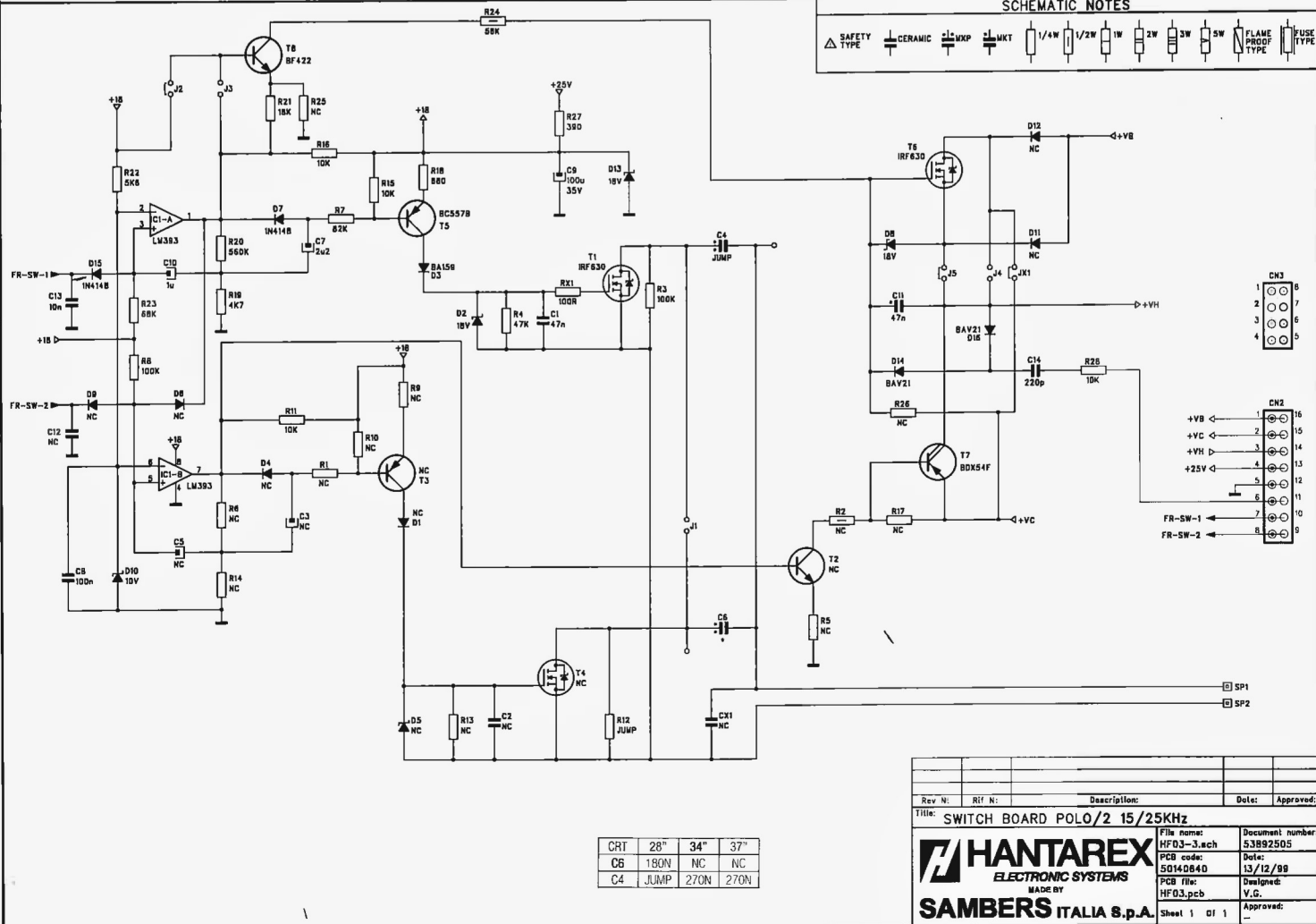


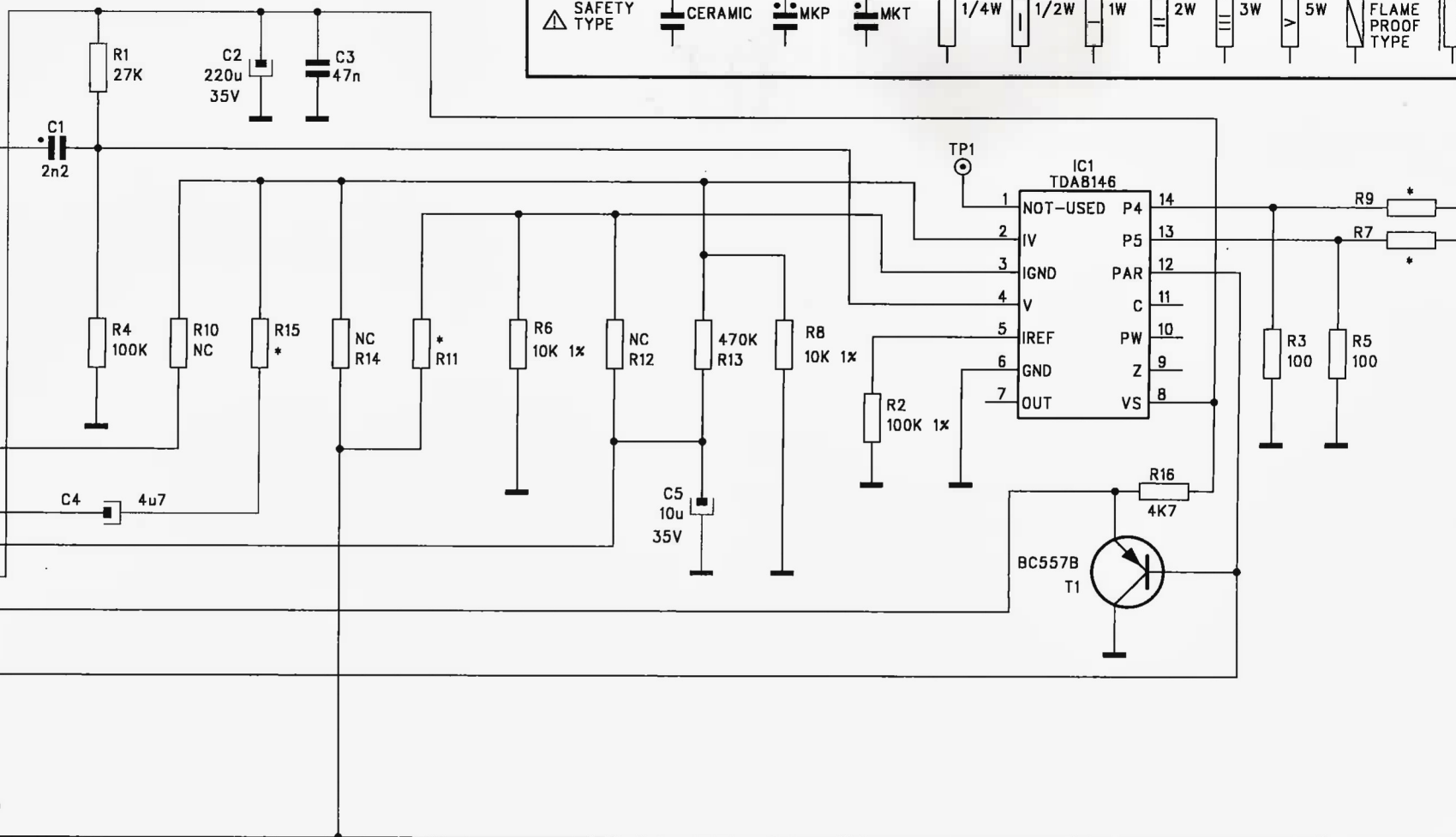
Monitor POLO/2 • 15-25 KHz AUTOMATICO

- I** **ATTENZIONE!** Per effettuare qualsiasi misura di controllo nella sezione primaria alimentatore, usando voltmetro digitale o oscilloscopio, occorre separare il monitor dalla rete tramite un TRASFORMATORE DI ISOLAMENTO, facendo comunque attenzione che la terra degli strumenti sia scollegata.
Questa precauzione non è necessaria quando si effettuano le misure di controllo nella sezione monitor (deflessione e video), e sulle uscite secondarie dell'alimentatore.
Il trasformatore di isolamento deve avere queste caratteristiche:
Ingresso 230 V~ ; Uscita 230 V~ ; 200 W minimo
- GB** **WARNING!** Whenever voltage checks are to be made in the primary circuits of the power supply, using a digital voltmeter or an oscilloscope, it is necessary to isolate the monitor from the mains supply by means of an ISOLATING TRANSFORMER also taking care that the instruments are disconnected from earth.
This precaution is not necessary when making measurements in the monitor section (deflexion and video), nor in the secondary circuits of the power supply.
The isolating transformer for the above purpose should have following characteristics:
Input 230 V~ ; Output 230 V~ ; 200 W minimum
- E** **ATENCION!** Para efectuar medidas de control en la sección primaria del alimentador, usando voltímetro digital, o bien osciloscopio, es necesario separar el monitor de la red con un TRANSFORMADOR DE AISLAMIENTO, debiendo estar la tierra del instrumento conectada. De esta manera se evita que haya conexión directa a la red entre el instrumento y la sección primaria del alimentador, al estar el instrumento a la tierra se evita dañar cualquier componente y tener la máxima seguridad para el operador. Estas precauciones no son necesarias cuando se efectúan las medidas en la sección del monitor (deflexión vídeo), y sobre la salida secundaria del alimentador.
El transformador debe tener estas características:
Entrada 230 V~ ; Salida 230 V~ ; 200 W minimo
- F** **ATTENTION!** Pour effectuer n'importe quelle mesure de contrôle dans la section primaire d'alimentation, en utilisant un voltamètre digital ou un oscilloscope, il faut séparer le moniteur du réseau au moyen d'un TRANSFORMATEUR D'ISOLEMENT, en faisant de toute façon attention à ce que la prise de terre des instruments soit débranchée.
Cette précaution n'est pas nécessaire quand on effectue les mesures de contrôle dans la section moniteur (déflexions et vidéo), et sur les sorties secondaires de l'alimentateur.
Le transformateur d'isolement doit avoir les caractéristiques suivantes:
Entrée 230 V~ ; Sortie 230 V~ ; 200 W minimum
- D** **VORSICHTSMAßNAHMEN!** Wenn im Primärnetzteil Messungen mit Hilfe von digitalen Voltmetern und Oszilloskopen vorgenommen werden, ist es notwendig, den Monitor von der Hauptstromversorgung zu trennen. Dies sollte über einen TRENNTRANSFORMATOR erfolgen. Es ist unbedingt darauf zu achten, daß dann alle Instrumente vom Erdpotential getrennt sind.
Diese Vorkehrungen sind nicht notwendig, wenn Messungen auf der Monitorgrundplatine im Bereich der Ableitung und Videoaufbereitung vorgenommen werden. Außerdem sind obengenannte Vorkehrungen nicht notwendig im Secundärbereich des Netzteils. Der Trenntransformator sollte folgende Eigenschaften haben:
Eingang 230 V~ ; Ausgang 230 V~ ; 200 W

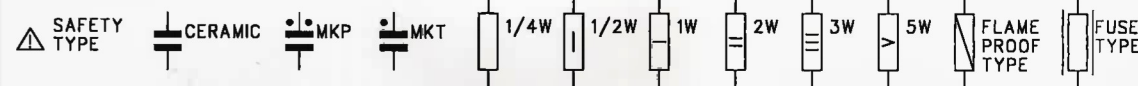


CONN-F-14M
CN1

28	1
27	2 V-BLK
26	3 V-RAMP
25	4 KEYST
24	5 +25
23	6 OUT
22	7
21	8 PINC
20	9
19	10
18	11
17	12
16	13 +12
15	14



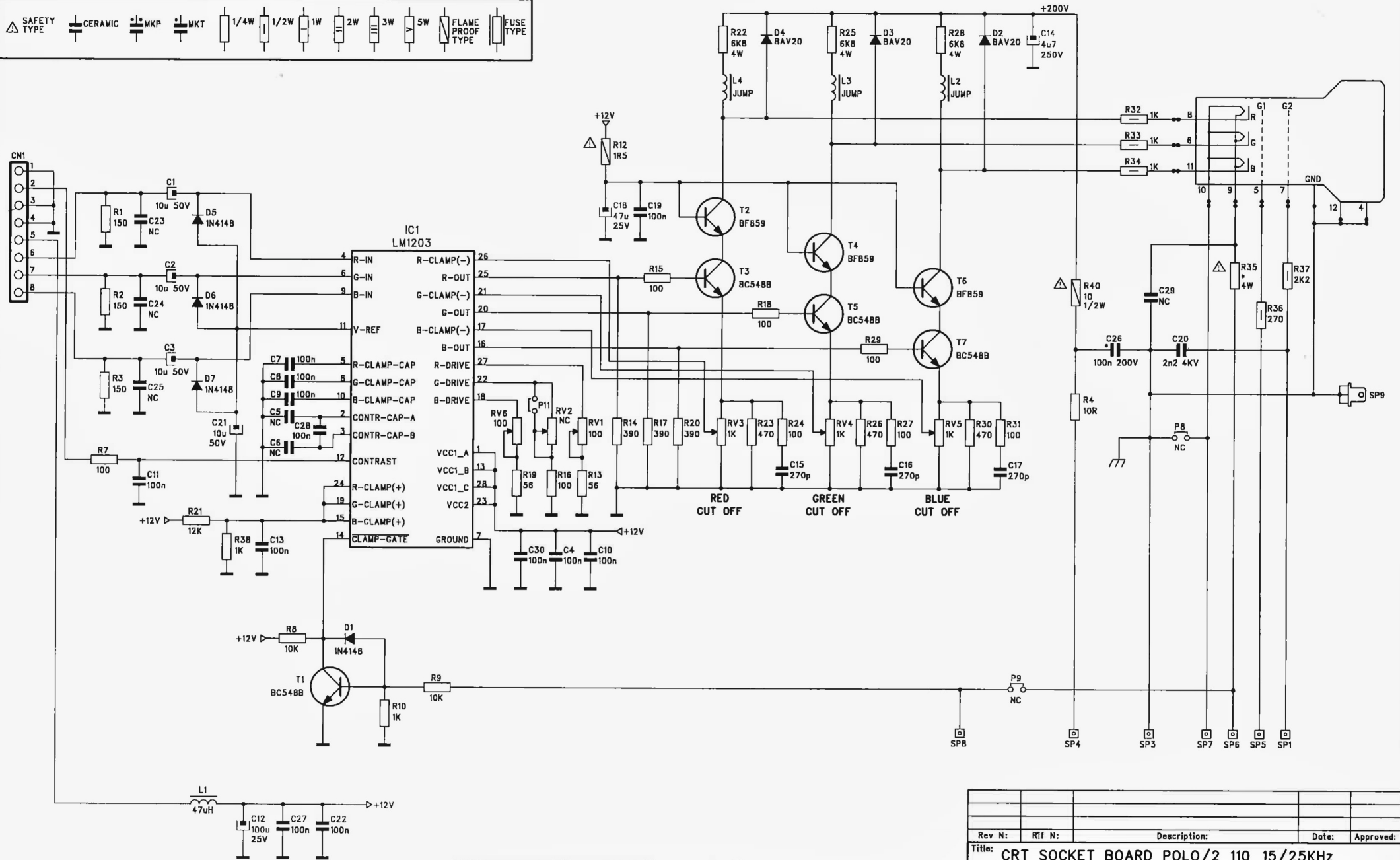
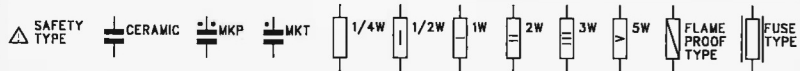
SCHEMATIC NOTES



CRT	28" VID	28" PH	34"	37"
R11	680K	680K	560K	560K
R9	NC	39K	NC	NC
R7	NC	NC	39K	39K
R15	56K	56K	47K	47K

Rev N:	Rif N:	Description:	Date:	Approved:
Title: E-W BOARD POLO/2 15/25KHz AUTO				
		File name: HQ01.sch	Document number: -	
PCB code: 50140740		Date: 13/12/99		
PCB file: HQ01.pcb		Designed: V.G.		
Sheet 1 Of 1		Approved: -		
SAMBERS ITALIA S.p.A.				

SCHEMATIC NOTES



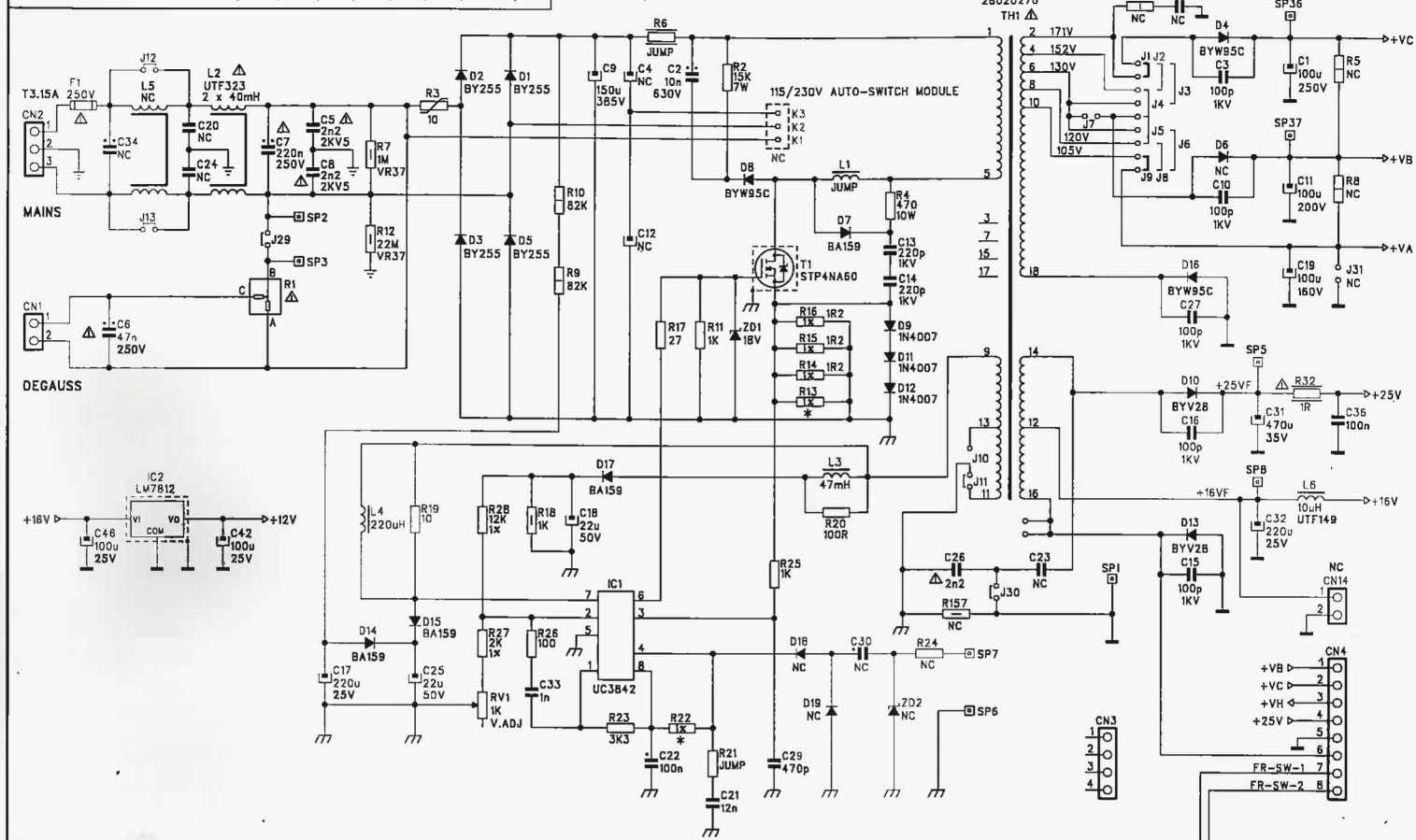
CRT	20" VID	25" VID	25" PH	28" VID	28" PH	34" PH	37" VID
R35	4R7	4R7	12R	4R7	12R	12R	4R7

Rev N:	R11 N:	Description:	Date:	Approved:
Title: CRT SOCKET BOARD POLO/2 110 15/25KHz				
File name:		Document number:		
JF02-4.sch		53892440		
PCB code:		Date:		
50140890		13/12/99		
PCB file:		Designed:		
JF02.drw		V.G.		
Sheet 1 of 1		Approved:		

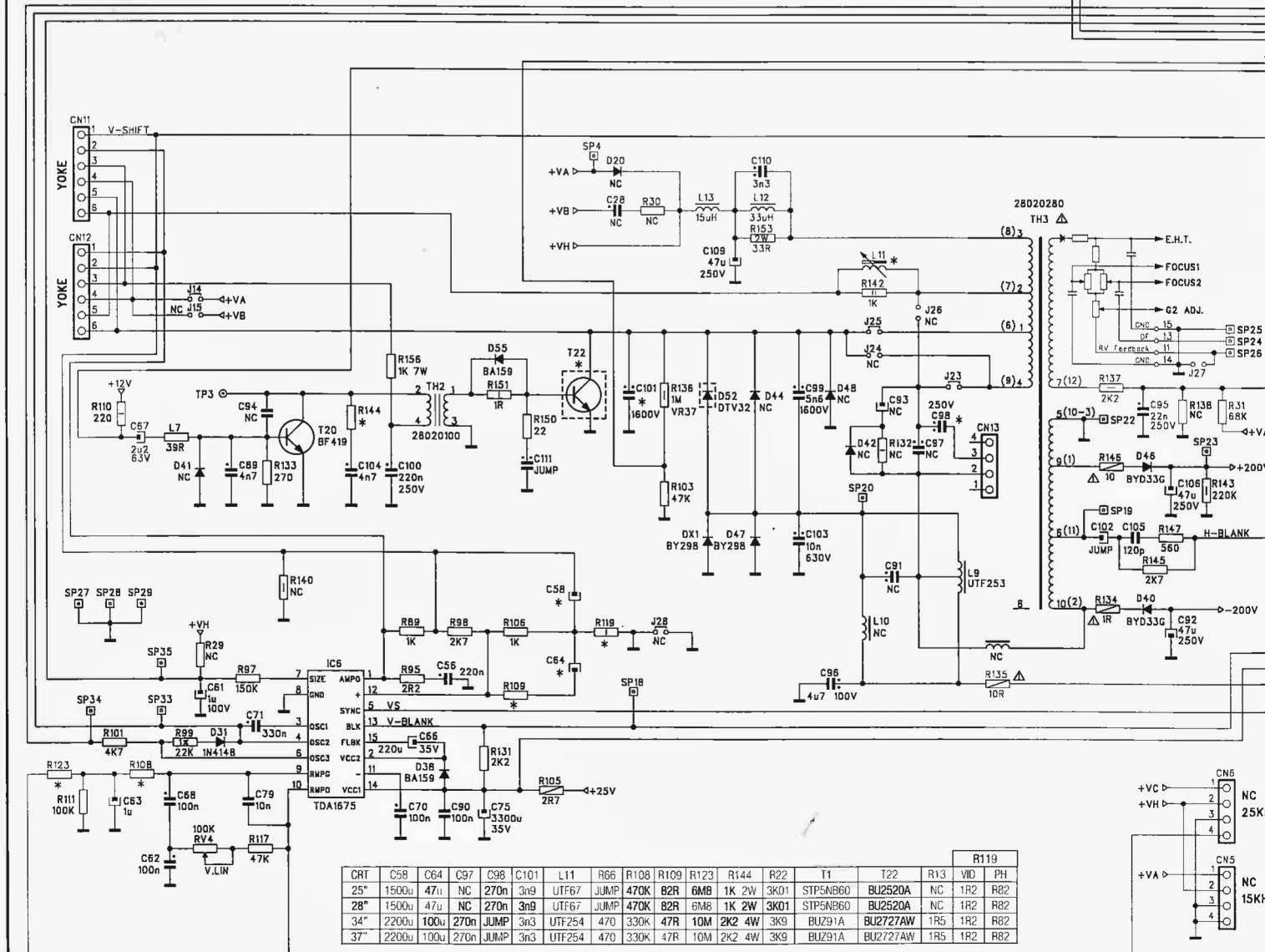
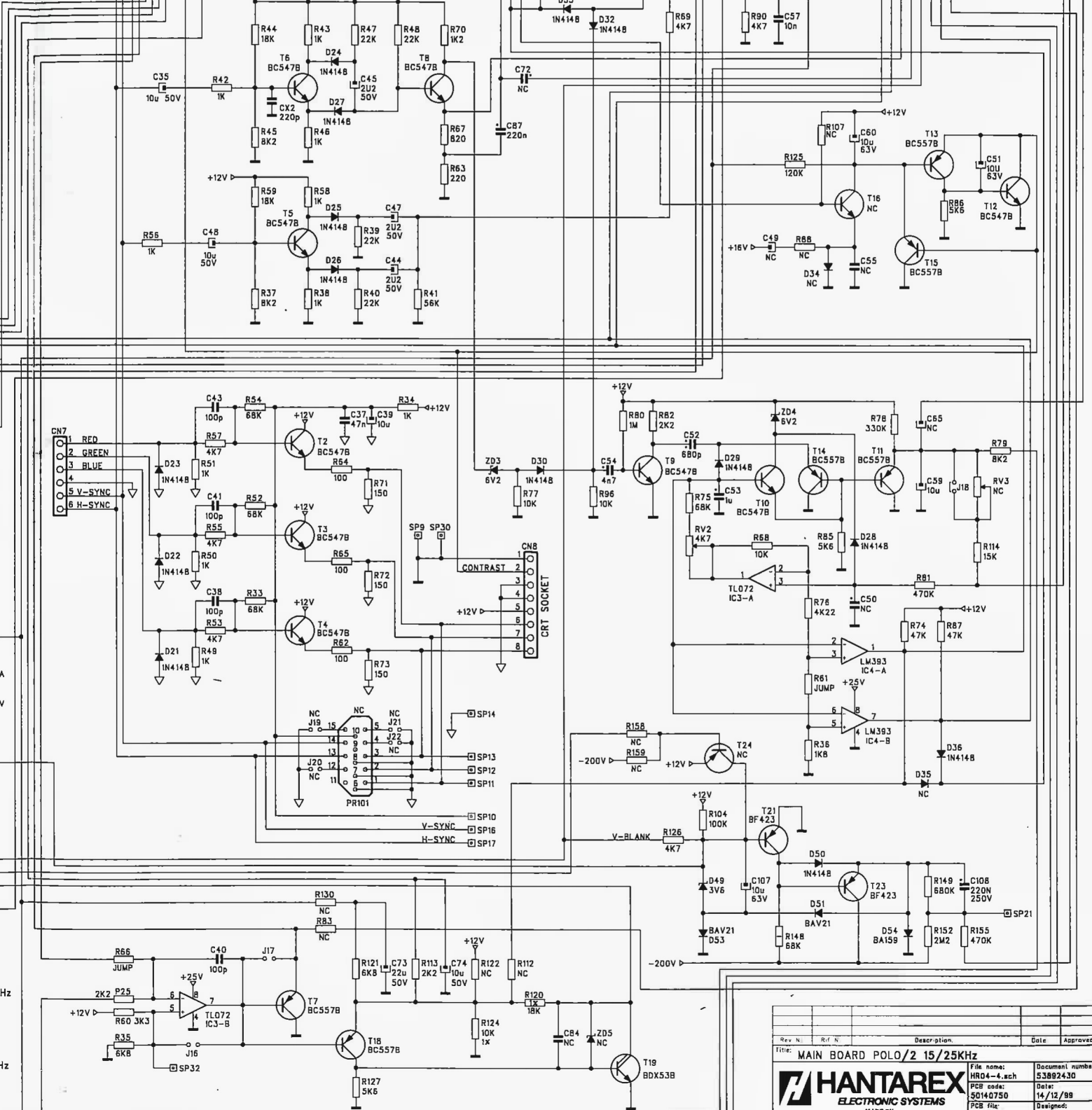
HANTAREX
 ELECTRONIC SYSTEMS
 MADE BY
SAMBERS ITALIA S.p.A.

SCHEMATIC NOTES

SAFETY TYPE CERAMIC MKP MKT 1/4W 1/2W 1W 2W 3W 5W FLAME PROOF FUSE TYPE



CONTROLS



CRT	C58	C64	C97	C98	C101	L11	R66	R108	R109	R123	R144	R22	T1	T22	R13	V1D	PH
25"	1500u	47u	NC	270n	3n9	UT67	JUMP	470K	82R	6M8	1K 2W	3K01	STPSA860	BU2520A	NC	1R2	R82
28"	1500u	47u	NC	270n	3n9	UT67	JUMP	470K	82R	6M8	1K 2W	3K01	STPSA860	BU2520A	NC	1R2	R82
34"	2200u	100u	270n	JUMP	3n3	UT67	470	330K	47R	10M	2K2 4W	3K9	BU291A	BU2727AW	1R5	1R2	R82
37"	2200u	100u	270n	JUMP	3n3	UT67	470	330K	47R	10M	2K2 4W	3K9	BU291A	BU2727AW	1R5	1R2	R82

Rev. N.	Ref. N.	Description	Date	Approved
1	1	MAIN BOARD POLO/2 15/25KHz	14/11/98	

HANTAREX
ELECTRONIC SYSTEMS
MADE IN ITALY
SAMBERS ITALIA S.p.A.

PARTI DI RICAMBIO

SPARE PARTS

SPARE PARTS / PARTI DI RICAMBIO

MODULO MAIN BOARD		
CODICE	DENOMINAZIONE	RIF.SCHEMA
20400020	TRANSISTOR STP 4NA60	T1
20400409	TRANSISTOR BC 557 B	T13-15-17-18
20400429	TRANSISTOR BC 547 B	T2-4-5-6-8-12-16
20401029	TRANSISTOR BC 548 B	T9-10
20401039	TRANSISTOR BC 558 B	T7-11-14
20410100	TRANSISTOR BDX 53 B	T19
20420140	TRANSISTOR BF 419	T20
20420159	TRANSISTOR BF 423/BF 421	T21-23
20433290	TRANSISTOR BU 2520 A	T22
20620080	CIRCUITO INTEGRATO L 7812 CV	IC2
20620510	CIRCUITO INTEGRATO LM 393 N	IC4
20640000	CIRCUITO INTEGRATO TL 072	IC3
20670271	CIRCUITO INTEGRATO TDA 2595/V9	IC5
20670950	CIRCUITO INTEGRATO TDA 1675 A	IC6
20672920	CIRCUITO INTEGRATO UC 3842 N	IC1
21000140	PTC 22R 15 A	R1
21311003	RESISTENZA ANTIFIAMMA 1/2W 5% 1R	R134
21211003	RESISTENZA FUSIBILE 1/3W 5% 1R	R32
21312702	RESISTENZA ANTIFIAMMA 1/2W 5% 2R7	R105
21321001	RESISTENZA ANTIFIAMMA 1/2W 5% 10R	R146
22341000	RESISTENZA FILO OR 7W 5% 1K	R156
22351500	RESISTENZA FILO VE 9W 5% 15K	R2
22514701	RESISTENZA FILO OR 10W 5% 4R7	R153
22534700	RESISTENZA FILO VE 10W 10% 470R	R4
23044700	TRIMMER CARBONE 4K7 ORIZZ	RV2
23041002	TRIMMER CARBONE 1K ORIZZ	RV1
23061005	TRIMMER CARBONE 100K ORIZZ	RV4
23071002	TRIMMER CARBONE 1M ORIZZ	RV5
25762201	COND.POL. 220n 275VAC 10%	C7
26422621	COND.POL. 2n2 250VAC 5%	C5-8-20
28020100	TRASF. DRIVER POLO/2 25 KHZ	TH2
28020270	TRASF. SWITCH POLO/2	TH1
28020280	TRASF. EHT POLO BIF	TH3
28020480	BOBINA RADIALE 33uH	L12
28020720	BOBINA CHOCKE 47uH 10%	L3
28021211	BOBINA BRIDGE	L9
28021290	BOBINA CHOCKE 10uH 10%	L6
28025170	BOBINA LINEARITA' FRL85 UTF 67	L11
28027360	BOBINA CHOCKE 22uH 10%	L8
28027760	BOBINA 15uH	L13
28027781	BOBINA CHOCKE 220uH 10%	L4
28020470	FILTRO RETE UTF 323	L2
29100019	FUSIBILE 3.15A	F1
34023354	CONN.AMP 4 VIE	CN5-6-13
34023356	CONN.AMP 6VIE	CN7-11-12
34074630	CONN. 3VIE	CN2
34074640	CONN. 2VIE MATE-N-LOK	CN1
34076580	CONN.BURNDY 8VIE	CN8
34077860	CONN. 20VIE	CN9

MAIN BOARD MODULE		
CODE	DESCRIPTION	LOCATION
20400020	TRANSISTOR STP 4NA60	T1
20400409	TRANSISTOR BC 557 B	T13-15-17-18
20400429	TRANSISTOR BC 547 B	T2-4-5-6-8-12-16
20401029	TRANSISTOR BC 548 B	T9-10
20401039	TRANSISTOR BC 558 B	T7-11-14
20410100	TRANSISTOR BDX 53 B	T19
20420140	TRANSISTOR BF 419	T20
20420159	TRANSISTOR BF 423/BF 421	T21-23
20433290	TRANSISTOR BU 2520 A	T22
20620080	I.C. L 7812 CV	IC2
20620510	I.C. LM 393 M	IC4
20640000	I.C. TL 072	IC3
20670271	I.C. TDA 2595/V9	IC5
20670950	I.C. TDA 1675 A	IC6
20672920	I.C. UC 3842 N	IC1
21000140	PTC 22R 15A	R1
21311003	NON FLAMABLE RESISTOR 1/2W 5% 1R	R134
21211003	FUSE RESISTOR 1/3W 5% 1R	R32
21312702	NON FLAMABLE RESISTOR 1/2W 5% 2R7	R105
21321001	NON FLAMABLE RESISTOR 1/2W 5% 10R	R146
22341000	HOR. WIRE RESISTOR 7W 5% 1K	R156
22351500	VERT. WIRE RESISTOR 9W 5% 15K	R2
22514701	HOR. WIRE RESISTOR 10W 5% 4R7	R153
22534700	VERT. WIRE RESISTOR 10W 10% 470R	R4
23044700	CARBON TRIMMER 1K7 HOR.	RV2
23041002	CARBON TRIMMER 1K HOR.	RV1
23061005	CARBON TRIMMER 100K HOR.	RV4
23071002	CARBON TRIMMER 1M HOR.	RV5
25762201	POL. CAP. 220n 275VAC 10%	C7
26422621	POL. CAP. 2n2 250VAC 5%	C5-8-20
28020100	DRIVER TRANSFORMER POLO/2 25 KHZ	TH2
28020270	SWITCH TRANSFORMER POLO/2	TH1
28020280	ETH TRANSFORMER POLO/2 15/25	TH3
28020480	COIL CHOCKE 33uH	L12
28020720	COIL CHOCKE 47uH 10%	L3
28021211	COIL BRIDGE	L9
28021290	COIL CHOCKE 10uH 10%	L6
28025170	COIL LINEARITY FRL85 UTF 67	L11
28027360	COIL CHOCKE 22uH 10%	L8
28027760	COIL 15uH	L13
28027781	COIL CHOCKE 220uH 10%	L4
28020470	MAINS FILTER UTF 323	L2
29100019	FUSE 3.15A	F1
34023354	4 WAYS AMP. CONNECTOR	CN5-6-13
34023356	6 WAYS AMP. CONNECTOR	CN7-11-12
34074630	3 WAYS CONNECTOR	CN2
34074640	2 WAYS MATE-N-LOK CONNECTOR	CN1
34076580	8 WAYS BURNDY CONNECTOR	CN8
34077860	CONNECTOR 20 WAYS	CN9

MODULO CRT SOCKET		
CODICE	DENOMINAZIONE	RIF.SCHEMA
20401029	TRANSISTOR BC 548 B	T1-3-5-7
20431070	TRANSISTOR BF 859	T2-4-6
20673970	CIRCUITO INTEGRATO LM 1203 N	IC1
21211503	RESISTENZA ANTIFIAMMA 1/4W 5% 1R5	R12
21321001	RESISTENZA ANTIFIAMMA 1/2W 5% 10R	R40
21746800	RESISTENZA OSS MET 4W 5% 6K8	R22-25-28
22314700	RESISTENZA FILO VE 7W 5% 4R7	R35
23031007	TRIMMER CARBONE 100R VERT	RV 1-6
23041013	TRIMMER CARBONE 1K VERT	RV3-4-5
28021290	BOBINA CHOCKE 10uH 10%	L1 R4
34020400	TERM S 187 M.FACO	SP9
34020640	ZOCOLO CRT SMALL-NECK	
34076580	CONNETTORE BURNEY 8VIE	CN1

CRT SOCKET MODULE		
CODE	DESCRIPTION	LOCATION
20401029	TRANSISTOR BC 548 B	T1-3-5-7
20431070	TRANSISTOR BF 859	T2-4-6
20673970	I.C. LM 1203 N	IC1
21211503	NON FLAMABLE RESISTOR 1/4W 5% 1R5	R12
21321001	NON FLAMABLE RESISTOR 1/2W 5% 10R	R40
21746800	OSS. MET. RESISTOR 4W 5% 6K8	R22-25-28
22314700	VERT. WIRE RESISTOR 7W 5% 4R7	R35
23031007	CARBON TRIMMER 100 R VERT	RV 1-6
23041013	CARBON TRIMMER 1K VERT	RV3-4-5
28021290	CHOCKE COIL 10uH 10%	L1 R4
34020400	TERM S 187 M.FACO	SP9
34020640	CRT SMALL-NECK SOCKET	
34076580	8 WAYS BURNEY CONNECTOR	CN1

MODULO EST-OVEST		
CODICE	DENOMINAZIONE	RIF.SCHEMA
20400409	TRANSISTOR BC 557B	T1
20675510	CIRCUITO INTEGRATO TDA 8146	IC1

EAST-WEST MODULE		
CODE	DESCRIPTION	LOCATION
20400409	TRANSISTOR BC 557B	T1
20675510	I.C. TDA 8146	IC1

MODULO CONTROLS BOARD		
CODICE	DENOMINAZIONE	RIF.SCHEMA
20400030	TRANSISTOR BC 327 25	T1
20401069	TRANSISTOR BC 337 25	T2
23044705	TRIMMER CARBONE 4K7 ORIZZ.	RV10-3-6
23051003	TRIMMER CARBONE 10K ORIZZ.	RV5-2-7-9
23062204	TRIMMER CARBONE 220K ORIZZ.	RV1-4
34070000	CONNETTORE 20VIE	CN2

CONTROLS BOARD MODULE		
CODE	DESCRIPTION	LOCATION
20400030	TRANSISTOR BC 327 25	T1
20401069	TRANSISTOR BC 337 25	T2
23044705	CARBON TRIMMER 4K7 HOR.	RV10-3-6
23051003	CARBON TRIMMER 10K HOR.	RV5-2-7-9
23062204	CARBON TRIMMER 220K HOR.	RV1-4
34070000	20 WAYS CONNECTOR	CN2

MODULO SWITCH		
CODICE	DENOMINAZIONE	RIF.SCHEMA
20620510	CIRCUITO INTEGRATO LM 393 N	IC1
20420219	TRANSISTOR BF 422-BF 422 L/RA	T8
20432371	TRANSISTOR IRF 630	T1-6

SWITCH BOARD		
CODE	DESCRIPTION	LOCATION
20620510	I.C. LM 393 N	IC1
20420219	TRANSISTOR BF 422-BF 422 L/RA	T8
20432371	TRANSISTOR IRF 630	T1-6