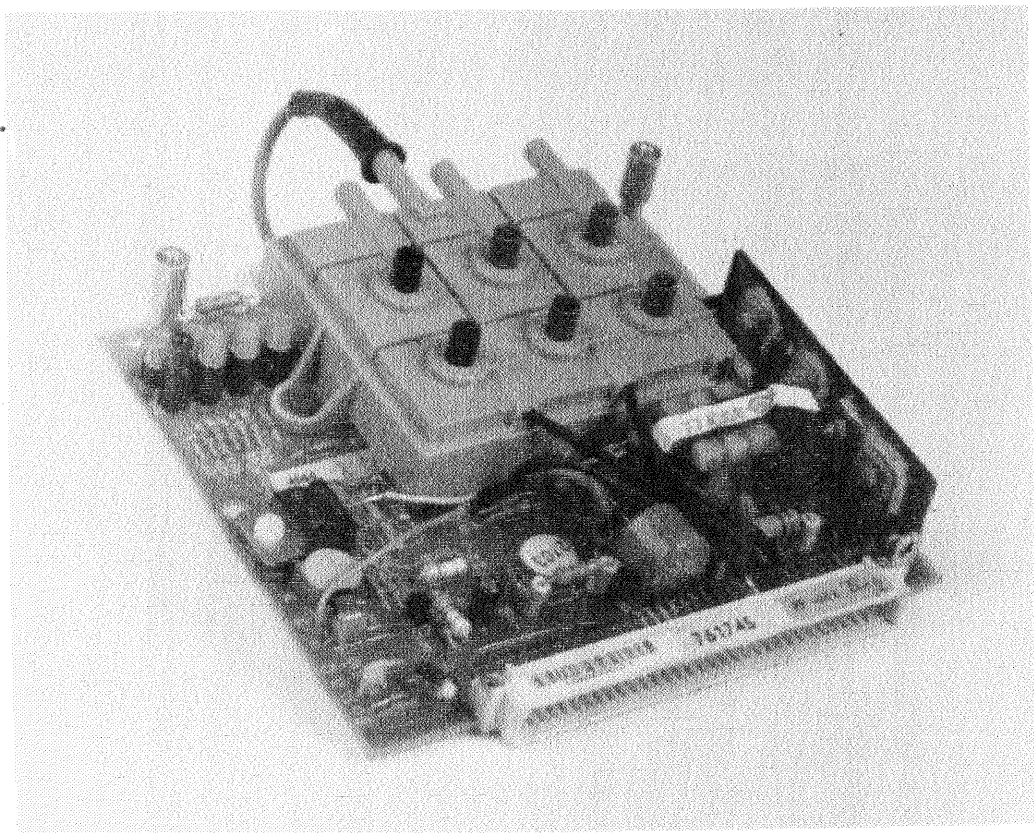
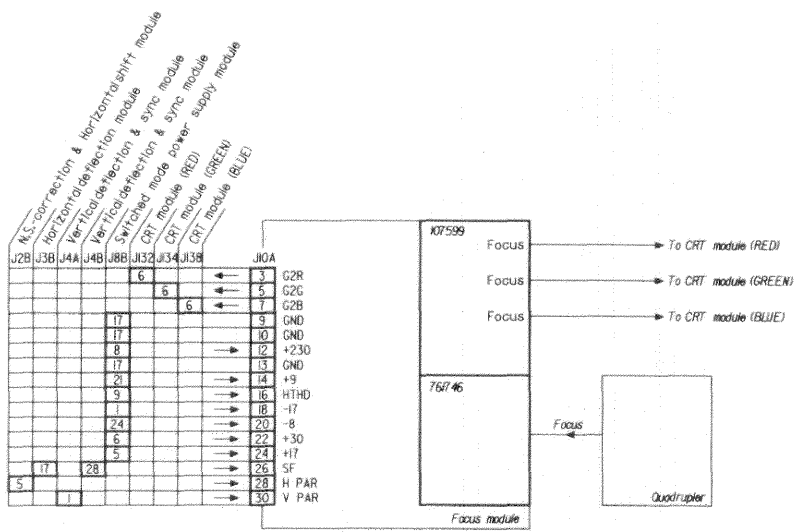

BARCO

BARCO Projection Systems

SECTION 0

service sheet





Name Interconnection Focus module		Article nr. 761745
Date 15/09/1990	Drawn PG	Checked CT

BARCO PROJECTION SYSTEMS

INTRODUCTION.

On this board we find the focus control potentiometers and the stabilisation circuit, the G2 potentiometers, the modulation circuit of the focus voltage and the LEDs to show the status of some important voltages.

**FOCUS CONTROL -
STABILISATION.**

The focus voltage from the quadrupler unit is applied across a network of high voltage (HRV) and VDR resistors (76 1746) and is further divided down to reach the base of Q4.

On the other hand, the focus voltage at R7/P1 is sent to the base of Q1 where it is compared to a reference of 33V (Z1).

This error amplifier feeds the inverter-amplifier Q2 and the latter drives on its turn the coupled Q3/4 pair.

These Q3/4 act as a variable resistor to compensate for any variation of the voltage at the input.

**MODULATION OF THE
FOCUS VOLTAGE.**

As the path of the electron beam to the borders is longer at the borders than in the centre, a different focus voltage is required along the horizontal and vertical deflection axes.

The focus voltage at the sliders is thus modulated by a parabolic shaped signal. HP (horizontal parabola) and VP (vertical parabola) signals, prepared at the east-west and north-south circuits, are sent to this board at the contacts 28 and 30.

The HP signal is amplified by Q5 and drives the push-pull stage Q6/7. Its output current flows in the primary winding of the TR1 transformer.

The VP signal is amplified by Q8 and its collector voltage is added to the HP signal on the secondary side of the transformer.

The sum is capacitively coupled to the sliders of the focus potentiometers.

G2 VOLTAGES.

These screen grid voltages are derived from the focus voltages and adjusted with the potentiometers PIR, PIG and PIB to leave for the crt sockets.

SCAN FAIL (red diode)

When SF (scan fail) is not active, the SF line is open. In this case the red SF diode is not lit because of the +30 volts at the cathode, applied through R34.

If the SF line is pulled down by one of the scan fail transistors (see description of the respective vertical and horizontal deflection boards) the diode is lit.

IMPORTANT

The potentiometer P1 "Focus voltage adjustment" is factory pre-adjusted. A re-adjustment of this latter is only necessary after replacement of a defective unit 76 1746.

Adjustment

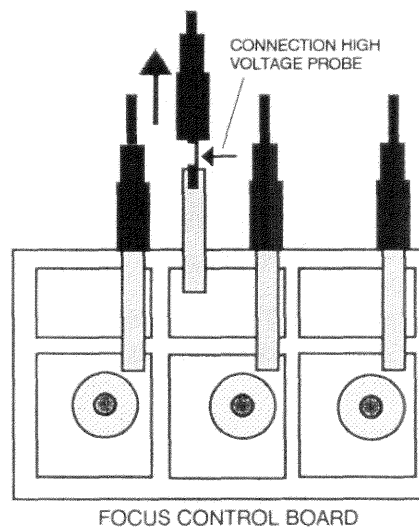
Switch OFF the projector.

Slide the protection cap on the input connection cable of the focus unit upwards

Connect a high voltage probe with an internal impedance of min. 1000M Ω to the input connector. (see fig.)

Safety notice: remember to ground the meter to the chassis, and use extreme caution: $\pm 10\text{kV}$ on that measure point.

After the connection is established, **switch ON** the projector.



Adjust potentiometer P1 "Focus Voltage" for a focus voltage of 10.9kV on the mentioned high voltage input on the focus control unit.

ELECTRICAL FOCUS MODULE

76 1745

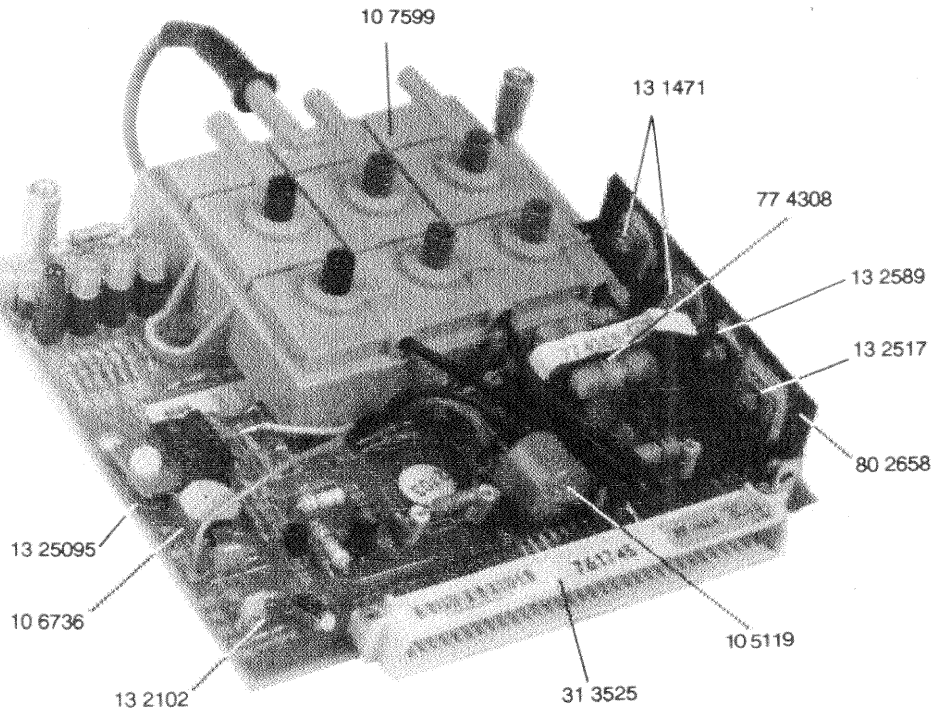
ITEM NO.	SIT.	DESCRIPTION	ITEM NO.	SIT.	DESCRIPTION
76 1745A		UN FOC CTRL PJ 49 GR800	13 1411	Q.10	Q BC549C N 30 / 0A1
76 1745D		UN FOC CTRL PJ 49 GR800	13 1471	Q.11	Q BF458 N 250 / 0A1
76 1746		UN FOC STAB PJ 49 GR800			
11 2747	C..1	C CE MI 4K7 K5 63	10 3158	R..1	R MO H 68K J 0W7
11 1550	C..2	C ELPRMI 4M7 M5 50	10 1132	R..2	R CF H470E J 0W25
11 3724	C..3	C POMEFF 100K K5 63	10 1128	R..3	R CF H220E J 0W25
11 4100	C..5	C POMEFF 100K K 100	10 1154	R..4	R CF H 33K J 0W25
11 4130	C..6	C POMEFF 68K K 250	10 1136	R..5	R CF H 1K J 0W25
11 1550	C..7	C ELPRMI 4M7 M5 50	10 1134	R..6	R CF H680E J 0W25
11 4120	C..8	C POMEFF 10K K 250	10 28748	R..7	R MF H590K F 0W6
			10 11249	R..8	R CFFH100E J 0W25
13 1637	D..2	D BA158 SWITCH	10 4682	R..9	R HV H 15M J 0W5 3500
13 1637	D..3	D BA158 SWITCH	10 4682	R.10	R HV H 15M J 0W5 3500
13 1637	D..4	D BA158 SWITCH	10 1152	R.13	R CF H 22K J 0W25
13 1637	D..5	D BA158 SWITCH	10 1165	R.14	R CF H270K J 0W25
13 1621	D..6	D 1N4148 SWITCH	10 3248	R.15	R MO H 10K J 1W5
13 1621	D..7	D 1N4148 SWITCH	10 1121	R.16	R CF H 56E J 0W25
			10 1148	R.17	R CF H 10K J 0W25
31 3525	J1..	J EURO MBS P64	10 1169	R.18	R CF H560K J 0W25
			10 3248	R.19	R MO H 10K J 1W5
13 1663	LED1	D LED D5 YEL	10 2136	R.20	R CC H 1K K 1W
13 1663	LED2	D LED D5 YEL	10 1138	R.24	R CF H 1K5 J 0W25
13 1663	LED3	D LED D5 YEL	10 1134	R.25	R CF H680E J 0W25
13 1663	LED4	D LED D5 YEL	10 1141	R.26	R CF H 2K7 J 0W25
13 1663	LED5	D LED D5 YEL	10 1131	R.27	R CF H390E J 0W25
13 1663	LED6	D LED D5 YEL	10 1138	R.28	R CF H 1K5 J 0W25
13 1663	LED7	D LED D5 YEL	10 3158	R.29	R MO H 68K J 0W7
13 1664	LED8	D LED D5 RED	10 3158	R.30	R MO H 68K J 0W7
			10 1168	R.31	R CF H470K J 0W25
10 5016	NTC1	R NTC 2K7 0W25 640	10 1150	R.32	R CF H 15K J 0W25
			10 1138	R.33	R CF H 1K5 J 0W25
10 6736	P..1	R TCE H500K K 0W5 S10TS3386P	10 1142	R.34	R CF H 3K3 J 0W25
10 7599	P..2	R MUNIT FOCUS R/G/B	10 1121	R.35	R CF H 56E J 0W25
			10 1121	R.36	R CF H 56E J 0W25
78 0021	PC..	PCB PJ 49 FOC *800 761745	10 1138	R.37	R CF H 1K5 J 0W25
			10 1148	R.53	R CF H 10K J 0W25
13 2916	Q..1	Q BS250 FN 45 / 0A2	77 4308	T..1	TRANSF PJ 49 FOCUS
13 14295	Q..2	Q BC549B N 30 / 0A1			
13 25096	Q..3	Q ON4046 N1500* / 8A	10 5119	VDR1	R VDR 0W6 1000 S10V
13 25096	Q..4	Q ON4046 N1500* / 8A			
13 1471	Q..5	Q BF458 N 250 / 0A1	13 2102	Z..1	U 33B ZTK 33V STAB
13 2589	Q..6	Q BUW22P P 350 / 6A	13 1754	Z..2	D ZENER 3V3 0W5 C
13 2517	Q..7	Q BUX84 N 250 / 50	13 1744	Z..3	D ZENER 5V6 0W5 C
13 1471	Q..8	Q BF458 N 250 / 0A1			

ELECTRICAL FOCUS MODULE

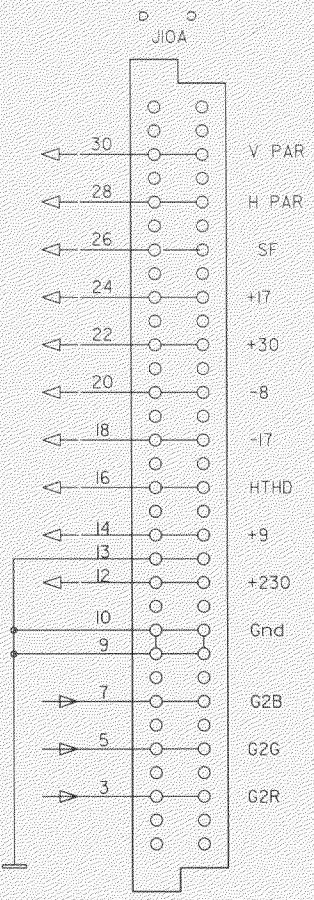
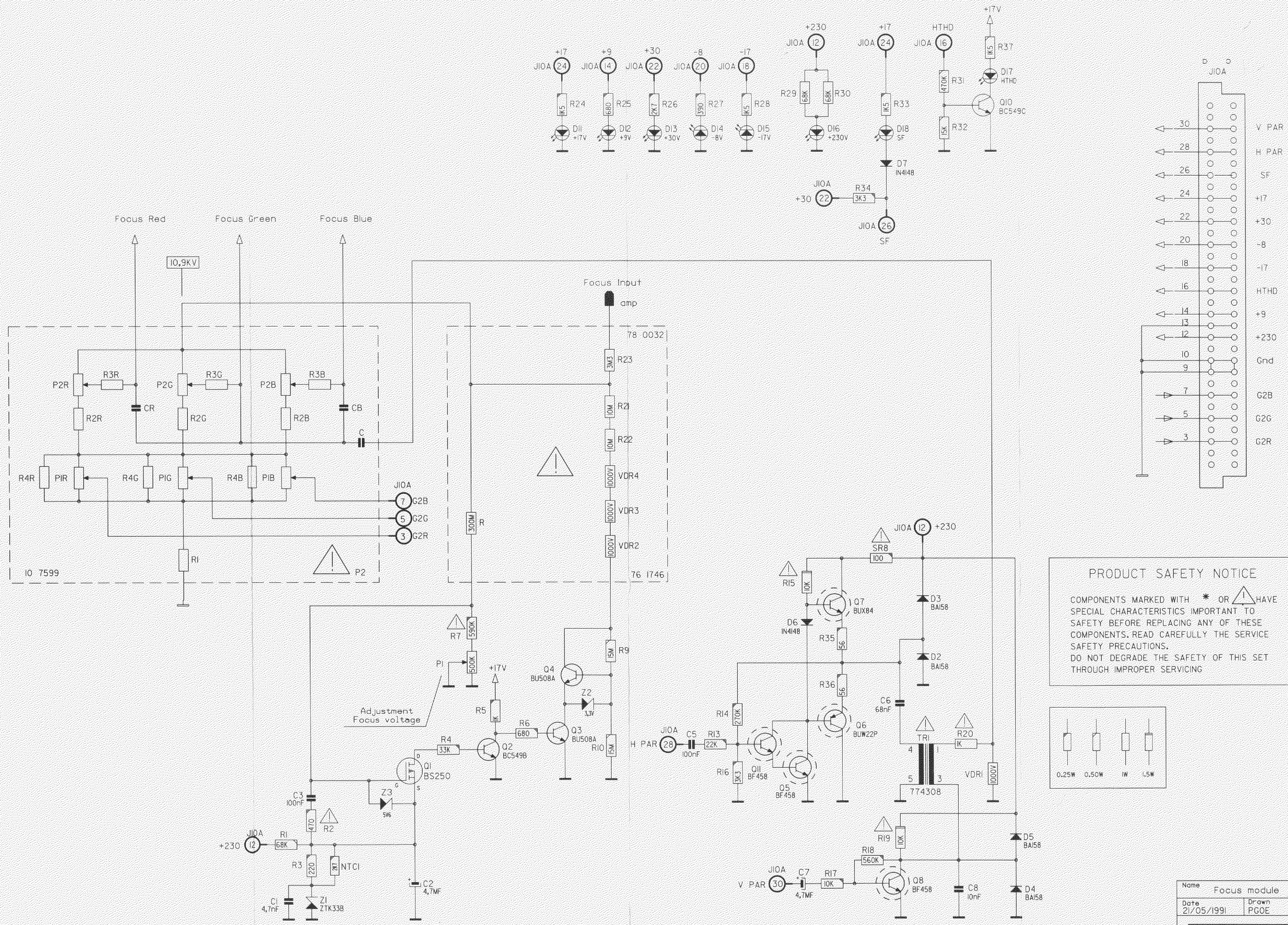
76 1745

ART NO.	DESCRIPTION	QUANTITY	ART NO.	DESCRIPTION	QUANTITY
10 11249	R CFFH100E J 0W25	1	31 3525	J EURO MBS P64	*1
10 3158	R MO H 68K J 0W7	3	31 5310	J TAB MBT 0,5 2,8 PLANE	4
10 3248	R MO H 10K J 1W5	2	36 20147	SCREW DIN84 M 2,5X10 MP-	4
10 4682	R HV H 15M J 0W5 3500	2	36 20526	SCREW DIN84 M 4 X10 MP-	2
10 5016	R NTC 2K7 0W25 640	1	36 61106	NUT DIN934 M 2,5 HEXAGO	4
10 5119	R VDR 0W6 1000 S10	*1	36 6150	NUT DIN934 M 3 PLAS HEXAGO	1
10 6736	R TCE H500K K 0W5 S10TS3386	*1	36 7454	RIVET P AL FE TAP/D/BS44 D3,	2
10 7599	R MUNIT FOCUS R/G/B	*1	36 7528	WASHER DIN6798 A 2,7	4
11 4120	C POMEFF 10K K 250	1	36 7699	RIVET CHOBERT D2,38 L6,35	1
11 4130	C POMEFF 68K K 250	1	36 9996	SCREW DIN84 M 3 X12 PP	1
13 1411	Q BC549C N 30 / 0A1	1	71 23042	WASHER DIA 4,25X10 T1,25ZI	2
13 14295	Q BC549B N 30 / 0A1	1	72 1632	SMCDIOSPACER LED5	12
13 1471	Q BF458 N 250 / 0A1	*3	76 1745A	UN FOC CTRL PJ 49 GR800	1
13 1621	D 1N4148 SWITCH	2	76 1745D	UN FOC CTRL PJ 49 GR800	1
13 1637	D BA158 SWITCH	4	76 1746	UN FOC STAB PJ 49 GR800	1
13 1663	D LED D5 YEL	7	77 4308	TRANSF PJ 49 FOCUS	*1
13 1664	D LED D5 RED	1	80 0557	SPACER L 3 D 7 D3 PV	1
13 1744	D ZENER 5V6 0W5 C	1	80 1520	SPACER ISO L 6,5 D9,75D4,9 PS	1
13 1754	D ZENER 3V3 0W5 C	1	80 2643	SPACER RIV L26,25D 7 M3 AL 0	2
13 2102	U 33B ZTK 33V STA	*1	80 2658	HEATSINK PJ 49 FOCUS	*1
13 25096	Q ON4046 N1500*/ 8A	*2	80 2692	HEATSINK PJ 49 FIX HEATSINK	2
13 2517	Q BUX84 N 250 / 50	*1			
13 2589	Q BUW22P P 350 / 6A	*1			
13 2916	Q BS250 FN 45 / 0A2	1			
13 30191	Q WASHER TO-126	2			
13 30192	Q MICA INSULAT TO-126	2			
13 30193	Q BUSH INSULAT TO-126	2			
13 30291	Q MICA INSULAT TO-220	1			
13 3039	SPACER L 8 D 4 D1,2 CE	12			

* NUMBERS REFERRING TO PICTURE

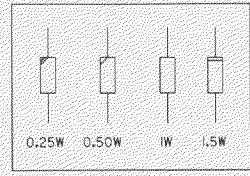


COMP.	LOC.
C1	B 6
C2	C 6
C3	B 6
C5	D 5
C6	F 5
C8	F 6
D2	F 5
D3	F 4
D4	F 6
D5	F 6
D6	F 5
D7	F 2
D8	F 2
D11	D 2
D12	D 2
D13	D 2
D14	E 2
D15	E 2
D16	F 1
D17	F 1
D18	F 2
J10A	G 1
NTC1	C 6
PIR	A 4
PIG	B 4
PIB	B 4
PI	C 5
P2R	A 3
P2B	B 3
P2G	B 3
Q1	C 5
Q2	C 5
Q3	D 5
Q4	D 5
Q5	D 5
Q6	D 5
Q7	F 4
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Q10	F 5
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R30	D 1
R31	D 1
R32	F 2
R33	F 2
R34	F 2
R35	F 5
R36	F 5
R37	F 1
SR8	E 4
TRI	F 5
VDR1	F 5
VDR2	D 4
VDR3	D 4
VDR4	D 4
Z1	B 6
Z2	D 5



PRODUCT SAFETY NOTICE

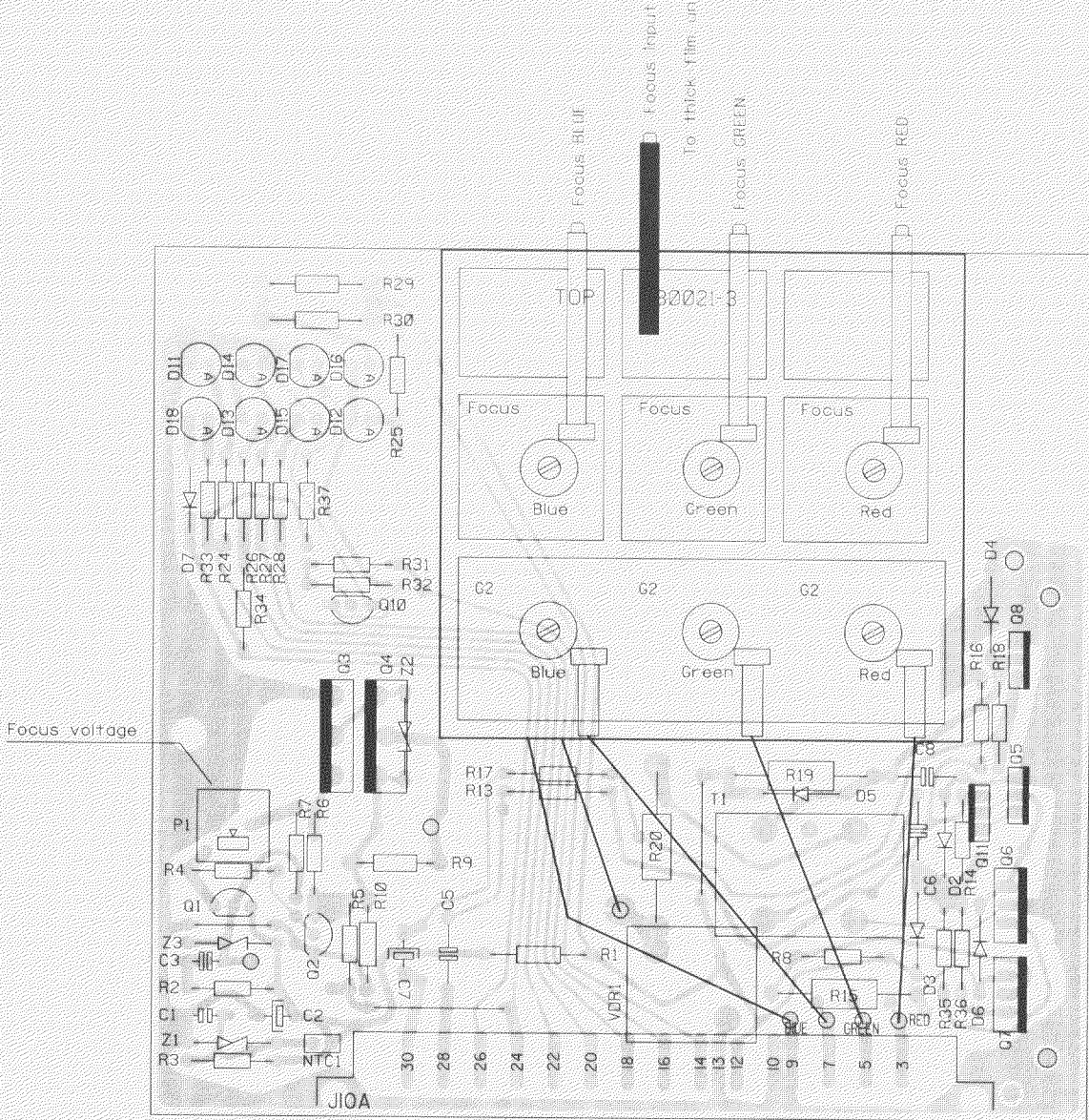
COMPONENTS MARKED WITH * OR ⚠️ HAVE SPECIAL CHARACTERISTICS IMPORTANT TO SAFETY BEFORE REPLACING ANY OF THESE COMPONENTS, READ CAREFULLY THE SERVICE SAFETY PRECAUTIONS. DO NOT DEGRADE THE SAFETY OF THIS SET THROUGH IMPROPER SERVICING



Name	Focus module	Article nr.	761745 00
Date	21/05/1991	Drawn	PGOE
		Checked	CT

BARCO PROJECTION SYSTEMS

Modifications reserved



Component	location	Component	location	Component	location
C1	C. 1	D1	C. 1	R28	D. 2
C2	C. 2	D2	C. 2	R29	E. 2
C3	C. 1	D3	C. 2	R30	E. 2
C4	C. 2	D4	C. 4	R31	D. 2
C5	C. 2	D5	C. 4	R32	D. 2
C6	C. 4	D6	C. 4	R33	D. 1
C7	C. 2	D7	C. 4	R34	D. 1
D1	E. 1	D8	D. 4	R35	C. 4
D2	C. 4	Q10	D. 2	R36	C. 4
D3	C. 4	Q11	C. 4	R37	D. 2
D4	D. 4	R1	C. 3	T1	C. 3
D5	C. 3	R2	C. 1	VDRI	C. 3
D6	C. 4	R3	C. 1	Z1	C. 1
D7	D. 1	R4	C. 2	Z2	D. 2
D8	E. 2	R5	C. 2	Z3	C. 1
Q1	E. 1	R6	C. 3		
Q2	E. 1	R7	C. 2		
Q3	E. 2	R8	C. 3		
Q4	E. 1	R9	C. 2		
Q5	E. 2	R10	C. 2		
Q6	E. 2	R11	C. 2		
Q7	E. 2	R12	C. 2		
Q8	E. 2	R13	C. 2		
Q9	E. 2	R14	C. 2		
Q10	E. 2	R15	C. 2		
Q11	E. 2	R16	C. 2		
R1	C. 3	R17	D. 2		
R2	C. 1	R18	D. 4		
R3	C. 3	R19	D. 3		
R4	C. 2	R20	C. 3		
R5	C. 2	R21	D. 1		
R6	C. 3	R22	E. 2		
R7	C. 2	R23	D. 1		
R8	C. 3	R24	D. 1		
R9	C. 2	R25	E. 2		
R10	C. 2	R26	D. 1		
R11	C. 2	R27	D. 1		
R12	C. 2				
R13	C. 2				
R14	C. 2				
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R29	E. 2				
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R31	D. 2				
R32	D. 2				
R33	D. 1				
R34	D. 1				
R35	C. 4				
R36	C. 4				
R37	D. 2				
T1	C. 3				
VDRI	C. 3				
Z1	C. 1				
Z2	D. 2				
Z3	C. 1				

Name: Focus module Article nr.: 76 1745
 Date: 10/06/1991 Drawn: PGOE Checked: CT
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