

## General Information

**1993**  
**Chassis: C3SR**  
**CRT: A51KSV40X01 (21")**  
**Remote Control:**  
**23120267 (CT 9678)**  
**Door Flap: 23425453**  
**Main Power Button:**  
**23443736**

## Matrix

Item	See Model
NICAM Diagram	Toshiba 2939 DB

## Specifications

Input Power Rating	103 W, AC240V, 50Hz
Aerial Input Impedance	75 ohm unbalanced type for UHF
Receiving Channels	
PAL-I Standard	UHF 21 - 68
Intermediate Frequencies:	
Picture IF	39.5 MHz
Sound IF	33.5 MHz
Colour Sub-Carrier	35.07 MHz
Picture Tube	90 degree deflection (51cm)
Sound Output	5.0W x 2 (at 10% harmonic distortion)
Speakers	70mm x 60mm oval 2 pcs
Aux Terminals	21 pin socket (FULL), 21 pin socket (S-VIDEO/AV)

## Recommended Safety Parts

Item	Part No.	Description
C440	24095665	PF, 8700pF, $\pm 3\%$ , 1250V
C463	24212222	CD, 2200pF, $\pm 10\%$
C801	24082318	PF, 0.1 $\mu$ F, $\pm 20\%$ , AC250V
C802, C803	24094656	CD, 2200pF, $\pm 20\%$ , AC400V
C804	24082318	PF, 1 $\mu$ F, $\pm 20\%$ , AC250V
F801	23144473	Fuse, 5.0A
F803	23144875	Fuse, 0.63A
IC801	23904247	IC, STR-S6708
L462	23227245	Deflection Yolk, YS-58324
L901	23200205	Coil, Degaussing, TSB-2333AR
P801	23176897	Power Cord
Q404	23314375	Transistor, ON4409(508D)
Q826	A8643106	Photo Coupler, TLP621(GR)
Q827	A6907751	Transistor, S1854
R327	24339829	OMF, 8.2 OHM, 2W
R416	24510152	Cement, 1500 OHM, 5W
R444	24569150	Cement, 15 OHM, 10W
R448	24338338	OMF, 0.33 OHM, 1W
R801	24004914	CC, 5.6M OHM, 1/2W
R832	24546109	FR, 1.1 OHM, 1/2W
R864	24546479	FR, 4.7 OHM, 1/2W
R872	24569629	Cement, 6.2 OHM, 10W
R878	24531560	FR, 56 OHM, 1/2W
R884	24531120	FR, 12 OHM, 1/2W
R890	24000875	PTC Thermistor, 18 OHM, $\pm 20\%$ , 290V
R920	24000907	FR, 3.9 OHM, 1W
S801	23145434	Switch, Power, 2C2P
T401	23224983	Transformer Horiz. Drive, TLN1039

## Service Adjustments

## Safety Instructions

## X-Ray Radiation Precaution

1: The E.H.T. must be checked every time the receiver is serviced to ensure that the C.R.T. does not emit X-Ray radiation as result of excessive E.H.T. voltage. The nominal E.H.T. for this receiver is 27.5 kV at zero beam current (minimum brightness) operating at 240v a.c. The maximum E.H.T. voltage permissible in any operating circumstances must not exceed 29.0 kV. When checking the E.H.T. use the 'High Voltage Check' procedure in this manual using an accurate E.H.T. voltmeter.

2: The only source of X-Ray radiation in this receiver is the C.R.T. To prevent X-Ray radiation, the replacement C.R.T. must be identical to the original fitted as specified in the Parts List.

3: Some components used in this receiver have safety related characteristics preventing the C.R.T. from emitting X-Ray radiation.

## Installation and Service Adjustments

## Height Adjustment

- 1: Receive the UK PHILIPS pattern and set the contrast, colour and brightness to centre.
- 2: Adjust HEIGHT Control (R351) so that white blocks at top and bottom of the picture are just masked.

## Horizontal Centre Adjustment

- 1: Receive the UK PHILIPS pattern.
- 2: Set the contrast and colour and brightness to centre.
- 3: Adjust H. CENTRE USER Control (R452) so the pattern centre can be located at the screen centre.

## Focus Adjustment

Adjust FOCUS Control on FLYBACK TRANS (T461) for well defined scanning lines in the centre area on the screen.

## RF AGC Adjustment

- 1: Tune the set in the strongest station in your area.
- 2: Turn RF AGC Control (R151) on PIF Board to fully counterclockwise position.
- 3: Adjust RF AGC Control clockwise until noise (snow) just disappears on the screen.

## SIF FM DET (LD05) Adjustment (NICAM Board)

- 1: Connect SIF generator through 0.01  $\mu$ F capacitor to pin DI of PD01 on NICAM Board.
- 2: Connect the oscilloscope to pin 9 of ICG03.
- 3: Set up the SIF generator as described below.  
Sound carrier frequency: 6.0 MHz  
Modulation frequency: 1000 Hz  
Frequency deviation:  $\pm 15$  kHz  
Signal level: 100 dBm (50W load)
- 4: Adjust LD05 for the maximum response of 1000 Hz det-out on scope.

## APC VR (RD49) Adjustment (NICAM Board)

- 1: Supply +5v DC to +5v line of NICAM Board.
- 2: Connect SIF generator through 0.01mF capacitor to pin 7 of ICD01 on NICAM Board.
- 3: Connect frequency counter through 10:1 probe to TP of RD32.
- 4: Connect pin 13 of ICD01 through 10 $\mu$ F capacitor to ground.
- 5: Connect pin 4 of ICD01 to ground.
- 6: Set up SIF generator as described below.  
Sound carrier frequency: 6.5 MHz  
Signal level: 200 mV
- 7: Adjust RD49 for the frequency reading of 6.552 MHz on the counter.

## PAL Matrix Adjustment

- 1: Tune in the colour programme of the Philips pattern.
- 2: Set the COLOUR Control to obtain the proper colour.
- 3: If the PAL MATRIX adjustment is incorrect, the Venetian Blind would appear in the colour bars area. This case needs adjustment.
- 4: At the first, adjust DL PHASE ADJ. Coil (L551) to minimise the Venetian Blind.
- 5: Next adjust 1H-DL ADJ. VR (R551) to minimise the Blind.
- 6: If the Venetian Blind still remains, adjust 1H-DL PHASE ADJ. Coil (L551) to minimise the Blind again.
- 7: Repeat the item 5 and 6 procedures, adjust the R551 and L551 until the Blind does not appear.

## C.R.T. Grey Scale Adjustment

- 1: Tune in an active channel.
- 2: Set the SERVICE SW. (S202) in the "H LINE" position.
- 3: Turn the SCREEN Control (on T461) fully counterclockwise.
- 4: By rotating the RED, GREEN and BLUE CUT OFF Controls (R557, R558, R559) to the mid position.
- 5: Set the GREEN and BLUE DRIVE Controls (R252, R253) to the centre.
- 6: Rotate the SCREEN Control gradually clockwise until the first line appears slightly on the screen.  
Set the SCREEN Control to this position.

## Recommended Safety Parts Cont'd.

Item	Part No.	Description
T461	23236448	Transformer, Flyback, TFB4116AR
T801	23211644	Line Filter, TRF3118G
T803	23217204	Transformer, Converter, TPW3280AR
V901	A5385239	Picture Tube, A51KSV40X(M), SVC
V901A	23902067	Socket CRT, 10P
ZP31	23144452	Protector, PRF1000
ZP81	23144451	Protector, PRF5000

- 7: Adjust the CUT OFF Controls to obtain the slightly lighted horizontal lines in the same levels of three colours (RED, GREEN and BLUE)
- 8: Set the SERVICE SW. (S202) in the "RECEIVE" position.
- 9: Set the CONTRAST and COLOUR Controls to minimum, and BRIGHTNESS Control to maximum.
- 10: Adjust the BLUE and GREEN DRIVE Controls (R252/R253) to obtain proper white-balanced picture in high light areas.
- 11: Set the BRIGHTNESS and CONTRAST Controls to obtain dark grey raster. Then check the white balance in low brightness. If the white balance is not proper, retouch the CUT OFF Controls and DRIVE Controls to obtain a good white balance in both low and high light areas.

## Sub-Brightness Adjustment

- 1: Tune in a colour programme.
- 2: Set the CONTRAST Control to the minimum and the BRIGHTNESS Control to the centre.
- 3: Set the COLOUR Control to the centre.
- 4: Set the SUB-BRIGHT. Control (R255) to the centre and leave the receiver for five minutes in this state.
- 5: Watching the picture well, adjust the SUB-BRIGHT. Control in the position where the picture does not show evidence of blooming in high bright area and not appear too dark in low bright portion.
- 6: Check the proper picture variation by rotating the CONTRAST and BRIGHTNESS Controls to both extremes.
- 7: If the picture does not appear dark with the CONTRAST and BRIGHTNESS Controls turned to the minimum, or not appear bright with the controls turned to the maximum, adjust the SUB-BRIGHT. Control again for the acceptable picture.

## Picture I-F Sweep Alignment

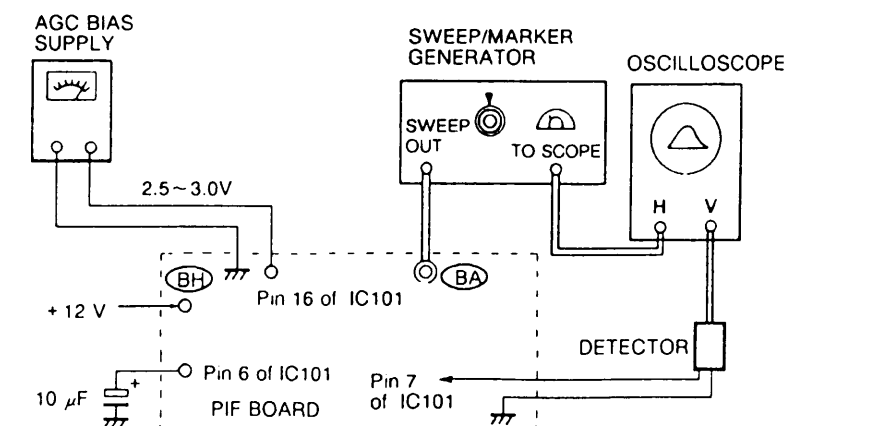


Fig 1.

## General:

Refer to fig. 1 for test equipment connection.

## Preliminary Steps:

- 1: Supply +12v to the PIF Board.
- 2: Supply dc 2.5 ~ 3.0v to pin 16 of IC101.
- 3: Connect pin 6 of IC101 to ground through capacitor 10  $\mu$ F

## Sweep/Marker Generator:

Connect to pin BA of PIF Board as shown in fig. 1. Set to 30 ~ 45 MHz sweep with signal level of 80 ~ 90 dB $\mu$ .

## Oscilloscope:

Connect to pin 7 of IC101 on the PIF Board through detector (See fig 1.).

## Step:

39.5MHz VCO Coil

## Sweep/Marker Generator:

39.5MHz Marker "ON"

## Adjust:

L151

## Remarks:

Adjust L151 so that the marker (39.5 MHz) on the response can get zero beat with VCO frequency. (See fig 2.)

Remove the capacitor 10 $\mu$ F on pin 6 of IC101.

After completing the above step, disconnect the equipment and resolder the solder links, and adjust the RF AGC control (R151) following RF AGC ADJUSTMENTS.

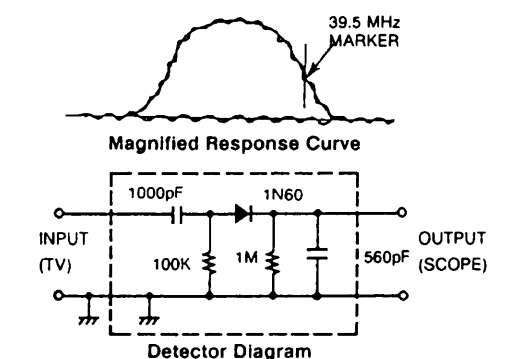
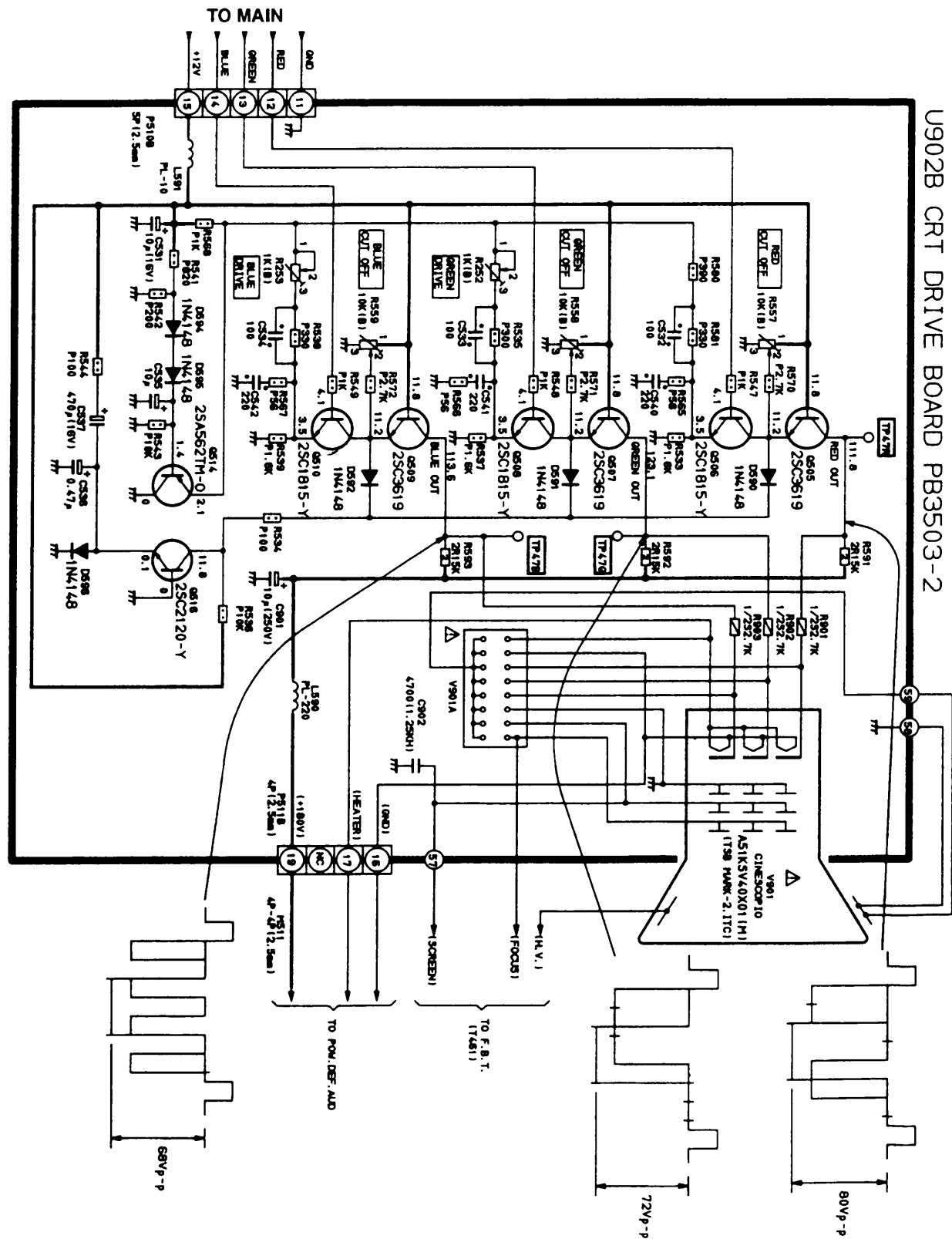


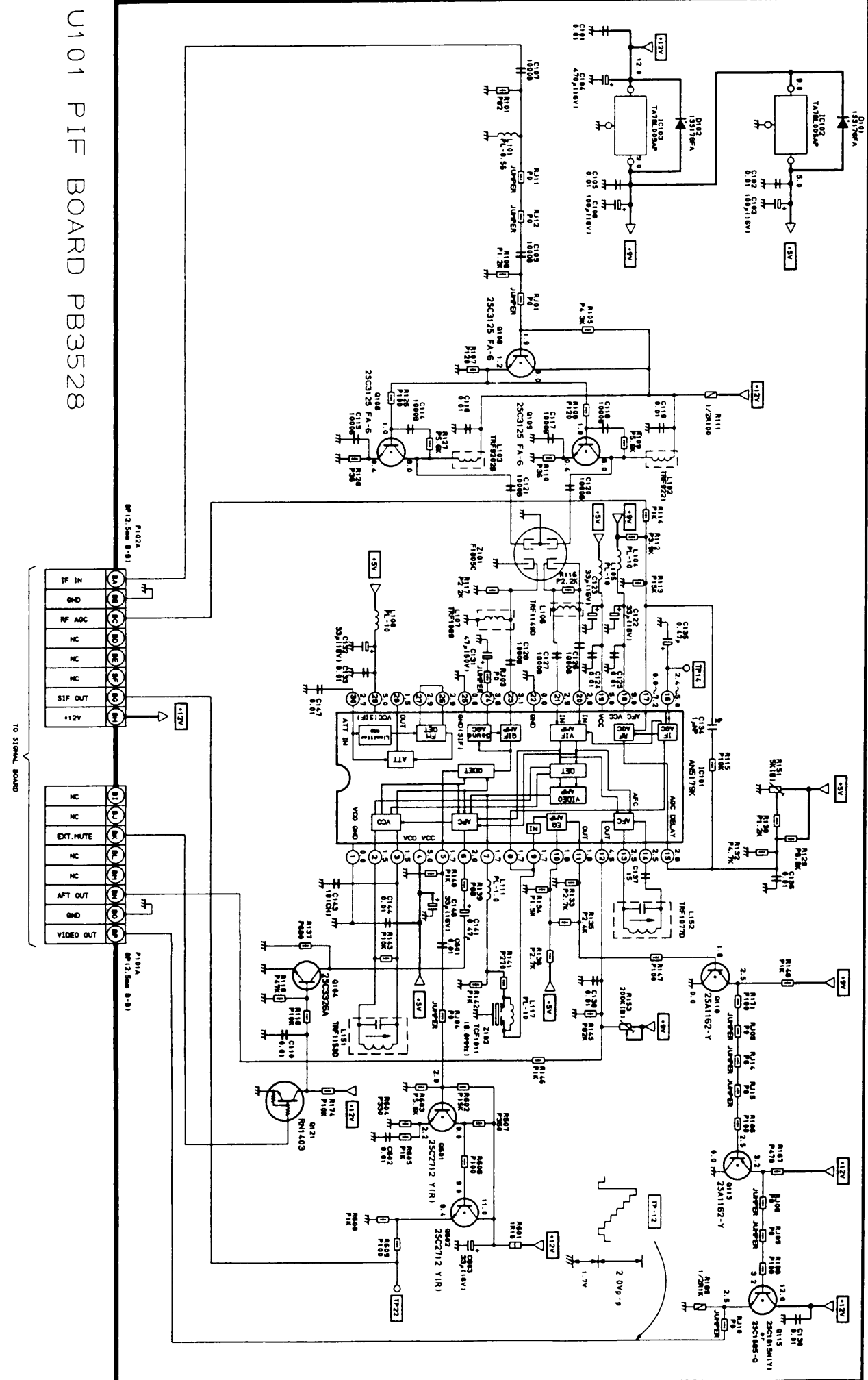
Fig 2.

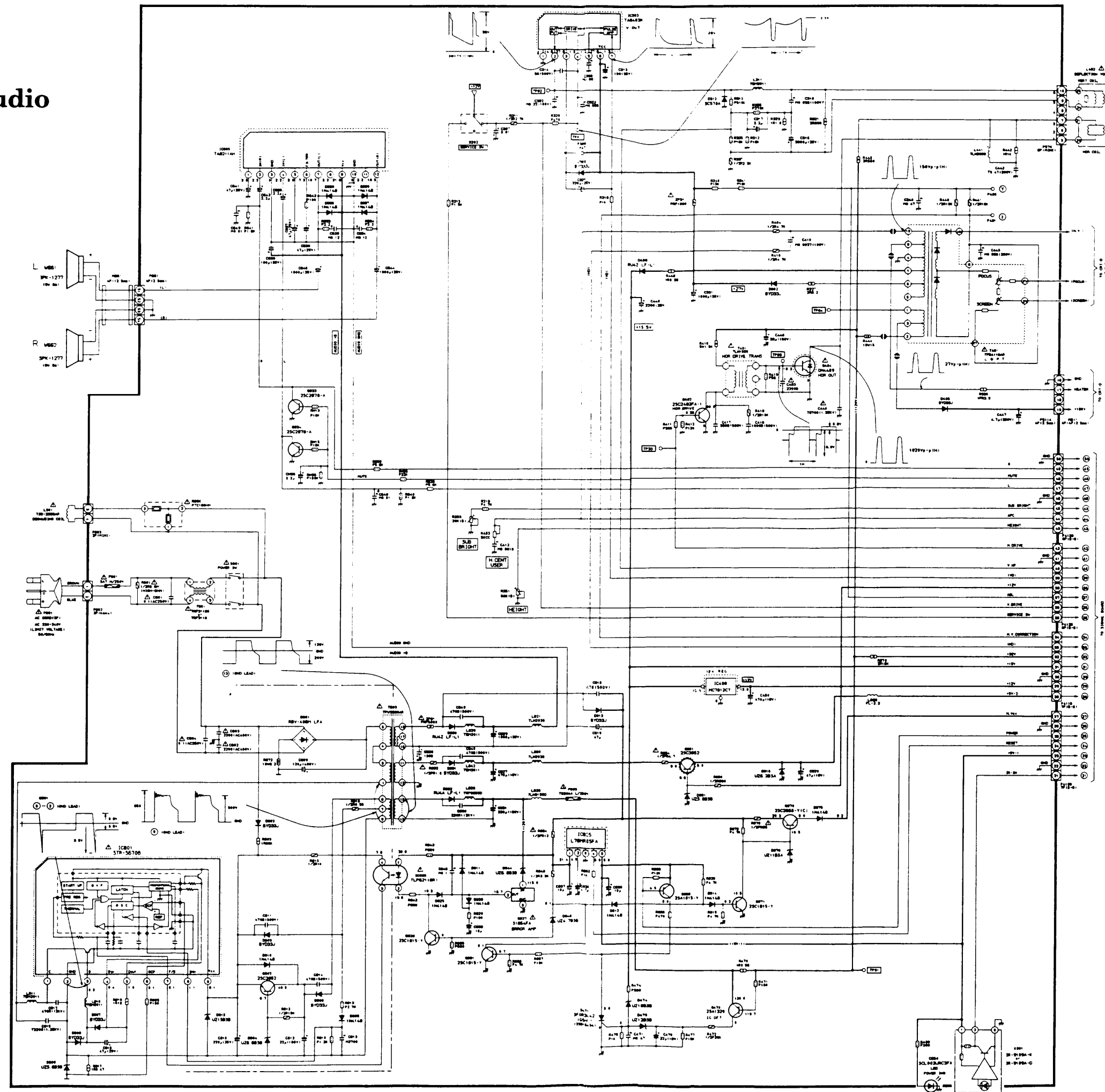
## PIF Diagram

### CRT Diagram

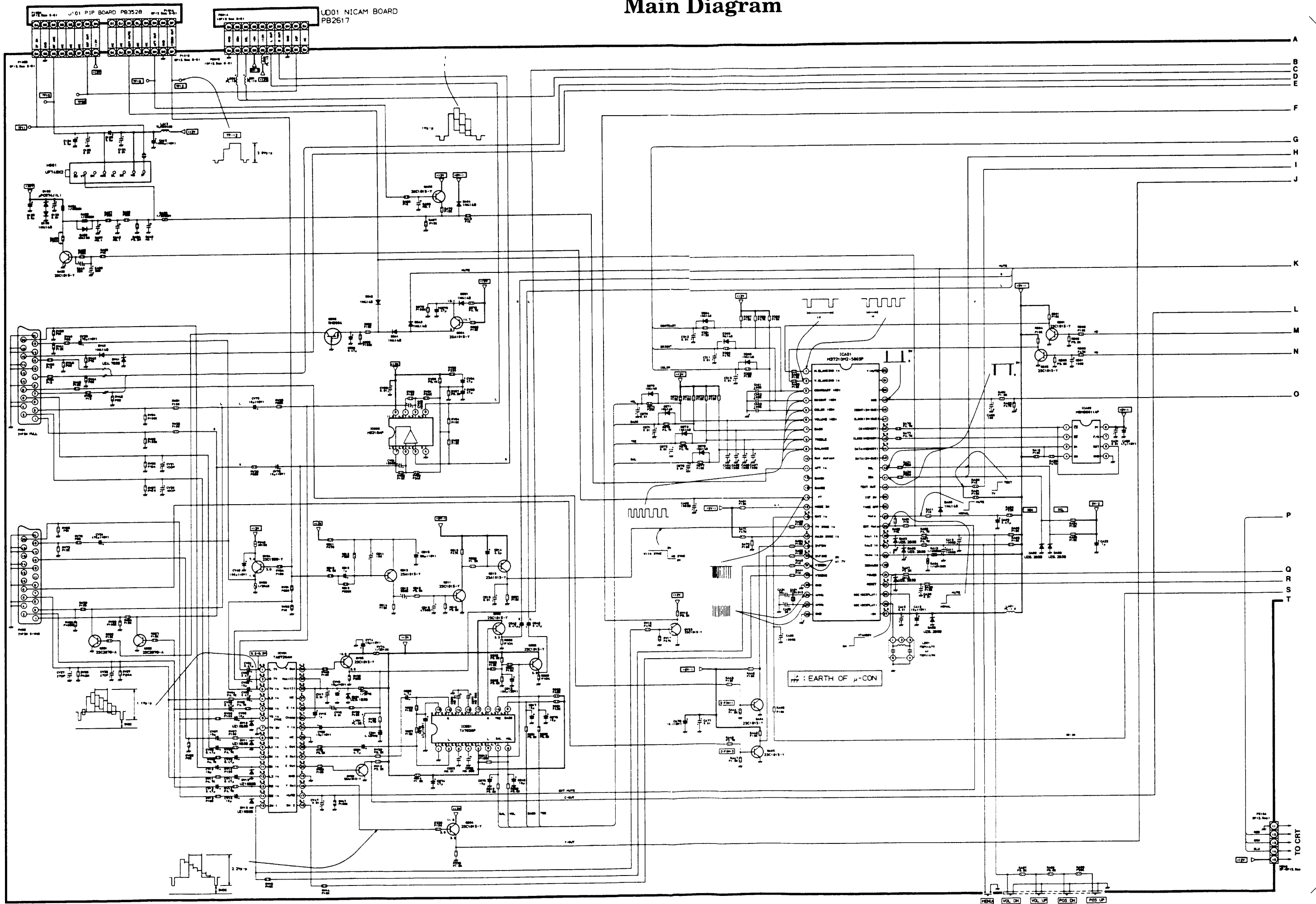


## PIF Diagram



Power Def Audio  
Diagram

## Main Diagram



Continued at 1

### Main Diagram Cont'd.

