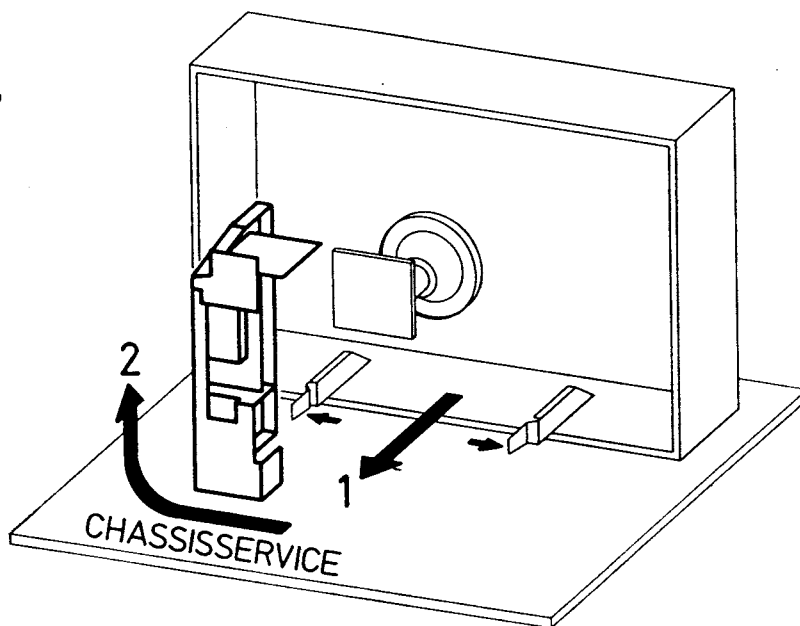


Servicestellung  
Service position  
Posizione di servizio



# GRUNDIG



ⓓ Btx \* 32700 #

## SERVICE MANUAL CUC3410

T70-340CTI  
T70-340CTI  
T70-340CTI/text

(9.25274-01)  
(9.25274-05)  
(9.25274-02)

### ⓓ SERVICEHINWEISE

Service am I<sup>2</sup>C-Bus und Fehlerarten des Gesamtgerätes:  
Funktions- und Servicehinweise des Zeilennetzteils  
Abnehmen und Aufsetzen der Geräterückwand  
Abgleichhinweise der Steckkartenarten

Seite

12-13  
14-25  
26-27

### Ⓒⓑ SERVICE NOTES

Service checks on the I<sup>2</sup>C Bus and faults in the complete set:  
Functional description and service information on the line mains supply unit  
Disassembly and assembly of the cabinet rear panel  
Alignment notes of the plug-in board types.

Page

12-13  
14-25  
26-27

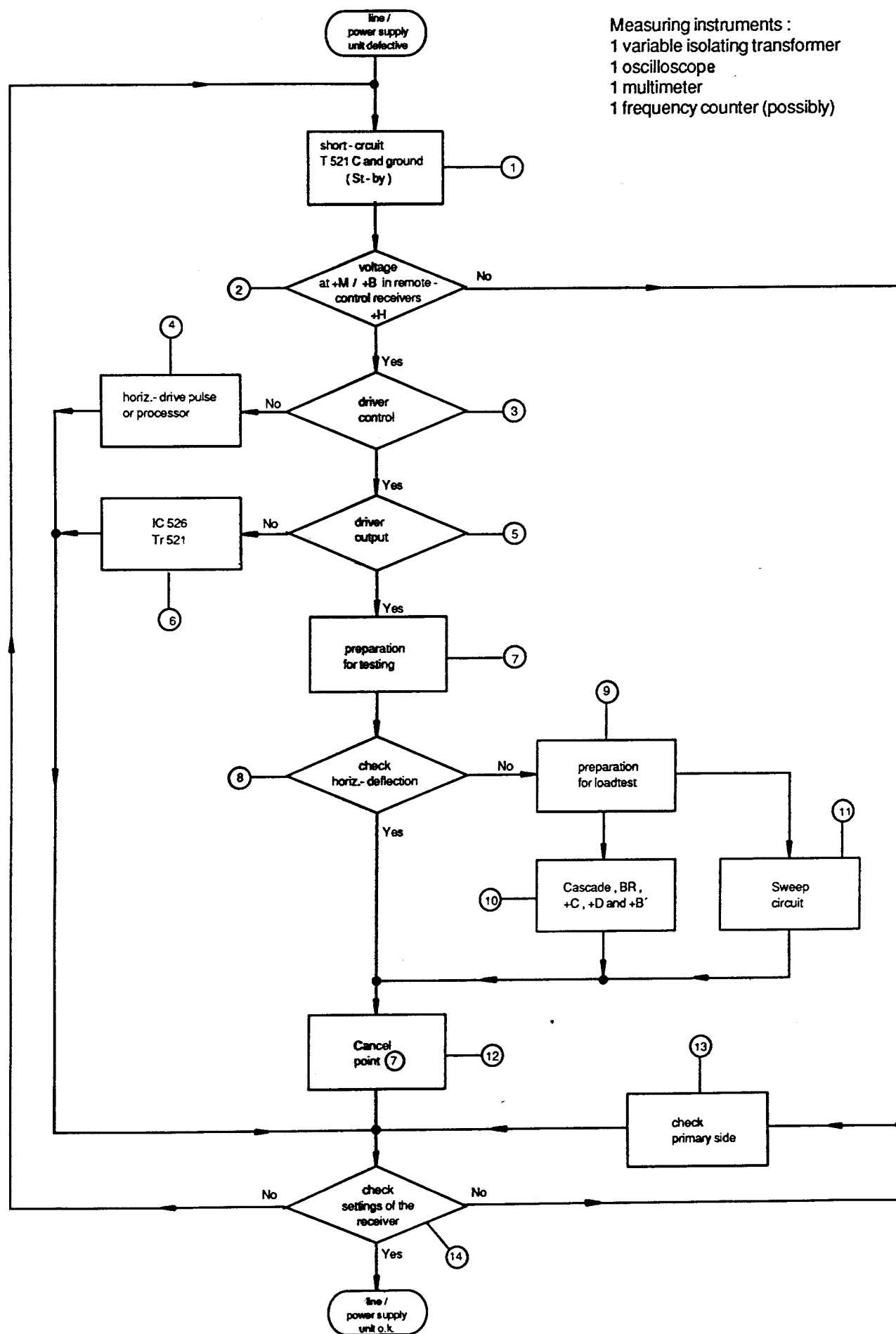
### ⓐ AVVERTENZA DI SERVIZIO

Servizio assistenza al bus I<sup>2</sup>C e tipi di errori dell'intero apparecchio:  
Istruzioni per il funzionamento e per il Servizio assistenza dell'alimentatore di riga  
Smontaggio e montaggio dello schienale  
Avvertenze di taratura dei tipi di scheda.

Pagina

12-13  
14-25  
26-27

Measuring instruments :  
 1 variable isolating transformer  
 1 oscilloscope  
 1 multimeter  
 1 frequency counter (possibly)



Explanation of the individual steps in the flow chart:

- ① Disconnect the mains plug  
Connect the horizontal sweep transistor T 521 collector to ground (stand-by)

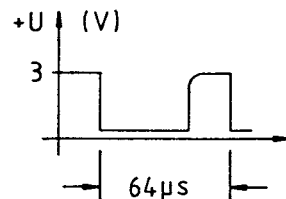
- ② Switch on the receiver.

Check the secondary voltages:

|    |                               |
|----|-------------------------------|
| +M | 10-12.5 V ( $I_{max}$ 350 mA) |
| +B | 9-11 V                        |
| +H | 5 V (only RC receivers)       |

- ③ TDA 8140 oscillogram

pin 7 15625 Hz

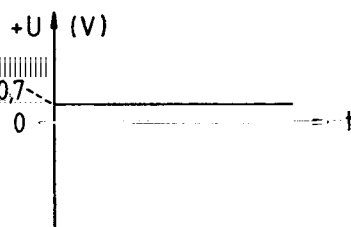


voltage  
voltage  
voltage

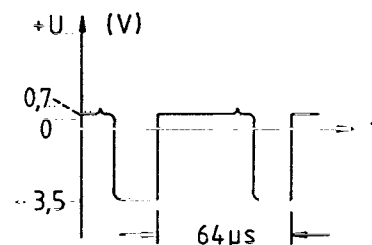
pin 2 8-12 V  
pin 6 > 2.5 V = normal operation  
pin 6 0 V = stand-by (RC)

Deflection module (C 625) and picture sync module check the output control unit processor check status

Oscillogram of base T 521  
IC 526 pin 6: 0 V



IC 526 pin 6: > 2.5 V



- ④ Check TDA 8140 with externally connected components and T 521

- ⑤ Preparations for checking the line output stage

- Disconnect the mains plug; remove Si 624
- Open connection  $\diamond$  of the line/mains transformer TR 665
- Remove the short circuit from T 521
- Apply a voltage of approx. 130 V (about 450 mA) to connection  $\diamond$  of TR 665. It is also possible to use the receiver's own power supply. For this purpose, connect the ground connection capacitor and the positive pole to the secondary ground connection and  $\diamond$  of TR 665. Set the variable-voltage Switch on the receiver.

- ⑥ Apply a 15-20 V direct voltage for a short time to +M via an external diode. Switch on the receiver by means of the remote control. The picture is too large if +C is correct.

When using the built-in power supply an intensive mains hum will be visible.

**Attention!** Do not use the remote control to switch the receiver to stand-by but switch off the operating voltage!

- ⑦ Preparations for load test

Disconnect the mains plug and switch off the external high voltage (120 V) possibly connected to TR 665/contact  $\diamond$

- ⑧ Unsolder cascade U a.c. (cascade and picture tube test)

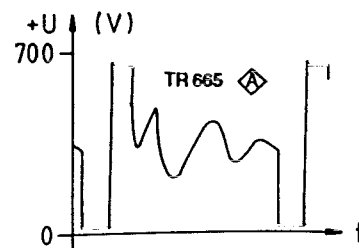
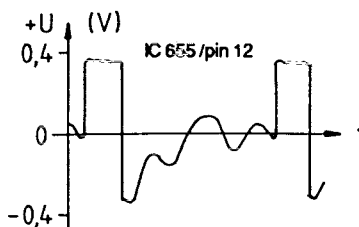
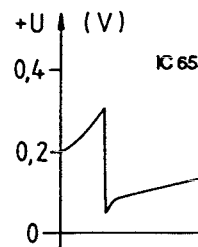
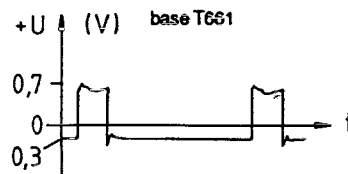
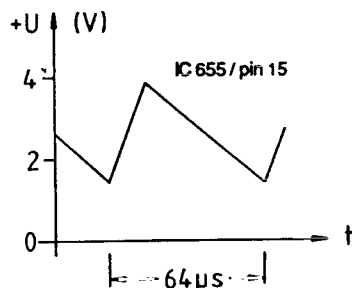
Check the load at the secondary voltage sources:

Ohmic resistance between ground and points +C, +D, +B, +B', +M, +H. If the polarity is correct (rectifier diode in high-resistance direction) the measured resistance must be higher than 4 kOhm.

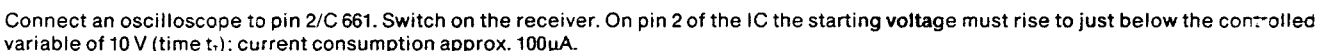
- ⑨ Check T 521 and sweep circuit (horizontal deflection yoke 1.5-3.5 Ohm)

- ⑩ Cancel all preparatory measures under ⑤.

- ⑪ TR 665 voltage point  $\diamond$  300 V approx.  
TDA 3640 voltage pin 18 13 V approx., voltage pin 17 6 V approx.  
voltage pin 2 10.5 V approx., voltage pin 16 3 V approx.



### Simplified Test for the Startup Sequence



Time  $t_2$ : When the voltage  $U_B$  reaches 7.0 V the IC 655 stops driving the base.  $U_3$  continues to decrease.

Time  $t_2$ : When the voltage  $U_B$  reaches 7.0 V the IC 655 stops driving the base.  $U_3$  continues to decrease.

Time  $t_3$ : When the voltage  $U_B$  reaches 5.75 V the IC 655 switches off; the current consumption is now only 100  $\mu$ A approximately.  $U_B$  rises and the cycle starts again at  $t_4$ .

On pin 15 of the IC the cyclic oscillation and switching off process can be identified by the packets of pulses.

- 14 Check the voltage +C according to the circuit diagram and readjust it with R 637, if necessary; **check the power supply voltage regulation with the variable-voltage transformer ( $\pm 10\%$ ).**

|     |   |     |
|-----|---|-----|
| U61 | 1 | SSB |
| 1   | 2 | 3   |

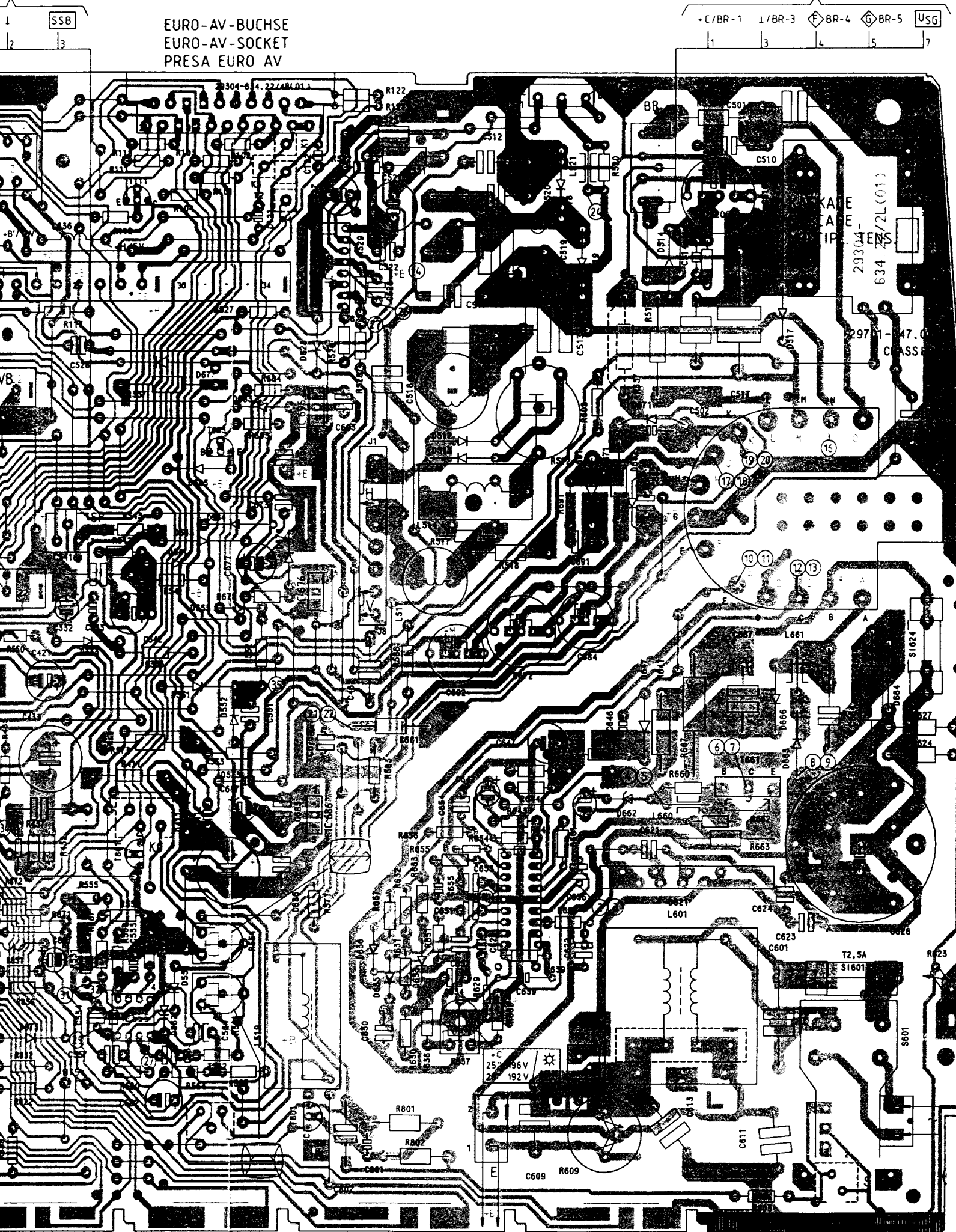
EURO-AV-BUCHSE  
EURO-AV-SOCKET  
PRESA EURO AV

801  
R801

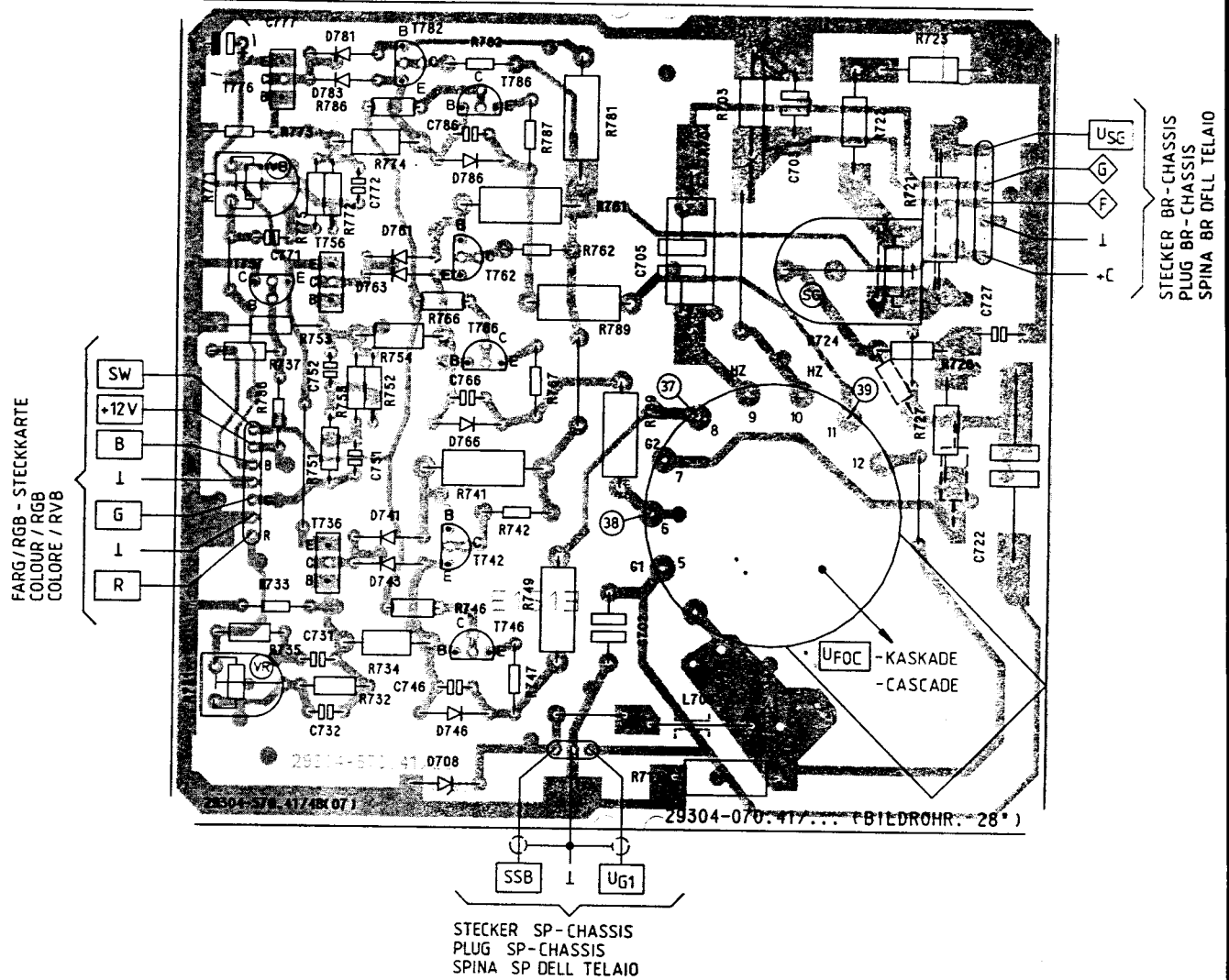
TISIE

LED-PLATTE/LED BOARD/PIASTRA LED

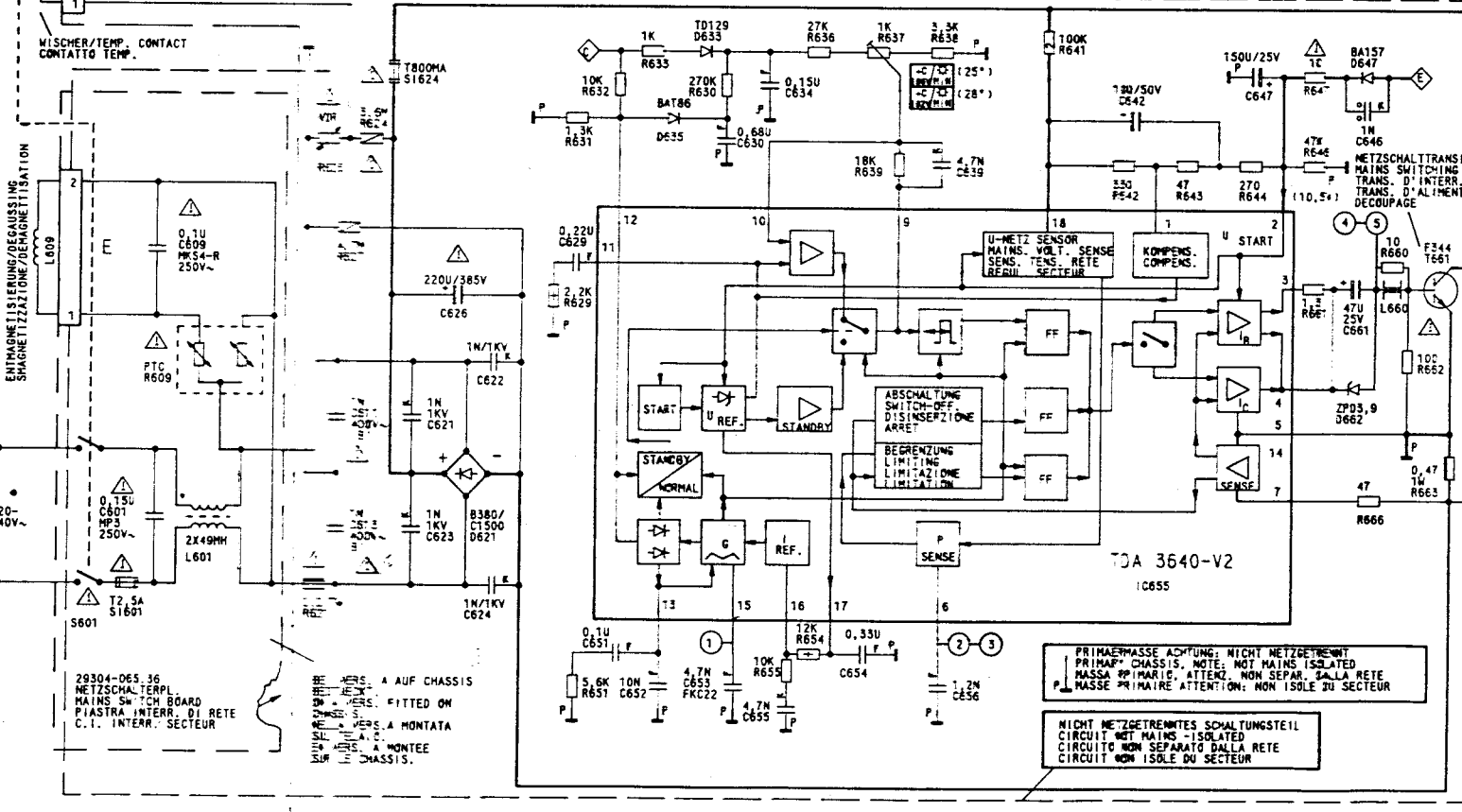
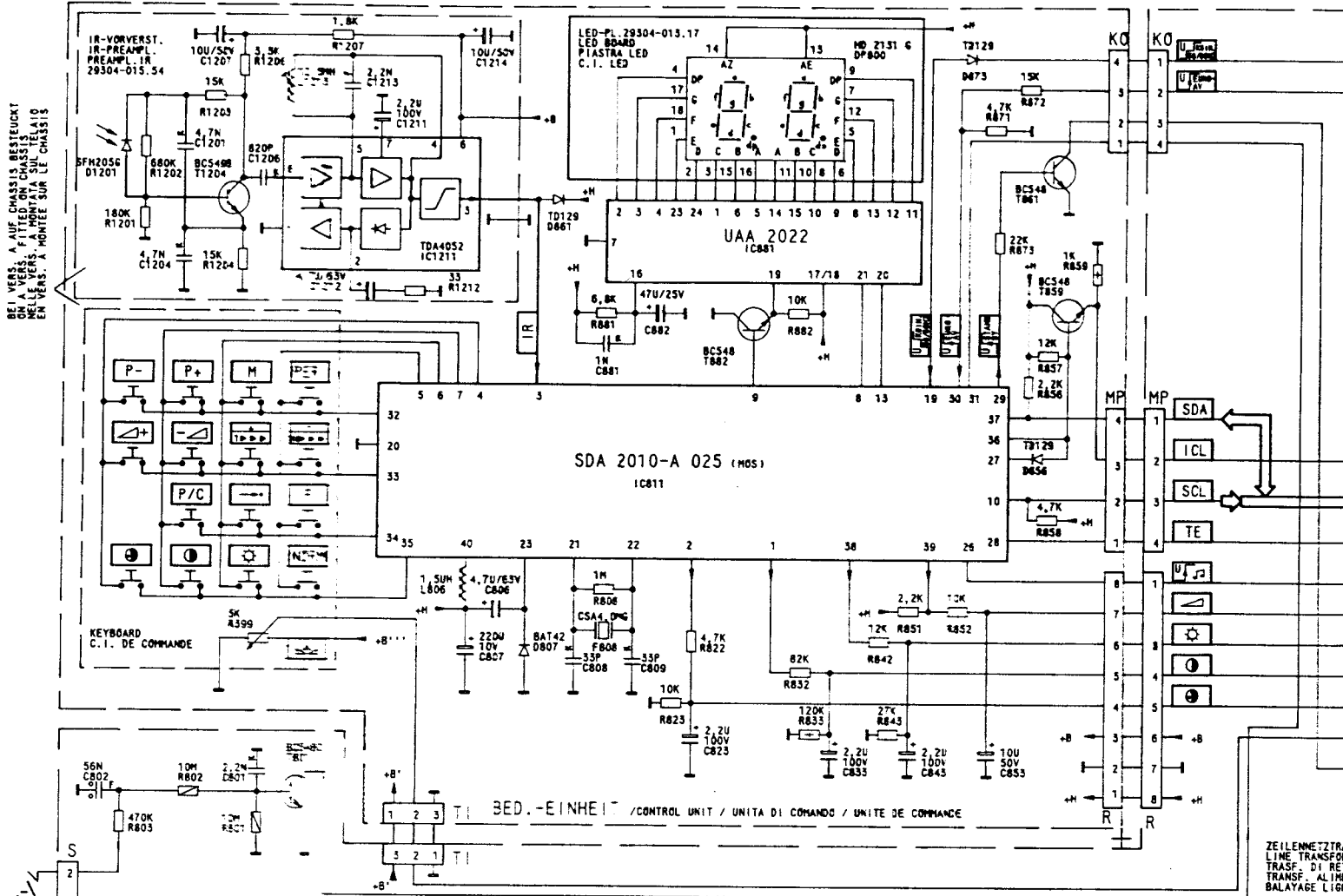
ENTMAGNE

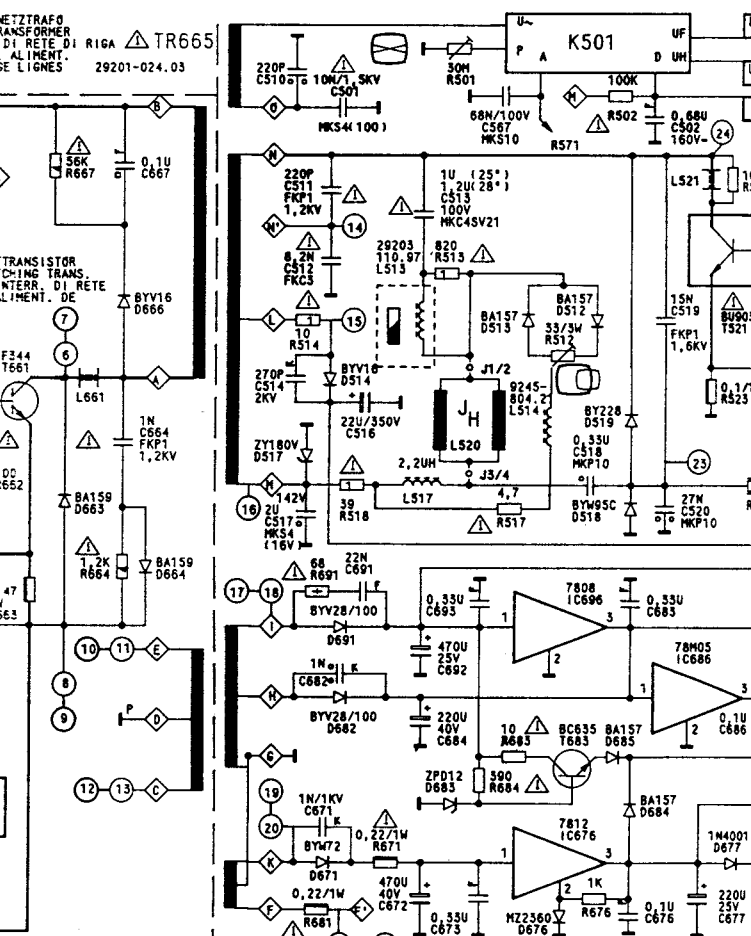
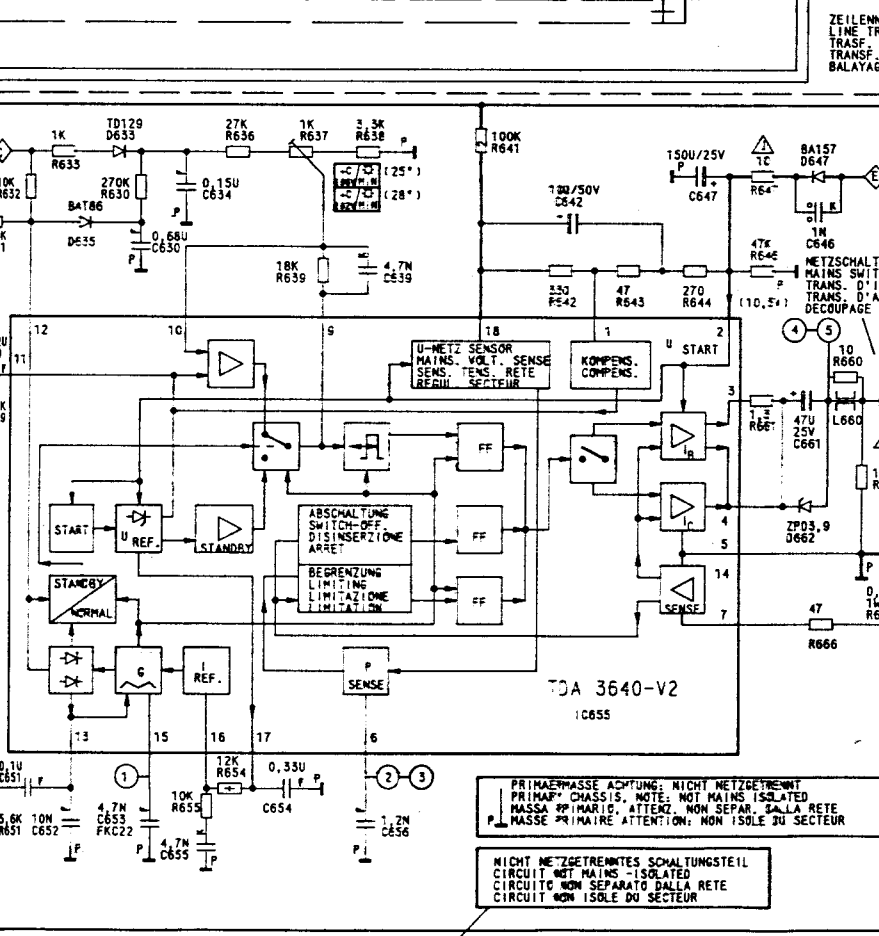
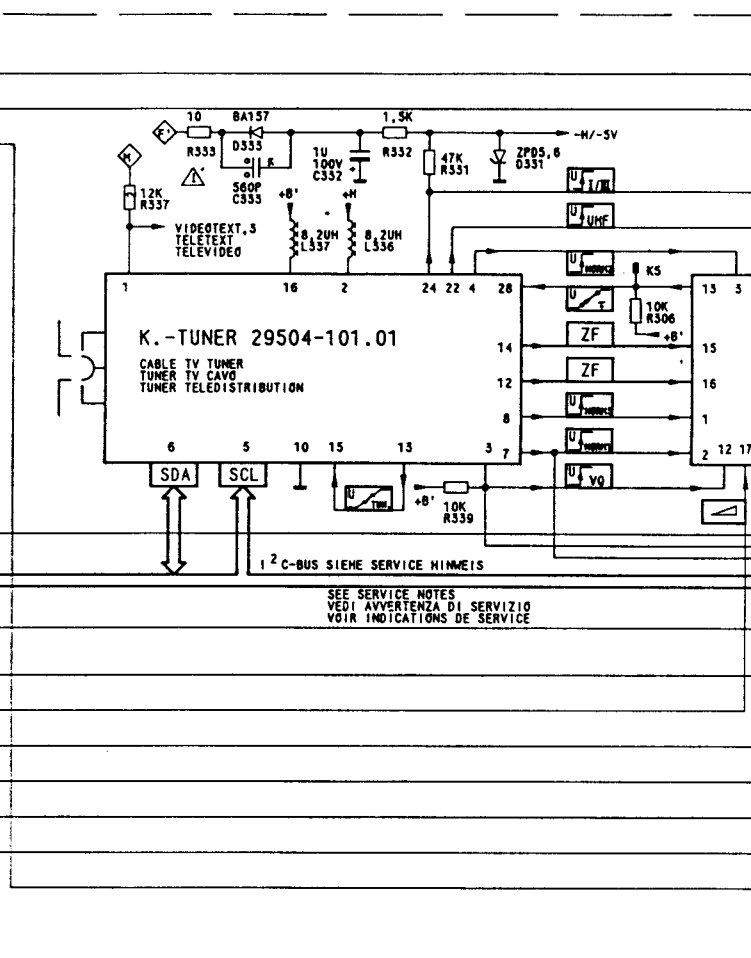
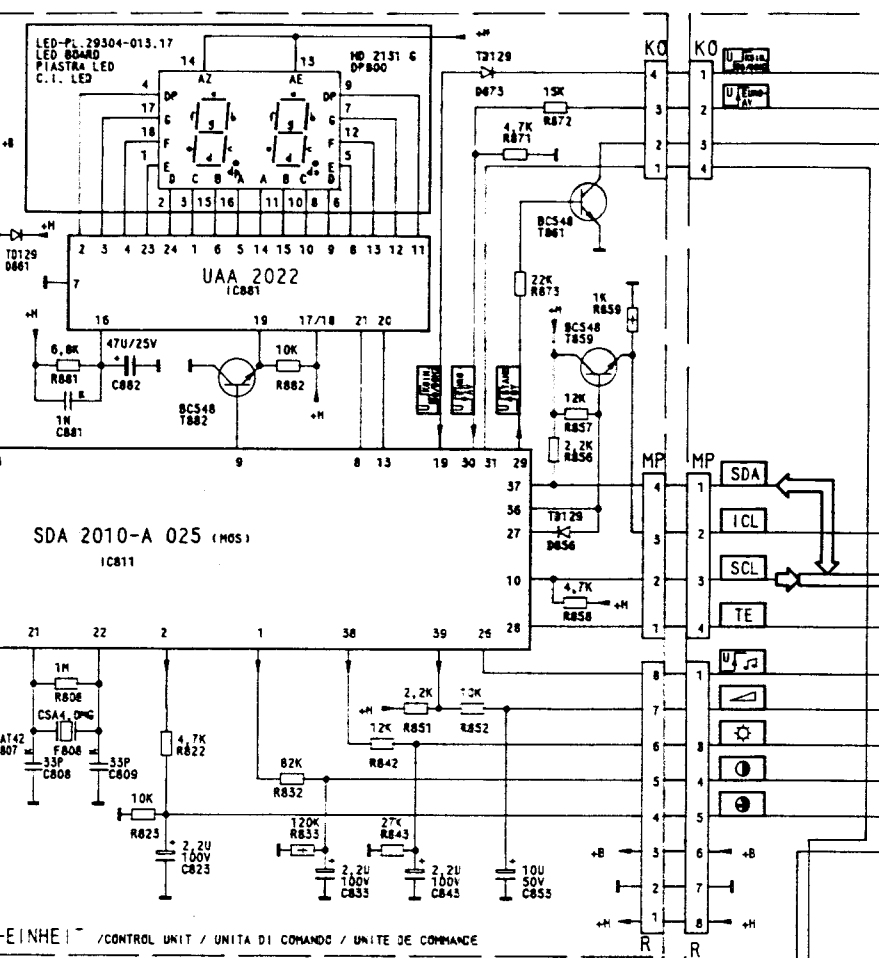


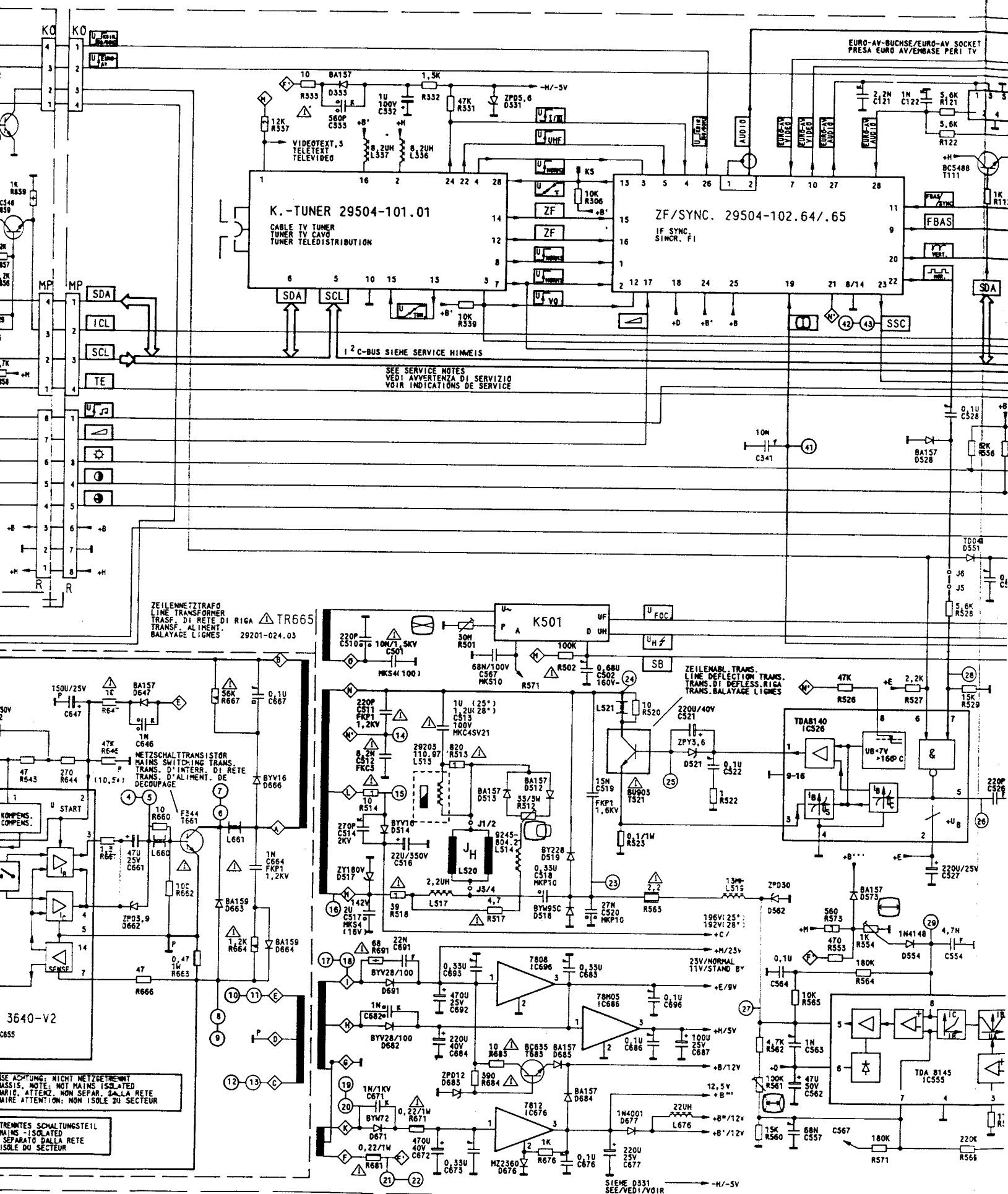
BILDROHRPLATTE  
CRT BASE  
PIASTRA CINESC.

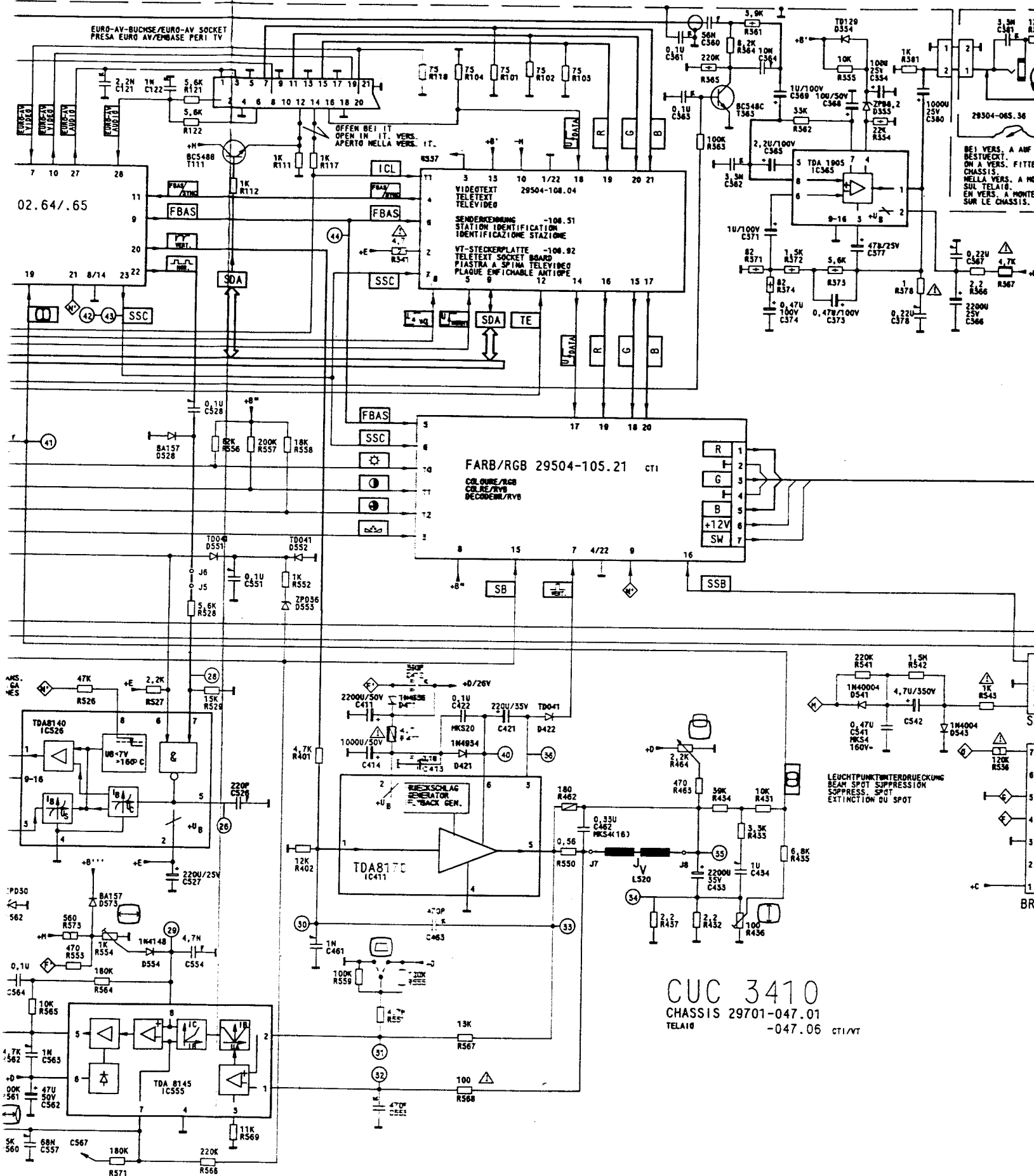


BEI VERS. AUF CHASSIS BESTEUERT  
ON A VERS. FITTED ON CHASSIS  
NELLE VERS. A MONTATA SUL TELAIO  
EN VERS. A MONTÉE SUR LE CHASSIS

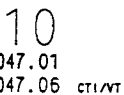








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Gli oscillogrammi contrassegnati con la «S» sono stati rilevati nella situazione di attesa.



# Service checks on the I<sup>2</sup>C bus (with SIEMENS processor)

If faults occur in the set which cannot be attributed to the power supply unit, the EHT or the deflection system, the I<sup>2</sup>C bus should be checked using Table 1 before further service work is carried out using Table 2.

Via the I<sup>2</sup>C bus the microcomputer in the control unit IC 811 supplies control signals for the tuner, videotext (teletext) T 111 (to the EURO-AV-socket).

Note:

When a module is being changed, the set should be switched off completely. Modules must not be unplugged even in the «standby» mode! Observe MOS handling precautions.

Table 1

| Test                 | Test Figures                                                              | Test Point               | Possible faults                                                                                                                                                                                                                                                                                          |
|----------------------|---------------------------------------------------------------------------|--------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| + H                  | 5 V                                                                       | Pin 40, IC 811           | D 682, IC 686, IC 811                                                                                                                                                                                                                                                                                    |
| 4 MHz clock<br>Reset | 4 MHz, 3 V <sub>pp</sub><br>4 V <sub>pp</sub> only at moment of switch on | Pin 22, IC 811<br>Pin 23 | F 808, IC 811<br>C 806, D 807, IC 811                                                                                                                                                                                                                                                                    |
| I <sup>2</sup> C bus | 5 V <sub>pp</sub>                                                         | Pin 10, 37, IC 811       | The I <sup>2</sup> C bus data are present even without input from the remote control or keyboard. If data are absent disconnect the SDA and SCL lines. If data are then present on the I <sup>2</sup> C bus, the I <sup>2</sup> C bus is overloaded. Possible faults: Tuner, Videotext (Teletext), T 111 |

Table 2

Possible faults which can occur in any part of the set

| Fault                                                           | Possible Cause                                      | Test Figure                               | Test Point                                 |
|-----------------------------------------------------------------|-----------------------------------------------------|-------------------------------------------|--------------------------------------------|
| No frequency tuning                                             | Tuner (memory, PLL)                                 | + 0,2–30 V                                | Pin 13, 15                                 |
|                                                                 | + B'<br>+ H<br>⊕                                    | + 12 V<br>+ 5 V<br>ca. + 4,5 V            | Tuner pin 16<br>Tuner pin 2<br>Tuner pin 1 |
| No functions accepted                                           | + H, IC 811                                         | + 5 V                                     | IC 811 pin 40                              |
| Incorrect LED indication                                        | IC 811                                              |                                           |                                            |
|                                                                 | F 808                                               | 4 MHz, 3 V                                | IC 811 pin 22                              |
| No sound                                                        | No coincidence identification (IF)                  | >3 V                                      | IC 811 pin 19                              |
|                                                                 | IC 365                                              | + M/about 23 V                            | IC 365 pin 2                               |
| Programme cannot be change with remote control                  | IR-preamplifier                                     | IR-signal 5 V <sub>pp</sub>               | IC 811 pin 3                               |
| No analog signals for Brightness<br>Contrast<br>Colour contrast | IC 811, IC 843                                      | 1-3 V                                     | Colour/RGB, pin 10                         |
|                                                                 | IC 811, C 833                                       | 2-4 V                                     | Colour/RGB, pin 11                         |
|                                                                 | IC 811, C 823                                       | 2-4 V                                     | Colour/RGB, pin 12                         |
| Sets switches to standby mode on operation of power button      | T 801                                               | Short-time "LOW" on switch-on (collector) | IC 811, pin 31                             |
| No CCVS                                                         | Tuner                                               | approx. 10 V                              | Tuner, pin 3                               |
|                                                                 | IF                                                  | approx. 10 V                              | IF-SYNC.. pin 12                           |
|                                                                 | + B, + B'                                           | + 12 V                                    | IF-SYNC.. pin 25, 24                       |
| Receiver does not go to working order – audible whistle         | C 653<br>Tolerance too large or capacitor defective | ①<br>Probe 1:10                           | IC 655 Pin 15                              |

Se l'apparecchio funziona erroneamente e ciò non dipende dalla deflessione, occorre controllare il tuo altri lavori di assistenza come da tabella 2. Il microcomputer nell'unità di comando IC 811 fornisce (alla presa EURO/SCART) attraverso il bus I<sup>2</sup>C.

Nota:

Spegnere l'apparecchio durante la sostituzione di meno con apparecchio in posizione d'attesa! Fare

Tabella 1

| Misura                 | Valore di misura                                                            | Punto di             |
|------------------------|-----------------------------------------------------------------------------|----------------------|
| + H                    | 5 V                                                                         | Pin 40, IC           |
| Cadenza 4 MHz<br>Reset | 4 MHz, 3 V <sub>pp</sub><br>4 V <sub>pp</sub> solo all'atto dell'accensione | Pin 22, IC<br>Pin 23 |
| Bus I <sup>2</sup> C   | 5 V <sub>pp</sub>                                                           | Pin 10, 37.          |

Tabella 2

Possibili guasti nell'apparecchio

| Guasto                                                                    | Possibile causa                             | Ve           |
|---------------------------------------------------------------------------|---------------------------------------------|--------------|
| Non è possibile sintonizzare la frequenza                                 | Tuner (memoria, PLL)                        | + 1          |
|                                                                           | + B'<br>+ H<br>⊕                            | +<br>+<br>ca |
| Nessuna funzione viene accettata                                          | + H, IC 811                                 | +            |
| Indicazione LED errata                                                    | IC 811                                      |              |
|                                                                           | F 808                                       | 4            |
| Manca l'audio                                                             | Nessun riconoscimento di coincidenza (FI)   | >            |
|                                                                           | IC 365                                      | +            |
| Non viene commutato il programma con TP                                   | Preamplif. IR                               | S            |
| Manca il valore analogico per luminosità<br>contrasto<br>contrasto colore | IC 811, C 843                               | 1            |
|                                                                           | IC 811, C 833                               | 2            |
|                                                                           | IC 811, C 823                               | 2            |
| Accendendo con tasto rete l'apparecchio commuta in posizione d'attesa     | T 801                                       | f<br>r<br>(  |
| Nessun segnale FBAS                                                       | Tuner                                       | c            |
|                                                                           | IF                                          | c            |
|                                                                           | + B, + B'                                   | -            |
| L'apparecchio non va in posizione di funzionamento (ronzio)               | C 653, tolleranza troppo grande e difettoso | c            |

## Short Functional Description

The GRUNDIG line/power supply unit has two important features:

- the line/mains transformer (ZNT) with ferrite core. This transformer is provided with windings for the power supply and line output stages;
- the supply frequency corresponds to the line frequency.

The ZNT is used for electrical isolation, horizontal deflection, and generation of the operating voltage. The ZNT windings are tightly and loosely coupled to ensure that the load capacity of the supplies is high enough and that back effects on the line transformer winding N-M are avoided.

### Startup Circuit

The starting voltage for IC 655 is obtained from the bridge rectifier D 621 via R 641. If the voltage on pin 2, which is derived from the resistor network R 642, 643, and 644, reaches a level of approximately 10 V, the IC 655 starts to drive T 661 via pin 3 (precondition: pin 18 > 10V). The line/power supply circuit starts to oscillate. Simultaneously, the current consumption drawn via pin 2 rises and the winding E-D of the ZNT takes over the operating voltage supply function (D 647, R 647, C 647).

### Oscillator in IC TDA 3640

The control pulses for the T 661 are generated by an oscillator which operates on the threshold principle where C 653 is an externally connected frequency-determining component (oscillator retaining range 14-17 kHz approx.). The oscillator oscillates at a free-running frequency until the reference pulses from the ZNT exceed 1 V<sub>p</sub> at pin 12. In full operating condition (ON) a voltage of about +5 V<sub>p</sub> is applied to pin 12.

### Line Output Stage

The deflection transistor T 521 is activated in stand-by mode. The cyclic line-frequency control of the deflection transistor corresponds to the "ON" operating mode. The power for the horizontal sweep circuit is derived from the electromotive force of coil M-N so that no additional operating voltage is necessary for T 521.

### Voltage Stabilisation

In stand-by mode the pulse from winding E-D (tightly coupled with winding A-B) is used as a reference for stabilisation. The controlled variable is +10.5 V on pin 2 TDA 3640.

In full operating condition, that is "ON", the voltage in the horizontal sweep circuit (transformer winding M-N) must be stabilised to a constant level. This is achieved by means of a reference pulse from winding C-D which is tightly coupled with winding M-N. The resulting direct voltage obtained via D 633 is proportional to the width of the picture or high voltage and is applied to pin 10 and compared with the reference voltage (about 3 V) on pin 11. In this part of the circuit the +C voltage is adjusted by means of R 637 to 196 V and 192 V for 25" receivers and 28" receivers, respectively.

### Protective Circuits of TDA 3640

The protective circuits respond immediately if:

- the operating voltage on pin 2 is too low ( $\leq 7$  V);
- I<sub>CE</sub> of T 521 is too high (more negative than -1 V at pin 7);
- the power supply voltage is too high (voltage at pin 18 is 2.8 V higher than at pin 2);
- the power supply voltage is too low (voltage at pin 18 is 1.4 V lower than at pin 2);
- the high voltage is excessively high (line flyback pulses  $\geq 6$  V at pin 12);
- the crystal temperature is too high ( $> 135^{\circ}$  C).

### Protective Circuits of TDA 8140

The protective circuits respond immediately if:

- the operating voltage at pin 2 is too low ( $< 7$  V);
- interference pulses (incorrect control pulses) occur during line flyback;
- the crystal temperature is too high ( $> 160^{\circ}$  C).

# Ersatzteilliste (Auszug) · List of Spare-Parts (extract) · Lista ricambi (estratto)

| Pos. No. | Fig. No.     | Bestell-Nr./Part No.<br>Réf./Nr. d'ordinazioni | Benennung                               | Description                         |                                     |
|----------|--------------|------------------------------------------------|-----------------------------------------|-------------------------------------|-------------------------------------|
|          |              |                                                |                                         |                                     |                                     |
|          |              |                                                | <u>Steckkarten</u>                      | <u>Plug in circuit board</u>        | <u>Schede</u>                       |
| 1        | 29504-131.21 |                                                | Kabeltuner (EXP)                        | Cable tuner                         | Tuner per TV cavo                   |
| 1        | 29504-131.01 |                                                | Kabeltuner                              | Cable tuner                         | Tuner per TV cavo                   |
| 2        | 29504-162.61 |                                                | ZF-Verstärker (Türkei)                  | IF-amplifier (Turkey)               | Amplificatore FI                    |
| 2        | 29504-162.64 |                                                | ZF-Verstärker                           | IF-amplifier                        | Amplificatore FI                    |
| oder     |              |                                                |                                         | or:                                 | oppure:                             |
| 2        | 29504-162.65 |                                                | ZF-Verstärker                           | IF-amplifier                        | Amplificatore FI                    |
| 2        | 29504-182.65 |                                                | ZF-Verstärker (Mono TP)                 | IF-amplifier (Mono TP)              | Amplificatore FI (Mono TP)          |
| 2        | 29504-142.65 |                                                | ZF-Verstärker (FR)                      | IF-amplifier (FR)                   | Amplificatore (FR)                  |
| 5        | 29504-185.01 |                                                | Farb-RGB                                | Colour RGB                          | Colore RGB                          |
| 5        | 29504-105.21 |                                                | Farb-RGB (CTI)                          | Colour RGB (CTI)                    | Colore RGB (CTI)                    |
| 5        | 29504-175.01 |                                                | Farb-RGB (Spanien)                      | Colour RGB (Spain)                  | Colore RGB (SP.)                    |
| 5        | 29504-145.21 |                                                | Farb-RGB (FR)                           | Colour RGB (FR)                     | Colore RGB (FR)                     |
| 8        | 29504-108.04 |                                                | Videotext 2805                          | Videotext 2805                      | Teletext 2805                       |
| 8        | 29504-108.92 |                                                | Videotext                               | Videotext                           | Teletext                            |
| 9        | 29504-108.51 |                                                | Sender-kennplatte                       | Plate                               | Piastra                             |
|          |              |                                                | <u>Bedienungseinheit (29501-061.01)</u> | <u>Keyboard unit (29501-061.01)</u> | <u>Unità comandi (29501-061.01)</u> |
| 10       | 29624-415.01 |                                                | Frontplatte mit Tasten                  | Front panel w. push button          | Piastra frontale p. tasti           |
| 11       | 29303-452.01 |                                                | Netzsteckerplatte                       | Plate mains switch                  | Piastra interruttore di rete        |
| 12       | 29303-506.18 |                                                | Snap-Folie                              | Elastic foil                        | Foglia elastica                     |
| 13       | 29503-925.41 |                                                | Keyboardplatte                          | Keyboard PCB                        | Piastra tastiera                    |
| 14       | 29304-013.17 |                                                | LED-Platte kpl.                         | Plate LED cpl.                      | Piastra LED cpl.                    |
|          |              |                                                | <u>Mechanische Teile</u>                | <u>Mechanical parts</u>             | <u>Parti meccaniche</u>             |
| 15       | 29304-070.54 |                                                | Bildrohrplatte kpl.                     | Picture tube plate                  | Piastra cinescopio                  |
| 16       | 29700-320.01 |                                                | Bausteinhalter (CTI)                    | Module holder                       | Supporto modulare                   |
| 16       | 29700-335.01 |                                                | Bausteinhalter (Türkei)                 | Module holder (Turkey)              | Supporto modulare (TÜ.)             |
| 16       | 29700-315.01 |                                                | Bausteinhalter                          | Module holder                       | Supporto modulare                   |
| 18       | 29703-291.02 |                                                | Netzschalter                            | Mains switch                        | Interruttore di rete                |
| 20       | 29621-113.02 | 4x                                             | Sicherungshalter                        | Fuse holder                         | Portafusibile                       |
| 21       | 29703-393.01 |                                                | Kopfhörerbuchse                         | EAR phone socket                    | Presafusibile                       |
| 22       | 29703-119.03 |                                                | Euro-AV-Buchse                          | Euro-AV-socket                      | Presafusibile                       |
| 23       | 29500-503.05 |                                                | Abdeckung (AV)                          | Cover (AV)                          | Copertura (AV)                      |
|          |              |                                                | <u>Elektrische Teile</u>                | <u>Electrical parts</u>             | <u>Parti elettriche</u>             |
| K 501    | 4324-800-044 |                                                | Kaskade EG 2087-642-1010                | Kaskade                             | Moltiplicatore in cascata           |
|          | 70008-090.02 |                                                | Fokusregler                             | Focusing control                    | Regolatore del fuoco                |
| TR 551   | 29201-022.03 |                                                | (R 537-6,3 2)                           |                                     |                                     |
| F 808    | 8602-331-035 |                                                | 4,0 MG                                  |                                     |                                     |
| L 236    | 8140-526-451 |                                                |                                         |                                     |                                     |
| L 337    | 8140-526-451 |                                                |                                         |                                     |                                     |
| L 513    | 29203-110.97 |                                                |                                         |                                     |                                     |
| L 514    | 09245-804.21 |                                                |                                         |                                     |                                     |
| L 517    | 09240-110.21 |                                                |                                         |                                     |                                     |
| L 519    | 09245-882.21 |                                                |                                         |                                     |                                     |
| L 521    | 29500-804.07 |                                                |                                         |                                     |                                     |
| L 601    | 29500-812.97 |                                                |                                         |                                     |                                     |
| L 660    | 09278-308.01 |                                                |                                         |                                     |                                     |
| L 661    | 09278-314.01 |                                                |                                         |                                     |                                     |
| L 676    | 8140-525-974 |                                                |                                         |                                     |                                     |
| L 1213   | 07202-370.97 |                                                |                                         |                                     |                                     |
| IC 365   | 8305-302-241 | TDA 1905                                       |                                         |                                     |                                     |
| IC 411   | 8305-338-170 | TDA 8170                                       |                                         |                                     |                                     |
| IC 526   | 8305-338-140 | TDA 8140                                       |                                         |                                     |                                     |
| IC 555   | 8305-338-145 | TDA 8145                                       |                                         |                                     |                                     |
| IC 576   | 29502-427.54 |                                                |                                         |                                     |                                     |
| IC 655   | 8305-333-540 | TDA 3640                                       |                                         |                                     |                                     |
| IC 676   | 8305-205-765 | TS12/3%                                        |                                         |                                     |                                     |
| IC 686   | 8305-205-701 | TS 11 05                                       |                                         |                                     |                                     |
| IC 696   | 8305-205-765 | TS12/3%                                        |                                         |                                     |                                     |
| IC 811   | 8305-158-015 | SCA 2010 A 025                                 |                                         |                                     |                                     |
| IC 811   | 8305-205-675 | YC 6805 T 2                                    |                                         |                                     |                                     |
| IC 820   | 8305-205-910 | MC 144111 (MCS) (1)                            |                                         |                                     |                                     |
| IC 881   | 8305-202-242 | 14A 2022 (MCS) (1)                             |                                         |                                     |                                     |
| IC 1211  | 8305-334-052 | TDA 4052                                       |                                         |                                     |                                     |
| T 111    | 8302-202-543 | BC 548 B                                       |                                         |                                     |                                     |
| T 363    | 8302-200-548 | BC 548 C                                       |                                         |                                     |                                     |
| T 521    | 8302-260-510 | BU 508 D                                       |                                         |                                     |                                     |
| T 661    | 8302-262-056 | BU 56 A                                        |                                         |                                     |                                     |
| T 661    | 8302-262-211 |                                                |                                         |                                     |                                     |

| Pos. No. | Fig. No. | Bestell-Nr./Part No. Réf./Nr. d'ordinazioni | Benennung Description Désignation Denominazione |
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| T 801  | 8302-200-548 | BC 548 C |
| T 806  | 8302-200-538 | BC 548   |
| T 859  | 8302-200-538 | BC 548   |
| T 861  | 8302-200-538 | BC 548   |
| T 882  | 8302-200-538 | BC 548   |
| T 1204 | 8302-200-543 | BC 548 B |

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|--------|--------------|----------------------|
| D 331  | 8309-200-103 | ZPD 5,1              |
| D 333  | 8309-200-103 | BA 157               |
| D 334  | 8309-200-103 | TD 129               |
| D 335  | 8309-200-103 | ZPD 8,2              |
| D 336  | 8309-200-103 | ZPD 9,1 (0,5 A)      |
| D 411  | 8309-200-103 | 1 N 4004             |
| D 421  | 8309-200-103 | 1 N 4004             |
| D 422  | 8309-200-103 | TD 041               |
| D 512  | 8309-200-103 | BA 157               |
| D 513  | 8309-200-103 | BA 157               |
| D 514  | 8309-200-103 | BYW 16 (1/2)         |
| D 515  | 8309-200-103 | ZY 180               |
| D 516  | 8309-200-103 | SKE 4 5/2            |
| D 517  | 8309-200-103 | BY 228               |
| D 523  | 8309-200-103 | BA 157               |
| D 541  | 8309-200-103 | 1 N 4004             |
| D 542  | 8309-200-103 | 1 N 4004             |
| D 551  | 8309-200-103 | TD 041               |
| D 552  | 8309-200-103 | TD 041               |
| D 553  | 8309-200-103 | ZD 36 C              |
| D 554  | 8309-200-103 | 1 N 4148             |
| D 562  | 8309-200-103 | ZPD 30               |
| D 573  | 8309-200-103 | BA 157               |
| D 621  | 8308-560-334 | SKB 380/2 1500 L 5 B |
| D 633  | 8309-200-103 | TD 129               |
| D 635  | 8309-200-103 | BAT 86               |
| D 647  | 8309-200-103 | BA 157               |
| D 662  | 8309-200-103 | ZD 3,9 1/2,5 W       |
| D 663  | 8309-200-103 | BA 159               |
| D 664  | 8309-200-103 | BA 159               |
| D 665  | 8309-200-103 | BYW 16 TFX           |
| D 671  | 8309-200-103 | BYW 72               |
| D 676  | 8309-200-103 | MZ 236C              |
| D 677  | 8309-200-103 | 1 N 4004             |
| D 682  | 8309-200-103 | BYW 98               |
| D 683  | 8309-200-103 | ZPD 12               |
| D 684  | 8309-200-103 | BA 157               |
| D 685  | 8309-200-103 | BA 157               |
| D 691  | 8309-200-103 | BYW 98-100           |
| D 804  | 8309-200-103 | TD 129               |
| D 807  | 8309-200-103 | BAT 41               |
| D 846  | 8309-200-103 | TD 129               |
| D 856  | 8309-200-103 | TD 129               |
| D 861  | 8309-200-103 | TD 129               |
| D 873  | 8309-200-103 | TD 129               |
| D 883  | 8309-200-103 | TD 129               |
| D 1201 | 8309-200-103 | SFH 205 B            |

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|-------|--------------|-------------------|
| C 366 | 8415-166-100 | 2200 pF/25 V      |
| C 376 | 8555-262-131 | 0,22 pF (1)       |
| C 380 | 8452-396-107 | 1000 pF/25 V      |
| C 411 | 8452-396-107 | 2200 pF/50 V      |
| C 414 | 8415-166-100 | 1000 pF/50 V      |
| C 433 | 8415-166-100 | 2200 pF/25 V      |
| C 462 | 8563-731-100 | 0,33 pF/100 V     |
| C 501 | 8563-731-100 | 0,01 pF/100 V (1) |
| C 510 | 8560-097-234 | 220 pF            |
| C 511 | 8515-911-100 | 560 pF/100 V (1)  |
| C 512 | 8525-033-100 | 8200 pF/100 V (1) |
| C 513 | 8525-040-100 | 1,2 pF/100 V (1)  |
| C 515 | 8525-040-100 | 1 pF/100 V        |
| C 514 | 8650-090-277 | 270 pF/25 V (1/2) |
| C 517 | 8563-731-100 | 2,0 pF/250 V      |
| C 518 | 8515-911-237 | 0,33 pF/250 V     |
| C 520 | 8515-911-100 | 0,027 pF/100 V    |
| C 601 | 8599-990-205 | 0,15 pF/250 V (1) |
| C 609 | 8563-732-100 | 0,1 pF/250 V (1)  |
| C 611 | 8560-097-234 | 1000 pF (1)       |
| C 613 | 8560-097-234 | 1000 pF (1)       |
| C 621 | 8550-090-510 | 1000 pF/1 KV      |
| C 622 | 8550-090-510 | 1000 pF/1 KV      |
| C 623 | 8550-090-510 | 1000 pF/1 KV      |
| C 624 | 8550-090-510 | 1000 pF/1 KV      |
| C 626 | 8443-306-250 | 220 pF/250 V (1)  |
| C 653 | 8524-022-100 | 4700 pF/50 V      |
| C 654 | 8515-911-251 | 1000 pF/100 V (1) |
| C 667 | 8563-731-100 | 0,1 pF/600 V      |
| C 671 | 8550-090-510 | 1000 pF/1 KV      |
| C 691 | 8531-689-357 | 0,022 pF/100 V    |

| Pos. No. | Fig. No. | Bestell-Nr./Part No. Réf./Nr. d'ordinazioni | Benennung Description Désignation Denominazione |
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|       |              |                         |
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| R 333 | 8700-907-425 | 10 Ω (1)                |
| R 337 | 8705-269-299 | 12 KΩ                   |
| R 341 | 8705-269-017 | 4,7 Ω (1)               |
| R 341 | 8730-049-020 | 6,2 Ω (1)               |
| R 366 | 8700-007-009 | 2,2 Ω                   |
| R 367 | 8700-229-017 | 4,7 Ω NE (1)            |
| R 411 | 8700-252-017 | AX 041-1/4,7 Ω NE (1)   |
| R 436 | 8790-047-109 | 100 Ω                   |
| R 454 | 8790-047-140 | 2,2 KΩ                  |
| R 502 | 8700-007-521 | 100 KΩ                  |
| R 513 | 8705-227-071 | 820 Ω (1)               |
| R 514 | 8705-227-025 | 10 Ω (1/2)              |
| R 517 | 8701-115-017 | 4,7 Ω (1)               |
| R 518 | 8705-207-259 | 39 Ω                    |
| R 521 | 8705-359-209 | 15 Ω                    |
| R 523 | 8701-115-979 | 1 W/0,1 Ω               |
| R 536 | 8705-227-323 | 120 KΩ (1)              |
| R 536 | 8700-227-135 | 390 KΩ (1)              |
| R 537 | 8705-269-209 | 2,2 Ω (1)               |
| R 537 | 8705-227-196 | 0,68 Ω (1)              |
| R 543 | 8700-007-073 | 1 KΩ                    |
| R 554 | 8790-047-155 | 1 KΩ                    |
| R 561 | 8790-047-164 | 100 KΩ                  |
| R 563 | 8700-229-009 | AX 0207-34 0,1 Ω NE (1) |
| R 563 | 8700-207-449 | 100 Ω                   |
| R 573 | 8705-227-067 | 560 Ω                   |
| R 603 | 8311-200-010 | 0,00-PTC (1)            |
| R 621 | 8730-179-009 | 2,2 Ω (1)               |
| R 623 | 8311-200-125 | VDR VZA 275 (1)         |
| R 624 | 8718-250-158 | 3,5 MΩ VDE (1)          |
| R 627 | 8718-250-014 | 4,7 MΩ VDE              |
| R 641 | 8796-101-155 | 1 KΩ                    |
| R 641 | 8705-359-521 | 100 KΩ                  |
| R 647 | 8700-007-025 | 10 Ω (1)                |
| R 647 | 8700-007-023 | 8,2 Ω                   |
| R 653 | 8730-019-155 | 1 W/0,47 Ω              |
| R 654 | 8705-279-075 | 1,2 KΩ                  |
| R 667 | 8705-279-115 | 56 KΩ                   |
| R 671 | 8735-303-022 | 0,22 Ω NE (1)           |
| R 681 | 8735-303-022 | 0,22 Ω NE (1)           |
| R 683 | 8700-007-425 | 10 Ω                    |
| R 684 | 8700-007-463 | 390 Ω                   |
| R 691 | 8700-011-245 | 68 Ω (1)                |
| R 721 | 8700-031-073 | 100 KΩ (1)              |
| R 726 | 8766-357-137 | 470 KΩ (1)              |
| R 742 | 8700-201-063 | 680 KΩ (1)              |
| R 780 | 8700-201-053 | 680 KΩ (1)              |
| R 801 | 8766-357-159 | 10 MΩ                   |
| R 802 | 8766-357-159 | 10 MΩ                   |

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| SI 601 | 8315-517-006 | 2,5 A/T (1)  |
| SI 614 | 8315-518-003 | 300 mA/T (1) |