

General Information

1993

Chassis: JX II

CRT: A51ECQ10X01

Remote Control:

RM-C861C-E

Main Power Button:

CM35753-B01-E

Door Flap: CM22650-A01-E

Door Latch: CM45436-00A

Battery Cover:

2R-C0082-03#01

Specifications

Type:	Colour Television
TV RF System:	CCIR 1
Colour System:	PAL
Stereo System:	NICAM (1 system)
TEXT System:	FLOF (UK system)
No. of Program Channel:	00 (AV), 01 - 99
Receiving Channel & Frequency:	Channel: UHF 21 - 69 Ch Frequency: 470 MHz - 862 MHz
Intermediate Frequency:	V. IF = 39.5 MHz, S. IF = 33.5 MHz
Colour Sub Carrier:	4.43 MHz
Aerial Input Impedance:	75 W unbalanced
Power Input:	AC 220 240V, 50 Hz
Power Consumption:	110W
Picture Tube:	51cm diagonally measured, FST (Flat Square Tube)
High Voltage:	28kV $\pm$ 1kV (at zero beam current)
Audio Power Output:	Music Power: 15w + 15w
Speaker:	10cm round x 2
Connection Terminal:	
EXT 1:	21 pin Euroconnector (SCART)
EXT 2:	21 pin Euroconnector (SCART)
EXT 3:	S- video input 4 pin DIN Audio inputs 2x RCA
Speaker Terminals:	External speaker, impedance = 8 - 16 W
Accessories:	Remote control unit (RM-C861C-E) x1 "AA (R6)" size dry cell battery x 2

Recommended Safety Parts

Item	Part No.	Description
	CE41603-001	CRT Socket
1	A51ECQ10X01	Picture Tube Inc. DY, Magne, Wedge
11	QMP51G0-200JB	Power Cord
2	CELD018-003J2	Degaussing Coil L01
301	EAS-10P539K-G	Cone Speaker X 2
C1506	QFZ0117-7801S	MPP CAP. 7800 μ F 2000V $\pm$ 2.5%
C1507	QFM72DK-104M	M CAP. 0.1 μ F 200V K
C1509	QFZ0118-434S	MPP CAP. 0.43 μ F 25V Z
C2002	QFZ9022-104M	M $\bar{F}$ CAP. 0.1 μ F AC 250V M
C2007, C2008,		
C2009, C2010	QCZ9034-472A	C CAP. 4700p F AC 400V P
C2052	QCZ9036-332M	C CAP. 3300 p F AC 400V M
C2054	QCZ9036-471M	C CAP. 470 p F AC 400V K
C9902	QFZ9035-474M	MM CAP. 0.47 μ F
CP1901, CP591	ICP-N20-Y	I. C. Protector

Service Adjustments

Safety Precautions

- The design of this product contains special hardware and many circuits and components specially for safety purposes. For continued protection, no changes should be made to the original design unless authorised in writing from the manufacturer. Replacement parts must be identical to those used in the original circuits. Service should be performed by qualified personnel only.
- Alterations to the design or circuitry of the product should not be made. Any design alterations or additions will void the manufacturer's warranty and will further relive the manufacturer of responsibility for personal injury or property damage resulting therefrom.
- Many electrical and mechanical parts in the product have special safety-related characteristics. These characteristics are not evident from visual inspection nor can the protection afforded by them necessarily be obtained by using replacement components rated for higher voltage, wattage etc. Replacement parts which have these special safety characteristics are identified in the Parts List of the Service Manual. Electrical components having such features are identified by shading on the schematics and by ! on the Parts List. The use of a substitute replacement which does not have the same safety characteristics as the recommended replacement part may create shock, fire or other hazards.
- The leads in the products are routed and dresses with ties, clamps, tubings, barriers and the like to be separated from live parts, moving parts and/or sharp edges, for the prevention of electric shock and fire hazard. When service is required, the original lead routing and dress should be observed, and it should be confirmed that they have been returned to normal after re-assembling.

Warning:

- This equipment has been designed and manufactured to meet international safety standards.

- It is the legal responsibility of the repairer to ensure that these safety standards are maintained.
- Repairs must be made in accordance with the relevant safety standards.
- It is essential that safety critical components are replaced by approved parts.
- If mains voltage selector is provided, check setting for local voltage.

Caution:

- The parts marked ! are very important for safety. when replacing these parts, be sure to use specified ones to ensure safety and performance.
- The module circuit board is supplied together with the assembly, but the parts which do not have the drawing in this parts list, P. W. Board Ass'y and the Parts No. columns of which are filled with lines —, will not be supplied.
- As a rule, the resistors and capacitors which are indicated as shown in (NOTE 2) "How To Express Parts Numbers Of Standard Parts" are not shown in the list of the parts on the board. When ordering the service parts, confirm the resistance/rated power, capacitance/rated voltage, and type of the parts, then order by the part number indicated according to (NOTE 2).

Precautions for Work

- When servicing the monitor, place it on a stable surface so it will not fall.
- The AC plug or power cord can get caught under the TV during installation and so get damaged. Take sufficient care to avoid damage to the AC plug or power cord.

- This monitor is designed for 220 to 240V AC, 50 Hz. Never connect it to other power supplies.
- If any connectors or clamps are removed when the chassis is removed for servicing, reinstall them after servicing.
- When the chassis is removed for servicing, connectors or ground wires may come off. Before turning the power on, check they are connected correctly and they do not touch the chassis.
- Check the wires are clamped or fixed properly and do not contact any moving parts, heating parts, sharp edges or power supplies (high voltages).
- Since the following parts become hot, they must not contact electrolytic capacitors or wires.
Æ IC1441, Q1462, Q1541, IC1706, Q2001, D2031, IC6804, IC0703, and heat sinks.
- Since the Audio PWB Ass'y and AV Selector PWB Ass'y are installed upright, they may contact each other if the bracket is removed, avoid this when servicing.
- When the Power PWD Ass'y shield is removed, the ground wire may come into contact with another part.
- Before installing a fuse, check the fuse rating and the safety mark shown on the panel. When the fuse is installed, confirm that the fuse holder is fixed properly, and check the rating indication on the PWB Ass'y.
- Check as follows after servicing:

- Has any solder or have any removed screws been left in the set?
- Have all connectors, covers, shield cases, and screws been put back and secured or tightened?

- Are there any defects around repaired parts?
- Have dirt and dust been removed? A build up of dust can cause a malfunction due to moisture.

Service Adjustments

Tools and Fixtures for Adjustment

DC Voltmeter
Oscilloscope
Pattern Generator (PAL)

B1 Voltage Adjustment

Measuring Instrument:

Pattern Generator, Voltmeter

Test Point:

TP-B1, TP-E (Power board)

Adjustment Location:

R032 (B1 ADJ) [Power Board]

Description:

- Input a cross hatch signal.
- Connect the voltmeter between TP-B1 and TP-E and check that B1 voltage is $127 \pm 0.5V$ DC.
- If the voltage is incorrect, adjust R032 (B1 ADJ).

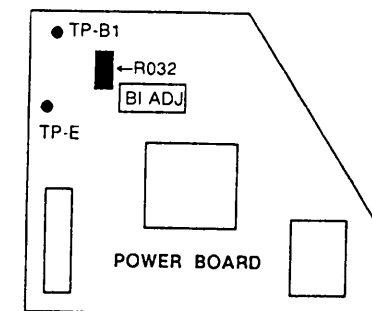


Fig 1.

Focus Adjustment

Measuring Instrument:

Pattern Generator

Adjustment Location:

Focus VR [Main Board]

Description:

- Input a cross hatch signal.
- Adjust the Focus VR for best overall picture focus.
- Check the picture remains in focus at all brightness levels.

Note: Set Focus VR to the left (toward low voltage) as much as possible.

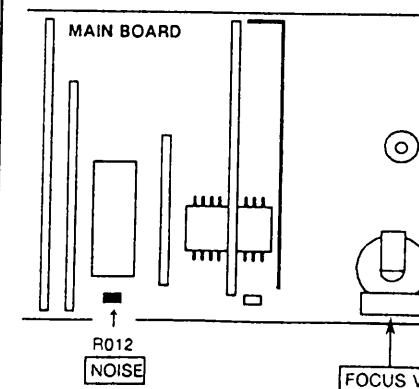


Fig 2.

Noise Adjustment

Adjustment Location:

R012 (Noise) [Main Board]

Description:

- Turn R012 (Noise) until noise is seen in the picture.
- Turn R012 in the opposite direction until the noise just disappears.
- Check for noise or overloading on all channels. If necessary, make a compromise adjustment.

Vertical Linearity, Vertical Centre, Vertical Height Adjustment

Measuring Instrument:

Pattern Generator

Adjustment Location:

R406 (V. Lin.), R412 (V. Height)

[Video Chroma Board]

S541 (V. Centre SW)

[Main Board]

Description:

- Input a monoscope signal. (If a monoscope signal is not available input a cross hatch signal).
- Using R406 (V. Lin.) adjust the upper and lower patterns to make a well balanced circle.
- Adjust S541 (V. Centre SW) to centre the pattern on the screen.
- Adjust R412 (V. Height) for 92% upper and lower scan ratio.
- Repeat steps 2 to 4 as necessary.

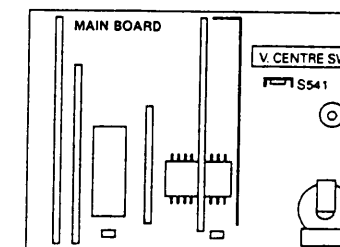


Fig 3.

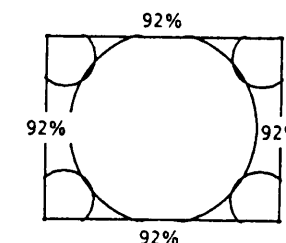


Fig 4.

Horizontal Centre

Measuring Instrument:

Pattern Generator

Adjustment Location:

R520 (H. Centre)

[Video Chroma Board]

Description:

- Input a monoscope signal. (If a monoscope signal is not available input a cross hatch signal).
- Adjust R520 (H. Centre) to centre the picture horizontally.

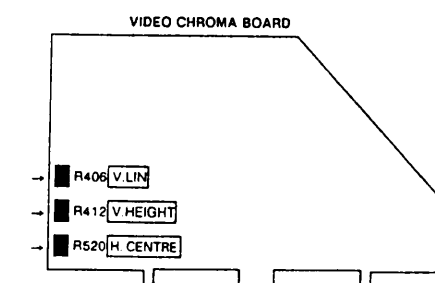


Fig 5.

Service Adjustments Cont'd.

VSM Reset Adjustment

Measuring Instrument:
Remote Control
Description:

Before performing this adjustment, record levels such as Colour, Contrast, Brightness and Sharpness. Restore the previous levels after repair.

- 1: Obtain the menu with the remote control and set the levels of Colour, Contrast, Brightness and Sharpness to centre.
- 2: Perform this adjustment with TV, EXT 1, EXT 2 and EXT 3.

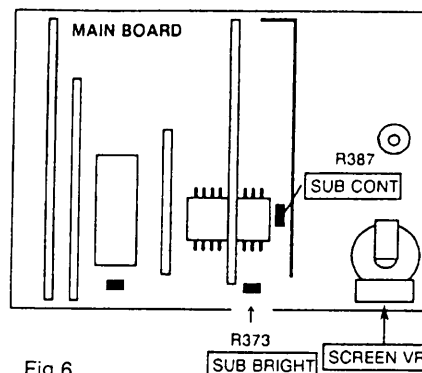


Fig 6.

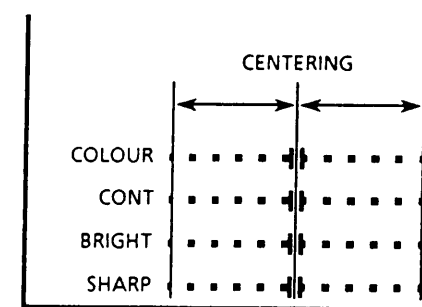


Fig 7.

Sub Bright Sub Contrast Adjustment

Measuring Instrument:
Pattern Generator
Adjustment Location:
R373 (Sub Bright), R387 (Sub Contrast)
[Main Board]
Description:

Prior to starting this adjustment, complete adjustment of VSM Reset, and set the VSM level to the centre.

- 1: Adjust R373 (Sub Bright) and R387 (Sub Contrast) until optimum picture is obtained.

Note: Avoid excessive brightness.

Highlight Adjustment

Measuring Instrument:
Pattern Generator
Adjustment Location:
R106 (R Drive), R103 (G Drive)
[CRT Socket]
Description:

Prior to starting this adjustment, complete adjustment of VSM Reset, and set the VSM level to the centre.

- 1: Input white signal.
- 2: Adjust R106 (R Drive) and R103 (G Drive) to obtain a white raster.

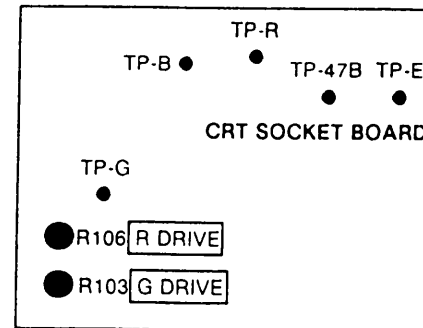


Fig 8.

Screen Adjustment

Measuring Instrument:
Pattern Generator, Oscilloscope
Test Point:
TP-B, TP-G, TP-R, TP-E
[CRT Socket Board]
Adjustment Location:
Screen VR [Main Board]
Description:

This adjustment should be performed after adjusting the High Light.

- 1: Input a cross hatch signal.
- 2: Connect the oscilloscope to TP-B, TP-g and TP-r and fully rotate the Screen VR anti clockwise. Then rotate it clockwise until no further movement is observed in line A below (fig. 10).
- 3: After the above, confirm that the difference between A and B is a minimum of 10V.

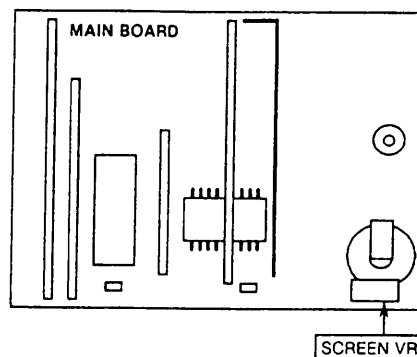


Fig 9.

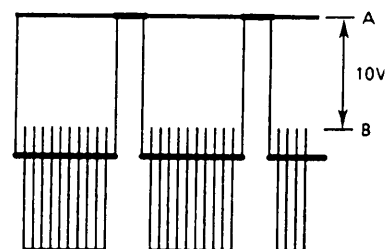


Fig 10.

Y Level

Measuring Instrument:
Pattern Generator, Oscilloscope
Test Point:
TP-350 (or pin 15 of IC351)
[Main Board]
Adjustment Location:
R258 (Y Level)
[Video Chroma Board]
Description:

- 1: Input a split colour bar signal.
- 2: Connect the oscilloscope with TP-350

- 3: (or pin 15 of IC351) of the Main Board. Adjust R258 (Y Level) to obtain 0.34V between 100% white signal and the pedestal level as shown below (fig. 13).

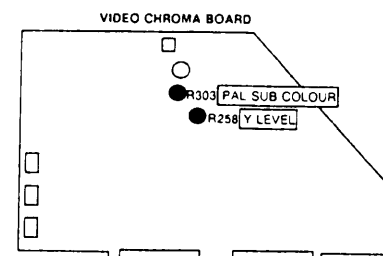


Fig 11.

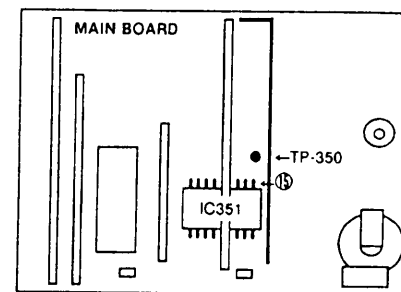


Fig 12.

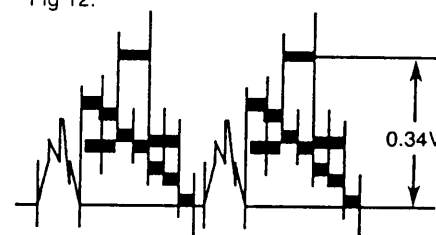


Fig 13.

Sub Colour Adjustment

Measuring Instrument:
Pattern Generator
Adjustment Location:
R303 (PAL Sub Colour)
[Video chroma Board]
Description:

This adjustment should be performed after adjusting the Y Level and Sub Contrast. Prior to starting this adjustment, complete adjustment of VSM Reset, and set the VSM level to the centre.

- 1: Input a split bar colour signal.
- 2: Adjust R303 (PAL Sub Colour) until natural colour density is obtained.

Chroma Circuit Adjustment

Measuring Instrument:
Pattern Generator, Oscilloscope
Test Point:
TP-301, TP-302, Pin 30, 29, 31 of IC203
[Video Chroma Board]
Adjustment Location:
T301 (Burst Clean), T302 (DL Phase), R303 (PAL Sub Colour), R351 (PAL DL Gain)
Description:

- 1: Input a split colour bar signal.
- 2: Connect the oscilloscope to pin 30 of IC203, set the amplitude of waveform to a minimum level by adjusting T301 (Burst Clean).
- 3: Connect CH 1 (X - axis) of the oscilloscope to TP-301 and CH 2 (Y - axis) of the oscilloscope to TP-302 and set in X - Y mode.

- 4: Adjust the waveform R303 (PAL Sub Colour) so that the figure is not saturated.
- 5: Connect an 8.2k resistor between pins 29 and 31 of IC203 (or across C305).
- 6: Short both ends of C310 with wire etc.
- 7: Adjust R351 (PAL DL Gain) to obtain waveform (B) below (fig. 15).
- 8: Repeat the above steps if necessary to obtain waveform (C).
- 9: Repeat the above steps roughly once or twice as required to obtain waveform (C).
- 10: Remove the shorted jumper wire and 8.2k resistor from pins 29 and 30 of IC203.
- 11: Adjust T301 (Burst Clean) to obtain waveform (E).

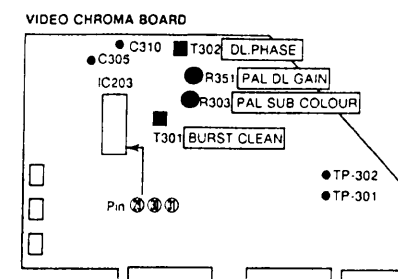


Fig 14.

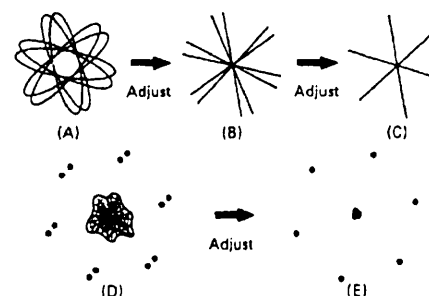


Fig 15.

Clock Adjustment

Measuring Instrument:
Remote Control
Adjustment Location:
C016 (Display Position)
[Teletext Board]
Description:

- 1: Receive a Teletext signal.
- 2: Set to the Mix mode.
- 3: Adjust C016 (Display Position) to obtain a stable and correctly positioned teletext display.

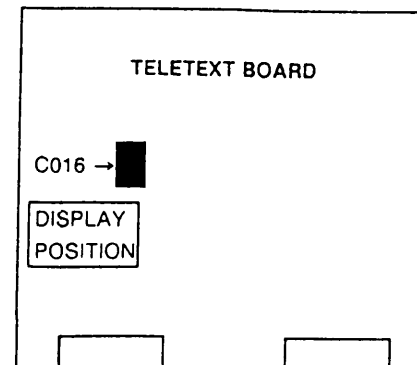


Fig 16.

Eye Pattern Adjustment

Measuring Instrument:
Oscilloscope

Adjustment Location:
C208 [Audio Board]
Description:

- 1: Receive a NICAM broadcast.
- 2: Connect the oscilloscope to TP-EA.
- 3: Adjust C208 to obtain maximum and cleanest eye pattern.
- 4: Connect the oscilloscope to TP-EB.
- 5: Confirm maximum and cleanest waveform as above.
- 6: repeat steps 2 to 5 as necessary.

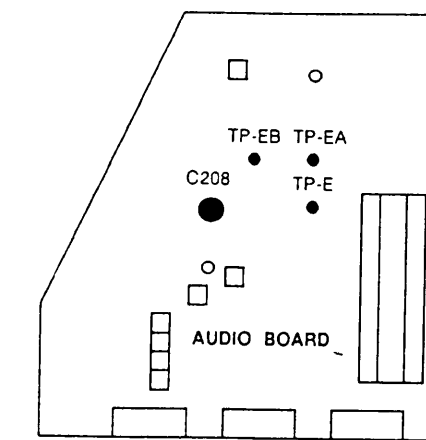


Fig 16.

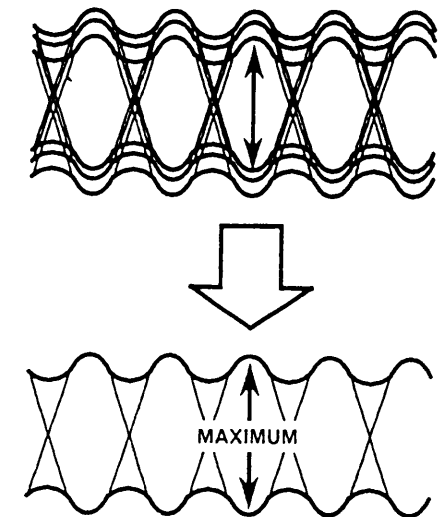
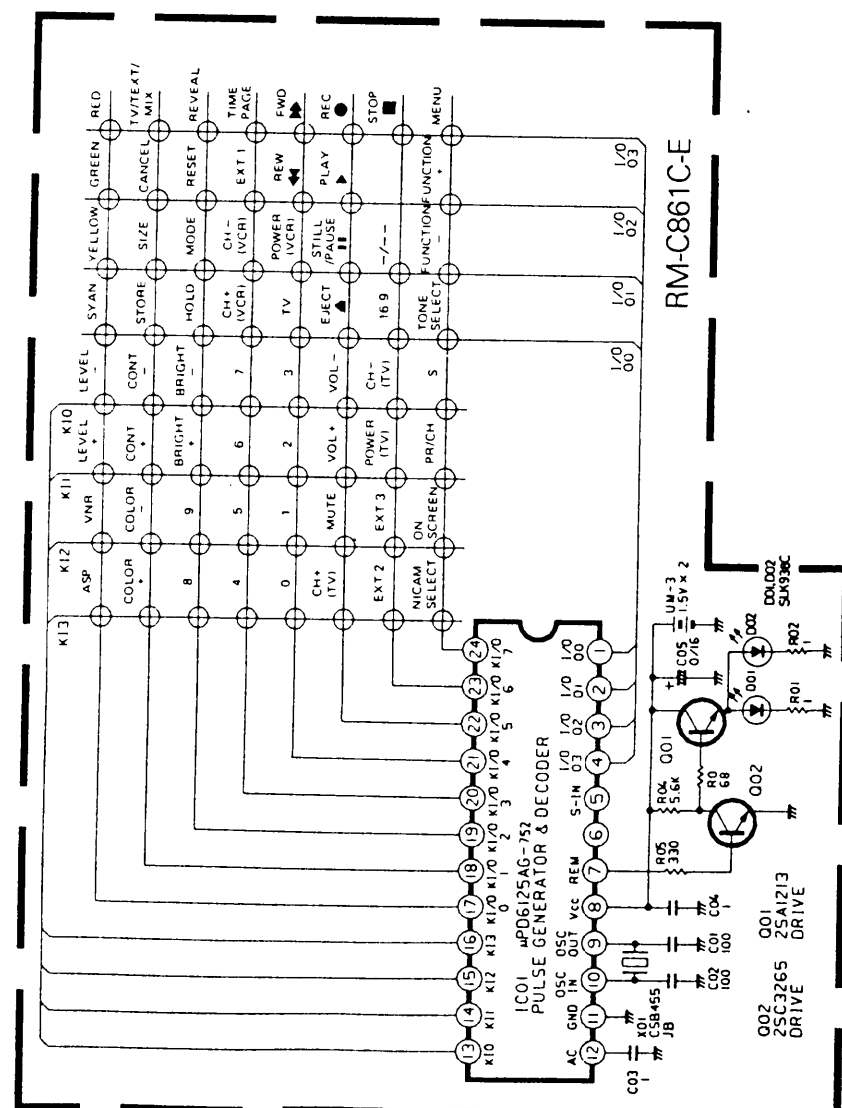
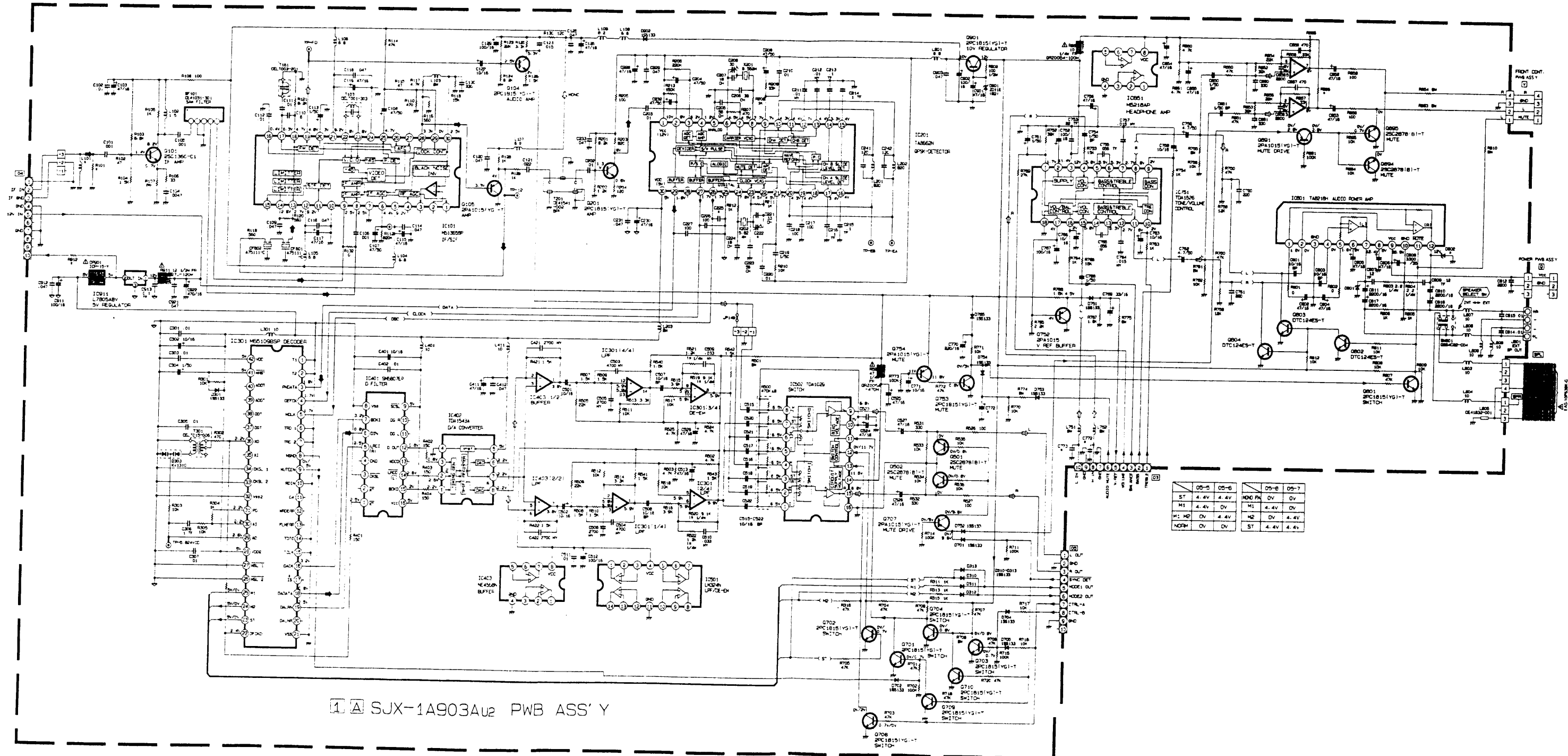


Fig 18.

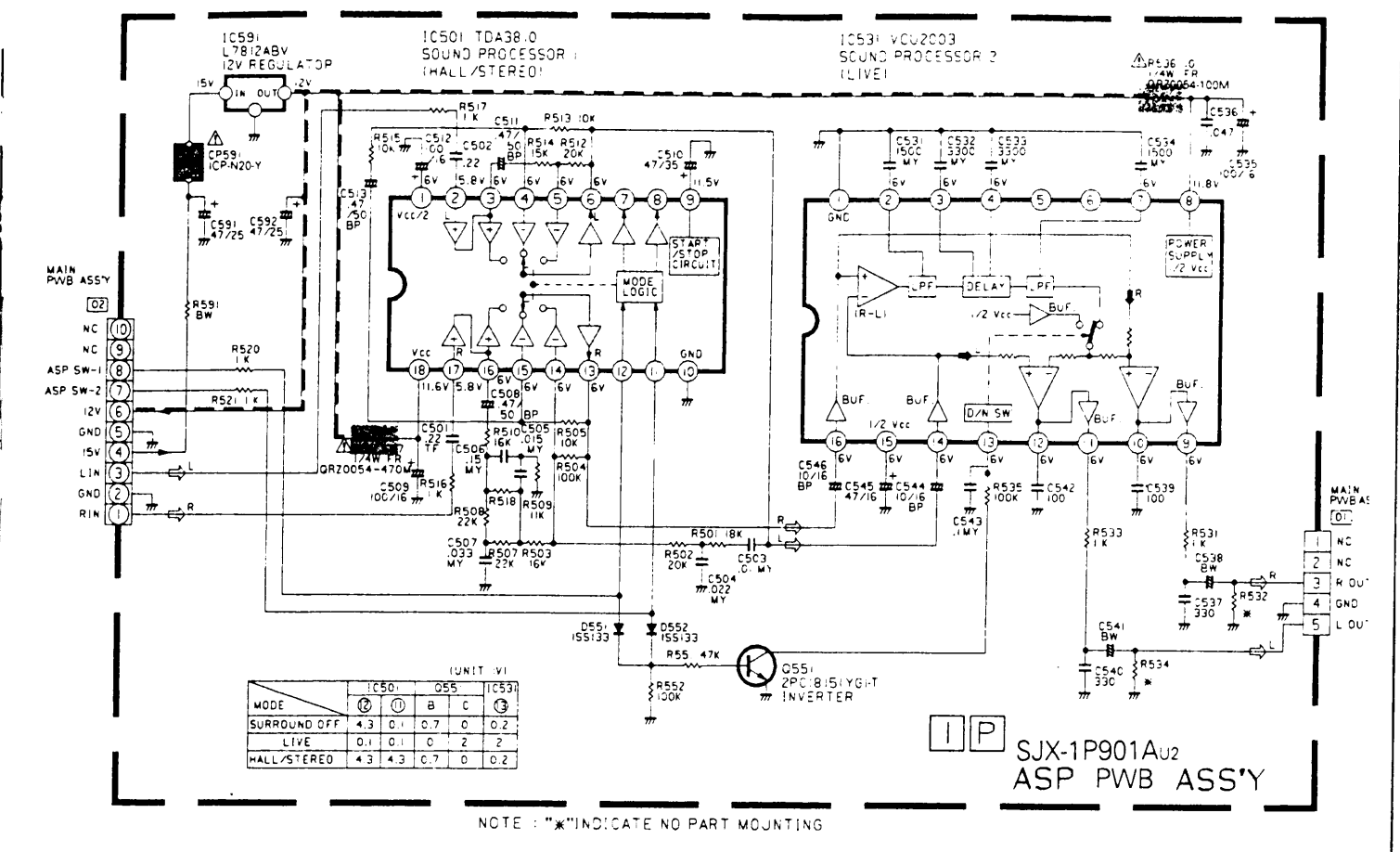
Remote Control Diagram



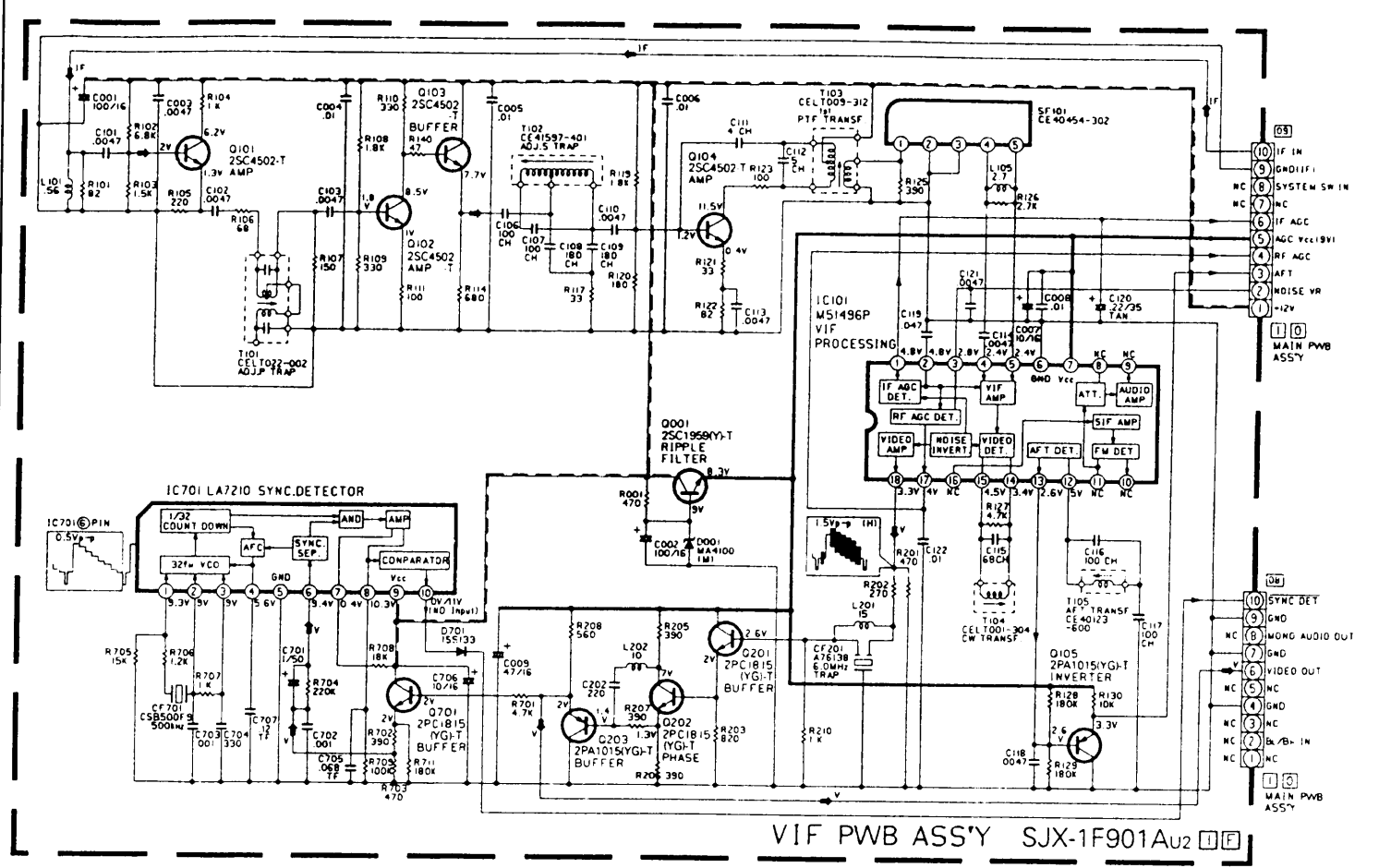
Audio Diagram



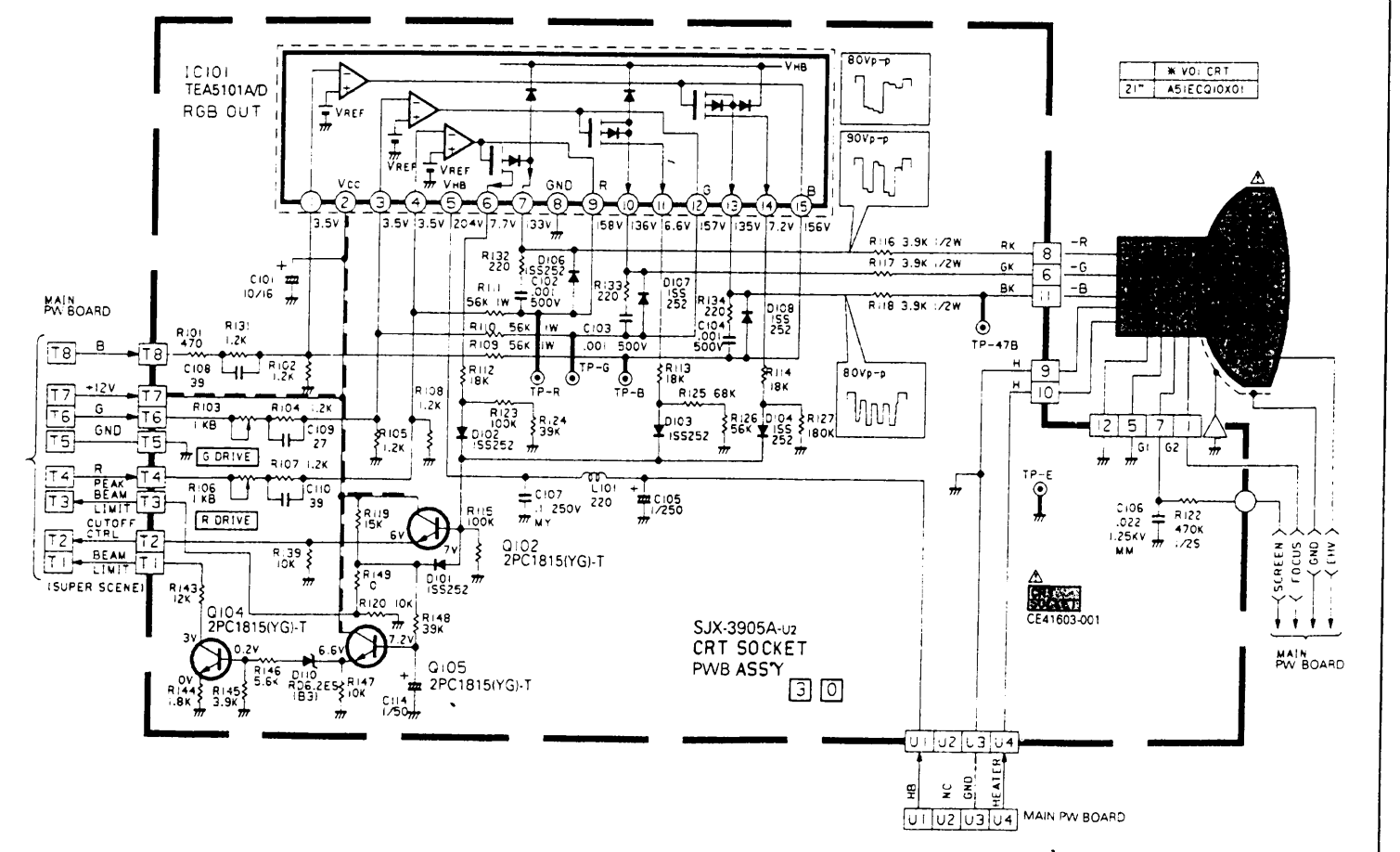
ASP Diagram



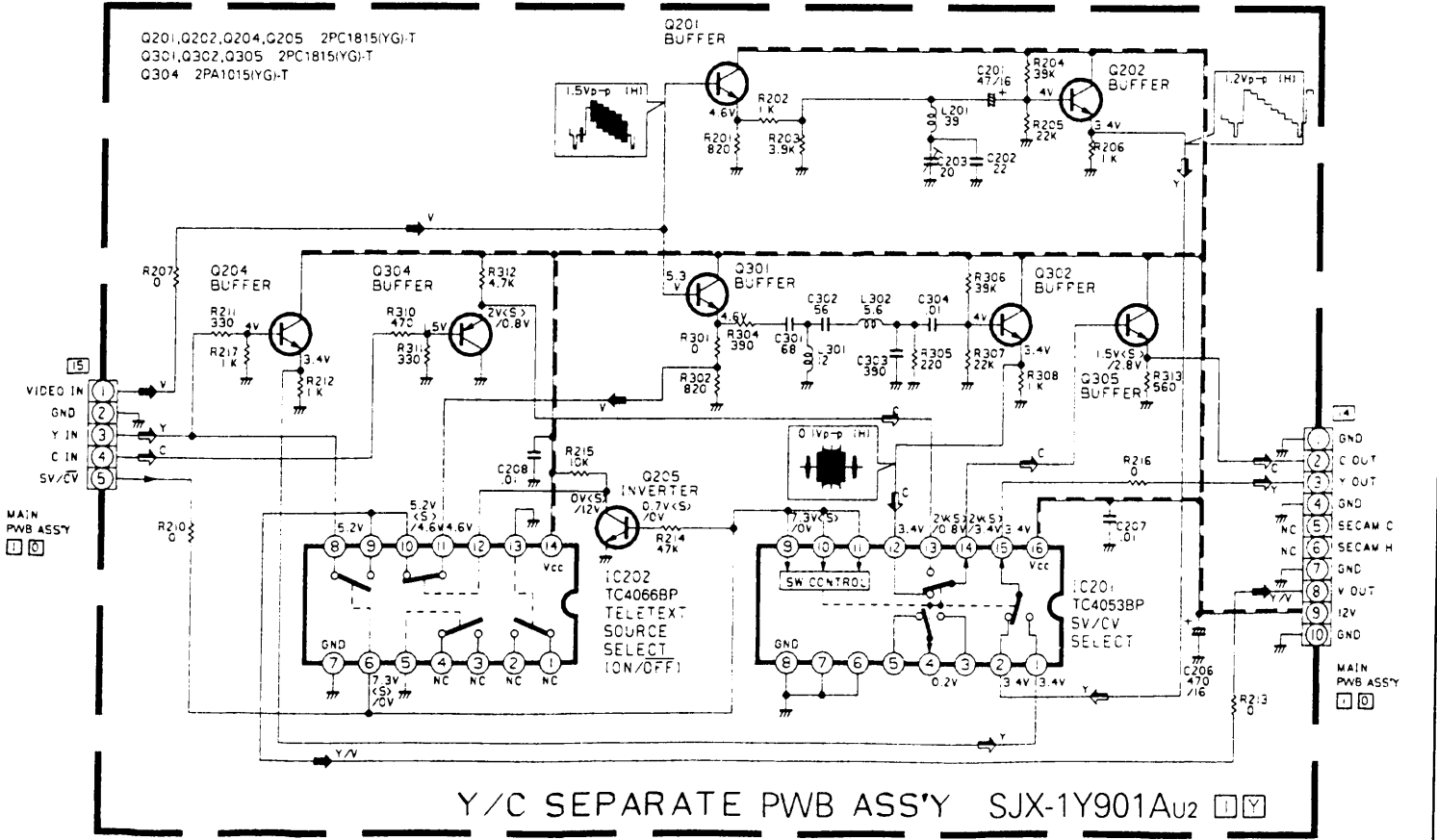
VIF Diagram



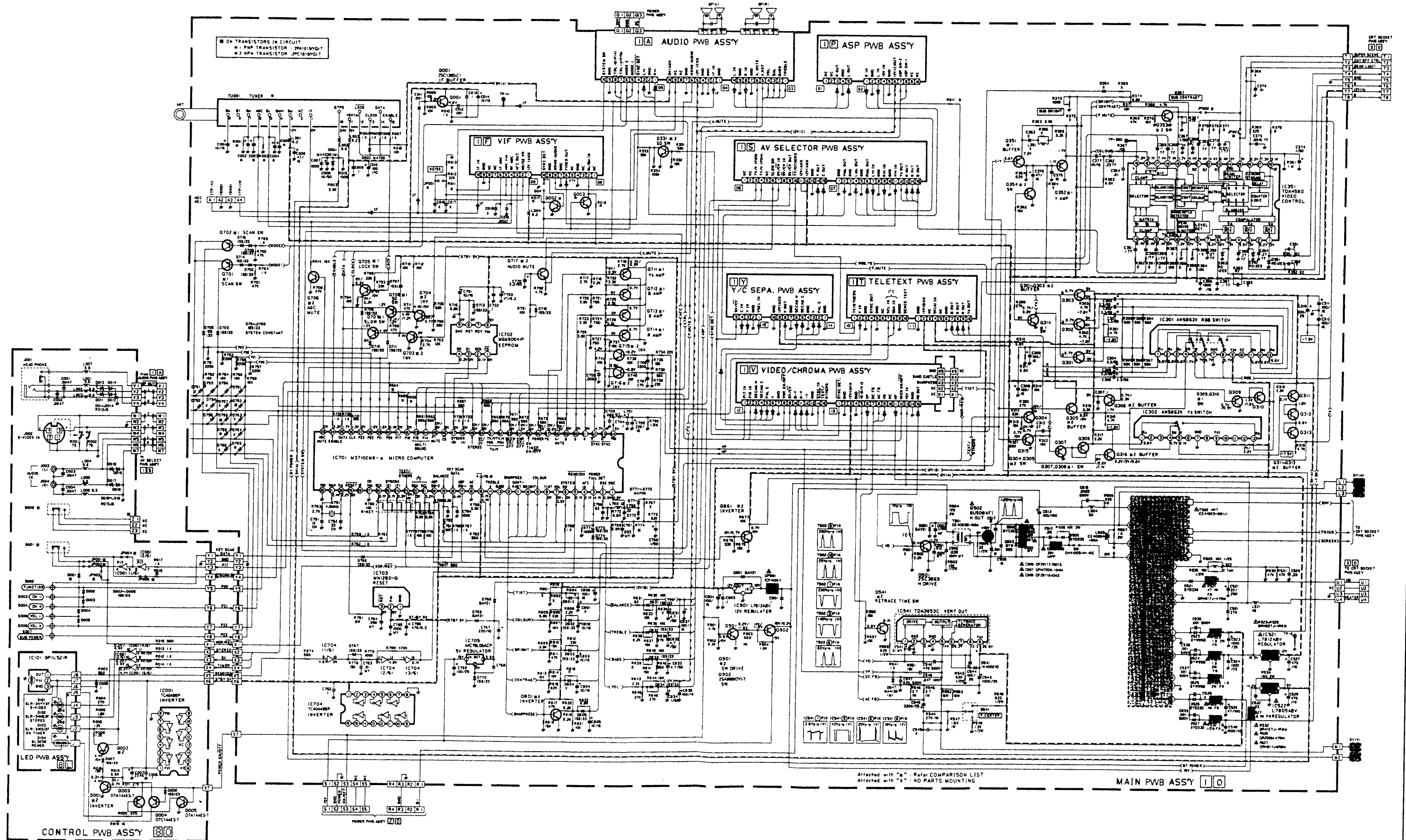
CRT Diagram



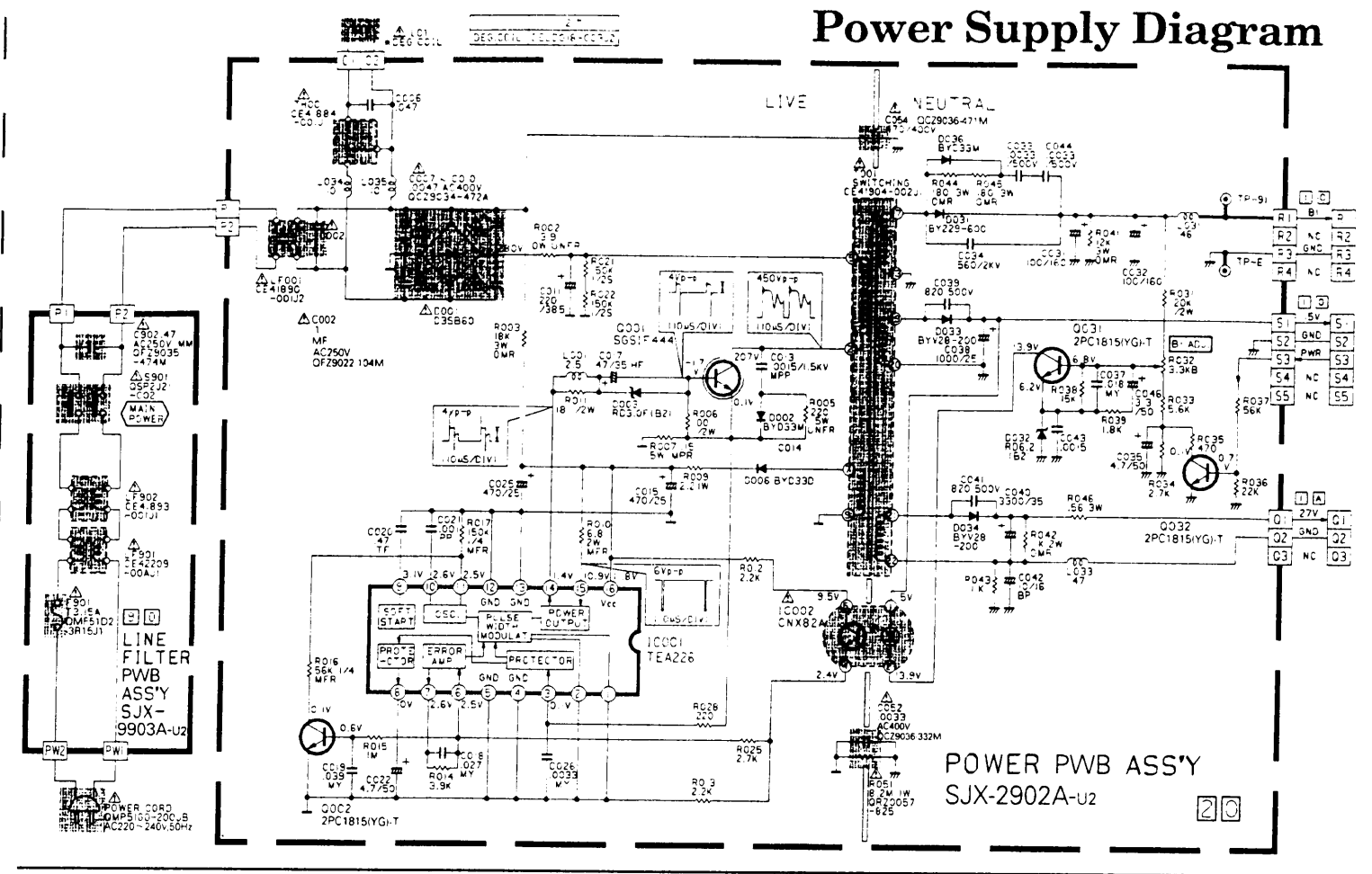
Y/C Diagram



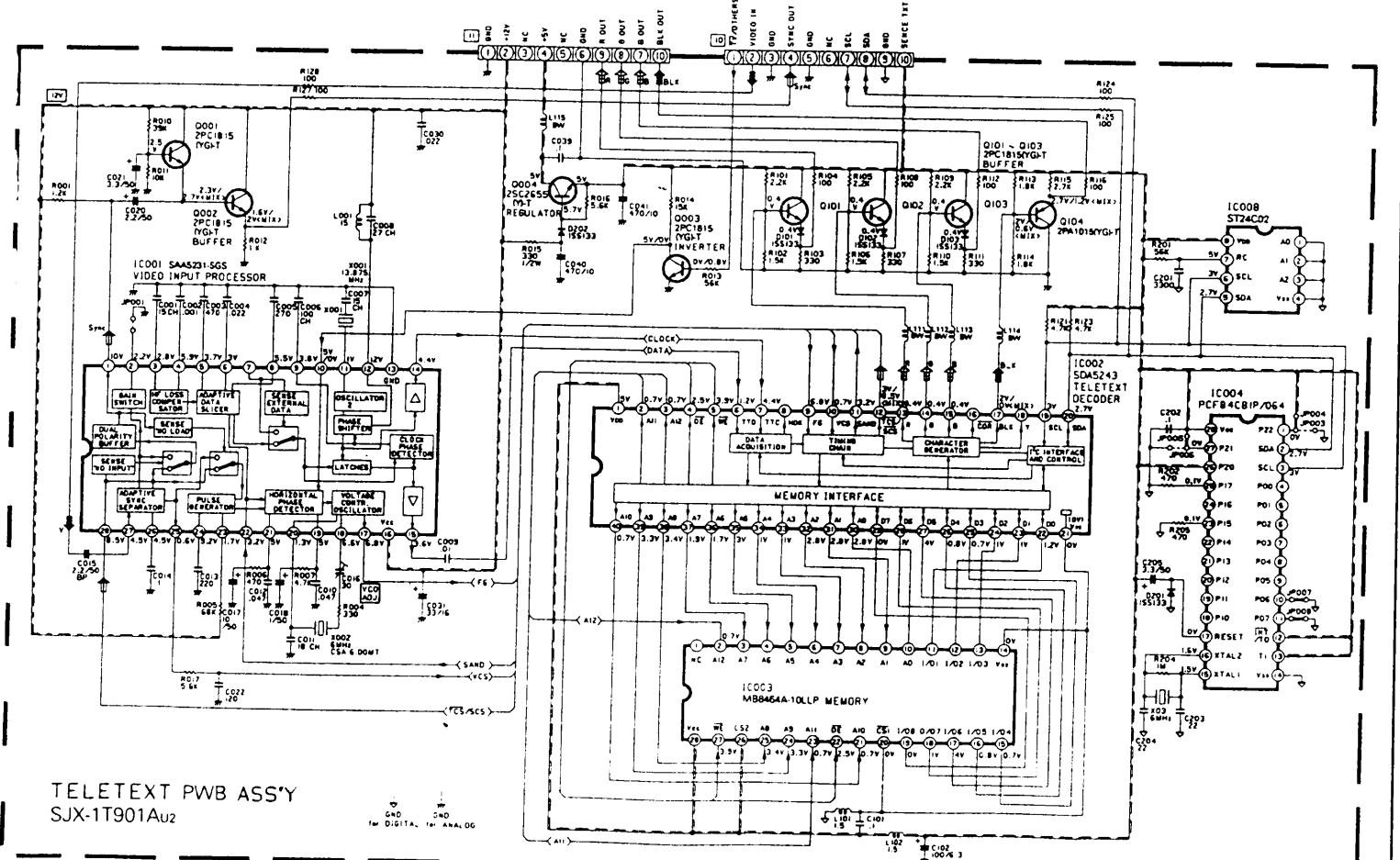
Main Diagram



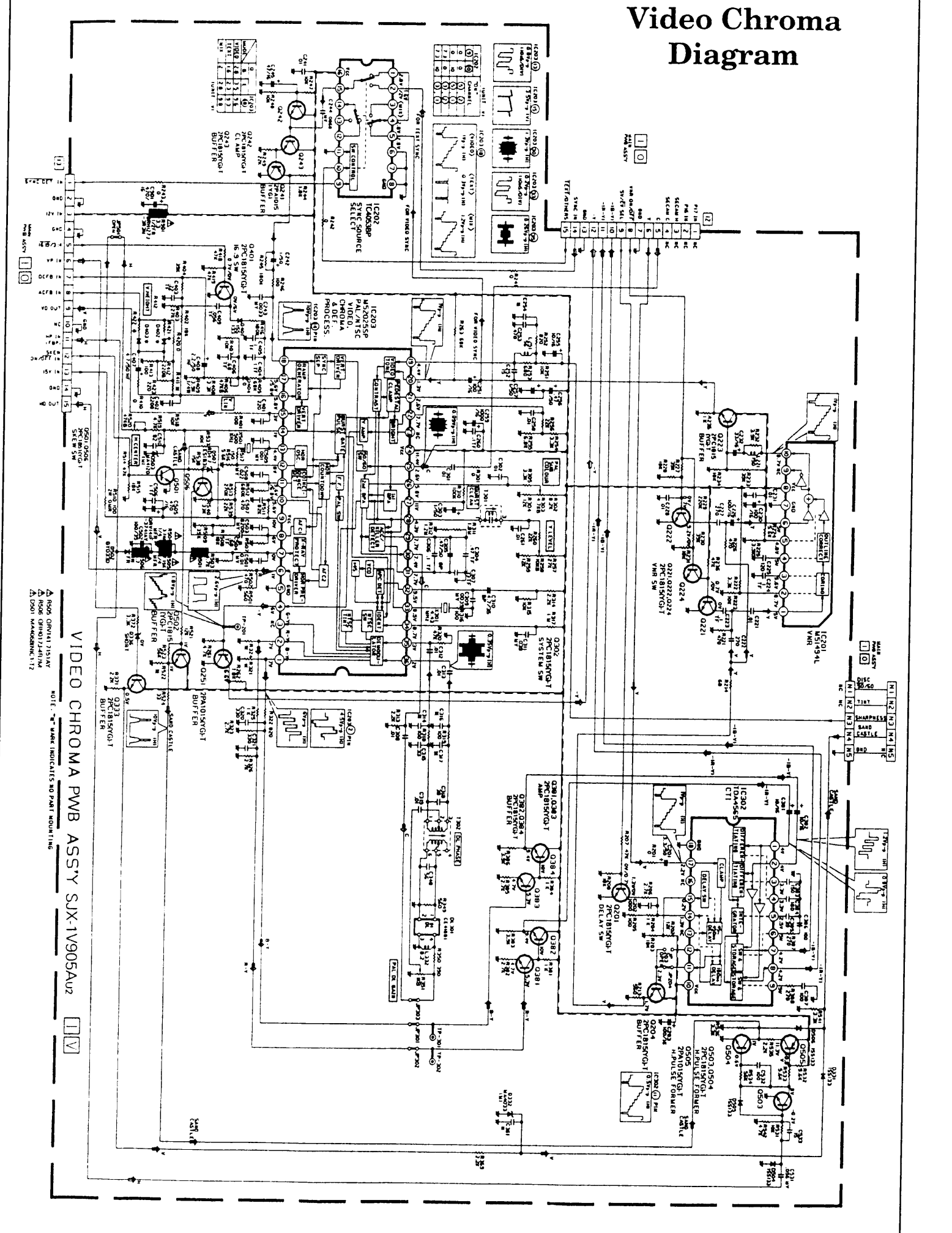
Power Supply Diagram



Text Diagram



Video Chroma Diagram



AV Select Diagram

