

**PALplus
FEATURE STEREO
FP-CHASSIS**

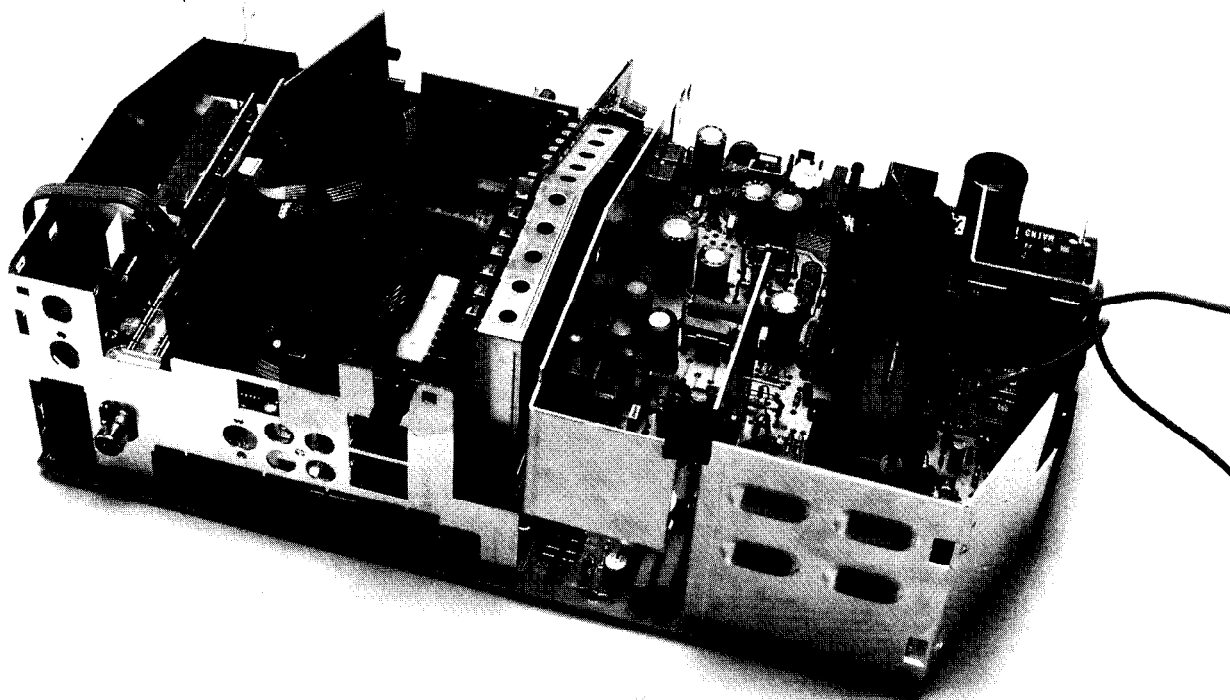
71

TV
1995

Ⓒ **Service manual**
Ⓓ **Serviceanleitung**
Ⓔ **Serviceanvisning**

Ⓕ **Manuel de service**
Ⓖ **Manuale di servizio**

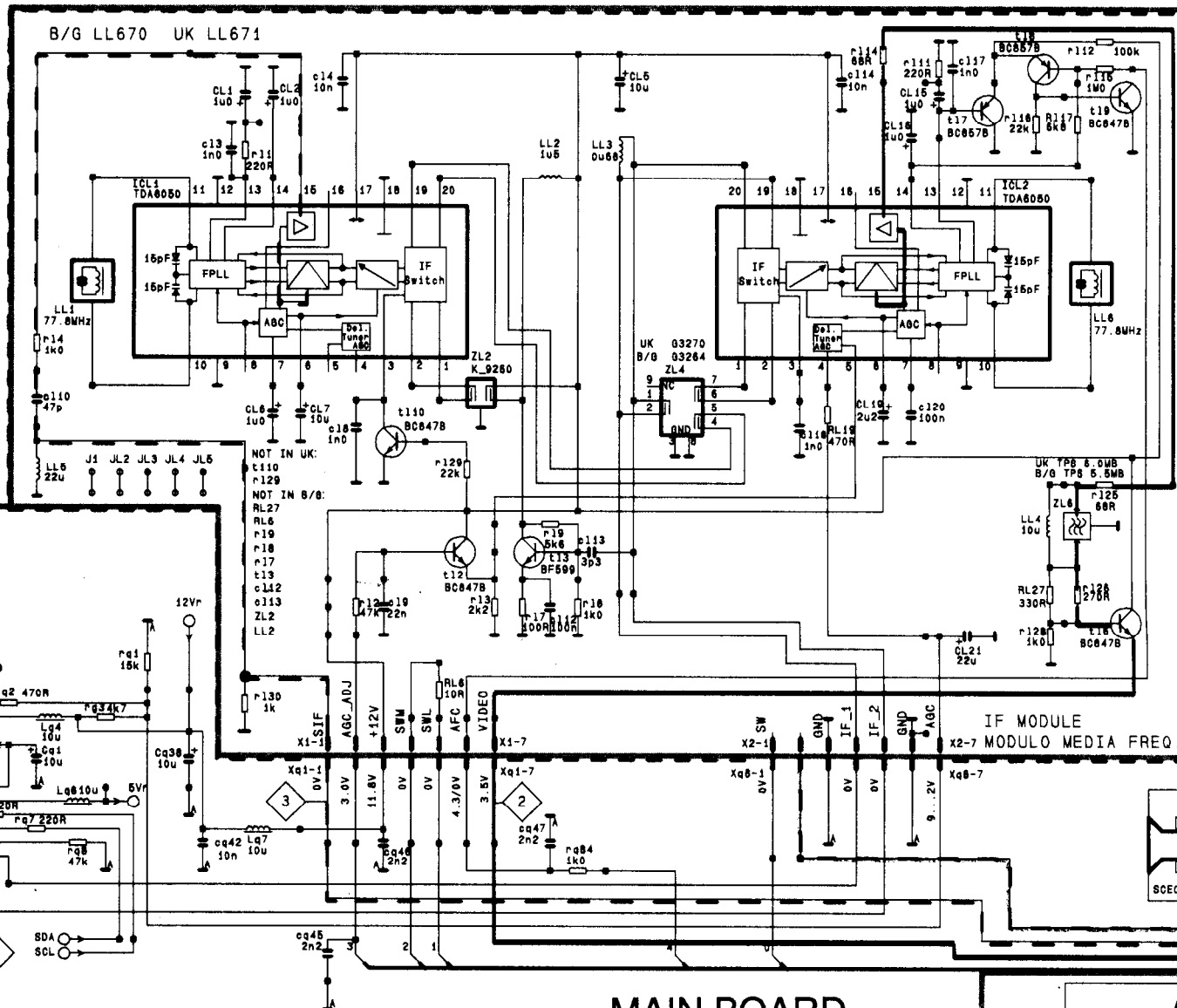
NOKIA 7295 7296 8296



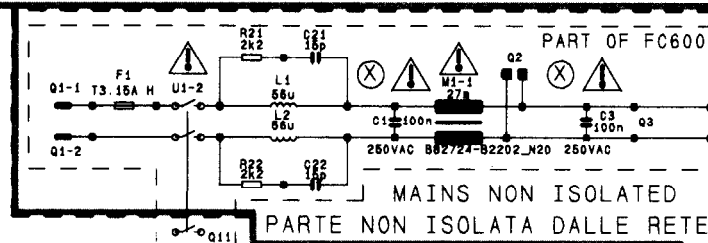
NOKIA 
CONNECTING PEOPLE

6611 72 03

L IF BLOCK

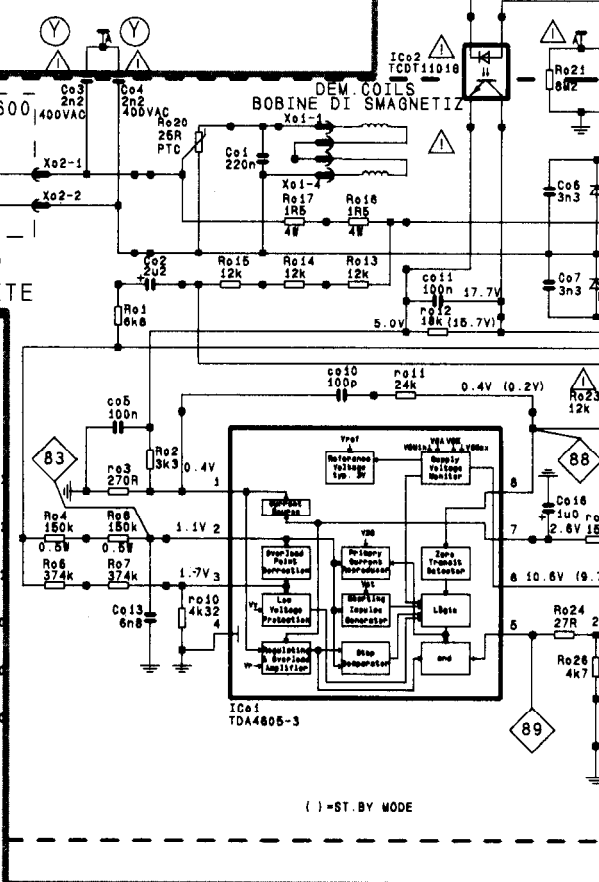


MAINS ISOLATED
PARTE ISOLATA DALLE RETE



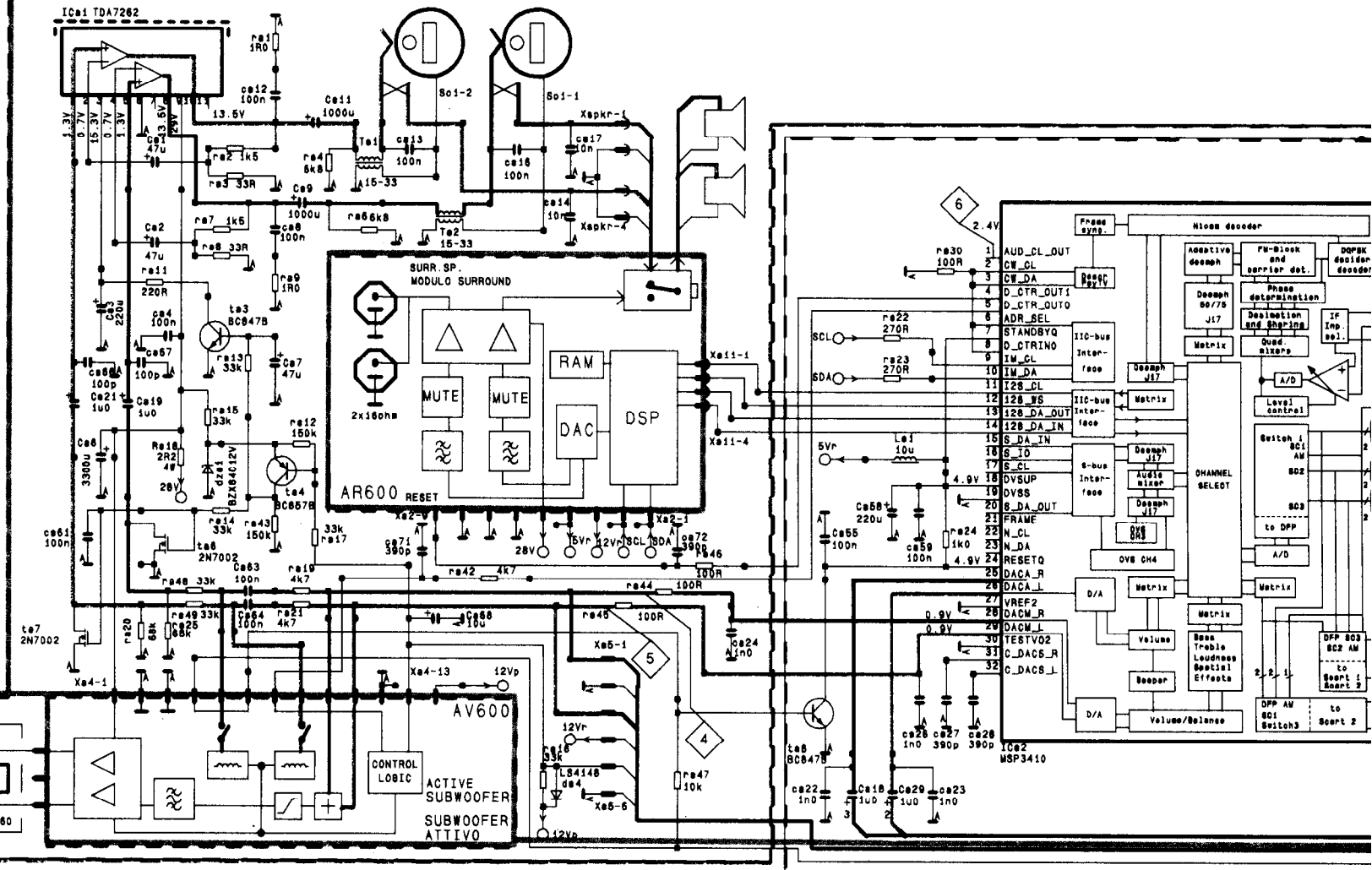
**CHASSIS
FP-SERIE
PALplus**

66117204

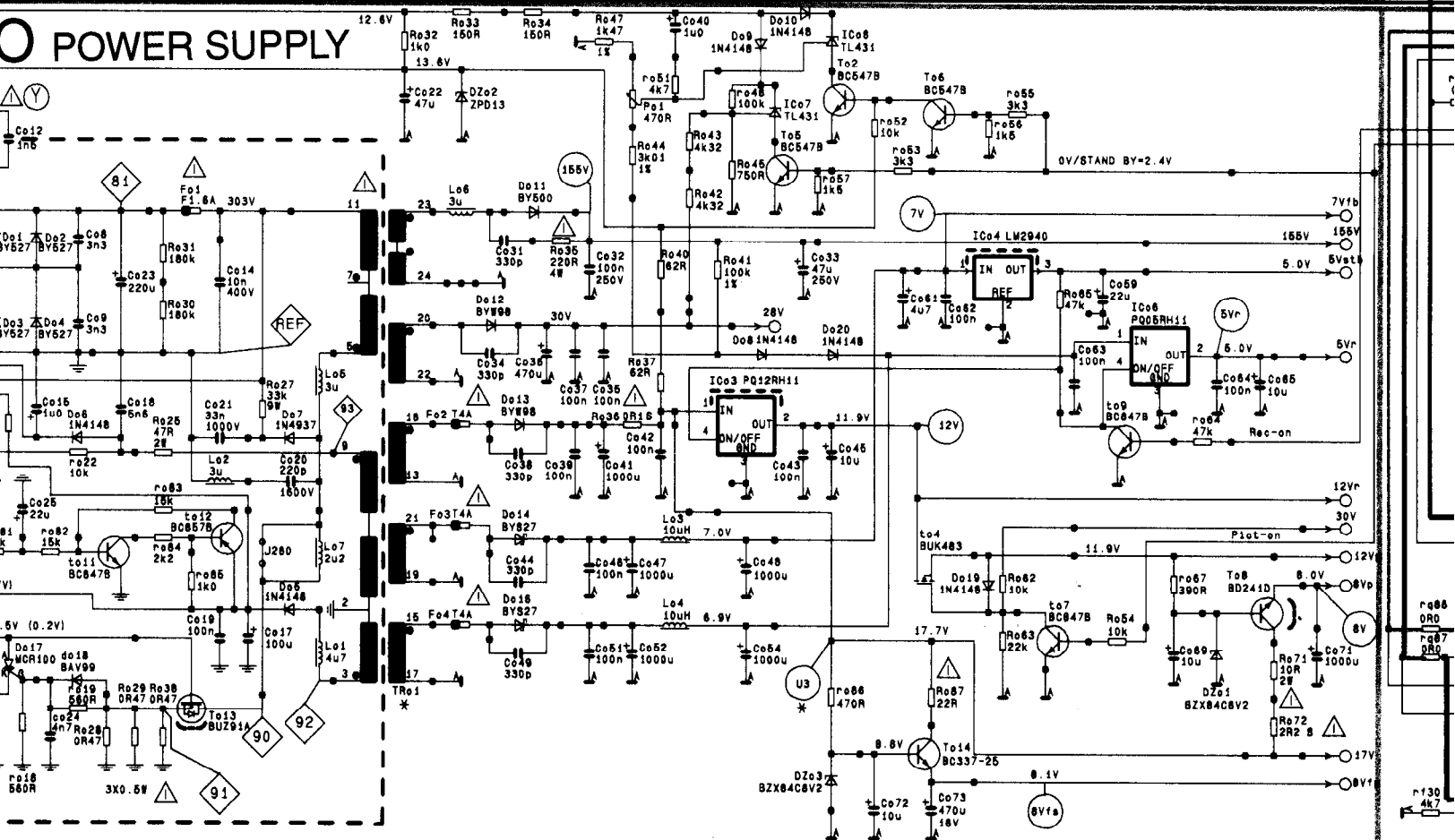


() - ST. BY MODE

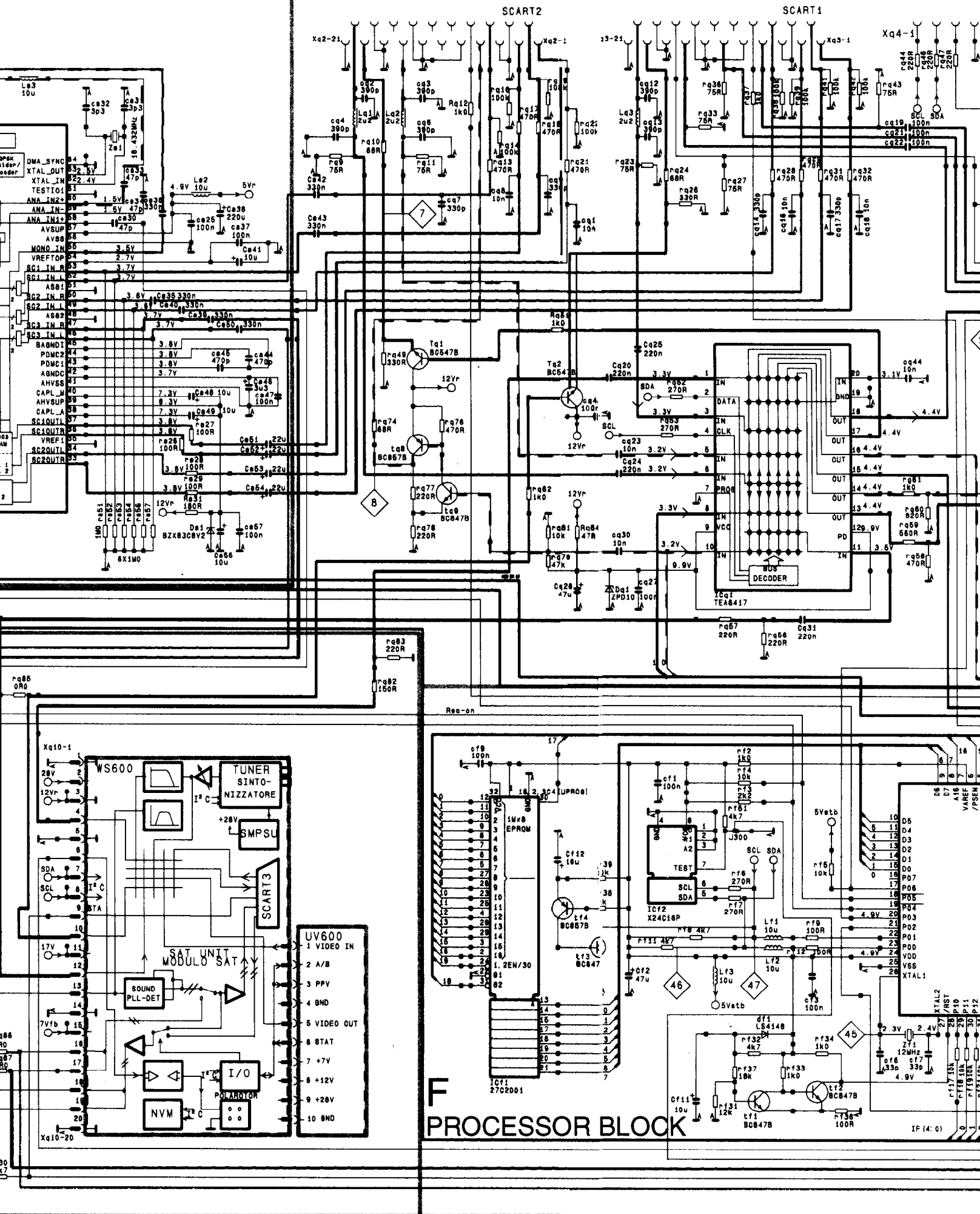
A SOUND BLOCK

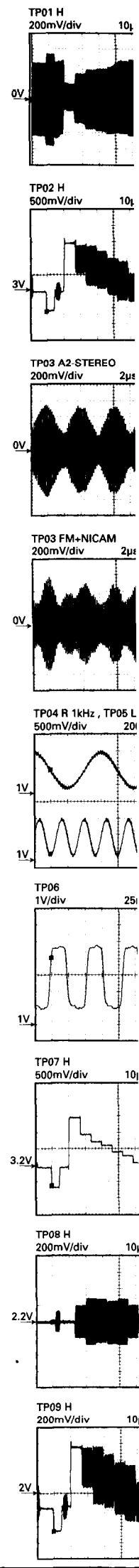
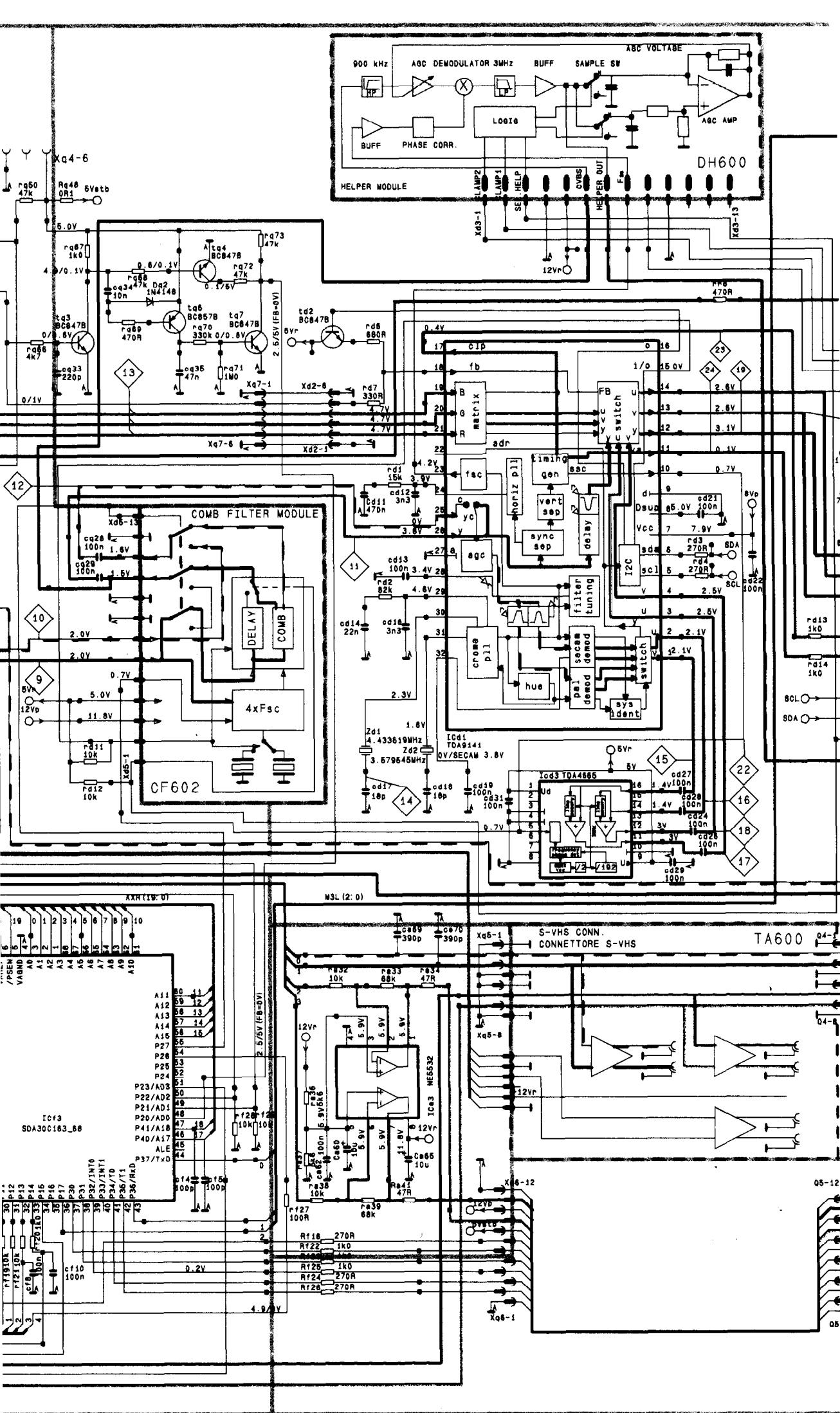


POWER SUPPLY



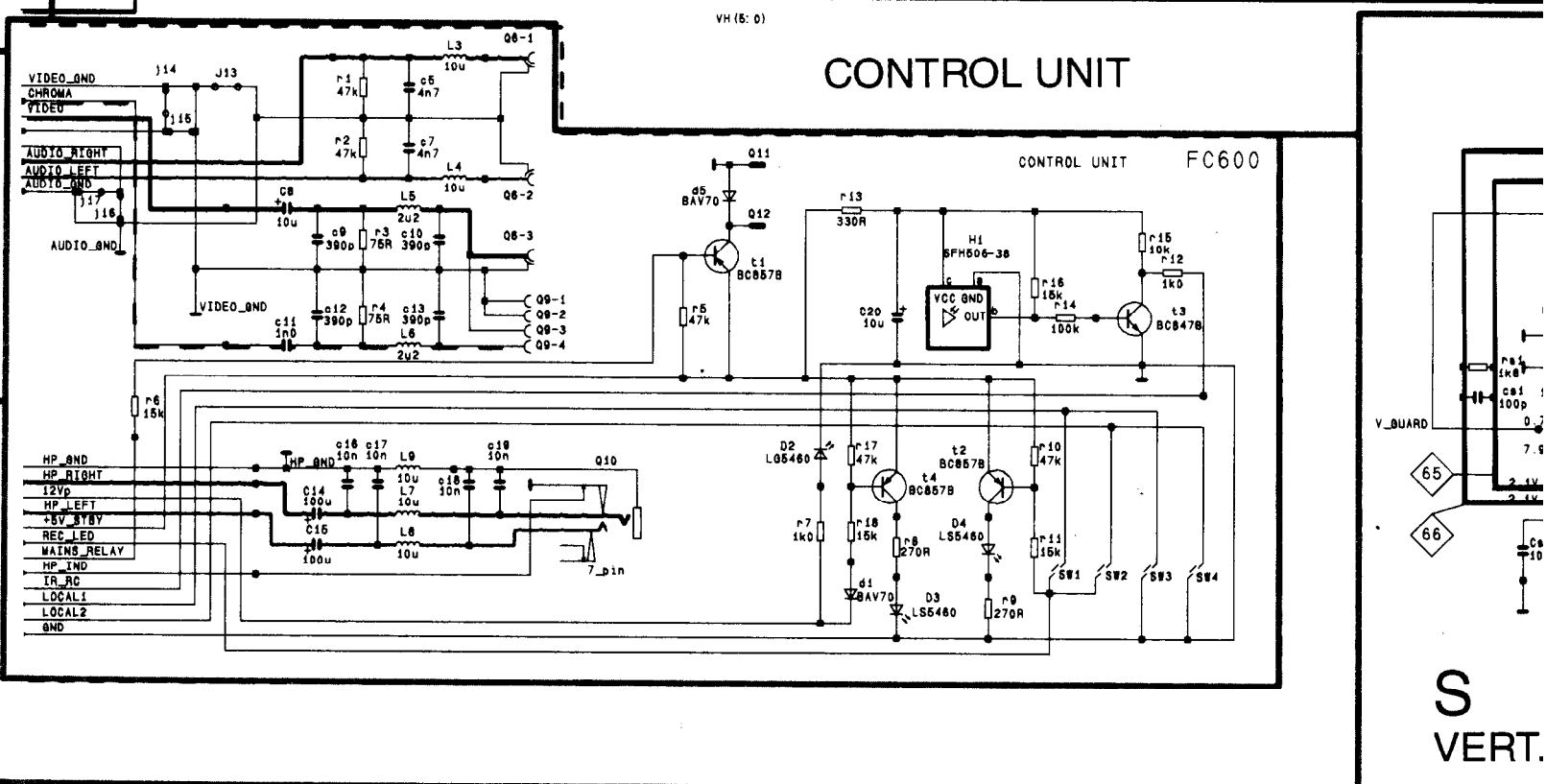
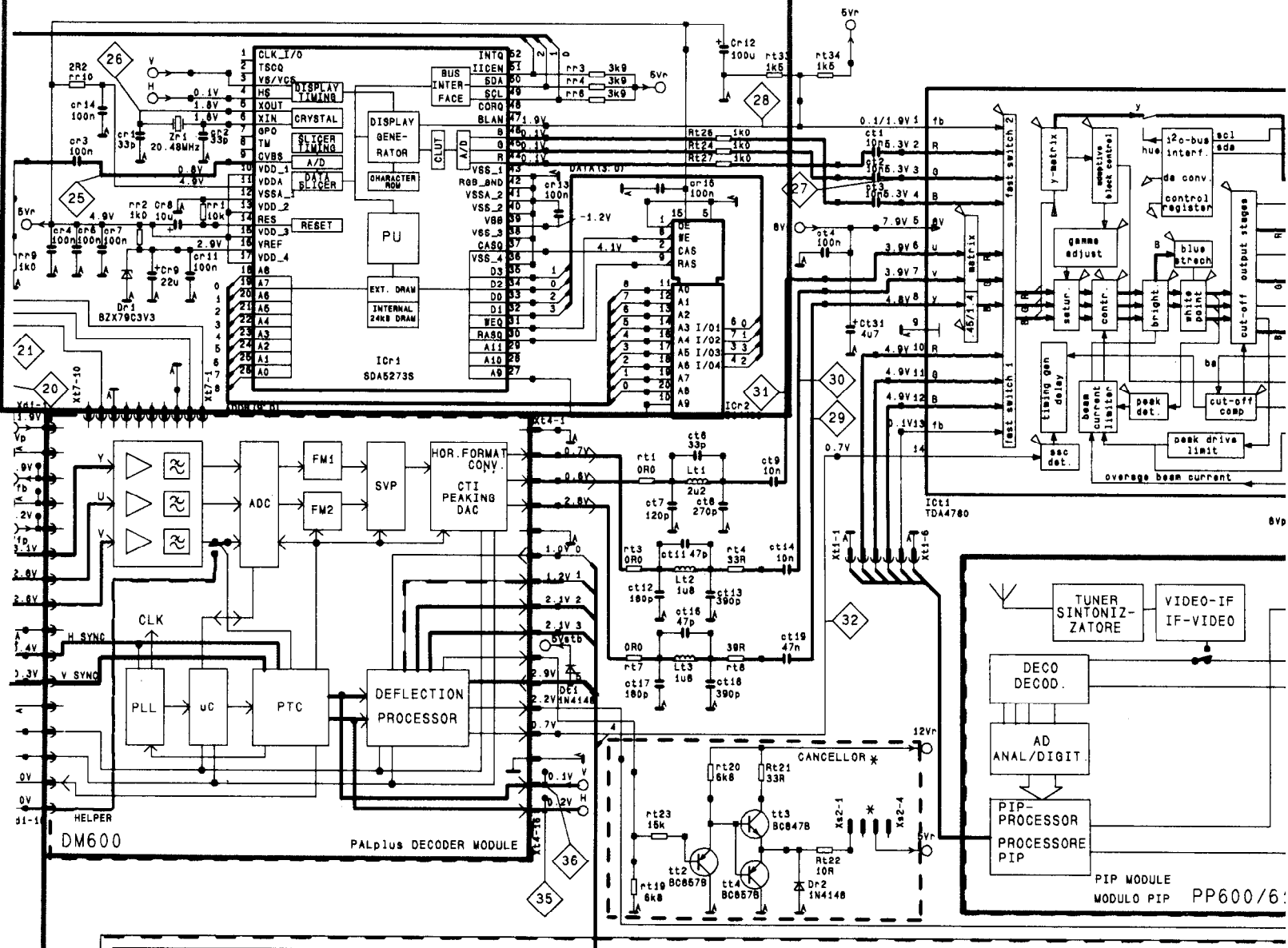
MAIN BOARD





R TEXT BLOCK

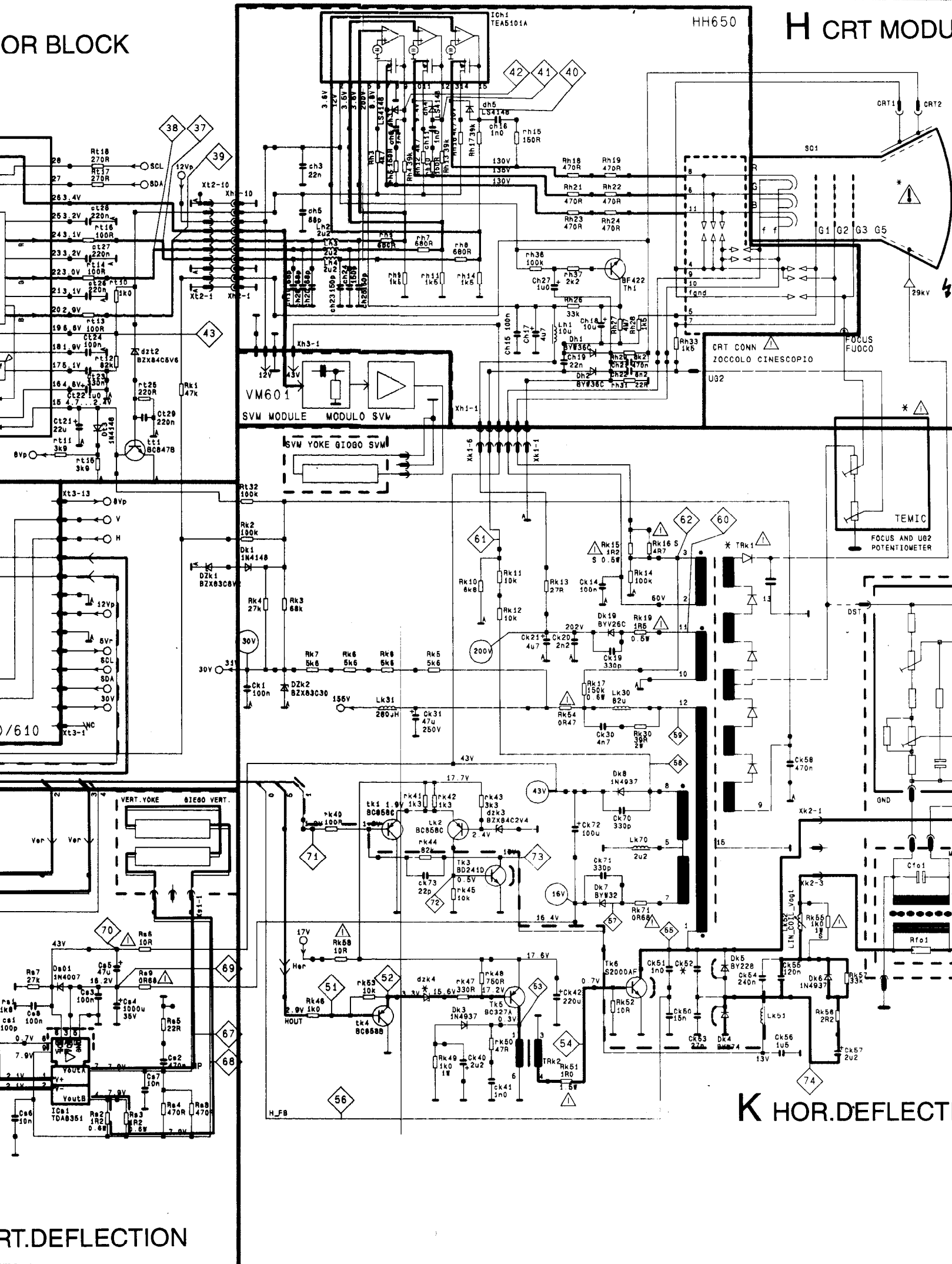
T RGB PROCESSOR



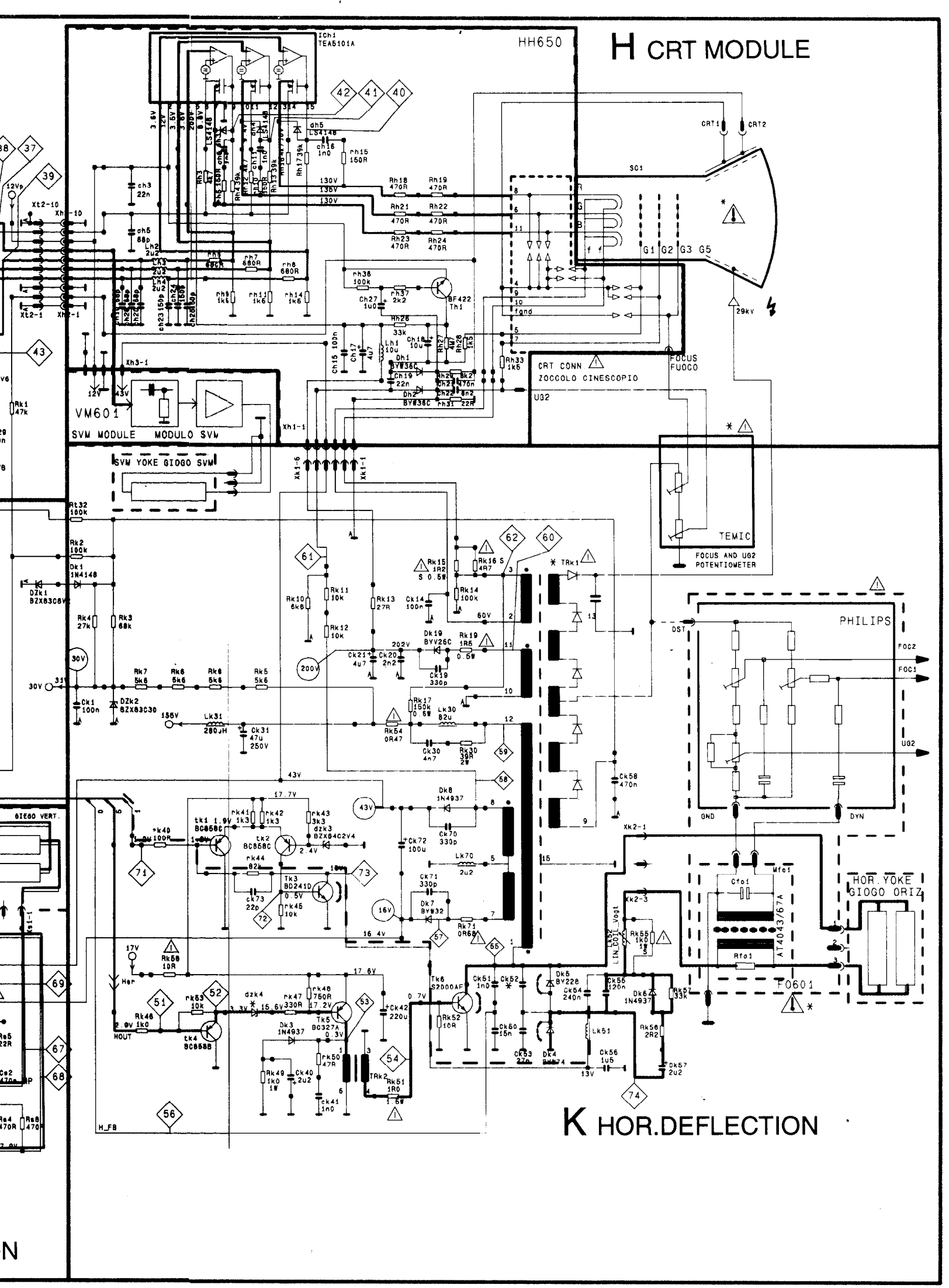
S
VERT.

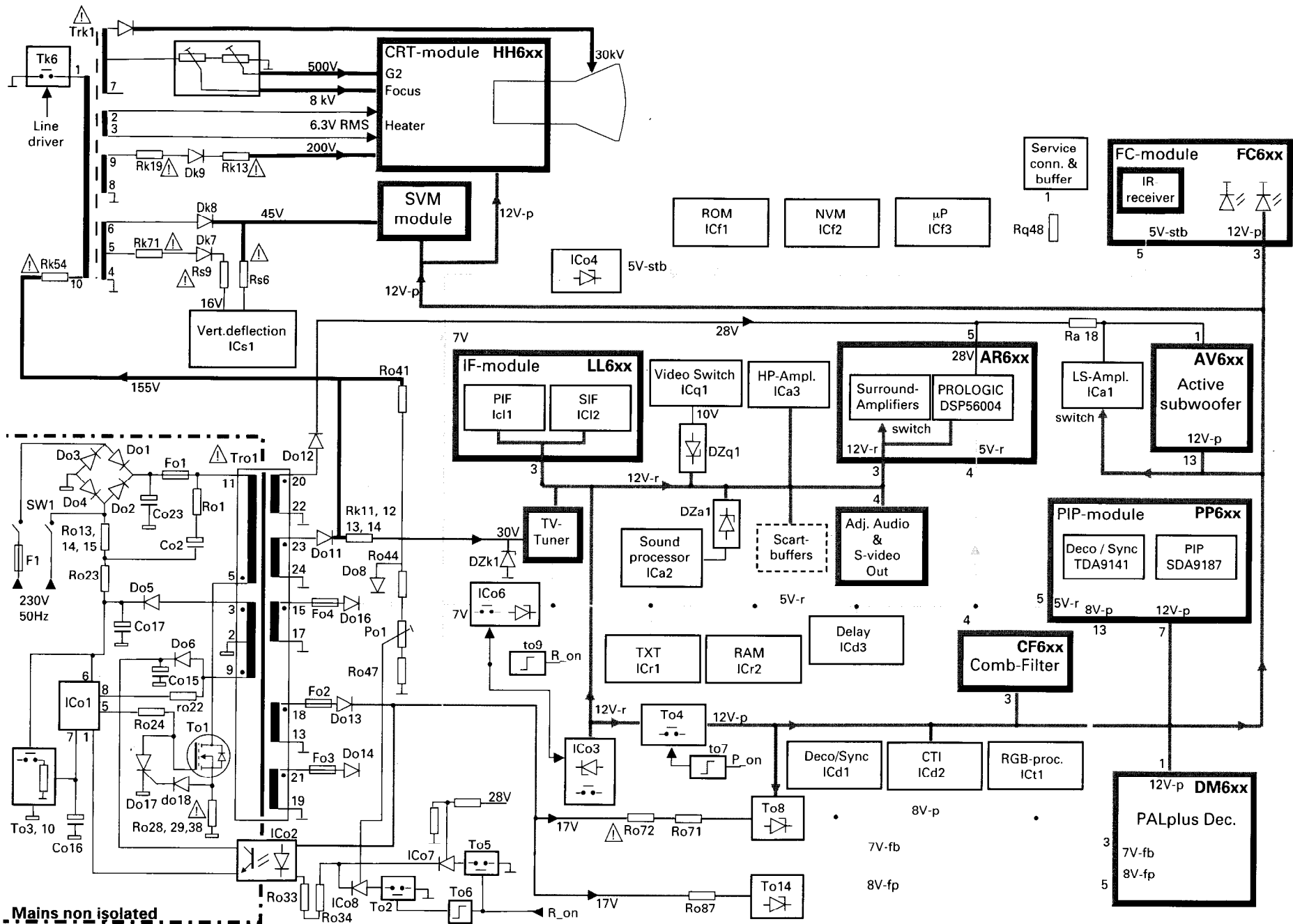
OR BLOCK

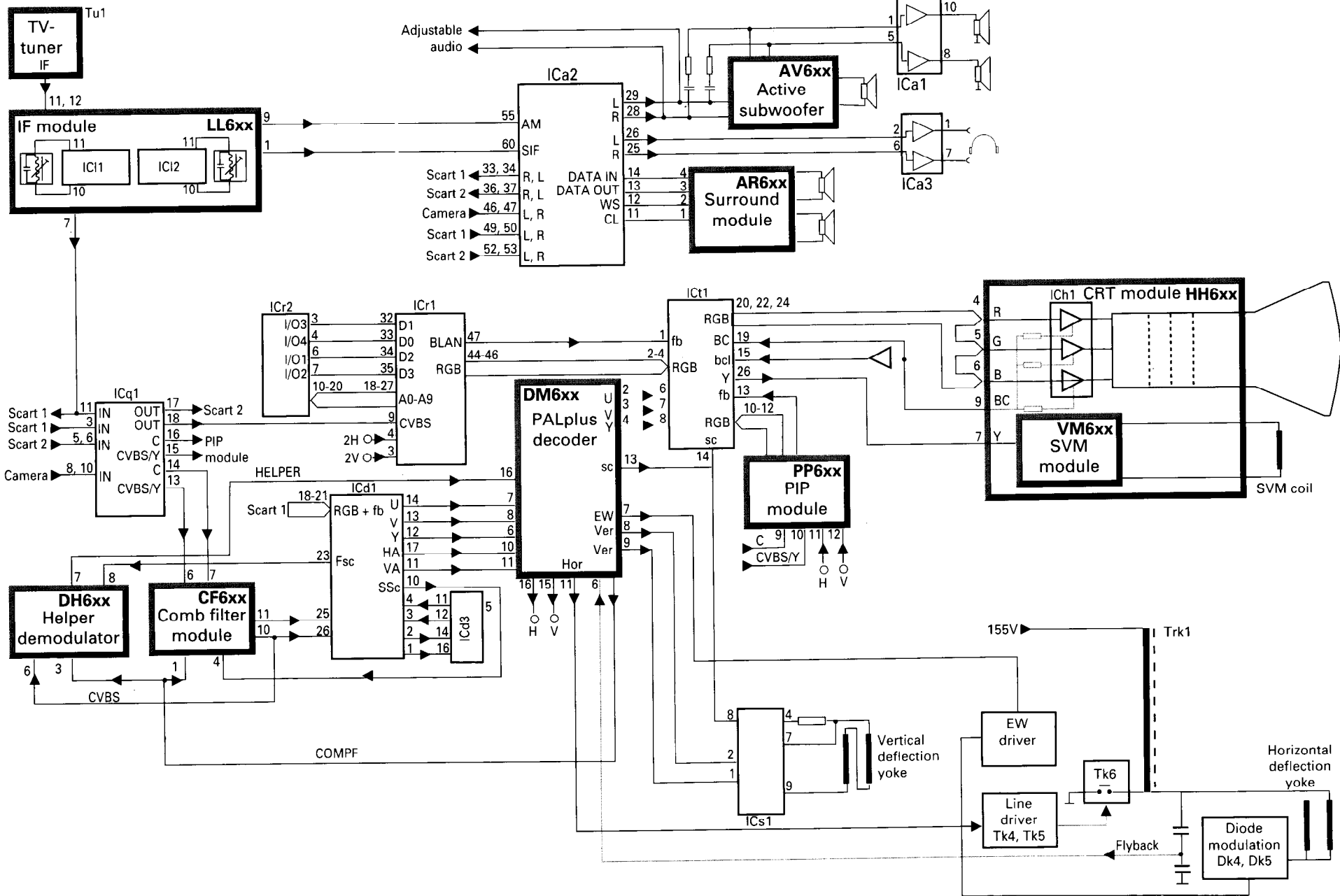
RT.DEFLECTION



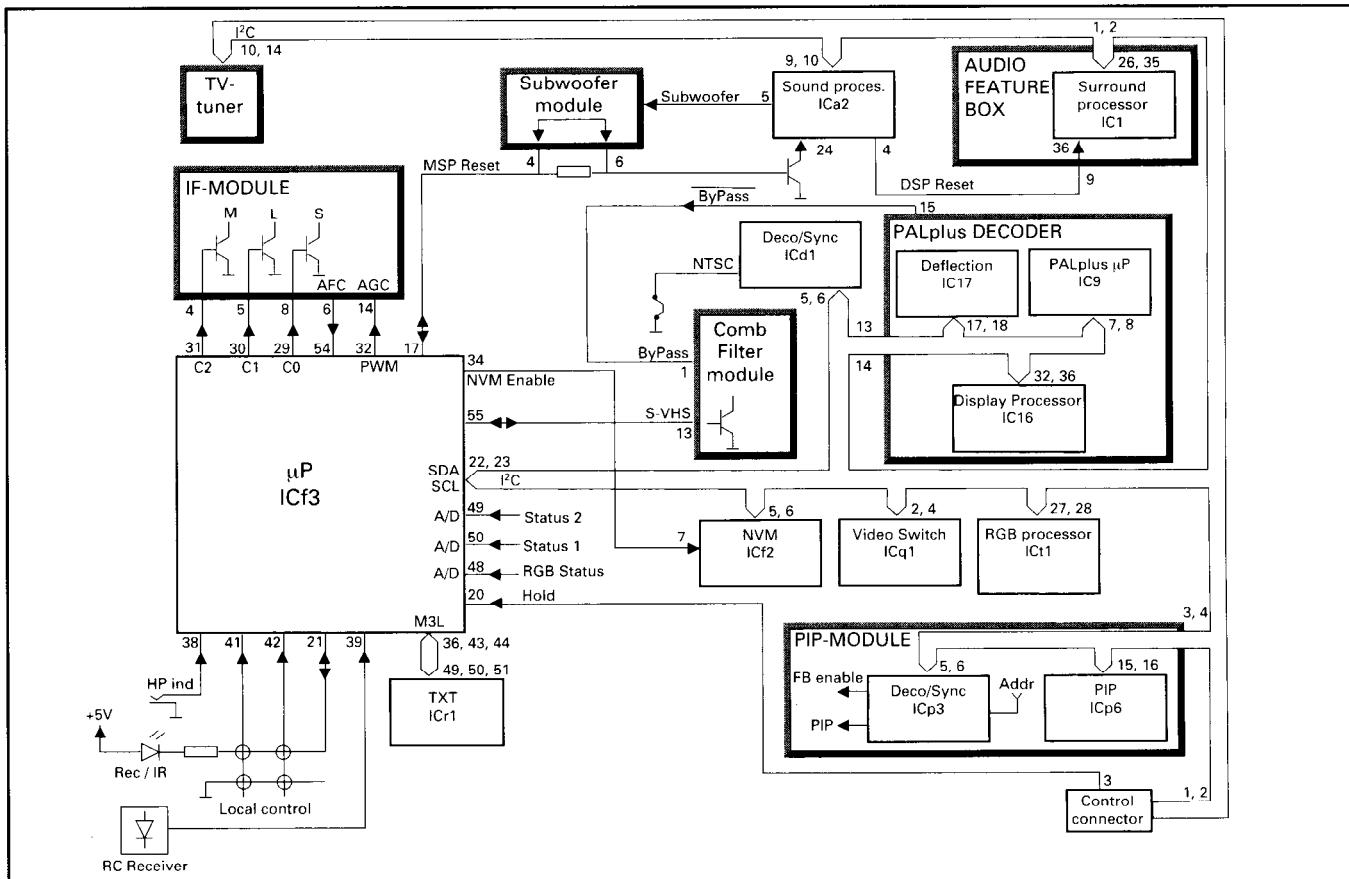
K HOR.DEFLECT







BLOCK DIAGRAM, CONTROL SIGNALS



SERVICE MODE SELECTION:

Switch on the receiver by pressing the mains switch and within 5 s. press the remote control buttons MENU, TV and "i" successively.

WAHL DES SERVICE-MODUS:

Einschalten Sie das Gerät mit dem Netzschalter und innerhalb 5 Sekunden Drücken Sie nacheinander die Fernbedienungstasten MENU, TV und "i".

VAL AV SERVICE-LÄGE:

Slå på mottagaren med huvudströmbytnen och inom 5 s. tryck på fjärrkontrollens MENU, TV och "i" knappar succesivt.

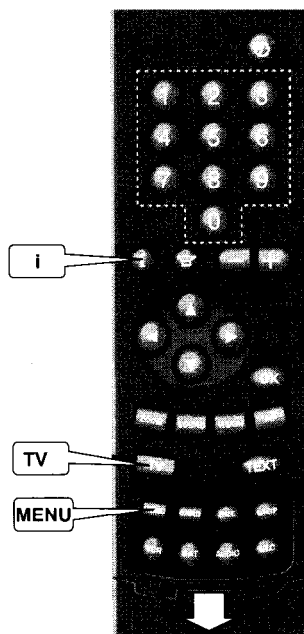
SELECTION DU MODE SERVICE:

Mettre le récepteur en marche à l'aide de l'interrupteur principal et dans les 5 secondes appuyez successivement sur les touches MENU, TV et "i" de la télécommande.

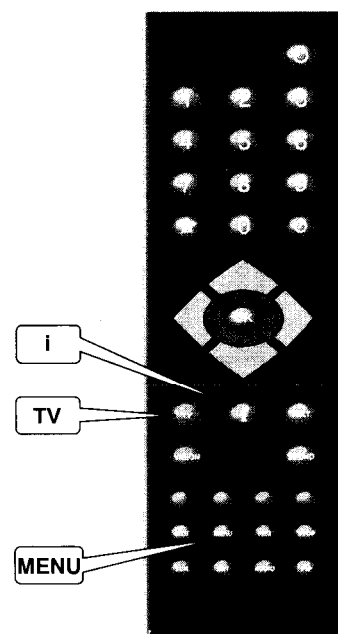
SELEZIONE DEL MODO SERVIZIO:

Accendere il ricevitore tramite l'interruttore generale e premendo in sequenza i tasti del telecomando MENU, TV e "i" entro 5 secondi.

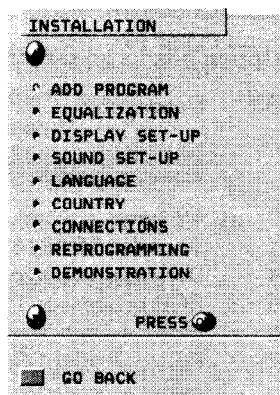
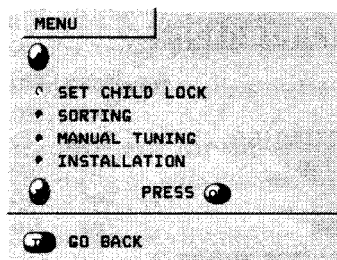
A menu



B menu



A menu



Language selection

1. Press the MENU button (under the lid).
2. Select the INSTALLATION with the cursor buttons (up-/downwards) and press the OK button.
3. Select the LANGUAGE and press the OK button.
4. Select the desired language and press the OK button.
5. Press the TV button to exit.

Manual tuning

1. Select programme number you want to tune.
2. Press the MENU button.
3. Select MANUAL TUNING and press the OK button.
4. Press red button (SEARCH).
5. Press the OK button to store.
6. Press the TV button to exit.

APSi (Automatic Programming System)

1. Press the MENU button.
2. Select INSTALLATION and press the OK button.
3. Select REPROGRAMMING and press the OK button.
4. To retune the channels, press the OK button.
5. Press the TV button to exit.

B menu



Language selection

1. Press the PRG button.
2. Select the Install by pressing the blue button.
3. Select the Language by pressing the red button.
4. Select the desired language with the cursor buttons and press the OK button.
5. Press the TV button to exit.

Manual tuning

1. Press the PRG button.
2. Press the red button (Tune).
3. Press the red button (Search).
4. Select the prog. number on which the channel is to be stored.
5. Press the blue button (Store) to store.
6. Press the TV button to exit.

APSi (Automatic Programming System)

1. Press the PRG button.
2. Press the blue button (Install).
3. Press the yellow button (Reprog).
4. Press the red button (APSi).

5. Press the green button (Reprog).
6. Press the blue button (OK) to exit.

NVRAM (ICf2)

Installation of NVRAM

In case that the NVRAM is replaced, it must be initialized and configured.

1. Set the receiver to the service mode by switching on the receiver with the main switch and within 5 s. pressing the buttons MENU, TV and "i" successively.
Note! The receiver is in the service mode although it looks like the receiver is in stand-by mode!
2. Initialize the NVRAM by pressing the RED button. The green LED flashes once. Wait approx. 15 s. When the initialization is completed, the green LED will light up.
3. Switch off the receiver by pressing the mains switch.
4. Start the receiver to the TV mode by pressing the main switch. Tune in one or more tv channels.
5. Switch off the receiver by pressing the mains switch.
6. Start the receiver into the service mode. If the receiver remains in stand-by mode, press the TV button twice and then press the "i" button.
7. Configure the receiver by pressing the RED button. The configuration menu will show up.
8. Press the OK button.
9. After that make all of the service adjustments (see section "SERVICE ADJUSTMENTS VIA IIC BUS").
10. Switch off the receiver by pressing the mains switch.

Re-initialization of NVRAM

For example when the receiver doesn't start to normal picture, the NVRAM may need re-initialization.

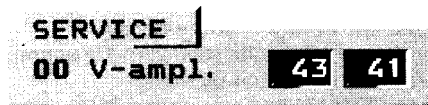
1. Set the receiver to the service mode by switching on the receiver with the main switch and within 5 s. pressing the buttons MENU, TV and "i" successively.
Note! The receiver is in the service mode although it looks like the receiver is in stand-by mode!
2. Select the initialization of the NVRAM by pressing the RED button. The green LED will light up. Wait approx. 2 s. After that, press the BLUE (then wait approx. 2 s.), 2, 5 and 4 (then wait approx. 2 s.) buttons.
3. Press the OK button to initialize the NVRAM. Initialization will take approx. 15 s.
4. Switch off the receiver by pressing the mains switch.
5. Start the receiver to the TV mode by pressing the main switch. Tune in one or more tv channels.
6. Switch off the receiver by pressing the mains switch.
7. Start the receiver into the service mode. If the receiver remains in stand-by mode, press the TV button twice and then press the "i" button.
8. Configure the receiver by pressing the RED button. The configuration menu will show up.
9. Press the OK button.
10. After that make all of the service adjustments (see section "SERVICE ADJUSTMENTS VIA IIC BUS").
11. Switch off the receiver by pressing the mains switch.

SERVICE ADJUSTMENTS

SERVICE MODE SELECTION

1. The receiver is set to the service mode by switching on the receiver with the main switch and within 5 seconds pressing the remote control buttons MENU, TV and "i" successively.

Note! If the receiver remains in stand by mode after selecting the service mode, switch on the receiver by pressing the TV button twice and select the service mode by pressing the "i" button.



In the service mode an adjustment menu (including the adjustment number and name, initializing (left) and adjustment (right)) values is shown on the screen.

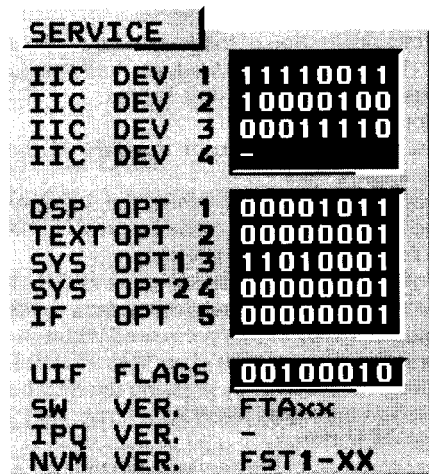
2. Return from the service mode by switching off the receiver with the main switch.

CONFIGURATION AND FAULT DIAGNOSIS

The set must be configured after adding or removing some options. By pressing the red button in the service mode, the processor checks all possible addresses of bus driven circuits and shows the settings on the screen. This feature can also be used in fault finding; if an option bit is not "1" when it should be or if it is not possible to set it to "1" by using the number buttons, the IC is either not present or faulty.

Changing of option bytes

1. When in service mode, select the configuration mode by pressing the red button.



Description

SW VER. = μ P software version.

NVM VER. = NVM software version.

2. Select IIC Device byte 1 - 4 or Option byte 1 - 5 with the cursor button (up-/downwards). Selected byte is shown highlighted.
3. Set the bits with the number buttons (0 ... 7).
4. Store the settings by pressing the OK button.
5. Return to the service mode by pressing the red button again.

OPTION BYTE DESCRIPTIONS

Option bits to be set automatically:

Bit	Description	Setting	'1'	'0'
7 6 5 4 3 2 1 0 IIC DEV 1 11110011				
0	TV tuner		Yes	No
1	Decoder TDA9141		Yes	No
4	Deflection controller TDA9151		Yes	No
5	RGB processor TDA4780		Yes	No
6	Video switch TDA6417		Yes	No
7	PIP controller SDA9188		Yes	No

7 6 5 4 3 2 1 0 IIC DEV 2 10000100				
0	PIP tuner		Yes	No
2	Megatext SDA5273		Yes	No
7	MSP3400 / 3410		Yes	No

7 6 5 4 3 2 1 0 IIC DEV 3 00011111				
0	DSP (surround)		Yes	No
1	Subwoofer		Yes	No
2	Display processor SDA9280		Yes	No
3	PALplus processor I87C752		Yes	No
4	Comb filter (SVHS line low)		Yes	No

7 6 5 4 3 2 1 0 DSP OPT 1 01011011				
0 - 3	Loudspeaker configuration (Set in user mode)			

7 6 5 4 3 2 1 0 TEXT OPT 2 00000001				
0	TXT with external RAM		Yes	No

7 6 5 4 3 2 1 0 SYS OPT13 11010001				
4	NTSC 3.58 MHz		Yes	No

7 6 5 4 3 2 1 0 IF OPT 5 00000001				
0	B/G system		Yes	No
1	I system		Yes	No
2	D/K system		Yes	No
3	L/L' system		Yes	No
5	Baseband		Yes	No

Option bits to be set manually:

Bit	Description	Setting	'1'	'0'
7 6 5 4 3 2 1 0 DSP OPT 1 01011011				
4	Bass splitting		Yes	No
6	Pre-equalization for surround DSP		Yes	No

7 6 5 4 3 2 1 0 TEXT OPT 2 00000001				
2	Flof text enabled		Yes	No

7 6 5 4 3 2 1 0 SYS OPT13 11010001				
0	Camera connector installed		Yes	No
6	NICAM enabled		Yes	No
7	Loudness enabled		Yes	No

7 6 5 4 3 2 1 0 IF OPT 5 00000001				
7	Only UHF tuner		Yes	No

SERVICE ADJUSTMENTS VIA IIC BUS

REMOTE CONTROL BUTTONS IN SERVICE MODE

When the receiver is in service mode you can select the normal TV mode by pressing the TV button and return to the service mode by pressing the "i" button. Number and cursor buttons are used for service adjustment. The yellow button hides temporarily the service menu. The OK button stores the settings.

Note! Before other adjustments U1 voltage must be adjusted.

Adjustment for different picture format

First make all adjustments with normal 4:3 picture format. The TV uses these adjustment values for all picture formats if no other adjustment were made. In each adjustment it is mentioned if the adjustment must be done separately for different picture format, repeat only those adjustments.

Note! The picture geometry adjustments must be done with 16:9 picture format.

Making the service adjustment

1. Give a two numbered code which determines the adjustment (e.g. 05 = horizontal phase, see the following tables) with the number buttons.

Note! The adjustments can also be selected with the cursor button (up-/downwards).

SERVICE

05 H-shift

27 26

2. Adjust with the cursor button (left/right).

SERVICE

05 H-shift

27 27

3. Store the new value by pressing the OK button.

Note!

- To avoid incomplete adjustments store each adjustment in the memory immediately after adjusting.
- If the adjustment has to be made separately for different picture format, select the normal user mode by pressing the TV button and change the picture format with the zoom button. Return to service mode by pressing the "i" button.

VERTICAL PICTURE ADJUSTMENTS

Adjustment	Code	OSD name	Init. value	Note!
Vertical amplitude	00	V-ampl.	43	Adjust the picture height to correct ratio.
Vertical off-centre shift	01	V-shift	3	Adjust the color edge to the center of the picture.
Vertical start scan	02	V-start	6	Adjust the lower part of the picture to correct ratio.
Vertical S-correction	03	S-corr.	27	Separate adjustment for 4:3 format!
Vertical slope 4:3 zoom (coarse)	12	Zoom-H	71	Select 4:3 zoom picture format and adjust the picture to correct ration.
Vertical slope 4:3 zoom (fine)	13	Zoom-L	0	Separate adjustment for 60Hz NTSC transmission!
Center value, 4:3 zoom shift (V-wait)	14	Shift	28	Before adjustment select 4:3 zoom picture format!

HORIZONTAL PICTURE ADJUSTMENTS

Adjustment	Code	OSD name	Init. value	Note!
EW width	04	Width	35	Separate adjustments for normal 4:3, H-phase zoom 4:3 zoom and full screen picture format (either 4:3 zoom1, 4:3 zoom2, 16:9 or PALplus format; adjust with only one of these picture formats)! In addition make same adjustments by using RGB signal!
Horizontal phase	05	H-shift	27	
H-phase RGB				
H-phase RGB zoom				
EW parabola	06	Parab.	13	Set brightness and contrast to 90% and compensate the change in picture size.
EW corner	07	Corner	0	
EW trapezium	08	Trapez	2	
EHT compenzation	09	EHT	36	

OTHER ADJUSTMENTS

Adjustment	Code	OSD name	Init. value	Note!
Red gain	17	R gain	41	This procedure is necessary e.g. when the picture tube, CRT-module etc. has been replaced! Apply a test picture and adjust the R, G and B references. Then adjust the R, G and B gains.
Green gain	18	G gain	32	
Blue gain	19	B gain	32	
Red reference	20	R ref.	52	
Green reference	21	G ref.	21	
Blue reference	22	B ref.	16	
Clamp shift	11	Clamp	0	Normally no need to adjust.
Peak white limit	23	PWL	63	Normally no need to adjust.
Gamma correction	24	GAMMA	32	Normally no need to adjust.
Tuner AGC	25	TV AGC	170	Apply a 1 mV (60 dB μ V) test signal. Adjust the picture just without noise.
CTI length	26	CTI LEN	15	Normally no need to adjust.
CTI sensitivity	27	CTI SENS	7	Normally no need to adjust.
Chrominance / luminance delay	28	Y 138	7	Normally no need to adjust. Separate adjustment for RGB signal and PALplus picture!
Black curtain, right edge	29	BCK POS	201	Normally no need to adjust.
Black curtain, left edge	30	BCK WID	90	Normally no need to adjust.

SERVICE ADJUSTMENTS

O POWER SUPPLY BLOCK

Supply voltage (U1) and protection circuit

1. Set brightness and contrast to normal level. Connect an universal voltmeter to the cathode of Do11.
2. Adjust with Po1 the DC voltage (U1) for +155 V (± 1 V).
3. Check the over-current protection after making any service operations in the primary circuit of the power supply. Set the receiver to the stand-by mode. Short circuit the cathode of Do 13 to the ground and keep the short circuit connected. When the over-current protection works correctly, the power supply stops. Remove the short circuit and switch on the receiver by pressing the mains button.

K HORIZONTAL DEFLECTION BLOCK

Focusing

Set brightness to normal level and contrast to high level. Use cross hatch pattern and adjust the picture for optimum resolution.

(Screen grid voltage) Ug2 voltage

1. Set contrast to minimum, brightness and colour saturation to normal level.
2. At the end of the vertical blanking, there is a black current measurement pulse (clamp pulse) at pins 9, 12 and 15 of ICh1. Use an oscilloscope and find the output stage with the highest cut-off (ie. the highest voltage during the black current measurement pulse).
3. Adjust the voltage of the clamp pulse to +140 V with Ug2.

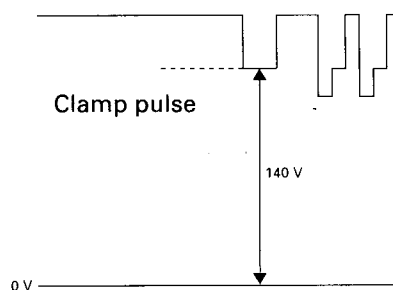
LL PICTURE AND SOUND IF MODULE

Video demodulator

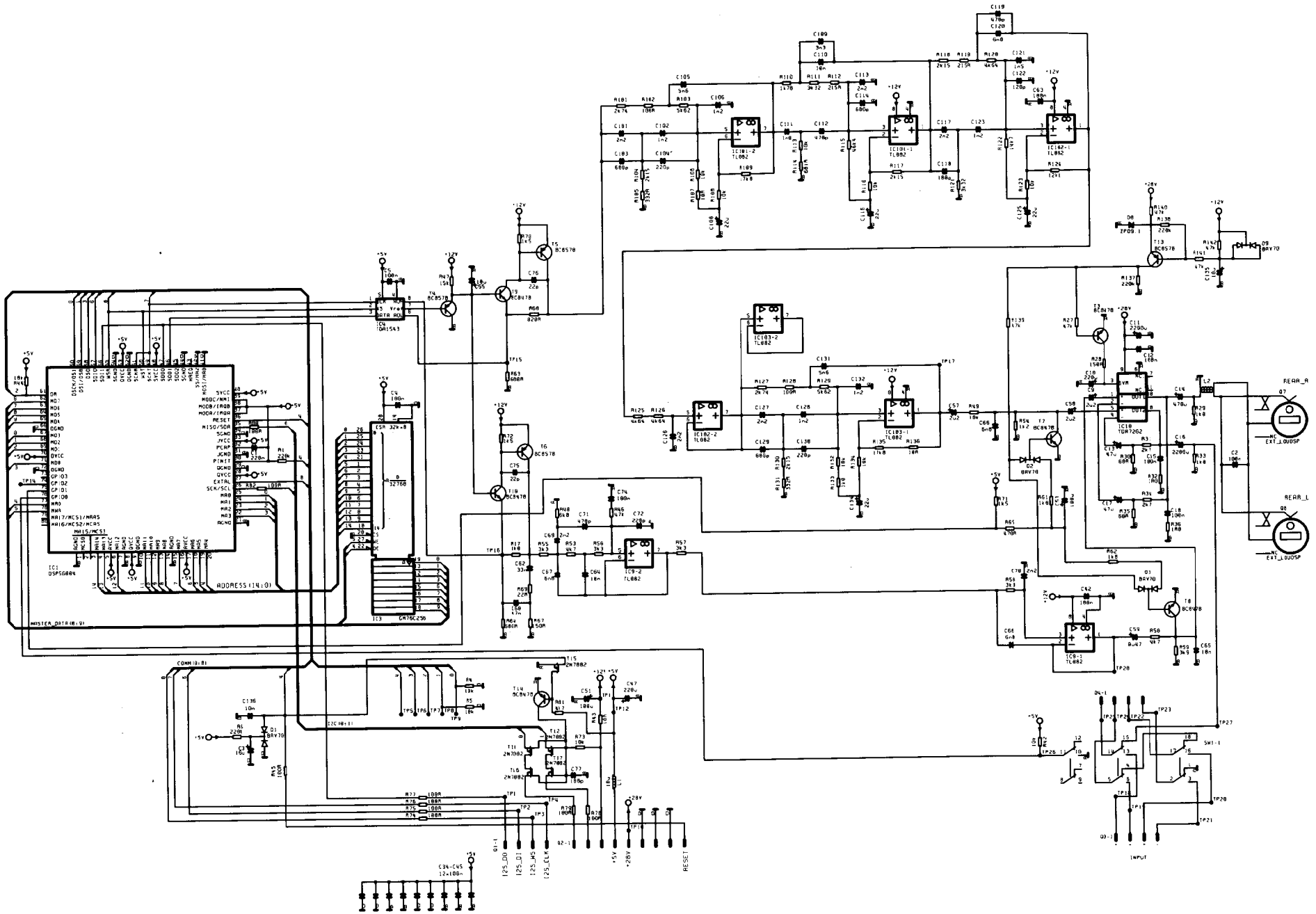
1. Apply a test signal (1 mV = 60 dB μ V).
2. Connect an universal voltmeter to the module connector X1 pin 6.
3. Adjust with LL6 the DC voltage to the point where it changes from 0 to 5 V.

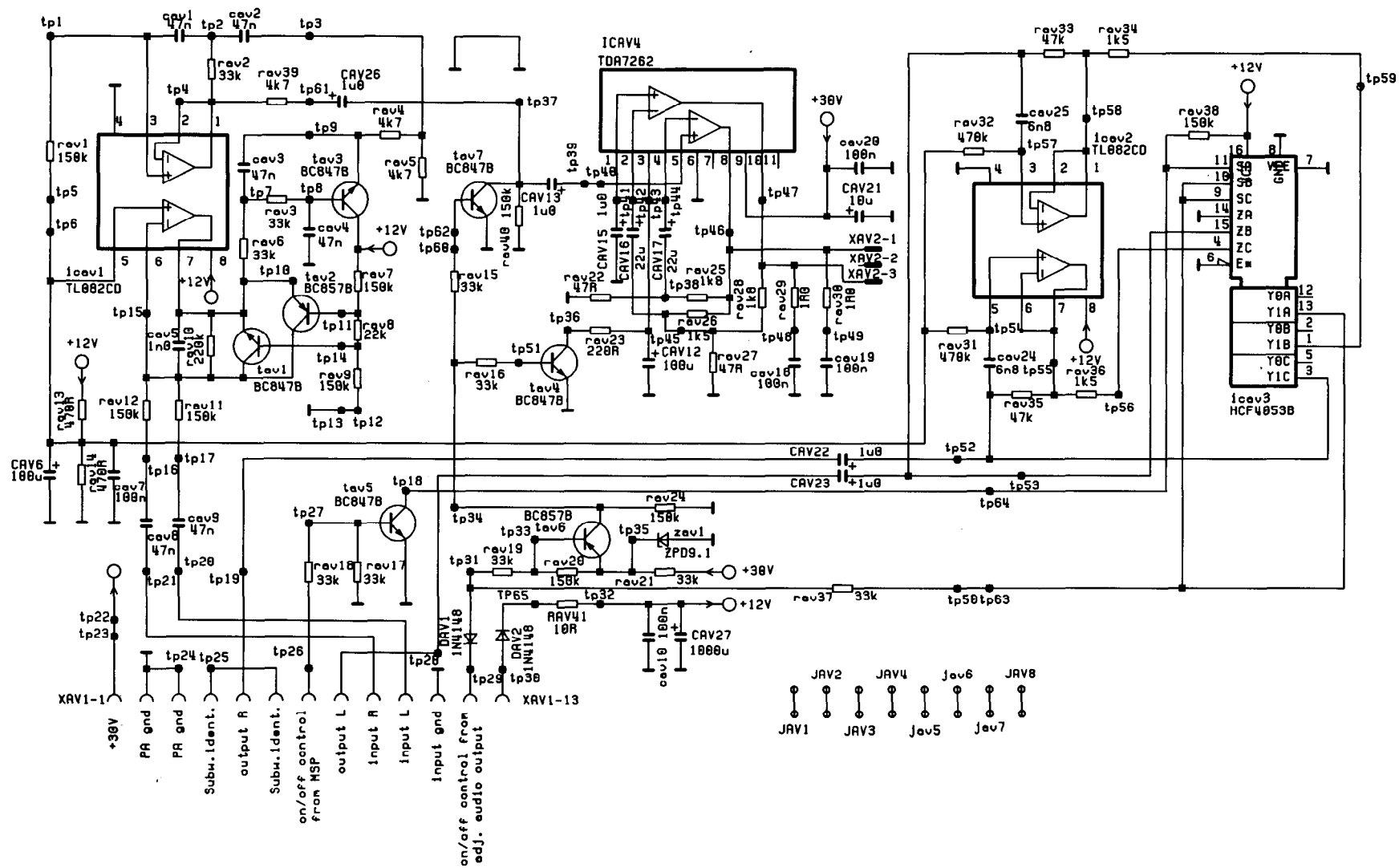
Sound demodulator

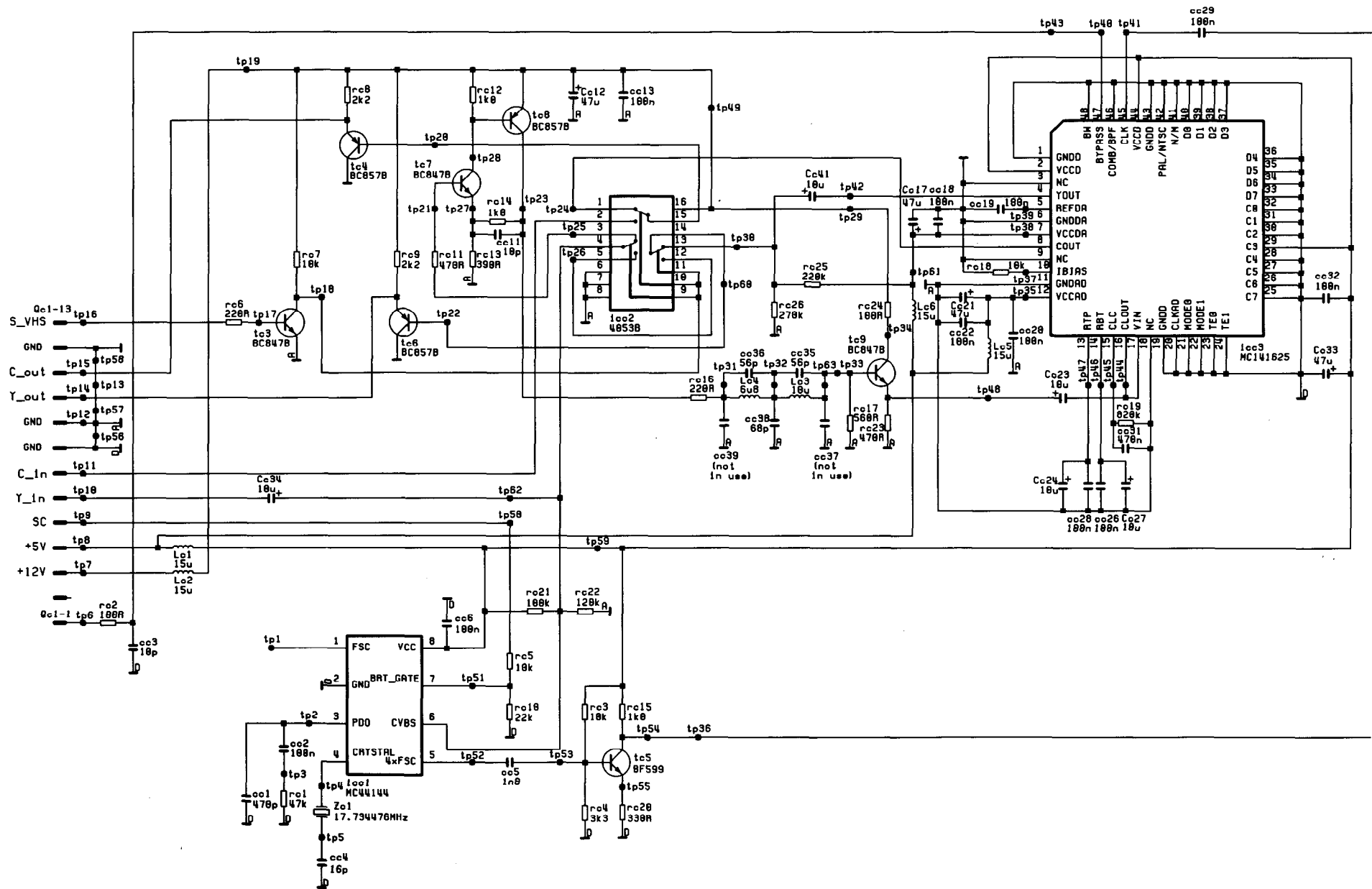
1. Apply a CCIR B/G standard (FM modulated sound) test signal.
2. Connect a universal voltmeter to ICL1 pin 13.
3. Adjust with LL1 the DC voltage for +3,7 V.

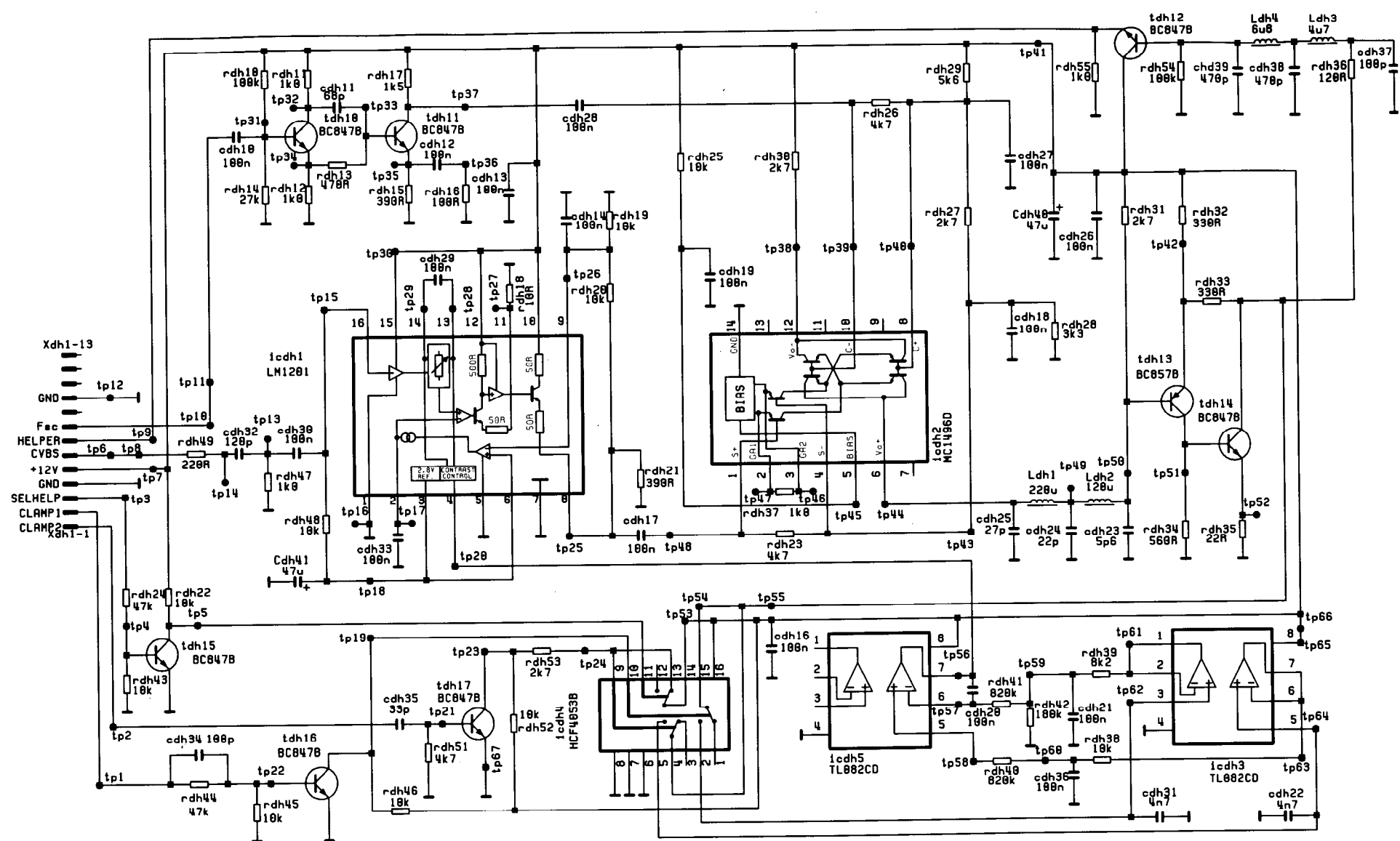


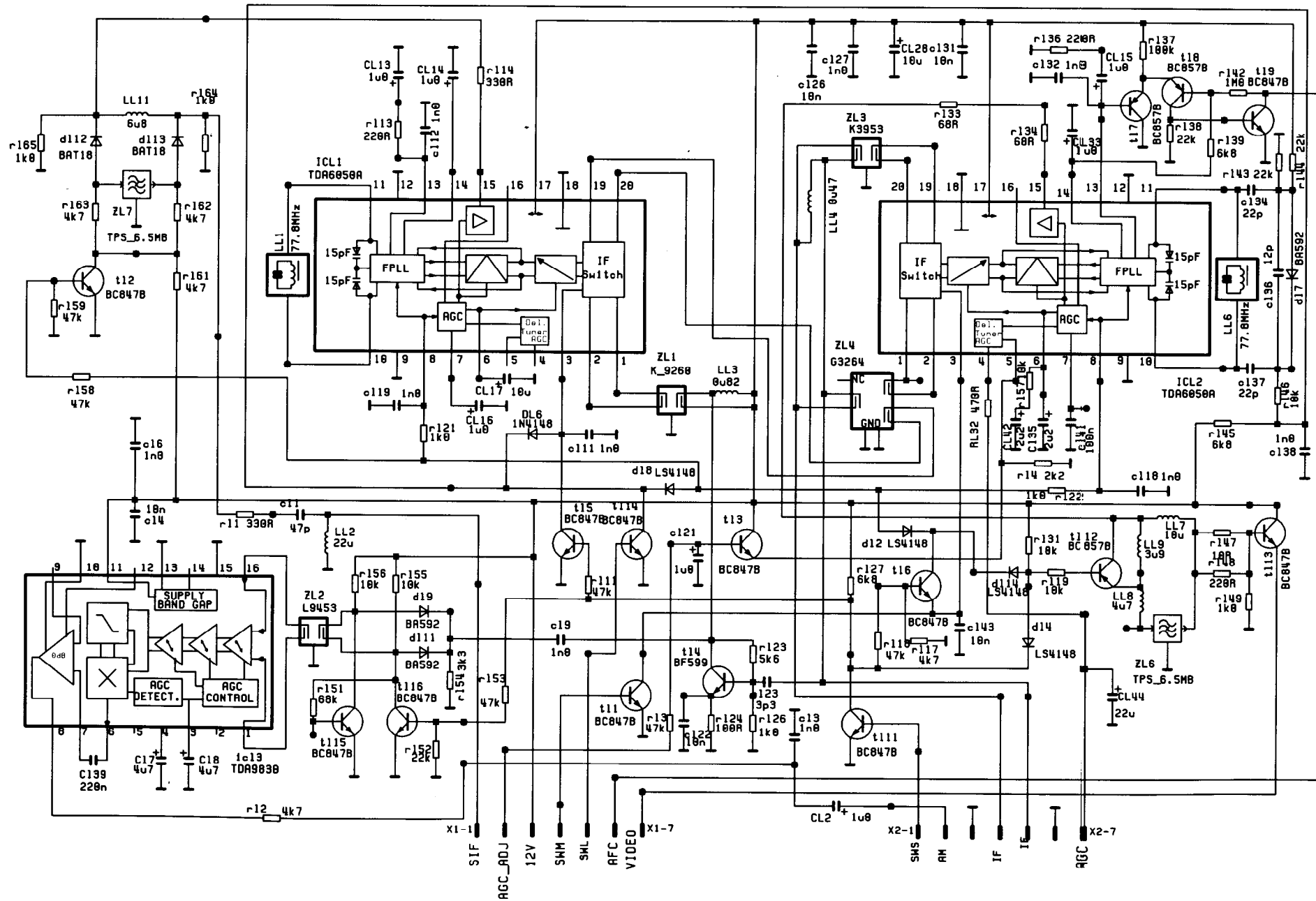
Note! Adjust the voltage with clamp pulse.

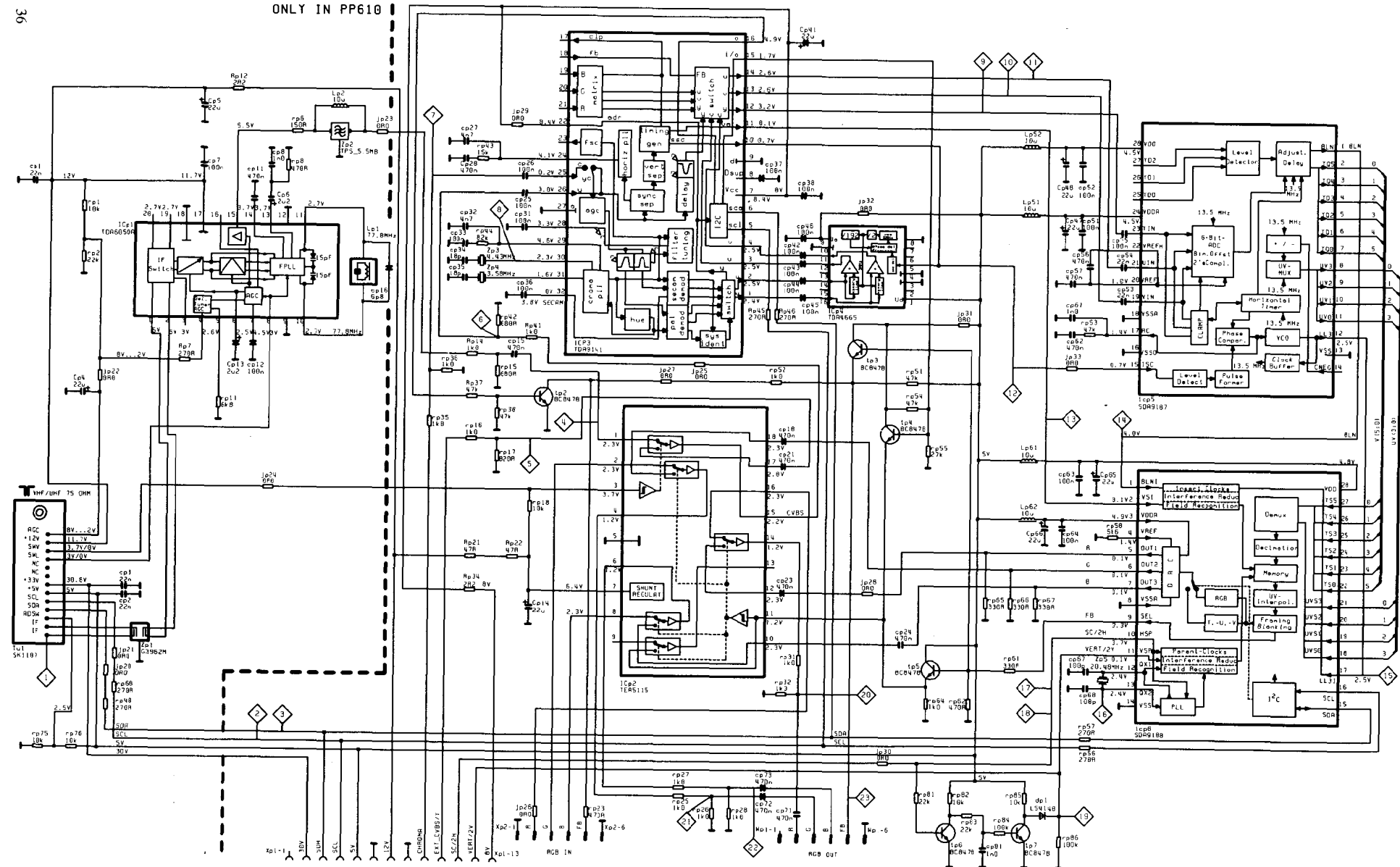




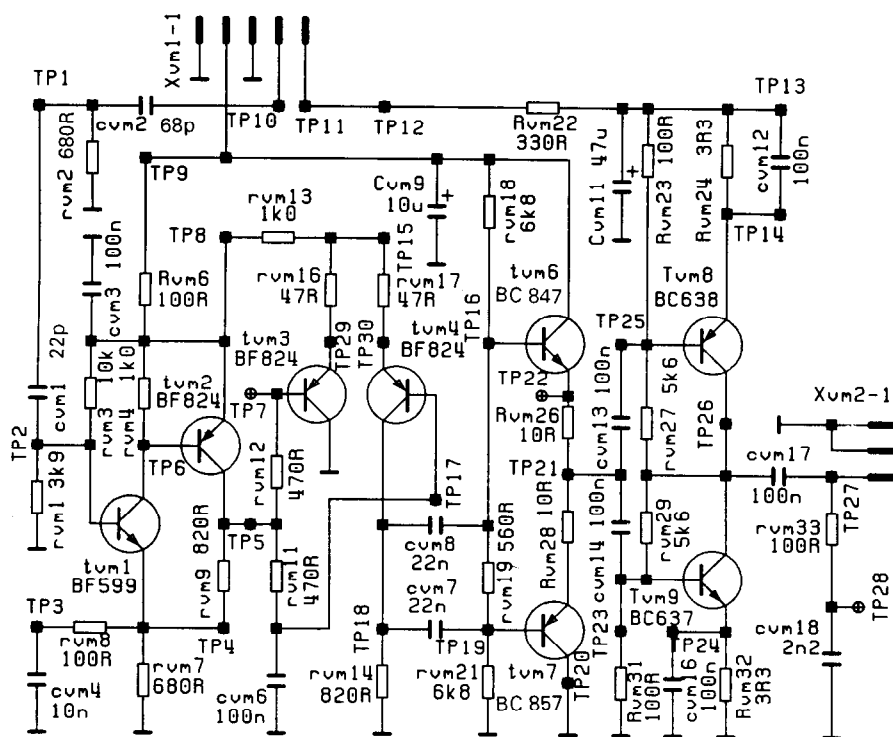








VM601 VELOCITY MODULE



VM601 VELOCITY MODULE

