

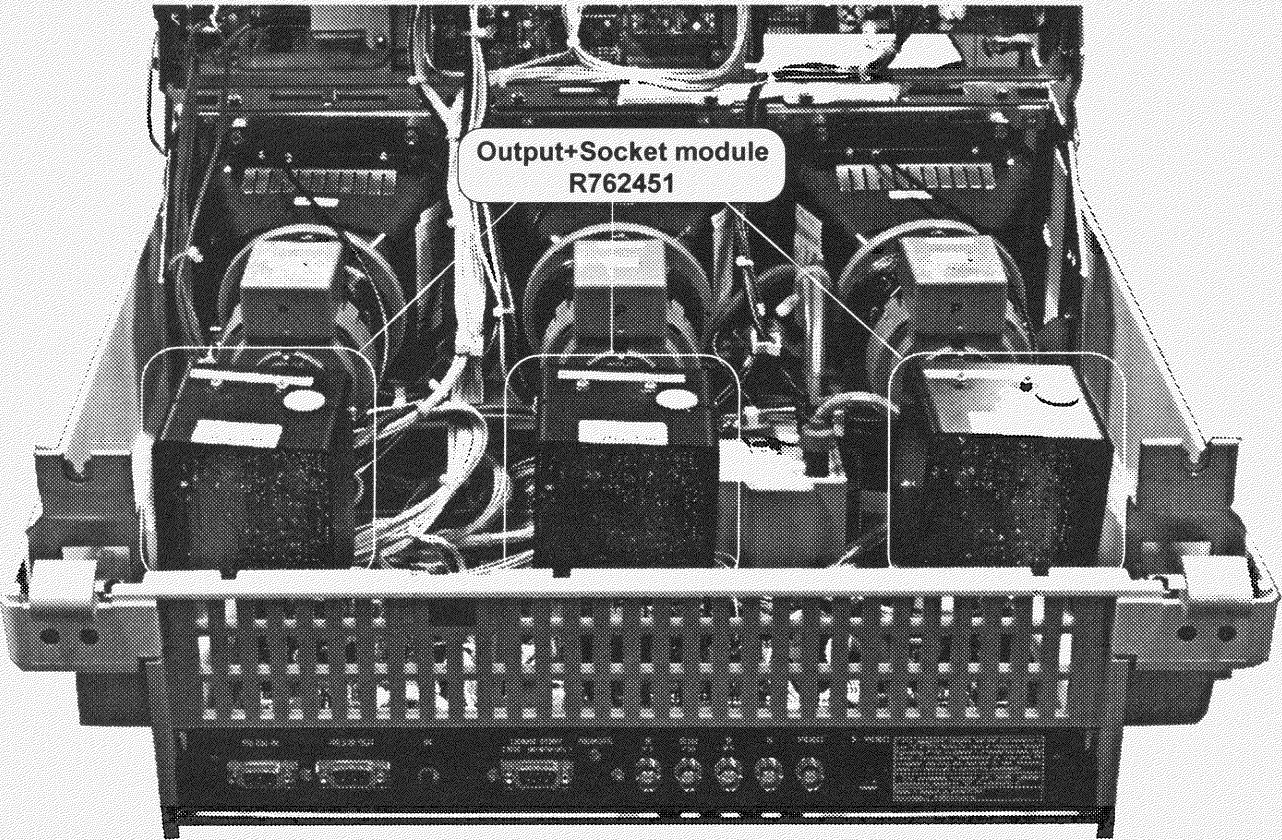


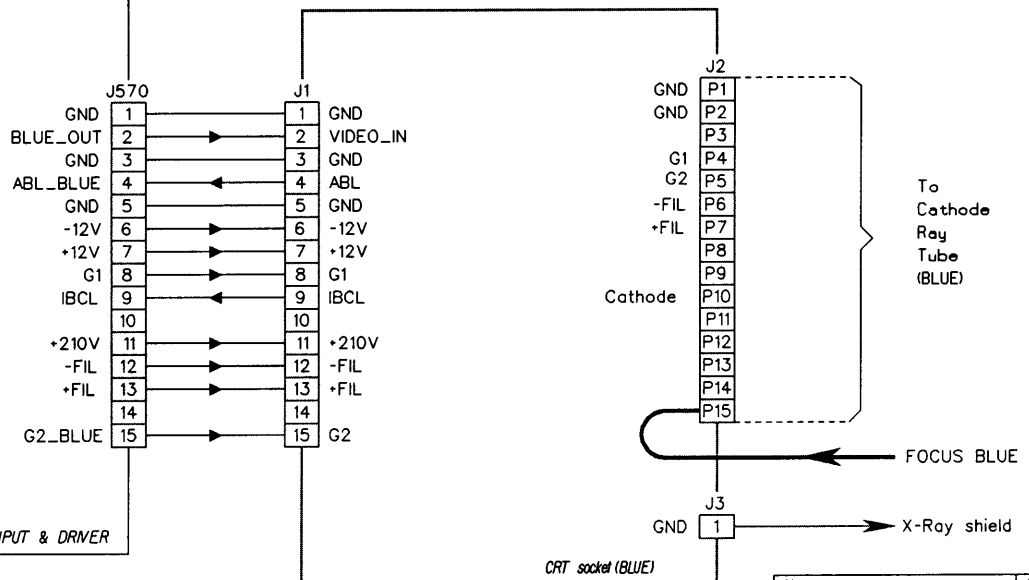
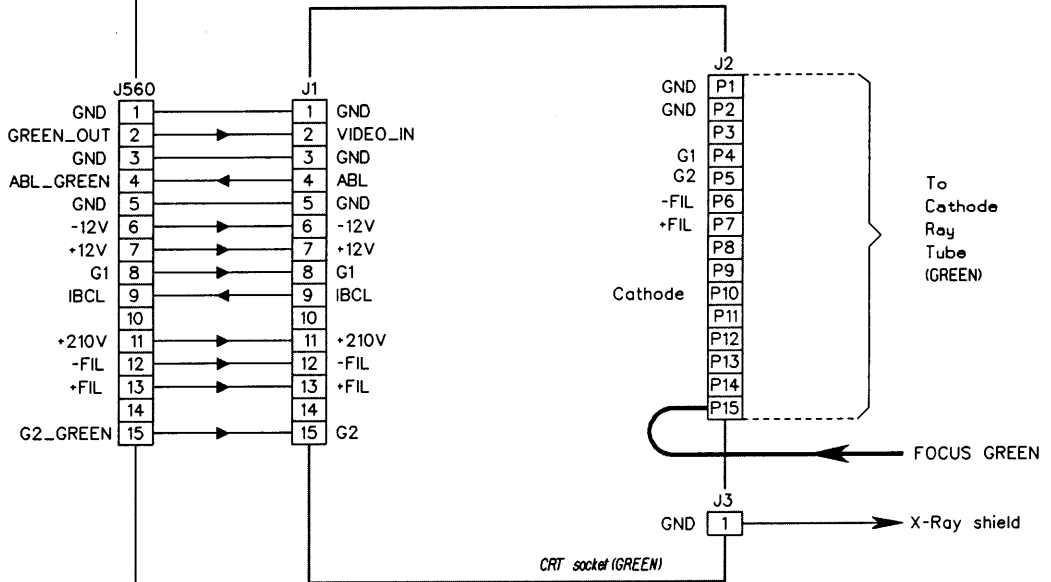
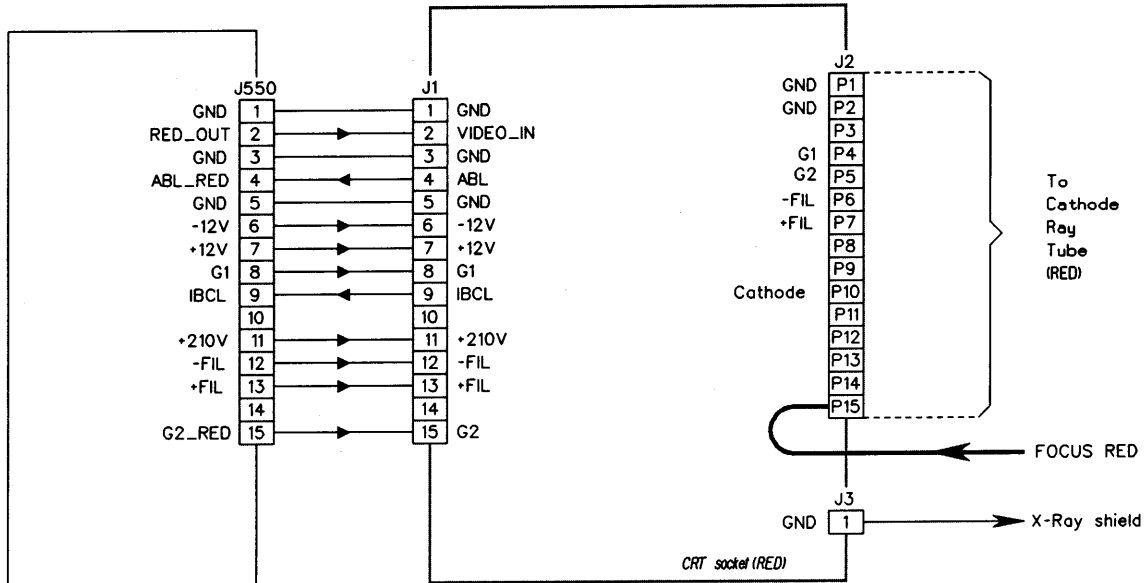
BARCO Projection Systems

SECTION P

service sheet

CRT Output module

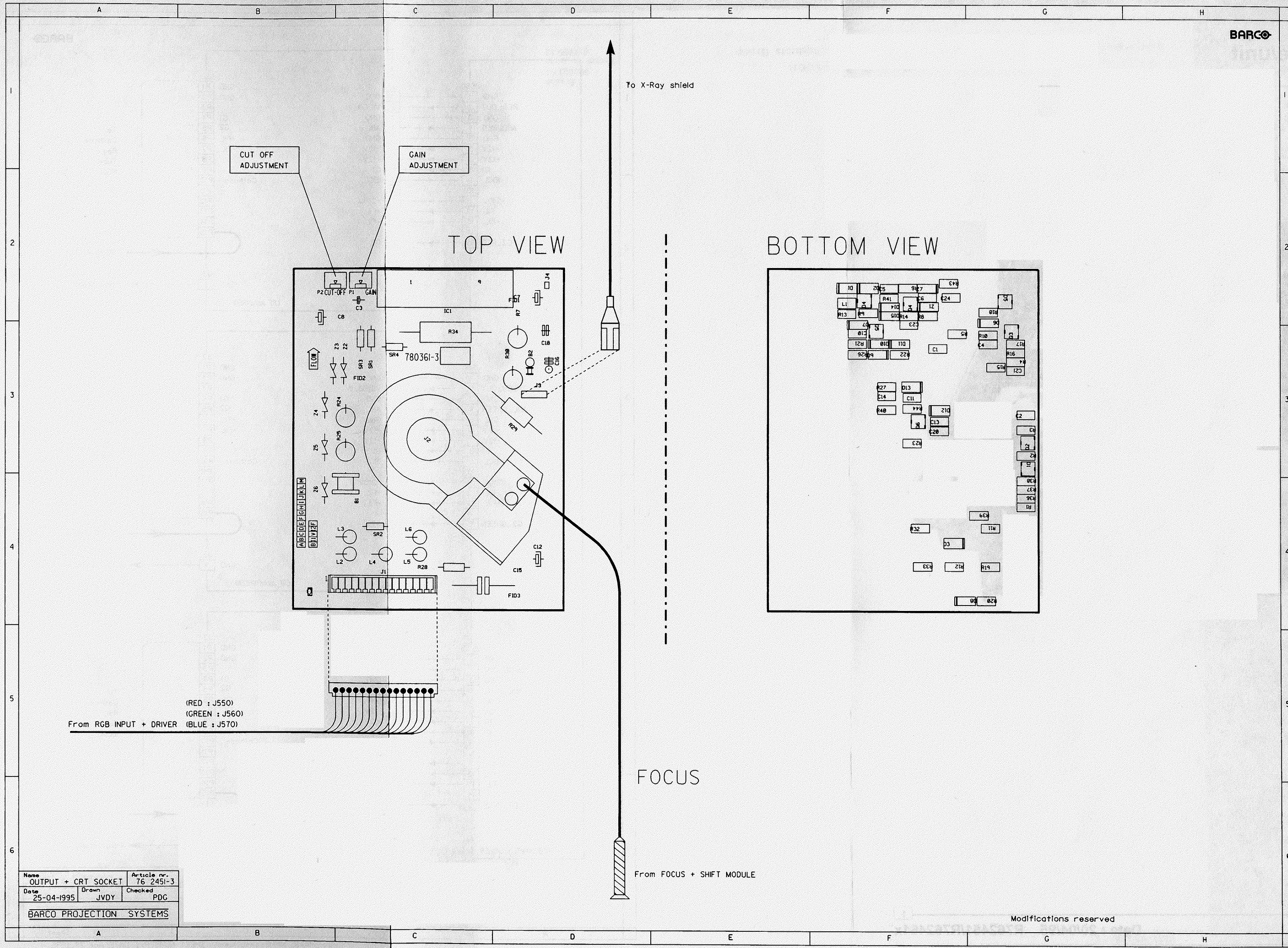




RGB INPUT & DRIVER

Modifications reserved

Name RGB OUTPUT + SOCKET		Article nr. 76 2451
Date 23-03-1995	Drawn JVDY	Checked PDG
BARCO PROJECTION SYSTEMS		

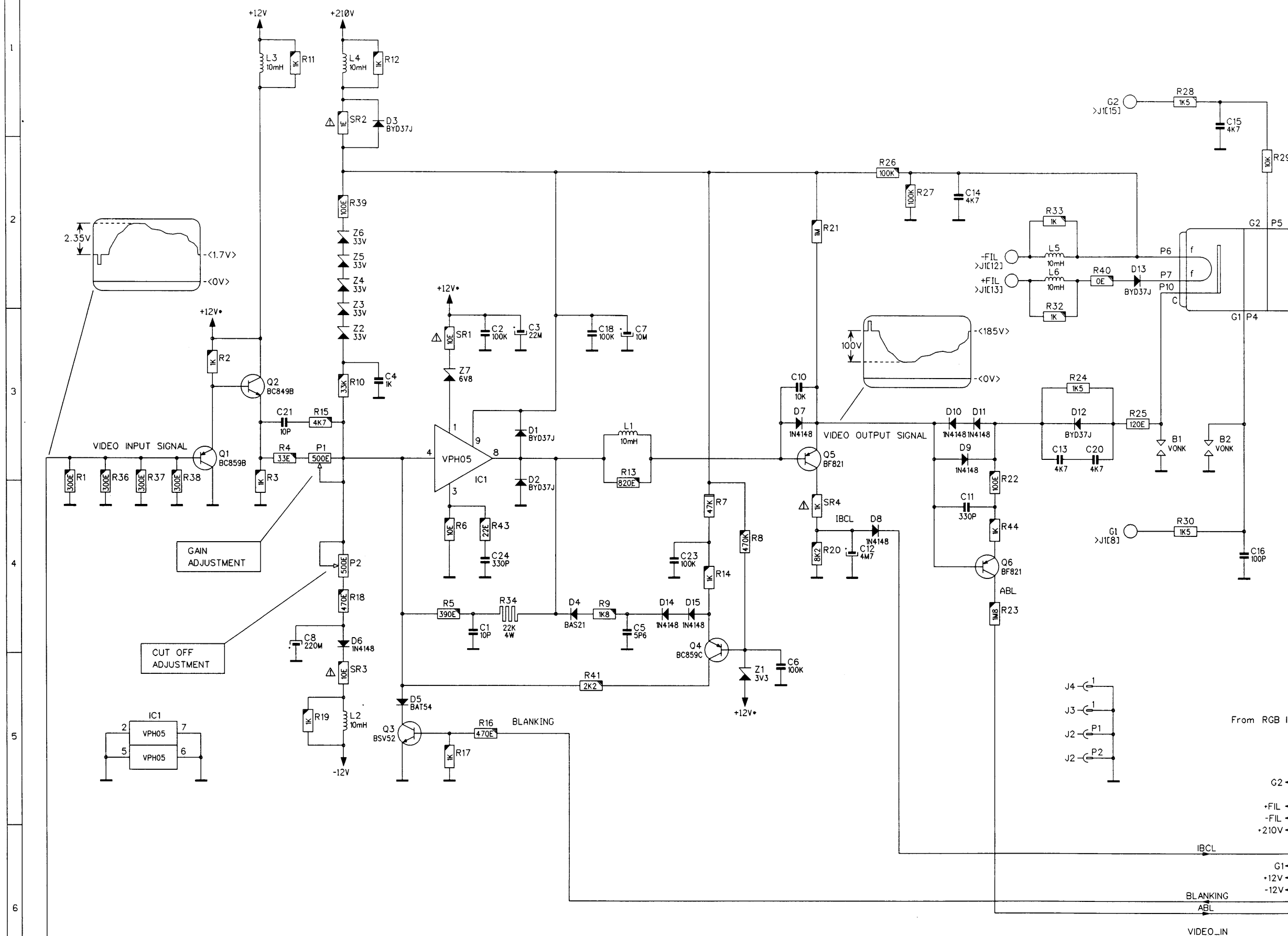


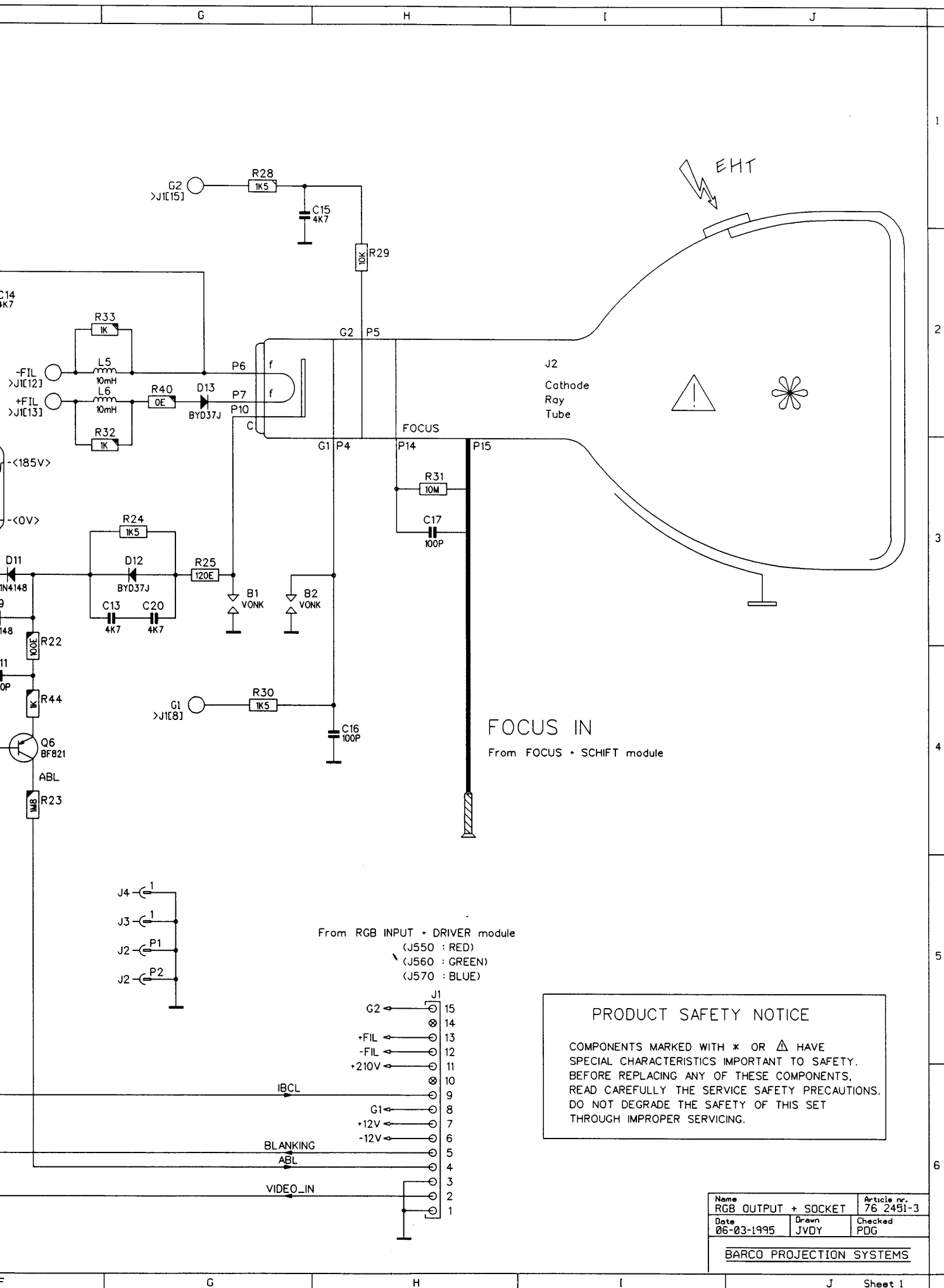
BARCO

COMP.	LOC.
B1	C 4
B2	D 3
C1	F 3
C2	C 3
C3	C 2
C4	C 3
C5	F 2
C6	F 2
C7	D 2
C8	C 2
C9	F 3
C10	F 3
C11	F 3
C12	D 4
C13	F 3
C14	F 3
C15	D 4
C16	D 3
C18	D 3
C20	F 3
C21	C 3
C23	F 2
C24	F 2
D1	F 2
D2	F 2
D3	F 4
D4	F 2
D5	C 2
D6	C 2
D7	F 2
D8	F 4
D9	F 3
D10	F 3
D11	F 3
D12	F 3
D13	F 3
D14	F 2
D15	F 2
F01	D 2
F02	C 3
F03	D 4
IC1	C 2
J1	C 4
J2	C 3
J3	D 3
J4	D 2
L1	F 2
L2	C 4
L3	C 4
L4	C 4
L5	C 4
L6	C 4
P1	C 2
P2	B 2
Q1	C 3
Q2	C 3
Q3	C 3
Q4	F 2
Q5	F 3
Q6	F 3
R1	C 4
R2	C 3
R3	C 3
R4	C 3
R5	F 3
R6	F 2
R7	D 2
R8	F 2
R9	F 2
R10	C 3
R11	G 4
R12	F 4
R13	F 2
R14	F 2
R15	C 3
R16	C 3
R17	C 3
R18	C 2
R19	G 4
R20	G 4
R21	F 3
R22	F 3
R23	F 3
R24	C 3
R25	C 3
R26	F 3
R27	F 3
R28	C 4
R29	D 3
R30	D 3
R31	F 4
R32	F 4
R33	F 4
R34	C 3
R36	G 4
R37	G 4
R38	G 4
R39	G 4
R40	F 3
R41	F 2
R43	F 2
R44	F 3
SR1	C 3
SR2	C 4
SR3	C 3
SR4	C 3
Z1	F 2
Z2	C 3
Z3	C 3
Z4	B 3
Z5	B 1
Z6	B 4
Z7	F 2

Name	OUTPUT + CRT SOCKET	Article nr.	76 2451-3
Date	25-04-1995	Drawn	JVDY
		Checked	PDG
BARCO PROJECTION SYSTEMS			

Modifications reserved





COMP. LOC.	COMP. LOC.	COMP. LOC.	COMP. LOC.
B1	G 3	SR3	B 5
B2	G 3	SR4	E 4
C1	C 4	Z1	F 5
C2	C 3	Z2	B 5
C3	C 3	Z3	B 2
C4	C 3	Z4	B 2
C5	D 4	Z5	B 2
C6	D 5	Z6	B 2
C7	D 3	Z7	C 3
C8	B 4		
C10	F 3		
C11	F 4		
C12	F 4		
C13	G 3		
C14	F 2		
C15	H 1		
C16	H 4		
C17	H 3		
C18	D 3		
C20	B 3		
C21	B 3		
C23	D 4		
C24	C 4		
D1	C 3		
D2	C 3		
D3	C 1		
D4	D 4		
D5	C 5		
D6	B 4		
D7	F 3		
D8	F 4		
D9	F 3		
D10	F 3		
D11	C 3		
D12	C 3		
D13	G 2		
D14	D 4		
D15	D 4		
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IC1	C 3		
IC1	A 5		
J1	H 5		
J2	C 5		
J2	H 5		
J2	H 2		
J3	C 5		
J4	G 5		
L1	D 3		
L2	B 5		
L3	B 1		
L4	B 1		
L5	F 2		
L6	F 2		
P1	B 3		
P2	B 4		
Q1	B 3		
Q2	B 3		
Q3	C 5		
Q4	D 4		
Q5	F 3		
Q6	F 4		
R1	A 3		
R2	B 3		
R3	B 3		
R4	B 3		
R5	C 4		
R6	C 4		
R7	F 4		
R8	F 4		
R9	D 4		
R10	B 3		
R11	C 1		
R12	C 1		
R13	C 3		
R14	F 4		
R15	B 3		
R16	C 5		
R17	C 5		
R18	B 4		
R19	B 5		
R20	F 4		
R21	F 3		
R22	F 3		
R23	F 4		
R24	G 3		
R25	G 3		
R26	F 2		
R27	F 2		
R28	C 1		
R29	G 4		
R30	H 2		
R31	H 3		
R32	F 2		
R33	F 2		
R34	C 4		
R36	A 3		
R37	A 3		
R38	A 3		
R39	B 2		
R40	G 2		
R41	D 5		
R43	C 4		
R44	F 4		
SR1	C 3		
SR2	B 1		

PRODUCT SAFETY NOTICE

COMPONENTS MARKED WITH * OR Δ 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.

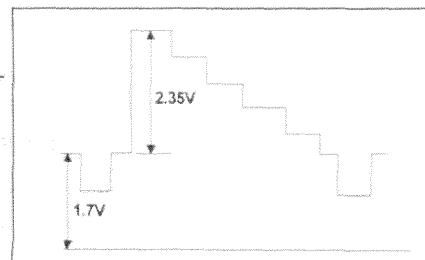
Name	Article nr.
RGB OUTPUT + SOCKET	76 2451-3
Date	Drawn
06-03-1995	JVDY
Checked	PDG
BARCO PROJECTION SYSTEMS	

Adjustment procedure for the RGB Output

Attention: To eliminate Beam Current Limiting (BCL) while adjusting the GAIN and CUT OFF potentiometers, remove the anode lead of the three picture tubes on the EHT Splitter (see sheet 'RGB Input+Driver' module for procedure 'anode lead removal').

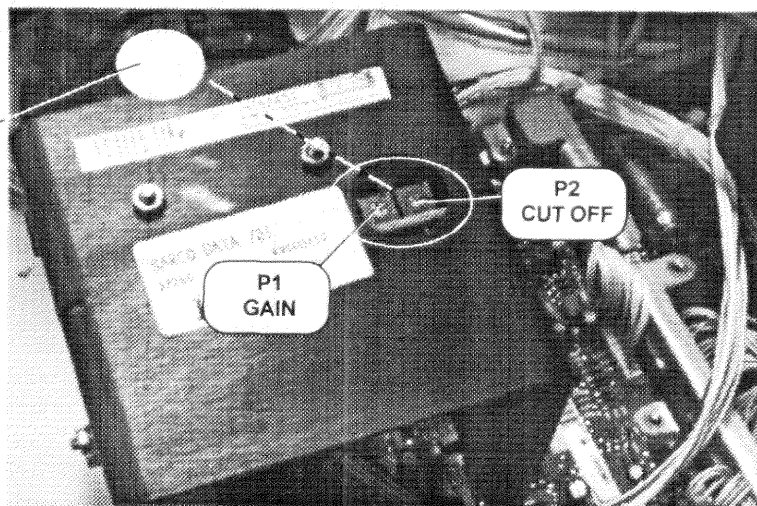
Adjustment of the input signal

- connect the probe of the oscilloscope to pin 2 of the connector J1 on the output module.
- adjust Contrast and Brightness levels by means of the RCU or the local keypad for an input signal with amplitude of 2.35V and a the black level on 1.7V



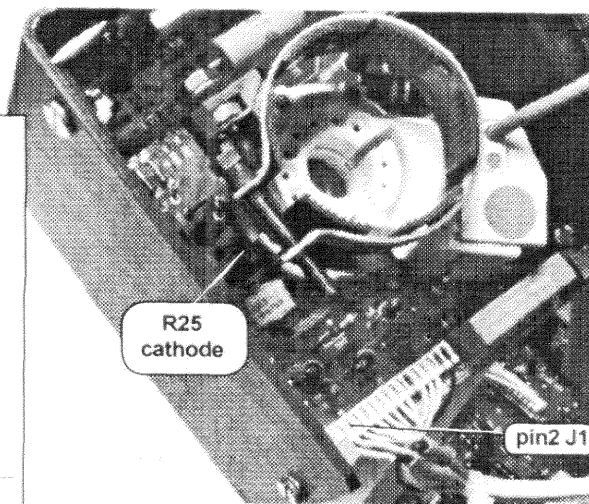
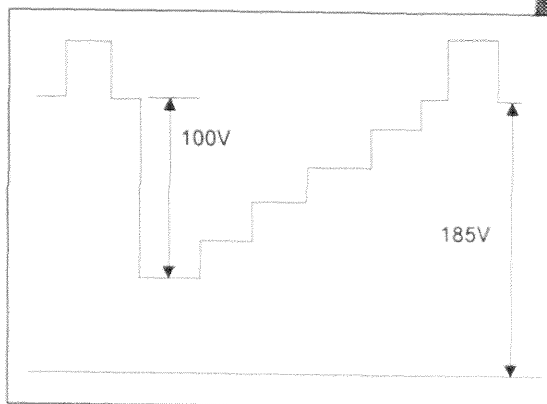
Location of the controls

remove the plastic cover to access the controls

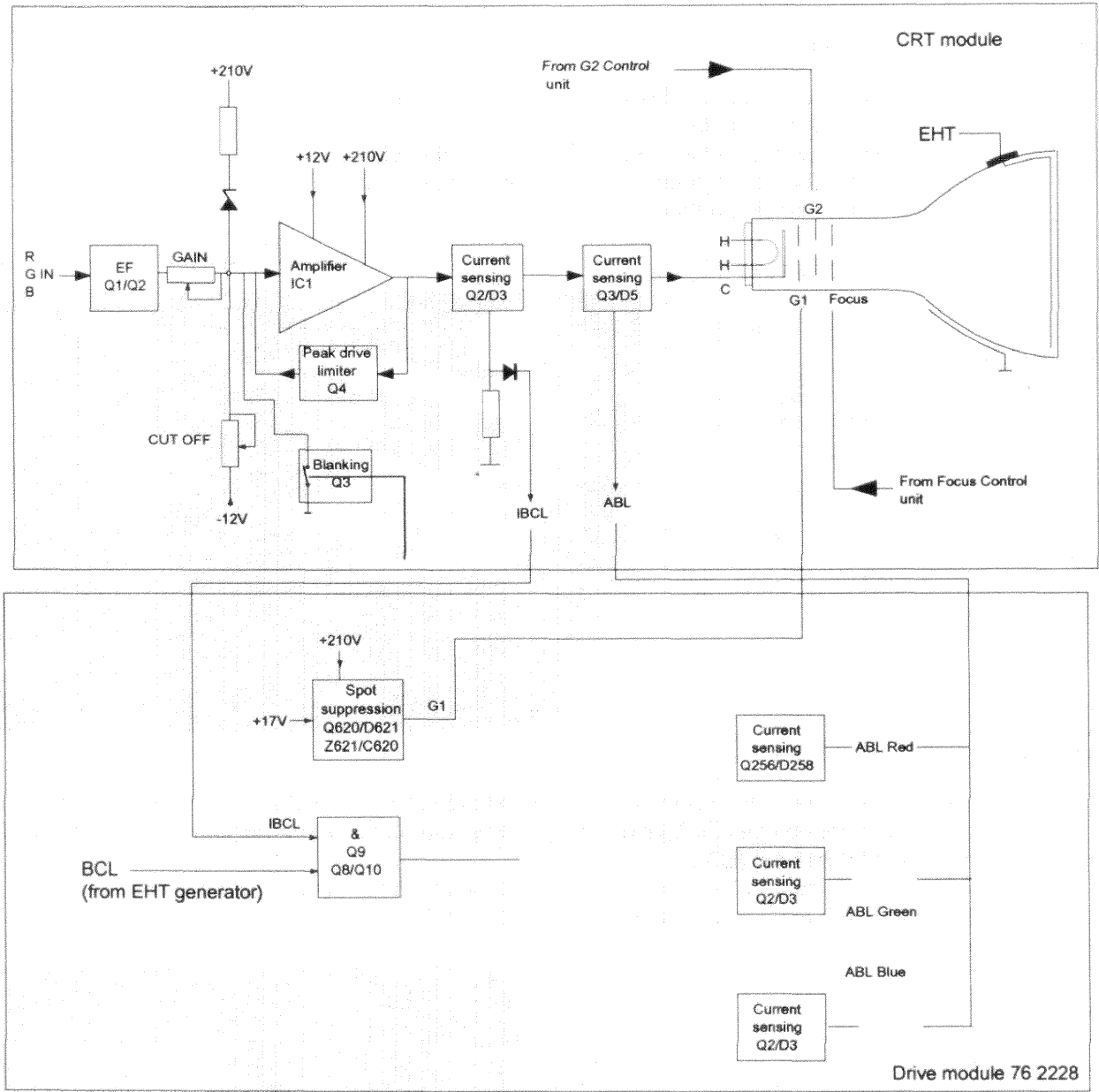


Adjustments

- connect the probe of the oscilloscope to the cathode of the respective picture tube (resistor R25).
- Adjust the potentiometer P1 for a video signal amplitude of 100V and the potentiometer P2 for a DC level of 185V (refer to fig.)
- As both adjustments affect each other, repeat the adjustment of both potentiometers.
- Repeat the adjustment procedure for each picture tube.



Blockdiagram CRT module



Technical description CRT module

Introduction

These modules receive the prepared Red, Green and Blue signals from the RGB Input+Driver module. The signals are amplified to a level sufficient to drive the cathodes of the respective CRT's.

Red, Green and Blue Amplifiers

It is obvious that the three drivers are identical and we limit the description to only one output stage.

The video signal is first buffered by the emitter followers Q1/Q2 and then feeding the input of the Video Amplifier IC1 VPH05, pin 4, via the gain control P1.

The cut-off, on other terms the black level, is adjusted by the cut-off control P2 which determines the DC-level at the input of the Video Amplifier and consequently of the output voltage, pin 8.

Individual Beam Current limitation (IBCL)

As the averaged video signal is found across C10, and, as the capacitor is connected between base-emitter of the transistor Q5, the collector current of the latter is proportional with the average beam current.

The voltage across R20 is integrated and serves as IBCL (Individual Beam Current Limiting) information and is led out to the Driver module 76 2228 where it can reduce the Contrast if the beam current increases beyond some level.

Leakage current/ABL measurement control

Current sensing for leakage current and ABL measurement control occurs with the transistor Q6 and the diode D9.

The first measurement is the leakage current measurement. The three outputs are set at ultra-black and the sum of the three cathode currents, sensed by Q6 on each CRT module, (if any) and flowing through Q256/356/456 on the Driver module 76 2228, is measured.

Then, subsequently the Red, Green and Blue output signals are set to the cut-off level and via the same transistors as for the leakage measurement, (ABL Red, Green, Blue) the cathode current of each CRT is measured.

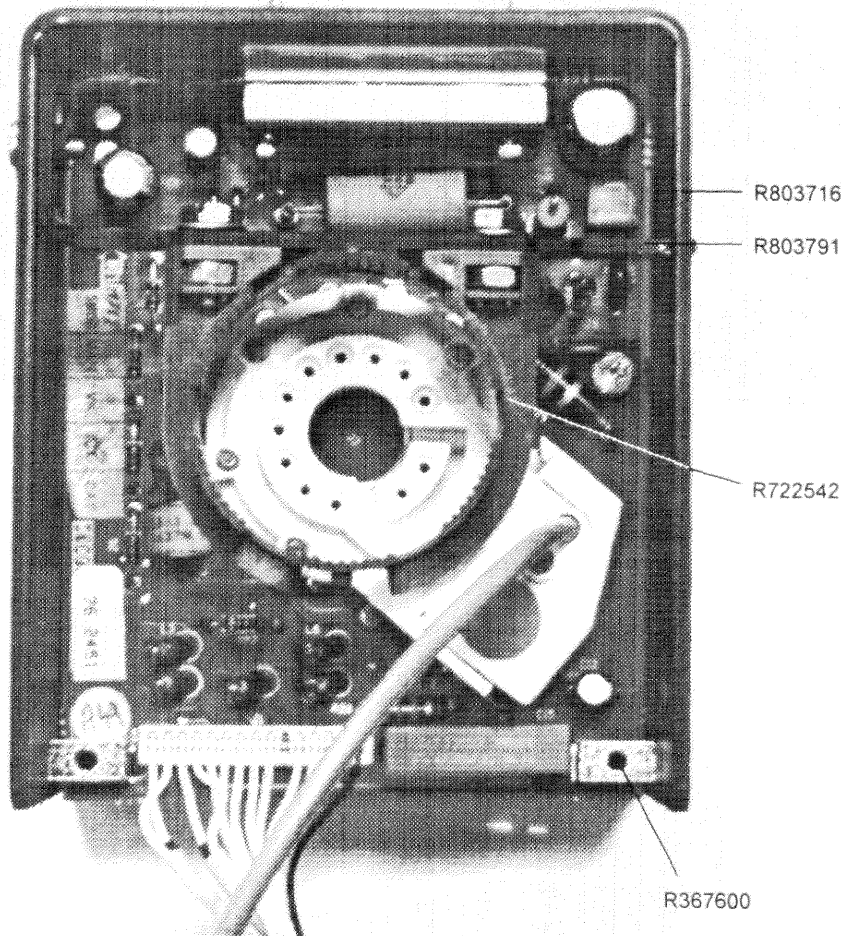
Parts listing CRT module R762451

SIT.	ITEM NO.	DESCRIPTION	QUANTITY	SIT.	ITEM NO.	DESCRIPTION	QUANTITY
150	R348019	CBLA TIE B L100 W2,5	3	L 1	P250509	CH# 1.5 UH L1210	1
110	R3626696	SCR D921 M 3 X 8 SI	1	L 2	R3061322	CH AX NS 10 UH	1
40	R3631059	SCR D933 M 3 X 8 XIC	4	L 3	R3061322	CH AX NS 10 UH	1
130	R3631059	SCR D933 M 3 X 8 XIC	1	L 4	R3061322	CH AX NS 10 UH	1
160	R3631059	SCR D933 M 3 X 8 XIC	1	L 5	R3061322	CH AX NS 10 UH	1
50	R3631099	SCR D933 M 3 X 20 XIC	2	L 6	R3061322	CH AX NS 10 UH	1
90	R3631239	SCR D933 M 4 X 10 XIC	2	P 1	R107025	R TCE V500E K 0W5 S 7SS	1
60	R366102	NUT D934 M 3 S Z	2	P 2	R107025	R TCE V500E K 0W5 S 7SS	1
100	R366103	NUT D934 M 4 S Z	2	PC	R780361	PCD#PJ53 D700 0+S	1
70	R367502	WSHR D6798 A 3.2 S Z	2	Q 1	P232044	Q#BC859B P SS SOT23	1
30	R367600	NUT BLOC M 3	2	Q 2	P232043	Q#BC849B N SS SOT23	1
140	R367600	NUT BLOC M 3	1	Q 3	P232033	Q#BSV52 N SS SOT23	1
80	R722411	FSTNR PJ53 RGB OUT	1	Q 4	P232101	Q#BC859C P SS SOT23	1
120	R722542	PJ53 CAP HTSNK RGB	1	Q 5	P232149	Q#BF821 P SS SOT23	1
20	R803716	HTSNK PJ53 CRT SKT	1	Q 6	P232149	Q#BF821 P SS SOT23	1
10	R803791	FIX PLT PJ53 RGB	1	R 1	P200398	R# CE H300E F 0W12 1206	1
B 1	R131262	TUBE SURGE PROT 1000V AX	1	R 2	P200073	R# CE H 1K J 0W12 1206	1
B 2	R1312651	TUBE SURGE PROT 300V RA	1	R 3	P200073	R# CE H 1K J 0W12 1206	1
C 1	P210138	C# COG MU 10P J 50 1206	1	R 4	P200037	R# CE H 33E J 0W12 1206	1
C 2	P210122	C# X7R MU 100N K 50 1206	1	R 5	P200063	R# CE H390E J 0W12 1206	1
C 3	R111510	C EL RA 22M M 25E2 85	1	R 6	P200025	R# CE H 10E J 0W12 1206	1
C 4	P210013	C# COG MU 1N J 50 1206	1	R 7	R103256	R MO H 47K J 2W	1
C 5	P210203	C# COG MU 5P6D 50 1206	1	R 8	P200137	R# CE H470K J 0W12 1206	1
C 6	P210122	C# X7R MU 100N K 50 1206	1	R 9	P200079	R# CE H 1K8 J 0W12 1206	1
C 7	R111569	C EL RA 10M M 250E2 85	1	R 10	P200109	R# CE H 33K J 0W12 1206	1
C 8	R111478	C EL RA 220M M 25E2 85	1	R 11	P200073	R# CE H 1K J 0W12 1206	1
C 10	P210092	C# X7R MU 10N K 50 1206	1	R 12	P200073	R# CE H 1K J 0W12 1206	1
C 11	P210121	C# COG MU 330P J 50 1206	1	R 13	P200071	R# CE H820E J 0W12 1206	1
C 12	R111550	C EL RA 4M7M 50E2 85	1	R 14	P200073	R# CE H 1K J 0W12 1206	1
C 13	P210211	C# X7R MU 4N7K200 1206	1	R 15	P200089	R# CE H 4K7 J 0W12 1206	1
C 14	P210211	C# X7R MU 4N7K200 1206	1	R 16	P200065	R# CE H470E J 0W12 1206	1
C 15	R111773	C PPMERA 4N7J162E9 HV	1	R 17	P200073	R# CE H 1K J 0W12 1206	1
C 16	R1120902	C CE DI 100P K202E3 HV	1	R 18	P200065	R# CE H470E J 0W12 1206	1
C 17	V1120903	C CE DI 100P M153E5 HV	1	R 19	P200073	R# CE H 1K J 0W12 1206	1
C 18	R1140426	C POMERA 100N K250E2 85	1	R 20	P200095	R# CE H 8K2 J 0W12 1206	1
C 20	P210211	C# X7R MU 4N7K200 1206	1	R 21	P200145	R# CE H 1M J 0W12 1206	1
C 21	P210138	C# COG MU 10P J 50 1206	1	R 22	P200049	R# CE H100E J 0W12 1206	1
C 23	P210122	C# X7R MU 100N K 50 1206	1	R 23	P200151	R# CE H 1M8 J 0W12 1206	1
C 24	P210121	C# COG MU 330P J 50 1206	1	R 24	R102138	R CC H 1K5 K 1W	1
D 1	P234196	D#BYD37J AVA SOD87	1	R 25	R102125	R CC H120E K 1W	1
D 2	P234196	D#BYD37J AVA SOD87	1	R 26	P200121	R# CE H100K J 0W12 1206	1
D 3	P234196	D#BYD37J AVA SOD87	1	R 27	P200121	R# CE H100K J 0W12 1206	1
D 4	P234195	D#BAS21 SW SOT23	1	R 28	R102038	R CC H 1K5 K 0W5	1
D 5	P234055	D#BAT54 SCH SOT23	1	R 29	R102148	R CC H 10K K 1W	1
D 6	P234099	D#4148 R DMMELF	1	R 30	R102138	R CC H 1K5 K 1W	1
D 7	P234099	D#4148 R DMMELF	1	R 31	R102184	R CC H 10M K 1W	1
D 8	P234099	D#4148 R DMMELF	1	R 32	P200073	R# CE H 1K J 0W12 1206	1
D 9	P234099	D#4148 R DMMELF	1	R 33	P200073	R# CE H 1K J 0W12 1206	1
D 10	P234099	D#4148 R DMMELF	1	R 34	R1033521	R MO H 22K J 4W	1
D 11	P234099	D#4148 R DMMELF	1	R 36	P200398	R# CE H300E F 0W12 1206	1
D 12	P234196	D#BYD37J AVA SOD87	1	R 37	P200398	R# CE H300E F 0W12 1206	1
D 13	P234196	D#BYD37J AVA SOD87	1	R 38	P200398	R# CE H300E F 0W12 1206	1
D 14	P234099	D#4148 R DMMELF	1	R 39	P200049	R# CE H100E J 0W12 1206	1
D 15	P234099	D#4148 R DMMELF	1	R 40	P201353	R# CE H 0E J 0W12 1206	1
I 1	R134304	U 05 VPH	1	R 41	P200081	R# CE H 2K2 J 0W12 1206	1
J 2	R311036	J CRT FBT SD130 SKT	1	R 43	P200033	R# CE H 22E J 0W12 1206	1
J 3	R313454	J TAB1 MBT H 4.8S0.5	1	R 44	P200073	R# CE H 1K J 0W12 1206	1

SR 1	⚠	R1011129	R	CFFH	10E	J	0W25	1	Z 2	R132102	U	33B	ZTK	DO35	1
SR 2	⚠	R1011009	R	CFFH	1E	J	0W25	1	Z 3	R132102	U	33B	ZTK	DO35	1
SR 3	⚠	R1011129	R	CFFH	10E	J	0W25	1	Z 4	R132102	U	33B	ZTK	DO35	1
SR 4	⚠	R1011369	R	CFFH	1K	J	0W25	1	Z 5	R132102	U	33B	ZTK	DO35	1
									Z 6	R132102	U	33B	ZTK	DO35	1
Z 1		P234213	D#ZEN	3V3	0W5	C	DMMELF	1	Z 7	P234268	D#BZV55C6V8		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.

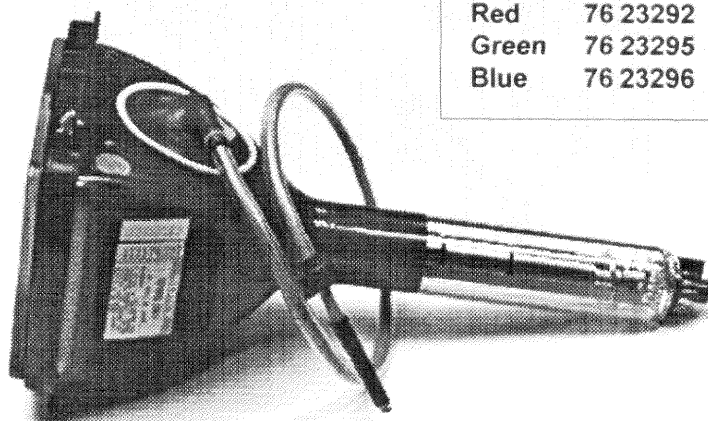
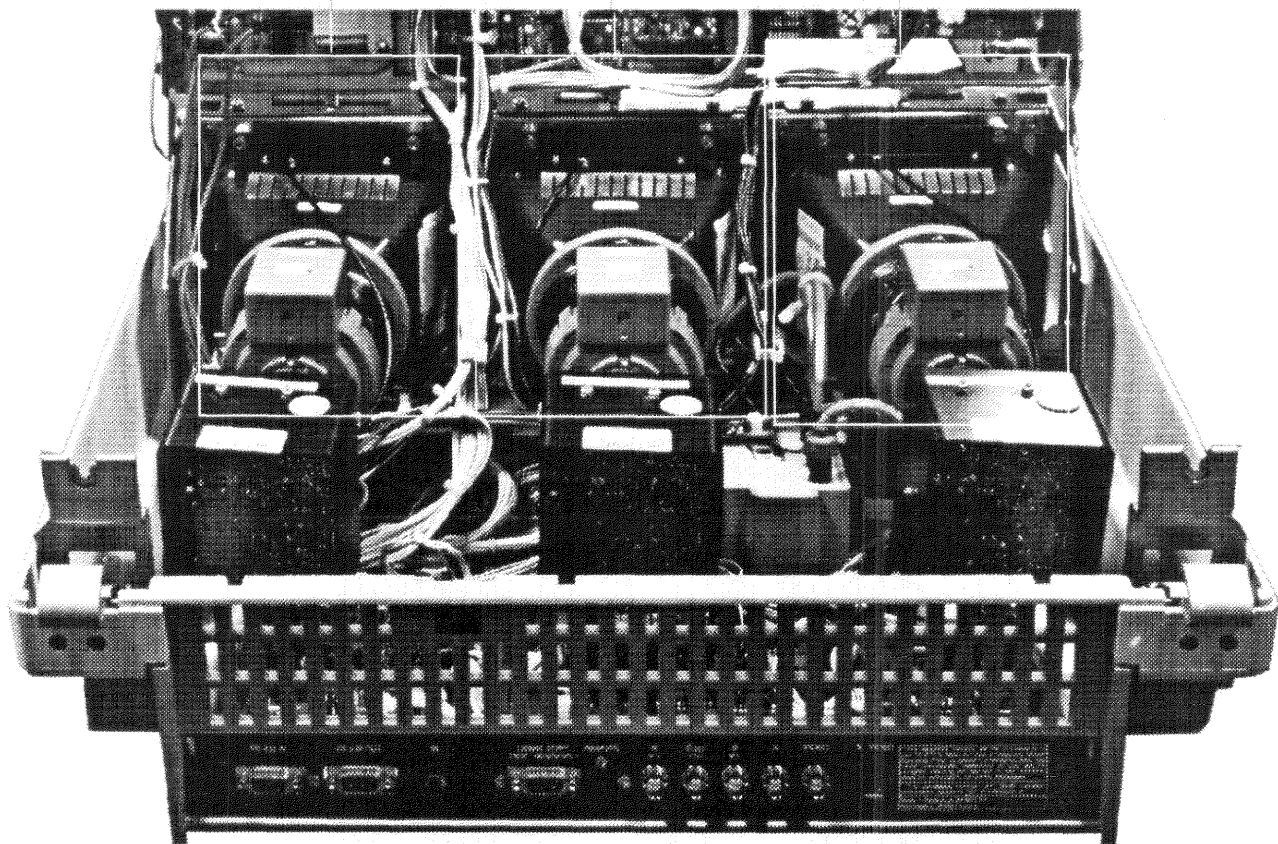


CRT Unit

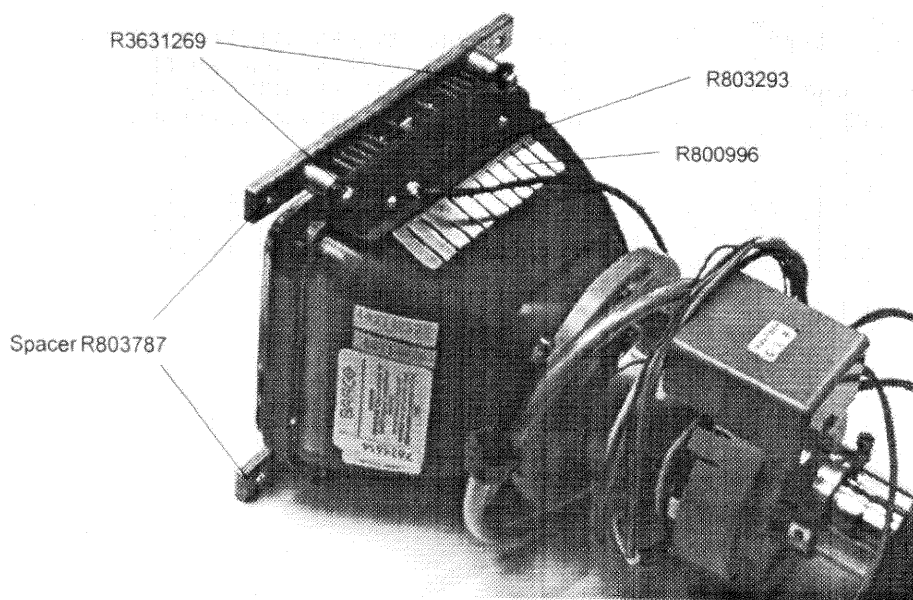
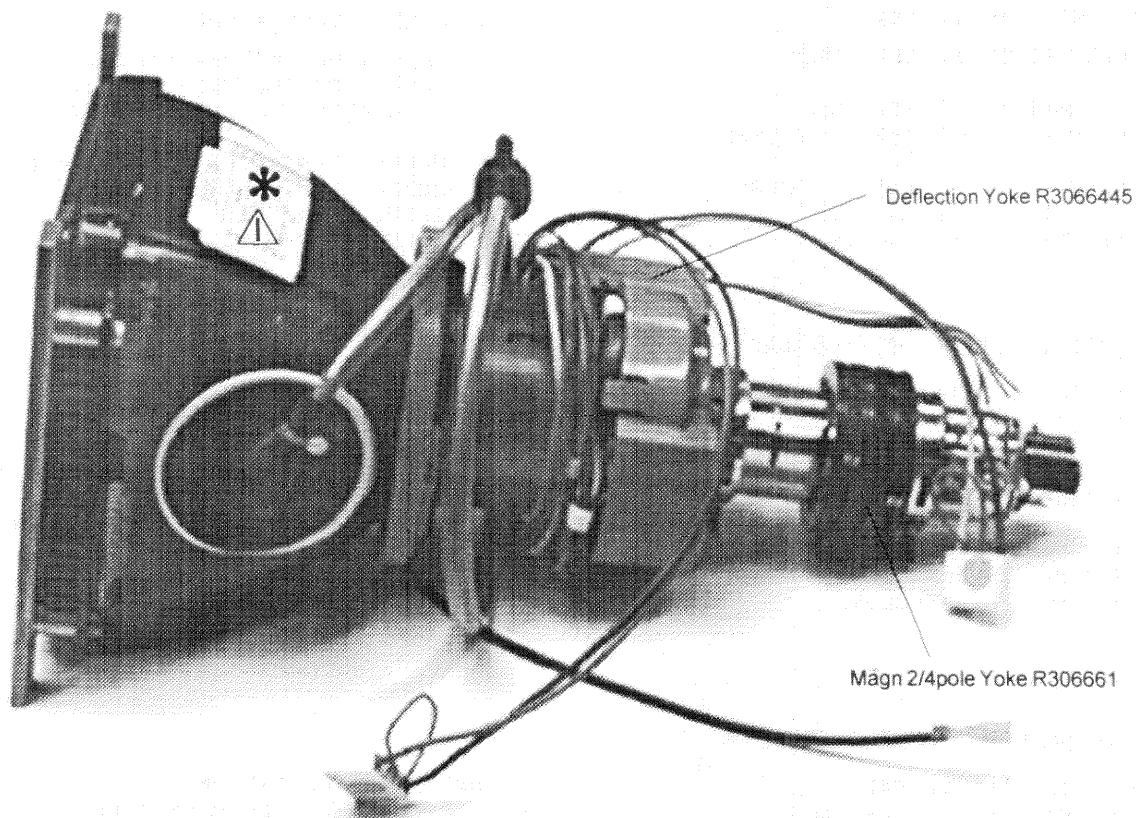
CRT Unit Blue
76 24616

CRT Unit Green
76 24615


CRT Unit Red
76 24612

**Order N° CRT**

Red	76 23292
Green	76 23295
Blue	76 23296



PRODUCT SAFETY NOTICE

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

Parts listing CRT unit R7624612

ITEM NO.	SIT.	DESCRIPTION		ITEM NO.	SIT.	DESCRIPTION	
1000	R7623292	CRT SD07MS NW RED	1	1030	R3631269	SCR D933 M 4 X 20 XIC	4
1100	R3066445	YOKE DEF DAV7604	1	130	R3674391	RVT POP D3.2 L 7.4 P ASW	2
1110	R306661	YOKE ACC MAGN 2/4P SHSP	1	1060	R3674391	RVT POP D3.2 L 7.4 P ASW	2
1200	R3137091	J HV HO MWT P 1 CUP	1	1040	R800996	FRM PJ43 CRT AKWADAG SONY	1
1210	R3137092	J HV HO ACC SLEEVE	1	1050	R803293	FRM PJ43 AKWADAG FIX	1
1220	R3137093	J HV HO ACC SEAL	1	1010	R803787	FRM PJ53 CRT SD187 FIX	2
				1230	R806552	J HV HO ACC COVER D6,1	1

Parts listing CRT unit R7624615

ITEM NO.	SIT.	DESCRIPTION		ITEM NO.	SIT.	DESCRIPTION	
1000	R7623295	CRT SD07MS NW GRN	1	1030	R3631269	SCR D933 M 4 X 20 XIC	4
1100	R3066445	YOKE DEF DAV7604	1	1060	R3674391	RVT POP D3.2 L 7.4 P ASW	2
1110	R306661	YOKE ACC MAGN 2/4P SHSP	1	1040	R800996	FRM PJ43 CRT AKWADAG SONY	1
1200	R3137091	J HV HO MWT P 1 CUP	1	1050	R803293	FRM PJ43 AKWADAG FIX	1
1210	R3137092	J HV HO ACC SLEEVE	1	1010	R803787	FRM PJ53 CRT SD187 FIX	2
1220	R3137093	J HV HO ACC SEAL	1	1230	R806552	J HV HO ACC COVER D6,1	1

Parts listing CRT unit R7624616

ITEM NO.	SIT.	DESCRIPTION		ITEM NO.	SIT.	DESCRIPTION	
1000	R7623296	CRT SD07MS NW BLU	1	1030	R3631269	SCR D933 M 4 X 20 XIC	4
1100	R3066445	YOKE DEF DAV7604	1	1060	R3674391	RVT POP D3.2 L 7.4 P ASW	2
1110	R306661	YOKE ACC MAGN 2/4P SHSP	1	1040	R800996	FRM PJ43 CRT AKWADAG SONY	1
1200	R3137091	J HV HO MWT P 1 CUP	1	1050	R803293	FRM PJ43 AKWADAG FIX	1
1210	R3137092	J HV HO ACC SLEEVE	1	1010	R803787	FRM PJ53 CRT SD187 FIX	2
1220	R3137093	J HV HO ACC SEAL	1	1230	R806552	J HV HO ACC COVER D6,1	1