

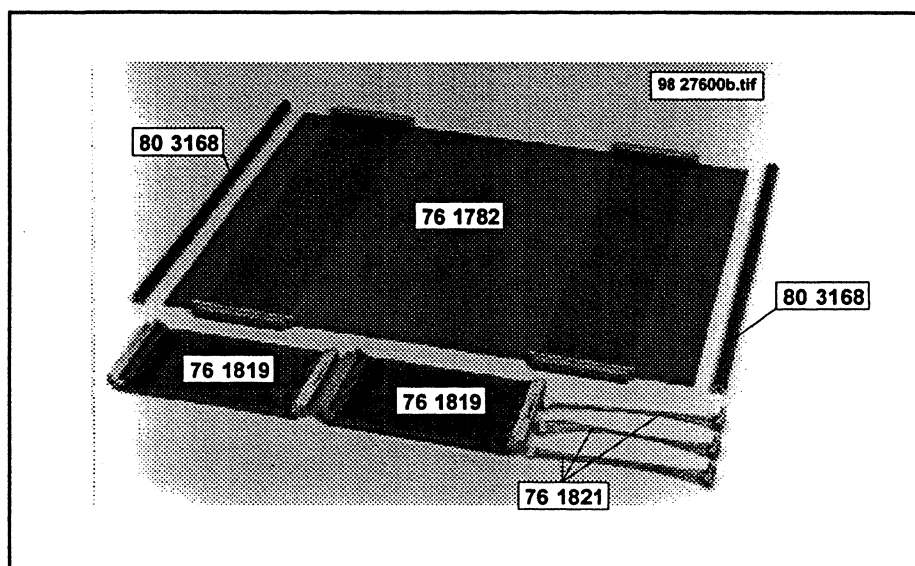
Introduction

Repairing the Barco 800 series projectors on component level is made possible by using the extension boards and the extensions cable units, delivered as **service kit**.

Contents of the kit:.

Order No. kit: 98 27600

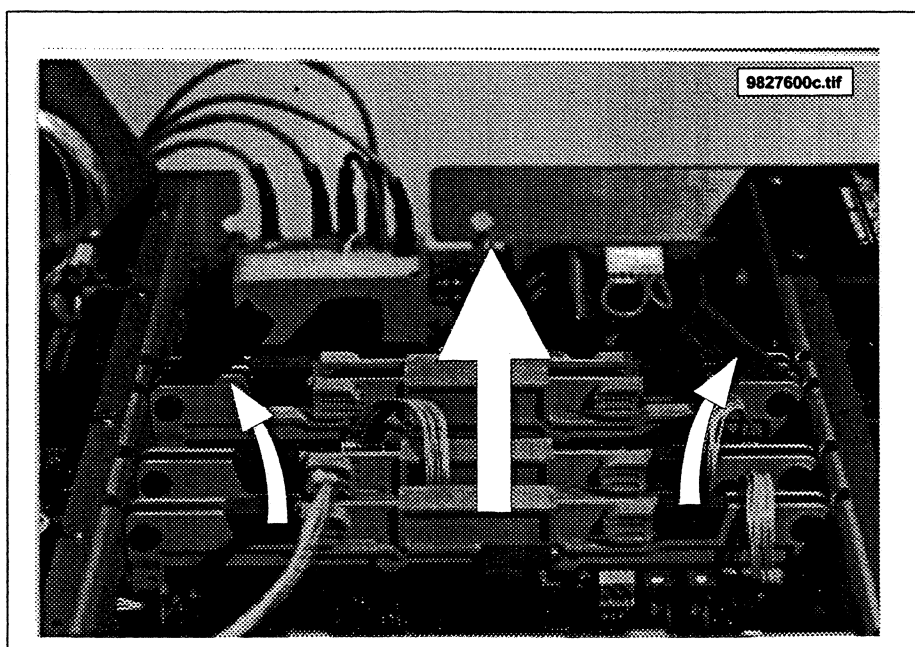
2 Extension boards for Euro cards:	Art. No. 76 1819
1 Extension board for Convergence module:	Art. No. 76 1782
2 Extensions metallic supports	Art. No. 80 3168
3 Extension cable units:	Art. No. 76 1821



Using the extension boards for Euro cards

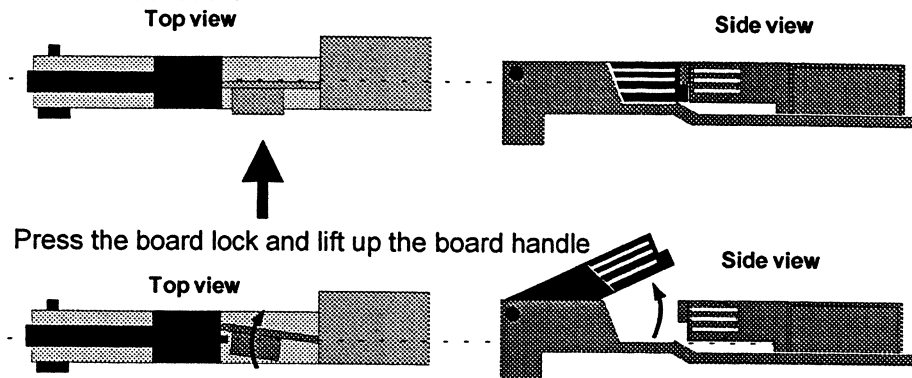
How to extract a module

Each board is locked in the main chassis on both sides.



To unlock the board, proceed as follows:

Refer to illustration:

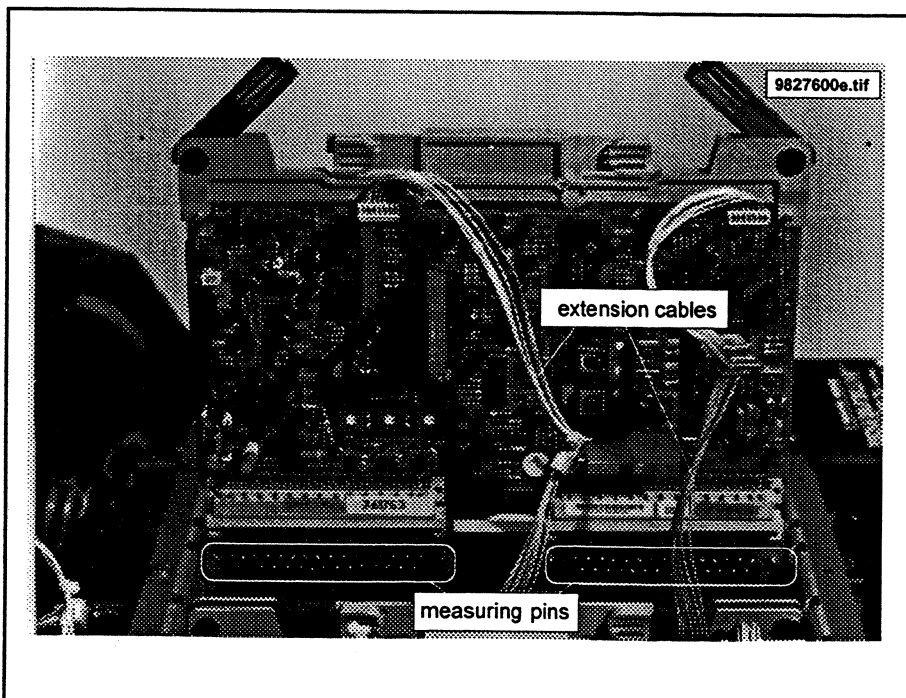


Repeat this action on both sides of the module and extract the module out of the main frame.

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.

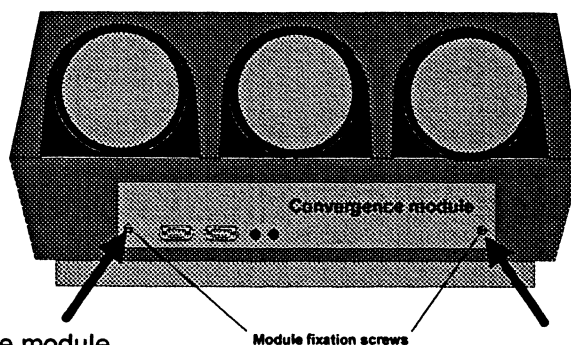
Important: the extension board for Eurocard is provided on each printed circuit foil with measuring pins.



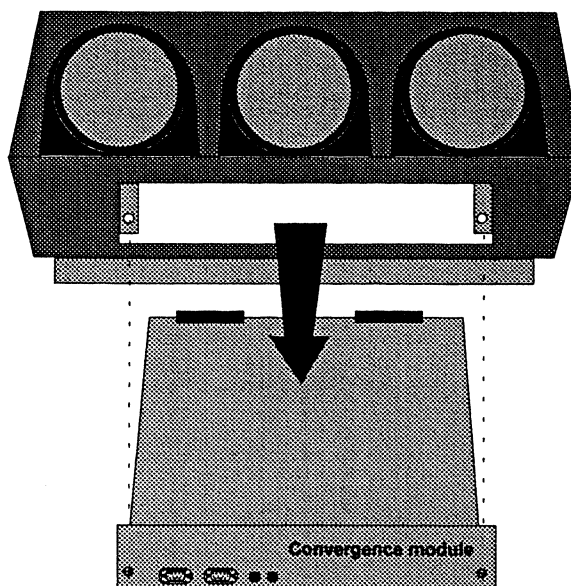
Using the extension board for the Convergence module

Removing the convergence module:

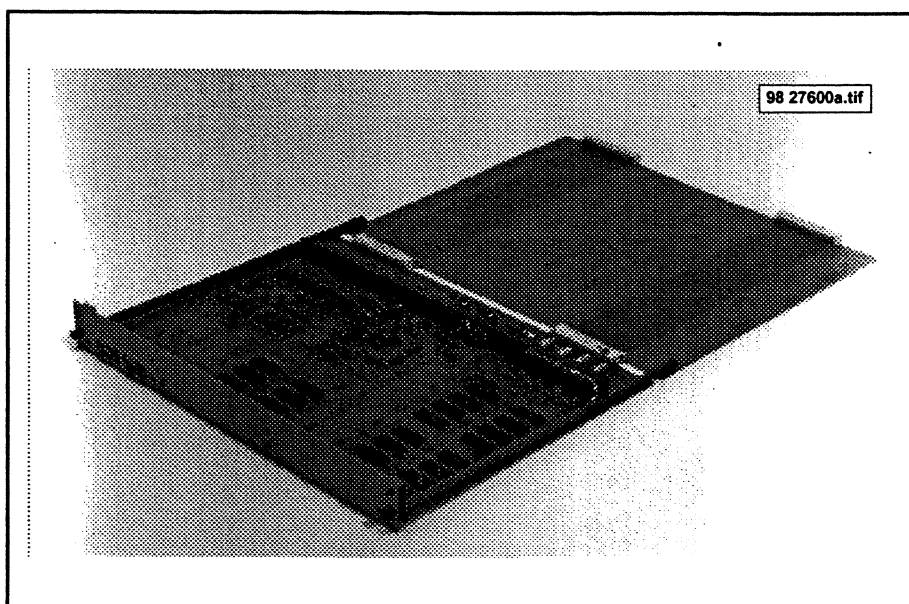
- Loosen the board fixation screws on both sides of the Convergence module.



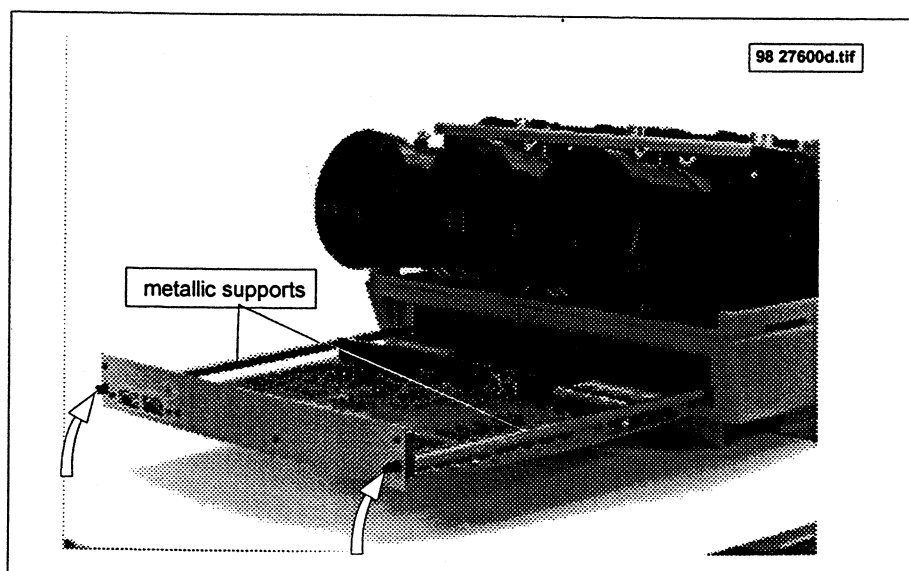
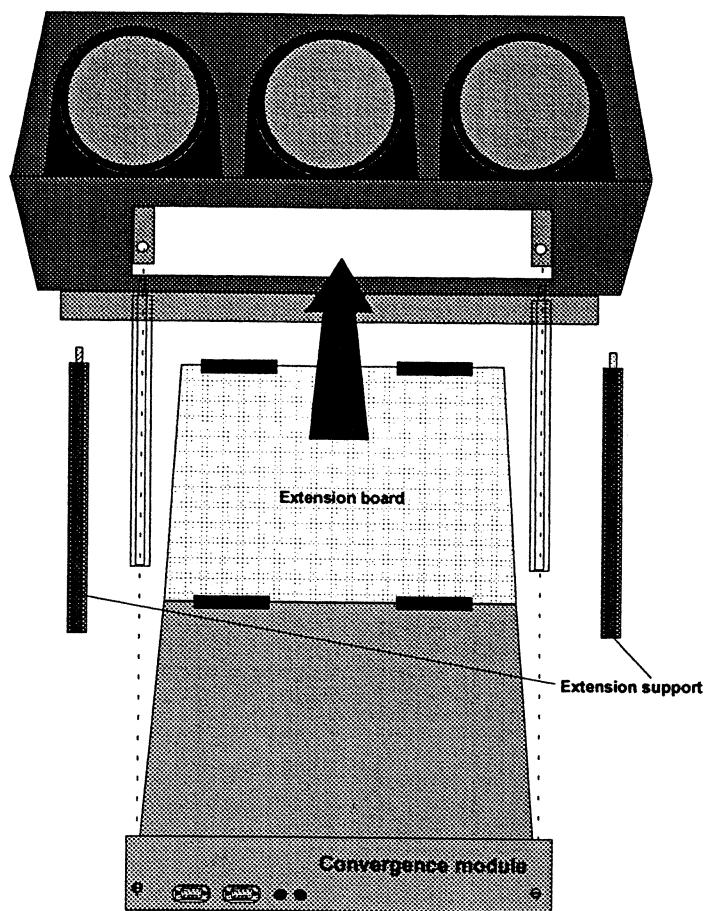
- Pull out the Convergence module.



- Put the Convergence module onto the convergence extension board.



- Screw in on both side on the main frame the metallic extension supports.
- Slide the extension board with the plugged in Convergence module into the projector.
- Secure the Convergence module onto the supports by screwing in the two remaining board screws.

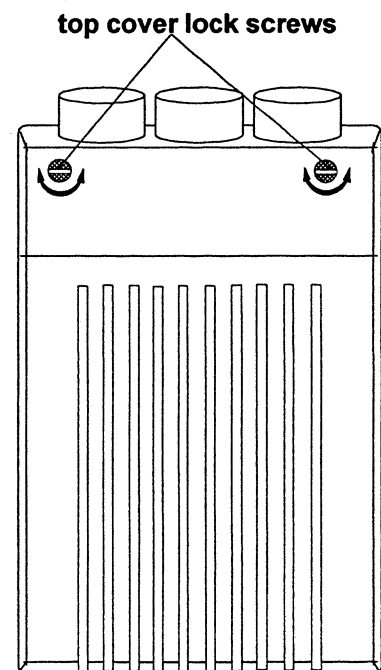
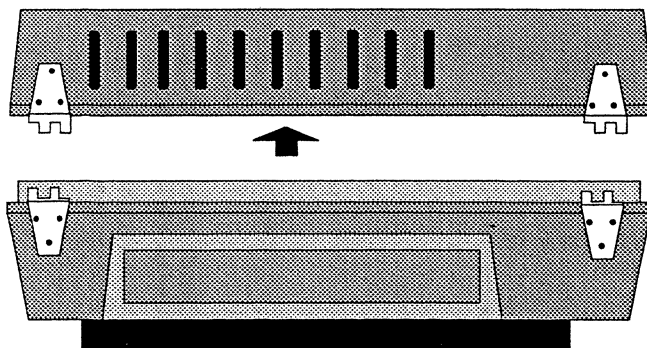
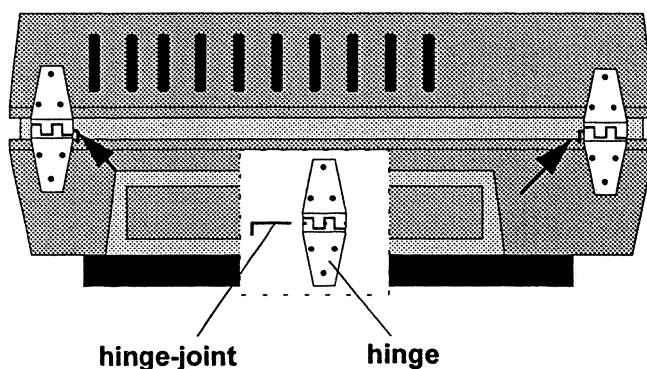


Replacement of a picture tube**WARNING: CRT HANDLING**

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.

I. Removing and disassembling the defective picture tube.**1. Removing top cover of the projector**

- Turn both cover lock screws with a screwdriver or a coin a half turn counter clockwise.
- Pull out the hinge-joints of the two hinges.
- Lift up the top cover to remove.

**Fig.1**

2. Removing Controller module

- Loosen the retaining screws on both sides of the Controller module.
- Rotate the Controller module towards the backside of the projector and slide the module out the metallic frame.
- Put the module on the module rack.

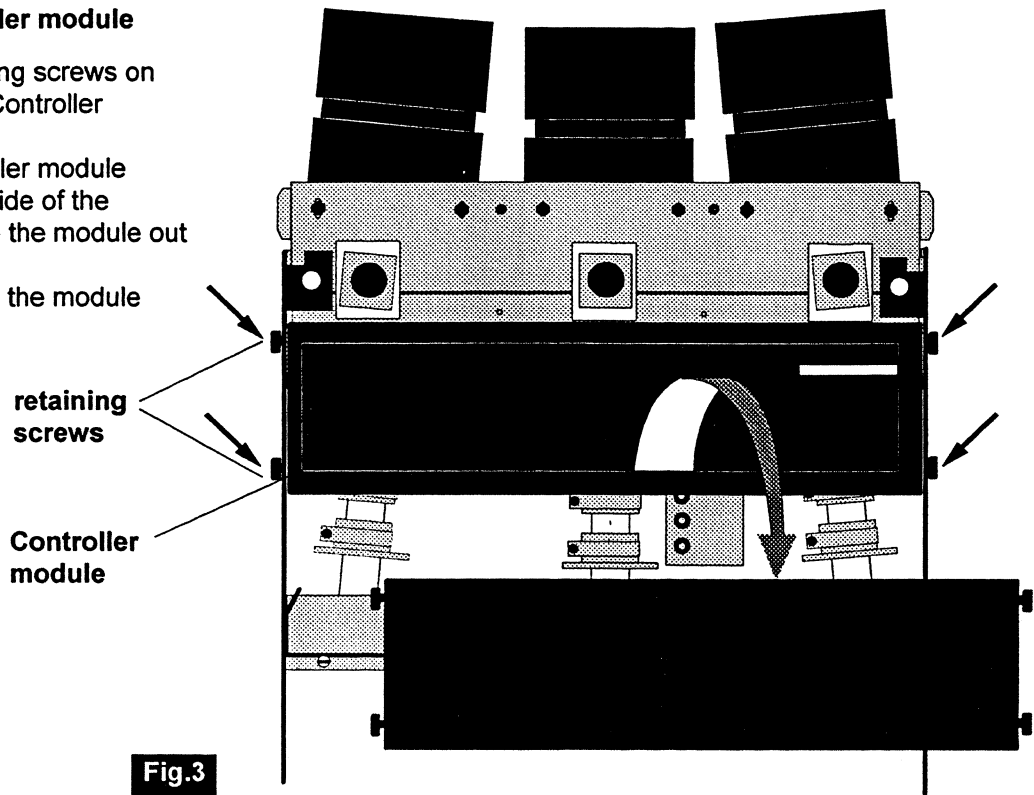


Fig.3

3. Removing upper metallic plate, securing the three CRT-lens blocs

- Remove the 16 screws, holding upper plate to main frame.
- Remove the 6 bolts, holding CRT-lens blocs to upper plate.
- Remove upper metallic plate.

4. EHT lead disconnection

Pull out the EHT lead of the defective picture tube from the EHT splitter.

5. CRT ground lead disconnection

Pull out the ground lead plug of the defective picture tube from the its CRT module.

6. CRT module removal

Disconnect the socket of the defective picture tube by pulling back the CRT socket off of the end of the CRT.

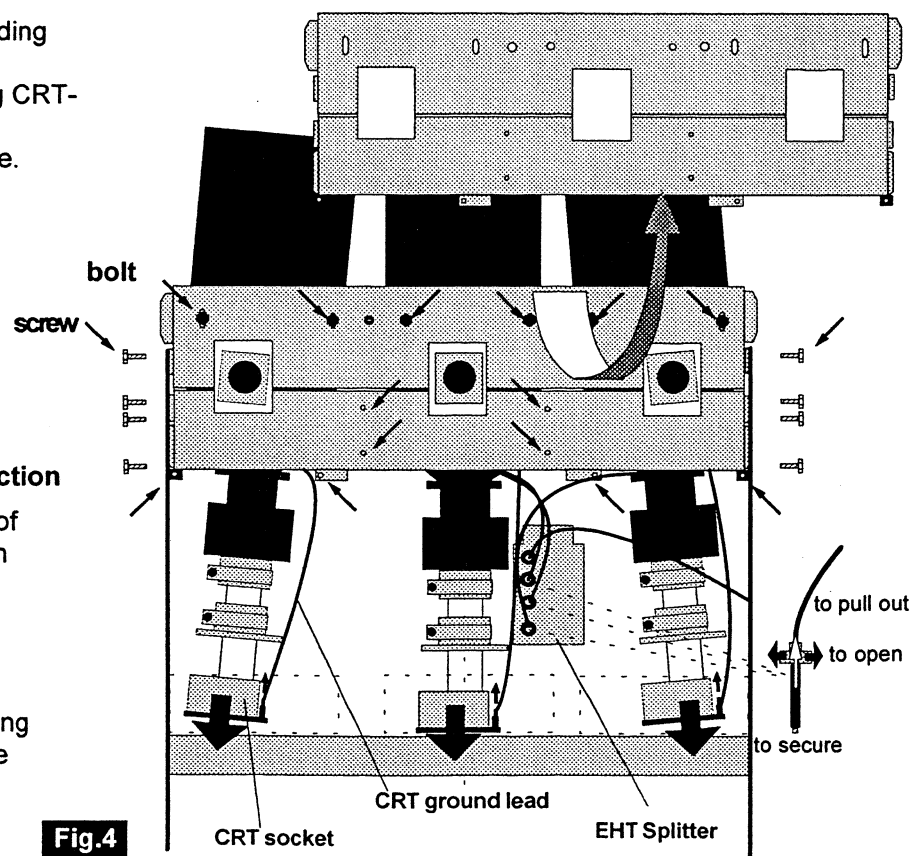


Fig.4

7. Disconnecting the deflection connector

Pull out the deflection connector of the defective picture tube from main frame

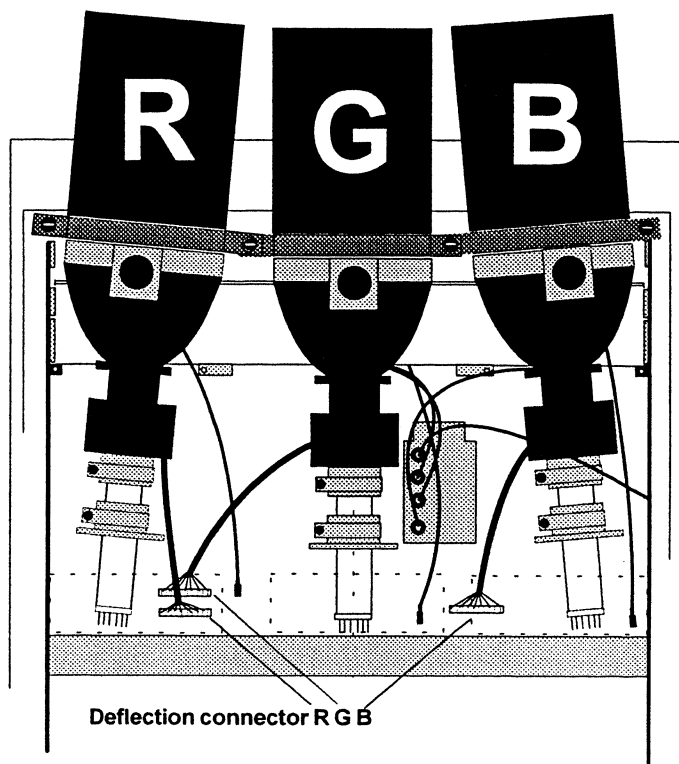


Fig.5

8. Removing defective CRT

- Turn out the rod on both sides of the defective picture tube.
- Take out the complete unit, lens-mounting bloc-picture tube.

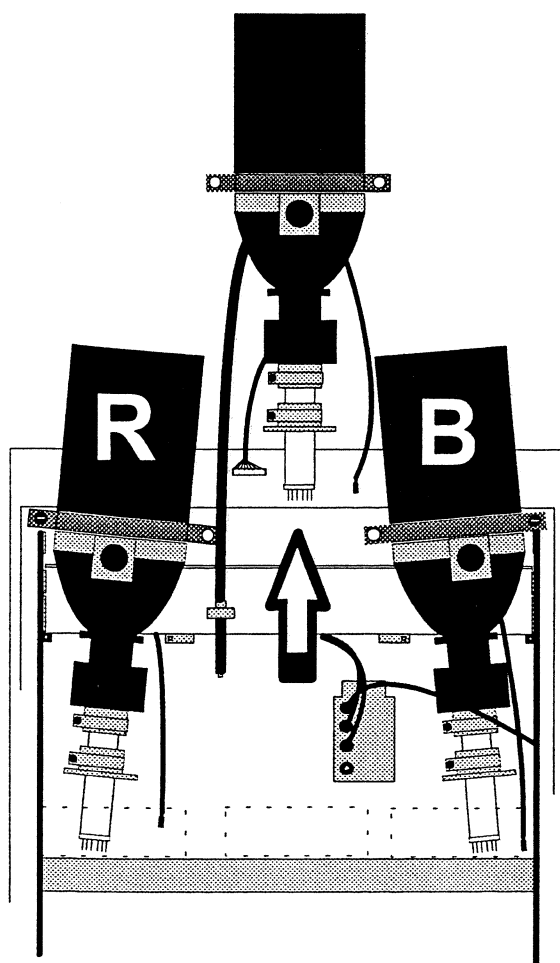
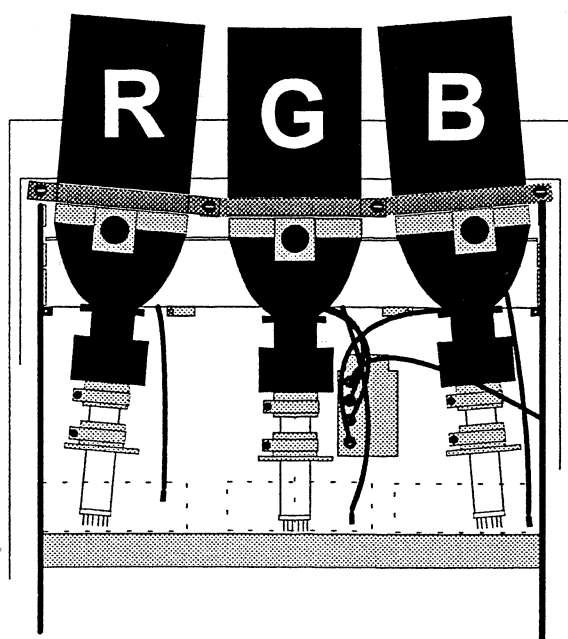


Fig.6

8. Disassembling the CRT unit

Removing the CRT from its support

- Remove the four bolts, holding the picture tube to the support.
- Remove the picture tube from its support.

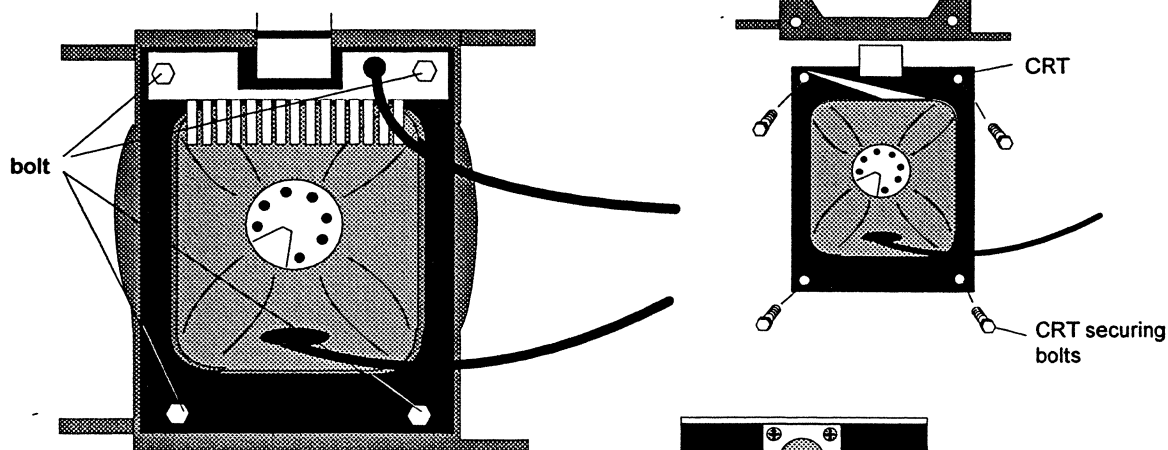


Fig.7

Removing the deflection unit and the stigmator

- Loosen the gear clamp of the stigmator magnets unit and slide the unit off of the end of the CRT.
- Loosen the gear clamp of the deflection unit and slide the unit off of the end of the CRT.

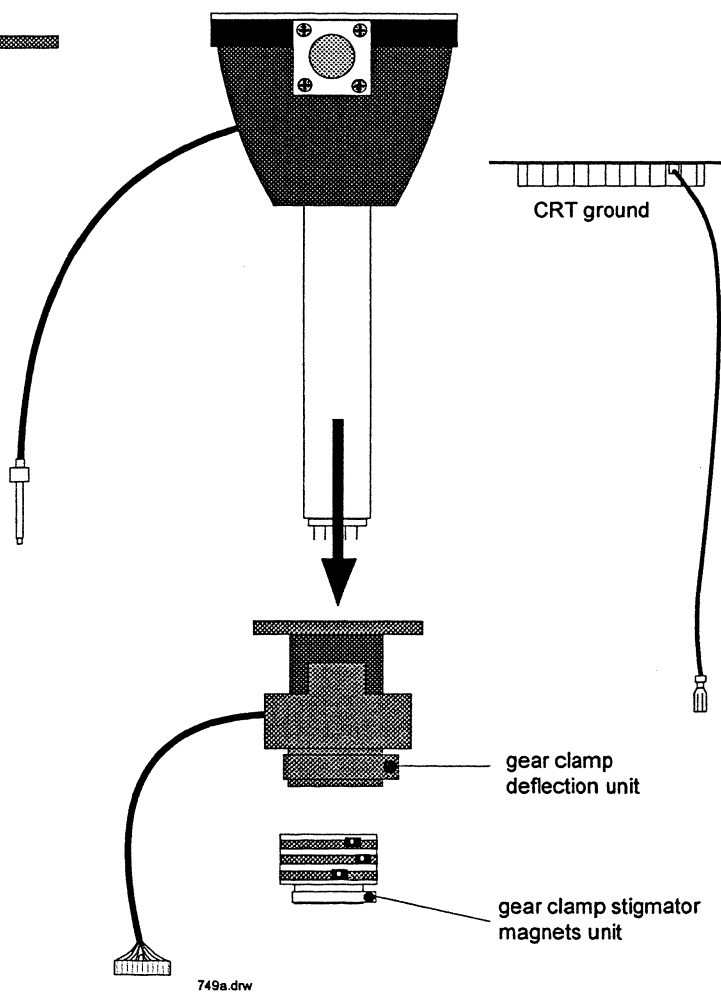


Fig.8

II. Placement of the new picture tube.

1. Assembling the picture tube unit (fig.8)

Remount the deflection (fully against the picture tube) and the stigmator unit on the picture tube neck and secure the respective gear clamp.

2. Mounting the picture tube in its support (fig 7)

- Place the picture tube in its support.
- Put the CRT ground unit on its place.
- Secure the assembly with the four bolts.

3. Mounting the lens-picture tube unit in the main frame (fig 6)

Place the unit in the main frame and secure the position with the two rods.

4. Remounting the upper metallic plate (fig 4)

- Place the plate on its place and secure with the 16 screws.
- Re-insert the bolts, holding the support blocks to upper metallic plate.

5. Reinstalling the electrical connections (fig 4-5)

- Remount the CRT module on the picture tube.
- Reinstall the CRT ground connection.
- Reinstall the deflection connection.
- Reinstall the EHT connection.

6. Put the controller module on its place (fig 3)

7. Proceed to the alignment of the replaced picture tube

For the Red and the Blue picture tube, start with the adjustment of the projection angle. (refer to the installation manual of the projector)

III. Picture tube alignment

Introduction

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.

If a set of three tubes must be replaced, it is advisable to start with the replacement of two tubes first, the red and blue, and using the green as a reference.

Proceed then with the replacement of the green tube, using now one of the other colours tubes as a reference.

A. Replacement of a complete set of three tubes

Apply an external crosshatch pattern at 15 kHz or use the internal crosshatch.

Align the optical and electrical focus of the tube.

Rotate the deflection yoke until the horizontal lines of the crosshatch are levelled on the screen.

Tighten now carefully the screw of the gear clamp of the deflection yoke.

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.

B. Replacement of one or two tubes

In such case, the remaining tube can be used as a reference for centring and positioning of the new tubes.

C. Adjustments applicable to the three tubes

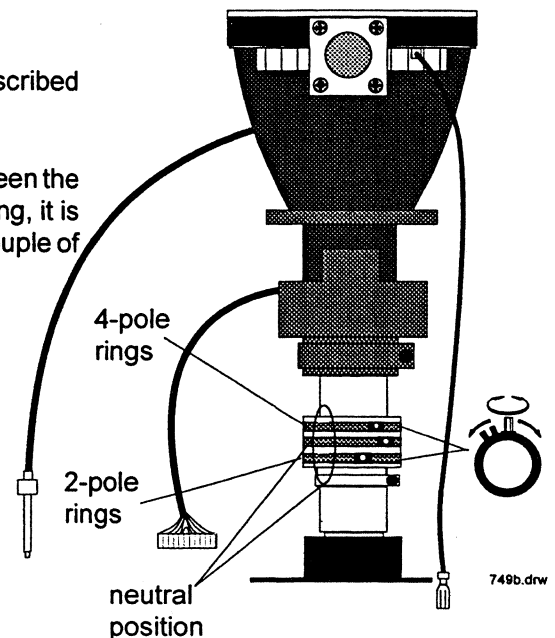
Preparation

- proceed to quick optical lens focusing (refer to the installation manual of the projector).
- adjust the 2-pole and 4-pole magnetic rings on the CRT neck in their neutral position (see illustration on next page).
- select a source that will generate a field of small dots and crosshairs.

Adjustment of the stigmators (4-pole magnet ring closest to the deflection yoke)

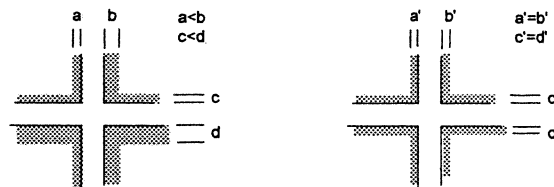
- lower the brightness and increase the contrast.
- overdrive the midpoint focus by adjusting the right arrow key of the RCU for the respective CRT.
- adjust the four pole rings until the defocused dots are circular.

- realign the electrical and optical focus.
- re-position the raster as described earlier.
- due to mutual influence between the stigmators, focus and centring, it is advised to repeat above a couple of times.



Adjustment of the 2-pole magnets (the rings closest to the CRT socket)

- underdrive the electronic focus by adjusting the left arrow key of the RCU for the respective CRT.
- adjust the 2-pole magnets rings by rotating one or both up to a point where the 'shading' of both sides of the vertical and horizontal lines is equal (see figure).



- realign the electrical and optical focus.
- repeat the alignment of the stigmators if necessary, as both adjustments (stigmator and 2-pole magnets) influence each other.

Re-alignment of the image width coil(s)

- decrease the contrast and increase the brightness to reveal the background raster.
- refer to sheet 'Deflection switching module 76 2121' in this manual for the alignment of the image width coils.

Note:

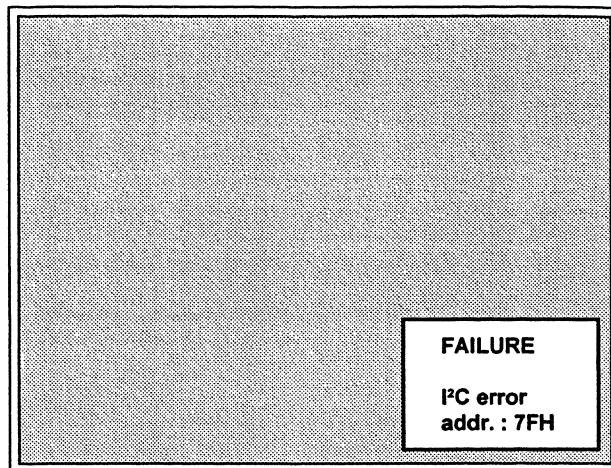
When only one tube has been replaced, you can use the image width of one of the other tubes as a reference, and obviously limit the adjustment to the core of the corresponding replaced tube.

Failure (BD801S)

I²C error

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 module (Driver) 76 2512 - Green convergence sub module 76 25128

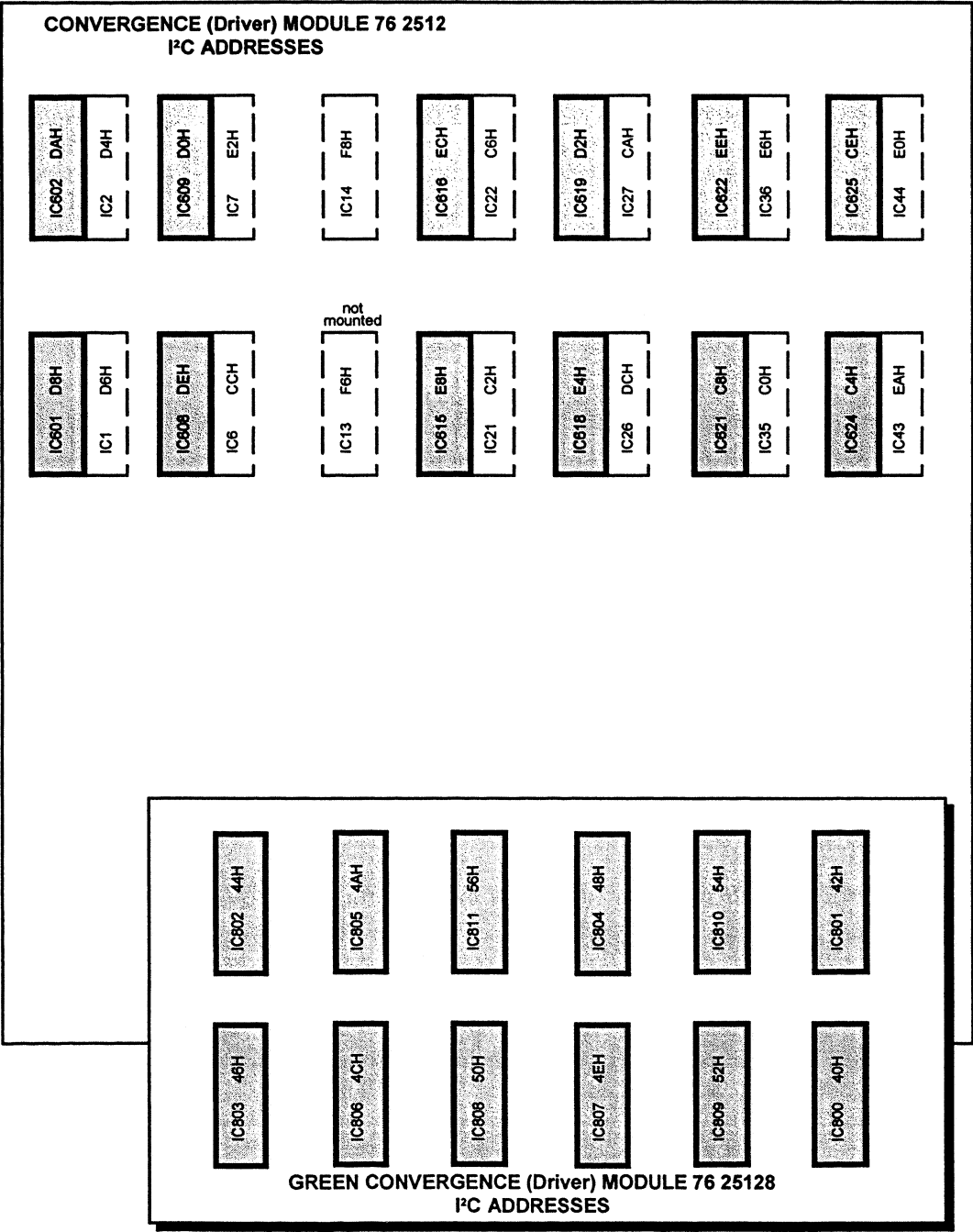
Convergence zones

1	2	3	4	5
6	7	8	9	10
11	12		13	14
15	16	17	18	19
20	21	22	23	24

E2H	IC7	18
E4H	IC618	19
E6H	IC36	20
E8H	IC615	21
EAH	IC43	22
ECH	IC616	23
EEH	IC622	24

HEX address	IC	CORRECTION Green vert./hor.	ZONE
40H	IC800		22
			3
42H	IC801		8
			17
44H	IC802		13
			12
46H	IC803		14
			11
48H	IC804		6
			15
4AH	IC805		7
			16
4CH	IC806		9
			18
4EH	IC807		19
			10
50H	IC808		4
			23
52H	IC809		5
			24
54H	IC810		20
			1
56H	IC811		2
			21

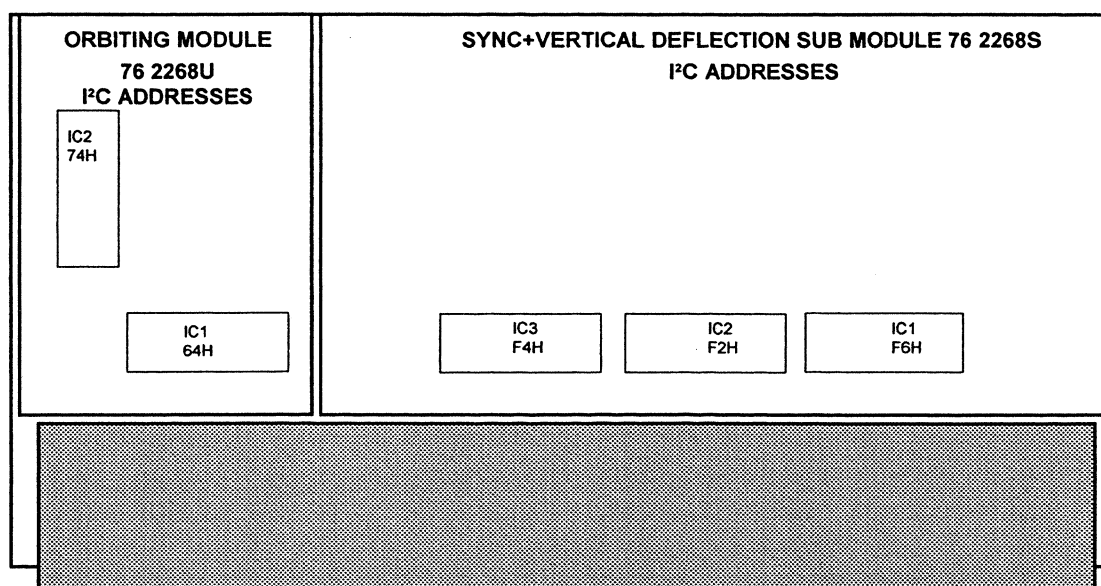
HEX address	IC	CORRECTION Red/Blue vert./hor.	ZONE
C0H	IC35		1
C2H	IC21		2
C4H	IC624		3
C6H	IC22		4
C8H	IC621		5
CAH	IC27		6
CCH	IC6		7
CEH	IC625		8
D0H	IC609		9
D2H	IC619		10
D4H	IC2		11
D6H	IC1		12
D8H	IC601		13
DAH	IC602		14
DCH	IC26		15
DEH	IC608		16
E0H	IC44		17



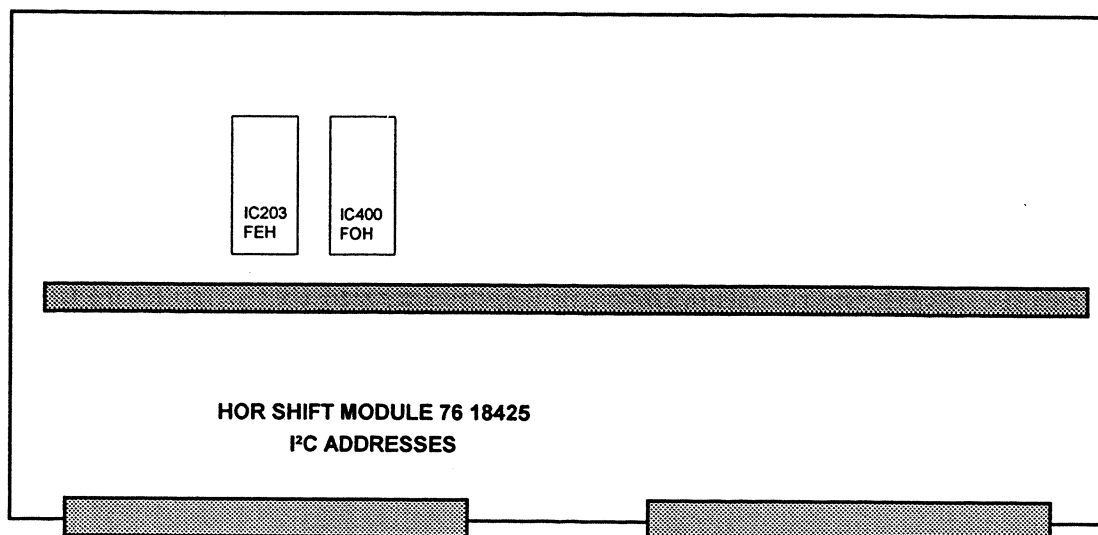
HEX address	IC	CORRECTION N/S Correction	ZONE	HEX address	IC	CORRECTION N/S Correction	ZONE
F8H	IC14	top keystone bottom keystone top bow bottom bow		FAH	IC42	horizontal midline bow horizontal midline skew vertical midline bow vertical midline skew	

SYNC+VERTICAL DEFLECTION MODULE 76 22695

HEX address	IC	CORRECTION	HEX address	IC	CORRECTION
F2H	IC3	bottom blanking vertical shift red vertical shift green vertical shift blue	F6H	IC1	side keystone side bow left blanking right blanking
F4H	IC2	vertical amplitude vertical linearity horizontal phase top blanking	<i>ORBITING</i> 74H	IC2	max deviation zero deviation slow orbiting fast orbiting
			64H	IC1	shift orbit phase orbit

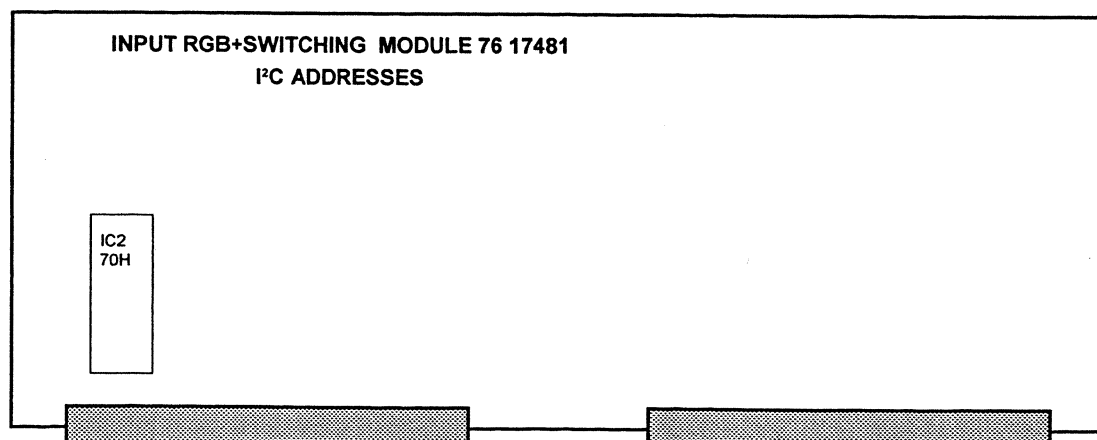
**HOR SHIFT 76 18425**

HEX address	IC	CORRECTION	HEX address	IC	CORRECTION
F0H	IC400	horizontal shift red horizontal shift green horizontal shift blue x (not used)	FEH	IC203	horizontal amplitude x (not used) x (not used) x (not used)



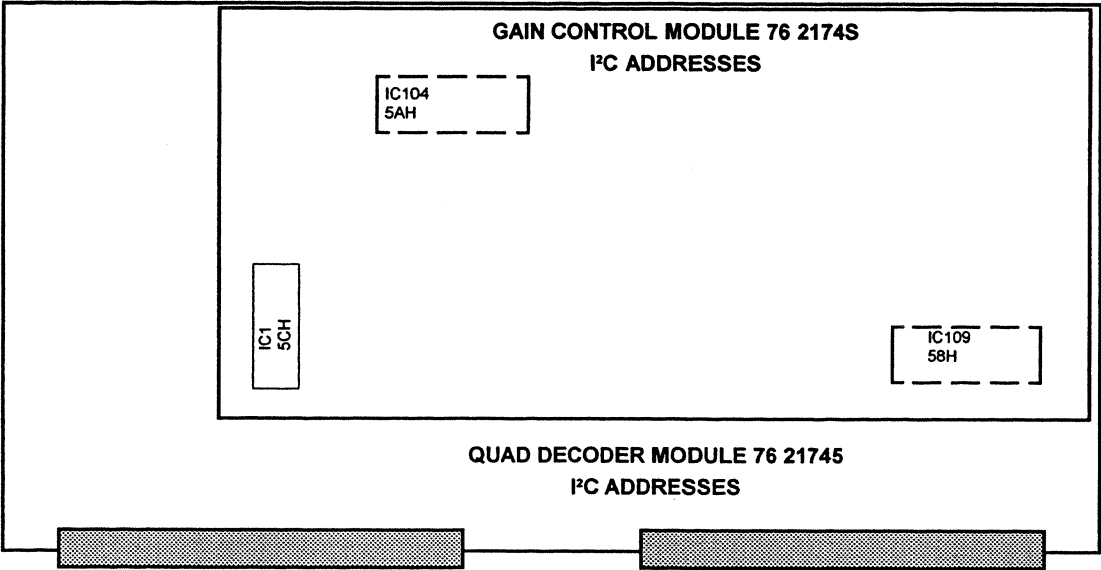
INPUT RGB+SWITCHING 76 17481

HEX address	IC	CORRECTION
70H	IC2	red on/off green on/off blue on/off sync fast/slow input video input S-video input RGB TTL input RGsB analog input RGSB analog internal pattern enhanced blue on/off



QUAD DECODER+GAIN CONTROL 76 21745

HEX address	IC	CORRECTION	HEX address	IC	CORRECTION
58H	IC109	saturation R-Y saturation B-Y tint sharpness	Gain control 5CH	IC1	red gain blue gain red cut off blue cut off
5AH	IC104	contrast brightness blanking left blanking right			



I²C error messages in ascending order of address number

HEXaddress	IC	MODULE	HEXaddress	IC	MODULE
40H	IC800	Convergence G 76 25128	D0H	IC609	Convergence 76 2512
42H	IC801	Convergence G 76 25128	D2H	IC619	Convergence 76 2512
44H	IC802	Convergence G 76 25128	D4H	IC2	Convergence 76 2512
46H	IC803	Convergence G 76 25128	D6H	IC1	Convergence 76 2512
48H	IC804	Convergence G 76 25128	D8H	IC601	Convergence 76 2512
4AH	IC805	Convergence G 76 25128	DAH	IC602	Convergence 76 2512
4CH	IC806	Convergence G 76 25128	DCH	IC26	Convergence 76 2512
4EH	IC807	Convergence G 76 25128	DEH	IC608	Convergence 76 2512
50H	IC808	Convergence G 76 25128	E0H	IC44	Convergence 76 2512
52H	IC809	Convergence G 76 25128	E2H	IC7	Convergence 76 2512
54H	IC810	Convergence G 76 25128	E4H	IC618	Convergence 76 2512
56H	IC811	Convergence G 76 25128	E6H	IC36	Convergence 76 2512
58H	IC109	Q Decoder+Gain 76 21745	E8H	IC615	Convergence 76 2512
5AH	IC104	Q Decoder+Gain 76 21745	EAH	IC43	Convergence 76 2512
5CH	IC1	Q Decoder+Gain 76 21745	ECH	IC616	Convergence 76 2512
70H	IC2	In RGB+Switching 76 17481	EEH	IC622	Convergence 76 2512
74H	IC2	Orbiting 76 2268U	F0H	IC400	Hor Shift 76 18425
C0H	IC35	Convergence 76 2512	F2H	IC3	Sync+Vert defl 76 22695
C2H	IC21	Convergence 76 2512	F4H	IC2	Sync+Vert defl 76 22695
C4H	IC624	Convergence 76 2512	F6H	IC1	Sync+Vert defl 76 22695
C6H	IC22	Convergence 76 2512	F8H	IC805	Convergence 76 2512
C8H	IC621	Convergence 76 2512	FAH	IC803	Convergence 76 2512
CAH	IC27	Convergence 76 2512	FEH	IC203	Hor Shift 76 18425
CCH	IC6	Convergence 76 2512			
CEH	IC625	Convergence 76 2518			

Refer to preceding pages for IC location on module and fault identification.