

NOKIA
UNTERHALTUNGSELEKTRONIK GmbH
D-7530 Pforzheim

Service-Manual

NOKIA

DIGIVISION 6381

Ident-No. 5432 66 40 / 5433 25 50 / 5434 95 20 / 5433 25 51 / 5433 25 52 / 5434 95 21

DIGIVISION 6381 N UK

Ident-No. 5433 66 80

DIGIVISION 7171 (MULTICONTROL)

Ident-No. 5432 68 50 / 5434 95 60 / 5433 25 60 / 5434 95 61

DIGIVISION 7171 SAT

Ident-No. 5434 58 41

DIGIVISION 7181 (MULTICONTROL)

Ident-No. 5432 68 71 / 5432 68 72

DIGIVISION 7181 N SK (MULTICONTROL)

Ident-No. 5433 27 21 / 5433 27 22

DIGIVISION 7181 N UK (MULTICONTROL)

Ident-No. 5433 66 91 / 5433 66 93

DIGIVISION 8281 (MULTICONTROL)

Ident-No. 5433 74 70 / 5433 75 10 / 5436 33 70 / 5433 75 11

Graetz

BURGGRAF 2891

Ident-No. 5434 33 00 / 5434 33 10

Zur Reparatur sind folgende Unterlagen erforderlich:
For service, the following circuit documents are required:
Per la riparazione sono necessari i seguenti documenti:

A 20d

Digital-Chassis B-E2 (110°) 32"
Digital-Chassis B-E2 (110°) FST
Digital-Chassis B-E2
Black Planigon DST
Digitalplatte ~~6911 40 11~~
Digital board ~~6911 40 12~~ *TEXT*
Piastra digitale
Bildröhrenanschlußplatte
C.R.T. base board
Piastra collegamento cinescopio

Ersatzteile
Replacement parts
Ricambi

6611 77 35

B 28a

HF-ZF Modul
RF-IF module 5827 02 38
Modulo MF-BF 5827 02 59
STEREO-Modul
STEREO module
Modulo STEREO 6911 39 84
Subwoofer
Nicom 6911 16 12
SAT-Empfänger 6911 20 90
Receiver / Ricevitore

Ersatzteile
Replacement parts
Ricambi

6611 77 36

C 30c

IFB 483 A/IFB 483 B/IFB 583
Anzeige + Tasten
Display + buttons
Indicazione + Tasti
IFB 681
Anzeige + Tasten / Display + buttons
Indicazione + Tasti
IR-Sender / IR transmitter
Trasmettitore IR
IRS3
E1
E2

Ersatzteile
Replacement parts
Ricambi

6611 78 37

E7a

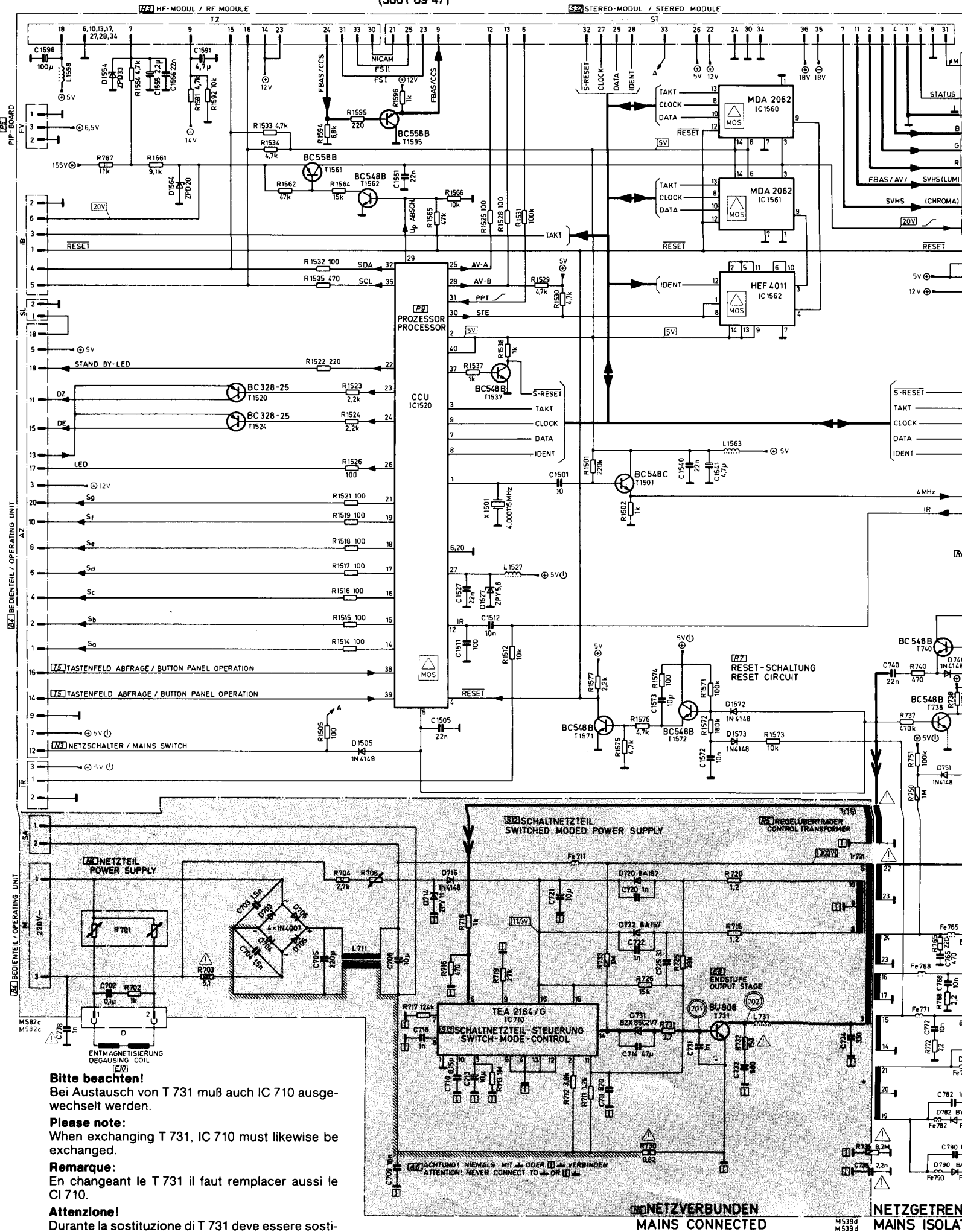
AV-Processor, B-E2
6911 29 87
Bild im Bild Decoder, B-E2/2
Picture in picture decoder
Decoder immagine nell'immagine
6911 30 50
S-VHS-Platte / board / piastra
6911 34 32

6611 77 37

Bei Reparaturen gültige Sicherheitsvorschriften beachten!
Service and repair work to be performed only in accordance with existing safety regulations.
Osservare le norme di sicurezza vigenti in caso di riparazioni.

Digital-Chassis B-E2 110° FST

5861 69 45
(5861 69 47)



Bitte beachten!
Bei Austausch von T 731 muß auch IC 710 ausgetauscht werden.

Please note:
When exchanging T 731, IC 710 must likewise be exchanged.

Remarque:
En changeant le T 731 il faut remplacer aussi le CI 710.

Attenzione!
Durante la sostituzione di T 731 deve essere sostituito anche IC 710.

ACHTUNG! NIEMALS MIT + ODER - VERBINDEN
ATTENTION! NEVER CONNECT TO + OR -

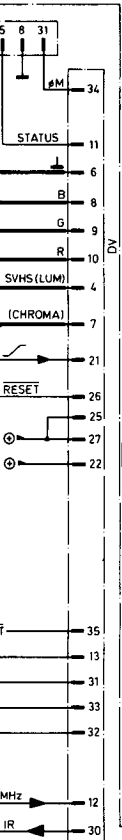
NETZVERBUNDEN
MAINS CONNECTED

NETZGETRENNT
MAINS ISOLATED

M539d
M539d

6911 39 58 (32'')
 6911 39 57 (FST)

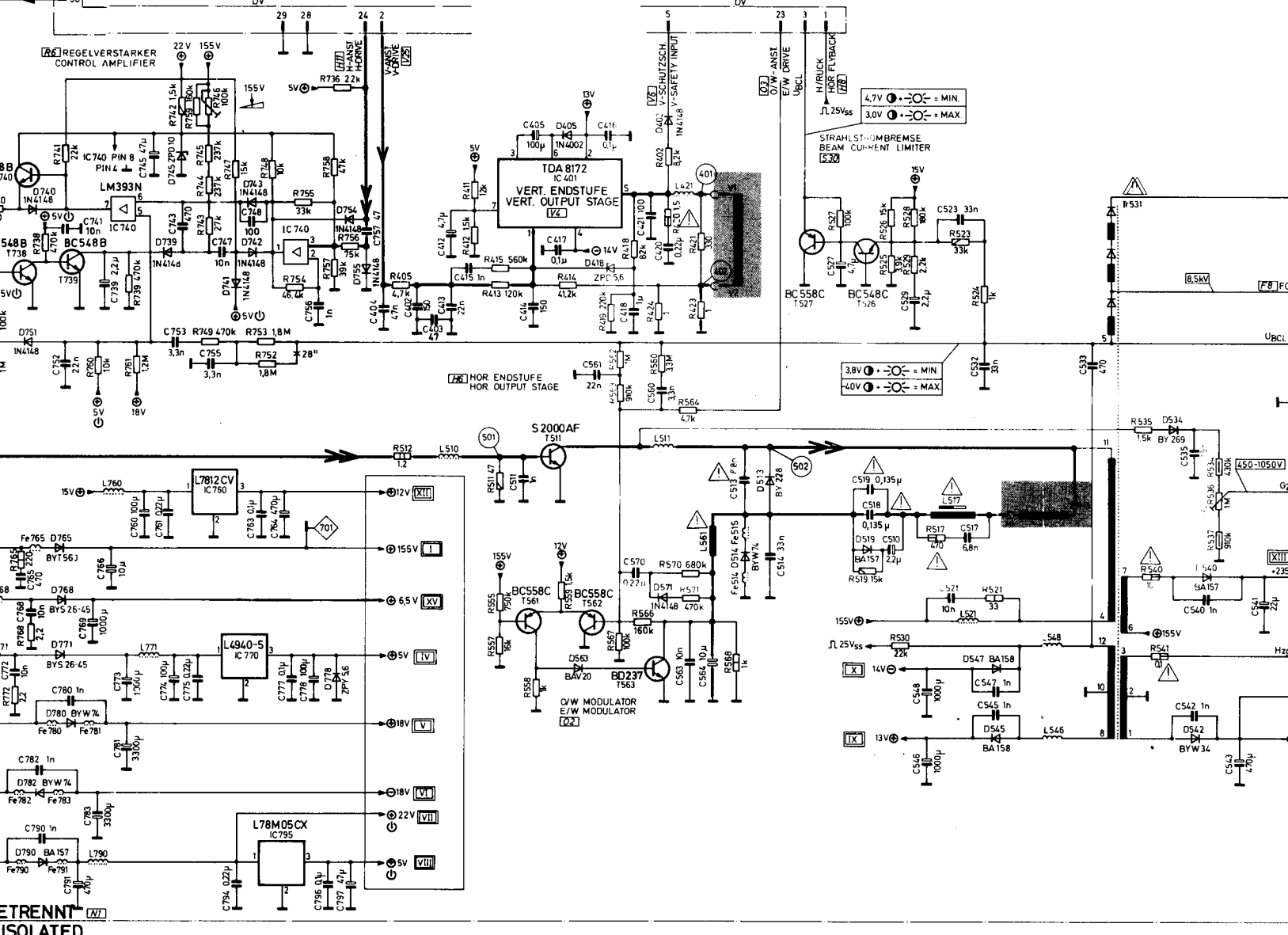
Digitalplatte
Digital board
Platine numérique
Piastra digitale



A Oszillogramme bei Stand-by-Betrieb
 Waveforms at stand-by mode
 Oscillogrammes pour fonctionnement en stand-by
 Oscillogrammi in modo «stand-by»
 Oscilogramas en modo de operación de reserva

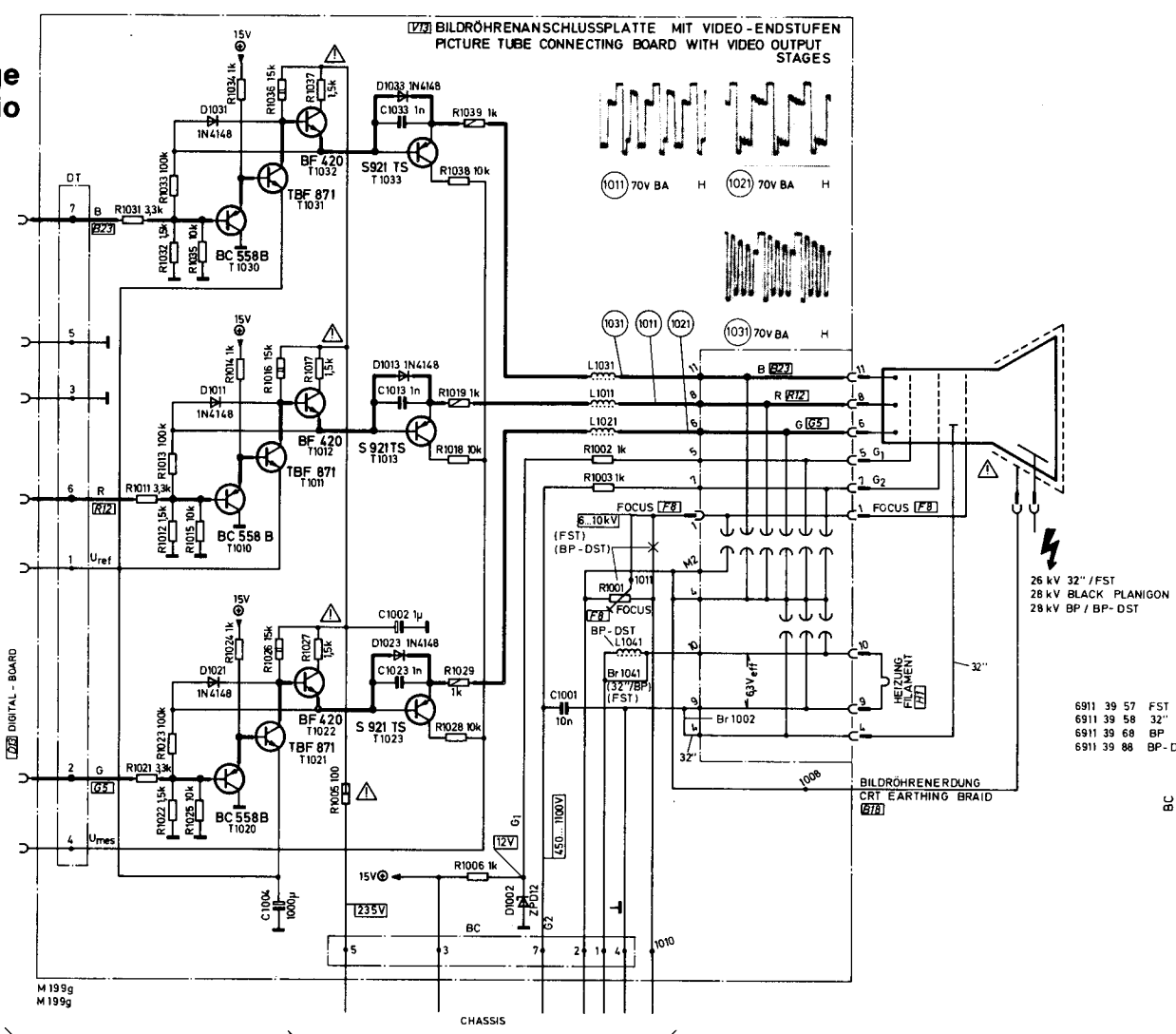
B Oszillogramme bei Sicherungsbetrieb (Überlast!)
 Waveforms at overload mode
 Oscillogrammes pour fonctionnement de sécurité (surcharge)
 Oscillogrammi in modo di sovraccarico
 Oscilogramas en modo de operación de seguridad (sobrecarga)

C Oszillogramme bei fehlenden Horizontal-Impulsen (im Stand-by-Betrieb)
 Waveforms when horizontal pulse is deficient (Stand-by mode)
 Oscillogrammes en l'absence d'impulsions horizontales en fonctionnement en stand-by
 Oscillogrammi misurati al mancare degli impulsi orizz. (Modo «stand-by»)
 Oscilogramas resultante sin impulsos horizontales en modo de operación de reserva

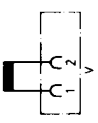
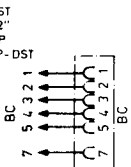
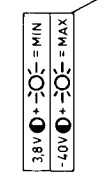
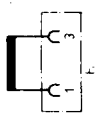


3platte
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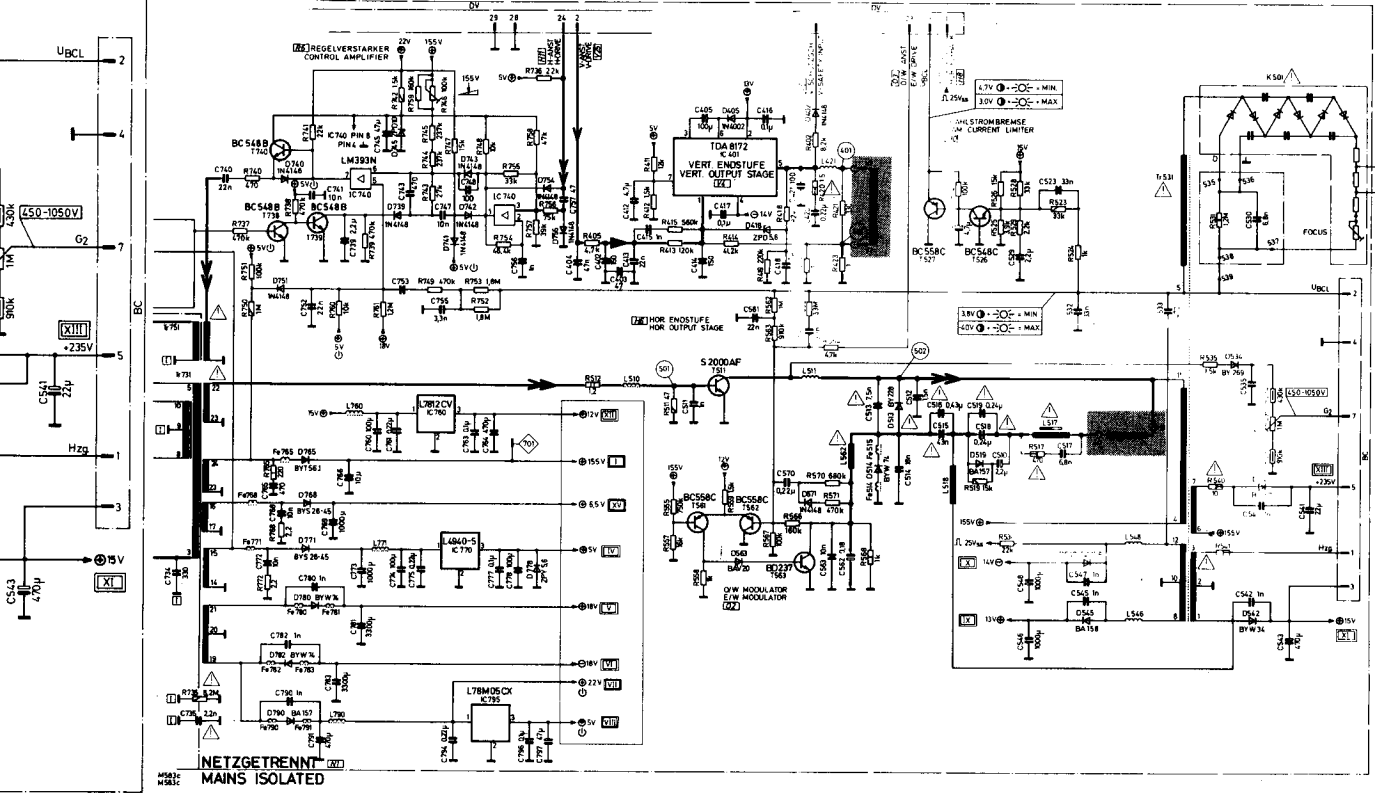
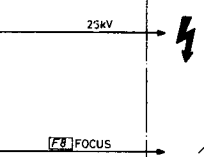


Schaltbildauschnitt aus Chassis 5861 69 47 (32'')
 Circuit diagram extract to chassis 5861 69 47 (32'')
 Extrait du schéma des connexions du châssis 5861 69 47 (32'')
 Schema per estratto da «chassis» 5861 69 47 (32'')
 Extracto de diagrama de conexiones 5861 69 47 (32'')



26 kV 32" / FST
 28 kV BLACK PLANIGON
 28 kV BP / BP-DST

6911 39 57 FST
 6911 39 58 32"
 6911 39 59 BP
 6911 39 88 BP-DST



Chassis 5861 69 45

Abgleich / Adjustment / Ajustage / Taratura / Ajuste

Ersatzteile / Replacement parts / Pièces de rechange / Pezzi di ricambio

(D) Hinweise zum Abgleich

Die Reihenfolge des Abgleichs ist beliebig, doch empfiehlt es sich, bei einem Gesamtgleich die in der Anweisung angegebene Reihenfolge einzuhalten. Die einzelnen Abgleichschritte sind voneinander unabhängig, lediglich bei einer Kissen- oder Trapezkorrektur sollten Sie eine wechselseitige Kontrolle durchführen. Die GeometrieEinstellung sowie den Farbgleich kontrollieren Sie auf dem Bildschirm. Ebenso stellen Sie die FHT-Frequenz in gewohnter Weise auf annähernd stehende Farbinformation ein. Eine Ausnahme in Durchführung und Anzeige bildet die Einstellung der G₂-Spannung, die beim Farbgleich zu überprüfen und ggf. neu einzustellen ist. Die G₂-Spannung wird nicht mit den Tasten +/- des IR-Senders, sondern mit R 536 auf dem Fernsehgerätechassis eingestellt. Als Maßanzeige dienen die Anzeigeelemente des IR-Empfängers. Das Umschalten von TV- in Service-Betrieb erfolgt gemäß nachfolgender Abgleichtabelle am Bedienteil des FS-Gerätes oder mit Hilfe des IR-Gebers. Der IR-Sender des Fernsehgerätes dient, nach dem Auflegen der mit den Abgleichsymbolen bedruckten Abdeckung, auch als Tastatur zur Eingabe der Abgleichschritte. Die Tasten +/- sind die Abgleichstasten. Sie entsprechen sinngemäß dem Schraubenzieher beim mechanischen Abgleich. Beim Drücken der Abgleichstaste blinkt im IR-Empfänger die rote LED und im Display wird die jeweilige Abgleich-Betriebsart angezeigt. Sollten die von Ihnen durchgeführten Abgleichschritte zu Zweifeln Anlaß geben, so kann durch Drücken der CLEAR-Taste auf die ursprünglichen Abgleichswerte zurückgegriffen werden. Nach beendetem Gesamtgleich oder einzelner Abgleichsschritte werden die Abgleichswerte durch Drücken der Taste LOAD des IR-Senders im Fernsehgerät gespeichert. Dabei wird automatisch in den Normalbetrieb zurückgeschaltet. Für geringfügige Korrekturen der Farbtemperatur ist ein vereinfachter Feinabgleich vorgesehen, der den kompletten Grundabgleich vermeidet. Ein Service-Programm II ermöglicht die Umprogrammierung des Datenspeichers auf alternative Kanaltabellen (s. Tabelle Abgleich) oder auf unterschiedliche Gebversvarianten.

(GB) Instructions for Alignment

Alignment can be performed in any sequence desired, but for a total alignment we recommend adhering to the sequence specified in the instructions. The individual steps for alignment are independent of each other. Only in the case of pin cushion or line keystone correction should you carry out a mutual check procedure. Geometry adjustment, plus colour alignment should be monitored on the screen. Likewise, you should adjust the colour subcarrier frequency to an approximately standing colour information in the usual way. An exception in procedure and display is represented by the adjustment of the G₂-voltage, which must be checked at colour alignment and readjusted if necessary. The G₂-voltage is adjusted not with the +/- buttons of the IR transmitter, but with R 536 on the TV set chassis. The display elements of the IR receiver serve as a measuring display. Switch-over from TV to service mode is performed in accordance with the alignment table below at the operating unit of the TV set or by means of the gun. The IR transmitter of the TV set serves as a keyboard for entering the alignment steps, after first being fitted with the printed cover showing the alignment symbols. The +/- buttons are the alignment buttons. They correspond in their function to the screwdriver used in mechanical alignment. When the alignment buttons are pressed, the red LED in IR receiver will flash, and the corresponding alignment operating mode will be shown in the display. If the alignment procedures you have performed give you cause for doubt, you can press the CLEAR button in order to reaccess the original alignment values. When total alignment or individual steps have been completed, the alignment values are stored in the TV set by pressing the „LOAD“ button of the IR transmitter. For slight corrections of the colour temperature, a simplified fine-alignment function is provided, avoiding the necessity for a complete basic alignment procedure. A Service Program II allows the data memory to be reprogrammed for different IR-transmitter versions or for the activation of alternative channel tables (see Table 4, alignment).

(F) Remarques concernant l'équilibrage

La suite de l'équilibrage est quelconque, il est toutefois recommandé de suivre l'ordre indiqué dans les instructions pour opérer l'équilibrage global. Les différentes étapes d'équilibrage sont indépendantes les unes des autres et c'est uniquement en cas d'une correction du coussin ou du trapèze que vous devriez exécuter un contrôle alternatif. Le réglage de la géométrie ainsi que l'équilibrage des couleurs sont contrôlés à l'écran. La fréquence de sous-porteuse de chrominance est elle aussi réglée comme d'habitude sur information de couleur presque stable. Le réglage de la tension G₂ devant être contrôlée et éventuellement réajustée lors de l'équilibrage des couleurs constitue la seule exception quant à la réalisation et l'indication. La tension G₂ n'est pas réglée au moyen des touches +/- de l'émetteur IR mais à l'aide de R 536 sur le châssis du téléviseur. Les éléments d'indication du récepteur IR font office d'indicateurs. La commutation du fonctionnement TV sur fonctionnement service se fait suivant le tableau d'équilibrage ci-après sur l'organe de commande du téléviseur ou à l'aide du transmetteur IR. L'émetteur IR du téléviseur sert également de clavier d'entrée des étapes d'équilibrage après avoir posé la feuille pourvue des symboles d'équilibrage. Les touches +/- sont les touches d'équilibrage. Elles jouent le même rôle que le tournevis lors de l'équilibrage mécanique. En appuyant sur ces touches d'équilibrage, la DEL rouge clignote dans le récepteur IR et le mode d'équilibrage en question est visualisé sur l'affichage. Au cas où les étapes d'équilibrage que vous exécutez occasionneraient des doutes, l'actionnement de la touche CLEAR permettra de retrouver les valeurs d'équilibrage initiales. L'équilibrage global ou des étapes d'équilibrage isolées achevées, les valeurs d'équilibrage sont mémorisées dans le téléviseur en actionnant la touche LOAD de l'émetteur IR. Cette action fait automatiquement passer sur le mode de fonctionnement normal. Pour exécuter de minimes corrections de la température de couleur, un équilibrage fin simplifié est prévu évitant ainsi l'équilibrage de base complet. Un programme de service II permet de reprogrammer la mémoire de données sur des tableaux de canaux alternatifs (voir tableau d'équilibrage) ou sur d'autres variantes de transmetteur.

(I) Informazioni per la compensazione

La sequenza della compensazione è a piacere, tuttavia, per una compensazione generale, si consiglia di mantenere la sequenza indicata nelle istruzioni. Le singole operazioni di compensazione sono indipendenti una dall'altra e soltanto per una regolazione della distorsione dovete eseguire un controllo alternato. La regolazione geometrica nonché la compensazione dei colori devono essere controllate sullo schermo. Allo stesso modo, regolate la frequenza FHT nel modo consueto sull'informazione di colore che si trova più prossima. La regolazione della tensione G₂ rappresenta un'eccezione nell'esecuzione e nell'indicazione. La tensione G₂ deve essere controllata ed eventualmente regolata durante la compensazione dei colori e non viene regolata tramite i tasti +/- dell'emittente IR bensì con R 536 posto sullo chassis dell'apparecchio televisivo. Quali indicazioni di misura agiscono gli elementi di indicazione del ricevitore IR. La commutazione dal funzionamento TV a quello di servizio avviene secondo le seguenti tabelle di compensazione sulla parte di comando dell'apparecchio televisivo oppure con l'ausilio del trasduttore IR. L'emittente IR dell'apparecchio televisivo serve anche quale tastiera per l'immissione delle operazioni di compensazione, dopo avervi disposto la copertura stampata con i simboli di compensazione. I tasti +/- sono i tasti di compensazione. Essi corrispondono, teoricamente, ad un cacciavite per la compensazione meccanica. Premendo i tasti di compensazione, il led rosso del ricevitore IR lampeggia e nel display viene indicato di volta in volta il tipo di compensazione in atto. Nel caso in cui le operazioni di compensazione da Voi eseguite fossero motivo di dubbio, premendo il tasto CLEAR si ritorna ai valori di compensazione originali. Dopo aver portato a termine la compensazione generale oppure le singole operazioni di compensazione, i valori di compensazione vengono memorizzati nel televisore premendo il tasto LOAD dell'emittente IR. Inoltre, si inserisce di nuovo automaticamente il funzionamento normale. Per correzioni minimali della temperatura del colore è prevista una compensazione del colore semplificata che evita di dover procedere alla compensazione di base. Un programma di servizio II consente la commutazione di programmazione della memoria dati su tabelle dei canali alternative (cfr. tabella compensazione) oppure su diverse varianti di trasduttore.

Öffnen des Sendergehäuses

Nach Entfernen der Batterie kann durch gegenseitiges Verschieben der Gehäuseober- und Gehäuseunterteile der IR-Sender geöffnet werden.

Opening the casing

After the battery has been removed, the IR transmitter can be opened by pushing the upper and lower casing sections.

Ouverture du boîtier d'émetteur

Après avoir retiré la batterie, l'émetteur IR peut être ouvert en déplaçant les parties supérieure et inférieure du boîtier.

Apertura della custodia dell'emittente

Dopo avere tolto la batteria, spingendo contro di loro la parte superiore della custodia e la parte inferiore della custodia, si può aprire l'emittente IR.

Apertura del gabinete del emisor.

Una vez retirada la pila, se puede abrir el emisor IR desplazando las partes superior e inferior del gabinete.

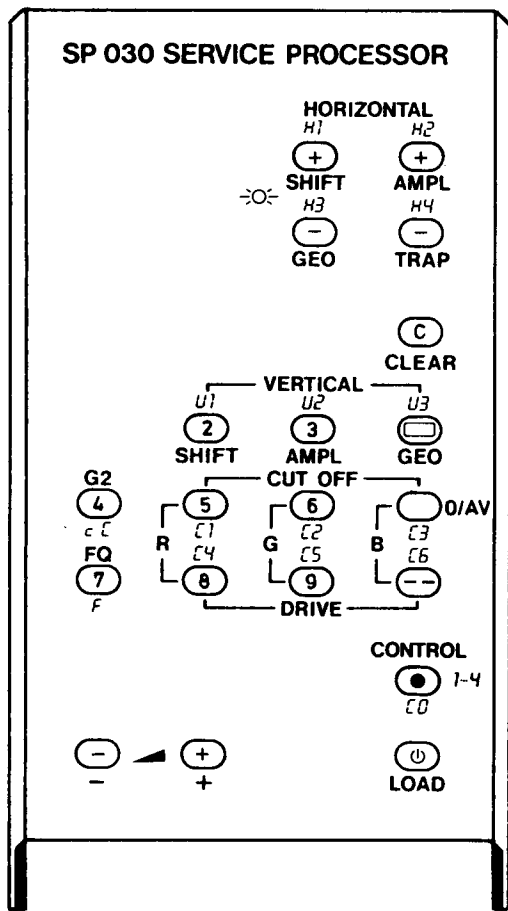
Tastenbelegung der IR-Sender bei Service-Betrieb.

Infrared remote gun functions in Service mode.

Occupation des touches de l'émetteur IR en mode de fonctionnement service.

Occupazione dei tasti del trasmettitore a raggi infrarossi in funzionamento di servizio.

Funciones y modo de servicio del control remoto de infrarrojos.



Adjustment



	Adjustment	Buttons on IR transmitter	Display/LED	Remarks
1.	Operating voltage			Set to + 150 V ± 0.5 V with R 746 at TP 701 for Black-Line picture tubes, to + 155 V ± 0.5 V for picture tubes (beam current "zero").
2.	Focus			Adjust to optimal picture focus using focus adjuster R 1001 (on the picture tube connection board).

Further adjustments using only the **integrated service processor SP 030**.

Service-programme I

Select desired TV standard (PAL/SECAM – NTSC 3,58 MHz – NTSC 4,43 MHz), using button "S", before activating service program I. While service program is running, TV standard selection is not possible.

- To switch on CCU 11 sets: press button (mono-stereo), button and then button on the remote-control transmitter within 1 second. Displays shows: 5F
- To switch on CCU 12 sets: press the contact behind the small borehole on the control unit, and then in addition button "S" within 5 seconds. Displays shows: 5F
- Attach the cover panel printed with adjustment symbols to the IR transmitter. (The cover panel printed with adjustment symbols to the IR transmitter, can be obtained from our service center under part number **8623 14 04**, or see fig.)
- After the setting values using the + / - buttons.
- Display indicates the upper limit values with $\overline{\quad}$, the lower limit values with $\underline{\quad}$.
- It is possible to return to the original setting values by pressing the CLEAR button.

Geometry adjustment

3.	Pict. pos., vert.	SHIFT	+ / -	U1	Set the upper picture edge to the correct position.
4.	Amplitude, vert.	AMPL	+ / -	U2	Align separately for PAL/SECAM – NTSC 3,58 MHz – NTSC 4,43 MHz!
5.	Linearity, vert.	GEO	+ / -	U3	Align separately for PAL/SECAM – NTSC 3,58 MHz – NTSC 4,43 MHz!
6.	Pict. pos., hor.	SHIFT	+ / -	H1	
7.	Amplitude, hor.	AMPL	+ / -	H2	
8.	Pillow	GEO	+ / -	H3	Align separately for PAL/SECAM – NTSC 3,58 MHz – NTSC 4,43 MHz!
9.	Trapezium	TRAP	+ / -	H4	Align separately for PAL/SECAM – NTSC 3,58 MHz – NTSC 4,43 MHz! Alternately repeat hor. ampl., pillow and trap. correction.

Colour temperature adjustment (Slight adjustments may be performed using the fine adjustment feature)

Fine adjustment Fine adjustment is selected by pressing button G₂ **once**.

10.	Red Green Blue black bal. adj.	R G B	+ / - + / - + / -	c1 c2 c3	The G₂ adjustment must not be altered! The fine adjustment feature allows correction in five steps for all colours and serves above all to facilitate adjustment to one another of adjacent TV sets.
11.	Red Green Blue white bal. adj.	R G B	+ / - + / - + / -	c4 c5 c6	

Basic adjustment

Basic adjustment is selected by pressing button G₂ **twice** (e.g. necessary following a change of picture tube). If necessary, the CUT-OFF control range of picture tube systems which are not sensitive enough can be extended by severing R 1015, R 1025 or R 1035 ("Side which does not face ground!") on the picture tube connection board. After that, the calibration procedure must be resumed as from pos. 12.

12.	G ₂ voltage	G2	+ / -	 G ₂ voltage too high correct (flashes) too low	Adjust using R 536 on the chassis board. When not correctly set, the sound is additionally muted. Check the G ₂ voltage before calling up the CUT-OFF and DRIVE basic adjustments. As soon as the G ₂ setting is called up, the three CUT-OFF controls are set to the minimum value.
13.	Red Green Blue black bal. adj.	R G B	+ + +	C1 C2 C3	Following correct G ₂ setting, the most sensitive cathode is automatically determined. It is used as a reference for the other two colour systems and cannot be altered. The most sensitive cathode is displayed by — following call-up and pressing of buttons + / -. This means that only the two missing colours can be adjusted towards +.
14.	Red Green Blue white bal. adj.	R G B	+ / - + / - + / -	C4 C5 C6	Adjust only the dominant colours downwards. One colour should always remain at the basic setting.
15.	FHT frequency	FQ	+ / -	F	Adjust to approx. stationary colour information. Alignment only at SECAM operation! Align separately for PAL/NTSC 4,43 MHz – NTSC 3,58 MHz!
16.	Control mode	CONTROL CONTROL		c0 c0	Button pressed once – original setting values. Button pressed twice – setting values determined by the CCU.
By pressing the CONTROL button, it is possible to establish the extent to which the control settings deviate from the settings originally entered. Considerable deviation is an indication for aged or defective components. After quitting control mode, the setting values determined by the CCU are displayed.					
17.	Storing and concluding service program I	LOAD			Following adjustment and storage of the setting values, the selected TV station preset appears in the display.

Service programm II

- To switch on: press button (mono-stereo), button and then button on the remote-control transmitter within 1 second. **S11**
- Then press the S button at the set. The display shows:

18.	Re-programme EEPROM for channel tables.	1...4 (CCU 11) 1...3 (CCU 12)	oE Euro2 Hyp 2 oU UK oF F3 Euro 2 oD OIRT/Euro 3 red yellow	The various channel tables can be selected by pushing buttons 1...4. oE = 2 = z.B. oF = 4 = oU = 3 = oD = e.g. USSR
19.				You can reprogram the E-Eprom between control panels IFB 481 (shown in display 48) and IFB 681 (shown in display 68) by pressing button (on the transmitter).
20.	Concluding service operations.	LOAD		The selected TV station preset appears in the display.

Fault Localization Procedure

Apart from the innovation of innovation of computer-controlled alignment, there are deviations from normal measuring procedures only in the area of digital signal processing and its control. While in the case of analog signals it is easy to check whether a circuit is functioning correctly at various points with the aid of oscillograms, the analysis of oscillographed measured values with digitals is in most cases only possible with complicated measuring methods. However, in everyday service work, the important thing with digital signals is not so much a precise analysis of a particular code (which is in any case fixed inside the IC and cannot be influenced), but whether the signals involved are actually present or not. From this point of view, signal tracing, both of audio and video signals, is possible in digitized systems as well. Note that external measuring points are in any case few in number because of the high degree of integration. With the assignment of individual IC's to certain functional areas, fault localization can be performed very quickly by checking a particular function or detecting its absence. This means that assuming for example the picture information fails and an analog signal is detected at the input, the only possible causes for the fault are IC's 630, 670, 680 and 650 or their peripherals, if the RGB signals are not present at the output of the Digi-module. The same applies in analogous manner to the audio section, where a comparison of the two parallel audio channels will enable conclusions to be drawn. Again, if there are no control signals for the deflection stages, for example, or if the synchronization function is missing, the cause must be looked for in or near IC 620. If the videotext feature is not functioning, or if errors are read in, then IC 640 or memory IC 645 is defective. Thus it is always possible to single out limited parts of the circuitry for closer examination; in the video or audio sections it is often only necessary to install a trial replacement in order to determine which of 2 IC's has possible failed. It is also important to check for the clock frequency of 17.7 MHz at the corresponding input of IC's 620, 630, 640, 650, 670 and 680, without which digital processing cannot be performed. Colour reproduction is partly dependent on accurate phase synchronization of this 17.7 MHz clock pulse signal. Of course, the data transfer on the IM Bus is another important factor for the functions of the Digi-module. During normal picture reproduction received from a station, for example, square-wave pulses of $5 V_{pp}$ can be measured continually on all 3 Bus lines. These indicate the cyclical data exchange between the CCU and the signal processors. Measuring the data line of the IM Bus may result in altering the data in the processors (e.g. deflection processor: line no longer synchronizing); if this happens, switch the set off and then on again. Since all values are compared with the stored alignment values every time the set is switched on, all processors will again receive their correct parameters restored, thus restoring the normal state. If any fault phenomena occur which cannot be easily determined or assigned to a particular area of the circuitry, it may be due to the loss of the corresponding reference data in IC 690, MDA 2062. In such cases, we recommend that you try replacing the EEPROM before proceeding with your fault localization procedure. As a replacement in the this position, only an appropriately preprogrammed memory can be used. Order this under the part number to be found on the chip's white sticker. In position IC 1560 and 1561, a non-preprogrammed MDA 2062 can be used as a programm memory. Fault localization in the operating unit is no different in principle to the procedure used in previous designs, apart from the measurements on the Data Bus (IM Bus).

ATTENTION! The interaction between the two micro computers IC 1520 (CCU) and IC 3905 (μP 8032) is absolutely necessary for the complete functions of the TV-set which depend also on well-working data bus lines and memories. If any of the corresponding components fails, the set does not work.

Service-Hilfen / Service aids / Istruzioni di servizio / Conseils de maintenance

D

Reparaturtips

- Das Netzteil ist mit abgetrennter Schaltstufe T 731 (Basis offen) schwingfähig.
Da in diesem Zustand keine Ausgangsspannungen erzeugt werden, muß IC 710 (TEA 2164) mit einer externen Spannung versorgt werden (ca. 12 V an Pin 16).
In diesem Zustand arbeitet das IC im sogenannten „Burstbetrieb“, d.h. die Rechtecksignale an Pin 14 (20 kHz) werden für ca. 14 ms unterbrochen. Der Grund liegt darin, daß an Pin 6 keine Synchronisation erfolgt.
Achtung: Bei abgetrennter Schaltstufe vor dem Wiederanklemmen (Löten) den Elko C 706 entladen.
- Mit abgetrennter Horizontalendstufe (z. B. Anschluß 4 an Tr. 531 offen) und einer Ersatzbelastung an der Kathode von D 765 (100 W-Glühlampe) muß das Netzteil 100% der Sollspannungen liefern.
- Zur Fehlersuche bei Sicherungsbetrieb des Netztesles kann C 713 überbrückt werden. Wurde der Sicherungsbetrieb durch einen flüchtigen Überlastfall ausgelöst, kann das Gerät durch Aus- und Einschalten des Netzschalters wieder in Betrieb genommen werden.
- Auf brummfreie Gleichspannung achten. Z. B. die Brummspannung von U_1 liegt bei ca. 4 V und sollte, bedingt durch Kapazitätsverlust von C 766, nicht viel größer werden. Die Brummspannungen der übrigen Gleichspannungen sollten unter 1 V liegen.

GB

Instructions for repair work

- The power pack can be oscillated when switching stage T 731 (base open) has been disconnected.
Since no output voltages are generated in this state, IC 710 (TEA 2164) must be supplied with an external voltage (approx. 12 V at pin 16).
In this state, the IC works in what is called „burst operating mode“, i.e. the square-wave signals at pin 14 (20 kHz) are interrupted for approx. 14 ms. The reason for this is not synchronized at pin 6.
N.B.! When the switching stage has been disconnected, discharge electrolytic capacitor C 706 before reconnecting (soldering) it.
- With the horizontal output stage disconnected (e.g. connection 4 at Tr. 531 open) and a substitute load at the cathode of D 765 (100 W bulb), the power pack must supply 100% of the setpoint voltages.
- For servicing the set under operating conditions when the electronic fuse has activated, can be connected across C 713. If the electronic fuse cuts out due to a momentary overload, the appliance can be re-started by switching the mains switch off and then on again.
- Make sure there is hum-free d.c. voltage available. For example: the ripple voltage of U_1 is approx. 4 V and should, due to capacitance loss of C 766, not increase much more. The ripple voltages of the other d.c. voltages should be less than 1 V.

F

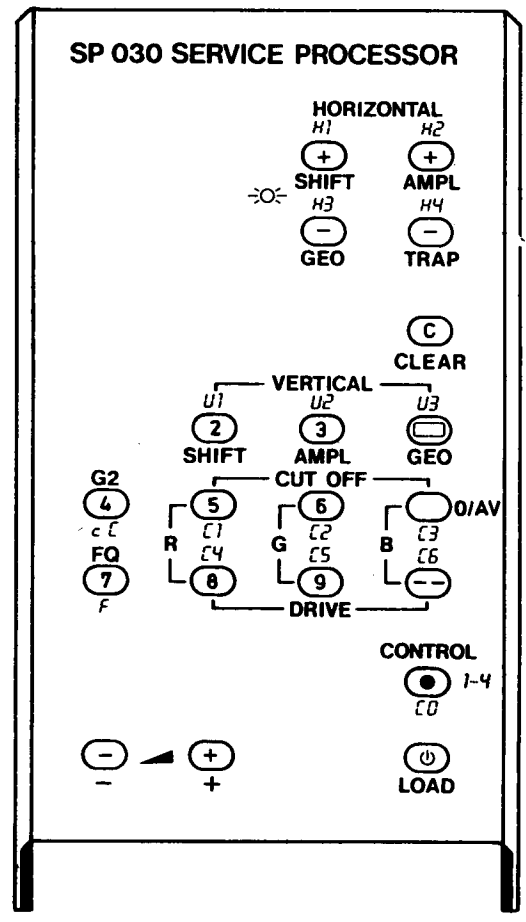
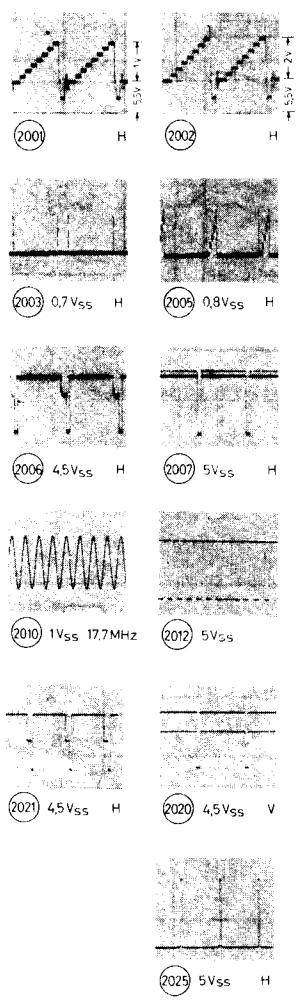
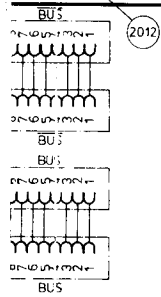
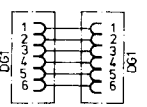
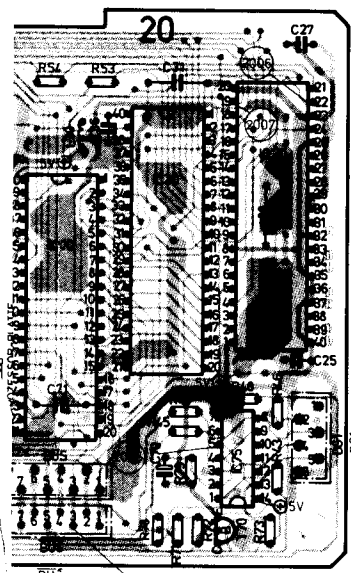
Conseils de réparation

- Lorsque l'étage de commutation T 731 (base ouverte) est déconnecté, le bloc secteur est apte à osciller.
Etant donné qu'aucune tension de sortie n'est générée dans cet état, le circuit imprimé IC 710 (TEA 2164) doit être alimenté par une tension externe (12 V env. sur la broche 16).
Dans cet état, le circuit imprimé fonctionne en «mode de giclée de signaux de couleur», c.-à-d. que les signaux carrés au niveau de la broche 14 (20 kHz) sont interrompus pendant 14 ms env. Ceci est dû au fait qu'aucune synchronisation n'a lieu au niveau de la broche 6.
Attention: Lorsque l'étage de commutation est déconnecté, décharger le condensateur électrolytique C 706 avant de procéder à la connexion aux bornes.
- Lorsque l'étage final horizontal est déconnecté (par ex. raccordement 4 sur Tr. 531 ouvert) et qu'une charge de remplacement est appliquée à la cathode de D 765 (lampe à incandescence de 100 W), le bloc secteur doit délivrer 100% des tensions de consigne.
- Pour la détection d'erreurs en fonctionnement de sécurité du bloc secteur, il est possible de ponter C 713. Lorsque le fonctionnement de sûreté est déclenché à cause d'une surcharge transitoire, l'appareil peut être remis en marche au moyen du commutateur principal de mise en et hors circuit.
- Veiller à la présence de tensions continues exemptes d'ondulation. La tension d'ondulation de U_1 par exemple est de 4 V env. et ne devrait pas beaucoup augmenter en raison d'une perte de capacité de C 766. Les tensions d'ondulation des autres tensions continues devraient toujours être inférieures à 1 V.

I

Consigli per le riparazioni

- L'alimentatore è oscillante con lo stadio di collegamento T 731 (base aperta). Dato che in questo stato non vengono generate tensioni di uscita, l'IC 710 (TEA 2164) deve essere alimentato con una tensione esterna (circa 12 V al pin 16).
In questa condizione, l'IC lavora nel cosiddetto «funzionamento a spazzola», cioè, i segnali rettangolari al pin 14 (20 kHz) vengono interrotti per circa 14 ms. La causa di ciò sta nel fatto che al pin 6 non c'è sincronizzazione.
Attenzione: Nello stadio di collegamento staccato, scaricare l'Elko C 706 prima di riattaccarlo ai morsetti (brasatura).
Con lo stadio di uscita orizzontale staccato (ad es. collegamento 4 al Tr. 531 aperto) e un carico di sostituzione al catodo di D 765 (una lampada a 100 W), l'alimentatore deve fornire 100% delle tensioni nominali.
- Per la ricerca di errori in caso di funzionamento di sicurezza del blocco di alimentazione, C 713 essere cavallottato. Se il funzionamento di sicurezza dovesse scattare per via di un sovraccarico transitorio, l'apparecchio può essere rimesso in funzione azionando l'interruttore principale d'inserzione/disinserzione.
- Controllare che le tensioni continue siano prive di ronzio. Per es la tensione di ronzio di U_1 si trova a ca. 4 V e non dovrebbe aumentare di molto, in dipendenza della perdita di capacità di C 766. Le tensioni di ronzio delle rimanenti tensioni continue dovrebbero rimanere inferiori a 1 V.



Tastenbelegung der IR-Sender bei Service-Betrieb.
 Infrared remote gun functions in Service mode.
 Occupation des touches de l'émetteur IR en mode de fonctionnement service.
 Occupazione dei tasti del trasmettitore a raggi infrarossi in funzionamento di servizio.
 Funciones y modo de servicio del control remoto de infrarrojos.