

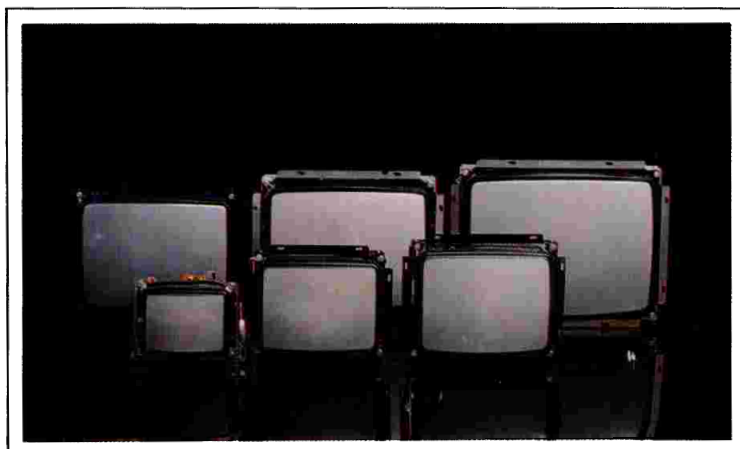


# HANTAREX

*ELECTRONIC SYSTEMS*

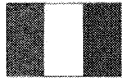
**MONITORS MTC 9000 14"-16"-20"**

- MANUALE DI SERVIZIO
- SERVICE MANUAL
- HANDBUCH
- MANUAL DE SERVICIO
- MODE D'EMPLOI



## INDICE / INDEX / INHALTSVERZEICHNIS / INDICE / SOMMAIRE

### ITALIANO: da pag. 3 a pag. 11



|                                                    |        |
|----------------------------------------------------|--------|
| Particolarità e innovazioni MTC9000 .....          | pag. 3 |
| Avvertenze .....                                   | » 4    |
| Protezioni contro RX .....                         | » 4    |
| Caratteristiche tecniche .....                     | » 5    |
| Installazione controllo e regolazione .....        | » 6    |
| Istruzioni operative .....                         | » 7    |
| Comandi a distanza .....                           | » 7    |
| Inverter Video .....                               | » 8    |
| Intercambiabilità MTC9000 con MTC900/MTC900E ..... | » 9    |
| Parts list .....                                   | » 10   |
| Circuito Integrato TDA 2595 e TDA 1670A .....      | » 48   |
| Connessioni e regolazioni dei trimmer .....        | » 49   |
| Taratura, tensioni e forme d'onda .....            | » 51   |
| T.P. di controllo e forme d'onda .....             | » 52   |
| Dati meccanici .....                               | » 55   |
| Accessori .....                                    | » 56   |
| Prodotti complementari .....                       | » 57   |

### ENGLISH: from page 12 to page 20



|                                                          |         |
|----------------------------------------------------------|---------|
| Details and innovations of the MTC9000 .....             | page 12 |
| Warning .....                                            | » 13    |
| Protection against X-ray radiation .....                 | » 13    |
| Technical characteristics .....                          | » 14    |
| Installation and setting-up instructions .....           | » 15    |
| Operating instructions .....                             | » 16    |
| Remote control .....                                     | » 16    |
| Inverter Video .....                                     | » 17    |
| Interchangeability MTC9000 with MTC900 and MTC900E ..... | » 18    |
| Parts list .....                                         | » 19    |
| Integrated circuits TDA 2595 and TDA 1670A .....         | » 48    |
| Connexions diagram and pre-set adjustments .....         | » 49    |
| Test points, voltages and waveforms .....                | » 51    |
| Control test points and waveforms .....                  | » 52    |
| Mechanical data .....                                    | » 55    |
| Accessories .....                                        | » 56    |
| Complementary products .....                             | » 57    |

### DEUTSCH: von Seite 21 bis Seite 29



|                                                            |          |
|------------------------------------------------------------|----------|
| Einzelheiten und Neuerungen des MTC9000 .....              | Seite 21 |
| Bemerkungen - Warnungen .....                              | » 22     |
| Vorbeugungsmassnahmen gegen Röntgenstrahlen .....          | » 22     |
| Technische Eigenschaften .....                             | » 23     |
| Einbauanleitung, Kontrolle und Einstellungen .....         | » 24     |
| Arbeits-Anleitungen .....                                  | » 25     |
| Regler für die Fernbedienung .....                         | » 25     |
| Video - Inverter - Baustein .....                          | » 26     |
| Kompatibilität des MTC9000 mit MTC900/MTC900E .....        | » 27     |
| Parts list .....                                           | » 28     |
| Blockschaltbild für TDA 2595 und TDA 1670A .....           | » 48     |
| Anschlußplan und Justage - Elemente .....                  | » 49     |
| Test-Punkte, Sollspannungen und Oszillatordiagrammen ..... | » 51     |
| Test-Punkte und Oszillatordiagramme .....                  | » 52     |
| Mechanische Angaben .....                                  | » 55     |
| Zubehör .....                                              | » 56     |
| Zusatzlieferprogramm .....                                 | » 57     |

### ESPAÑOL: de pag. 30 a pag. 38

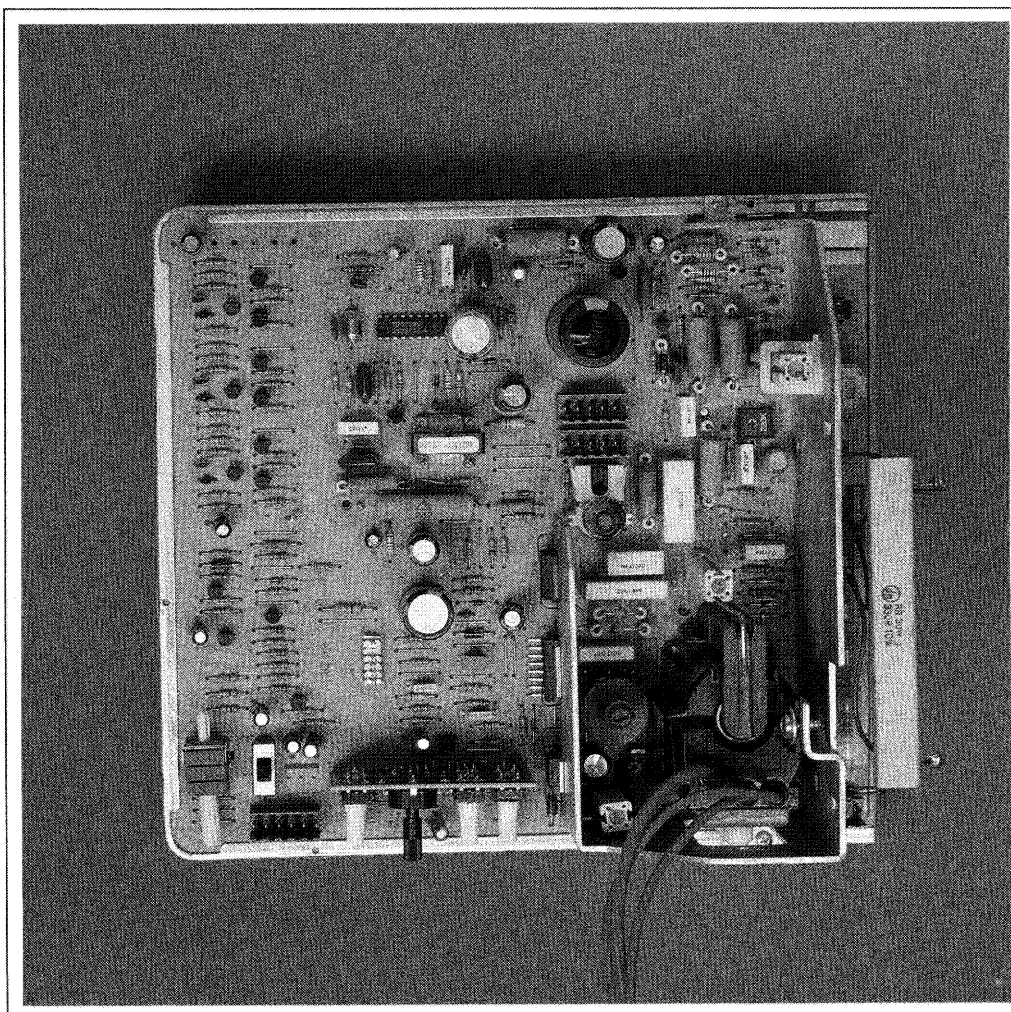


|                                                        |         |
|--------------------------------------------------------|---------|
| Características e innovaciones del MTC9000 .....       | pag. 30 |
| Advertencias .....                                     | » 31    |
| Proteccion contra rayos X .....                        | » 31    |
| Características técnicas .....                         | » 32    |
| Procedimiento de instalacion, control y reajuste ..... | » 33    |
| Instrucciones operativas .....                         | » 34    |
| Mando a distancia .....                                | » 34    |
| Inversor de video .....                                | » 35    |
| Compatibilidad MTC9000 con MTC900/MTC900E .....        | » 36    |
| Parts list .....                                       | » 37    |
| Circuito Integrado TDA 2595 e TDA 1670A .....          | » 48    |
| Conexionado y regulacion de los potenciómetros .....   | » 49    |
| Punto de medida, tension y forma de onda .....         | » 51    |
| Punto de prueba para control y forma da onda .....     | » 52    |
| Datos mecanicos .....                                  | » 55    |
| Accesorios .....                                       | » 56    |
| Productos complementarios .....                        | » 57    |

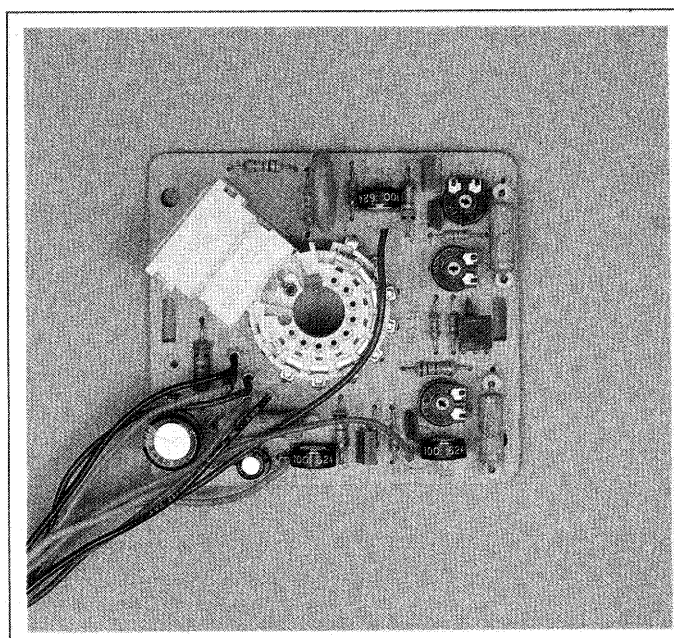
### FRANÇAIS: de la page 39 à la page 47



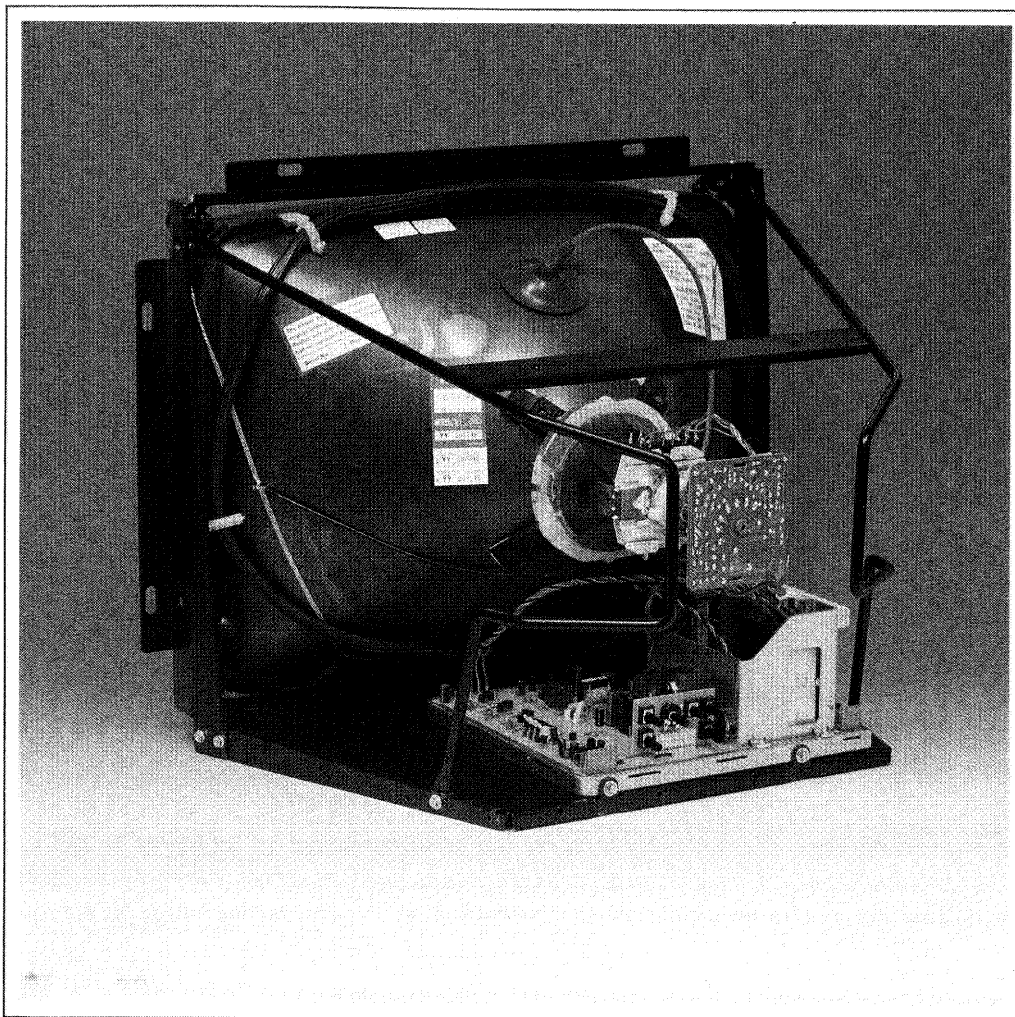
|                                                         |         |
|---------------------------------------------------------|---------|
| Particularités et innovations MTC9000 .....             | page 39 |
| Avertissements .....                                    | » 40    |
| Protection contre les rayons X .....                    | » 40    |
| Caractéristiques techniques .....                       | » 41    |
| Procède d'installation, contrôle et réglage .....       | » 42    |
| Mode opératoire .....                                   | » 43    |
| Commandes à distance .....                              | » 43    |
| Inverter Video .....                                    | » 44    |
| Interchangeabilité du MTC9000 avec MTC900/MTC900E ..... | » 45    |
| Parts list .....                                        | » 46    |
| Circuits imprimés TDA 2595 et TDA 1670A .....           | » 48    |
| Schéma de connexion et régulation des trimmers .....    | » 49    |
| Point de réglage tension et forme d'onde .....          | » 51    |
| Point de test de contrôle et forme d'onde .....         | » 52    |
| Données mecaniques .....                                | » 55    |
| Accessoires .....                                       | » 56    |
| Produits additionnels .....                             | » 57    |



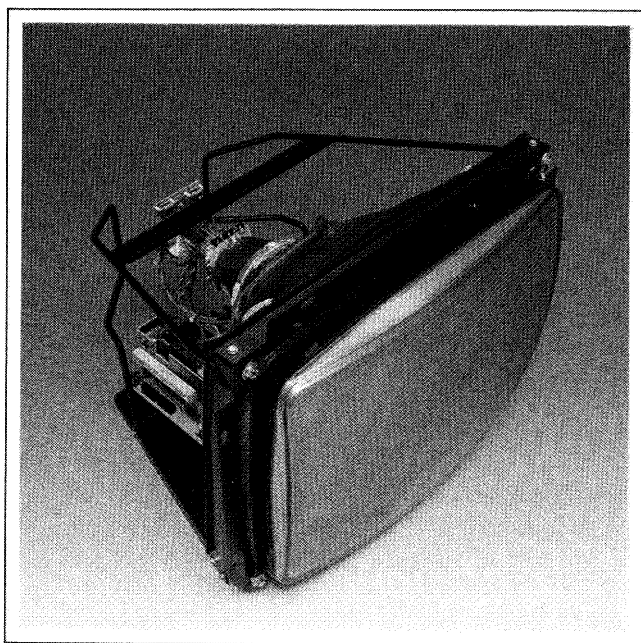
*Piastra madre / Mother board*



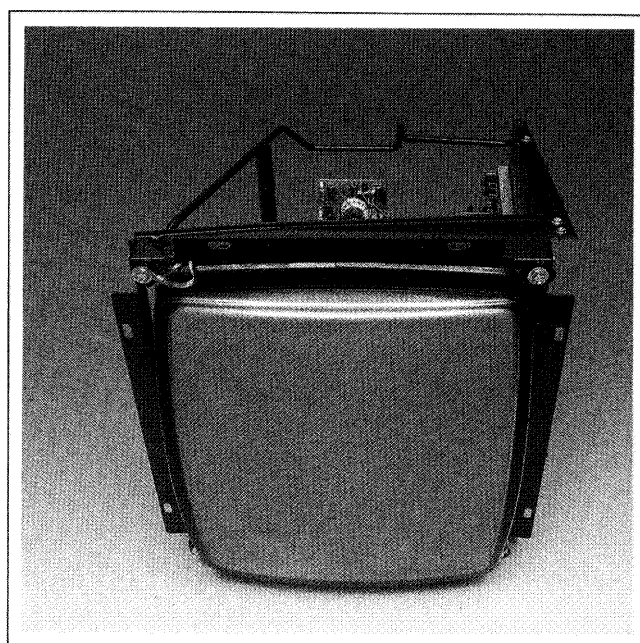
*Assieme zoccolo cinescopio / C.R.T. socket assembly*



*MTC9000 vista posteriore / Rear view*



*MTC9000 posizione orizzontale / Horizontal position*



*MTC9000 posizione verticale / Vertical position*

# ENGLISH

## DETAILS AND INNOVATIONS OF THE MTC 9000

- 1) The MTC 9000 monitor has been designed for maximum versatility, so allowing it to be used with almost any logic board.
- 2) The 'monolithic' construction, using a single printed circuit board, makes maximum use of the automatic insertion of components, which, being free of human error, guarantees a high level of production uniformity coupled with a high level of reliability.
- 3) Completely new mechanical design with the specific object of making the unit extremely resistant to impact and vibration during transportation.
- 4) Use of two connectors (CL and CM on the printed circuit board) for the deflexion unit with cross-over wiring which permits easy inversion and reversal of the image — often an indispensable feature.
- 5) Use of a special circuit in the power supply section, which, in the event of the mains supply falling below the point where the regulator operates, the supply is transformed from the 'regulated' condition to that of an anti-ripple circuit. This permits the use of the monitor under very adverse mains supply conditions.
- 6) All the controls which affect the display (horizontal and vertical frequency, horizontal and vertical amplitude, horizontal phase and vertical shift) are mounted on a small separate p.c.b. which is normally plugged into a connector on the main board, but may be used in conjunction with a 1.5 metre long extension cable that is available on request. This allows the control card to be mounted in a specially moulded mounting bracket in a position where the operator can easily adjust the monitor while directly viewing the image.
- 7) The video input is fed via a precision three-gang potentiometer permitting acceptance of input signals in the range 1 to 5 V p.p. without creating changes in colour balance.
- 8) The MTC 9000 is mechanically and electrically interchangeable with the earlier Hantarex monitors MTC 900 and MTC 900E with respect to input signal, input power, deflexion connexions and fixing points. For further details see page 18.
- 9) Utilization of a new integrated circuit for vertical deflexion (TDA 1670A) resulting in the short vertical fly-back time of 0.7 ms, so extending the range of logic board usage.
- 10) Incorporation of a new integrated circuit in the horizontal sync. circuitry. This I.C. guarantees a positive protection against x-ray radiation and conforms with the principal international public health regulations, such as F.D.A. Federal Drug Administration.

## WARNING

### 1) SUPPLY

The input supply of the monitor (128 V a.c.) must be fed via a mains isolating transformer.

### 2) EARTHING

The chassis and the heat sinks are connected to earth. To measure voltages and to inspect waveforms, connect the negative terminals of instruments to the chassis.

### 3) X-RAYS

The monitor has been designed to minimize x-ray radiation. Furthermore, a special safety circuit comes into operation in the event of failure to limit radiation to below 0.5 mR/h.

### 4) E.H.T.

Dangerously high voltages are present inside the monitor, and for safe operation it is imperative to follow all safety instructions and warnings.

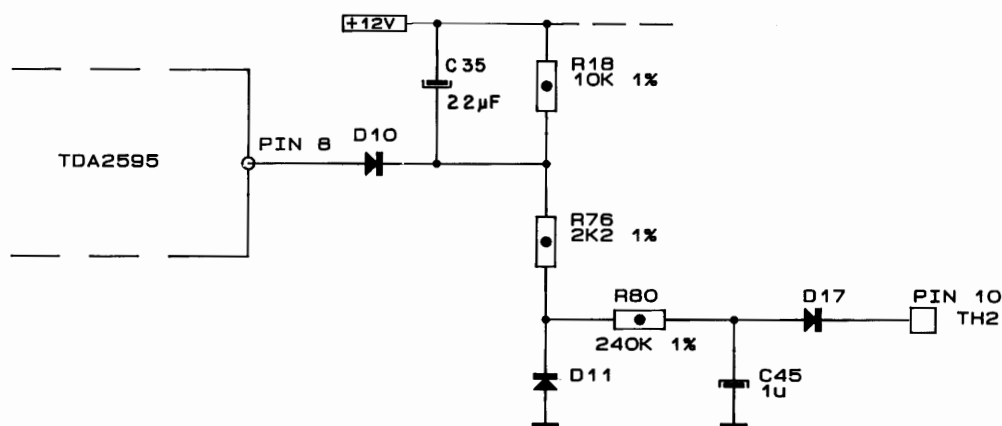
### 5) C.R.T.

The cathode-ray tube is a high vacuum device and its surfaces are subject to high external pressure. It is therefore necessary to handle the tube with care and to avoid impact which could cause implosion. It follows that personnel handling cathode-ray tubes during installation or during replacement, should wear thick gloves and protective clothing to protect against possible flying glass splinters.

### 6) WEATHER PROTECTION

To avoid the possibility of electric discharge, do not expose the monitor to rain or excessive humidity.

## PROTECTION AGAINST X-RAY RADIATION



(D.H.H.S. accession n. 8720899)

The MTC 9000 monitor contains an x-ray protection circuit. A reference voltage is generated from the E.H.T. transformer and is fed via a resistive divider to pin 8 of I.C. TDA 2595.

The voltage appearing at pin 8 is compared with an accurate reference voltage within the I.C., and if the E.H.T. exceeds 28 kV the voltage at pin 8 operates a trigger circuit which inhibits the oscillator and hence the generation of the E.H.T.

The circuit continues to block the oscillator until the cause of the failure has been repaired, and can only be reset by completely switching-off the monitor and switching-on again.

## TECHNICAL CHARACTERISTICS

### 1) SUPPLY

128 V a.c. +10 —20%, 50/60 Hz

The supply to the monitor must be via an isolating transformer with the following characteristics: primary 220/240 V a.c., secondary 128 V a.c. 100 VA.

### 2) POWER CONSUMPTION

100 W max.

### 3) DEGAUSSING

220/240 V a.c. automatic at switching-on.

To change to manually controlled degaussing, remove bridge P34 and insert a twin cable of the desired length into connector CD terminated in a push-button switch, enabling degaussing to be effected at any time.

### 4) VIDEO INPUT SIGNALS

RGB positive-going with an input impedance of 2.2 kOhm. Input sensitivity from 1 to 5 V p.p. Input connexions as shown on page 49.

For negative-going input signals refer to the description of the «Video Inverter» on page 17.

### 5) VIDEO PASS BAND

-3 dB at 12 MHz

### 6) HORIZONTAL BLANKING

12 us

### 7) VERTICAL BLANKING

1 ms

### 8) SYNC. SIGNALS

Horizontal and vertical, positive or negative, composite or separate. Input impedance 2.2 kOhm. Input level between 1.5 and 5 V p.p. Input connexions as shown on page 49.

Selection of positive or negative input is made by switch SW4 (see page 49).

### 9) SCANNING FREQUENCIES

Horizontal  $15.625 \pm 0.5$  kHz: adjustable.

Vertical 45-65 Hz: adjustable.

### 10) CONTROLS

Contrast, brightness, focus, horizontal frequency, horizontal phase, horizontal amplitude, horizontal linearity, vertical frequency, vertical shift and vertical amplitude. For further details see page 49.



## INSTALLATION AND SETTING-UP INSTRUCTIONS

- 1) **SUPPLY**  
Check that the h.t. line voltage of the monitor at test point TP10 is 130 V d.c.  $\pm$  3%.
- 2) **HORIZONTAL OSCILLATOR**  
Remove the incoming sync. signal (for which one may use SW4) and turn RV5 to obtain a stationary image. Reconnect the sync. input signal.
- 3) **VERTICAL OSCILLATOR**  
Adjust RV1 to obtain a slow roll-over of the image in a downward direction. Turn back until the image locks.
- 4) **FEED VOLTAGE TO VERTICAL DEFLEXION CIRCUIT**  
Check that the voltage at TP13 is 26 V d.c.  $\pm$  5%. See page 51.
- 5) **FEED VOLTAGE TO VIDEO AMPLIFIER**  
Check that the voltage at TP1 is 24 V d.c.  $\pm$  5%. See page 51.
- 6) **FEED VOLTAGE TO VIDEO OUTPUT AMPLIFIER**  
Check that the voltage at TP14 is 200 V d.c.  $\pm$  5%. See page 51.
- 7) **ADJUSTMENT OF BRIDGE COIL**  
Bridge Coil B3 is adjusted on the production line, but should it become necessary to re-adjust, the following procedure should be adopted:
  - a) Adjust RV4 on board CG for minimum horizontal amplitude.
  - b) Adjust the ferrite core of B3 for minimum horizontal amplitude.
  - c) Re-adjust RV4 to obtain the desired amplitude.
- 8) **ADJUSTMENT OF GAIN OF RGB VIDEO OUTPUT STAGES**  
Having inserted RGB signals of equal amplitude to the inputs, turn the blue gain control RV206, located on the c.r.t. neck board ZG, to its mid-position and adjust the Contrast Control P1 so that the video signal measured with an oscilloscope at the blue cathode is 100 V p.p. Adjust the signals at the cathodes of the red and green guns to the same value by adjustment of RV202 and RV201. See page 49.
- 9) **ADJUSTMENT OF «WHITE»**
  - a) Remove the video input signal.
  - b) Turn RV7 on the c.r.t. grid 1, to maximum brightness.
  - c) Turn the black level controls situated on the c.r.t. neck board, RV203 red, RV204 green and RV205 blue, to minimum (clockwise).
  - d) Reduce the brightness by adjusting the voltage on grid 2 by means of the control situated on the line output transformer TH2 so that the dominant colour is only just visible, and then adjust the black level controls to obtain the best white possible.
  - e) The G2 «Screen» potentiometer functions as the brightness control.
- 10) **FOCUS**  
Adjust the focus control (FOCUS situated on the line output transformer TH2) using a dot pattern signal, with medium brightness, to give the best focus obtainable.
- 11) **HORIZONTAL LINEARITY**  
Using a grid pattern signal, adjust for the last square on the right to be equal in size to the first square on the left.



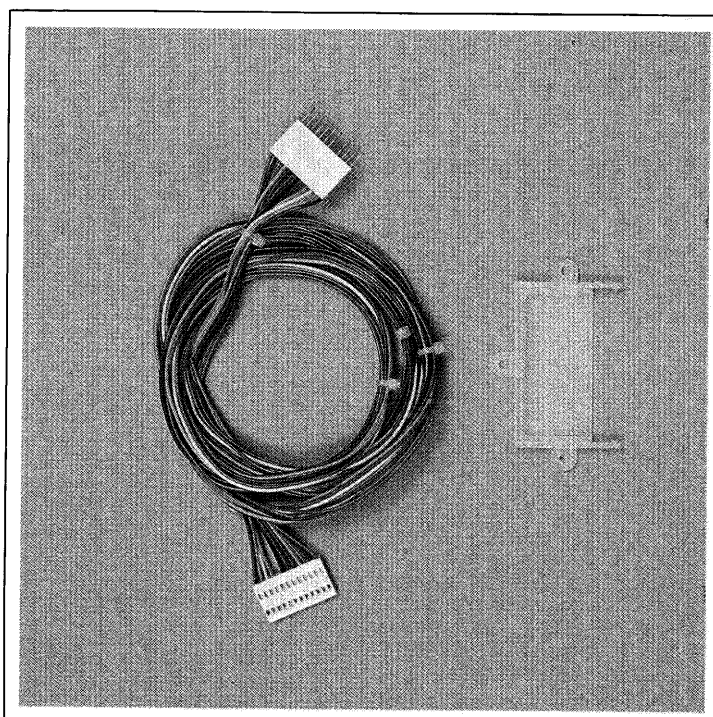
## OPERATING INSTRUCTIONS

- 1) Insert the supply cable to the power input connector CC. See page 49.
  - 2) Insert the signal and sync. cable to the input connector CA. See page 49.
  - 3) Set sync. selector switch SW4 to positive or negative according to the type of input signal, so as to obtain a locked image horizontally and vertically. See page 49.
  - 4) Next adjust vertical amplitude, vertical frequency, horizontal amplitude, horizontal phase, vertical shift, horizontal frequency, brightness and contrast to match the applied signal. See page 49.
- Finally it may be necessary to trim to the colour and white adjustments. See para. 8 and 9 page 15.
- 

## REMOTE CONTROL

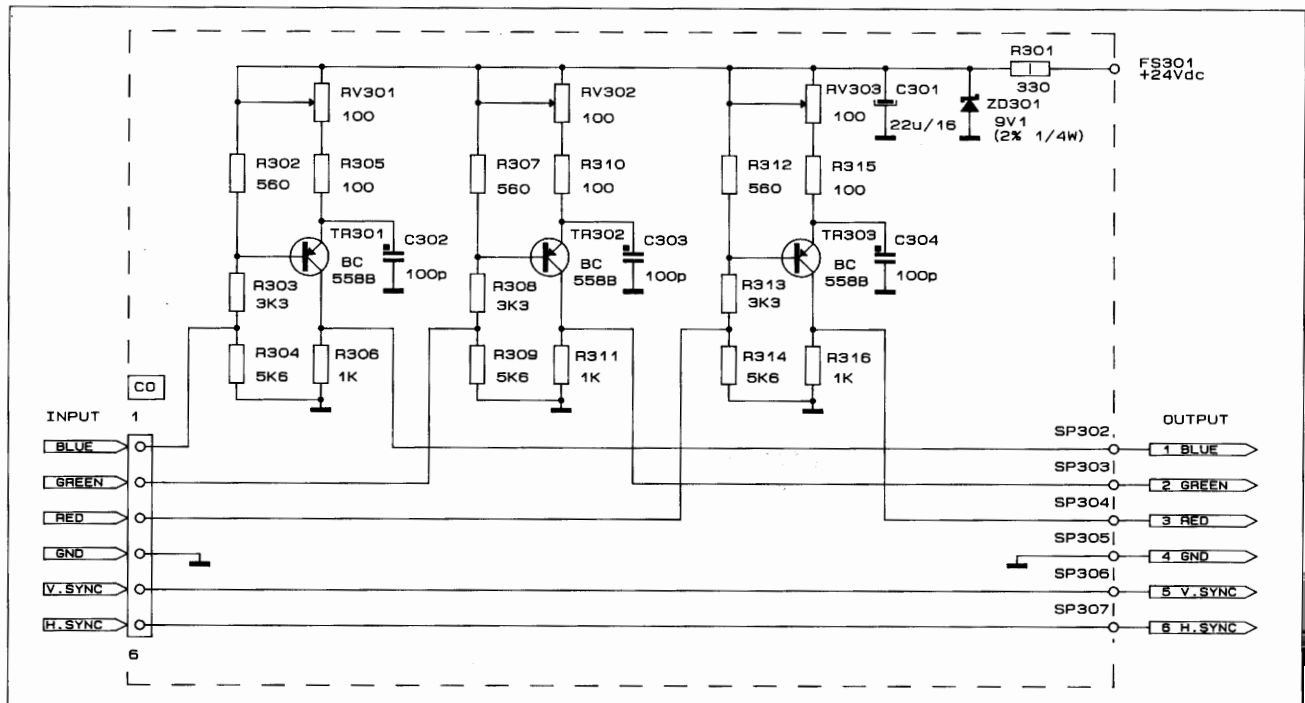
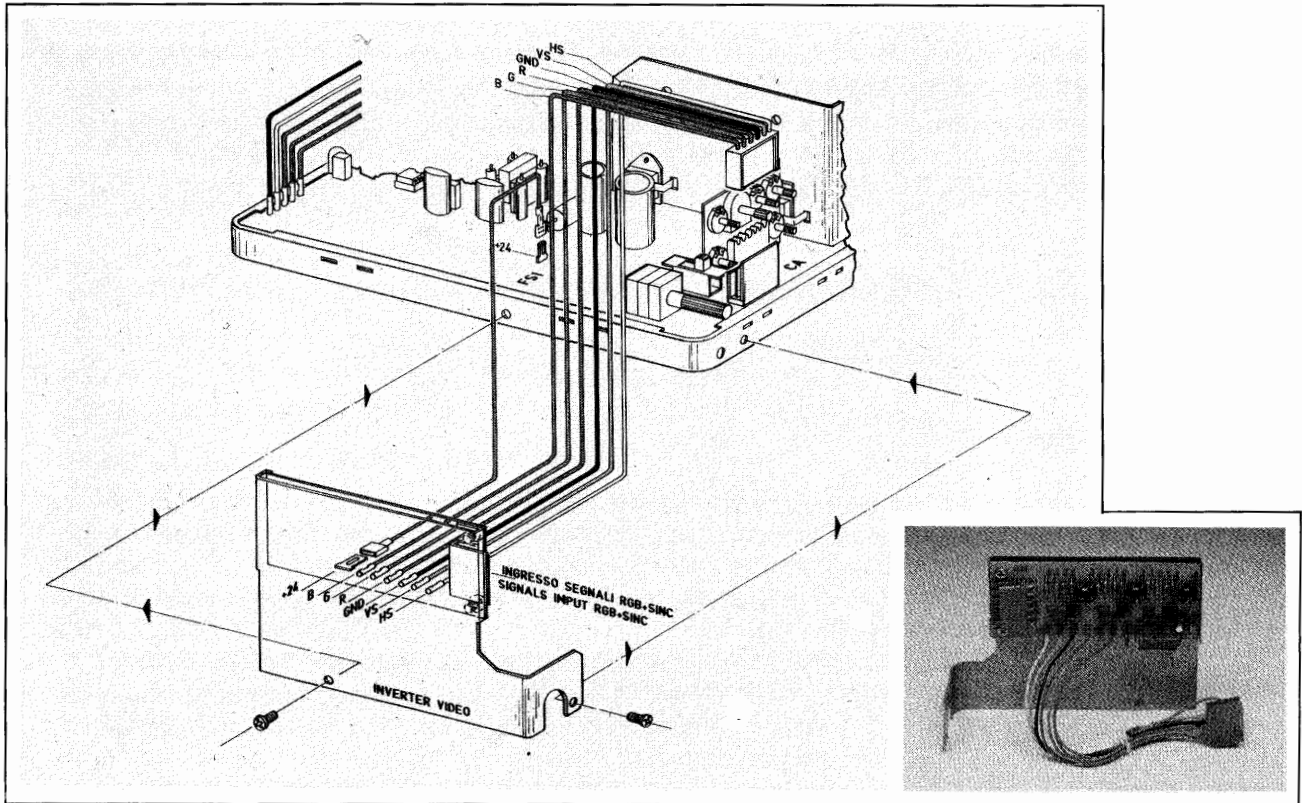
The following controls are all mounted on a small printed circuit board CG: vertical frequency, vertical amplitude, vertical shift, horizontal frequency, horizontal phase, horizontal amplitude. The board is fitted with a socket connector which is plugged into a mating plug connector CF on the main board, and may be removed and re-connected via a 1.5 metre cable (available on request) enabling the operator to adjust all those controls from the front of the monitor.

The cable and the special plastic support frame for remotely mounting the control board can be ordered by quoting part no. 62008440 Remote Control Assembly.



## INVERTER VIDEO

To enable the MTC 9000 to be used with negative going input signals, HANTAREX has designed an interface board which mounts directly into the framework of the monitor. The board is supplied complete with circuit diagram, mounting instructions and connexions to the monitor. To order, quote part no. 63000160 Inverter Video.



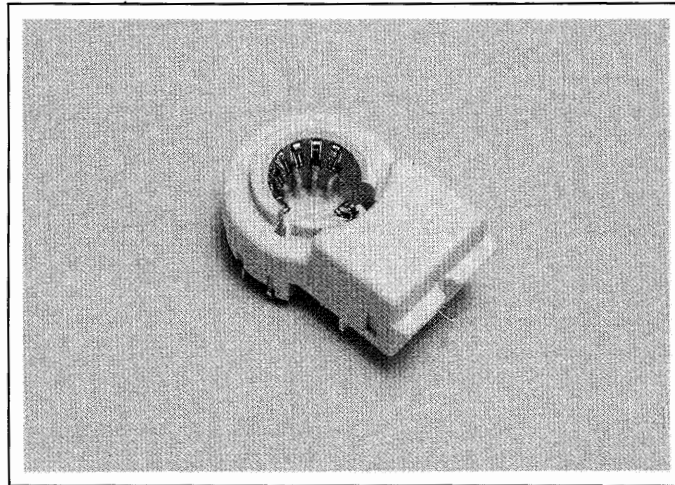
## **INFORMATION ON THE INTERCHANGEABILITY OF THE MTC 9000 WITH THE EARLIER MTC 900 AND MTC 900E.**

### **HOSIDEN C.R.T. SOCKET**

#### **1) ADAPTATION OF THE C.R.T. SOCKET TO THE VARIOUS TYPES USED IN HANTAREX PRODUCTION.**

Current production of the MTC 9000, whether 14", 16" or 20", uses the c.r.t. socket type JEDEC B 10-277 (PH) for use with tubes manufactured by PHILIPS, ORION, SAMSUNG, TOSHIBA and VIDEOCOLOR type A51-427X.

For interchangeability with previous types of c.r.t. used in MTC 900 and MTC 900E monitors fitted with c.r.t. socket JEDEC B8-274 (S4), the corresponding plastic socket should be ordered and substituted for that already mounted by unsoldering and re-soldering with the replacement, so avoiding substitution of the whole neckboard assembly. To order, quote part. no. 34020170 Hosiden Socket type S4.



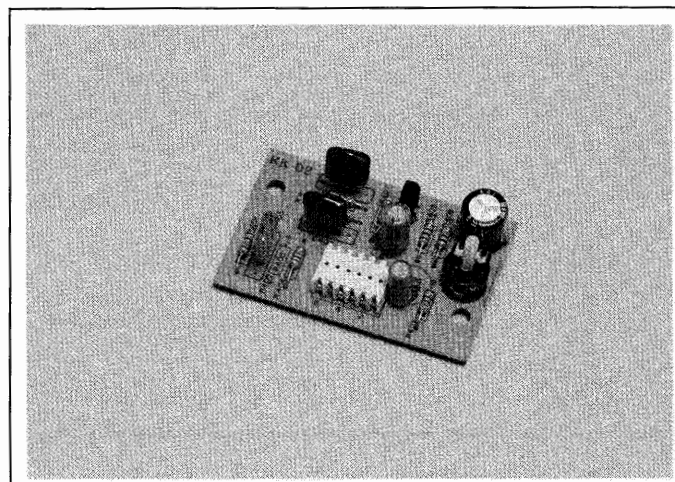
---

### **EAST/WEST CORRECTION**

#### **2) ADAPTATION OF THE MTC 9000 TO THE EARLIER MTC 900 AND MTC 900E FITTED WITH EAST/WEST CORRECTION.**

The MTC 9000, whether 14", 16" or 20", has been designed with circuitry to allow for the remote control of many parameters, and the same circuitry also permits the insertion of a small board for east/west correction without alteration to the main board in those cases where this is necessary.

The board is provided with a 5-pin socket connector which is plugged into a mating plug connector CH on the main board. To order, quote part no. 62008060 East-West.



# PARTS LIST

## MAIN P.C.B. ASSEMBLY MTC9000 14"16"20"

| CODE     | DESCRIPTION                          | REF.NO.                | Q.TY |
|----------|--------------------------------------|------------------------|------|
| 20110300 | ZENER DIODE 1.3 W ZY 100             | ZD2                    | 1    |
| 20150150 | DIODE BY 584 (BY 184)                | D27                    | 1    |
| 20150170 | DIODE BYV 95/C - 600                 | D13                    | 1    |
| 20150210 | DIODE BY 228                         | D12                    | 1    |
| 20410100 | TRANSISTOR BDX 53 A                  | TR17                   | 1    |
| 20430320 | TRANSISTOR BU 508 A                  | TR15                   | 1    |
| 20430470 | TRANSISTOR TIPL 762                  | TR20                   | 1    |
| 20430570 | TRANSISTOR BU 801                    | TR19                   | 1    |
| 20670270 | INTEGRATED CIRCUIT TDA 2595          | IC2                    | 1    |
| 20670950 | INTEGRATED CIRCUIT TDA 1670A         | IC1                    | 1    |
| 21000037 | PHILIPS PTC 2322.662.96009 220V      | PTC1                   | 1    |
| 21351601 | METAL FILM RES. 16K 1% 1/2W          | R113-114               | 2    |
| 21416800 | METAL OXIDE RESISTOR 6.8E 5% 1W      | R120                   | 1    |
| 21452200 | METAL OXIDE RESISTOR 22K 5% 1W       | R107                   | 1    |
| 21453300 | METAL OXIDE RESISTOR 33K 5% 1W       | R110                   | 1    |
| 21454700 | METAL OXIDE RESISTOR 47K 5% 1W       | R119-72                | 2    |
| 21541001 | METAL OXIDE RESISTOR 1K 5% 2W        | R73-82                 | 2    |
| 21621000 | METAL OXIDE RESISTOR 10E 5% 3W       | R111-112               | 2    |
| 21651200 | METAL OXIDE RESISTOR 12K 5% 3W       | R101                   | 1    |
| 21744700 | METAL OXIDE RESISTOR 4.7K 10% 4W     | R95                    | 1    |
| 22142200 | METAL OXIDE RESISTOR 2.2K 5% 5W      | R74                    | 1    |
| 22414700 | WIREWOUND RESISTOR VERT. 4.7E 5% 9W  | R81                    | 1    |
| 22451000 | WIREWOUND RESISTOR 10K 10% 9W        | R97                    | 1    |
| 22712200 | WIREWOUND RESISTOR 2.2E 10% 17W      | R99                    | 1    |
| 22933300 | AXIAL WIREWOUND RES. 330E 10% 30W    | R105                   | 1    |
| 23062203 | CARBON TRIMMER 220K HORIZ. PT10V     | RV7                    | 1    |
| 23241009 | POTENTIOMETER 1K 232250590002        | P1                     | 1    |
| 24341000 | RADIAL ELECT. CAPACITOR 1000MF 16V   | C15-16                 | 2    |
| 24514702 | RADIAL ELECT. CAPACITOR 4.7MF 50V    | C42                    | 1    |
| 24541000 | RADIAL ELECT. CAPACITOR 1000MF 35V   | C57                    | 1    |
| 24822201 | RADIAL ELECT. CAPACITOR 22MF 160V    | C34                    | 1    |
| 24922200 | RADIAL ELECT. CAPACITOR 22MF 200V    | C54                    | 1    |
| 24934710 | RADIAL ELECT. CAPACITOR 470MF 200V   | C53                    | 1    |
| 25144703 | FILM CAPACITOR 4.7NF 63V 5%          | C28                    | 1    |
| 25362200 | FILM CAPACITOR 1.60 220NF 160V 10%   | C47                    | 1    |
| 25461010 | FILM CAPACITOR 1.60 100NF 250V 10%   | C43                    | 1    |
| 25464710 | FILM CAPACITOR 1.76 470NF 250V 10%   | C37                    | 1    |
| 25551000 | FILM CAPACITOR 1.60 10NF 400V 10%    | C46                    | 1    |
| 25651200 | FILM CAPACITOR 1.73 12NF 630V 10%    | C41                    | 1    |
| 25746802 | FILM CAPACITOR 1.73 6.8NF 1500V 5%   | C40                    | 1    |
| 25751002 | FILM CAPACITOR 1.58X10NF 250VCA 20%  | C52                    | 1    |
| 25761002 | FILM CAPACITOR 1.58X100NF 250VCA 20% | C48                    | 1    |
| 25943302 | FILM CAPACITOR 1.73 3.9NF 1500V 5%   | C36                    | 1    |
| 26422608 | CERAMIC CAPACITOR -20 +50 2.2NF 500V | C50-51-55-49           | 4    |
| 28010590 | DRIVER TRANSFORMER AT4043/01         | TH1                    | 1    |
| 28021210 | BRIDGE COIL UTF49                    | B3                     | 1    |
| 28025170 | LINEARITY COIL UTF67                 | B1                     | 1    |
| 28026030 | TRANSFORMER E.H.T., 1105-E048        | TH2                    | 1    |
| 29100000 | TIME-DELAY FUSE 2 A                  | F1                     | 1    |
| 29100009 | TIME-DELAY FUSE 3.15 A               | F2                     | 1    |
| 29100150 | FUSE HOLDER C10 6A 250V              |                        | 2    |
| 30000450 | SWITCH. CHANG. SWITCHCRAFT KSA2251   | SW4                    | 1    |
| 34010061 | FASTON LUG.M. TE115 2.8x0.8          | SF1                    | 1    |
| 34023352 | AMP CONNECTOR MOD. 1-2 D280609/1     | CD-CE                  | 2    |
| 34023354 | AMP CONNECTOR MOD. 1-4 D280610/1     | CC                     | 1    |
| 34023356 | AMP CONNECTOR MOD. 1-6 D280611/1     | CL-CM-CA               | 3    |
| 34075080 | 5WAY MALE CONN. PRESSAC UTH1859      | CH                     | 1    |
| 34075090 | 11WAY MALE CONN. PRESSAC UTH1861     | CF                     | 1    |
| 43000011 | SPRING x TO220 UTH38                 |                        | 4    |
| 43000100 | SPRING x RESISTOR 30W UTH635         |                        | 2    |
| 50110140 | RESISTOR BRACKET UTH601              |                        | 4    |
| 50116101 | HEATSINK X MTC9000 UTH1569           |                        | 1    |
| 50116111 | MTC9000 MAINFRAME UTH1129            |                        | 1    |
| 50420225 | SPINDLE, CONTRAST CONTROL KL1-7503   |                        | 1    |
| 50424220 | TO3 INSULATOR UTH1986                |                        | 2    |
| 50424230 | TO220 ISULATOR UTH1987               |                        | 1    |
| 50424310 | INTEGRATED CIRCUIT INSUL. UTH2047    |                        | 1    |
| 50424640 | MTC9000 MAIN PROTECTION UTH2044      |                        | 1    |
| 20400469 | TRANSISTOR BC639                     | TR14-18-22             | 3    |
| 20401029 | TRANSISTOR BC548 B                   | TR2-3-5-6-8-9-10-13    | 8    |
| 20401039 | TRANSISTOR BC 558 B                  | TR1-4-7-11-12-16       | 6    |
| 20420219 | TRANSISTOR BF 422                    | TR21                   | 1    |
| 24324709 | RADIAL ELECT. CAP. 47MF 16V SM       | C6-14                  | 2    |
| 24421009 | RADIAL ELECT. CAP. 10MF 25V SM       | C20-18-17-19-58        | 5    |
| 24422209 | RADIAL ELECT. CAP. 22MF 25V SM       | C35                    | 1    |
| 24531009 | RADIAL ELECT. CAP. 100MF 35V SM      | C9-59                  | 2    |
| 24611009 | RADIAL ELECT. CAP. 1MF 63V SM        | C23-38-22              | 3    |
| 24811009 | RADIAL ELECT. CAP. 1MF 160V SM       | C56                    | 1    |
| 24911009 | RADIAL ELECT. CAP. 1MF 200V          | C45                    | 1    |
| 25161019 | FILM CAPACITOR 1.85 100NF 63V 5%     | C12-13                 | 2    |
| 25163319 | FILM CAPACITOR 1.85 330NF 63V 5%     | C10                    | 1    |
| 25244719 | MYLARD CAP. 4.7NF 100V 10%           | C32                    | 1    |
| 25251029 | MYLARD CAP. 10NF 100V 10%            | C24-25                 | 2    |
| 25252209 | FILM CAPACITOR 1.85 22NF 100V 10%    | C30                    | 1    |
| 25261009 | MYLARD CAP. 100NF 100V 10%           | C31-26                 | 2    |
| 25262219 | FILM CAP. 22.365 220NF 100V 10%      | C27-33-11              | 3    |
| 26215109 | CER.CAP.NP0 50V 15PF RTHE40SKCH150J  | C1-3-5                 | 3    |
| 26310109 | CER.CAP.NP0 50V 100PF RTHE80SKCH101J | C2-4-7                 | 3    |
| 26347109 | CER.CAP.100 50V470PF RTHE40SKYB471K  | C8                     | 1    |
| 26610609 | CER.CAP.-20 +80 50V 100NF            |                        | 1    |
|          | RTDSK11SKYF104Z                      | C29                    | 1    |
| 20100000 | DIODE 1N 4148                        | D4-2-1-8-10-6-25-26-11 | 9    |
| 20110101 | ZENER DIODE 1.3 W ZPY 12 2%          | ZD1                    | 1    |
| 20110600 | ZENER DIODE 2% BZX 79 B5V6           | ZD3                    | 1    |
| 20130060 | DIODE BAV 20                         | D16-28                 | 2    |
| 20150004 | DIODE 1N 4004                        | D3-5-24                | 3    |
| 20150460 | DIODE BYD 33G                        | D23-17-15-18-14        | 5    |
| 20150480 | DIODE GP 15 G                        | D21-22-19-20           | 4    |
| 21211801 | METAL LAYER RES. 1.8E 1% 1/4W        | R46                    | 1    |
| 21212200 | CARBON RESISTOR 2.2E 5% 1/4W         | R36                    | 1    |
| 21224700 | CARBON RESISTOR 47E 5% 1/4W          | R8-18-28-79            | 4    |
| 21225600 | CARBON RESISTOR 56E 5% 1/4W          | R11-21-33              | 3    |
| 21228200 | CARBON RESISTOR 82E 5% 1/4W          | R3-13-20               | 3    |

|          |                                            |                        |   |
|----------|--------------------------------------------|------------------------|---|
| 21231200 | CARBON RESISTOR 120E 5% 1/4W               | R44-22-34-12           | 4 |
| 21232700 | CARBON RESISTOR 270E 5% 1/4W               | R71                    | 1 |
| 21233300 | CARBON RESISTOR 330E 5% 1/4W               | R32                    | 1 |
| 21234700 | CARBON RESISTOR 470E 5% 1/4W               | R54-56-60              | 3 |
| 21241000 | CARBON RESISTOR 1K 5% 1/4W                 | R31-64-24-4-52-27-17-7 | 8 |
| 21241000 | CARBON RESISTOR 1K 5% 1/4W                 | R37-65-43              | 3 |
| 21241200 | CARBON RESISTOR 1.2K 5% 1/4W               | R109                   | 1 |
| 21241500 | CARBON RESISTOR 1.5K 5% 1/4W               | R118                   | 1 |
| 21241601 | METAL LAYER RES. 1.6K 1% 1/4W              | R115                   | 1 |
| 21241800 | CARBON RESISTOR 1.8K 5% 1/4W               | R47                    | 1 |
| 21242200 | CARBON RESISTOR 2.2K 5% 1/4W               | R108-51-61-23-53-15-10 | 7 |
| 21242200 | CARBON RESISTOR 2.2K 5% 1/4W               | R83-100-2-106          | 4 |
| 21242202 | METAL LAYER RES. 2.2K 1% 1/4W              | R76                    | 1 |
| 21242700 | CARBON RESISTOR 2.7K 5% 1/4W               | R45                    | 1 |
| 21243300 | CARBON RESISTOR 3.3K 5% 1/4W               | R127                   | 1 |
| 21244700 | CARBON RESISTOR 4.7K 5% 1/4W               | R9-19-30-63-39-96      | 6 |
| 21245600 | CARBON RESISTOR 5.6K 5% 1/4W               | R66                    | 1 |
| 21246800 | CARBON RESISTOR 6.8K 5% 1/4W               | R68-86                 | 2 |
| 21248200 | CARBON RESISTOR 8.2K 5% 1/4W               | R98                    | 1 |
| 21251000 | CARBON RESISTOR 10K 5% 1/4W                | R35-85-87-25-48-121    | 6 |
| 21251002 | METAL LAYER RES. 10K 1% 1/4W               | R78                    | 1 |
| 21251200 | CARBON RESISTOR 12K 5% 1/4W                | R69                    | 1 |
| 21251202 | METAL FILM RES. 12K 1% 1/4W                | R38                    | 1 |
| 21252200 | CARBON RESISTOR 22K 5% 1/4W                | R123                   | 1 |
| 21253300 | CARBON RESISTOR 33K 5% 1/4W                | R84                    | 1 |
| 21253900 | CARBON RESISTOR 39K 5% 1/4W                | R70                    | 1 |
| 21254700 | CARBON RESISTOR 47K 5% 1/4W                | R75-91-1               | 3 |
| 21258201 | METAL LAYER R. 82K 1% 1/4W                 | R42                    | 1 |
| 21261000 | CARBON RESISTOR 100K 5% 1/4W               | R67                    | 1 |
| 21261200 | CARBON RESISTOR 120K 5% 1/4W               | R68-40                 | 2 |
| 21261500 | CARBON RESISTOR 150K 5% 1/4W               | R5-16-26               | 3 |
| 21261800 | CARBON RESISTOR 180K 5% 1/4W               | R103                   | 1 |
| 21264700 | CARBON RESISTOR 470K 5% 1/4W               | R41-93-92              | 3 |
| 21266800 | CARBON RESISTOR 680K 5% 1/4W               | R102                   | 1 |
| 21313901 | RESISTOR, NON-FLAMMABLE, 3.9E 5% 1/2W      | R94                    | 1 |
| 21323300 | CARBON RESISTOR 33E 5% 1/2W                | R6                     | 1 |
| 21324700 | CARBON RESISTOR 47E 5% 1/2W                | R126                   | 1 |
| 21334700 | CARBON RESISTOR 470E 5% 1/2W               | R29                    | 1 |
| 21341000 | CARBON RESISTOR 1K 5% 1/2W                 | R104                   | 1 |
| 21342200 | CARBON RESISTOR 2.2K 5% 1/2W               | R89                    | 1 |
| 21362700 | CARBON RESISTOR 270K 5% 1/2W               | R90                    | 1 |
| 21371004 | METAL FILM RESISTOR 1M 5% 1/2W VR 37       | R77                    | 1 |
| 50146210 | C.R.T. NECK BOARD ASSEMBLY, MTC9000/3 BZ01 |                        | 1 |

## CRT SOCKET ASSEMBLY MTC9000 14"16"20" code 62008433

| CODE     | DESCRIPTION                          | REF.NO.       | Q.TY |
|----------|--------------------------------------|---------------|------|
| 20420110 | TRANSISTOR BF 459                    | TR201-202-203 | 3    |
| 21411000 | METAL OXIDE RES. 1E 5% 1W WK4        | R216          | 1    |
| 21551000 | METAL OXIDE RES. 10K 5% 2W           | R205-206-210  | 3    |
| 23034700 | TRIMMER VERT. REG. 470E PT10NH       | RV201-202-206 | 3    |
| 23044700 | CARBON TRIMMER HOR. REG. 4.7K PT10V  | RV203-204-205 | 3    |
| 24921000 | RADIAL ELECT. CAPACITOR 10 MF 250V   | C205          | 1    |
| 26468720 | CERAMIC CAP. 507.6 6.8NF 2KV 20%     | C206          | 1    |
| 29300010 | SOAPSTONE INSULATORS 8 M.M.          |               | 6    |
| 34010061 | FASTON LUG M.FACO TE115 2.8x0.8      | FS201         | 1    |
| 34020590 | SOCKET, HOSIDEN HPS0199-020          |               | 1    |
| 50423440 | HEXAGONAL SHAFT PHILIPS 822241771060 |               | 3    |
| 53840180 | SOC. SHIELDING 9000 EUROPA UTH1852   |               | 1    |
| 61002270 | SOC.WIRING ASS. MTC9000/UE UTC241    |               | 1    |
| 61005060 | SOC. SIGNALS WIRING MTC9000 UTC527   |               | 1    |
| 24522209 | RADIAL ELECT. CAPACITOR 22uF 35V SM  | C201          | 1    |
| 26318109 | CERAMIC CAP. 10%                     |               | 1    |
|          | 50V 180PF RTHE40SKYB181K             | C202-203-204  | 3    |
| 21212200 | CARBON RESISTOR 2.2E 5% 1/4W         | R201          | 1    |
| 21238200 | CARBON RESISTOR 820E 5% 1/4W         | R203-207-209  | 3    |
| 21244700 | CARBON RESISTOR 4.7K 5% 1/4W         | R204-208-211  | 3    |
| 21341000 | CARBON RESISTOR 1K 5% 1/2W           | R213-214-215  | 3    |
| 21342200 | CARBON RESISTOR 2.2K 5% 1/2W         | R217          | 1    |
| 21351000 | CARBON RESISTOR 10K 5% 1/2W          | R218          | 1    |
| 50144841 | CRT SOCKET P.C.B. MTC9000 ZG 06      |               | 1    |

## CONTROLS P.C.B. ASSEMBLY MTC9000 14"16"20" code 62007750

| CODE     | DESCRIPTION                          | REF.NO. | Q.TY |
|----------|--------------------------------------|---------|------|
| 21332700 | CARBON RESISTOR 270E 5% 1/2W         | R116    | 1    |
| 21333300 | CARBON RESISTOR 330E 5% 1/2W         | R117    | 1    |
| 23041009 | SEALED TRIMMER 1K HORIZ. REG. PT15NV | RV3     | 1    |
| 23044710 | SEALED TRIMMER 4.7K HORIZ.REG.PT10NV | RV1     | 1    |
| 23051013 | SEALED TRIMMER 10K HORIZ.REG.PT10NV  | RV4-5-6 | 3    |
| 23062207 | SEALED TRIMMER 220K HORIZ.REG.PT10NV | RV2     | 1    |
| 34075095 | 11 WAYFEMALE CONN. PRESSAC UTH1862   | CG      | 1    |
| 34075290 | POLARIZATION KEY 12/3768             |         | 1    |
| 50144830 | CONTROLS P.C.B. MTC9000 CG           |         | 1    |
| 50423430 | SHAFT PT15                           |         | 1    |
| 50423440 | HEXAGONAL SHAFT PHILIPS 822241771060 |         | 5    |

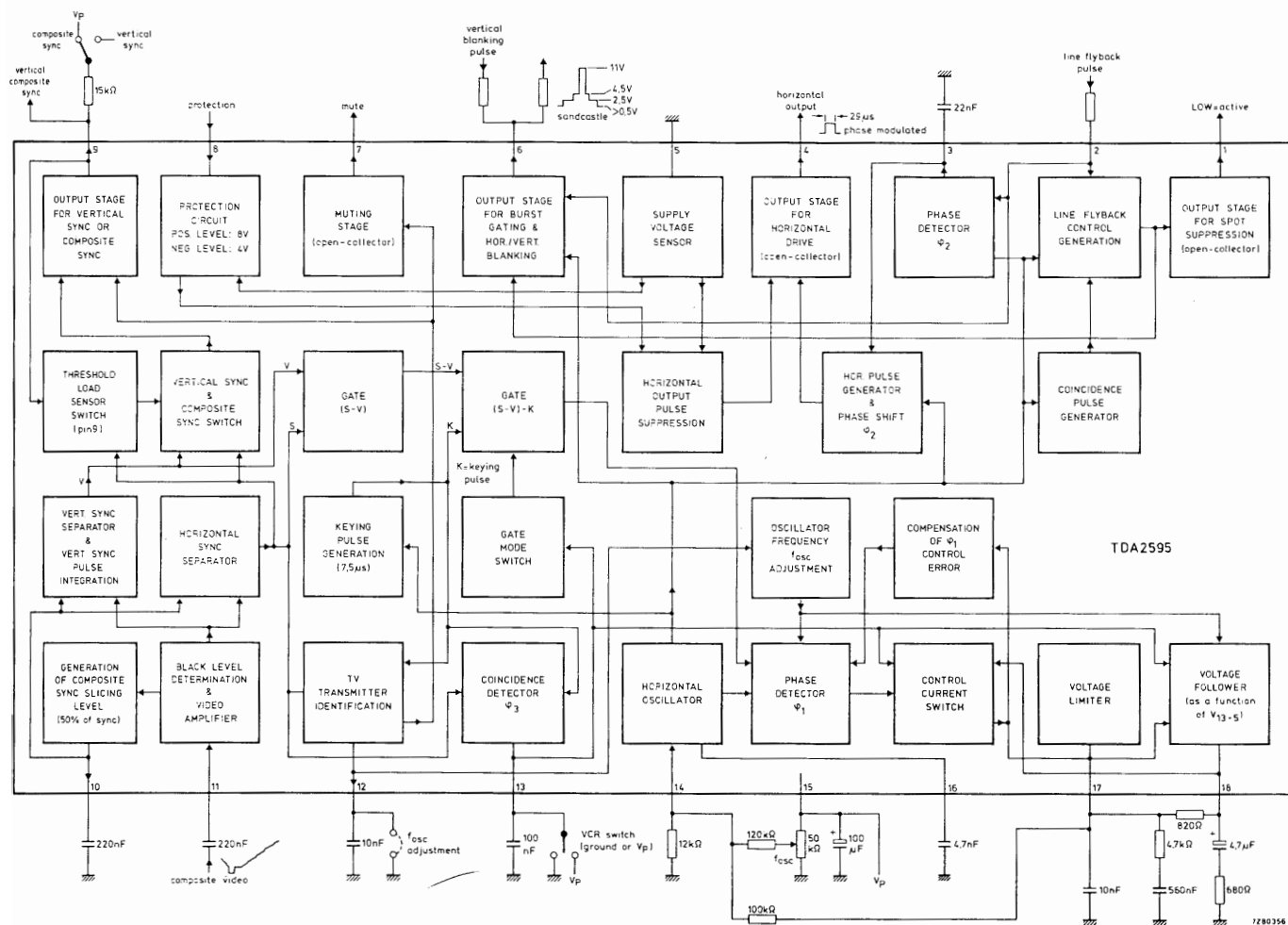
## POWER IN WIRING ASSEMBLY MTC9000 14"16"20" code 61000120

| CODE     | DESCRIPTION              | Q.TY |
|----------|--------------------------|------|
| 34020002 | AMP FEMALE LUGS 280702/1 | 4    |
| 34023404 | AMP CONNECTOR 4 F 280591 | 1    |

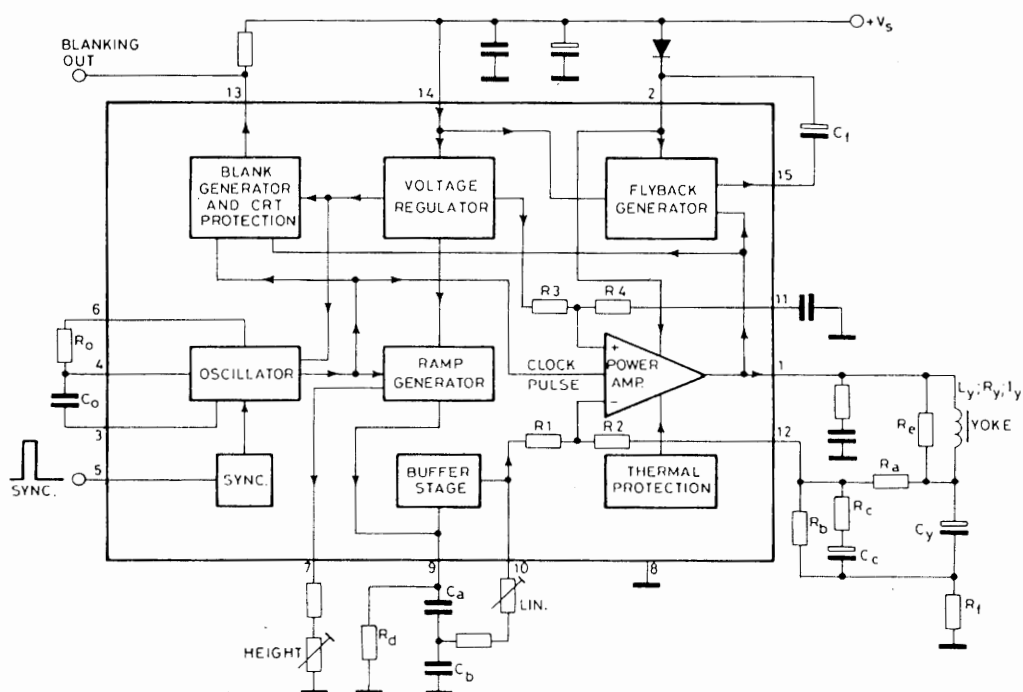
|                                             |                                             |  |               |
|---------------------------------------------|---------------------------------------------|--|---------------|
| SIGNALS INPUT WIRING ASSY MTC9000 14"16"20" |                                             |  | code 61000140 |
| CODE                                        | DESCRIPTION                                 |  | Q.TY          |
| 34020002                                    | AMP FEMALE LUGS 280702/1                    |  | 6             |
| 34023406                                    | AMP CONNECTOR 6 F 280592                    |  | 1             |
| C.R.T. ASSEMBLY MTC9000 14"                 |                                             |  |               |
| CODE                                        | DESCRIPTION                                 |  | Q.TY          |
| 20810085                                    | C.R.T., 14" SR, SAMSUNG, 3708B22 TC24       |  | 1             |
| 43000030                                    | SPRING, C.R.T., EARTHING, UTH 634           |  | 1             |
| 43000070                                    | HOOK, WIRE, DEGAUS. COIL, UTH 156           |  | 1             |
| 50113260                                    | HOOK, DEGAUSSING COIL, UTH 783              |  | 2             |
| 50113270                                    | SPRING, TENS., DEGAUS. COIL, UTH 784        |  | 1             |
| 61002290                                    | GROUNDING BRAIRED WIRE ASSY MTC9000 UTC 244 |  | 1             |
| C.R.T. ASSEMBLY MTC9000 16"                 |                                             |  |               |
| CODE                                        | DESCRIPTION                                 |  | Q.TY          |
| 20810065                                    | C.R.T., 16" SR, PHILIPS, A42-590X 3620      |  | 1             |
| 43000030                                    | SPRING, C.R.T., EARTHING, UTH 634           |  | 1             |
| 43000080                                    | SPRING TENSION, UTH 157                     |  | 1             |
| 50113260                                    | HOOK, DEGAUSSING COIL, UTH 783              |  | 2             |
| 50420640                                    | CLEAT, CABLE, 32-0011-1150,OL.3812112       |  | 1             |
| 61002300                                    | GROUNDING BRAIRED WIRE ASSY MTC9000 UTC 243 |  | 1             |
| C.R.T. ASSEMBLY MTC9000 20"                 |                                             |  |               |
| CODE                                        | DESCRIPTION                                 |  | Q.TY          |
| 20810027                                    | C.R.T., 20" SR, PHILIPS, A51-590X-3620      |  | 1             |
| 43000030                                    | SPRING, C.R.T., EARTHING, UTH 634           |  | 1             |
| 43000070                                    | HOOK, WIRE, DEGAUS. COIL, UTH 156           |  | 3             |
| 43000080                                    | SRPING TENSION, UTH 157                     |  | 1             |
| 50420640                                    | CLEAT, CABLE, 32-0011-1150 OL.3812112       |  | 1             |
| 61002350                                    | GROUNDING BRAIRED WIRE ASSY MTC9000 UTC 239 |  | 1             |
| YOKE WIRING ASSEMBLY MTC9000 14"16"20"      |                                             |  | code 61001070 |
| CODE                                        | DESCRIPTION                                 |  | Q.TY          |
| 34020002                                    | AMP FEMALE LUGS 280702/1                    |  | 6             |
| 34023406                                    | AMP. CONNECTOR 6 F 280592                   |  | 1             |
| DEGAUSSING COIL ASSY MTC9000 14"            |                                             |  | code 62005130 |
| DEGAUSSING COIL ASSY MTC9000 16"            |                                             |  | code 62005130 |
| DEGAUSSING COIL ASSY MTC9000 20"            |                                             |  | cod. 62005550 |
| C.R.T. MAINFRAME ASSY 14"                   |                                             |  |               |
| CODE                                        | DESCRIPTION                                 |  | Q.TY          |
| 50111160                                    | LEG x 14" MAINFRAME                         |  | 1             |
| 50111200                                    | BASE PLATE 14"                              |  | 1             |
| C.R.T. MAINFRAME ASSY 16"                   |                                             |  |               |
| CODE                                        | DESCRIPTION                                 |  | Q.TY          |
| 50111380                                    | CENTRAL LEG x 16"                           |  | 1             |
| 50111360                                    | RIGHT LEG x 16"                             |  | 1             |
| 50111370                                    | LEFT LEG x 16"                              |  | 1             |
| 50111390                                    | BASE PLATE x 16"                            |  | 1             |
| C.R.T. MAINFRAME ASSY 20"                   |                                             |  |               |
| CODE                                        | DESCRIPTION                                 |  | Q.TY          |
| 40213507                                    | CAP SCREW 4 x 7 CH6 FR.I.Zn                 |  | 4             |
| 40942095                                    | SELF TAPPING SCREW 4.2 x 9.5                |  | 8             |
| 40963016                                    | SELF TAPPING SCREW 6.3 x 16                 |  | 4             |
| 42000010                                    | WASHER UNI 6593-69 D18 d6.6 SP2             |  | 4             |
| 50111210                                    | RIGHT LEG x 20" MAINFRAME UTH 441           |  | 1             |
| 50111220                                    | LEFT LEG x 20" MAINFRAME UTH 442            |  | 1             |
| 50111230                                    | CENTRAL LEG x 20" MAINFRAME UTH 443         |  | 1             |
| 50111240                                    | BASE PLATE x 20" MAINFRAME UTH 440          |  | 1             |
| 50111450                                    | CRT NECK REINFORCING FRAME UTH 444          |  | 1             |
| PACKING ASSEMBLY MTC9000 14"                |                                             |  |               |
| CODE                                        | DESCRIPTION                                 |  | Q.TY          |
| 52823370                                    | BOARD UPPER                                 |  | 1             |
| 52823360                                    | BOARD LOWER                                 |  | 1             |
| 52824960                                    | PACKING BOX MTC9000 14"                     |  | 1             |
| PACKING ASSEMBLY MTC9000 16"                |                                             |  |               |
| CODE                                        | DESCRIPTION                                 |  | Q.TY          |
| 52822370                                    | BOARD UPPER                                 |  | 1             |
| 52822380                                    | BOARD LOWER                                 |  | 1             |
| 52824950                                    | PACKING BOX MTC9000 16"                     |  | 1             |
| PACKING ASSEMBLY MTC9000 20"                |                                             |  |               |
| CODE                                        | DESCRIPTION                                 |  | Q.TY          |
| 52422000                                    | RIGHT SIDE POLYUR. BOX 20" UTH1913          |  | 2             |
| 52422010                                    | LEFT SIDE POLY R. BOX 20" UTH1914           |  | 2             |
| 52824800                                    | PACKING BOX MTC9000 20" EUR. UTH1926        |  | 1             |
| LEGEND                                      |                                             |  |               |
| FILM CAPACITOR                              | = CAPACITOR, POLYSTYRENE                    |  |               |
| FILM CAPACITOR 1.60                         | = CAPACITOR, METALLIZED POLYESTER           |  |               |
| FILM CAPACITOR 1.76                         | = CAPACITOR, DOUBLE-METALLIZED              |  |               |
|                                             | POLYPROPYLENE                               |  |               |
| FILM CAPACITOR 1.73                         | = CAPACITOR, METALLIZED POLYPROPYLENE       |  |               |
| FILM CAPACITOR 1.58X                        | = CAPACITOR, POLYESTER                      |  |               |
| FILM CAPACITOR 1.85                         | = CAPACITOR, METALLIZED POLYESTER           |  |               |
| FILM CAPACITOR 22.365                       | = CAPACITOR, POLYESTER                      |  |               |
| RADIAL ELECT. CAPACITOR                     | = CAPACITOR, RADIAL ELECTROLYTIC            |  |               |
| CER.CAP.                                    | = CAPACITOR, CERAMIC                        |  |               |

- **DIAGRAMMA A BLOCCHI PER CIRCUITO INTEGRATO TDA 2595 E TDA 1670A**
- **BLOCK DIAGRAM FOR INTEGRATED CIRCUITS TDA 2595 AND TDA 1670A**
- **BLOCKSCHALTBILD FÜR TDA 2595 UND TDA 1670A**
- **DIAGRAMA DE BLOQUES DEL CIRCUITO INTEGRADO TDA 2595 E TDA 1670A**
- **DIAGRAMME FONCTIONNEL POUR CIRCUITS IMPRIMES TDA 2595 ET TDA 1670A**

## TDA 2595

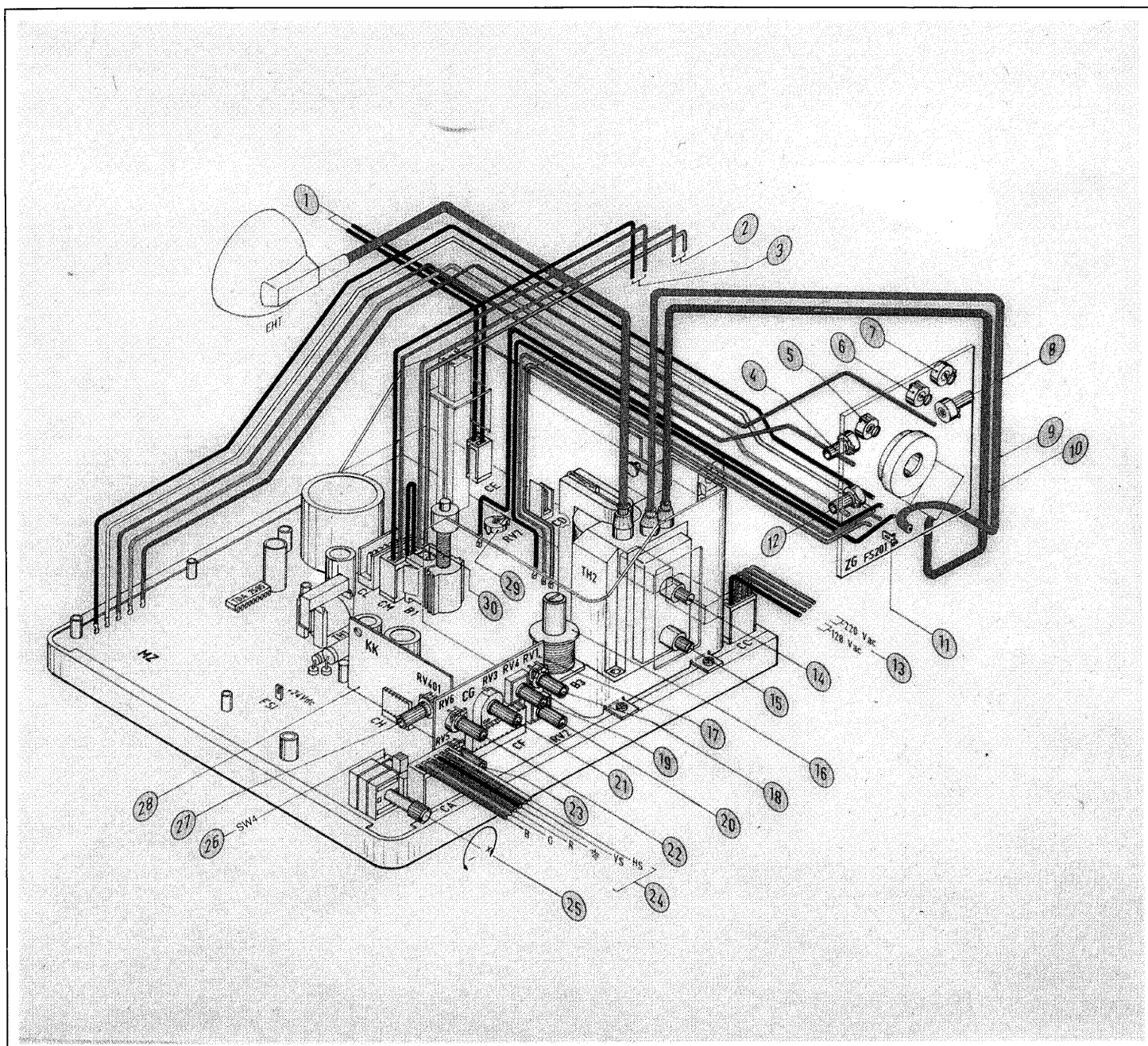


## TDA 1670A





- DIAGRAMMA DELLE CONNESSIONI E REGOLAZIONI DEI TRIMMER
- CONNEXIONS DIAGRAM AND PRE-SET ADJUSTMENTS
- ANSCHLUßPLAN UND JUSTAGE - ELEMENTE
- ESQUEMA DEL CONEXIONADO Y REGULACION DE LOS POTENCIOMETROS
- SCHEMA DE CONNEXION ET REGULATION DES TRIMMERS





1) FASCIA DI SMAGNETIZZAZIONE  
— DEGAUSSING COIL  
— BOBINA DESMAGNETIZADORA  
— ENTMAGNETISIERUNGSSPULE  
— BOBINE DE DEMAGNETISATION

2) GIOGO ORIZZONTALE  
— HORIZONTAL YOKE  
— BOBINA DEFLECTORA HORIZONTAL  
— HORIZONTALE ABLENKSPULE  
— BOBINE DE DEFLEXIÓN HORIZONTAL

3) GIOGO VERTICALE  
— VERTICAL YOKE  
— BOBINA DEFLECTORA VERTICAL  
— VERTIKALE ABLENKSPULE  
— BOBINE DE DEFLEXION VERTICALE

4) GUADAGNO ROSSO  
— RED GAIN  
— GANANCIA ROJO  
— ROT-VERSTÄRKUNGS-REGLER  
— GAIN ROUGE

5) INTERDIZIONE VERDE  
— GREEN CUT-OFF  
— VERDE CUT-OFF  
— SCHWARZWERT FÜR GRÜN  
— SUPPRESSION VERT

6) INTERDIZIONE ROSSO  
— RED CUT-OFF  
— ROJO CUT-OFF  
— SCHWARZWERT FÜR ROT  
— SUPPRESSION ROUGE

7) INTERDIZIONE BLU  
— BLUE CUT-OFF  
— AZUL CUT-OFF  
— SCHWARZWERT FÜR BLAU  
— SUPPRESSION BLEU

8) GUADAGNO BLU  
— BLUE GAIN  
— GANANCIA AZUL  
— BLAU-VERSTÄRKUNGS- REGLER  
— GAIN BLEU

9) G2  
— SCREEN  
— PANTALLA  
— SCHIRMGITTER-REGLER  
— ECRAN

10) FUOCO  
— FOCUS  
— FOCO  
— FOCUS  
— FOCALISATION

11) MASSA CINESCOPIO  
— GND PICTURE TUBE  
— MASA DEL TUBO  
— BILDROHRENMASSE  
— MASSE DU TUBE

12) GUADAGNO VERDE  
— GREEN GAIN  
— GANANCIA VERDE  
— GRÜN-VERSTÄRKUNGS-REGLER  
— GAIN VERT

13) INGRESSO ALIMENTAZIONE  
— POWER SUPPLY  
— FUENTE ALIMENTACION  
— NETZTEIL  
— ENTREE ALIMENTATION

14) REGOLAZIONE FUOCO  
— FOCUS ADJUSTMENT  
— AJUSTE FOCO  
— FOCUS-REGLER  
— REGLAGE FOCALISATION

15) REGOLAZIONE LUMINOSITÀ  
— BRIGHTNESS ADJUSTMENT  
— REGULACION BRILLO  
— HELLIGKEITS-REGLER  
— REGLAGE LUMINOSITE

16) BOBINA PONTE  
— BRIDGE COIL  
— BOBINA PUENTE  
— BRÜCKE  
— BOBINE PONT

17) MODULO CG COMANDI E REGOLAZ.  
— ADJUSTING MODULE  
— MODULO CG REGULACION  
— EINSTELL-EINHEIT  
— MODULE DE REGLAGE

18) FREQUENZA VERTICALE  
— VERTICAL HOLD  
— FRECUENCIA VERTICAL  
— VERTIKALE FREQUENZ  
— FREQUENCE VERTICALE

19) AMPIEZZA ORIZZONTALE  
— HORIZONTAL WIDTH  
— AMPLITUD HORIZONTAL  
— HORIZONTALE AMPLITUDE  
— AMPLITUDE HORIZONTAL

20) AMPIEZZA VERTICALE  
— VERTICAL HEIGHT  
— AMPLITUD VERTICAL  
— VERTIKALE HÖHE  
— AMPLITUDE VERTICALE

21) FASE VERTICALE  
— VERTICAL SHIFT  
— FASE VERTICAL  
— VERTIKALE VERSCHIEBUNG  
— PHASE VERTICALE

22) FASE ORIZZONTALE  
— HORIZONTAL SHIFT  
— FASE HORIZONTAL  
— HORIZONTALE VERSCHIEBUNG  
— PHASE HORIZONTAL

23) FREQUENZA ORIZZONTALE  
— HORIZONTAL HOLD  
— FRECUENCIA HORIZONTAL  
— HORIZONTALE FREQUENZ  
— FREQUENCE HORIZONTAL

24) INGRESSO VIDEO/SINCRONISMI  
— VIDEO/SYNC. INPUT  
— ENTRADA VIDEO/SINC.  
— VIDEO - UND SYNCHRONISATIONS EINGANG  
— ENTREE SYNCHRO. VIDEO

25) CONTRASTO  
— CONTRAST  
— CONTRASTE  
— KONTRAST  
— CONTRASTE

26) COMMUTATORE PER SINC. POS/NEG.  
— SYNC. POLARITY SWITCH  
— CONMUTADOR SINCRONISMOS/NEG.  
— SYNCHRONISATIONS - UMSCHALTER POS./NEG  
— COMMUTATEUR POUR SYNCHRO. POS/NEG

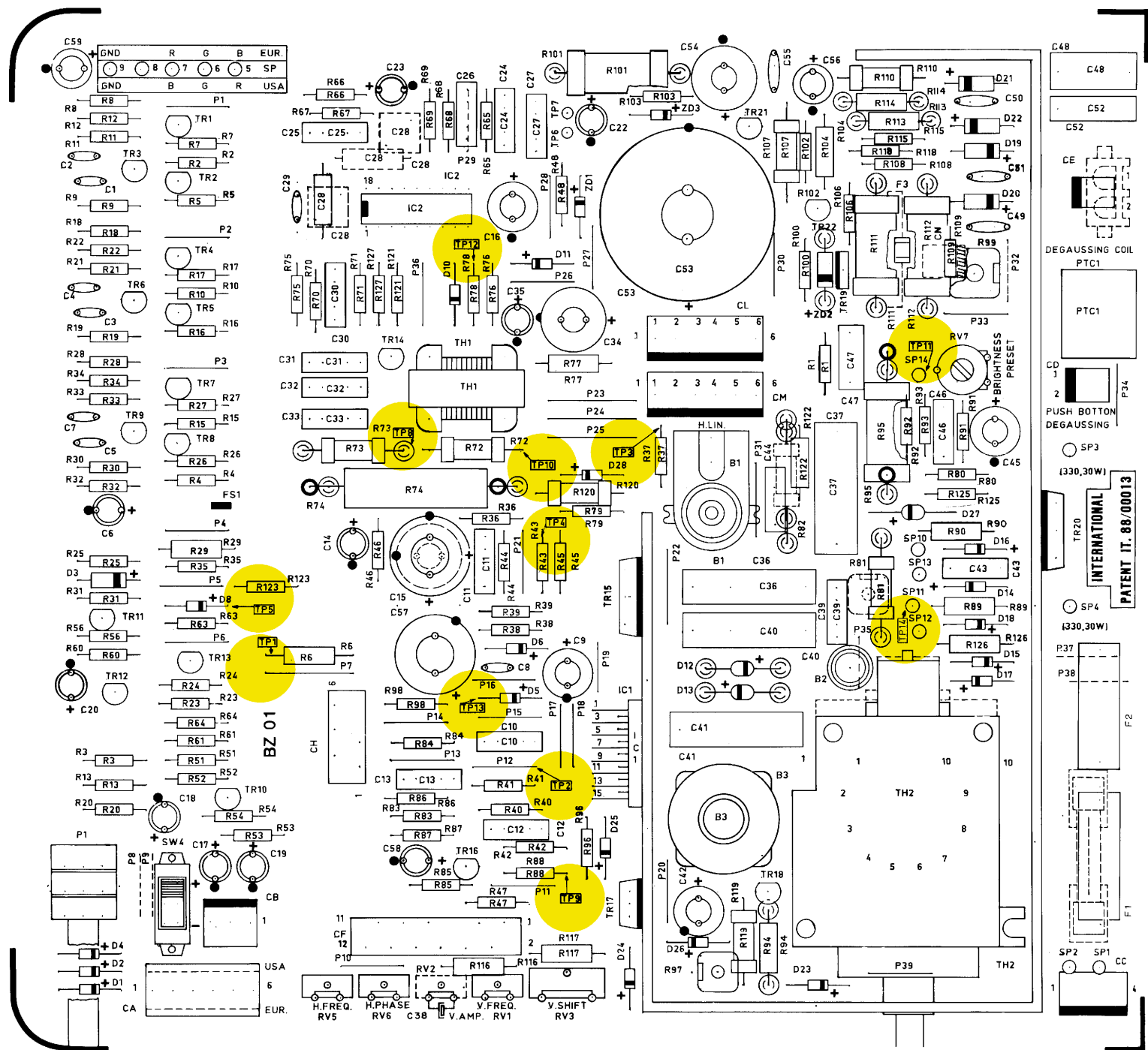
27) REGOLAZIONE EST/OVEST  
— PINCUSCHION ADJUSTMENT  
— REGULACION ESTE/OESTE  
— OST/WEST-REGLER  
— REGLAGE DROITE/GAUCHE

28) MODULO KK CORREZIONE EST/OVEST  
— KK PINCUSCHION MODULE  
— MODULO KK CORRECCION ESTE/OESTE  
— OST/WEST - MODUL  
— MODULE KK DE CORRECTION DROITE/GAUCHE

29) PRESELETTORE LUMINOSITÀ  
— BRIGHTNESS PRESET  
— PREREGULACION BRILLO  
— HELLIGKEITSREGLER  
— PRE-SELECTION LUMINOSITE

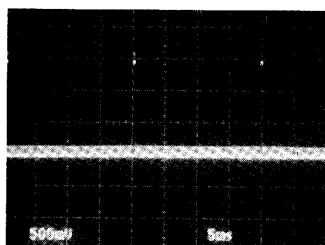
30) LINEARITÀ ORIZZONTALE  
— HORIZONTAL LINEAR.  
— LINEALIDAD HORIZONTAL  
— HORIZONTALE LINEARITÄTSEINSTELLUNG  
— LINEARITE HORIZONTAL

- CIRCUITO STAMPATO CON I PUNTI DI TARATURA, TENSIONI E FORME D'ONDA
- PRINTED CIRCUIT BOARD SHOWING TEST POINTS, VOLTAGES AND WAVEFORMS
- HAUPTLEITERPLATINE MIT TEST-PUNKTEN, SOLLSPANNUNGEN UND OSZILLATORDIAGRAMMEN
- CIRCUITO IMPRESO CON EL PUNTO DE MEDIDA, TENSION Y FORMA DE ONDA
- CIRCUIT IMPRIME ET POINT DE REGLAGE, TENSION ET FORME D'ONDE



- T.P. DI CONTROLLO E FORME D'ONDA
- CONTROL TEST POINTS AND WAVEFORMS
- TEST-PUNKTE UND OSZILLATORDIAGRAMME
- PUNTO DE PRUEBA PARA CONTROL Y FORMA DE ONDA
- POINTS DE TEST DE CONTROLE ET FORME D'ONDE

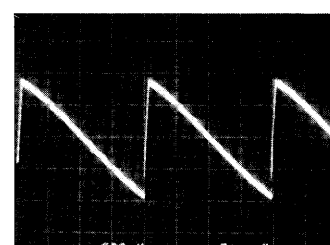
TP2



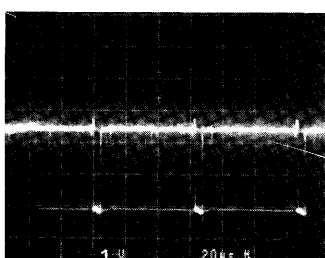
TP3



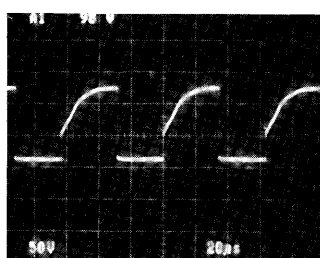
TP4



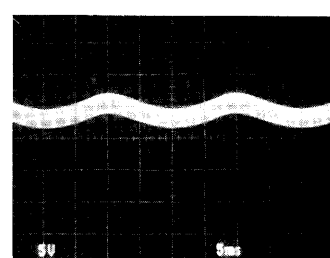
TP5



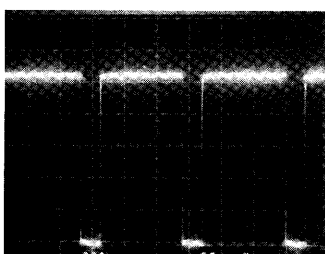
TP8



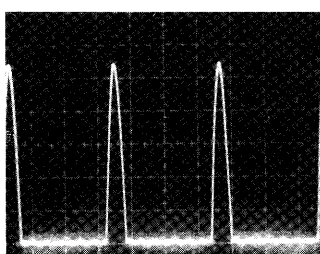
TP9



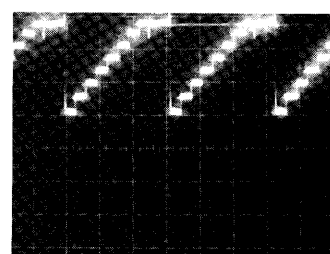
TP11



1



2

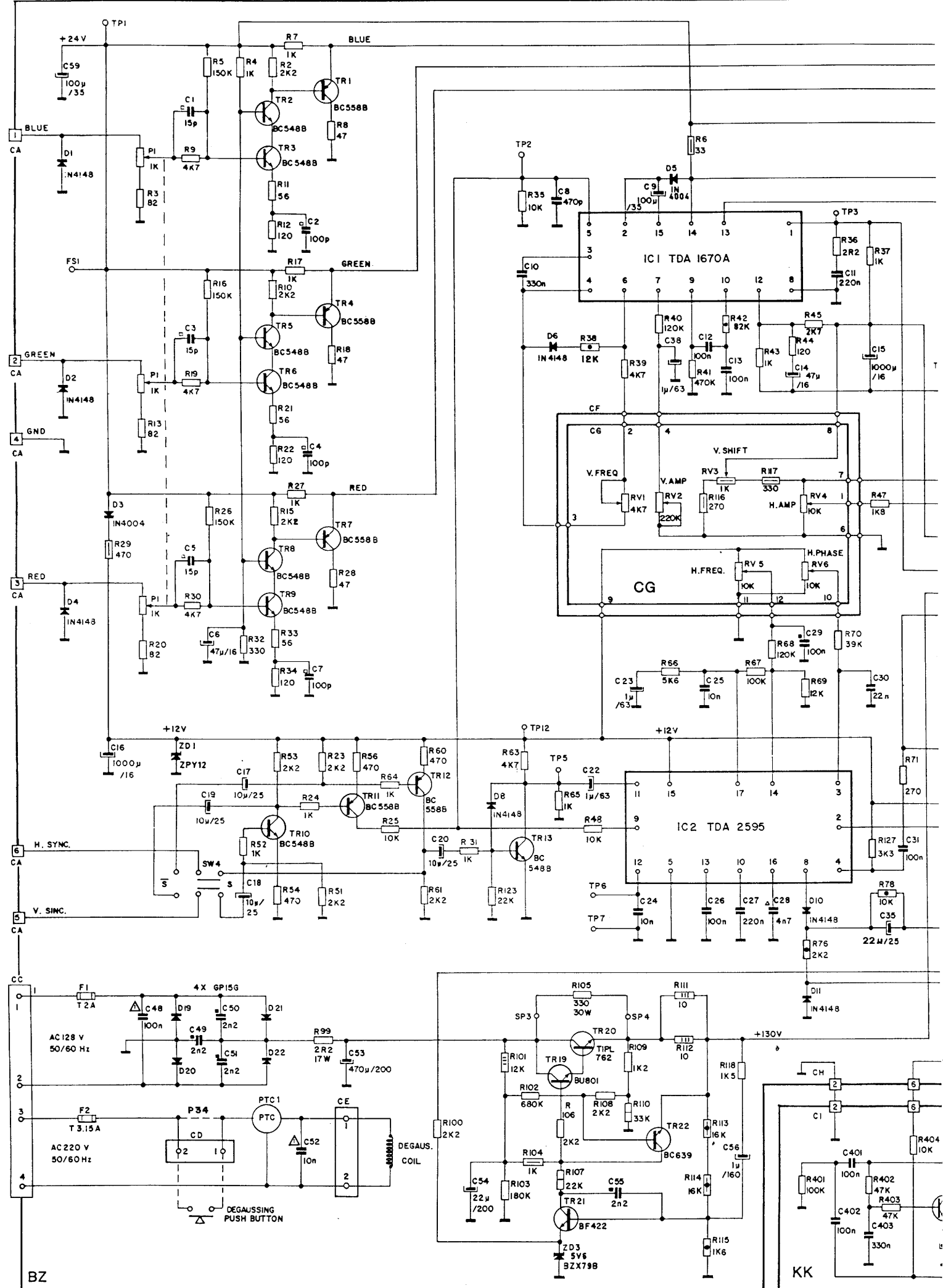


## FORME D'ONDA WAVEFORMS

- T.P.2 Sincronismo verticale  
*Vertical sync.*
- T.P.3 Pilotaggio deflessione verticale  
*Vertical drive*
- T.P.4 Segnale di reazione deflessione verticale  
*Vertical feedback*
- T.P.5 Sincronismo composito  
*Composite sync.*
- T.P.8 Pilotaggio per transistor finale di riga  
*Horizontal drive*
- T.P.9 Correzione est/ovest con modulo KK inserito  
*East/west correction with module KK inserted*
- T.P.11 Spegnimento orizzontale e verticale  
*Horizontal and vertical blanking*
1. Impulso del collettore BU 508  
*Pulse at collector of BU 508*
2. Segnale sui catodi finale video RVB  
*Signal at cathodes of RGB video output*

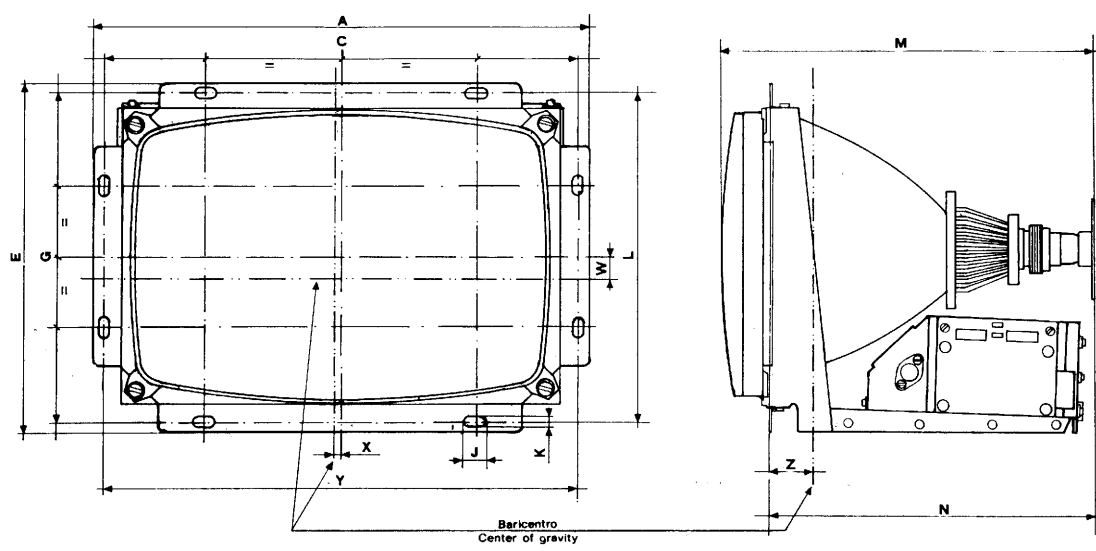
## TENSIONI SUPPLIES

- T.P.1 24/25 V.d.c. Alimentazione amplificatore video  
*24/25 V.d.c. Video amplifier supply*
- T.P.10 130 V.d.c.  $\pm$  2% Alimentazione stabilizzata  
*130 V.d.c.  $\pm$  2% Stabilized supply*
- T.P.12 12 V.d.c. Alimentazione sincronismo e oscillatore orizzontale (TDA 2595)  
*12 V.d.c. Horizontal sync. and oscillator supply (TDA 2595)*
- T.P.13 25/26 V.d.c. Alimentazione verticale  
*25/26 V.d.c. Vertical supply*
- T.P.14 200/210 V.d.c. Alimentazione finale video  
*200/210 V.d.c. Video output supply*

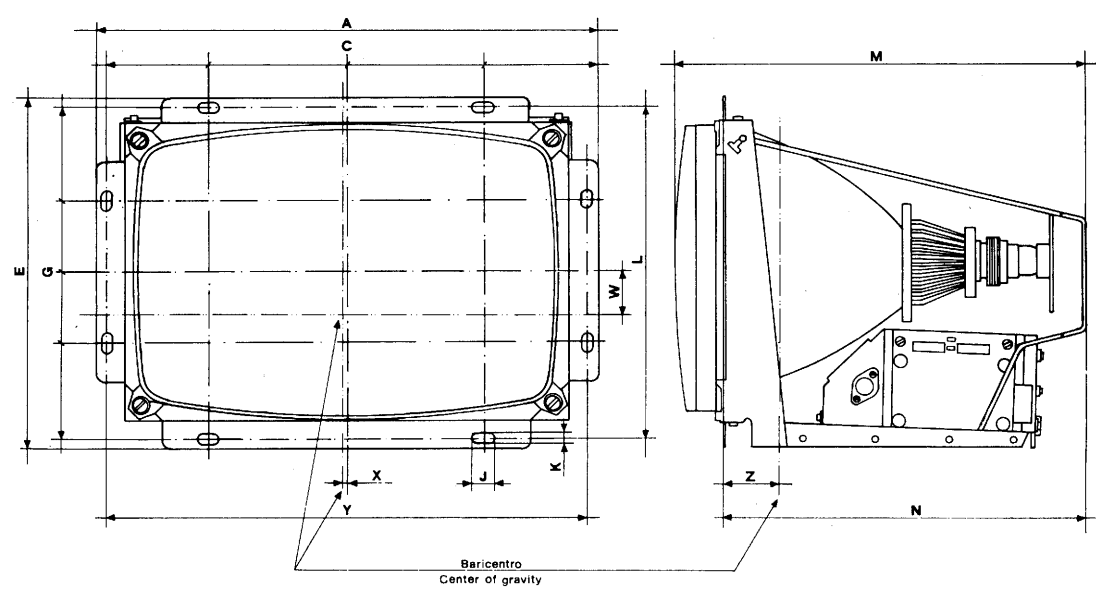




- DATI MECCANICI
- MECHANICAL DATA
- MECHANISCHE ANGABEN
- DATOS MECANICOS
- DONNEES MECANQUES

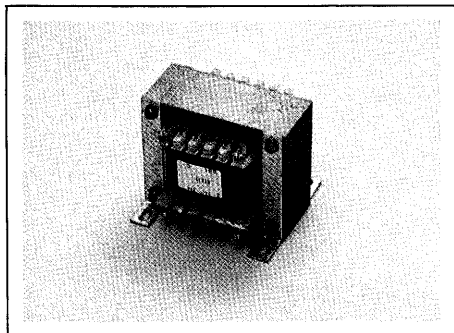


| DIM.    | A      | C     | E      | G     | J     | K     | L      | M      | N      | W     | X     | Y      | Z     |
|---------|--------|-------|--------|-------|-------|-------|--------|--------|--------|-------|-------|--------|-------|
| 14''mm  | 372    | 198   | 312    | 144   | 20    | 8     | 294    | 352    | 271    | 23    | 6     | 352    | 60    |
| 16''mm  | 424    | 250   | 340    | 175   | 20    | 8     | 320    | 380    | 310    | 32    | 6     | 408    | 47    |
| 14''IN. | 14.646 | 7.795 | 12.283 | 5.669 | 0.787 | 0.315 | 11.575 | 13.858 | 10.669 | 0.905 | 0.236 | 13.858 | 2.362 |
| 16''IN. | 16.693 | 9.842 | 13.386 | 6.89  | 0.787 | 0.315 | 12.598 | 14.960 | 12.205 | 1.26  | 0.236 | 16.063 | 1.85  |

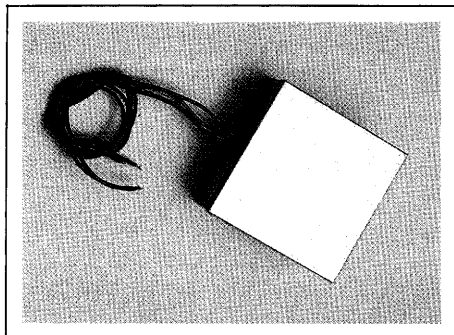


| DIM.    | A      | C      | E      | G     | J     | K     | L      | M      | N      | W     | X     | Y      | Z     |
|---------|--------|--------|--------|-------|-------|-------|--------|--------|--------|-------|-------|--------|-------|
| 20''mm  | 512    | 280    | 406    | 200   | 20    | 8     | 390    | 442    | 387    | 34    | 3     | 496    | 43    |
| 20''IN. | 20.157 | 11.024 | 15.984 | 7.874 | 0.787 | 0.315 | 15.354 | 17.402 | 15.236 | 1.339 | 1.181 | 19.527 | 1.693 |

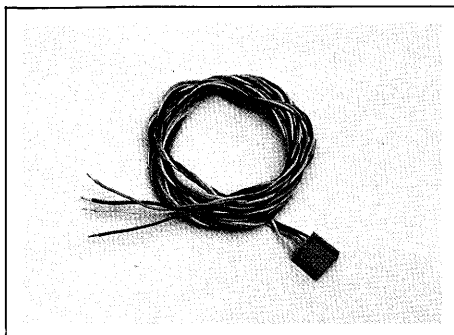




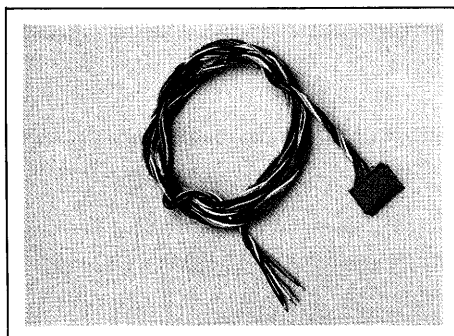
- Trasformatore di alimentazione monitor MTC9000 220/240 Vac / 128 Vac 100 W. (Per richiesta cod. 28070030).
- Isolating transformer for supplying monitor MTC 9000 220/240 V a.c. / 128 V a.c. 100 W. To order, quote: cod. 28070030.
- Trenntransformator für die Stromversorgung des Monitors MTC9000 mit 220/240 V Eingang, 128 V / 100 W Ausgang. Bestell-Nr. 28070030.
- Transformador de alimentación monitor MTC9000 220/240 Vac / 128 Vac 100 W. (Para solicitud cod. 28070030).
- Transformateur d'alimentation pour moniteur MTC9000 220/240 V c.a. / 128 V c.a. 100 W. (Code 28070030).



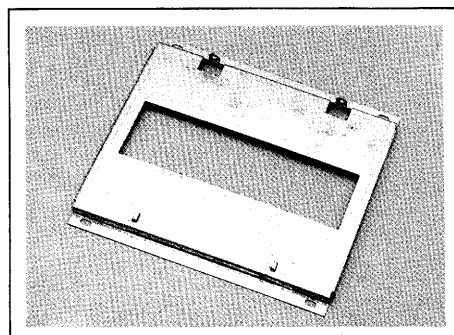
- Trasformatore toroidale di alimentazione 220/240 Vac / 128 Vac 100 W indicato nei casi in cui debba essere montato vicino al monitor. (Per richiesta cod. 28070260).
- Toroidal supply transformer 220/240 V a.c. / 128 V a.c. 100 W for use where the transformer must be mounted close to the monitor. To order, quote: cod. 28070260.
- Ringkerntransformator für Spannungsversorgung MTC9000 220/240 V - 128 V 100W im Stahlblechgehäuse eingebaut. Gegen Streufelder abgeschirmt. Bestell-Nr. 28070260
- Transformador toroidal de alimentación 220/240 Vac / 128 Vac 100 W indicado en aquellos casos en que deba instalarse cerca del monitor. (Para solicitud cod. 28070260).
- Transformateur toroidal d'alimentation 220/240 V c.a. / 128 V c.a. 100 W, indiquez dans les cas où il devrait être monté près du moniteur. (Code 28070260).



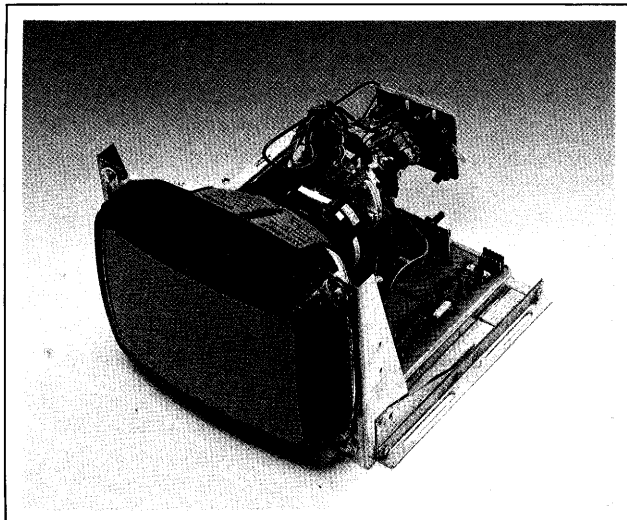
- Cablaggio ingresso alimentazione. Viene fornito unitariamente al monitor. (Per ricambistica cod. 61000120).
- Input Power Lead. Supplied with each monitor. Spare part no. cod. 61000120.
- Verbindungskabel für Stromversorgung mit Anschlußstecker für Monitor MTC9000. Bestell-Nr. 61000120.
- Cable de entrada de alimentación. Viene incluido con el monitor. (Para recambio cod. 61000120).
- Câblage d'entrée d'alimentation. Il est fourni avec le moniteur. (Pour pièces de rechange code 61000120).



- Cablaggio ingresso segnali. Viene fornito unitamente al monitor. (Per ricambistica cod. 61000140).
- Input Signal Lead. Supplied with each monitor. Spare part no. cod. 61000140.
- Verbindungskabel RGB - Signal mit Anschlußstecker für Monitor MTC9000. Bestell-Nr. 61000140.
- Cable de entrada de senales. Viene incluido con el monitor. (Para recambio cod. 61000140).
- Câblage d'entrée des signaux. Il est fourni avec le moniteur. (Pour pièces de rechange code 61000140).



- Supporto metallico per MTC9000 per fissare l'elettronica al mobile nel caso debba essere disassemblata dal cinescopio. (Per richiesta cod. 50113370).
- Metal support for fixing electronic chassis to a case when the chassis is to be separated from the c.r.t. To order, quote cod. 50113370.
- Metallrahmen für MTC9000 zur Aufnahme von Chassis und der Bildröhre. Bestell-Nr. 50113370.
- Soporte metalico para el MTC9000 para fijar el circuito impreso al mueble, en el caso en que deba ser descollado del TRC. (Para solicitud cod. 50113370).
- Support metallique pour MTC9000 pour fixer l'electronique sur le meuble dans cas où elle devrait être disassemblée du tube image. (Code 50113370).

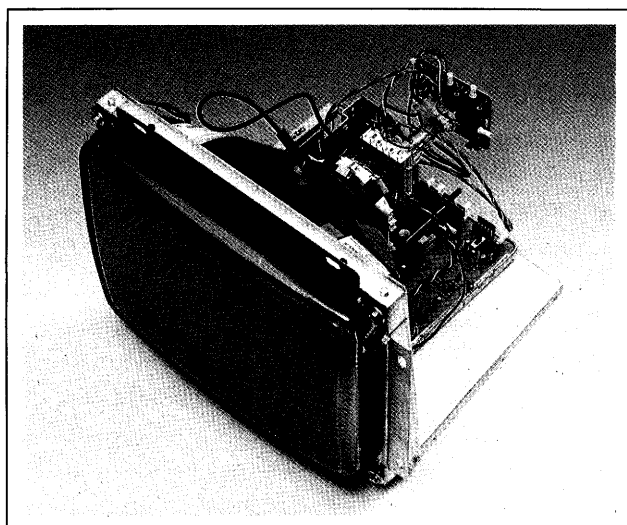


**Monitor MTC9000 10" COD. 02191552**

Video R.V.B. positivo analogico, sincronismi composti, separati negati o positivi. Alimentazione: 128 Vac - 70 W. Dimensioni: L x H x P mm 297 x 250 x 307.

**Monitor MTC 9000 10" COD. 02191552**

Video RGB, positive analogue, composite or separate sync., negative or positive.  
Power: 128 V a.c., 70 W.  
Dimensions: L x W x D: 297 x 250 x 307 mm.

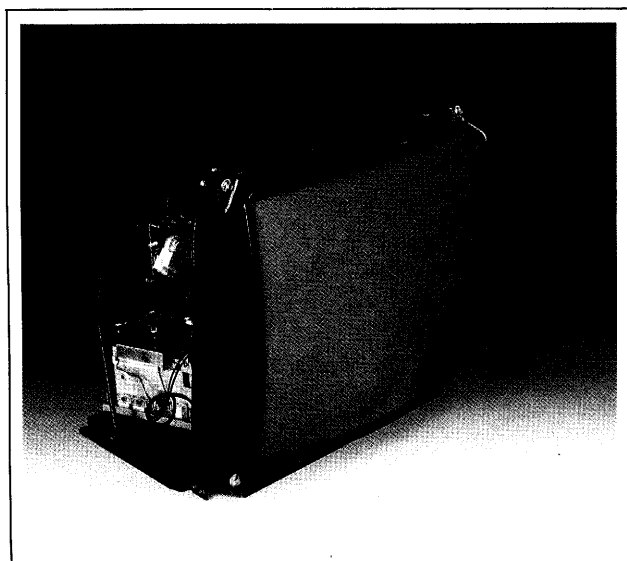


**Monitor MTC9000 15" F.S. COD. 02191870**

Video R.V.B. positivo analogico, sincronismi composti, separati negati o positivi.  
Alimentazione 128 Vac - 150 W  
Cinescopio: Flat Full Square MR.  
Spazio fra le triadi 0,51 mm.  
Dimensioni: L x H x P mm 400 x 330 x 360.

**Monitor MTC 9000 15" FS COD. 02191870**

Video RGB, positive analogue, composite or separate sync., negative or positive.  
Power: 128 V a.c., 100 W.  
C.r.t. flat full square MR. Pixel spacing 0.51 mm.  
Dimensions: L x W x D: 400 x 330 x 360 mm.

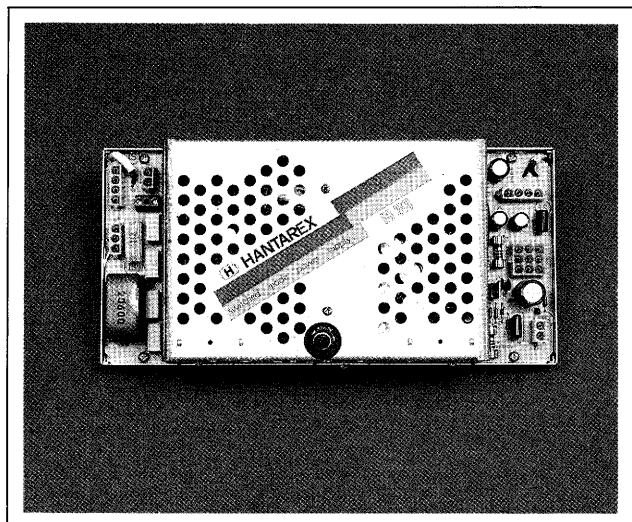


**Monitor MTC9000 25" 110° FLAT COD. 02190861**

Video R.V.B. analogico, positivo, sincronismi separati, composti, positivi o negati.  
Alimentazione 128 Vac - 150 W.  
Dimensioni: L x H x P mm 592 x 480 x 499

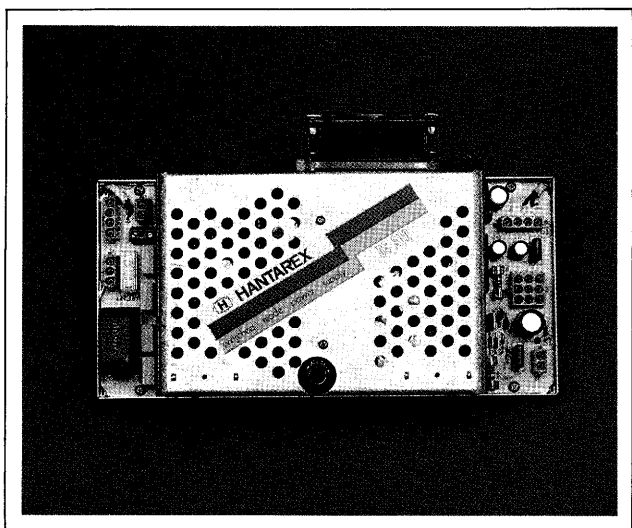
**Monitor MTC 9000 25" 110° FLAT COD. 02190861**

Video RGB, positive analogue, composite or separate sync., negative or positive.  
Power: 128 V a.c. 150 W.  
Dimensions: L x W x D: 592 x 480 x 499 mm.



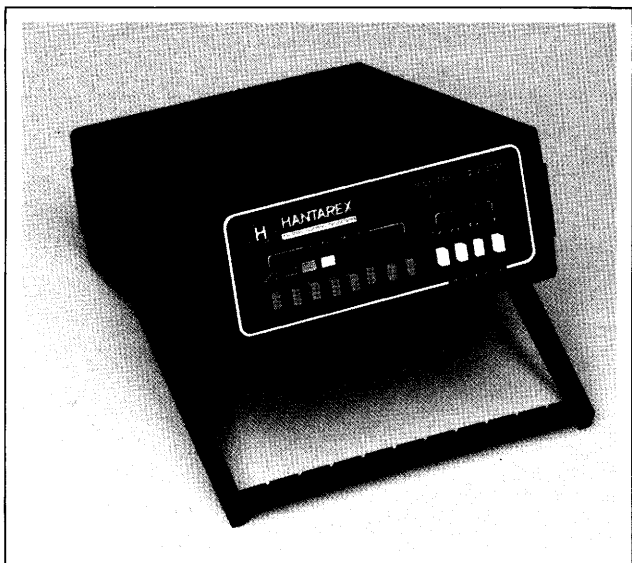
**Alimentatore a commutazione US 250 COD. 63000131**  
 Ingresso rete: 187 ÷ 264 Vac. Alimentazione monitor in d.c. senza trasformatore di alimentazione.  
 Basse tensioni: 5 Vdc 10A / 12 Vdc 2A /  
 —5 Vdc 1A / —12 Vdc 1A.  
 Dimensioni: L x H x P mm 288 x 156 x 124.

**Switched Mode Power Supply US 250 COD. 63000131**  
 Mains input: 187-264 V a.c. Monitor d.c. supply without mains transformer.  
 Low tensions: 5 V d.c. 10 A. 12 V d.c. 2A.  
 —5 V d.c. 1 A. —12 V d.c. 1A.  
 Dimensions: L x W x D: 288 x 156 x 124 mm.



**Alimentatore a commutazione US 300 Ventilato COD. 63000081**  
 Ingresso rete: 187 ÷ 264 Vac. Alimentazione monitor in d.c. senza trasformatore di alimentazione.  
 Basse tensioni: 5 Vdc 15A / 12 Vdc 2A /  
 —5 Vdc 1A / —12 Vdc 1A.  
 Dimensioni: L x H x P mm 288 x 188 x 124 mm.

**Switched Mode Power Supply US 300 ventilated COD. 63000081**  
 Mains input: 187-264 V a.c. supply without mains transformer.  
 Low tensions: 5 V d.c. 15A. 12 V d.c. 2A.  
 —5 V d.c. 1A. —12 V d.c. 1A.  
 Dimensions: L x W x D: 288 x 188 x 124 mm.



**Generatore di segnali R.V.B. e sincronismi MOD. K 190 G COD. 02190280**  
 Utile per la messa a punto di monitors aventi un ingresso segnali R.V.B.  
 Commutatori frontali per la selezione delle varie immagini.

**RGB Signal Generator with sync. MOD. K 190 G COD. 02190280**  
 Invaluable for setting-up colour monitors with RGB input.  
 Front panel switching for selecting a variety of images.



# HANTAREX

Cod. 53880240 LIV/03

50134 Firenze - Italy - 30, via Riguccio Galluzzi - tel. 055/4973 (20 linee r.a.) - telex 572341 HANTAR-I - telefax 055/268486

## nuova SAMBERS

20092 Cinisello-Balsamo (MI) - Italy  
50, Via Casignolo  
tel. 02/6186085/6171285  
telefax 02/6182558

## HANTAREX DEUTSCHLAND

D-5230 Altenkirchen  
Siegenerstrasse 23  
tel. 02681/3041-2 - telex 869991 Hantx-D

## HANTAREX SUD

01100 Viterbo - Italy  
strada Cassia nord km. 88  
tel. 0761/250741 - telex 611537 Hansud-I  
telefax 0761-250742

## HANTAREX IBERICA

Barcelona II - España  
210 Aragon str.  
tel. 93/3232941 - telex 98017  
telefax 0034/3-2538163

## HANTAREX HELLAS-SELCON

Gifada - Athens - Greece  
35, Ippokratos str. - Ellinikon  
tel. 01/9910950 - telex 219875 Anta-Gr

## HANTAREX CORP. OF AMERICA

Schaumburg - IL, 60195  
A-1261 Wiley Road  
tel. (312) 8437226/8437344  
telefax 001-312-8437244

## HANTAREX U.K.

London SE26 5BA - England  
Unit 2, Kangley Bridge Road  
tel. 01-778 1414 - telex 8952421 Hantxr-G  
telefax 01-6599348

## HANTAREX JAPAN

Tokyo 104 - Japan  
Dai Nihon P.R. Centre BLDG  
3-8 Iriyune - 2 Chome  
tel. 03/5550831 - telex 28185 Eujatrc-J