

HORIZONTAL
SHIFT
MODULE

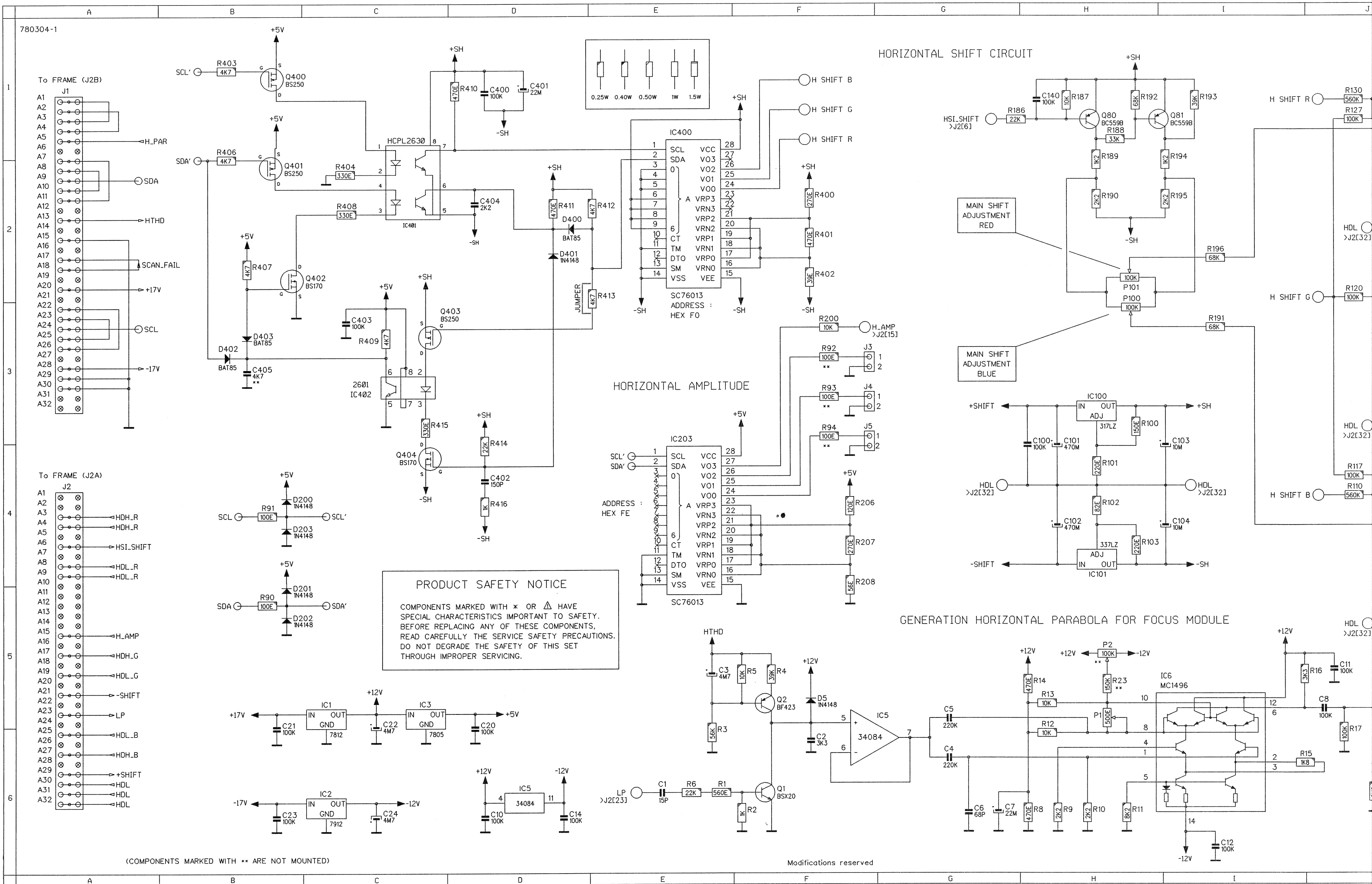
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| Name | Interconnection | Article nr. |
| HORIZONTAL SHIFT | | 76 18425 |
| Date | Drawn | Checked |
| 01-02-1995 | JVDY | KC |

BARCO PROJECTION SYSTEMS

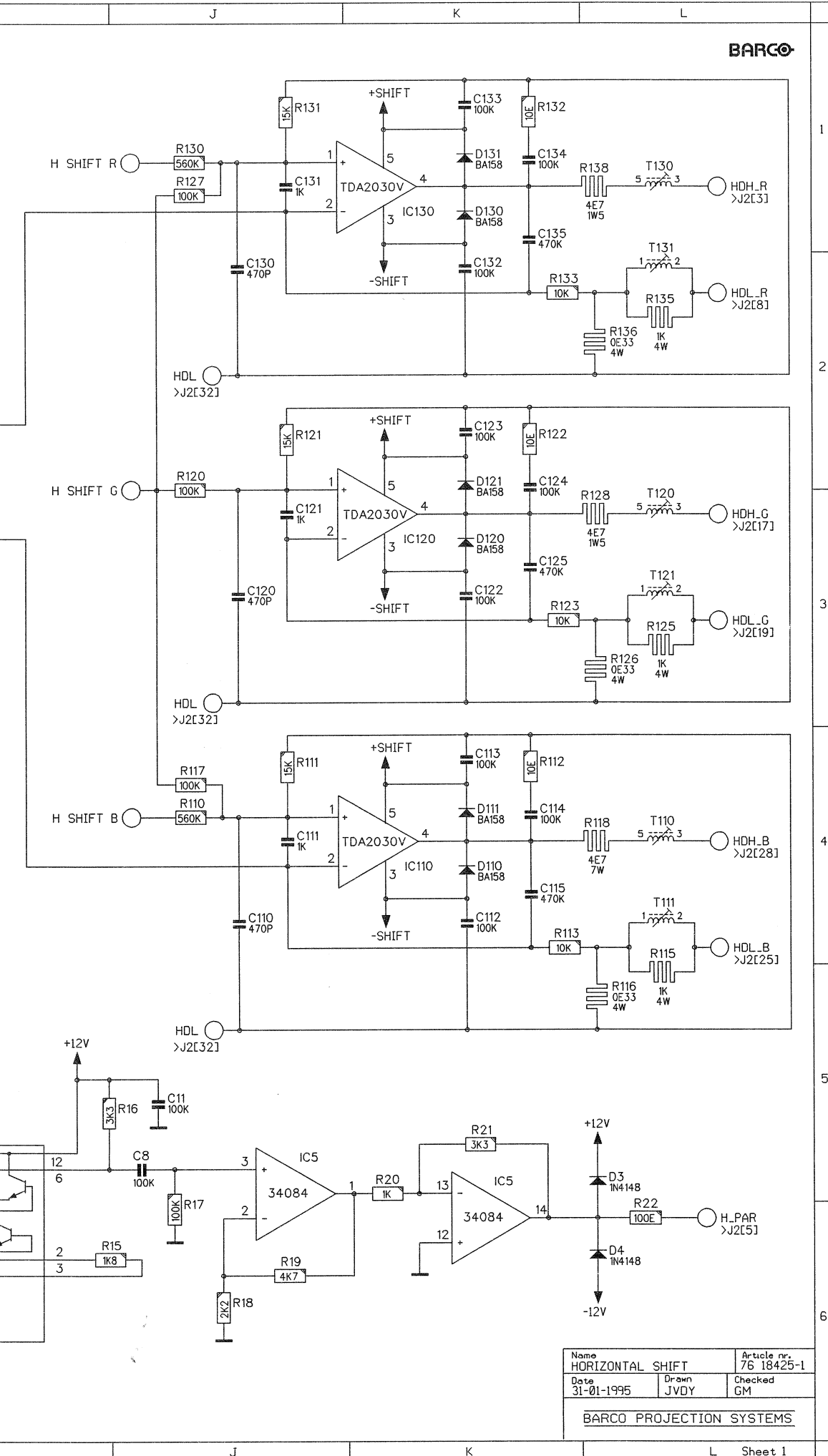
Modifications reserved

COMP. LOC. COMP. LOC.

| | | | |
|-------|-----|------|-----|
| C1 | E 5 | R103 | D 5 |
| C2 | C 4 | R10 | E 3 |
| C3 | C 5 | R11 | E 3 |
| C4 | B 4 | R12 | E 3 |
| C5 | B 3 | R13 | E 4 |
| C6 | B 4 | R15 | E 3 |
| C7 | B 4 | R16 | E 4 |
| C8 | B 4 | R17 | E 3 |
| C10 | C 5 | R18 | E 4 |
| C11 | B 4 | R20 | F 3 |
| C12 | B 5 | R21 | F 3 |
| C14 | B 4 | R22 | F 3 |
| C20 | D 5 | R23 | F 4 |
| C21 | D 5 | R25 | F 3 |
| C22 | D 4 | R26 | F 4 |
| C23 | D 5 | R27 | F 3 |
| C24 | D 5 | R28 | E 4 |
| C100 | D 5 | R30 | G 3 |
| C101 | D 5 | R31 | G 3 |
| C102 | D 5 | R32 | G 4 |
| C103 | D 5 | R33 | G 4 |
| C104 | D 5 | R35 | F 3 |
| C110 | E 4 | R36 | F 4 |
| C111 | E 4 | R38 | G 4 |
| C112 | E 4 | R86 | B 3 |
| C113 | E 4 | R87 | B 3 |
| C14 | E 4 | R88 | C 3 |
| C15 | E 4 | R89 | C 3 |
| C120 | F 4 | R90 | C 3 |
| C121 | F 4 | R91 | D 3 |
| C122 | F 4 | R92 | C 3 |
| C123 | F 4 | R93 | C 3 |
| C124 | F 4 | R94 | C 3 |
| C125 | F 4 | R95 | C 3 |
| C130 | G 4 | R96 | C 3 |
| C131 | G 4 | R200 | D 4 |
| C132 | G 4 | R206 | C 4 |
| C133 | F 4 | R207 | C 3 |
| C134 | G 4 | R208 | C 3 |
| C135 | G 4 | R400 | C 3 |
| C140 | B 3 | R401 | C 3 |
| C400 | D 3 | R402 | C 3 |
| C401 | D 3 | R403 | D 4 |
| C402 | D 3 | R404 | D 3 |
| C403 | D 3 | R406 | D 4 |
| C404 | E 3 | R407 | D 4 |
| C405 | D 4 | R408 | D 4 |
| | | R409 | D 4 |
| D3 | B 4 | R410 | C 3 |
| D4 | C 5 | R411 | D 3 |
| D5 | C 5 | R412 | C 3 |
| D110 | E 4 | R413 | C 3 |
| D111 | E 4 | R414 | D 3 |
| D120 | F 4 | R415 | D 3 |
| D121 | F 4 | R416 | D 3 |
| D130 | F 4 | | |
| D131 | F 4 | T110 | E 5 |
| D200 | C 4 | T111 | F 3 |
| D201 | C 4 | T120 | F 5 |
| D202 | C 5 | T121 | F 3 |
| D203 | C 5 | T130 | C 5 |
| D400 | D 3 | T131 | F 3 |
| D401 | D 3 | | |
| D402 | D 4 | | |
| D403 | D 4 | | |
| IC1 | D 4 | | |
| IC2 | D 4 | | |
| IC3 | D 4 | | |
| IC5 | B 5 | | |
| IC6 | B 3 | | |
| IC100 | D 5 | | |
| IC101 | D 5 | | |
| IC110 | E 4 | | |
| IC120 | F 4 | | |
| IC130 | G 4 | | |
| IC203 | C 4 | | |
| IC400 | C 3 | | |
| IC401 | D 3 | | |
| IC402 | D 3 | | |
| J1 | B 5 | | |
| J2 | C 5 | | |
| J3 | C 4 | | |
| J4 | C 4 | | |
| J5 | B 4 | | |
| P1 | B 3 | | |
| P2 | C 3 | | |
| P100 | C 3 | | |
| P101 | C 3 | | |
| Q1 | C 4 | | |
| Q2 | C 5 | | |
| Q80 | B 3 | | |
| Q81 | B 3 | | |
| Q400 | D 4 | | |
| Q401 | D 4 | | |
| Q402 | D 4 | | |
| Q403 | D 3 | | |
| Q404 | E 3 | | |
| R1 | C 5 | | |
| R2 | C 5 | | |
| R3 | C 5 | | |
| R4 | C 5 | | |
| R5 | C 5 | | |
| R6 | E 5 | | |
| R8 | B 4 | | |
| R9 | C 3 | | |
| R10 | B 4 | | |
| R11 | B 3 | | |
| R12 | B 3 | | |
| R13 | B 3 | | |
| R14 | B 4 | | |
| R15 | C 3 | | |
| R16 | B 4 | | |
| R17 | C 4 | | |
| R18 | B 4 | | |
| R19 | C 4 | | |
| R20 | C 4 | | |
| R21 | C 4 | | |
| R22 | B 5 | | |
| R23 | B 3 | | |
| R90 | D 4 | | |
| R91 | C 5 | | |
| R92 | C 4 | | |
| R93 | C 4 | | |
| R94 | C 4 | | |
| R100 | D 5 | | |
| R101 | D 5 | | |
| R102 | D 5 | | |



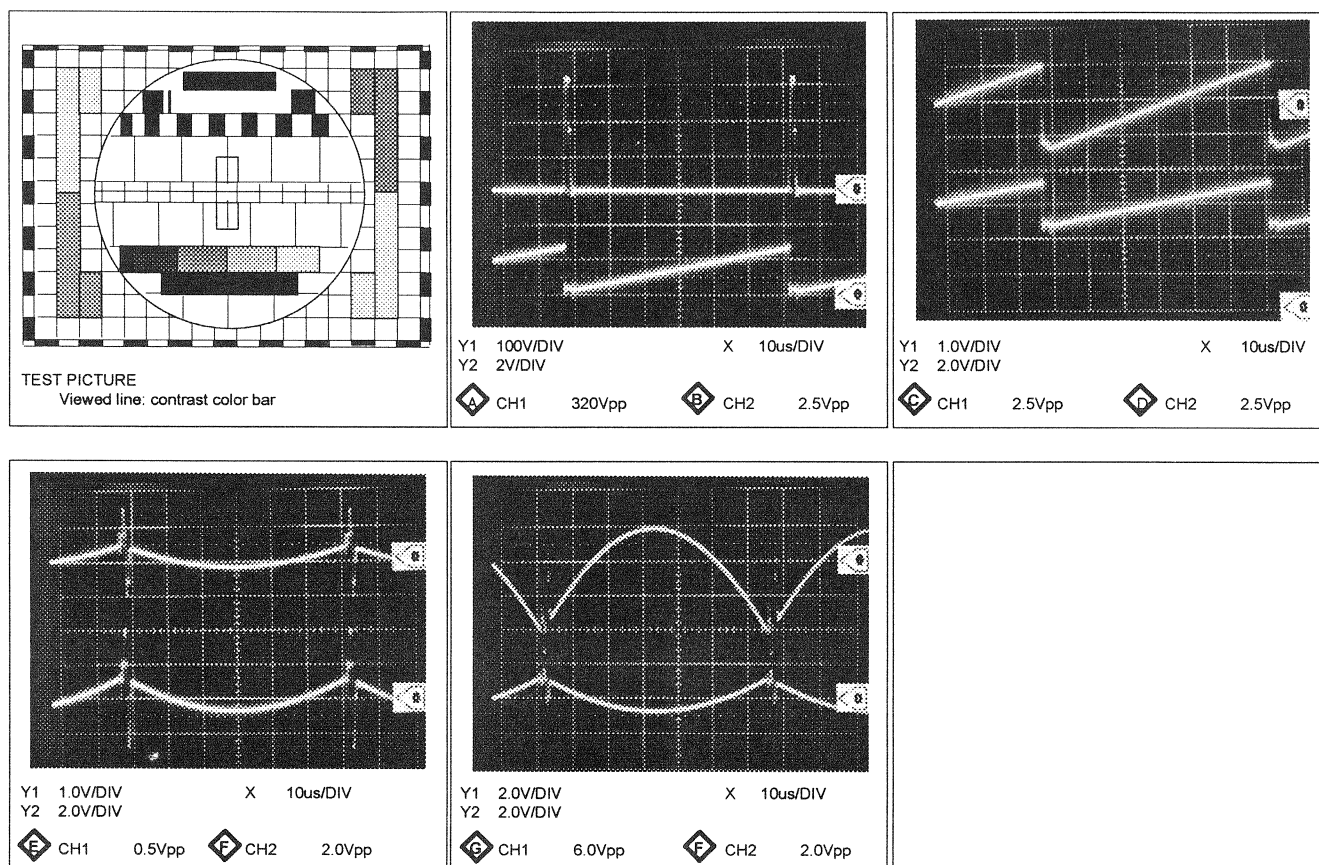
BARCO



COMP. LOC. COMP. LOC.

| | | | |
|-------|-----|------|-----|
| C1 | E 6 | R11 | H 6 |
| C2 | F 6 | R12 | H 5 |
| C3 | E 5 | R13 | H 5 |
| C4 | G 6 | R14 | H 5 |
| C5 | G 5 | R15 | 16 |
| C6 | G 6 | R16 | J 5 |
| C7 | G 6 | R17 | J 5 |
| C8 | J 5 | R18 | J 6 |
| C10 | D 6 | R19 | J 6 |
| C11 | J 5 | R20 | K 5 |
| C12 | 16 | R21 | K 5 |
| C14 | D 6 | R22 | L 5 |
| C20 | D 5 | R23 | H 5 |
| C21 | B 5 | R90 | B 5 |
| C22 | C 5 | R91 | B 4 |
| C23 | B 6 | R92 | F 3 |
| C24 | C 6 | R93 | F 3 |
| C100 | H 3 | R94 | F 3 |
| C101 | H 3 | R100 | H 3 |
| C102 | H 4 | R101 | H 4 |
| C103 | I 3 | R102 | H 4 |
| C104 | I 4 | R103 | H 4 |
| C110 | J 4 | R110 | J 4 |
| C111 | J 4 | R111 | J 4 |
| C112 | K 4 | R112 | K 4 |
| C113 | K 4 | R113 | K 4 |
| C114 | K 4 | R115 | L 4 |
| C115 | K 4 | R116 | L 5 |
| C120 | J 3 | R117 | J 4 |
| C121 | J 3 | R118 | L 4 |
| C122 | K 3 | R120 | J 2 |
| C123 | K 2 | R121 | J 2 |
| C124 | K 2 | R122 | K 2 |
| C125 | K 3 | R123 | K 3 |
| C130 | J 1 | R125 | L 3 |
| C131 | J 1 | R126 | L 3 |
| C132 | K 1 | R127 | J 1 |
| C133 | K 1 | R128 | L 2 |
| C134 | K 1 | R130 | J 1 |
| C135 | K 1 | R131 | J 1 |
| C140 | H 1 | R132 | K 1 |
| C400 | D 1 | R133 | K 2 |
| C401 | D 1 | R135 | L 2 |
| C402 | D 4 | R136 | L 2 |
| C403 | C 3 | R138 | L 1 |
| C404 | D 2 | R186 | G 1 |
| C405 | B 3 | R187 | H 1 |
| | | R188 | H 1 |
| | | R189 | H 1 |
| D3 | L 5 | R190 | H 2 |
| D4 | L 6 | R191 | I 3 |
| D5 | F 5 | R192 | H 1 |
| D110 | K 4 | R193 | I 1 |
| D111 | K 4 | R194 | I 1 |
| D120 | K 3 | R195 | I 2 |
| D121 | K 2 | R196 | I 2 |
| D130 | K 1 | R200 | F 3 |
| D131 | K 1 | R206 | F 4 |
| D200 | B 4 | R207 | F 4 |
| D201 | B 4 | R208 | F 4 |
| D202 | B 5 | R400 | F 2 |
| D203 | B 4 | R401 | F 2 |
| D400 | D 2 | R402 | F 2 |
| D401 | D 2 | R403 | B 1 |
| D402 | B 3 | R404 | C 2 |
| D403 | B 3 | R406 | B 1 |
| | | R407 | B 2 |
| IC1 | C 5 | R408 | C 2 |
| IC2 | C 6 | R409 | C 3 |
| IC3 | C 5 | R410 | D 1 |
| IC5 | J 5 | R411 | D 2 |
| IC5 | D 6 | R412 | E 2 |
| IC5 | K 5 | R413 | E 2 |
| IC5 | G 5 | R414 | D 3 |
| IC6 | I 5 | R415 | C 3 |
| IC100 | H 3 | R416 | D 4 |
| IC101 | H 4 | | |
| IC110 | K 4 | | |
| IC120 | K 3 | T110 | L 4 |
| IC130 | K 1 | T111 | L 4 |
| IC203 | E 3 | T120 | L 2 |
| IC400 | E 1 | T121 | L 3 |
| IC401 | C 2 | T130 | L 1 |
| IC402 | C 3 | T131 | L 1 |
| J1 | A 1 | | |
| J2 | A 4 | | |
| J3 | F 3 | | |
| J4 | F 3 | | |
| J5 | F 3 | | |
| P1 | H 5 | | |
| P2 | H 5 | | |
| P100 | H 2 | | |
| P101 | H 2 | | |
| Q1 | F 6 | | |
| Q2 | F 5 | | |
| Q80 | H 1 | | |
| Q81 | I 1 | | |
| Q400 | B 1 | | |
| Q401 | B 2 | | |
| Q402 | C 2 | | |
| Q403 | C 3 | | |
| Q404 | C 4 | | |
| R1 | E 6 | | |
| R2 | F 6 | | |
| R3 | F 5 | | |
| R4 | F 5 | | |
| R5 | F 5 | | |
| R6 | E 6 | | |
| R8 | H 6 | | |
| R9 | H 6 | | |
| R10 | H 6 | | |

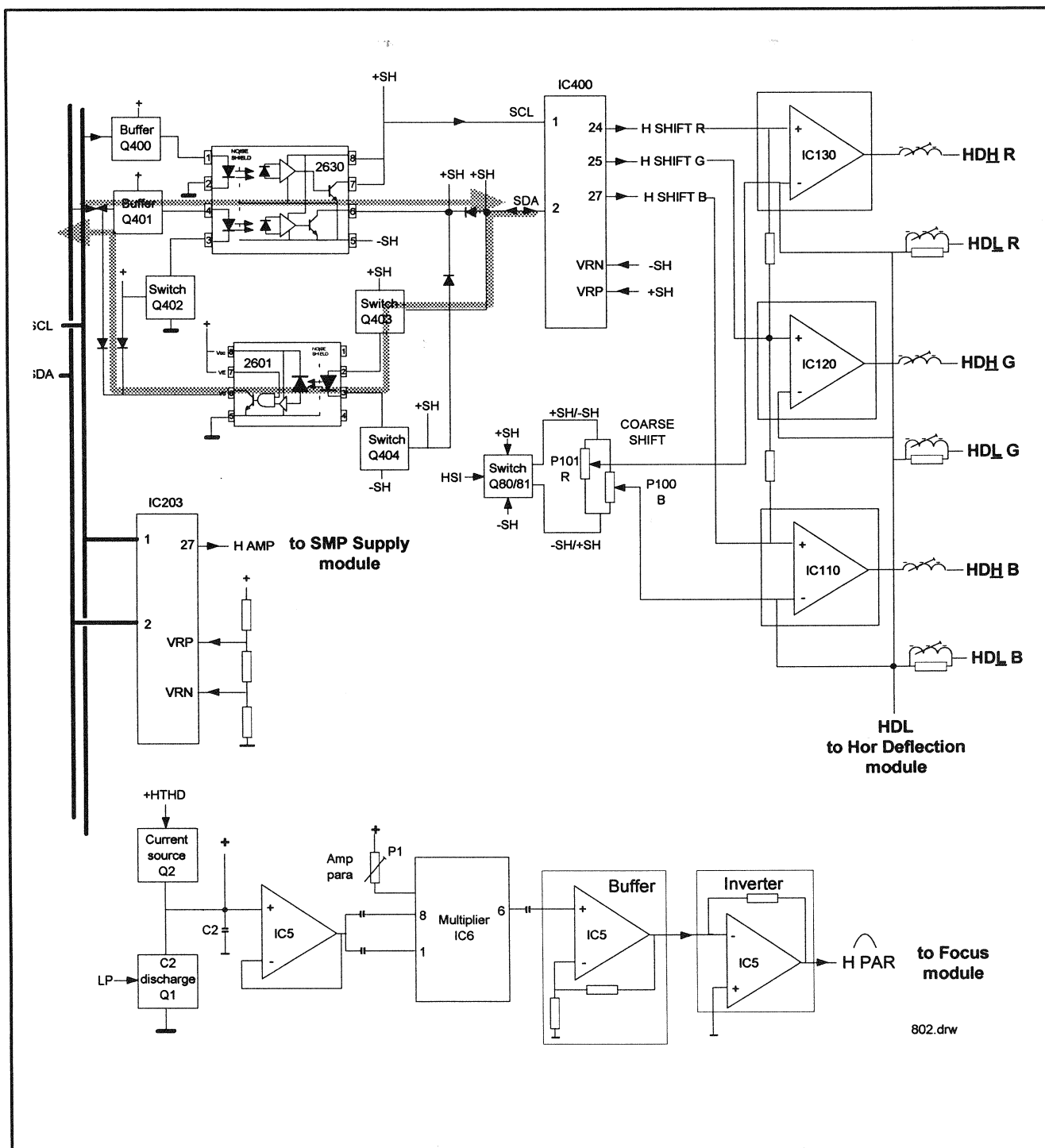
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|--------------------------|-------|-------------|--|
| Name | | Article nr. | |
| HORIZONTAL SHIFT | | 76 18425-1 | |
| Date | Drawn | Checked | |
| 31-01-1995 | JVDY | GM | |
| BARCO PROJECTION SYSTEMS | | | |



Schematic reference

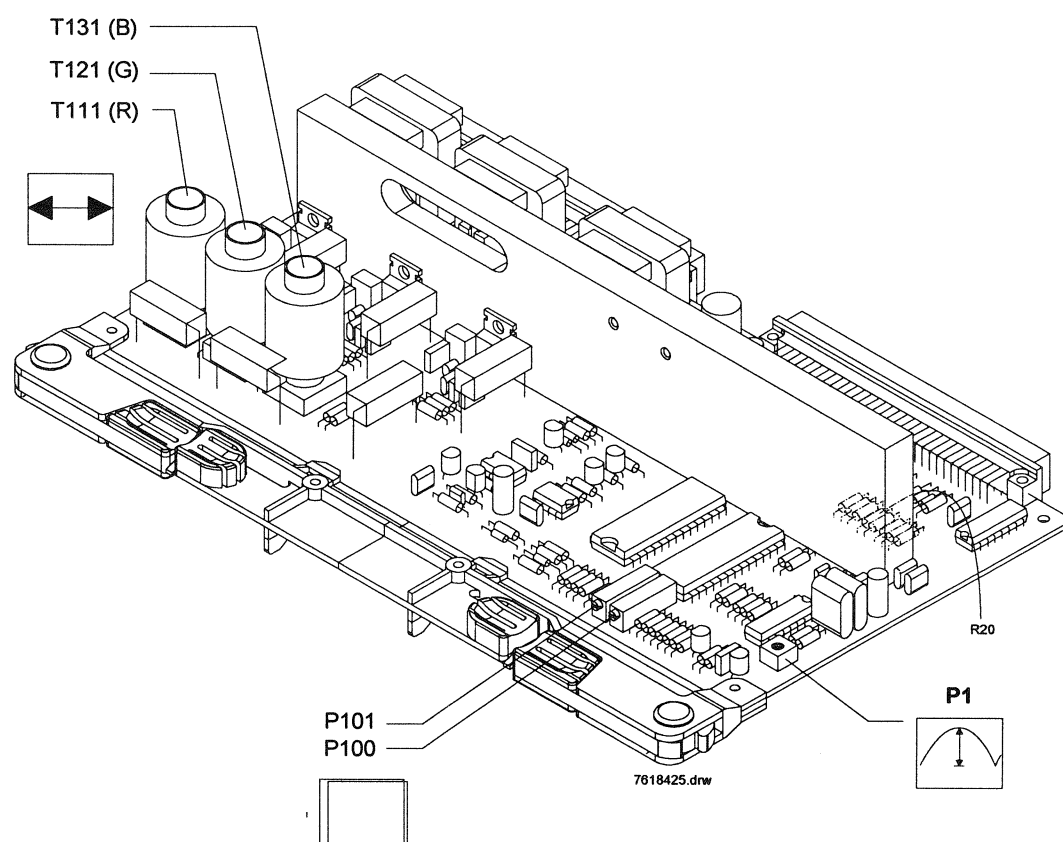
<A> LP J2A(23)
 PIN 7 IC5
<C> C4/C6
<D> PIN 8 IC6

<E> PIN 3 IC5
<F> PIN 1 IC5
<G> HPAR-PIN 14 IC5



Introduction

The following adjustments are provided on the module:



a: Hor. picture width T111-T121-T131

Red **T131**
Green **T121**
Blue **T111**

Important: The following adjustments are provided on the main board in order to correct the Hor. Shift range of the Red and Blue picture after replacement of the respective picture tube.

b: Horizontal shift adjustment P100-P101

Blue picture **P100**
Red picture **P101**

c: Amplitude Hor parabola P1

Hor. picture width adjustments

Preparation:

- Projector has to operate on the highest used line and frame frequency.
- Decrease the contrast and increase the brightness to reveal the (background) raster.
- Turn the core of T111, T121 and T131 fully inside the coil.

Referring to owner's manual:

- If necessary, adjust picture coincidence in the center of the picture.
- To proceed to the adjustment, select the GEOMETRY menu.

The colour picture with the smallest raster width will be taken as reference.

Adjustment:

Adjust the two other coils in order to match the raster with the reference raster.

Important: one of the three coils must have a core fully turned in.

Master Hor. Shift adjustments

Preparation:

- Projector has to operate on a crosshatch input signal with standard line and frame frequency.
- Adjust for the red and blue picture, by means of the RCU800 (refer to the owner's manual of the projector), the Hor. Shift adjustments in their mid-position (50 % on the bar scale).

Adjustment:

Adjust the Hor. Shift for red P101 and blue P100 separately for horizontal coincidence of the vertical center line with green.

Hor parabola

Projector has to operate on a an input signal with standard line and frame frequency.

Adjustment:

- connect an oscilloscope to pin 1 of IC5 'PAR' (R20).
- adjust potentiometer P1 for an amplitude of the parabolic signal of 2Vpp.

TECHNICAL DESCRIPTION "HOR SHIFT" MODULE

Introduction

On this module we generate the waveform H PAR for the correction of the focus voltage along the horizontal axis (modulation of the focus voltage by a horizontal parabolic shaped signal). This signal H PAR is sent to the focus module at contact 28.

The same board also contains the circuits for the horizontal shift of the three pictures. A coarse alignment compensates the tolerances on deflection yokes and stigmatising magnetic rings, furthermore, the steps of the digital potentiometers can then be smaller.

Generation of the H PAR waveform

Capacitor C2 is charged up through a current generator Q2 supplied with the +HTHD voltage. Line pulses LP, applied on the base of Q1 introduce a discharge of the named capacitor. As the supply voltage of the current generator is tracked with the line frequency, the amplitude of the ramp is independent on the line frequency.

The sawtooth is then buffered and inverted. The ST1 is sent to the multiplier IC6, pins 1 and 8 via a coupling capacitor C4 respectively C5. The parabolic shaped output is then buffered and inverted with an OPAMP in IC5. The sawtooth leaves the module as H PAR to the focus module.

Horizontal shift

The + and - shift voltages are not referred to the chassis ground, but have their own ground.

On the other hand, the I2C bus has the chassis ground as ground. The VSS (ground) of the chip IC400 may not be connected at the chassis ground, thus we need to apply the I2C info via an insulating optocoupler.

The SCL' is uni-directional and passes Q400 / IC401.

The SDA is bi-directional due to the acknowledgment bit.

The data passes Q401 / IC401 / D400. The acknowledgment bit (pulling the SDA line at ground level), passes R413 / Q403 / IC402 / D402.

Q402 is blocked when the acknowledgment bit is sent by IC400 and prevents a return to the chip via the opto-coupler IC401.

Same applies for Q404 when the controller board is sending the data.

The SHIFT B / G and R voltages reach now the buffer-current amplifiers IC110 / 120 / 130.

To reduce the voltage / step of the digital potentiometers, a coarse alignment is first set with a multiturn potentiometer this for the red and blue.

Two transistors invert the shift voltages when the user changes from a ceiling to table projection. The info for inversion is coming from the scan inversion switch for red on the motherboard.

Note that moving the green raster means also a movement of the red and blue via R117 and R127.

The voltage across the 0.33 Ohm is divided by a 10k / 15M and fed back to the inverting input for stability reasons.

Parts listing Hor. Shift adj. module 76 18425

| ITEM NO. | SIT. | DESCRIPTION | ITEM NO. | SIT. | DESCRIPTION |
|----------|-------|----------------------------|----------|------|-------------------------------|
| 11 2681 | C..1 | C N750MI 15P G500E2 | 13 4002 | I..1 | U 7812 TO220 PSTAB |
| 11 5928 | C..2 | C PP RA 3N3J 63E2 | 13 4016 | I..2 | U 7912 TO220 PSTAB |
| 11 1550 | C..3 | C EL RA 4M7M 50E2 85 | 13 4001 | I..3 | U 7805 TO220 PSTAB |
| 11 3728 | C..4 | C POMERA 220N K 63E2 | 13 4125 | I..5 | U 34084 DIP14 POPAMP |
| 11 3728 | C..5 | C POMERA 220N K 63E2 | 13 27655 | I..6 | U 1496 MC DIP14 PBAL_M |
| 11 2240 | C..6 | C NPO MI 68P J 63E2 | 13 4028 | I100 | U 317LZ TO92 PSTAB |
| 11 1510 | C..7 | C EL RA 22M M 25E2 85 | 13 4029 | I101 | U 337LZ TO92 PSTAB |
| 11 4079 | C..8 | C POMERA 100N M 63E2 32535 | 13 2751 | I110 | U 2030V TDA TO220T PAUD12 |
| 11 2774 | C..10 | C CE MI 100N S 63E2 | 13 2751 | I120 | U 2030V TDA TO220T PAUD12 |
| 11 2774 | C..11 | C CE MI 100N S 63E2 | 13 2751 | I130 | U 2030V TDA TO220T PAUD12 |
| 11 2774 | C..12 | C CE MI 100N S 63E2 | 13 2833 | I203 | U 76013 SC DIP28 PD_POT |
| 11 2774 | C..14 | C CE MI 100N S 63E2 | 13 2833 | I400 | U 76013 SC DIP28 PD_POT |
| 11 2774 | C..20 | C CE MI 100N S 63E2 | 13 1684 | I401 | U 2630 HCPL DIP8 POPTOC |
| 11 2774 | C..21 | C CE MI 100N S 63E2 | 13 1683 | I402 | U 2601 HCPL DIP8 POPTOC |
| 11 1550 | C..22 | C EL RA 4M7M 50E2 85 | | | |
| 11 2774 | C..23 | C CE MI 100N S 63E2 | 31 3525 | J1.. | J EUR2C MBS P64 E1 C2S1.6 |
| 11 1550 | C..24 | C EL RA 4M7M 50E2 85 | 31 3525 | J2.. | J EUR2C MBS P64 E1 C2S1.6 |
| 11 2774 | C100 | C CE MI 100N S 63E2 | | | |
| 11 1479 | C101 | C EL RA 470M Z 25E2 85 | 10 6825 | P..1 | R TCE V500E K 0W5 S10SS3386H |
| 11 1479 | C102 | C EL RA 470M Z 25E2 85 | 10 7534 | P100 | R MCE H100K K 0W75 M20SS3006P |
| 11 1531 | C103 | C EL RA 10M M 35E2 85 | 10 7534 | P101 | R MCE H100K K 0W75 M20SS3006P |
| 11 1531 | C104 | C EL RA 10M M 35E2 85 | | | |
| 11 2735 | C110 | C CE MI 470P K100E2 | 78 0304 | PC.. | PCD EP49 G 801 SH |
| 11 2739 | C111 | C CE MI 1N K100E2 | | | |
| 11 3724 | C112 | C POMERA 100N K 63E2 | 13 1491 | Q..1 | Q BSX20 .2369 N SS TO18 015A2 |
| 11 3724 | C113 | C POMERA 100N K 63E2 | 13 2552 | Q..2 | Q BF423 P SS TO92 25050 |
| 11 3724 | C114 | C POMERA 100N K 63E2 | 13 14181 | Q.80 | Q BC559B P SS TO92 030A1 |
| 11 3732 | C115 | C POMERA 470N K 63E2 | 13 14181 | Q.81 | Q BC559B P SS TO92 030A1 |
| 11 2735 | C120 | C CE MI 470P K100E2 | 13 2916 | Q400 | Q BS250 FN SS TO92 045A2 |
| 11 2739 | C121 | C CE MI 1N K100E2 | 13 2916 | Q401 | Q BS250 FN SS TO92 045A2 |
| 11 3724 | C122 | C POMERA 100N K 63E2 | 13 29105 | Q402 | Q BS170 FN SS TO92 060A5 |
| 11 3724 | C123 | C POMERA 100N K 63E2 | 13 2916 | Q403 | Q BS250 FN SS TO92 045A2 |
| 11 3724 | C124 | C POMERA 100N K 63E2 | 13 29105 | Q404 | Q BS170 FN SS TO92 060A5 |
| 11 3732 | C125 | C POMERA 470N K 63E2 | | | |
| 11 2735 | C130 | C CE MI 470P K100E2 | 10 1133 | R..1 | R CF H560E J 0W25 |
| 11 2739 | C131 | C CE MI 1N K100E2 | 10 1136 | R..2 | R CF H 1K J 0W25 |
| 11 3724 | C132 | C POMERA 100N K 63E2 | 10 1157 | R..3 | R CF H 56K J 0W25 |
| 11 3724 | C133 | C POMERA 100N K 63E2 | 10 1155 | R..4 | R CF H 39K J 0W25 |
| 11 3724 | C134 | C POMERA 100N K 63E2 | 10 1148 | R..5 | R CF H 10K J 0W25 |
| 11 3732 | C135 | C POMERA 470N K 63E2 | 10 1152 | R..6 | R CF H 22K J 0W25 |
| 11 3724 | C140 | C POMERA 100N K 63E2 | 10 1132 | R..8 | R CF H470E J 0W25 |
| 11 2774 | C400 | C CE MI 100N S 63E2 | 10 1140 | R..9 | R CF H 2K2 J 0W25 |
| 11 1510 | C401 | C EL RA 22M M 25E2 85 | 10 1140 | R.10 | R CF H 2K2 J 0W25 |
| 11 2364 | C402 | C N750MI 150P J 63E2 | 10 1147 | R.11 | R CF H 8K2 J 0W25 |
| 11 3724 | C403 | C POMERA 100N K 63E2 | 10 1148 | R.12 | R CF H 10K J 0W25 |
| 11 2743 | C404 | C CE MI 2N2K 63E2 | 10 1148 | R.13 | R CF H 10K J 0W25 |
| | | | 10 1132 | R.14 | R CF H470E J 0W25 |
| 13 1621 | D..3 | D S 1N4148 075150 DO35 | 10 1139 | R.15 | R CF H 1K8 J 0W25 |
| 13 1621 | D..4 | D S 1N4148 075150 DO35 | 10 1142 | R.16 | R CF H 3K3 J 0W25 |
| 13 1621 | D..5 | D S 1N4148 075150 DO35 | 10 1160 | R.17 | R CF H100K J 0W25 |
| 13 1637 | D110 | D R BA158 600400 DO7 | 10 1140 | R.18 | R CF H 2K2 J 0W25 |
| 13 1637 | D111 | D R BA158 600400 DO7 | 10 1144 | R.19 | R CF H 4K7 J 0W25 |
| 13 1637 | D120 | D R BA158 600400 DO7 | 10 1136 | R.20 | R CF H 1K J 0W25 |
| 13 1637 | D121 | D R BA158 600400 DO7 | 10 1142 | R.21 | R CF H 3K3 J 0W25 |
| 13 1637 | D130 | D R BA158 600400 DO7 | 10 1124 | R.22 | R CF H100E J 0W25 |
| 13 1637 | D131 | D R BA158 600400 DO7 | 10 1124 | R.90 | R CF H100E J 0W25 |
| 13 1621 | D200 | D S 1N4148 075150 DO35 | 10 1124 | R.91 | R CF H100E J 0W25 |
| 13 1621 | D201 | D S 1N4148 075150 DO35 | 10 1126 | R100 | R CF H150E J 0W25 |
| 13 1621 | D202 | D S 1N4148 075150 DO35 | 10 1128 | R101 | R CF H220E J 0W25 |
| 13 1621 | D203 | D S 1N4148 075150 DO35 | 10 1123 | R102 | R CF H 82E J 0W25 |
| 13 16361 | D400 | D Y BAT85 030200 DO35 | 10 1128 | R103 | R CF H220E J 0W25 |
| 13 1621 | D401 | D S 1N4148 075150 DO35 | 10 1169 | R110 | R CF H560K J 0W25 |
| 13 16361 | D402 | D Y BAT85 030200 DO35 | 10 1150 | R111 | R CF H 15K J 0W25 |
| 13 16361 | D403 | D Y BAT85 030200 DO35 | 10 1112 | R112 | R CF H 10E J 0W25 |
| | | | 10 1148 | R113 | R CF H 10K J 0W25 |

Parts listing sub module 76 1843

ITEM NO. SIT. DESCRIPTION

| | | | |
|---------|------|-------------------|-------|
| 10 3660 | R115 | R WW H 1K K 4W | |
| 10 3606 | R116 | R WW H E33K 4W | KKA4 |
| 10 1160 | R117 | R CF H100K J 0W25 | |
| 10 4212 | R118 | R WW V 4E7 K 7W | 212-3 |
| 10 1160 | R120 | R CF H100K J 0W25 | |
| 10 1150 | R121 | R CF H 15K J 0W25 | |
| 10 1112 | R122 | R CF H 10E J 0W25 | |
| 10 1148 | R123 | R CF H 10K J 0W25 | |
| 10 3660 | R125 | R WW H 1K K 4W | |
| 10 3606 | R126 | R WW H E33K 4W | KKA4 |
| 10 1160 | R127 | R CF H100K J 0W25 | |
| 10 4212 | R128 | R WW V 4E7 K 7W | 212-3 |
| 10 1169 | R130 | R CF H560K J 0W25 | |
| 10 1150 | R131 | R CF H 15K J 0W25 | |
| 10 1112 | R132 | R CF H 10E J 0W25 | |
| 10 1148 | R133 | R CF H 10K J 0W25 | |
| 10 3660 | R135 | R WW H 1K K 4W | |
| 10 3606 | R136 | R WW H E33K 4W | KKA4 |
| 10 4212 | R138 | R WW V 4E7 K 7W | 212-3 |
| 10 1132 | R140 | R CF H470E J 0W25 | |
| 10 1152 | R186 | R CF H 22K J 0W25 | |
| 10 1148 | R187 | R CF H 10K J 0W25 | |
| 10 1160 | R188 | R CF H100K J 0W25 | |
| 10 1137 | R189 | R CF H 1K2 J 0W25 | |
| 10 1140 | R190 | R CF H 2K2 J 0W25 | |
| 10 1158 | R191 | R CF H 68K J 0W25 | |
| 10 1158 | R192 | R CF H 68K J 0W25 | |
| 10 1160 | R193 | R CF H100K J 0W25 | |
| 10 1137 | R194 | R CF H 1K2 J 0W25 | |

ITEM NO. SIT. DESCRIPTION

| | | | |
|---------|------|------------------------|--|
| 10 1140 | R195 | R CF H 2K2 J 0W25 | |
| 10 1158 | R196 | R CF H 68K J 0W25 | |
| 10 1148 | R200 | R CF H 10K J 0W25 | |
| 10 1125 | R206 | R CF H120E J 0W25 | |
| 10 1129 | R207 | R CF H270E J 0W25 | |
| 10 1121 | R208 | R CF H 56E J 0W25 | |
| 10 1129 | R400 | R CF H270E J 0W25 | |
| 10 1132 | R401 | R CF H470E J 0W25 | |
| 10 1119 | R402 | R CF H 39E J 0W25 | |
| 10 1144 | R403 | R CF H 4K7 J 0W25 | |
| 10 1130 | R404 | R CF H330E J 0W25 | |
| 10 1144 | R406 | R CF H 4K7 J 0W25 | |
| 10 1144 | R407 | R CF H 4K7 J 0W25 | |
| 10 1130 | R408 | R CF H330E J 0W25 | |
| 10 1144 | R409 | R CF H 4K7 J 0W25 | |
| 10 1132 | R410 | R CF H470E J 0W25 | |
| 10 1132 | R411 | R CF H470E J 0W25 | |
| 10 1144 | R412 | R CF H 4K7 J 0W25 | |
| 34 8100 | R413 | W_U JUMP 0.6 AUT | |
| 10 1152 | R414 | R CF H 22K J 0W25 | |
| 10 1130 | R415 | R CF H330E J 0W25 | |
| 10 1136 | R416 | R CF H 1K J 0W25 | |
| 77 4312 | T110 | COIL SHF PJ49 G800 | |
| 77 4151 | T111 | COIL AMP PJ45 HOR DATA | |
| 77 4312 | T120 | COIL SHF PJ49 G800 | |
| 77 4151 | T121 | COIL AMP PJ45 HOR DATA | |
| 77 4312 | T130 | COIL SHF PJ49 G800 | |
| 77 4151 | T131 | COIL AMP PJ45 HOR DATA | |

Spare parts Hor. Shift adj. module 76 18425

| ART NO. | DESCRIPTION | QUANTITY | ART NO. | DESCRIPTION | QUANTITY |
|----------|-------------------------------|----------|----------|---------------------------|----------|
| 10 3606 | R WW H E33K 4W KKA4 | 3 | 13 4016 | U 7912 TO220 PSTAB | 1 |
| 10 3660 | R WW H 1K K 4W | 3 | 13 4028 | U 317LZ TO92 PSTAB | 1 |
| 10 4212 | R WW V 4E7 K 7W 212-3 | 3 | 13 4029 | U 337LZ TO92 PSTAB | 1 |
| 10 6825 | R TCE V500E K 0W5 S10SS3386H | 1 | 13 4125 | U 34084 DIP14 POPAMP | 1 |
| 10 7534 | R MCE H100K K 0W75 M20SS3006P | 2 | 31 3525 | J EUR2C MBS P64 E1 C2S1.6 | 2 |
| 11 2681 | C N750MI 15P G500E2 | 1 | 31 53151 | J RVT MBT D 2.3L13 | 1 |
| 13 14181 | Q BC559B P SS TO92 030A1 | 2 | 36 20226 | SCR D84 M 3 X 8 SI | 3 |
| 13 1491 | Q BSX20 .2369 N SS TO18 015A2 | 1 | 36 20276 | SCR D84 M 3 X 20 SI | 3 |
| 13 1621 | D S 1N4148 075150 DO35 | 8 | 36 21229 | SCR D7985 M 3 X 8 PIC | 2 |
| 13 16361 | D Y BAT85 030200 DO35 | 3 | 36 61026 | NUT D934 M 3 I | 3 |
| 13 1637 | D R BA158 600400 DO7 | 6 | 36 75256 | WSHR D 3.1 X 6.2 T0.6 J | 6 |
| 13 1683 | U 2601 HCPL DIP8 POPTOC | 1 | 36 7699 | RVT CHB D2.38L6.35 P A | 6 |
| 13 1684 | U 2630 HCPL DIP8 POPTOC | 1 | 72 2276 | LOCK PJ49 PCB UN CPL 01 | 1 |
| 13 2552 | Q BF423 P SS TO92 25050 | 1 | 77 4151 | COIL AMP PJ45 HOR DATA | 3 |
| 13 2751 | U 2030V TDA TO220T PAUD12 | 3 | 77 4312 | COIL SHF PJ49 G800 | 3 |
| 13 27655 | U 1496 MC DIP14 PBAL_M | 1 | 78 0304 | PCD EP49 G 801 SH | 1 |
| 13 2833 | U 76013 SC DIP28 PD_POT | 2 | 80 0354 | WSHR D 3.25X 7.5 T . B | 3 |
| 13 29105 | Q BS170 FN SS TO92 060A5 | 2 | 80 4833 | Q ACC SPG 2X 3.1 LONG 01 | 1 |
| 13 2916 | Q BS250 FN SS TO92 045A2 | 3 | 80 5304 | HTSNK PJ49 G801 SH | 1 |
| 13 30291 | Q ACC ISO MICA TO220 | 6 | | | |
| 13 30292 | Q ACC ISO BSHG TO220 | 3 | | | |
| 13 3039 | SPR L 8 D 4 D 1.2 C CER | 6 | | | |
| 13 3074 | Q ACC ISO SIL600 W 30 | 1 | | | |
| 13 4001 | U 7805 TO220 PSTAB | 1 | | | |
| 13 4002 | U 7812 TO220 PSTAB | 1 | | | |

