



HANTAREX

electronic equipment manufactures

MTC90

monitor color



# HANTAREX

electronic equipment manufactures

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L'esperienza trentennale nel settore dell'elettronica ha portato « HANTAREX » ad un livello di qualificazione tale da essere considerato oggi un riferimento insostituibile per tutti coloro che si interessano di video-game. E' riconosciuto, infatti, che i prodotti HANTAREX costituiscono la sintesi più aggiornata delle attuali tecnologie. L'espressione migliore della nostra consolidata esperienza tecnologica è rappresentata dal progetto MTC 90: il recentissimo monitor a colori per video-game.

Le caratteristiche essenziali di questo nostro nuovo prodotto, che rappresentano poi i traguardi fondamentali di tutte le nostre ricerche progettuali, sono:

**L'AFFIDABILITA'** - minor consumo: il consumo è ridotto al valore eccezionalmente basso di 80 W; ciò significa minori temperature all'interno dell'apparecchio, con notevole miglioramento della affidabilità e della durata dei componenti.

**L'INGEGNERIZZAZIONE** - tecnica modulare: strutturalmente il monitor è composto di due grandi circuiti stampati, nei quali vengono inseriti nove moduli, che raggruppano le funzioni più delicate.

la **SICUREZZA** - il monitor è protetto contro sovraccarichi e cortocircuiti; in più il suo completo isolamento dalla rete consente l'assoluta sicurezza in utenza e in servizio.

la **QUALITA'** - il cinescopio « precision in line », a fosfori pigmentati, e l'utilizzazione di finali video RGB a larga banda con transistor complementari, consente di ottenere la perfezione dell'immagine anche nei più piccoli particolari luminosi.

Per noi è molto importante anche la fase di controllo del prodotto finito: infatti, per garantire al massimo l'affidabilità, ogni monitor deve superare una lunga serie di collaudi.

Inoltre, ogni giorno, una percentuale della produzione viene sottoposta ad un test di funzionamento e di affidabilità di oltre duecento ore.

Ulteriori verifiche, per campione, tengono sotto controllo il monitor per mille ore.

*HANTAREX's 30 years of experience in the field of electronic has brought the firm to the point where they are considered an indispensable point of reference for all those interested in video-games. It is in fact well-known that HANTAREX's products represent a synthesis of all that is up-to-date in technological developments. The most valid expression of our consolidated technological experience is undoubtedly our MTC 90 project: the very latest colour monitor for video-games. The basic features of this new piece of equipment, representing as it does the fundamental watersheds of all our most recent research, are:*

**RELIABILITY:** less power consumption, with an exceptionally low power consumption of 80 W.; this means lower temperatures inside the machine, making it much more reliable and the components much longer-lasting.

**ENGINEERING:** modular technology: structurally the monitor consists of two large printed circuits, in which nine modules are inserted, grouping the more delicate functions together.

**SAFETY:** the monitor is protected against overloading and short circuits, plus its complete isolation from the mains means absolute safety when in use.

**QUALITY:** the pigmented phosphorous « precision in-line » cinescope and the use of RGB video-terminals, wide band with complementary transistors, means a perfect image even in the smallest luminous details.

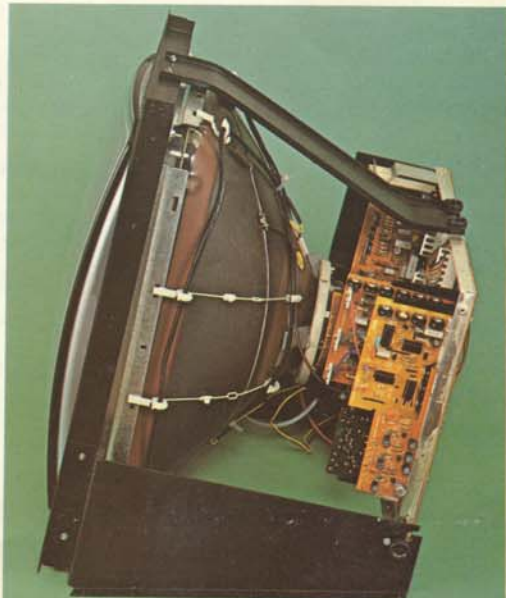
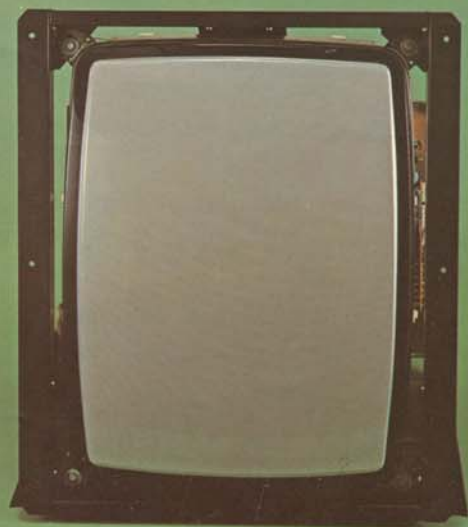
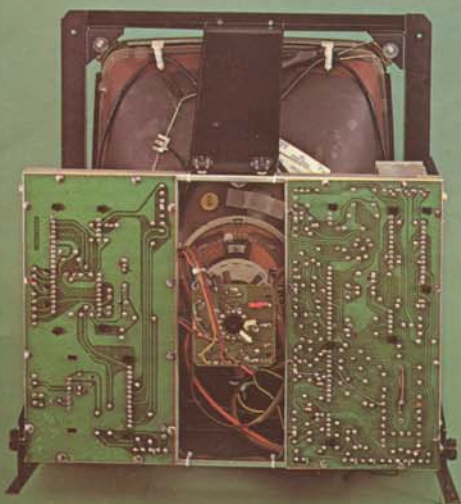
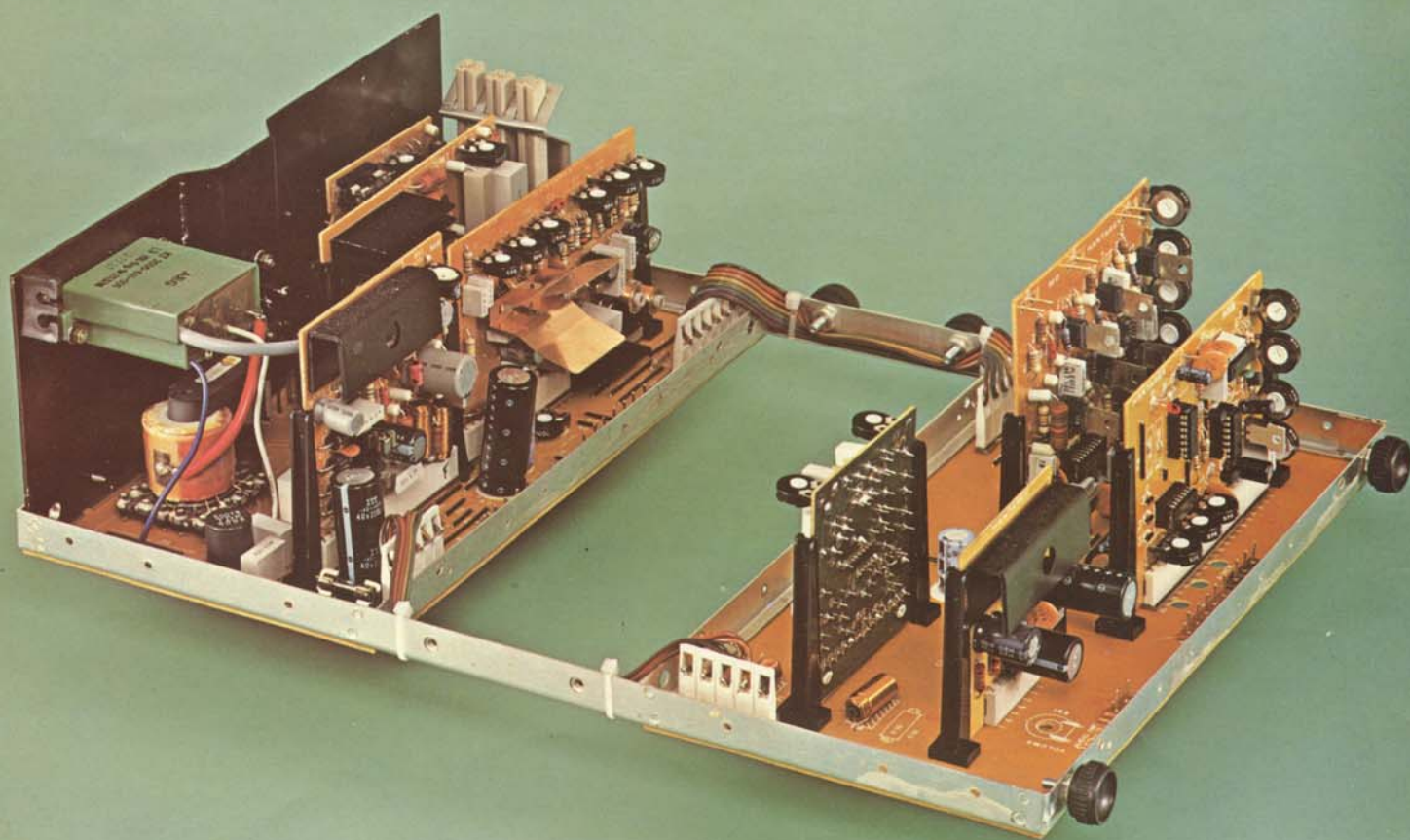
*We also consider the quality control stage very important: indeed, to guarantee maximum reliability, each monitor has to undergo a long series of tests. Further, every day a random sample from the production line is subjected to a working and reliability test of over 200 hours. Further checks, on random samples, keep the monitor under control for 1000 hours.*





# MTC 90

*monitor color  
per video-game*



# CARATTERISTICHE TECNICHE GENERALI

## MAIN TECHNICAL ITEMS

Cinescopio <i>Picture tube</i>	20" 90° tipo A51-211X 20" 90° type A51-211X
Alimentazione <i>Power requirement</i>	220 V AC $\pm$ 10% - 50/60 Hz - alimentazione a trasformatore isolato dalla rete - assorbimento totale 80 W 220 V AC $\pm$ 10% - supply voltage 50 Hz (with insulating transformer) - power dissipation 80 W
Ingresso segnali <i>Signal inputs</i>	compatibili TTL o segnali analogici 0,6 $\div$ 5 V TTL compatibility or analog signals 0,6 to 5 V
Ingresso sincronismi <i>Sync inputs</i>	composito negativo - orizzontale separato positivo - verticale separato positivo - orizzontale separato negativo - verticale separato negativo composite sync neg. - horizontal sync pos. - vertical sync pos. - horizontal sync neg. - vertical sync neg.
Geometria <i>Geometric controls</i>	regolazioni: ampiezza orizzontale - ampiezza verticale - linearità inferiore e superiore - effetto cuscino - effetto trapezio - frequenza verticale - frequenza orizzontale - punto di fase orizzontale - punto di fase verticale est-west amplitude - vertical amplitude - linearity amplitude - est-west phase - hold - horizontal frequency - horizontal phase - vertical phase
Alta tensione <i>High voltage</i>	25.000 V a 0 beam - con questa specifica: il monitor è garantito contro le emissioni di raggi X spuri dal tubo 25.000 AT - 0 Micro A. beam current - 22.500 AT - 900 Micro A. beam current
Raggi X <i>X rays</i>	con EAT di 27.500 V e IK = 1 mA viene garantito ad una distanza di 50 mm. dal cinescopio 0,5 m R/h AT = 27.5 KV I. K = 1 mA dosage measured at a distance of 50 mm. from the glass surface max 36 pA/hg (0,5 mR/h)
Cancellazione orizzontale <i>Horizontal blanking</i>	automatica automatic
Cancellazione verticale <i>Vertical blanking</i>	automatica automatic
Frequenza di scansione <i>Horizontal and vertical frequency</i>	orizzontale 15.625 Hz $\pm$ 500 - verticale 50 $\div$ 60 Hz horizontal 15.625 KHz $\pm$ 700 Hz - vertical 50 Hz $\div$ 60 Hz
Controlli <i>Controls</i>	luminosità - i tre livelli dei segnali in ingresso - livello sincronismi - regolazione cancellazione orizzontale - regolazione cancellazione ritracce verticali brightness - sync level - signals level - horizontal blanking - vertical blanking
Dimensioni <i>Dimension</i>	completo di cinescopio: mm. 450x345x420 with picture tube: mm. 450x345x420
Peso <i>Weight</i>	monitor completo Kg. 12,3 - cinescopio Kg. 3 electronics Kg. 12.3 - picture tube Kg. 3
Temperatura <i>Temperature range</i>	di lavoro: 0°C a +55°C ambiente - di immagazzinamento: da -40°C a +65°C operating range: 0°C to 55°C - storage range: -40°C to 65°C



# INDICAZIONI PER L'INGRESSO SEGNALI

## SIGNAL INPUTS DIRECTIONS

I segnali d'ingresso necessari per il corretto funzionamento del Monitor MTC 90 sono:

*The signals to light on the Monitor HANTAREX MTC 90 are:*

- 1) SEGNALE DI SINCRONISMO (composito o separato) che deve essere comunque a livello TTL.  
*The SYNC (composite or separated) VIDEO SIGNAL RGB and, of course, ground - the sync signal may be composite or separated; it must be however TTL compatible.*
- 2) SEGNALI RGB video per i colori: possono essere segnali a livello TTL (logica negativa) o segnali analogici nel « range » 0,6-5 V (nel caso che si abbiano più tonalità del medesimo colore).  
*The VIDEO SIGNALS for the colours RGB may be or TTL signals (negative logic) or analogic signals at 0.6-5 V (when man has more that one tonality of each colour).*

OPZIONI: MODULO INTERFACCIALE MP - viene utilizzato per invertire un segnale analogico o TTL da positivo a negativo

OPTION: INTERFACE MODULE MP - may be used to invert analogic or TTL signals from positive logic to negative logic

MODULO MQ - sincronismo: composito, compatibile TTL - (logica negativa) 50 o 60 Hz secondo specifica del cliente

MODULE MQ - sync.: composite, TTL levels, negative logic

Il monitor MTC 90 viene collaudato con le seguenti specifiche:

*This monitor comes to you with these present regulations:*

VIDEO R.G.B. - ingressi compatibili TTL (logica negativa) o secondo specifica del cliente

VIDEO R.G.B. - input from TTL levels, negative logic

MODULO D - livelli di continua dei finali video 140 V - livello video (guadagno) 70 V pp - ingressi 600 mV pp (trimmers RV1-2-3 del modulo MQ)

MODULE D - Dc levels 140 V - video levels 70 V pp (gain) - inputs 600 mV pp (RV1-2-3 on the MQ module)

### POSSIBILI DIFETTI ALL'ATTO DELL'ACCENSIONE CON UN NUOVO GIOCO

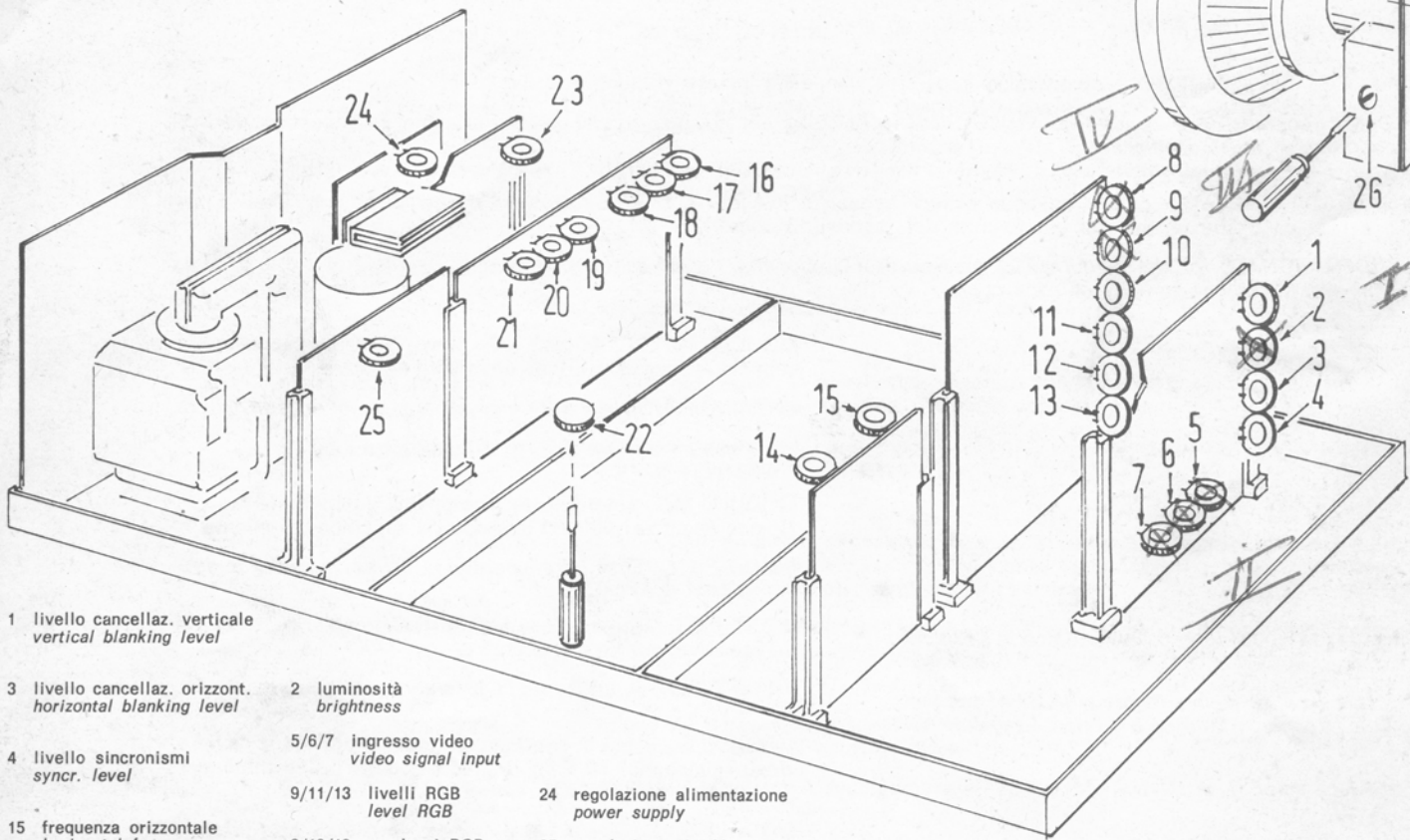
#### SOME DEFECTS YOU CAN SEE

#### COSA FARE WHAT TO DO

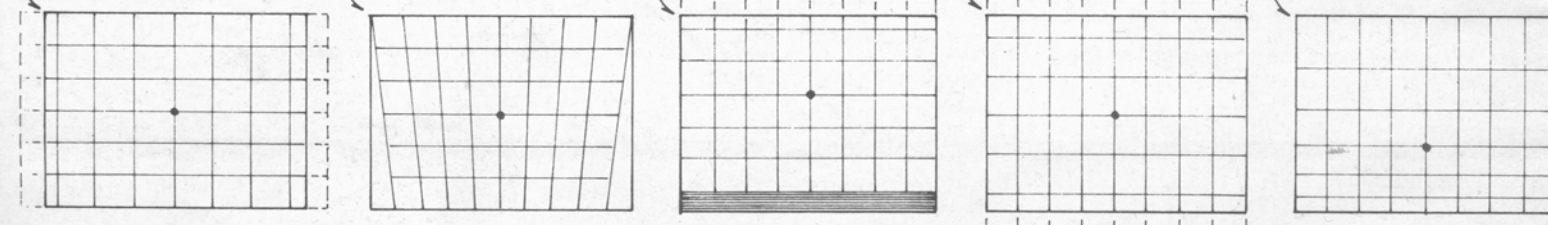
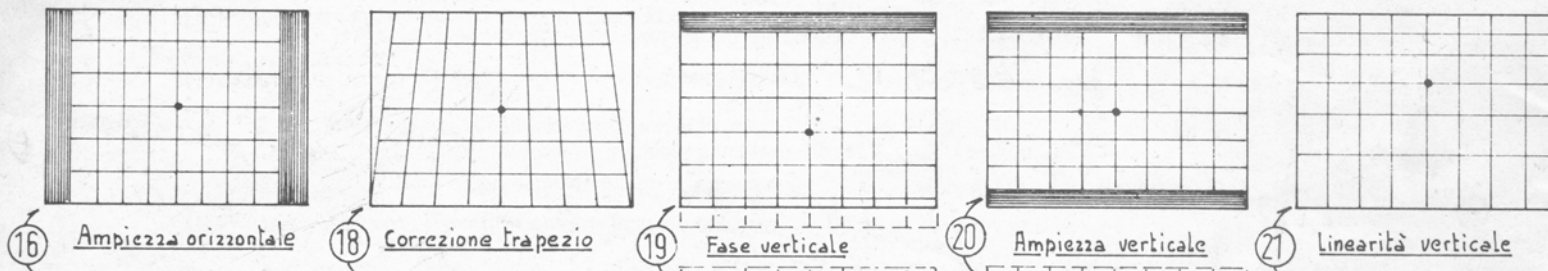
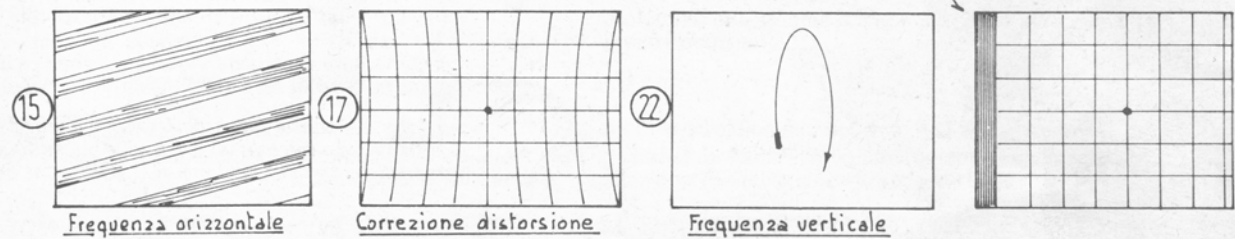
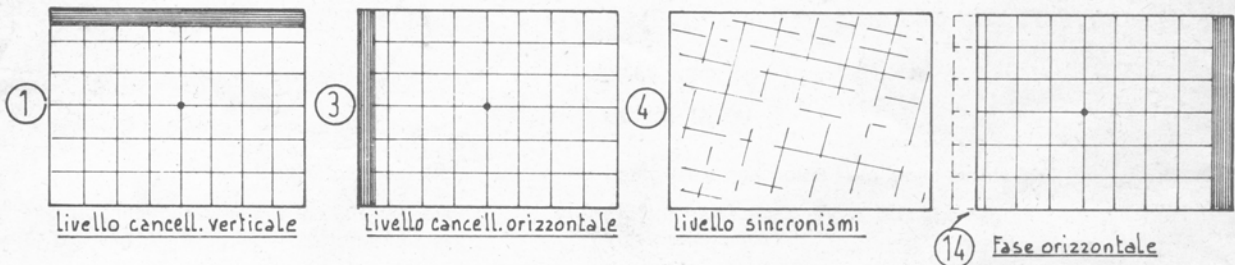
controllare che nessun segnale sia maggiore di 5 V

- 1) Il gioco va bene, ma i colori non sono giusti  
*The game is O.K. but you see false colours (complementary)*
  - utilizzare l'interfaccia MP  
*invert all the colours with the analogic interface. You can use this interface also to invert TTL signals*
- 2) Il gioco va bene, ma non c'è saturazione nei colori, o sono troppo chiari  
*The games is O.K. but you see coloures with no saturation or very hell*
  - agire sul trimmer RV 6 (blanking orizzontale) fino al punto migliore
  - controllare se il segnale video contiene il « blanking », se presente deve essere tolto  
*turn the horizontal blanking trimmer to the best point. Control if you have in your game a blanking signal super imposed on the video signal R.G.B. it must be taken off*
- 3) Sul monitor sono presenti solo alcune righe colorate e nessuna immagine  
*You see nothing else than red or green or blue lines*
  - controllare se il trimmer RV 7 (modulo MQ) non sia al minimo
  - controllare che il segnale di sincronismo sia veramente composito in logica negativa (eventualmente modificare i ponticelli SW1, SW2, SW3)  
*control if your sync. signal is really composite in negative logic. Control if the sync. trimmer is not turned off RV 7*
- 4) Si vedono le righe di ritraccia  
*You see retraces*
  - agire sul trimmer RV 4 (modulo MQ)  
*turn the vertical retrace trimmer to the best point (RV 4)*
- 5) Muovendo la fase orizzontale il gioco cambia colore  
*When you move the phase trimmer the game changes colours*
  - agire sul trimmer RV 6 (modulo MQ)  
*turn the horizontal retrace trimmer to the best point (RV 6)*

# POTENZIOMETRI DI REGOLAZIONE ADJUSTING TRIMMERS

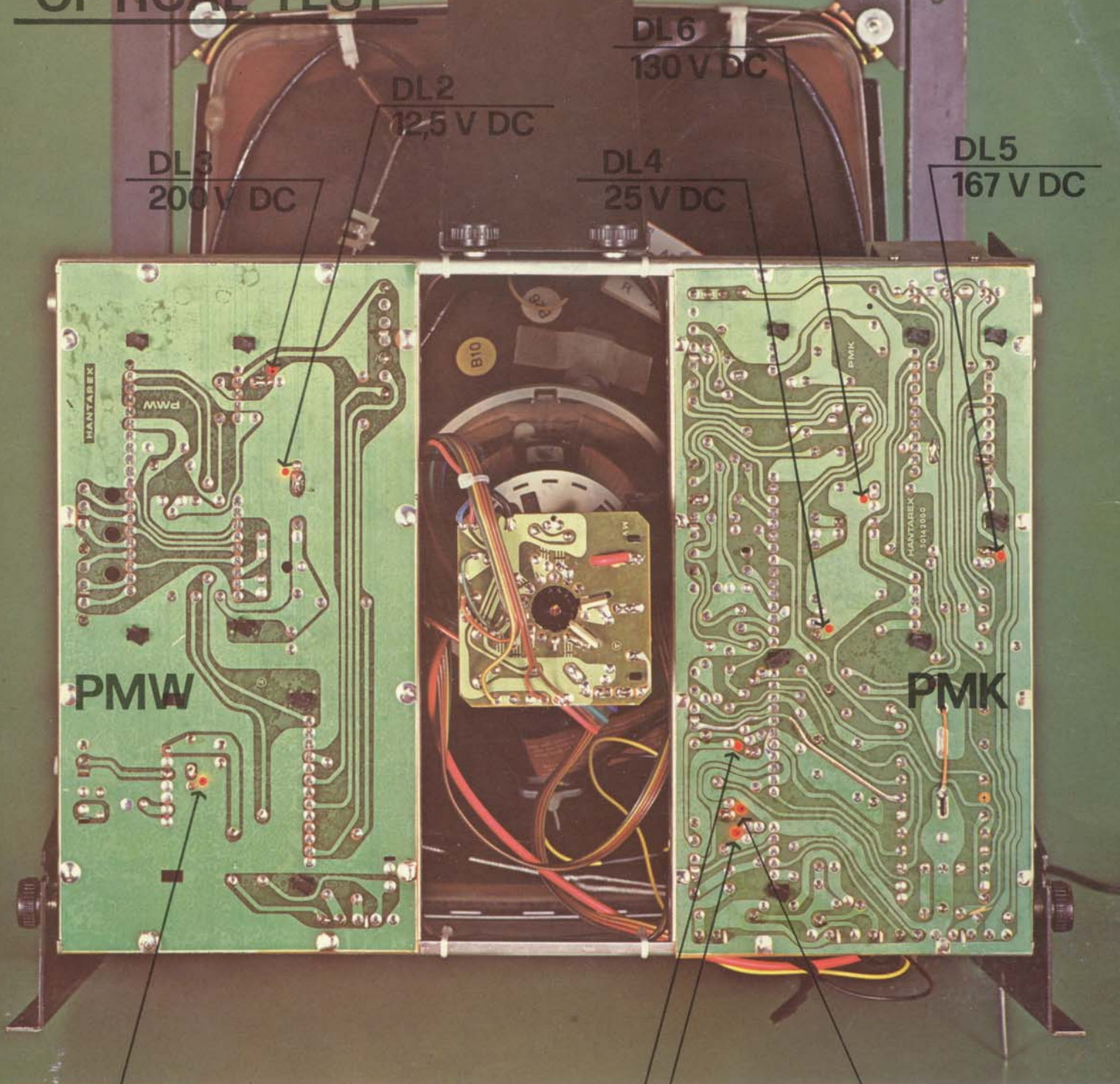


- 1 livello cancellaz. verticale  
vertical blanking level
- 2 luminosità  
brightness
- 3 livello cancellaz. orizzont.  
horizontal blanking level
- 4 livello sincronismi  
syncr. level
- 5/6/7 ingresso video  
video signal input
- 8/10/12 guadagni RGB  
gain RGB
- 9/11/13 livelli RGB  
level RGB
- 14 fase orizzontale  
phase control
- 15 frequenza orizzontale  
horizontal frequency
- 16 ampiezza orizzontale  
horizontal amplitude
- 17 correzione trapezio  
trapezium control
- 18 correzione trapezio  
trapezium control
- 19 fase verticale  
vertical phase
- 20 ampiezza verticale  
vertical amplitude
- 21 linearità verticale  
downer lin.
- 22 frequenza verticale  
vertical frequency
- 23 livello di griglia  
grid level
- 24 regolazione alimentazione  
power supply
- 25 regolazione 12,5 V  
12.5 V DC regulation
- 26 correzione fuoco  
focus





# OPTICAL TEST

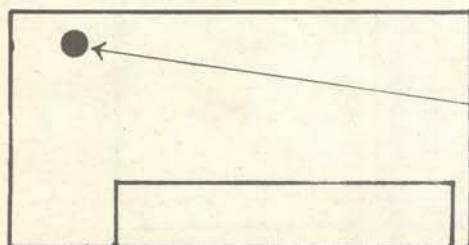


DL1  
16,5 V DC

DL3  
200 V DC

DL2  
16,5 V DC

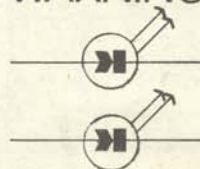
DL1  
12,5 V DC



DL1  
5V DC

**MQ**

## ATTENZIONE WARNING



accesso  
led on

tensione presente  
present tension

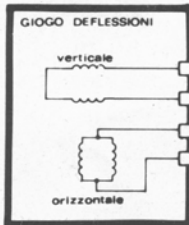
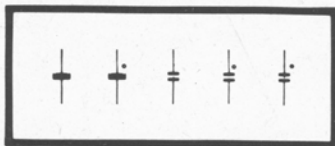
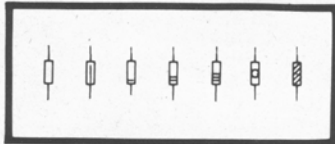
spento  
led off

tensione assente  
absent tension

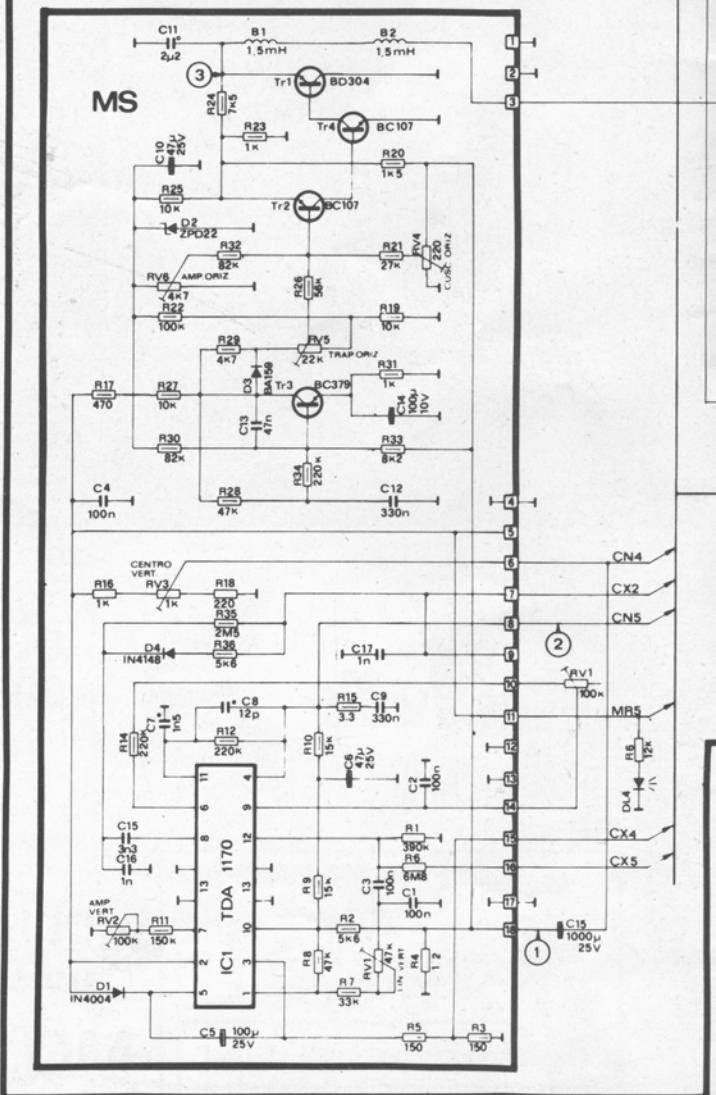
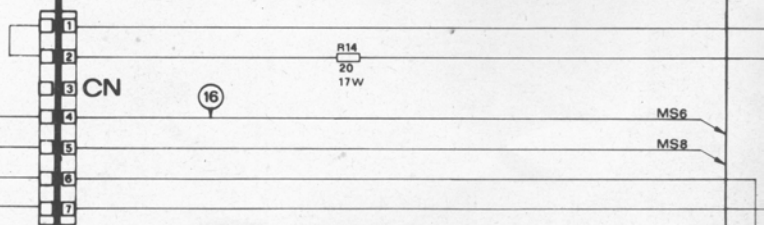
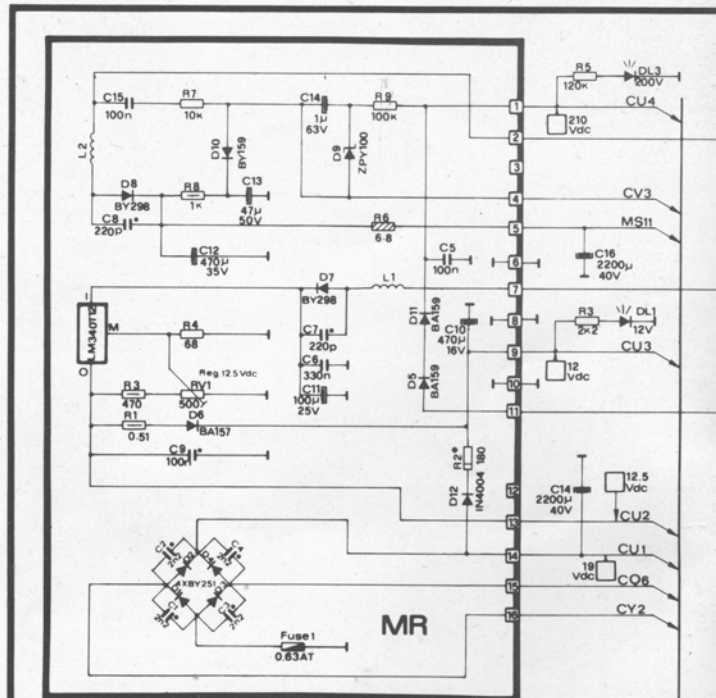
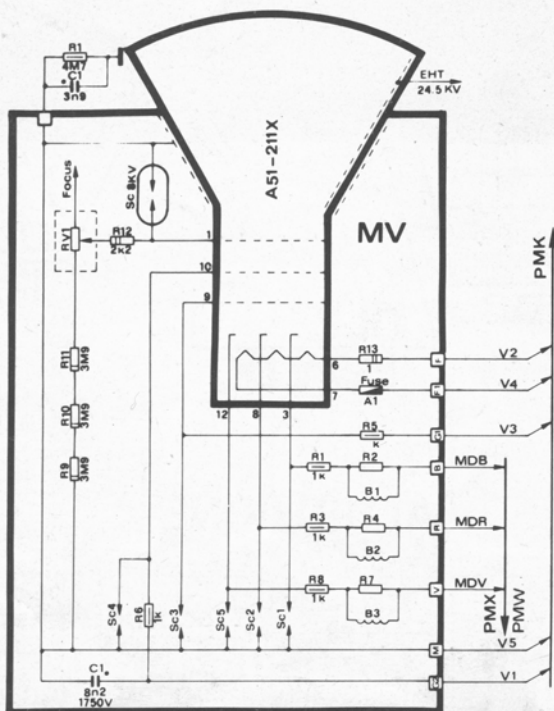
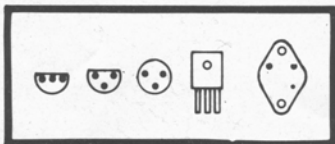


# MTC 90

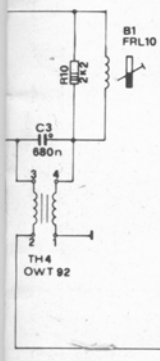
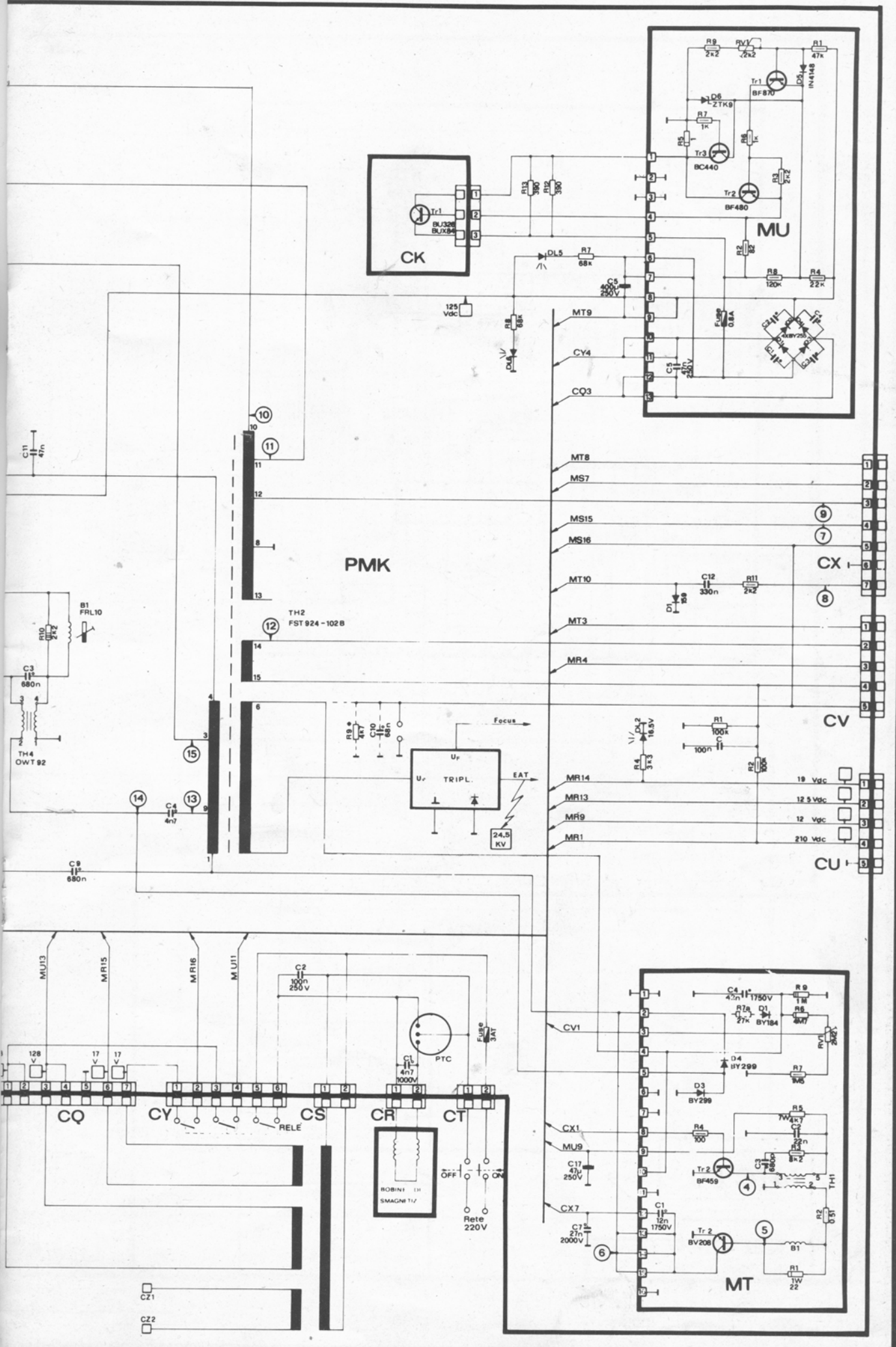
## SCHEMA SEZIONE DEFLESSIONI



NOTA:  
\*Per i riferimenti contrassegnati con \*  
vedi tabella 3







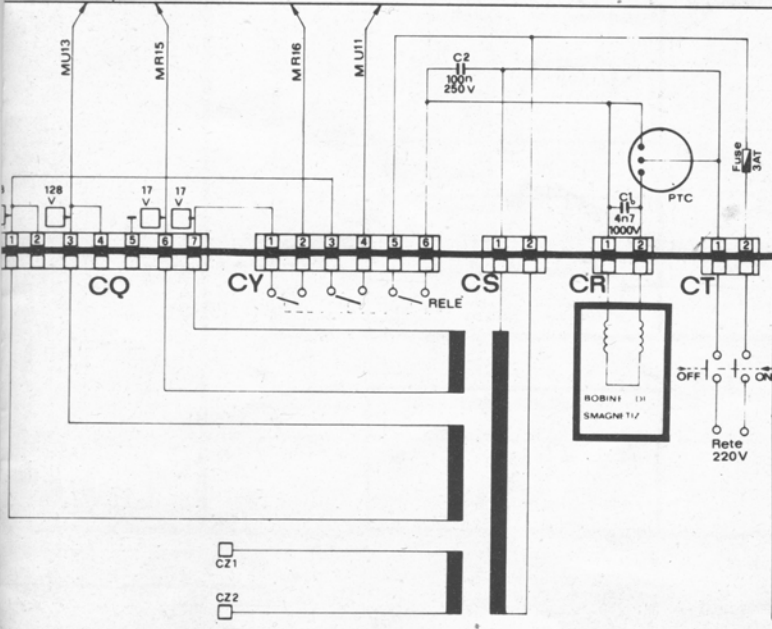
PMK

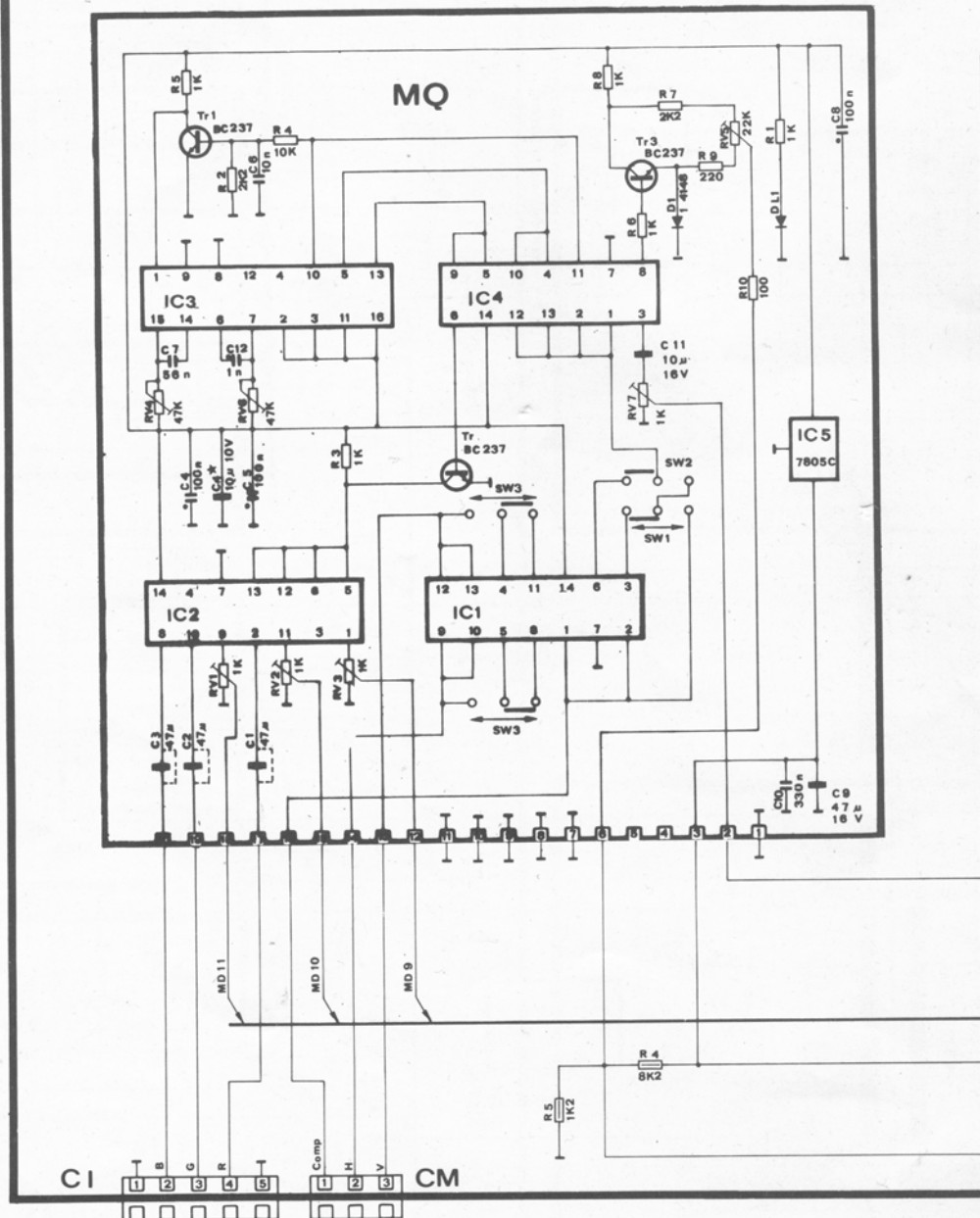
MU

CV

CU

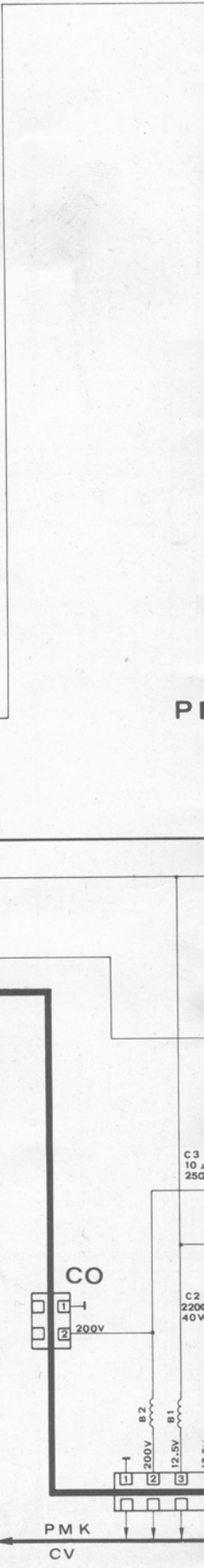
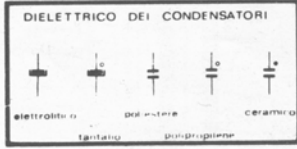
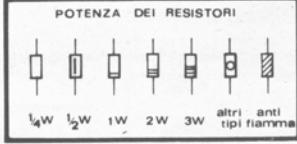
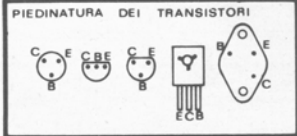
MT





**MTC 90**

SCHEMA SEZIONE SEGNALI





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CX

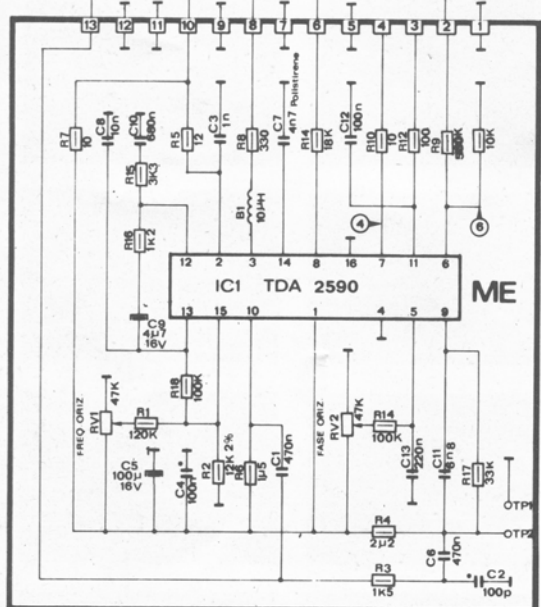
AUDIO INPUT

CW

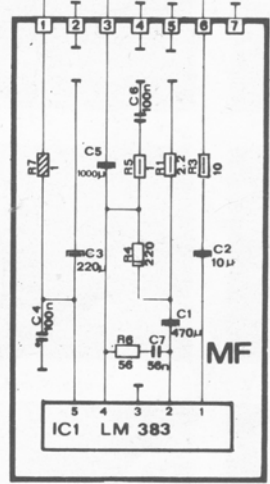
CJ

CH

VOLUME

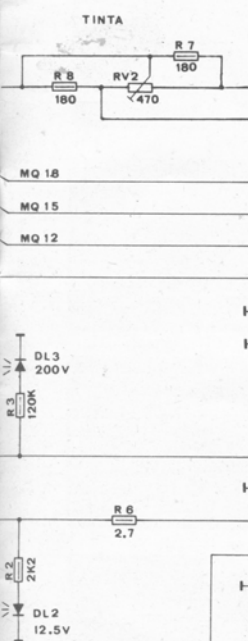


ME



MF

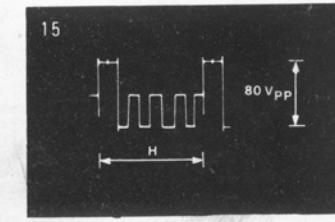
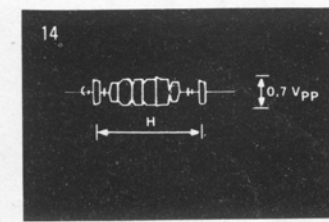
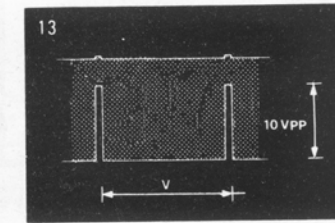
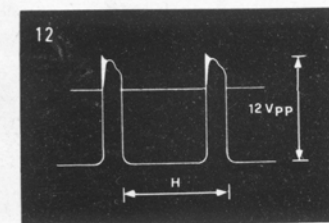
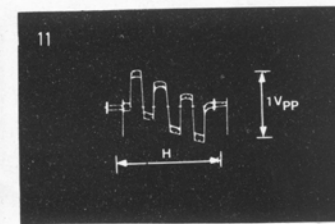
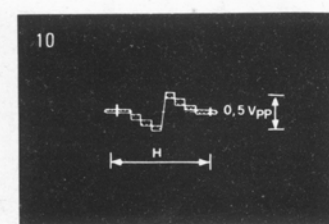
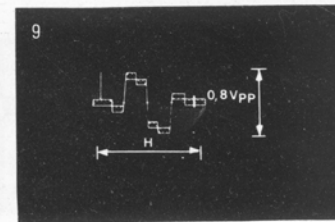
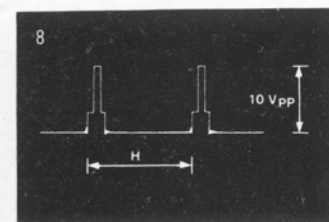
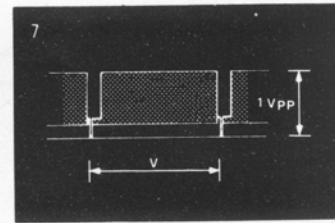
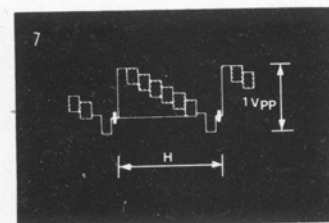
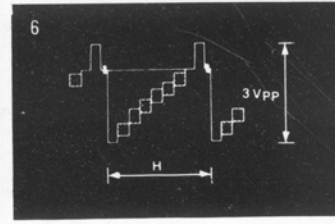
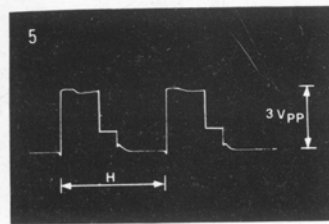
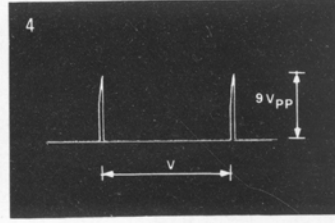
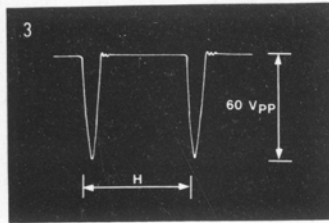
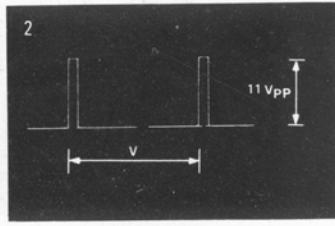
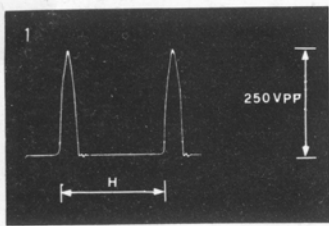
W



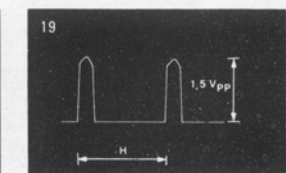
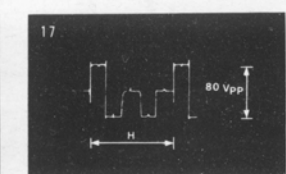
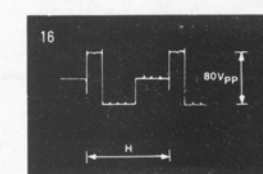
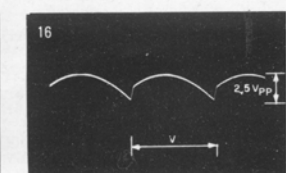
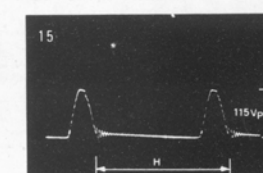
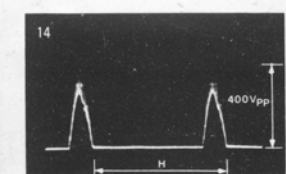
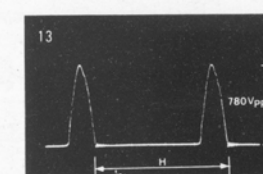
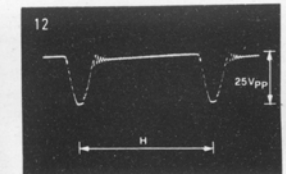
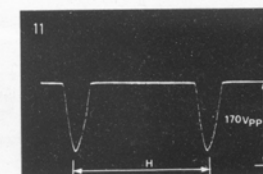
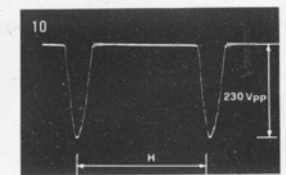
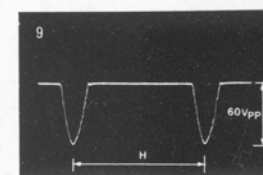
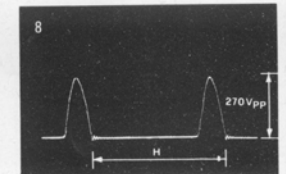
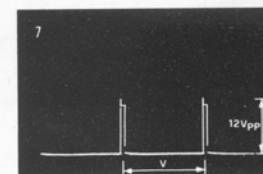
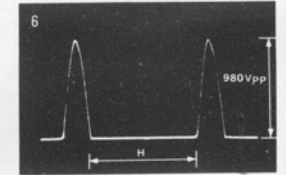
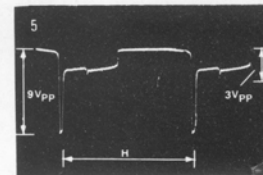
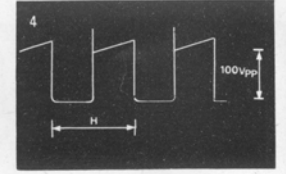
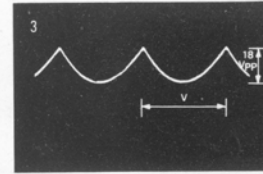
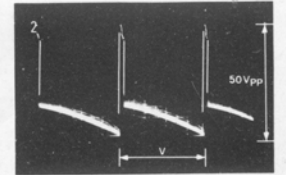
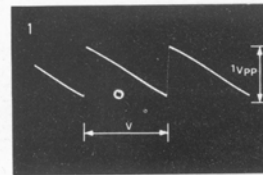
MD

CP

# PMW

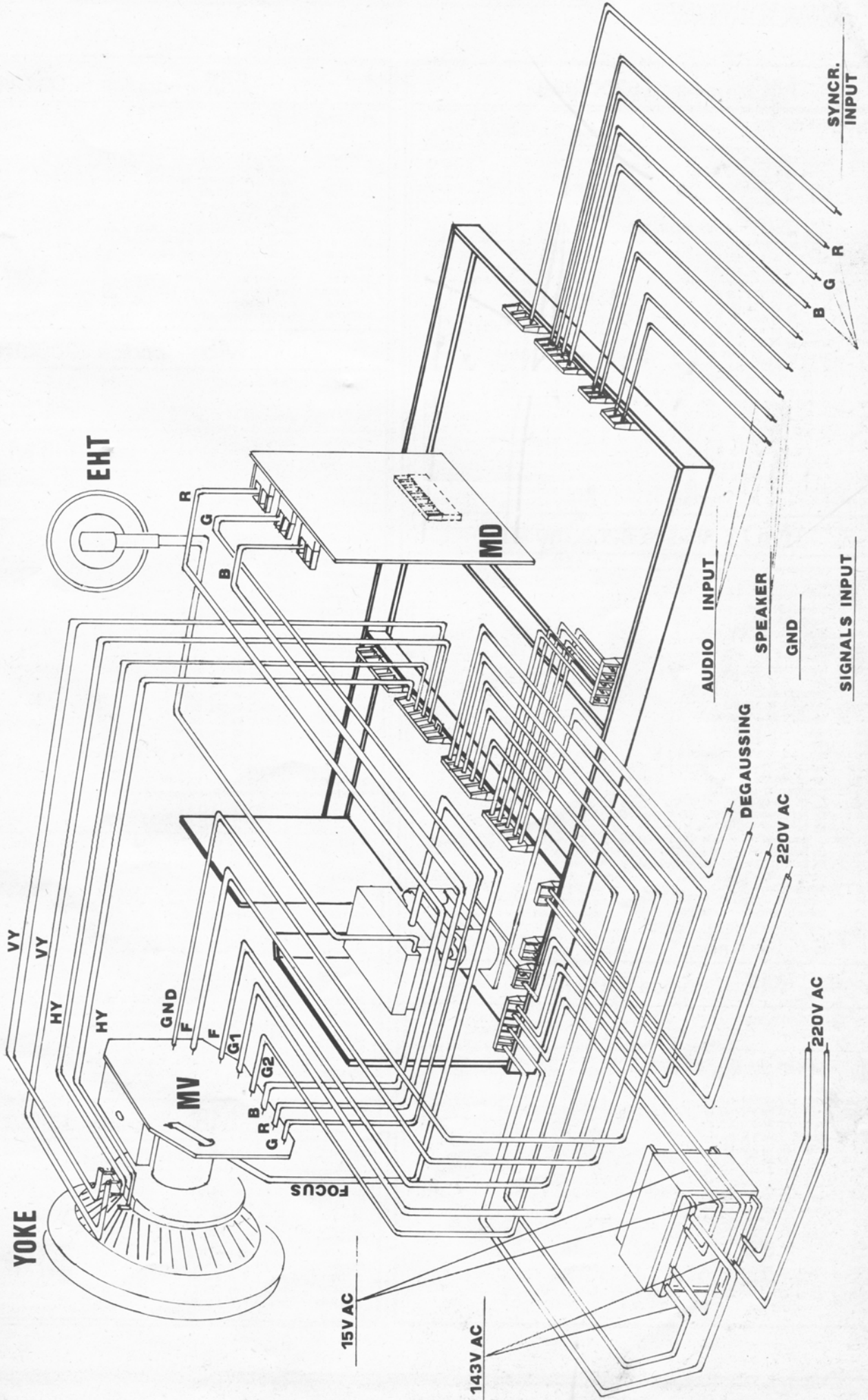


# PMK





# MTC 90 CONNECTION DIAGRAM



# NOMENCLATURA NOMENCLATURE

## MQ codice 62000130

CODICE	DESCRIZIONE	POSIZIONE SCHEMA	QU.
20100000	diode 1N 4148	D 1	1
20180003	diode LED 3 mm ROSSO	DL 1	1
20400420	trans. BC 237 B	TR 1-2-3	3
20620030	circ. int.	IC 1	1
20620040	circ. int.	IC 2	1
20620050	circ. int.	IC 3	1
20620060	circ. int.	IC 4	1
20620070	circ. int. MA 7805	IC 5	1
21231000	res. 1/4 W 5% 100 R	R 10	1
21232200	res. 1/4 W 5% 200 R	R 9	1
21241000	res. 1/4 W 5% 1 K	R 1-3-5-6-8	5
21242200	res. 1/4 W 5% 2,2 K	R 2	1
21251000	res. 1/4 W 5% 10 K	R 4	1
21244700	res. 1/4 W 5% 4,7 K	R 7	1
23041001	trimmer PT 15 H 1 K	RV 1-2-3-7	4
23052201	trimmer PT 15 H 22 K	RV 5	1
23054700	trimmer PT 15 H 47 K	RV 4-6	2
24321000	C. El. EN 12-35 10 mF 16 V	C 11-13	2
24424700	C. El. EN 12-35 47 mF 25 V	C 9	1
25455600	C. Pol. 1.60 56 NF 10% 250 V p = 10	C 7	1
25463300	C. Pol. 1.60 330 NF 10% 250 V p = 15	C 10	1
25651000	C. Pol. 1.60 10 NF 10% 630 V p = 10	C 6	1
26410803	C. Cer. 1000 pF ± 10% 50 V	C 12	1
26610600	C. Cer. 100000 pF —20 +80 25 V	C 4-5-8	3
34021305	connettore 6630/5 D	—	1
34021315	connettore 6630/15 D	—	1
50142030	circuito stampato MQ	—	1
34020080	zoccolo per C.I. a 14 PIN	—	3
34020090	zoccolo per C.I. a 16 PIN	—	1

## MD codice 62000110

CODICE	DESCRIZIONE	POSIZIONE SCHEMA	QU.
20100000	diode 1 N 4148	D 2-6-7-9	4
20100010	diode BA 159	D 1-3-4-8	4
20110200	diode zener 7,5 V 1 W	D 5	1
20420500	trans. BF 869	TR 2-4-6	3
20420510	trans. BF 870	TR 1-3-5	3
21336800	res. 1/2 W 5% 680 R	R 11-23-2	3
21341200	res. 1/2 W 5% 1,2 K	R 6-7-19	3
21341800	res. 1/2 W 5% 1,8 K	R 14-16-18	3
21346800	res. 1/2 W 5% 6,8 K	R 15-25-28	3
21356800	res. 1/2 W 5% 68 K	R 1-3-9-10-20-22	6
21363300	res. 1/2 W 5% 330 K	R 27	1
21351000	res. 1/2 W 5% 10 K	R 17	1
21341001	res. 1/2 W 5% antifiamma 1 K	R 4-8-12-13-21-24	6
21451200	res. 1 W 5% 12 K	R 26	1
21456800	res. 1 W 5% 68 K	R 5	1
23051000	trimmer PT 15 H 10 K	RV 1-2-3-4-5-6	6
24324700	C. El. EN 12-35 47 mF 16 V	C 12	1
25552200	C. Pol. 1.60 22 NF 10% 400 V p = 10	C 3-4-5	3
25561000	C. Pol. 1.60 100 NF 10% V p = 15	C 13	1
25651000	C. Pol. 1.60 10 NF 10% 630 V p = 10	C 1-7-8-9-14-15	6
26256100	C. Cer. 56 pF 5% 50 V NPO	C 2-6-10	3
26610600	C. Cer. 100000 pF —20 +80 25 V	C 11	1
34021305	connettore 6630/5 D	—	1
34021309	connettore 6630/9 D	—	1
34020000	terminale doppio PE 1120 D	—	6
34020090	zoccolo circ. integ. 16 PIN	—	1
50142010	circuito stampato MD	—	1
20620110	circ. integ. TDA 2530	—	1
28020130	choker 10 µH su ferrite	B 1	1

## ME codice 62000180

CODICE	DESCRIZIONE	POSIZIONE SCHEMA	QU.
20620100	circ. int. TDA 2591	IC 1	1
21321000	res. 1/2 W 5% 10 R	R 6	1
21333300	res. 1/2 W 5% 330 R	R 8	1
21341200	res. 1/2 W 5% 1,2 K	R 16	1
21341500	res. 1/2 W 5% 1,5 K	R 3	1
21343300	res. 1/2 W 5% 3,3 K	R 15	1
21351000	res. 1/2 W 5% 10 K	R 13	1
21351800	res. 1/2 W 5% 18 K	R 11	1
21353300	res. 1/2 W 5% 33 K	R 17	1
21361000	res. 1/2 W 5% 100 K	R 18	1
21361200	res. 1/2 W 5% 120 K	R 1	1
21365600	res. 1/2 W 5% 560 K	R 9	1
21371500	res. 1/2 W 5% 1,5 M	R 7	1
21372200	res. 1/2 W 5% 2,2 M	R 4	1
21251201	res. MR 25 2% 12 K	R 2	1
21321200	res. 1/2 W 5% 12 R	R 5	1
21354700	res. 1/2 W 5% 47 K	R 14	1
23054700	trimmer PT 15 H 47 K	RV 1-2	2
24314700	cond. elet. EN 12,35 4,7 mF 16 V	C 9	1
24331000	cond. elet. EN 12,35 100 mF 16 V	C 5	1
25144701	cond. poliest. 1,42 4700 pF 2% 63 V	C 7	1

## ME codice 62000180

CODICE	DESCRIZIONE	POSIZIONE SCHEMA	QU.
25266800	cond. poliest. 1,60 680 NF 10% 100 V p = 15	C 10	1
25361000	cond. 1,60 100 NF 20% 160 V p = 10	C 12	1
25262200	cond. 1,60 220 NF 10% 100 V p = 10	C 13	1
25264700	cond. 1,60 470 NF 10% 100 V p = 15	C 1-6	2
25646800	cond. 1,60 6800 pF 10% 630 V p = 10	C 11	1
25651000	cond. 1,60 10 N 10% 630 V p = 10	C 8	1
25741000	cond. 1,60 1000 pF 10% 1000 V p = 10	C 3	1
26310100	cond. cer. 100 pF 5% 50 V NPO	C 2	1
26610600	cond. cer. 100000 pF —20 +80 25 V	C 4	1
34021313	connettore 6630/13 D	—	1
34020090	zoccolo per integrato 16 PIN	—	1
34020000	terminale doppio PE 1120/D	—	2
50142080	circ. stampato ME	—	1
28020130	choker 10 µH su ferrite	B 1	1

## MS codice 62000170

CODICE	DESCRIZIONE	POSIZIONE SCHEMA	QU.
20150004	diode 1N 4004	D 1	1
20100010	diode BA 159	D 3	1
20100000	diode 1N 4148	D 4	1
20400080	trans BC 107 B	TR 3-4	2
20400090	trans BC 177 B	TR 2	1
20410050	trans BD 304	TR 1	1
20620090	circ. int. TDA 1170 S	IC 1	1
21311000	res. 1/2 W 5% 1 R	R 17	1
21313300	res. 1/2 W 5% 3,3 R	R 15	1
21332200	res. 1/2 W 5% 220 R	R 18	1
21341000	res. 1/2 W 5% 1 K	R 23-31	2
21341500	res. 1/2 W 5% 1,5 K	R 20	1
21344700	res. 1/2 W 5% 4,7 K	R 29	1
21345600	res. 1/2 W 5% 5,6 K	R 2	1
21347500	res. 1/2 W 5% 7,5 K	R 24	1
21348200	res. 1/2 W 5% 8,2 K	R 33	1
21351000	res. 1/2 W 5% 10 K	R 19-25-27	3
21351500	res. 1/2 W 5% 15 K	R 9-10	2
21352700	res. 1/2 W 5% 27 K	R 21	1
21353300	res. 1/2 W 5% 33 K	R 7	1
21354700	res. 1/2 W 5% 47 K	R 8-28	2
21355600	res. 1/2 W 5% 56 K	R 26	1
21358200	res. 1/2 W 5% 82 K	R 30-32	2
21361000	res. 1/2 W 5% 100 K	R 22	1
21361500	res. 1/2 W 5% 150 K	R 11	1
21362200	res. 1/2 W 5% 220 K	R 12-14	2
21362400	res. 1/2 W 5% 240 K	R 34	1
21363900	res. 1/2 W 5% 390 K	R 1	1
21372200	res. 1/2 W 5% 2,2 M	R 35	1
21345600	res. 1/2 W 5% 5,6 K	R 36	1
21311200	res. 1/2 W 5% 1,2 ohm	R 4	1
21333300	res. 1/2 W 5% 330 ohm	R 16	1
23041001	trimmer PT 15 H 1 K	RV 3	1
23044702	trimmer PT 15 H 47 K	RV 6	1
23032200	trimmer PT 15 H 220 R	RV 4	1
23052201	trimmer PT 15 H 22 K	RV 5	1
23054700	trimmer PT 15 H 47 K	RV 1	1
23061000	trimmer PT 15 H 100 K	RV 2	1
24322200	C. El. EN 12-35 22 mF 16 V	C 6	1
24331000	C. El. EN 12-35 100 mF 16 V	C 14	1
24424700	C. El. EN 12-35 47 mF 25 V	C 10	1
24431000	C. El. EN 12-35 100 mF 25 V	C 5	1
25261000	cond. pol. 1,60 100 NF 10% 100 V p = 7,5	C 1-2-3-4	4
25463300	cond. pol. 1,60 330 NF 10% 250 V p = 15	C 9-12	2
25454700	cond. pol. 1,60 47 NF 10% 100 V p = 10	C 13	1
25272200	cond. pol. 1,60 2,2 mF 10% 100 V p = 22,5	C 11	1
26212100	cond. cer. 12 pF 5% 50 V NPO	C 8	1
26415610	cond. cer. 1500 pF ± 10% 1000 V	C 7	1
25643300	C. Pol. 1,60 3,3 NF 10% 630 V p = 7,5	C 15	1
25741000	C. Pol. 1,60 1000 pF 10% 1000 V p = 10	C 16-17	2
28020080	choker 1,5 µH su rocchetto e nucleo	B 1-2	2
34021303	connettore 6630/3 D	—	1
34021315	connettore 6630/15 D	—	1
50110021	dissipatore a U mm. 35x15xh = 20	—	1
50110060	dissipatore STAV. US 800 L	—	1
50142070	circ. stamp. MS	—	1

## MR codice 62000160

CODICE	DESCRIZIONE	POSIZIONE SCHEMA	QU.
20100010	diode BA 159	D 5-6-10-11	4
20150120	diode BY 251	D 1-2-3-4	4
20150300	diode BY 298	D 7-8	2
20150004	diode 1 N 4004	R 6	1
20110300	diode zener 1,3 W 100 V	R 2	1
20620080	circ. int. UA 7812	D 9	1
21305000	res. 1/2 W 5% 0,5 R	IC 1	1
21326800	res. 1/2 W 5% 68 R	R 1	1
21334700	res. 1/2 W 5% 470 R	R 4	1
21341000	res. 1/2 W 5% 1 K	R 3	1



# NOMENCLATURA NOMENCLATURE

## MR codice 62000160

CODICE	DESCRIZIONE	POSIZIONE SCHEMA	QU.
21351000	res. 1/2 W 5% 10 K	R 8	1
21361000	res. 1/2 W 5% 100 K	R 7	1
21316800	res. 1/2 W 5% 6,8 R	R 9	1
21431000	res. 1 W 5% 100 R	R 6	1
23034701	trimmer PT 15 H 470 R	RV 1	1
24334700	C. El. EN 12-35 470 mF 16 V	C 10	1
24431000	C. El. EN 12-35 100 mF 25 V	C 11	1
24524700	C. El. EN 12-35 47 mF 35 V	C 13	1
24534700	C. El. EN 12-35 470 mF 35 V	C 12	1
24811000	C. El. EN 12-35 1 mF 160 V	C 14	1
25363301	C. Pol. 1.60 330NF10% 160 V p = 15	C 6	1
25561000	C. Pol. 1.60 100NF10% 400 V p = 15	C 5-15	2
26610600	C. Cer. 100000 pF -20 +80 25 V	C 9	1
26422608	C. Cer. 2200 pF -20 +50 500 V	C 1-2-3-4	4
26322720	C. Cer. 220 pF 2000 V	C 7-8	2
28020040	choker 380 µH	L 1-2	2
34021311	connettore 6630/11 D	—	1
50142060	circ. stamp. MR	—	1
50110022	dissipatore 2 fori a U 65x25	—	1
29100050	portafusibile 28011	—	1
29100003	fusibile 0,5 A RIT	—	1
34021305	connettore 6630/5 D	—	1

## MT codice 62000150

CODICE	DESCRIZIONE	POSIZIONE SCHEMA	QU.
20150400	diode BY 399	D 3-4	2
20420110	trans BF 459	TR 2	1
20430200	trans BU 208 A	TR 1	1
21405100	res. 1 W 5% 0,51 R	R 2	1
21331000	res. 1/2 W 5% 100 R	R 4	1
21348200	res. 1/2 W 5% 8,2 K	R 3	1
21371500	res. 1/2 W 5% 1,5 M	R 7	1
21471001	res. VR 68 5% 1 M	R 9	1
21474700	res. 1 W 5% 4,7 M	R 6	1
21422200	res. 1 W 5% 22 R	R 1	1
22344700	res. 7 W a filo assiale 4,7 K	R 5	1
23072201	trimmer PT 15 H 2,2 M	RV 1	1
25552200	C. Pol. 1.60 22 NF 10% 400 V p = 10	C 2	1
25951201	C. Pol. 1.73 12NF5% 1750 V p = 22,5	C 1	1
26368900	C. Cer. 680 pF ± 10% 500 V	C 3	1
28020090	choker IN ARIA 2 µH filo Ø 0,7	B 1	1
28010080	trasf. driver	TH 3	1
34021305	connettore 6630/5 D	—	1
34021311	connettore 6630/11 D	—	1
50110070	dissipatore 6 alette mm 60x50xh 24	—	1
50142050	circ. stamp. MT	—	1
25754700	C. Pol. 1.73 47 NF20% 1750 V p = 27,5	C 4	1

## MU codice 62000140

CODICE	DESCRIZIONE	POSIZIONE SCHEMA	QU.
20100000	diode 1 N 4148	D 5	1
20150130	diode BY 255	D 1-2-3-4	4
20401500	trans. BC 440/6	TR 3	1
20420500	trans. BF 869	TR 2	1
20420510	trans. BF 870	TR 1	1
20670010	circ. int. ZTK 9	D 6	1
21328200	res. 1/2 W 5% 82 R	R 2	1
21341000	res. 1/2 W 5% 1 K	R 6-7	2
21342200	res. 1/2 W 5% 2,2 K	R 3-9	2
21354700	res. 1/2 W 5% 47 K	R 1	1
21361200	res. 1/2 W 5% 120 K	R 8	1
21511000	res. 2 W 1 R	R 5	1
22252200	res. 6 W ossido 22 K	R 4	1
23042201	trimmer PT 15 H 2,2 K	RV 1	1
26422608	C. Cer. 2200 pF 500 V	C 1-2-3-4	4
29100016	fusibile 1,6 A RIT.	—	1
29100050	portafusibile C.S. 28011	—	1
34021313	connettore 6630/13 D	—	1
50142040	circ. stamp. aliment. MU	—	1
25754701	cond. pol. 1.58 47 NF10% 250 V ca p = 15	C 5	1

## MV codice 62000190

CODICE	DESCRIZIONE	POSIZIONE SCHEMA	QU.
21341000	res. 1/2 W 5% 1 K	R 1-3-5-2	4
21351000	res. 1/2 W 5% 10 K	R 4	1
21472200	res. 1 W 5% 2,2 M	R 6	1
21473900	res. 1 W 5% 3,9 M	R 9-8	2
21512200	res. 2 W 5% 2,2 R	RX	1
29041000	scaricatore 1000 V	SC 2-3-4-5-6	5
29048500	scaricatore 8500 V	SC 1	1
34020020	zoccolo cinescopico CN 55	—	1

## MV codice 62000190

CODICE	DESCRIZIONE	POSIZIONE SCHEMA	QU.
23800008	potenziometro fuoco	—	1
50142090	circ. stamp. MV	—	1
25931001	cond. pol. 1,73 10NF20% 1750 V p = 22,5	C 1	1

## PMW codice 62000120

CODICE	DESCRIZIONE	POSIZIONE SCHEMA	QU.
21312700	res. 1/2 W 5% 2,7 R	R 6	1
21341200	res. 1/2 W 5% 1,2 K	R 5	1
21342200	res. 1/2 W 5% 2,2 K	R 2	1
21348200	res. 1/2 W 5% 8,2 K	R 4	1
21361200	res. 1/2 W 5% 120 K	R 3	1
20180003	diode LED 3 mm, ROSSO	DL 2-3	2
24334700	cond. el. EN 12,35 470 mF 16 V	C 2	1
24924700	cond. el. EN 12,12 47 mF 250 V	C 3	1
28020040	choker 330 µH	B 1-2	2
50420040	fermaschede	—	6
50142020	circ. stamp. PMW	—	1
34021105	connettore maschio 611/5 D	—	2
34021109	connettore maschio 6611/9 D	—	1
34021113	connettore maschio 6611/13 D	—	1
34021115	connettore maschio 6611/15 D	—	1
34022102	connettore maschio p 7,5 6511/2 D	—	2
34022103	connettore maschio p 7,5 6511/3 D	—	1
34022105	connettore maschio p 7,5 6511/5 D	—	2
34022107	connettore maschio p 7,5 6511/7 D	—	1

## PMK codice 62000100

CODICE	DESCRIZIONE	POSIZIONE SCHEMA	QU.
20100010	diode BA 159	D 1	1
20180003	diode LED 3 mm ROSSO	DL 1-2-3-4-5-6	6
21342200	res. 1/2 W 5% 2,2 K	R 3-11	2
21343300	res. 1/2 W 5% 3,3 K	R 4	1
21351200	res. 1/2 W 5% 12 K	R 6	1
21356800	res. 1/2 W 5% 68 K	R 7-8	2
21361000	res. 1/2 W 5% 100 K	R 1-2	2
21361200	res. 1/2 W 5% 120 K	R 5	1
21642200	res. 3 W 2,2 K	R 10	1
22733900	res. a filo 17 W vert. 390 R	R 12-13	2
22721000	res. a filo 17 W vert. 10 R	R 14	1
21000037	PTC 2322.662.98009	—	1
24341000	C. El. EN 12-35 1000 mF 16 V	C 15	1
24542200	C. El. EN 12-35 2200 mF 40 V	C 14-16	2
24824700	C. El. EN 12-35 47 mF 160 V	C 17	1
24934700	C. El. DIN 41238 470 mF 250 V	C 5	1
25461000	C. Pol. 1.60 100 NF 10% 250 V p = 15	C 3	1
25563300	C. Pol. 1.60 330 NF 10% 400 V p = 22,5	C 12	1
25564700	C. Pol. 1.60 470 NF 10% 400 V p = 22,5	C 11	1
25744703	C. Pol. 1.73 4700 pF 10% 1000 V p = 15	C 1	1
25761001	C. Pol. 1,29 100 NF 250 V ca VDE p = 27,5	C 2	1
25952200	C. Pol. 1,73 22NF5% 1750 V p = 27,5	C 7	1
25566801	C. Pol. 1,76 680 NF 10% 400 V p = 27,5	C 9-13	2
28040020	bobina linearità plessey	B 1	1
28010091	trasf. ert. plessey	TH 2	1
28070020	trasf. OWT.	TH 4	1
29100016	fusibile 1,6 A RIT.	—	1
29100050	portafusibile C.S. 28011	—	1
50142000	circ. stamp. PMK	—	1
50110050	supporto resist. potenza	—	3
50420040	fermaschede	—	6
23061001	trimmer PT 15 NV 100 K	RV 1	1
34021103	connettore maschio 6611/3 D	—	1
34021105	connettore maschio 6611/5 D	—	2
34021111	connettore maschio 6611/11 D	—	2
34021113	connettore maschio 6611/13 D	—	1
34021115	connettore maschio 6611/15 D	—	1
25744704	C. Pol. 1,73 4700 pF 10% 1500 V p = 15	C 4	1
34022102	connettore p = 7,5 maschio 6511/2 D	—	3
34022105	connettore p = 7,5 maschio 6511/5 D	—	2
34022107	connettore p = 7,5 maschio 6511/7 D	—	3
50420130	guidaschede	—	1

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