

General Information

1993

Covers Models:

Toshiba 2539 DB

Toshiba 3339 DB

Chassis: C2BD

CRT's:

2939 DB - A68KLF96X02

3339 DB - A80EBK221X11

Remote Control:

23120100 (CT 9626)

Door Flaps:

2939 DB - 23425740

3339 DB - 23425771

Main Power Buttons:

2939 DB - 23443913

3339 DB - 23443818

Specifications

Input Power Rating	
2939 DB	179W, AC240V, 50Hz
3339 DB	185W, AC240V, 50Hz
2539 DB	169W, AC240V, 50Hz
Aerial Input Impedance 75 ohm unbalanced type for UHF	
Receiving Channels	
PAL-I Standard UHF 21 - 69	
Intermediate Frequencies:	
Picture IF	39.5 MHz
Sound IF	33.5 MHz
Colour Sub-Carrier	35.07 MHz
Picture Tube:	
2939 DB	110 degree deflection (68cm)
3339 DB	110 degree deflection (80cm)
2539 DB	110 degree deflection (59cm)
Sound Output 10.0W x 2. 13W (woofer) or 10W (centre speaker), 5W x 2 (Surround)	
Speakers 120mm x 60mm oval 2 pcs. 50mm x 50mm (Tweeter) 2 pcs. 100mm x 100mm (Woofer), 80mm x 80mm (Surround) 2 pcs. 80mm x 80mm (Centre) 2 pcs	
Aux Terminals Headhone Jack, 21 pin sockets, S-VIDEO/AUDIO INPUT sockets, Monitor OUTPUT sockets, External speaker terminals	
Features Video input of PAL 3.58N, 4.43N, Teletext reception, Digital Stereo system, Dolby PRO. LOGIC surround system, ON/OFF timer	

Recommended Safety Parts

Item	Part No.	Description
C423	24095757	PF, 0.54 μ F, 200V (2939DB)
C423	24095786	PF, 0.34 μ F, 400V (3339DB)
C440	24082346	PF, 6600pF, \pm 3%, 1500V (2939DB)
C440	24082352	PF, 7500pF, \pm 3%, 1500V (3339DB)
C463	24212222	CD, 2200pF, \pm 10%
C801, C804	24098999	PF, 1 μ F, \pm 20%, AC250V

Service Adjustments

Safety Instructions

X-Ray Radiation Precaution

- 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 a result of excessive E.H.T. voltage. The nominal E.H.T. for this receiver is 30.5kV 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 32.0 kV. When checking the E.H.T. use the 'High Voltage Check' procedure in this manual using an accurate E.H.T. voltmeter.
- 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.
- Some components used in this receiver have safety related characteristics preventing the C.R.T. from emitting X-ray radiation.

For continued safety, replacement component should only be made after referring to the Product Safety Notice.

Safety Precaution

- This receiver has a nominal working E.H.T. voltage of 28.5kV. Extreme caution should be exercised when working on the receiver with the back removed. Do not attempt to service this receiver if you are not conversant with the precautions and procedures for working on high voltage equipment. When handling or working on the C.R.T., always discharge the anode to the receiver chassis before removing the anode cap. The C.R.T., if broken, will violently expel glass fragments. Use shatterproof goggles and take extreme care while handling. Do not hold the C.R.T. by the neck as this is a very dangerous practice.
- It is essential that to maintain the safety of the customer all cable forms be replaced exactly as supplied from the factory.
- A small part of the chassis used in this receiver is, when operating, at approximately half mains potential at all times. It is therefore essential in the interest of safety that when serving or connecting any test equipment the receiver should be supplied via a suitable isolating transformer of adequate rating.
- Replace blown fuses within the receiver with the fuse specified in the parts list.

- When replacing wires or components to terminals or tags, wind the leads around the terminal before soldering. When replacing safety components identified by the international hazard symbols on the circuit diagram and parts list, it must be a Toshiba approved type and must be mounted as the original.
- Keep wires away from high temperature components.

Product Safety Notice

Many electrical and mechanical components in this chassis have special safety-related characteristics. These characteristics are often passed unnoticed by a visual inspection and the X-ray radiation protection afforded by them cannot necessarily be obtained by using replacements rated at higher voltages or wattage, etc. Components which have these special safety characteristics in this manual and its supplements are identified by the international hazard symbols on the schematic diagram and parts list. Before replacing any of these components read the part list in this manual carefully. Substitute replacement components which do not have the same safety characteristics as specified in the parts list may create X-ray radiation.

Installation and Service Adjustments

General Information

All adjustments are thoroughly checked and corrected when the receiver leaves the factory. Therefore the receiver should operate normally and produce proper colour and B/W pictures upon installation. However, several minor adjustments may be required depending upon the particular location in which the receiver is operated. This receiver is shipped completely in

cardboard carton. Carefully draw out the receiver from the carton and remove all packing materials. Plug the power cord into a convenient 240v 50 Hz AC two pin power outlet. Turn the receiver ON. Check and adjust all the customer controls such as BRIGHTNESS, CONTRAST and COLOUR Controls to obtain natural colour or B/W picture.

Automatic Degaussing

A degaussing coil is mounted around the picture tube so that external degaussing after moving the receiver is normally unnecessary, providing the receiver is properly degaussed upon installation. The degaussing coil operates for about one second after the power to the receiver is switched ON. If the set is moved or faced in a different direction, the power switch must be switched off for at least one hour in order that the automatic degaussing circuit operates properly. Should the chassis or parts of the cabinet become magnetised to cause poor colour purity, use an external degaussing coil. Slowly move the degaussing coil around the faceplate of the picture tube, the sides and front of the receiver and slowly withdraw the coil to about 2m before disconnecting it from AC source. If colour shading still persists, perform the COLOUR PURITY ADJUSTMENT and CONVERGENCE ADJUSTMENTS procedures.

High Voltage Check

Caution: There is no HIGH VOLTAGE ADJUSTMENT on this chassis.

- Connect an accurate high voltage meter to the second anode of the picture tube.
- Turn on the receiver. Set the BRIGHTNESS and CONTRAST Controls to the minimum (zero beam current).
- High voltage will be measured below 32.0 kV.

- Rotate the BRIGHTNESS Control to both extremes to be sure the high voltage does not exceed the limit of 32.0kV under any conditions.

Height Adjustment

- Receive the WG PHILIPS pattern and set the contrast, colour and brightness to centre.
- Change the Sub Address VPS so the round shape in the pattern is located in the centre of screen.
- Adjust the Sub Address HIT so that white blocks at top and bottom of the picture are just masked.

Horizontal Centre Adjustment

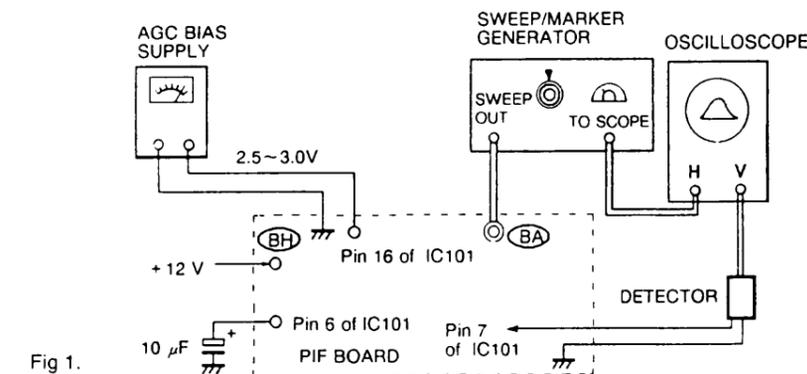
- Receive the WG PHILIPS pattern.
- Set the contrast and colour and brightness to centre.
- Adjust Sub Address HPS so the pattern centre can be located at the screen centre.

Focus Adjustment

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

RF AGC Adjustment

- Tune the set into the strongest station in your area.
- Turn RF AGC Control (R131) on PIF Board to fully counterclockwise position.
- Adjust RF AGC Control clockwise until noise (snow) just disappears on the screen.



SIF FM DET (LD05) Adjustment

- Connect SIF generator through 0.01 μ F capacitor to pin DI of PD01 on NICAM Board.
- Connect the oscilloscope to pin 9 of ICG03.
- Set up the SIF generator as described below.

Sound carrier frequency: 6.0 MHz
Modulation frequency: 1000 Hz
Frequency deviation: \pm 15k Hz
Signal level: 100 dBm (50 ohm load).

- Adjust LG04 for the maximum response of 1000 Hz det-out on scope.

PAL Matrix Adjustment

- Tune in the colour programme of the Phillips pattern.
- Set the COLOUR Control to obtain the proper colour.

- If the PAL MATRIX adjustment is incorrect, the Venetian Blind would appear in the colour bars area. This case needs adjustment.
- At the first, adjust DL PHASE ADJ. Coil (L551) to minimise the Venetian Blind.
- Next adjust 1H-DL ADJ. VR (R551) to minimise the Blind.
- If the Venetian Blind still remains, adjust 1H-DL PHASE ADJ. Coil (L551) to minimise the Blind again.
- Repeat the item 5 and 6 procedures, adjust the R551 and L551 until the Blind does not appear.

Picture I-F Sweep Alignment

General:

Refer to fig. 1 for test equipment connection.

Preliminary Steps:

- Supply +12 volts to the PIF Board.
- Supply dc 2.5 - 3.0v to pin 16 of IC101.
- Connect pin 6 of IC101 to ground through capacitor 10 mF.

Sweep/Marker Generator:

Connect to pin BA of PIF Board as shown in fig. 1.
Set to 30 - 40 MHz sweep with signal level of 75 - 80 dBm.

Oscilloscope:

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

Step:

39.5 MHz VCO Coil

Sweep/Marker Generator:

39.5 MHz Marker "ON"

Adjust:

L113

Remarks:

Adjust L113 so that the marker (39.5 MHz) on the response can get zero beat with free-run frequency. (see fig. 2 on next page).
Remove the capacitor 10mF on pin 6 of IC101. After completing the above step, disconnect the equipment and re-solder the solder links, and adjust the RF AGC control (R131) following RF AGC ADJUSTMENTS.

Recommended Safety Parts Cont'd.

Item	Part No.	Description
C802, C803	24094655	CD, 100pF, \pm 20%, AC400V
F801, F802	23144898	Fuse, 3.15A
F803	23144873	Fuse, 1.0A, 250V
L462	23231022	Deflection Yoke, TY-29KC4A (2939DB)
L462		DY, Supplied with V901 (3339DB)
L901	23200211	Coil, Degaussing, TSB-2337AR (2939DB)
L901	23200215	Coil, Degaussing, TSB-2340AR (3339DB)
P801	23176934	Power Cord
Q404	A6872801	Transistor, 2SD2253
Q826	A8643106	Photo Coupler, TLP621(GR)
Q829	A864106	Photo Coupler, TLP621(GR)
R327	24000577	FR, 5.6 ohm, 1W (2939DB)
R327	24000189	FR, 4.7 ohm, 1W, (3339DB)
R448	24323338	OMF, 0.33 ohm, 2W
R801	24004914	Metal Glazed Resistor, 5.6M ohm, 1/2W
R890	24000875	PTC, Thermistor, 18 ohm, \pm 20%, 290V
S801	23145434	Switch, Power, 2C2P
T401	23224336	Transformer, Horiz. Drive, TLN1083
T461	23236447	Transformer, Flyback, TFB4115AR
T801	23211891	Line Filter, TRF3164
T802	23211928	Line Filter, TRF3129
T803	23217165	Transformer, Converter, 10006180
V901	A5596039	Picture Tube, A68KLF96X(K), SVC (2939DB)
V901	23312479	Picture Tube, A80EBK221X11 (3339DB)
V901A	23902067	Socket, CRT, 10P

Service Adjustments Cont'd.

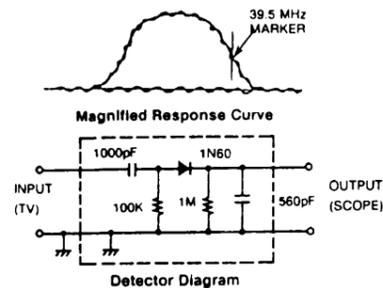


Fig 2.

AFC Alignment

General:
Refer to fig. 3 for test equipment connection.

Preliminary Steps:

1: Supply +12 volts to the PIF Board.

DVM:

Connect to the pin BN of P101A on PIF Board and ground.

- Controls (R252, R253) to the centre.
- Set the "CUT OFF" (No Vertical Deflection) MODE" by RMT H.H.U. (F + 2 KEY)
 - Rotate the SCREEN Control gradually clockwise until the first line appears slightly on the screen.
Set the SCREEN Control to this position.
 - Adjust the CUT OFF Controls to obtain the slightly lighted horizontal lines in the same levels of three colours (RED, GREEN and BLUE)
The lines may look like white if the CUT OFF Controls are adjusted properly.
 - Release the "CUT OFF MODE" by RMT H.H.U. (F + 2 key)
 - Set the CONTRAST and COLOUR Controls to minimum, and BRIGHTNESS Control to maximum.
 - Adjust the BLUE and GREEN DRIVE Controls (R252/R253) to obtain proper white-balanced picture in high light areas.
 - 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.

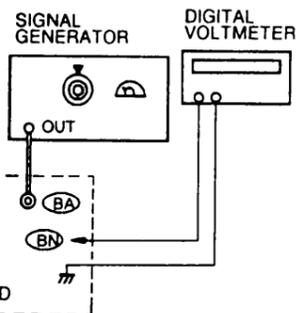


Fig 3.

Step 1:
Signal Generator: NO SIGNAL
Adjust: R144
Remarks: * Connect pin 16 of IC101 to ground
* Connect DVM to pin BN of P101A on PIF Board.
* Adjust R144 for 4.5 volts reading on meter.

Step 2:
Signal Generator: AFC Coil (L109)
Signal Generator: 39.5 MHz CARRIER WAVE (Level: 75 to 85dBm)
L109
Adjust: L109
Remarks: * Remove the short of pin 16 of IC101.
* Connect IF carrier wave to the pin BN of P102A.
* Connect DVM to pin BN of P102A.
* Adjust L152 for 4.5 volts on the meter.

C.R.T. Grey Scale Adjustment

- Tune in an active channel.
- Set "SERVICE MODE" by RMT H.H.U. (F + 1, 0, 4, 8)
- Turn the SCREEN Control (on T461) fully counterclockwise.
- By rotating the RED, GREEN and BLUE CUT OFF Controls (R557, R558, R559) to the mid position.
- Set the GREEN and BLUE DRIVE

13: Exit from the "SERVICE MODE" by turning the power ON/OFF with RMT H.H.U.

Sub-Brightness Adjustment

- Tune in a colour programme.
- Set the "SERVICE MODE" by RMT H.H.U.
- Set the CONTRAST Control to the minimum and the BRIGHTNESS Control to the centre.
- Set the COLOUR Control to the minimum.
- Select the "SUB" symbol (F + [SUB] key (item UP), F + [SUB] key (item DN)) and adjust the level to the centre by LEVEL key of RMT H.H.U. and leave the TV for five minutes in this state.
- Watching the picture well, adjust the SUB-BRIGHT. Control in the position (same method as in step no. 5) where the picture does not show evidence of blooming in high bright area and not appear too dark in low bright portion.
- Check the proper picture variation by rotating the CONTRAST and BRIGHTNESS Controls to both extremes.
- 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.
- Exit from the "SERVICE MODE" by turning the power ON/OFF with the RMT H.H.U.

Adjustment Method for Servicing

Outline

Since each IC used is of 1°C bus control type, readjustment of the TVs also needs adjustment through 1°C bus control. In the service mode, sub-bright, deflection system sub-adjustments, picture system sub-adjustments can be made easily with user remote control unit.

Service Mode Operation

How to enter the service mode:

How to exit from the service mode:

Exit the service mode by turning the power on/off with the remote control.

Adjustment in the Service Mode

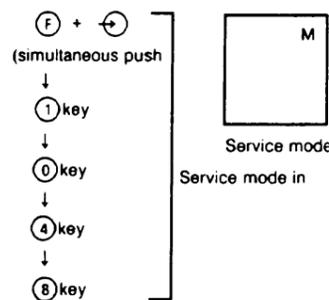


Fig 4.

Service mode level adjustments:

- Push F + [UP] key (simultaneous push) (item UP), or F + [DN] key (simultaneous push) (item DN) to select item to be adjusted.
- Adjust with the level UP/DN (VOL UP/DN key) key.

Other service mode adjustments

F + 2 key (simultaneous push) cut off: (NO VERTICAL DEFLECTION) ON/OFF.

Self Check

- Indicates sync signal and acknowledgement of each IC.
- Examples of display on screen.

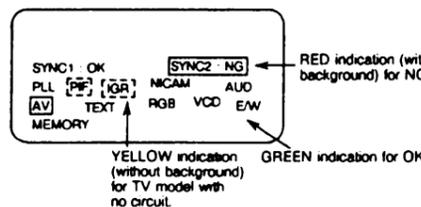
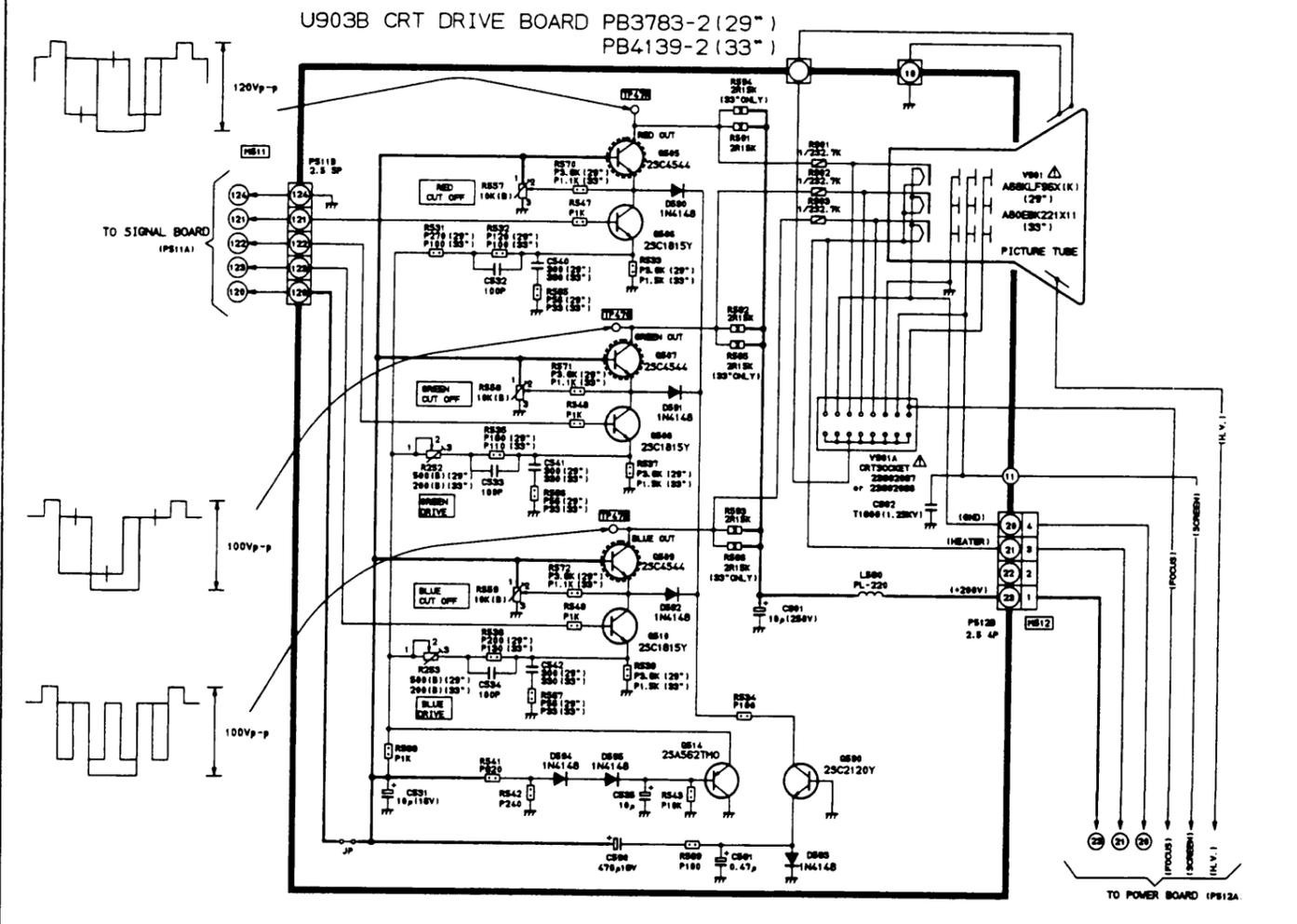


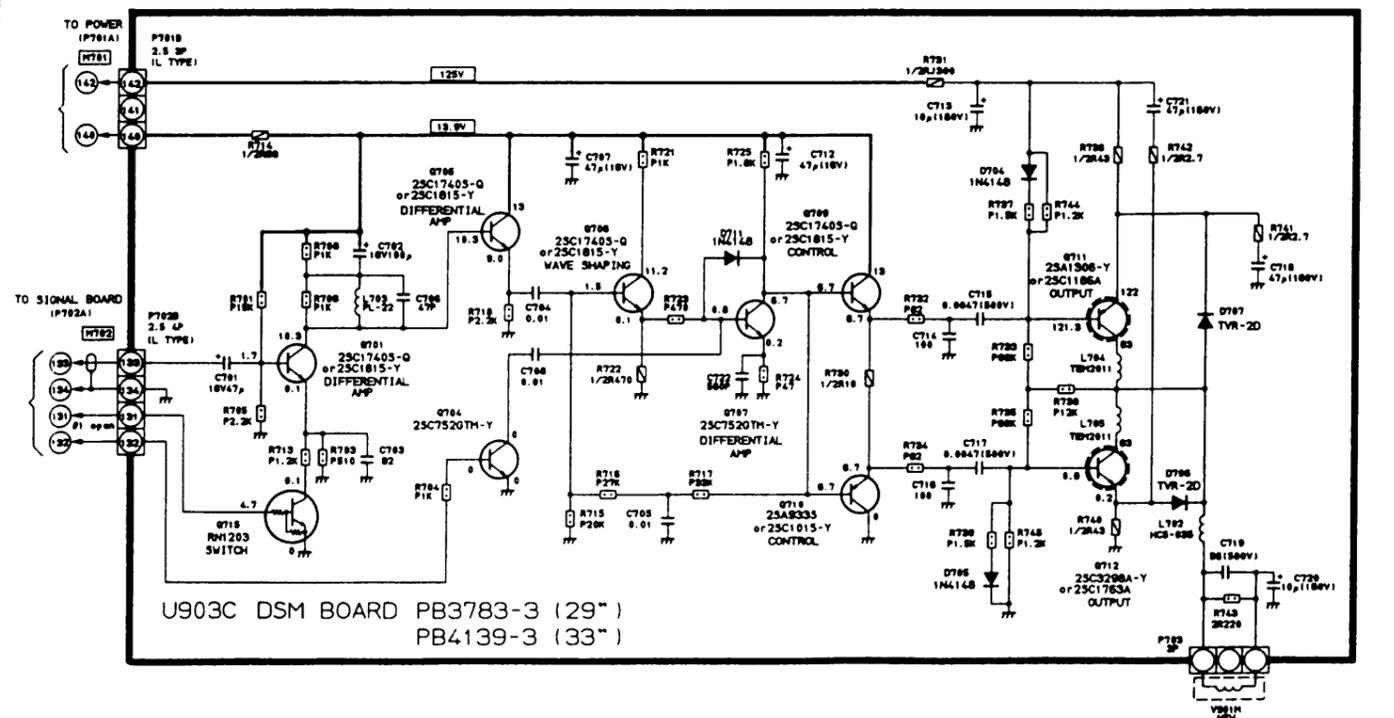
Fig 5.

- Operation:
1: TV gets into service mode with key operation;
2: TV indicates screen with F + 4 key.

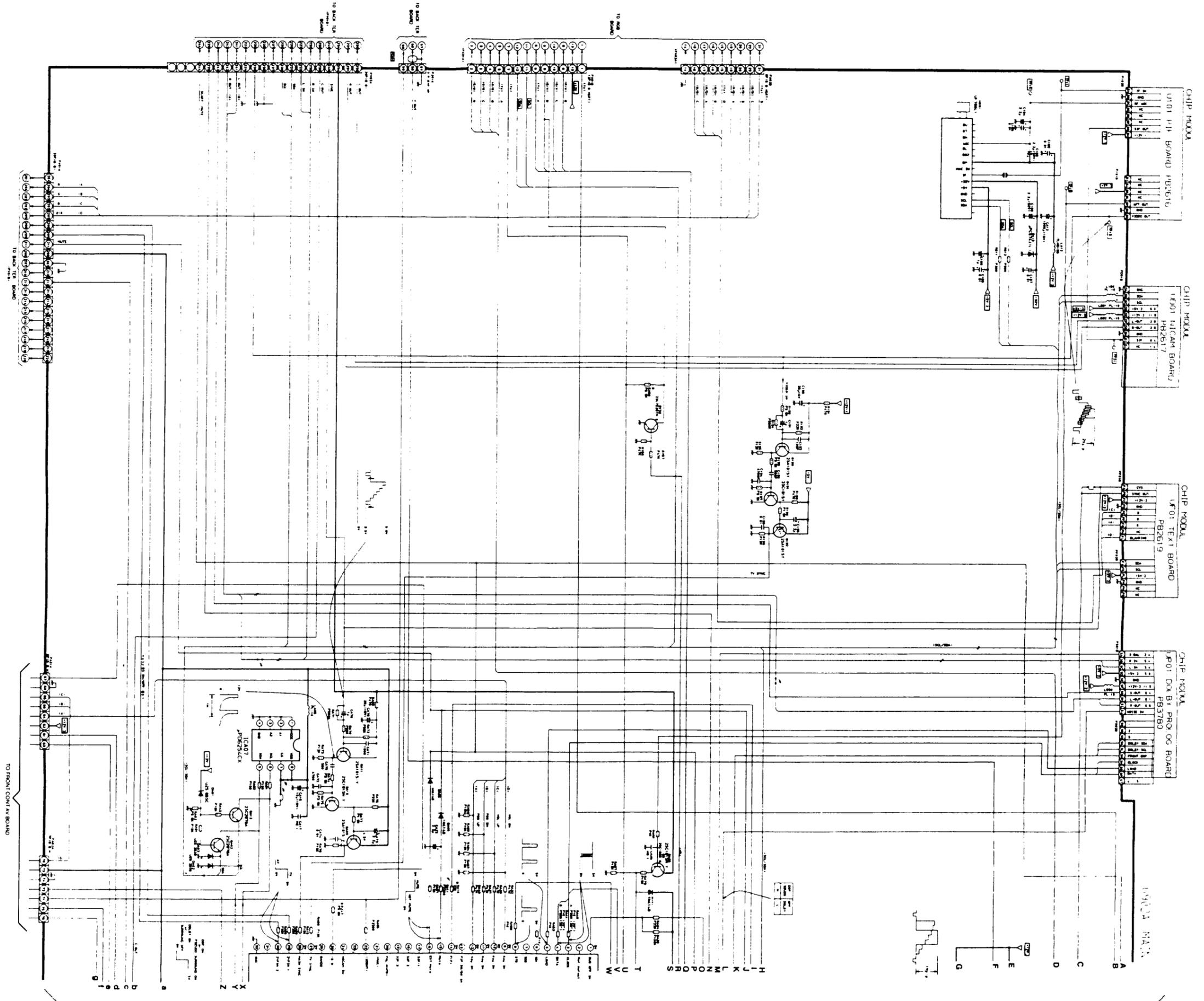
CRT Diagram



DSM Diagram



Main Diagram



Main Diagram Cont'd.

