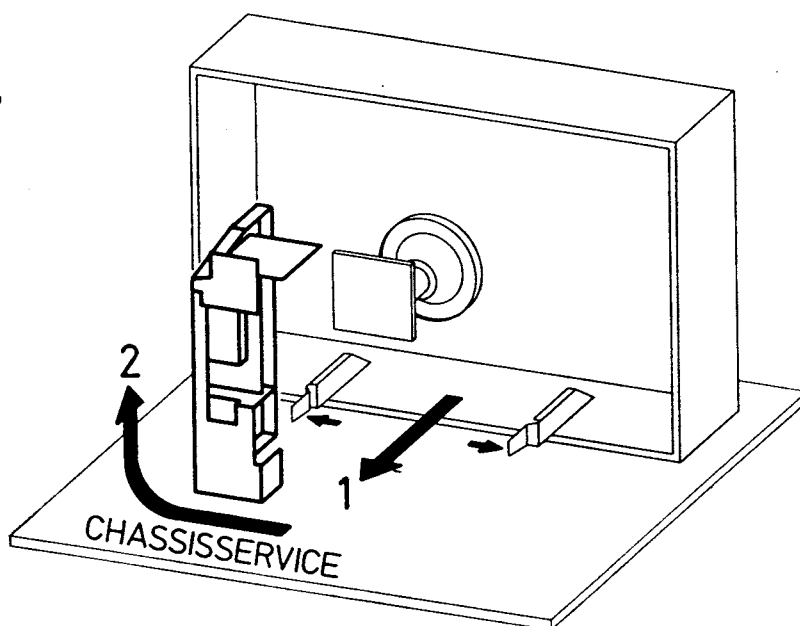


Servicestellung  
Service position  
Posizione di servizio



# 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

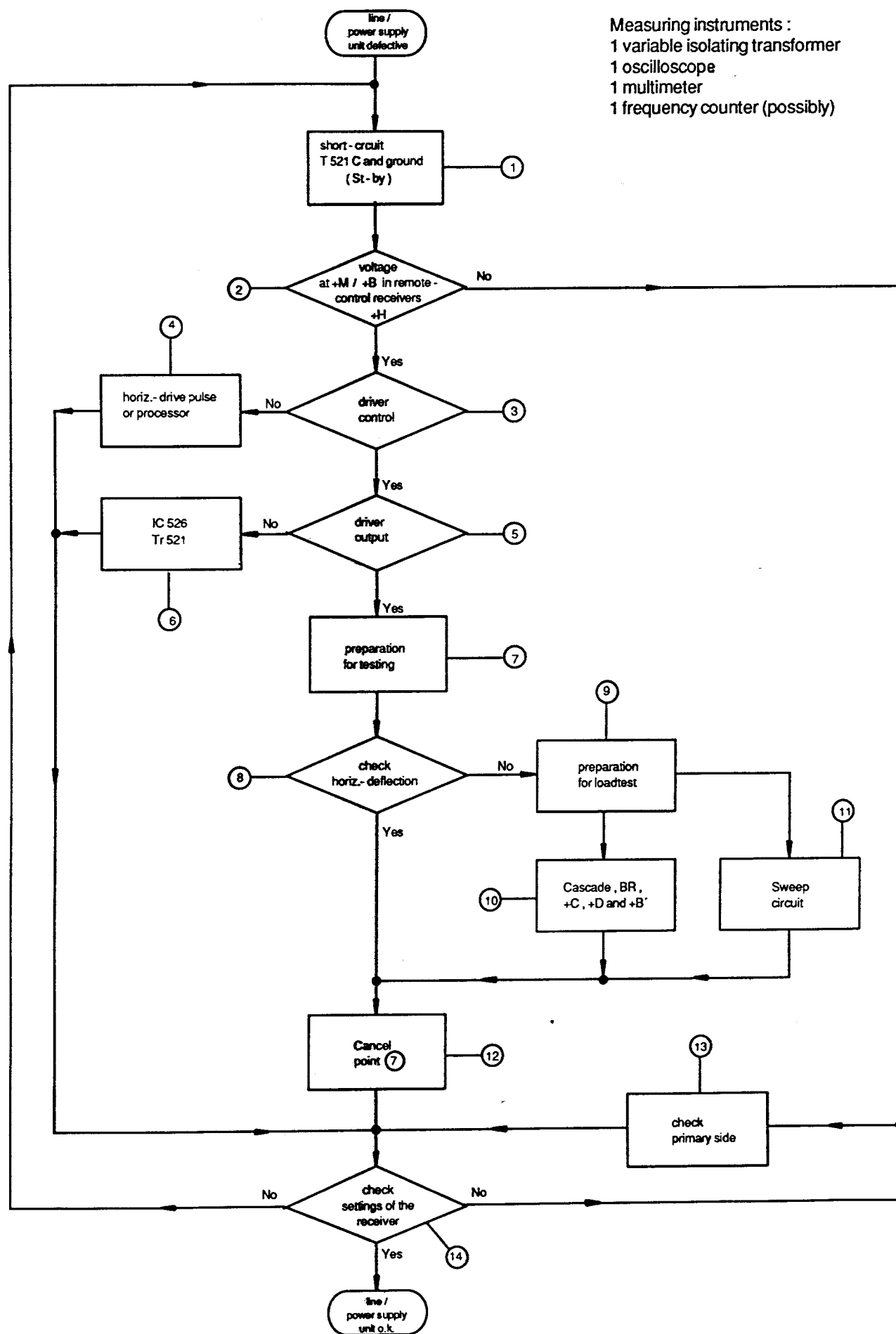
### ⓐ AVVERTENZA DI SERVIZIO

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)



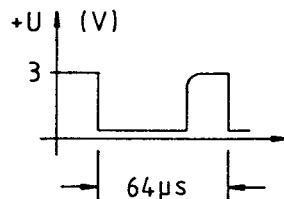
Explanation of the individual steps in the flow chart:

- 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

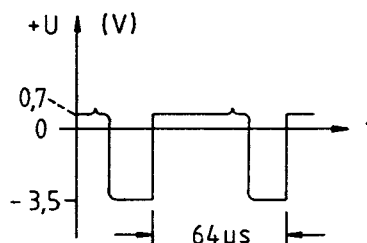
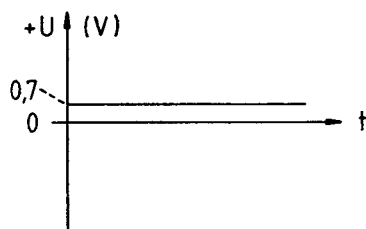
pin 2 8-12 V  
pin 6 > 2.5 V = normal operation  
pin 6 0 V = stand-by (RC)

- ④ Deflection module (CUC 3510) and IF/sync module: check line output Control unit - processor: check stand-by - output

- ⑤ Oscillogram of base T 521

IC 526 pin 6: 0 V

IC 526 pin 6: > 2.5 V



- ⑥ Check TDA 8140 with externally connected components and T 521

- ⑦ 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 of the C 626 electrolytic capacitor and the positive pole to the secondary ground connection and  $\diamond$  of TR 665. Set the variable-voltage transformer to 100 V a.c.. Switch on the receiver.

- ⑧ 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!

- ⑨ Preparations for load test

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

- ⑩ 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.

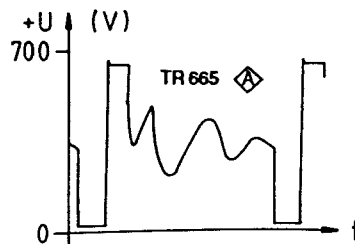
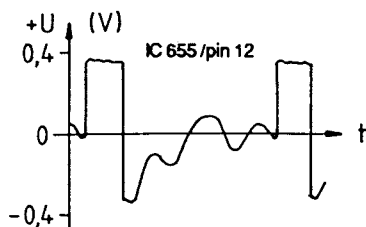
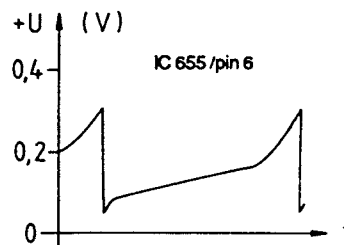
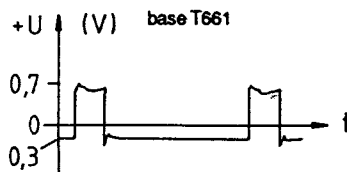
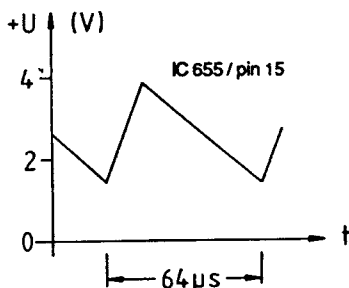
- ⑪ Check T 521 and sweep circuit (horizontal deflection yoke 1.5-3.5 Ohm)

- ⑫ Cancel all preparatory measures under ⑦.

- ⑬ 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.



Possible  
Remove  
Simplified  
The sta  
For this

U-NETZ  
MAINS  
SFNS.  
REGUL

Connected  
variable  
Time t<sub>1</sub>:

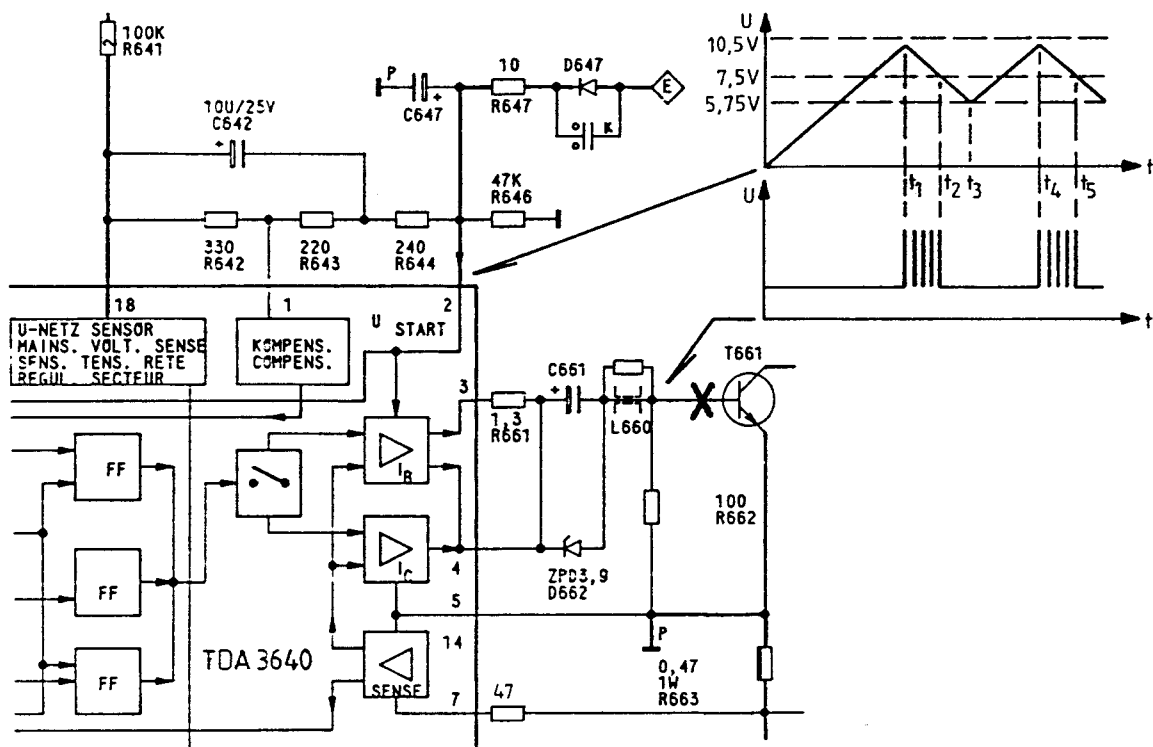
Time t<sub>2</sub>:  
Time t<sub>3</sub>:

On pin  
⑬ Check t  
with the

Possible causes of trouble: Si 624, T 661, D 666, R 647, TDA 3640.  
Remove short circuit at T 521.

#### Simplified Test for the Startup Sequence

The startup sequence can be checked without the mains switching transistor T 661.  
For this purpose, disconnect the base of T 661 from the circuit:



Connect an oscilloscope to pin 2/C 661. Switch on the receiver. On pin 2 of the IC the starting voltage must rise to just below the controlled variable of 10 V (time  $t_1$ ); current consumption approx. 100µA.

- Time  $t_1$ : IC 655 starts to oscillate (current consumption 15-20 mA) and supplies via pin 3 control pulses at approx. line frequency (1.5 V<sub>cc</sub>). The voltage divider R 642, R 643, and R 644, is at too high a resistance to provide sufficient current for the IC to be in operation (20 mA required). There is no operating voltage obtained via D 647. The voltage at pin 2 decreases.
- Time  $t_2$ : When the voltage  $U_B$  reaches 7.0 V the IC 655 stops driving the base.  $U_B$  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 100µA 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 ( $\pm 10\%$ ).

electrolytic  
o 100 V a.c.  
the picture

direction)

- t

U61

1

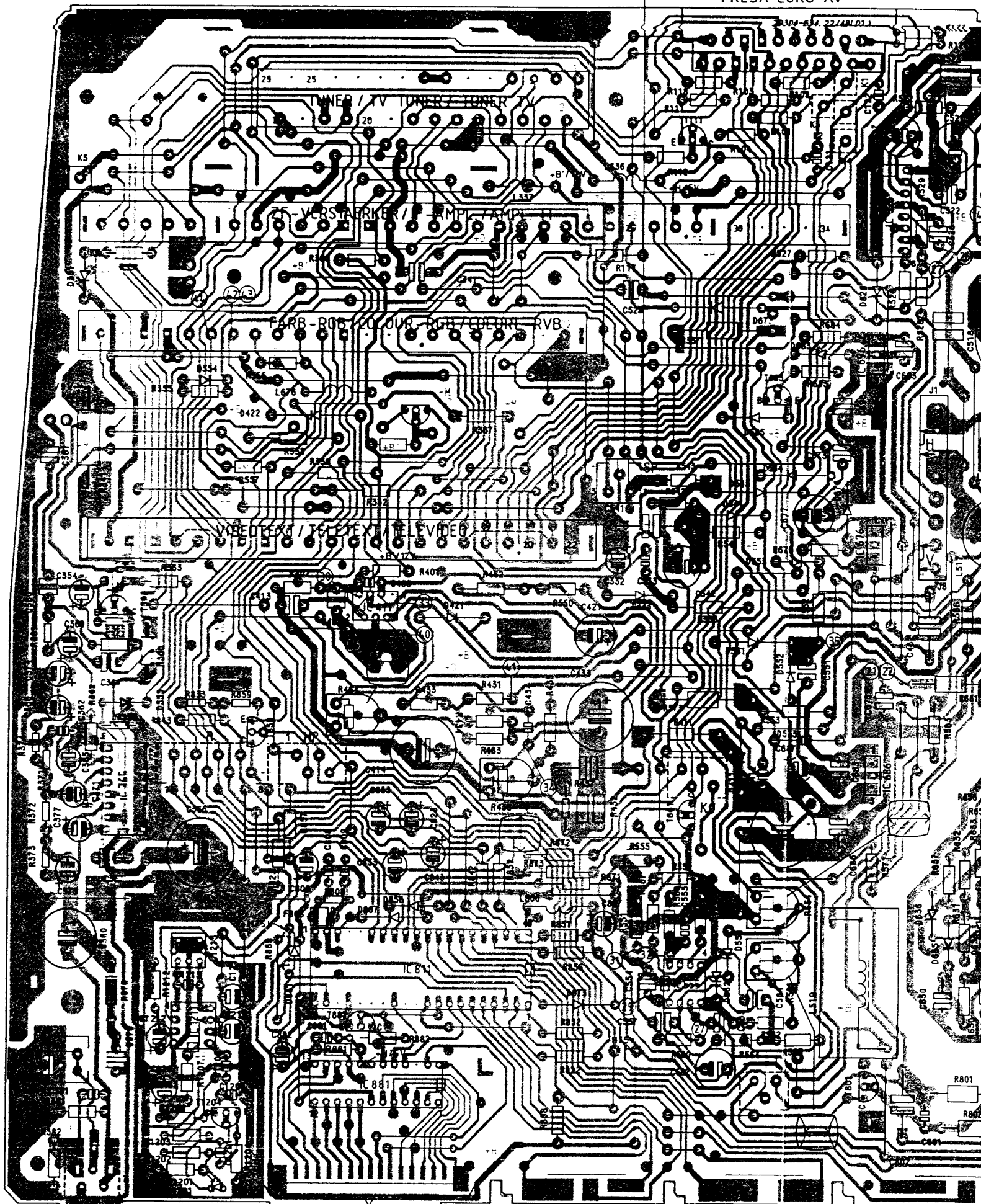
SSB

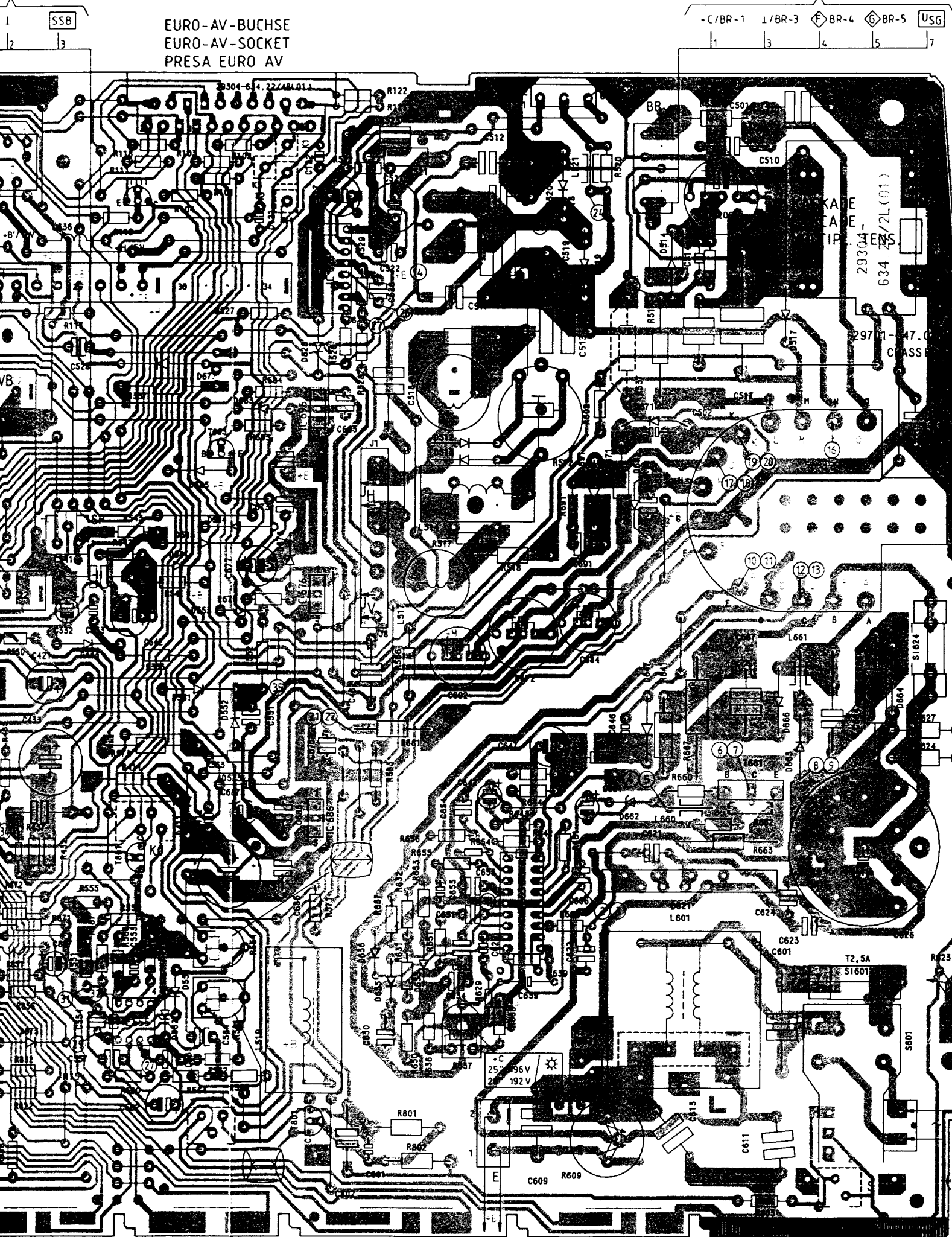
1

2

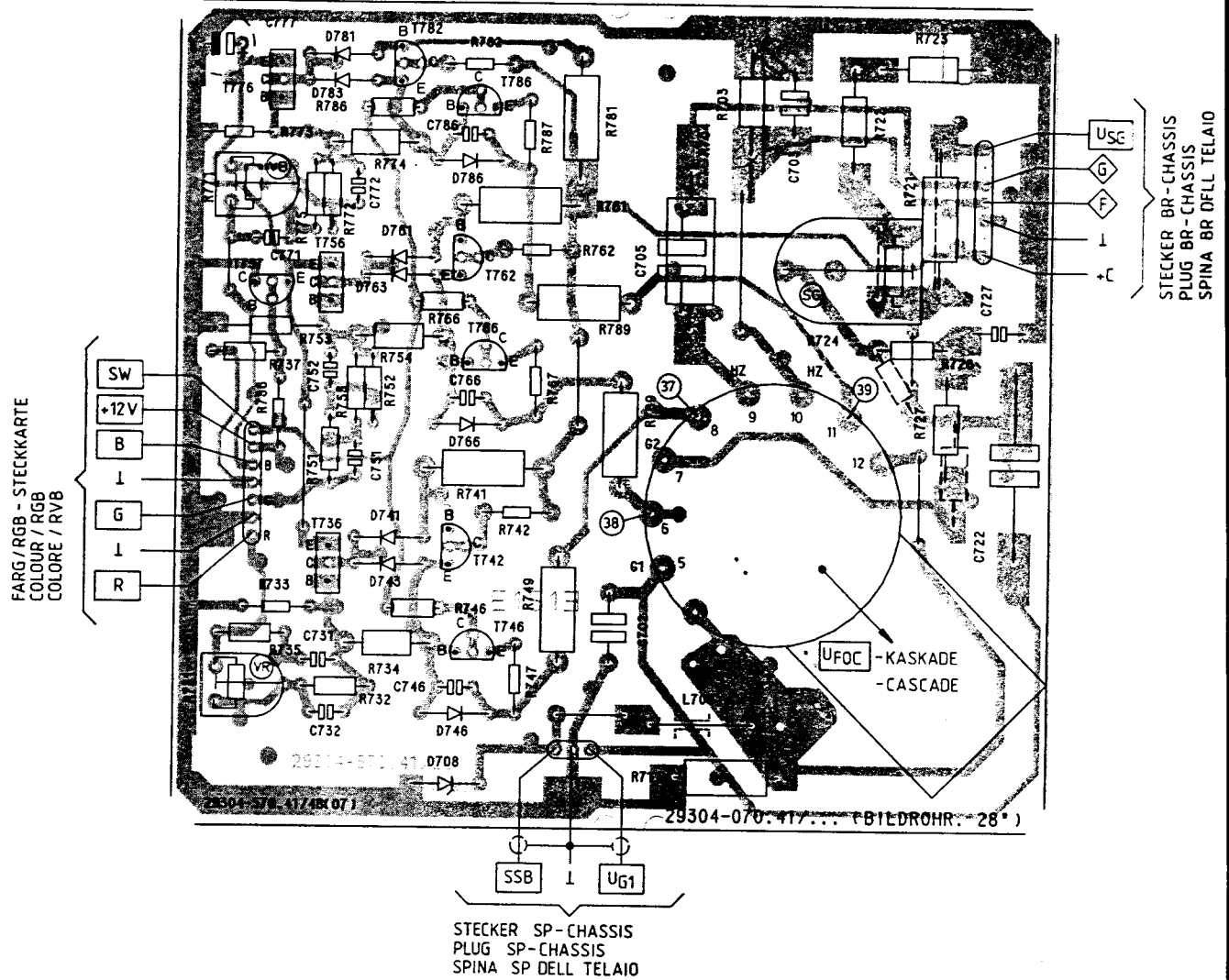
3

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

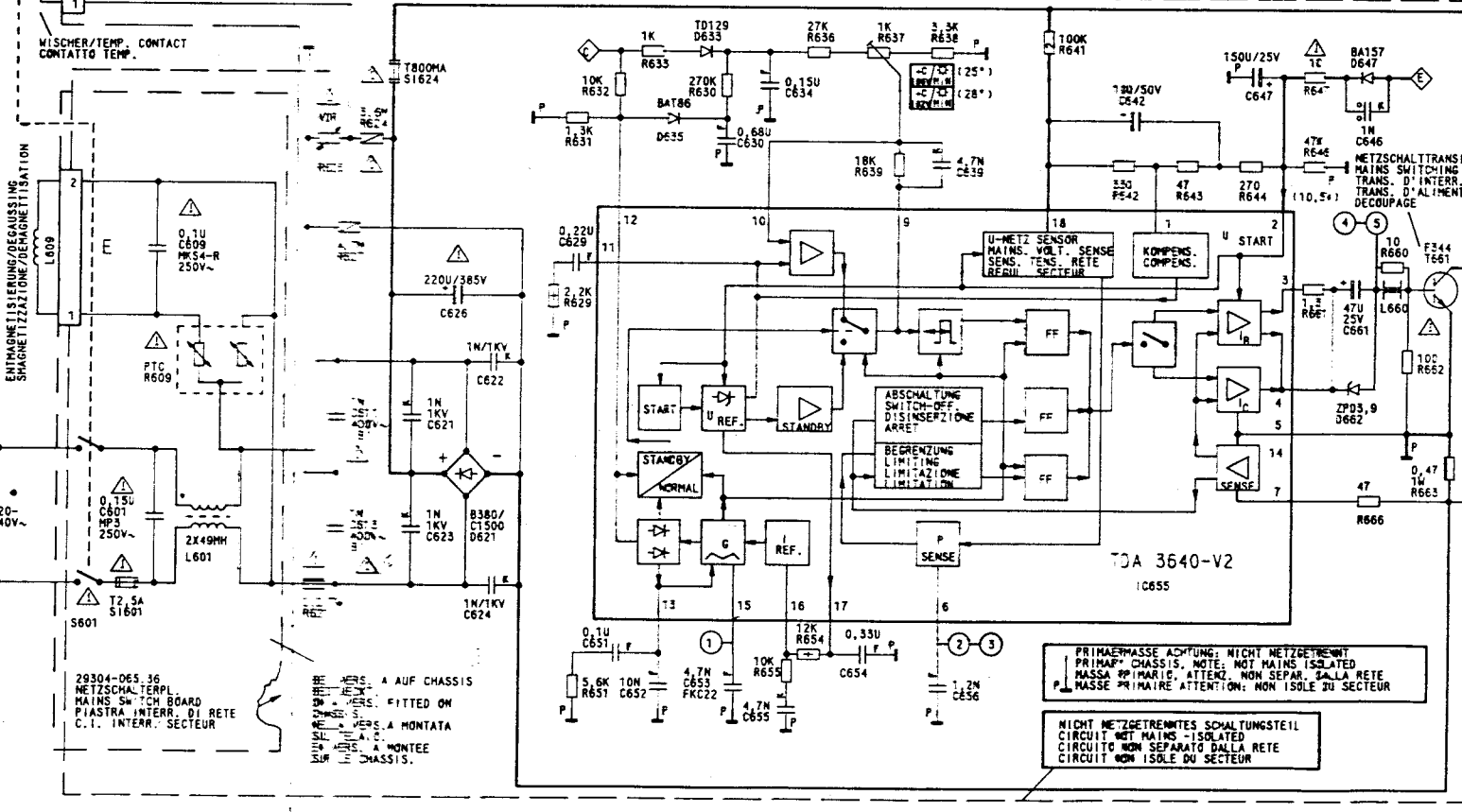
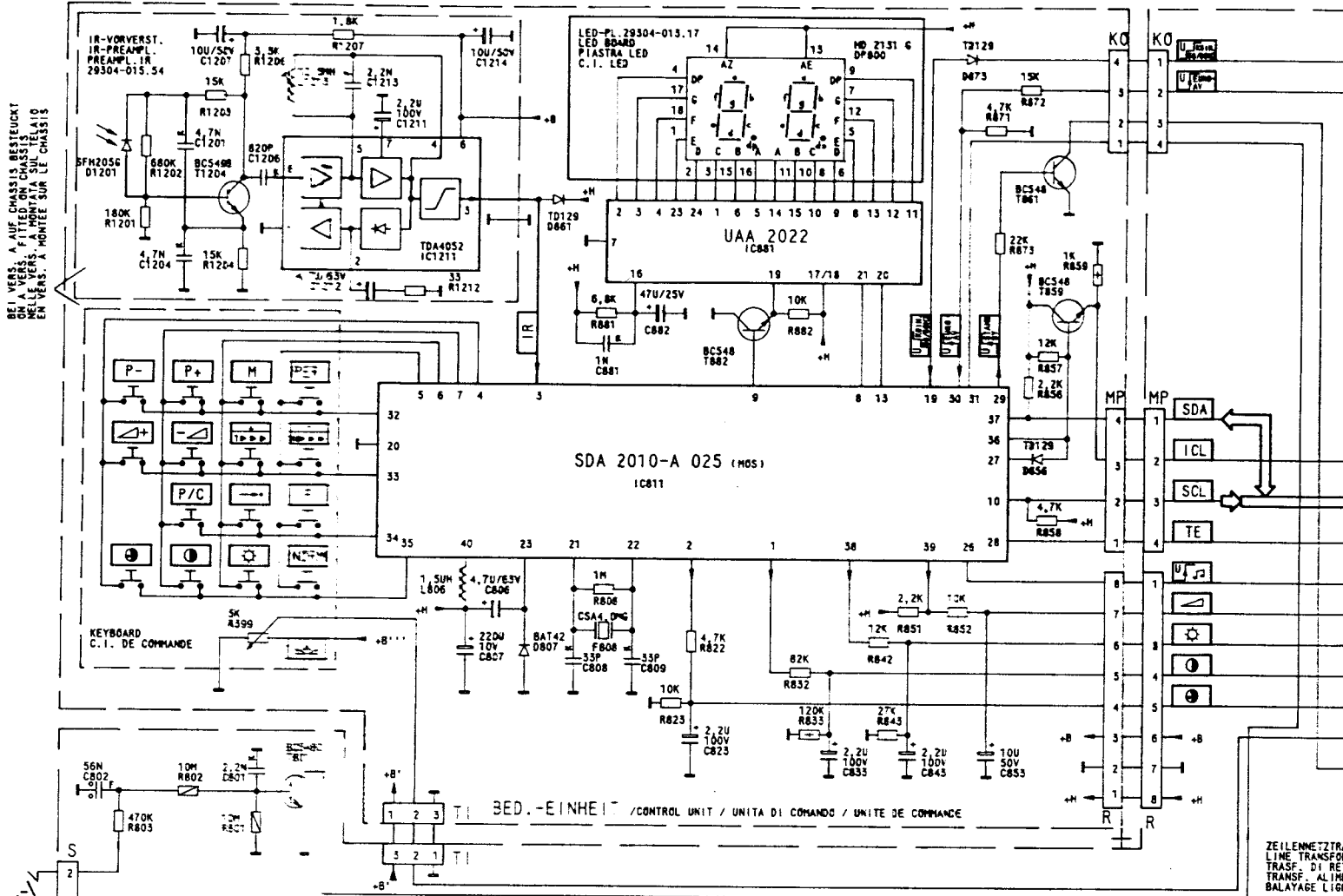




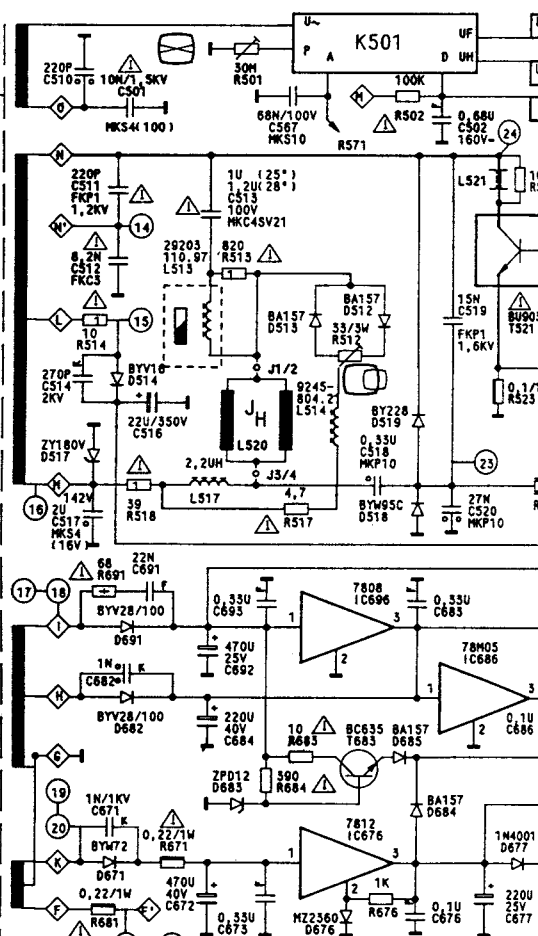
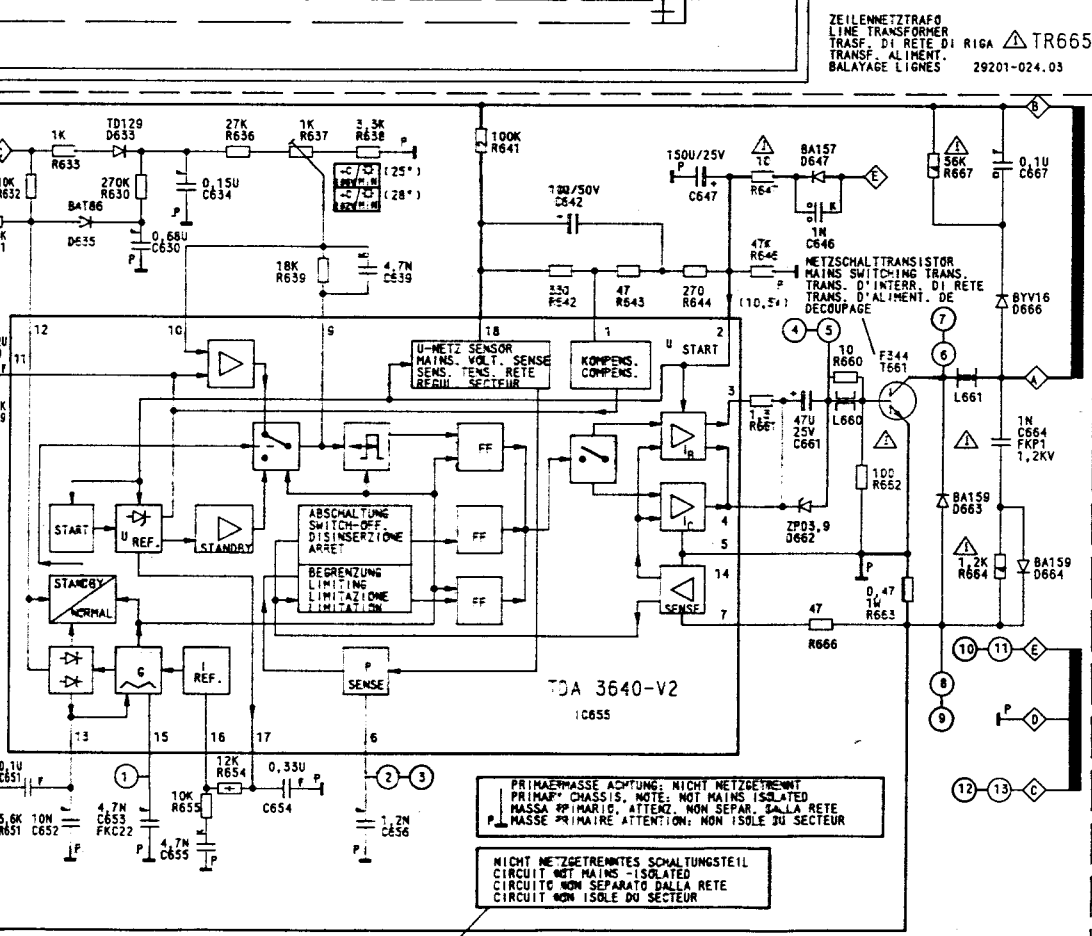
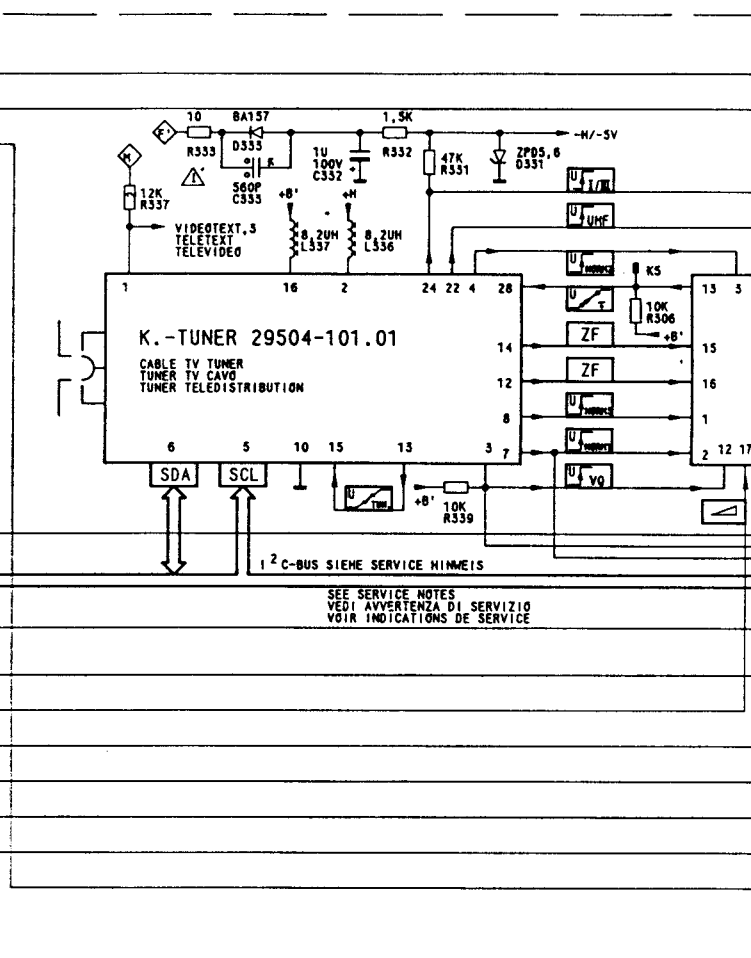
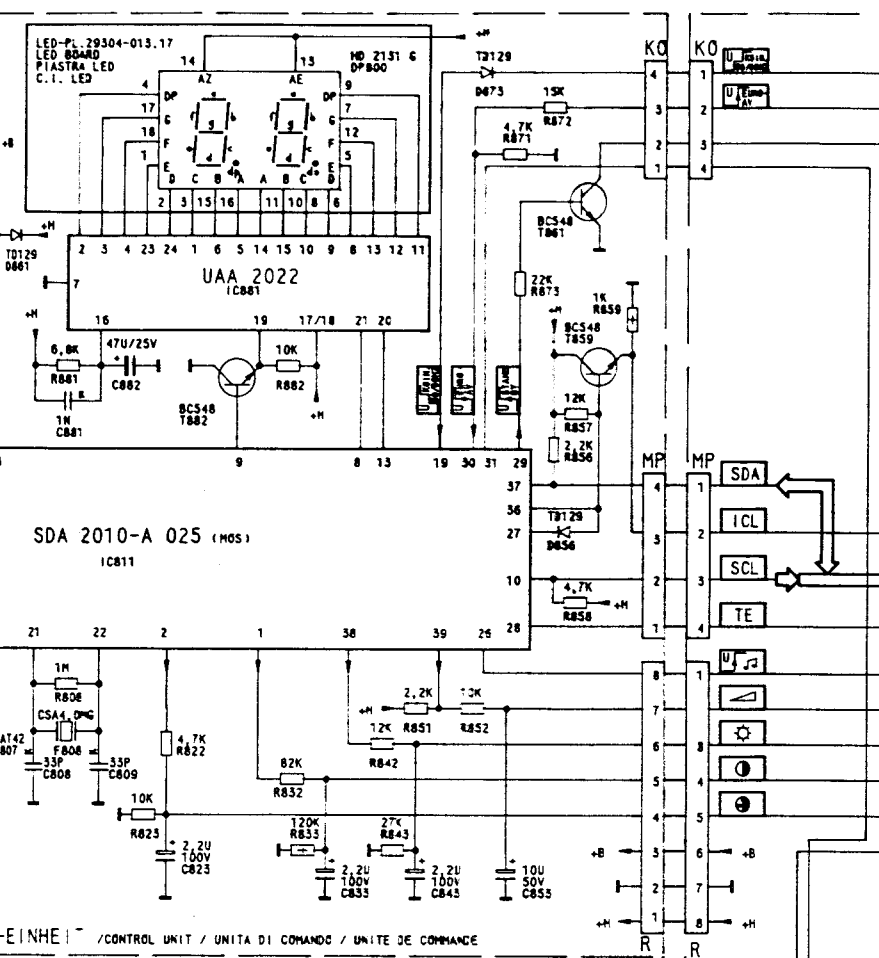
BILDROHRPLATTE  
CRT BASE  
PIASTRA CINESC.

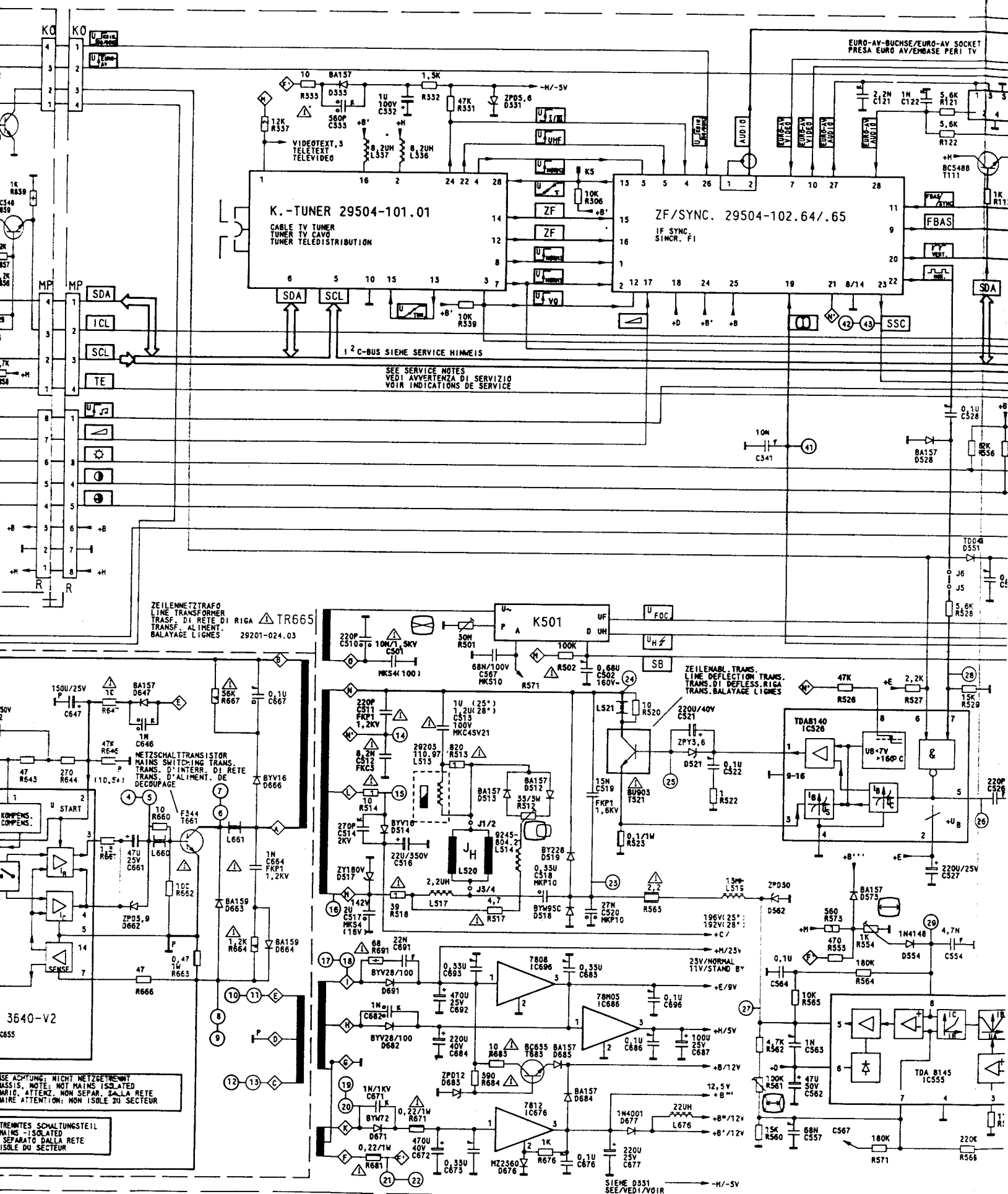


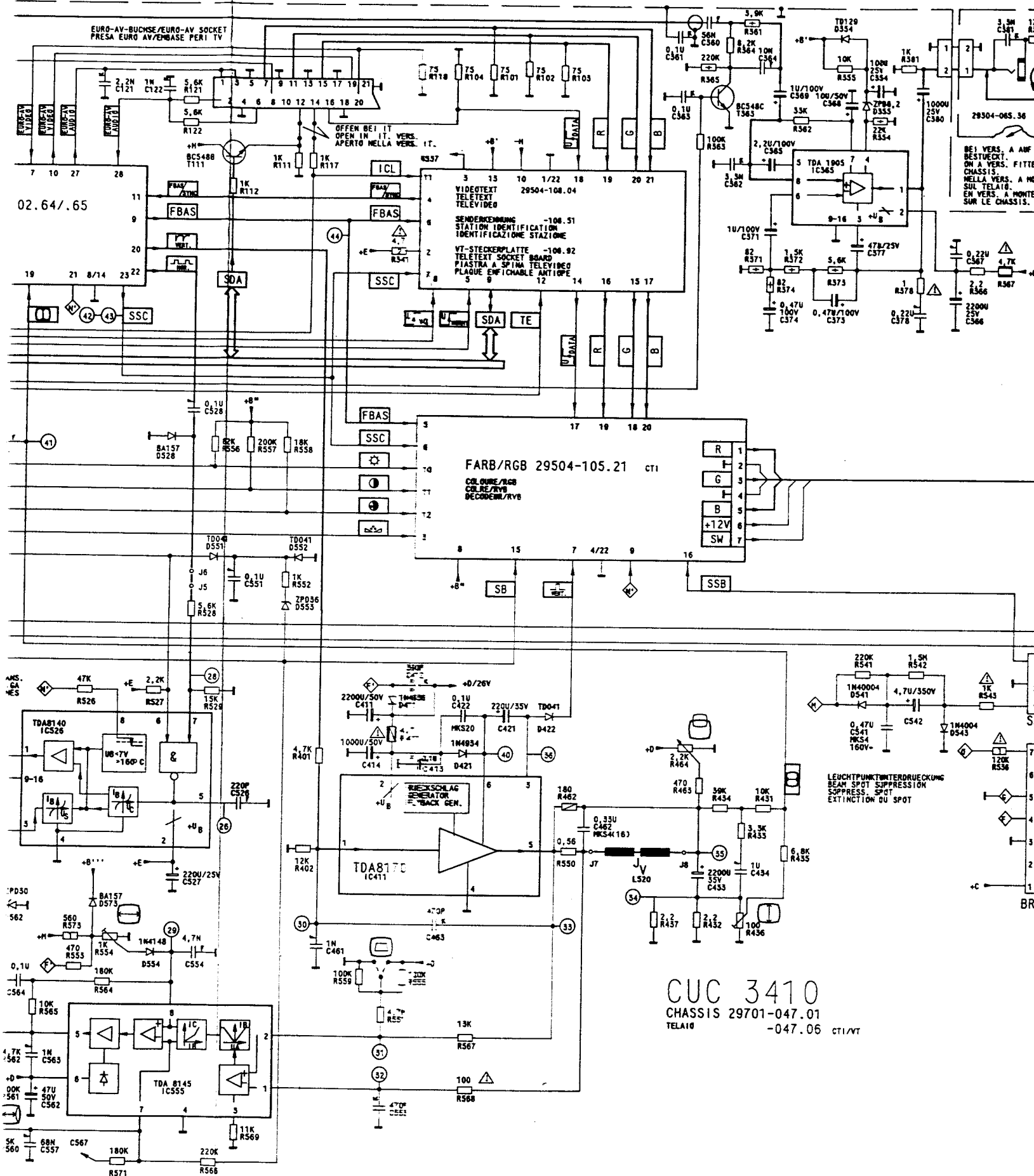
BEI VERS. AUF CHASSIS BESTEUCKT  
ON A VERS. FITTED ON CHASSIS  
NELLE VERS. A MONTATA SUL TELAIO  
EN VERS. A MONTÉE SUR LE CHASSIS



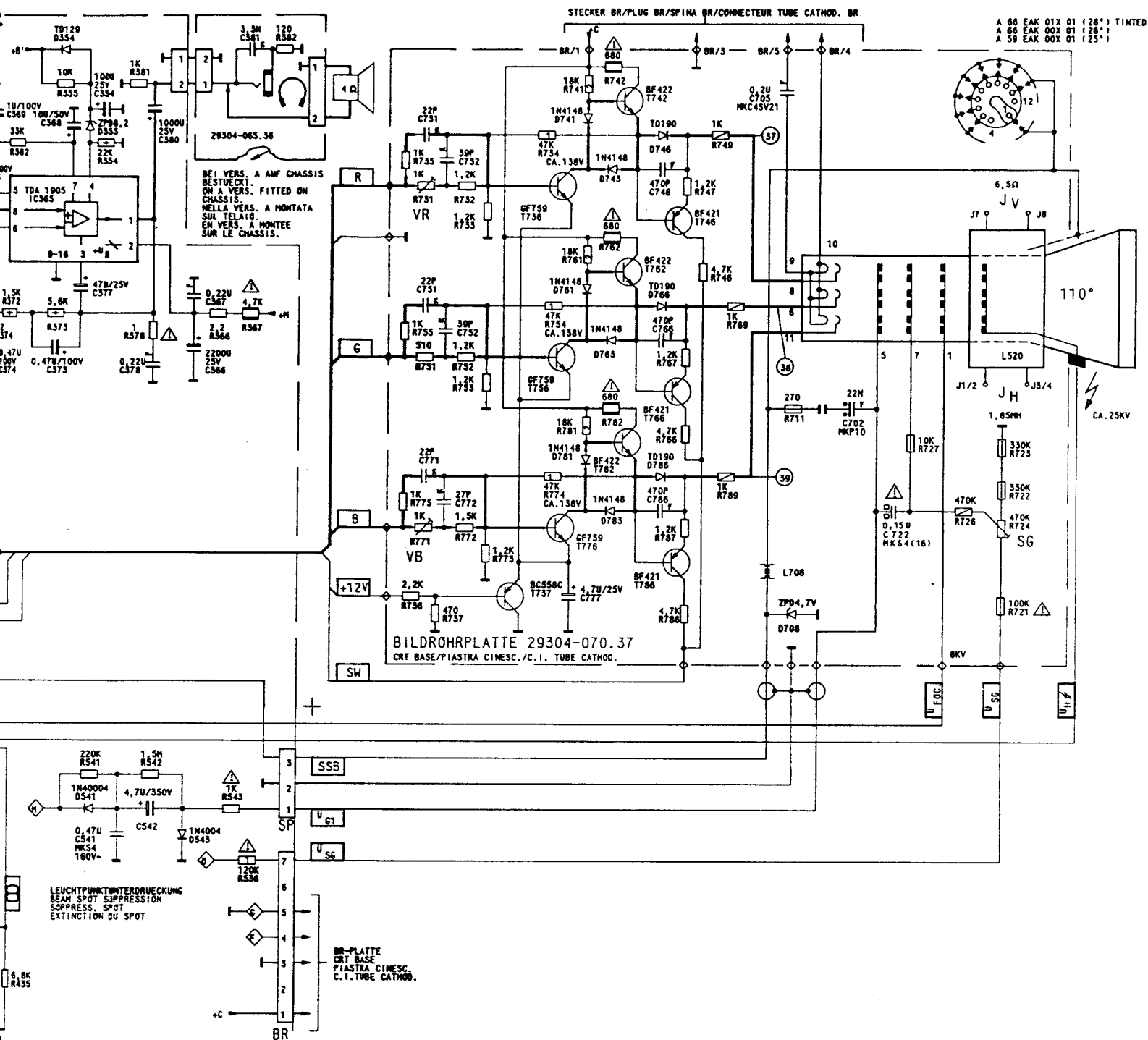


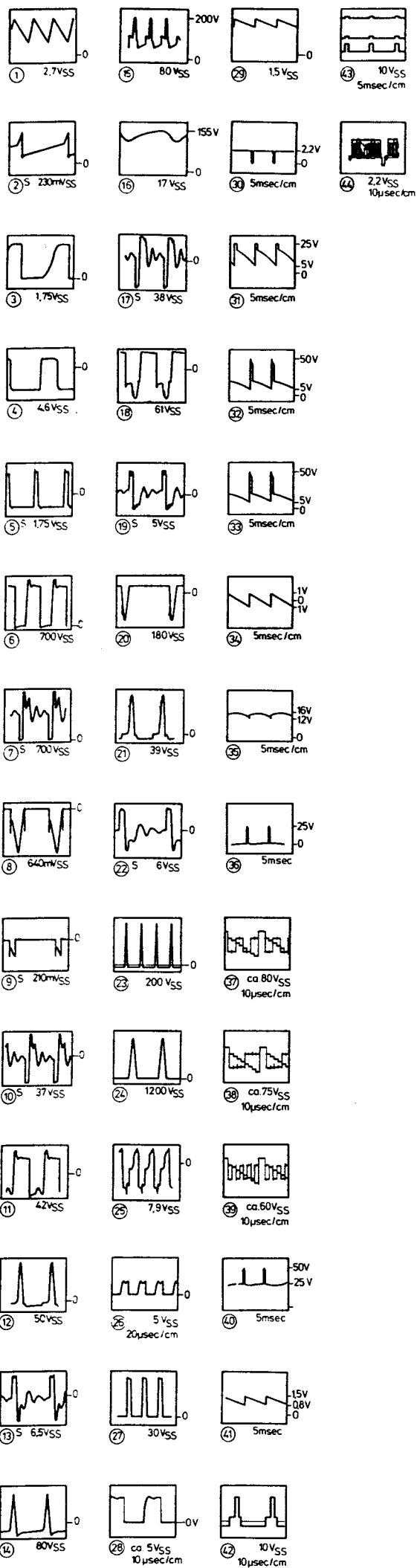






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# Service checks on the I<sup>2</sup>C bus (with SIEMENS processor)

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 Reset	4 MHz, 3 V <sub>pp</sub> 4 V <sub>pp</sub> only at moment of switch on	Pin 22, IC 811 Pin 23	F 808, IC 811 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' + H ⊕	+ 12 V + 5 V ca. + 4,5 V	Tuner pin 16 Tuner pin 2 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 Contrast 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 Tolerance too large or capacitor defective	① 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 Reset	4 MHz, 3 V <sub>pp</sub> 4 V <sub>pp</sub> solo all'atto dell'accensione	Pin 22, IC 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' + H ⊕	+ + 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 contrasto 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 r (
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  $1 V_p$  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 ( $\leq 7 V$ );
- $I_{CE}$  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 ( $> 160^\circ C$ ).



Timing diagram showing waveforms for VSS, 13VSS, 2VSS, 0V, 5V, SS, and S signals over a 20µs period.

Pos. No.	Fig. No.	Bestell.-Nr./Part No. Ref./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
1		29504-101.01	Kabeltuner	Cable tuner
2		29504-162.61	ZF-Verstärker (Türkei)	IF-amplifier (Turkey)
2		29504-102.64	ZF-Verstärker	IF-amplifier
oder				or:
2		29504-102.65	ZF-Verstärker	IF-amplifier
2		29504-182.65	ZF-Verstärker (Mono TP)	IF-amplifier (Mono TP)
2		29504-142.65	ZF-Verstärker (FR)	IF-amplifier (FR)
5		29504-185.01	Farb-RGB	Colour RGB
5		29504-105.21	Farb-RGB (CTI)	Colour RGB (CTI)
5		29504-175.01	Farb-RGB (Spanien)	Colour RGB (Spain)
5		29504-145.21	Farb-RGB (FR)	Colour RGB (FR)
8		29504-108.04	Videotext 2805	Videotext 2805
8		29504-108.92	Videotext	Videotext
9		29504-108.51	Senderkennplatte	Plate
			<u>Bedien.-Anschlüsse</u>	<u>Keyboard unit</u>
			(29501-061.01)	(29501-061.01)
				<u>Unità comandi</u>
				(29501-061.01)
10		29624-415.01	Frontplatte mit Tasten	Front panel w. push button
11		29303-052.01	Netzsteckerplatte	Plate mains switch
12		29303-506.18	Snap-Folie	Elastic foil
13		29303-925.41	Keyboardplatte	Keyboard PCB
14		29304-013.17	LED-Platte kol.	Plate LED col.
			<u>Mechanische Teile</u>	<u>Mechanical parts</u>
				<u>Parti meccaniche</u>
15		29304-070.54	Bildrohrplatte kol.	Picture tube plate
16		29700-320.01	Bausteinhalter (CTI)	Module holder
16		29700-335.01	Bausteinhalter (Türkei)	Module holder (Turkey)
16		29700-315.01	Bausteinhalter	Module holder
18		29703-291.02	Netzschalter	Mains switch
20		29621-113.02	Sicherungshalter	Fuse holder
21		29303-393.01	Kopfhörerbuchse	EAR phone socket
22		29303-119.03	Euro-AV-Buchse	Euro-AV-socket
23		29500-503.05	Abdeckung (AV)	Cover (AV)
			<u>Elektrische Teile</u>	<u>Electrical parts</u>
				<u>Parti elettriche</u>
K 301		4324-800-044	Kaskade BS 2087-642-T010	Kaskade
		70009-090.02	Fokuserregler	Focusing control
				<u>Moltiplicatore in cascata</u>
				<u>Regolatore del fuoco</u>
TR 565		29301-022.03	(R 537-6,3 2)	
F 808		8602-331-035	4,0 MG	
L 336		8140-526-551		
L 337		8140-526-551		
L 513		29203-110.97		
L 514		09245-804.21		
L 517		09240-110.21		
L 519		09245-882.21		
L 521		29500-804.37		
L 601		29500-312.37		
L 660		09278-308.01		
L 651		09278-314.21		
L 676		8140-525-974		
L 1213		07202-370.37		
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		8305-333-640	TDA 3640	
IC 676		8305-205-765	T312/3%	
IC 686		8305-205-701	TS M 05	
IC 696		8305-205-765	T312/3%	
IC 911		8305-158-015	SCA 2010 A 025	
IC 911		8305-205-676	MC 6805 T 2	
IC 920		8305-205-910	MC 144111 (MCS) (!)	
IC 881		8305-202-242	144 2022 (MCS) (!)	
IC 1211		8305-334-052	TDA 4052	

Pos. No.	Fig. No.	Bestell-Nr./Part No. Réf./Nr. d'ordinazioni	Benennung Description Désignation Denominazione
----------	----------	---	---

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

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 TFA
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 1204	8309-200-103	SFH 205 B

C 366	8415-166-100	2200 pF/25 V
C 376	8555-262-101	0,22 µF (1)
C 380	8452-396-107	1000 µF/25 V
C 411	8452-396-107	2200 µF/25 V
C 414	8415-166-100	1000 µF/25 V
C 433	8415-166-100	2200 µF/25 V
C 462	8563-731-101	0,33 µF/25 V
C 501	8563-731-101	0,01 µF/250 V (1)
C 510	8560-097-234	220 pF
C 511	8515-911-100	560 pF/250 V (1)
C 512	8525-033-101	8200 pF/250 V (1)
C 513	8525-040-101	1,2 µF/100 V (1)
C 515	8525-040-101	1 µF/100 V
C 514	8650-090-107	270 pF/25 V (1/2)
C 517	8563-731-101	2,0 µF/250 V
C 518	8515-911-100	0,33 µF/250 V
C 520	8515-911-100	0,027 µF/250 V
C 601	8599-990-105	0,15 µF/250 V (1)
C 609	8563-732-101	0,1 µF/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	8443-306-100	220 µF/250 V (1)
C 653	8524-022-100	4700 pF/50 V
C 654	8515-911-100	1000 pF/250 V (1)
C 667	8563-731-101	0,1 µF/250 V
C 671	8550-090-510	1000 pF/1 kV
C 691	8531-689-101	0,022 µF/250 V

Pos. No.	Fig. No.	Bestell-Nr./Part No. Réf./Nr. d'ordinazioni	Benennung Description Désignation Denominazione
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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	8731-018-979	1 W/0,1 Ω
P 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 637	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	8766-357-155	10 MΩ
R 802	8766-357-159	10 MΩ

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