HITACHI

PA | No. 0039

35TX10B/CZ41
31UX5B/CY45
31CX4B/CY44
27UX5B/C745
27CX4B/C744
27CX3B/C743

SERVICE MANUAL

NTSC | A3LXU CHASSIS

R/C: CLU-851GR
CLU-692GR
CLU-691GR

CAUTION: Before servicing this chassis, it is important that the service technician read the "Safety Precautions" and "Product Safety Notices" in this Service Manual.

This television receiver will display television Closed Captioning ([CC] or [ ]) in accordance with paragraph 15.119 of the FCC rules.

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SPECIFICATIONS AND PARTS ARE SUBJECT TO CHANGE FOR IMPROVEMENT

SOLID STATE COLOR TELEVISION

AUGUST 1994 HHEA - MANUFACTURING DIVISION

SAFETY PRECAUTIONS

NOTICE: Comply with all cautions and safety related notes located on or inside the cabinet and on the chassis or picture tube.

WARNING: Since the chassis of this receiver is connected to one side of the AC power supply during operation, whenever the receiver is plugged in, service should not be attempted by anyone unfamiliar with the precautions necessary when working on this type of receiver.

The following precautions should be observed:

1. Do not install, remove, or handle the picture tube in any manner unless shatterproof goggles are worn. People not so equipped should be kept away from the picture tube while handling.
2. When service is required, an isolation transformer should be inserted between power line and the receiver before any service is performed on a "HOT" chassis receiver.
3. When replacing a chassis in the receiver, all the protective devices must be put back in place, such as barriers, nonmetallic knobs, adjustment and compartment covershields, isolation resistors, capacitors, etc.
4. When service is required, observe the original lead dress in the high voltage circuitry area.
5. Always use the manufacturer's replacement components. Critical components as indicated on the circuit diagram should not be replaced by another manufacturer's. Furthermore, where a short circuit has occurred, replace those components that indicate evidence of overheating.
6. Before returning a serviced receiver to the customer, the service technician must thoroughly test the unit to be certain that it is completely safe to operate without danger of electrical shock, and be sure that no protective device built into the receiver by the manufacturer has become defective, or inadvertently defeated during servicing.

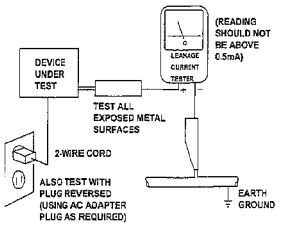
Therefore, the following checks should be performed for the continued protection of the customer and service technician.

Leakage Current Cold Check

With the AC plug removed from the 120V AC 60Hz source, place a jumper across the two plug prongs. Turn the AC power switch ON using an insulation tester (DC500V), connect one lead to the jumpered AC plug and touch the other lead to each exposed metal part (antennas, screwheads, metal overlays, control shafts, etc.), particularly any exposed metal part having a return path to the chassis should have a minimum resistor reading of 0.24MΩ and a maximum resistor reading of 5.2MΩ . Any resistance value below or above this range indicates an abnormality which requires corrective action. Exposed metal part not having a return path to the chassis will indicate an open circuit.

Leakage Current Hot Check

Plug the AC line cord directly into an AC 120V 60Hz outlet (do not use an isolation transformer for this check). Turn the AC power ON. Using a "leakage Current Tester (Simpson's Model 229 or equivalent)", measure for current from all exposed metal parts of the cabinet (antennas, screwheads, overlays, control shafts, etc.) particularly any exposed metal part having a return path to the chassis or to a known earth ground (water pipe, conduit, etc.). Any current measured must not exceed 0.5mA.



AC LEAKAGE TEST

ANY MEASUREMENTS NOT WITHIN THE LIMITS OUTLINED ABOVE ARE INDICATIVE OF A POTENTIAL SHOCK HAZARD AND MUST BE CORRECTED BEFORE RETURNING THE RECEIVER TO THE CUSTOMER.

High Voltage

This receiver is provided with a hold down circuit for clearly indicating that voltage has increased in excess of a predetermined value. Comply with all notes described in this Service Manual regarding this hold down circuit when servicing, so that this hold down circuit is operated correctly.

Serviceman Warning

With minimum BRIGHTNESS and CONTRAST, the operating high voltage in this receiver is lower than 37.0kV. In case any component having influence on the high voltage is replaced, confirm that high voltage with minimum BRIGHTNESS and CONTRAST is lower than 37.0kV. To measure high voltage use a high impedance High Voltage Meter. Connect (-) to chassis earth and (+) to the CPT Anode button (See the following connection diagram).

NOTE: Turn the power switch OFF without fail before the connection to the Anode button is made.

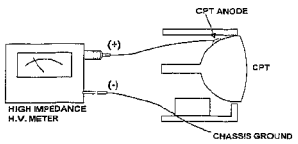
PRODUCT SAFETY NOTICE

Many electrical and mechanical parts in HITACHI television receivers have special safety related characteristics. These are often 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. Replacements parts which have these special safety characteristics are identified in this Model Service Manual.

Electrical components having such features are identified with an ⚠ mark in the schematics and parts list in this Model Service Manual.

The use of a substitute replacement component which does not have the same safety characteristics as the HITACHI recommended replacement one, shown in the parts list in this Model Service Manual, may create shock, fire, X-Radiation, or other hazards.

Production Safety is continuously under review and new instructions are issued from time to time. For the latest information, always consult the current HITACHI Service Manual. A subscription to, or additional copies of HITACHI Service Manual may be obtained at a nominal charge from HITACHI SALES CORPORATION.



X-Radiation

TUBE: The primary source of X-Radiation in this receiver is the picture tube. The tube utilized in this chassis is specially constructed to limit X-Radiation emission. For continued X-Radiation protection, the replacement tube must be the same type as the original HITACHI approved type.

When troubleshooting and making test measurements in a receiver with an excessive high voltage problem, avoid coming unnecessarily close to the picture tube and the high voltage component.

Do not operate the chassis longer than is necessary to locate the cause of the excessive voltage.

This Service Manual is intended for qualified service technicians; it is not meant for the casual do-it-yourselfer. Qualified technicians have the necessary test equipment and tools, and have been trained to properly and safely repair complex products such as those covered by this manual. Improperly performed repairs can adversely affect the product and its safety. Consumers should not risk trying to do the necessary repairs and should instead refer to a qualified service technician.

WARNING

Lead in solder used in this product is listed by the California Health and Welfare agency as a known reproductive toxicant which may cause birth defects or other reproductive harm
(California Health and Safety Code, Section 25249.5).

When servicing or handling circuit boards and other components with lead in solder, avoid unprotected skin contact with the solder. Also, when soldering do not inhale any smoke or fumes produced.

SAFETY NOTICE
USE ISOLATION TRANSFORMER WHEN SERVICING

Components having special safety characteristics are identified by ⚠ on the parts list in this Model Service Manual and its supplements and bulletins. Before servicing this, it is important that the service technician read and follow the "Safety Precautions" and the "Product Safety Notices" in this Service Manual.

For continued X-Radiation protection, replace picture tube with original type or Hitachi equivalent type.

POWER SOURCE

This television receiver is designed to operate on 120 Volts/ 60Hz, AC house current. Insert the power cord into a 120 Volts/60Hz outlet.

NEVER CONNECT THE TV TO OTHER THAN THE SPECIFIED VOLTAGE OR TO DIRECT CURRENT.

Use of this TV set in 50 Hz areas will not harm the TV set. However, it will cause the clock display to run slower. Consult service personnel if you move to an area where the power supply frequency is 50 Hz.

CLOCK	60Hz	50Hz
D022	Install	Delete

TECHNICAL SPECIFICATIONS

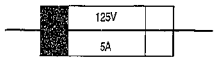
POWER RATINGS

35TX10B/CZ41	180 watts
31UX5B/CY45	180 watts
31CX4B/CY44	180 watts
27UX5B/C745	155 watts
27CX4B/C744	155 watts
27CX3B/C743	155 watts

COLOR PICTURE TUBE

35TX10B/CZ41	A89AEJ15X01
31UX5B/CY45	M78JUA165X
31CX4B/CY44	A78LCU30X
27UX5B/C745	M68JUA168X
27CX4B/C744	A68KSA30X
27CX3B/C743	A68KSA30X

CAUTION
The following symbol near the fuse indicates fast operating fuse (to be replaced). Fuse ratings appear within the symbol.
Example:



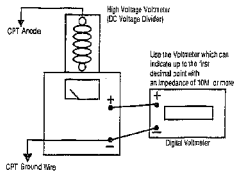
F901

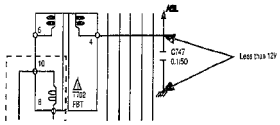
The rating of fuse F901 is 5.0A-125V.
Replace with the same type fuse for continued protection against fire.

TECHNICAL CAUTIONS

High Voltage Limiter Circuit Operation Check and Overvoltage Protection Circuit Operation Check

Adjustment Preparation
1. Connect a High Voltage Voltmeter between CPT Anode terminal (Anode capside) and Ground. (TP701)
2. Set the AC input voltage to 120 +/- 3V.
3. Receive Circle Pattern or Broadcast Signal and set "BRIGHTNESS" and "CONTRAST" to maximum. Adjust the SCREEN VR and SUB-BRIGHTNESS VR (R340) so that Beam Current is Ia $\pm$ 0.1 mA. (The voltage at ABL terminal (C747) should be 12V or less.)

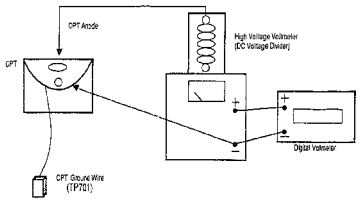




Adjustment Procedure
1. Check that the normal High Voltage is EHT $\pm$1KV.

CHASSIS	EHT	IB±0.1mA	E1 (KV)
CZ41	30.2KV	1.8mA	35.5KV
CY44, CY45	29.2KV	1.65mA	34.0KV
C743, C744, C745	28.0KV	1.5mA	33.0KV

Adjustment Preparation
4. Set AC input voltage to 100 $\pm$ 5V. Short circuit both ends of R903.



Use the voltmeter impedance 10MΩ or more with indication to the first decimal place.

Adjustment Procedure

2. Keep CONTRAST, BRIGHTNESS, and SCREEN VR as in item (3). Increase AC input voltage gradually, and check that the picture disappears when high voltage is E1. Immediately after checking that it disappears, turn OFF the set switch. Remove adjustment Jig and High Voltage Voltmeter. When connecting or removing High Voltage Voltmeter to or from Anode cap, be sure to turn OFF the switch of the set. Also, be sure to perform it after the chassis discharge of residual high voltage, because the high voltage of CPT Anode may be left.

ADJUSTMENT SPECIFICATIONS

A3LXU CHASSIS PAGE #

Refer to CHASSIS SERVICE MANUAL PA NO. 0040 for additional technical information.

Note:

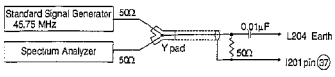
1. MAIN CHASSIS ADJUSTMENT is done with precision equipment. Readjustment is only recommended if the service technician replaced a defective component related to the circuit.
2. COMMON SERVICE ADJUSTMENT is recommended for the service technician after final troubleshooting and repair is done. Quick check and fine tuning is advisable to verify that the problem is eliminated.

1. CHASSIS ADJUSTMENT

1-1. IF ADJUSTMENT

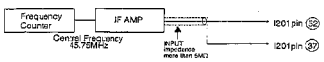
1-1-1. AGC Coarse Adjustment (R202)
Set AGC adjustment VR (R202) to mechanical center.

1-1-2. VCO Adjustment (L204)(First Method)
Adjustment Preparation
(1) Apply 9.0 ± 0.1V to I201 pin (14).
(2) Connect I201 pin (3) to GND.
(3) Connect the following jig and pick up VCO oscillation leakage voltage.



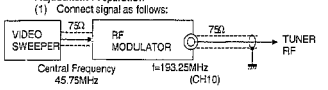
Adjustment Procedure
(1) Adjust L204 so that VCO frequency detected by Spectrum Analyzer is 45.75MHz $^{+0}_{-50}$ KHz. (Match the output level of Standard Signal Generator to the level of VCO oscillation leakage voltage and adjust L204 to take 0 beat.)
Note: Perform this adjustment after VCO frequency is stabilized.

1-1-2. VCO Adjustment (L204) (Second Method)
Adjustment Preparation
(1) Apply 9.0 ± 0.1V to I201 pin (14).
(2) Connect I201 pin (3) to GND.
(3) Connect the following jig and pick up VCO oscillation leakage voltage.

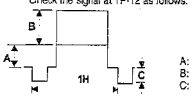


Adjustment Procedure
(1) Adjust L204 so that the reading of Frequency Counter is 45.75MHz $^{+0}_{-50}$ KHz.
Note: Perform this adjustment after VCO frequency is stabilized.

1-1-3. IF Overall Waveform Adjustment
Adjustment Preparation
(1) Connect signal as follows:

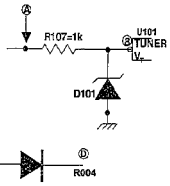


Marks 0.2 MHz (CH10)
1 MHz
2 MHz
3.6 MHz
(Output level 91 ± 3 dBμ (50Ω load Modulation 60 - 70%)
(2) Connect Oscilloscope to Q203 (E) Emitter (TP-12).
Check the signal at TP-12 as follows:



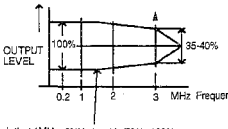
A: Set up level
B: Sweep signal level
C: Sync. level

(3) Add the following voltage:
(1) I201 pin (14): +B (9V)
(2) I001 pin (12): +B (5V)
(3) TUNER VT pin (A): 42V
(4) Connect a diode (1S2076, 1SS270TA) to: (C) - (D)



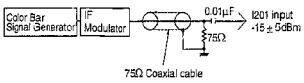
(The other side of I101)
(5) Initialize memory*
(6) Receive Color Bar Signal.

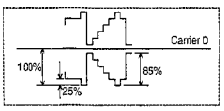
Adjustment Procedure
(1) Adjust TUNER IFT coil so that the output level of 0.2MHz is reference level (100%) and 3.6MHz level is 35% - 40%. (At this time, do not turn TUNER IFT coil more than 1 turn.)



Check that 1MHz-2MHz level is 70%-100%.
Note:** Refer to Item **1-1-6. Initial Turn ON Procedure.

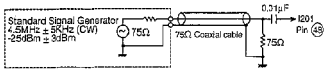
1-1-4. AFS Discrimination Adjustment (L205)
Adjustment Preparation
(1) Input Signal: Between X103 SAW FILTER input and Earth. (R106 both ends)
(2) Apply 9.0 ± 0.1V to I201 pin (14).
(3) Connect a DC Voltmeter (internal impedance 1M ohm or more) to AFS output terminal. (I201 pin (47))



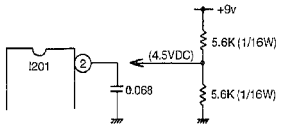


Adjustment Procedure
(1) Turn L205 and check that DC Voltmeter connected as above varies from under 0.5 V to over 8.5V.
(2) Adjust L205 so that the DC Voltmeter is 6.5 ± 0.5V at the intermediate point of the core which is changing voltage rapidly in (1) above.
Note: After this adjustment is finished, perform item No. **1-1-2. VCO Adjustment Check.** If it is deviated, adjust to regular adjusting point and check again the subsequent adjustments.

1-1-5. Sound Discrimination Adjustment (L202)
Adjustment Preparation
(1) Input Signal: Apply the following signal to I201 pin (48).



(2) Apply DC Voltage 9.0 ± 0.1V to I201 pin (14).
(3) Connect a Voltmeter between Q201 Emitter and Earth.
(4) Apply the following Voltage to I201 pin (2).



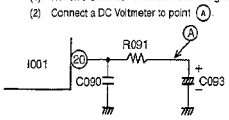
(5) Short-Circuit R201 both end (Tuner AGC Terminal to GND).

Adjustment Procedure
(1) Adjust L202 so that the reading of DC Voltmeter is 3.5 ± 0.3V.
(2) After adjusting, release the jig above (4) and (5).

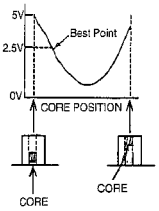
1-1-6. VCO For OSD Adjustment.
This chassis starts in initial turn ON and AUTO demonstration mode before memory initialize. So memory initialize should be done according to next procedure before adjustment start.

Initial Turn ON Procedure
(1) Supply AC power. TV Set is turned ON.
(2) Turn OFF the set using power switch (S001). Remo-Con not used.
(3) Turn ON the set again.
(4) Memory initialize (see item **1-4. Memory Initialize**) should be done.

Adjustment Preparation
(1) Receive Color Bar or Circle Pattern Signal.
(2) Connect a DC Voltmeter to point (A).

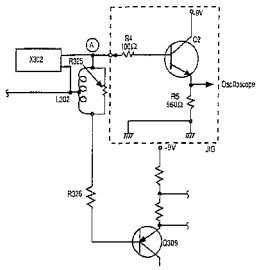


Adjustment Procedure
(1) Adjust L010 so that the Voltmeter is 2.5 ± 0.2V.

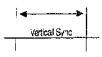


1-2. COMB FILTER ADJUSTMENT (1)

Adjustment Preparation
(1) Adjust the VR(R323, R32E, R333) to center position.
(2) Receive Color Bar Signal or Green Single Color Using below methods (I) and (II).
(I) From Video Input
(II) Ant. Input: the range of signal strength must be 65dBm to 80dBm(75 dBm is standard).
(3) Connect the jig (shown below) to point (A).



Adjustment Procedure
(1) Turn R323 so that the sub-carrier component becomes minimum.
(2) Then turn L302 so that the sub-carrier component becomes minimum.
Note: Sub-carrier component waveform shows below point.



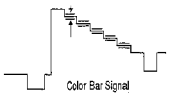
(3) When Residual Chroma Level does not become less than 20mVp-p repeat items (1) and (2).

Remarks:
(1) Use the probe of 10:1.
(2) Adjust the range of Oscilloscope to 20mV/div.
(3) Residual Chroma Level should be less than 20mVp-p.
(4) Connect the jig and P.W.B by lead wire of minimum length, to prevent a defective oscillation.
(5) Adjustment should be done after a certain time (more than 10 sec) after power ON.

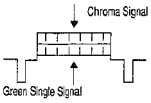
1-2. COMB FILTER ADJUSTMENT (2)

Adjustment Preparation
(1) Connect an Oscilloscope between Q30C Emitter and Earth.

Adjustment Procedure
(1) Turn R32E so that the sub-carrier component becomes minimum.
(2) Then turn R333 so that sub-carrier component becomes minimum.
(3) When item (2) is finished, turn R32E again so that the sub-carrier component becomes minimum.
(4) When Residual Chroma Level does not become less than 15mVp-p, repeat items (1) and (2).



Remarks:
(1) Adjust the range of Oscilloscope to 50mV/div.
(2) Residual Chroma Signal Level should be less than15mVp-p.
Note: Chroma Signal Level shows below point.



1-3. DEFLECTION CIRCUIT PICTURE ADJUSTMENT OPERATION CHECK

1-3-1. Vertical Size Adjustment (R52A)

Adjustment Preparation
(1) Receive Circle Pattern Signal.
(2) Set "CONTRAST" to maximum and "BRIGHTNESS" to the center.

Adjustment Procedure
(1) Adjust Vertical Size Adjustment VR (R62A) so that the inner circle of Circle Pattern becomes in contact with the top and bottom of the screen.

1-3-2. Side Pin Distortion Coarse Adjustment (R752)

Adjustment Preparation
(1) Receive Circle Pattern Signal.
(2) Set "CONTRAST" to maximum and "BRIGHTNESS" to the center.

Adjustment Procedure
(1) Vary R752 so that the right and left vertical lines are straight.

1-3-3. Horizontal Size Adjustment (R755), Horizontal Center Adjustment (R704) and Horizontal Size Correction Adjustment (R775)

Adjustment Preparation
(1) Receive Circle Pattern Signal.
(2) Set "CONTRAST" to maximum and "BRIGHTNESS" to the center.

Adjustment Procedure
(1) Set the R775 at the counterclockwise end.
(2) Vary R755 so that the horizontal size markers at the right and left end are 1.0 - 1.0 on the average.
(3) Vary R775 so that the horizontal size markers at right and left are 1.5 -1.5 on the average.
(4) Vary R704 so that the difference of the horizontal size markers at the right and left end are within 1.5.

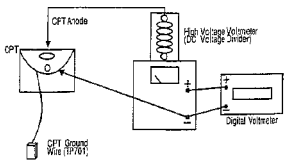
1-3-4. High Voltage Limiter Circuit Operation Check and Overvoltage Protection Circuit Operation Check

Adjustment Preparation
(1) Connect a High Voltage Voltmeter between CPT Anode terminal (Anode cap side) and the Ground (TP701).
(2) Set AC input voltage to 120 ± 3V.
(3) Receive Circle Pattern and set "BRIGHTNESS" and "CONTRAST to maximum. Adjust SCREEN VR and SUB-BRIGHTNESS VR(R340) so that Beam Current is Is ± 0.1mA. (The voltage of ABL terminal - C747 both ends should be 12V or less)

Adjustment Procedure
(1) Check that the normal High Voltage is Ehv ± 1kv.

CHASSIS	Ehv	IB ± 0.1 mA	E1 (KV)
C241	30.2KV	1.5mA	35.5KV
CY44, CY45	29.2KV	1.65mA	34.0KV
C743, C744, C745	28.0KV	1.5mA	33.0KV

Adjustment Preparation
4) Set AC input voltage to 100 ± 5V. Then short-circuit both ends of R903.



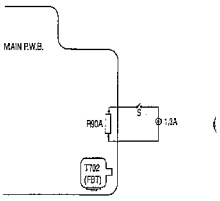
Use a Voltmeter with input impedance 10M ohm or more with indication to the 1st decimal place.

Adjustment Procedure
(2) Keep CONTRAST, BRIGHTNESS, and SCREEN VR as in Item (3). Increase AC input voltage gradually, and check that the picture disappears when high voltage is E1. Immediatly after checking that it disappears, turn OFF the set switch. Remove adjustment jig and High Voltage Voltmeter.

When connecting or removing High Voltage Voltmeter to or from Anode cap, be sure to turn OFF the switch of the set. Also, be sure to perform it after the chassis discharge residual High Voltage, because the high voltage of CPT Anode may be left.

1-3-5. FBT Protection Circuit Operation Check

Adjustment Procedure
(1) Set "CONTRAST" to maximum, "BRIGHTNESS" to center.
(2) After turning ON the switch of the set, turn ON the switch (S) of the jig as shown below.
(Operating current limiter circuit.).
Check that the picture disappears.
(3) Immediately after checking, turn OFF the switch of the set.



1-3-6. +15V Short Protection Circuit Check.

Adjustment Preparation
(1) Adjust "CONTRAST" to maximum, "BRIGHTNESS" to center.

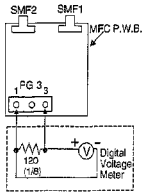
Adjustment Procedure
(1) Connect 10KΩ resistor between Q703 Base and GND and check that the picture disappears.
(2) Disconnect resistor immediately.

1-3-7 Load Reduction Circuit Operation Check.

Adjustment Procedure
(1) Receive Circle Pattern Signal.
(2) Set "VIDEO" Mode "CONTRAST" to maximum, "BRIGHTNESS" to center.
(3) Connect a DC Voltmeter to both sides of R912.
(4) Check to make sure the potential difference is more than 10V.
(5) Receive Crosshatch Signal.
(6) Set "VIDEO" mode "CONTRAST" to minimum, "BRIGHTNESS" to center.
(7) Check the potential difference is less than 3V.

1-3-8. MFC Circuit Operation Check (35TX10B/CZ41 Only)

Adjustment Preparation
(1) Receive Circle Pattern.
(2) Connect the Jig (shown below) to the PG3 Pin in MFC. P.W.B.



Adjustment Procedure
(1) Then turn SMF1 to "STRONG", turn SMF2 to "NORTH", check that the voltage is V= +2.9 ± 0.5V.
(2) Then turn SMF1 to "WEAK", check that the voltage is V = +1.5 + 0.5V.
(3) Then turn SMF2 to "SOUTH", check that the voltage is V = -2.9 + 0.5V.
(4) Then turn SMF1 to "WEAK", check that the voltage is V = -1.5 ± 0.5V.
(5) Then turn SMF2 to "E/W", check that the voltage is V = 0V.

1-4. MEMORY INITIALIZE

1-4-1. Timer Sound Operation Check

Adjustment Procedure
(1) Press the memory initialize key with the Remo-Con jig.
(2) After 5 sec. operation, check that the set has selected CH 03 and a "beeping" sound comes out from the left side (L-CH).

Note: Do not draw out the outlet within 5 second.
Do not perform any key operation, either.
After this operation, each setting should become to delivery setting automatically.

1-5. AFC OPERATION CHECK

Adjustment Preparation
(1) Connect the jig shown below to the ANT Terminal.

Adjustment Procedure
(1) Receive a Standard Carrier Signal (not offset) with the channel up/down or direct selection buttons.
Check that it is pulled into the standard tuning point.
(2) Receive an Offset Signal of ± 1.5MHZ. Check that it is pulled into the standard tuning point.
(Perform the Channel Selection Operation again.)
(3) Receive an Offset Signal of - 1.5MHZ. Check that it is pulled into the standard tuning point.
(Perform the Channel Selection Operation again.)
Note 1: Modulation signal should be used at the Circle Pattern and the Color Bar Signal.
Checking Jig (All channel converter can be used)

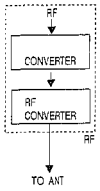


TABLE 1-6

Note: CATV Channels, actual Input Channel Numbers and Indicated Channel Numbers.

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W
14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	37	31	32	33	34	35	36
MID BAND												SUPER BAND										

W-1	W-2	W-3	W-4	W-5	W-6	W-7	W-8	W-9	W-10	W-11	W-12	W-13	W-14	W-15	W-16	W-17	W-18	W-19	W-20	W-21	W-22	W-23
37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59
HYPER BAND																						

W+24	W+25	W+26	W+27	W+28	W+29	W+30	W+31	W+32	W+33	W+34	W+35	W+36	W+37	W+38	W+39	W+40	W+41	W+42	W+43	W+44	W+45	W+46
60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82
HYPER BAND											ULTRA BAND											

W+47	W+48	W+49	W+50	W+51	W+52	W+53	W+54	W+55	W+56	W+57	W+58	A-5	A-4	A-3	A-2	A-1	W+59	W+60	W+61	W+62	W+63	W+64
83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100	101	102	103	104	105
ULTRA BAND												MID BAND					ULTRA BAND					

W+65	W+66	W+67	W+68	W+69	W+70	W+71	W+72	W+73	W+74	W+75	W+76	W+77	W+78	W+79	W+80	W+81	W+82	W+83	W+84
106	107	108	109	110	111	112	113	114	115	116	117	118	119	120	121	122	123	124	125
ULTRA BAND																			

1-6. CHANNEL SELECTION CIRCUIT OPERATION CHECK

1-6-1. CHANNEL UP/DOWN Selection

Adjustment Preparation

1) Set the TV set so that VHF (CH 11, CH 13), UHF(CH 14, CH 46, CH 83) and CATV(CH A, CH E, CH P, CH W) can be received.
(2) Set AIR/CABLE Mode to AIR.
(Press the MENU key, and select the SETUP and AIR/CABLE Mode using the ENTER Key.)

Adjustment Procedure

(1) Check that VHF are received correctly by pressing CH UP (▲) or DOWN (▼) control button.

Adjustment Preparation

(3) Set AIR/CABLE Mode to CATV 1.

Adjustment Procedure

(2) Perform the same operation as in item (1), and check that VHF and CATV are received correctly.

Adjustment Preparation

(4) Set AIR/CABLE Mode to CATV2.

Adjustment Procedure

(3) Perform the same operation as in item (1), and check that VHF and CATV are received correctly.

1-6-2. CHANNEL UP/DOWN

(Inclusive of AUTOPROGRAM Operation)

Adjustment Preparation

(1) Set the TV set so that VHF (CH 11, CH 13), UHF (CH 14, CH 46, CH 83) and CATV (CH A, CH E, CH P, CH W, CH A-2, CH GG, CH OO, CH WW) can be received.

Adjustment Procedure

(1) Set AIR/CABLE Mode to AIR.
(2) Select AUTOPROGRAM Mode and press (▶) key.
After AUTOPROGRAM operation is completed, by pressing the Channel UP (▲) or DOWN (▼) control button, check that the channels having Broadcast Signal(s) can be received.
(3) Set AIR/CABLE Mode to CATV 1.
(4) Perform the same operation as in item (2) check that CATV can be received correctly.

Adjustment Preparation

(2) Set to PROGRAM LIST Mode.

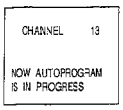
Adjustment Procedure

(5) Check that the SCAN of channels which can be selected is ON.

Note 1: CATV Channels, actual Input Channel Numbers and Indicated Channel Numbers.

A	14
E	18
P	29
W	36
A-2	98
GG(W+7)	43
OO(W+15)	51
WW(W+23)	59

Note 2: Display while AUTOPROGRAM is operating.

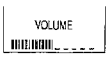


(See Table 1-6 on Bottom of Previous Page)

1-6-3. VOLUME UP/DOWN

Adjustment Procedure

(1) Check that the Sound Volume Level and Volume Indication is going up or down continuously by pressing Sound Volume UP (▲) or DOWN (▼) control button.



1-6-4. POWER ON/OFF

Adjustment Procedure

(1) Check that the Power alternates between ON and OFF by alternately pressing the POWER button.

1-6-5. AVX

Adjustment Procedure

(1) Check that the O.S.D. by the every press of the AVX button, such as below.

(CZ41/CY45/CY44/C745/C744)
Receiving CH → VIDEO: 1
→ VIDEO: 1 (S-IN) → VIDEO: 2 → VIDEO: 3
→ Receiving CH

VIDEO: 1
VIDEO: 1 (S-IN)

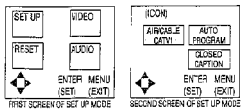
(C743)
Receiving CH → VIDEO: 1
→ VIDEO: 1 (S-IN) → VIDEO: 2

VIDEO: 2
VIDEO: 3

1-6-6. MENU (NOT FOR 35TX10B/CZ41)

Adjustment Procedure

(1) Check that the MENU O.S.D. displays by pressing MENU button on the Front Panel Control.
Note: MENU O.S.D. is displayed below:



(2) After MENU O.S.D. is displayed.
Check that the keys function change.

MENU	→	MENU
CH UP	→	▲ Key
CH DOWN	→	▼ Key
VOLUME UP	→	▶ Key
VOLUME DOWN	→	◀ Key
AVX	→	ENTER

1-6-7. MENU Mode (Using Remo-Con Jig)

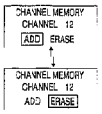
1-6-7-1. SET UP Mode.

Adjustment Preparation

(1)Set to CHANNEL MEMORY Mode.

Adjustment Procedure

(1) Check that the ADD,ERASE is selected by pressing the (▶) or (◀) control button.



Adjustment Preparation

(2) (a) Set the Mode to CLOSED CAPTION.
(b) Receive a Broadcast Signal having a CLOSED CAPTION signal.

Adjustment Procedure

(1) Set DISPLAY setting to ON by pressing (▶) or (◀) control button. At this time, set the other settings as follows.

1. DISPLAY: ON
2. MODE: C.C.
3. CHANNEL: 1

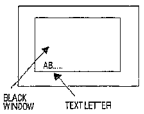
(2) Check that the CAPTION corresponding to the above setting is displayed on the screen.
(3) Set CHANNEL to 2.
(4) Check that the CAPTION of CHANNEL 2 is displayed on the screen.
(5) Set CHANNEL to 1.
(6) Check that the CAPTION of CHANNEL 1 (FIELD 2) is displayed on the screen.
(7) Set the mode to TEXT.

Adjustment Procedure

(8) Check that a black window appears and TEXT letters are displayed at the center of the screen.
(9) Repeat adjustment procedure from (3) to (6) and check that TEXT letters are displayed corresponding to each Mode.
(10) Set the Mode to CAPTION.
(11) The black window should disappear returning to the state of (2).
(12) Set ON/OFF to OFF.
(13) Check to be sure that the CAPTION letters disappear.

Remarks:

Note: Reading error should not occur on every mode.
The contents of error:
1. Wrong letters are displayed.
2. Letter omitting.
3. Other abnormal display.



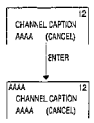
1-6-7-2. PROGRAM Mode.

Adjustment Preparation

(2) Set to CHANNEL CAPTION Mode.

Adjustment Procedure

(1) Select the "A" by pressing the (▲) or (▼) control button, and select the input position by pressing the (▶) or (◀) control button.
(2) After pressing the ENTER button, check that the indication of "AAAA" is the same as CH No. indication.
(3) Select the CHANNEL CAPTION Mode again, select the "CANCEL" by pressing the (▶) or (◀) control button and the ENTER button.
(4) Check that the "AAAA" is deleted when the CH No. is indicated, after pressing the "MENU" button.



Adjustment Preparation

(3) Set to CHILD LOCK Mode.

Adjustment Procedure

(1) Select CHILD LOCK SET by pressing the (▶) or (◀) control button.
(2) Press " 0 " button 3 times. ("000" is input)
(3) Check that the picture becomes pitch-dark, and sound does not come out.
(4) Set to CHILD LOCK Mode again, and select "CHILD LOCK CANCEL" by pressing the (▶) or (◀) control button.
(5) Press " 0 " button 3 times. ("000" is input.)
(6) Check that the picture and sound return to the previous condition.

Adjustment Preparation

(4) Set VOLUME CORRECTION Mode.

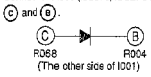
Adjustment Procedure

(1) Select the registration point using the (▲) or (▼) control button and the receivec Channel No. is memorized by pressing the ENTER button.
(2) Check that Volume Level changes and sets 100%-50% (5% step) using (▶) or (◀) control button.

1-6-7-3. CLOCK Mode (Clock Operation Check)

Adjustment Preparation

(1) Connect a Diode (IS2076, ISS270TA equivalent) between (C) and (B).

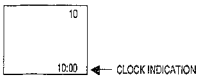


Remarks: The addition of the above diode intends to check the operation with clock counting operation as 60 time mode.

(2) Set to CLOCK SET Mode.

Adjustment Procedure

(1) After clock setting is done and the indication disappears, perform CH indication. Check that clock indication is displayed in addition to the CH indication, and that the clock indication is going by 1 second per minute.



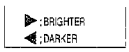
1-6-7-4. PICTURE Mode

Adjustment Preparation

(1) Receive the Color Bar Signal.
(2) Set to CONTRAST Mode.

Adjustment Procedure

(2) Check that CONTRAST is changed by pressing (◀) or (▶) control buttons.

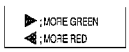


Adjustment Preparation

(3) Set to COLOR Mode.

Adjustment Procedure

(3) Check that COLOR is changed by pressing (◀) or (▶) control buttons.



Adjustment Preparation
(4) Set to TINT Mode.

Adjustment Procedure
(4) Check that TINT is changed by pressing (◀) or (▶) control buttons.

▶ : DEEPER
◀ : LIGHTER

Adjustment Preparation
(5) Set to BRIGHTNESS Mode.

Adjustment Procedure
(5) Check that BRIGHTNESS is changed by pressing (◀) or (▶) control buttons.

▶ : BRIGHTER
◀ : DARKER

Adjustment Preparation
(6) Set to SHARPNESS Mode.

Adjustment Procedure
(6) Check that SHARPNESS is changed by pressing (◀) or (▶) control buttons.

▶ : CLEARER
◀ : SOFTER

Adjustment Preparation
(7) Set to WHITE CONTROL Mode.

Adjustment Procedure
(7) Check that WHITE CONTROL is changed by pressing (◀) or (▶) control button.

▶ : OFF (STD.)
◀ : ON (COOL)

Adjustment Preparation
(8) Set to RESET Mode.

Adjustment Procedure
(8) Check that all picture setting modes return to delivery settings by pressing the ENTER button.

1-6-7-5. SOUND Mode
Adjustment Preparation
(1) Set to BALANCE Mode.

Adjustment Procedure
(1) Check that BALANCE is changed by pressing control (◀) or (▶) control buttons.

▶ : RIGHT
◀ : LEFT

Adjustment Preparation
(2) Set to BASS Mode.

Adjustment Procedure
(2) Check that BASS is changed by pressing control (◀) or (▶) control buttons.

▶ : STRONG
◀ : WEAK

Adjustment Preparation
(3) Set to TREBLE Mode.

Adjustment Procedure
(3) Check that TREBLE is changed by pressing control (◀) or (▶) control buttons.

▶ : STRONG
◀ : WEAK

Adjustment Procedure
(4) Set to RESET Mode.

Adjustment Procedure
(4) Check that all sound setting modes return to delivery settings by pressing ENTER button.

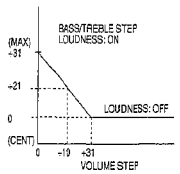
Adjustment Preparation
(5) (a) Set to "VOLUME" step at "10. Set to "BASS" and "TREBLE" at center when "LOUDNESS" is turned OFF. Set to "LOUDNESS" Mode.
(b) Set "LOUDNESS" to OFF, and "BASS/ TREBLE" to center.
(c) Set it to LOUDNESS Mode.

Adjustment Procedure
(5) Check that "BASS" and "TREBLE" are changed as below table when set to "LOUDNESS" is turned ON by pressing (◀) or (▶) control button "LOUDNESS" turn OFF after checked.

LOUDNESS	BASS	TREBLE
OFF	CENTER	
ON	+21 STEP	

(When VOLUME at 10)

***Note:** According to Volume Setting Level, this function works as shown in below figure.



Adjustment Preparation
(6) (a) Input Stereo Sound Signal to VIDEO:1 terminals, and set " VIDEO:1" by AVX button.
(b) Set to SURROUND Mode.

Adjustment Procedure
(6) Check that sound is change more loudly when set to MUSIC or MOVIE Mode by pressing (◀) , (▶) , (▲) or (▼) control button.

Adjustment Preparation
(7) (a) Input Monaural Sound Signal to VIDEO:1 " L " terminal and set "VIDEO:1" by AVX button.
(b) Set to SURROUND Mode.

Adjustment Procedure
(7) Check that sound is change more loudly when set to SIMULATE mode by(◀) , (▶) , (▲) or (▼) control button.

1-6-7-6. RESET Mode.
Adjustment Preparation
(1) Set PICTURE Setting to minimum "CONTRAST" and SOUND setting to "BALANCE" to left.
(See item **1-6-7-4** and **1-6-7-5.**)
(2) Set to RESET Mode.

Adjustment Procedure
(1) Check that Picture and Sound performance return to delivery setting by pressing the ENTER button.
(CONTRAST to maximum, BALANCE to center)

1-6-7-7. FAVORITE CHANNELS Mode.
Adjustment Preparation
(1) Set to FAVORITE CHANNELS Mode by pressing one of (◀), (▶) , (▲) or (▼) control buttons.

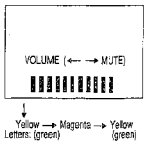
Adjustment Procedure
(1) Select registration position using (◀) , (▶) , (▲) or (▼) control buttons, and check that the Channel No. selected is registered by pressing the ENTER button.
Note: 16 stations could be registered.
(2) After Normal Mode is set using the MENU button, check that the Registered Channel can be selected by using (◀), (▶) , (▲) or (▼) control buttons.
Note: The selected channel is received after 0.5 seconds.

1-7. REMO-CON OPERATION CHECK
The Remo-Con check jig should be used for Remo-Con operating range and Remo-Con operation check.

1-7-1. Direct Channel Selection
Adjustment Procedure
(1) Input 2 or 3 digits of Channel Number with the buttons of the Remo-Con check jig "0 - 9" and "100". Check that the input number and the On-Screen Display number are the same.

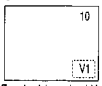
1-7-2. LST-CH (Last Channel Recall)
Adjustment Procedure
(1) Check that the set receives alternately between the channel which is being received and the channel which was received just before now by alternately pressing the 'LST-CH" button of the Remo-Con check jig.

1-7-3. MUTE
Adjustment Procedure
(1) Check that the sound alternates between Mute and Mute Free by alternately pressing the "MUTE" button of the Remo-Con check jig. At this time, check that the indication color alternates between yellow (letters:green) and magenta.



1-7-4. RECALL
Adjustment Procedure
(1) Check that On-Screen Display Channel No. indication alternates between ON and OFF by alternately pressing the "RECALL" button of the Remo-Con check jig.

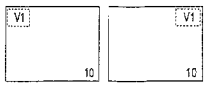
1-7-5 . P in P (CZ41, CY45, CY44, C745, C744)
Adjustment Preparation
(1) Connect the signal to ANT and receive it.
(2) Connect the signal to VIDEO: 1.



Note: At this CASE, sub-picture should be V1.

Adjustment Procedure
(1) Check that, by alternately pressing the "P in P" button of Remo-Con check jig, sub-picture alternates between ON and OFF. When sub-picture is ON, check that the Channel No. and "V1" are displayed.

1-7-5. SHIFT
Adjustment Preparation
(1) Press "P in P" button to set to P in P Mode.



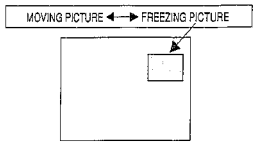
Adjustment Procedure
(1) Check that, by alternately pressing the SHIFT button of Remo-Con check jig, sub-picture moves counterclockwise. At this time, check that "V1" of sub-picture also moves as well.
Note: When sub-picture is in the upper of the screen, the Channel No. of main picture comes to the lower right.

1-7-7. EXCHANGE
Adjustment Preparation
(1) Press "P in P" button to set to P in P Mode.

Adjustment Procedure
(1) Check that, by alternately pressing the "EXCHANGE" button, the contents of main picture and sub-picture are exchanged.

1-7-8. FREEZE
Adjustment Preparation
(1) Connect the signal to ANT and VIDEO: 1.
(One or both of the pictures should be moving picture.)
(2) Press "P in P" button to set to P in P Mode.
(3) Sub-picture should be moving picture by "EXCHANGE" button.

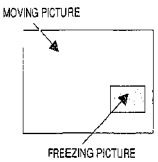
Adjustment Procedure
(1) Check that, by alternately pressing "FREEZE" button, sub-picture alternates between moving picture and freezing picture.



(2) Press "P in P" button to make sub-picture disappear.

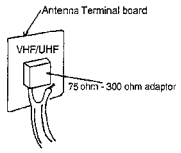
1-7-9. FREEZE (P in P OFF)
Adjustment Preparation
(1) Connect signals to ANT and VIDEO: 1. Both signals should be moving picture.
(2) Set P in P to OFF.

Adjustment Procedure
(1) Check that freezing picture of main screen appears by pressing the FREEZE button of the Remo-Con check jig.
(2) Check it also in the TV and VIDEO: 1 modes.
(3) Check that sub-picture disappears by pressing the FREEZE button at picture freezing.
(4) Check that it turns to normal P in P sub-picture by pressing the P in P button at picture freezing.



1-8. Weak Electric Field Check
Adjustment Preparation
(1) Connect one side of the 300 ohm feeder to 75 ohm - 300 ohm antenna adaptor. Connect the antenna adaptor to the VHF antenna terminal board as shown.
(2) Turn to No Signal Condition.

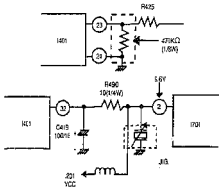
Adjustment Procedure
(1) Check that oscillation and abnormal beat etc. does not occur in any of the channel.



1-9. MTS Demodulating Circuit Adjustment

1-9-1. Stereo VCO Adjustment (R423)

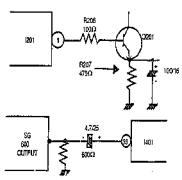
Adjustment Preparation
(1) Same as items 1-9-2 (1) and (2).
(2) Connect I401 pin (23) to pin (24) through 470KΩ resistance as shown in the figure.
(3) Connect a Frequency Counter to I401 pin (41). Use the probe of 1 : 1.
(Probe standard Ri ≧ 1 M ohm, Ci ≦ 15pF)
(4) Input of I401 pin (39) is no signal.
(5) Apply +9.6V ± 0.1V to the pin (2) of I701 as shown in the figure. (I401 +B)



Adjustment Procedure
(1) Turn VR(R423) to set to 15.73 ± 0.01KHz.
(2) After the adjustment, remove the 470KΩ (Between pins (23) - (24) of I401)

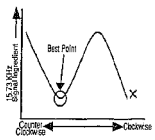
1-9-2. Filter Adjustment VR(R418)

Adjustment Preparation
(1) Set VR(R4IK) fully counterclockwise.
(2) Set Q201 Emitter to GND through capacitor 100uF/16V as shown in the figure.
(3) Apply the signal to I401 pin (39) with the jig shown as follows.



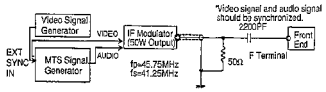
(a) SG Output Signal Specification
(1) FREQUENCY
f = 15.73 KHz (Sine Wave)
(2) Signal Level
V = 100mVrms
(4) Connect an Oscilloscope to I401 pin (39) (L-R out).

Adjustment Procedure
(1) Input signal (a) and adjust VR(R418) so that the waveform of pin (39) (15.73KHz included) is minimum.

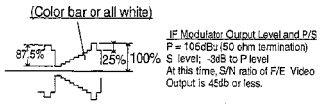


1-9-3. Input Level Adjustment VR(R41K)

Adjustment Preparation
(1) Apply the signal to TUNER (U101) IF output terminals of MAIN PWB using the jig shown below.



IF Modulator output signal waveforms
(Color Bar or All White)



IF Modulator Output Level and P/S
P = 106dBu (50 ohm termination)
S level; -3dB to P level
At this time, S/N ratio of F/E Video Output is 45db or less.

Sound Modulation Condition
•Noise Reduction Encoder: ON
•Stereo Signal: (1) R = 0(L only), 300Hz, 30% modulation (Note 2)*
(2) R = 0(L only), 3KHz,30% modulation (Note 2)*
•Monaural Signal: (3) Monaural, 400Hz 100%;modulation (PRE-EN/OFF)
•SAP Signal: (4) SAP, 300Hz 30% modulation (Note 2)*

(2) Connect AC Voltmeter Vo to I401 pin (39).
(3) Same as Item 1-9-1 (5) (Apply +B to I401)
* Refer to next page.

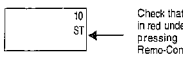
Adjustment Procedure
(1) Select Sound Input Signal (3) and adjust VR(R41K) to Vo = 150m Vrms ± 5m Vrms.

1-9-4. Separation Adjustment VR(R429, R42A)

(The adjustment of items **1-9-1.** thru **1-9-3.** should have been finished.)

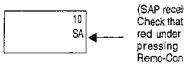
Adjustment Preparation
(1) Use the same jig as Input Level Adjustment.
(Be sure to remove the AC Voltmeter connected to I401).
(2) Connect an Oscilloscope to I401 pin (1).
(3) Same as in items 1-9-3 (3) and (4).
(4) Set "MTS MODE" to "STEREO".

Remarks:
Pay attention that the separation adjusting point may be deviated if the Input Level is not regularly adjusted.



Check that "ST" is indicated in red under CH indication by pressing RECALL key of Remo-Con check jig.

Note 1: Use the Sound Modulator the frequency characteristic of which should be with in + 1% during 50Hz - 100KHz.
Note 2: Turn OFF the Noise Reduction Encoder (NR) and set the modulation degree to 30%, and then turn ON the NR. Set the modulation degree at the output of low frequency Signal Generator. Leave the Sound Modulator VR of the IF modulator as it is.



(SAP receiving check)
Check that SA is indicated in red under CH indication by pressing RECALL key of Remo-Con check jig.

Adjustment Procedure
(1) Select Sound Input Signal (1) and adjust VR(R42A) so that 300 Hz level is minimum.
(2) Select Sound Input Signal (2) and adjust VR(R429) so that 3KHz level is minimum.
(3) Repeat (1) and (2).
Adjustment precision: within + 1dB from minimum point.

1-9-5 SAP Receiving Check

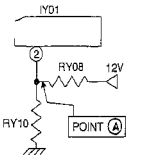
Adjustment Preparation
(1) Same as in items 1-9-4, (1) - (4).
(2) Set to "MTS MODE" to 'SA'.

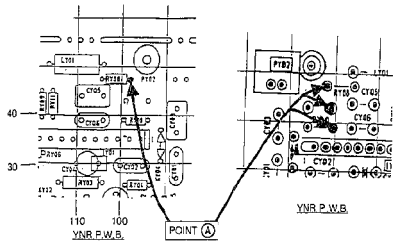
Adjustment Procedure
(1) Select Sound Input Signal (1) and designate the Output Level as Vst.
(2) Then select Sound Input Signal (4) and check that the Output level is almost the same as Vst.

1-10. YNR Operation Check (35TX10B/CZ41)

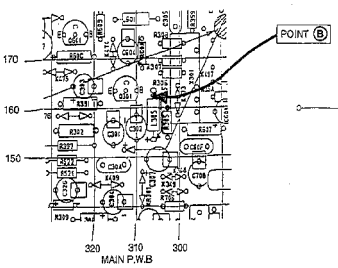
Adjustment Preparation
(1) Receive Circle Pattern

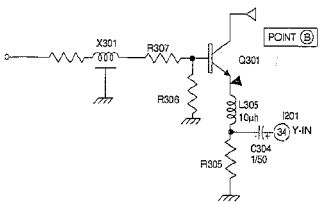
Adjustment Procedure
(1) Connect the DC Voltmeter to point (A) of YNR P.W.B. and check that the DC Voltmeter is 9.3V ± 0.3V.





(2) Connect the DC Voltmeter to point (B) of MAIN P.W.B. and check that the DC Voltmeter is 1.15V ± 0.3V.





2. FINAL ADJUSTMENT/COMMON SERVICE ADJUSTMENT

2-1. Purity Convergence Adjustment

Note: For A78LCU30X (HITACHI 31V Dark Tint), A68KSA30X (HITACHI 27V Dark Tint), M78JUA165X (31V Dark Tint),

M68JUA168X (27V Dark Tint) applies to item 2-1-1(8). For ITC TYPE A69AEJ15X01 (35V Dark Tint) only applies to item 2-1-1 (8) (PURITY Check).

Preparation of Adjustment

(1) Keep DY attached to CPT funnel.
(2) Turn ON the set and receive Crosshatch Signal (or Circle Pattern Signal). Adjust the Static Convergence coarsely according to item 2-1-3.
(3) Receive Circle Pattern Signal and adjust the White Balance according to item 2-4.
(4) Set BRIGHTNESS control and CONTRAST control to maximum, and heat-run the set with Circle Pattern Signa received for 40 minutes or more.

2-1-1. Purity Adjustment

THIS ADJUSTMENT METHOD APPLIES TO THE PURITY ADJUSTMENT BY USING MICROSCOPE

(1) Adjust coarsely White Balance, Static Convergence (center) and Focus.
(2) Receive Circle Pattern and heat-run more than T minutes with CONTRAST and BRIGHTNESS maximum. Do not delete the raster nor vary the current before fixing the position of DY. Heat-run should be done with perfect raster.
(DY and Tilt should have been coarsely adjusted)

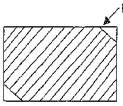


TABLE *

CPT	T
A68KSA30X	40 Min
M68JUA168X	
A78LCU30X	45 Min
M78JUA165X	45 Min

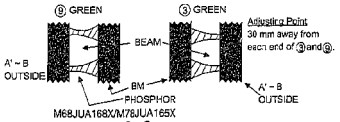
(3) The magneticic field in the artificial magnetic field should follow the table below and the set should face as table 2. Degauss it from the outside.

DESTINATION	VERTICAL FIELD	HORIZONTAL FIELD
USA	0.45 G	0.3 G
CANADA	0.54 G	0.15 G
UNIVERSAL	0.36 G	0.3 G
PANAMA, HAWAII	0.2 G	0.3 G
TAIWAN	0.22 G	0.37 G

TABLE 2. Directions for adjustment

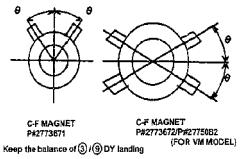
A68KSA30X	North
M68JUA168X	
A78LCU30X	North
M78JUA165X	North

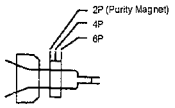
(4) Adjust the position of Purity Magnet and DY, keep the landing balance of ③ and ⑨, and adjust so that the landing of ③ and ⑨ is as follows while observing with a microscope.
A68KSA30X/A78LCU30X



M68JUA168X/M78JUA165X
Adjusting Point ③/⑨ A' outside.

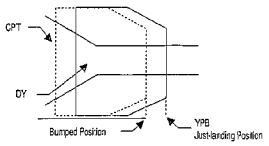
(A) Open the Purity Magnet as follows in order to move the raster



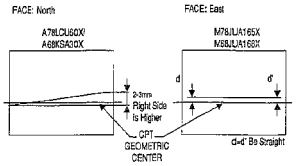


(B) YPB (Yoke Pull-Back) should be as follows.
(Distance between the bumped position of DY toward the funnel and the just-landing position of ③ and ⑨.)

CPT	YPB (DESIGN CENTER)
A68KSA30X	2.44mm
M68JUA168X	
A78LCU30X	2.2mm
M78JUA165X	2.2mm

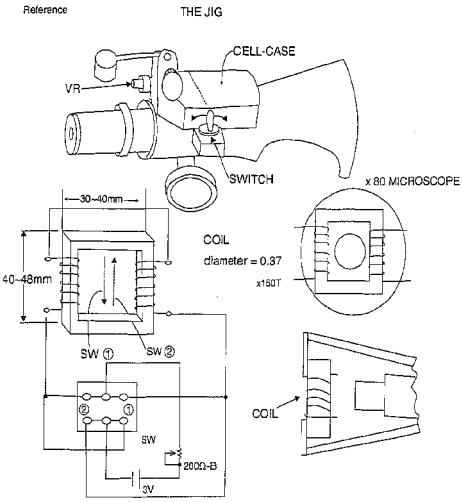


(C) DY Tilt should be as follows:



(5) Fix DY with fixing torque of 14kg.cm
Control the torque by an electrical driver.
(6) If any misfanding occurs, correct with magnets.
At this time, if the white uneveness is all right, any magnet is not neaded.
(7) After peripheral convergence is adjusted, check the position of DY and tighten the DY again. (14kg.cm)

Reference THE JIG



Fix coil to CRT side of microscope. Set it up side down and measure it.. Check that beam moves to the right and left equally in quantity.

(6) Purity Check
The magnetic field in the artificial magnetic field should follow the magnetic field according to the destination, and the set should face as follows. After degaussing in each direction, check these items visually and with a microscope.
(A) No problem in white uneveness.
(B) Each single color must not hit any other colors.
(C) If white or each single color is defective, apply a magnet (S) on CPT for correction.
If any magnet is applied, check it after degaussing.

CPT	CHECK FACE
M68JUA168X	SOUTH, NORTH
M78JUA165X	"
A68KSA30X	SOUTH, NORTH
A78LCU30X	"
A69AEJ15X01	SOUTH, NORTH

2-1-2. Purity Adjustment

(THIS ADJUSTMENT METHOD APPLIES TO THE HAND-OPERATED PURITY ADJUSTMENT.)

(1) Use the Earth's magnetic field (Location of the set).
(2) Adjust Focus coarsely according to item 2-2.
(3) Adjust Convergence coarsely according to item 2-1-4.
(4) Receive Circle Pattern Signal and check that CONTRAST and BRIGHTNESS are maximum.
(5) Receive Magenta Signal. When the Magenta Signal is not available, short-circuit between the Base and Emitter of Q855 to set to Magenta.
(6) Press DY fully against CPT funnel and turn the Purity Magnet so that the Vertical Magenta Band comes to the center of the picture. (Fig. 2-1-2-1) Check that color uneveness of both sides are approximately equal at this time.
The openings of the Purity magnet should be symmetric.
(Fig. 2-1-2-2)

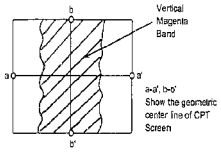


Fig. 2-1-2-1

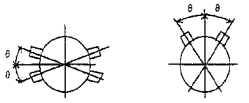


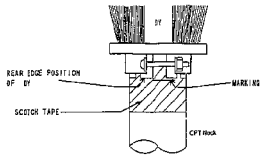
Fig. 2-1-2-2

The openings of purity magnet should be symmetric on the right and left sides (P#2773671) and on the upper and lower sides (P#2773672), (P#2775082).

(7) Receive the Single Red Signal.
When the Single Red Signal is not available, short-circuit between the Base and Emitter of Q854, and between the Base and Emitter of Q857 to set to Single Red Signal.

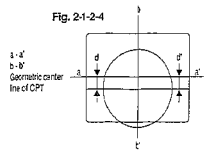
(8) Pull back DY gradually and when the color uneveness of both sides of the picture disappear, mark the rear edge position of DY on the tape wound around CPT neck as shown in Fig. 2-1-2-3. Pull back DY further and just before the color uneveness starts to appear on both sides of the picture, mark the rear edge position of DY on the tape by the same way.
At this time, pull back DY so that the center axis of DY and CPT axis match.

Fig. 2-1-2-3



(9) Move DY so that the rear edge position of DY comes to the center of the two marked lines and fasten DY as d = d'. (Fig 2-1-2-4).
Further insert the rubber wedge between DY and CPT funnel from the top and raise DY backwards.

Fig. 2-1-2-4



(10) Set CPT axis direction magnetic field according to the Earth's magnetic field setting.
(The direction of the magnetic field should be from the CPT screen side to the neck side.)

(11) After degaussing it from outside, check the Purity in each color of R,G and B visually. Then, turn the screen to White and check the landing at the screen position shown in Fig. 2-1-2-5 with a microscope.

Criteria with microscope
There should be no mislanding at positions 2-4-8 and 10. (Refer to the mislanding criteria)
Green beam should be at the center of the green phosphor at position C.

(12) Turn over the direction of CPT axis direction magnetic field of the Earth's magnetic field and check it by the same C way as item (11). The positions of mislanding criteria with microscope should be 2, 4, 8 and 10. (Fig. 2.-1-2-5)

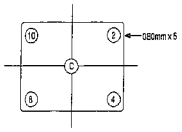


Fig. 2-1-2-5

Mis-Landing Criteria
The following conditions are defined as mislanding. Each color beam shines on the phosphor of the applied color and there are phosphor parts which are not luminous (shaded parts in the Fig. 2-1-2-6) between the luminous part and black matrix or each color beam shines on the phosphor of not applied color.

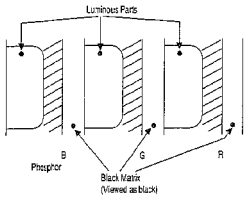


Fig. 2-1-2-6 Enlarged view of screen with microscope

(13) To improve the mislanding mentioned above, it's acceptable to stick the permanent magnet to CPT funnel.
(Fig. 2-1-2-7 and Fig. 2-1-2-8)

Usage
Apply a silicone rubber KE-40 WRTV to the permanent magnet shown in the Figure 2-1-2-8. , adhere it to CPT funnel and then fix it with permaseal tape.

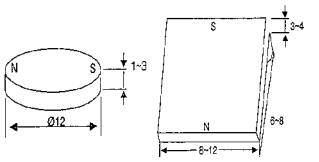


Fig. 2-1-2-7

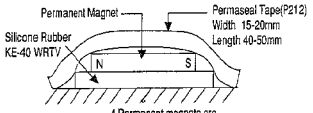
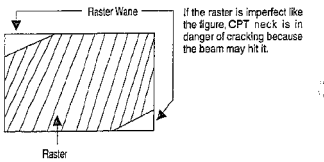


Fig. 2-1-2-8

Notes for pre-heat
Before pre-heating, stick DY to CPT funnel and fix it so that the raster is perfect.



2-1-3. Static Convergence Adjustment (Screen Center Part) (Except ITC CPT)

(1) Receive the Crosshatch Signal and set BRIGHTNESS to center, CONTRAST to minimum.

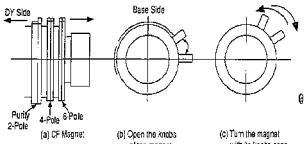
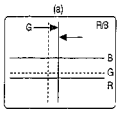


Fig. 2-1-3-1

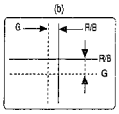
Open the knobs of 4-pole magnet (2 sheets)(Fig.2-1-3-1(b)) and match the blue/red vertical lines at the center of the screen as shown in fig. 2-1-3-2(a).

Fig. 2-1-3-2



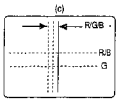
(3) Turn the 4-pole magnet with its knobs open (Fig. 2-1-3-1(c)) and match the blue/red horizontal lines as shown in Fig. 2-1-3-2(b).

Fig. 2-1-3-2



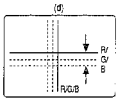
(4) Open the knobs of 6-pole magnet (2 sheets) and match the green vertical line at the center of the screen to the blue/red vertical lines shown in Fig. 2-1-3-2(c).

Fig. 2-1-3-2



(5) Turn the 6-pole magnet with its knobs open and match the green horizontal line at the center of the screen to the blue/red horizontal lines as shown in Fig. 2-1-3-2(d).

Fig. 2-1-3-2



(6) After the adjustment of items (1) - (5), if red/blue/green (3 colors) do not match, repeat the adjustment of (1) - (5).

(7) After checking that Purity and Static Convergence are adjusted to the best condition, fix C-F Magnet with white paint.

2-1-4. Dynamic Convergence Adjustment (Except ITC CPT Type)

(1) Insert an adjustment wedge (temporary) between the top of DY opening and CPT funnel as shown in Fig. 2-1-4-1. By inserting the wedge gradually, match the red and blue vertical lines at the top and bottom of the screen and also match the red and blue horizontal lines of both sides of the screen as shown in Fig. 2-1-4-2 (a).

(2) Adjust the swinging in the right/left directions of DY while observing 6 and 12 horizontal lines of the screen and match the red and blue horizontal lines.
As shown in Fig. 2-1-4-2 (b), when the blue is outside from the red on CPT screen, insert the DY fixing wedge between the right-side DY viewed from the rear of CPT and CPT funnel.

(3) AS shown in Fig. 2-1-4-2 (c), when the blue is inside from the red on CPT screen, insert the wedge between the left-side DY and CPT funnel.

(4) Insert two DY fixing wedges with approx.120 to the DY fixing wedge inserted in the Items (2) or (3) and remove the adjustment wedge (temporary).
Use the DY fixing wedge after peeling off the tape. After the location, press and adhere it to the funnel.

HITACHI CPT A68KSA30X, M75JUA165X, M66JUA168X, A78LCU30X

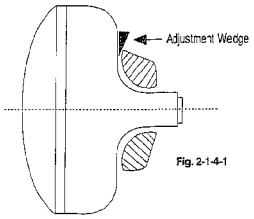


Fig. 2-1-4-1

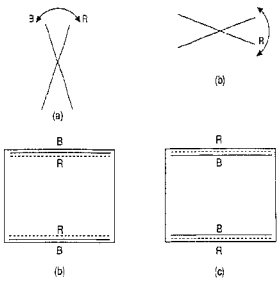


Fig. 2-1-4-2

2-2 Focus Adjustment

NO.	MODEL	CPT	CONDITION	FOCUS VR SETTING POSITION
1	35TX10B CZ41	A89AEJ15X01	• Receive the Crosshatch Signal • Picture Control: Maximum • Sharpness Control: Center • Brightness Control: Where the back ground is set.	Turn the Focus VR gradually clockwise from the full counterclockwise. Then set it to the point where the focus of the 5th vertical line from the screen center becomes best.
2	31UX5B CY45	M78JUA165X	Same as above	Turn the Focus VR gradually clockwise from the full counterclockwise. Then set it to the point where the focus of center vertical line from the screen center becomes best.
3	31CX4B CY44	A78LCU30X (HED-US)	Same as above	Turn the Focus VR gradually clockwise from the full counterclockwise. Then set it to the point where the focus of center vertical line from the screen center becomes best.
4	27UX5B C745	M58JUA168X	Same as above	Turn the Focus VR gradually clockwise from the full counterclockwise. Then set it to the point where the focus of the 6th vertical line from the screen center becomes best.
5	27CX4B C744 27CX3B C743	A69KSA30X (HED-US)	Same as above	Turn the Focus VR gradually clockwise from the full counterclockwise. Then set it to the point where the focus of center vertical line from the screen center becomes best.

2-3. Deflection Circuit Picture Adjustment

2-3-1. Horizontal Center Adjustment VR(R704)

Adjustment Preparation

(1) Receive Circle Pattern Signal. Set CONTRAST to maximum and BRIGHTNESS to center.

Adjustment Procedure

(1) Adjust H. size marker, turn VR(R704) to adjust difference of right and left horizontal size marker is within 0.5.

2-3-2. Vertical Size Adjustment VR(R52A)

Adjustment Preparation

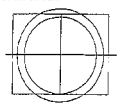
(1) The set should face the North or South.
(2) Receive Circle Pattern Signal, and set CONTRAST to maximum and BRIGHTNESS to center.

Adjustment Procedure

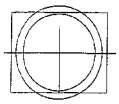
(1) Adjust V. size VR(R52A) so that the outer circle of the Circle Pattern is like the figure.

Note: Wait 5 minutes or more after turning the power ON to perform this adjustment.

(i) When the picture center is below CPT center
Adjust so that 1/2 of the width of the outer circle comes to the top of the screen.

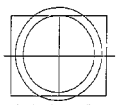


(ii) Standard Condition
Adjust so that the inner circle comes in contact with the top and bottom of the screen.



(iii) When the picture center is above CPT center.

(1) When the picture center is 0-2 mm above CPT center, adjust so that the bottom of the inner circle comes in contact with the bottom of the screen.



(2) Except for the above, adjust so that 1/2 of the width of the outer circle comes to the bottom of the screen.

2-3-3. Side Pin Distortion Adjustment VR(R752)

Adjustment Preparation

(1) Receive Crosshatch Signal and set CONTRAST to maximum and BRIGHTNESS to the point where the background is set.

Adjustment Procedure

(1) Adjust VR(R752) so that the line of the right and left is straight.

2-3-4. Horizontal Size Adjustment VR(R755, R775)

Adjustment Preparation

(1) Receive Circle Pattern Signal.
(2) Set CONTRAST to maximum and BRIGHTNESS to center.

Adjustment Procedure

(1) Set the VR(R775) at the counterclockwise end.
(2) Vary VR(R755) so that the horizontal size markers at the right and left end are A - A on the average.*
(3) Vary VR(R775) so that the horizontal size markers at right and left are B - B on the average.*
(4) Vary VR(R704)so that the difference of the horizontal size markers at the right and left end are within 1.5.

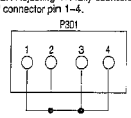
*

CPT SIZE	A	B
35V	0.5	1.0
31V	1.0	1.5
27V	1.0	1.5

2-4. White Balance Adjustment

Adjustment Preparation

(1) Apply heat-run 10 minutes or more after the power is turned ON.
(2) Check that the Purity Adjustment has been completed.
(3) Set the vertical incident illumination on the CPT surface to 20 lux or less.
(4) Receive White Raster Signal.
(5) Set Drive Adjusting VRs (R806, R816) to the mechanical center.
(6) Turn Low Brightness White Balance adjusting VRs(R807, R814, R818) fully counterclockwise.
(7) Set the Color Temperature Control (White Control) to OFF (STD).
(8) Turn the SCREEN Adjusting VR fully counterclockwise.
(9) Short circuit TP connector pin 1–4.



Adjustment Procedure

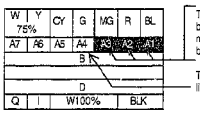
(1) Turn the SCREEN Adjusting VR clockwise and set it to the position where the bright colored line starts appearing on CPT screen. Do not turn thereafter the Low Brightness White Balance VR (This is called VR-A) corresponding to the color first appearing. When a bright colored line does not appear, set the SCREEN VR fully clockwise.
(2) Turn clockwise the Low Brightness White Balance VRs except VR-A and adjust so that the red, green and blue bright colored lines appear on the screen equally.
(3) Remove the jig which has shorted TP connector.
(4) Set CONTRAST and BRIGHTNESS control to minimum and turn SUB-BLACK LEVEL VR (R340) to set at the position where the white raster is just slightly seen.
(5) Set the White Balance Meter at the center of the screen.
(6) Adjust CONTRAST control so that the indication of the Brightness Meter is 80% of the full scale. Then, turn the Drive adjusting VRs (R806, R816) and adjust the High-Brightness White Balance.
(7) Adjust CONTRAST control to minimum and check that the Low-Brightness White Balance is obtained by directly observing the CPT surface, without using a mirror.
(8) When the Low Brightness White Balance is not obtained, adjust other Low-Brightness White Balance VRs except VR-A and return to Item (6). **White Balance Color Temperature Setting 7,200K.**
(9) Set White Control (Color Temperature Control) to ON (COOL), and check that Color Temperature is approximately 9,300K.

2-5. Sub-Black Level Adjustment VR(R340) Adjustment Preparation

(1) Apply heat-run for 10 minutes or more after the power is turned ON.
(2) Receive Color Bar Signal.
(3) Set CONTRAST and COLOR Controls to minimum.
(4) Set the vertical incident illumination on the CPT surface to 20 lux or less.
(5) Set BRIGHTNESS Control to the center position.
(6) Set White Control to OFF (STD).

Adjustment Procedure

(1) Turn SUB-BLACK LEVEL adjustment VR (R340) as follows. SUB-BLACK LEVEL adjustment the background of A1,A2, A3 are set to black and A4 is set lighter black.



(2) Check by directly observing the CPT surface, without using a mirror.

2-6. AGC Adjustment VR(R202)

Adjustment Preparation

(1) After all the adjustments are finished, heat-run 5 minutes or more in signal receiving condition.
(2) Receive Color Bar Signal or High-VHF Channel (CH10).
(3) Set CONTRAST to maximum, and BRIGHTNESS to On-Screen Display center.
(4) Antenna input power: - 53dBm $^{+3}_{0}$ (-53dBm ~ -59dBm)
(5) Connect DC Voltmeter of internal resistance 1MΩ or more to TP15.

Adjustment Procedure

(1) Adjust AGC Adjustment VR (R202) until the indication of DC Voltmeter does not change any more at the maximum point. The reading of DC Voltmeter is named V1.
(2) Adjust AGC Adjustment VR (R202) so that the indication of DC Voltmeter is (V1-(0.5 ± 0.2))V. Verify that there is no video noise visibly seen.

2-7. Channel Selector Operation Check

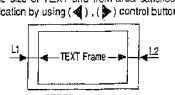
2-7-1. CCD Display Position Adjustment.

Adjustment Preparation

(1) Receive an Encoded Signal of Closed Caption Signal.
(2) Press and hold down the AVX key and press POWER key of MAIN P.W.B. front keys, turn ON the set.

Adjustment Procedure

(1) When the TEXT from the CAPTION appears On Screen. Adjust the size of TEXT and from area satisfies the following specification by using (◀), (▶) control buttons.



CPT Effective Screen
/ L1-L2 /≤2mm or
less at CPT Center

2) When the adjustment item(1) is finished, turn OFF the set by the POWER key.

2-8. Matching Check With Other Instruments

2-8-1. VIDEO 1 Input Terminal Matching Check

Adjustment Preparation

(1) Input a Video Signal to the VIDEO 1 terminal.
The Video Signal Level should be within 1 ± 0.2 Vp-p (75 ohm termination) with 100% White Signal.
(2) Input an Audio Signal to the AUDIO 1 terminal. The Audio Signal Level should be 400m Vrms ± 2m Vrms at this time. (Connect VCR or TV TUNER)
(3) Connect an Audio AMP to the AUDIO OUT terminals. (Or connect VIDEO and AUDIO terminals of a standard monitor.

Adjustment Procedure

(1) Check that the set receives signal when the AVX1 Mode is selected, by pressing the AVX (FUNCTION) button on the front side of the set.
(2) When an External Input is performed, the Video and Audio should not be abnormal.
The 100% White Signal that RF input receives should be as bright as the Video Signal 1Vp-p (75 ohm termination). As for the sound, when the 100% modulation that RF input receives is 25KHZ DIV., the Sound Level should be as much as the External Audio Signal (400 Vrms) level.

2-8-2. VIDEO 2 Input Terminal Matching Check.

Adjustment Preparation

(1) Same as 2-8-1.

Adjustment Procedure

(1) Check that the set receives signal at AVX2 Mode.

2-8-3. VIDEO 3 Input Terminal Matching Check

Same as 2-8-2.

2-8-4. S -IN Input terminal Matching check.

Adjustment Preparation

(1) Connect the Video/Chroma Signal to S-IN terminal.
(2) Connect the Sound Signal to AUDIO 1 input terminals.

Adjustment Procedure

(1) Check that the set receives signal at S-IN Mode.

2-8-5. AUDIO Output Level Check

Adjustment Preparation

(1) Input the same Audio Signal as Item 2-8-1 (2) to AUDIO IN terminal(L). At this time, connect nothing to R terminal.
(2) Input the same Audio Signal as Item 2-8-1 (2) to AUDIO IN terminal (R). At this time, connect nothing to L terminal.
(3) Check that the Normal Sound is output from both sides of the speakers when signal in item (1) is input.
(4) Check that the Normal Sound is output from only the right ((R) speaker when signal in item (2) is input.

Adjustment Procedure

(1) Check that the Audio Output of AUDIO AMP connected to AUDIO Hi-Fi OUT terminals or monitor changes according to the "VOLUME" of the set.
(2) Confirm that the Output Level of item(1) should be 1Vrms (2.8 Vp-p) ±20%. (Above level is equivalent to maximum VOLUME,100% Modulated Signal Input.)

2-9. Safety Check

2-9-1. Polarity Check

There should be electricity between AC Power Cord and Chassis Earth.

2-10. MTS Operation Check

2-10-1. STEREO/SAP Broadcast Receiving Check

Adjustment Preparation

(1) Set the set so that a MTS Broadcast (STEREO/SAP) can be received.
(2) Set MTS Mode to STEREO or SAP Mode.
Note: To select between "STEREO/SAP", display sound setting of MTS Mode and select SOUND MENU.
(3) Set BALANCE to the center.

Adjustment Procedure

(1) When one of the MTS Broadcast Stereo or SAP is received, check that "ST" or "SA" is displayed on the screen.

STEREO	11
or SAP	ST
	or SA

(2) STEREO Broadcast Receiving Check
(I) Select MTS Mode and press ENTER button to display "STEREO" on the screen.
(II) When only Lch signal is received, Lch sound comes out from the left speaker.
(III) When only Rch signal is received, Rch sound comes out from the right speaker.
(IV) When Monaural Signal is received, Monaural Sound comes out from both of the right and left speakers.
(3) SAP Broadcast Receiving Check
(I) Select MTS Mode and press ENTER button to display "SAP" on the screen.
(II) SAP signal comes out from both of the right and left speakers.
(III) When no SAP signal,the sound on "MAIN" side comes out.
Note: When the Channel selection is performed or RECALL button is operated "ST" or "SA" is shown below the Channel No. (For approximately 8 seconds)

2-10-2. MTS Mode Check

Adjustment Preparation

(1) Set the set so that a MTS Broadcast (STEREO/SAP) can be received.
(2) Set BALANCE to the center.

Adjustment Procedure

(1) When "MTS MODE" Mode is set to "MONO" side, check that STEREO and MONO indication lamps which have been ON are turned OFF and that Monaural Sound comes out from the right and left speakers.
(2) When "MTS MODE" Mode is set to "STEREO" side, check that STEREO and MONO indication lamps which have been OFF are turned ON and that STEREO and SAP sound can be received.

2-10-3. STEREO Separation Check

Adjustment Preparation

(1) Set the set so that a MTS Broadcast (STEREO/SAP) can be received.
(2) Make Surround "OFF".
(3) Set MTS MODE to "STEREO".
(4) Connect AUDIO OUT terminals L and R to an Oscilloscope.

Adjustment Procedure

(1) When STEREO L only signal (or R only signal) is received, check that the Output Level Ratio of L CH and R CH is 15 dB or more. (Example)

CH	Output Level
L	1.2 Vpp
R	0.21 Vpp or less

When L only is received (100% modulation)

2-11. Setting For Delivery

Setting is possible by Remo-Con jig.

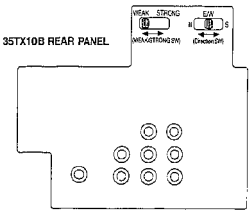
SPECIFICATION BY MODELS

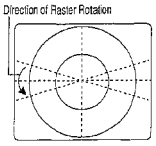
NAME	SPECIFICATIONS BY MODELS	
	P in P	No P in P
AIR/CABLE	AIR	AIR
RECEPTION CHANNEL	CH 03	CH 03
SOUND (VOLUME)	"10" On-Screen Display	"10" On-Screen Display
INPUT SELECT (AVX)	TV Mode	TV Mode
CONTRAST	Maximum	Maximum
COLOR	Center	Center
TINT	Center	Center
BRIGHTNESS	Center	Center
SHARPNESS	Center	Center
WHITE CONTROL	ON: (COOL)	ON: (COOL)
BALANCE	Center	Center
BASS	Center	Center
TREBLE	Center	Center
MTS MODE	STEREO	STEREO
SURROUND	OFF	OFF
LOUDNESS	OFF	OFF
INTERNAL SPEAKERS	ON	ON
P IN P	OFF	———
CLOSED CAPTION	OFF	OFF
CLOSED CAPTION MODE	C.C.	C.C.
CLOSED CAPTION CHANNEL	1	1

2-12. Magnetic Field Correction Circuit Operation Check. (35TX10B/CZ41 Only)

Adjustment Preparation

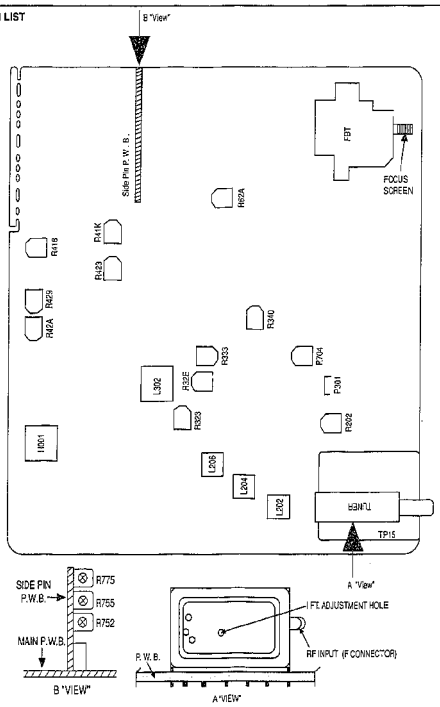
(1) Receive Circle Pattern Signal.
(2) Set "Weak/Strong SW" to "Strong".
(3) Set "Direction SW" to "N".
(4) Check that the raster rotates to counterclockwise when "Direction SW" set from "N" to "S".
(5) Set "Weak/Strong SW" set to "Weak.
(6) Set "Direction SW to "N".
(7) Check that the raster rotates to counterclockwise when "Direction SW" set from "N" to "S".
(Check the rotation angle is less than "Strong" position.
(8) Set "Weak/Strong SW" to "Strong" and "Direction SW" to "E/W".





CPT SCREEN

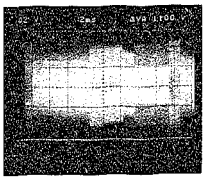
3. ADJUSTMENT POSITION LIST



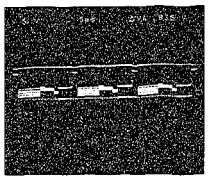
WAVEFORMS AT EACH SECTION

Numbers inside circle correspond to locations shown in the circuit diagram.

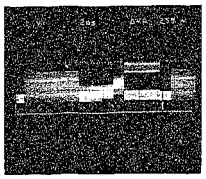
(1) U101 Pin 7 (IF Out)



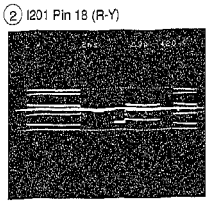
(5) I201 Pin 21 (-Y)



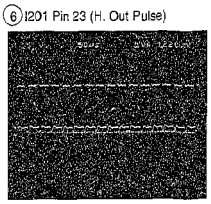
(9) I201 Pin 44 (Video Det. Out)



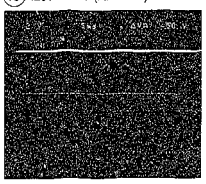
(2) I201 Pin 18 (R-Y)



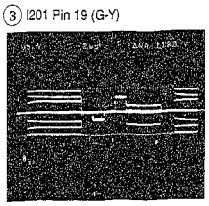
(6) I201 Pin 23 (H. Out Pulse)



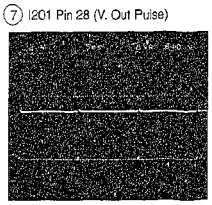
(10) I201 Pin 47 (AFT Out)



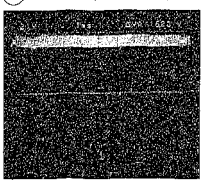
(3) I201 Pin 19 (G-Y)



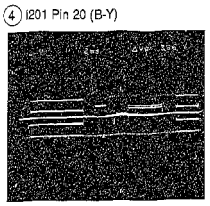
(7) I201 Pin 28 (V. Out Pulse)



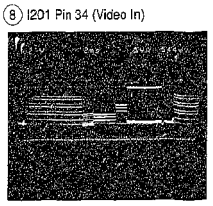
(11) I201 Pin 49 (RF-AGC Out)



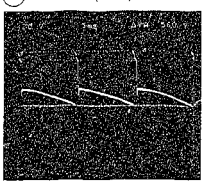
(4) I201 Pin 20 (B-Y)



(8) I201 Pin 34 (Video In)



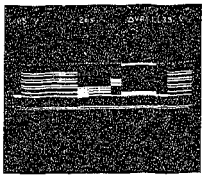
(12) I620 Pin 12 (V.Out)



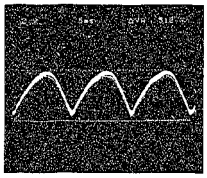
WAVEFORMS AT EACH SECTION

Numbers inside circle correspond to locations shown in the circuit diagram.

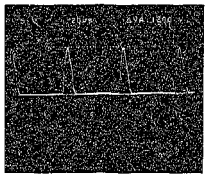
(13) Q30C Emitter (Y)



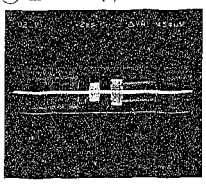
(17) Q650 Emitter (Side Pin Drive)



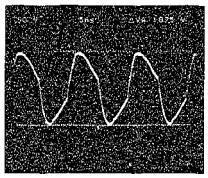
(21) Q702 Collector (H. Out)



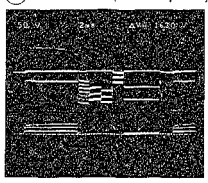
(14) Q309 Emitter (C)



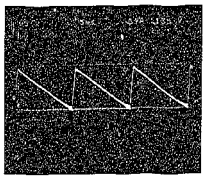
(18) Q750 Base (Side Pin Adj.)



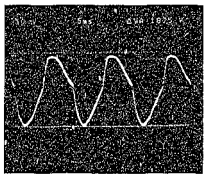
(22) Q854 Collector (Video Amp. Red)



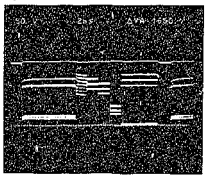
(15) P658 Pin 1 (Side Pin Amp +)



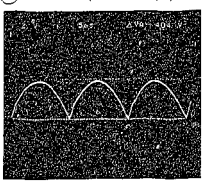
(19) Q752 Collector (Side Pin Out)



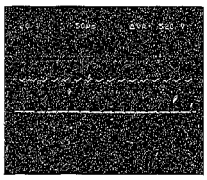
(23) Q855 Collector (Video Amp. Green)



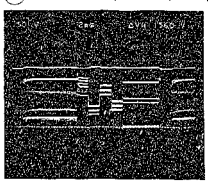
(16) P658 Pin 2 (Side Pin Amp -)



(20) Q701 Collector (Hor. Drive)



(24) Q856 Collector (Video Amp. Blue)



TROUBLESHOOTING

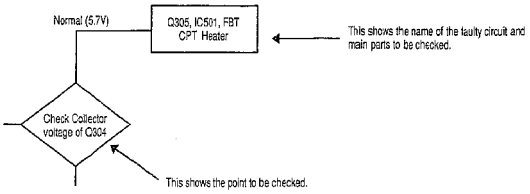
PRODUCT SAFETY NOTE

The shaded and ⚠ marked components have special characteristics important to safety.
Read carefully the Product Safety Notice of each service manual. Don't degrade the safety of the receiver through improper servicing when replacing any of this components.

HOW TO USE THE FLOW CHART

(1) The flow chart shows the following:

This shows the name of the faulty circuit and main parts to be checked.
This shows the point to be checked.

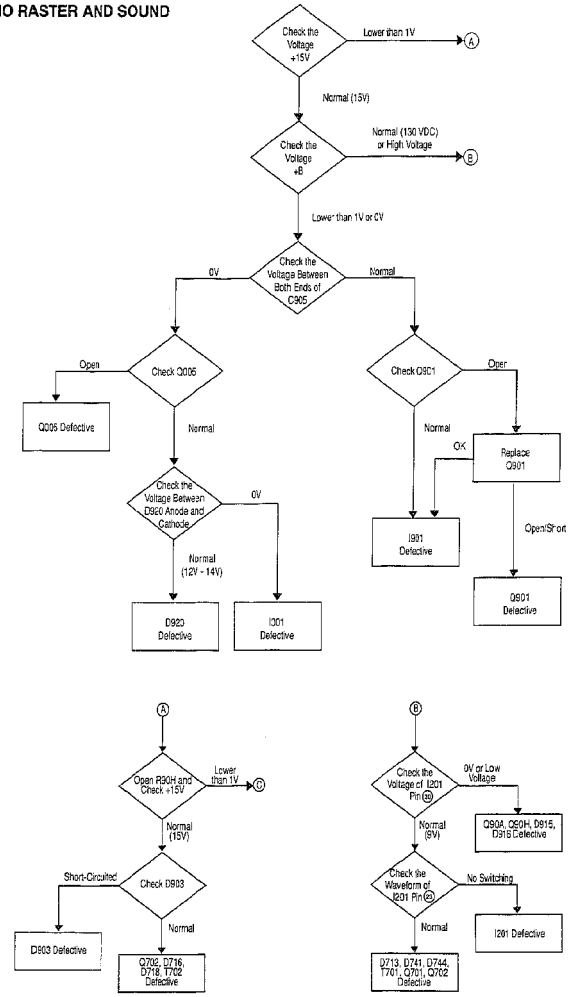


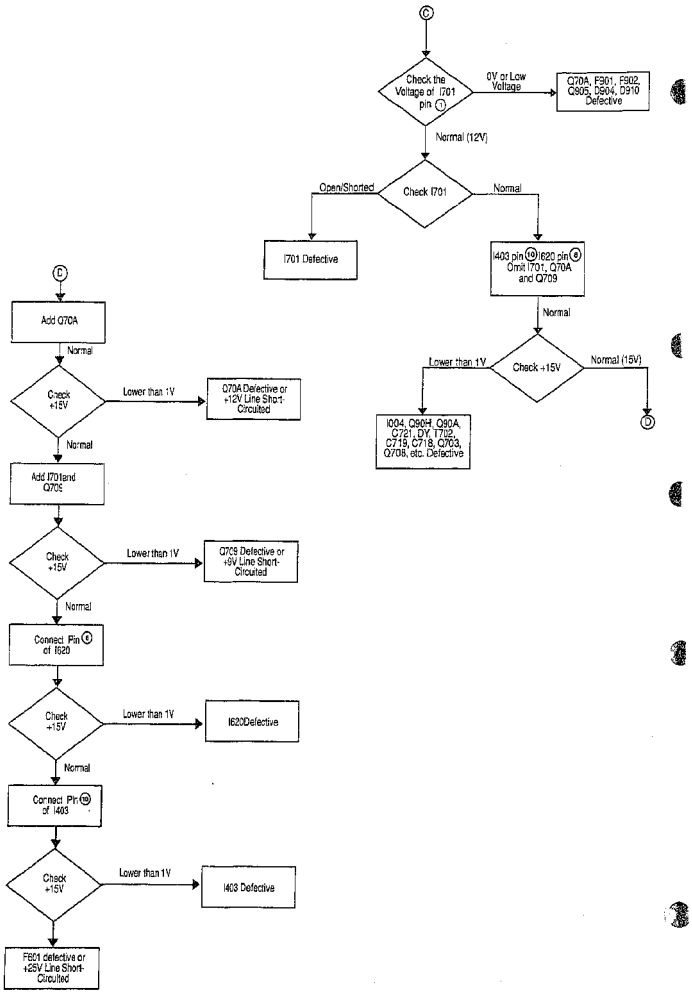
(2) The voltage shown in the chart may differ to some extent depending on the condition of the set and tester.

PRECAUTION ON MAKING MEASUREMENTS AND ON HANDLING

1. When any parts become abnormally hot or there is a smell of burning, cut OFF the power immediately.
2. Do not make shorts between circuits or across terminals except for those specified.
3. When applying a signal for checking purposes, make connection in the alternate current system for any not specified.
4. When measuring the voltages of ICs and TRs, be careful to see that the lead bar of the tester does not touch any other terminal.
5. Measure the voltage correctly.
6. Measure the resistance over a small range.
7. Be sure to switch OFF the power when replacing parts.
8. Do not apply a soldering iron for a long time when replacing parts. (Use a solder-wick.)
9. Use an isolation transformer when troubleshooting.

1. NO RASTER AND SOUND





REPLACEMENT PARTS LIST

PRODUCT SAFETY NOTE: Components marked with a ⚠ have special characteristics important to safety. Before replacing any of these components, read carefully, the PRODUCT SAFETY NOTICE of this Service Manual. Don't degrade the safety of the receiver through improper servicing.

ABBREVIATIONS

Capacitors: CD: Ceramic Disc; PF: Polyester Film; EL: Electrolytic; PP: Polypropylene; PR: Paper; TA: Tantalum; TM: Trimmer

Resistors: CF: Carbon Film; CC: Carbon Composition; MF: Metal Oxide Film; VR: Variable Resistor; WW: Wire Wound; FR: Fuse Resistor; MG: Metal Glaze

Semiconductors: TR: Transistor; DI: Diode; ZD: Zener Diode; VA: Varistor; TH: Thermistor; IC: Integrated Circuit

SYMBOL NO.	PART NO.	PART DESCRIPTION
		CAPACITORS
C001	890067	CD 100PF +-10% 50V
C002	800047	EL 100MF 6.3V
C003	800072	EL 470MF 6.3V
C004	244141	CD 0.01MF +-10% 50V
C005	890121	CD 33PF +-5% 50V
C006	890121	CD 33PF +-5% 50V
C007	800068	EL 1MF 50V
C008	276717	PF 0.1MF 50V +-5%
C009	800009	EL 4.7MF 25V
C010	800009	EL 4.7MF 25V
C011	800049	EL 100MF 16V
C012	800009	EL 4.7MF 25V
C013	800015	EL 10MF 16V
C014	800015	EL 10MF 16V
C015	800009	EL 4.7MF 25V
C016	800009	EL 4.7MF 25V
C017	800009	EL 4.7MF 25V
C018	880051	PF 0.033MF +-10% 50V
C019	890086	CD 820PF +-10% 50V
C01A	880048	PF 0.022MF +-10% 50V
C01E	800074	EL 470MF 16V(EXCEPT 27CX3B)
C01H	800015	EL 10MF 16V
C020	800079	EL 1000MF 6.3V(EXCEPT 27CX3B)
C021	276717	PF 0.1MF 50V +-5%(EXCEPT 27CX3B)
C022	880055	PF 0.068MF +-10% 50V
C023	880044	PF 0.01MF +-10% 50V
C024	890087	CD 1000PF +-10% 50V
C025	800009	EL 4.7MF 25V
C030	244105	CD 2200PF +-10% 50V
C031	276717	PF 0.1MF 50V +-5%
C032	0890078R	CD 220PF +-10% 50V
C0516	276717	PF 0.1MF 50V +-5%(35V)
C080	890087	CD 1000PF +-10% 50V
C081	800003	EL 1MF 50V
C082	880048	PF 0.022MF +-10% 50V
C083	800025	EL 2.2MF 50V
C084	800047	EL 100MF 6.3V
C085	890119	CD 27PF +-5% 50V
C086	890119	CD 27PF +-5% 50V
C101	800047	EL 100MF 6.3V
C102	244105	CD 2200PF +-10% 50V
C103	244141	CD 0.01MF +-10% 50V
C104	800062	EL 1000MF 16V
C105	244141	CD 0.01MF +-10% 50V
C106	244105	CD 2200PF +-10% 50V
C107	890063	CD 15PF +-5% 50V
C108	244105	CD 2200PF +-10% 50V
C109	244105	CD 2200PF +-10% 50V
C110	890072	CD 68PF +-5% 50V
C111	890072	CD 68PF +-5% 50V
C112	890072	CD 68PF +-5% 50V
C201	800015	EL 10MF 16V
C202	800062	EL 1000MF 16V
C203	244105	CD 2200PF +-10% 50V
C204	880044	PF 0.01MF +-10% 50V
C205	890053	PF 0.047MF +-10% 50V
C206	890087	CD 1000PF +-10% 50V
C208	880055	PF 0.068MF +-10% 50V
C20A	246464	CD 100PF +-5% 50V
C20C	246448	CD 22PF +-5% 50V
C20E	246463	CD 91PF +-5% 50V
C20F	880044	PF 0.01MF +-10% 50V
C20H	800001	EL 0.47MF 50V
C20K	890063	CD 15PF +-5% 50V
C210	890121	CD 33PF +-5% 50V
C211	890121	CD 33PF +-5% 50V
C212	244105	CD 2200PF +-10% 50V
C213	890089	CD 1500PF +-10% 50V
C214	880053	PF 0.047MF +-10% 50V
C215	800041	EL 47MF 16V
C217	246446	CD 22PF +-5% 50V
C301	800003	EL 1MF 50V
C302	800009	EL 4.7MF 25V
C303	800015	EL 10MF 16V
C304	800003	EL 1MF 50V
C305	244141	CD 0.01MF +-10% 50V
C306	800015	EL 10MF 16V(EXCEPT 27CX3B)
C307	800025	EL 2.2MF 50V
C309	800009	EL 4.7MF 25V
C30A	890074	CD 100PF +-5% 50V
C30C	0890061R	CD 10PF +-0.5% 50V
C30E	244141	CD 0.01MF +-10% 50V
C30K	800015	EL 10MF 16V
C310	880044	PF 0.01MF +-10% 50V
C311	890079	CD 82PF +-5% 50V
C312	800051	EL 100MF 25V(31V/27V)
C313	880044	PF 0.01MF +-10% 50V
C314	880044	PF 0.01MF +-10% 50V
C315	800049	EL 100MF 16V
C316	800009	EL 4.7MF 25V
C317	800049	EL 100MF 16V
C318	800015	EL 10MF 16V
C319	880044	PF 0.01MF +-10% 50V
C31A	800015	EL 10MF 16V
C31C	880044	PF 0.01MF +-10% 50V
C31E	244141	CD 0.01MF +-10% 50V
C31H	800015	EL 10MF 16V(EXCEPT 27CX3B)
C31K	880044	PF 0.01MF +-10% 50V
C320	800015	EL 10MF 16V
C321	244141	CD 0.01MF +-10% 50V
C322	800049	EL 100MF 16V
C323	800003	EL 1MF 50V
C325	800015	EL 10MF 16V
C326	800009	EL 4.7MF 25V
C327	800049	EL 100MF 16V
C330	800042	EL 47MF 25V(35V)
C332	244141	CD 0.01MF +-10% 50V
C3801	800015	EL 10MF 16V(35V)
C3802	800015	EL 10MF 16V(35V)
C3803	800041	EL 47MF 16V(35V)
C3804	800015	EL 10MF 16V(35V)
C3805	244171	CD 0.01MF +80-20% 50V(35V)
C3806	800015	EL 10MF 16V(35V)

PRODUCT SAFETY NOTE: Components marked with a ⚠ have special characteristics important to safety. Before replacing any of these components, read carefully, the PRODUCT SAFETY NOTICE of this Service Manual. Don't degrade the safety of the receiver through improper servicing.

SYMBOL NO.	PART NO.	PART DESCRIPTION
C390	890063	CD 15PF +-5% 50V
C391	880044	PF 0.01MF +-10% 50V
C392	0890078R	CD 220PF +-10% 50V
C393	800023	EL 22MF 16V(27CX3B)
C394	880044	PF 0.01MF +-10% 50V (27CX33)
C399	244141	CD 0.01MF +-10% 50V
C401	800049	EL 100MF 16V
C402	800015	EL 10MF 16V
C403	800015	EL 10MF 16V
C404	800049	EL 100MF 16V
C405	880044	PF 0.01MF +-10% 50V
C406	800009	EL 4.7MF 25V
C407	800009	EL 4.7MF 25V
C408	800039	EL 47MF 10V
C409	276717	PF 0.1MF 50V +-5%
C40A	0292712F	TA 3.3MF 16V
C40C	0292714F	TA 10MF +-10% 16V
C40E	800001	EL 0.47MF 50V
C40H	800015	EL 10MF 16V
C40K	800001	EL 0.47MF 50V
C410	800009	EL 4.7MF 25V
C411	800001	EL 0.47MF 50V
C412	244141	CD 0.01MF +-10% 50V
C413	800009	EL 4.7MF 25V
C414	800001	EL 0.47MF 50V
C415	800001	EL 0.47MF 50V
C416	800001	EL 0.47MF 50V
C417	800001	EL 0.47MF 50V
C418	800007	EL 3.3MF 50V
C419	800049	EL 100MF 16V
C41C	244105	CD 2200PF +-10% 50V
C41E	880048	PF 0.022MF +-10% 50V
C41H	276717	PF 0.1MF 50V +-5%
C41K	880048	PF 0.022MF +-10% 50V
C420	800003	EL 1MF 50V
C421	244111	CD 6800PF +-10% 50V
C422	276710	PF 0.18MF +-5% 50V
C423	800015	EL 10MF 16V
C424	800015	EL 10MF 16V
C425	880087	CD 1000PF +-10% 50V
C426	880056	PF 0.082MF 50V +-10%
C427	248709	CD 680PF +-5% 50V
C428	800023	EL 22MF 16V
C429	244111	CD 6800PF +-10% 50V
C42A	276719	PF 0.15MF +-5% 50V
C42C	276717	PF 0.1MF 50V +-5%
C42E	276717	PF 0.1MF 50V +-5%
C42H	276717	PF 0.1MF 50V +-5%
C42K	276717	PF 0.1MF 50V +-5%
C430	800001	EL 0.47MF 50V
C431	800001	EL 0.47MF 50V
C432	800009	EL 4.7MF 25V
C433	800047	EL 100MF 6.3V
C434	244105	CD 2200PF +-10% 50V
C435	800059	EL 220MF 25V
C436	244105	CD 2200PF +-10% 50V
C437	800059	EL 220MF 25V
C438	800047	EL 100MF 6.3V
C439	276717	PF 0.1 MF 50V +-5%
C43A	800075	EL 470MF 25V
C43C	800082	EL 1000MF 16V
C43E	800041	EL 47MF 16V
C43H	276717	PF 0.1MF 50V +-5%
C43K	800082	EL 1000MF 16V
C440	800059	EL 220MF 25V
C441	800015	EL 10MF 16V
C442	800023	EL 22MF 16V
C443	800023	EL 22MF 16V
C444	800042	EL 47MF 25V
C445	800042	EL 47MF 25V
C450	800009	EL 4.7MF 25V
C451	800009	EL 4.7MF 25V
C453	800009	EL 4.7MF 25V
C454	800009	EL 4.7MF 25V
C455	800009	EL 4.7MF 25V (EXCEPT 27CX3B)
C456	800009	EL 4.7MF 25V (EXCEPT 27CX3B)
C457	800009	EL 4.7MF 25V
C458	800009	EL 4.7MF 25V
C470	800015	EL 10MF 16V
C471	800049	EL 100MF 16V
C501	246445	CD 15PF +-5% 50V
C502	244141	CD 0.01MF +-10% 50V
C503	800001	EL 0.47MF 50V
C504	800082	EL 1000MF 16V
C507	800074	EL 470MF 16V
C510	880044	PF 0.01MF +-10% 50V
C601	800003	EL 1MF 50V
C602	880089	CD 1500PF +-10% 50V
C603	880046	PF 0.015MF +-10% 50V
C604	800048	EL 100MF 10V
C605	800003	EL 1MF 50V
C606	880087	CD 1000PF +-10% 50V
C607	244107	CD 3300PF +-10% 50V
C608	800003	EL 1MF 50V
C609	800015	EL 10MF 16V
C60F	0890082R	CD 390PF +-10% 50V
C620	800057	EL 220MF 16V
C621	880042	PF 6800PF +-10% 50V
C622	292715	TA 1MF +-10% 20V
C623	248696	CD 330PF +-5% 50V
C624	800061	EL 220MF 35V
C625	800007	EL 3.3MF 50V
C626	276717	PF 0.1MF 50V +-5%
C627	800007	EL 3.3MF 50V
C628	800003	EL 1MF 50V
C629	920053	EL 1000MF 6.3V
C62A	800056	EL 220MF 6.3V
C62H	276717	PF 0.1MF 50V +-5%
C630	880053	PF 0.047MF +-10% 50V
C630	880087	CD 1000PF +-10% 50V
C631	800041	EL 47MF 16V
C632	880039	PF 4700PF +-10% 50V
C633	800003	EL 2.2MF 50V
C634	800003	EL 1MF 50V
C636	800006	EL 2.2MF 50V
C637	800018	EL 10MF 50V
D701	880087	CD 1000PF +-10% 50V
⚠ C702	800003	EL 1MF 50V
C703	800003	EL 1MF 50V
C704	880051	PF 0.033MF +-10% 50V
C705	880087	CD 1000PF +-10% 50V
C706	244141	CD 0.01MF +-10% 50V
C707	800049	EL 100MF 16V
C708	800001	EL 0.47MF 50V
C714	880044	PF 0.01MF +-10% 50V
C715	247942	CD 39PF +-5% 500V
C716	880016	PF 0.33MF +-10% 50V
⚠ C718	244728	CD 2200PF +-10% 2KV
⚠ C719	244728	CD 1800PF +-10% 2KV
⚠ C71A	244211	CD 1000PF +-10% 2KV(31V)
⚠ C71A	244212	CD 1200PF +-10% 2KV (35V)
C71C	244105	CD 2200PF +-10% 50V
C71E	0255524F	EL 4.7MF 250V(31UX5B)
C71E	0255524F	EL 4.7MF 250V (27UX5B)
C71F	243606	CD 270PF +-10% 500V
⚠ C71H	244725	CD 1800PF +-10% 2KV
C71K	0255524F	EL 4.7MF 250V (31UX5B/27UX5B)
C720	244501	CD 1000PF +-10% 500V
⚠ C721	0262429F	PP 0.012MF +-5% 1800V
⚠ C722	299707	PP 0.015MF +-10% 630V
⚠ C723	263001	EL 3.5MF 100V
⚠ C724	299931	PP 0.27MF +-10% 200V
⚠ C725	800003	EL 1MF 50V
⚠ C726	299931	PP 0.27MF +-10% 200V
C72A	244501	CD 1000PF +-10% 500V
C72C	800073	EL 470MF 10V

PRODUCT SAFETY NOTE: Components marked with a ⚠ have special characteristics important to safety. Before replacing any of these components, read carefully, the PRODUCT SAFETY NOTICE of this Service Manual. Don't degrade the safety of the receiver through improper servicing.

SYMBOL NO.	PART NO.	PART DESCRIPTION
C72H	800048	EL 100MF 10V
C730	800064	EL 1000MF 35V
C732	800063	EL 1000MF 25V
C733	800056	EL 220MF 6.3V
C735	800005	EL 2.2MF 50V
C736	244501	CD 1000PF +-10% 500V
⚠ C737	800019	EL 10MF 63V
C738	0255524F	EL 4.7MF 250V
C73A	800041	EL 47MF 16V
C73C	880086	CD 820PF +-10% 50V
C73H	880087	CD 1000PF +-10% 50V
C742	254623	EL 100MF 150V
C747	276717	PF 0.1MF 50V +-5%
C74A	0258130F	EL 330MF 100V (35V)
C74H	243508	CD 360PF +-10% 500V (35V)
C750	800005	EL 2.2MF 50V
C751	800044	EL 47MF 50V
C752	0254823R	EL 1MF 50V
C755	860035	PF 2200PF +-10% 50V
C756	800015	EL 10MF 16V
C757	800015	EL 10MF 16V
C851	800049	EL 100MF 16V
C852	880087	CD 1000PF +-10% 50V
C853	0255524F	EL 4.7MF 250V
C856	0244729F	CD 2200PF +-10% 2KV
C860	880087	CD 1000PF +-10% 50V
C861	880087	CD 1000PF +-10% 50V
C862	880087	CD 1000PF +-10% 50V
C864	0890079R	CD 270PF +-10% 50V
C865	880083	CD 470PF +-10% 50V
C866	880077	CD 180PF +-10% 50V
C870	880076	CD 150PF +-10% 50V
C872	880074	CD 100PF +-5% 50V
C873	880074	CD 100PF +-5% 50V
C874	880074	CD 100PF +-5% 50V
C875	880076	CD 150PF +-10% 50V
C887	880076	CD 150PF +-10% 50V
C888	880087	CD 1000PF +-10% 50V
C889	244171	CD 0.01MF +80-20% 50V
⚠ C901	275957	PF 0.1MF +-20% 250V
⚠ C902	0245593F	CD 4700PF +80-20% 250V
⚠ C903	0245593F	CD 4700PF +80-20% 250V
⚠ C904	244505	CD 2200PF +10% 500V
⚠ C905	253891	EL 47MF 200V
C906	259357	EL 22MF 160V
C907	800064	EL 330MF 6.3V
C908	880003	EL 1MF 50V
C909	800001	EL 0.47MF 50V
⚠ C90A	0245593F	CD 4700PF +80-20% 250V
C90C	880044	PF 0.01MF +-10% 50V
C90E	880031	PF 1000PF +-10% 50V
C90F	880044	PF 0.01MF +-10% 50V
C90H	0284391F	EL 150MF 200V
C90K	880006	PF 0.47MF +-10% 50V
C910	880044	PF 0.01MF +-10% 50V
C911	0890081R	CD 330PF +-10% 50V
C912	0258198F	EL 2200MF 25V
C913	880087	CD 1000PF +-10% 50V
C914	800024	EL 22MF 25V
C915	800015	EL 10MF 16V
C917	0245612F	CD 4700PF +-10% 1KV
C919	245608	CD 1000PF +-10% 1000V
C91C	0890083R	CD 390PF +-10% 50V
C91H	800061	EL 220MF 35V
C91K	276717	PF 0.1MF 50V +-5%
⚠ C920	276687	PF 0.1MF +-20% 250V
⚠ C989	246593	CD 4700PF +80-20% 250V
CA01	800047	EL 100MF 6.3V (35V)
CMF1	800015	EL 10MF 16V (35V)
CMF2	800049	EL 100MF 16V (35V)
CMF3	0284828R	EL 1MF 50V (35V)
CP0501	2381126	R/C RECEIVER SPS-409-1F(35V)
CW01	0284621R	EL 0.47MF 50V (31UX5B/27UX5B)
CW04	0890081R	CD 330PF +-10% 50V (31UX5B/27UX5B)
CW05	800049	EL 100MF 16V (31UX5B/27UX5B)
CW06	880044	PF 0.01MF +-10% 50V (31UX5B/27UX5B)
CW09	890074	CD 100PF +-5% 50V (31UX5B/27UX5B)
CW10	244541	CD 0.01MF +-10% 500V (31UX5B/27UX5B)
CW11	890074	CD 100PF +-5% 50V (31UX5B/27UX5B)
CW12	244509	CD 4700PF +-10% 500V (31UX5B/27UX5B)
CW13	0253959F	EL 47MF 160V (31UX5B/27UX5B)
CW14	0253959F	EL 47MF 160V (31UX5B/27UX5B)
CW15	253957	EL 22MF 160V (31UX5B/27UX5B)
CW16	247948	CD 56PF +-5% 500V (31UX5B/27UX5B)
CW17	890074	EL 470MF 16V (31UX5B/27UX5B)
CW18	880044	PF 0.01MF +-10% 50V (31UX5B/27UX5B)
CW19	0253959F	EL 47MF 160V (31UX5B/27UX5B)
CW20	244541	CD 0.01MF +-10% 500V (31UX5B/27UX5B)
CW22	276717	PF 0.1MF 50V +-5% (31UX5B/27UX5B)
CW23	800049	EL 100MF 16V (31UX5B/27UX5B)
CW24	800041	EL 47MF 16V (31UX5B/27UX5B)
CW27	880044	PF 0.01MF +-10% 50V (31UX5B/27UX5B)
CW28	880077	CD 180PF +-10% 50V (31UX5B/27UX5B)
CY01	890083	CD 470PF +-10% 50V (35V)
CY02	890083	CD 470PF +-10% 50V (35V)
CY03	880044	PF 0.01MF +-10% 50V (35V)
CY04	800015	EL 10MF 16V (35V)
CY05	276717	PF 0.1MF 50V +-5% (35V)
CY06	890076	CD 150PF +-10% 50V (35V)
CY07	800049	EL 100MF 16V (35V)
CY08	880044	PF 0.01MF +-10% 50V (35V)

DIODES

D001	2398611	DI 1SS254
D002	2398611	DI 1SS254 (27CX3B)
D003	2398611	DI 1SS254
D004	2398611	DI 1SS254
D005	2398833M	ZD HZ5SA3
D006	2398611	DI 1SS254
D007	2398611	DI 1SS254
D009	2398611	DI 1SS254
D00A	2398611	DI 1SS254
D00C	2398611	DI 1SS254
D00E	2398611	DI 1SS254
D00H	2398611	DI 1SS254
D00K	2398611	DI 1SS254
D010	2398611	DI 1SS254
D011	2398611	DI 1SS254
D012	2339868	ZD HZS12C3 (EXCEPT 27CX3B)
D013	2339868	ZD HZS12C3 (EXCEPT 27CX3B)
D014	2339868	ZD HZS12C3 (EXCEPT 27CX3B)
D016	2398611	DI 1SS254
D017	2398611	DI 1SS254 (EXCEPT 27CX3B)
D020	2398611	DI 1SS254
D022	2398611	DI 1SS254
D023	2339868M	ZD HZS9C2
D024	2398611	DI 1SS254
D101	2339971	ZD HZS3-1
D301	2398611	DI 1SS234
D302	2398611	DI 1SS254
D303	2398611	DI 1SS254
D304	2339893M	DI HZS15-3 (T)
D305	2339868M	ZD HZS9C2
D306	2339868M	ZD HZS9C2
D307	2398611	DI 1SS254
D308	2398611	DI 1SS254
D310	2398611	DI 1SS254 (31V/27V)
D390	2398611	DI 1SS254
D391	2398611	DI 1SS254
D393	2339868M	ZD HZS9C2 (31UX5B/27UX5B)
D401	2339612M	ZD HZS3A2
D402	2339612M	ZD HZS3A2
D405	2398611	DI 1SS254
D404	2398611	DI 1SS254
D405	2398611	DI 1SS254

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SYMBOL NO.	PART NO.	PART DESCRIPTION
D406	2398611	DI 1SS254
D407	2398611	DI 1SS254
D410	2398888	ZD HZS10C3 (35V)
D501	2398868M	ZD HZS3C2
D502	2398868M	ZD HZS3C2
D503	2398868M	ZD HZS3C2
D901	2398611	DI 1SS254
D902	2398611	DI 1SS254
D905	2398611	DI 1SS254
D920	2398862M	ZD HZS9A2
D921	2399344	DI AM01Z
D922	2399344	DI AM01Z
D923	2398611	DI 1SS254
D926	2398611	DI 1SS254 (EXCEPT 27CX4B/27CX3B)
D927	2398611	DI 1SS254
D928	2398611	DI 1SS254
D701	2398611	DI 1SS254
D703	2398611	DI 1SS254
D704	2398611	DI 1SS254
D705	CH00031M	DI AU02V1
⚠ D707	2399242	ZD HZS33-3L
⚠ D708	2399223	ZD HZS27-3L
D712	2399251	ZD HZS36-1L
D713	2399344	DI AM01Z
D714	2398611	DI 1SS254
D715	2398944	DI RML-312S(F) (35V)
⚠ D716	2398511	DI RS3FS
⚠ D717	2398511	DI RS3FS (35V)
⚠ D718	2398612	DI RU3AM
D719	2398611	DI 1SS254
D71A	2399481	DI AS01Z
D720	2398611	DI 1SS254
D721	2395991	ZD HZT-33
D722	2398611	DI 1SS254
D72A	2391809	ZD HZ-6 (C3)
D72H	2391812	ZD HZ7 (A2) SI
D79A	2399851	ZD HZS7A1
⚠ D73C	2399481	DI AS01Z
D73E	CH00031M	DI AU02V1 (31UX5B/27UX5B)
D73F	2398611	DI 1SS254
D73H	CH00031M	DI AU02V1
D73K	CH00031M	DI AU02V1 (31UX5B/27UX5B)
D740	2398611	DI 1SS254
D741	2399344	DI AM01Z
D742	2399851	ZD HZS7A1
D743	2399834	ZD HZS5B1
D744	2399882M	ZD HZS12-2
D745	2399481	DI AM01Z (35V/27V)
D750	2398611	DI 1SS254
D751	2399822	ZD HZS4A2
D801	2398611	DI 1SS254
D802	2398611	DI 1SS254
D803	2391781	ZD HZ4 (A1)
D810	2399601M	ZD HZS2ALL
D811	2399601M	ZD HZS2ALL
D812	2399601M	ZD HZS2ALL
D821	2398611	DI 1SS254
D822	2398611	DI 1SS254
D823	2398611	DI 1SS254
⚠ D901	2342082	DI DSBA60-4103
D902	2399481	DI AM01Z
D903	2399481	DI AM01Z
D904	2391291	DI RB2A
D905	2399481	DI AS01Z
D908	2399675	ZD HZS11B3
D907	2399481	DI AS01Z
D908	2399481	DI AS01Z
D909	2399812M	ZD HZS3A2
⚠ D90A	2398611	DI 1SS254
D90C	2398611	DI 1SS254
D90E	2399836M	ZD HZS6B2TA
D90F	2398611	DI 1SS254
D90H	2399835M	ZD HZS6B2TA
D90K	2399833M	ZD HZS5A3
D910	2399344	DI RML-G12S (F)
D912	2399481	DI AS01Z
D913	2399839M	ZD HZS5B2TA
D914	2399491	DI AM01Z
D915	2399848	ZD HZS-6-C2
D916	2399848	ZD HZS-6-C2
D917	2399491	DI AM01Z
D920	2398611	DI 1SS254
D921	2399191M	ZD HZS20-1L TA
DW01	2399491	DI AM01Z (31UX5B/27UX5B)
DW02	2399491	DI AM01Z (31UX5B/27UX5B)
DW03	2399491	DI AM01Z (31UX5B/27UX5B)
DW04	2399491	DI AM01Z (31UX5B/27UX5B)
DW05	2398611	DI 1SS254 (31UX5B/27UX5B)
DW06	2398611	DI 1SS254 (31UX5B/27UX5B)
ZD0501	2399885	ZD HZS12B2 (35V)
ZD0502	2399885	ZD HZS12B2 (35V)
ZD5601	2331154	ZD HZ12 (A1-3/B1-3/C1-3)(35V)
ZD5602	2331154	ZD HZ12 (A1-3/B1-3/C1-3)(35V)
		REMOTE CONTROLS
E301	2573972	R/C CLU-851GR (31UX5B/27UX5B)
E301	2573922	R/C CLU-692GR (3STX10B/31CX4B/27CX4B)
E301	2573921	R/C CLU-691GR (27CX9B)
		FUSES
⚠ F501	2722382	FUSE DC 0.75A
⚠ F901	2721053	UL FUSE 5A
⚠ F902	2722353	FUSE 1.6A
		INTEGRATED CIRCUITS
I001	CP00201	IC LC864148A-3505
I002	2381111	IC M64602FL
I003	2917391	IC MSC11371RS
I004	2020481	IC AN78L05
⚠ I201	2004133	IC LA7674
I301	2003981	IC BA7504N (LINEAR)
I302	CZ00081	IC LA7932
I401	2004592	IC AN5917K
I402	CK00121	IC UPC1892
⚠ I403	2004341	IC AN7176 (LINEAR)
I404	2368301	IC UPD40529D
⚠ I520	2003541	IC LA7838 (LINEAR)
I521	CP00401	IC UPC458C
I701	2365365	IC AN7809
⚠ I720	2000521	IC PC713F6 (LINEAR)
⚠ I901	2912177	IC STR30130
⚠ I902	2000521	IC PC713F6 (LINEAR)
⚠ I903	2000465	IC PS2501-1 (KD/LD) (PHOTO COUPLER)
⚠ I904	2000465	IC PS2501-1 (KD/LD) (PHOTO COUPLER)
IY01	2381211	IC MS1494L (35V)
		COILS
L001	2122253	LA AXIAL COIL 100 MICRO H
L003	2122942	LA AXIAL COIL 8.2 MICRO H +-10%
L004	2122942	LA AXIAL COIL 8.2 MICRO H +-10%
L005	2122942	LA AXIAL COIL 8.2 MICRO H +-10%
L006	2122942	LA AXIAL COIL 8.2 MICRO H +-10%
L007	2120462	FILTER COIL 100 MICRO H +-10% (EXCEPT 27CX3B)
L008	2120462	FILTER COIL 100 MICRO H +-10% (EXCEPT 27CX3B)
L010	BH00101	RADIAL COIL
L101	2122253	LA AXIAL COIL 100 MICRO H
L102	2122253	LA AXIAL COIL 100 MICRO H
L103	2122927	LA AXIAL COIL 0.68 MICRO H
L201	2122253	LA AXIAL COIL 100 MICRO H
L202	2145862	LA AXIAL COIL
L203	2143672	IF COIL
L204	2143678	IF COIL

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SYMBOL NO.	PART NO.	PART DESCRIPTION
L206	2142445	CARRIER FILTER AFS COIL
L208	2122949	LA AXIAL COIL 33 MICRO H +-10%
L207	2122944	LA AXIAL COIL 12 MICRO H
L208	2122952	LAL AXALCOIL
L301	2122253	LA AXIAL COIL 100 MICRO H
L302	2141148	1H DL COIL
L303	2122939	LA AXIAL COIL 5.6 MICRO H
L304	2122943	LA AXIAL COIL 10 MICRO H +-10%
L305	2122947	LA AXIAL COIL 22 MICRO H +-10% (31CX4B)
L305	2122943	LA AXIAL COIL 10 MICRO H +-10% (27CX4B/27CX3B)
L305	2122943	LA AXIAL COIL 10 MICRO H +-10% (35V)
L308	2122951	LA AXIAL COIL 39 MICRO H +-10%
L309	2122956	LA AXIAL COIL 100 MICRO H +-10%
L311	2122253	LA AXIAL COIL 100 MICRO H
L601	2122956	LA AXIAL COIL 100 MICRO H +-10%
L602	2120099	FILTER COIL 18 MICRO H (35V)
L700	2122936	LA AXIAL COIL 4.7 MICRO H
L701	2122952	FERRITE CORE
L702	2124513	LINEARITY COIL
L703	2771893	FERRITE BEADS CORE
⚠ L704	2275381	CHOKING COIL
L705	2122948	LA AXIAL COIL 47 MICRO H
L709	2122954	FIXED COIL
⚠ L710	2122244	LA AXIAL COIL 82 MICROH
L711	2122952	FERRITE CORE
L712	BH00144	CHOKE COIL (31UX5B/27UX5B)
L713	2771893	FERRITE BEADS CORE
L714	2771893	FERRITE BEADS CORE
L71A	2122952	FERRITE CORE
L850	2120462	FILTER COIL 100 MICRO H +-10%
L851	2122945	LA AXIAL COIL 15 MICRO H +-10%
L852	2122945	LA AXIAL COIL 15 MICRO H +-10%
L853	2122945	LA AXIAL COIL 15 MICRO H +-10%
L854	2122956	LA AXIAL COIL 100 MICRO H +-10%
L855	2122956	LA AXIAL COIL 100 MICRO H +-10%
L856	2122956	LA AXIAL COIL 100 MICRO H +-10%
L861	2123468	FERRITE BEADS CORE LEAD 0.8
L862	2123468	FERRITE BEADS CORE LEAD 0.8
L863	2123468	FERRITE BEADS CORE LEAD 0.8
L864	2123468	FERRITE BEADS CORE LEAD 0.8
L865	2123468	FERRITE BEADS CORE LEAD 0.8
L866	2123468	FERRITE BEADS CORE LEAD 0.8
L867	2123468	FERRITE BEADS CORE LEAD 0.8
L868	2123468	FERRITE BEADS CORE LEAD 0.8
L869	2123468	FERRITE BEADS CORE LEAD 0.8
L871	2123468	FERRITE BEADS CORE LEAD 0.8
⚠ L901	2872283	LINE FILTER LL (T)
⚠ L902	2121676	FIXED COIL
L905	2122952	FERRITE CORE
⚠ L906	2226022	DEGAUSSING COIL (31V/27V)
L906	2122952	FERRITE CORE
L907	2122952	FERRITE CORE
L908	2122952	FERRITE CORE
L909	2122099	FILTER COIL 18 MICRO H
L90A	2122263M	LA AXIAL COIL
L920	2122953	FERRITE BEADS CORE
L922	2220586	CHOKE COIL TSL0707470K
⚠ L970	2229023	DEGAUSSING COIL (35V)
LA01	2122253	LA AXIAL COIL 100 MICRO H(35V)
LMFC	BZ00411	M.F. COIL (35V)
LW01	2122943	LA AXIAL COIL 10 MICRO H +-10% (31UX5B/27UX5B)
LW02	2123468	FERRITE BEADS CORE LEAD 0.8 (31UX5B/27UX5B)
LW03	2123468	FERRITE BEADS CORE LEAD 0.8 (31UX5B/27UX5B)
LW04	2123468	FERRITE BEADS CORE LEAD 0.8 (31UX5B/27UX5B)
LY01	2122253	LA AXIAL COIL 100 MICRO H (35V)
		INSTRUCTION BOOKS
N201	QR00621	INSTRUCTION MANUAL (31V)
N201	QR00921	INSTRUCTION MANUAL (27V)
N201	QR00511	INSTRUCTION MANUAL (35V)

SYMBOL NO.	PART NO.	PART DESCRIPTION
		TRANSISTORS
Q001	2320596	TR 2SC458C/D SI 230MHZ 200MW
Q002	2320596	TR 2SC458C/D SI 230MHZ 200MW
Q003	2320596	TR 2SC458C/D SI 230MHZ 200MW
Q004	2320637	TR 2SA673C/D SI 80MHZ 400MW
Q005	2320663	TR 2SC1213AC SI 80MHZ 400MW
Q006	2320596	TR 2SC458C/D SI 230MHZ 200MW
Q008	2320596	TR 2SC458C/D SI 230MHZ 200MW
Q009	2320596	TR 2SC458C/D SI 230MHZ 200MW
Q101	2320144	TR 2SC1906
Q201	2320596	TR 2SC458C/D SI 230MHZ 200MW
Q202	2320637	TR 2SA673C/D SI 80MHZ 400MW
Q203	2320596	TR 2SC458C/D SI 230MHZ 200MW
Q301	2320596	TR 2SC458C/D SI 230MHZ 200MW
Q302	2320596	TR 2SC458C/D SI 230MHZ 200MW
Q303	2320596	TR 2SC458C/D SI 230MHZ 200MW (31V/27V)
Q305	2320596	TR 2SC458C/D SI 230MHZ 200MW
Q306	2320637	TR 2SA673C/D SI 80MHZ 400MW
Q308	2320596	TR 2SC458C/D SI 230MHZ 200MW
Q309	2320637	TR 2SA673C/D SI 80MHZ 400MW
Q30A	2320596	TR 2SC458C/D SI 230MHZ 200MW
Q30C	2320596	TR 2SC458C/D SI 230MHZ 200MW
Q30E	2320596	TR 2SC458C/D SI 230MHZ 200MW
Q30H	2320596	TR 2SC458C/D SI 230MHZ 200MW
Q30K	2320637	TR 2SA673C/D SI 80MHZ 400MW
Q310	2320596	TR 2SC458C/D SI 230MHZ 200MW
Q312	2320596	TR 2SC458C/D SI 230MHZ 200MW
Q314	2320637	TR 2SA673C/D SI 80MHZ 400MW
Q315	2320596	TR 2SC458C/D SI 230MHZ 200MW
Q3601	2320598	TR 2SC458B/C/D (35V)
Q3602	2320598	TR 2SC458B/C/D (35V)
Q401	2320637	TR 2SA673C/D SI 80MHZ 400MW
Q402	2320596	TR 2SC458C/D SI 230MHZ 200MW
Q403	2320637	TR 2SA673C/D SI 80MHZ 400MW
Q404	2320596	TR 2SC458C/D SI 230MHZ 200MW
Q405	2320596	TR 2SC458C/D SI 230MHZ 200MW
Q406	2320636	TR 2SC458C/D SI 230MHZ 200MW
Q407	2320643	TR 2SC1213C SI 80MHZ 400MW
Q50C	2320596	TR 2SC458C/D SI 230MHZ 200MW
Q601	2320596	TR 2SC458C/D SI 230MHZ 200MW
Q602	2320596	TR 2SC458C/D SI 230MHZ 200MW
Q603	2320637	TR 2SA673C/D SI 80MHZ 400MW
Q650	2320598	TR 2SC458B/C/D SI 230MHZ 200MW
Q701	2320523	TR 2SD796 (D)
⚠ Q702	2315272	TR 2SC4589-03
⚠ Q703	2320637	TR 2SA673C/D SI 80MHZ 400MW
⚠ Q706	2320596	TR 2SC458C/D SI 230MHZ 200MW
Q706	2320637	TR 2SA673C/D SI 80MHZ 400MW
Q70A	2320431	TR 2SC1906 SI
Q70H	2315411	TR 2SD2012
Q710	2320637	TR 2SA673C/D SI 80MHZ 400MW
Q750	2320596	TR 2SC458C/D SI 230MHZ 200MW
Q751	2320637	TR 2SA673C/D SI 80MHZ 400MW
Q752	2320663	TR 2SC1213AC SI 80MHZ 400MW
Q752	2320434	TR 2SC1963 O/Y SI
Q753	2321321	TR 2SA844 (D/E)
Q761	2320596	TR 2SC458C/D SI 230MHZ 200MW
Q801	2320637	TR 2SA673C/D SI 80MHZ 400MW
Q802	2320637	TR 2SA673C/D SI 80MHZ 400MW
Q803	2320637	TR 2SA673C/D SI 80MHZ 400MW
Q804	2320637	TR 2SA673C/D SI 80MHZ 400MW
Q805	2320637	TR 2SA673C/D SI 80MHZ 400MW
Q806	2320596	TR 2SC458C/D SI 230MHZ 200MW
Q807	2320596	TR 2SC458C/D SI 230MHZ 200MW
Q808	2320596	TR 2SC458C/D SI 230MHZ 200MW
Q809	2320637	TR 2SA673C/D SI 80MHZ 400MW
Q810	2320637	TR 2SA673C/D SI 80MHZ 400MW
Q811	2320637	TR 2SA673C/D SI 80MHZ 400MW
Q812	2320596	TR 2SC458C/D SI 230MHZ 200MW
Q813	2320596	TR 2SC458C/D SI 230MHZ 200MW
Q814	2320596	TR 2SC458C/D SI 230MHZ 200MW

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SYMBOL NO.	PART NO.	PART DESCRIPTION
Q815	2320637	TR 2SA673C/D SI 80MHZ 400MW
Q851	2320591	TR 2SC458B/C SI 230MHZ 200MW
Q852	2320591	TR 2SC458B/C SI 230MHZ 200MW
Q853	2320591	TR 2SC458B/C SI 230MHZ 200MW
Q854	2315491	TR 2SC4544
Q855	2315491	TR 2SC4544
Q856	2315491	TR 2SC4544
Q857	2320596	TR 2SC458C/D SI 230MHZ 200MW
Q864	2320596	TR 2SC458C/D SI 230MHZ 200MW
Q901	2327693	TR 2SA1207
Q904	2326216	TR 2SC3115 S/T
⚠ Q905	2328451	TR FN551
Q906	2320631	TR 2SA673B/C SI 80MHZ 400MW
Q907	2323626	TR 2SD789 D/E
Q908	2320591	TR 2SC458B/C SI 230MHZ 200MW
Q909	2320596	TR 2SC458C/D SI 230MHZ 200MW
Q90A	2320591	TR 2SA5724 B/C SI 80MHZ 400MW
Q90C	2326631	THYRISTOR CR5AS-8
Q90H	2320663	TR 2SC1213AC SI 80MHZ 400MW
QMF1	2320643	TR 2SC1213C (35V)
QW02	2320598	TR 2SC458B/C/D SI 230MHZ 200MW (31/27UX5B)
QW03	2320598	TR 2SC458B/C SI 230MHZ 200MW (31/27UX5B)
QW04	2320598	TR 2SC458B/C SI 230MHZ 200MW (31/27UX5B)
QW05	2320598	TR 2SC458B/C SI 230MHZ 200MW (31/27UX5B)
QW06	2320598	TR 2SC458B/C SI 230MHZ 200MW (31/27UX5B)
QW07	2320643	TR 2SC1213C SI 80MHZ 400MW (31/27UX5B)
QW08	2321351	TR 2SA836/844 SI 200MHZ 300MW (31/27UX5B)
QW09	2315381	TR 2SA1837 (31UX5B/27UX5B)
QW10	2315391	TR 2SC4793 (31UX5B/27UX5B)
QW11	2320598	TR 2SC458B/C/ SI 230MHZ 200MW (31/27UX5B)
QW12	2320598	TR 2SC458B/C/ SI 230MHZ 200MW (31/27UX5B)
QW13	2320596	TR 2SC458C/D SI 230MHZ 200MW (31/27UX5B)
QY01	2320596	TR 2SC458C/D (35V)
QY02	2320596	TR 2SC458C/D (35V)
		RESISTORS
R001	700041	CF 1K OHM +-5% 1/16W
R002	700041	CF 1K OHM +-5% 1/16W
R003	700041	CF 1K OHM +-5% 1/16W
R004	700041	CF 1K OHM +-5% 1/16W (31V/27V)
R005	700041	CF 1K OHM +-5% 1/16W
R006	700041	CF 1K OHM +-5% 1/16W
R007	700041	CF 1K OHM +-5% 1/16W
R008	700049	CF 4.7K OHM +-5% 1/16W
R009	700041	CF 1K OHM +-5% 1/16W
R00A	700041	CF 1K OHM +-5% 1/16W
R00C	700087	CF 100K OHM +-5% 1/16W
R00E	700051	CF 5.6K OHM +-5% 1/16W
R00H	700087	CF 100K OHM +-5% 1/16W
R00K	700084	CF 56K OHM +-5% 1/16W
R010	700045	CF 2.2K OHM +-5% 1/16W
R011	700049	CF 4.7K OHM +-5% 1/16W
R012	167096	CF 1.1K OHM +-5% 1/16W (31V/27V)
R013	700041	CF 1K OHM +-5% 1/16W (31V/27V)
R014	700043	CF 1.5K OHM +-5% 1/16W (31V/27V)
R015	700046	CF 2.7K OHM +-5% 1/16W (31V/27V)
R016	700049	CF 4.7K OHM +-5% 1/16W (31V/27V)
R017	700032	CF 220 OHM +-5% 1/16W
R019	700047	CF 3.3K OHM +-5% 1/16W
R01A	700041	CF 1K OHM +-5% 1/16W
R01C	700054	CF 10K OHM +-5% 1/16W
R01E	700041	CF 1K OHM +-5% 1/16W
R01H	700041	CF 1K OHM +-5% 1/16W
R01K	700041	CF 1K OHM +-5% 1/16W
R020	700041	CF 1K OHM +-5% 1/16W
R021	700036	CF 470 OHM +-5% 1/16W
R022	700058	CF 22K OHM +-5% 1/16W
R023	700048	CF 3.9K OHM +-5% 1/16W
R024	700038	CF 680 OHM +-5% 1/16W
R025	700041	CF 1K OHM +-5% 1/16W
R026	700052	CF 6.8K OHM +-5% 1/16W
R027	700045	CF 2.2K OHM +-5% 1/16W
R028	700043	CF 1.5K OHM +-5% 1/16W
R029	700052	CF 6.8K OHM +-5% 1/16W
R02A	700056	CF 15K OHM +-5% 1/16W
R02C	700059	CF 27K OHM +-5% 1/16W
R02E	700056	CF 15K OHM +-5% 1/16W
R02H	700058	CF 22K OHM +-5% 1/16W
R02K	700059	CF 27K OHM +-5% 1/16W
R030	700056	CF 15K OHM +-5% 1/16W
R031	700056	CF 15K OHM +-5% 1/16W
R032	700047	CF 3.3K OHM +-5% 1/16W
R033	700052	CF 6.8K OHM +-5% 1/16W
R034	700053	CF 8.2K OHM +-5% 1/16W
R035	700056	CF 15K OHM +-5% 1/16W
R036	700055	CF 12K OHM +-5% 1/16W
R037	700041	CF 1K OHM +-5% 1/16W
R038	700041	CF 1K OHM +-5% 1/16W
R039	700041	CF 1K OHM +-5% 1/16W
R03A	700041	CF 1K OHM +-5% 1/16W
R03C	700041	CF 1K OHM +-5% 1/16W
R03E	700041	CF 1K OHM +-5% 1/16W
R03H	700041	CF 1K OHM +-5% 1/16W
R03K	700041	CF 1K OHM +-5% 1/16W
R040	700041	CF 1K OHM +-5% 1/16W (EXCEPT 27CX3B)
R041	700041	CF 1K OHM +-5% 1/16W
R042	700041	CF 1K OHM +-5% 1/16W
R043	700041	CF 1K OHM +-5% 1/16W
R044	700054	CF 10K OHM +-5% 1/16W
R045	700063	CF 47K OHM +-5% 1/16W
R046	700067	CF 100K OHM +-5% 1/16W
R047	700045	CF 2.2K OHM +-5% 1/16W
R048	700047	CF 3.3K OHM +-5% 1/16W
R049	167086	CF 7.5K OHM +-5% 1/16W
R04A	700045	CF 2.2K OHM +-5% 1/16W
R04C	700041	CF 1K OHM +-5% 1/16W
R04E	700041	CF 1K OHM +-5% 1/16W
R04H	700045	CF 2.2K OHM +-5% 1/16W
R04K	700041	CF 1K OHM +-5% 1/16W
R050	700041	CF 1K OHM +-5% 1/16W
R0504	100065	CF 1K OHM +-5% 1/8W (35V)
R051	700041	CF 1K OHM +-5% 1/16W
R0516	100065	CF 1K OHM +-5% 1/8W (35V)
R0517	700043	CF 1.5K OHM +-5% 1/16W (35V)
R0518	700046	CF 2.7K OHM +-5% 1/16W (35V)
R0519	700049	CF 4.7K OHM +-5% 1/16W (35V)
R0520	100065	CF 1K OHM +-5% 1/8W (35V)
R053	700053	CF 8.2K OHM +-5% 1/16W
R054	700054	CF 10K OHM +-5% 1/16W
R055	700054	CF 10K OHM +-5% 1/16W
R056	700054	CF 10K OHM +-5% 1/16W
R057	700041	CF 1K OHM +-5% 1/16W
R058	700041	CF 1K OHM +-5% 1/16W
R059	700052	CF 6.8K OHM +-5% 1/16W
R05A	700054	CF 10K OHM +-5% 1/16W
R05C	700041	CF 1K OHM +-5% 1/16W
R05E	700054	CF 10K OHM +-5% 1/16W
R05H	700054	CF 10K OHM +-5% 1/16W
R05K	700058	CF 22K OHM +-5% 1/16W
R060	700058	CF 22K OHM +-5% 1/16W
R061	700061	CF 33K OHM +-5% 1/16W
R062	100065	CF 1K OHM +-5% 1/8W (EXCEPT 27CX3B)
R063	100065	CF 1K OHM +-5% 1/8W (EXCEPT 27CX3B)
R064	100065	CF 1K OHM +-5% 1/8W (EXCEPT 27CX3B)
R065	700045	CF 2.2K OHM +-5% 1/16W
⚠ R066	119614	FR 10 OHM +-5% 1/4W (EXCEPT 27CX3B)
R067	700036	CF 470 OHM +-5% 1/16W
R068	700041	CF 1K OHM +-5% 1/16W
R069	700041	CF 1K OHM +-5% 1/16W
R06A	700041	CF 1K OHM +-5% 1/16W (31UX5B/27UX5B)
R06C	700051	CF 5.6K OHM +-5% 1/16W
R06E	700049	CF 4.7K OHM +-5% 1/16W
R06F	700054	CF 10K OHM +-5% 1/16W
R06H	700041	CF 1K OHM +-5% 1/16W
R06K	700067	CF 100K OHM +-5% 1/16W

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SYMBOL NO.	PART NO.	PART DESCRIPTION
R070	700049	CF 4.7K OHM +-5% 1/16W
R071	700054	CF 10K OHM +-5% 1/16W (31V/27V)
R072	700047	CF 3.3K OHM +-5% 1/16W
R073	700047	CF 3.3K OHM +-5% 1/16W
R074	700047	CF 3.3K OHM +-5% 1/16W
R080	700054	CF 10K OHM +-5% 1/16W
R081	700054	CF 10K OHM +-5% 1/16W
R083	700049	CF 4.7K OHM +-5% 1/16W
R084	700058	CF 22K OHM +-5% 1/16W
R085	700067	CF 100K OHM +-5% 1/16W
R086	700091	CF 180 OHM +-5% 1/16W
R087	700041	CF 1K OHM +-5% 1/16W
R08C	700058	CF 15K OHM +-5% 1/16W
R091	700058	CF 22K OHM +-5% 1/16W
R094	700049	CF 4.7K OHM +-5% 1/16W
R095	700041	CF 1K OHM +-5% 1/16W
R096	700054	CF 10K OHM +-5% 1/16W
R097	700054	CF 10K OHM +-5% 1/16W
R098	700049	CF 4.7K OHM +-5% 1/16W
R099	700054	CF 10K OHM +-5% 1/16W
R09A	700054	CF 10K OHM +-5% 1/16W
R09C	700041	CF 1K OHM +-5% 1/16W
R09H	700054	CF 10K OHM +-5% 1/16W
R09K	700041	CF 1K OHM +-5% 1/16W
R101	700031	CF 150 OHM +-5% 1/16W
R102	700046	CF 2.7K OHM +-5% 1/16W
R103	700014	CF 10 OHM +-5% 1/16W
R104	700042	CF 1.2K OHM +-5% 1/16W
R105	700023	CF 47 OHM +-5% 1/16W
R106	700033	CF 270 OHM +-5% 1/16W
R107	100065	CF 1K OHM +-5% 1/8W
R108	187049	CF 91 OHM +-5% 1/16W
R109	700048	CF 3.9K OHM +-5% 1/16W
R110	700048	CF 3.9K OHM +-5% 1/16W
R201	700058	CF 22K OHM +-5% 1/16W
R202	150287	VR 10K OHM-B
R203	700057	CF 100K OHM +-5% 1/16W
R204	700043	CF 1.5K OHM +-5% 1/16W
R205	700049	CF 4.7K OHM +-5% 1/16W
R206	700027	CF 100 OHM +-5% 1/16W
R207	700041	CF 1K OHM +-5% 1/16W
R208	700033	CF 270 OHM +-5% 1/16W
R209	700051	CF 5.6K OHM +-5% 1/16W
R20A	100121	CF 220K OHM +-5% 1/8W
R20C	100127	CF 390K OHM +-5% 1/8W
R20E	700041	CF 1K OHM +-5% 1/16W
R20H	100117	CF 150K OHM +-5% 1/8W
R20K	700041	CF 1K OHM +-5% 1/16W
R210	700036	CF 470 OHM +-5% 1/16W
R211	100057	CF 470 OHM +-5% 1/8W
R212	700027	CF 100 OHM +-5% 1/16W
R213	700041	CF 1K OHM +-5% 1/16W
R214	700036	CF 470 OHM +-5% 1/16W
R215	700037	CF 560 OHM +-5% 1/16W
R216	700027	CF 100 OHM +-5% 1/16W
R217	700027	CF 100 OHM +-5% 1/16W
R218	700036	CF 470 OHM +-5% 1/16W
R302	100127	CF 390K OHM +-5% 1/8W
R303	700056	CF 15K OHM +-5% 1/16W
R304	100127	CF 390K OHM +-5% 1/8W (31V/27V)
R305	700036	CF 470 OHM +-5% 1/16W
R306	700033	CF 270 OHM +-5% 1/16W
R307	700035	CF 390 OHM +-5% 1/16W
R308	700038	CF 680 OHM +-5% 1/16W
R309	700037	CF 560 OHM +-5% 1/16W
R30E	700054	CF 10K OHM +-5% 1/16W
R30H	700038	CF 680 OHM +-5% 1/16W
R30K	700063	CF 47K OHM +-5% 1/16W
R310	700054	CF 10K OHM +-5% 1/16W
R311	700025	CF 68 OHM +-5% 1/16W (31V/27V)
R312	100033	CF 47 OHM +-5% 1/8W
R313	700055	CF 12K OHM +-5% 1/16W (31V/27V)
R316	700037	CF 560 OHM +-5% 1/16W
R317	700029	CF 150 OHM +-5% 1/16W
R318	167060	CF 820 OHM +-5% 1/16W
R31C	700041	CF 1K OHM +-5% 1/16W
R31E	700063	CF 47K OHM +-5% 1/16W
R31H	700041	CF 1K OHM +-5% 1/16W
R31K	700041	CF 1K OHM +-5% 1/16W
R320	700063	CF 47K OHM +-5% 1/16W
R321	700037	CF 560 OHM +-5% 1/16W
R322	700041	CF 1K OHM +-5% 1/16W
R323	150282	VR 500 OHM(B)
R324	700038	CF 680 OHM +-5% 1/16W
R325	700045	CF 2.2K OHM +-5% 1/16W
R326	700032	CF 220 OHM +-5% 1/16W
R327	700033	CF 270 OHM +-5% 1/16W
R328	700033	CF 270 OHM +-5% 1/16W
R329	700036	CF 470 OHM +-5% 1/16W
R32C	700037	CF 560 OHM +-5% 1/16W
R32E	150283	VR 1K OHM-B
R32H	700036	CF 820 OHM +-5% 1/16W
R32K	700037	CF 560 OHM +-5% 1/16W
R330	700041	CF 1K OHM +-5% 1/16W
R331	700027	CF 100 OHM +-5% 1/16W
R332	700036	CF 680 OHM +-5% 1/16W
R333	150282	VR 500 OHM (B)
R334	100069	CF 560 OHM +-5% 1/8W
R335	700032	CF 220 OHM +-5% 1/16W
R336	700054	CF 10K OHM +-5% 1/16W
R337	700058	CF 22K OHM +-5% 1/16W
R338	197058	CF 430 OHM +-5% 1/16W
R339	700037	CF 560 OHM +-5% 1/16W
R33A	700034	CF 330 OHM +-5% 1/16W
R33C	700037	CF 560 OHM +-5% 1/16W
R33E	700057	CF 10K OHM +-5% 1/16W
R33H	700032	CF 220 OHM +-5% 1/16W
R340	150287	VR 10K OHM-B
R341	700052	CF 6.8K OHM +-5% 1/16W
R342	700049	CF 4.7K OHM +-5% 1/16W
R343	700049	CF 4.7K OHM +-5% 1/16W
R344	700051	CF 5.6K OHM +-5% 1/16W
R345	700031	CF 150 OHM +-5% 1/16W
R346	700061	CF 33K OHM +-5% 1/16W
R348	100041	CF 100 OHM +-5% 1/8W
R349	100041	CF 100 OHM +-5% 1/8W (EXCEPT 27CX3B)
R34A	100038	CF 75 OHM +-5% 1/8W
R34C	100041	CF 100 OHM +-5% 1/8W
R34H	100038	CF 75 OHM +-5% 1/8W
R34K	100038	CF 75 OHM +-5% 1/8W (EXCEPT 33V/27CX3B)
R350	100041	CF 100 OHM +-5% 1/8W
R351	100041	CF 100 OHM +-5% 1/8W
R352	700041	CF 1K OHM +-5% 1/16W
R354	700027	CF 100 OHM +-5% 1/16W
R355	700049	CF 4.7K OHM +-5% 1/16W
R358	700054	CF 10K OHM +-5% 1/16W
R358	700056	CF 15K OHM +-5% 1/16W
R359	700054	CF 10K OHM +-5% 1/16W
R35A	700057	CF 18K OHM +-5% 1/16W
R35E	700041	CF 1K OHM +-5% 1/16W
R360	700041	CF 1K OHM +-5% 1/16W
R361	100038	CF 75 OHM +-5% 1/8W
R362	100038	CF 75 OHM +-5% 1/8W
R364	700054	CF 10K OHM +-5% 1/16W
R365	700034	CF 330 OHM +-5% 1/16W
R366	700054	CF 10K OHM +-5% 1/16W
R367	700054	CF 10K OHM +-5% 1/16W
R368	100041	CF 100 OHM +-5% 1/8W (31V/27V)
R3801	167038	CF 75 OHM +-5% 1/16W (35V)
R3802	100041	CF 100 OHM +-5% 1/8W (35V)
R3803	700041	CF 1K OHM +-5% 1/16W (35V)
R3804	700041	CF 1K OHM +-5% 1/16W (35V)
R3805	100123	CF 270K OHM +-5% 1/8W (35V)
R3806	700064	CF 56K OHM +-5% 1/16W (35V)
R3807	700047	CF 3.3K OHM +-5% 1/16W (35V)
R3808	700045	CF 2.2K OHM +-5% 1/16W (35V)

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SYMBOL NO.	PART NO.	PART DESCRIPTION
R3809	700064	CF 56K OHM +-5% 1/16W (35V)
R3810	100123	CF 270K OHM +-5% 1/8W (35V)
R3811	700041	CF 1K OHM +-5% 1/16W (35V)
R3812	700041	CF 1K OHM +-5% 1/16W (35V)
R3813	100041	CF 100 OHM +-5% 1/8W (35V)
R390	700035	CF 390 OHM +-5% 1/16W
R391	100133	CF 680K OHM +-5% 1/8W (31V/27V)
R392	700032	CF 220 OHM +-5% 1/16W
R393	100049	CF 220 OHM +-5% 1/8W
R394	700056	CF 15K OHM +-5% 1/16W (31V/27V)
R395	700027	CF 100 OHM +-5% 1/16W
R396	700042	CF 1.2K OHM +-5% 1/16W
R397	700051	CF 5.6K OHM +-5% 1/16W
R398	700057	CF 18K OHM +-5% 1/16W (31V/27V)
R39A	700054	CF 10K OHM +-5% 1/16W (35V)
R401	700041	CF 1K OHM +-5% 1/16W
R402	700034	CF 330 OHM +-5% 1/16W
R403	700041	CF 1K OHM +-5% 1/16W
R404	700062	CF 39K OHM +-5% 1/16W
R405	700041	CF 1K OHM +-5% 1/16W
R406	700054	CF 10K OHM +-5% 1/16W
R407	700041	CF 1K OHM +-5% 1/16W
R408	700041	CF 1K OHM +-5% 1/16W
R409	700034	CF 330 OHM +-5% 1/16W
R40A	700041	CF 1K OHM +-5% 1/16W
R40D	700054	CF 10K OHM +-5% 1/16W
R40E	700068	CF 47K OHM +-5% 1/16W
R40H	700062	CF 39K OHM +-5% 1/16W
R40K	700063	CF 47K OHM +-5% 1/16W
R410	700063	CF 47K OHM +-5% 1/16W
R411	700063	CF 47K OHM +-5% 1/16W
R412	700063	CF 47K OHM +-5% 1/16W
R413	700063	CF 47K OHM +-5% 1/16W
R415	187092	CF 5.1K OHM +-5% 1/16W
R416	100118	CF 130K OHM +-5% 1/8W
R417	100117	CF 150K OHM +-5% 1/8W
R418	150160	VR 10K OHM-B +-20%
R419	700036	CF 470 OHM +-5% 1/16W
R41A	700036	CF 470 OHM +-5% 1/16W
R41C	700041	CF 1K OHM +-5% 1/16W
R41E	700046	CF 2.7K OHM +-5% 1/16W
R41K	150267	VR 10K OHM-B
R420	100125	CF 330K OHM +-5% 1/8W
R421	700054	CF 10K OHM +-5% 1/16W
R422	700045	CF 2.2K OHM +-5% 1/16W
R423	150157	VR 200K OHM-B RV-6
R424	700061	CF 33K OHM +-5% 1/16W
R425	100133	CF 680K OHM +-5% 1/8W
R427	700067	CF 100K OHM +-5% 1/16W
R428	100118	CF 130K OHM +-5% 1/8W
R429	150290	VR 50K OHM (B)
R42A	150290	VR 50K OHM (B)
R42E	700047	CF 3.3K OHM +-5% 1/16W
R42F	700036	CF 470 OHM +-5% 1/16W
R42G	100131	CF 560K OHM +-5% 1/8W
R42K	100129	CF 270K OHM +-5% 1/8W
R430	700041	CF 1K OHM +-5% 1/16W
R431	700041	CF 1K OHM +-5% 1/16W
R432	700046	CF 2.7K OHM +-5% 1/16W
R433	700041	CF 1K OHM +-5% 1/16W
R434	700041	CF 1K OHM +-5% 1/16W
R435	700037	CF 560 OHM +-5% 1/16W
R436	700037	CF 560 OHM +-5% 1/16W
R437	700037	CF 560 OHM +-5% 1/16W
R438	700037	CF 560 OHM +-5% 1/16W
R439	700041	CF 1K OHM +-5% 1/16W
R43A	700041	CF 1K OHM +-5% 1/16W
R43C	700041	CF 1K OHM +-5% 1/16W
R43E	700054	CF 10K OHM +-5% 1/16W
R43H	700041	CF 1K OHM +-5% 1/16W
R43K	700054	CF 10K OHM +-5% 1/16W
R440	700045	CF 2.2K OHM +-5% 1/16W
R441	700045	CF 2.2K OHM +-5% 1/16W
R442	700041	CF 1K OHM +-5% 1/16W
R443	700041	CF 1K OHM +-5% 1/16W
R444	700048	CF 3.9K OHM +-5% 1/16W
R445	700048	CF 3.9K OHM +-5% 1/16W
R446	700034	CF 330 OHM +-5% 1/16W
R447	100113	CF 100K OHM +-5% 1/8W
R448	700034	CF 330 OHM +-5% 1/16W
△ R449	1195051	FR 2.2 OHM +-5% 1/4W
R44A	700063	CF 47K OHM +-5% 1/16W
R44C	700063	CF 47K OHM +-5% 1/16W
R44E	100077	CF 3.3K OHM +-5% 1/8W
△ R44H	1195051	FR 2.2 OHM +-5% 1/4W
△ R44K	1195687	FR 4.7 OHM +-5% 1/4W
R450	100077	CF 3.3K OHM +-5% 1/8W
R451	100133	CF 680K OHM +-5% 1/8W (35V)
R452	700063	CF 47K OHM +-5% 1/16W
R453	700045	CF 2.2K OHM +-5% 1/16W
R454	700063	CF 47K OHM +-5% 1/16W
R458	700063	CF 47K OHM +-5% 1/16W
R45A	700049	CF 4.7K OHM +-5% 1/16W
R45H	700049	CF 4.7K OHM +-5% 1/16W
R470	100095	CF 1K OHM +-5% 1/8W
R471	100113	CF 100K OHM +-5% 1/8W
R472	700063	CF 47K OHM +-5% 1/16W
R473	100113	CF 100K OHM +-5% 1/8W
R474	100095	CF 1K OHM +-5% 1/8W
R475	700063	CF 47K OHM +-5% 1/16W
R476	100113	CF 100K OHM +-5% 1/8W
R477	100095	CF 1K OHM +-5% 1/8W
R478	700063	CF 47K OHM +-5% 1/16W
R479	100113	CF 100K OHM +-5% 1/8W
R47A	100095	CF 1K OHM +-5% 1/8W
R47C	100095	CF 1K OHM +-5% 1/8W
R47E	100113	CF 100K OHM +-5% 1/8W
R47F	100095	CF 1K OHM +-5% 1/8W
R47H	700063	CF 47K OHM +-5% 1/16W
R47K	100113	CF 100K OHM +-5% 1/8W
R480	100095	CF 1K OHM +-5% 1/8W (EXCEPT 27CX3B)
R481	100113	CF 100K OHM +-5% 1/8W (EXCEPT 35V/27CX3B)
R482	700063	CF 47K OHM +-5% 1/16W (EXCEPT 27CX3B)
R483	100095	CF 1K OHM +-5% 1/8W (EXCEPT 27CX3B)
R484	100113	CF 100K OHM +-5% 1/8W (EXCEPT 35V/27CX3B)
R485	700063	CF 47K OHM +-5% 1/16W (EXCEPT 27CX3B)
△ R490	119514	FR 10 OHM +-5% 1/4W
R501	700057	CF 18K OHM +-5% 1/16W
R502	700056	CF 22K OHM +-5% 1/16W
R519	700054	CF 10K OHM +-5% 1/16W
R51A	700041	CF 1K OHM +-5% 1/16W
R51C	700054	CF 10K OHM +-5% 1/16W
R51E	100049	CF 220 OHM +-5% 1/8W
R51H	700054	CF 10K OHM +-5% 1/16W
R51K	100049	CF 220 OHM +-5% 1/8W
R520	100049	CF 220 OHM +-5% 1/8W
R521	700061	CF 33K OHM +-5% 1/16W
R522	700031	CF 180 OHM +-5% 1/16W
R601	700056	CF 22K OHM +-5% 1/16W
R602	700027	CF 100 OHM +-5% 1/16W
R603	700059	CF 27K OHM +-5% 1/16W
R604	700054	CF 10K OHM +-5% 1/16W
R607	100119	CF 180K OHM +-5% 1/8W
R608	700038	CF 680 OHM +-5% 1/16W
R609	700042	CF 1.2K OHM +-5% 1/16W
R60A	700041	CF 1K OHM +-5% 1/16W
R60C	100055	CF 390 OHM +-5% 1/8W
R60E	700041	CF 1K OHM +-5% 1/16W
R60H	700032	CF 220 OHM +-5% 1/16W
R610	700048	CF 3.9K OHM +-5% 1/16W
R613	700055	CF 12K OHM +-5% 1/16W
R614	700048	CF 3.9K OHM +-5% 1/16W
R621	700035	CF 390 OHM +-5% 1/16W
R622	700065	CF 68K OHM +-5% 1/16W
R623	700068	CF 82K OHM +-5% 1/16W
R624	100131	CF 560K OHM +-5% 1/8W

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SYMBOL NO.	PART NO.	PART DESCRIPTION
R625	114135	CF 150 OHM +-5% 1/4W
R626	700059	CF 27K OHM +-5% 1/16W
R627	100129	CF 470K OHM +-5% 1/8W
R628	167106	CF 51K OHM +-5% 1/16W
R629	700064	CF 56K OHM +-5% 1/16W
R62A	150160	VR 10K OHM-B +-20%
R62C	119841	MF 0.82 OHM +-5% 1W
R62H	700044	CF 1.8K OHM +-5% 1/16W
R62K	700037	CF 560 OHM +-5% 1/16W
R630	700032	CF 220 OHM +-5% 1/16W
R631	700065	CF 68K OHM +-5% 1/16W
R632	114153	CF 1.2K OHM +-5% 1/4W(31V)
R633	114161	CF 1K OHM +-5% 1/4W (35V)
R634	114161	CF 1K OHM +-5% 1/4W (35V)
R636	113742	CF 470 OHM +-5% 1/2W
R637	110115	MF 68 OHM +-5% 1W
R647	700044	CF 1.8K OHM +-5% 1/16W
R648	114143	CF 330 OHM +-5% 1/4W
R649	100056	CF 430 OHM +-5% 1/8W
R64C	700049	CF 4.7K OHM +-5% 1/16W
R650	700067	CF 100K OHM +-5% 1/16W
R651	100125	CF 330K OHM +-5% 1/8W
R651	700066	CF 82K OHM +-5% 1/16W
R652	700057	CF 18K OHM +-5% 1/16W
R652	700066	CF 82K OHM +-5% 1/16W
R653	700064	CF 56K OHM +-5% 1/16W
R654	700057	CF 18K OHM +-5% 1/16W
R655	700063	CF 47K OHM +-5% 1/16W(31V/27V)
R655	700059	CF 27K OHM +-5% 1/16W (35V)
R656	700049	CF 4.7K OHM +-5% 1/16W
R657	100119	CF 180K OHM +-5% 1/8W(31V/27V)
R657	100117	CF 150K OHM +-5% 1/8W (35V)
R658	700058	CF 22K OHM +-5% 1/16W (31V)
R658	700038	CF 680 OHM +-5% 1/16W (27UX5B)
R658	700055	CF 10K OHM +-5% 1/16W (35V/27CX4B/27CX3B)
R659	100117	CF 150K OHM +-5% 1/8W
R663	700059	CF 27K OHM +-5% 1/16W
R664	700063	CF 47K OHM +-5% 1/16W(31V/27V)
R664	700066	CF 82K OHM +-5% 1/16W (35V)
R665	700064	CF 56K OHM +-5% 1/16W
R666	700061	CF 33K OHM +-5% 1/16W
R667	100133	CF 680K OHM +-5% 1/8W
R668	2340371	TH 1200-B
R669	700067	CF 100K OHM +-5% 1/16W
R670	700048	CF 3.9K OHM +-5% 1/16W
R671	700065	CF 68K OHM +-5% 1/16W
R701	700036	CF 470 OHM +-5% 1/16W
R702	700045	CF 2.2K OHM +-5% 1/16W
R703	700041	CF 1K OHM +-5% 1/16W
R704	150287	VR 10K OHM-B
△ R705	700054	CF 10K OHM +-5% 1/16W
R706	700045	CF 2.2K OHM +-5% 1/16W
R707	100045	CF 150 OHM +-5% 1/8W
R708	100125	CF 330K OHM +-5% 1/8W
R709	114141	CF 270 OHM +-5% 1/4W
R70A	114137	CF 180 OHM +-5% 1/4W
R710	700033	CF 270 OHM +-5% 1/16W
R712	114049	CF 22 OHM +-5% 1/4W (31V/27V)
R716	115729	CF 150 OHM +-5% 1/2W
R717	700067	CF 100K OHM +-5% 1/16W
△ R718	100037	CF 68 OHM +-5% 1/8W
R720	114143	CF 330 OHM +-5% 1/4W
△ R721	119838	FR 0.5 OHM +-5% 1/4W
△ R725	1195051	FR 2.2 OHM +-5% 1/4W
△ R726	1195051	FR 2.2 OHM +-5% 1/4W
R727	119688	MF 0.22 OHM +-5% 1W
R728	700044	CF 1.8K OHM +-5% 1/16W
△ R729	700048	CF 3.9K OHM +-5% 1/16W
R732	100077	CF 3.3K OHM +-5% 1/8W
R733	700051	CF 5.6K OHM +-5% 1/16W
R734	113748	CF 820 OHM +-5% 1/2W
R735	113754	CF 1.5K OHM +-5% 1/2W
△ R736	700032	CF 220 OHM +-5% 1/16W
△ R738	700045	CF 2.2K OHM +-5% 1/16W
R739	700041	CF 1K OHM +-5% 1/16W
R73A	114049	CF 22 OHM +-5% 1/4W
R73C	700018	CF 22 OHM +-5% 1/16W
△ R73E	119836	FR 0.5 OHM +-5% 1/4W
R73H	114161	CF 1K OHM +-5% 1/4W
R73K	700036	CF 470 OHM +-5% 1/16W
R740	110125	MF 150 OHM +-5% 1W (31V/27V)
△ R745	700054	CF 10K OHM +-5% 1/16W
△ R746	700053	CF 9.2K OHM +-5% 1/16W
R74A	100051	CF 680 OHM +-5% 1/8W
R74C	100107	CF 56K OHM +-5% 1/8W
R74H	100105	CF 47K OHM +-5% 1/8W
R750	100073	CF 2.2K OHM +-5% 1/8W
R751	700055	CF 56K OHM +-5% 1/16W
R752	150306	VR 100K OHM-B
R753	700056	CF 15K OHM +-5% 1/16W
R754	700038	CF 680 OHM +-5% 1/16W
R755	150306	VR 20K OHM-B
R756	700057	CF 18K OHM +-5% 1/16W
R757	700064	CF 56K OHM +-5% 1/16W
R758	700051	CF 5.6K OHM +-5% 1/16W
R759	700064	CF 56K OHM +-5% 1/16W
R760	700066	CF 82K OHM +-5% 1/16W
R762	700068	CF 82K OHM +-5% 1/16W
R763	110269	MF 3.9K OHM +-5% 2W
R764	100075	CF 2.7K OHM +-5% 1/8W
R765	100071	CF 1.8K OHM +-5% 1/8W
R766	700027	CF 100 OHM +-5% 1/16W
R767	700044	CF 1.8K OHM +-5% 1/16W
R768	700056	CF 15K OHM +-5% 1/16W
R769	700054	CF 10K OHM +-5% 1/16W
R770	100115	CF 120K OHM +-5% 1/8W
R771	700055	CF 12K OHM +-5% 1/16W
R772	700046	CF 2.7K OHM +-5% 1/16W
R773	700049	CF 4.7K OHM +-5% 1/16W
R774	700055	CF 12K OHM +-5% 1/16W
R775	150305	VR 10K OHM B
R776	700051	CF 5.6K OHM +-5% 1/16W
△ R781	100073	CF 2.2K OHM +-5% 1/8W
R782	700064	CF 10K OHM +-5% 1/16W
R783	700046	CF 2.7K OHM +-5% 1/16W
R785	700054	CF 10K OHM +-5% 1/16W
R786	110841	MF 680 OHM +-5% 2W
R787	110215	MF 56 OHM +-5% 2W (31V/27V)
R787	110219	MF 82 OHM +-5% 2W (35V)
R788	700063	CF 47K OHM +-5% 1/16W
R789	700061	CF 33K OHM +-5% 1/16W
R790	700046	CF 2.7K OHM +-5% 1/16W
R791	700049	CF 4.7K OHM +-5% 1/16W
R792	114823	CF 12K OHM +-5% 1/4W (31UX5B/27UX5B)
R793	110177	MF 22K OHM +-5% 1W
R794	110257	MF 3.3K OHM +-5% 2W
R798	113760	CF 2.7K OHM +-5% 1/2W
R801	700043	CF 1.5K OHM +-5% 1/16W
R802	700054	CF 10K OHM +-5% 1/16W
R805	700026	CF 82 OHM +-5% 1/16W (31V/27V)
R805	700023	CF 47 OHM +-5% 1/16W (35V)
R806	150109	VR 200 OHM-B RS-6
R807	150302	VR 2K OHM B
R808	700038	CF 680 OHM +-5% 1/16W
R809	700038	CF 680 OHM +-5% 1/16W
R811	700024	CF 56 OHM +-5% 1/16W (31V/27V)
R811	700026	CF 82 OHM +-5% 1/16W (35V)
R813	700038	CF 680 OHM +-5% 1/16W
R814	150302	VR 2K OHM B
R815	700027	CF 100 OHM +-5% 1/16W
R816	150109	VR 200 OHM-B RS-6
R817	700038	CF 680 OHM +-5% 1/16W
R818	150302	VR 2K OHM B
R819	700064	CF 56K OHM +-5% 1/16W
R820	100049	CF 220 OHM +-5% 1/8W
R821	100049	CF 220 OHM +-5% 1/8W

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SYMBOL NO.	PART NO.	PART DESCRIPTION
R822	100049	CF 220 OHM +-5% 1/8W
R824	100063	CF 820 OHM +-5% 1/8W
R825	100063	CF 820 OHM +-5% 1/8W
R826	100057	CF 470 OHM +-5% 1/8W
R827	100057	CF 470 OHM +-5% 1/8W
R828	100057	CF 470 OHM +-5% 1/8W
R829	700043	CF 1.5K OHM +-5% 1/16W
R830	700043	CF 1.5K OHM +-5% 1/16W
R831	700043	CF 1.5K OHM +-5% 1/16W
R832	700032	CF 220 OHM +-5% 1/16W
R833	700032	CF 220 OHM +-5% 1/16W
R834	700032	CF 220 OHM +-5% 1/16W
R835	167074	CF 2.4K OHM +-5% 1/16W
R836	700044	CF 1.8K OHM +-5% 1/16W
R837	700038	CF 680 OHM +-5% 1/16W (EXCEPT 27UX5B)
R837	700036	CF 470 OHM +-5% 1/16W (27UX5B)
R838	700035	CF 390 OHM +-5% 1/16W
R839	700041	CF 1K OHM +-5% 1/16W
R840	700046	CF 2.7K OHM +-5% 1/16W
R841	700041	CF 1K OHM +-5% 1/16W
R842	700051	CF 5.6K OHM +-5% 1/16W
R843	700043	CF 1.5K OHM +-5% 1/16W
R844	700052	CF 6.8K OHM +-5% 1/16W
R845	700035	CF 390 OHM +-5% 1/16W
R846	700041	CF 1K OHM +-5% 1/16W
R847	700041	CF 1K OHM +-5% 1/16W
R848	700051	CF 5.6K OHM +-5% 1/16W
R849	700055	CF 12K OHM +-5% 1/16W
R850	100041	CF 100 OHM +-5% 1/8W
⚠ R851	110271	MF 12K OHM +-5% 2W (31V/27V)
⚠ R851	110367	MF 8.2K OHM +-5% 3W (35V)
⚠ R852	110271	MF 12K OHM +-5% 2W (31V/27V)
⚠ R852	110367	MF 8.2K OHM +-5% 3W (35V)
⚠ R853	110271	MF 12K OHM +-5% 2W (31V/27V)
⚠ R853	110367	MF 8.2K OHM +-5% 3W (35V)
R861	100063	CF 820 OHM +-5% 1/8W
R862	100063	CF 820 OHM +-5% 1/8W
R863	100049	CF 220 OHM +-5% 1/8W
R864	700054	CF 10K OHM +-5% 1/16W
R865	700048	CF 3.9K OHM +-5% 1/16W
R875	113750	CF 1K OHM +-5% 1/2W
R876	113750	CF 1K OHM +-5% 1/2W
R877	113750	CF 1K OHM +-5% 1/2W
R878	100049	CF 220 OHM +-5% 1/8W
R879	100049	CF 220 OHM +-5% 1/8W
R880	100049	CF 220 OHM +-5% 1/8W
R881	114131	CF 100 OHM +-5% 1/4W
R882	114131	CF 100 OHM +-5% 1/4W
R883	114131	CF 100 OHM +-5% 1/4W
R884	100037	CF 68 OHM +-5% 1/8W (35V31UX5B)
R884	100039	CF 82 OHM +-5% 1/8W (31CX4B)
R884	0100040M	CF 91 OHM +-5% 1/8W (27V)
R885	100037	CF 68 OHM +-5% 1/8W (35V31UX5B)
R885	100039	CF 82 OHM +-5% 1/8W (31CX4B)
R885	0100040M	CF 91 OHM +-5% 1/8W (27V)
R886	100037	CF 68 OHM +-5% 1/8W (35V31UX5B)
R886	100039	CF 82 OHM +-5% 1/8W (31CX4B)
R886	0100040M	CF 91 OHM +-5% 1/8W (27V)
R888	700027	CF 100 OHM +-5% 1/16W (31V/27V)
R888	700023	CF 47 OHM +-5% 1/16W (35V)
⚠ R901	2341281	TH PTH451C480BG3R0Q (35V/31V)
⚠ R901	2341261	TH PTH451C290BG5R0M (27V)
⚠ R902	147811	WW 1.5 OHM +-10% 1W
⚠ R903	141161	WW 220 OHM +-5% 1W
R904	110221	MF 100 OHM +-5% 2W
R905	110197	MF 10 OHM +-5% 2W
R906	110197	MF 10 OHM +-5% 2W
R907	110173	MF 15K OHM +-5% 1W
R908	100113	CF 100K OHM +-5% 1/8W
R909	100129	CF 470K OHM +-5% 1/8W
R90A	119722	MF 1 OHM +-5% 1W
R90C	700053	CF 8.2K OHM +-5% 1/16W
R90F	110125	MF 150 OHM +-5% 1W
R90H	114059	CF 56 OHM +-5% 1/4W
R90K	110125	MF 150 OHM +-5% 1W
R910	100133	CF 560K OHM +-5% 1/8W
R912	141159	WW 180 OHM +-5% 15W
R914	110155	MF 2.7K OHM +-5% 1W
R915	110261	MF 4.7K OHM +-5% 2W
R916	114221	CF 56K OHM +-5% 1/4W
R917	114209	CF 22K OHM +-5% 1/4W
R918	0100010M	MF 5.1 OHM +-5% 1/8W
R919	700027	CF 100 OHM +-5% 1/16W
R91A	700032	CF 220 OHM +-5% 1/16W
R91C	100101	CF 33K OHM +-5% 1/8W
R91E	110129	MF 220 OHM +-5% 1W
R91F	114171	CF 2.7K OHM +-5% 1/4W
R91H	114053	CF 33 OHM +-5% 1/4W
R91K	110141	MF 680 OHM +-5% 1W
R920	700027	CF 100 OHM +-5% 1/16W
R921	700067	CF 100K OHM +-5% 1/16W
R922	114179	CF 5.6K OHM +-5% 1/4W
R923	114149	CF 560 OHM +-5% 1/4W
R924	147690	WW 2.7 OHM +-12% 7W
R925	100073	CF 2.2K OHM +-5% 1/8W
R926	700049	CF 4.7K OHM +-5% 1/16W
R927	700064	CF 56K OHM +-5% 1/16W
R928	700051	CF 5.6K OHM +-5% 1/16W
R929	700051	CF 33K OHM +-5% 1/16W
R92A	113750	CF 1K OHM +-5% 1/2W
R92C	700046	CF 2.7K OHM +-5% 1/16W
R92E	113725	CF 100 OHM +-5% 1/2W
R92F	113748	CF 680 OHM +-5% 1/2W
R92H	700032	CF 220 OHM +-5% 1/16W
R92K	700064	CF 56K OHM +-5% 1/16W
R930	700051	CF 5.6K OHM +-5% 1/16W
R931	700051	CF 5.6K OHM +-5% 1/16W
R932	700051	CF 5.6K OHM +-5% 1/16W
⚠ R933	119808	FR 56 OHM +-5% 1/4W
R934	100029	CF 33 OHM +-5% 1/8W
R935	700051	CF 5.6K OHM +-5% 1/16W
R936	110197	MF 10 OHM +-5% 2W
R937	700051	CF 5.6K OHM +-5% 1/16W
R938	110281	MF 33K OHM +-5% 2W
⚠ R939	1195051	FR 2.2 OHM +-5% 1/4W
R93A	100111	CF 82K OHM +-5% 1/8W
R93H	113746	CF 680 OHM +-5% 1/2W
R941	100103	CF 39K OHM +-5% 1/8W
R942	110217	MF 68 OHM +-5% 2W
R944	110223	MF 120 OHM +-5% 2W
R969	147060	WW 33 OHM +-5% 2W
R970	141195	WW 330 OHM +-5% 10W
RA01	100066	CF 1.1K OHM +-5% 1/8W (35V)
RA02	100065	CF 1K OHM +-5% 1/8W (35V)
RA03	100065	CF 1K OHM +-5% 1/8W (35V)
RA04	100065	CF 1K OHM +-5% 1/8W (35V)
RMF1	700051	CF 5.6K OHM +-5% 1/16W (35V)
RMF2	100053	CF 330 OHM +-5% 1/8W (35V)
RMF3	100056	CF 430 OHM +-5% 1/8W (35V)
RTP15	110125	MF 150 OHM +-5% 1W
RW01	700057	CF 100K OHM +-5% 1/16W (31UX5B/27UX5B)
RW02	700059	CF 27K OHM +-5% 1/16W (31UX5B/27UX5B)
RW06	700094	CF 330 OHM +-5% 1/16W (31UX5B/27UX5B)
RW07	700057	CF 18K OHM +-5% 1/16W (31UX5B/27UX5B)
RW08	700057	CF 100K OHM +-5% 1/16W (31UX5B/27UX5B)
RW09	700033	CF 270 OHM +-5% 1/16W (31UX5B/27UX5B)
RW10	700033	CF 270 OHM +-5% 1/16W (31UX5B/27UX5B)
RW11	700042	CF 1.2K OHM +-5% 1/16W (31UX5B/27UX5B)
RW12	700045	CF 2.2K OHM +-5% 1/16W (31UX5B/27UX5B)
RW13	700056	CF 22K OHM +-5% 1/16W (31UX5B/27UX5B)
RW16	113742	CF 470 OHM +-5% 1/2W (31UX5B/27UX5B)
RW17	700046	CF 2.7K OHM +-5% 1/16W (31UX5B/27UX5B)
RW19	700043	CF 1.5K OHM +-5% 1/16W (31UX5B/27UX5B)
RW21	113701	CF 10 OHM +-5% 1/2W (31UX5B/27UX5B)
RW22	100039	CF 82 OHM +-5% 1/8W (31UX5B/27UX5B)
RW23	100039	CF 82 OHM +-5% 1/8W (31UX5B/27UX5B)

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SYMBOL NO.	PART NO.	PART DESCRIPTION
RW24	114155	CF 1.8K OHM +-5% 1/4W(31UX5B/27UX5B)
RW25	100099	CF 1.5K OHM +-5% 1/8W (31UX5B/27UX5B)
RW26	114143	CF 330 OHM +-5% 1/4W (31UX5B/27UX5B)
RW27	114221	CF 56K OHM +-5% 1/4W (31UX5B/27UX5B)
RW28	114221	CF 56K OHM +-5% 1/4W (31UX5B/27UX5B)
RW29	100053	CF 330 OHM +-5% 1/8W (31UX5B/27UX5B)
RW30	113776	CF 12K OHM +-5% 1/2W (31UX5B/27UX5B)
RW31	113716	CF 43 OHM +-5% 1/2W (31UX5B/27UX5B)
RW32	113716	CF 43 OHM +-5% 1/2W (31UX5B/27UX5B)
RW33	113686	CF 2.7 OHM +-5% 1/2W (31UX5B/27UX5B)
RW34	113686	CF 2.7 OHM +-5% 1/2W (31UX5B/27UX5B)
RW35	110229	MF 220 OHM +-5% 2W (31UX5B/27UX5B)
RW36	110139	MF 560 OHM +-5% 1W (31UX5B/27UX5B)
⚠ RW37	119508	FR 56 OHM +-5% 1/4W (31UX5B/27UX5B)
RW38	700049	CF 4.7K OHM +-5% 1/16W (31UX5B/27UX5B)
RW39	700051	CF 5.6K OHM +-5% 1/16W (31UX5B/27UX5B)
RW40	700051	CF 33K OHM +-5% 1/16W (31UX5B/27UX5B)
RW41	700036	CF 470 OHM +-5% 1/16W (31UX5B/27UX5B)
RW42	700067	CF 100K OHM +-5% 1/16W (31UX5B/27UX5B)
RW43	700056	CF 15K OHM +-5% 1/16W (31UX5B/27UX5B)
RW44	700043	CF 1.5K OHM +-5% 1/16W (31UX5B/27UX5B)
RW45	700067	CF 100K OHM +-5% 1/16W (31UX5B/27UX5B)
RW47	700041	CF 1K OHM +-5% 1/16W (31UX5B/27UX5B)
RW48	700041	CF 1K OHM +-5% 1/16W (31UX5B/27UX5B)
RW49	700046	CF 2.7K OHM +-5% 1/16W (31UX5B/27UX5B)
RW51	700033	CF 270 OHM +-5% 1/16W (31UX5B/27UX5B)
RW52	700035	CF 390 OHM +-5% 1/16W (31UX5B/27UX5B)
RW53	700035	CF 390 OHM +-5% 1/16W (31UX5B/27UX5B)
RW54	700041	CF 1K OHM +-5% 1/16W (31UX5B/27UX5B)
RW55	700028	CF 120 OHM +-5% 1/16W (31UX5B/27UX5B)
RW55A	700037	CF 560 OHM +-5% 1/16W (31UX5B/27UX5B)
RY01	700041	CF 1K OHM +-5% 1/16W (35V)
RY02	700041	CF 1K OHM +-5% 1/16W (35V)
RY03	100057	CF 470 OHM +-5% 1/8W (35V)
RY04	700036	CF 470 OHM +-5% 1/16W (35V)
RY05	700036	CF 470 OHM +-5% 1/16W 25V)
RY06	700027	CF 100 OHM +-5% 1/16W (35V)
RY07	100073	CF 2.2K OHM +-5% 1/8W (35V)
RY08	700047	CF 3.3K OHM +-5% 1/16W (35V)
RY09	700058	CF 22K OHM +-5% 1/16W (35V)
RY10	700057	CF 18K OHM +-5% 1/16W (35V)
RY11	700055	CF 12K OHM +-5% 1/16W (35V)
		SWITCHES/RELAYS
S001	2632851	TACTO SWITCH (31V/27V)
S002	2632901	KEY SWITCH (31V/27V)
S003	2632901	KEY SWITCH (31V/27V)
S0501	2633321	5 KEY TACT SWITCH (35V)
S0502	2632901	KEY SWITCH (35V)
⚠ S901	2641221	POWER RELAY
⚠ SMF1	2620971	SLIDE SWITCH (35V)
⚠ SMF2	2620801	SLIDE SWITCH (35V)
		SPEAKERS
⚠ SP451	2735333	SPEAKER BOX ASS'Y (31UX5B/27UX5B)
⚠ SP451	2735331	SPEAKER BOX ASS'Y (31CX4B/27CX4B)
⚠ SP451	GK20061	SPEAKER SX9 (27CX3B)
⚠ SP451	2414607	SPEAKER 6X12(35V)
⚠ SP452	2735333	SPEAKER BOX ASS'Y (31UX5B/27UX5B)
⚠ SP452	2735331	SPEAKER BOX ASS'Y (31CX4B/27CX4B)
⚠ SP452	GK20061	SPEAKER SX9 (27CX3B)
⚠ SP452	2414607	SPEAKER 8X12 (35V)
		TRANSFORMERS
⚠ T701	2274353	H DRIVE TRANSFORMER
⚠ T702	2437092	FLY BACK TRANSFORMER C47LUI
⚠ T901	2216002	SWITCHING TRANSFORMER

SYMBOL NO.	PART NO.	PART DESCRIPTION
		COLOR PICTURE TUBE
⚠ V1	DE00161	C P T M76JUA165X (31UX5B)
⚠ V1	DE00061	C P T A79LCU30X(31V D.T-AK) (31CX4B)
⚠ V1	2471552	C P T M68JUA168X (27UX5B)
⚠ V1	2471561	C P T A68KSA30X (27CX4B)
⚠ V1	2471561	C P T A68KSA30X (27CX3B)
⚠ V1	2471593	C P T A69AEJ15X01 (35TX10B)
		DEFLECTION YOKE
⚠ E601	2444432	DEFLECTION YOKE (31UX5B)
⚠ E601	BY00131	DEFLECTION YOKE HED-US31V 31CX4B)
⚠ E601	2444251	DEFLECTION YOKE (27UX5B)
⚠ E601	2444253	DEFLECTION YOKE (27CX4B/27CX3B)
		CRYSTAL/FILTERS
F301	2151041	DELAY LINE AND B.P.F
⚠ H901	2793313	COMPOUND COMPONENT
X001	2168891	CRYSTAL
X103	2300477	SAW FILTER HW2267
X201	2167311	CERAMIC FILTER 4.5MHZ
X202	2167201	CERAMIC TRAP 4.5MHZ
X301	2793261	DELAY LINE
X302	2794401	DELAY LINE
X501	2791505	CRYSTAL
X701	2167241	CERAMIC OSC 0.5MHZ
XW01	2150361	LC FILTER SDL4620 (31UX5B/27UX5B)
		MISCELLANEOUS PARTS
#	PC00341	BUTTON (31UX5B/31CX4B)
#	PC00342	BUTTON (27UX5B/27CX4B)
#	PC00343	BUTTON (27CX3B)
#011	QC00091	CABINET ASS'Y (35V)
#050	QD00683	FRAME ASS'Y (31UX5B)
#050	QD00684	FRAME ASS'Y (31CX4B)
#100	4521713	HEXAGON HEAD TAPPING SCREW (35V)
#105	NT00121	TERMINAL BOARD
#105	4516581	SCREW 4X16 SPECIAL WASHER SWRM (35V)
#105	4516582	4X26 TAPPING SCREW WITH BOLT (35V)
#111	8781646	4X16 TAPPING SCREW (27V)
#112	8781646	4X16 TAPPING SCREW (27UX5B/27CX4B)
#112	8781643	4X12 TAPPING SCREW (35V)
#115	4159427	3X10 TAPPING SCREW WITH WASHER (27CX3B)
#115	4137978	4X20 TAPPING SCREW WITH WASHER (35V)
#152	4528351	SCREW 6X30 (27V)
#152	4517801	6 FLANGE NUT (35V)
#160	3739671	CORD HOLDER
#201	8781646	4X16 TAPPING SCREW (27V)
#202	4519503	3X12 TAPPING SCREW
#202	8781645	4X15 TAPPING SCREW (27V)
#203	4519503	3X12 TAPPING SCREW
#210	4159427	3X10 TAPPING SCREW WITH WASHER
#210	QD00681	FRAME ASS'Y (27UX5B)
#210	QD00311	FRAME ASS'Y (27CX3B)
#211	QD00682	FRAME ASS'Y (27CX4B)
#220	4520771	4X18 TAPPING SCREW WITH WASHER (35V)
#221	4520771	4X18 TAPPING SCREW WITH WASHER (35V)
#225	3875771	LATCH (27V/31V)
#250	4520232	4X16 DT SCREW (27V/31V)
#250	3727972	HOLDER-AC LINE CORD (35V)
#250	4520232	4X16 DT SCREW (35V)
#253	8781642	4X12 TAPPING SCREW (27V)
#254	8781642	4X12 TAPPING SCREW (27V)
#289	8781642	4X12 TAPPING SCREW (35V)
#292	6815126	LOCKING WASHER 4 (35V)
#298	3875771	LATCH (35V)
#310	8781642	4X12 TAPPING SCREW (31V)
#415	8781642	4X12 TAPPING SCREW (31V)
#521	3164043	BACK COVER (31V)

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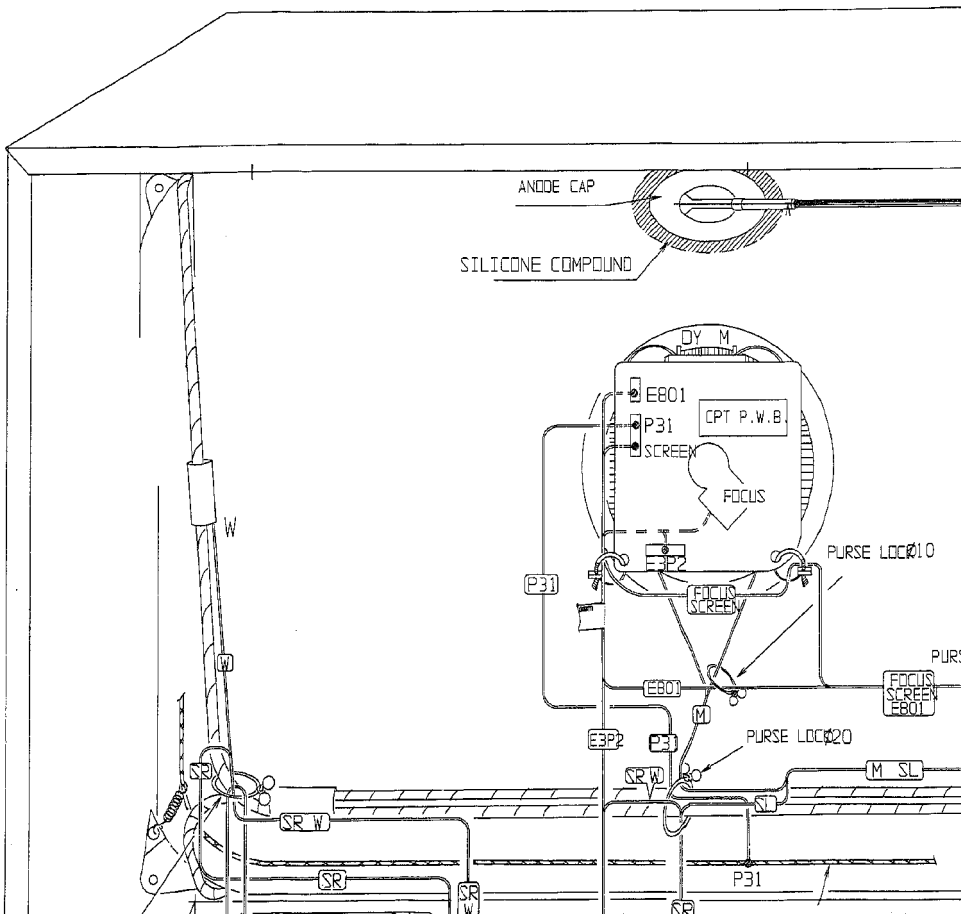
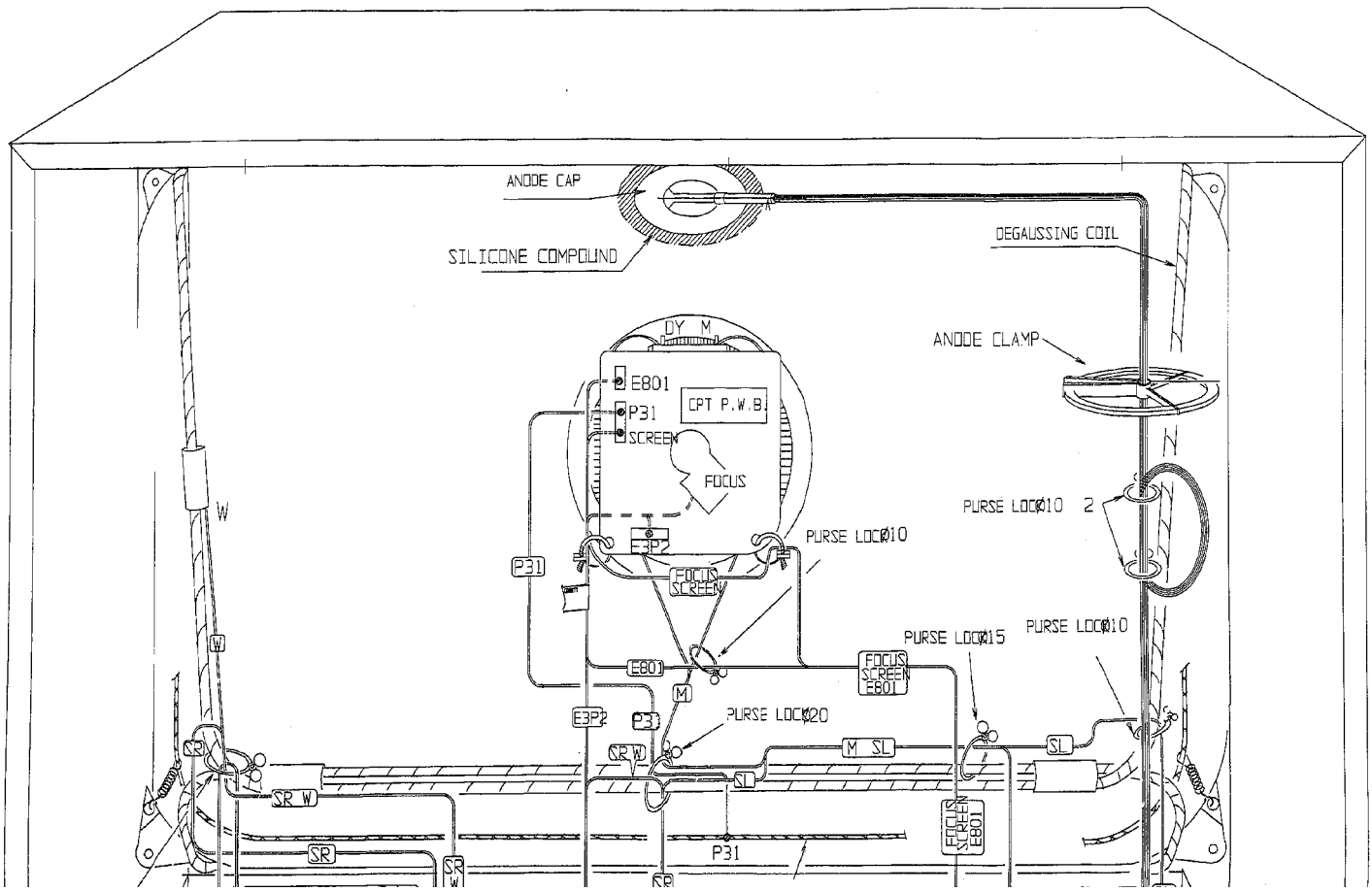
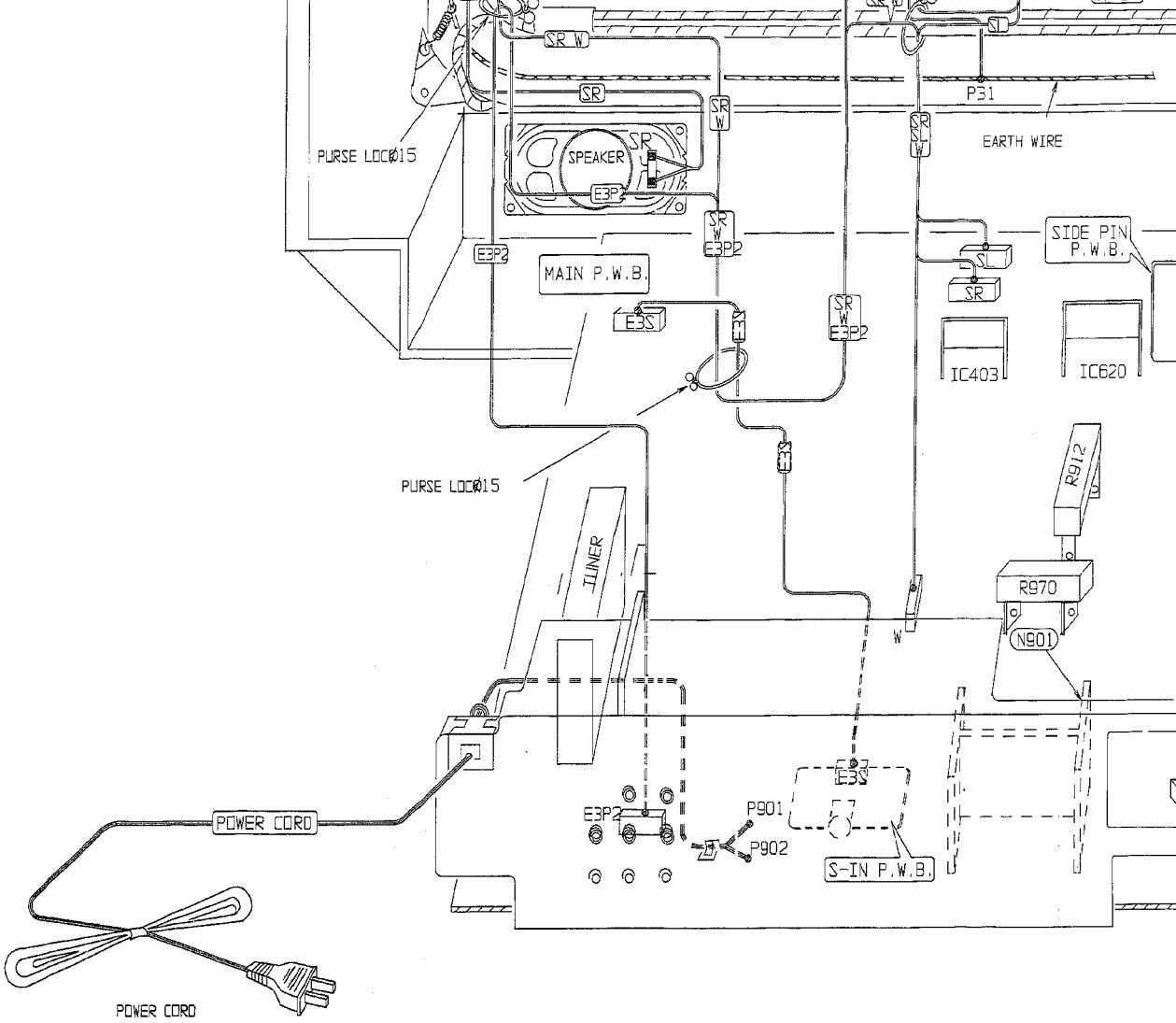
SYMBOL NO.	PART NO.	PART DESCRIPTION	SYMBOL NO.	PART NO.	PART DESCRIPTION
#601	3727672	HOLDER-AC LINE CORD (27V/31V)			
#701	3163507	BACK COVER (27V)			
#950	4520771	4X18 TAPPING SCREW WITH WASHER (31V)			
#695	8781646	4X15 TAPPING SCREW (31V)			
#906	PH00971	TERMINAL LABEL (27V/31V)			
B0P	2954982	5P MICRO CONNECTOR (EXCEPT 27CX3B)			
B3P1	2976661	12P SUB MINI CONNECTOR (EXCEPT 27CX3B)			
B602	2994511	CPT EARTH READ (31V)			
B603	2771461	MAGNET PEACE			
B604	2773672	CP-MAGNET (31CX4B/27CX4B/27CX3B)			
B851	2953344	CPT SOCKET			
⚠ E901	2972521	POWER CORD			
EF901	2720221	FUSE HOLDER			
EF902	2720221	FUSE HOLDER			
G851	2340047	SPARK GAP			
G854	2340039	SPARK GAP (35V)			
G855	2340039	SPARK GAP (35V)			
G856	2340039	SPARK GAP (35V)			
⚠ G901	2340741	SPARK GAP			
⚠ J01	2983116	3P PIN JACK (35V)			
⚠ J301	2983095	8P PIN JACK WITH SW			
⚠ J30F	2673602	3P PIN JACK (31V/27V)			
⚠ JSIN	2983122	S-SOCKET			
N104	2788641	ANODE CLAMP (27V)			
N105	2788641	ANODE CLAMP (31V)			
N108	2788641	ANODE CLAMP (35V)			
N109	3700342	WIRE CLAMP (31V)			
N130	3700342	WIRE CLAMP (27V)			
N201	3763751	SK BINDER			
N403A	4520881	M3X8 SCREW WITH WASHER			
N403B	8821234	3 NUT			
N601	4615541	WEDGE (31CX4B/27CX4B/27CX3B)			
N605	3330941	EARTH SPRING			
N607	3763751	SK BINDER (35V)			
N607A	3763751	SK BINDER (31V)			
N607B	3763751	SK BINDER (27V)			
N608	3763752	SK BINDER (31V)			
N609	3763752	SK BINDER (35V)			
N610	2772981	FERRITE SHEET			
N611	2772211	MAGNET PIECE (31CX4B/27CX4B/27CX3B)			
N620A	4520881	M3X8 SCREW WITH WASHER			
N620B	8821234	3 NUT			
N701	8821114	3 NUT (35V/31V)			
N701A	4243445	G51 INSULATOR			
N701B	8711412	3X12 PAN HEAD SCREW (35V/31V)			
N701B	4518742	M2.3X12 SCREW WITH WASHER (27V)			
N702B	8821234	3 NUT			
N702C	8813124	WASHER			
N702E	4159411	3X8 KNURL TAPPING SCREW (35V/31V)			
N706A	4520881	M3X8 SCREW WITH WASHER			
N706A	4520881	M3X8 SCREW WITH WASHER			
N752A	4520881	M3X8 SCREW WITH WASHER			
N901A	4520883	M3X12 SCREW WITH WACHER			
N901B	8761542	4X12 TAPPING SCREW			
N901C	4137974	4X12 TAPPING SCREW WITH WASHER			
N901D	2787531	MICA PLATE			
N901E	8815126	LOCKING WASHER 4			
NC901	2784342	CONDENSER COVER			
NE901	3772201	AC CORD HOLDER			
NMP0	3763751	SK BINDER(35V)			
NW02	4520883	M3X12 SCREW WITH WASHER (31UX5B/27UX5B)			
P802	2902263	4P SUB MINI PLUG PIN			
PFJ	2902266	7P SUB MINI PLUG PIN (35V)			
PG3	2661942	CONNECTOR (35V)			
PM	2565272	4P PLUG PIN WITH BASE			
PSR	2902263	4P SUB MINI PLUG PIN			
PVM2	2661756	1P PLUG PIN WITH BASE (31UX5B/27UX5B)			
PW	2661753	PIN PLUG WITH BASE			
PY02	2661756	1P PLUG PIN WITH BASE (35V)			
⚠ U001	2361126	R/C RECEIVER SPS-409-1F (31V/27V)			
U0501	2575453	P IN P UNIT (EXCEPT 27CX3B)			
⚠ U101	2428681	TUNER ET-952A			

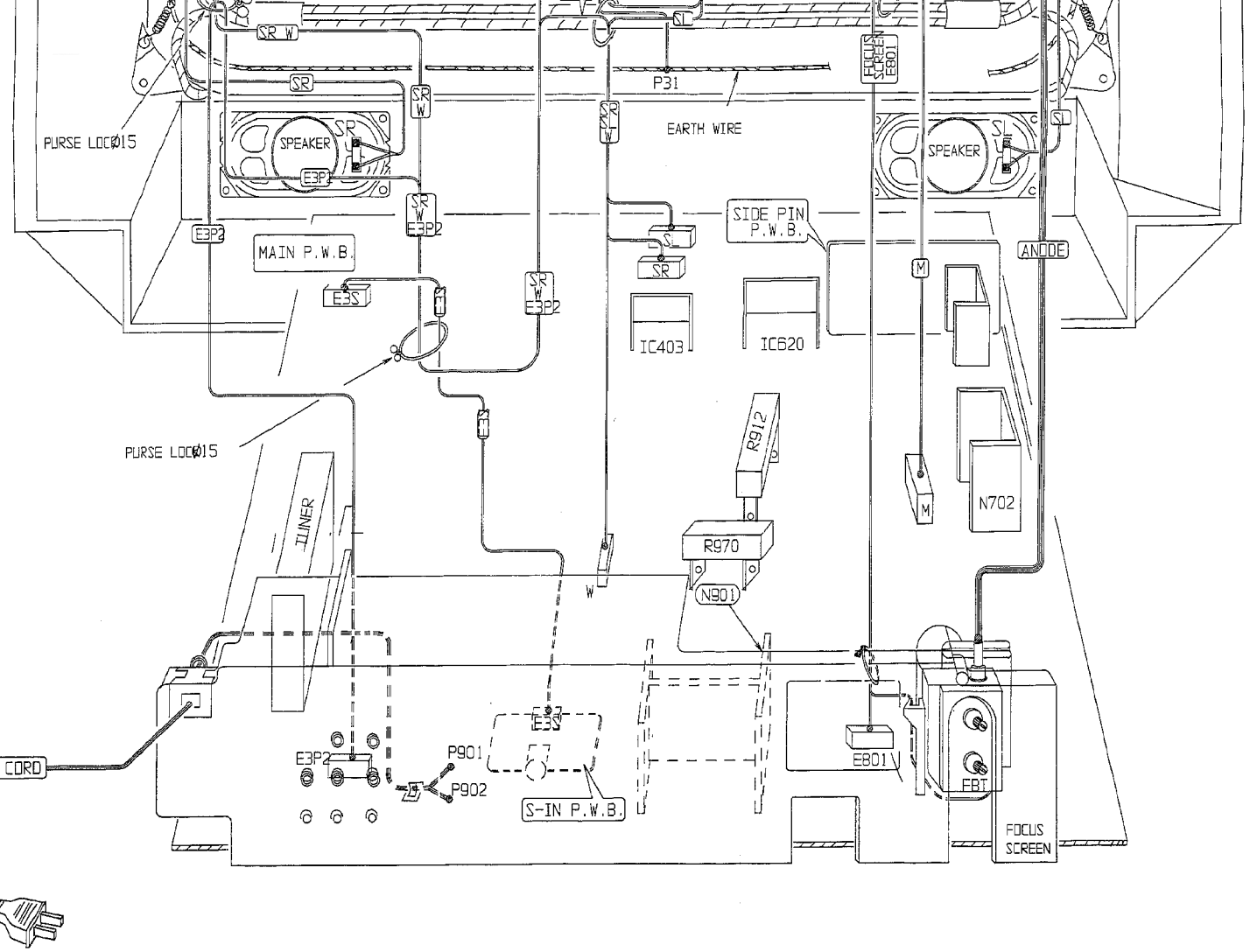
WIRING DRAWING OF 27CX3B/C743 FINAL ASSEMB



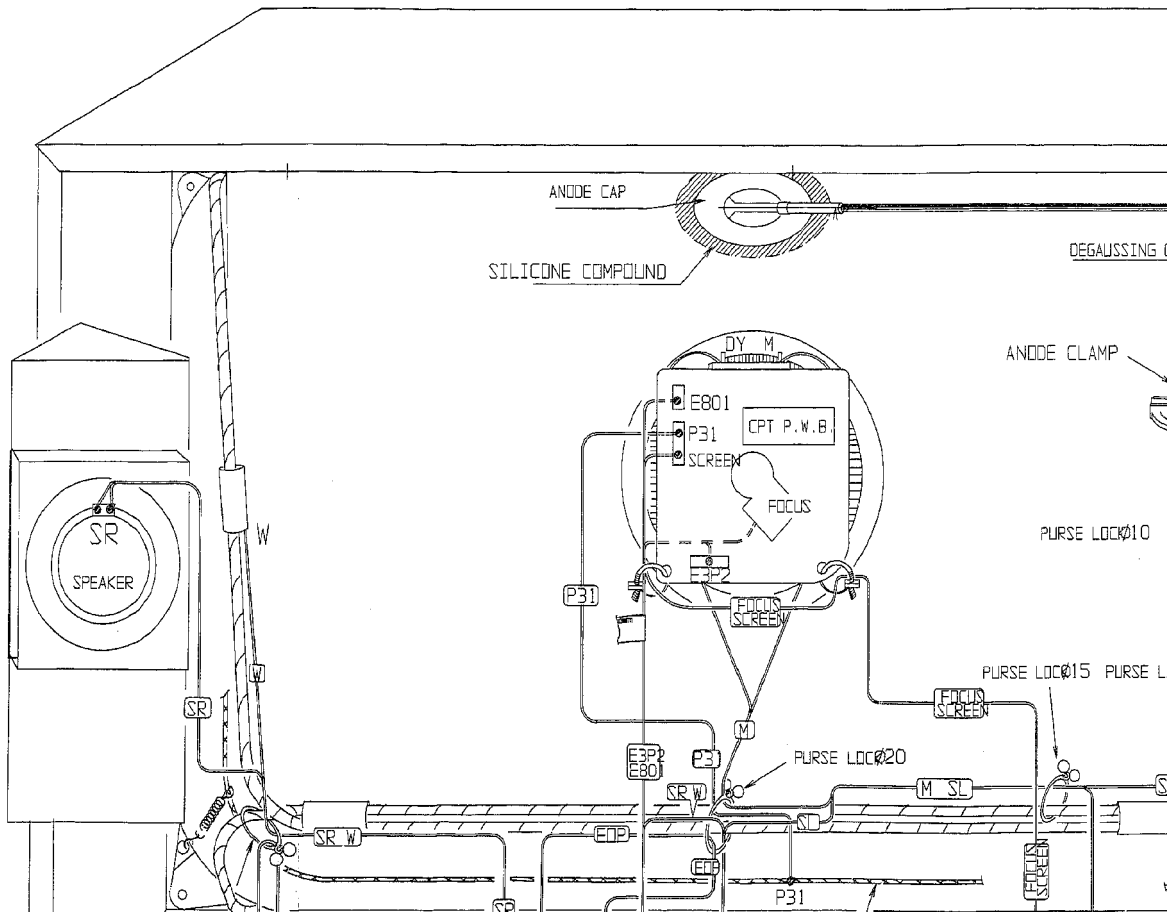
WIRING DRAWING OF 27CX3B/C743 FINAL ASSEMBLY



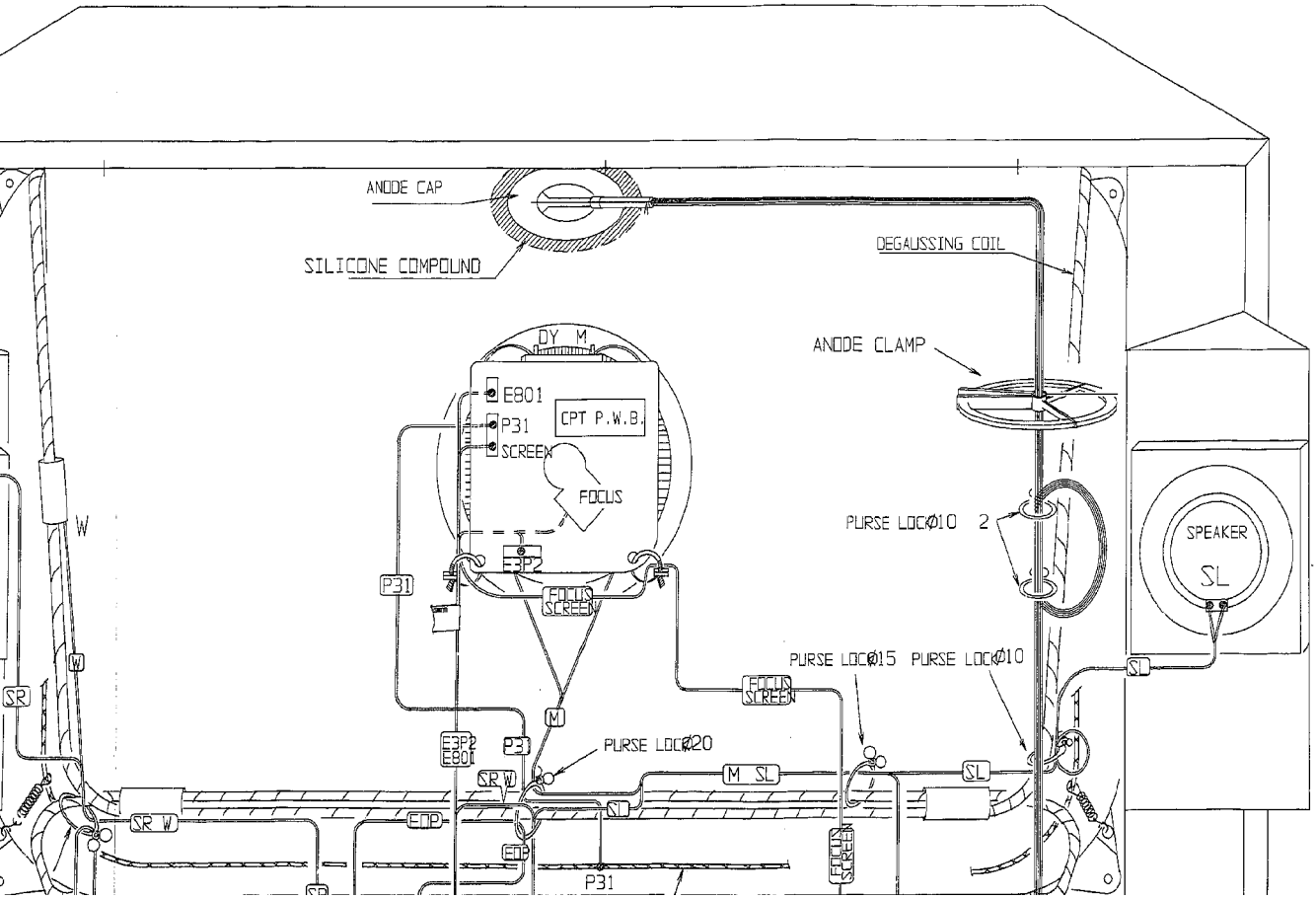


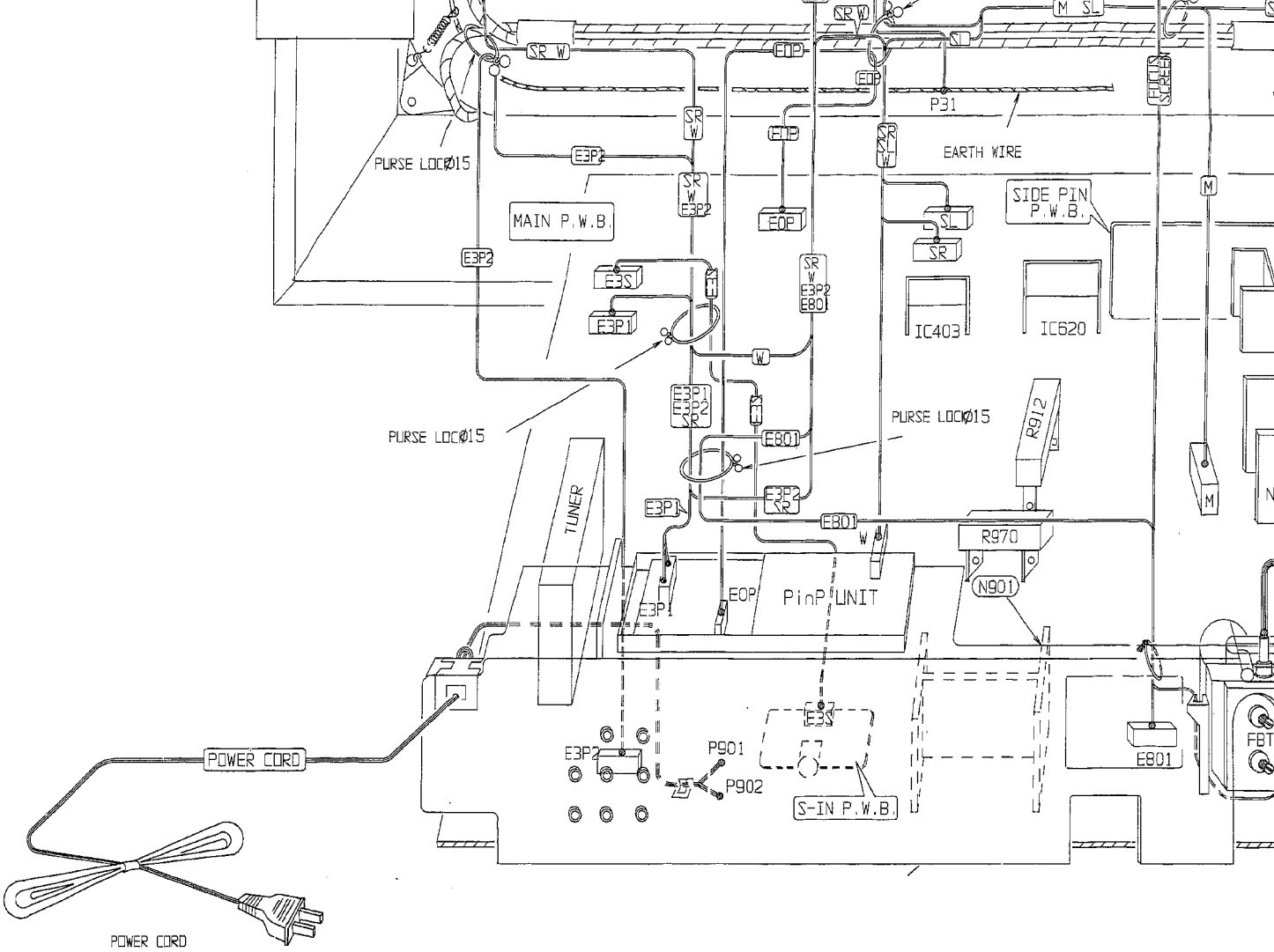


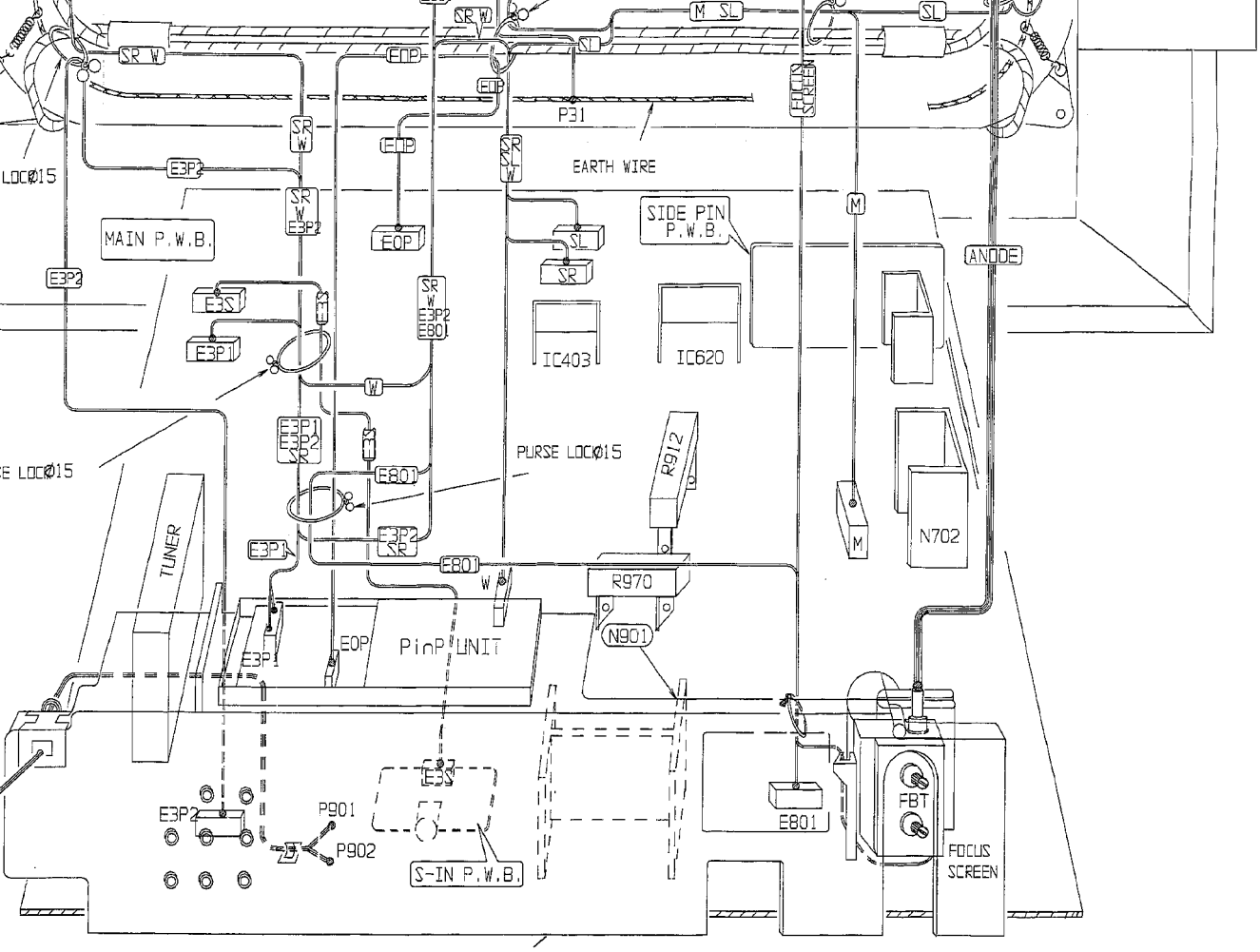
WIRING DRAWING OF 27CX4B/C744 FINAL ASSEMBLY



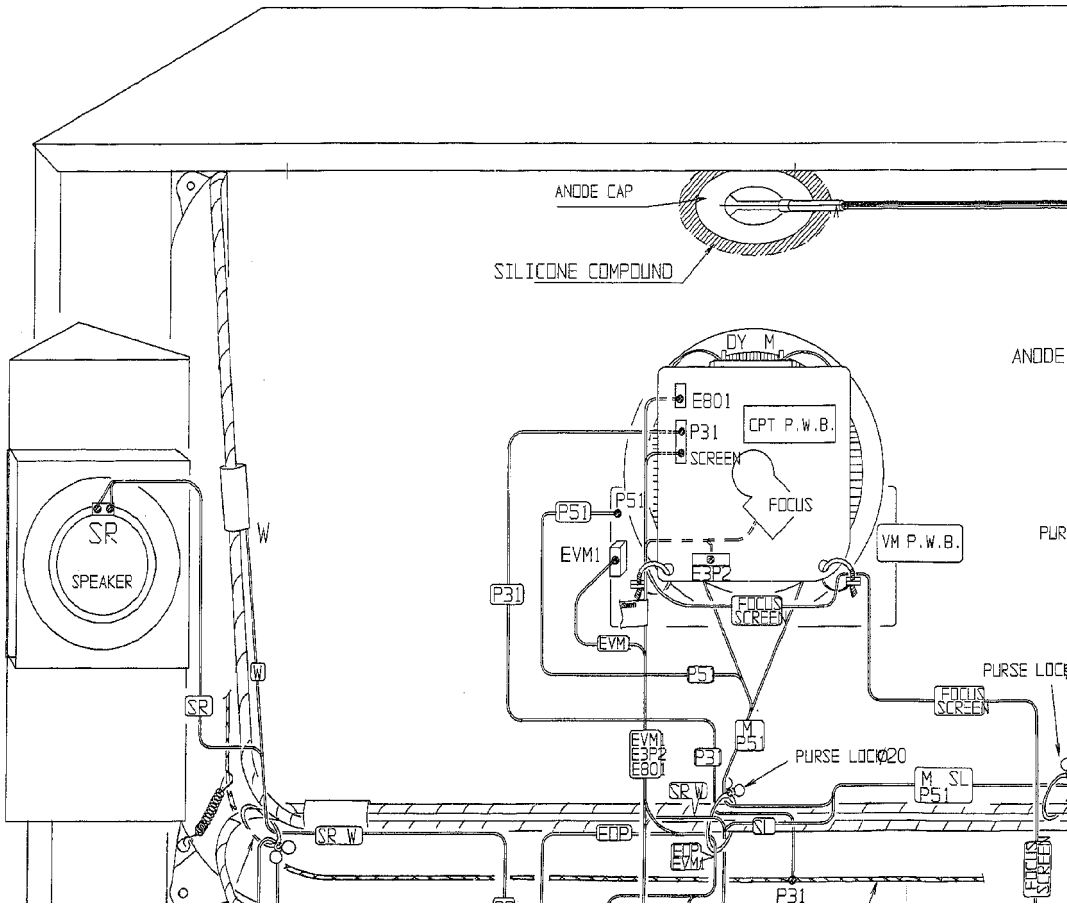
WIRING DRAWING OF 27CX4B/C744 FINAL ASSEMBLY



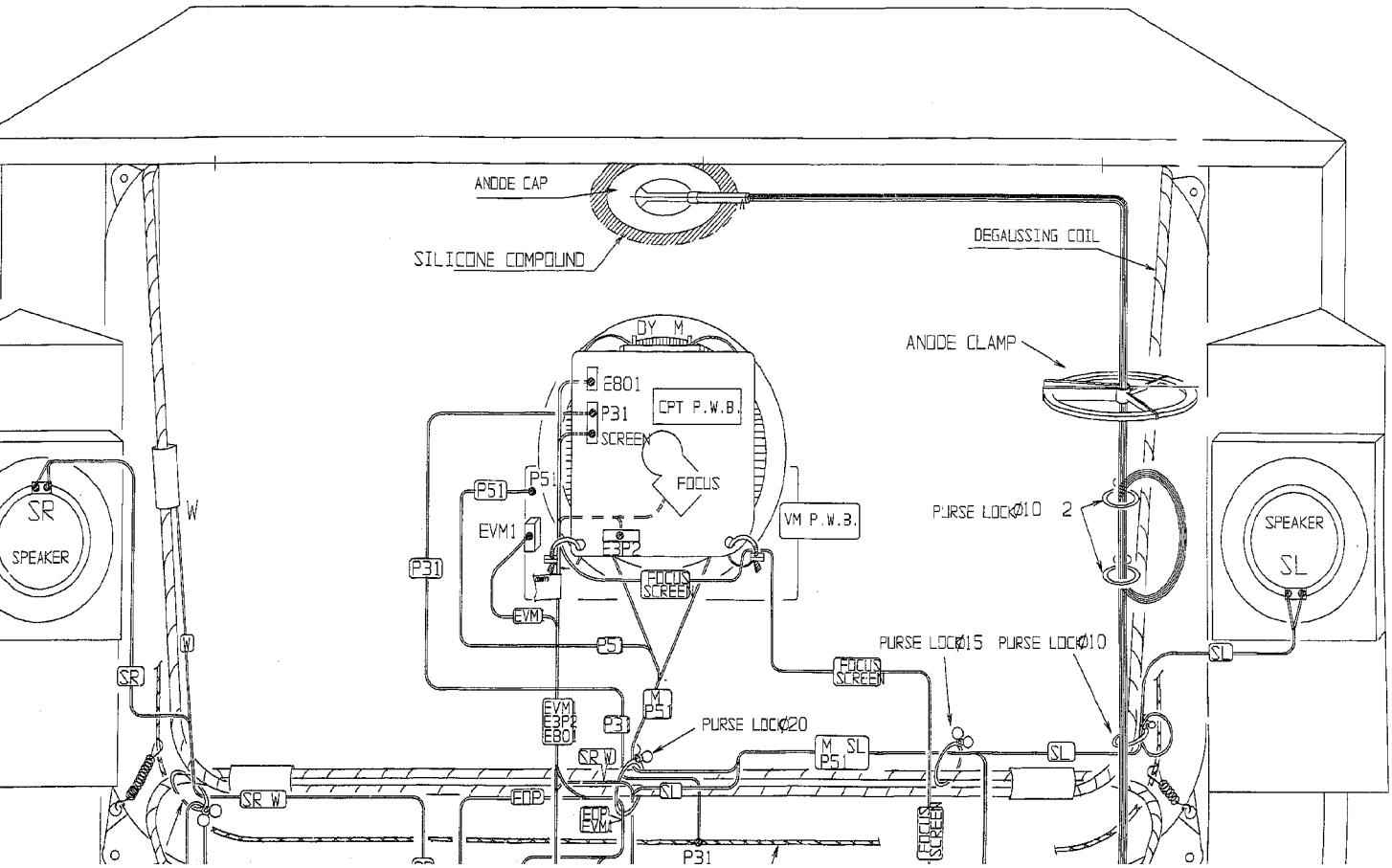


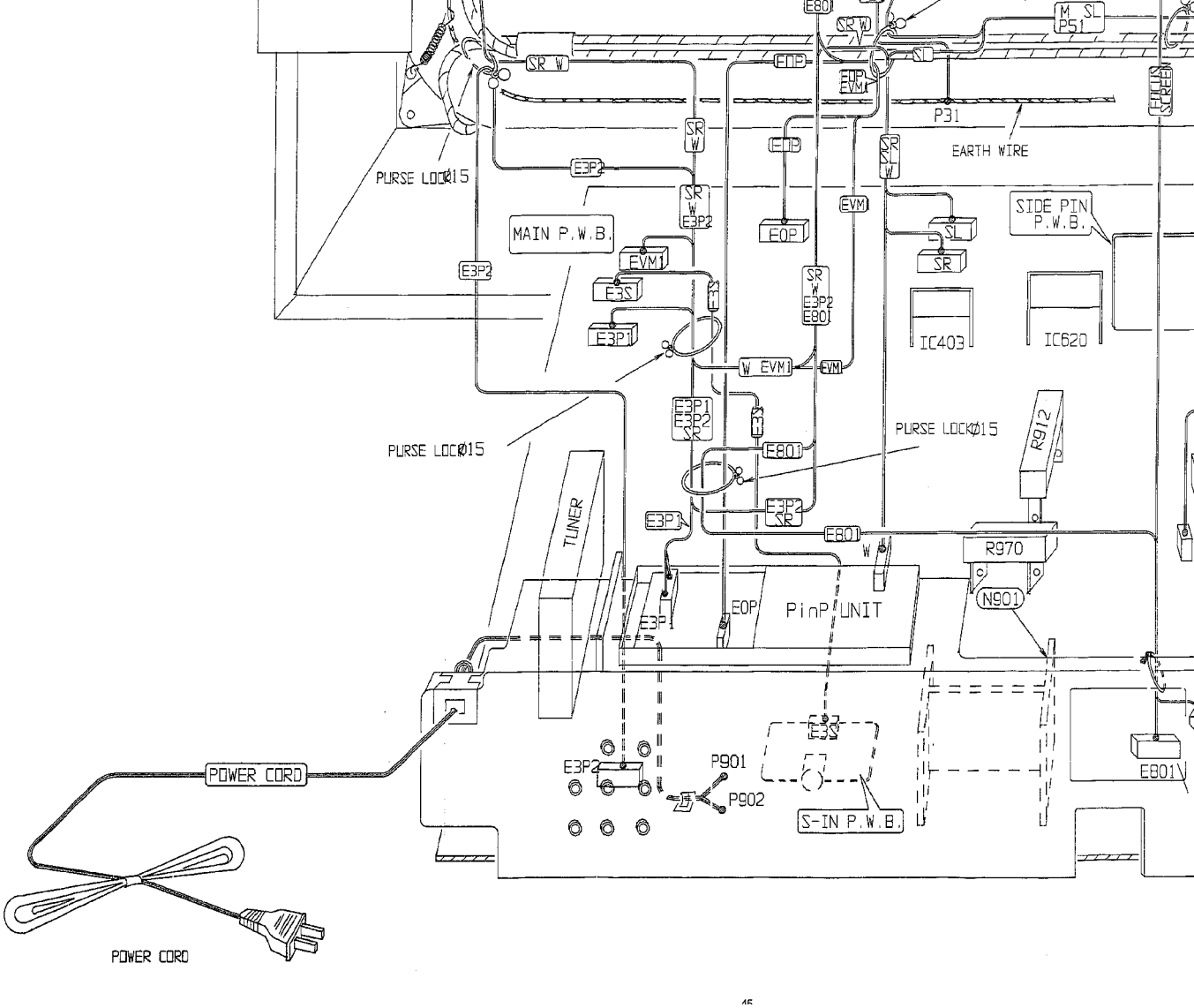


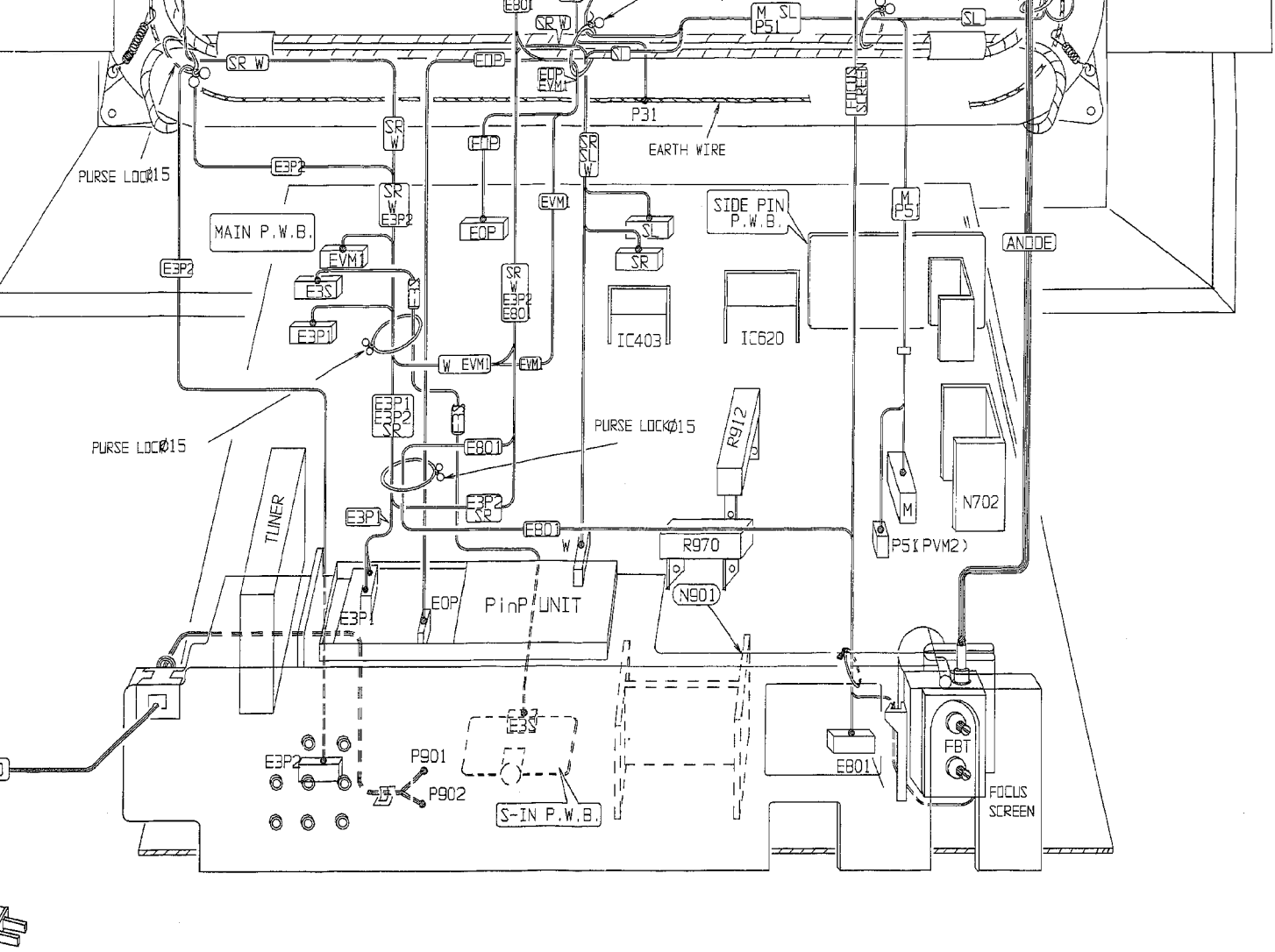
WIRING DRAWING OF 27UX5B/C745 FINAL ASSEMBLY



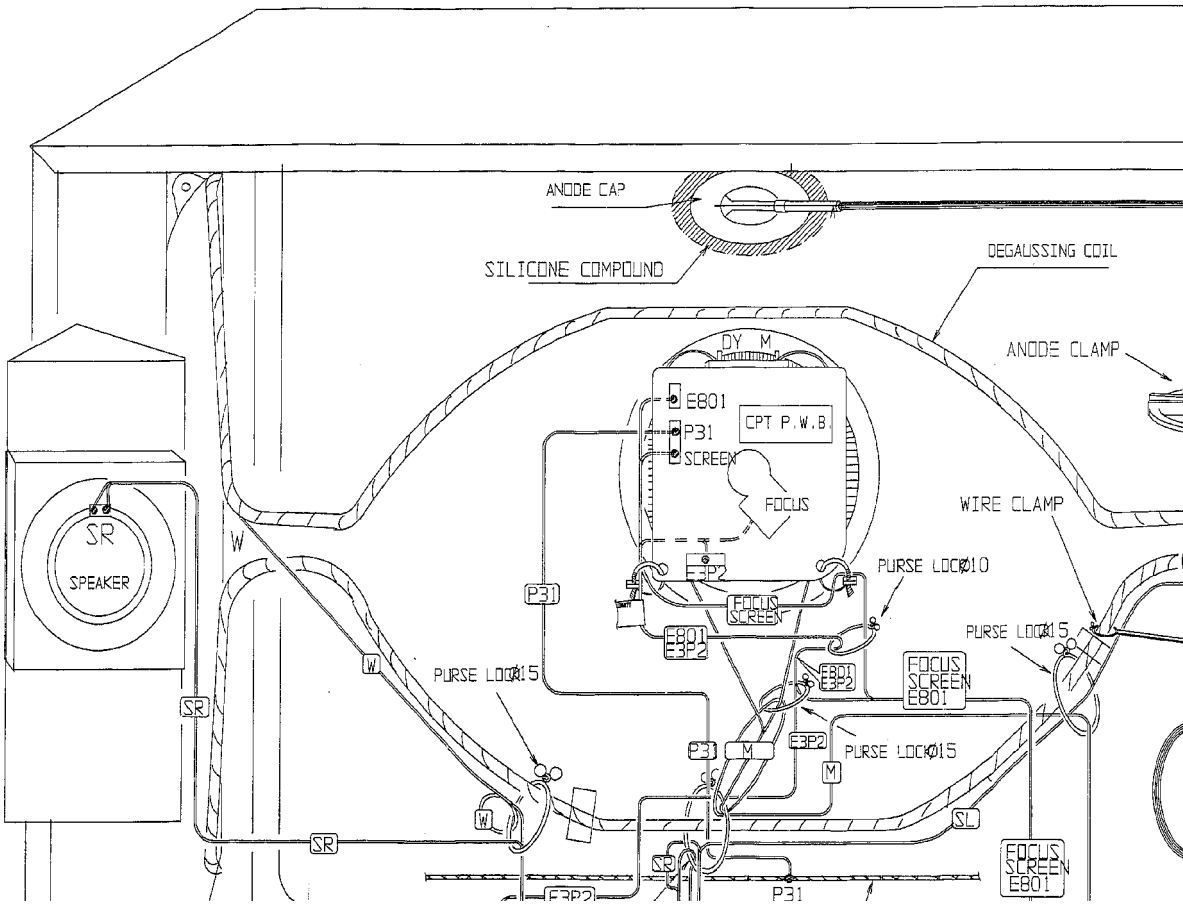
WIRING DRAWING OF 27UX5B/C745 FINAL ASSEMBLY



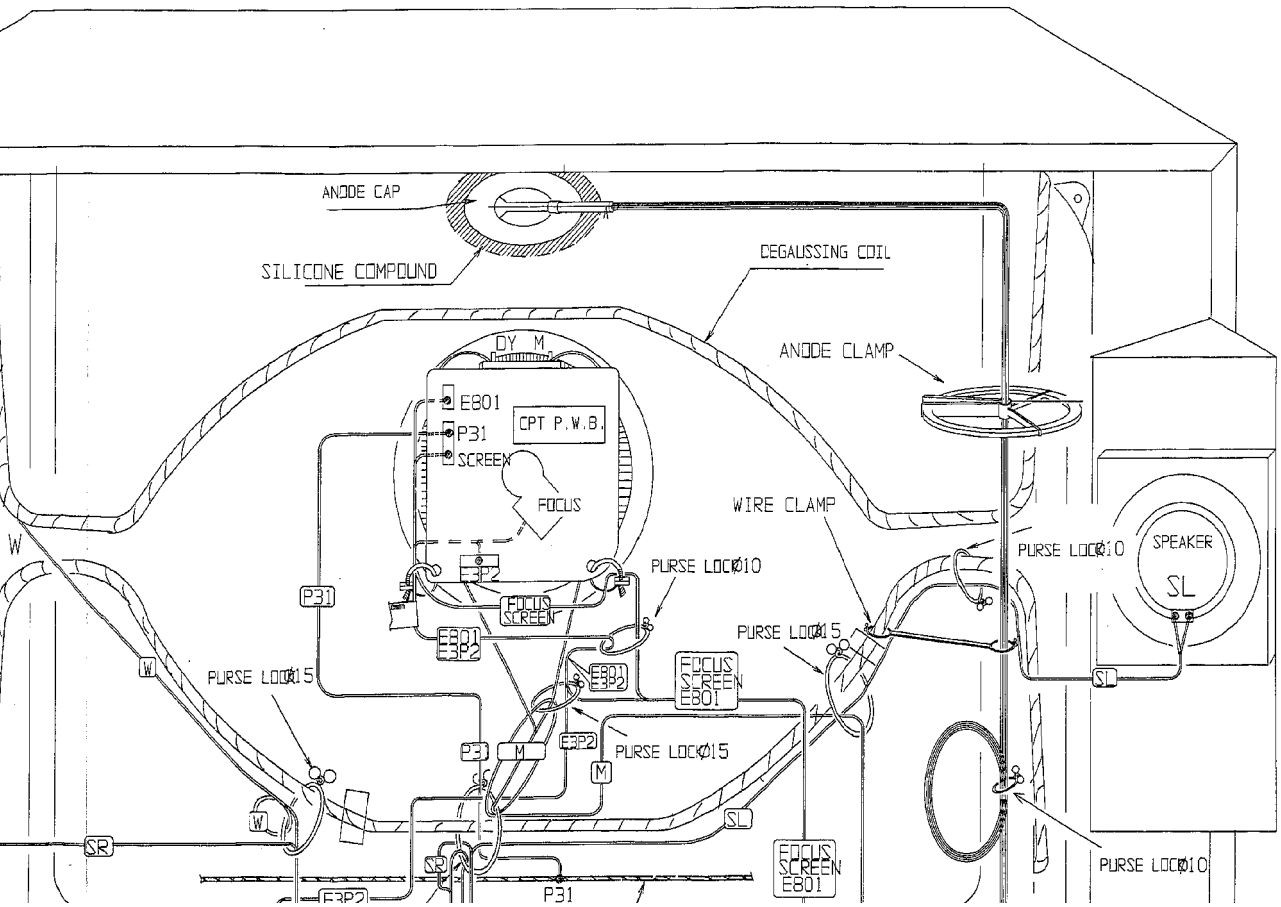


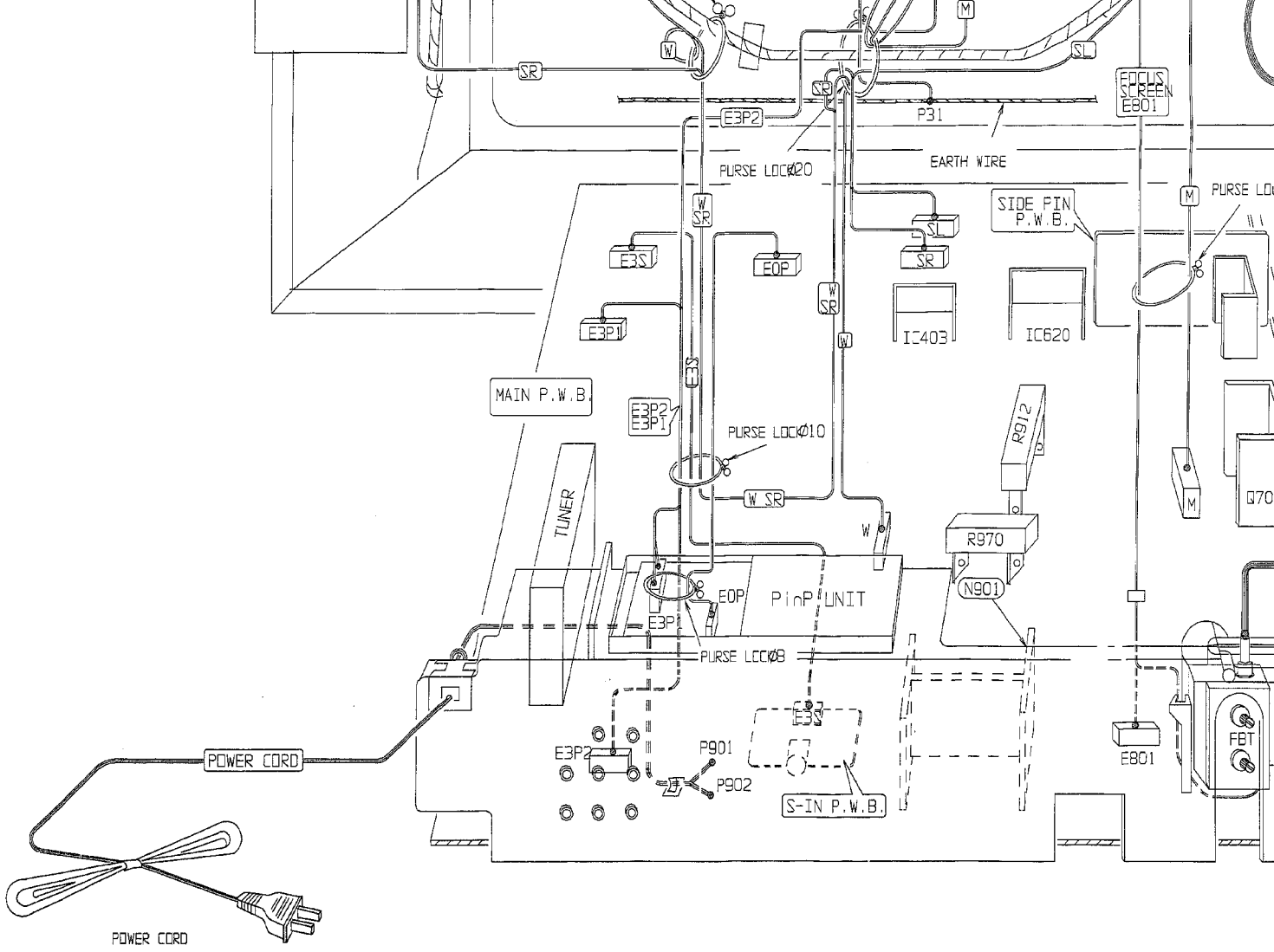


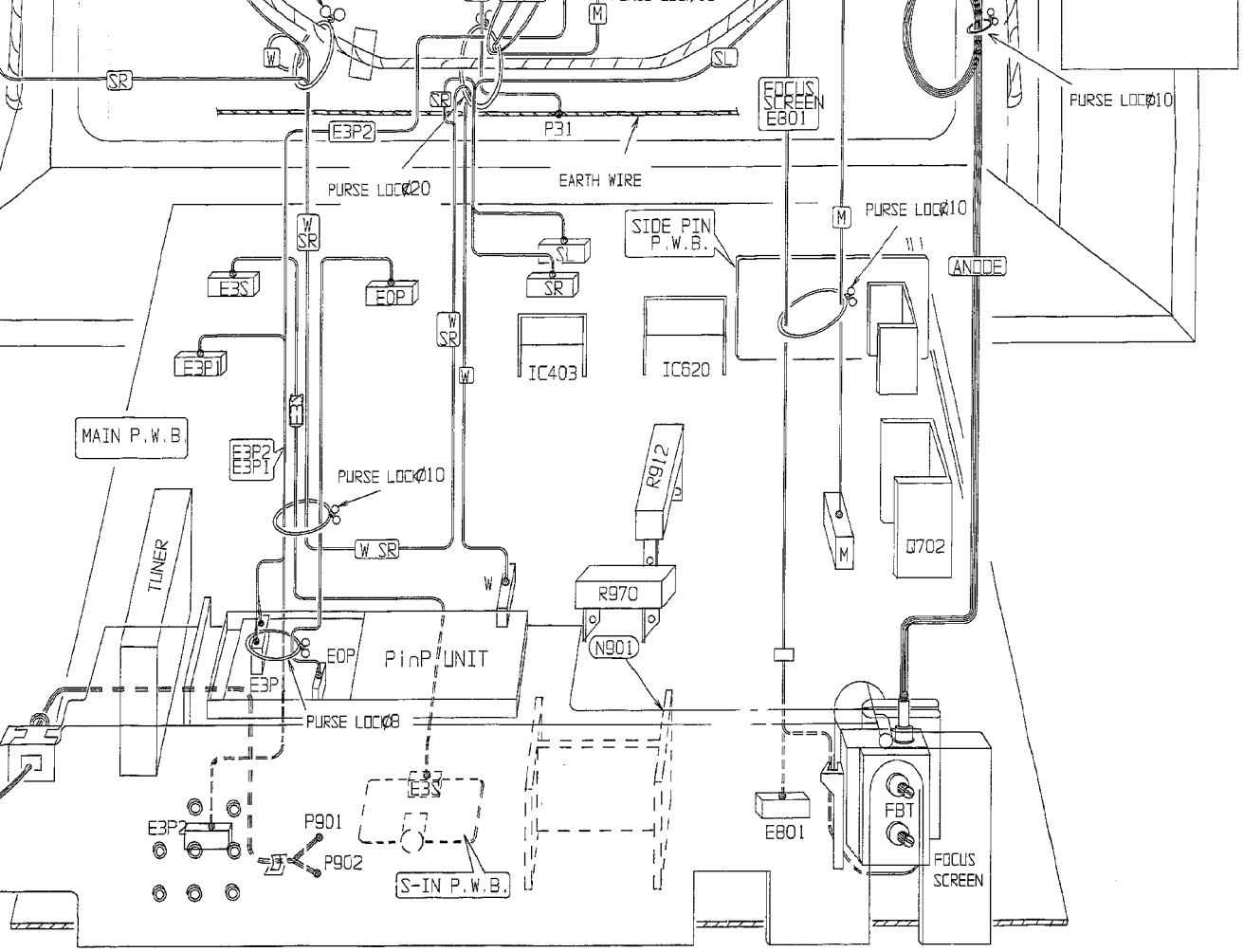
WIRING DRAWING OF 31CX4B/CY44 FINAL ASSEMBLY



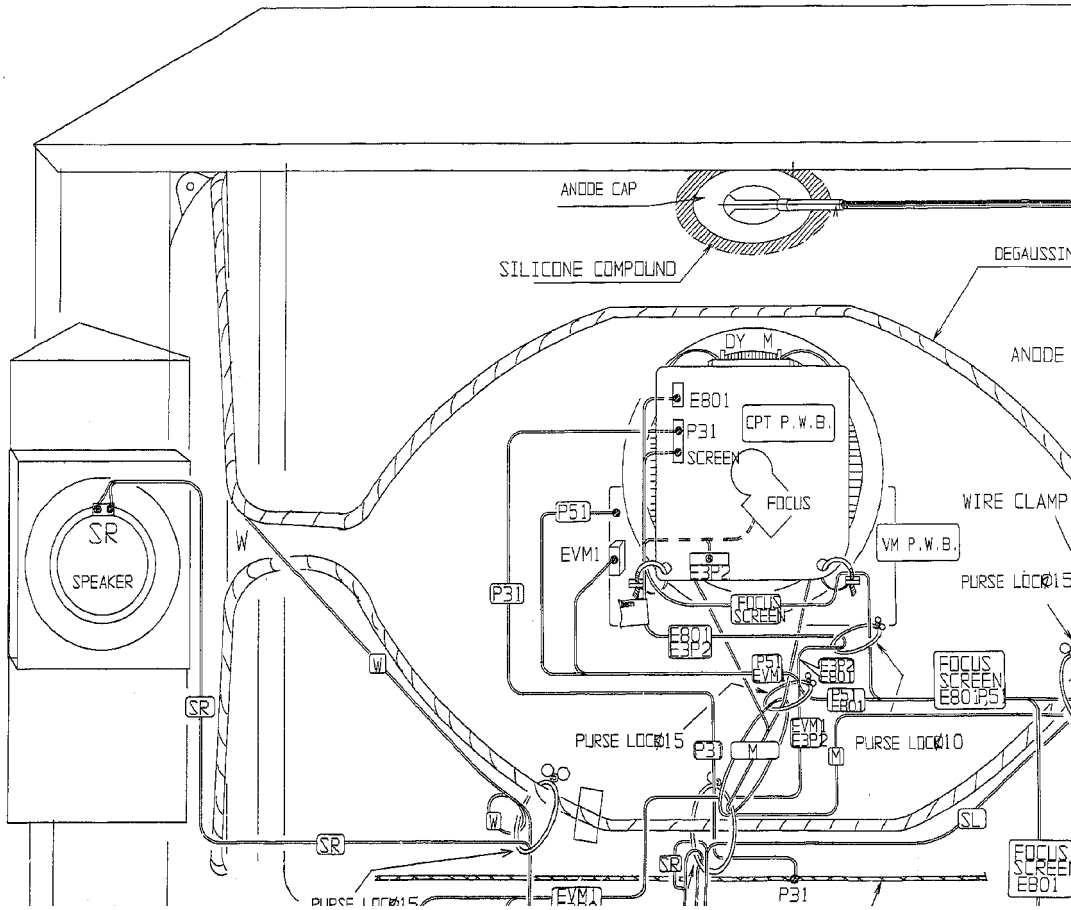
WIRING DRAWING OF 31CX4B/CY44 FINAL ASSEMBLY



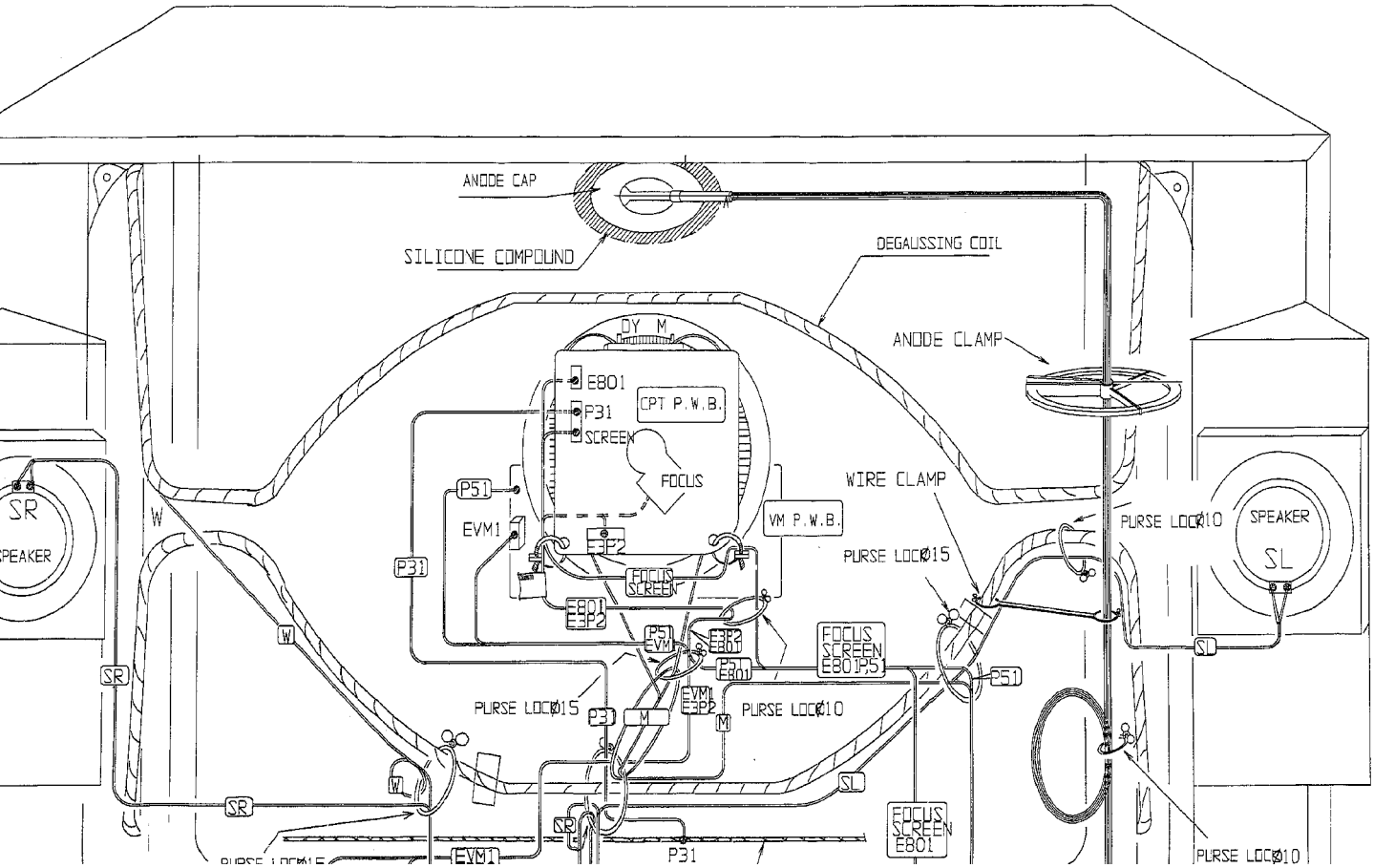


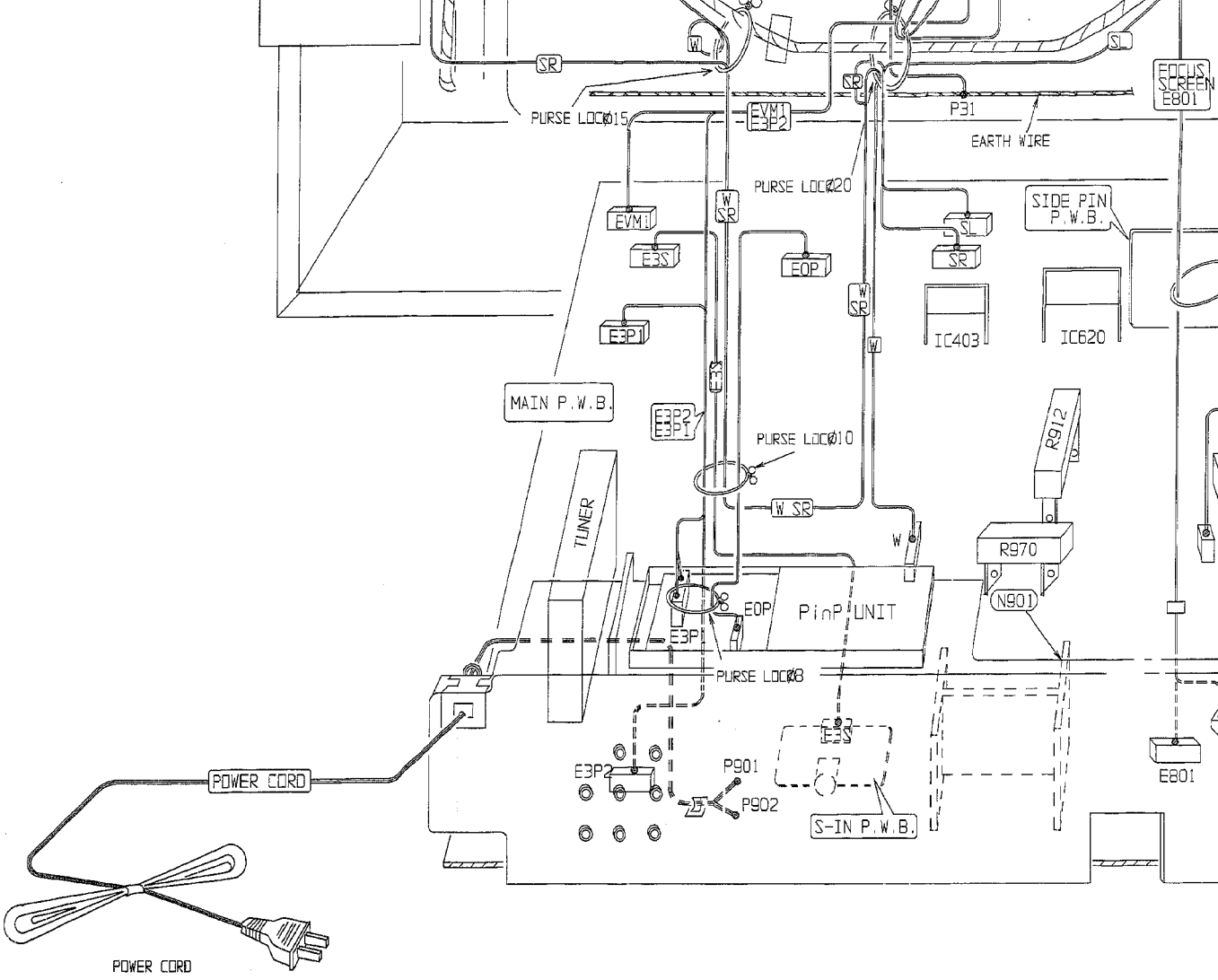


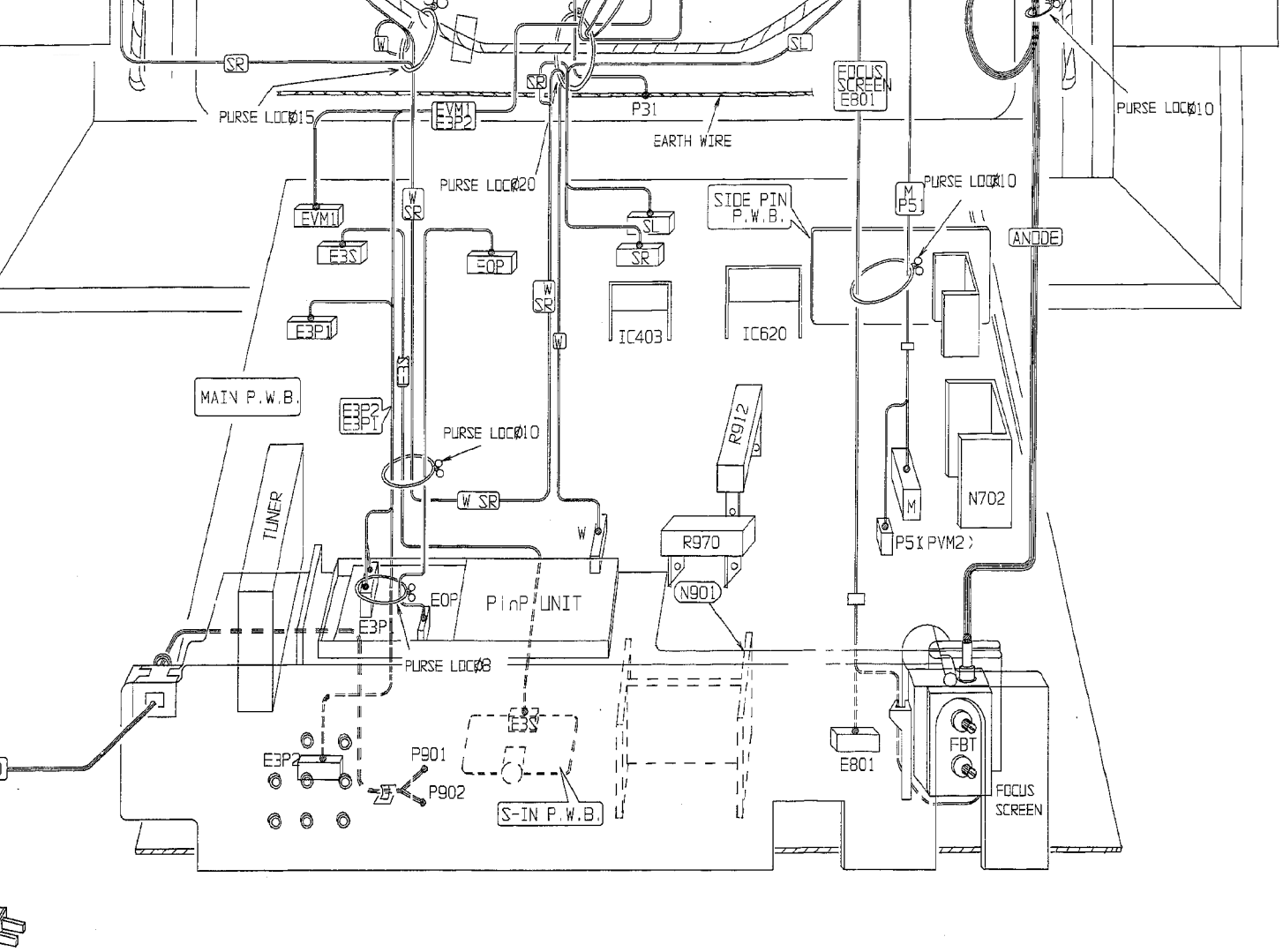
WIRING DRAWING OF 31UX5B/CY45 FINAL ASSEMBLY



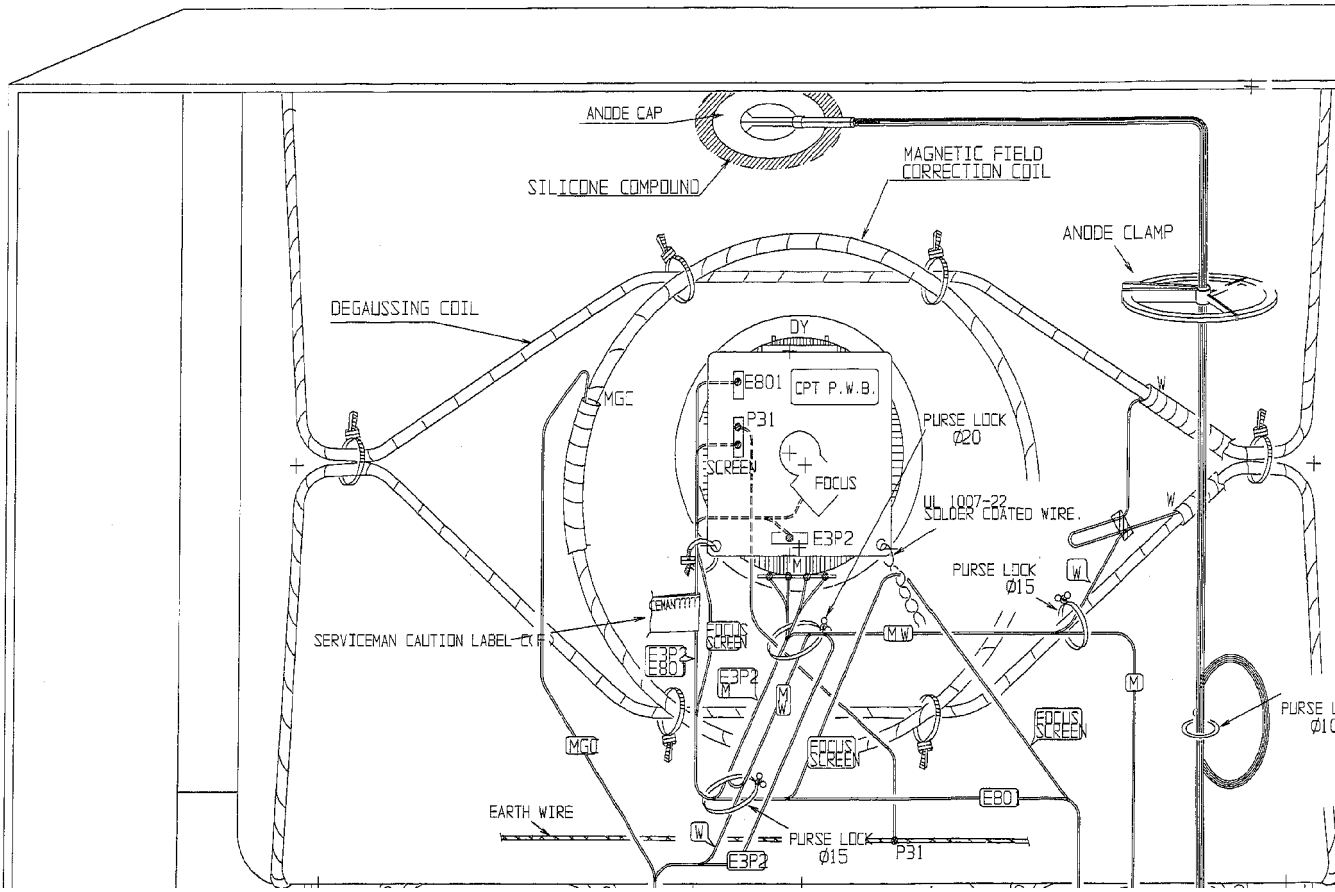
WIRING DRAWING OF 31UX5B/CY45 FINAL ASSEMBLY



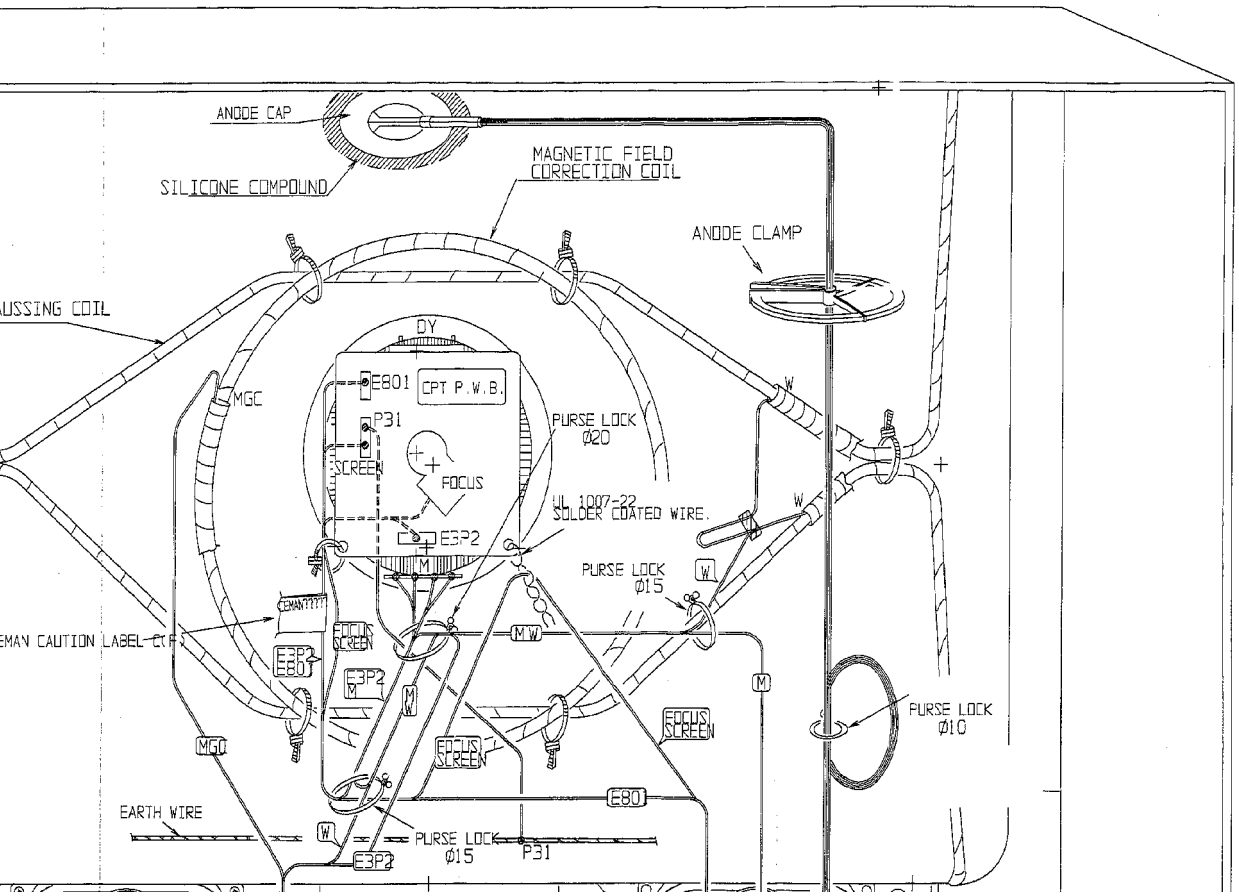


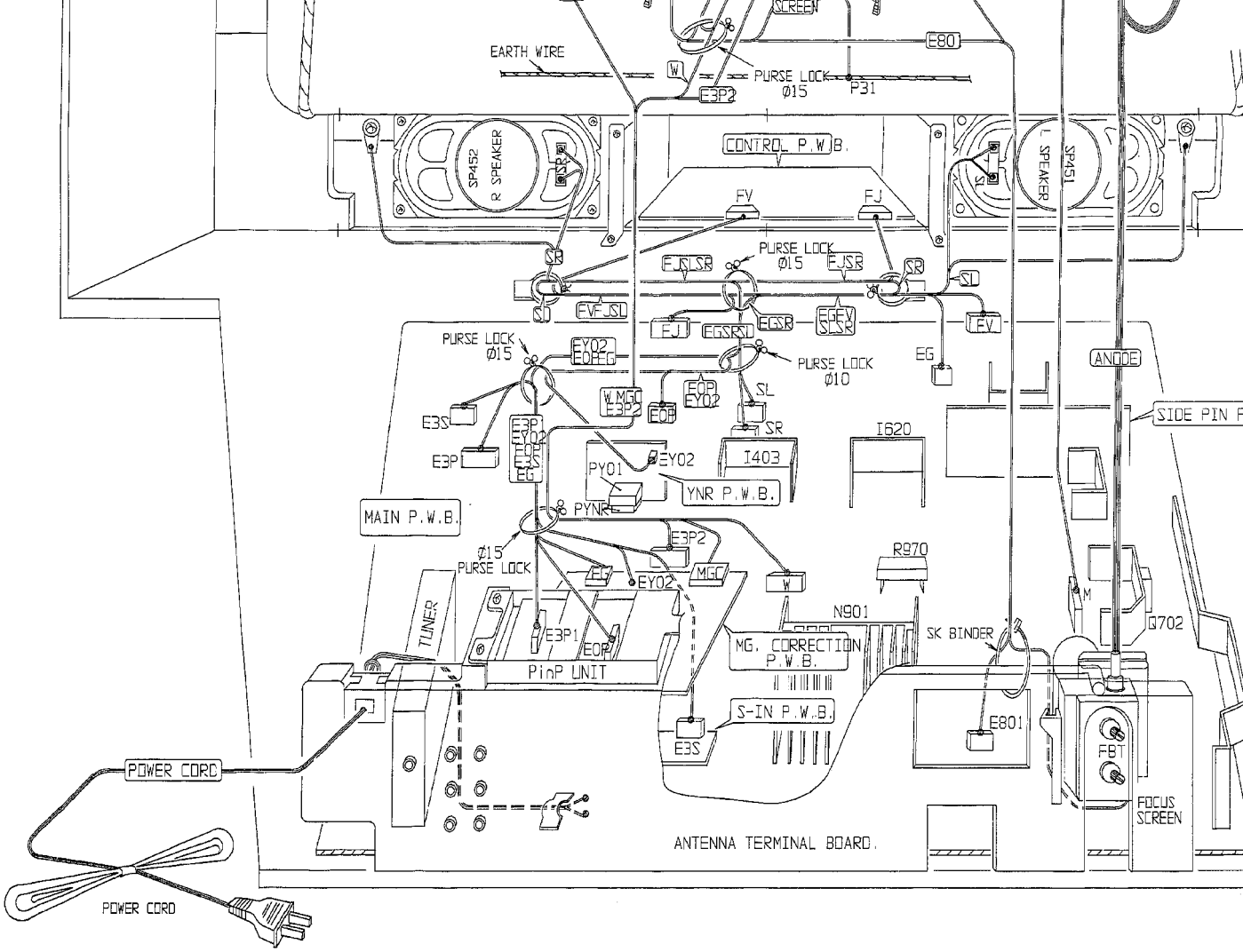


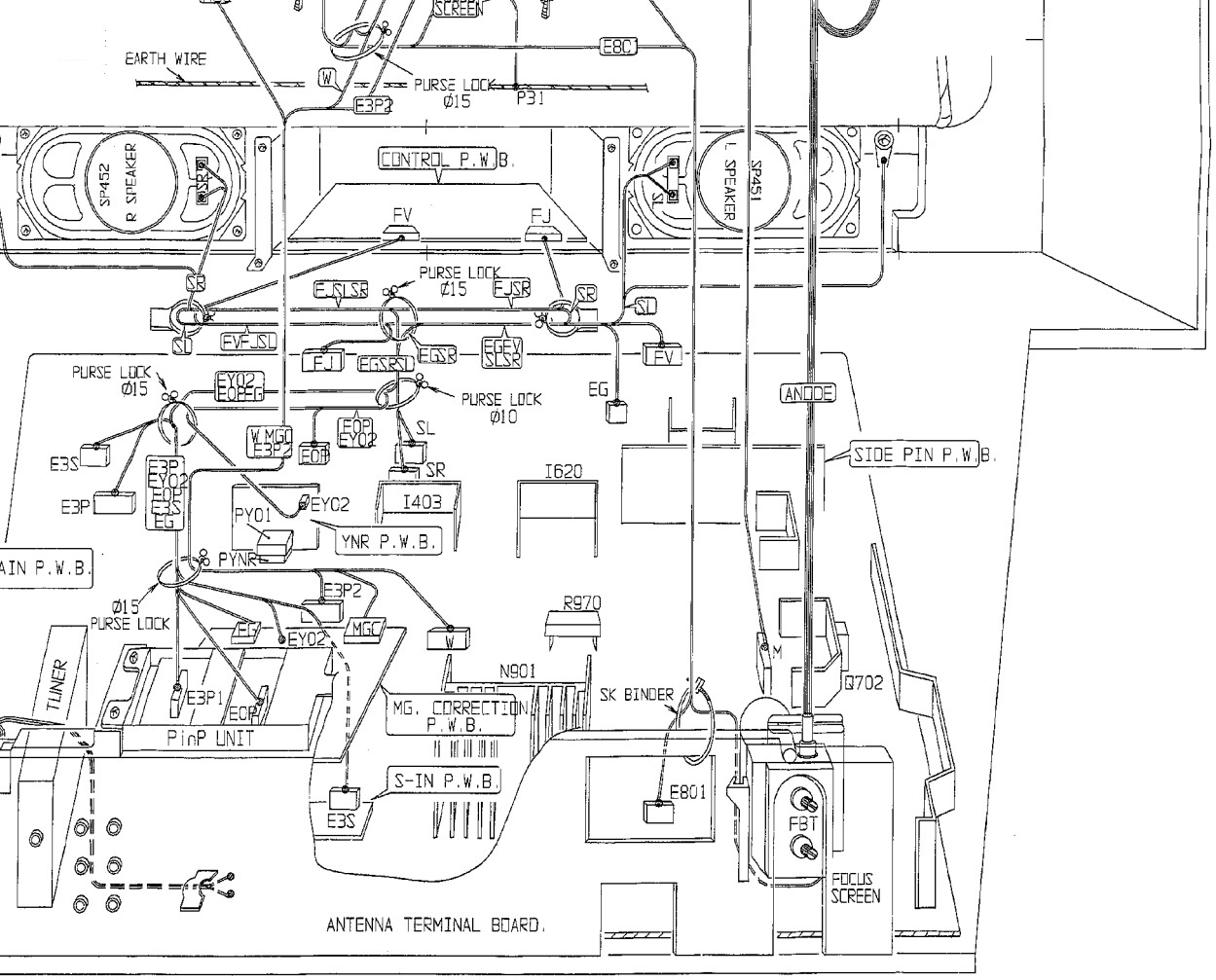
WIRING DRAWING OF 35TX10B/CZ41 FINAL ASSEMBLY



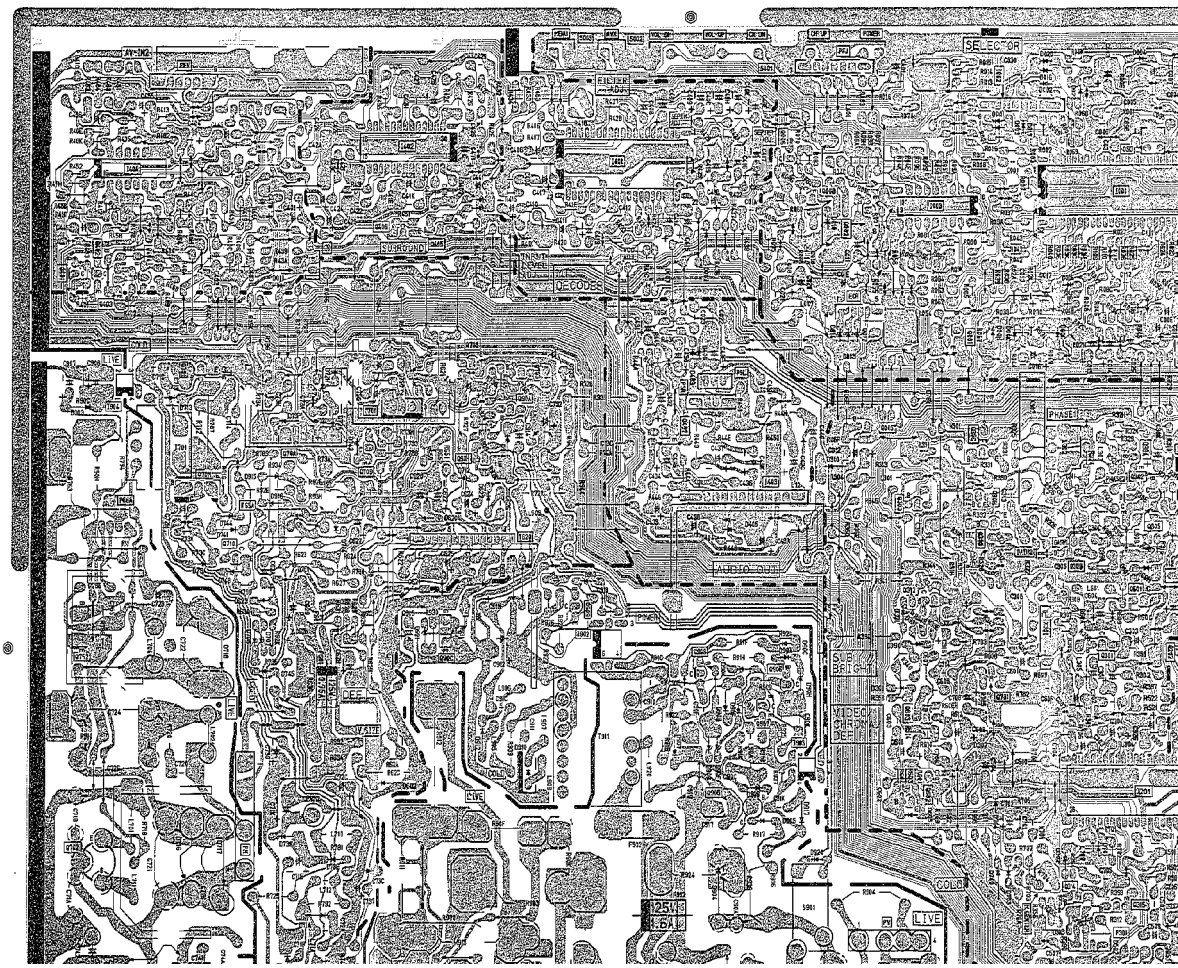
WIRING DRAWING OF 35TX10B/CZ41 FINAL ASSEMBLY



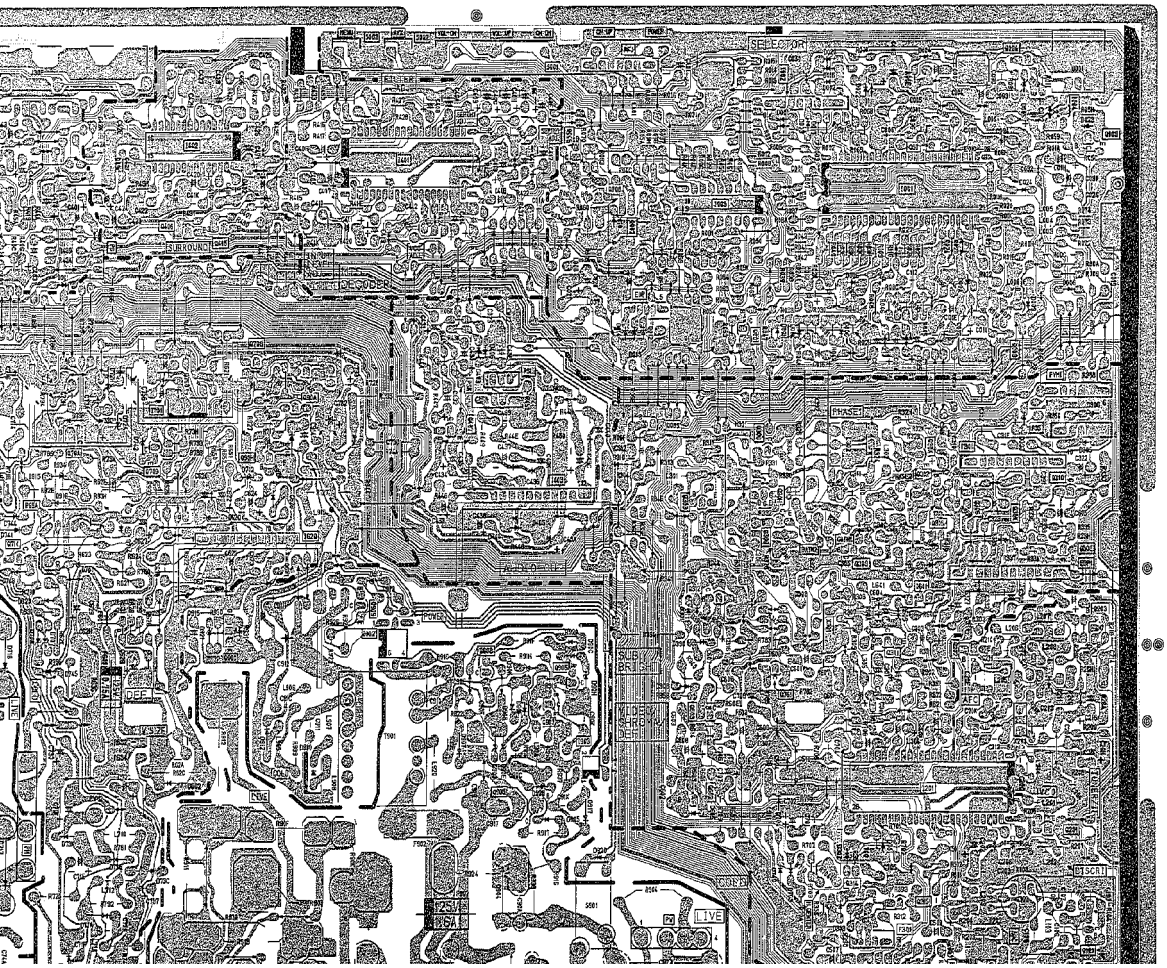


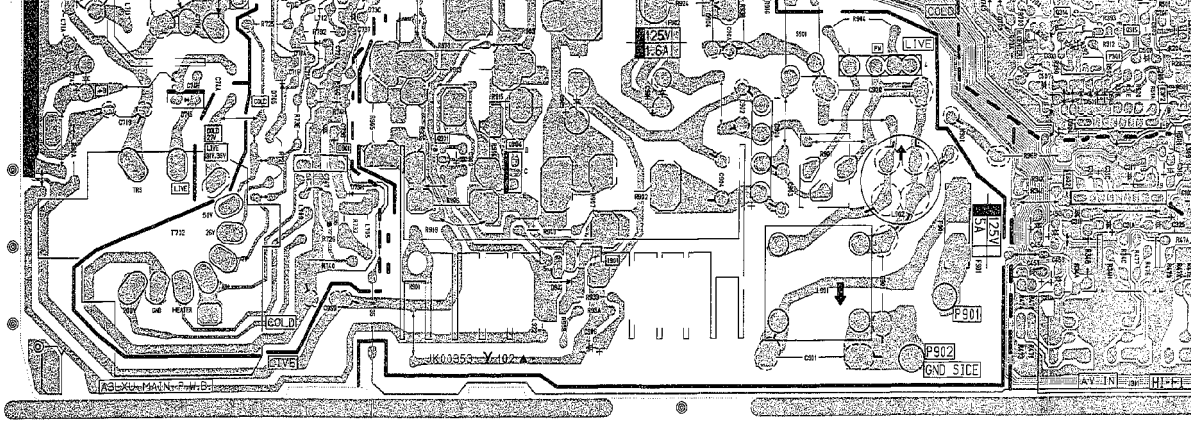


P.W.B. FOIL PATTERN



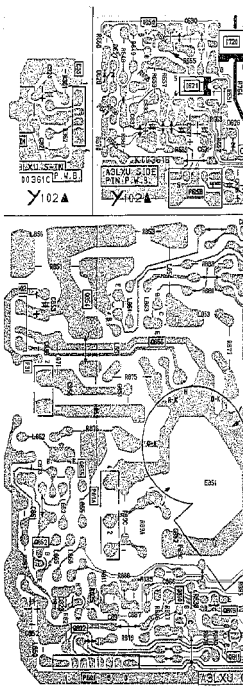
P.W.B. FOIL PATTERN

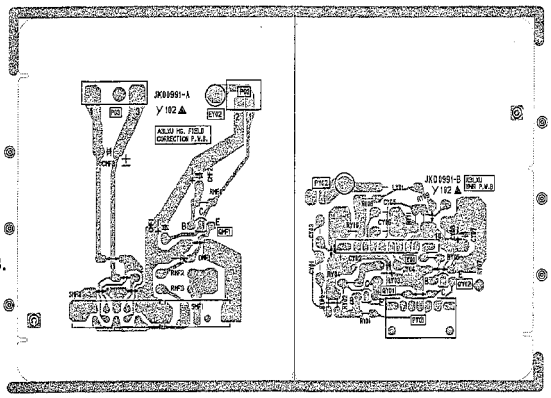




A3LXU MAIN P.W.B.

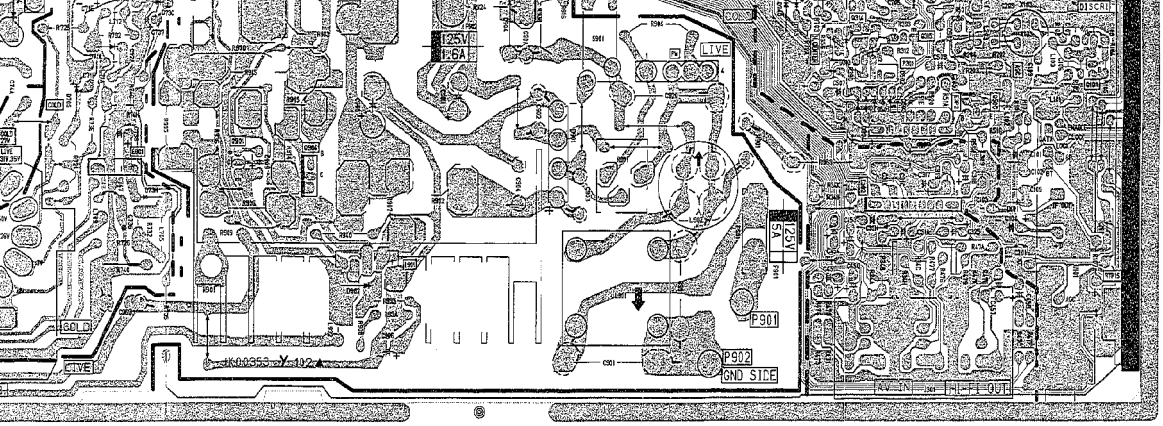
A3LXU S P.W.B.



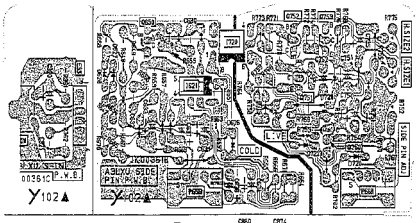


A3LXU MG. FIELD CORRECTION P.W.B. (35TX10B ONLY)

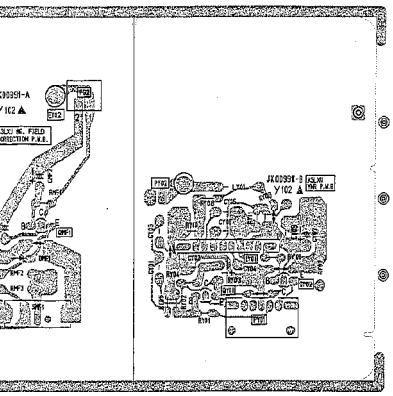
A3LXU YNR P.W.B. (35TX10B ONLY)



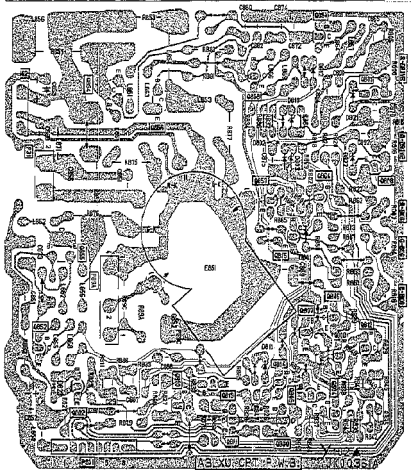
A3LXU S P.W.B.



A3LXU SIDE PIN P.W.B.



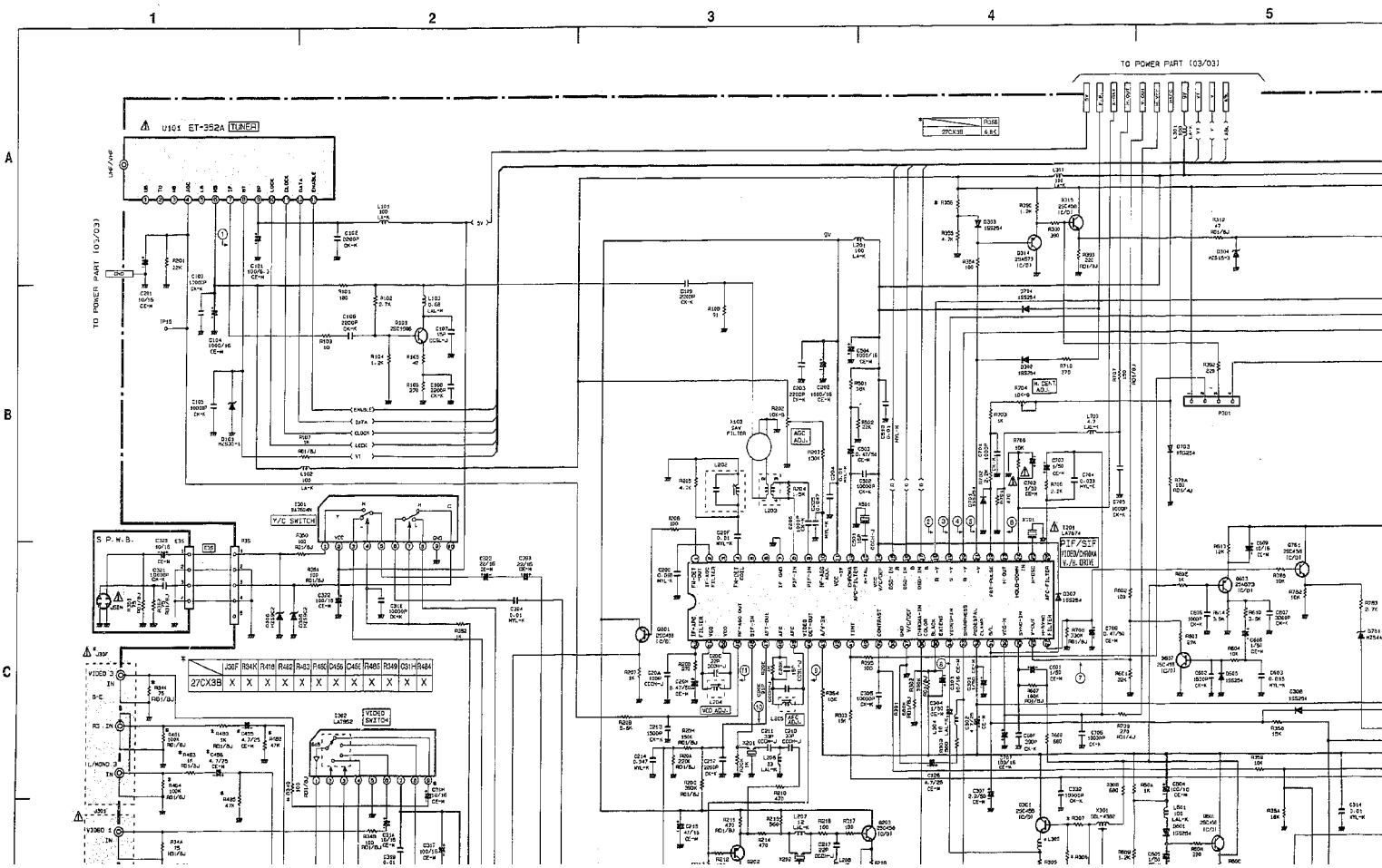
A3LXU YNR P.W.B.
(35TX10B ONLY)



A3LXU C.P.T. P.W.B.

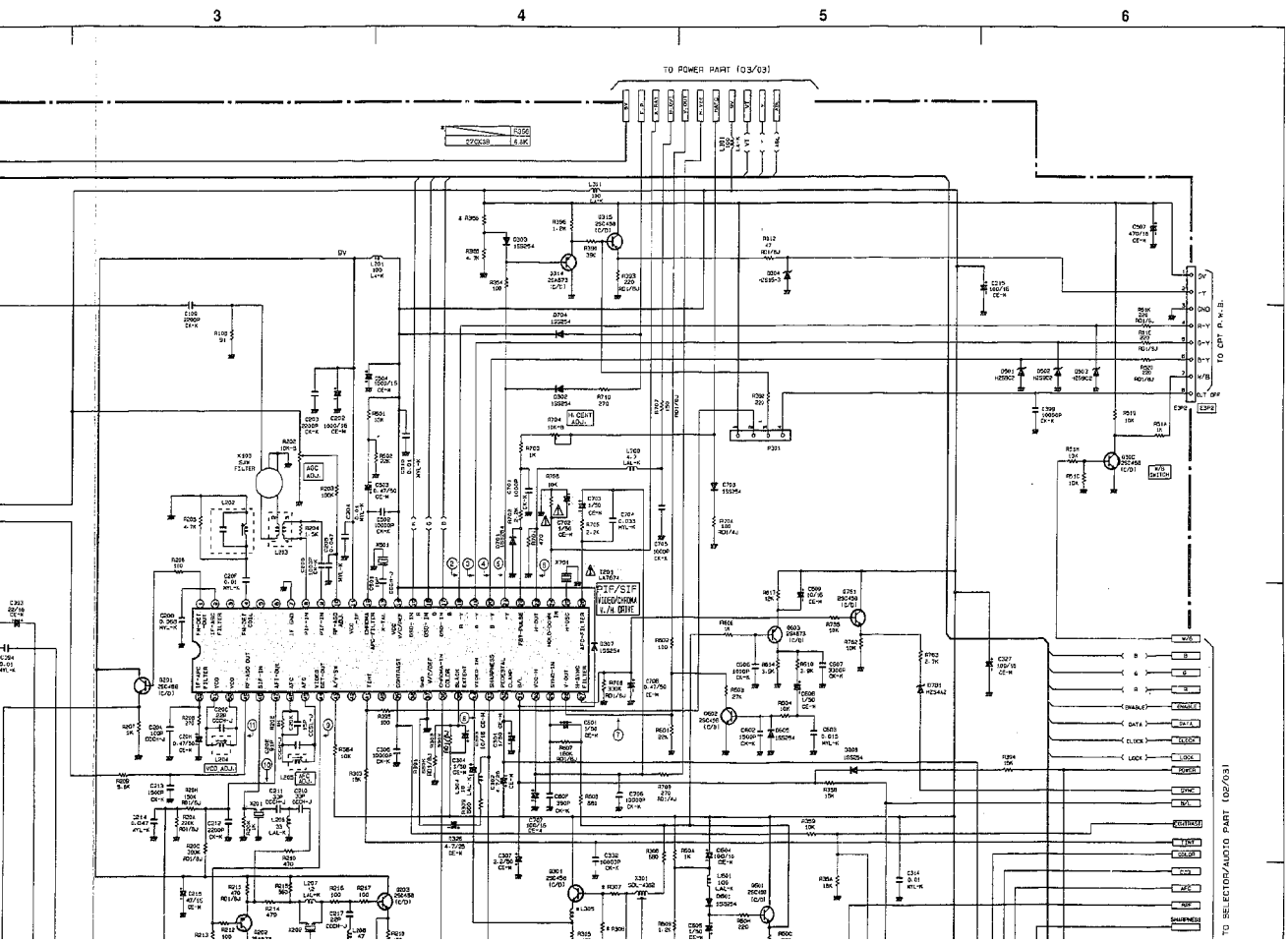
CIRCUIT SCHEMATIC DIAGRAM OF 27CX3B/C743

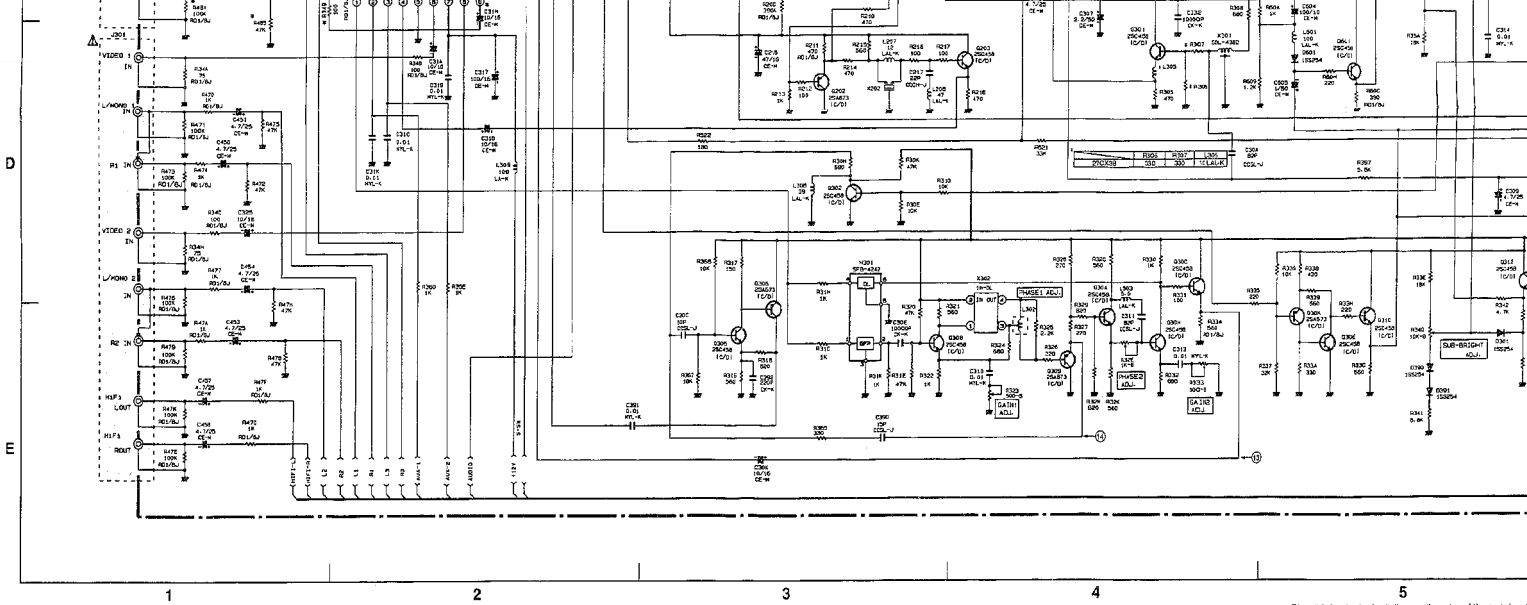
PRODUCT SAFETY NOTE: Components marked with a ⚠ and sha
any of these components, read carefully the PRODUCT SAFETY NO
through improper servicing.



CIRCUIT SCHEMATIC DIAGRAM OF 27CX3B/C743

PRODUCT SAFETY NOTE: Components marked with a ⚠ and shaded have special characteristics important to safety. Before replacing any of these components, read carefully the PRODUCT SAFETY NOTICE of this Service Manual. Don't degrade the safety of the receiver through improper servicing.





• Since this is a basic circuit diagram, the value of the parts is sul
• All DC voltage to be measured with a tester (100kΩ/V). Voltage

Circuit No.	Pin No.	Voltage VDC
I201	1	4.4
	2	6.8
	3	5.6
	4	5.6
	5	4.3
	6	4.0
	7	0.0
	8	4.5
	9	4.5
	10	5.8
	11	8.8
	12	5.6
	13	5.4
	14	8.9
	15	0.0
	16	0.0
	17	0.0
	18	5.0
	19	5.0
	20	5.0
	21	4.0
	22	0.4
	23	0.4
	24	0.0
	25	5.0
	26	5.7
	27	7.6
	28	4.5
	29	7.0
	30	7.6

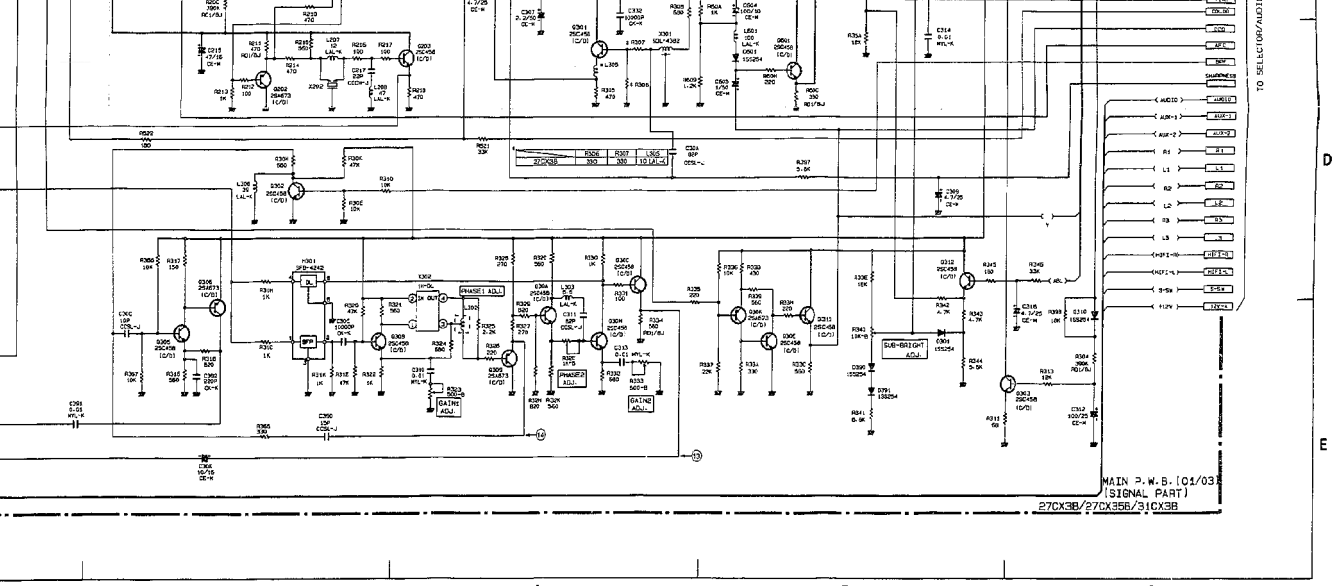
Circuit No.	Pin No.	Voltage VDC
I201	31	4.4
	32	2.7
	33	5.9
	34	4.3
	35	4.2
	36	4.8
	37	0.0
	38	3.5
	39	7.0
	40	4.8
	41	4.1
	42	4.8
	43	8.9
	44	3.2
	45	3.0
	46	3.0
	47	3.3
	48	3.7
	49	1.9
	50	7.9
	51	7.9
	52	4.8

Circuit No.	Pin No.	Voltage VDC
I301	1	2.3
	2	5.0
	3	2.5
	4	0.4
	5	1.7
	6	1.7
	7	0.4
	8	2.5
	9	0.0
	10	2.5

Circuit No.	Pin No.	Voltage VDC
I302	1	6.7
	2	9.4
	3	9.4
	4	3.5
	5	0.0
	6	3.1
	7	11.6
	8	3.1
	9	3.1

Circuit No.	Pin No.	Voltage VDC
Q001	B	0.7
	C	0.0
	E	0.0
Q002	B	0.0
	C	5.0
	E	0.0
Q003	B	0.0
	C	4.2
	E	0.0
Q004	B	5.0
	C	5.0
	E	5.0
Q005	B	0.7
	C	0.0
	E	0.0
Q006	B	0.5
	C	2.0
	E	0.0
Q008	B	0.5
	C	2.8
	E	0.0
Q009	B	0.0
	C	5.0
	E	0.0
Q101	B	2.3
	C	7.5
	E	1.6
Q201	B	4.4
	C	9.0
	E	3.7

Circuit No.	Pin No.	Voltage VDC
Q202	B	3.2
	C	0.0
	E	3.9
Q203	B	6.0
	C	9.0
	E	5.5
Q30A	B	3.0
	C	7.0
	E	2.0
Q30C	B	6.6
	C	9.0
	E	6.0
Q30E	B	0.7
	C	5.0
	E	0.0
Q30H	B	2.3
	C	6.6
	E	1.8
Q30K	B	5.0
	C	0.7
	E	7.0
Q301	B	1.5
	C	9.0
	E	0.5
Q302	B	0.5
	C	0.0
	E	0.0
Q303	B	0.0
	C	2.7
	E	0.0



- Since this is a basic circuit diagram, the value of the parts is subject to be altered for improvement.
- All DC voltage to be measured with a tester (100kΩ/V). Voltage taken on a complex color bar signal including a standard color bar signal.

Circuit No.	Pin No.	Voltage VDC
I201	1	4.4
	2	6.8
	3	5.6
	4	5.6
	5	4.3
	6	4.0
	7	0.0
	8	4.5
	9	4.5
	10	5.8
	11	8.8
	12	5.6
	13	5.4
	14	8.9
	15	0.0
	16	0.0
	17	0.0
	18	5.0
	19	5.0
	20	5.0
	21	4.0
	22	0.4
	23	0.4
	24	0.0
	25	5.0
	26	5.7
	27	7.6
	28	4.5
	29	7.0
	30	7.6

Circuit No.	Pin No.	Voltage VDC
I201	31	4.4
	32	2.7
	33	5.9
	34	4.3
	35	4.2
	36	4.6
	37	0.0
	38	3.5
	39	7.0
	40	4.9
	41	4.1
	42	4.8
	43	8.9
	44	3.2
	45	3.0
	46	3.0
	47	3.3
	48	3.7
	49	1.9
	50	7.9
	51	7.9
	52	4.8

Circuit No.	Pin No.	Voltage VDC
I301	1	2.3
	2	5.0
	3	2.5
	4	0.4
	5	1.7
	6	1.7
	7	0.4
	8	2.5
	9	0.0
	10	2.5

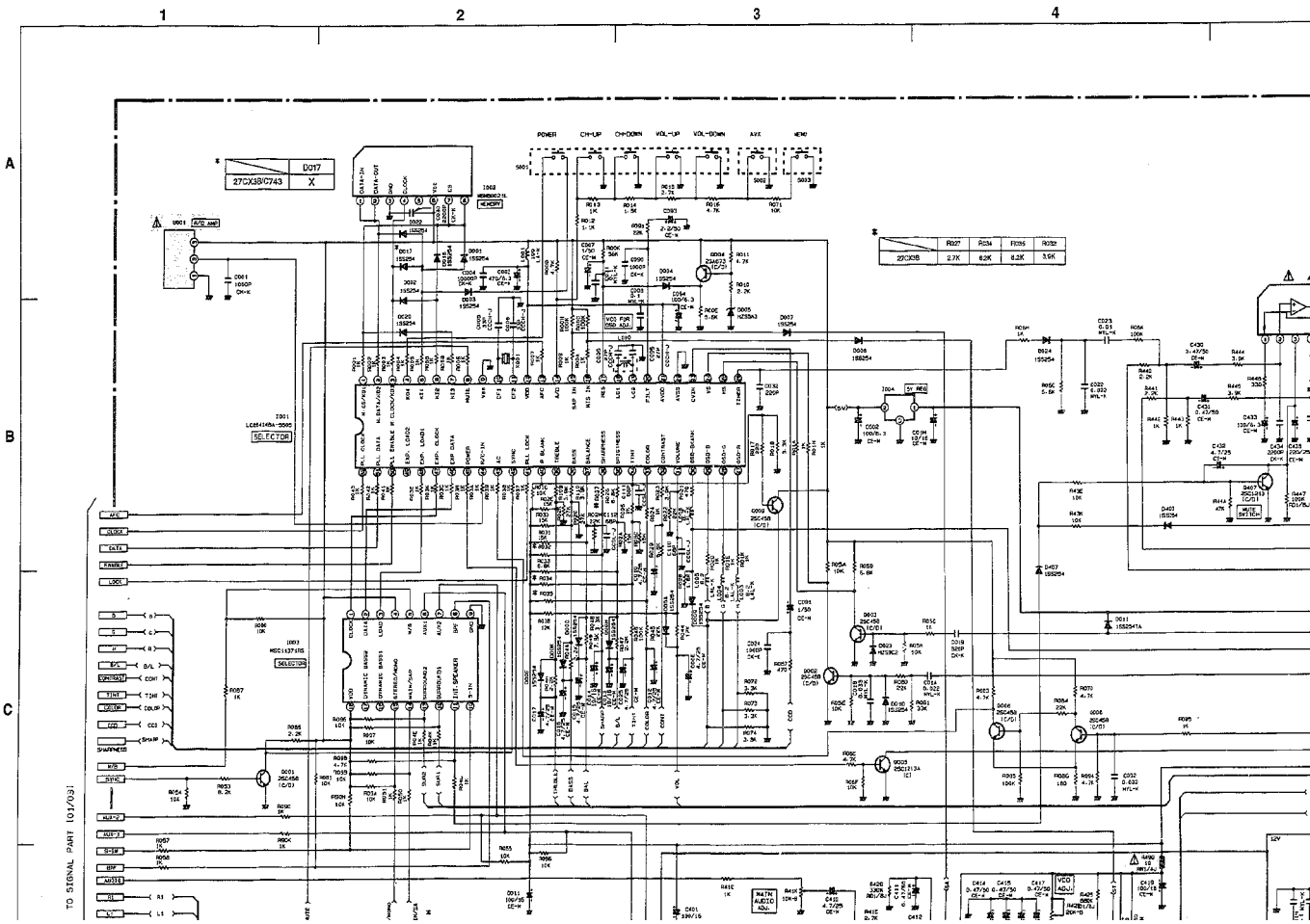
Circuit No.	Pin No.	Voltage VDC
I302	1	6.7
	2	9.4
	3	9.4
	4	3.5
	5	0.0
	6	3.1
	7	11.6
	8	3.1
	9	3.1

Circuit No.	Pin No.	Voltage VDC
Q001	B	0.7
	C	0.0
	E	0.0
Q002	B	0.0
	C	5.0
	E	0.0
Q003	B	0.0
	C	4.2
	E	0.0
Q004	B	5.0
	C	5.0
	E	5.0
Q005	B	0.7
	C	0.0
	E	0.0
Q006	B	0.5
	C	2.0
	E	0.0
Q008	B	0.5
	C	2.8
	E	0.0
Q009	B	0.0
	C	5.0
	E	0.0
Q101	B	2.3
	C	7.5
	E	1.6
Q201	B	4.4
	C	9.0
	E	3.7

Circuit No.	Pin No.	Voltage VDC
Q202	B	3.2
	C	0.0
	E	3.9
Q203	B	6.0
	C	9.0
	E	5.5
Q30A	B	3.0
	C	7.0
	E	2.0
Q30C	B	6.6
	C	9.0
	E	8.0
Q30E	B	0.7
	C	5.0
	E	0.0
Q30H	B	2.3
	C	6.6
	E	1.6
Q30K	B	6.0
	C	0.7
	E	7.0
Q301	B	1.5
	C	9.0
	E	0.5
Q302	B	0.5
	C	0.0
	E	0.0
Q303	B	0.0
	C	2.7
	E	0.0

CIRCUIT SCHEMATIC DIAGRAM OF 27CX3B/C743

PRODUCT SAFETY NO
any of these components
through improper servici



CIRCUIT SCHEMATIC DIAGRAM OF 27CX3B/C743

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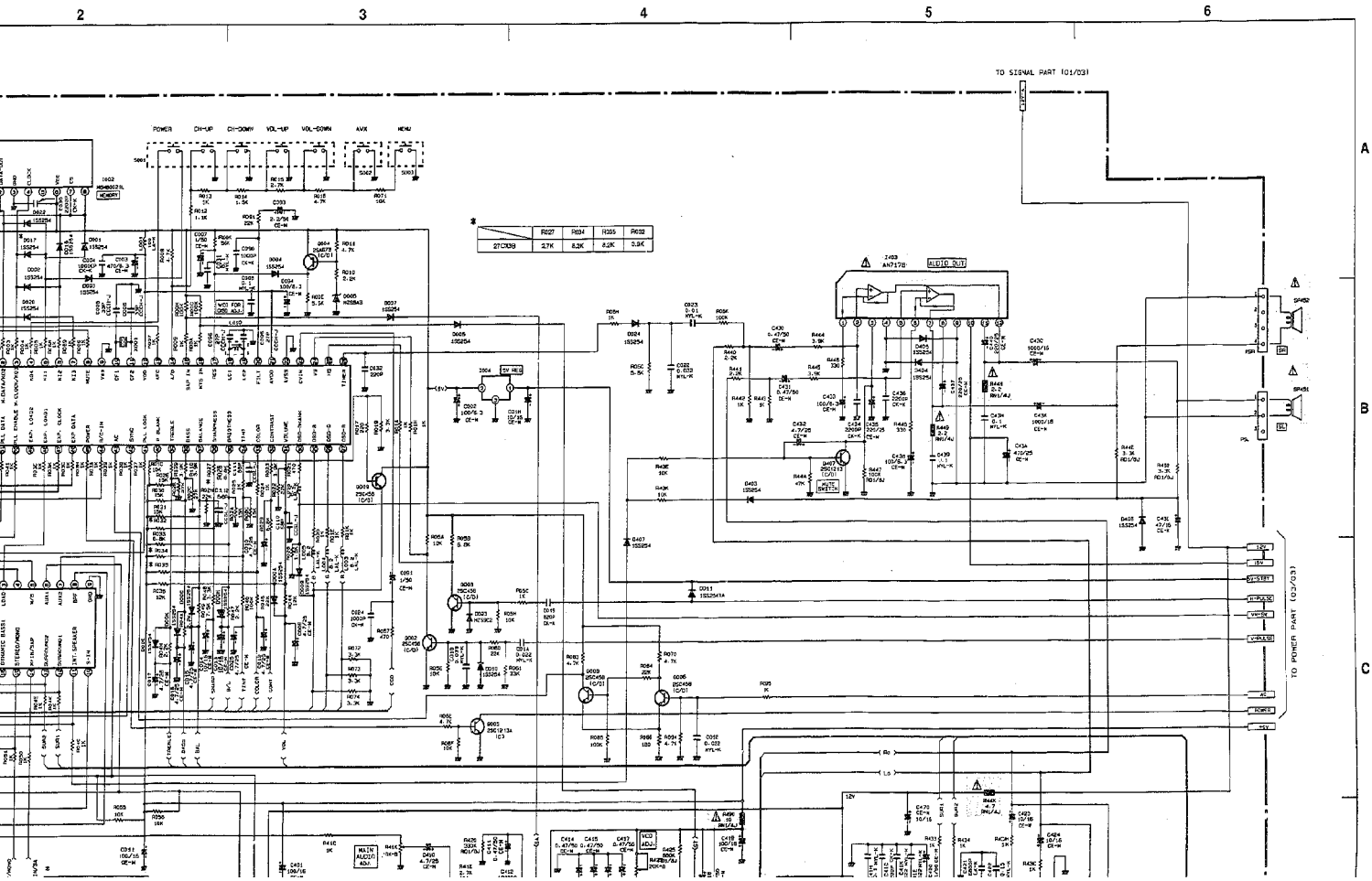
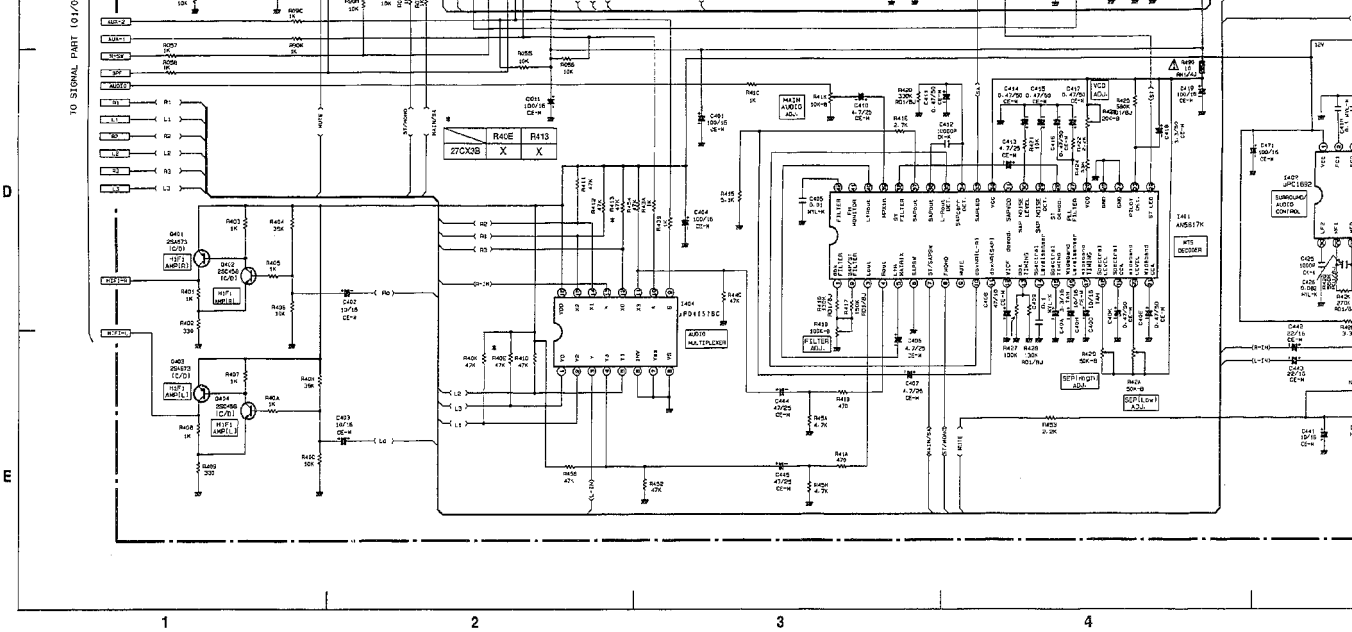




Circuit No.	Pin No.	Voltage VDC
I001	1	5.0
	2	5.0
	3	5.0
	4	5.0
	5	12mv
	6	12mv
	7	12mv
	8	-3mv
	9	0.0
	10	2.5
	11	2.5
	12	5.0
	13	2.2
	14	5.0
	15	0.5
	16	0.5
	17	5.0
	18	2.3
	19	2.3
	20	2.5
	21	5.0
	22	0.0
	23	3.0
	24	5.0
	25	4.2
	26	0.0
	27	0.0

Circuit No.	Pin No.	Voltage VDC
I001	28	0.0
	29	0.0
	30	0.0
	31	42mv
	32	7.0
	33	4.4
	34	3.0
	35	2.3
	36	4.1
	37	1.5
	38	1.8
	39	1.8
	40	47mv
	41	120mv
	42	85mv
	43	2.3
	44	5.0
	45	5.0
	46	5.0
	47	0.3
	48	2.5mv
	49	5mv
	50	180mv
	51	5.0
	52	5.0

Circuit No.	Pin No.	Voltage VDC
I002	1	5.0
	2	5.0
	3	0.0
	4	5.0
	5	5.0
	6	5.0
	7	5.0
	8	5.0

Circuit No.	Pin No.	Voltage VDC
I003	1	0.3
	2	5.0
	3	2.4mv
	4	5.0
	5	1.5mv
	6	9.5
	7	9.5
	8	0.0
	9	0.0
	10	1.2mv
	11	3.5mv
	12	0.0
	13	0.0
	14	5.0
	15	3.5
	16	—
	17	—
	18	5.0

Circuit No.	Pin No.	Voltage VDC
I004	1	15.0
	2	5.0
	3	0.0

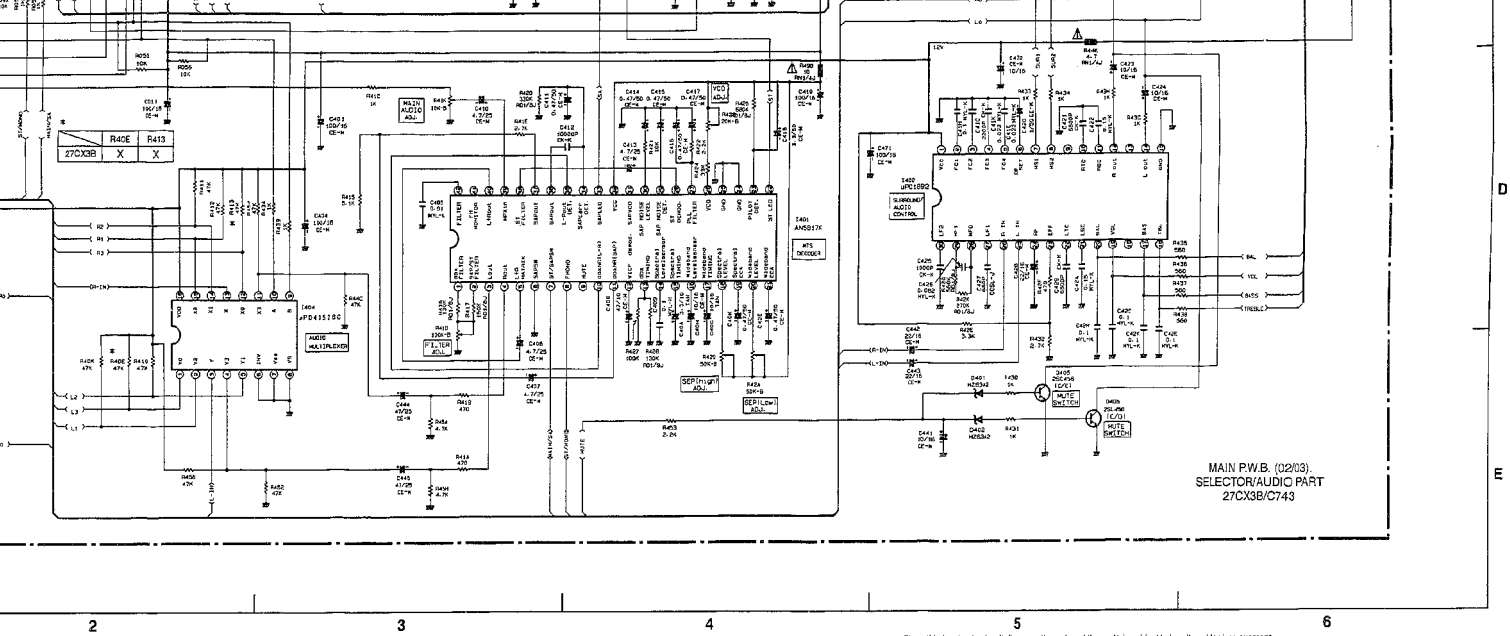
Circuit No.	Pin No.	Voltage VDC
I403	1	5.3
	2	9.9
	3	15.0
	4	0.0
	5	10.5
	6	5.8
	7	1.3
	8	0.0
	9	0.0
	10	12.0
	11	0.0
	12	1.3

Circuit No.	Pin No.	Voltage VDC
I401	1	1.2
	2	1.2
	3	5.0
	4	5.0
	5	5.0
	6	0.0
	7	5.0
	8	3.5
	9	—
	10	4.5
	11	5.0
	12	5.0
	13	1.2
	14	5.0
	15	0.3
	16	5.0
	17	0.6
	18	8.0
	19	5.0
	20	8.0
	21	5.0
	22	0.0
	23	7.0
	24	0.0
	25	0.0
	26	8.3
	27	5.0
	28	5.0

Circuit No.	Pin No.	Voltage VDC
I401	29	3.0
	30	3.0
	31	—
	32	9.5
	33	0.0
	34	3.8
	35	4.5
	36	0.5
	37	3.8
	38	4.2
	39	5.0
	40	4.0
	41	—
	42	5.0

Circuit No.	Pin No.	Voltage VDC
I402	1	12.0
	2	6.0
	3	6.0
	4	6.0
	5	6.0
	6	6.0
	7	0.0
	8	0.0
	9	6.0
	10	6.0
	11	6.0
	12	6.0
	13	—
	14	6.0
	15	0.0
	16	3.0
	17	3.0
	18	—
	19	0.0
	20	2.2
	21	6.0
	22	6.0
	23	5.2
	24	6.0
	25	6.0
	26	6.0
	27	6.0
	28	6.0

• Since this is a bas
• All DC voltage to b



2 3 4 5 6

- Since this is a basic circuit diagram, the value of the parts is subject to be altered for improvement.
- All DC voltage to be measured with a tester (100kΩ/V). Voltage taken on a complex color bar signal including a standard color bar signal.

Circuit No.	Pin No.	Voltage VDC
	28	0.0
	29	0.0
	30	0.0
	31	42mv
	32	7.0
	33	4.4
	34	3.0
	35	2.3
	36	4.1
I001	37	1.5
	38	1.8
	39	1.8
	40	47mv
	41	120mv
	42	85mv
	43	2.3
	44	5.0
	45	5.0
	46	5.0
	47	0.3
	48	2.5mv
	49	5mv
	50	180mv
	51	5.0
	52	5.0

Circuit No.	Pin No.	Voltage VDC
I002	1	5.0
	2	5.0
	3	0.0
	4	5.0
	5	5.0
	6	5.0
	7	5.0
	8	5.0

Circuit No.	Pin No.	Voltage VDC
I003	1	0.3
	2	5.0
	3	2.4mv
	4	5.0
	5	1.5mv
	6	9.5
	7	9.5
	8	0.0
	9	0.0
	10	1.2mv
	11	3.6mv
	12	0.0
	13	0.0
	14	5.0
	15	3.5
	16	—
	17	—
	18	5.0

Circuit No.	Pin No.	Voltage VDC
I004	1	15.0
	2	5.0
	3	0.0

Circuit No.	Pin No.	Voltage VDC
I403	1	5.3
	2	9.9
	3	15.0
	4	0.0
	5	10.5
	6	5.8
	7	1.3
	8	0.0
	9	0.0
	10	12.0
	11	0.0
	12	1.3

Circuit No.	Pin No.	Voltage VDC
I401	1	1.2
	2	1.2
	3	5.0
	4	5.0
	5	5.0
	6	0.0
	7	5.0
	8	3.5
	9	—
	10	4.5
	11	5.0
	12	5.0
	13	1.2
	14	5.0
	15	0.3
	16	5.0
	17	0.6
	18	8.0
	19	5.0
	20	8.0
	21	5.0
	22	0.0
	23	7.0
	24	0.0
	25	0.0
	26	8.3
	27	5.0
	28	5.0

Circuit No.	Pin No.	Voltage VDC
I401	29	3.0
	30	3.0
	31	—
	32	9.5
	33	0.0
	34	3.8
	35	4.5
	36	0.5
	37	3.8
	38	4.2
	39	3.0
	40	4.0
	41	—
	42	5.0

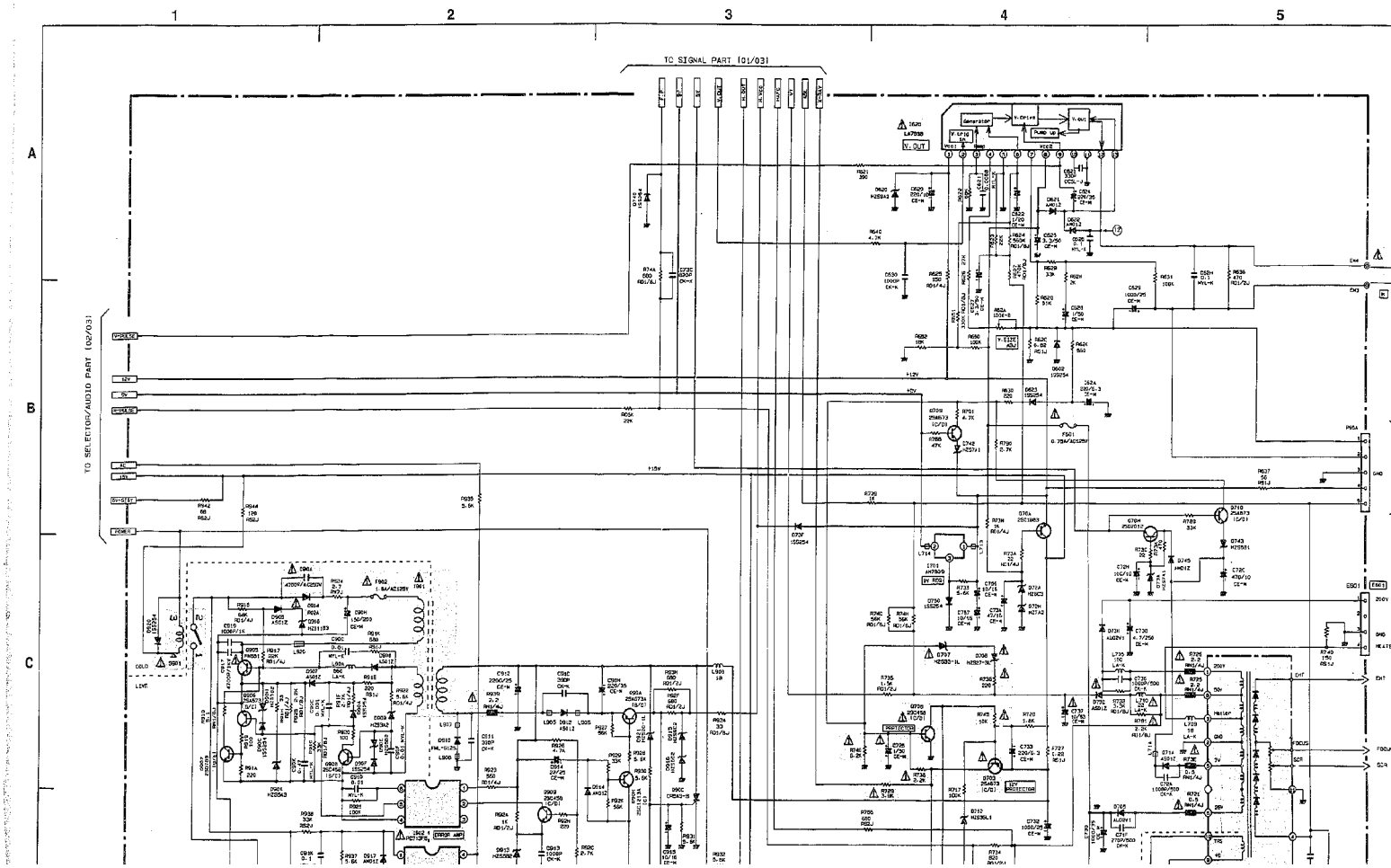
Circuit No.	Pin No.	Voltage VDC
I402	1	12.0
	2	6.0
	3	6.0
	4	6.0
	5	6.0
	6	6.0
	7	0.0
	8	0.0
	9	6.0
	10	6.0
	11	6.0
	12	6.0
	13	—
	14	6.0
	15	0.0
	16	3.0
	17	3.0
	18	—
	19	0.0
	20	2.2
	21	6.0
	22	6.0
	23	5.2
	24	6.0
	25	6.0
	26	6.0
	27	6.0
	28	6.0

Circuit No.	Pin No.	Voltage VDC
I402	29	6.0
	30	6.0

Circuit No.	Pin No.	Voltage VDC
I404	1	6.0
	2	6.0
	3	6.0
	4	6.0
	5	6.0
	6	0.0
	7	0.0
	8	0.0
	9	9.5
	10	9.5
	11	6.0
	12	6.0
	13	6.0
	14	6.0
	15	6.0
	16	12.0

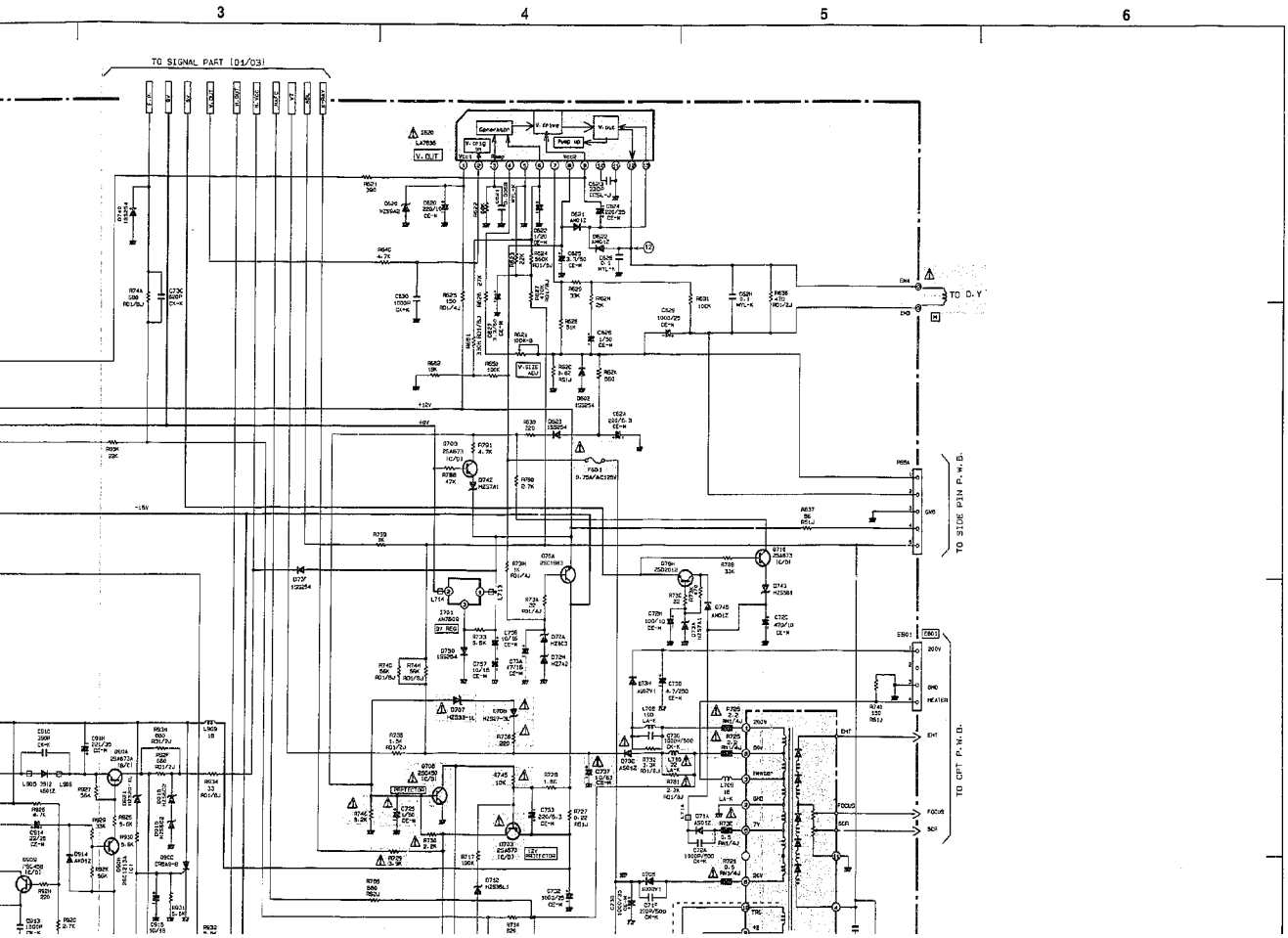
CIRCUIT SCHEMATIC DIAGRAM OF 27CX3B/C743

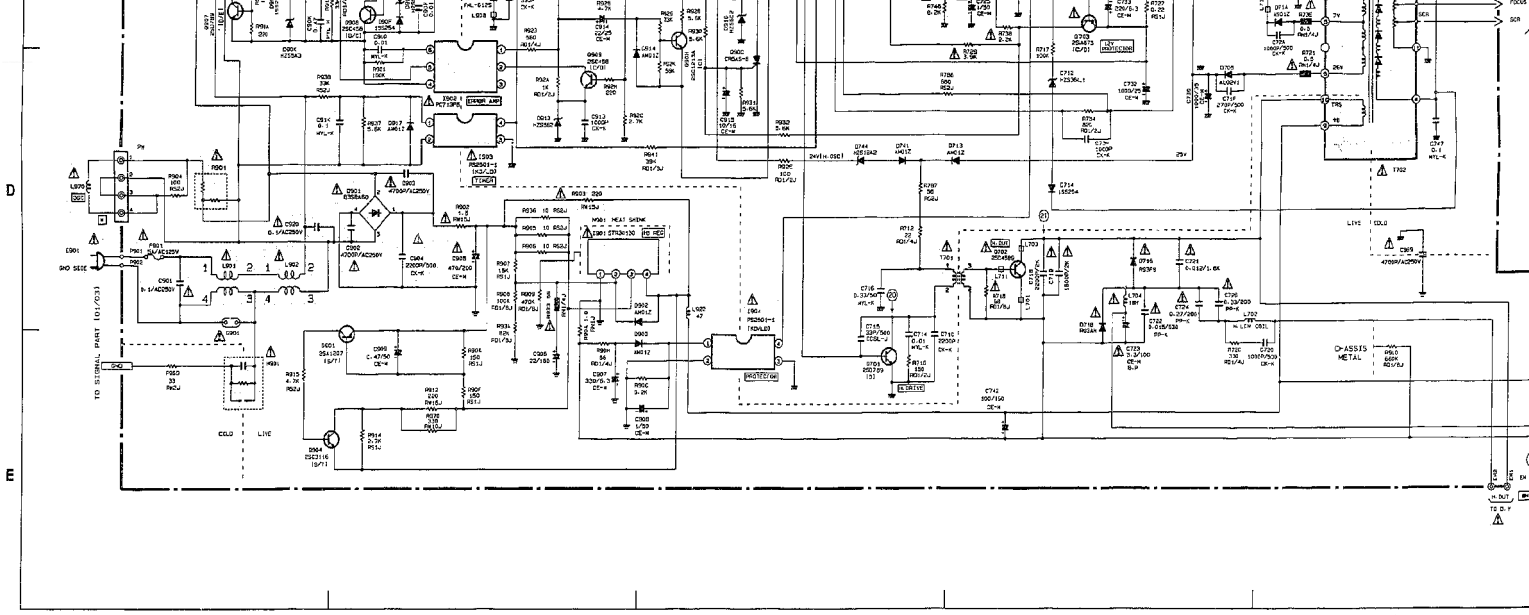
PRODUCT SAFETY NOTE: Components marked with a ⚠ and sha
any of these components, read carefully the PRODUCT SAFETY NO
through improper servicing.



CIRCUIT SCHEMATIC DIAGRAM OF 27CX3B/C743

PRODUCT SAFETY NOTE: Components marked with a ⚠ and shaded have special characteristics important to safety. Before replacing any of these components, read carefully the PRODUCT SAFETY NOTICE of this Service Manual. Don't degrade the safety of the receiver through improper servicing.





1 2 3 4 5

Circuit No.	Pin No.	Voltage VDC
I620	1	1.3
	2	0.8
	3	0.8
	4	0.5
	5	0.0
	6	0.8
	7	0.8
	8	5.0
	9	0.5
	10	0.5
	11	0.0
	12	2.5
	13	5.0

Circuit No.	Pin No.	Voltage VDC
I701	1	12.0
	2	9.0
	3	0.5

Circuit No.	Pin No.	Voltage VDC
I901	1	0.0
	2	130
	3	160
	4	130

Circuit No.	Pin No.	Voltage VDC
I902	1	14.0
	2	13.0
	3	—
	4	0.0
	5	2.0
	6	0.0

Circuit No.	Pin No.	Voltage VDC
I903	1	1.2
	2	0.5
	3	0.5
	4	0.0

Circuit No.	Pin No.	Voltage VDC
I904	1	-60.0
	2	-60.0
	3	0.0
	4	15.0

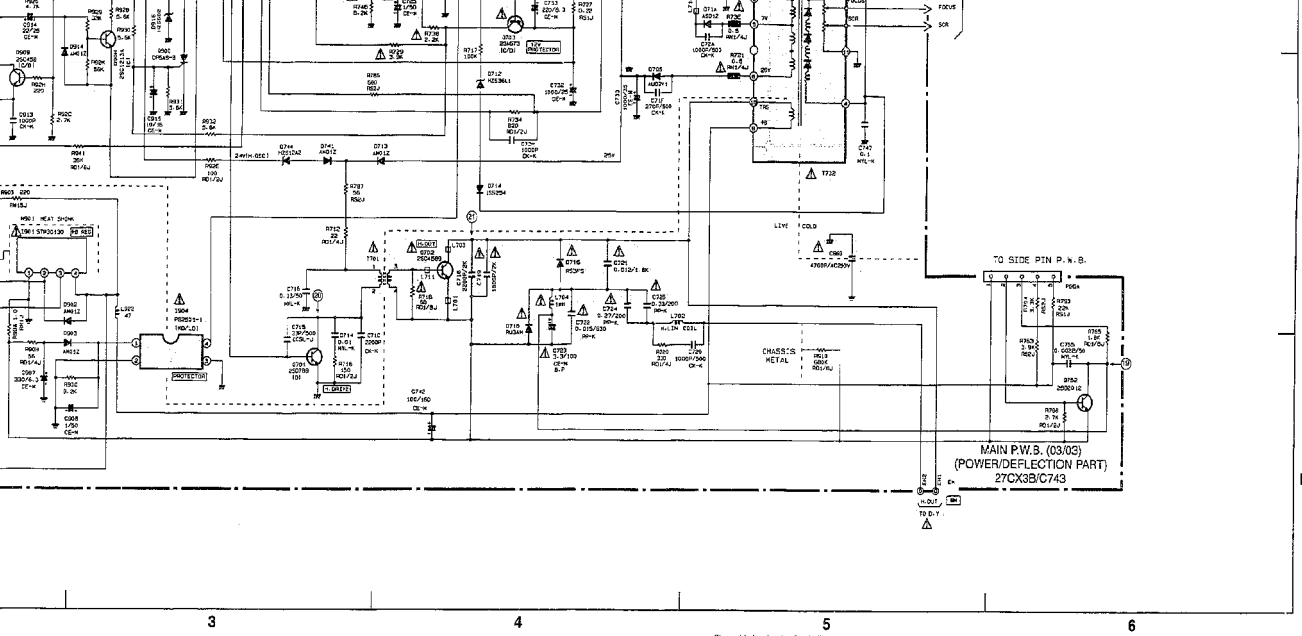
Circuit No.	Pin No.	Voltage VDC
Q305	B	4.0
	C	8.0
	E	4.0
Q306	B	8.0
	C	9.0
	E	5.0
Q308	B	4.0
	C	7.0
	E	3.0
Q309	B	3.5
	C	0.0
	E	4.0
Q310	B	5.0
	C	9.0
	E	4.6
Q312	B	10.0
	C	9.0
	E	9.0
Q314	B	4.0
	C	0.0
	E	4.5
Q315	B	4.5
	C	9.0
	E	3.8
Q401	B	12.0
	C	6.5
	E	12.0

Circuit No.	Pin No.	Voltage VDC
Q402	B	2.4
	C	11.0
	E	1.7
Q403	B	12.0
	C	6.0
	E	12.0
Q404	B	2.4
	C	11.0
	E	1.7
Q405	B	0.5
	C	0.0
	E	0.0

Circuit No.	Pin No.	Voltage VDC
Q406	B	0.5
	C	0.0
	E	0.0
Q407	B	0.0
	C	15.0
	E	0.0
Q50C	B	0.0
	C	6.5
	E	0.0
Q601	B	5.2
	C	9.0
	E	4.5
Q602	B	0.0
	C	4.4
	E	0.0
Q603	B	5.0
	C	1.3
	E	4.5
Q70A	B	12.0
	C	15.0
	E	12.0

Circuit No.	Pin No.	Voltage VDC
Q70H	B	5.7
	C	7.5
	E	5.0
Q701	B	0.3
	C	17.0
	E	0.0
Q702	B	-60.0
	C	41.0
	E	-60.0
Q703	B	15.0
	C	0.0
	E	15.0
Q708	B	0.0
	C	15.0
	E	0.0
Q709	B	9.0
	C	0.0
	E	8.0
Q710	B	5.0
	C	0.0
	E	5.0
Q752 (27v)	B	-60.0
	C	-44.0
	E	-60.0
Q761	B	7.6
	C	9.0
	E	7.0

Circuit No.	Pin No.	Voltage VDC
Q90A	B	40.0
	C	11.0
	E	40.0
Q90C	B	0.0
	C	15.0
	E	0.0
Q90H	B	0.0
	C	40.0
	E	0.0
Q901	B	57.0
	C	57.0
	E	57.0
Q904	B	33.0
	C	34.0
	E	33.0
Q905	B	0.0
	C	122.0
	E	0.0
Q906	B	0.0
	C	0.5
	E	0.5
Q907	B	0.0
	C	0.5
	E	0.0
Q908	B	0.0
	C	2.0
	E	0.0
Q909	B	5.5
	C	12.0
	E	5.5



Circuit No.	Pin No.	Voltage VDC
I902	1	14.0
	2	13.0
	3	—
	4	0.0
	5	2.0
	6	0.0

Circuit No.	Pin No.	Voltage VDC
I903	1	1.2
	2	0.5
	3	0.5
	4	0.0

Circuit No.	Pin No.	Voltage VDC
I904	1	-60.0
	2	-60.0
	3	0.0
	4	15.0

Circuit No.	Pin No.	Voltage VDC
Q305	B	4.0
	C	8.0
	E	4.0
Q306	B	8.0
	C	9.0
	E	5.0
Q308	B	4.0
	C	7.0
	E	3.0
Q309	B	3.5
	C	0.0
	E	4.0
Q310	B	5.0
	C	9.0
	E	4.6
Q312	B	10.0
	C	9.0
	E	9.0
Q314	B	4.0
	C	0.0
	E	4.5
Q315	B	4.5
	C	9.0
	E	3.8
Q401	B	12.0
	C	5.5
	E	12.0

Circuit No.	Pin No.	Voltage VDC
Q402	B	2.4
	C	11.0
	E	1.7
Q403	B	12.0
	C	6.0
	E	12.0
Q404	B	2.4
	C	11.0
	E	1.7
Q405	B	0.5
	C	0.0
	E	0.0

Circuit No.	Pin No.	Voltage VDC
Q406	B	0.5
	C	0.0
	E	0.0
Q407	B	0.0
	C	15.0
	E	0.0
Q50C	B	0.0
	C	6.5
	E	0.0
Q601	B	5.2
	C	9.0
	E	4.5
Q602	B	0.0
	C	4.4
	E	0.0
Q603	B	5.0
	C	1.3
	E	4.5
Q70A	B	12.0
	C	15.0
	E	12.0

Circuit No.	Pin No.	Voltage VDC
Q70H	B	5.7
	C	7.5
	E	5.0
Q701	B	0.3
	C	17.0
	E	0.0
Q702	B	-60.0
	C	41.0
	E	-60.0
Q703	B	15.0
	C	0.0
	E	15.0
Q708	B	0.0
	C	15.0
	E	0.0
Q709	B	9.0
	C	0.0
	E	8.0
Q710	B	5.0
	C	0.0
	E	5.0
Q752 (27v)	B	-50.0
	C	-44.0
	E	-50.0
Q761	B	7.6
	C	9.0
	E	7.0

Circuit No.	Pin No.	Voltage VDC
Q90A	B	40.0
	C	11.0
	E	40.0
Q90C	B	0.0
	C	15.0
	E	0.0
Q90H	B	0.0
	C	40.0
	E	0.0
Q901	B	57.0
	C	57.0
	E	57.0
Q904	B	33.0
	C	34.0
	E	33.0
Q905	B	0.0
	C	122.0
	E	0.0
Q906	B	0.0
	C	0.5
	E	0.5
Q907	B	0.0
	C	0.5
	E	0.0
Q908	B	0.0
	C	2.0
	E	0.0
Q909	B	5.5
	C	12.0
	E	5.5

- Since this is a basic circuit diagram, the value of the parts is subject to be altered for improvement.
- All DC voltage to be measured with a tester (100kΩ/V). Voltage taken on a complex color bar signal including a standard color bar signal.

CIRCUIT SCHEMATIC DIAGRAM OF 27CX3B/C743

PRODUCT SAFETY NO
any of these component
through improper servici

1 2 3 4

A

B

C

	R851	R852	D828	R858	C832
27CX3B	100K	100K	NO NEED	680	0.0068 MYL-K

SIDE PIN P.W.B.
27CX3B/C743

TO MAIN P.W.B.

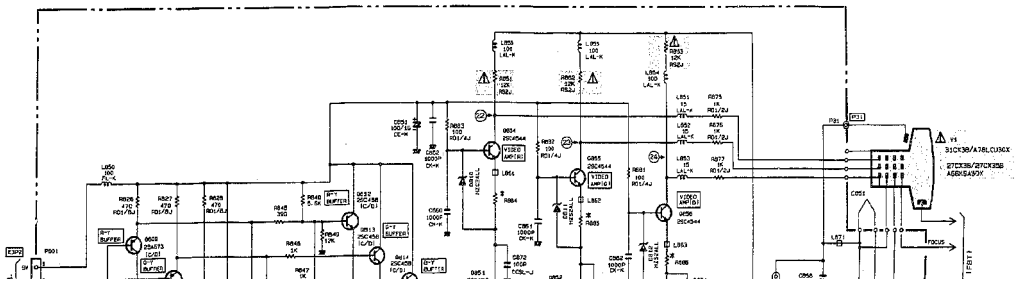
	27CX3B
C864	150 CK-K
C865	330 CK-K
C866	150 CK-K
C870	330 CK-K
C875	150 CK-K
C887	330 CK-K
R884	91
R885	91

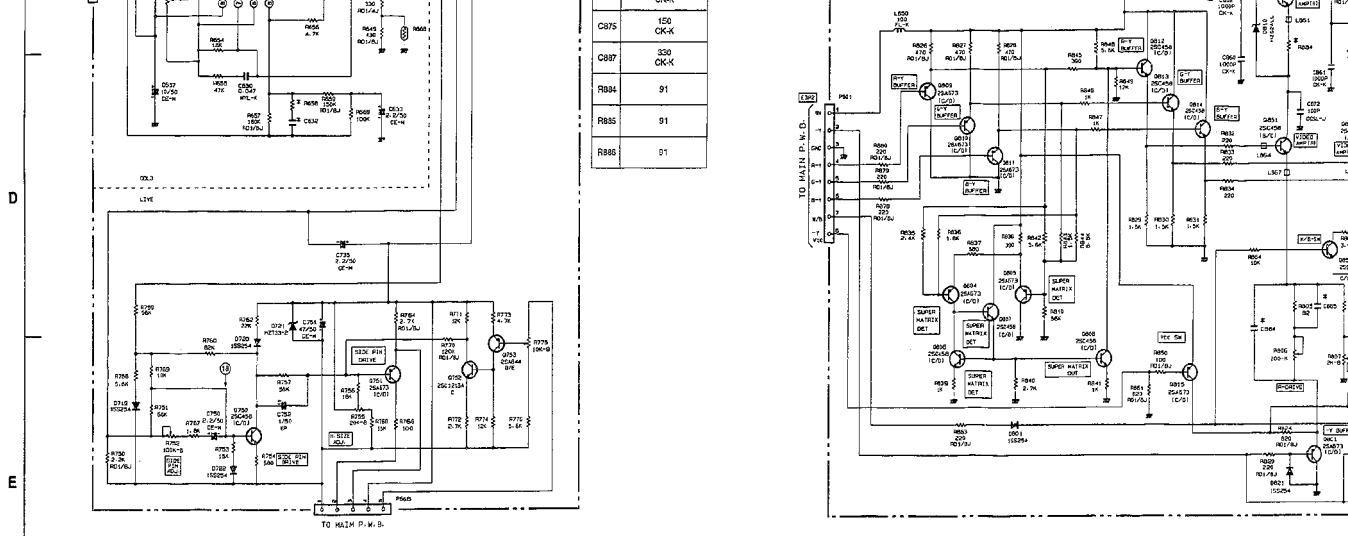
CIRCUIT SCHEMATIC DIAGRAM OF 27CX3B/C743

PRODUCT SAFETY NOTE: Components marked with a ⚠ and shaded have special characteristics important to safety. Before replacing any of these components, read carefully the PRODUCT SAFETY NOTICE of this Service Manual. Don't degrade the safety of the receiver through improper servicing.

	R658	C632
	680	0.0068 MYL-K

	27CX3B
C654	150 CK-K
C665	390 CK-K
C666	150 CK-K
C670	330 CK-K
C675	150 CK-K
C957	330 CK-K
R984	91
R985	91





C875	150 CK-K
C887	330 CK-K
R884	91
R885	91
R886	91

* Since this is a
* All DC voltage

Circuit No.	Pin No.	Voltage VDC
I621	1	5.0
	2	5.0
	3	5.0
	4	0.0
	5	5.7
	6	5.7
	7	6.2
	8	10.9

Circuit No.	Pin No.	Voltage VDC
I720	1	11.0
	2	9.8
	3	0.0
	4	-56.0
	5	-36.0

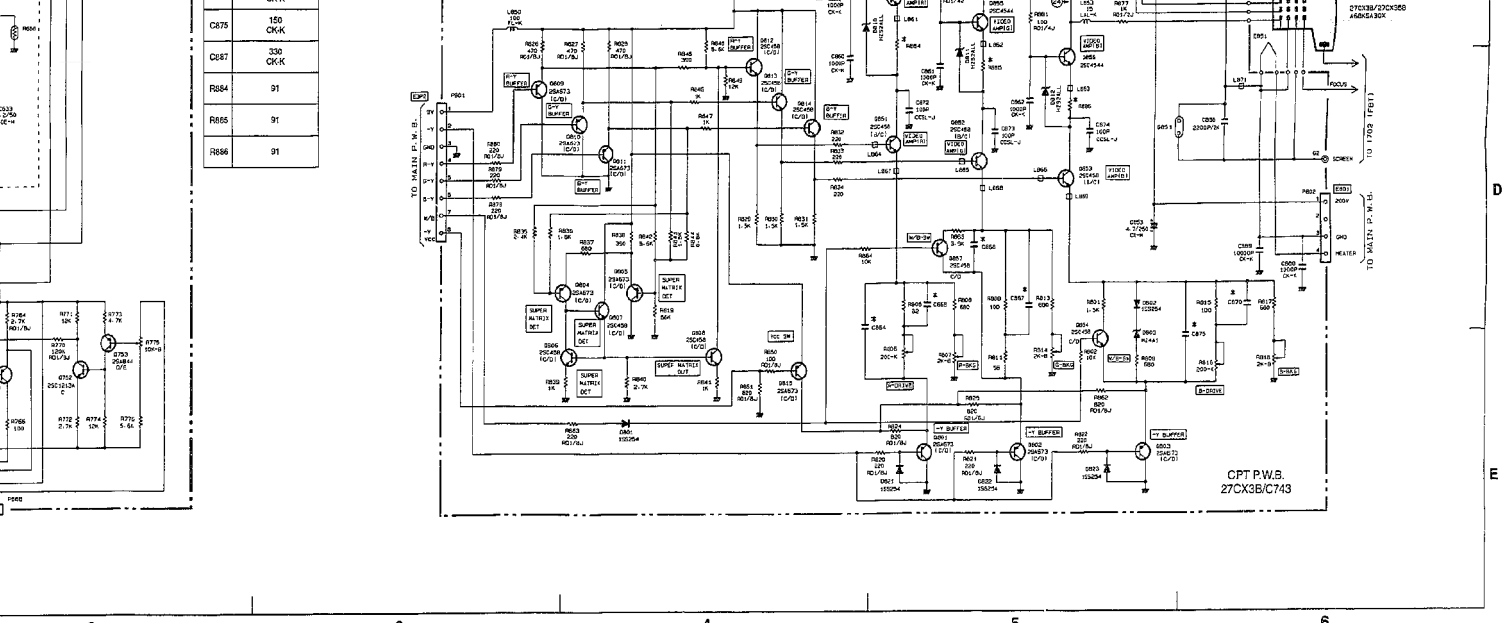
Circuit No.	Pin No.	Voltage VDC
Q650 Side P.	B	6.5
	C	9.8
	E	5.6
Q750 Side P.	B	-60.0
	C	-50.0
	E	-60.0
Q751 Side P.	B	-41.0
	C	-60.0
	E	-41.0
Q752 Side P.	B	-60.0
	C	-35.0
	E	-60.0
Q753 Side P.	B	-35.0
	C	-60.0
	E	-35.0

Circuit No.	Pin No.	Voltage VDC
Q801 CPT	B	4.0
	C	0.0
	E	4.0
Q802 CPT	B	3.8
	C	0.0
	E	3.9
Q803 CPT	B	4.0
	C	0.0
	E	4.0
Q804 CPT	B	6.0
	C	1.4
	E	6.4
Q805 CPT	B	5.8
	C	0.0
	E	6.5

Circuit No.	Pin No.	Voltage VDC
Q806 CPT	B	0.7
	C	1.4
	E	0.0
Q807 CPT	B	1.3
	C	9.0
	E	0.6

Circuit No.	Pin No.	Voltage VDC
Q808 CPT	B	0.9
	C	6.0
	E	0.0
Q809 CPT	B	5.0
	C	0.0
	E	6.0
Q810 CPT	B	5.0
	C	0.0
	E	6.0
Q811 CPT	B	5.0
	C	0.0
	E	6.0
Q812 CPT	B	6.0
	C	9.0
	E	5.0
Q813 CPT	B	6.0
	C	9.0
	E	5.0
Q814 CPT	B	0.9
	C	9.0
	E	0.9
Q815 CPT	B	5.0
	C	3.9
	E	3.9

Circuit No.	Pin No.	Voltage VDC
Q851 CPT	B	5.0
	C	8.0
	E	5.0
Q852 CPT	B	5.0
	C	7.6
	E	4.7
Q853 CPT	B	5.0
	C	8.0
	E	5.0
Q854 CPT	B	1.5
	C	26.0
	E	1.5
Q855 CPT	B	1.2
	C	24.0
	E	1.2
Q856 CPT	B	1.2
	C	24.0
	E	1.2
Q857 CPT	B	4.5
	C	3.9
	E	3.9
Q864 CPT	B	4.6
	C	4.0
	E	4.0



C875	150 CK-K	
C887	330 CK-K	
R884	91	
R885	91	
R886	91	

- Since this is a basic circuit diagram, the value of the parts is subject to be altered for improvement.
- All DC voltage to be measured with a tester (100kΩ/V). Voltage taken on a complex color bar signal including a standard color bar signal.

Circuit No.	Pin No.	Voltage VDC
I621	1	5.0
	2	5.0
	3	5.0
	4	0.0
	5	5.7
	6	5.7
	7	6.2
	9	10.9

Circuit No.	Pin No.	Voltage VDC
I720	1	11.0
	2	9.8
	3	0.0
	4	-56.0
	5	-36.0

Circuit No.	Pin No.	Voltage VDC
Q650 Side P.	B	6.5
	C	9.8
	E	5.6
Q750 Side P.	B	-60.0
	C	-50.0
	E	-60.0
Q751 Side P.	B	-41.0
	C	-60.0
	E	-41.0
Q752 Side P.	B	-60.0
	C	-35.0
	E	-60.0
Q753 Side P.	B	-35.0
	C	-60.0
	E	-35.0

Circuit No.	Pin No.	Voltage VDC
Q801 CPT	B	4.0
	C	0.0
	E	4.0
Q802 CPT	B	3.8
	C	0.0
	E	3.9
Q803 CPT	B	4.0
	C	0.0
	E	4.0
Q804 CPT	B	6.0
	C	1.4
	E	6.4
Q805 CPT	B	5.8
	C	0.0
	E	6.5

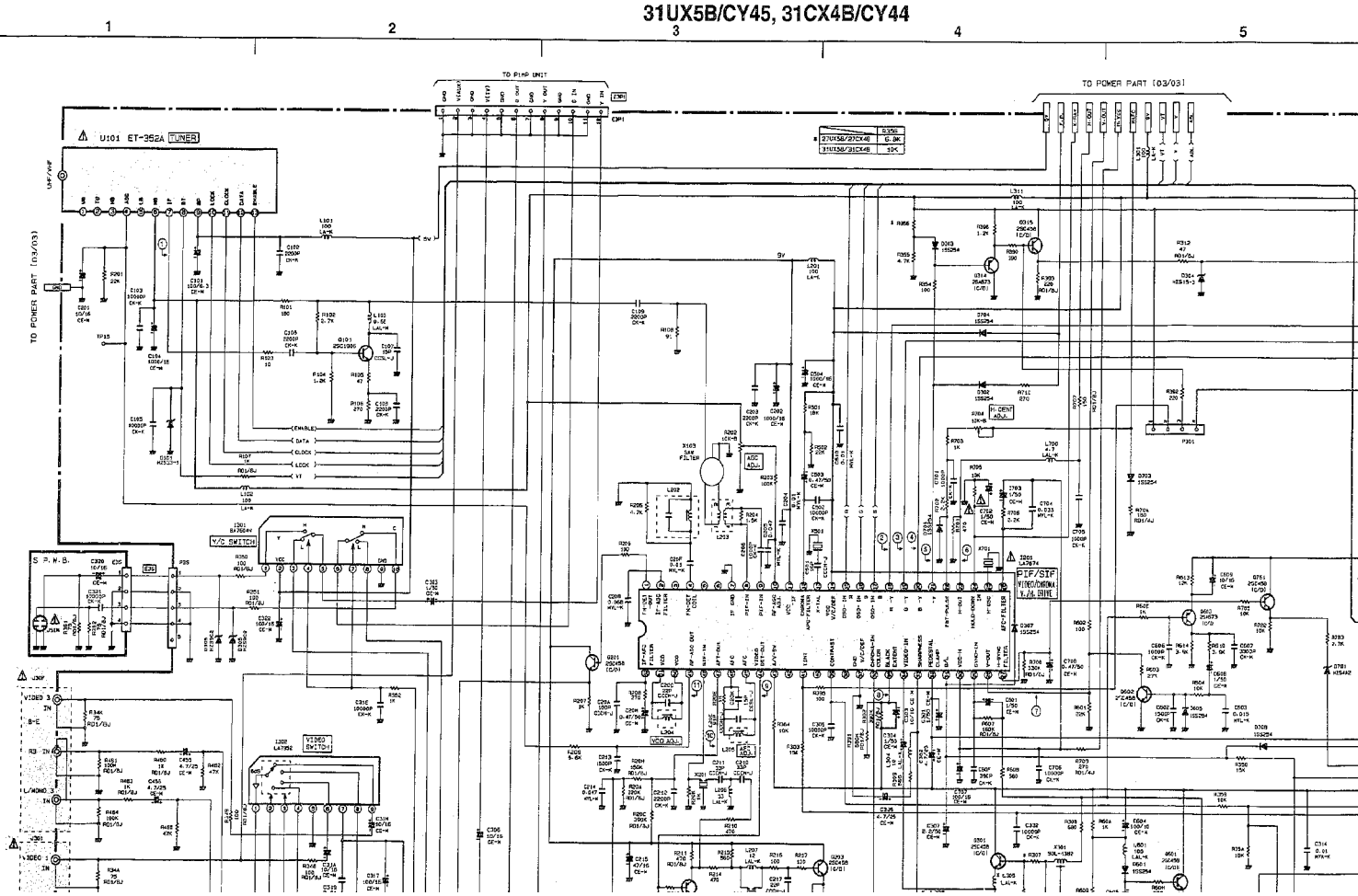
Circuit No.	Pin No.	Voltage VDC
Q806 CPT	B	0.7
	C	1.4
	E	0.0
Q807 CPT	B	1.3
	C	9.0
	E	0.6

Circuit No.	Pin No.	Voltage VDC
Q808 CPT	B	0.9
	C	6.0
	E	0.0
Q809 CPT	B	5.0
	C	0.0
	E	6.0
Q810 CPT	B	5.0
	C	0.0
	E	6.0
Q811 CPT	B	5.0
	C	0.0
	E	6.0
Q812 CPT	B	6.0
	C	9.0
	E	5.0
Q813 CPT	B	6.0
	C	9.0
	E	5.0
Q814 CPT	B	0.9
	C	9.0
	E	0.9
Q815 CPT	B	5.0
	C	3.9
	E	3.9

Circuit No.	Pin No.	Voltage VDC
Q851 CPT	B	5.0
	C	8.0
	E	5.0
Q852 CPT	B	5.0
	C	7.6
	E	4.7
Q853 CPT	B	5.0
	C	8.0
	E	5.0
Q854 CPT	B	1.5
	C	26.0
	E	1.5
Q855 CPT	B	1.2
	C	24.0
	E	1.2
Q856 CPT	B	1.2
	C	24.0
	E	1.2
Q857 CPT	B	4.5
	C	3.9
	E	3.9
Q864 CPT	B	4.6
	C	4.0
	E	4.0

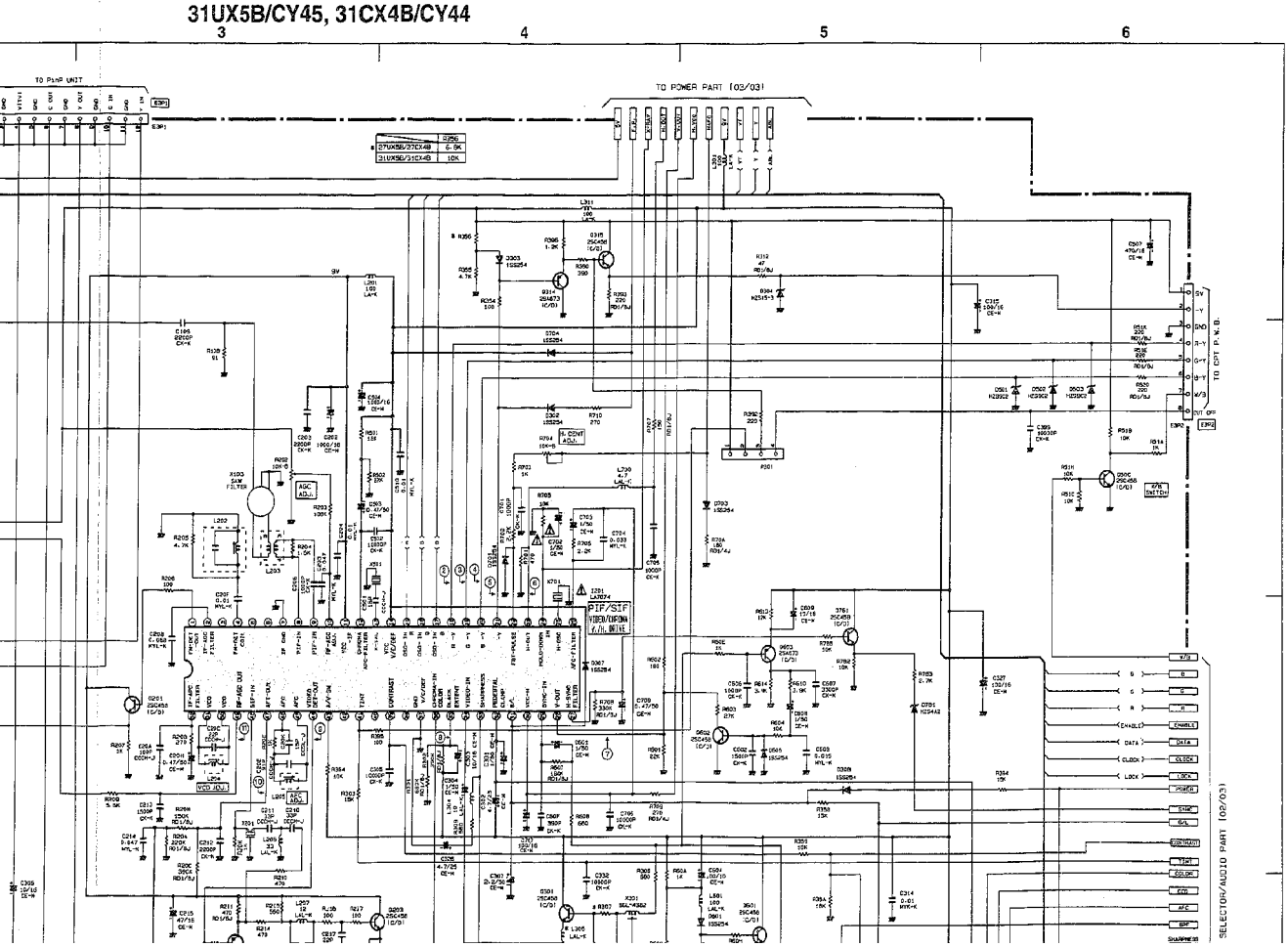
CIRCUIT SCHEMATIC DIAGRAM OF 27UX5B/C745, 27CX4B/C744, 31UX5B/CY45, 31CX4B/CY44

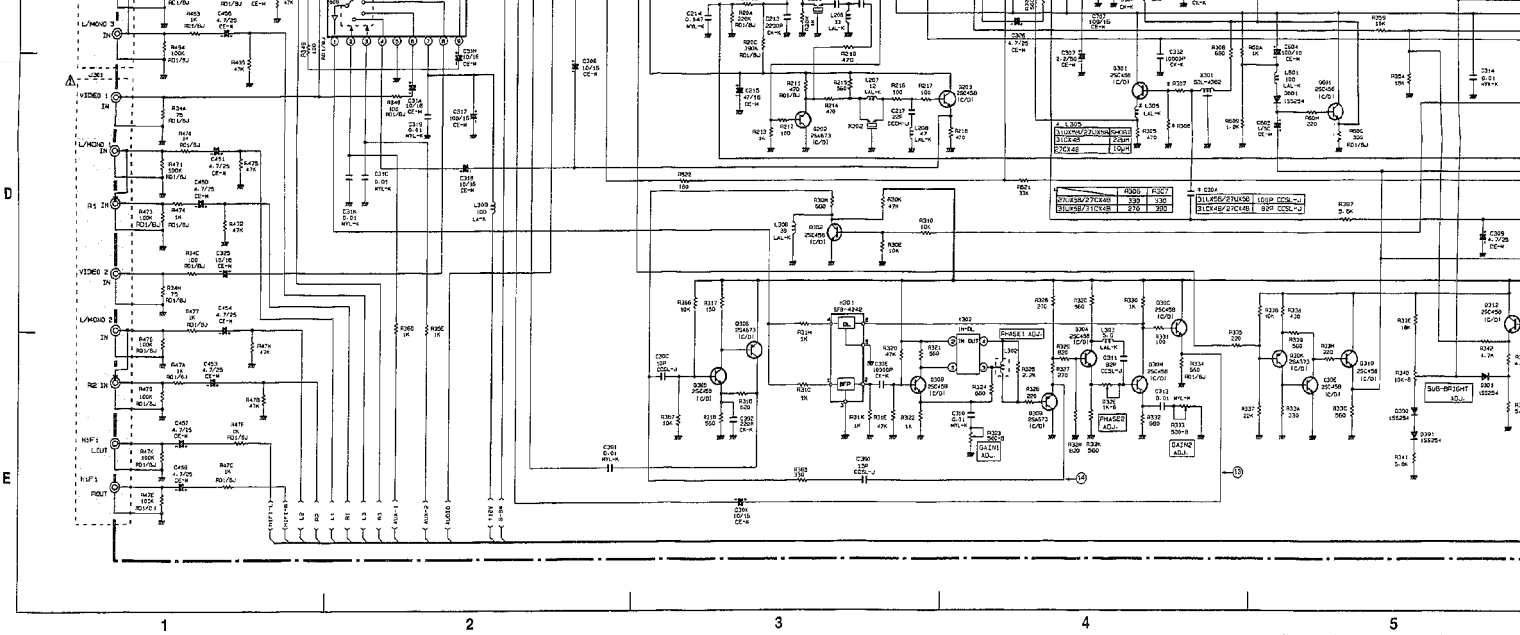
PRODUCT SAFETY NOTE: Components marked with a ⚠ and shad
any of these components, read carefully the PRODUCT SAFETY NOT
through improper servicing.



CIRCUIT SCHEMATIC DIAGRAM OF 27UX5B/C745, 27CX4B/C744, 31UX5B/CY45, 31CX4B/CY44

PRODUCT SAFETY NOTE: Components marked with a ⚠ and shaded have special characteristics important to safety. Before replacing any of these components, read carefully the PRODUCT SAFETY NOTICE of this Service Manual. Don't degrade the safety of the receiver through improper servicing.





1 2 3 4 5

- Since this is a basic circuit diagram, the value of the parts is sub
- All DC voltage to be measured with a tester (100kΩ/V). Voltage f

Circuit No.	Pin No.	Voltage VDC
I201	1	4.4
	2	6.8
	3	5.6
	4	5.6
	5	4.3
	6	4.0
	7	0.0
	8	4.5
	9	4.5
	10	5.8
	11	6.8
	12	5.6
	13	5.4
	14	8.9
	15	0.0
	16	0.0
	17	0.0
	18	5.0
	19	5.0
	20	5.0
	21	4.0
	22	0.4
	23	0.4
	24	0.0
	25	5.0
	26	5.7
	27	7.6
	28	4.5
	29	7.0
	30	7.6

Circuit No.	Pin No.	Voltage VDC
I201	28	4.5
	29	7.0
	30	7.6
	31	4.4
	32	2.7
	33	5.9
	34	4.3
	35	4.2
	36	4.8
	37	0.0
	38	3.5
	39	7.0
	40	4.8
	41	4.1
	42	4.6
	43	8.9
	44	3.2
	45	3.0
	46	3.0
	47	3.3
	48	3.7
	49	1.9
	50	7.9
	51	7.9
	52	4.8

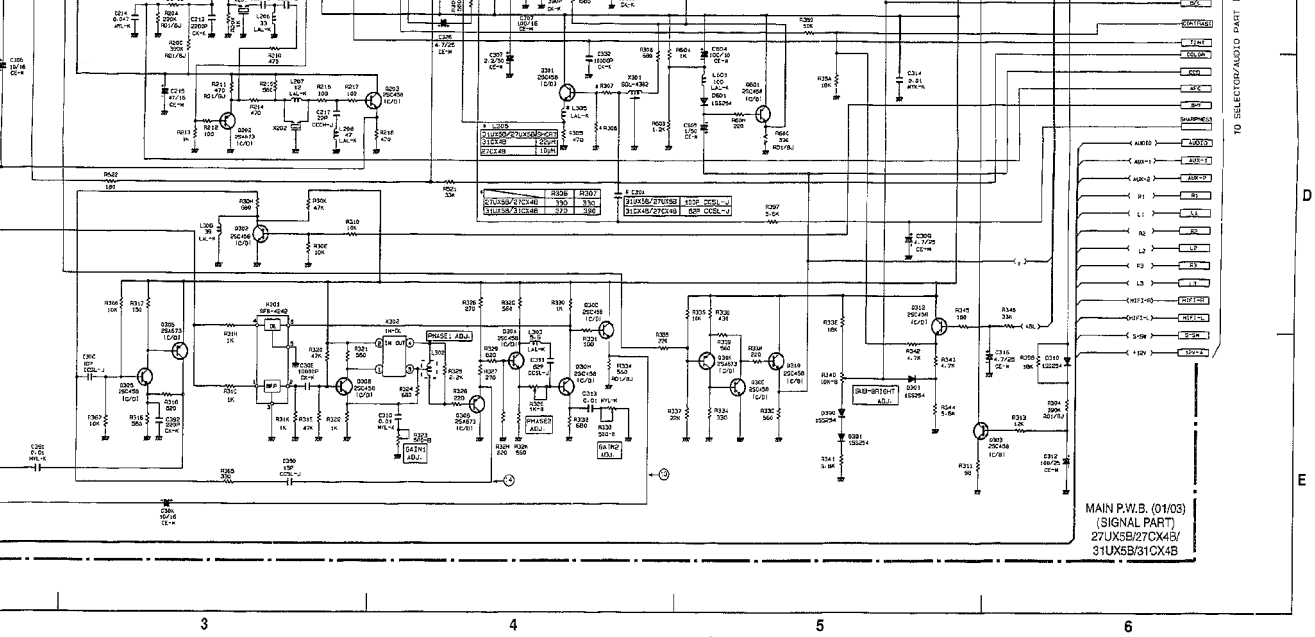
Circuit No.	Pin No.	Voltage VDC
I301	1	2.3
	2	5.0
	3	2.5
	4	0.4
	5	1.7
	6	1.7
	7	0.4
	8	2.5
	9	0.0
	10	2.5

Circuit No.	Pin No.	Voltage VDC
I302	1	6.7
	2	9.4
	3	9.4
	4	3.5
	5	0.0
	6	3.1
	7	11.6
	8	3.1
	9	3.1

Circuit No.	Pin No.	Voltage VDC
Q001	B	0.7
	C	0.0
	E	0.0
Q002	B	0.0
	C	5.0
	E	0.0
Q003	B	0.0
	C	4.2
	E	0.0
Q004	B	5.0
	C	5.0
	E	5.0
Q005	B	0.7
	C	0.0
	E	0.0
Q006	B	0.5
	C	2.0
	E	0.0
Q008	B	0.5
	C	2.8
	E	0.0
Q009	B	0.0
	C	5.0
	E	0.0
Q101	B	2.3
	C	7.5
	E	1.6
Q201	B	4.4
	C	9.0
	E	3.7

Circuit No.	Pin No.	Voltage VDC
Q305	B	4.0
	C	8.0
	E	4.0
Q306	B	8.0
	C	9.0
	E	5.0
Q308	B	4.0
	C	7.0
	E	3.0
Q309	B	3.5
	C	0.0
	E	4.0
Q310	B	5.0
	C	9.0
	E	4.6
Q312	B	10.0
	C	9.0
	E	9.0
Q314	B	4.0
	C	0.0
	E	4.5
Q315	B	4.5
	C	9.0
	E	3.8
Q401	B	12.0
	C	6.5
	E	12.0
Q402	B	2.4
	C	11.0
	E	1.7

Circuit No.	Pin No.	Voltage VDC
Q202	B	3.2
	C	0.0
	E	3.9
Q203	B	6.0
	C	9.0
	E	5.5
Q30A	B	3.0
	C	7.0
	E	2.0
Q30C	B	6.6
	C	9.0
	E	6.0
Q30E	B	0.7
	C	5.0
	E	0.0
Q30H	B	2.3
	C	6.6
	E	1.6
Q30K	B	6.0
	C	0.7
	E	7.0
Q301	B	1.5
	C	9.0
	E	0.5
Q302	B	0.5
	C	0.0
	E	0.0
Q303	B	0.0
	C	2.7
	E	0.0



Circuit No.	Pin No.	Voltage VDC
I201	28	4.5
	29	7.0
	30	7.6
	31	4.4
	32	2.7
	33	5.9
	34	4.3
	35	4.2
	36	4.8
	37	0.0
	38	3.5
	39	7.0
	40	4.8
	41	4.1
	42	4.8
	43	8.9
	44	3.2
	45	3.0
	46	3.0
	47	3.3
	48	3.7
	49	1.9
	50	7.9
	51	7.9
	52	4.8

Circuit No.	Pin No.	Voltage VDC
I301	1	2.3
	2	5.0
	3	2.5
	4	0.4
	5	1.7
	6	1.7
	7	0.4
	8	2.5
	9	0.0
	10	2.5

Circuit No.	Pin No.	Voltage VDC
I302	1	5.7
	2	9.4
	3	9.4
	4	3.5
	5	0.0
	6	3.1
	7	11.6
	8	3.1
	9	3.1

Circuit No.	Pin No.	Voltage VDC
Q001	B	0.7
	C	0.0
	E	0.0
Q002	B	0.0
	C	5.0
	E	0.0
Q003	B	0.0
	C	4.2
	E	0.0
Q004	B	5.0
	C	5.0
	E	5.0
Q005	B	0.7
	C	0.0
	E	0.0
Q006	B	0.5
	C	2.0
	E	0.0
Q008	B	0.5
	C	2.8
	E	0.0
Q009	B	0.0
	C	5.0
	E	0.0
Q101	B	2.3
	C	7.5
	E	1.6
Q201	B	4.4
	C	9.0
	E	3.7

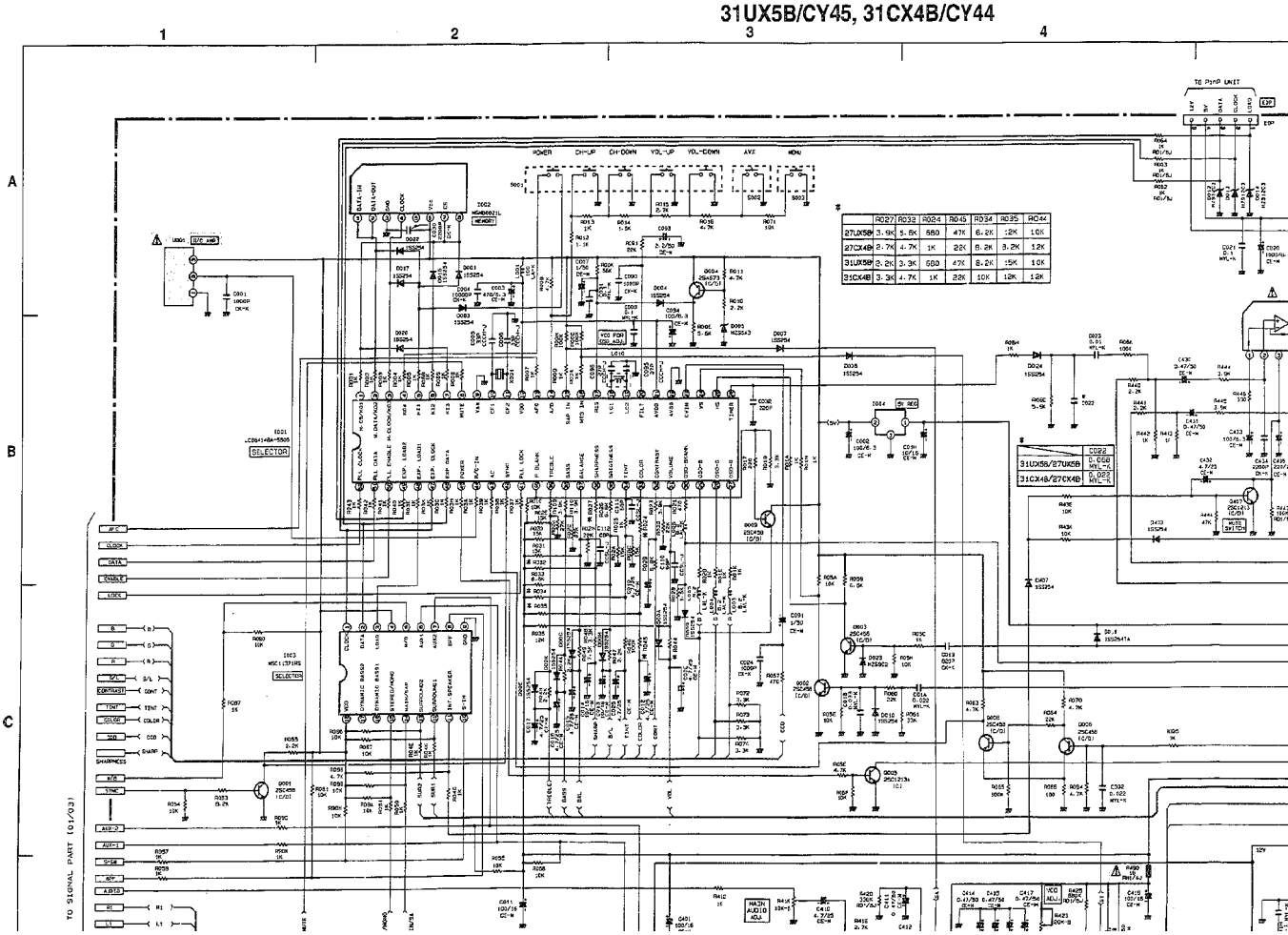
Circuit No.	Pin No.	Voltage VDC
Q305	B	4.0
	C	8.0
	E	4.0
Q306	B	8.0
	C	9.0
	E	5.0
Q308	B	4.0
	C	7.0
	E	3.0
Q309	B	3.5
	C	0.0
	E	4.0
Q310	B	5.0
	C	9.0
	E	4.6
Q312	B	10.0
	C	9.0
	E	9.0
Q314	B	4.0
	C	0.0
	E	4.5
Q315	B	4.5
	C	9.0
	E	3.8
Q401	B	12.0
	C	6.5
	E	12.0
Q402	B	2.4
	C	11.0
	E	1.7

Circuit No.	Pin No.	Voltage VDC
Q202	B	3.2
	C	0.0
	E	3.9
Q203	B	6.0
	C	9.0
	E	5.5
Q30A	B	3.0
	C	7.0
	E	2.0
Q30C	B	6.5
	C	9.0
	E	6.0
Q30E	B	0.7
	C	5.0
	E	0.0
Q30H	B	2.3
	C	6.5
	E	1.6
Q30K	B	6.0
	C	0.7
	E	7.0
Q301	B	1.5
	C	9.0
	E	0.5
Q302	B	0.5
	C	0.0
	E	0.0
Q303	B	0.0
	C	2.7
	E	0.0

- Since this is a basic circuit diagram, the value of the parts is subject to be altered for improvement.
- All DC voltage to be measured with a tester (100kΩ/V). Voltage taken on a complex color bar signal including a standard color bar signal.

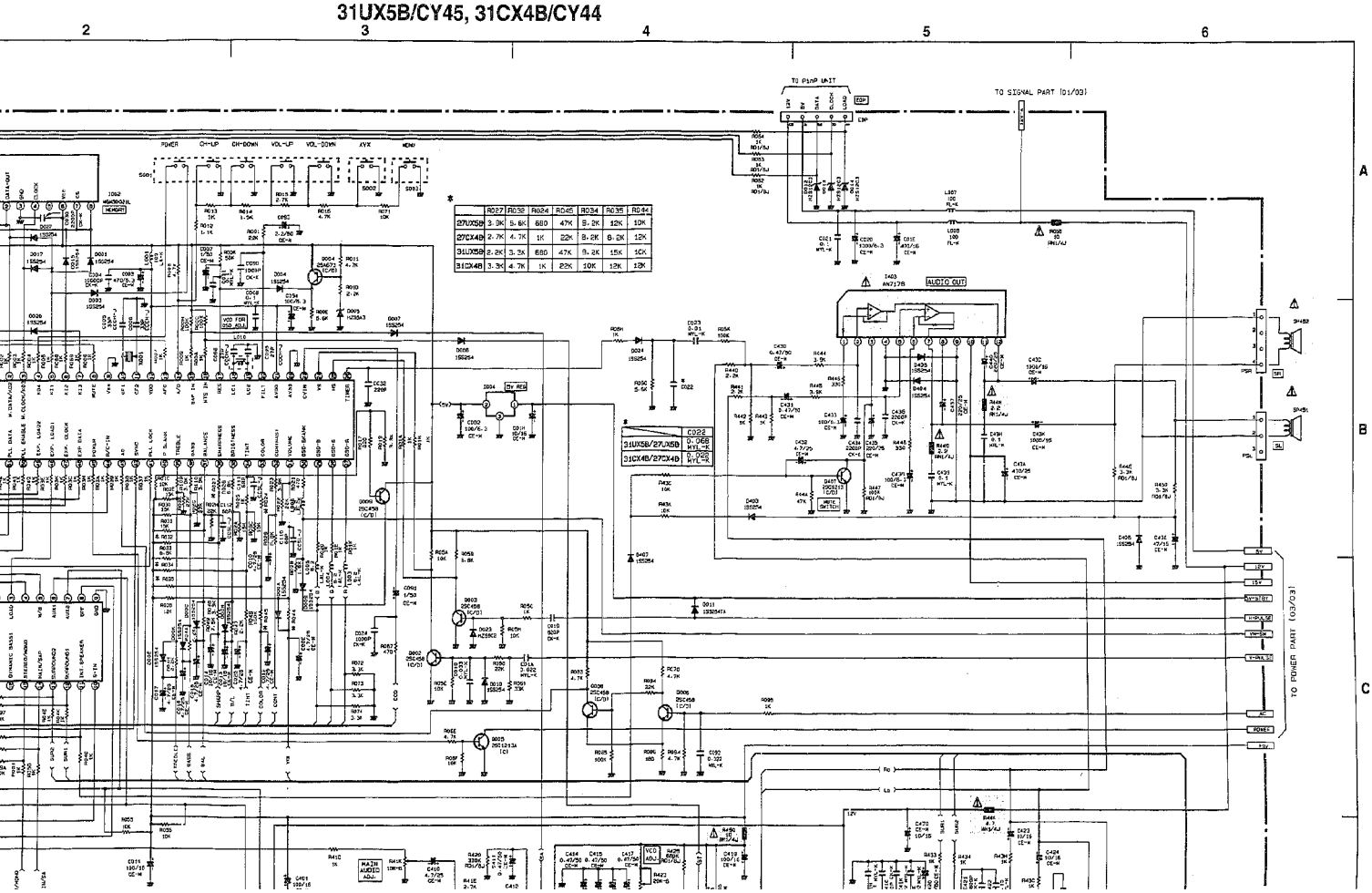
CIRCUIT SCHEMATIC DIAGRAM OF 27UX5B/C745, 27CX4B/C744, 31UX5B/CY45, 31CX4B/CY44

PRODUCT SAFETY NO
any of these componen
through improper servic



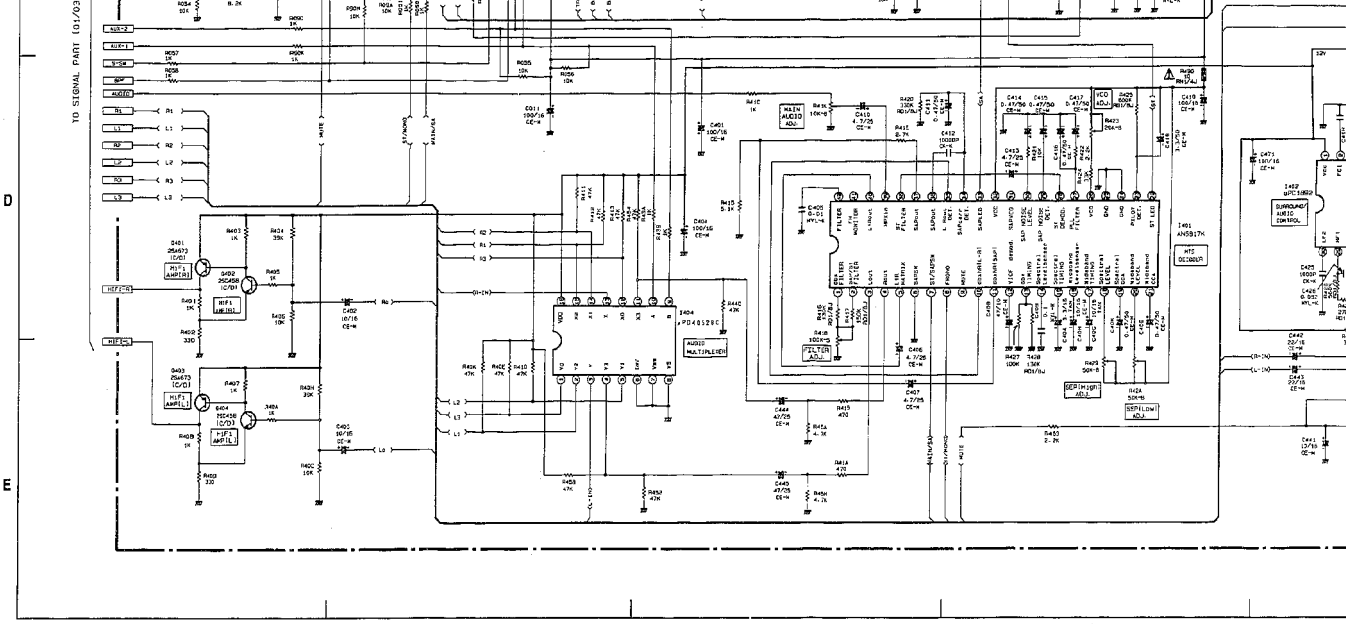
CIRCUIT SCHEMATIC DIAGRAM OF 27UX5B/C745, 27CX4B/C744, 31UX5B/CY45, 31CX4B/CY44

PRODUCT SAFETY NOTE: Components marked with a ⚠ and shaded have special characteristics important to safety. Before replacing any of these components, read carefully the PRODUCT SAFETY NOTICE of this Service Manual. Don't degrade the safety of the receiver through improper servicing.



	R027	R032	R024	R045	R034	R035	R064
27UX5B	3.9K	5.6K	680	47K	8.2K	12K	10K
27CX4B	2.7K	4.7K	1K	22K	8.2K	8.2K	12K
31UX5B	2.2K	3.3K	680	47K	8.2K	15K	10K
31CX4B	3.3K	4.7K	1K	22K	10K	12K	12K

	C022
31UX5B/27UX5B	0.068
31CX4B/27CX4B	0.082



Circuit No.	Pin No.	Voltage VDC
I001	1	5.0
	2	5.0
	3	5.0
	4	5.0
	5	12mv
	6	12mv
	7	12mv
	8	-3mv
	9	0.0
	10	2.5
	11	2.5
	12	5.0
	13	2.2
	14	5.0
	15	0.5
	16	3.5
	17	5.0
	18	2.3
	19	2.3
	20	2.5
	21	5.0
	22	0.0
	23	3.0
	24	5.0
	25	4.2
	26	0.0
	27	0.0

Circuit No.	Pin No.	Voltage VDC
I001	28	0.0
	29	0.0
	30	0.0
	31	42mv
	32	7.0
	33	4.4
	34	3.0
	35	2.3
	36	4.1
	37	1.5
	38	1.8
	39	1.8
	40	47mv
	41	120mv
	42	85mv
	43	2.3
	44	5.0
	45	5.0
	46	5.0
	47	0.3
	48	2.5mv
	49	5mv
	50	180mv
	51	5.0
	52	5.0

Circuit No.	Pin No.	Voltage VDC
I002	1	5.0
	2	5.0
	3	0.0
	4	5.0
	5	5.0
	6	5.0
	7	5.0
	8	5.0

Circuit No.	Pin No.	Voltage VDC
I003	1	0.3
	2	5.0
	3	2.4mv
	4	5.0
	5	1.5mv
	6	9.5
	7	9.5
	8	0.0
	9	0.0
	10	1.2mv
	11	9.5mv
	12	0.0
	13	0.0
	14	5.0
	15	3.5
	16	—
	17	—
	18	5.0

Circuit No.	Pin No.	Voltage VDC
I004	1	15.0
	2	5.0
	3	0.0

Circuit No.	Pin No.	Voltage VDC
I403	1	5.3
	2	9.9
	3	15.0
	4	0.0
	5	10.5
	6	5.8
	7	1.3
	8	0.0
	9	0.0
	10	12.0
	11	0.0
	12	1.3

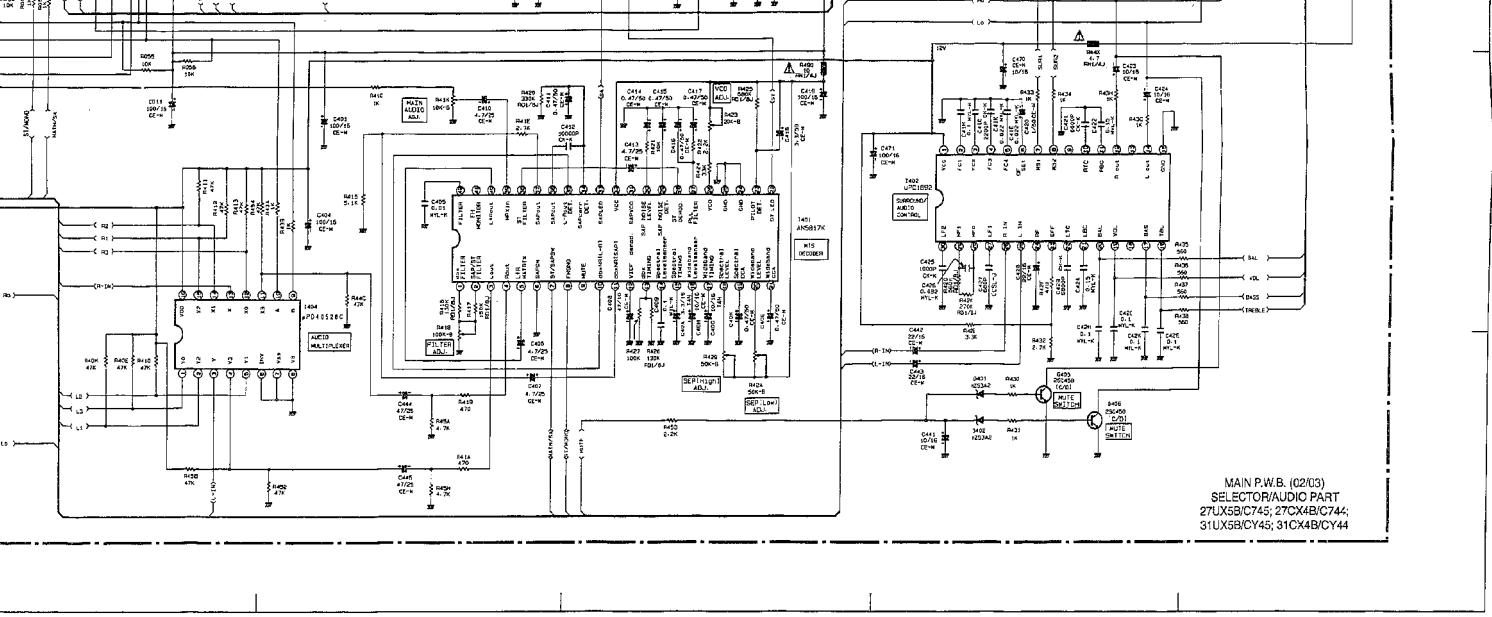
Circuit No.	Pin No.	Voltage VDC
I401	1	1.2
	2	1.2
	3	5.0
	4	5.0
	5	5.0
	6	0.0
	7	5.0
	8	3.5
	9	—
	10	4.5
	11	5.0
	12	5.0
	13	1.2
	14	5.0
	15	0.3
	16	5.0
	17	0.6
	18	8.0
	19	5.0
	20	8.0
	21	5.0
	22	0.0
	23	7.0
	24	0.0
	25	0.0
	26	8.3
	27	5.0
	28	5.0

Circuit No.	Pin No.	Voltage VDC
I401	29	3.0
	30	3.0
	31	—
	32	9.5
	33	0.0
	34	3.8
	35	4.5
	36	0.5
	37	3.8
	38	4.2
	39	5.0
	40	4.0
	41	—
	42	5.0

Circuit No.	Pin No.	Voltage VDC
I402	1	12.0
	2	6.0
	3	6.0
	4	6.0
	5	6.0
	6	6.0
	7	0.0
	8	0.0
	9	6.0
	10	6.0
	11	6.0
	12	6.0

Circuit No.	Pin No.	Voltage VDC
I402	13	—
	14	6.0
	15	0.0
	16	3.0
	17	3.0
	18	—
	19	0.0
	20	2.2
	21	6.0
	22	6.0
	23	5.2
	24	6.0
	25	6.0
	26	6.0
	27	6.0
	28	6.0
	29	6.0
	30	6.0

Circuit No.
I404



MAIN P.W.B. (02/03)
SELECTOR/AUDIO PART
27UX5B/C745; 27CX4B/C744;
31UX5B/CY45; 31CX4B/CY44

2 3 4 5 6

Voltage VDC
5.0
5.0
5.0
5.0
12mv
12mv
12mv
-3mv
0.0
2.5
2.5
5.0
2.2
5.0
0.5
0.5
5.0
2.3
2.3
2.5
5.0
0.0
3.0
5.0
4.2
0.0
0.0

Circuit No.	Pin No.	Voltage VDC
I001	28	0.0
	29	0.0
	30	0.0
	31	42mv
	32	7.0
	33	4.4
	34	3.0
	35	2.3
	36	4.1
	37	1.5
	38	1.8
	39	1.8
	40	47mv
	41	120mv
	42	85mv
	43	2.3
	44	5.0
	45	5.0
	46	5.0
	47	0.3
	48	2.5mv
	49	5mv
	50	180mv
	51	5.0
	52	5.0

Circuit No.	Pin No.	Voltage VDC
I002	1	5.0
	2	5.0
	3	0.0
	4	5.0
	5	5.0
	6	5.0
	7	5.0
	8	5.0

Circuit No.	Pin No.	Voltage VDC
I003	1	0.3
	2	5.0
	3	2.4mv
	4	5.0
	5	1.5mv
	6	9.5
	7	9.5
	8	0.0
	9	0.0
	10	1.2mv
	11	3.5mv
	12	0.0
	13	0.0
	14	5.0
	15	3.5
	16	—
	17	—
	18	5.0

Circuit No.	Pin No.	Voltage VDC
I004	1	15.0
	2	5.0
	3	0.0

Circuit No.	Pin No.	Voltage VDC
I403	1	5.3
	2	9.9
	3	15.0
	4	0.0
	5	10.5
	6	5.8
	7	1.3
	8	0.0
	9	0.0
	10	12.0
	11	0.0
	12	1.3

Circuit No.	Pin No.	Voltage VDC
I401	1	1.2
	2	1.2
	3	5.0
	4	5.0
	5	5.0
	6	0.0
	7	5.0
	8	3.5
	9	—
	10	4.5
	11	5.0
	12	5.0
	13	1.2
	14	5.0
	15	0.3
	16	5.0
	17	0.6
	18	8.0
	19	5.0
	20	8.0
	21	5.0
	22	0.0
	23	7.0
	24	0.0
	25	0.0
	26	8.3
	27	5.0
	28	5.0

Circuit No.	Pin No.	Voltage VDC
I401	29	3.0
	30	3.0
	31	—
	32	9.5
	33	0.0
	34	3.8
	35	4.5
	36	0.5
	37	3.8
	38	4.2
	39	5.0
	40	4.0
	41	—
	42	5.0

Circuit No.	Pin No.	Voltage VDC
I402	1	12.0
	2	6.0
	3	6.0
	4	6.0
	5	6.0
	6	6.0
	7	0.0
	8	0.0
	9	6.0
	10	6.0
	11	6.0
	12	6.0

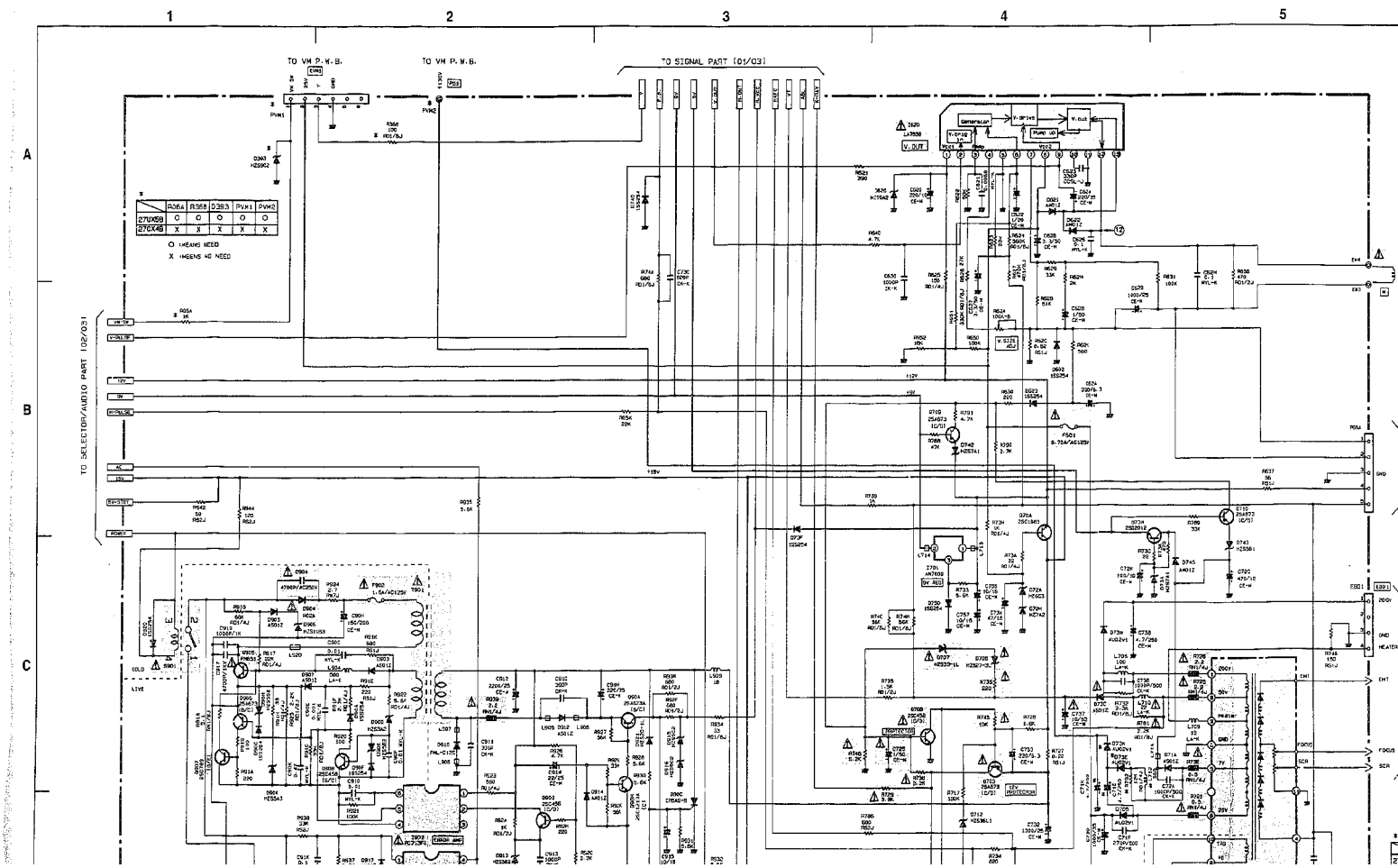
Circuit No.	Pin No.	Voltage VDC
I402	13	—
	14	6.0
	15	0.0
	16	9.0
	17	9.0
	18	—
	19	0.0
	20	2.2
	21	6.0
	22	6.0
	23	5.2
	24	6.0
	25	6.0
	26	6.0
	27	6.0
	28	6.0
	29	6.0
	30	6.0

Circuit No.	Pin No.	Voltage VDC
I404	1	6.0
	2	6.0
	3	6.0
	4	6.0
	5	6.0
	6	0.0
	7	0.0
	8	0.0
	9	9.5
	10	9.5
	11	6.0
	12	6.0
	13	6.0
	14	6.0
	15	6.0
	16	12.0

- Since this is a basic circuit diagram, the value of the parts is subject to be altered for improvement.
- All DC voltage to be measured with a tester (100kΩ/V). Voltage taken on a complex color bar signal including a standard color bar signal.

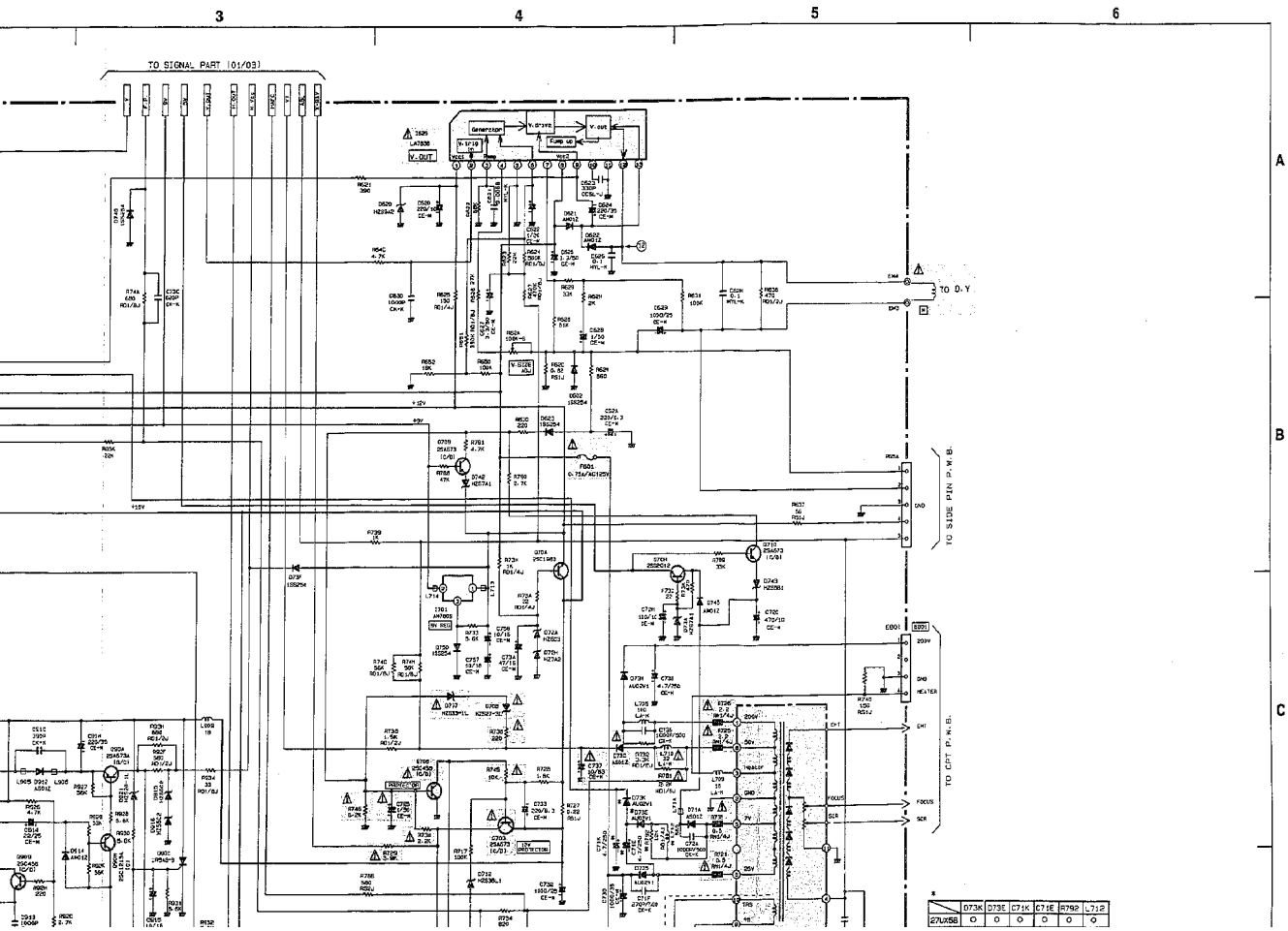
CIRCUIT SCHEMATIC DIAGRAM OF 27UX5B/C745, 27CX4B/C744

PRODUCT SAFETY NOTE: Components marked with a ⚠ and shad
any of these components, read carefully the PRODUCT SAFETY NOTI
through improper servicing.

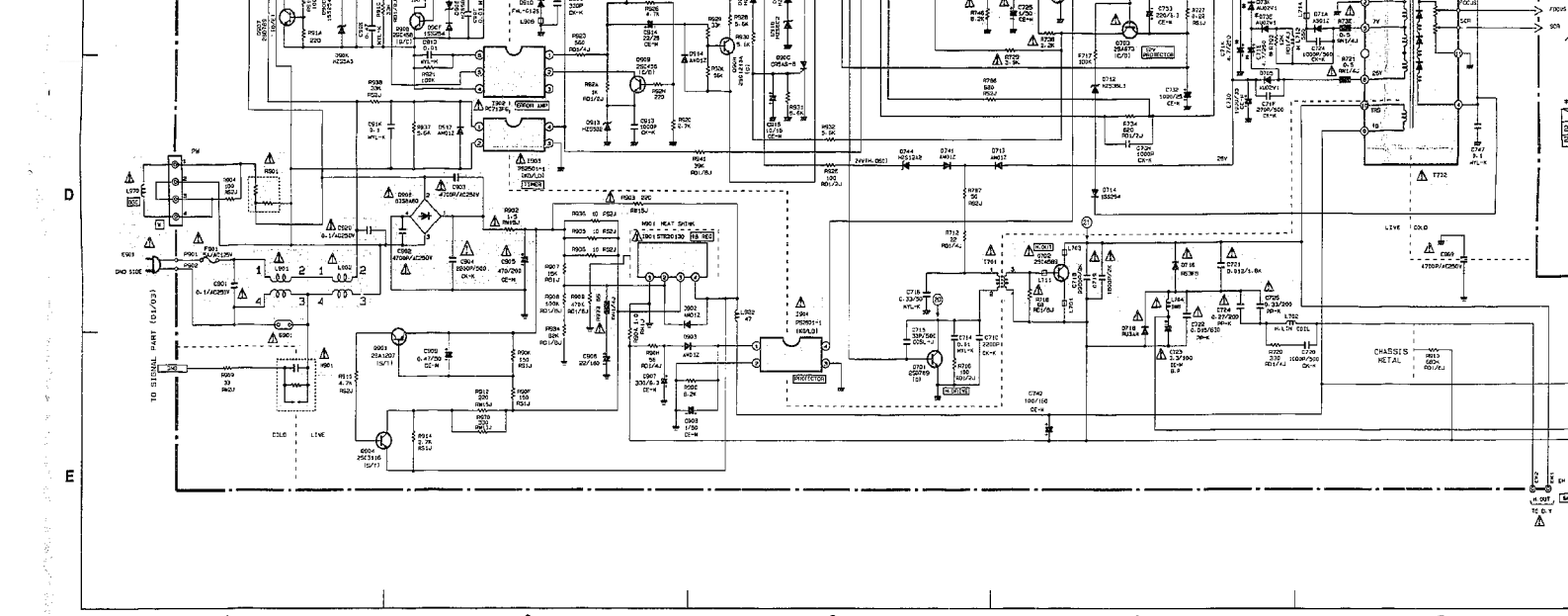


CIRCUIT SCHEMATIC DIAGRAM OF 27UX5B/C745, 27CX4B/C744

PRODUCT SAFETY NOTE: Components marked with a ⚠ and shaded have special characteristics important to safety. Before replacing any of these components, read carefully the PRODUCT SAFETY NOTICE of this Service Manual. Don't degrade the safety of the receiver through improper servicing.



*	D73K	D73E	C71K	C71E	R792	L712
27UX5B	O	O	O	O	O	O



- Since this is a basic circuit diagram, the value of the parts is subj
- All DC voltage to be measured with a tester (100kΩ/V). Voltage d

Circuit No.	Pin No.	Voltage VDC
I620	1	1.3
	2	0.9
	3	0.6
	4	0.5
	5	0.0
	6	0.6
	7	0.6
	8	5.0
	9	0.5
	10	0.5
	11	0.0
	12	2.5
	13	5.0

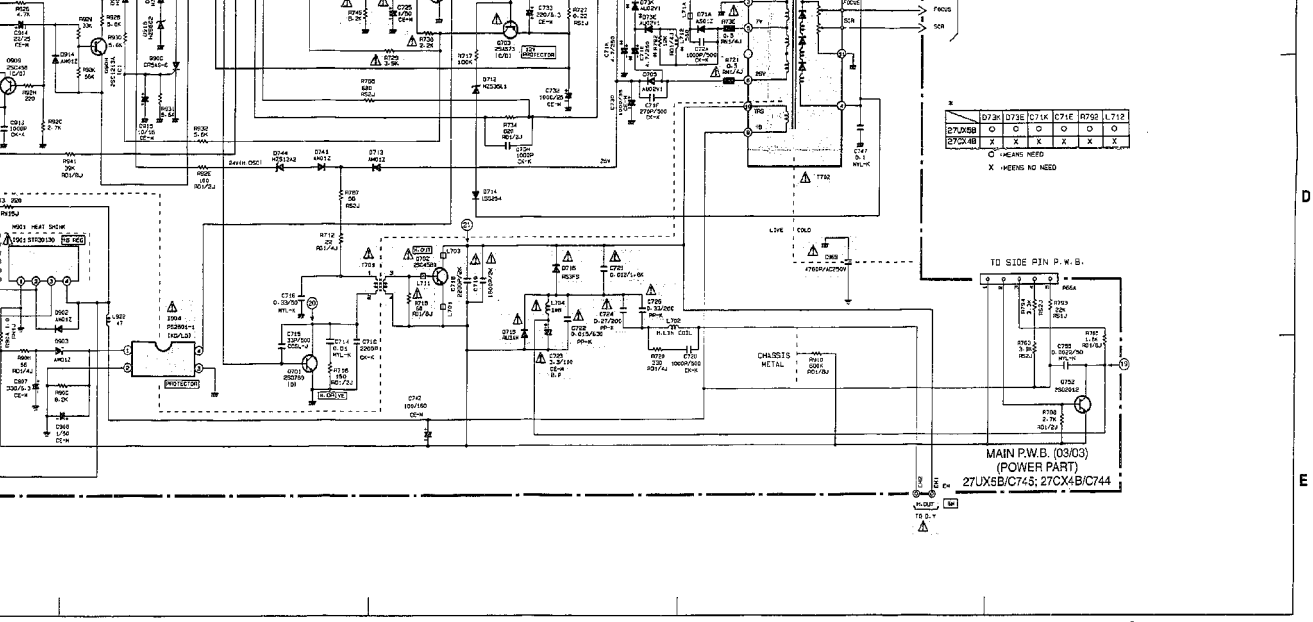
Circuit No.	Pin No.	Voltage VDC
I701	1	12.0
	2	9.0
	3	0.5

Circuit No.	Pin No.	Voltage VDC
I901	1	0.0
	2	130
	3	160
	4	130

Circuit No.	Pin No.	Voltage VDC
I902	1	14.0
	2	13.0
	3	—
	4	0.0
	5	2.0
	6	0.0

Circuit No.	Pin No.	Voltage VDC
I903	1	1.2
	2	0.5
	3	0.5
	4	0.0

Circuit No.	Pin No.	Voltage VDC
I904	1	-60.0
	2	-60.0
	3	0.0
	4	15.0



3 4 5 6

- Since this is a basic circuit diagram, the value of the parts is subject to be altered for improvement.
- All DC voltage to be measured with a tester (100kΩ/V). Voltage taken on a complex color bar signal including a standard color bar signal.

Circuit No.	Pin No.	Voltage VDC
I620	1	1.3
	2	0.9
	3	0.6
	4	0.5
	5	0.0
	6	0.6
	7	0.6
	8	5.0
	9	0.5
	10	0.5
	11	0.0
	12	2.5
	13	5.0

Circuit No.	Pin No.	Voltage VDC
I701	1	12.0
	2	9.0
	3	0.5

Circuit No.	Pin No.	Voltage VDC
I901	1	0.0
	2	130
	3	160
	4	130

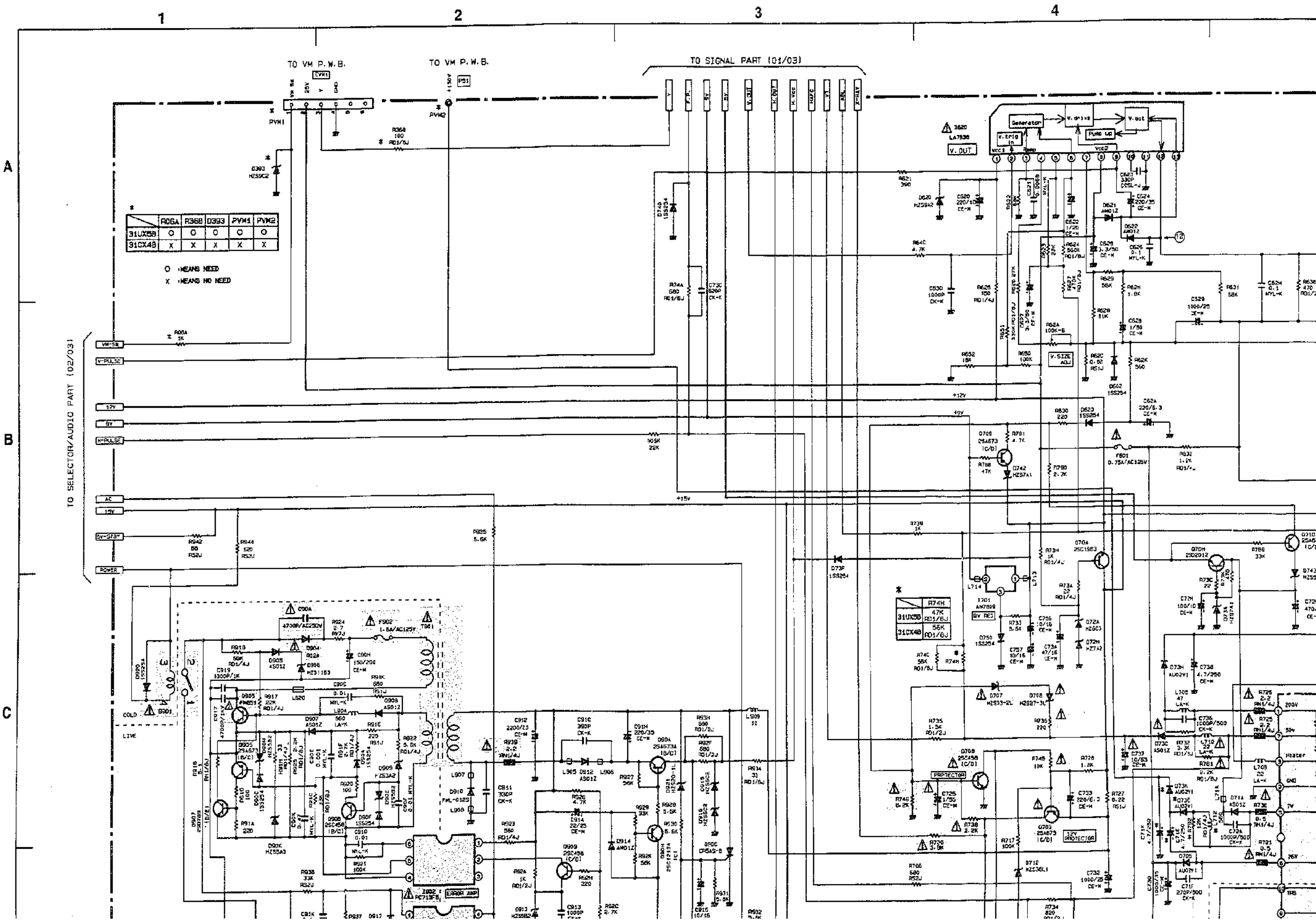
Circuit No.	Pin No.	Voltage VDC
I902	1	14.0
	2	13.0
	3	-----
	4	0.0
	5	2.0
	6	0.0

Circuit No.	Pin No.	Voltage VDC
I903	1	1.2
	2	0.5
	3	0.5
	4	0.0

Circuit No.	Pin No.	Voltage VDC
I904	1	-50.0
	2	-50.0
	3	0.0
	4	15.0

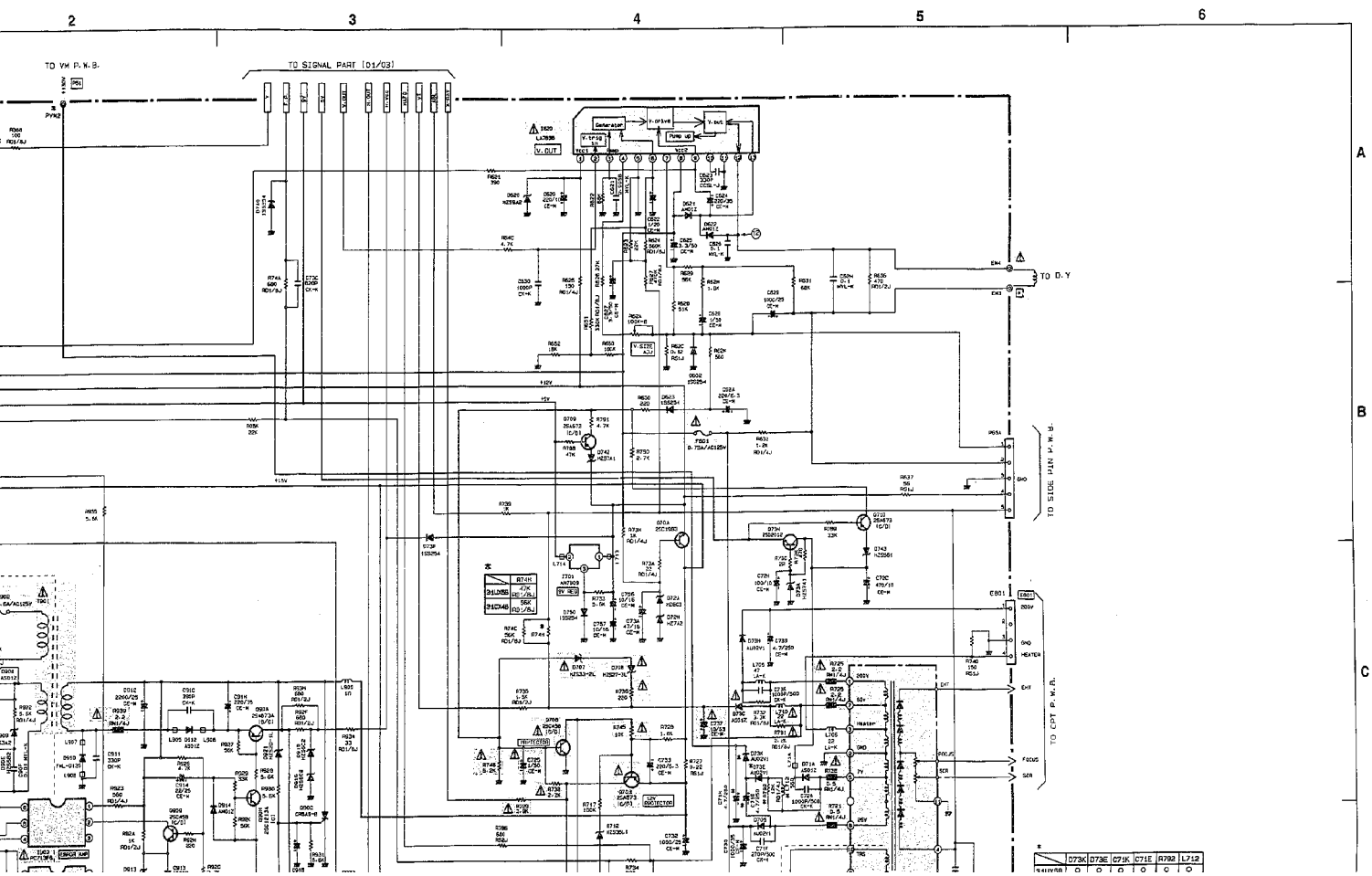
CIRCUIT SCHEMATIC DIAGRAM OF 31UX5B/CY45, 31CX4B/CY44

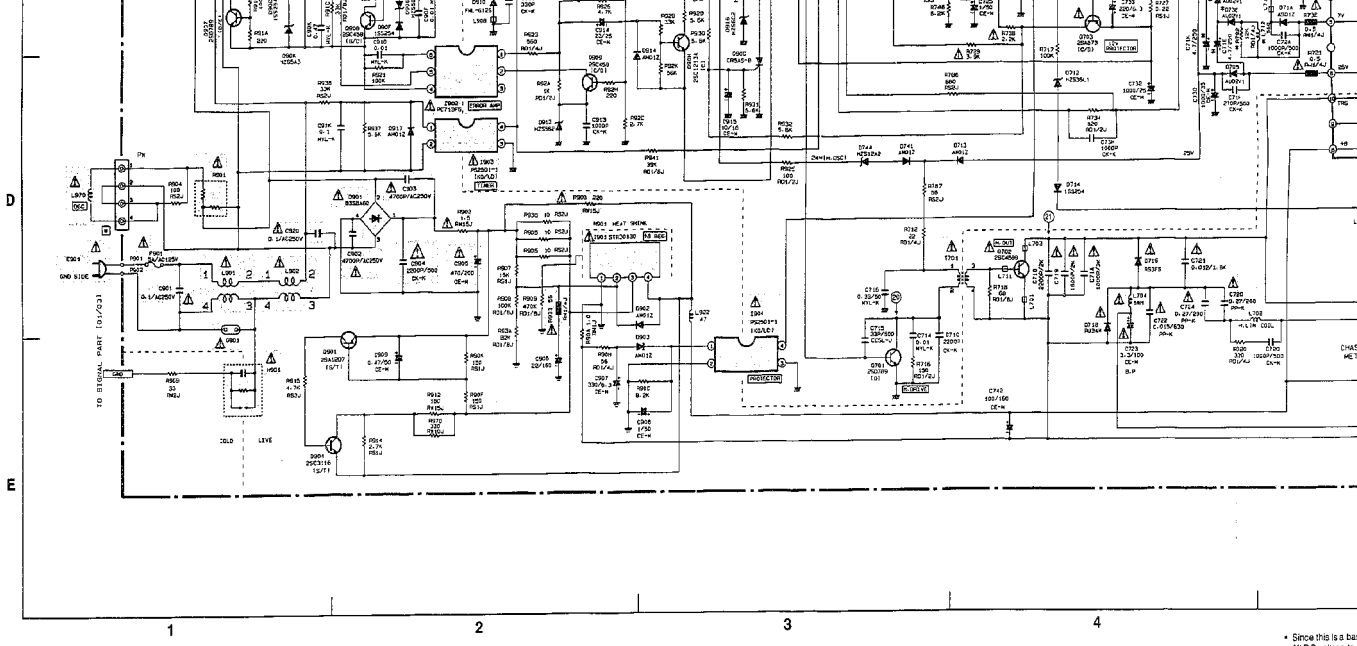
PRODUCT SAFETY NOTE
any of these components,
through improper servicing



CIRCUIT SCHEMATIC DIAGRAM OF 31UX5B/CY45, 31CX4B/CY44

PRODUCT SAFETY NOTE: Components marked with a ⚠ and shaded have special characteristics important to safety. Before replacing any of these components, read carefully the PRODUCT SAFETY NOTICE of this Service Manual. Don't degrade the safety of the receiver through improper servicing.





Circuit No.	Pin No.	Voltage VDC
I620	1	1.3
	2	0.9
	3	0.6
	4	0.5
	5	0.0
	6	0.6
	7	0.6
	8	5.0
	9	0.5
	10	0.5
	11	0.0
	12	2.5
	13	5.0

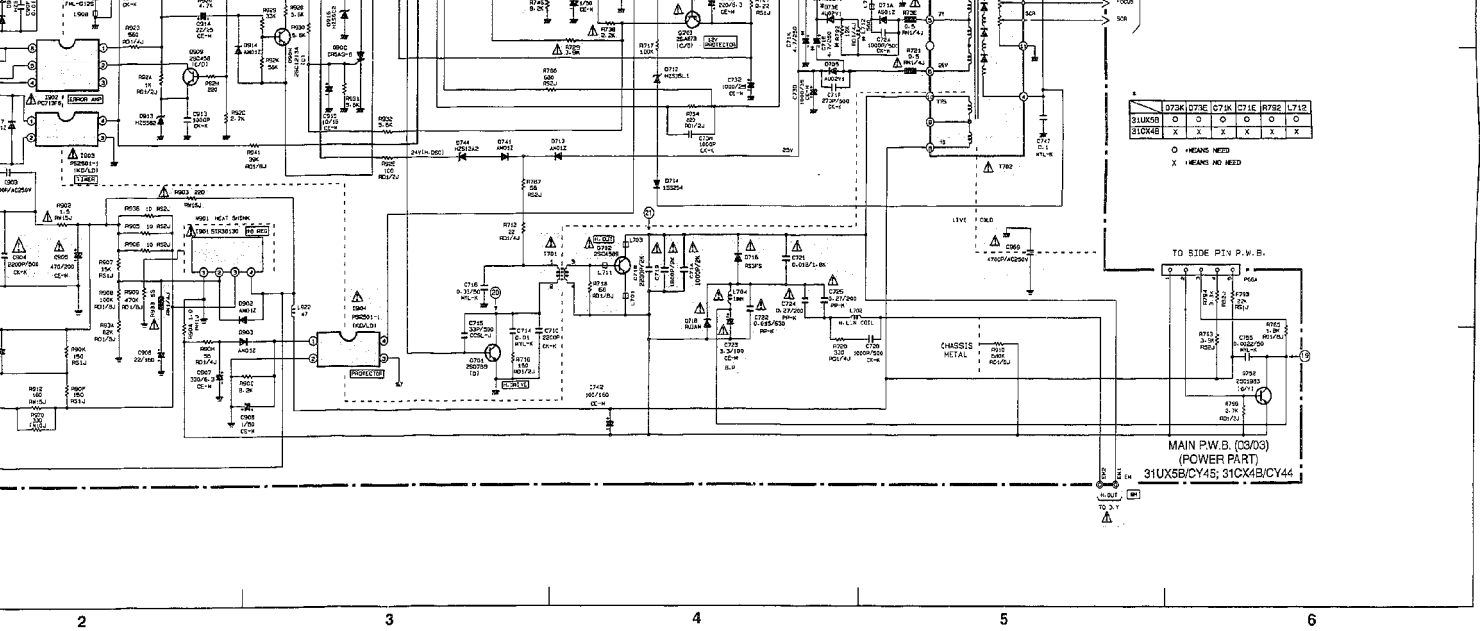
Circuit No.	Pin No.	Voltage VDC
I701	1	12.0
	2	9.0
	3	0.5

Circuit No.	Pin No.	Voltage VDC
I901	1	0.0
	2	130
	3	160
	4	130

Circuit No.	Pin No.	Voltage VDC
I902	1	14.0
	2	13.0
	3	
	4	0.0
	5	2.0
	6	0.0

Circuit No.	Pin No.	Voltage VDC
I903	1	1.2
	2	0.5
	3	0.5
	4	0.0

Circuit No.	Pin No.	Voltage VDC
I904	1	-60.0
	2	-60.0
	3	0.0
	4	15.0



	D73K	D73E	C71K	C71E	R792	L712
31UX5B	O	O	O	O	O	O
31CX4B	X	X	X	X	X	X

O : MEANS NEED
X : MEANS NO NEED

2 3 4 5 6

- Since this is a basic circuit diagram, the value of the parts is subject to be altered for improvement.
- All DC voltage to be measured with a tester (100kΩ/V). Voltage taken on a complex color bar signal including a standard color bar signal.

Circuit No.	Pin No.	Voltage VDC
I620	1	1.3
	2	0.9
	3	0.6
	4	0.5
	5	0.0
	6	0.6
	7	0.6
	8	5.0
	9	0.5
	10	0.5
	11	0.0
	12	2.5
	13	5.0

Circuit No.	Pin No.	Voltage VDC
I701	1	12.0
	2	9.0
	3	0.5

Circuit No.	Pin No.	Voltage VDC
I901	1	0.0
	2	130
	3	160
	4	130

Circuit No.	Pin No.	Voltage VDC
I902	1	14.0
	2	13.0
	3	—
	4	0.0
	5	2.0
	6	0.0

Circuit No.	Pin No.	Voltage VDC
I903	1	1.2
	2	0.5
	3	0.5
	4	0.0

Circuit No.	Pin No.	Voltage VDC
I904	1	-60.0
	2	-60.0
	3	0.0
	4	15.0

CIRCUIT SCHEMATIC DIAGRAM OF 27UX5B/C745, 27CX4B/C744, 31UX5B/CY45, 31CX4B/CY44

PRODUCT SAFETY NOTE: Components marked with a ⚠ and sh
any of those components, read carefully the PRODUCT SAFETY N
through improper servicing.

1 2 3 4 5

A B C

TO MAIN P. N. B.

	R651	R652	R657	R658	C632
27UX5B/C745	100K	100K	220K RD1/8J	680	0.0068 MYL-K
27CX4B/C744	100K	100K	180K RD1/8J	12K	0.0068 MYL-K
31UX5B/CY45	82K	82K	120K RD1/8J	22K	0.0047 MYL-K
31CX4B/CY44	82K	82K	180K RD1/8J	22K	0.0047 MYL-K

SIDE PIN P.W.B.
27UX5B/C745; 27CX4B/C744;
31UX5B/CY45; 31CX4B/CY44

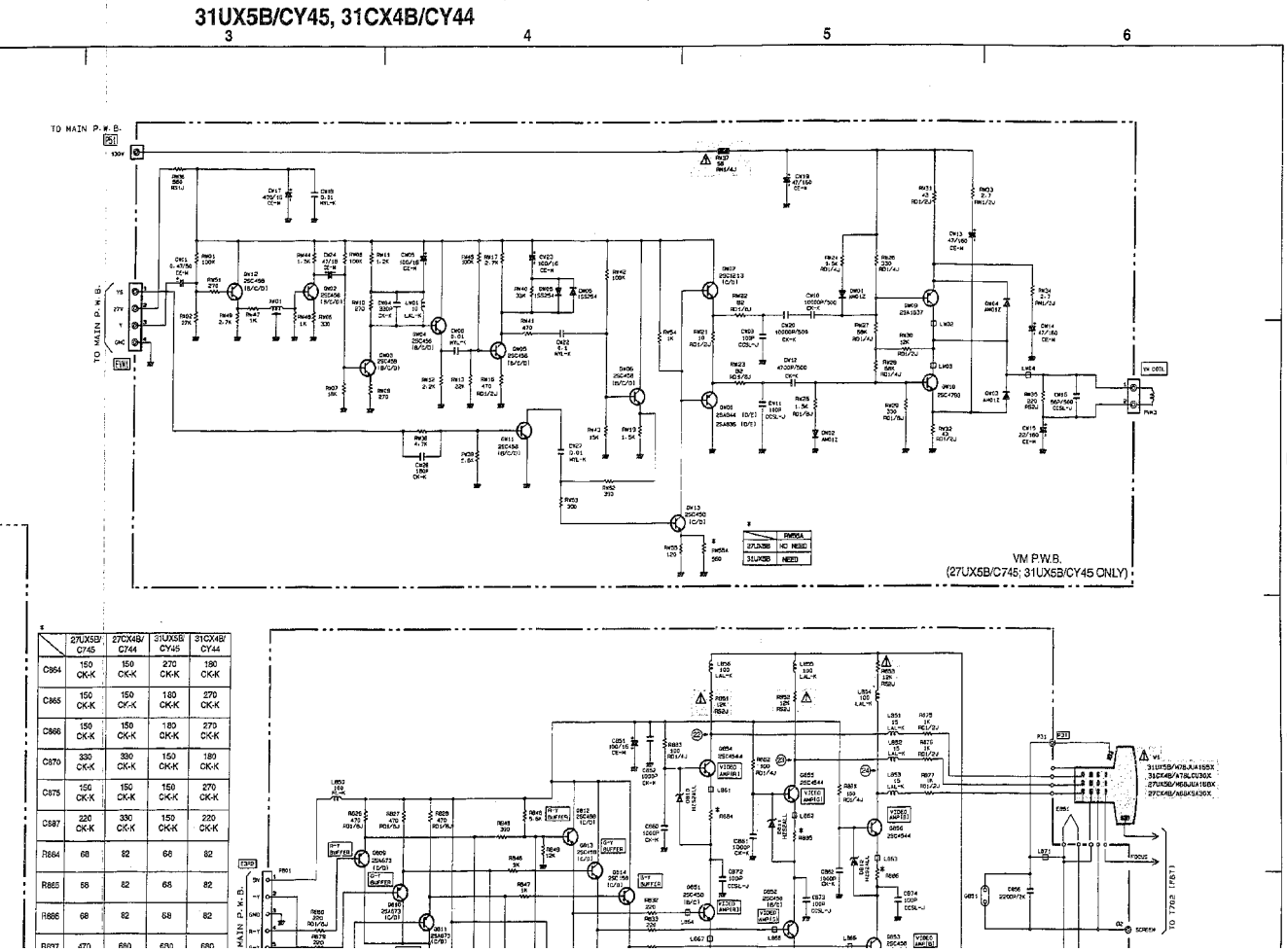
TO MAIN P. N. B.

	27UX5B/ C745	27CX4B/ C744	31UX5B/ CY45	31CX4B/ CY44
C864	150 CK-K	150 CK-K	270 CK-K	180 CK-K
C865	150 CK-K	150 CK-K	180 CK-K	270 CK-K
C866	150 CK-K	150 CK-K	180 CK-K	270 CK-K
C870	330 CK-K	330 CK-K	150 CK-K	180 CK-K
C875	150 CK-K	150 CK-K	150 CK-K	270 CK-K
C887	220 CK-K	330 CK-K	150 CK-K	220 CK-K
R884	68	82	68	82
R885	68	82	68	82
R886	68	82	68	82
R887	470	680	560	680

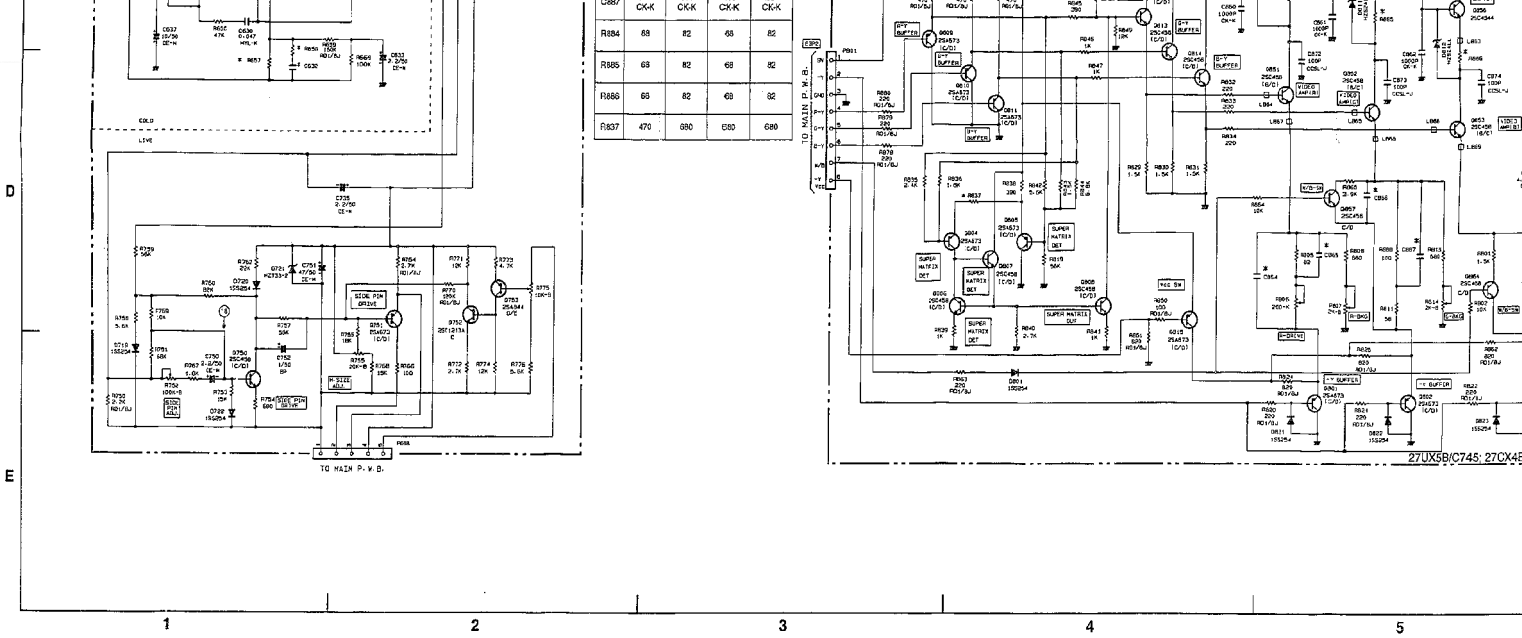
	RM56A
27UX5B	NO NEED
31UX5B	NEED

CIRCUIT SCHEMATIC DIAGRAM OF 27UX5B/C745, 27CX4B/C744, 31UX5B/CY45, 31CX4B/CY44

PRODUCT SAFETY NOTE: Components marked with a ⚠ and shaded have special characteristics important to safety. Before replacing any of these components, read carefully the PRODUCT SAFETY NOTICE of this Service Manual. Don't degrade the safety of the receiver through improper servicing.



	27UX5B/ C745	27CX4B/ C744	31UX5B/ CY45	31CX4B/ CY44
C864	150 CK-K	150 CK-K	270 CK-K	180 CK-K
C865	150 CK-K	150 CK-K	180 CK-K	270 CK-K
C866	150 CK-K	150 CK-K	180 CK-K	270 CK-K
C870	330 CK-K	330 CK-K	150 CK-K	180 CK-K
C875	150 CK-K	150 CK-K	150 CK-K	270 CK-K
C887	220 CK-K	330 CK-K	150 CK-K	220 CK-K
R864	68	82	68	82
R865	68	82	68	82
R866	68	82	68	82
R867	470	680	680	680



	CK-K	CK-K	CK-K	CK-K
R887				
R884	68	82	68	82
R885	68	82	68	82
R886	68	82	68	82
R837	470	680	680	680

Circuit No.	Pin No.	Voltage VDC
I621	1	5.0
	2	5.0
	3	5.0
	4	0.0
	5	5.7
	6	5.7
	7	6.2
	8	10.9

Circuit No.	Pin No.	Voltage VDC
I720	1	11.0
	2	9.6
	3	0.0
	4	-56.0
	5	-36.0

Circuit No.	Pin No.	Voltage VDC
Q403	B	12.0
	C	6.0
	E	12.0
Q404	B	2.4
	C	11.0
	E	1.7
Q405	B	0.5
	C	0.0
	E	0.0

Circuit No.	Pin No.	Voltage VDC
Q406	B	0.5
	C	0.0
	E	0.0
Q407	B	0.0
	C	15.0
	E	0.0
Q50C	B	0.0
	C	6.5
	E	0.0
Q601	B	5.2
	C	9.0
	E	4.5
Q602	B	0.0
	C	4.4
	E	0.0
Q603	B	5.0
	C	1.3
	E	4.5
Q70A	B	12.0
	C	15.0
	E	12.0

Circuit No.	Pin No.	Voltage VDC
Q70H	B	5.7
	C	7.5
	E	5.0
Q701	B	0.3
	C	17.0
	E	0.0
Q702	B	-60.0
	C	41.0
	E	-60.0
Q703	B	15.0
	C	0.0
	E	15.0
Q708	B	0.0
	C	15.0
	E	0.0
Q709	B	9.0
	C	0.0
	E	8.0
Q710	B	5.0
	C	0.0
	E	5.0
Q752 (27v)	B	-60.0
	C	-44.0
	E	-60.0
Q752 (31v)	B	-60.0
	C	-44.0
	E	-60.0
Q761	B	7.6
	C	9.0
	E	7.0

Circuit No.	Pin No.	Voltage VDC
Q90A	B	40.0
	C	11.0
	E	40.0
Q90C	B	0.0
	C	15.0
	E	0.0
Q90H	B	0.0
	C	40.0
	E	0.0
Q901	B	57.0
	C	57.0
	E	57.0
Q904	B	33.0
	C	34.0
	E	33.0
Q905	B	0.0
	C	122.0
	E	0.0
Q906	B	0.0
	C	0.5
	E	0.5
Q907	B	0.0
	C	0.5
	E	0.0
Q908	B	0.0
	C	2.0
	E	0.0
Q909	B	5.6
	C	12.0
	E	5.5

Circuit No.	Pin No.	Voltage VDC
Q650 Side P.	B	6.5
	C	9.8
	E	5.6
Q750 Side P.	B	-60.0
	C	-50.0
	E	-60.0
Q751 Side P.	B	-41.0
	C	-60.0
	E	-41.0
Q752 Side P.	B	-60.0
	C	-35.0
	E	-60.0
Q753 Side P.	B	-35.0
	C	-60.0
	E	-35.0
Q801 CPT	B	4.0
	C	0.0
	E	4.0
Q802 CPT	B	3.8
	C	0.0
	E	3.9
Q803 CPT	B	4.0
	C	0.0
	E	4.0
Q804 CPT	B	6.0
	C	1.4
	E	6.4
Q805 CPT	B	5.8
	C	0.0
	E	6.5

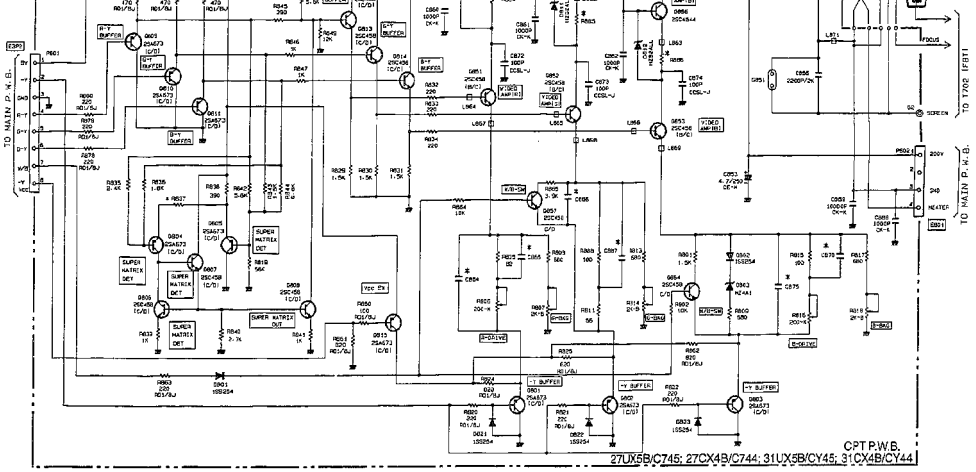
Circuit No.	Pin No.	Voltage VDC
Q806 CPT	B	0.7
	C	1.4
	E	0.0
Q807 CPT	B	1.3
	C	9.0
	E	0.6
Q808 CPT	B	0.9
	C	6.0
	E	0.0
Q809 CPT	B	5.0
	C	0.0
	E	6.0
Q810 CPT	B	5.0
	C	0.0
	E	6.0
Q811 CPT	B	5.0
	C	0.0
	E	6.0
Q812 CPT	B	6.0
	C	9.0
	E	5.0
Q813 CPT	B	6.0
	C	9.0
	E	5.0
Q814 CPT	B	0.9
	C	9.0
	E	0.9
Q815 CPT	B	5.0
	C	3.9
	E	3.9

Circuit No.	Pin No.	Voltage VDC
Q851 CPT	B	5.0
	C	8.0
	E	5.0
Q852 CPT	B	5.0
	C	7.6
	E	4.7
Q853 CPT	B	5.0
	C	8.0
	E	5.0
Q854 CPT	B	1.5
	C	26.0
	E	1.5
Q855 CPT	B	1.2
	C	24.0
	E	1.2
Q856 CPT	B	1.2
	C	24.0
	E	1.2
Q857 CPT	B	4.5
	C	3.9
	E	3.9
Q864 CPT	B	4.6
	C	4.0
	E	4.0
QW02 VM	B	2.5
	C	2.0
	E	0.0
QW03 VM	B	0.0
	C	1.3
	E	0.0

Circuit No.
QW04 VM
QW05 VM
QW06 VM
QW07 VM
QW08 VM
QW09 VM
QW10 VM
QW11 VM
QW12 VM
QW13 VM

• Since this is a basic circuit diagram, the value of the parts is su
• All DC voltage to be measured with a tester (100kΩ/V). Voltage

C887	CK-K	CK-K	CK-K	CK-K
R834	68	82	68	82
R835	68	82	68	82
R836	68	82	68	82
R837	470	680	680	680



- Since this is a basic circuit diagram, the value of the parts is subject to be altered for improvement.
- All DC voltage to be measured with a tester (100KΩ/V). Voltage taken on a complex color bar signal including a standard color bar signal.

Circuit No.	Pin No.	Voltage VDC
Q406	B	0.5
	C	0.0
	E	0.0
Q407	B	0.0
	C	15.0
	E	0.0
Q50C	B	0.0
	C	6.5
	E	0.0
Q601	B	5.2
	C	9.0
	E	4.5
Q602	B	0.0
	C	4.4
	E	0.0
Q603	B	5.0
	C	1.3
	E	4.5
Q70A	B	12.0
	C	15.0
	E	12.0

Circuit No.	Pin No.	Voltage VDC
Q70H	B	5.7
	C	7.5
	E	5.0
Q701	B	0.3
	C	17.0
	E	0.0
Q702	B	-60.0
	C	41.0
	E	-60.0
Q703	B	15.0
	C	0.0
	E	15.0
Q708	B	0.0
	C	15.0
	E	0.0
Q709	B	9.0
	C	0.0
	E	8.0
Q710	B	5.0
	C	0.0
	E	5.0
Q752 (27v)	B	-60.0
	C	-44.0
	E	-60.0
Q752 (31v)	B	-60.0
	C	-44.0
	E	-60.0
Q761	B	7.6
	C	9.0
	E	7.0

Circuit No.	Pin No.	Voltage VDC
Q90A	B	40.0
	C	11.0
	E	40.0
Q90C	B	0.0
	C	15.0
	E	0.0
Q90H	B	0.0
	C	40.0
	E	0.0
Q901	B	57.0
	C	57.0
	E	57.0
Q904	B	33.0
	C	34.0
	E	33.0
Q905	B	0.0
	C	122.0
	E	0.0
Q906	B	0.0
	C	0.5
	E	0.5
Q907	B	0.0
	C	0.5
	E	0.0
Q908	B	0.0
	C	2.0
	E	0.0
Q909	B	5.5
	C	12.0
	E	5.5

Circuit No.	Pin No.	Voltage VDC
Q650 Side P.	B	6.5
	C	9.8
	E	5.6
Q750 Side P.	B	-60.0
	C	-60.0
	E	-60.0
Q751 Side P.	B	-41.0
	C	-60.0
	E	-41.0
Q752 Side P.	B	-60.0
	C	-35.0
	E	-60.0
Q753 Side P.	B	-35.0
	C	-60.0
	E	-35.0
Q801 CPT	B	4.0
	C	0.0
	E	4.0
Q802 CPT	B	3.8
	C	0.0
	E	3.9
Q803 CPT	B	4.0
	C	0.0
	E	4.0
Q804 CPT	B	6.0
	C	1.4
	E	6.4
Q805 CPT	B	5.8
	C	0.0
	E	6.5

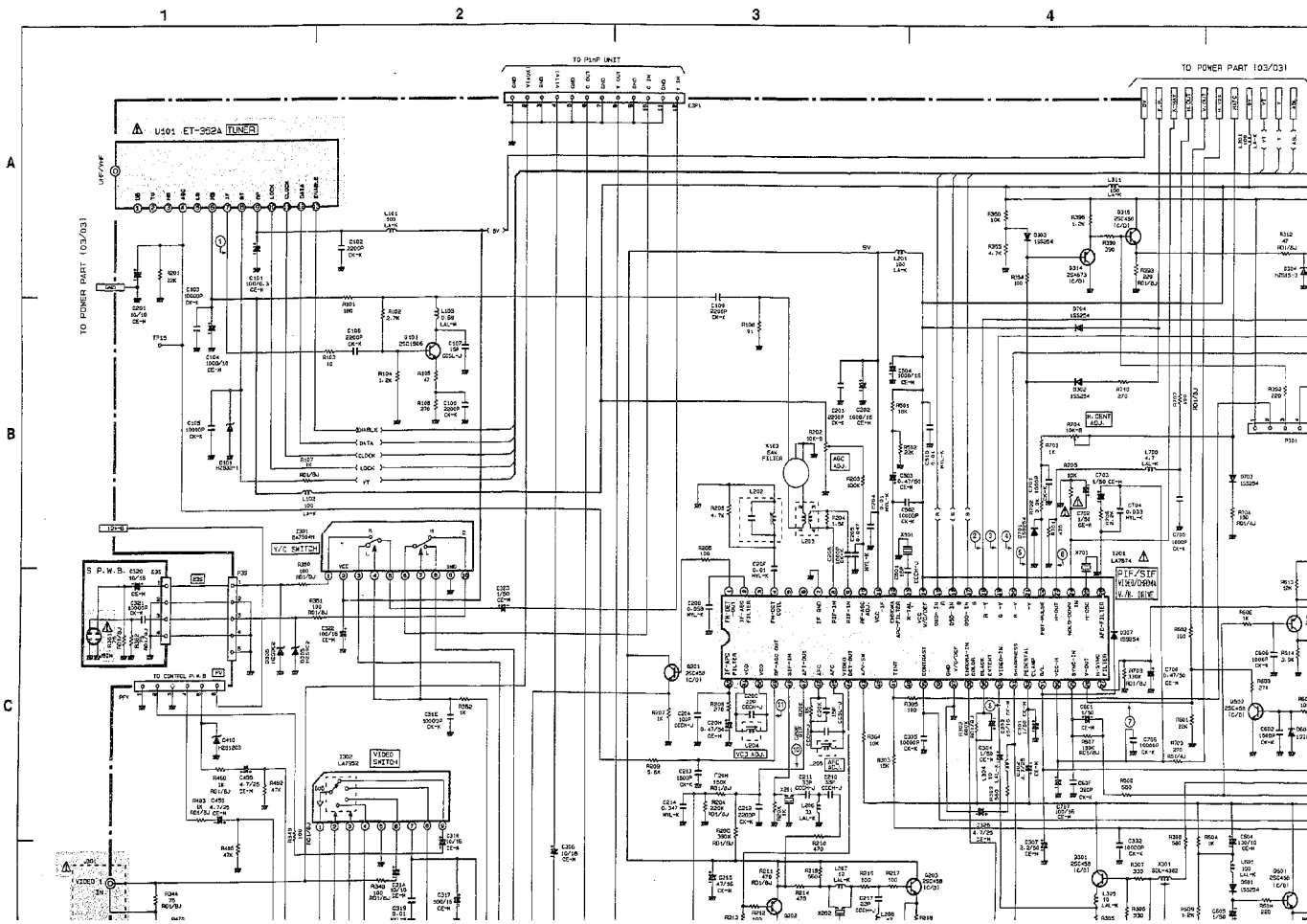
Circuit No.	Pin No.	Voltage VDC
Q806 CPT	B	0.7
	C	1.4
	E	0.0
Q807 CPT	B	1.3
	C	9.0
	E	0.6
Q808 CPT	B	0.9
	C	6.0
	E	0.0
Q809 CPT	B	5.0
	C	0.0
	E	6.0
Q810 CPT	B	5.0
	C	0.0
	E	6.0
Q811 CPT	B	5.0
	C	0.0
	E	6.0
Q812 CPT	B	6.0
	C	9.0
	E	5.0
Q813 CPT	B	6.0
	C	9.0
	E	5.0
Q814 CPT	B	0.9
	C	9.0
	E	0.9
Q815 CPT	B	5.0
	C	3.9
	E	3.9

Circuit No.	Pin No.	Voltage VDC
Q851 CPT	B	5.0
	C	8.0
	E	5.0
Q852 CPT	B	5.0
	C	7.6
	E	4.7
Q853 CPT	B	5.0
	C	8.0
	E	5.0
Q854 CPT	B	1.5
	C	26.0
	E	1.5
Q855 CPT	B	1.2
	C	24.0
	E	1.2
Q856 CPT	B	1.2
	C	24.0
	E	1.2
Q857 CPT	B	4.5
	C	3.9
	E	3.9
Q864 CPT	B	4.6
	C	4.0
	E	4.0
QW02 VM	B	2.5
	C	2.0
	E	0.0
QW03 VM	B	0.0
	C	1.3
	E	0.0

Circuit No.	Pin No.	Voltage VDC
QW04 VM	B	1.5
	C	2.0
	E	0.2
QW05 VM	B	2.0
	C	5.5
	E	1.5
QW06 VM	B	1.7
	C	14.0
	E	1.0
QW07 VM	B	10.0
	C	14.0
	E	10.0
QW08 VM	B	10.0
	C	0.0
	E	10.0
QW09 VM	B	138.0
	C	11.0
	E	138.0
QW10 VM	B	0.3
	C	11.5
	E	0.0
QW11 VM	B	0.0
	C	0.0
	E	0.0
QW12 VM	B	0.5
	C	2.0
	E	0.0
QW13 VM	B	1.0
	C	10.0
	E	0.3

CIRCUIT SCHEMATIC DIAGRAM OF 35TX10B/CZ41

PRODUCT SAFETY NOT
any of these components,
through improper servicing



CIRCUIT SCHEMATIC DIAGRAM OF 35TX10B/CZ41

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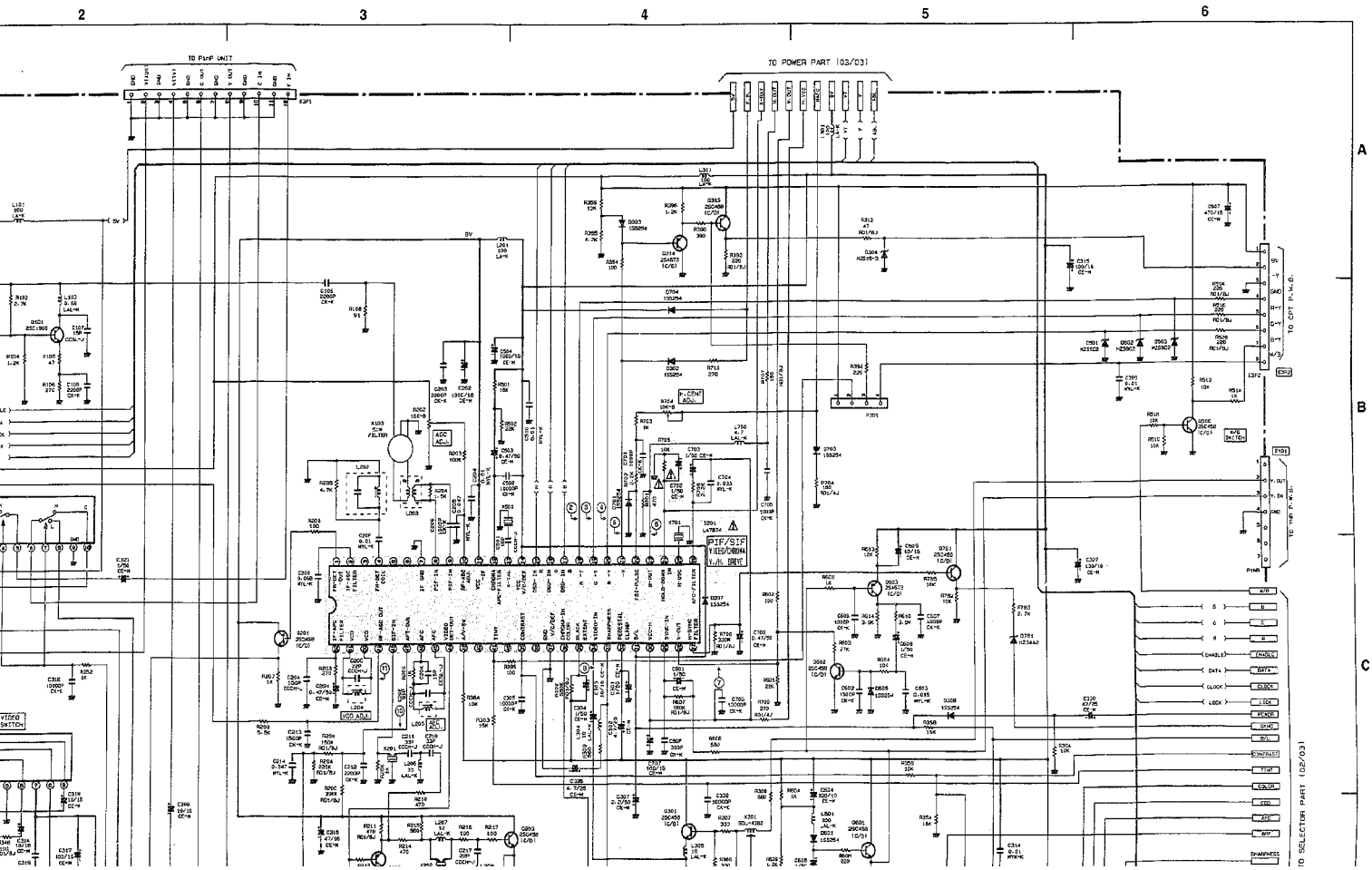
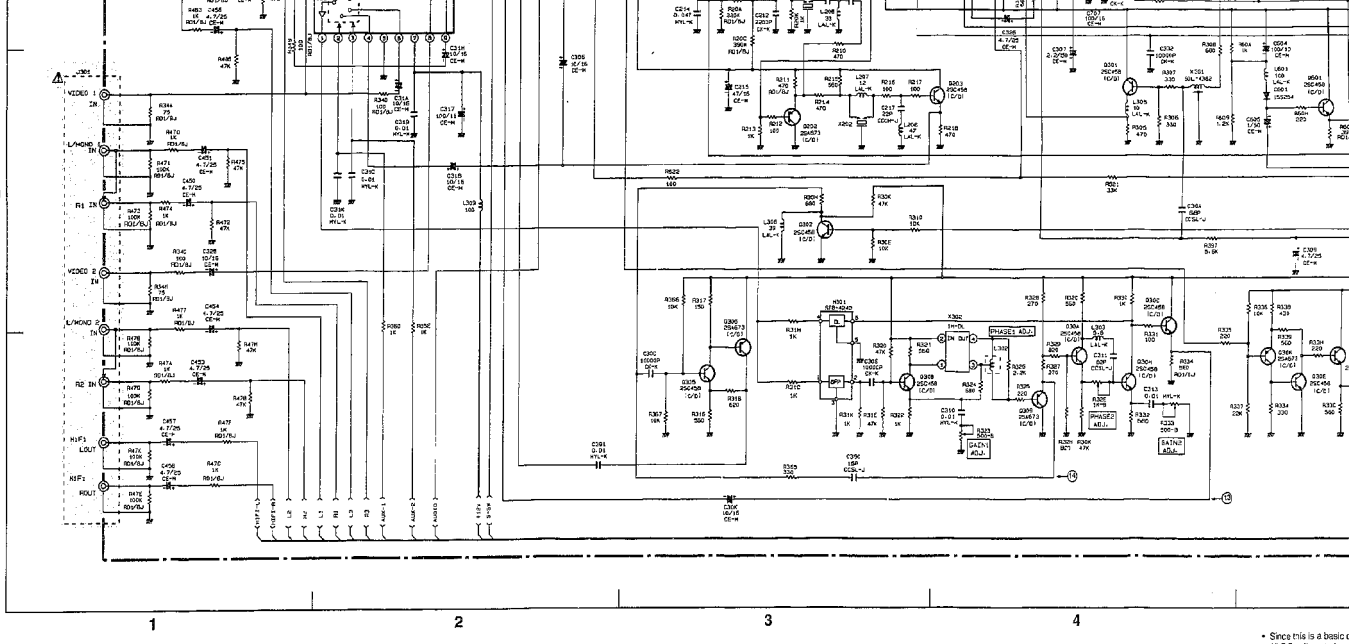




Circuit No.	Pin No.	Voltage VDC
I201	1	4.4
	2	6.8
	3	5.6
	4	5.6
	5	4.3
	6	4.0
	7	0.0
	8	4.5
	9	4.5
	10	5.8
	11	8.8
	12	5.6
	13	5.4
	14	8.9
	15	0.0
	16	0.0
	17	0.0
	18	5.0
	19	5.0
	20	5.0
	21	4.0
	22	0.4
	23	0.4
	24	0.0
	25	5.0
	26	5.7
	27	7.6
	28	4.5

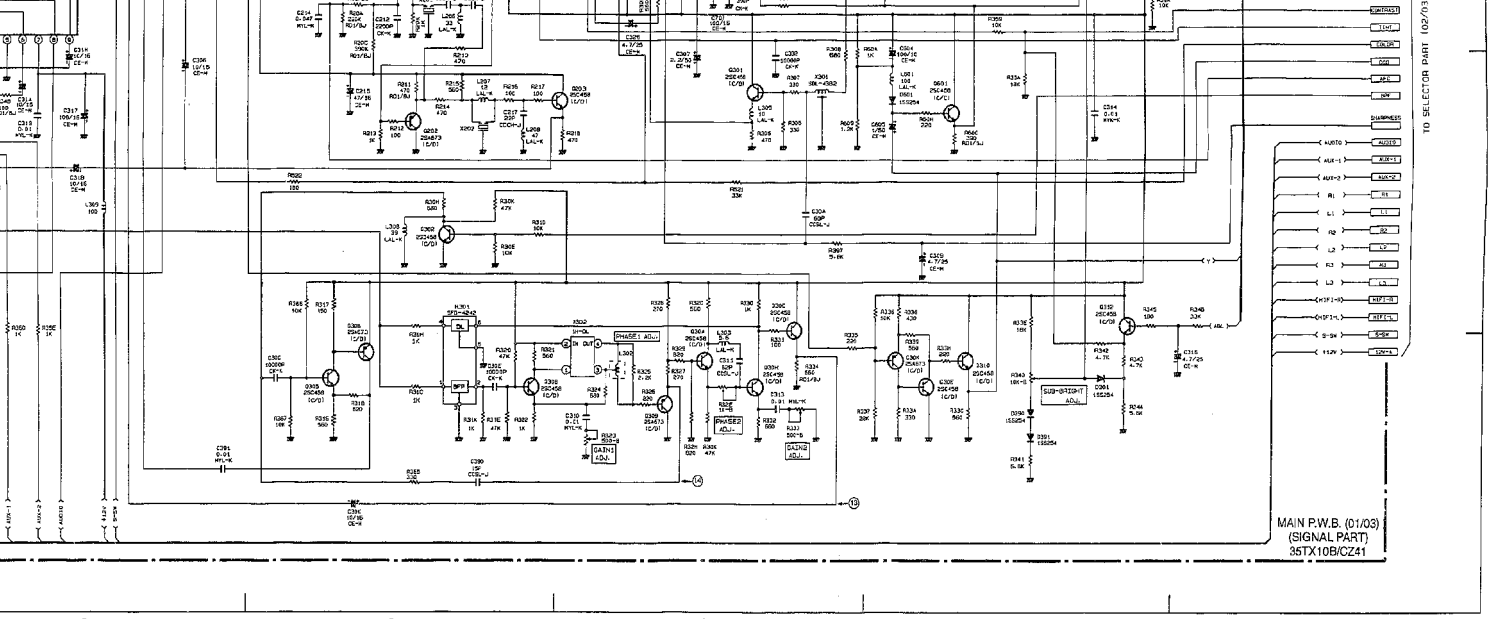
Circuit No.	Pin No.	Voltage VDC
I201	29	7.0
	30	7.6
	31	4.4
	32	2.7
	33	5.9
	34	4.3
	35	4.2
	36	4.8
	37	0.0
	38	3.5
	39	7.0
	40	4.8
	41	4.1
	42	4.5
	43	8.9
	44	3.2
	45	3.0
	46	3.0
	47	3.3
	48	3.7
	49	1.9
	50	7.9
	51	7.9
	52	4.8

Circuit No.	Pin No.	Voltage VDC
I301	1	2.3
	2	5.0
	3	2.5
	4	0.4
	5	1.7
	6	1.7
	7	0.4
	8	2.5
	9	0.0
	10	2.5

Circuit No.	Pin No.	Voltage VDC
I302	1	6.7
	2	9.4
	3	9.4
	4	3.5
	5	0.0
	6	3.1
	7	11.8
	8	3.1
	9	3.1

Circuit No.	Pin No.	Voltage VDC
Q001	B	0.7
	C	0.0
	E	0.0
Q002	B	0.0
	C	5.0
	E	0.0
Q003	B	0.0
	C	4.2
	E	0.0
Q004	B	5.0
	C	5.0
	E	5.0
Q005	B	0.7
	C	0.0
	E	0.0
Q006	B	0.5
	C	2.0
	E	0.0
Q008	B	0.5
	C	2.8
	E	0.0
Q009	B	0.0
	C	5.0
	E	0.0
Q101	B	2.3
	C	7.5
	E	1.6
Q201	B	4.4
	C	9.0
	E	3.7

Circuit No.	Pin No.	Voltage VDC
Q202	B	3.2
	C	0.0
	E	3.9
Q203	B	6.0
	C	9.0
	E	5.5
Q30A	B	3.0
	C	7.0
	E	2.0
Q30C	B	6.6
	C	9.0
	E	6.0
Q30E	B	0.7
	C	5.0
	E	0.0
Q30H	B	2.3
	C	6.6
	E	1.6
Q30K	B	6.0
	C	0.7
	E	7.0
Q301	B	1.5
	C	9.0
	E	0.5
Q302	B	0.5
	C	0.0
	E	0.0
Q303	B	0.0
	C	2.7
	E	0.0



2 3 4 5 6

- Since this is a basic circuit diagram, the value of the parts is subject to be altered for improvement.
- All DC voltage to be measured with a tester (100kΩ/V). Voltage taken on a complex color bar signal including a standard color bar signal.

Circuit No.	Pin No.	Voltage VDC
I201	1	4.4
	2	6.8
	3	5.6
	4	5.6
	5	4.3
	6	4.0
	7	0.0
	8	4.5
	9	4.5
	10	5.8
	11	6.8
	12	5.6
	13	5.4
	14	8.9
	15	0.0
	16	0.0
	17	0.0
	18	5.0
	19	5.0
	20	5.0
	21	4.0
	22	0.4
	23	0.4
	24	0.0
	25	5.0
	26	5.7
	27	7.6
	28	4.5

Circuit No.	Pin No.	Voltage VDC
I201	29	7.0
	30	7.6
	31	4.4
	32	2.7
	33	5.9
	34	4.3
	35	4.2
	36	4.8
	37	0.0
	38	3.5
	39	7.0
	40	4.8
	41	4.1
	42	4.8
	43	8.9
	44	3.2
	45	3.0
	46	3.0
	47	3.3
	48	3.7
	49	1.9
	50	7.9
	51	7.9
	52	4.8

Circuit No.	Pin No.	Voltage VDC
I301	1	2.3
	2	5.0
	3	2.5
	4	0.4
	5	1.7
	6	1.7
	7	0.4
	8	2.5
	9	0.0
	10	2.5

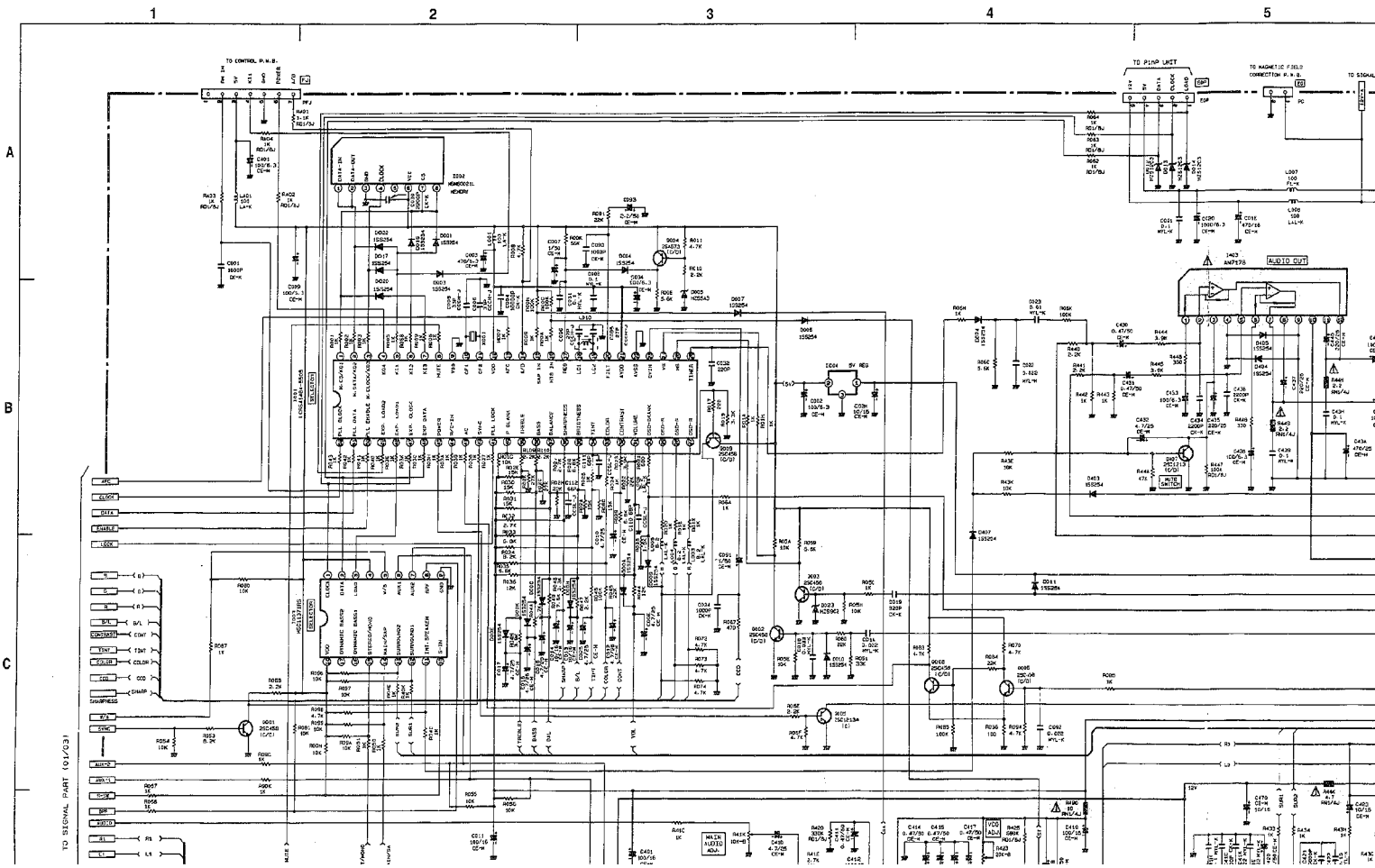
Circuit No.	Pin No.	Voltage VDC
I302	1	6.7
	2	9.4
	3	9.4
	4	3.5
	5	0.0
	6	3.1
	7	11.6
	8	3.1
	9	3.1

Circuit No.	Pin No.	Voltage VDC
Q001	B	0.7
	C	0.0
	E	0.0
Q002	B	0.0
	C	5.0
	E	0.0
Q003	B	0.0
	C	4.2
	E	0.0
Q004	B	5.0
	C	5.0
	E	5.0
Q005	B	0.7
	C	0.0
	E	0.0
Q005	B	0.5
	C	2.0
	E	0.0
Q008	B	0.5
	C	2.8
	E	0.0
Q009	B	0.0
	C	5.0
	E	0.0
Q101	B	2.3
	C	7.5
	E	1.6
Q201	B	4.4
	C	9.0
	E	3.7

Circuit No.	Pin No.	Voltage VDC
Q202	B	3.2
	C	0.0
	E	3.9
Q203	B	6.0
	C	9.0
	E	5.5
Q30A	B	3.0
	C	7.0
	E	2.0
Q30C	B	6.6
	C	9.0
	E	6.0
Q30E	B	0.7
	C	5.0
	E	0.0
Q30H	B	2.3
	C	6.6
	E	1.6
Q30K	B	6.0
	C	0.7
	E	7.0
Q301	B	1.5
	C	9.0
	E	0.5
Q302	B	0.5
	C	0.0
	E	0.0
Q303	B	0.0
	C	2.7
	E	0.0

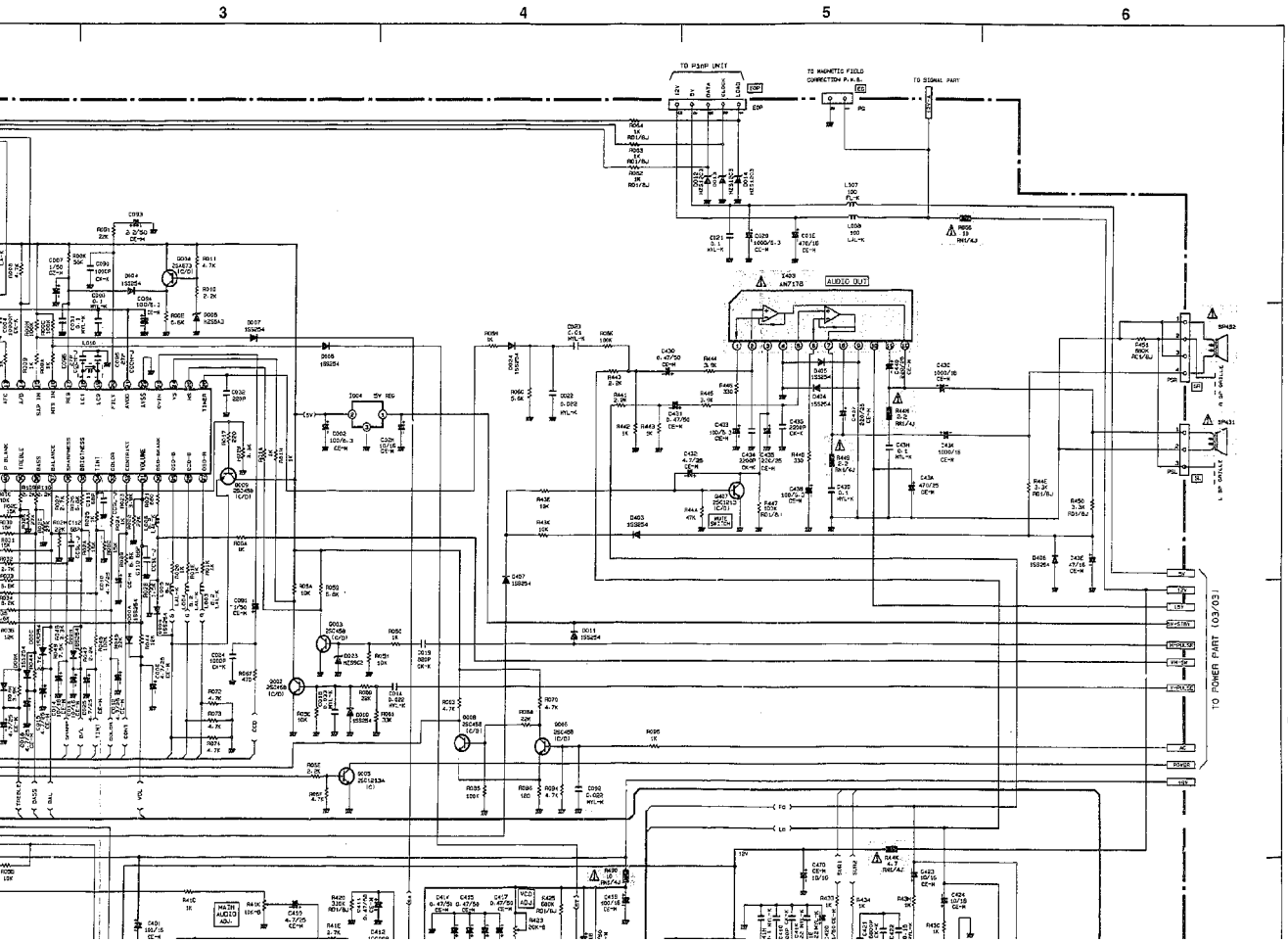
CIRCUIT SCHEMATIC DIAGRAM OF 35TX10B/CZ41

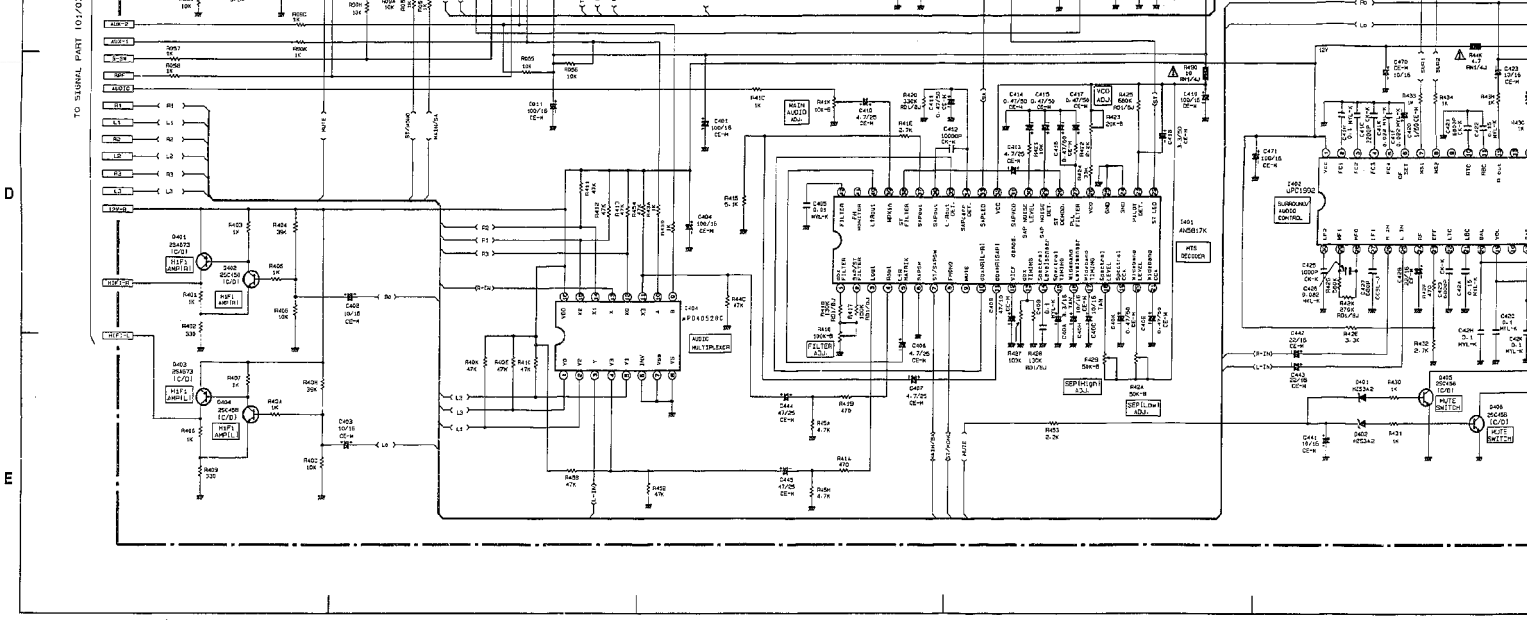
PRODUCT SAFETY NOTE: Components markec with a ⚠ and stu
any of these components, read carefully the PRODUCT SAFETY NO
through improper servicing.



CIRCUIT SCHEMATIC DIAGRAM OF 35TX10B/CZ41

PRODUCT SAFETY NOTE: Components marked with a ⚠ and shaded have special characteristics important to safety. Before replacing any of these components, read carefully the PRODUCT SAFETY NOTICE of this Service Manual. Don't degrade the safety of the receiver through improper servicing.





Circuit No.	Pin No.	Voltage VDC
I001	1	5.0
	2	5.0
	3	5.0
	4	5.0
	5	12mv
	6	12mv
	7	12mv
	8	-3mv
	9	0.0
	10	2.5
	11	2.5
	12	5.0
	13	2.2
	14	5.0
	15	0.5
	16	0.5
	17	5.0
	18	2.3
	19	2.3
	20	2.5
	21	5.0
	22	0.0
	23	3.0
	24	5.0
	25	4.2
	26	0.0
	27	0.0
	28	0.0

Circuit No.	Pin No.	Voltage VDC
I001	29	0.0
	30	0.0
	31	42mv
	32	7.0
	33	4.4
	34	3.0
	35	2.3
	36	4.1
	37	1.5
	38	1.8
	39	1.8
	40	47mv
	41	120mv
	42	65mv
	43	2.3
	44	5.0
	45	5.0
	46	5.0
	47	0.3
	48	2.5mv
	49	5mv
	50	180mv
	51	5.0
	52	5.0

Circuit No.	Pin No.	Voltage VDC
I002	1	5.0
	2	5.0
	3	0.0
	4	5.0
	5	5.0
	6	5.0
	7	5.0
	8	5.0

Circuit No.	Pin No.	Voltage VDC
I003	1	0.3
	2	5.0
	3	2.4mv
	4	5.0
	5	1.5mv
	6	9.5
	7	9.5
	8	0.0
	9	0.0
	10	1.2mv
	11	3.5mv
	12	0.0
	13	0.0
	14	5.0
	15	9.5
	16	----
	17	----
	18	5.0

Circuit No.	Pin No.	Voltage VDC
I004	1	15.0
	2	5.0
	3	0.0

Circuit No.	Pin No.	Voltage VDC
I403	1	5.3
	2	9.9
	3	15.0
	4	0.0
	5	10.5
	6	5.8
	7	1.3
	8	0.0
	9	0.0
	10	12.0
	11	0.0
	12	1.3

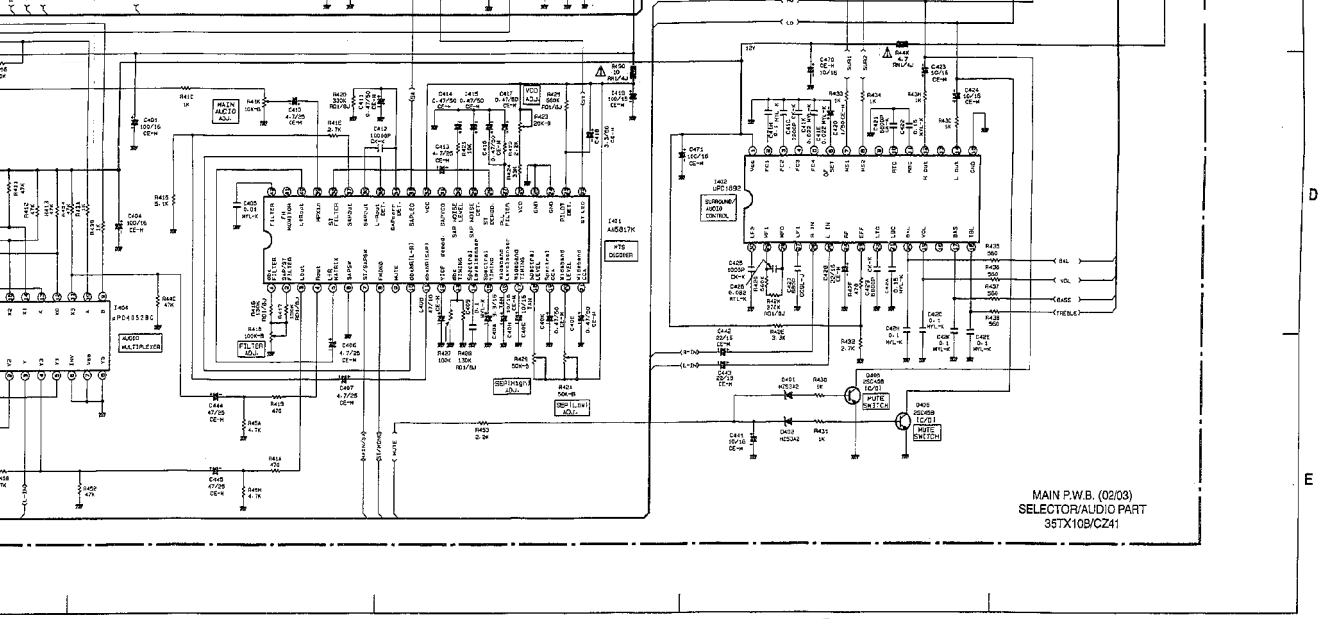
Circuit No.	Pin No.	Voltage VDC
I401	1	1.2
	2	1.2
	3	5.0
	4	5.0
	5	5.0
	6	0.0
	7	5.0
	8	3.5
	9	----
	10	4.5
	11	5.0
	12	5.0
	13	1.2
	14	5.0
	15	0.3
	16	5.0
	17	0.6
	18	8.0
	19	5.0
	20	8.0
	21	5.0
	22	0.0
	23	7.0
	24	0.0
	25	0.0
	26	8.3
	27	5.0
	28	5.0
	29	3.0

Circuit No.	Pin No.	Voltage VDC
I401	30	3.0
	31	----
	32	9.5
	33	0.0
	34	3.8
	35	4.5
	36	0.5
	37	3.8
	38	4.2
	39	5.0
	40	4.0
	41	----
	42	5.0

Circuit No.	Pin No.	Voltage VDC
I402	1	12.0
	2	6.0
	3	6.0
	4	6.0
	5	6.0
	6	6.0
	7	0.0
	8	0.0
	9	5.0
	10	6.0
	11	6.0
	12	6.0
	13	----
	14	6.0
	15	0.0
	16	3.0
	17	3.0
	18	----
	19	0.0
	20	2.2
	21	6.0
	22	6.0
	23	5.2
	24	6.0
	25	6.0
	26	6.0
	27	6.0
	28	6.0
	29	6.0
	30	6.0

Circuit No.
I404

• Since this is a basic circuit diagram, the value of the parts is sub
• All DC voltage to be measured with a tester (100kΩ/V). Voltage t



MAIN P.W.B. (02/03)
SELECTOR/AUDIO PART
35TX10B/CZ41

3 4 5 6

- Since this is a basic circuit diagram, the value of the parts is subject to be altered for improvement.
- All DC voltage to be measured with a tester (100kΩ/V). Voltage taken on a complex color bar signal including a standard color bar signal.

Circuit No.	Pin No.	Voltage VDC
I001	29	0.0
	30	0.0
	31	42mv
	32	7.0
	33	4.4
	34	3.0
	35	2.3
	36	4.1
	37	1.5
	38	1.8
	39	1.8
	40	47mv
	41	120mv
	42	85mv
	43	2.3
	44	5.0
	45	5.0
	46	5.0
	47	0.9
	48	2.5mv
	49	5mv
	50	180mv
	51	5.0
	52	5.0

Circuit No.	Pin No.	Voltage VDC
I002	1	5.0
	2	5.0
	3	0.0
	4	5.0
	5	5.0
	6	5.0
	7	5.0
	8	5.0

Circuit No.	Pin No.	Voltage VDC
I003	1	0.3
	2	5.0
	3	2.4mv
	4	5.0
	5	1.5mv
	6	9.5
	7	9.5
	8	0.0
	9	0.0
	10	1.2mv
	11	3.5mv
	12	0.0
	13	0.0
	14	5.0
	15	3.5
	16	—
	17	—
	18	5.0

Circuit No.	Pin No.	Voltage VDC
I004	1	15.0
	2	5.0
	3	0.0

Circuit No.	Pin No.	Voltage VDC
I403	1	5.3
	2	9.9
	3	15.0
	4	0.0
	5	10.5
	6	5.8
	7	1.3
	8	0.0
	9	0.0
	10	12.0
	11	0.0
	12	1.3

Circuit No.	Pin No.	Voltage VDC
I401	1	1.2
	2	1.2
	3	5.0
	4	5.0
	5	5.0
	6	0.0
	7	5.0
	8	3.5
	9	—
	10	4.5
	11	5.0
	12	5.0
	13	1.2
	14	5.0
	15	0.3
	16	5.0
	17	0.6
	18	8.0
	19	5.0
	20	8.0
	21	5.0
	22	0.0
	23	7.0
	24	0.0
	25	0.0
	26	8.3
	27	5.0
	28	5.0
	29	3.0

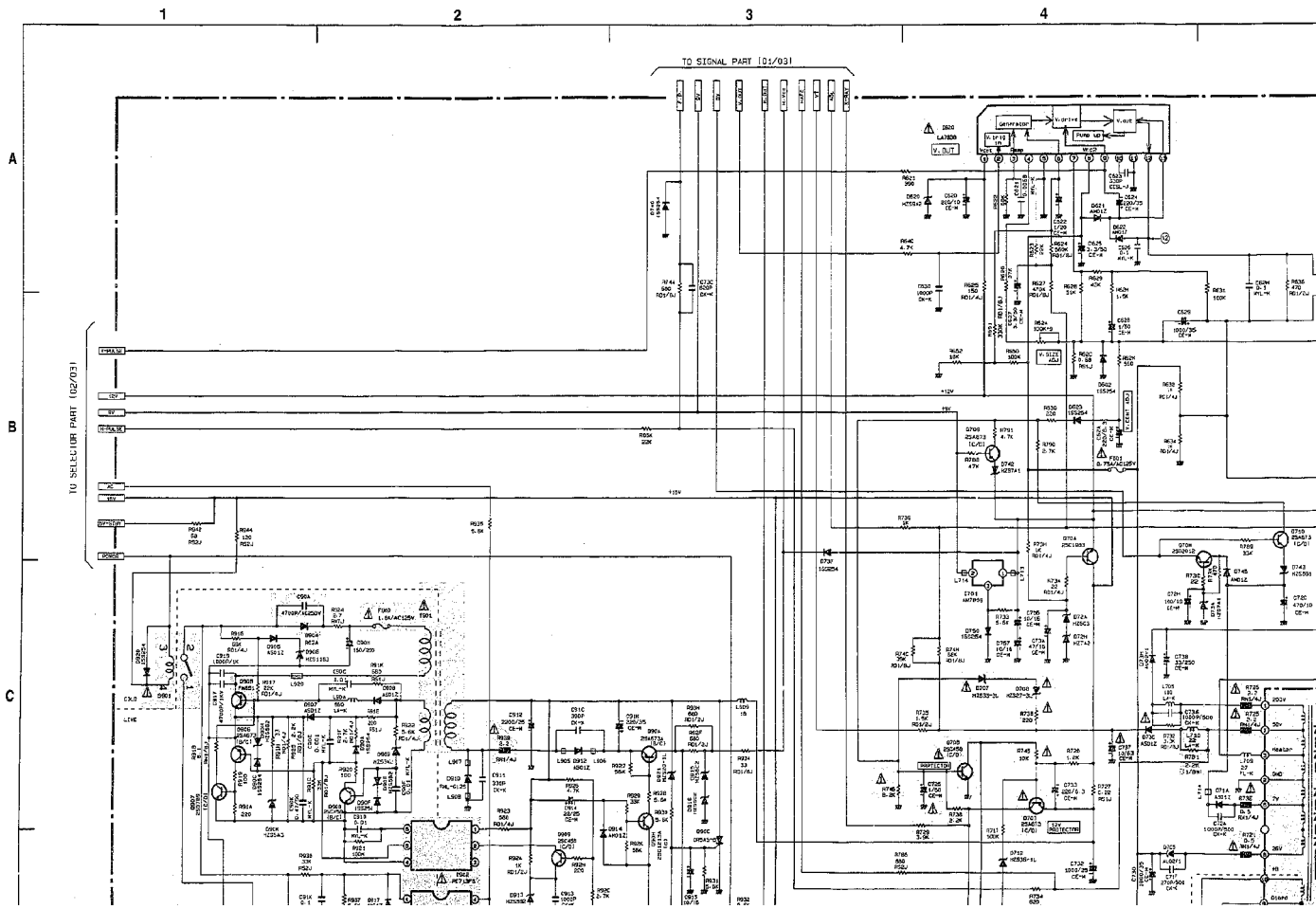
Circuit No.	Pin No.	Voltage VDC
I401	30	3.0
	31	—
	32	9.5
	33	0.0
	34	3.8
	35	4.5
	36	0.5
	37	0.8
	38	4.2
	39	5.0
	40	4.0
	41	—
	42	5.0

Circuit No.	Pin No.	Voltage VDC
I402	1	12.0
	2	6.0
	3	6.0
	4	6.0
	5	6.0
	6	6.0
	7	0.0
	8	0.0
	9	6.0
	10	6.0
	11	6.0
	12	6.0
	13	—
	14	6.0
	15	0.0
	16	3.0
	17	3.0
	18	—
	19	0.0
	20	2.2
	21	6.0
	22	6.0
	23	5.2
	24	6.0
	25	6.0
	26	6.0
	27	6.0
	28	6.0
	29	6.0
	30	6.0

Circuit No.	Pin No.	Voltage VDC
I404	1	6.0
	2	6.0
	3	6.0
	4	6.0
	5	6.0
	6	0.0
	7	0.0
	8	0.0
	9	9.5
	10	9.5
	11	6.0
	12	6.0
	13	6.0
	14	6.0
	15	6.0
	16	12.0

CIRCUIT SCHEMATIC DIAGRAM OF 35TX10B/CZ41

PRODUCT SAFETY NOTE: C
any of these components, rea
through improper servicing.



CIRCUIT SCHEMATIC DIAGRAM OF 35TX10B/CZ41

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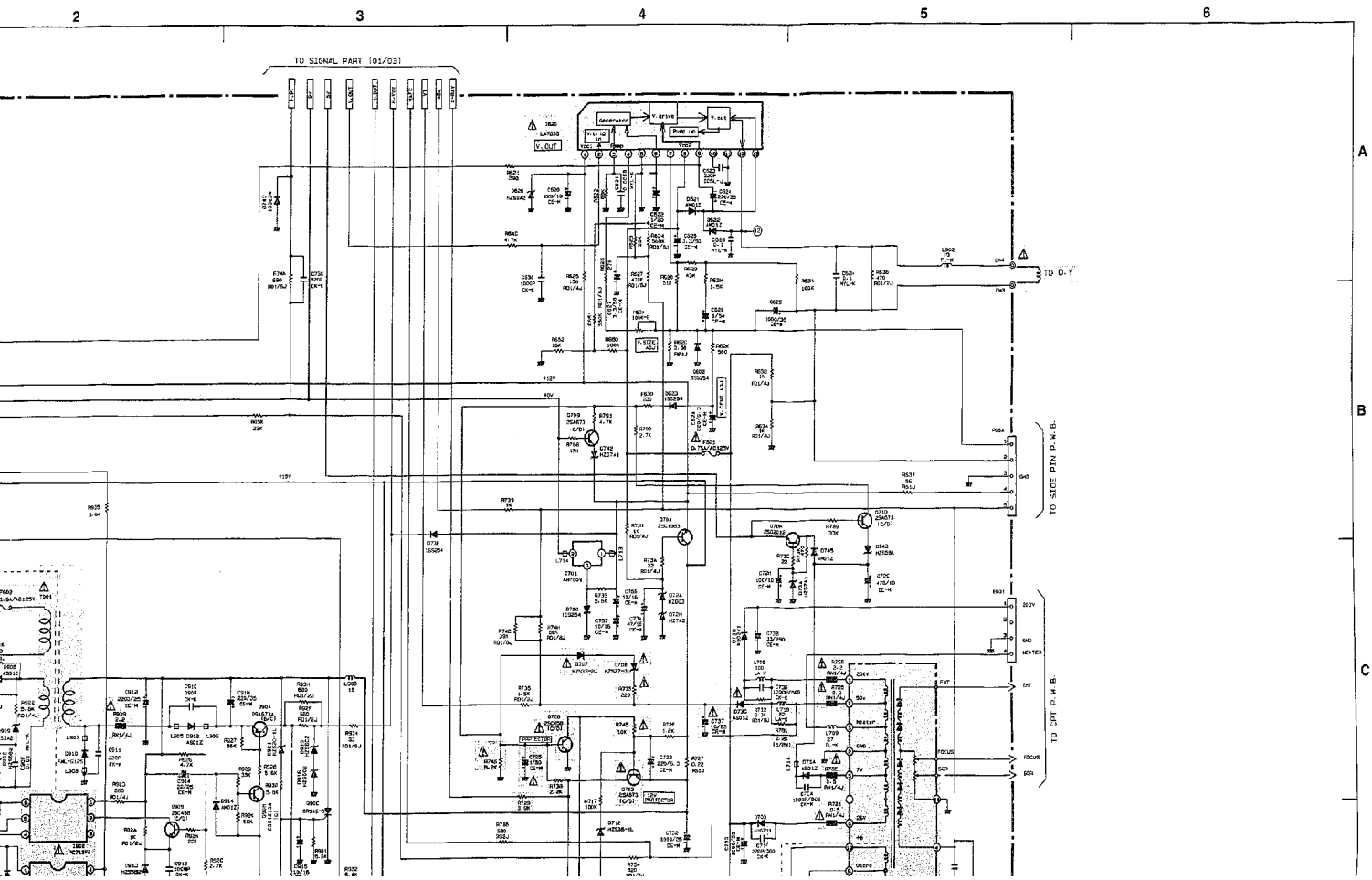
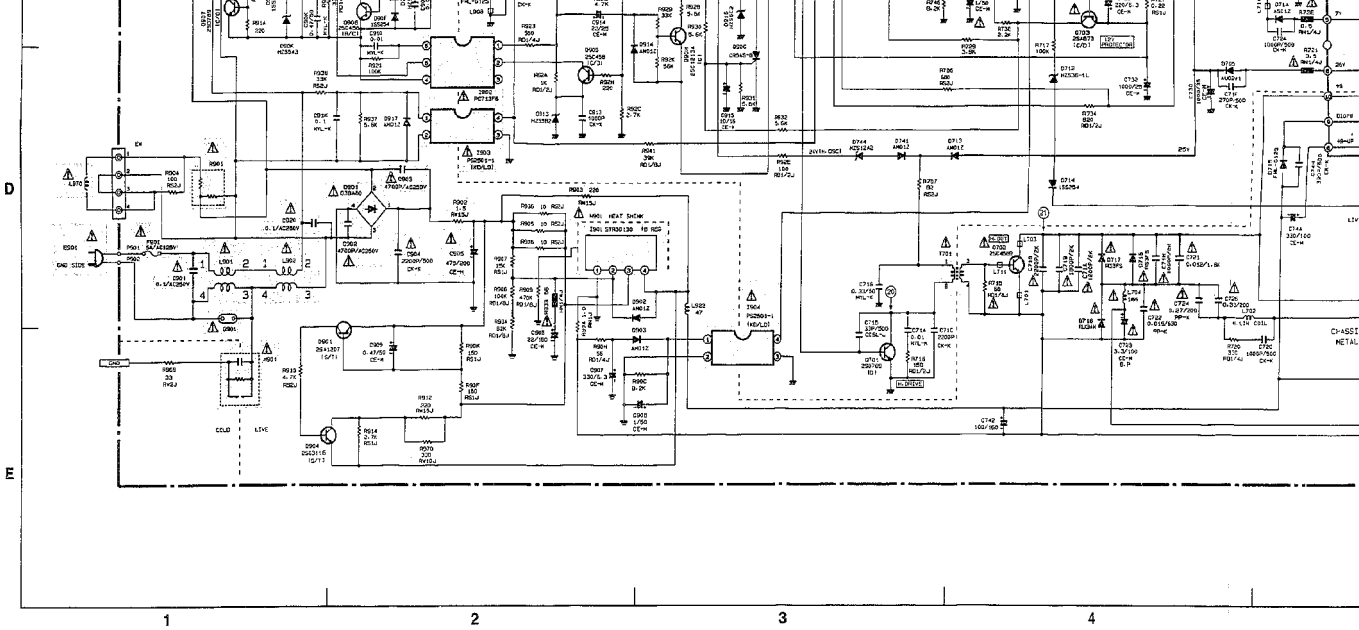




Circuit No.	Pin No.	Voltage VDC
I620	1	1.3
	2	0.9
	3	0.6
	4	0.5
	5	0.0
	6	0.6
	7	0.6
	8	5.0
	9	0.5
	10	0.5
	11	0.0
	12	2.5
	13	5.0

Circuit No.	Pin No.	Voltage VDC
I701	1	12.0
	2	9.0
	3	0.5

Circuit No.	Pin No.	Voltage VDC
I901	1	0.0
	2	190
	3	160
	4	130

Circuit No.	Pin No.	Voltage VDC
I902	1	14.0
	2	13.0
	3	—
	4	0.0
	5	2.0
	6	0.0

Circuit No.	Pin No.	Voltage VDC
I903	1	1.2
	2	0.5
	3	0.5
	4	0.0

Circuit No.	Pin No.	Voltage VDC
I904	1	-60.0
	2	-60.0
	3	0.0
	4	15.0

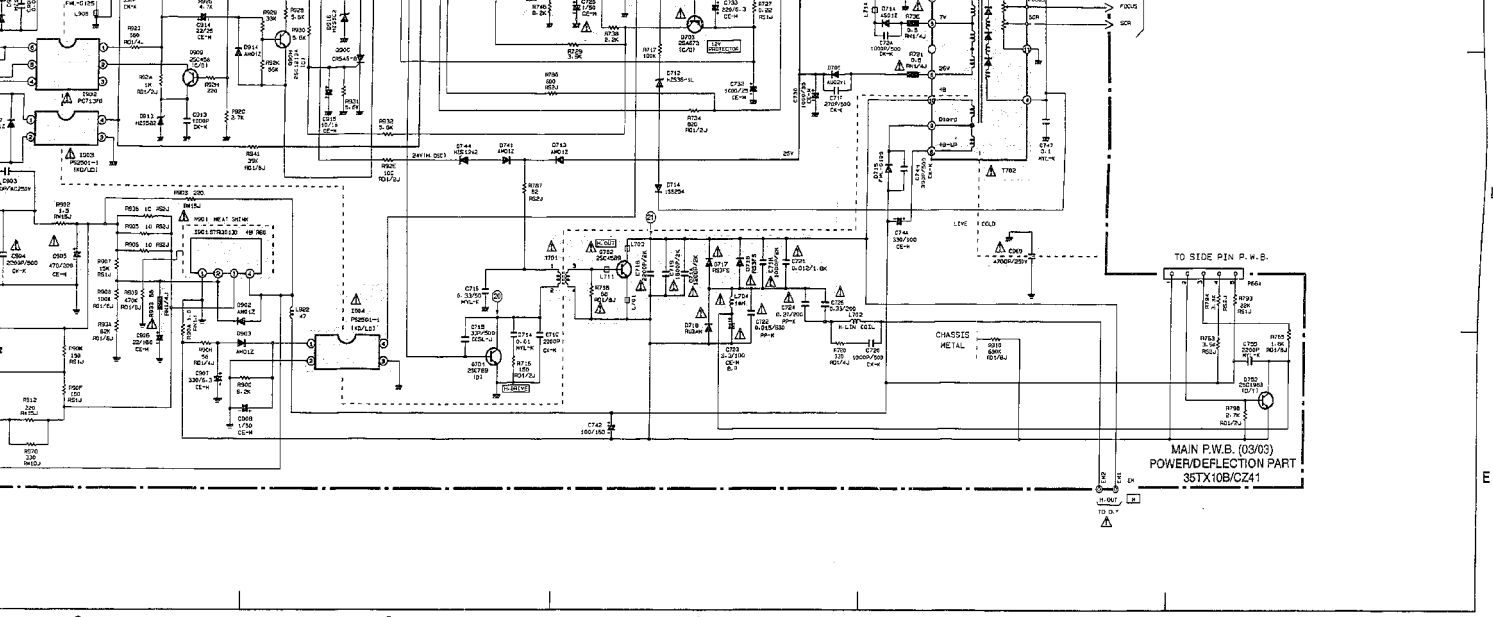
Circuit No.	Pin No.	Voltage VDC
Q305	B	4.0
	C	8.0
	E	4.0
Q306	B	8.0
	C	9.0
	E	5.0
Q308	B	4.0
	C	7.0
	E	3.0
Q309	B	3.5
	C	0.0
	E	4.0
Q310	B	5.0
	C	9.0
	E	4.5
Q312	B	10.0
	C	9.0
	E	9.0
Q314	B	4.0
	C	0.0
	E	4.5
Q315	B	4.5
	C	9.0
	E	3.8
Q401	B	12.0
	C	6.5
	E	12.0

Circuit No.	Pin No.	Voltage VDC
Q402	B	2.4
	C	11.0
	E	1.7
Q403	B	12.0
	C	6.0
	E	12.0
Q404	B	2.4
	C	11.0
	E	1.7
Q405	B	0.5
	C	0.0
	E	0.0

Circuit No.	Pin No.	Voltage VDC
Q406	B	0.5
	C	0.0
	E	0.0
Q407	B	0.0
	C	15.0
	E	0.0
Q50C	B	0.0
	C	6.5
	E	0.0
Q601	B	5.2
	C	9.0
	E	4.5
Q602	B	0.0
	C	4.4
	E	0.0
Q603	B	5.0
	C	1.3
	E	4.5
Q70A	B	12.0
	C	15.0
	E	12.0

Circuit No.	Pin No.	Voltage VDC
Q70H	B	5.7
	C	7.5
	E	5.0
Q701	B	0.3
	C	17.0
	E	0.0
Q702	B	-60.0
	C	41.0
	E	-60.0
Q703	B	15.0
	C	0.0
	E	15.0
Q708	B	0.0
	C	15.0
	E	0.0
Q709	B	9.0
	C	0.0
	E	8.0
Q710	B	5.0
	C	0.0
	E	5.0
Q752 (35V)	B	-60.0
	C	-44.0
	E	-60.0
Q761	B	7.8
	C	9.0
	E	7.0

Circuit No.	Pin No.	Voltage VDC
Q90A	B	40.0
	C	11.0
	E	40.0
Q90C	B	0.0
	C	15.0
	E	0.0
Q90H	B	0.0
	C	40.0
	E	0.0
Q901	B	57.0
	C	57.0
	E	57.0
Q904	B	33.0
	C	34.0
	E	33.0
Q905	B	0.0
	C	122.0
	E	0.0
Q906	B	0.0
	C	0.5
	E	0.5
Q907	B	0.0
	C	0.5
	E	0.0
Q908	B	0.0
	C	2.0
	E	0.0
Q909	B	5.5
	C	12.0
	E	5.5



Pin No.	Voltage VDC
1	1.3
2	0.9
3	0.6
4	0.5
5	0.0
6	0.6
7	0.6
8	5.0
9	0.5
10	0.5
11	0.0
12	2.5
13	5.0

Pin No.	Voltage VDC
1	12.0
2	9.0
3	0.5

Pin No.	Voltage VDC
1	0.0
2	130
3	160
4	130

Circuit No.	Pin No.	Voltage VDC
I902	1	14.0
	2	13.0
	3	—
	4	0.0
	5	2.0
	6	0.0

Circuit No.	Pin No.	Voltage VDC
I903	1	1.2
	2	0.5
	3	0.5
	4	0.0

Circuit No.	Pin No.	Voltage VDC
I904	1	-60.0
	2	-60.0
	3	0.0
	4	15.0

Circuit No.	Pin No.	Voltage VDC
Q305	B	4.0
	C	8.0
	E	4.0
Q306	B	8.0
	C	9.0
	E	5.0
Q308	B	4.0
	C	7.0
	E	3.0
Q309	B	3.5
	C	0.0
	E	4.0
Q310	B	5.0
	C	9.0
	E	4.6
Q312	B	10.0
	C	9.0
	E	9.0
Q314	B	4.0
	C	0.0
	E	4.5
Q315	B	4.5
	C	9.0
	E	3.8
Q401	B	12.0
	C	6.5
	E	12.0

Circuit No.	Pin No.	Voltage VDC
Q402	B	2.4
	C	11.0
	E	1.7
Q403	B	12.0
	C	6.0
	E	12.0
Q404	B	2.4
	C	11.0
	E	1.7
Q405	B	0.5
	C	0.0
	E	0.0

Circuit No.	Pin No.	Voltage VDC
Q406	B	0.5
	C	0.0
	E	0.0
Q407	B	0.0
	C	15.0
	E	0.0
Q50C	B	0.0
	C	6.5
	E	0.0
Q601	B	5.2
	C	9.0
	E	4.5
Q602	B	0.0
	C	4.4
	E	0.0
Q603	B	5.0
	C	1.3
	E	4.5
Q70A	B	12.0
	C	15.0
	E	12.0

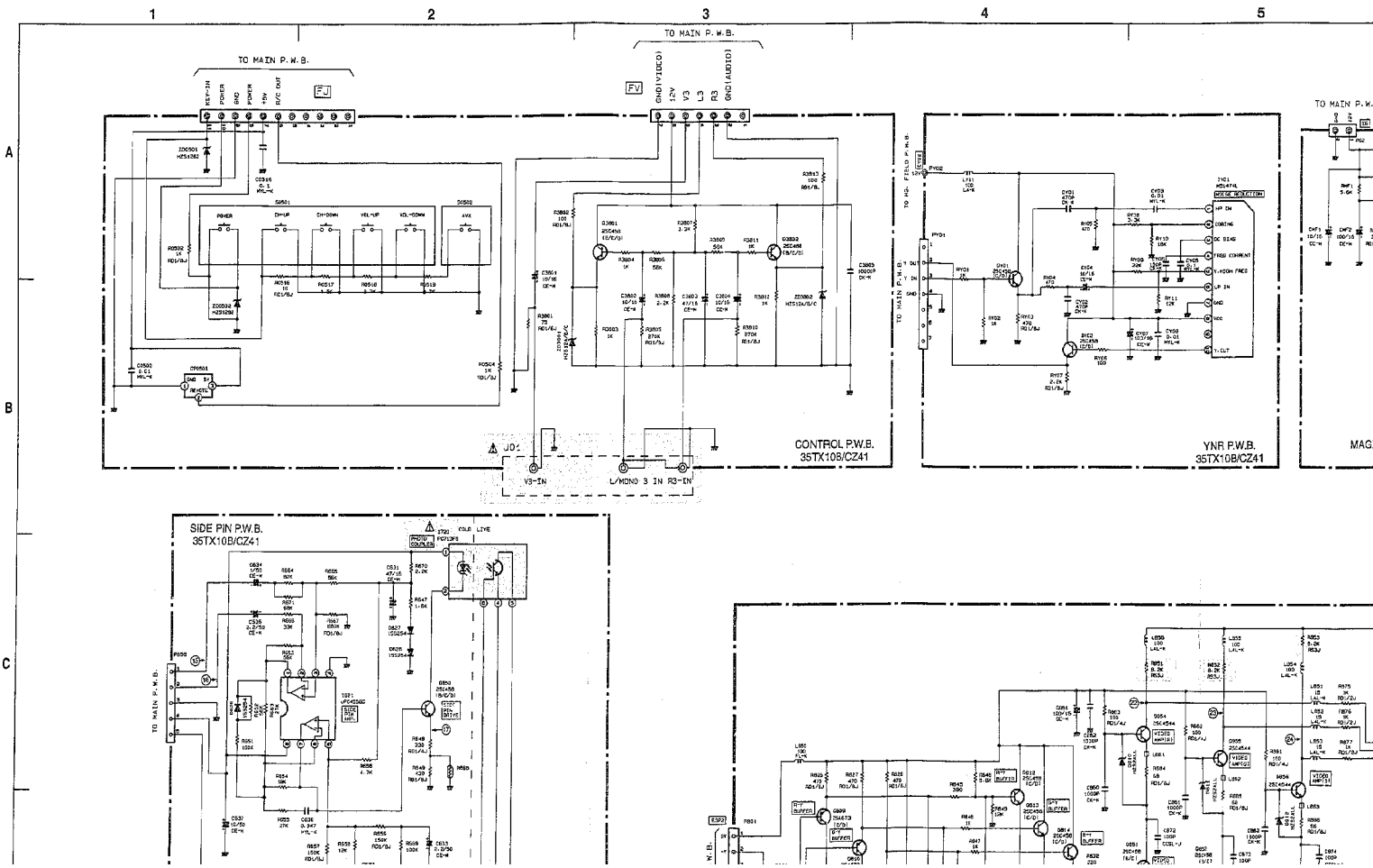
Circuit No.	Pin No.	Voltage VDC
Q70H	B	5.7
	C	7.5
	E	5.0
Q701	B	0.3
	C	17.0
	E	0.0
Q702	B	-60.0
	C	41.0
	E	-60.0
Q703	B	15.0
	C	0.0
	E	15.0
Q708	B	0.0
	C	15.0
	E	0.0
Q709	B	9.0
	C	0.0
	E	8.0
Q710	B	5.0
	C	0.0
	E	5.0
Q752 (35V)	B	-60.0
	C	-44.0
	E	-60.0
Q761	B	7.6
	C	9.0
	E	7.0

Circuit No.	Pin No.	Voltage VDC
Q90A	B	40.0
	C	11.0
	E	40.0
Q90C	B	0.0
	C	15.0
	E	0.0
Q90H	B	0.0
	C	40.0
	E	0.0
Q901	B	57.0
	C	57.0
	E	57.0
Q904	B	33.0
	C	34.0
	E	33.0
Q905	B	0.0
	C	122.0
	E	0.0
Q906	B	0.0
	C	0.5
	E	0.5
Q907	B	0.0
	C	0.5
	E	0.0
Q908	B	0.0
	C	2.0
	E	0.0
Q909	B	5.5
	C	12.0
	E	5.5

- Since this is a basic circuit diagram, the value of the parts is subject to be alterec for improvement.
- All DC voltage to be measured with a tester (100kΩ/V). Voltage taken on a complex color bar signal including a standard color bar signal.

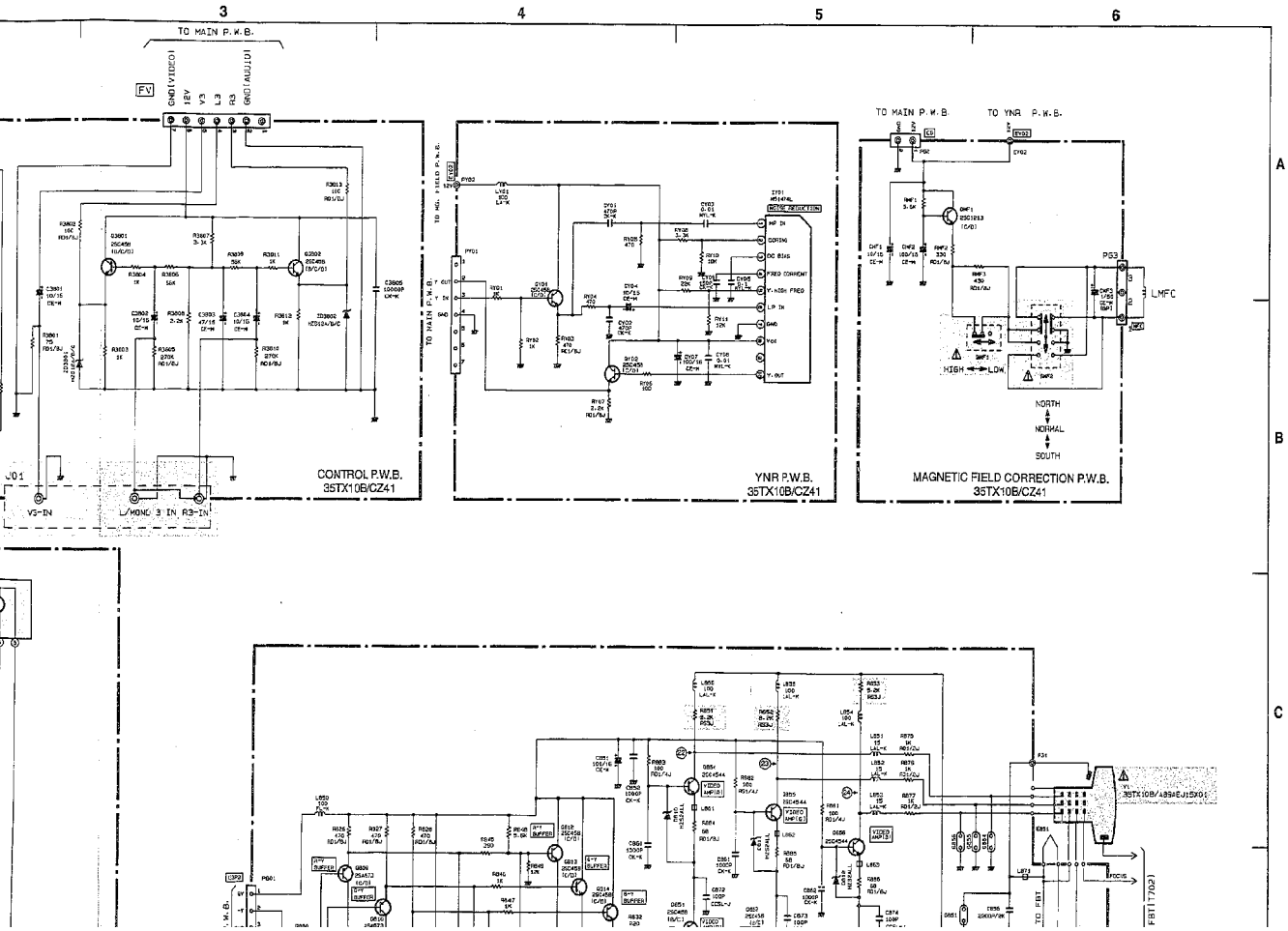
CIRCUIT SCHEMATIC DIAGRAM OF 35TX10B/CZ41

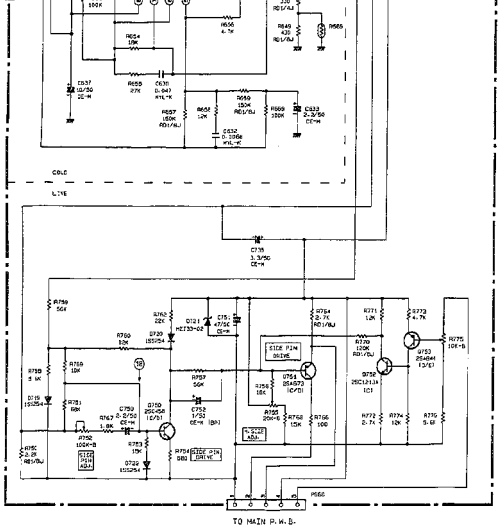
PRODUCT SAFETY NOTE: Components marked with a ⚠ and shad
any of these components, read carefully the PRODUCT SAFETY NOT
through improper servicing.

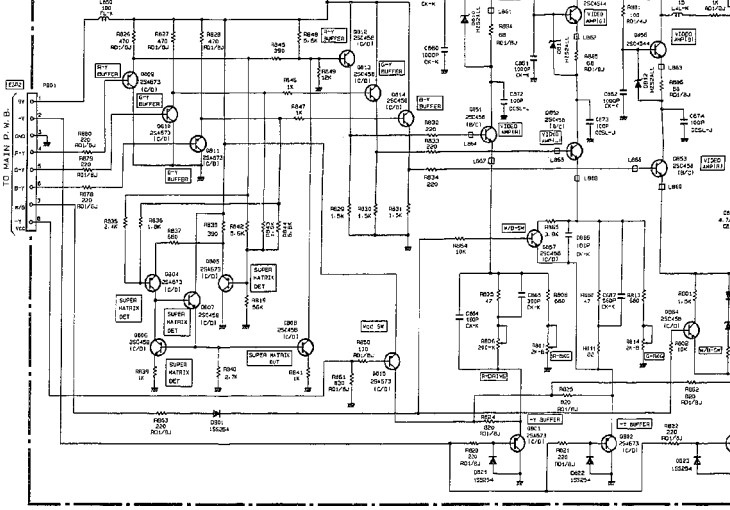


CIRCUIT SCHEMATIC DIAGRAM OF 35TX10B/CZ41

PRODUCT SAFETY NOTE: Components marked with a ⚠ and shaded have special characteristics important to safety. Before replacing any of these components, read carefully the PRODUCT SAFETY NOTICE of this Service Manual. Don't degrade the safety of the receiver through improper servicing.







D

E

1 2 3 4 5

• Since this is a basic circuit diagram, the value of the parts is s
• All DC voltage to be measured with a tester (100kΩ/V). Voltage

Circuit No.	Pin No.	Voltage VDC
I621	1	5.0
	2	5.0
	3	5.0
	4	0.0
	5	5.7
	6	5.7
	7	6.2
	8	10.9

Circuit No.	Pin No.	Voltage VDC
I720	1	11.0
	2	9.8
	3	0.0
	4	-56.0
	5	-36.0

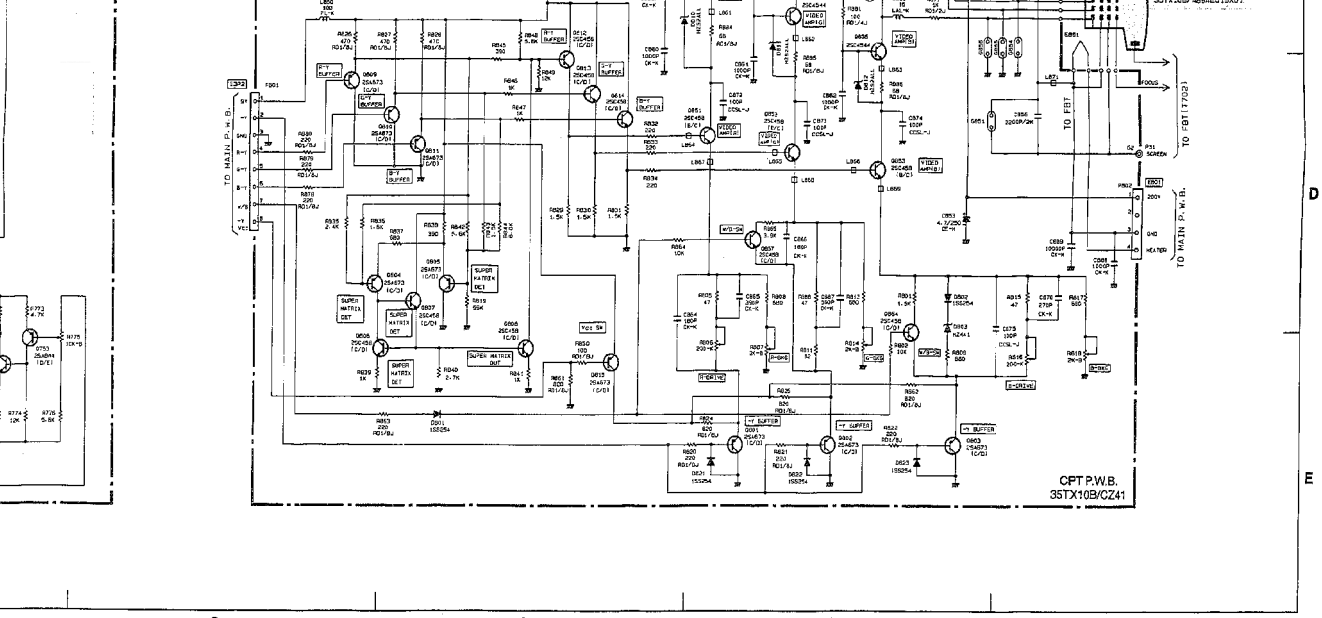
Circuit No.	Pin No.	Voltage VDC
Q650 Side P.	B	6.5
	C	9.8
	E	5.6
Q750 Side P.	B	-50.0
	C	-50.0
	E	-50.0
Q751 Side P.	B	-41.0
	C	-60.0
	E	-41.0
Q752 Side P.	B	-50.0
	C	-35.0
	E	-50.0
Q753 Side P.	B	-35.0
	C	-50.0
	E	-35.0

Circuit No.	Pin No.	Voltage VDC
Q801 CPT	B	4.0
	C	0.0
	E	4.0
Q802 CPT	B	3.8
	C	0.0
	E	3.9
Q803 CPT	B	4.0
	C	0.0
	E	4.0
Q804 CPT	B	6.0
	C	1.4
	E	6.4
Q805 CPT	B	5.8
	C	0.0
	E	6.5

Circuit No.	Pin No.	Voltage VDC
Q806 CPT	B	0.7
	C	1.4
	E	0.0
Q807 CPT	B	1.3
	C	9.0
	E	0.6
Q808 CPT	B	0.9
	C	6.0
	E	0.0
Q809 CPT	B	5.0
	C	0.0
	E	6.0
Q810 CPT	B	5.0
	C	0.0
	E	6.0
Q811 CPT	B	5.0
	C	0.0
	E	6.0
Q812 CPT	B	6.0
	C	9.0
	E	5.0
Q813 CPT	B	6.0
	C	9.0
	E	5.0
Q814 CPT	B	0.9
	C	9.0
	E	0.9
Q815 CPT	B	5.0
	C	3.9
	E	3.9

Circuit No.	Pin No.	Voltage VDC
Q851 CPT	B	5.0
	C	8.0
	E	5.0
Q852 CPT	B	5.0
	C	7.6
	E	4.7
Q853 CPT	B	5.0
	C	8.0
	E	5.0
Q854 CPT	B	1.5
	C	26.0
	E	1.5
Q855 CPT	B	1.2
	C	24.0
	E	1.2
Q856 CPT	B	1.2
	C	24.0
	E	1.2
Q857 CPT	B	4.5
	C	3.9
	E	3.9
Q864 CPT	B	4.8
	C	4.0
	E	4.0

Circuit No.	Pin No.	Voltage VDC
Q0501 Control 35v	B	0.0
	C	0.0
	E	0.0
Q3801 Control 35v	B	3.8
	C	12.0
	E	3.2
Q3902 Control 35v	B	3.6
	C	12.0
	E	3.2



- Since this is a basic circuit diagram, the value of the parts is subject to be altered for improvement.
- All DC voltage to be measured with a tester (100kΩ/V). Voltage taken on a complex color bar signal including a standard color bar signal.

Circuit No.	Pin No.	Voltage VDC
I621	1	5.0
	2	5.0
	3	5.0
	4	0.0
	5	5.7
	6	5.7
	7	6.2
	8	10.9

Circuit No.	Pin No.	Voltage VDC
I720	1	11.0
	2	9.6
	3	0.0
	4	-56.0
	5	-36.0

Circuit No.	Pin No.	Voltage VDC
Q650 Side P.	B	6.5
	C	9.8
	E	5.6
Q750 Side P.	B	-60.0
	C	-50.0
	E	-60.0
Q751 Side P.	B	-41.0
	C	-50.0
	E	-41.0
Q752 Side P.	B	-60.0
	C	-35.0
	E	-50.0
Q753 Side P.	B	-35.0
	C	-60.0
	E	-35.0

Circuit No.	Pin No.	Voltage VDC
Q801 CPT	B	4.0
	C	0.0
	E	4.0
Q802 CPT	B	3.8
	C	0.0
	E	3.9
Q803 CPT	B	4.0
	C	0.0
	E	4.0
Q804 CPT	B	6.0
	C	1.4
	E	6.4
Q805 CPT	B	5.8
	C	0.0
	E	6.5

Circuit No.	Pin No.	Voltage VDC
Q806 CPT	B	0.7
	C	1.4
	E	0.0
Q807 CPT	B	1.3
	C	9.0
	E	0.6
Q808 CPT	B	0.9
	C	6.0
	E	0.0
Q809 CPT	B	5.0
	C	0.0
	E	6.0
Q810 CPT	B	5.0
	C	0.0
	E	6.0
Q811 CPT	B	5.0
	C	0.0
	E	6.0
Q812 CPT	B	6.0
	C	9.0
	E	5.0
Q813 CPT	B	6.0
	C	9.0
	E	5.0
Q814 CPT	B	0.9
	C	9.0
	E	0.9
Q815 CPT	B	5.0
	C	3.9
	E	3.9

Circuit No.	Pin No.	Voltage VDC
Q851 CPT	B	5.0
	C	8.0
	E	5.0
Q852 CPT	B	5.0
	C	7.6
	E	4.7
Q853 CPT	B	5.0
	C	8.0
	E	5.0
Q854 CPT	B	1.5
	C	26.0
	E	1.5
Q855 CPT	B	1.2
	C	24.0
	E	1.2
Q856 CPT	B	1.2
	C	24.0
	E	1.2
Q857 CPT	B	4.5
	C	3.9
	E	3.9
Q864 CPT	B	4.6
	C	4.0
	E	4.0

Circuit No.	Pin No.	Voltage VDC
Q0501 Control 35v	B	0.0
	C	0.0
	E	0.0
Q3801 Control 35v	B	3.8
	C	12.0
	E	3.2
Q3802 Control 35v	B	3.6
	C	12.0
	E	3.2