	C# Y5V MU 100N Z 25 0805	1
C 53	P212018	C# TA 10M M 16 6032	1
C 54	P210136	C# Y5V MU 330N Z 25 1206	1
C 55	P210213	C# Y5V MU 100N Z 25 0805	1
C 56	P212018	C# TA 10M M 16 6032	1
C 57	P210136	C# Y5V MU 330N Z 25 1206	1
C 58	P210213	C# Y5V MU 100N Z 25 0805	1
C 59	P210213	C# Y5V MU 100N Z 25 0805	1
C 60	P210023	C# C0G MU 220P J 50 0805	1
C 61	P210213	C# Y5V MU 100N Z 25 0805	1
D 1	P234099	D#4148 R DMMELF	1
D 2	P234099	D#4148 R DMMELF	1
D 3	P234099	D#4148 R DMMELF	1
D 4	P234099	D#4148 R DMMELF	1
D 5	P234099	D#4148 R DMMELF	1
D 6	P234055	D#BAT54 SCH SOT23	1
D 7	P234099	D#4148 R DMMELF	1
D 8	P234099	D#4148 R DMMELF	1
D 9	P234099	D#4148 R DMMELF	1
D 10	P234099	D#4148 R DMMELF	1
D 11	P234099	D#4148 R DMMELF	1
D 12	P234099	D#4148 R DMMELF	1
D 13	P234099	D#4148 R DMMELF	1
D 14	P234099	D#4148 R DMMELF	1
D 15	P234099	D#4148 R DMMELF	1
I 1	P230073	U#74HCT123 SO16 I	1
I 2	P230072	U#74HC00 SO14 I	1
I 3	P230072	U#74HC00 SO14 I	1
I 4	P230705	U#34084 MC SOL16 P	1
I 5	P230328	U#064 TL SO14 I	1
I 6	P231489	U#835 AD SO8 I	1
I 7	P230103	U#74HCT04 SO14 I	1
I 8	P230328	U#064 TL SO14 I	1
I 9	R134225	U 2082 EL DIP8 P	1
I 10	P230705	U#34084 MC SOL16 P	1
I 11	P230653	U#BELLA 5 SOL28 P	1
I 12	P230653	U#BELLA 5 SOL28 P	1
I 13	P230653	U#BELLA 5 SOL28 P	1
I 14	P230374	U#317L LM SO8 P	1
I 15	P230905	U#337L LM SO8 P	1
I 16	P230062	U#78L05A LM SO8 P	1
I 17	P230273	U#79L05A LM SO8 P	1
I 18	P230216	U#74HC4053 SO16 I	1
J 1	R3484128	CD CT FTMS P12 70	1
M 1	R313729	J TESTEYE D2,1 H3,1 SN BK	1
M 2	R313729	J TESTEYE D2,1 H3,1 SN BK	1
M 3	R313729	J TESTEYE D2,1 H3,1 SN BK	1
M 4	R313729	J TESTEYE D2,1 H3,1 SN BK	1
M 5	R313729	J TESTEYE D2,1 H3,1 SN BK	1
M 6	R313729	J TESTEYE D2,1 H3,1 SN BK	1

Contrast Modulation R7624845

SIT.	ITEM NO.	DESCRIPTION	QUANTITY
M 7	R313729	J TESTEYE D2,1 H3,1 SN BK	1
M 8	R313729	J TESTEYE D2,1 H3,1 SN BK	1
M 9	R313729	J TESTEYE D2,1 H3,1 SN BK	1
P 1	P201390	R#TCE H 2K M 0W25 S4 TS	1
P 2	P201390	R#TCE H 2K M 0W25 S4 TS	1
P 3	P201393	R#TCE H 50K M 0W25 S4 TS	1
PC	R780374	PCB D700 C_M	1
Q 1	P232044	Q#BC859B P SS SOT23	1
Q 2	P232118	Q#BSS87 F SS SOT89	1
Q 3	P232012	Q#BFR30 SS SOT23	1
Q 4	P232044	Q#BC859B P SS SOT23	1
Q 5	P232043	Q#BC849B N SS SOT23	1
R 1	P200435	R# CE H 10K F 0W25 1206	1
R 2	P201107	R# CE H 6K8 F 0W12 0805	1
R 3	P201094	R# CE H 2K F 0W12 0805	1
R 4	P201085	R# CE H820E F 0W12 0805	1
R 5	P201111	R# CE H 10K F 0W12 0805	1
R 6	P201157	R# CE H820K F 0W12 0805	1
R 7	P201107	R# CE H 6K8 F 0W12 0805	1
R 8	P201109	R# CE H 8K2 F 0W12 0805	1
R 9	P201071	R# CE H220E F 0W12 0805	1
R 10	P201087	R# CE H 1K F 0W12 0805	1
R 11	P201039	R# CE H 10E F 0W12 0805	1
R 12	P201125	R# CE H 39K F 0W12 0805	1
R 13	P201087	R# CE H 1K F 0W12 0805	1
R 14	P201101	R# CE H 3K9 F 0W12 0805	1
R 15	P201157	R# CE H820K F 0W12 0805	1
R 16	P201087	R# CE H 1K F 0W12 0805	1
R 17	P201087	R# CE H 1K F 0W12 0805	1
R 18	P201079	R# CE H470E F 0W12 0805	1
R 19	P201119	R# CE H 22K F 0W12 0805	1
R 20	P201087	R# CE H 1K F 0W12 0805	1
R 21	P201106	R# CE H 6K2 F 0W12 0805	1
R 22	P201063	R# CE H100E F 0W12 0805	1
R 23	P201156	R# CE H750K F 0W12 0805	1
R 24	P201095	R# CE H 2K2 F 0W12 0805	1
R 25	P201095	R# CE H 2K2 F 0W12 0805	1
R 26	P201107	R# CE H 6K8 F 0W12 0805	1
R 27	P201109	R# CE H 8K2 F 0W12 0805	1
R 28	P201071	R# CE H220E F 0W12 0805	1
R 29	P201103	R# CE H 4K7 F 0W12 0805	1
R 30	P201039	R# CE H 10E F 0W12 0805	1
R 31	P201125	R# CE H 39K F 0W12 0805	1
R 32	P201097	R# CE H 2K7 F 0W12 0805	1
R 33	P201139	R# CE H150K F 0W12 0805	1
R 34	P201111	R# CE H 10K F 0W12 0805	1
R 35	P201111	R# CE H 10K F 0W12 0805	1
R 36	P201063	R# CE H100E F 0W12 0805	1
R 37	P201077	R# CE H390E F 0W12 0805	1
R 38	P201085	R# CE H820E F 0W12 0805	1
R 39	P201077	R# CE H390E F 0W12 0805	1
R 40	P201087	R# CE H 1K F 0W12 0805	1
R 41	P201063	R# CE H100E F 0W12 0805	1
R 42	P201039	R# CE H 10E F 0W12 0805	1
R 43	P201087	R# CE H 1K F 0W12 0805	1
R 44	P201039	R# CE H 10E F 0W12 0805	1
R 45	P201111	R# CE H 10K F 0W12 0805	1
R 46	P201111	R# CE H 10K F 0W12 0805	1
R 47	P201087	R# CE H 1K F 0W12 0805	1
R 48	P201087	R# CE H 1K F 0W12 0805	1
R 49	P201087	R# CE H 1K F 0W12 0805	1
R 50	P201087	R# CE H 1K F 0W12 0805	1
R 51	P201087	R# CE H 1K F 0W12 0805	1

SIT.	ITEM NO.	DESCRIPTION	QUANTITY
R 52	P201087	R# CE H 1K F 0W12 0805	1
R 53	P201087	R# CE H 1K F 0W12 0805	1
R 54	P201100	R# CE H 3K6 F 0W12 0805	1
R 55	P201089	R# CE H 1K2 F 0W12 0805	1
R 56	P201087	R# CE H 1K F 0W12 0805	1
R 57	P201094	R# CE H 2K F 0W12 0805	1
R 58	P201087	R# CE H 1K F 0W12 0805	1
R 59	P201087	R# CE H 1K F 0W12 0805	1
R 60	P201087	R# CE H 1K F 0W12 0805	1
R 61	P201087	R# CE H 1K F 0W12 0805	1
R 62	P201087	R# CE H 1K F 0W12 0805	1
R 63	P201087	R# CE H 1K F 0W12 0805	1
R 64	P201087	R# CE H 1K F 0W12 0805	1
R 65	P201100	R# CE H 3K6 F 0W12 0805	1
R 66	P201089	R# CE H 1K2 F 0W12 0805	1
R 67	P201087	R# CE H 1K F 0W12 0805	1
R 68	P201093	R# CE H 1K8 F 0W12 0805	1
R 69	P201103	R# CE H 4K7 F 0W12 0805	1
R 70	P201087	R# CE H 1K F 0W12 0805	1
R 71	P201087	R# CE H 1K F 0W12 0805	1
R 72	P201087	R# CE H 1K F 0W12 0805	1
R 73	P201087	R# CE H 1K F 0W12 0805	1
R 74	P201087	R# CE H 1K F 0W12 0805	1
R 75	P201087	R# CE H 1K F 0W12 0805	1
R 76	P201087	R# CE H 1K F 0W12 0805	1
R 77	P201100	R# CE H 3K6 F 0W12 0805	1
R 78	P201089	R# CE H 1K2 F 0W12 0805	1
R 79	P201075	R# CE H330E F 0W12 0805	1
R 80	P201087	R# CE H 1K F 0W12 0805	1
R 81	P201055	R# CE H 47E F 0W12 0805	1
R 82	P201055	R# CE H 47E F 0W12 0805	1
R 83	P201055	R# CE H 47E F 0W12 0805	1
R 84	P201055	R# CE H 47E F 0W12 0805	1
R 85	P201055	R# CE H 47E F 0W12 0805	1
R 86	P201055	R# CE H 47E F 0W12 0805	1
R 87	P201063	R# CE H100E F 0W12 0805	1
R 88	P201063	R# CE H100E F 0W12 0805	1
R 89	P201063	R# CE H100E F 0W12 0805	1
R 90	P201108	R# CE H 7K5 F 0W12 0805	1
R 91	P201091	R# CE H 1K5 F 0W12 0805	1
R 92	P201081	R# CE H560E F 0W12 0805	1
R 93	P201073	R# CE H270E F 0W12 0805	1
R 94	P201135	R# CE H100K F 0W12 0805	1
R 95	P201111	R# CE H 10K F 0W12 0805	1
R 96	P201139	R# CE H150K F 0W12 0805	1
R 97	P201119	R# CE H 22K F 0W12 0805	1
R 98	P201039	R# CE H 10E F 0W12 0805	1
R 99	P201039	R# CE H 10E F 0W12 0805	1
R100	P201071	R# CE H220E F 0W12 0805	1
R101	P201075	R# CE H330E F 0W12 0805	1
R102	P201053	R# CE H 39E F 0W12 0805	1
R103	P201065	R# CE H120E F 0W12 0805	1
R104	P201111	R# CE H 10K F 0W12 0805	1
R105	P201073	R# CE H270E F 0W12 0805	1
R106	P201157	R# CE H820K F 0W12 0805	1
R107	P201058	R# CE H 62E F 0W12 0805	1
SR 1	R1011129	R CFFH 10E J 0W25	⚠ 1
SR 2	R1011129	R CFFH 10E J 0W25	⚠ 1

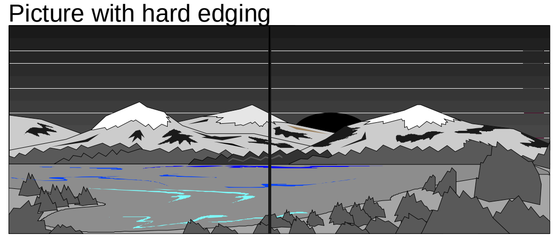
PRODUCT SAFETY NOTICE

Components identified by ⚠ have SPECIAL CHARACTERISTICS IMPORTANT TO SAFETY. Before replacing any of these components, read carefully the ser-vice safety precautions.

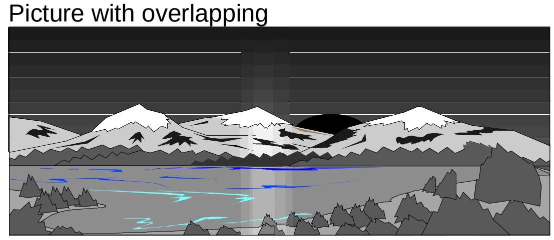
Soft edge matching

The soft edge matching feature provides a solution to the annoying side effects when adjusting two or more projected images next to each other.
Even when the projectors are perfectly installed and adjusted, the edge between two successive images can be noticed (hard edge). To improve this junction, both images must be overlapping within a certain percentage (e.g. 5 %) of the total screen width . During the overlapping period, both videosignals are modulated by appropriate waveforms so that the resulting light output equals the rest of the image.

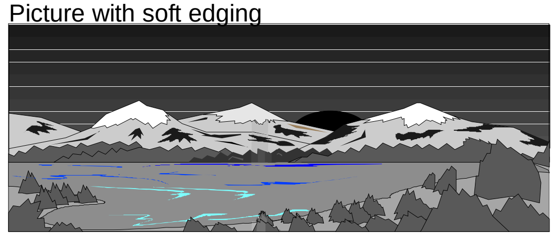
Picture with hard edging



Picture with overlapping



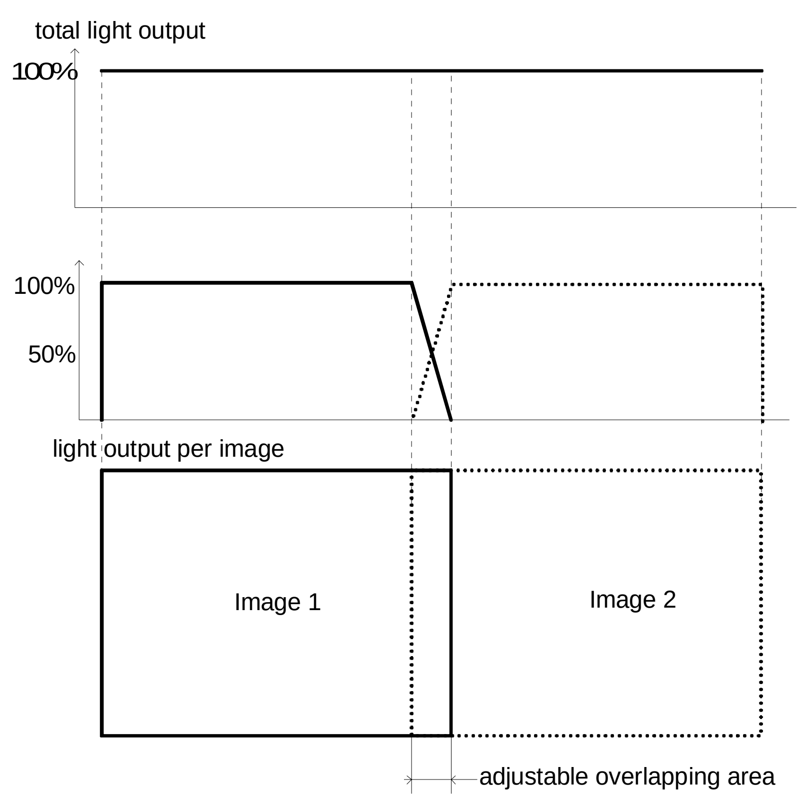
Picture with soft edging



Features

- Can be implemented on all BARCO 808s and 1208s projectors and related series.
- Improves the overall light output uniformity.
- Modulates red and blue video signals to overcome color shift errors.
- Improves top/bottom and left/right edge matching.
- The overlapping width can be modified (0-15% of the screen width).
- Gamma correction on modulation signals.
- Adjustments are frequency tracked (vertical and horizontal).

BASIC CONCEPT



3. Location of the SEMU (Soft Edge Matching Unit) module