

THOMSON MULTI MEDIA

Brandt FERGUSON NORDMENDE SABA TELEFUNKEN THOMSON

TV

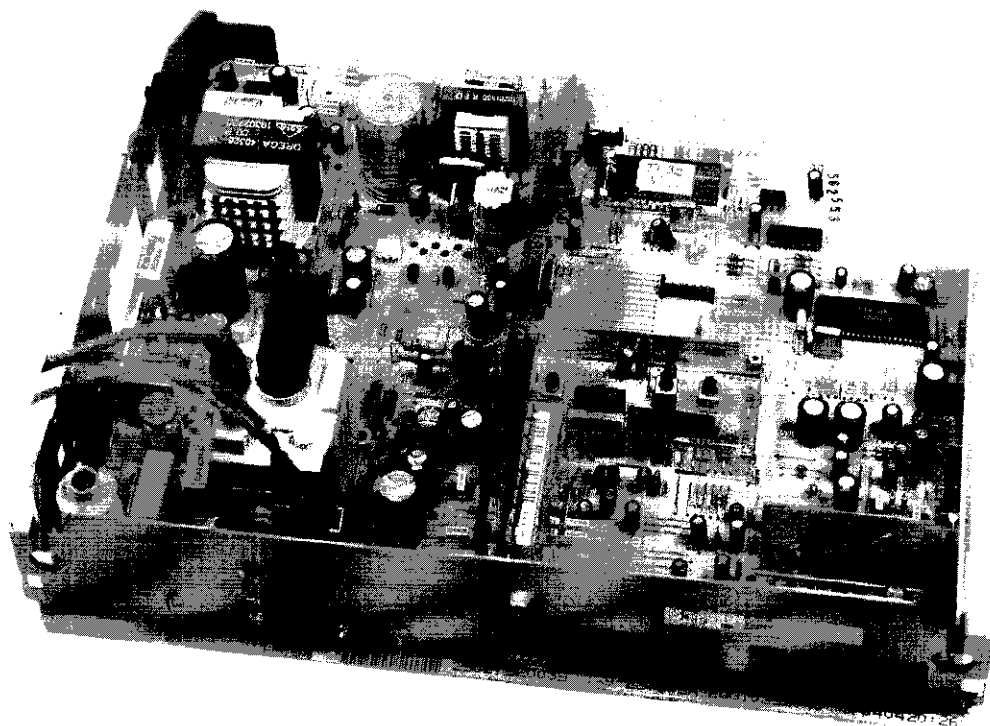


**SERVICE MANUAL
DOCUMENTATION TECHNIQUE
TECHNISCHE DOKUMENTATION
DOCUMENTAZIONE TECNICA
DOCUMENTACION TECNICA**

TX92F

2. VERSION

[Click here to go to the index page](#)



WARNING : Before servicing this chassis read the safety recommendations.
ATTENTION : Avant toute intervention sur ce châssis, lire les recommandations de sécurité.
ACHTUNG : Vor jedem Eingriff auf diesem Chassis, die Sicherheitsvorschriften lesen.
ATTENZIONE : Prima di intervenire sullo chassis, leggere le norme di sicurezza.
IMPORTANTE : Antes de cualquier intervención, leer las recomendaciones de seguridad.

Code : 350 615 40 - 0298 / 14,4M- TX92F Print.

MAI GOGNE / SAILLOUR - AVRIL 1982

Index for TX92 Chassis

Circuit Diagrams

Power Supply PSX 2151.20
Video Amplifier CRT.X.2111.00
Microprocessor CLX 2110.00
CLX2110.10 CLX2150.00 CLX2150.10
CLX2150.40 CLX2150.50
Power Supply PSX2111.00
PSX2151.00 PSX2112.00 PSX2152.00

Complete PCB Diagram Edition 1

Complete PCB Diagram Edition 2

Keyboard Modules - Infrared receiver modules
Front Connector boards edition 1 –Keyboard Module
Front Connector boards edition 2 – Headphone Jack
Front Connector boards edition 3
Front Connector board edition 4
Tuner TELE 9X 009A - Tuner CTT5000.

Other Info

Informations
Location of controls
Adjustment -Service Mode
Components Location
Abbreviations
Applied study of TX92
Chassis - Maintenance
guide.

Tuner – IF Part & Scart
Interface Edition 1.

Tuner - IF Part & Scart
Interface Edition 2.



Do not disconnect modules when they are energized!
Repairs on power supply section are to be carried out only with isolating transformer.

Ne pas retirer les modules lorsqu'ils sont sous tension. N'effectuer les travaux de maintenance sur la partie reliée au secteur (Switch Mode) qu'au travers d'un transformateur d'isolement.

Module nicht bei eingeschaltetem Gerät entfernen!
Servicearbeiten am Netzteil nur unter Verwendung eines Regeltrenntrafos durchführen.

Non scollegare i moduli quando sono alimentati!
Effettuare riparazioni sulla sezione alimentatore solo con trasformatore separatore.

No desconectar los módulos cuando están activados. Las reparaciones en la sección de alimentación de energía deben ser ejecutadas solamente con un transformador de separación.



Indicates critical safety components, and identical components should be used for replacement. Only then can the operational safety be guaranteed.

Le remplacement des éléments de sécurité (repérés avec le symbole) par des composants non homologués selon la Norme CEI 65 entraîne la non-conformité de l'appareil. Dans ce cas, la responsabilité du fabricant n'est plus engagée.

Wenn Sicherheitsteile (mit dem Symbol gekennzeichnet) nicht durch Original - Ersatzteile ersetzt werden, erlischt die Haftung des Herstellers.

La sostituzione degli elementi di sicurezza (marcati con il segno) con componenti non omologati secondo la norma CEI 65 comporta la non conformità dell'apparecchio. In tal caso è "esclusa la responsabilità" del costruttore.

La sustitución de elementos de seguridad (marcados con el símbolo) por componentes no homologados según la norma CEI 65, provoca la no conformidad del aparato. En ese caso, el fabricante cesa de ser responsable.

MEASUREMENT CONDITIONS - CONDITIONS DE MESURES - MESSBEDINGUNGEN CONDIZIONI DI MISURA - CONDICIONES DE MEDIDAS

RECEIVER :

On UHF, input level : 1 mV, bar test pattern :
- PAL, 1 standard, 100% white.

Via the scart socket, input level : 1 Vpp, bar test pattern :

Colour, contrast and brightness at mid-position, sound at minimum.
Programme selected : PR 01.

DC voltages measured between the point and earth: using a digital voltmeter.

RECEPTEUR :

En UHF, niveau d'entrée 1 mV mire de barres
- SECAM, Norm L, Blanc 100%.

Par la prise Péritelévision, niveau d'entrée 1 Vcc, mire de barres :

Couleur, contraste, lumière à mi-course, son minimum.
Programme affecté PR 01.

Tensions continues relevées par rapport à la masse avec un voltmètre numérique.

EMPFÄNGER :

Bei UHF Eingangsspege: 1 mV, Farbbalken :
- PAL, Norm G, Weiss 100%.

Über die Scartbunse : Eingangsspege: 1 Vss, Farbbalken :

Farbe, Kontrast, Helligkeit in der Mitte des Bereichs. Ton auf Minimum.
Zugeordnetes Programm PR 01.

Gleichspannungen mit einem digitalen Voltmeter zur Masse gemessen.

RICEVITORE :

In UHF, livello d'entrata 1 mV, monoscopio con barre :
- PAL, norma G, bianco 100%.

Per la presa SCART, livello d'entrata 1 Vpp, monoscopio con barre :

Colore, Contrasto, Luce a metà corsa, Suono minimo.
Programma designato PR 01.

Tensioni continue rilevate rispetto alla massa con un voltmetro digitale.

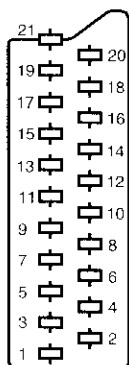
RECEPTOR :

En UHF, nivel de entrada 1 mV, mira de barras :
- PAL, norma G, blanco 100%.

Por la toma Peritelévision, nivel de entrada 1 Vpp mira de barra.

Color, Contraste, luz a mitad de carrera, Sonido mínimo.
Programa afectado PR 01.

Tensiones continuas marcadas en relación a la masa con un voltmetro digital.



NOTE : **(MAIN)** ... etc. identifies each pcb module.

NOTE : **(MAIN)** ... etc. repères des platines constituant l'appareil.

HINWEIS : **(MAIN)** ... usw. Kennzeichnung der Platinen, aus denen das Gerät zusammengesetzt ist.

NOTA : **(MAIN)** ... ecc. indicazioni delle piastre che costituiscono l'apparecchio.

NOTA : **(MAIN)** ... etc. marcas de las placas que constituyen el aparato.

	ENGLISH	FRANÇAIS	DEUTSCH	ITALIANO	ESPAÑOL
1	AUDIO "R"	AUDIO "D"	AUDIO "R"	AUDIO "D"	AUDIO "D"
2	AUDIO "R"	AUDIO "D"	AUDIO "R"	AUDIO "D"	AUDIO "D"
3	AUDIO "L"	AUDIO "G"	AUDIO "L"	AUDIO "S"	AUDIO "L"
4	AUDIO	AUDIO	AUDIO	AUDIO	AUDIO
5	"BLUE"	"BLEU"	"BLAU"	"BLU"	AZUL
6	AUDIO "L" MONO	AUDIO "G" MONO	AUDIO "L" MONO	AUDIO "S" MONO	AUDIO "L" MONO
7	"BLUE"	"BLEU"	"BLAU"	BLU	AZUL
8	SLOW SWITCH	COMMUT. LENTE	AV UMSCHALTUNG	COMMUTAZIONE LENTA	COMNUTACION LENTA
9	"GREEN"	"VERT"	"GRÜN"	"VERDE"	VERDE
10 NC					
11	"GREEN"	"VERT"	"GRÜN"	"VERDE"	VERDE
12 NC					
13	"RED"	"ROUGE"	"ROT"	"ROSSO"	ROJA
14 NC					
15	"RED"	"ROUGE"	"ROT"	"ROSSO"	ROJA
16	FAST SWITCH	COMMUT. RAPIDE	AUSTASTUNG	COMMUTAZIONE RAPIDA	"COMNUTACION RAPIDA"
17	VIDEO	VIDEO	VIDEO	VIDEO	VIDEO
18	FAST SWITCH	COMMUT. RAPIDE	AUSTASTUNG	COMMUTAZIONE RAPIDA	"COMNUTACION RAPIDA"
19	VIDEO	VIDEO	VIDEO	VIDEO	VIDEO
20	VIDEO OR "SYNC"	VIDEO SYNCHRO	VIDEO ODER SYNCHRO	VIDEO O SINCRO	VIDEO O SINCRO
21	PLUG SCREEN BOX	BLINDAGE PRISE	ABSCHIRMUNG DES STECKERS	SCHERMATURA METALLICA	BLINDAJE DEL ENCHUFE

: INPUT - ENTRÉE - EINGANG - ENTRATA - ENTRADA • : OUTPUT - SORTIE - AUSGANG - USCITA - SALIDA • : EARTH - MASSE - MASSE - MASSA - MASA

INFORMATION - INFORMATIONS - INFORMATIONEN - INFORMAZIONE - INFORMACIONES

(GB) Chassis groupe table

- 1 - The electronic chassis configuration (modules) and schematic diagram page numbers.
- 2 - The chassis configuration.

(F) Le tableau ci-dessous regroupe :

- 1 - L'environnement électronique de chaque chassis (modules) et le numéro de page où il est décrit.
- 2 - La désignation des chassis

(D) Die nachstehende Tabelle umfaßt:

- 1 - Die elektronischen Baugruppen (Module) der Chassis und die Seitenzahl auf der sie beschrieben werden
- 2 - Die Chassisbezeichnung

(I) La tabella qui di seguito contiene:

- 1 - l'ambiente elettronico di ogni telaio (moduli) e il numero di pagina nella quale è descritto.
- 2 - La descrizione dei telai

(E) El cuadro siguiente agrupa:

- 1 - El entorno electrónico de cada chasis (módulos) y el número de página donde está descrito.
- 2 - La designación de los chasis

TX92F Mono

DESCRIPTION	ADJUST- MENT	CRT	SCHEMATIC MAIN	MICRO POWER S. (CLX/PSX)	TUNER	HF-FI (!) (RFX)	AUDIO (AUX)	SCART (SCX)	TELETEXT (VTX)	VIDEO / CHR. (VCX)	SCANNING (DFX/DLX)	KDB/KBX /FCB
Schematic Pages:	4 to 14	21	22to26	22	50to52	23,38	24to25	26	23	23to24	25to26	39to49
PCB Pages:	-	20to21	15to19	15to19	-	35to38	-	-	-	-	-	-
TX92 F4C300509B TX92 F4C00506B	(!) (2) (2)	TX92 F4C700602B TX92 F4C300106B	(!) (2) (2)	TX92 F3C700002B TX92 F4C300506B	(!) (3) (2)	TX92 F4C700601B TX92 F3C700006B	(!) (2) (3)					

TX92F Stereo

DESCRIPTION	ADJUST- MENT	CRT	SCHEMATIC MAIN	MICRO POWER S. (CLX/PSX)	TUNER	HF-FI (!) (RFX)	AUDIO (AUX)	SCART (SCX)	TELETEXT (VTX)	VIDEO / CHR. (VCX)	SCANNING (DFX/DLX)	KDB/KBX /FCB
Schematic Pages:	4 to 14	21	30to34	30	50to52	27, 31	32to33	33to34	31	31to32	32to34	39to49
PCB Pages:	-	20to21	15to19	15to19	-	35to38	-	-	-	-	-	-
TX92 FCC302007C TX92 576 1A TX92 F0C7715020 TX92F28572507AES/ TX92 F2C372503A TX92 F2C3725063 TX92 F2C372507A TX92F2C770501BES/ TX92 F2C772501D TX92 F2H3725064	(!) (8) (6) (11) (10) (10) (9) (10) (1) (10) (9)	TX92 F38502507A TX92 F39002507A TX92 F3C302503A TX92 F3C302504A TX92 F3C3025063 TX92 F3C302506D TX92 F3C3025070 TX92 F3C3025073 TX92 F3C302507A TX92 F3C7025010	(!) (7) (5) (5) (5) (5) (4) (4) (4) (5) (4)	TX92 F3C702501A TX92 F3C702501D TX92 F3C702502A TX92 F3C7025054 TX92 F3F002507A TX92 F3H3025064 TX92 F3H302506A TX92 F4C301107A TX92 F4C700502B TX92 F67015020	(!) (5) (5) (4) (5) (4) (5) (7) (2) (6)	TX92 F68501507A TX92 F6C301503A TX92 F6C3015040 TX92 F6C3015070 TX92 F6C301507A TX92 F6C3016070 TX92 F6C3016070 TX92 F6C3025040 TX92 F6C3025043 TX92 F6C3025063	(!) (7) (6) (6) (6) (7) (6) (6) (6) (6) (6)	TX92 F6C3025070 TX92 F6C3025073 TX92 F6C7015020 TX92 F6C7025010 TX92 F6C702501D TX92 F6C7025020 TX92 F6H3025064 TX92 F6H302506A TX92 F6H302506A	(!) (6) (7) (6) (7) (6) (6) (6) (7) (7)			

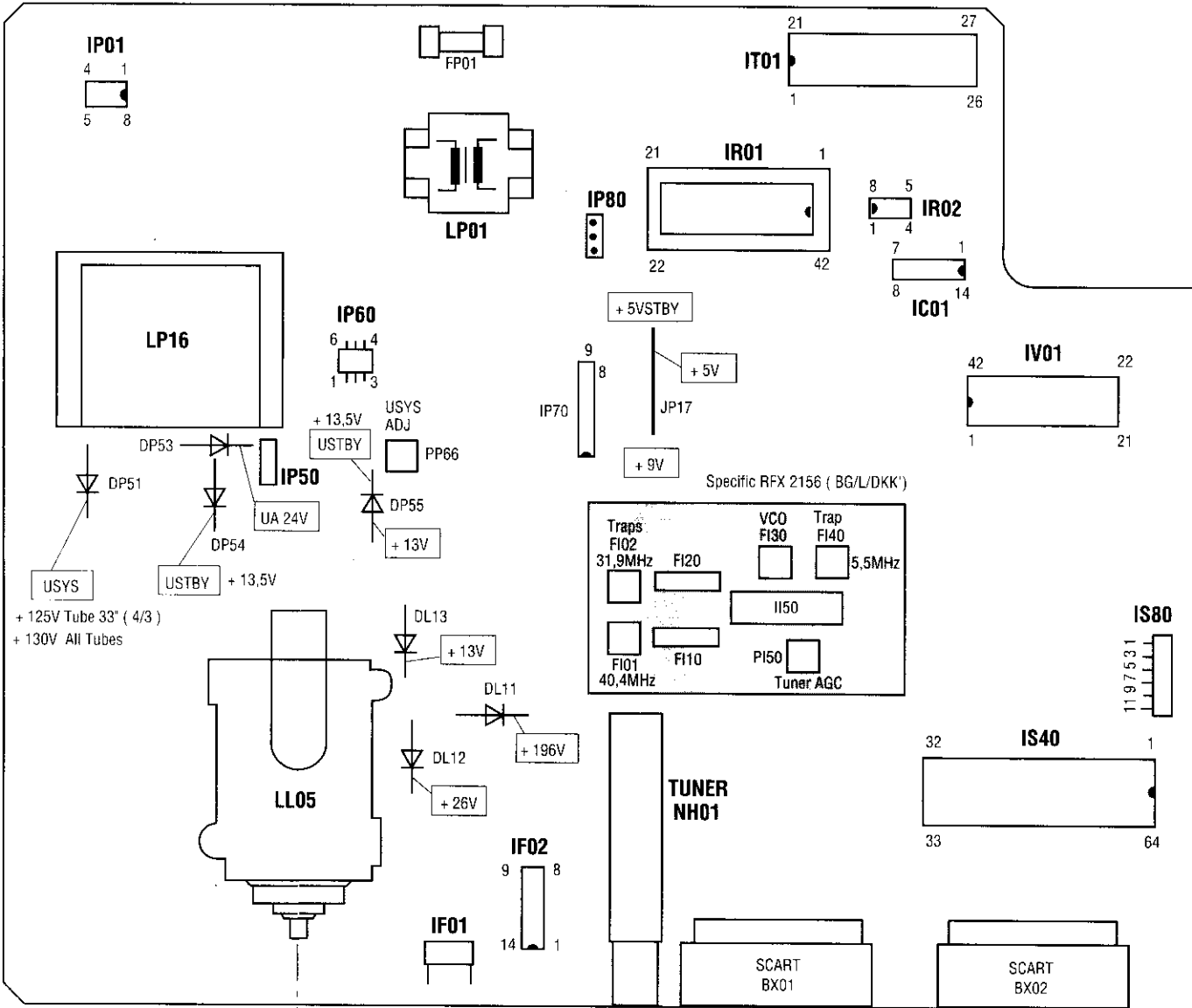
(!)

- | | | | |
|--------------------------|--------------------------|----------------------------|---------------------------|
| (1) RFX 2117.00 Page: 38 | (4) RFX 2155.00 Page: 35 | (7) RFX 2156.10 Page: 27 | (10) RFX 2157.10 Page: 36 |
| (2) RFX 2122.00 Page: 23 | (5) RFX 2155.10 Page: 31 | (8) RFX 2156.40 Page: 27 | (11) RFX 2151.00 Page: 36 |
| (3) RFX 2135.00 Page: 38 | (6) RFX 2156.00 Page: 35 | (9) FRX 2157.00 Page: | |

ABBREVIATIONS - ABREVIATIONS - ABKÜRZUNGEN - ABBREVIAZIONI - ABREVIACIONES

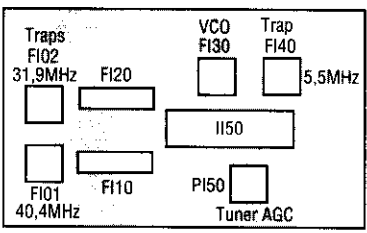
● AF	AUDIO FREQUENCY FREQUENCE AUDIO
● BCL	BEAM CURRENT INFORMATION INFORMATION COURANT DE FAISCEAU
● CVBS	COMPOSITE VIDEO / LUMINANCE SIGNAL SIGNAL VIDEO COMPOSITE
● DEGAUSS	DEGAUSS SIGNAL SIGNAL DE COMMANDE DE DEMAGNETISATION
● EWDRIVE	DRIVE SIGNAL FOR EAST-WEST CORRECTION SIGNAL DE COMMANDE CORRECTION EST-OUEST
● EWSENSE	FEED BACK SIGNAL OF EAST-WEST CORRECTION SIGNAL DE CONTRE-REACTION EST-OUEST
● FORMAT	COMMAND USED TO CHANGE THE PICTURE FORMAT COMMANDE UTILISEE POUR CHANGER LE FORMAT
● FB	FAST BLANKING COMMUTATION RAPIDE
● HDRV	HORIZONTAL DEFLECTION SIGNAL SIGNAL DE COMMANDE DE BALAYAGE HORIZONTAL
● + H	POSITION FLY BACK PULSE IMPULSION DE RETOUR LIGNE DE REFERENCE
● HEATER	HEATER VOLTAGE TENSION DE FILAMENT
● I-CUT	CUTOFF CURRENT COURANT DE CUTOFF
● IR	DATA FROM INFRARED RECEIVER DONNEES ISSUES DU RECEPTEUR INFRAROUGE
● OSCIN / OSCOUT	OSCILLATOR INPUT / OUTPUT ENTREE / SORTIE OSCILLATEUR
● S	VERTICAL S - CORRECTION CORRECTION S VERTICALE
● SAFETY	SIGNAL FOR DETECT. OF ERRORS ON THE DEFLEC.PART SIGNAL DE DETECT. D'ERREURS PARTIE DEFLECTION
● SCL	SERIAL CLOCK SIGNAL HORLOGE SERIE
● SDA	SERIAL DATA DONNEE SERIE
● SIF	SOUND IF FI SON
● VSYNC	VERTICAL DEFLECTION SIGNAL SIGNAL DE COMMANDE BALAYAGE VERTICAL

**LOCATION OF CONTROLS - EMBLACEMENT DES REGLAGES -
SERVICE LAGEPLAN - POSIZIONE REGOLATORI DI SERVIZIO -
SITUACIÓN DE LOS AJUSTES**



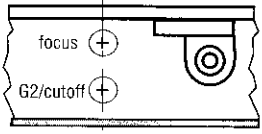
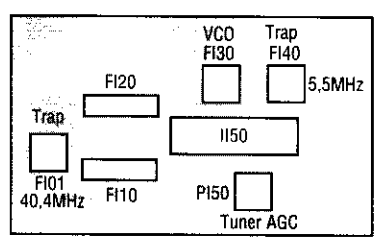
+ 125V Tube 33" (4/3)
+ 130V All Tubes

Specific RFX 2156 (BG/L/DKK)

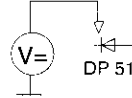
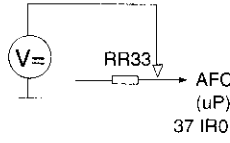
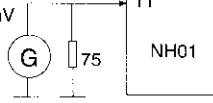
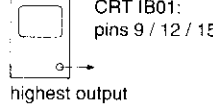




TUNER NH01

Specific RFX 2151 (BG)



ADJUSTMENTS - REGLAGES - EINSTELLUNGEN - REGOLAZIONE - AJUSTES

U Sys	PP 66	Contrast, brightness and volume to minimum		125V - Tube 33" (4/3) (A79 ECU 13x41) JL52 130V - all tubes tous tubes JL51
IF Alignment Alignement FI VCO : IF RFX (stereo) Standard BG / I Standard L'	FI 30 PI54	Switch set to standard BG or L' Commuter le TV au standard BG ou L' IF Signal 38.9 MHz (BG) 33.9 MHz (L')		Adjust FI30 / PI54 for 2,5VDC +/-0.1V Régler FI30 / PI54 pour 2,5VDC +/-0.1V
IF Alignment Alignement FI VCO : IF RFX (mono) Standard BG /LL/ I	FI 02	30 mV 		Adjust FI02 for 2,5VDC +/-0.1V Régler FI02 pour avoir 2,5VDC +/-0.1V
U G2 / cutoff	SCREEN	AV (no Signal, black screen)		Tube type : Cutoff AXX EAS : 150V AXX ECV : 160V A79 ECU : 160V W56 EGV : 160V W66 EDX : 160V W76 EGC : 160V
FOCUS	FOCUS	 Test pattern (standard values)		Sharp picture

SERVICE-MODE



MODE SERVICE



It is necessary to enter the Service Mode in order to carry out alignment of the TV set. Most adjustments can be made with the RCU, except the Ussystem, Focus and Screen voltages.

1. Service Mode Access

- 1.1 With the RCU, switch the TV set into the "Standby" mode.
- 1.2 Switch "Off" the TV set by mains supply switch (wait until LED is dark).
- 1.3 Whilst depressing the RCU "Blue (VT)" button, switch "On" the TV set using the mains supply switch.
- 1.4 Release and press once again the RCU "Blue (VT)" button, the following "Set-Up" menu should be displayed."

SET-UP	VIDEO	GEOM
TX92 NM		Configuration

Important : The Service Mode cannot be entered if any equipment is connected to the Scart socket, i.e. pin 8 switching voltage present.

2. Function or Page Selection (GEOM)

- 2.1 With the RCU Volume "+" and "-" buttons, highlight the menu containing the function to be aligned.
- 2.2 Press the RCU "Blue (VT)" button to highlight the function to be aligned, or selected the page (1, 2, 3..).

3. Switching between Service and TV modes

- 3.1 Whilst in the Service Mode, normal TV controls are disabled, to enable these controls whilst in the Service Mode (i.e. for channel changing etc.) press the "TV" button on the RCU. To return to the Service Mode, press the "Blue (VT)" button on the RCU.

4. Alignment and storing new function value

- 4.1 The current value of the selected function is displayed in a hexadecimal form to the right of the function name. This value is adjusted by means of the RCU Volume "+" and "-" buttons.
- 4.2 To STORE the functions new value, highlight MEMO and press the RCU Volume "+" button.
- 4.3 To RESTORE the functions original value, highlight R-STO(RE) and press the RCU Volume "+" button.
- 4.4 Selection the ROM functions downloads the production software default values, these are not very accurate and should only be used in very special cases.
Whilst in the «Service-Mode», a long press (more than 3s) of the RCU «0» button, will reset the TV to the «factory default conditions».

5. Leaving the Service Mode

- 5.1 To leave the Service mode either, switch the TV set into "Standby" or switch "Off" the mains supply.

Le mode service sert au réglage de l'appareil. Toutes les opérations de réglage s'effectuent à l'aide de la télécommande (sauf la tension de système, les réglages de Focus et de tension de grille-écran).

1. Accès au mode service

- 1.1 Commuter le téléviseur en position de veille avec la télécommande
- 1.2 Eteindre le téléviseur par l'interrupteur secteur (attendre l'extinction complète du voyant).
- 1.3 Maintenir la touche bleue enfoncée et mettre simultanément le téléviseur en marche avec l'interrupteur secteur.
- 1.4 Le menu suivant apparait après avoir appuyé à nouveau sur la touche bleue, (VT).

SET-UP	VIDEO	GEOM
TX92 NM		Configuration

Attention : Le mode service n'est pas accessible si un appareil est connecté à la prise péritélévision.

2. Sélection de la fonction ou de la page (GEOM)

Par les touches +/- de la télécommande vous pouvez choisir le menu correspondant (SET UP, VIDEO ou GEOM) et le "feuilleter" ou la page (1, 2, 3...) avec la touche bleue (VT).

3. Inversion entre modes service et TV

Les fonctions télévision normales ne sont pas utilisables en mode service. Si elles sont nécessaires en mode service (p. ex. changement de programme), la touche (TV) permet de commuter en mode TV. Vous pouvez revenir au mode service en appuyant sur la touche bleue.

4. Réglage des fonctions sélectionnées; mémorisation

La valeur momentanée de la fonction sélectionnée est indiquée sous forme hexadécimale à droite, à côté de la position à régler et peut être modifiée avec la télécommande par la touche + ou - .
La ligne MEMO permet de mémoriser les nouvelles valeurs de réglage avec la touche + .
La ligne R-STO(RE) permet de rappeler les valeurs mémorisées en NVM.

Les valeurs par défaut du logiciel peuvent être chargées en sélectionnant la fonction ROM . Elles ne constituent cependant qu'une approximation du réglage et ne doivent être utilisées qu'en cas de nécessité.

En mode service une longue pression (plus de 3s) sur la touche «0» reset le TV aux valeurs par défaut des réglages usine.

5. Sortie du mode service

Pour sortir du mode service, commuter le téléviseur en position de veille ou le mettre hors service par l'interrupteur secteur.

TV mono :

SET-UP				
Software code and configuration				
BRAND	1	2	3	NONE
TUNER	A		B	
NORM	I	B	BD	BLD BIL
SUB-VOL	- 2 / 2		1	
- R-STO	+ MEMO		O ROM	

TV stereo :

SET-UP				
Software code and configuration				
BRAND	1	2	3	NONE
TUNER	A		C	
NORM	I	B	BD	BLD BIL
DEC PR04	On		Off	
- R-STO	+ MEMO		O ROM	

VIDEO		
page 1		
SUB-BRT	7 / 7	0

page 1

VIDEO		
page 2		
R-DC	00-3F	24
G-DC	00-3F	12

page 2

VIDEO		
page 3		
R-DRV	00-3F	1F
G-DRV	00-3F	1E

VIDEO		
page 4		
B-DRV	00-3F	1C
PEAK	- / +	

VIDEO		
page 5		
SUB-COL	- 7 / 7	2
- RESTORE	- MEMO	0 ROM

GEOM		
V - POS	00 - 1F	10
V - AMP	00 - 7F	40
V - LIN	00 - 0F	07
H - PHA	00 - 3F	1F
H - AMP	00 - 3F	1F

GEOM		
EW - TILT	00 - 1F	0F
EW - AMP	00 - 1F	0F
EW - SHP	00 - 0F	07
- RESTORE	- MEMO	0 ROM

Test Bar pattern used : 4/3 with geometric circle.
Mire utilisée : 4/3 avec un cercle de géométrie.
Testbild : 4/3 mit geometrischem Kreis.
Generatore segnale usato : formato 4/3 con cerchi
Mira utilizada : 4/3 con círculo geométrico

. adjust separate for 4/3 and 16/9 format
. régler séparément pour les formats 4/3 et 16/9
. getrennt für 4/3 and 16/9 einstellen
. regolare separatamente per 4/3 e 16/9
. ajustar por separado para 4/3 y 16/9

SET-UP	
BRANDT	Brand Selection 1 : TELEFUNKEN 2 : SABA/FERGUSON/ BRANDT 3 : THOMSON/ NORDMENDE
TUNER	Tuner Type Selection A = Alps Selection C = CTT5000
NORM	Standards B = BG PAL SECAM (Sound FM 5,5MHz) ----- I = I PAL (UK/IRELAND) (Sound FM 6MHz) ----- L = L SECAM (France) (Sound AM 6.5MHz) ----- D = DKK SECAM (Sound AM 6.5 MHz) ----- M = NTSC M (Sound FM 4.5MHz)
DEC PR4 (TX92 stereo)	On : Enable OFF : Disable NICAM from Canal+ decoder on PR04 program. NICAM desde el descodificador de Canal+ en el programa PR04
SUB-VOL (TX92 mono)	Volume offset adjustment: $\leftarrow \frac{V}{V_s} = 50\% \rightarrow$ $V_e (AV) = 500mV / 1kHz$ Adjust SUB-VOL $\left \frac{V_s (Z = 8)}{V_e} = 545mV \right.$

VIDEO																																
SUB-BRT ☀ + ☉ + ☾ = 50%		 black, noir																														
R - DC*		 grau, grey																														
G - DC*		 grau, grey																														
R - DRV		 weiß, white																														
G - DRV		 weiß, white																														
B - DRV		 weiß, white																														
PEAK** ☀ + ☉ = 50% ☾ = 100%	 CRT Pin 6,8,11 Oscillo. or colorimeter	<table border="1"> <thead> <tr> <th>4/3</th> <th>Nits</th> <th>Vpp</th> </tr> </thead> <tbody> <tr> <td>25" FS</td> <td>420</td> <td>80</td> </tr> <tr> <td>28" FS</td> <td>350</td> <td>80</td> </tr> <tr> <td>25" MP</td> <td>420</td> <td>76</td> </tr> <tr> <td>28" MP</td> <td>350</td> <td>74</td> </tr> <tr> <td>33" MP</td> <td>280</td> <td>80</td> </tr> <tr> <td>Tube</td> <td></td> <td></td> </tr> <tr> <td>16/9</td> <td></td> <td></td> </tr> <tr> <td>24" SF</td> <td>580</td> <td>90</td> </tr> <tr> <td>28" MP</td> <td>480</td> <td>92</td> </tr> </tbody> </table>	4/3	Nits	Vpp	25" FS	420	80	28" FS	350	80	25" MP	420	76	28" MP	350	74	33" MP	280	80	Tube			16/9			24" SF	580	90	28" MP	480	92
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GEOM		
V - Pos		
V - Amp		
V - Lin		
H - PHA		
H - AMP		

EW - TILT		
EW - AMP		
EW - SHP		

Software Code :

Software Release Code	Description
TX92NM - (V V)	TX92F Mono Software
TX92NS - (V V)	TX92F Stereo Software

TV Configuration Code :

T	TEXT MODULE
S	STEREO MODULE
M	MONO SET

Notes :
* adjust separate for PAL/NTSC/SECAM and RGB
* régler séparément pour PAL/NTSC/SECAM et RGB
* separat für PAL/NTSC/SECAM und RGB einstellen.
* regolare separatamente per PAL/NTSC/SECAM e RGB.
* ajustar por separado PAL/NTSC/SECAM y RGB.

** After PEAK white adjustment control brightness and cut off setting. Repeat the adjustments if necessary.
Après le réglage de PEAK white contrôlez les réglages de lumière et de cut-off. Réitérez si nécessaire.
Nach der SpitzenweißEinstellung, Helligkeit und Cut off Einstellung überprüfen. Wenn nötig, Abgleich wiederholen.
Dopo la regolazione PEAK controllare luminosità e regolazioni cut off. Ripetere le regolazioni se necessario.
Después de ajustar el "PEAK" del blanco controlar el brillo y ajustar el cut off. Repetir el ajuste si es necesario.

Oscillos. 1

blue K



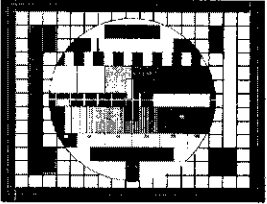
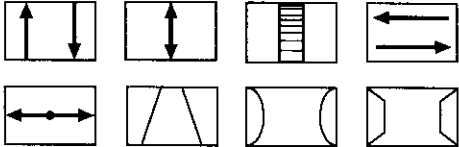
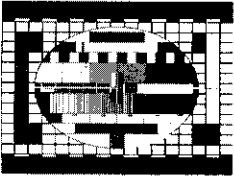

blue K



incorrect

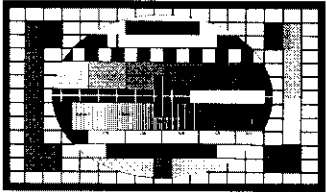
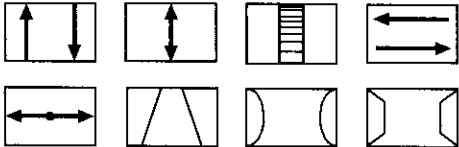
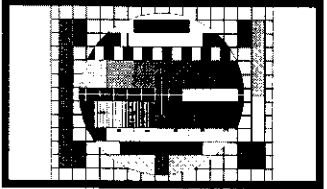
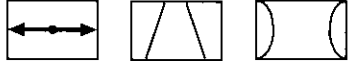
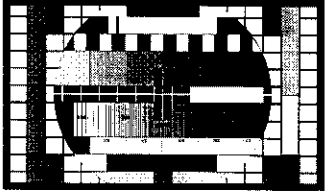

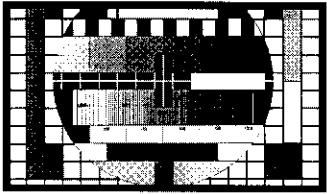

GEOMETRY MODE ALIGNMENT - RECEIVER : TV WITH 4/3 TUBE

Signal : 4/3 test pattern

<p>4 / 3 standard mode</p>		<p>overscan V=107% , H=107%</p> 
<p>16 / 9 standard mode</p>		 <p>1 - Adjust the horizontal overscan (reference : screen edge) 1 - 2 - Adjust the vertical amplitud until the oval heigh is 75% of the oval width. 2 -</p>

GEOMETRY MODE ALIGNMENT - RECEIVER : TV WITH 16/9TUBE

Signal : 4/3 test pattern

<p>16 / 9 Full screen mode (zoom 3)</p>		<p>overscan V=107% , H=107%</p> 
<p>4/3 Centered (curtain) (zoom 1)</p>		<p>overscan V=107% , H=77% of the screen</p>  <p>1 - V-pos, V-amp, V-LIN, H-PHA, EW-SHP : default data 2 - Adjust H-AMP, EW-TILT, EW-AMP</p>
<p>< 4/3 > wide (zoom 2)</p>		<p>overscan V=133% , H=107%</p>  <p>1 - V-LIN, H-PHA, EW-TILT, EW-AMP : default data 2 - Adjust V-POS, V-AMP, H-AMP</p>
<p>↑ 4/3 ↑ PANNING (zoom 2)</p>		<p>overscan V=133% , H=107%</p>  <p>1 - V-LIN, H-PHA, EW-TILT, EW-AMP : default data 2 - Adjust V-POS, V-AMP, H-AMP</p>

ADJUSTMENTS - REGLAGES - EINSTELLUNGEN - REGOLAZIONE - AJUSTES

U Sys	PP 66	Contrast, brightness and volume to minimum		125V - Tube 33" (4/3) (A79 ECU 13x41) JL52 130V - all tubes tous tubes JL51														
IF Alignment Alignement FI VCO : IF RFX (stereo) Standard BG / I	FI 30	Switch set to standard BG or L' Commuter le TV au standard BG ou L'		Adjust FI30 / PI54 for 2.5VDC +/-0.1V Régler FI30 / PI54 pour 2,5VDC +/-0.1V														
Standard L'	PI54	IF Signal 38.9 MHz (BG) 33.9 MHz (L')																
IF Alignment Alignement FI VCO : IF RFX (mono) Standard BG /LL/ I	FI 02			Adjust FI02 for 2.5VDC +/-0.1V Régler FI02 pour avoir 2,5VDC +/-0.1V														
U G2 / cutoff	SCREEN	AV (no Signal, black screen)		<table border="1"> <thead> <tr> <th>Tube type</th> <th>Cutoff</th> </tr> </thead> <tbody> <tr> <td>AXX EAS</td> <td>150V</td> </tr> <tr> <td>AXX ECV</td> <td>160V</td> </tr> <tr> <td>A79 ECU</td> <td>160V</td> </tr> <tr> <td>W56 EGV</td> <td>160V</td> </tr> <tr> <td>W66 EDX</td> <td>160V</td> </tr> <tr> <td>W76 EGC</td> <td>160V</td> </tr> </tbody> </table>	Tube type	Cutoff	AXX EAS	150V	AXX ECV	160V	A79 ECU	160V	W56 EGV	160V	W66 EDX	160V	W76 EGC	160V
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AXX EAS	150V																	
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A79 ECU	160V																	
W56 EGV	160V																	
W66 EDX	160V																	
W76 EGC	160V																	
FOCUS	FOCUS	 Test pattern (standard values)		Sharp picture														

SERVICE-MODE (GB)

MODE SERVICE (F)

It is necessary to enter the Service Mode in order to carry out alignment of the TV set. Most adjustments can be made with the RCU, except the Ussystem, Focus and Screen voltages.

Le mode service sert au réglage de l'appareil. Toutes les opérations de réglage s'effectuent à l'aide de la télécommande (sauf la tension de système, les réglages de Focus et de tension de grille-écran).

1. Service Mode Access

- 1.1 With the RCU, switch the TV set into the "Standby" mode.
- 1.2 Switch "Off" the TV set by mains supply switch (wait until LED is dark).
- 1.3 Whilst depressing the RCU "Blue (VT)" button, switch "On" the TV set using the mains supply switch.
- 1.4 Release and press once again the RCU "Blue (VT)" button, the following "Set-Up" menu should be displayed."

1. Accès au mode service

- 1.1 Commuter le téléviseur en position de veille avec la télécommande
- 1.2 Eteindre le téléviseur par l'interrupteur secteur (attendre l'extinction complète du voyant).
- 1.3 Maintenir la touche bleue enfoncée et mettre simultanément le téléviseur en marche avec l'interrupteur secteur.
- 1.4 Le menu suivant apparait après avoir appuyé à nouveau sur la touche bleue, (VT).

SET-UP	VIDEO	GEOM
TX92 NM		Configuration

SET-UP	VIDEO	GEOM
TX92 NM		Configuration

Important : The Service Mode cannot be entered if any equipment is connected to the Scart socket, i.e. pin 8 switching voltage present.

Attention : Le mode service n'est pas accessible si un appareil est connecté à la prise péritelvision.

2. Function or Page Selection (GEOM)

- 2.1 With the RCU Volume "+" and "-" buttons, highlight the menu containing the function to be aligned.
- 2.2 Press the RCU "Blue (VT)" button to highlight the function to be aligned, or selected the page (1, 2, 3..).

2. Sélection de la fonction ou de la page (GEOM)

Par les touches +/- de la télécommande vous pouvez choisir le menu correspondant (SET UP, VIDEO ou GEOM) et le "feuilleter" ou la page (1, 2, 3...) avec la touche bleue (VT).

3. Switching between Service and TV modes

- 3.1 Whilst in the Service Mode, normal TV controls are disabled, to enable these controls whilst in the Service Mode (i.e. for channel changing etc.) press the "TV" button on the RCU. To return to the Service Mode, press the "Blue (VT)" button on the RCU.

3. Inversion entre modes service et TV

Les fonctions télévision normales ne sont pas utilisables en mode service. Si elles sont nécessaires en mode service (p. ex. changement de programme), la touche (TV) permet de commuter en mode TV. Vous pouvez revenir au mode service en appuyant sur la touche bleue.

4. Alignment and storing new function value

- 4.1 The current value of the selected function is displayed in a hexadecimal form to the right of the function name. This value is adjusted by means of the RCU Volume "+" and "-" buttons.
- 4.2 To STORE the functions new value, highlight MEMO and press the RCU Volume "+" button.
- 4.3 To RESTORE the functions original value, highlight R-STO(RE) and press the RCU Volume "+" button.
- 4.4 Selection the ROM functions downloads the production software default values, these are not very accurate and should only be used in very special cases.
Whilst in the «Service-Mode», a long press (more than 3s) of the RCU «0» button, will reset the TV to the «factory default conditions».

4. Réglage des fonctions sélectionnées; mémorisation

La valeur momentanée de la fonction sélectionnée est indiquée sous forme hexadécimale à droite, à coté de la position à régler et peut être modifiée avec la télécommande par la touche + ou - .
La ligne MEMO permet de mémoriser les nouvelles valeurs de réglage avec la touche +.
La ligne R-STO(RE) permet de rappeler les valeurs mémorisées en NVM.
Les valeurs par défaut du logiciel peuvent être chargées en sélectionnant la fonction ROM . Elles ne constituent cependant qu'une approximation du réglage et ne doivent être utilisées qu'en cas de nécessité.
En mode service une longue pression (plus de 3s) sur la touche «0» reset le TV aux valeurs par défaut des réglages usine.

5. Leaving the Service Mode

- 5.1 To leave the Service mode either, switch the TV set into "Standby" or switch "Off" the mains supply.

5. Sortie du mode service

Pour sortir du mode service, commuter le téléviseur en position de veille ou le mettre hors service par l'interrupteur secteur.

TV mono :

SET-UP				
Software code and configuration				
BRAND	1	2	3	NONE
TUNER	A		B	
NORM	I	B	BD	BLD BIL
SUB-VOL	- 2 / 2		1	
- R-STO	+ MEMO		O ROM	

TV stereo :

SET-UP				
Software code and configuration				
BRAND	1	2	3	NONE
TUNER	A		C	
NORM	I	B	BD	BLD BIL
DEC PR04	On		Off	
- R-STO	+ MEMO		O ROM	

VIDEO		
page 1		
SUB-BRT	7 / 7	0

VIDEO		
page 2		
R-DC	00-3F	24
G-DC	00-3F	12

VIDEO		
page 3		
R-DRV	00-3F	1F
G-DRV	00-3F	1E

VIDEO		
page 4		
B-DRV	00-3F	1C
PEAK	- / +	

VIDEO		
page 5		
SUB-COL	- 7 / 7	2
- RESTORE	- MEMO	O ROM

GEOM			
page 1			
V - POS	00 - 1F	10	
V - AMP	00 - 7F	40	
V - LIN	00 - 0F	07	
H - PHA	00 - 3F	1F	
H - AMP	00 - 3F	1F	

GEOM			
page 2			
EW - TILT	00 - 1F	0F	
EW - AMP	00 - 1F	0F	
EW - SHP	00 - 0F	07	
- RESTORE	- MEMO	O ROM	

Test Bar pattern used : 4/3 with geometric circle.
 Mire utilisée : 4/3 avec un cercle de géométrie.
 Testbild : 4/3 mit geometrischem Kreis.
 Generatore segnale usato : formato 4/3 con cerchio
 Mira utilizada : 4/3 con círculo geométrico

adjust separate for 4/3 and 16/9 format
 régler séparément pour les formats 4/3 et 16/9
 getrennt für 4/3 and 16/9 einstellen
 regolare separatamente per 4/3 e 16/9
 ajustar por separado para 4/3 y 16/9

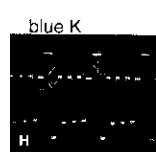
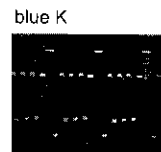
SET-UP	
BRANDT	Brand Selection 1 : TELEFUNKEN 2 : SABA/FERGUSON/ BRANDT 3 : THOMSON/ NORDMENDE
TUNER	Tuner Type Selection A = Alps Selection C = CTT5000
NORM	Standards B = BG PAL SECAM (Sound FM 5.5MHz) ----- I = I PAL (UK/IRELAND) (Sound FM 6MHz) ----- L = L SECAM (France) (Sound AM 6.5MHz) ----- D = DKK SECAM (Sound AM 6.5 MHz) ----- M = NTSC M (Sound FM 4.5MHz)
DEC PR4 (TX92 stereo)	On : Enable OFF : Disable NICAM from Canal+ decoder on PR04 program. NICAM desde el descodificador de Canal+ en el programa PR04
SUB-VOL (TX92 mono)	Volume offset adjustment: ← V → = 50% Ve (AV) = 500mV / 1kHz Adjust SUB-VOL Vs (Z = 8) = 545mV

VIDEO																																
SUB-BRT		black, noir																														
R - DC*		grau, grey																														
G - DC*		grau, grey																														
R - DRV		weiß, white																														
G - DRV		weiß, white																														
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SUB-COL	75% PAL Colour- bar Test pattern	Saturation=100% CRT Pin 11(B) (Oscillo. 1)																														

Notes :
 * adjust separate for PAL/NTSC/SECAM and RGB
 * régler séparément pour PAL/NTSC/SECAM et RGB
 * separat für PAL/NTSC/SECAM und RGB einstellen
 * regular separatamente per PAL/NTSC/SECAM e RGB
 * ajustar por separado PAL/NTSC/SECAM y RGB.

** After PEAK white adjustment control brightness and cut off setting. Repeat the adjustments if necessary.
 Après le réglage de PEAK white contrôlez les réglages de lumière et de cut-off. Répétez si nécessaire.
 Nach der SpitzenweißEinstellung, Helligkeit und Cut off Einstellung überprüfen. Wenn nötig, Abgleich wiederholen.
 Dopo la regolazione PEAK controllare luminosità e regolazioni cut off. Ripetere le regolazioni se necessario.
 Después de ajustar el "PEAK" del blanco controlar el brillo y ajustar el cut off. Repetir el ajuste si es necesario.

Oscillos.1



incorrect

GEOM		
V - Pos		
V - Amp		
V - Lin		
H - PHA		
H - AMP		

EW - TILT		
EW - AMP		
EW - SHP		

Software Code :

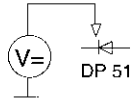
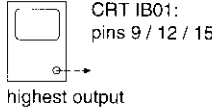
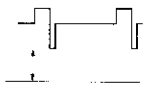


Software Release Code	Description
TX92NM - (V V)	TX92F Mono Software
TX92NS - (V V)	TX92F Stereo Software

TV Configuration Code :

T	TEXT MODULE
S	STEREO MODULE
M	MONO SET

ADJUSTMENTS - REGLAGES - EINSTELLUNGEN - REGOLAZIONE - AJUSTES

TV mono :

U Sys	PP 66	Contrast, brightness and volume to minimum		125V - Tube 33" (4/3) (A79 ECU 13x41) JL52 130V - all tubes tous tubes JL51
U G2 / cutoff	SCREEN	AV (no Signal, black screen)		 Tube type Cutoff AXX EAS 150V AXX ECV 160V A79 ECU 160V W56 EGV 160V W66 EDX 160V W76 EGC 160V
FOCUS	FOCUS	 Test pattern (standard values)		Sharp picture

TV stereo :

Software
BRAND
TUNER
NORM
SUB-VOL
- R-STO

Software
BRAND
TUNER
NORM
DEC PR04
- R-STO

BRANDT
TUNER
NORM

DEC PR4 (TX92 stereo)
SUB-VOL (TX92 mono)

Software Code
Software Release Code
TX92NM - (V)
TX92NS - (V)
TV Configuration
T
S
M

Software Code
Software Release Code
TX92NM - (V)
TX92NS - (V)
TV Configuration
T
S
M

SERVICE-MODE (GB)

SERVICE MODE (D)

It is necessary to enter the Service Mode in order to carry out alignment of the TV set. Most adjustments can be made with the RCU, except the U-system, Focus and Screen voltages.

1. Service Mode Access

- 1.1 With the RCU, switch the TV set into the "Standby" mode.
- 1.2 Switch "Off" the TV set by mains supply switch (wait until LED is dark).
- 1.3 Whilst depressing the RCU "Blue (VT)" button, switch "On" the TV set using the mains supply switch.
- 1.4 Release and press once again the RCU "Blue (VT)" button, the following "Set-Up" menu should be displayed."

SET-UP	VIDEO	GEOM
TX92 NM		Configuration

important : The Service Mode cannot be entered if any equipment is connected to the Scart socket, i.e. pin 8 switching voltage present.

2. Function or Page Selection (GEOM)

- 2.1 With the RCU Volume "+" and "-" buttons, highlight the menu containing the function to be aligned.
- 2.2 Press the RCU "Blue (VT)" button to highlight the function to be aligned, or selected the page (1, 2, 3..).

3. Switching between Service and TV modes

- 3.1 Whilst in the Service Mode, normal TV controls are disabled, to enable these controls whilst in the Service Mode (i.e. for channel changing etc.) press the "TV" button on the RCU. To return to the Service Mode, press the "Blue (VT)" button on the RCU.

4. Alignment and storing new function value

- 4.1 The current value of the selected function is displayed in a hexadecimal form to the right of the function name. This value is adjusted by means of the RCU Volume "+" and "-" buttons.
- 4.2 To STORE the functions new value, highlight **MEMO** and press the RCU Volume "+" button.
- 4.3 To RESTORE the functions original value, highlight **R-STO(RE)** and press the RCU Volume "+" button.
- 4.4 Selection of the ROM functions downloads the production software default values, these are not very accurate and should only be used in very special cases.
Whilst in the «Service-Mode», a long press (more than 3s) of the RCU «0» button, will reset the TV to the «factory default conditions».

5. Leaving the Service Mode

- 5.1 To leave the Service mode either, switch the TV set into "Standby" or switch "Off" the mains supply.

Der Service-Mode wird für den Geräteabgleich benötigt. Alle Einstellungen erfolgen mit der Fernbedienung (bis auf Systemspannung, Fokuseinstellung und Schirmgitterspannung).

1. Service-Mode einschalten

- 1.1 Mit der Fernbedienung das Fernsehgerät in Stand-by schalten.
- 1.2 Das Gerät mit dem Netzschalter ausschalten (warten bis LED dunkel ist)
- 1.3 Die blaue Taste der Fernbedienung gedrückt halten und gleichzeitig das Gerät mit dem Netzschalter einschalten.
- 1.4 Das folgende Menü erscheint nach erneutem Drücken der blauen Taste

SET-UP	VIDEO	GEOM
TX92 NM		Configuration

Achtung : Der Service-Mode läßt sich nicht einschalten, wenn an einer Euro-AV-Buchse ein Gerät aktiviert ist, d.h. die Schaltspannung anliegt.

2. Funktionswahl oder Seitenwahl (GEOM)

Mit den Tasten +/- wird das entsprechende Menü gewählt, welches mit der blauen Taste durchgeblättert wird oder die Seite ausgewählte wird (1,2 oder 3..).

3. Umschalten zwischen Service- und TV-Betrieb

Im Service-Mode sind die normalen Fernsehfunktionen nicht bedienbar. Werden diese im Service-Mode benötigt (z.B. Programmwechsel), kann mit der Taste (TV) in den normalen TV-Betrieb geschaltet werden. Durch Drücken der blauen Taste gelangt man zurück zum Service Mode.

4. Abgleich der gewählten Funktion und Speichern

Der momentane Wert der gewählten Funktion wird hexadezimal rechts neben der abzugleichenden Position angegeben und kann mit der Taste + bzw. - auf der Fernbedienung verändert werden.
Die Änderungen des jeweiligen Menüs können unter MEMO mit der + Taste gespeichert, bzw unter R-STO(RE) rückgängig gemacht werden.
Im Menüpunkt ROM kann man die Software-Defaultwerte laden. Sie sind aber nur eine grobe Annäherung an den noch vorzunehmenden Abgleich und sollten nur im Notfall verwendet werden.
Im Service-Menü : Durch längeren Druck auf die "0" Taste auf der Fernbedienung wird das Gerät auf die "Factory default Werte zurückgesetzt.

5. Service-Mode verlassen

Zum Verlassen des Service-Mode das Gerät in Stand By schalten oder mit dem Netzschalter ausschalten.

110° TELEVISION SETS EQUIPPED WITH THE TX92 FRAME STRUCTURE

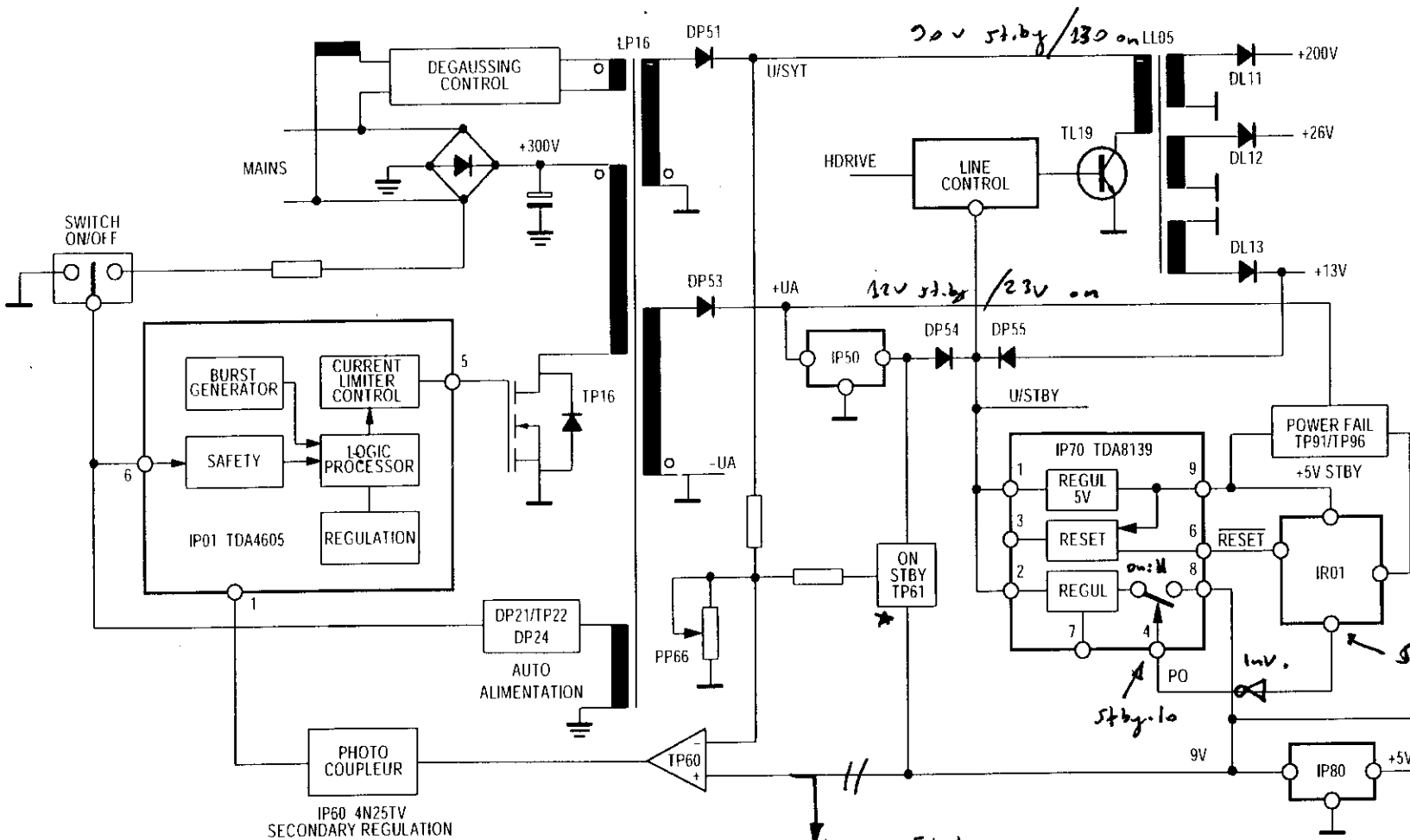
[Click Here](#) to go to the
index for the
maintanance manual

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**Repair Method for the
Power Supply**

POWER SUPPLY



*+5v st.by
Reference
voltage
TP61 -> on mode -> off.*

st.by High

st.by lo



GENERAL

The power supply of TX92 is elaborated from the TDA4605 integrated circuit, developed to control a MOSFET type power transistor.

The power supply functions in two quite distinct phases:

- In burst mode at start-up and during standby
- Continuously, in steady-state

This self-oscillating, flyback type power supply has a frequency range between 30 and 70Khz. The integrated circuit controls the chopper.

Stand-by and operational regulation is carried out from the secondary. Measurement on stand-by is carried out on UA voltage (50% of its value on stand-by). In steady state it is taken on U_{sys}. The information is transferred from the primary side via the photocoupler, IP60, which determines the energy stored in the transformer and allows galvanic insulation.

The U_{stby} voltage powers the IP70 (TDA8139) regulator and the line driver.

Back-up on NVM is carried out by the microcontroller through the power-fail information when the power supply voltage is too low.

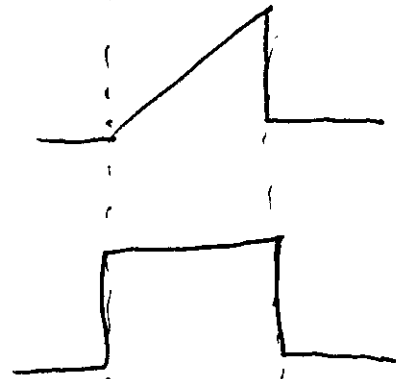
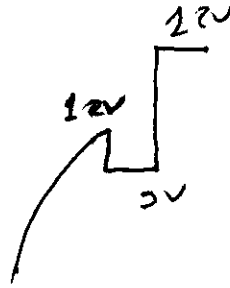
- The secondary voltages are:
 - U_{sys} 130 volts
 - UA 22 volts
 - 5 volts in 9 of IP70
 - 9 volts in 8 of IP70 (after operating control by IR01).

This product does not use a general switch but a small switch which cuts off the IP01 power supply. Consequently, only the diode bridge and head chemical are powered with the switch open.

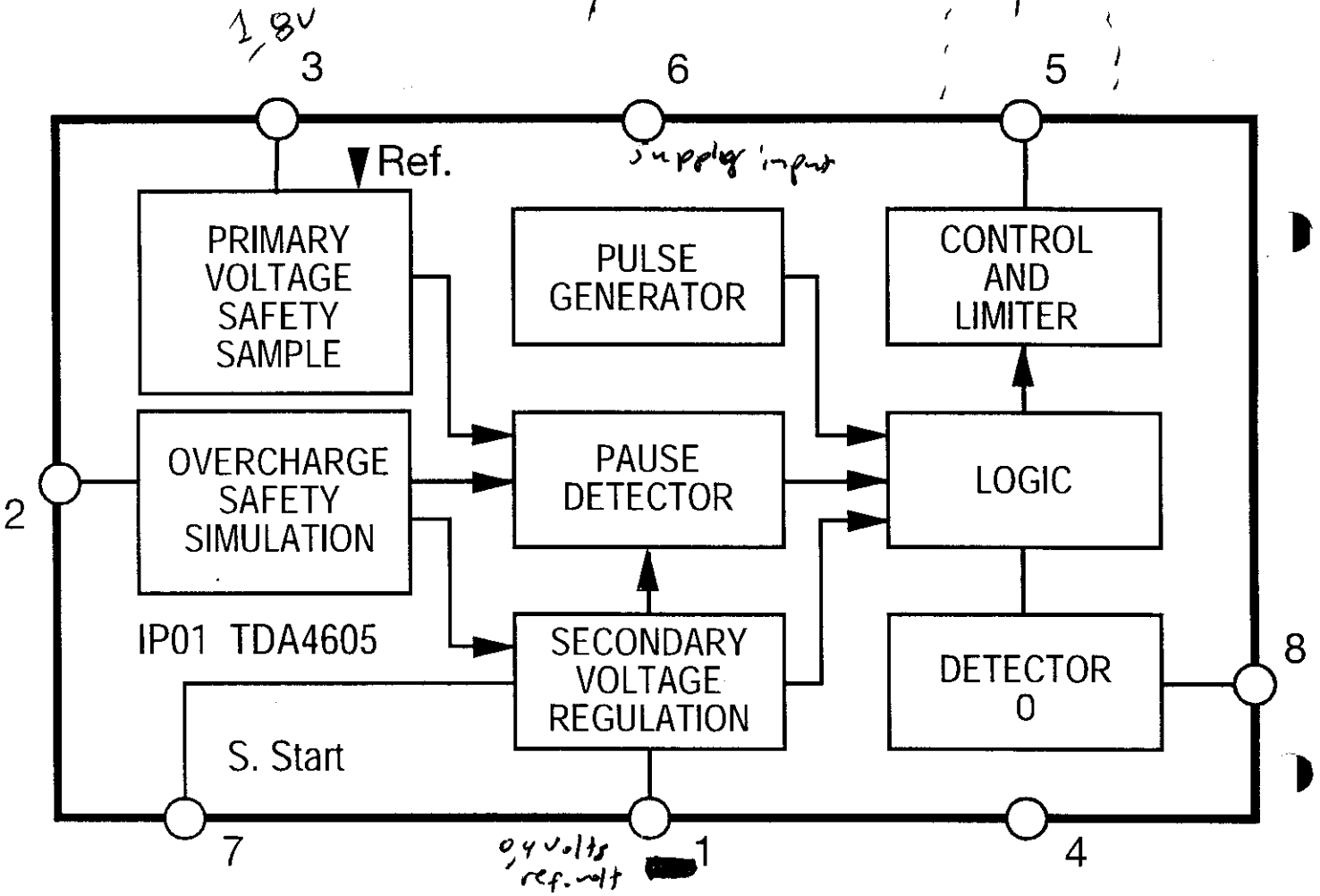
*En standby on TDA4605 il y a une mesure de puissance
sur la bobine.
Après la bobine, un optocoupleur mesure la
dépendance pour mesurer la puissance (TDA4605)
avec un UA et un 130V.*

*Flücker in 6 Sekunden
700 division*

Start up.



4.5



*Pin 6: 12V Start up / stop 3.5V ↓.
An sign 169 Jantzen nur also.*

DESCRIPTION OF THE TDA4605 PINS

Pin 1.

This is the start of regulation. The voltage on this pin is compared to an internal reference (400 millivolts). If this voltage is exceeded, the chopper control is blocked. For a lower voltage, regulation is active.

Pin 2.

This is the safety mechanism input in case of an overcharge.

A voltage ramp is obtained on this pin by RP10/11/12 CP10 and CP48 and simulates the drain current coming from TP16.

When the voltage of pin 2 is greater than (3V) the regulation voltage (pin 1), output 5 of IP01 moves to 0 and the chopper is blocked.

Pin 3.

This takes into account variations across 300 volts. Through an internal reference, current correction can be determined. If the voltage on this pin is less than 1.4 volts, indicating a mains voltage less than 160 volts, the circuit becomes inactive.

Pin 5.

This output, coming from a push-pull, controls the MOSFET power transistor when powered up.

Pin 6.

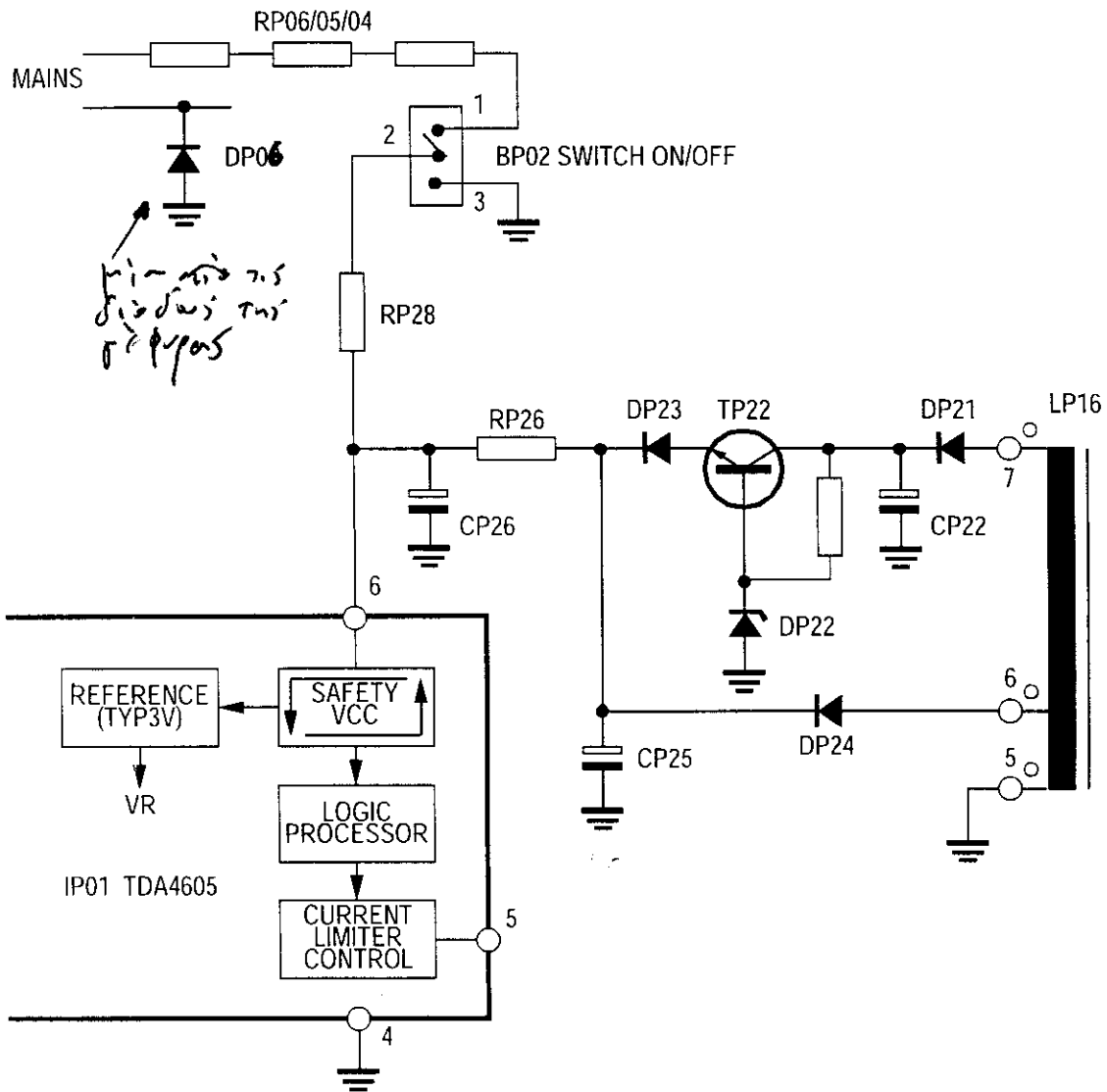
This pin is the VCC power supply of the circuit, which functions on 12 or more volts. If the voltage is less than 7.25 volts or exceeds 16 volts, the circuit stops.

Pin 7.

To ensure a gradual start-up, a time constant (CP37) is applied, which determines the gradual development of the cyclic relation of the output signal.

Pin 8.

Through this pin, the integrated circuit receives a signal indicating the end of transformer demagnetisation; this front is negative, and is taken from RP29 RP30; at each return to 0 a new chopper instruction will be confirmed.



POWER SUPPLY START-UP

When the commutator (connected to BP02) changes to operating mode, the CP25/26 capacitors are charged with the current coming from the diode bridge via the RP04/05/06 resistors. The TDA4605 starts up when the voltage on pin 6 reaches 12 volts. This then begins to generate an impulse on its pin 5 output.

This operation means that a current of approximately 11 ma is needed, and a drop in CP25/26 CAPACITOR voltage occurs. If the voltage falls below 7.25 volts, the circuit stops.

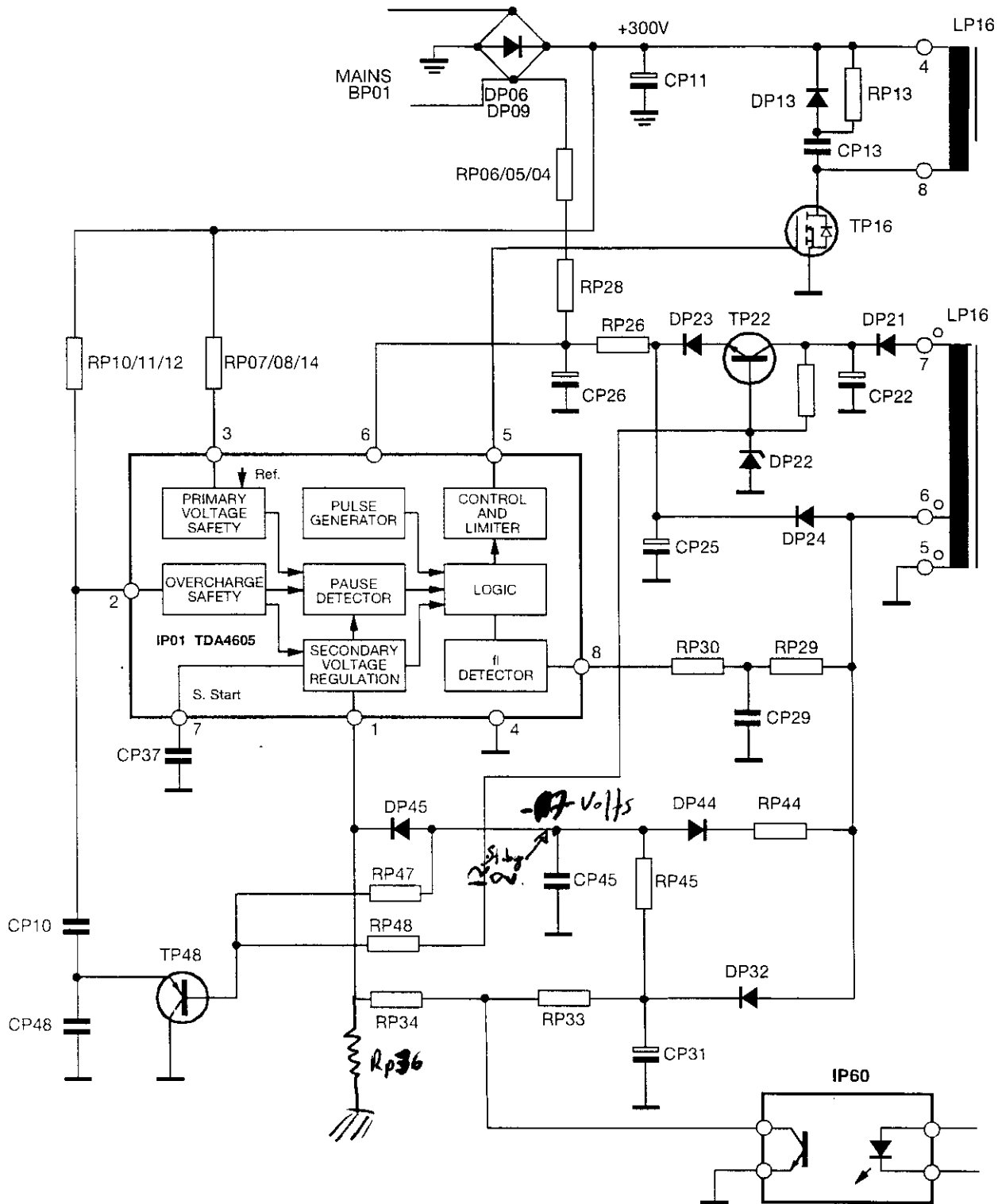
Before the drop in voltage reaches this value, the power supply is relayed by transformer winding 57.

In standby mode, voltage is reduced by 50% in order to limit power consumption.

Pin 6 voltage is supplied by TP22 and is regulated by the DP22 Zener diode (9.6 V on RP26).

When the television set is on, the voltages increase, and the one transmitted by winding 56 and rectified by DP24, becomes greater than the preceding one thus taking over by blocking the DP23 diode.

In order to stop the TDA4605, pin 6 is earthed via RP26/28, which reduces the voltage to 4V, thus causing the circuit to stop.



POWER SUPPLY OPERATIONS

When the switch moves to ON mode, the CP25/26 Capacitors are charged when pin voltage reaches 12 volts; the circuit sends a high level to pin 5 which makes the TP16 transistor a conductor.

Thanks to an external RC circuit, (RP10/11/12 and CP10/48), connected to 2 of IP01, a simulation of the development of the current collector transmitter of TP16 (saw-tooth voltage) is created.

The regulation voltage from DP32, RP33, RP34 and the IP60 optocoupler reaches pin 1 of IP01.

This voltage is compared to the saw-tooth (Br1) via a regulation error comparator.

When the saw-tooth voltage is greater than the regulation error voltage, output 5 of IP01 returns to 0 and will cause TP16 to block.

The following conduction is established when pin 8 of IP01 moves to low state.

On stand-by, the regulation voltage (Pin 1) is greater than 400 mv, which cuts off the control signal on pin 5 (or pause mode).

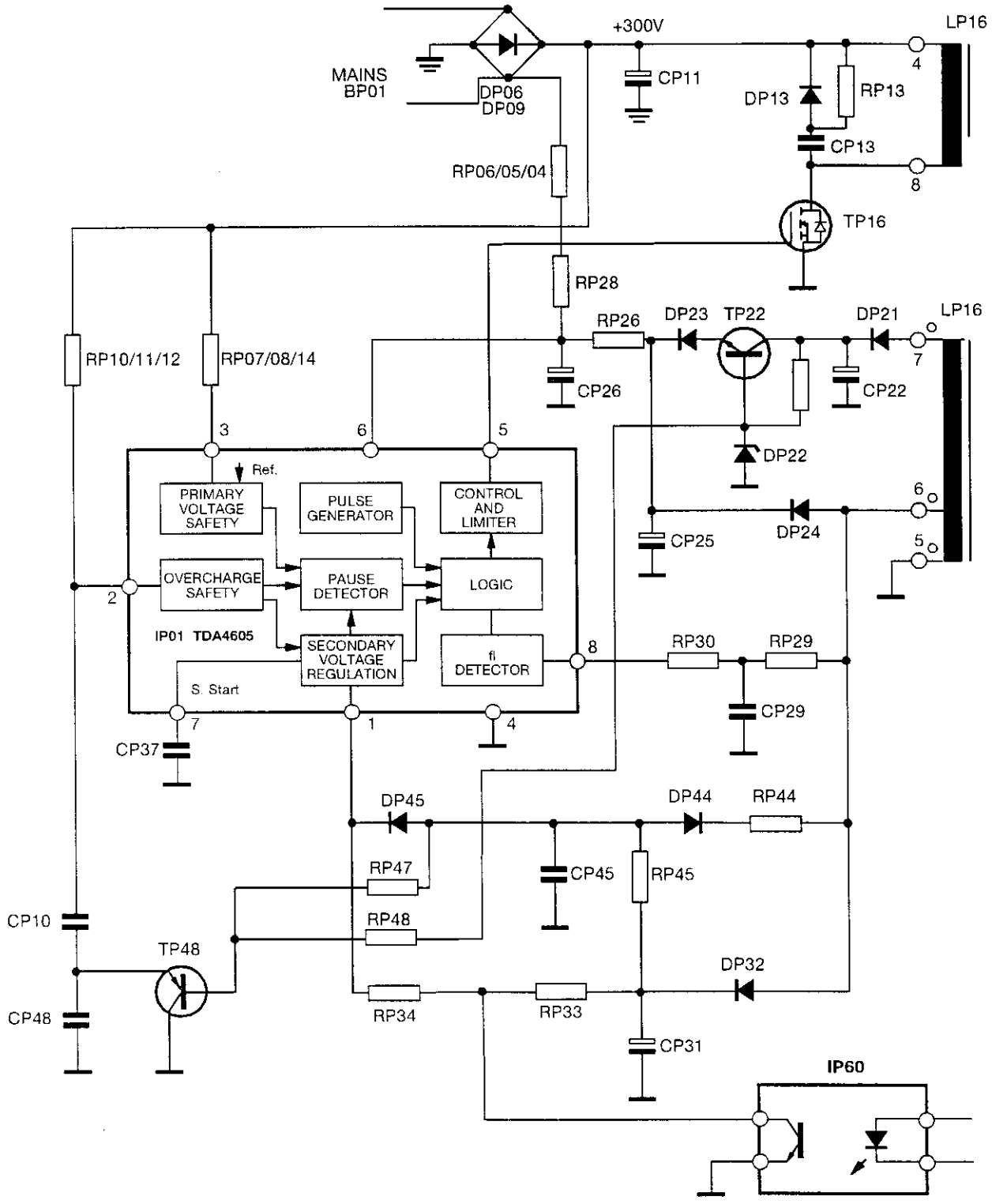
When the level drops below 400 mv again, the chopper control reappears. Burst functioning is thus brought about.

Consequently, power consumption on standby moves to 2.5 Watts.

REDUCTION OF TP16 CONDUCTION TIME

This function is obtained by blocking the TP48 transistor. Consequently, the equivalent capacity in 2 of IP01 is reduced, and it charges more rapidly.

At start-up and at each burst, the change in voltage on pin 7 is taken into account in order to modify the internal comparison threshold which is carrying out a soft start-up.

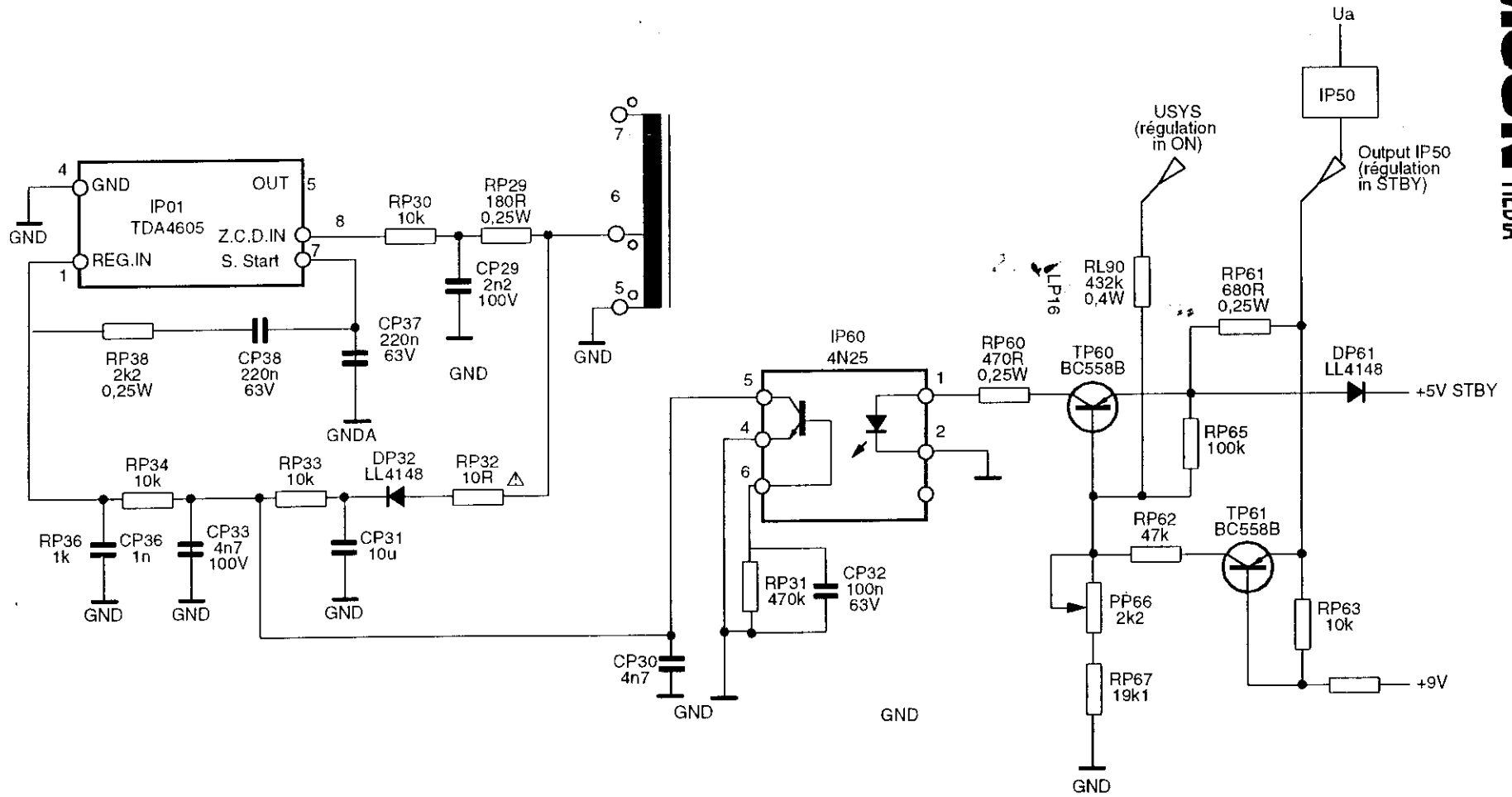
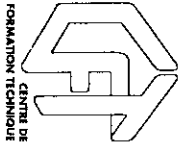


BURST MODE

When operational, the voltage at the CP45 terminals is about -14 volts. It is the sum of UCP31 and the negative voltage rectified by DP44. DP45 is thus blocked. It has no effect on regulation.

However, on standby, the voltage rectified by DP44 is very weak (RP44 10K Ω CP45 10nf) as there are few bursts. UCP31 is thus predominant and DP45 becomes transient.

This causes an excess of information on pin 1, which brings about a pause in the circuit. It only starts up again when DP45 blocks; i.e. when UCP31 is reduced.



SECONDARY REGULATION

Two phases can be distinguished

- Burst mode which is active on standby and during the start-up phase.
- Functioning in steady state.

On standby the voltages are reduced by 50%. The output voltages are:

- IP50 +10, 5 volts
- U_{sys} +90 volts
- UA +12 volts.

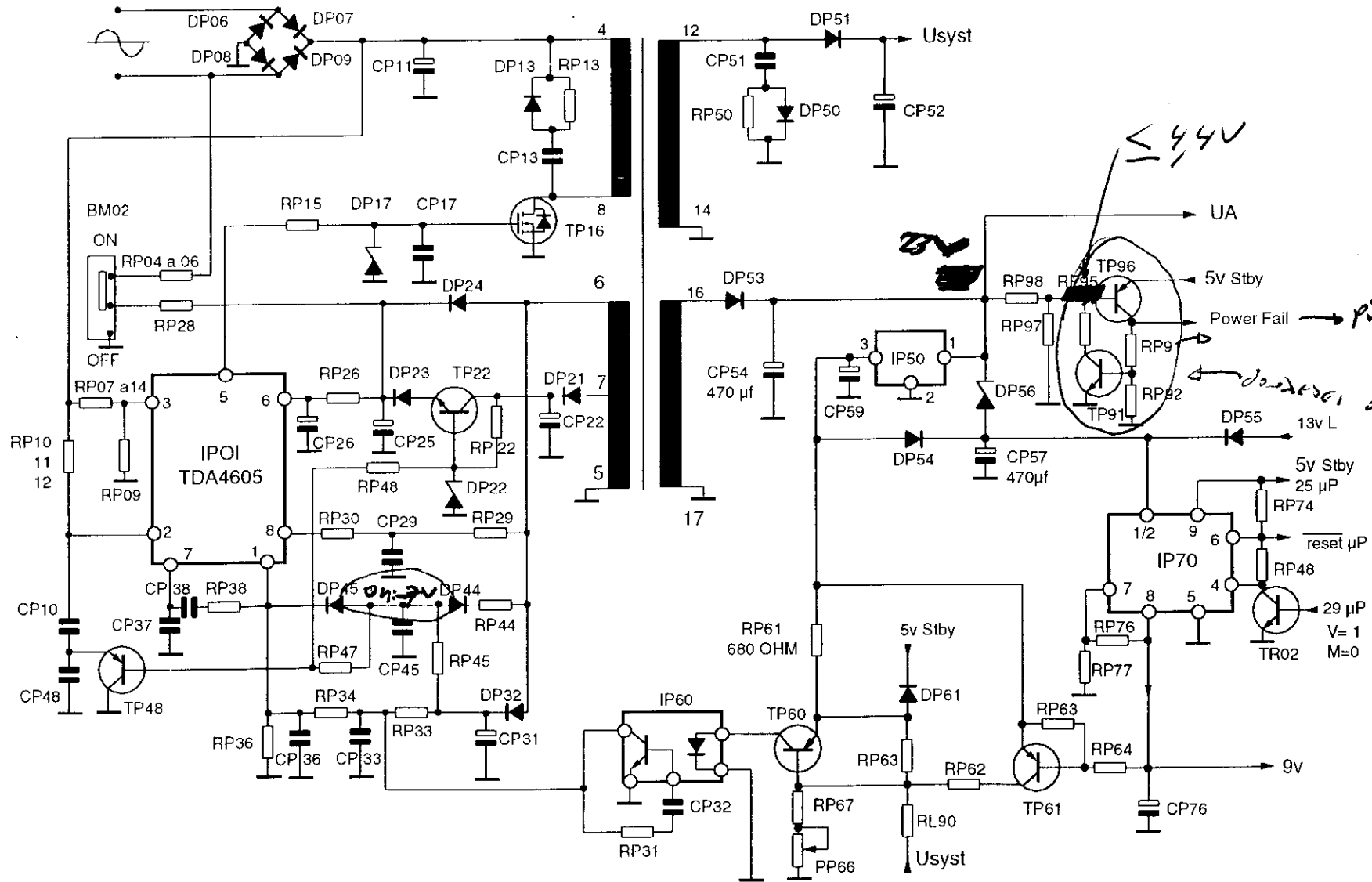
On stand-by, regulation is carried out from pin 3 of IP50, as TP61 is a conductor, since the 9V in operation is absent (8 of IP70). This voltage, via TP61 and the resistive divider (RP62, PP66, RP67), is applied at the base of TP60.

A reference voltage based on the 5v STBY (9 of IP70) by DP61 is present on the transmitter of TP60. The current collector transmitter of TP60 informs the optocoupler of IP60 and then pin 1 of IP01.

The current in TP61/60 is modified and controls IP60. We now pass to steady state, the voltages move to :

- 3 IP50 12 volts
- U_{sys} +130 volts
- UA + 23 volts

When operational, TP61 being blocked, regulation is assured from USYS. This voltage informs the base of TP60 via RL90, PP66, RP67.



Pin 39 IRO1
do not forget on micro 5V Stby

SAFEGUARDS

Short-circuit on UA

If the charge of the secondary is too great and exceeds the point of maximum charge (160W), the circuit reduces the width of the impulses and the voltage falls.

When the UA plus falls below + 15.5 volts the power-fail signal is activated and the television set moves to stand-by mode via IR01.

Short-circuit on Usys

If there is a short-circuit in the voltage on pin 6 of IP01, the voltage falls below 7.25 volts and the circuit stops; it then tries to start up again by emitting bursts at a frequency of 0.5Hz. This mode is called "request mode". The surcharge amplifier reduces the impulse width at Tpk (impulse width in case of short circuit) which is sufficient to start up again.

Protection against drops in mains voltage.

Drops in mains voltage are detected at pin 3 of the integrated circuit.

In the case of a significant drop (Umains 160 volts) the bursts are interrupted and the integrated circuit moves to request mode.

Protection against overvoltage

When there is a regulation problem, voltages may increase. If U pin 6 exceeds 16 volts, then we move to request mode.

Protection against heat.

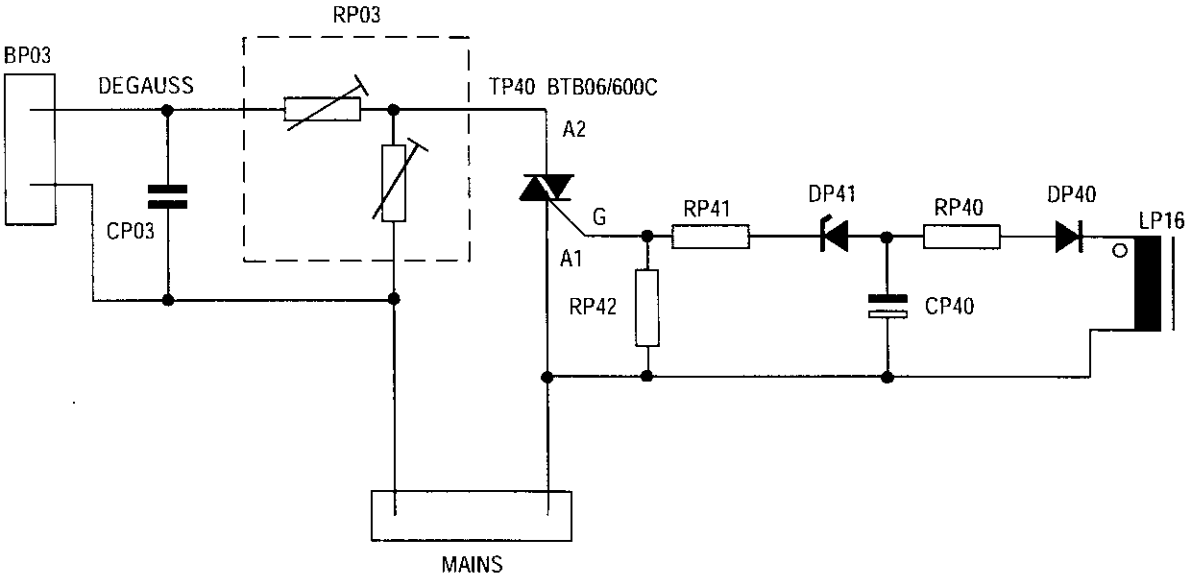
The logical part of TDA4605 is disconnected when the temperature is too high and starts up again when the temperature becomes acceptable.

Protection of TP16

The three components, DP17, CP17 and RP17, are present in order to protect TP16 from electrostatic voltages, CP17 RP15 allow the slope of the signal to be reduced in order to limit interference.

DP13, RP13 and CP13 limit peaks when TP16 is switched on and reduce the transconductance of the signal powered on the drain.

Θεσπολις 650 stand-by : 4 διακοπή ρεύμα από το TP48



DEMAGNETISATION

Demagnetisation takes place between the stop function and the operation function, provided the RP03 is cold.

A strong current flows in the demagnetisation loop for 300 ms, the resistor resistance moves from 18 Ω cold to about 2 M Ω hot.

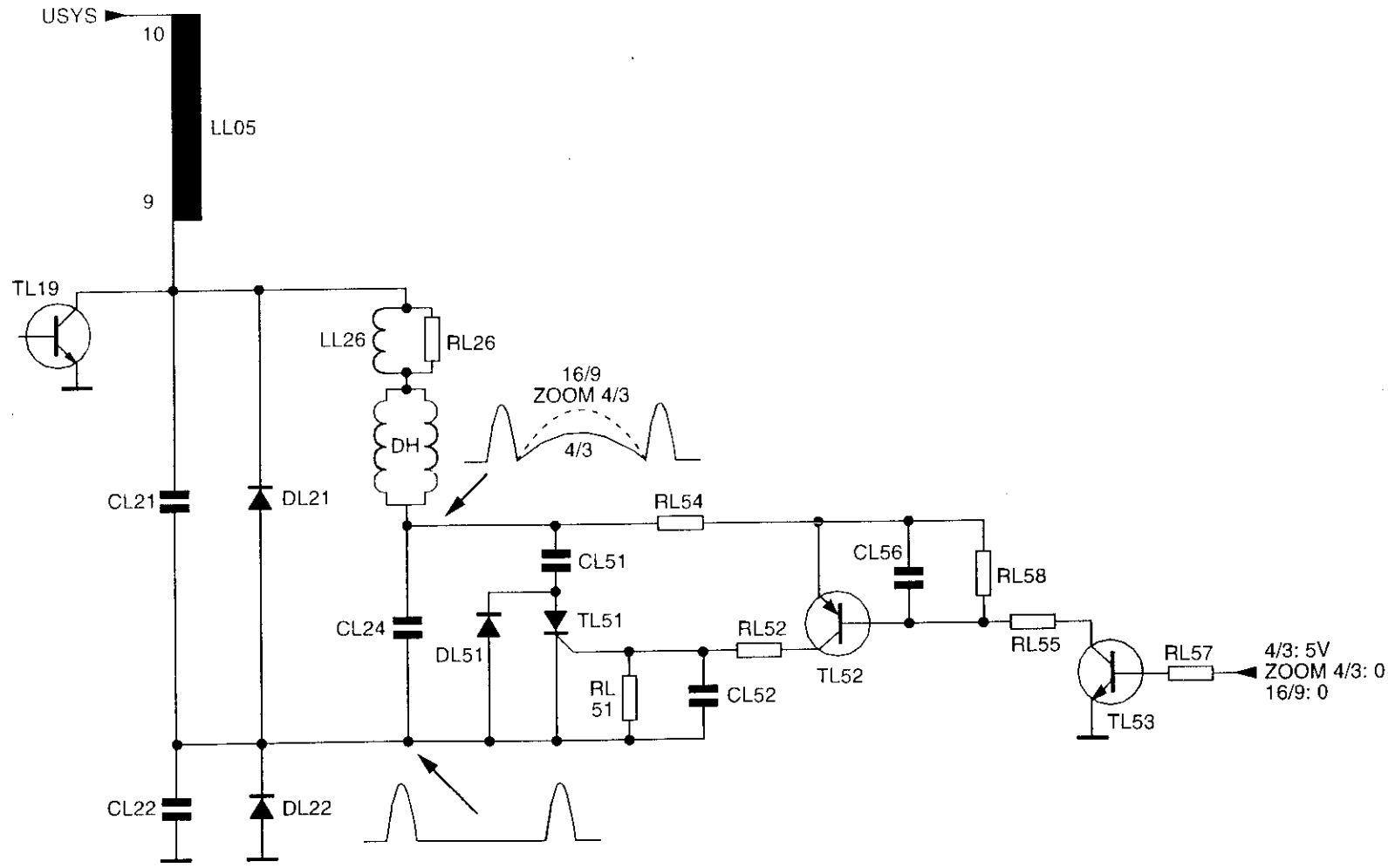
The resistor is disconnected by TP40 in order to reduce the power consumption on standby.

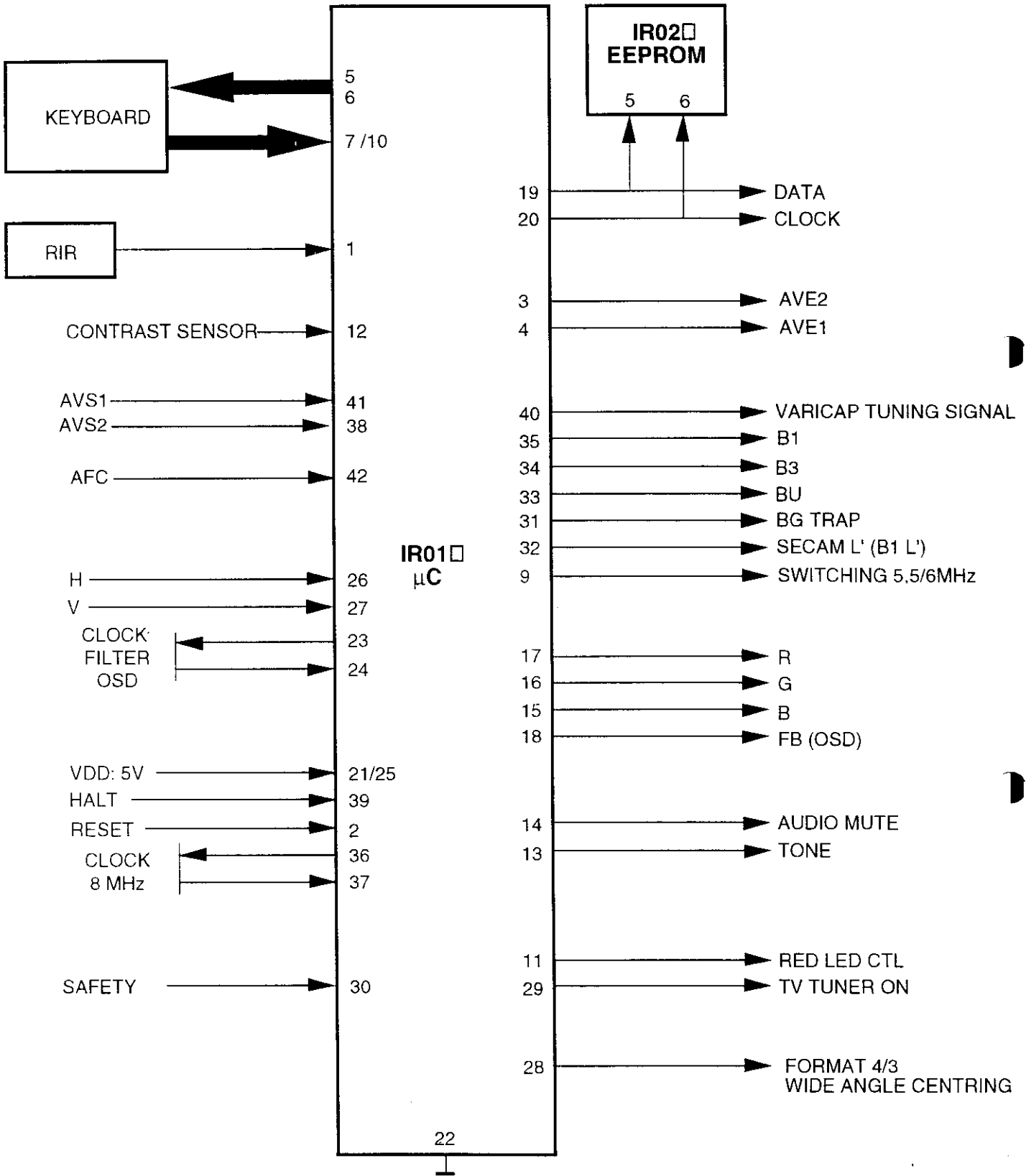
When the set is in operating mode, a voltage of -5 volts is present at the terminals of CP40.

The DP41 Zener diode is therefore transient and the gate of the TP40 triac is negatively charged. The triac becomes a conductor and triggers the demagnetisation loop.

On standby mode, the voltage at the terminals of CP40 is -2 volts, consequently TP40 remains blocked.

MANAGEMENT





EAST/WEST CORRECTION STAGE

This is the IF02 integrated circuit which includes the E/W antenna generator, synchronised by the vertical ramp generator.

Different adjustments are carried out by μ C management through the IIC bus.

The EWDRIVE control, available on output 13 of IF02, is applied to the TL41 amplifier. This Darlington transistor ensures power is extracted from the diode modulator via the LL22 self-induction coil.

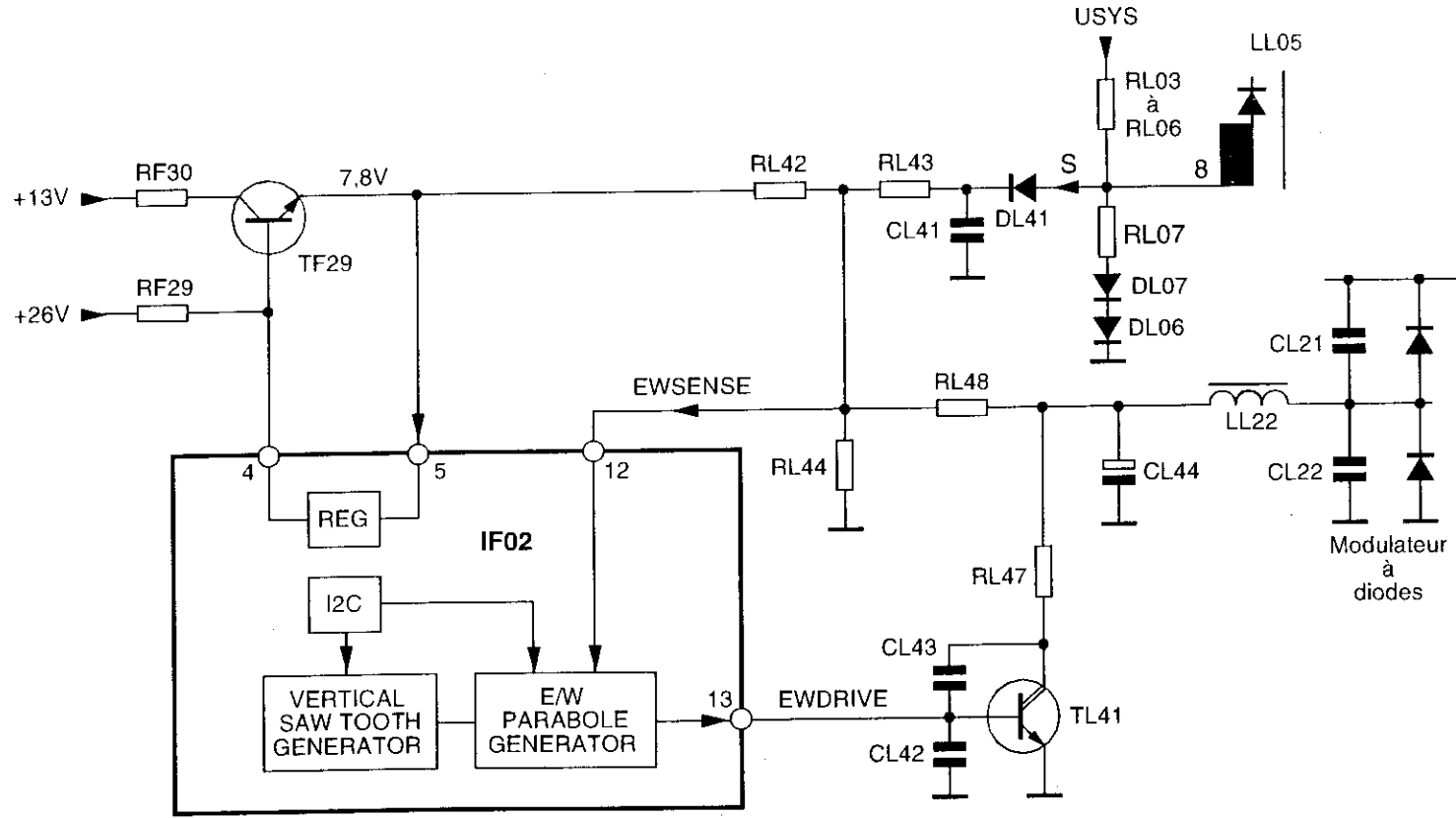
CL42 and CL43 capacitors prevent oscillations.

General feedback and the operating point are assured by the RL48, RL44 and RL42 networks, with the EWSENSE return on pin 12 of IF02. At this level, far-reaching dynamic correction information based on the beam current image is injected (S, DL41, CL41 and RL43).

GENERAL

The management of TX92 is similar to that of TX91 television sets. The particular characteristics of this management are as follows:

- pin 3 and 4, AVE1 and AVE2 outputs
- pin 9, SIFSW
- pin 28, format control
- pin 30, safety mechanism
- pin 31, trap
- pin 38, AV2 control
- pin 41, AV1 control



TIME BASE

POWER LINE STAGE

The THT transformer primary (LL05) is connected to USYS and the TL19 power transistor line.

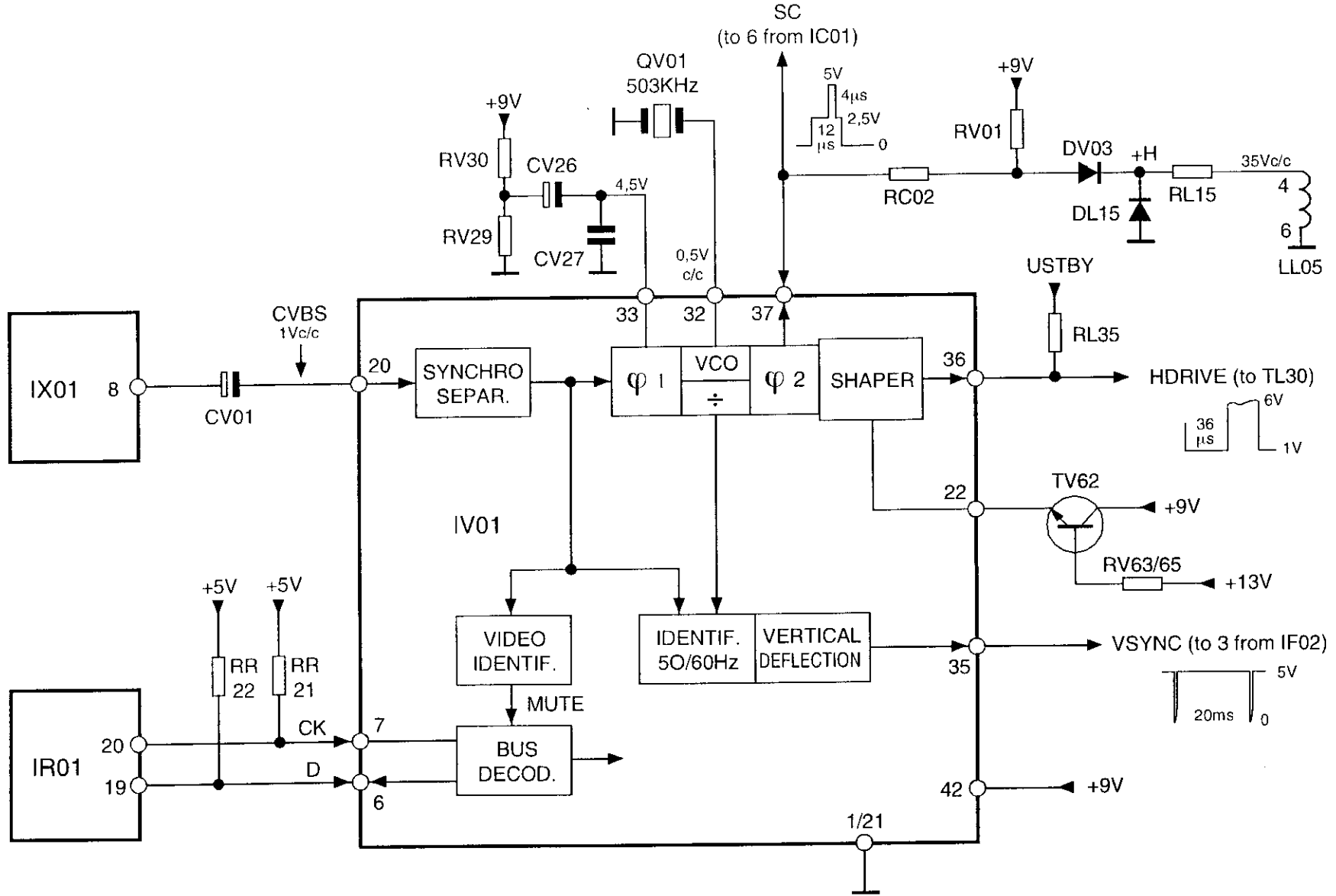
The CL21/22 capacitors along with the deflector line define the line return time ($T=12\mu s$).

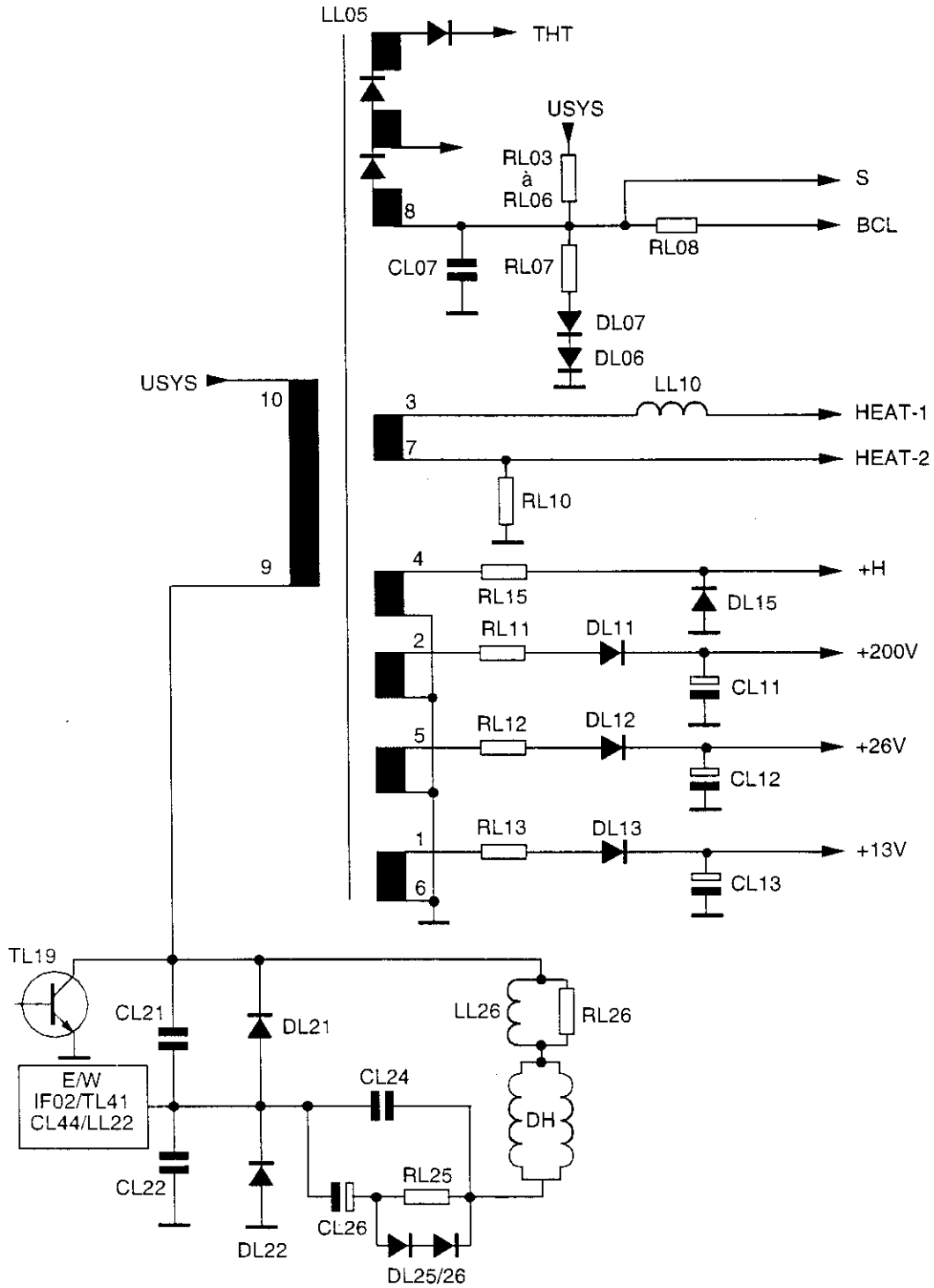
The "S" CL24 capacitor, the average voltage of which is equal to USYS, supplies power to the horizontal deflector in line with the LL26 linear self induction coil and its RL26 reducing resistance.

As with CL24, CL26/DL25/DL26/RL25 circuits are used to deaden parasitic oscillations which appear during strong increases in beam currents.

On the LL05 secondaries, the following voltages and signals are recorded:

- pin 3, a 27Vd/c line return impulse, in positive momentum for filament heating.
- pin 4, a 35Vd/c line return impulse, in positive momentum for service signals (phase and sandcastle) and the OSD horizontal line.
- pin 2, a 230Vd/c line return impulse, in positive momentum. A 200V voltage required to supply power to RVB stages is obtained via RL11 and the DL11 diode.
- pin 5, a 230Vd/c line return impulse, in positive momentum. A 26V voltage is obtained via RL12 and the DL12 diode. This assures power is supplied to the frame power stages as well as the tuner.
- pin 1, a 125Vd/c line return impulse, in negative momentum. A 13V voltage is obtained via RL13 and the DL13 diode. This assures power is supplied to the frame stage and the tuner, and is relayed to start-up voltage coming from the IP50 regulator.
- BCL information (beam current image) is taken from the bottom of the split diode. This refers to the IV01 contrast and luminance controls (BCL varies from 6.4V to 4.8V for minimum and maximum contrast and luminance controls).
- S information, taken from the bottom of the split diode, ensures image format compensation according to the beam current.





ELABORATION OF LINE AND RASTER SIGNALS VIA IV01

LINE GENERATION

The horizontal synchro is extracted from the composite video, present at input 20 of the circuit, and is applied, as a point of reference, to a first phase comparator providing a filtered error voltage on pin 33 by RV/29/30 and CV26/27 components. The error voltage controls a VCO, the frequency centre at 503 KHz, which is defined by the QV01 crystal on pin 32. A divide by 32 counter sends back 15625 Hz, by comparing with the horizontal synchro (PLL loop). The VCO can function according to two modes: either in locked mode via synchronisation during transmission or in FREE RUN mode when the television set is used only in OSD. Control signals are released from the divide by 32 counter, through a phase off-set and a beam forming stage. Those signals marked HDRIVE are available on pin 36. Phase correction is performed by a second phase detector activity, receiving a submultiple of the VCO frequency as well as delay line information via pin 37 of the circuit.

The HDRIVE output (pin 36) is at high level when the supply voltage (pin 42) is less than 6.8V. A power supply of +9V, sent to 22 of IV01 via the TV62 transistor, is used to lengthen the conduction time of the power transistor line from 14 μ s to 36 μ s.

RASTER GENERATION

A sorter stage extracts the vertical synchro from the CVBS signal entering pin 20 via the SYNCHRO SEPARATOR. This new signal repeatedly validates the raster time base, instructed from a VCO line synchro counter. At the output of the raster time base, VSYNC raster delay in pulses (pin 35) are available. When in FREE RUN mode, scanning is controlled via the VCO free frequency. Vertical synchro is also used for 50/60Hz automatic recognition.

MUTE GENERATION

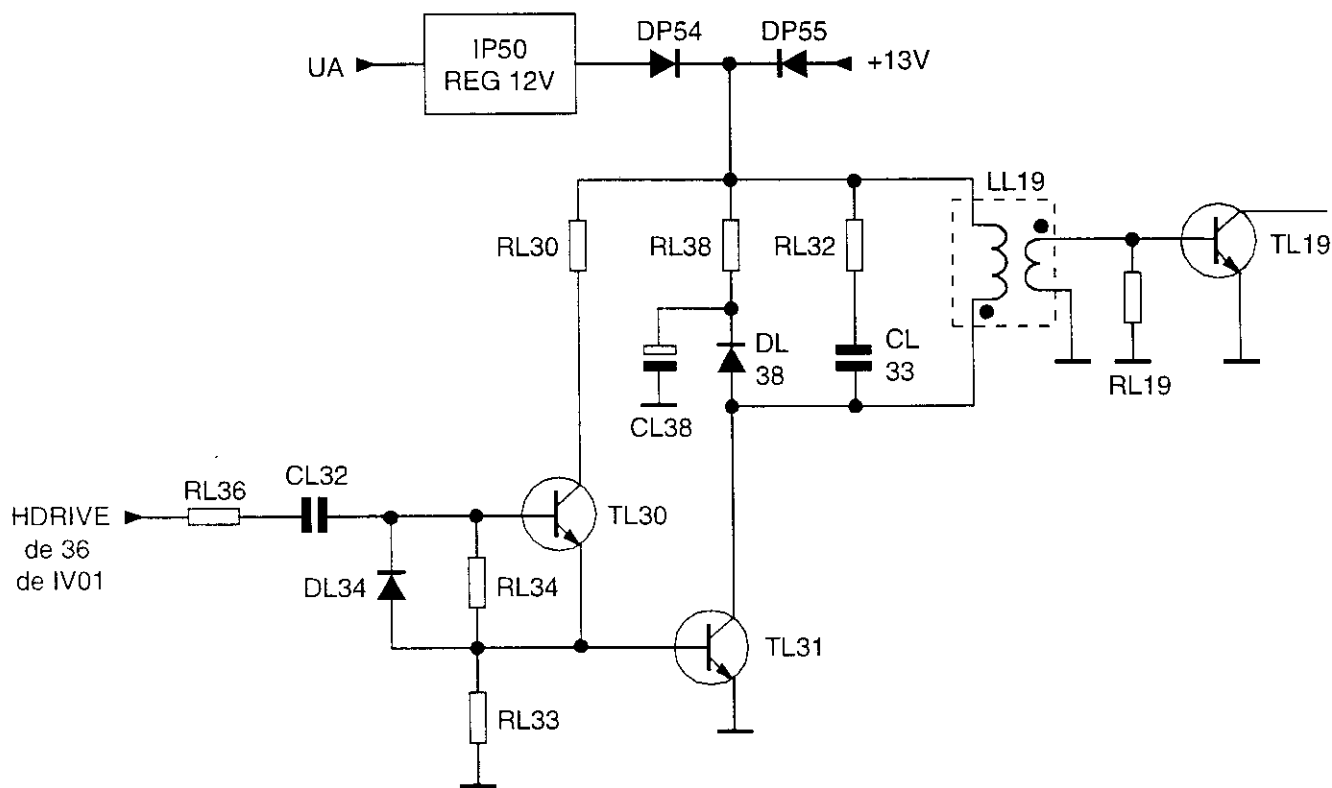
The video identification stage analyses the line synchro presence and supplies mute information. This is transmitted to IR01 via the IIC bus. Should there be no line synchro, the TV switches to STANDBY after 5 minutes.

LINE TIME BASE CONTROL

The driver stage is made up of TL30/31 transistors. The RL32/CL33 and RL38/DL38/CL38 cells limit the overvoltage peak which appears on the TL31 collector when it is blocked. The LL19 driver transformer, used in alternating mode, assures the saturation of the TL19 power transistor line for every driver stage blockage.

The power supply for this part is assured:

- at start-up, by the output voltage of the 12V regulator (IP50) via the DP54 diode.
- during steady state, by the +13V voltage, released from the THT via the DP55 diode.



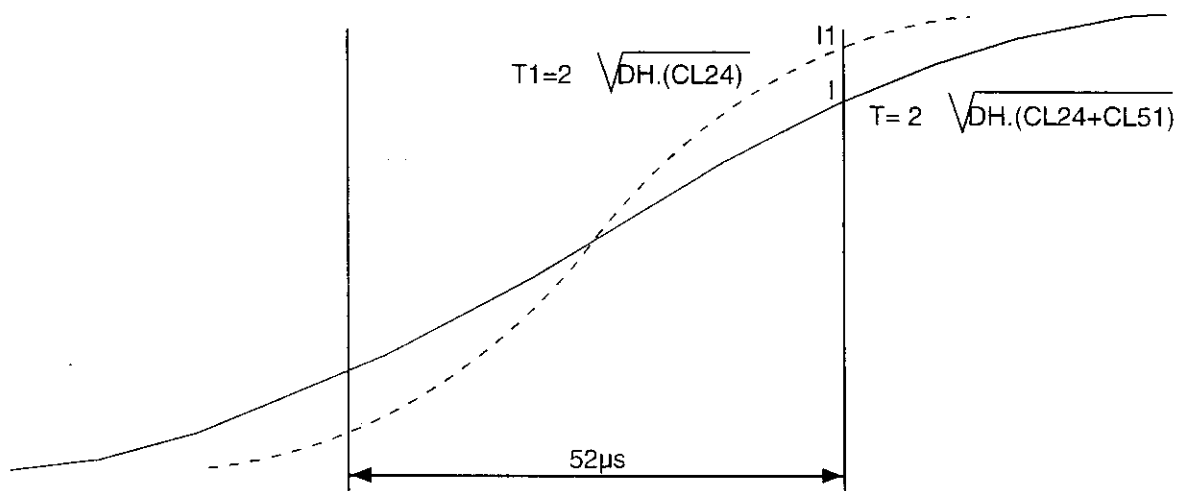
FRAME WIDTH CORRECTION

Television sets fitted with a 16/9 tube are equipped with this circuit. The frame width is altered to 4/3, 16/9 and ZOOM 4/3, by commutation of the CL51 capacitor. This is connected in parallel on the "S" CL24 capacitor.

In 4/3, TL51, TL52 and TL53 are saturated. CL51 is operational.

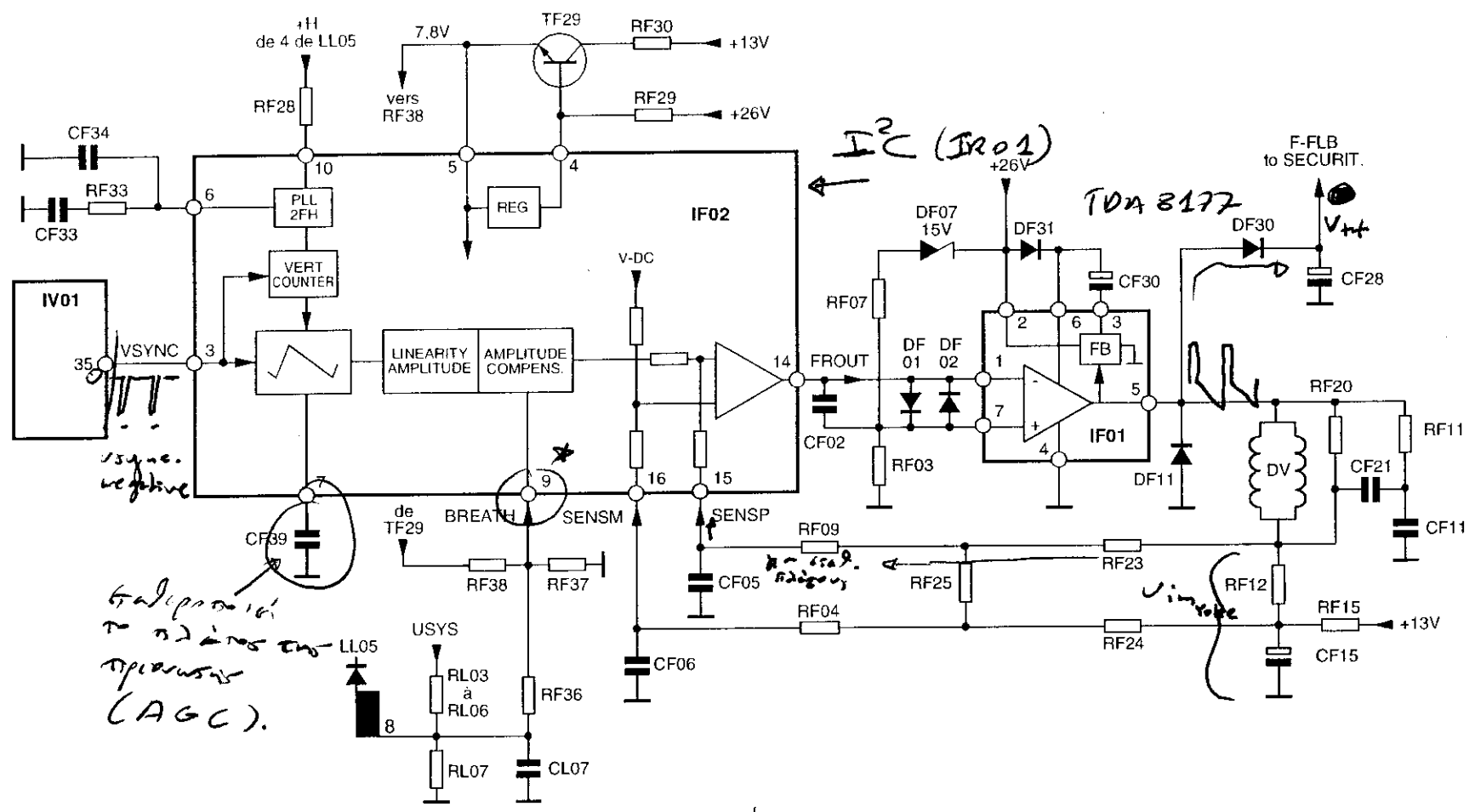
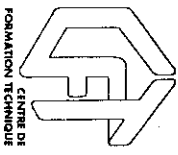
In 16/9 and in ZOOM4/3, TL51, TL52 and TL53 are blocked. CL51 is disconnected.

In 4/3, the signal period is greater. The maximum current value, I , for the visible part of the image ($52\mu\text{s}$) is smaller and leads to a reduction in the frame width.



For delay lines, the TL51 thyristor is deactivated but the DL51 diode is transient. This leads to the implementation of the CL51 capacitor, and subsequently avoids return time modification.

• Au seuil exemple 1700g
 seu exemple unit DC
 avec CF28.



vsync.
 negative

Gain variable
 de 0 à 100 en
 plusieurs
 (AGC).

I^2 (IR01)

70A 8177

F-FLB
 to SECURIT.

Agia amplyta sou adaptivatsi tis elias mi
 tis periboles sou beam current trapanga
 pin geris vas? autal.

*Uim =
 Voltage Take

FRAME SCANNING

Three circuits intervene for frame scanning.

- IV01 (STV2118) elaborates vertical synchronisation (VSYNC).
- IF02 (STV2145) elaborates the saw tooth frame.
- IF01 (TDA8177) amplifies this saw tooth frame and supplies the current to the vertical deflector.

IF02 consists of:

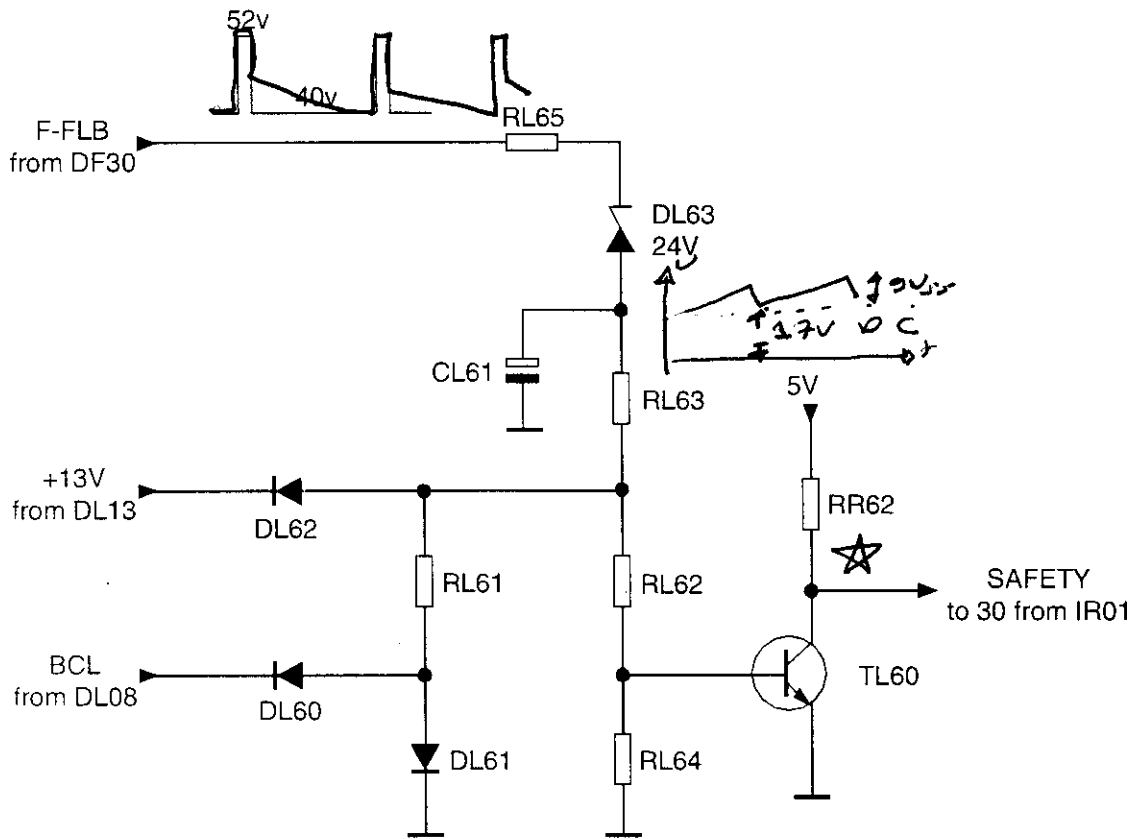
- A ramp generator triggered by a PLL 2FH via a vertical counter. The ramp generator and vertical counter are reinitialised by vertical synchronisation arriving at 3.
- Amplitude adjustment and adjustable linearity via the I2C bus.
- An amplitude compensation stage according to beam currents (BREATHING).

The resulting signal, linked to the alternative feedback information (SENSP pin 15), is applied to an operational amplifier input. The second input receives continuous feedback information (SENSM pin 16) linked to adjustable continuous internal framing voltage via the I2C bus. This amplifier supplies the FROUT vertical control signal to pin 14.

The IF01 circuit receives the previous control on pin 1. Polarisation is assured by the DF07/RF07/RF03 bridge, the CF02 capacitor preventing oscillations. Power supply to pin 6 is assured by the +26V linked to a fly-back generator (pin 3), allowing the voltage to be doubled during the frame delay (correction due to the self-induction coil effect of the deflector).

Pin 5 output supplies the current to the deflector. In line with this, RF12 resistor develops an image of the current for feedback at its terminals (RF09, SENSP).

RF11/CF11/CF21 components limit the frequency operating range in order to prevent any oscillation.



* όταν όλα είναι Ο.Κ., βέβαιον C του TL60
 έχουμε 0. Όταν δηλαδή είναι 5V που
 παράγει τον προσε.
 Αυτόματη ρύθμιση να όταν έχουμε προφωτισμένη
 στα 13V η στα 13V του K60 επιπλέον τότε
 το Beam Current αυξάνει υπερβολικά
 * Όταν έχουμε high beam current, τότε
 το κύμα του BCL βγαίνει με ηχηρότητα
 BCL να είναι 600 Ο.

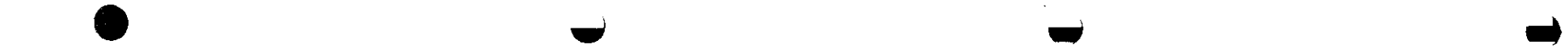
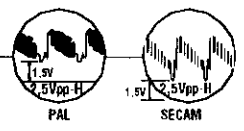
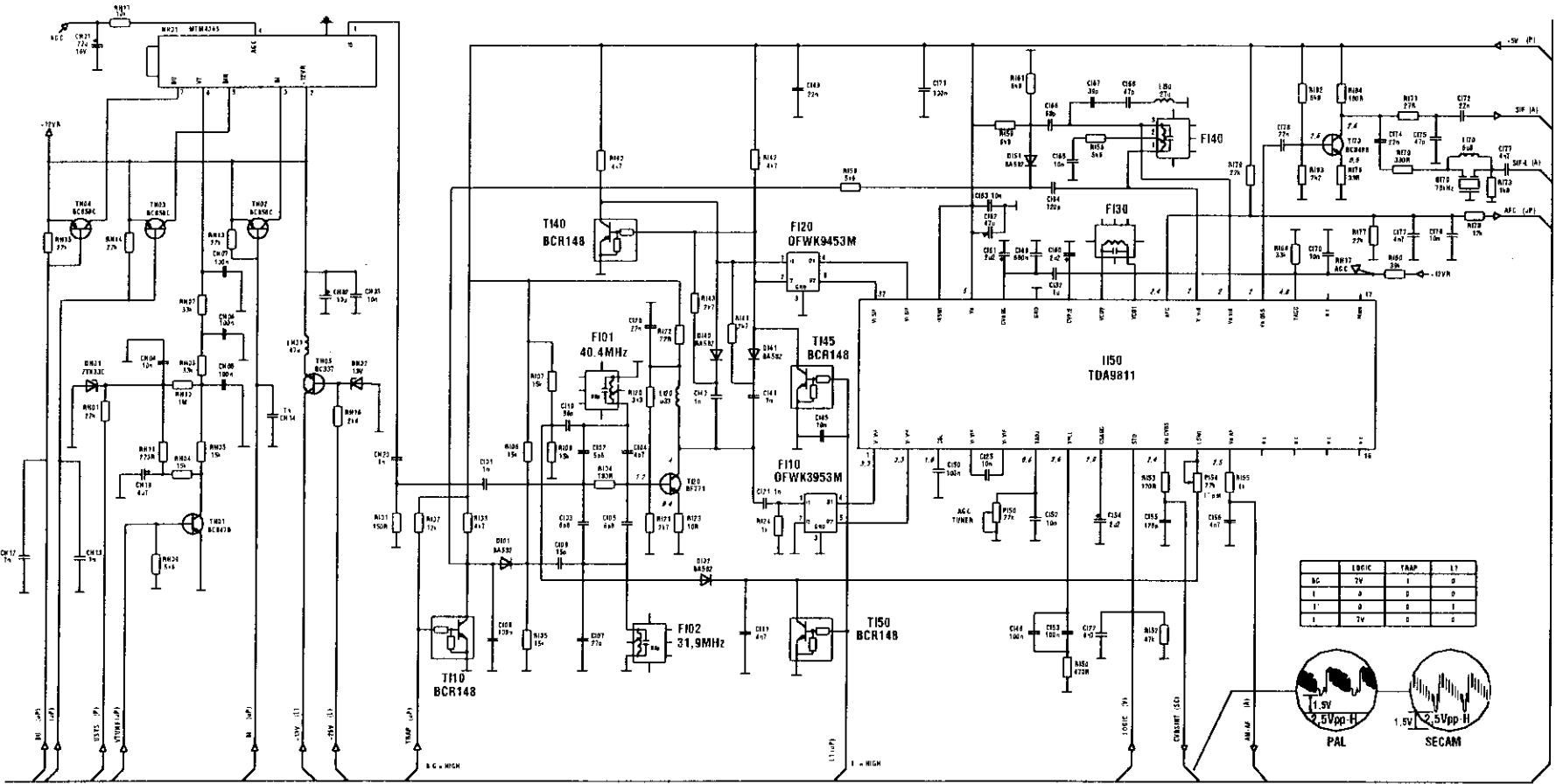
SAFETY CIRCUIT

This circuit monitors the following parameters:

- Horizontal scanning operations and the presence of +13V
- Beam current (BCL)
- Vertical scanning operations (F-FLB).

All this information is sent to the base of the TL60 transistor. If one of these does not function correctly, the TL60 transistor gets blocked and the television set switches to standby via μ c management of IR01.

IF STEREO



IF OF TX 92 STEREO TELEVISION SETS

Demodulation is performed by I150 TDA9811

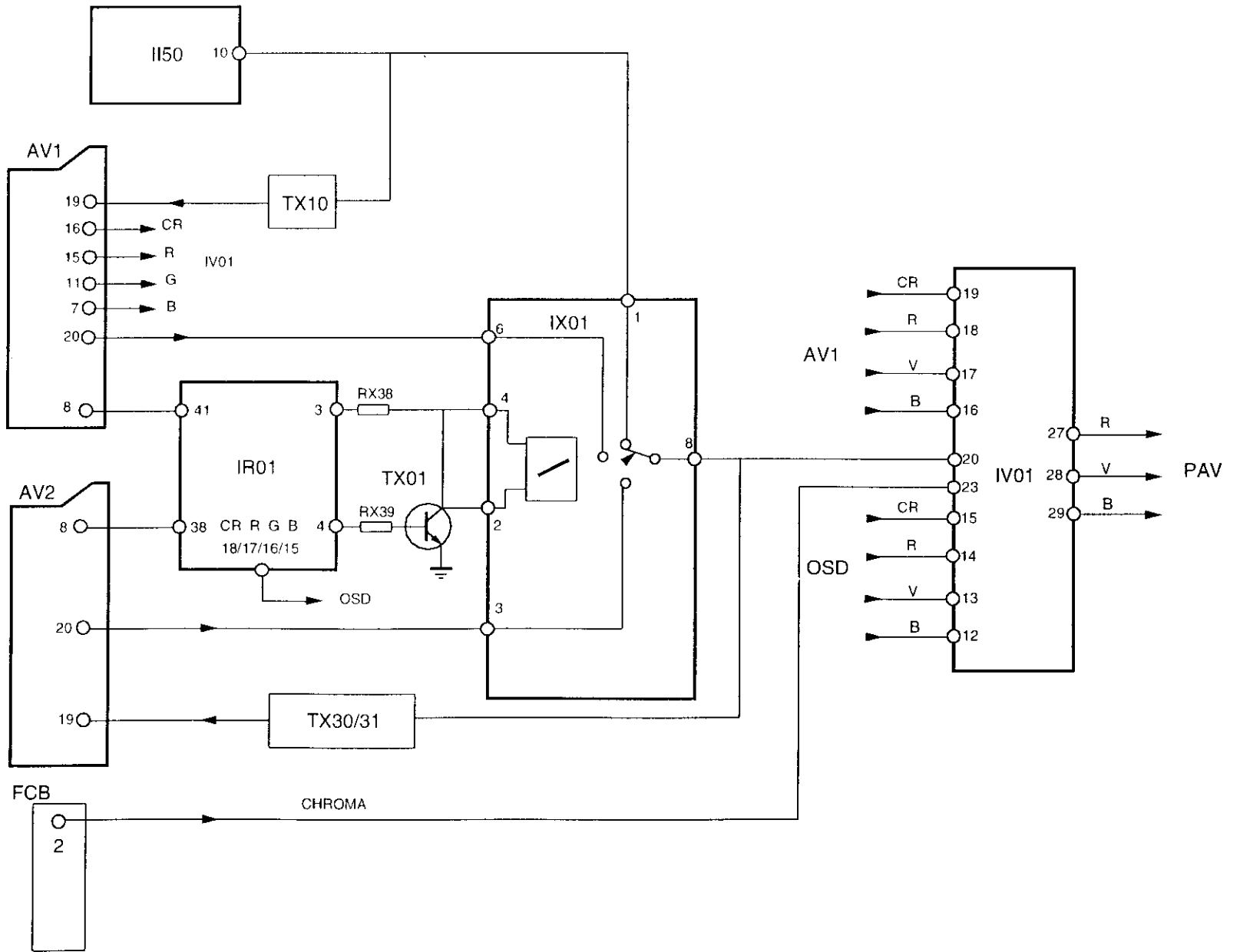
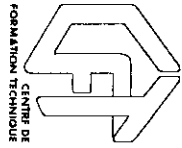
Reminder:

In B G L standards the picture carrier is demodulated in the same direction at 38.9 MHz. In L' standard. This reduces to 33.9 MHz

- B/G/L standards. The signal comes out of pin 2 of the tuner and passes through an interference trap at 31.9 MHz, rejection of the adjacent channel picture carrier active for the B/G standards by pin 12 of the management, IR01.
- An interference trap at 40.4 MHz for rejection of the underlying sound carrier. In L standard, the 40.9 MHz frequency is deactivated by the instruction coming from pin 31 of the management microcontroller (L' line).
- The signal is amplified by the TI20 transistor before passing into the FOS FI10 and FI20 filters.
- The FOS FI10 filter selects the picture carrier in the B/G/L standards for the L' standard. This is the opposite slope of the filter which acts as a Nyquist panel at a frequency of 33.9 MHz.
- This signal is then demodulated by the TDA9811. Afterwards, the base band signal goes back through an interference trap at 5.5 MHz I.F. 40, which is activated TI10, whose instruction comes from pin 12 of the management.
- The FOS FI 20 filter selects the audio carriers for all the standards. In L' standard, the filter is commutated by the TI40 and TI45 transistors, which enables the sound carrier to be selected at 40.4 MHz and the interference trap to be deactivated at 40.4 MHz. A signal is given out which is amplified by TI70. In B/G standards, the signal is routed by the SIF line onto pin 58 of IS50 to be demodulated, and the NICAM L signal arrives on pin 60 via the SIF-L line.

Αν αλτάλαφε Tuner θα δαμοί τόνου
 π' κ ανάλυση ("A" σ' "C") τότε πρέπει
 να επιλέξω από το service menu τον
 τύπο του Tuner.
 Αν βάλω C σ' A, δε γίνει UHF.

COMMUTATIONS



VIDEO and RVB COMMUTATION

Four main functions are to be distinguished.

- Normal operation of the television set,
- AV1 SCART in compliance with standards, RVB input, video input and output,
- AV2, video input and output, the video output signal comes from the video commuted by IX01, this enables a video recorder to possibly be connected to this socket,
- External RGB inlet and OSD.

T.V. FUNCTION

The composite video signal arrives from the I150 demodulation circuit. This signal is available pin 19 of the AV1 SCART via the TX10 impedance adaptor, as well as on pin 1 of IX01 (LA7221). The signal is routed onto pin 8 of the same circuit by the commutation control, and is available on pin 20 of IV01. This signal also goes towards the TX30 and TX31 adaptor, and it is present on pin 19 of AV2.

AV1 FUNCTION

When we have a slow commutation request (pin 8) coming from AV1, this comes in on pin 38 of IR01, and the management microcontroller then validates output 4. This instruction comes in on pin 2 of IX01 and validates the video coming from AV1. This video emerges from pin 8 of IX01 and is available on pin 20 of IV01. The video signal is also present on pin 19 of AV2. The effect of the instruction which comes from 4 of IR01 is to saturate TX01, preventing a possible AV2 commutation from being validated.

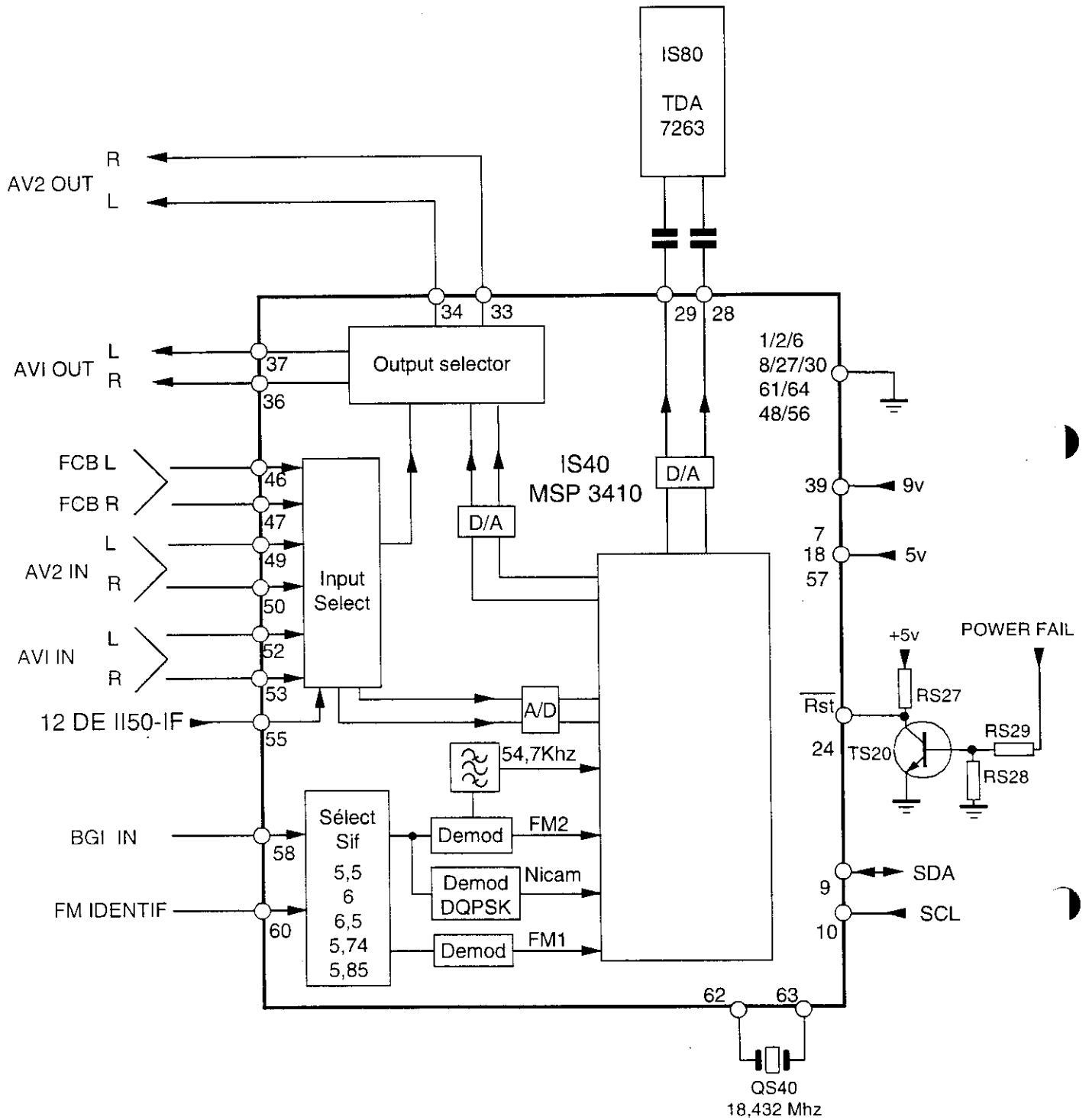
AV2 FUNCTION

The slow commutation coming from AV2 is routed towards pin 38 of IR01. The microcontroller responds with a high level on its pin 3. This instruction then comes in on pin 4 of IR01, and therefore the video signal coming from pin 20 of AV2 passes through IX01 and comes in on pin 20 of IV01 to be processed.

RGB FUNCTION

The RGB signals coming from the AV1 SCART socket are validated on IV01 by the presence of high-speed switching on pin 16 of AV1.

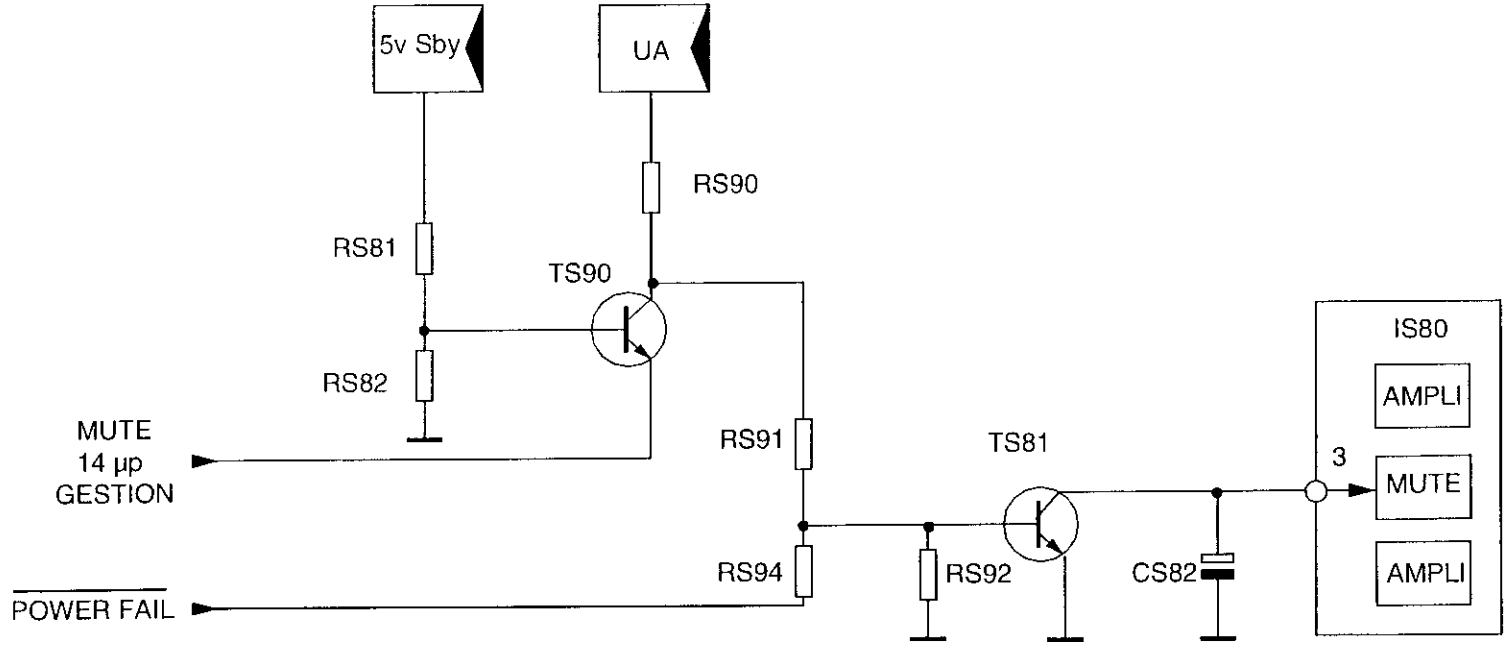
The OSD function has priority over the other functions. The OSD functions are displayed each time a sound, brightness, contrast or colour instruction is sent out and with each change of channel.



AUDIO COMMUTATION

All the audio commutations are performed through IS40, the instruction for which comes from IR01 via the I2C bus (input pin 9 10).

- The sources are:
 - the AM/AF sound (input pin 55)
 - the NICAM (input pin 60)
 - the FM BGI sound (input pin 58)
 - AV1 (input pins 52 and 53)
 - AV2 (input pins 49 and 50)
 - FCB (input pins 46 and 47)
- The signals come out:
 - for the power amplifier (output pins 28 and 29)
 - AV1 (output pins 36 and 37)
 - AV2 (output pins 33 and 34)

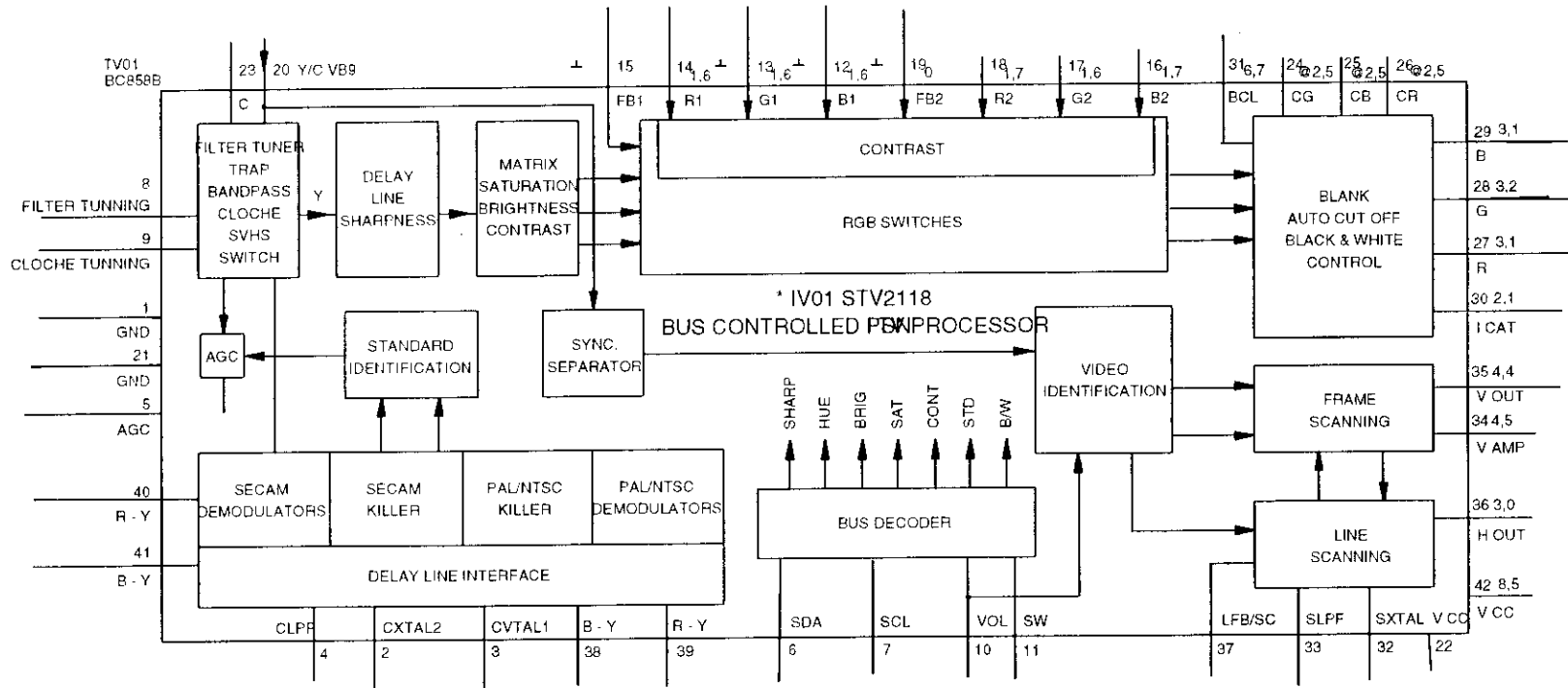


BF SOUND SQUELCH

With each change of channel, a sound squelch is performed through the control of pin 14 of the management μ p. Because the latter passes to high level, the TS90 transistor blocks and the TS81 transistor gets saturated by RS90, imposing a low level on pin 3 of IS80 and activating the squelch.

Via the POWER FAIL information, a high level is applied to the base of TS81, through RS94, each time the appliance is switched on and off.

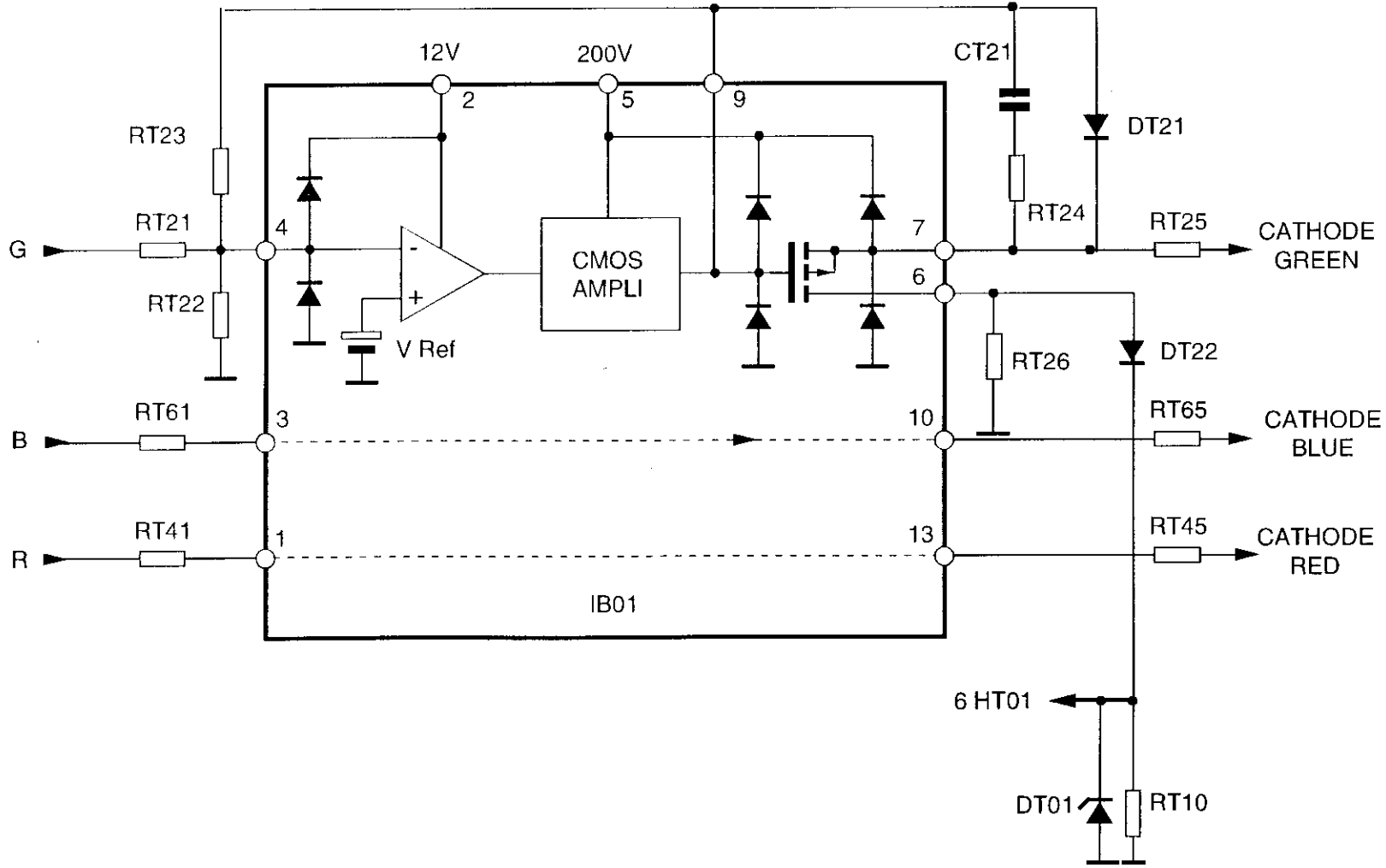
LUMINANCE - CHROMINANCE



LUMINANCE - CHROMINANCE

The luminance and chrominance signal is processed in the same way as for the TX91.

PAV



CRT MODULE

The CRT module of the TX92 is the same as that of the TX91 (see page 99).

REPAIR METHOD FOR THE TX92



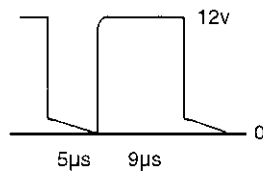
POWER SUPPLY REPAIR METHOD

POWER SUPPLY MONITORING BY LOW VOLTAGE METHOD

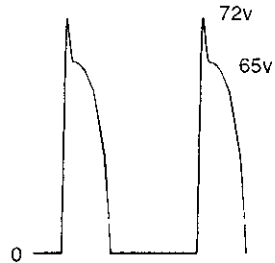
- Discharge the CP11 capacitor
- Disconnect BP02
- Connect the DP07/09 cathode to 6 of IP01 and to 1 of IP50
- Wire up a 22K Ω 1/8W resistor between the DP07/09 cathode and 3 of IP01
- Connect the primary and secondary masses
- Feed the television set with a continuous voltage of 15V via the mains socket

SIGNALS AND VOLTAGES ON IP01

BRONNES	SIGNALS/VOLTAGES	BRONNES	SIGNALS/VOLTAGES
1		7	
2		8	
5		3	2V
		6	13,6V



GATE DE TP16



DRAIN DE TP16

USYS= 74V

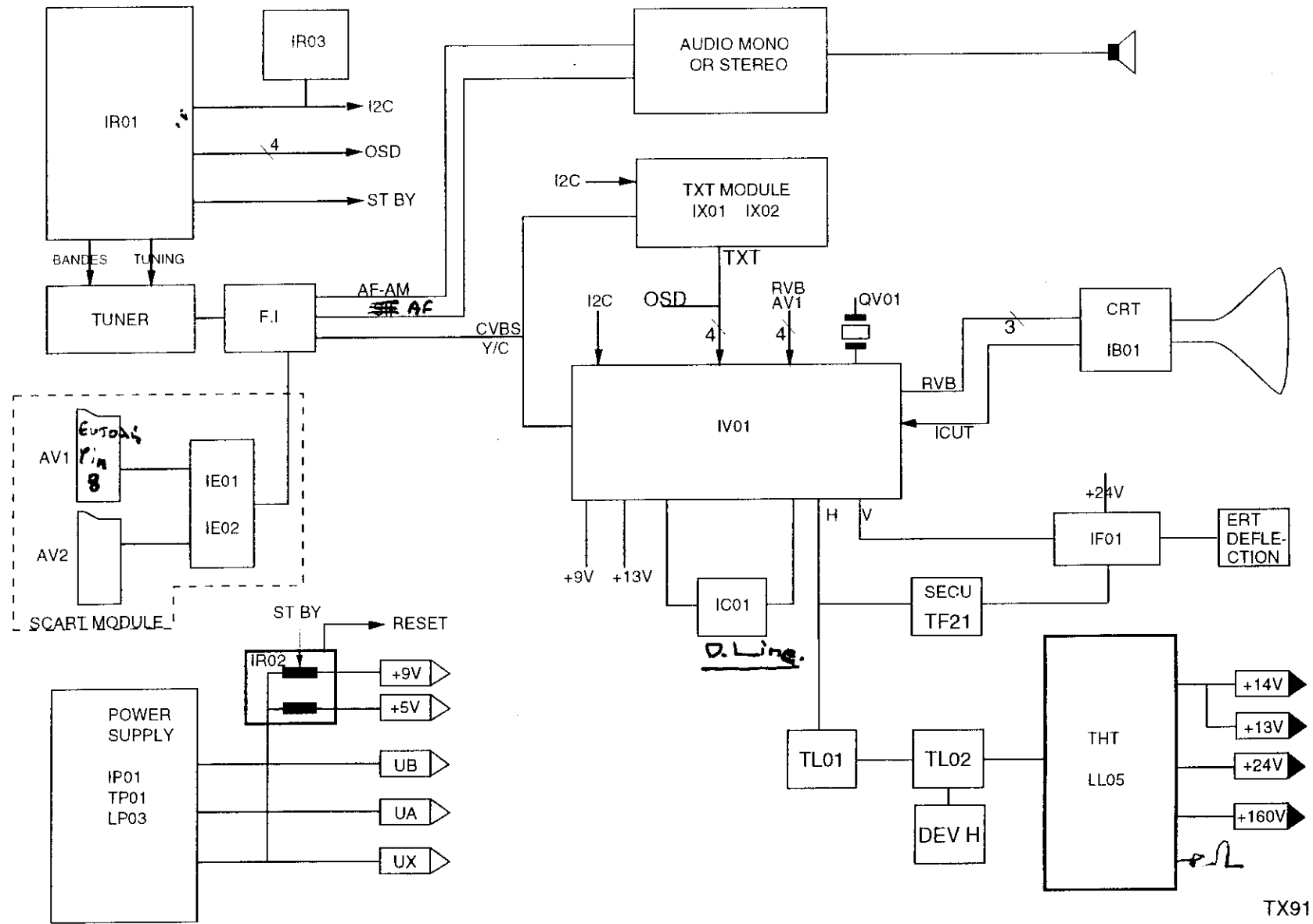
CONTROLLING THE 220V AC POWER SUPPLY WITH A CHARGING RESISTOR

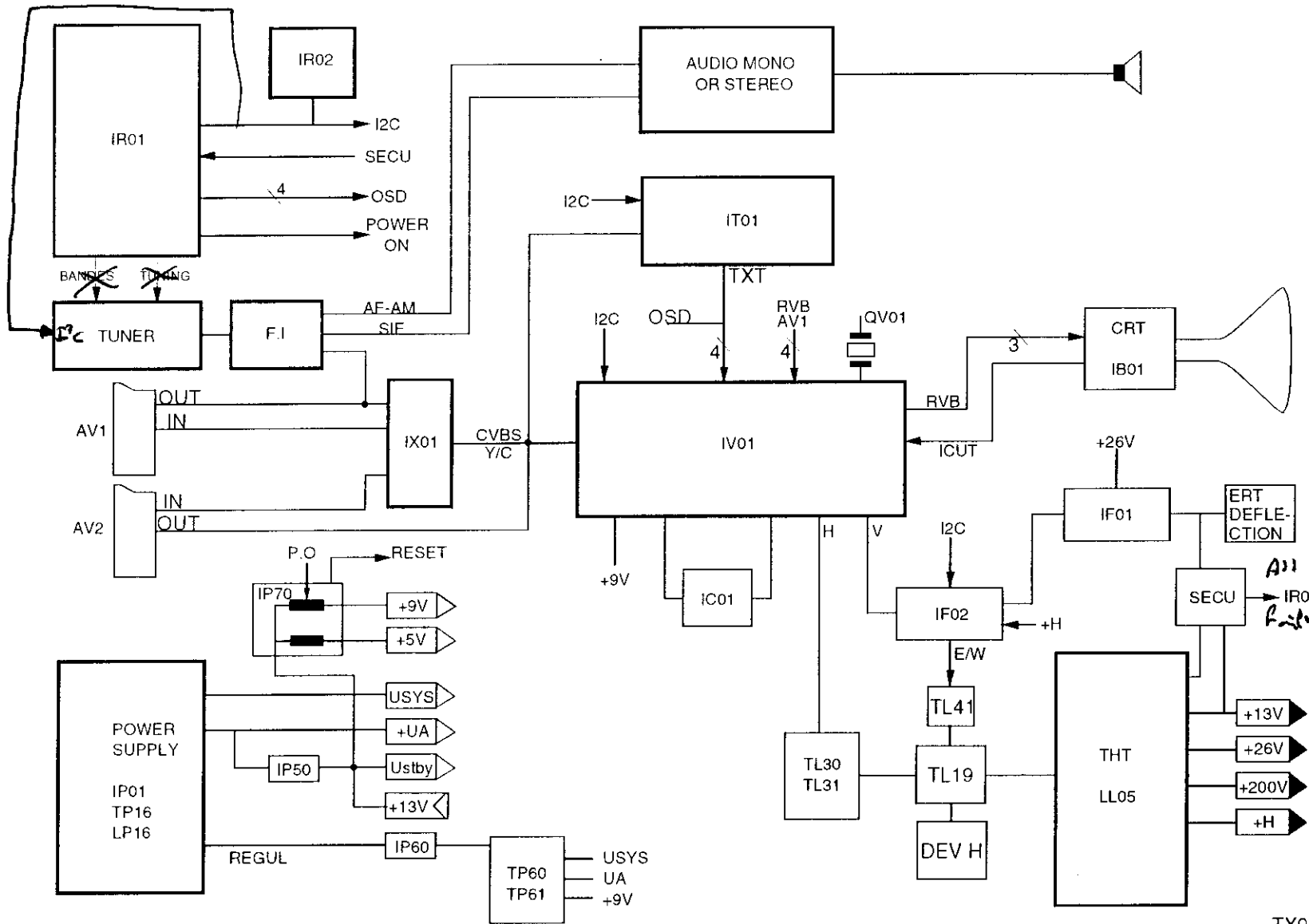
- Disconnect pin 10 of LL05
- Charge USYS with a resistor of 300Ω / 20W

In these conditions, USYS = 75V.

Ketrace pulse
για εναρξηση του menu. (Αρραβια του προγραμμα του IFC)

dur: 12μSec.
↓





TX92

THOMSON
MULTI MEDIA

