

HITACHI

SERVICE MANUAL

PA**No. 0090****32CX33B/CY61****NTSC****A3LXU3****R/C: CLU-418U**

Models 32CX33B and 32CX11B are in the same Solid State Color Television family. The difference between the 32CX33B and the 32CX11B is the remote control and the CRT. Please refer to model 32CX11B schematics, assembly, wiring, test, and troubleshooting information when servicing model 32CX33B. Refer to Service Manual PA No. 0065 issued in June 1996. Refer to Service Manual PA No. 0071 and PA No. 0053 for the technical information regarding the "Description of Circuit" and "IC's and Transistors Functions" issued in August 1996 and November 1995 respectively.

32CX38B 32TX78B 32TX79K 35TX88B 35TX89K

REPLACEMENT PARTS LIST

This parts list only gives parts which are different from the service manual PA No.0065.

PRODUCT SAFETY NOTE: Components marked with a \triangle have special characteristics important to safety. Before replacing any of these components, read carefully, the **PRODUCT SAFETY NOTICE** of this service manual. Do not degrade the safety of the receiver through improper servicing.

SYMBOL NO.	PART NO.	DESCRIPTION
N201	QR20881	Instruction Book English
N201	QR20891	Instruction Book French
E301	HL00234	Remote Control CLU-418U
E601	BY00821	DY-32V 110° SVC
V1	DE01371	CRT A80LJF30X (W)
SP451	GK00261	5 Watts/4 Ohms
SP452	GK00261	5 Watts/4 Ohms

SPECIFICATIONS AND PARTS ARE SUBJECT TO CHANGE FOR IMPROVEMENT

SOLID STATE COLOR TELEVISION

JUNE 1997**HHEA-MANUFACTURING DIVISION**



SERVICE MANUAL

NTSC

A3LXU3

PA

No. 0097

32CX38B/CY61

R/C: CLU-418U

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SYMBOL NO.	PART NO.	DESCRIPTION
N201	QR25351	Instruction Book English
N201	QR25361	Instruction Book French
E301	HL00234	Remote Control CLU-418U
E601	BY00821	DY-32V 110° SVC
V1	DE01371	CRT A80LJF30X (W)
SP451	GK00261	5 Watts/4 Ohms
SP452	GK00261	5 Watts/4 Ohms

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SOLID STATE COLOR TELEVISION

MARCH 1998

HHEA-MANUFACTURING DIVISION

HITACHI

PA**No. 0065****32CX11B/CY61
32TX78B/CY60
32TX79K/CY60****35CX30B/CZ63
35TX88BCZ63
35TX89K/CZ63**

SERVICE MANUAL

NTSC**A3LXU3 CHASSIS****R/C:****CLU-418U
CLU-419UI**

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 (☒ 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

JUNE 1996**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 cover-shields, 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.

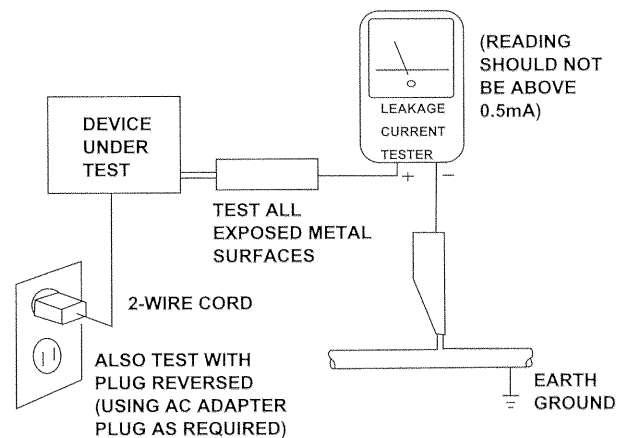
Therefore, the following checks should be performed for the continued protection of the customer and service technician.

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 $0.24M\Omega$ and a maximum resistor reading of $5.2M\Omega$. 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.

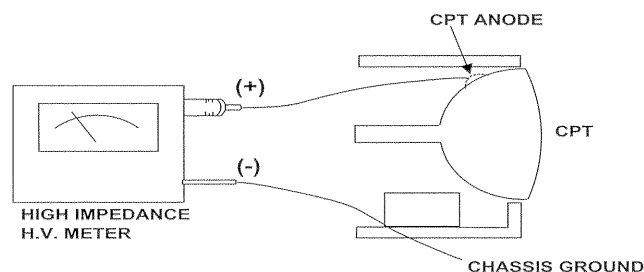
PRODUCT SAFETY NOTICE

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 \triangle 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 \triangle 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

32CX11B/CY61	180 watts
32TX78B/79K/CY60	180 watts
35CX30B/CZ63	180 watts
35TX88B/89K/CZ63	180 watts

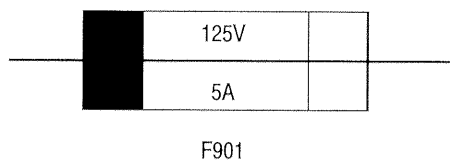
COLOR PICTURE TUBE

35CX30B/35TX88B/35TX89K/CZ63	A89AEJ15X01
32CX11B/CY61	A80LJF30X
32TX78B/32TX79K/CY60	A80LJF30X

CAUTION

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

Example:



The rating of fuse F901 is 5.0A-125V.

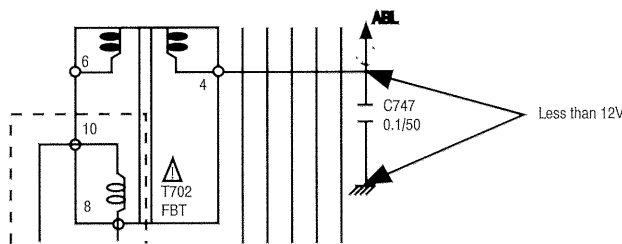
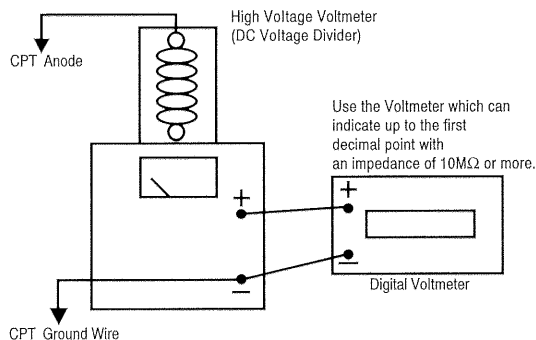
Replace with the same type fuse for continued protection against fire.

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 $120 \pm 3V$.
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 $I_B \pm 0.1 \text{ mA}$. (The voltage at ABL terminal (C747) should be 12V or less.)



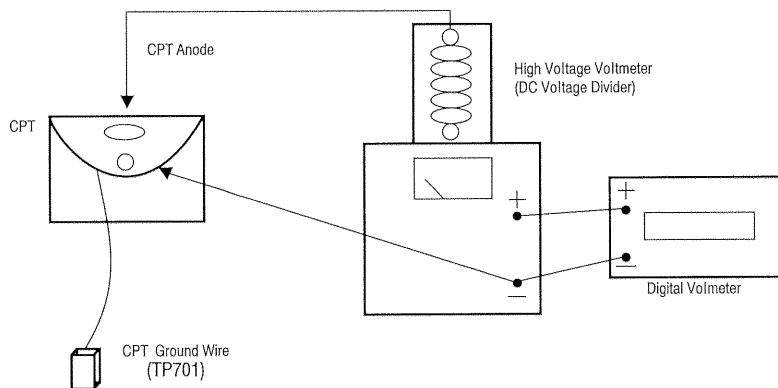
Adjustment Preparation

1. Check that the normal High Voltage is $E_{HT} \pm 1KV$.

CHASSIS	EHT	$I_B \pm 0.1 \text{ mA}$	E1 (KV)
CZ63	30.2KV	1.8mA	35.5KV
CY60/CY61	29.2KV	1.65mA	34.0KV

Adjustment Preparation

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



Adjustment Procedure

Use the voltmeter impedance $10M\Omega$ or more with indication to the first decimal place.

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

A3LXU3 CHASSIS

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Refer to CHASSIS SERVICE MANUAL PA NO. 0053 and 0071 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

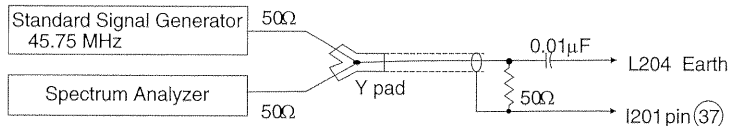
1-1-1. AGC Coarse Adjustment (R202)

Set AGC adjustment VR (R202) to mechanical center.

1-1-2. VCO Adjustment (L204)(First Method)

Adjustment Preparation

- Apply $9.0 \pm 0.1V$ to I201 pin (14).
- Connect I201 pin (2) to GND.
- Connect the following jig and pick up VCO oscillation leakage voltage.



Adjustment Procedure

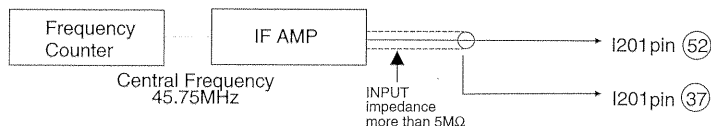
- Adjust L204 so that VCO frequency detected by Spectrum Analyzer is $45.75MHz \pm 0.50$ KHz. (Match the output level of Standard Signal Generator to the level of VCO oscillation leakage voltage and adjust L204 to take 0 beat.)

Note: Perform this adjustment after VCO frequency is stabilized.

1-1-2. VCO Adjustment (L204) (Second Method)

Adjustment Preparation

- Apply $9.0 \pm 0.1V$ to I201 pin (14).
- Connect I201 pin (2) to GND.
- Connect the following jig and pick up VCO oscillation leakage voltage.



Adjustment Procedure

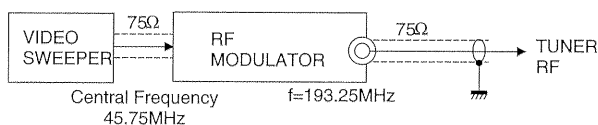
- Adjust L204 so that the reading of Frequency Counter is $45.75MHz \pm 0.50$ KHz.

Note: Perform this adjustment after VCO frequency is stabilized.

1-1-3. IF Overall Waveform Adjustment

Adjustment Preparation

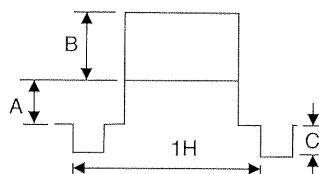
- Connect signal as follows:



Marks { 0.2 MHz (CH10)
1 MHz
2 MHz
3.6 MHz

(Output level 91 ± 3 dBμ (50Ω load Modulation 60 - 70%))

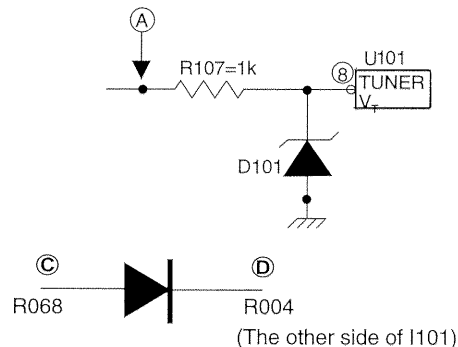
- Connect Oscilloscope to Q203 (E) Emitter (TP-12). Check the signal at TP-12 as follows:



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

- Add the following voltage:

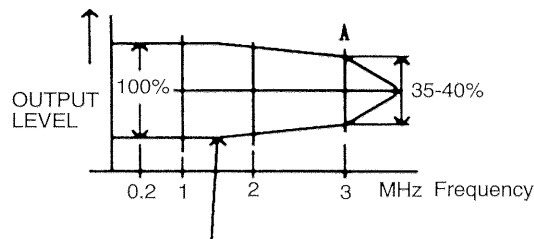
- I201 pin (14): +B (9V)
- I001 pin (12): +B (5V)
- TUNER VTi point (A): 42V
- Connect a diode (1S2076, 1SS270TA) to: (C) ~ (D)



- Initialize memory*
- Receive Color Bar Signal.

Adjustment Procedure

- 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.)



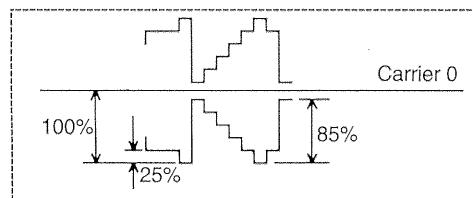
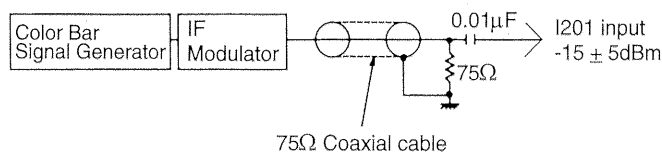
Check that 1MHz~2MHz level is 70%~100%.

***Note:** Refer to item 1-1-6. Initial Turn ON Procedure.

1-1-4. AFS Discrimination Adjustment (L205)

Adjustment Preparation

- Input Signal: Between X103 SAW FILTER input and Earth. (R108 both ends)
- Apply $9.0 \pm 0.1V$ to I201 pin (14).
- Connect a DC Voltmeter (internal impedance 1M ohm or more) to AFS output terminal. (I201 pin (47))



Adjustment Procedure

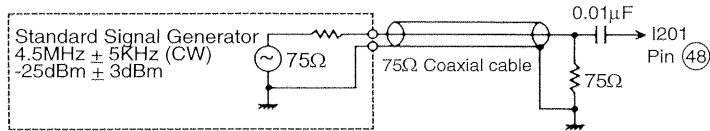
- Turn L205 and check that DC Voltmeter connected as above varies from under 0.5 V to over 8.5V.
- Adjust L205 so that the DC Voltmeter is $6.5 \pm 0.5V$ at the intermediate point of the core which is changing voltage rapidly in (1) above.

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.

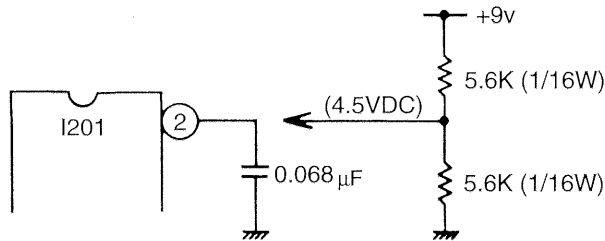
1-1-5. Sound Discrimination Adjustment (L202)

Adjustment Preparation

- (1) Input Signal: Apply the following signal to I201 pin (48).



- (2) Apply DC Voltage $9.0 \pm 0.1V$ 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 $3.5 \pm 0.3V$.
- (2) After adjusting, release the jig above (4) and (5).

1-1-6. VCO For OSD Adjustment.

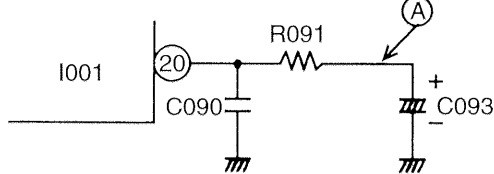
This chassis starts in initial turn ON and AUTO demonstration mode before memory initialize. So memory initialize should be done according to next procedure before adjustment start.

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.

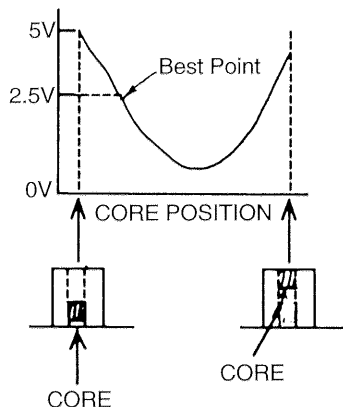
Adjustment Preparation

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



Adjustment Procedure

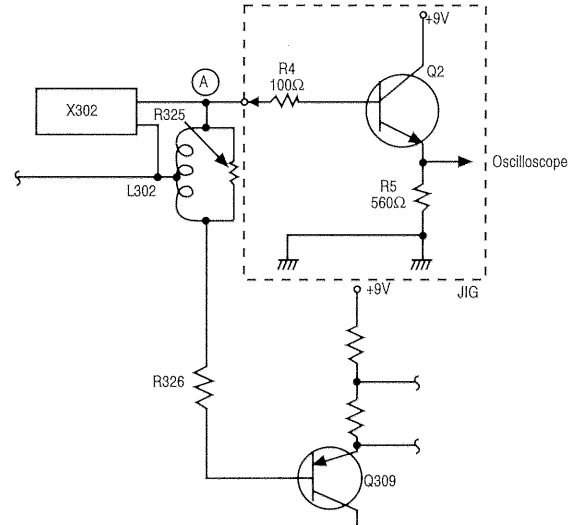
- (1) Adjust L010 so that the Voltmeter is $2.5 \pm 0.2V$.



1-2. COMB FILTER ADJUSTMENT (1)

Adjustment Preparation

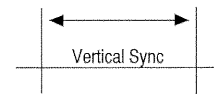
- (1) Adjust the VR(R323, R32E, R333) to center position.
- (2) Receive Color Bar Signal or Green Single Color Using below methods (I) and (II).
(I) From Video Input
(II) Ant. Input: the range of signal strength must be 65dBm to 80dBm(75 dBm is standard).
- (3) Connect the jig (shown below) to point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

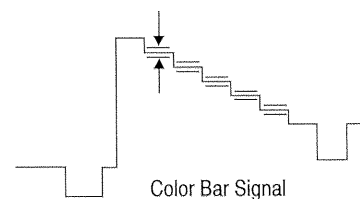
1-2. COMB FILTER ADJUSTMENT(2)

Adjustment Preparation

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

Adjustment Procedure

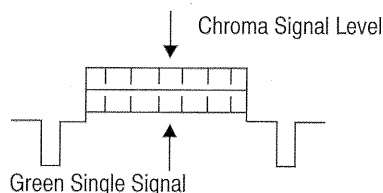
- (1) Turn R32E so that the sub-carrier component becomes minimum.
- (2) Then turn R333 so that sub-carrier component becomes minimum.
- (3) When item (2) is finished, turn R32E again so that the sub-carrier component becomes minimum.
- (4) When Residual Chroma Level does not become less than 15mVp-p,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



Remarks:

- (1) Adjust the range of Oscilloscope to 50mV/div.
- (2) Residual Chroma Signal Level should be less than 15mVp-p.

Note: Chroma Signal Level shows below point.



1-3. DEFLECTION CIRCUIT PICTURE ADJUSTMENT OPERATION CHECK

1-3-1. Vertical Size Adjustment (R62A)

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 comes 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 $120 \pm 3V$.
- (3) Receive Circle Pattern and set "BRIGHTNESS" and "CONTRAST" to maximum. Adjust SCREEN VR and SUB-BRIGHTNESS VR(R340) so that Beam Current is $I_B \pm 0.1mA$. (The voltage of ABL terminal - C747 both ends should be 12V or less)

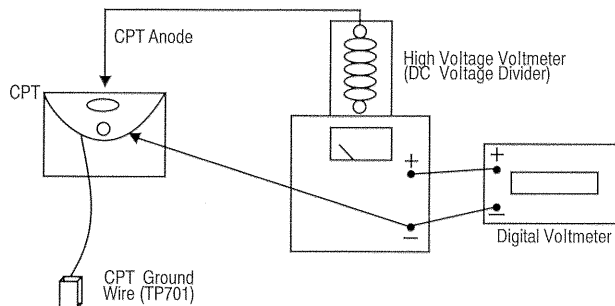
Adjustment Procedure

- (1) Check that the normal High Voltage is $E_{HT} \pm 1KV$.

CHASSIS	EHT	$I_B \pm 0.1 mA$	$E_1 (KV)$
CZ63	30.2KV	1.8mA	35.5KV
CY60/CY61	29.2KV	1.65mA	34.0KV

Adjustment Preparation

- 4) Set AC input voltage to $100 \pm 5V$. 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

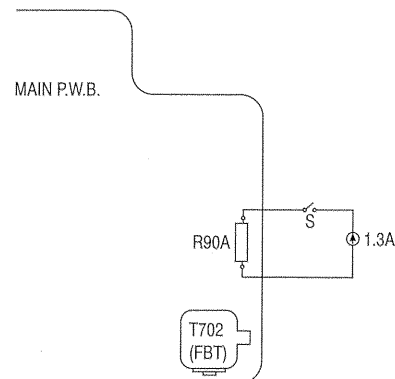
- (2) Keep CONTRAST, BRIGHTNESS, and SCREEN VR as in item (3). Increase AC input voltage gradually, and check that the picture disappears when high voltage is E1. Immediately after checking that it disappears, turn OFF the set. Remove adjustment jig and High Voltage Voltmeter.

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.

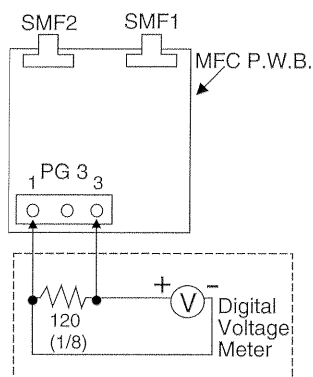
Adjustment Procedure

- (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 (35V 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 $V = +2.9 \pm 0.5V$.
- (2) Then turn SMF1 to "WEAK", check that the voltage is $V = +1.5 \pm 0.5V$.
- (3) Then turn SMF2 to "SOUTH", check that the voltage is $V = -2.9 \pm 0.5V$.
- (4) Then turn SMF1 to "WEAK", check that the voltage is $V = -1.5 \pm 0.5V$.
- (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 $\pm 1.5\text{MHz}$. 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)

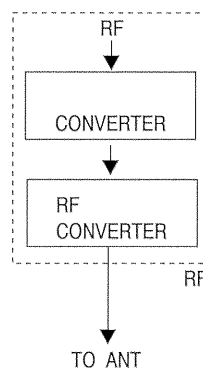


TABLE 1-6

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

- Set the TV set so that VHF (CH 11, CH 13), UHF (CH 14, CH 46, CH 63) and CATV (CH A, CH E, CH P, CH W) can be received.
- Set SIGNAL SOURCE Mode to AIR.
(Press the MENU key, and select the SETUP and SIGNAL SOURCE Mode).

Adjustment Procedure

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

Adjustment Preparation

- Set SIGNAL SOURCE Mode to CATV 1.

Adjustment Procedure

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

Adjustment Preparation

- Set SIGNAL SOURCE Mode to CATV2.

Adjustment Procedure

- 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 AUTO CHANNEL SET Operation)

Adjustment Preparation

- Set the TV set so that VHF (CH 11, CH 13), UHF (CH 14, CH 46, CH 63) and CATV (CH A, CH E, CH P, CH W, CH A-2, CH GG, CH OO, CH WW) can be received.

Adjustment Procedure

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

Adjustment Preparation

- Set to CHANNEL LIST Mode.

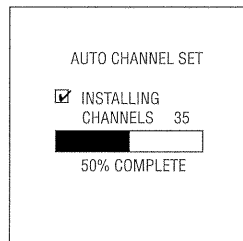
Adjustment Procedure

- 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 AUTO CHANNEL SET is operating.



(See Table 1-6 on Bottom of Page 11)

1-6-3. VOLUME UP/DOWN

Adjustment Procedure

- 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

- Check that the Power alternates between ON and OFF by alternately pressing the POWER button.

1-6-5. AVX

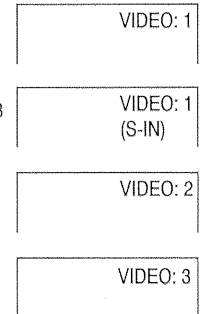
Adjustment Procedure

- Check that with every press of the AVX Button, the O.S.D. works as shown below.

Receiving CH → VIDEO: 1

→ VIDEO: 1 (S-IN) → VIDEO: 2 → VIDEO: 3

→ Receiving CH

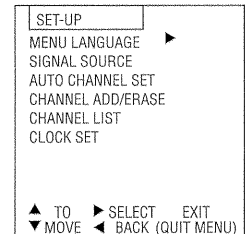
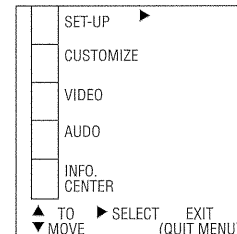


1-6-6. MENU (NOT FOR 35V CTV)

Adjustment Procedure

- 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:



- 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
INPUT	→ INPUT

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

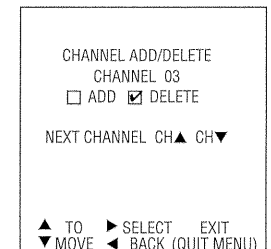
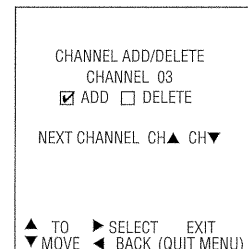
1-6-7-1. SET UP Mode.

Adjustment Preparation

- Set to CHANNEL MEMORY Mode.

Adjustment Procedure

- Check that the ADD,DELETE 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.

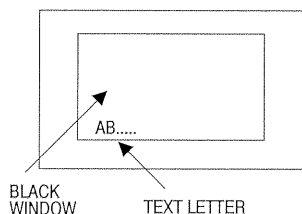
Adjustment Procedure

- (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:

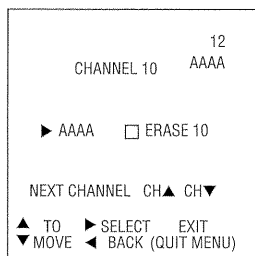
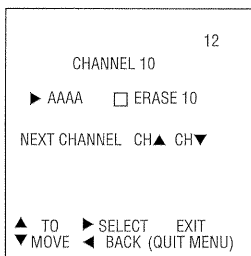
1. Wrong letters are displayed.
2. Letter omitting.
3. Other abnormal display.

**1-6-7-2. CUSTOMIZE Mode.****Adjustment Preparation**

- (2) Set to CHANNEL ID 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 ID Mode again, select the "ERASE ID" by pressing the (▶) control 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 from CUSTOMIZE menu.
- (2) Press "0" button 3 times. ("000" is input).
- (3) Select CHANNEL ON by pressing (▶) from CHILD LOCK OPTIONS menu.
- (4) Check that the picture becomes pitch-dark, and sound does not come out.
- (5) Press (▶) to change to CHANNEL OFF.
- (6) Check that the picture and sound return to the previous condition.

Adjustment Preparation

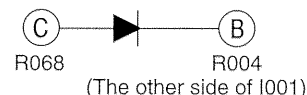
- (4) Set VOLUME CORRECTION Mode from AUDIO menu.

Adjustment Procedure

- (1) Select the registration point using the (▲) or (▼) control button and the received Channel No. is memorized by pressing the MENU 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).

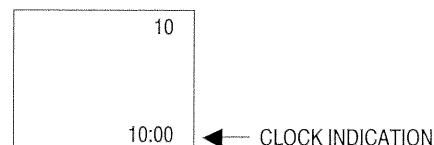


Remarks: The addition of the above diode intends to check the operation with clock counting operation as 60 time mode.

- (2) Set to CLOCK SET Mode.

Adjustment Procedure

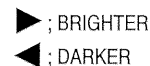
- (1) After clock setting is done and the indication disappears, perform CH indication. Check that clock indication is displayed in addition to the CH indication, and that the clock indication is going by 1 second per minute.

**1-6-7-4. VIDEO Mode****Adjustment Preparation**

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

Adjustment Procedure

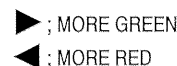
- (2) Check that CONTRAST is changed by pressing (◀) or (▶) control buttons.

**Adjustment Preparation**

- (3) Set to TINT Mode.

Adjustment Procedure

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



Adjustment Preparation

- (4) Set to COLOR Mode.

Adjustment Procedure

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



Adjustment Preparation

- (5) Set to BRIGHTNESS Mode.

Adjustment Procedure

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

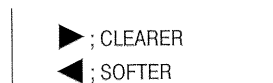


Adjustment Preparation

- (6) Set to SHARPNESS Mode.

Adjustment Procedure

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

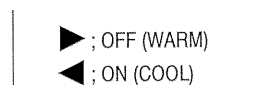


Adjustment Preparation

- (7) Set to TEMPERATURE CONTROL Mode.

Adjustment Procedure

- (7) Check that TEMPERATURE CONTROL is changed by pressing (◀) or (▶) control button.



Adjustment Preparation

- (8) Set to RESET Mode.

Adjustment Procedure

- (8) Check that all picture setting modes return to delivery settings by pressing the ▶ button.

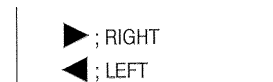
1-6-7-5. AUDIO Mode

Adjustment Preparation

- (1) Set to BALANCE Mode.

Adjustment Procedure

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

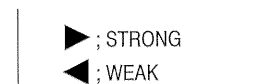


Adjustment Preparation

- (2) Set to BASS Mode.

Adjustment Procedure

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

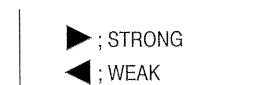


Adjustment Preparation

- (3) Set to TREBLE Mode.

Adjustment Procedure

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



Adjustment Procedure

- (4) Set to RESET Mode.

Adjustment Procedure

- (4) Check that all sound setting modes return to delivery settings by pressing (▶) 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.

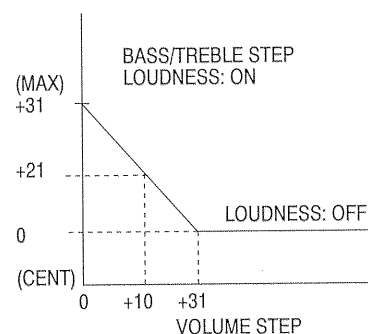
Adjustment Procedure

- (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 st 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 INPUT 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 INPUT 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 VIDEO Setting to minimum "CONTRAST" and AUDIO 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 VIDEO and AUDIO performance return to delivery setting by pressing the ▶ 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 MENU 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**

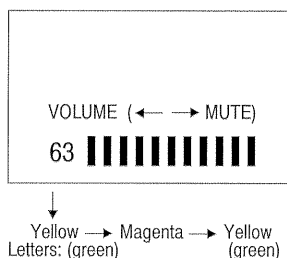
- (1) Input 2 or 3 digits of Channel Number with the buttons of the Remo-Con check jig "0 - 9" and "100". Check that the input number and the On-Screen Display number are the same.

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**

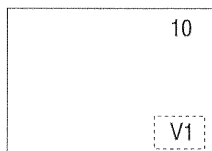
- (1) Check that the sound alternates between Mute and Mute Free by alternately pressing the "MUTE" button of the Remo-Con check jig. At this time, check that the indication color alternates between yellow (letters:green) and magenta.

**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**Adjustment Preparation**

- (1) Connect the signal to ANT and receive it.
(2) Connect the signal to VIDEO: 1.



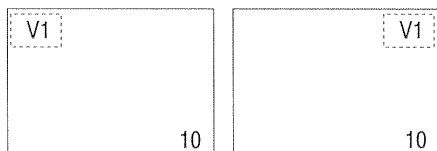
Note: At this CASE, sub-picture should be V1.

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.

1-7-6. MOVE**Adjustment Preparation**

- (1) Press "P in P" button to set to P in P Mode.

**Adjustment Procedure**

- (1) Check that, by alternately pressing the MOVE 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 part of the screen, the Channel No. of main picture moves to the lower right.

1-7-7. SWAP**Adjustment Preparation**

- (1) Press "P in P" button to set to P in P Mode.

Adjustment Procedure

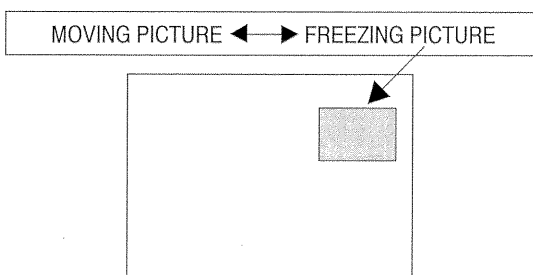
- (1) Check that, by alternately pressing the "SWAP" button, the contents of main picture and sub-picture are exchanged.

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 "SWAP" button.

Adjustment Procedure

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



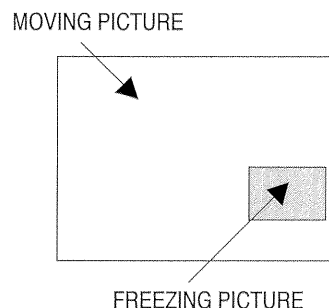
- (2) Press "P in P" button to make sub-picture disappear.

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

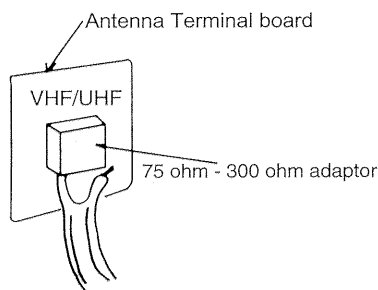
- (1) Check that freezing picture of main screen appears by pressing the FREEZE button of the Remo-Con check jig.
(2) Check it also in the TV and VIDEO: 1 modes.
(3) Check that sub-picture disappears by pressing the FREEZE button at picture freezing.
(4) Check that it turns to normal P in P sub-picture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

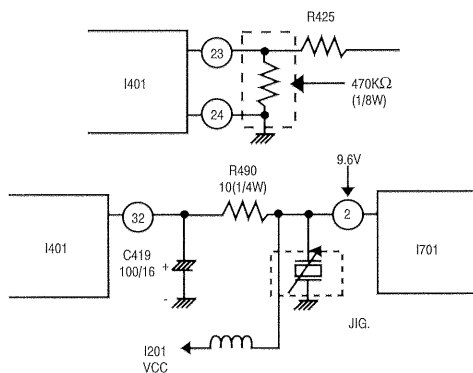


1-9. MTS Demodulating Circuit Adjustment

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 $R_i \geq 1 \text{ M ohm}$, $C_i \leq 15\text{pF}$)
- (4) Input of I401 pin (39) is no signal.
- (5) Apply $+9.6\text{V} \pm 0.1\text{V}$ to the pin (2) of I701 as shown in the figure. (I401 +B)



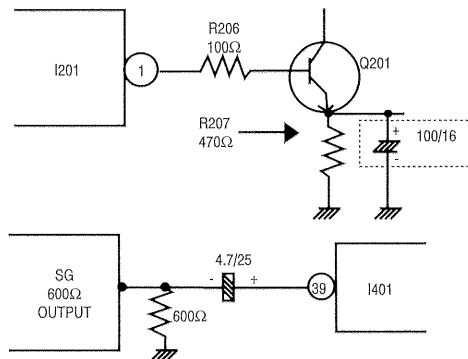
Adjustment Procedure

- (1) Turn VR(R423) to set to $15.73 \pm 0.01\text{KHz}$.
- (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(R41K) 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.

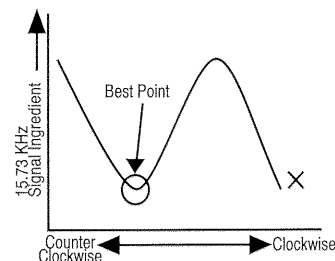


(a) SG Output Signal Specification

- (1) FREQUENCY
 $f = 15.73 \text{ KHz}$ (Sine Wave)
- (2) Signal Level
 $V = 100\text{mVrms}$
- (4) Connect an Oscilloscope to I401 pin (35) (L-R out).

Adjustment Procedure

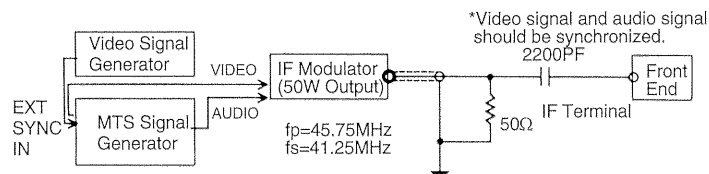
- (1) Input signal (a) and adjust VR(R418) so that the waveform of pin (35) (15.73KHz included) is minimum.



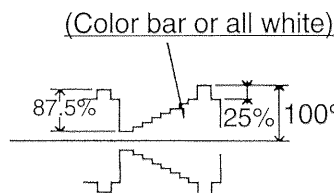
1-9-3. Input Level Adjustment VR(R41K)

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 V_o 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 $V_o = 150\text{mVrms} \pm 5\text{mVrms}$.

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

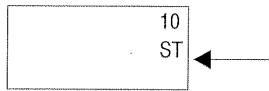
(The adjustment of items 1-9-1. thru 1-9-3. should have been finished.)

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 (4).
- (3) Same as in items 1-9-3 (3) and (4).
- (4) Set "MTS MODE" to "STEREO".

Remarks:

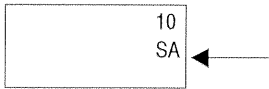
Pay attention that the separation adjusting point may be deviated if the Input Level is not regularly adjusted.



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 within + 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.

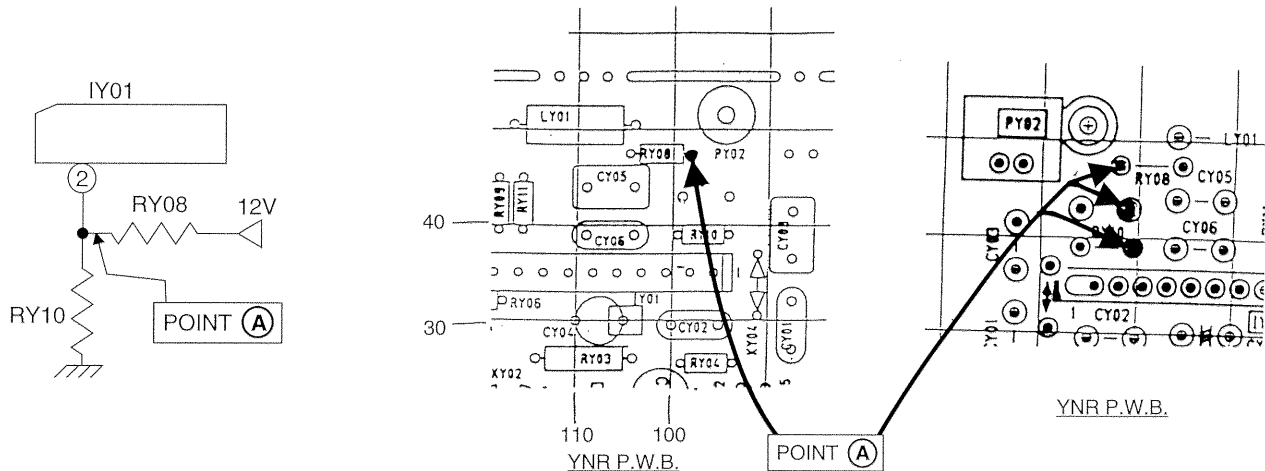
1-10. YNR Operation Check (35V ONLY)

Adjustment Preparation

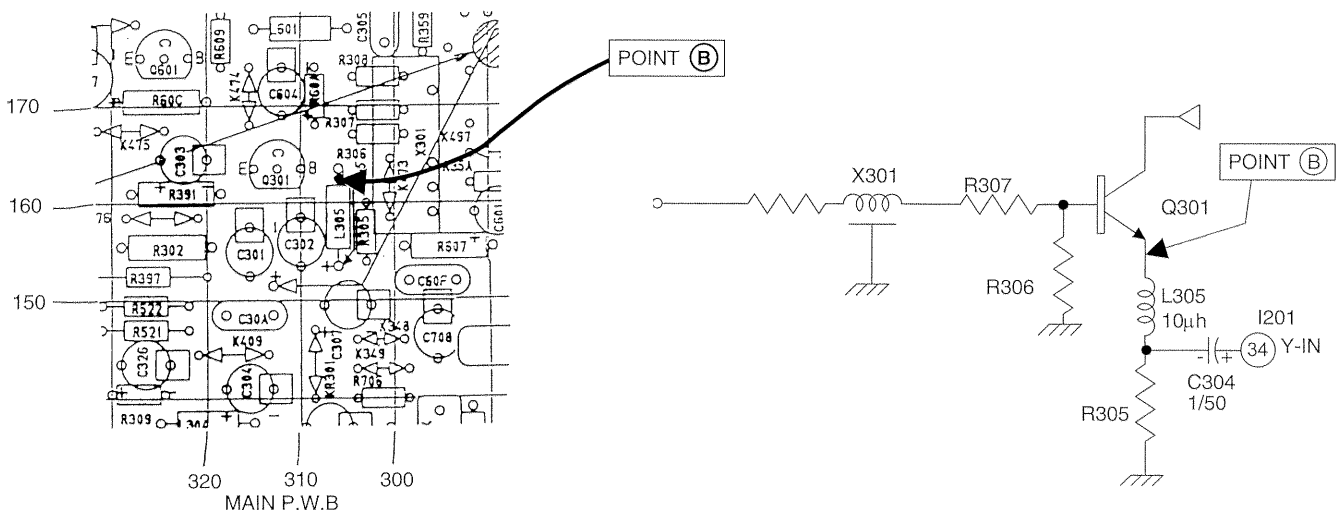
- (1) Receive Circle Pattern

Adjustment Procedure

- (1) Connect the DC Voltmeter to point (A) of YNR P.W.B. and check that the DC Voltmeter is $9.3V \pm 0.3V$.



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



2. FINAL ADJUSTMENT/COMMON SERVICE ADJUSTMENT

2-1. Purity Convergence Adjustment

Note: For A80LJF30X (HITACHI 32V Dark Tint) applies to item 2-1-1(8)
For ITC TYPE A89AEJ15X01 (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 Signal 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)

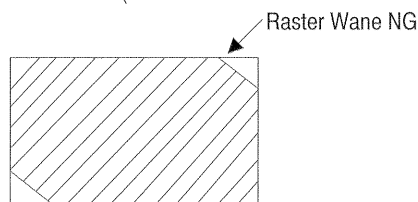


TABLE 1.*

CPT	T
A80LJF30X	45 Min

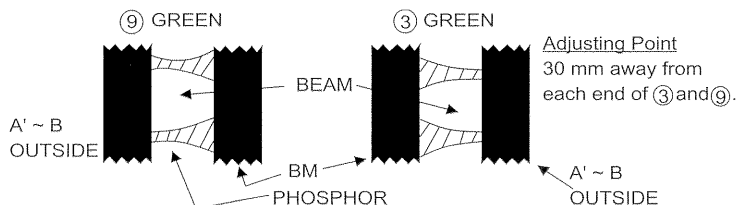
- (3) The magnetic field in the artificial magnetic field should follow the table below and the set should face as table 2. Degauss it from the outside.

DESTINATION	VERTICAL FIELD	HORIZONTAL FIELD
USA	0.45 G	0.3 G
CANADA	0.54 G	0.15 G
UNIVERSAL	0.35 G	0.3 G
PANAMA, HAWAII	0.2 G	0.3 G
TAIWAN	0.22 G	0.37 G

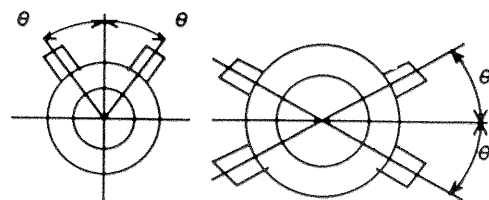
TABLE 2. Directions for adjustment

A80LJF30X	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.
A80LJF30X



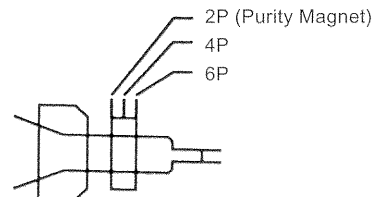
- (A) Open the Purity Magnet as follows in order to move the raster only in the right-left direction.



C-F MAGNET
P#2773671

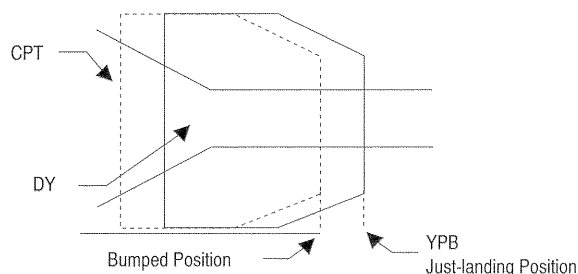
C-F MAGNET
P#2773672

Keep the balance of (3) / (9) DY landing



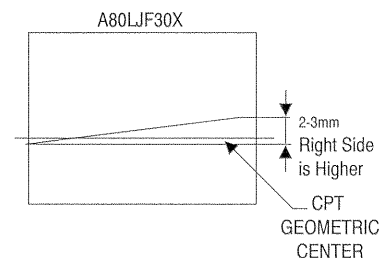
- (B) YPB (Yoke Pull-Back) should be as follows.
(Distance between the bumped position of DY toward the funnel and the just-landing position of (3) and (9).)

CPT	YPB (DESIGN CENTER)
A80LJF30X	2.2mm



- (C) DY Tilt should be as follows:

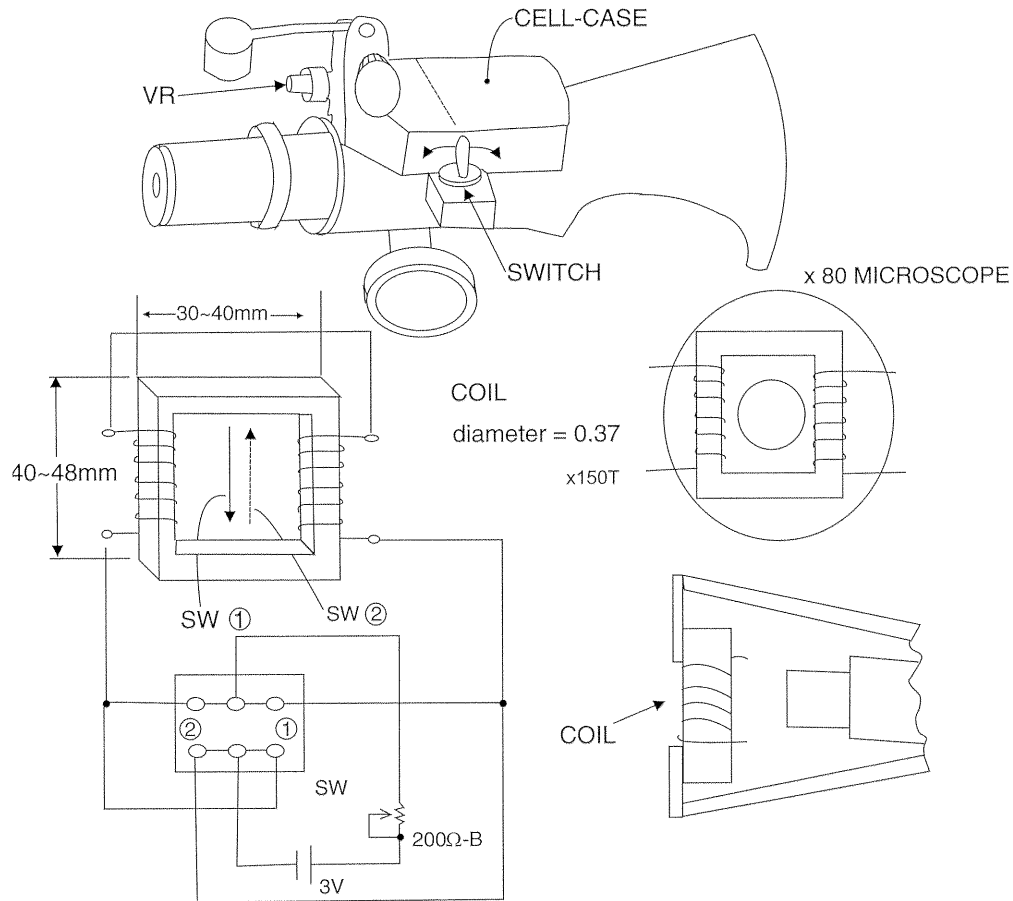
FACE: North



- (5) Fix DY with fixing torque of 14kg.cm
Control the torque by an electrical driver.
- (6) If any mislanding occurs, correct with magnets.
At this time, if the white unevenness is all right, any magnet is not needed.
- (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.

(8) 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
A80LJF30X	SOUTH, NORTH
A89AEJ15X01	SOUTH, NORTH

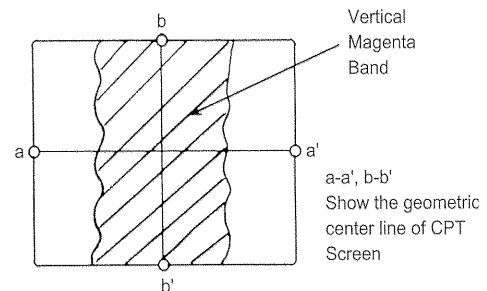


Fig. 2-1-2-1

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)

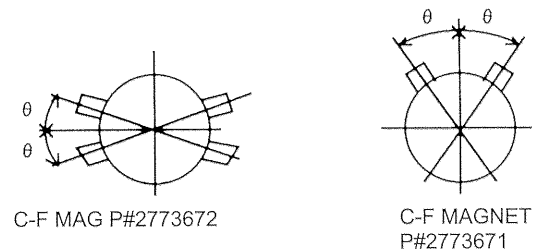
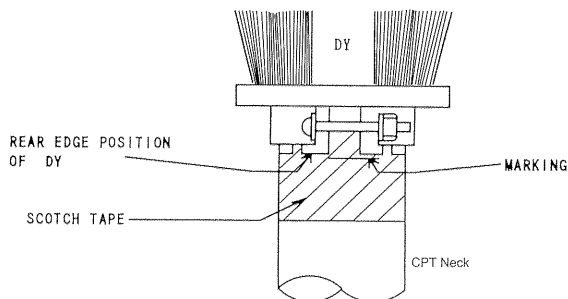


Fig. 2-1-2-2

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).

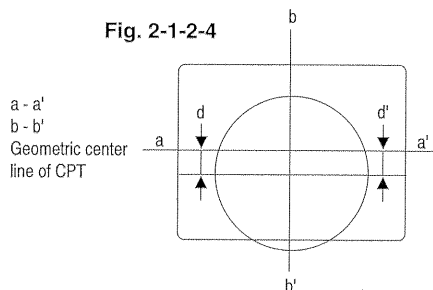
- (7) Receive the Single Red Signal.
When the Single Red Signal is not available, short-circuit between the Base and Emitter of Q854, and between the Base and Emitter of Q857 to set to Single Red Signal.
- (8) Pull back DY gradually and when the color unevenness of both sides of the picture disappear, 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 unevenness 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)

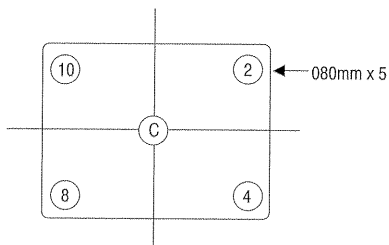


Fig. 2-1-2-5

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.

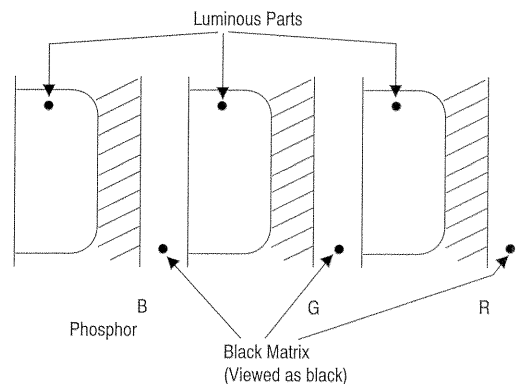


Fig. 2-1-2-6 Enlarged view of screen with microscope

- (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.

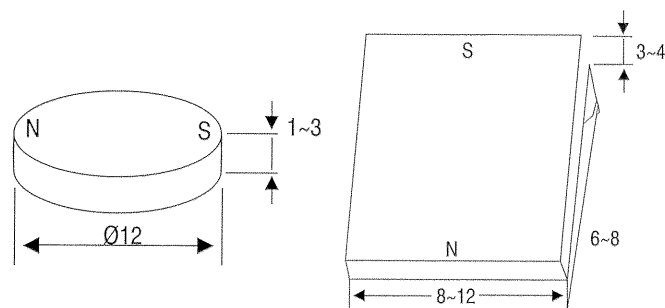


Fig. 2-1-2-7

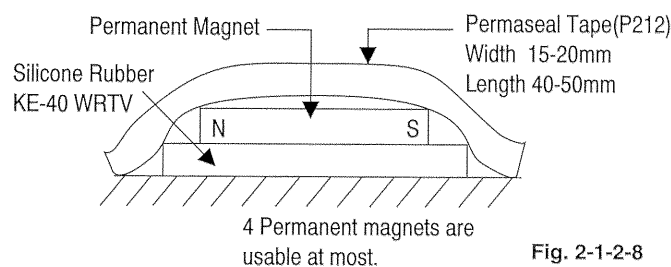
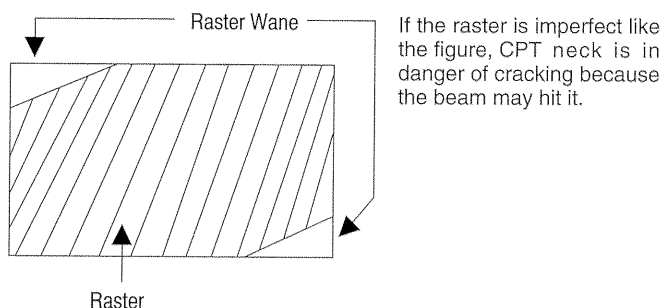


Fig. 2-1-2-8

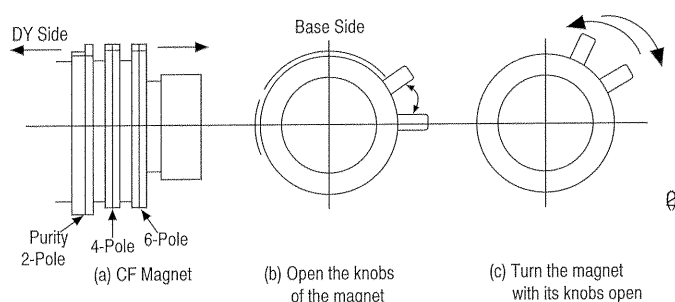
Notes for pre-heat

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.



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).

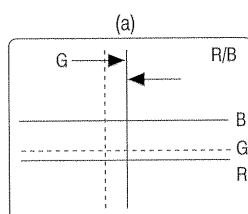


Fig. 2-1-3-2

- (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).

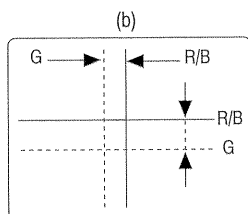


Fig. 2-1-3-2

- (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).

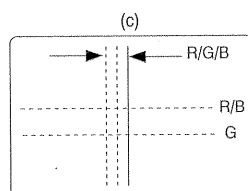


Fig. 2-1-3-2

- (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).

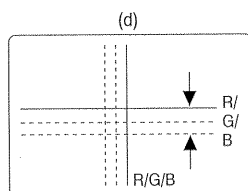


Fig. 2-1-3-2

- (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 A80LJF30X

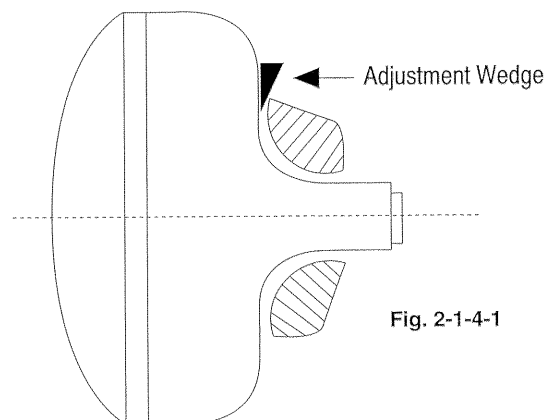


Fig. 2-1-4-1

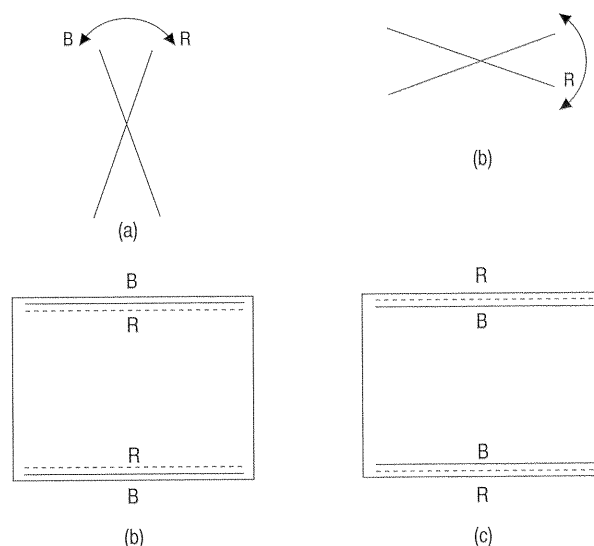


Fig. 2-1-4-2

2-2 Focus Adjustment

NO.	MODEL	CPT	CONDITION	FOCUS VR SETTING POSITION
1	35CX30B CZ63 35TX88B CZ63 35TX89K CZ63	A89AEJ15X01	<ul style="list-style-type: none"> • Receive the Crosshatch Signal • Picture Control: Maximum • Sharpness Control: Center • Brightness Control: Where the background 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	32CX11B CY61	A80LJF30X (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.
3	32TX78B CY60	A80LJF30X (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	32TX79AK CY60	A80LJF30X (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 the 6th 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(R62A)

Adjustment Preparation

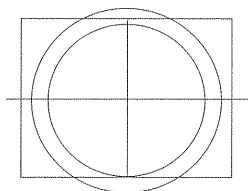
- (1) The set should face the North or South.
- (2) Receive Circle Pattern Signal, and set CONTRAST to maximum and BRIGHTNESS to center.

Adjustment Procedure

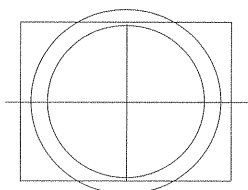
- (1) Adjust V. size VR(R62A) so that the outer circle of the Circle Pattern is like the figure.

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.

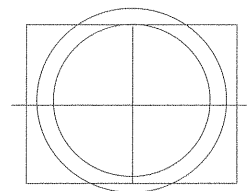


- (ii) Standard Condition
Adjust so that the inner circle comes in contact with the top and bottom of the screen.



- (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.

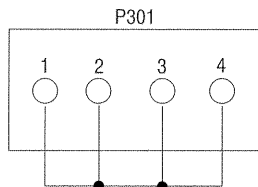
*

CPT SIZE	A	B
35V	0.5	1.0
32V	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 (WARM).
- (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 9,300°K.

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 (WARM).

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.

W	Y	CY	G	MG	R	BL
A7	A6	A5	A4	A3	A2	A1
B						
D						
Q	I	W100%	BLK			

The background is set to black. Perform the adjustment without observing the boundary parts.

The background is set to 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: $-53\text{dBm} +1_0$ ($-53\text{dBm} \sim -52\text{dBm}$)
- (5) Connect DC Voltmeter of internal resistance $1\text{M}\Omega$ 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 $\{V1 - (0.5 \pm 0.2)\}\text{V}$. Verify that there is no video noise visibly seen.

2-7. Channel Selector Operation Check

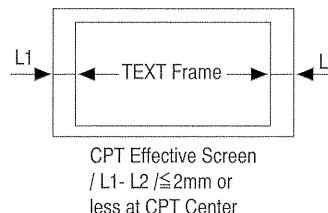
2-7-1. CCD Display Position Adjustment.

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.



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

2-8. Matching Check With Other Equipments

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 $1 \pm 0.2\text{ Vp-p}$ (75 ohm termination) with 100% White Signal.
- (2) Input an Audio Signal to the AUDIO 1 terminal. The Audio Signal Level should be $400\text{m Vrms} \pm 2\text{m Vrms}$ 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 INPUT1 Mode is selected, by pressing the INPUT (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 INPUT2 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) $\pm 20\%$. (Above level is equivalent to maximum VOL-UME,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

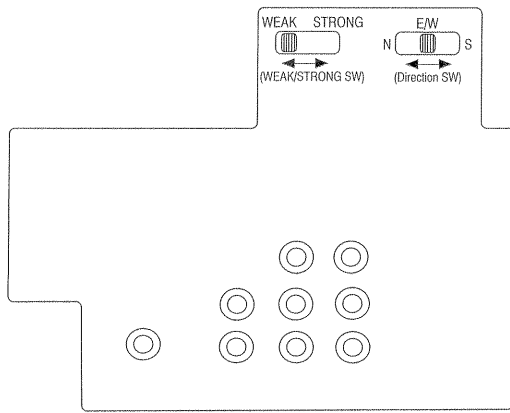
NAME	SPECIFICATIONS BY MODELS
	P IN P
AIR/CABLE	AIR
RECEPTION CHANNEL	CH 03
SOUND (VOLUME)	"10" On-Screen Display
INPUT SELECT (AVX)	TV Mode
CONTRAST	Maximum
COLOR	Center
TINT	Center
BRIGHTNESS	Center
SHARPNESS	Center
WHITE CONTROL	ON: (COOL)
BALANCE	Center
BASS	Center
TREBLE	Center
MTS MODE	STEREO
SURROUND	OFF
LOUDNESS	OFF
INTERNAL SPEAKERS	ON
P IN P	OFF
CLOSED CAPTION	OFF
CLOSED CAPTION MODE	C.C.
CLOSED CAPTION CHANNEL	1

2-12. Magnetic Field Correction Circuit Operation Check. (35V Only)

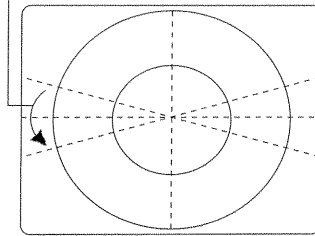
Adjustment Preparation

- (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".

35CX30B/35TX88B/35TX89K REAR PANEL

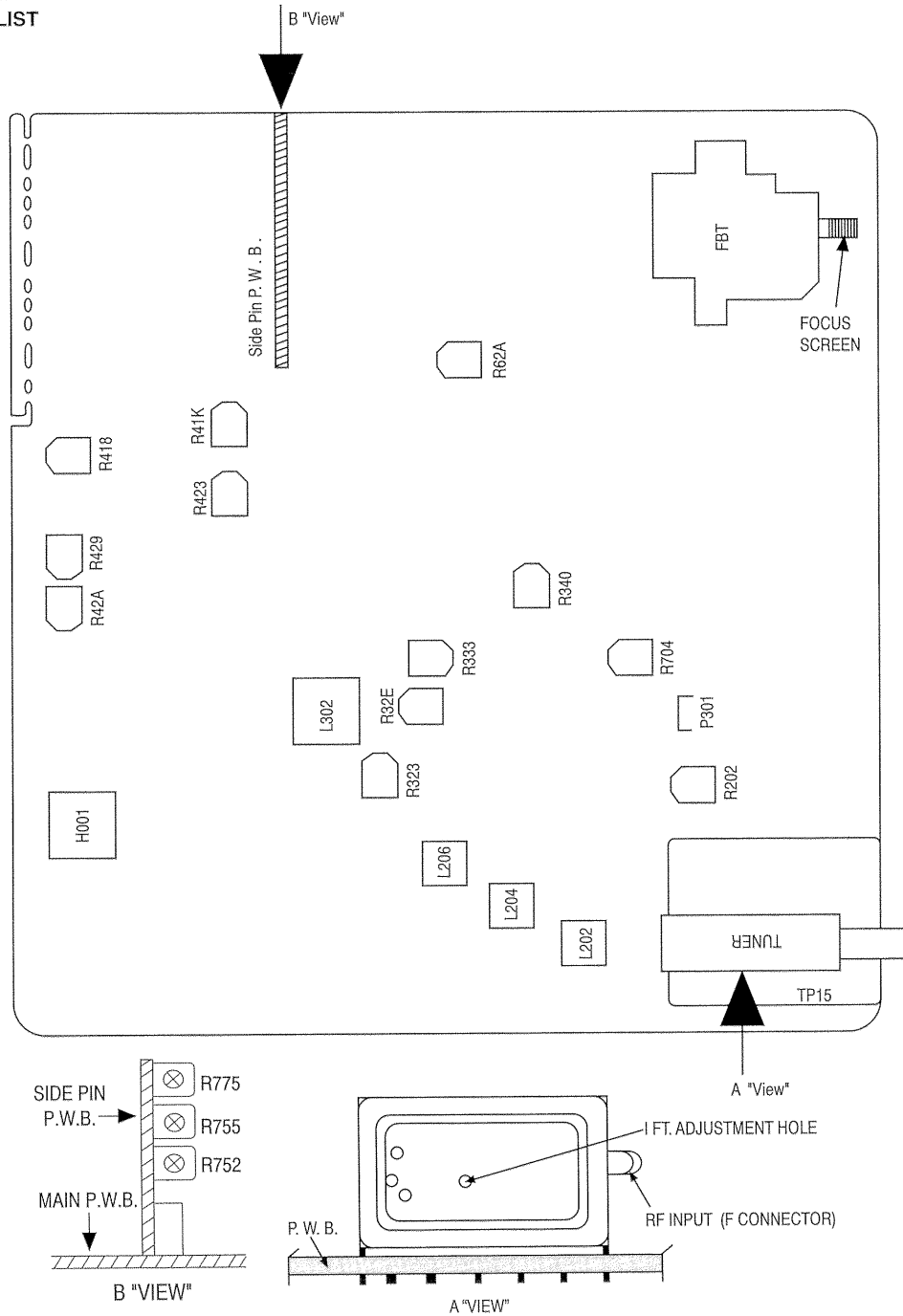


Direction of Raster Rotation



CPT SCREEN

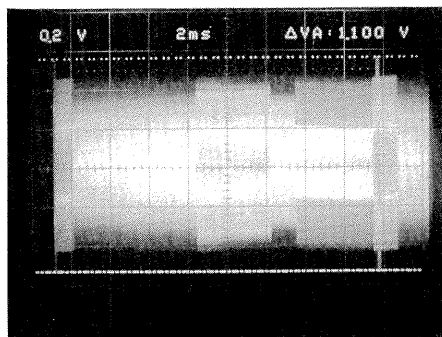
3. ADJUSTMENT POSITION LIST



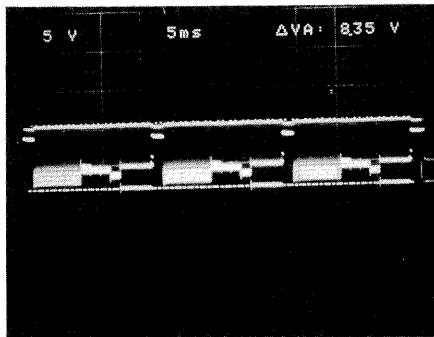
WAVEFORMS AT EACH SECTION

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

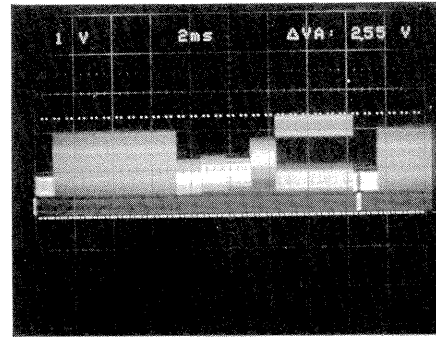
① U101 Pin 7 (IF Out)



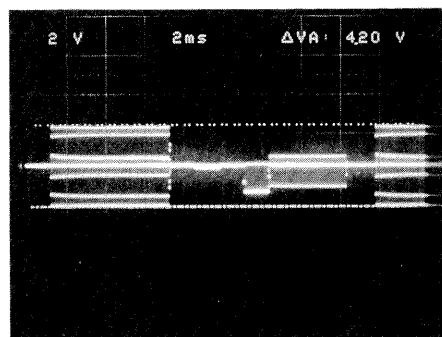
⑤ I201 Pin 21 (-Y)



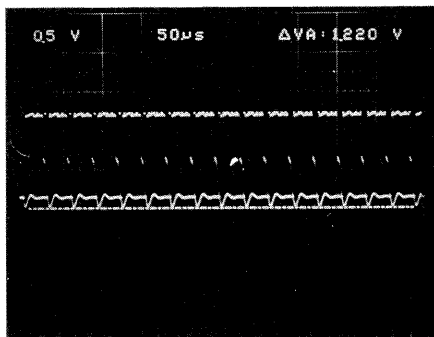
⑨ I201 Pin 44 (Video Det. Out)



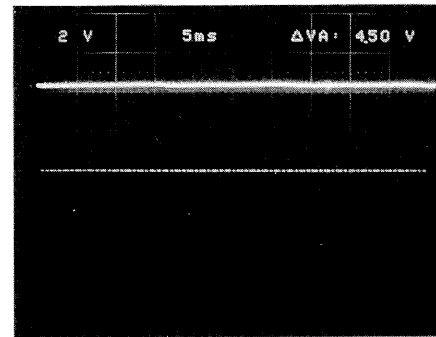
② I201 Pin 18 (R-Y)



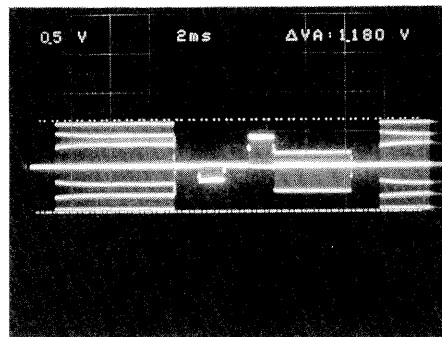
⑥ I201 Pin 23 (H. Out Pulse)



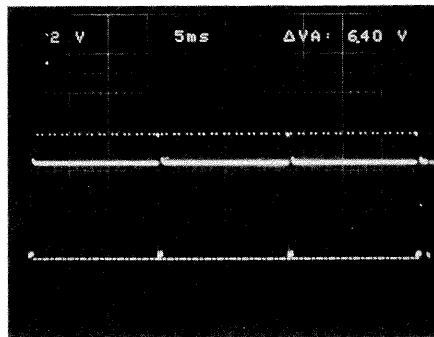
⑩ I201 Pin 47 (AFT Out)



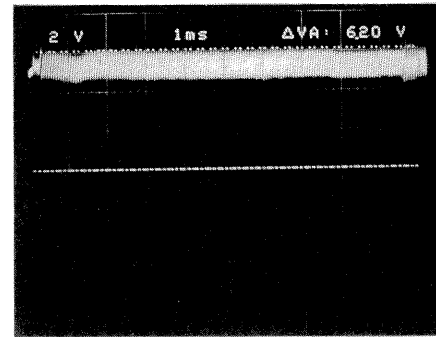
③ I201 Pin 19 (G-Y)



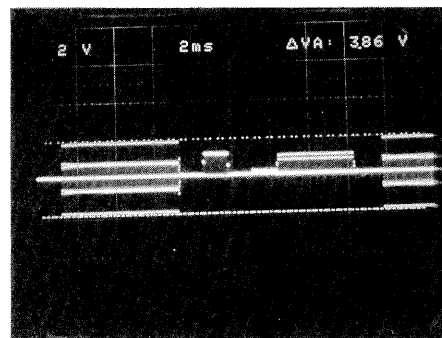
⑦ I201 Pin 28 (V. Out Pulse)



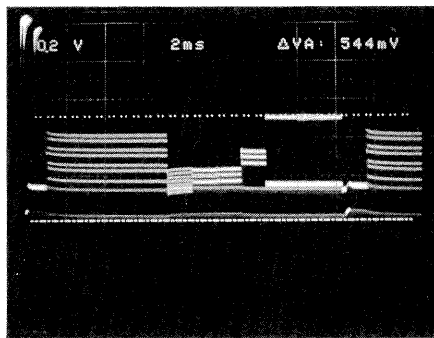
⑪ I201 Pin 49 (RF-AGC Out)



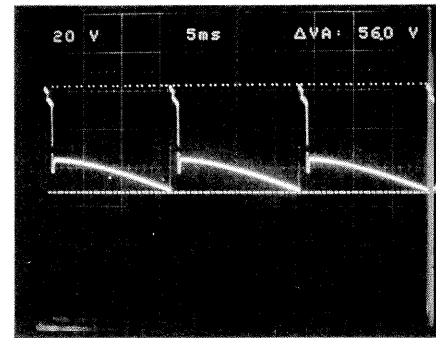
④ I201 Pin 20 (B-Y)



⑧ I201 Pin 34 (Video In)



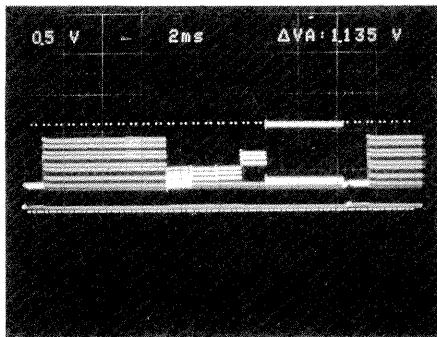
⑫ I620 Pin 12 (V.Out)



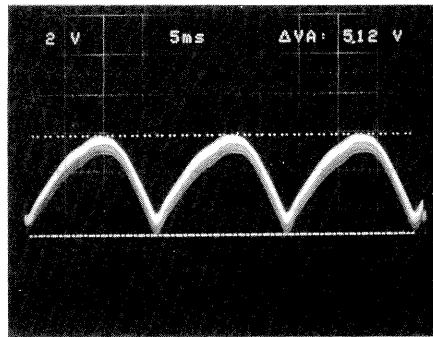
WAVEFORMS AT EACH SECTION

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

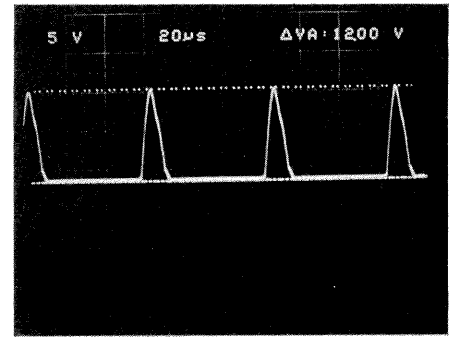
⑬ Q30C Emitter (Y)



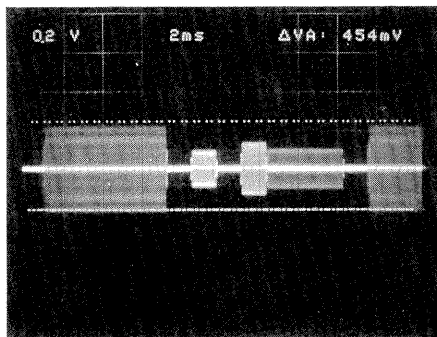
⑰ Q650 Emitter (Side Pin Drive)



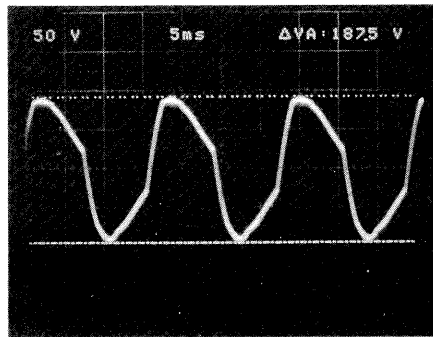
⑳ Q702 Collector (H. Out)



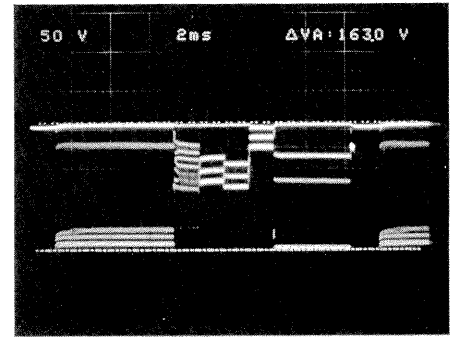
⑭ Q309 Emitter (C)



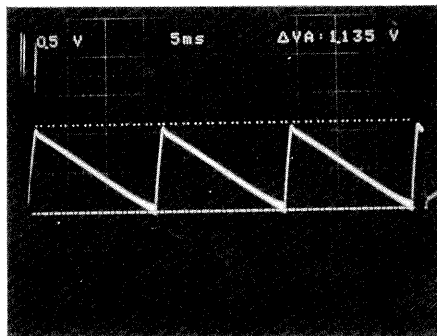
⑱ Q750 Base (Side Pin Adj.)



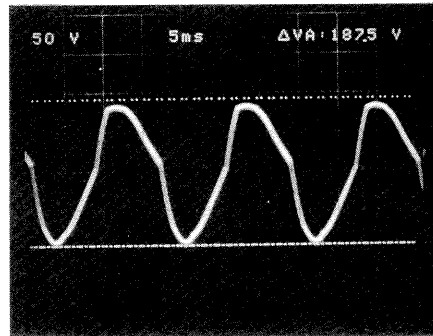
㉑ Q854 Collector (Video Amp. Red)



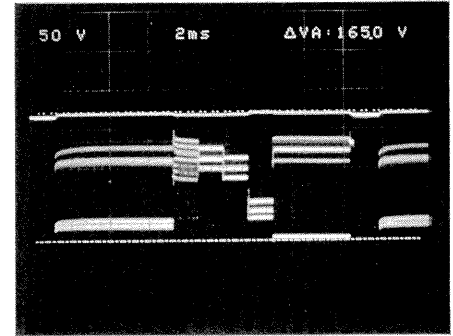
⑮ P65B Pin 1 (Side Pin Amp +)



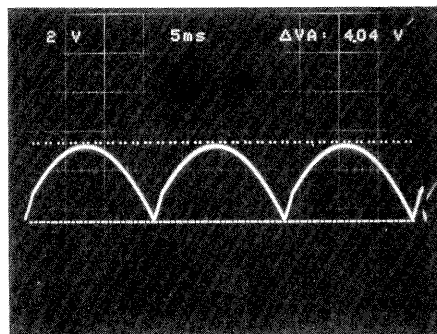
⑲ Q752 Collector (Side Pin Out)



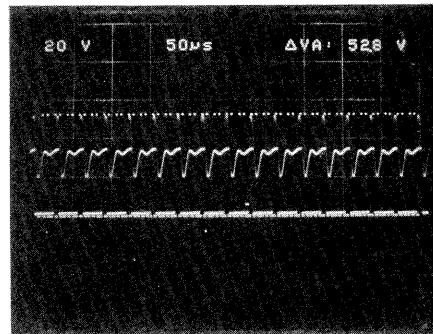
㉒ Q855 Collector (Video Amp. Green)



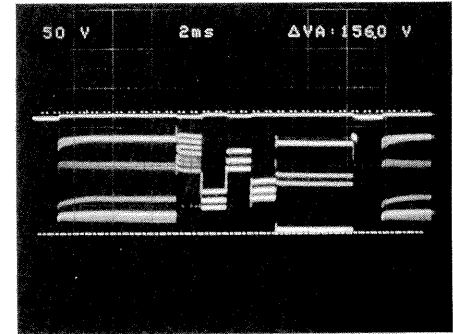
⑯ P65B Pin 2 (Side Pin Amp -)



㉓ Q701 Collector (Hor. Drive)



㉔ Q856 Collector (Video Amp. Blue)



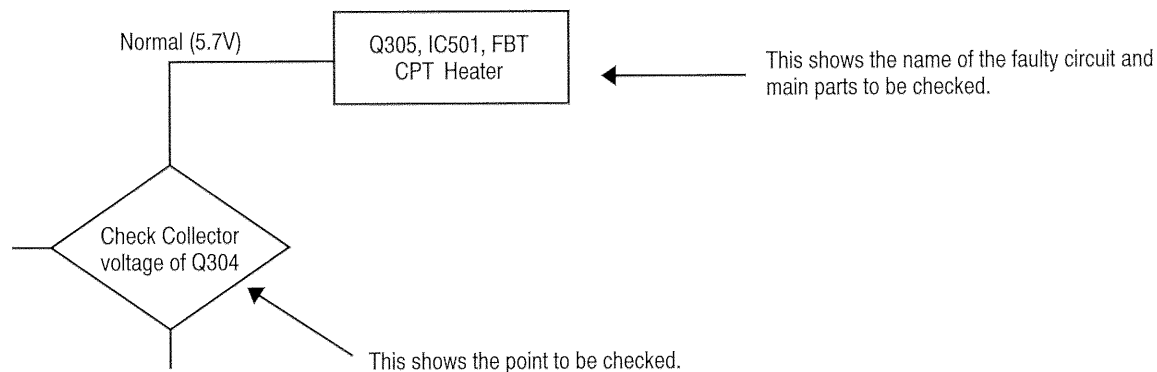
PRODUCT SAFETY NOTE

The shaded and \triangle 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.



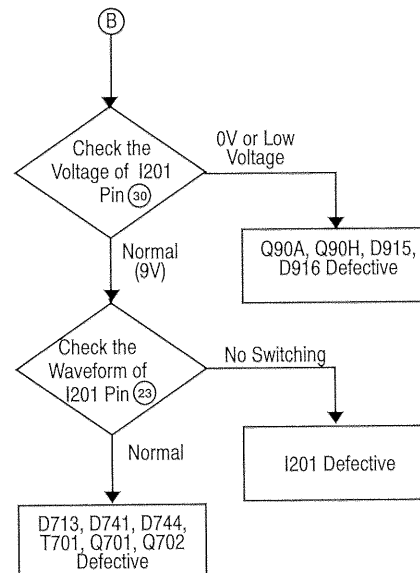
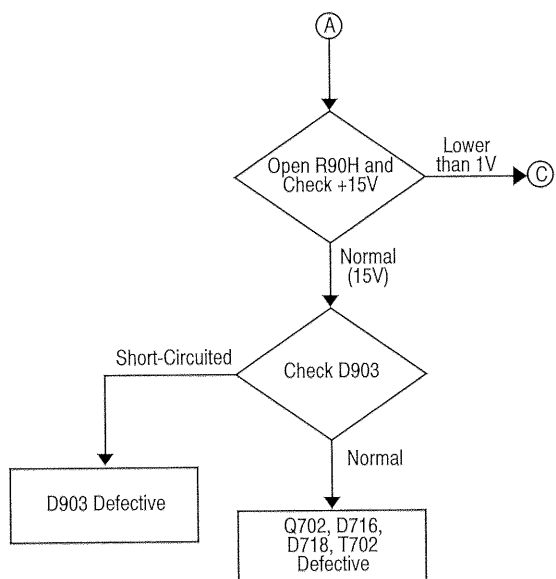
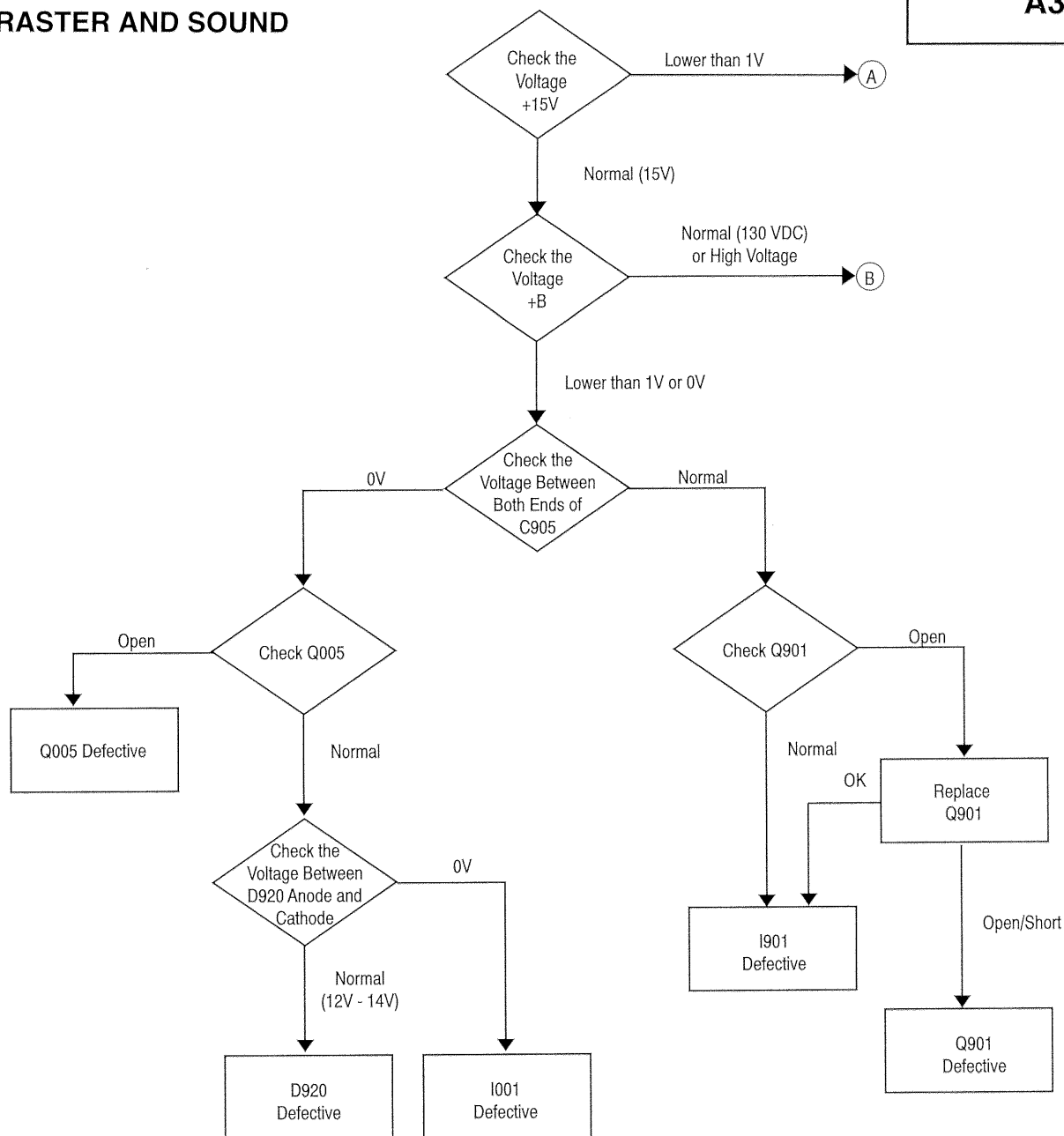
- (2) The voltage shown in the chart may differ to some extent depending on the condition of the set and tester.

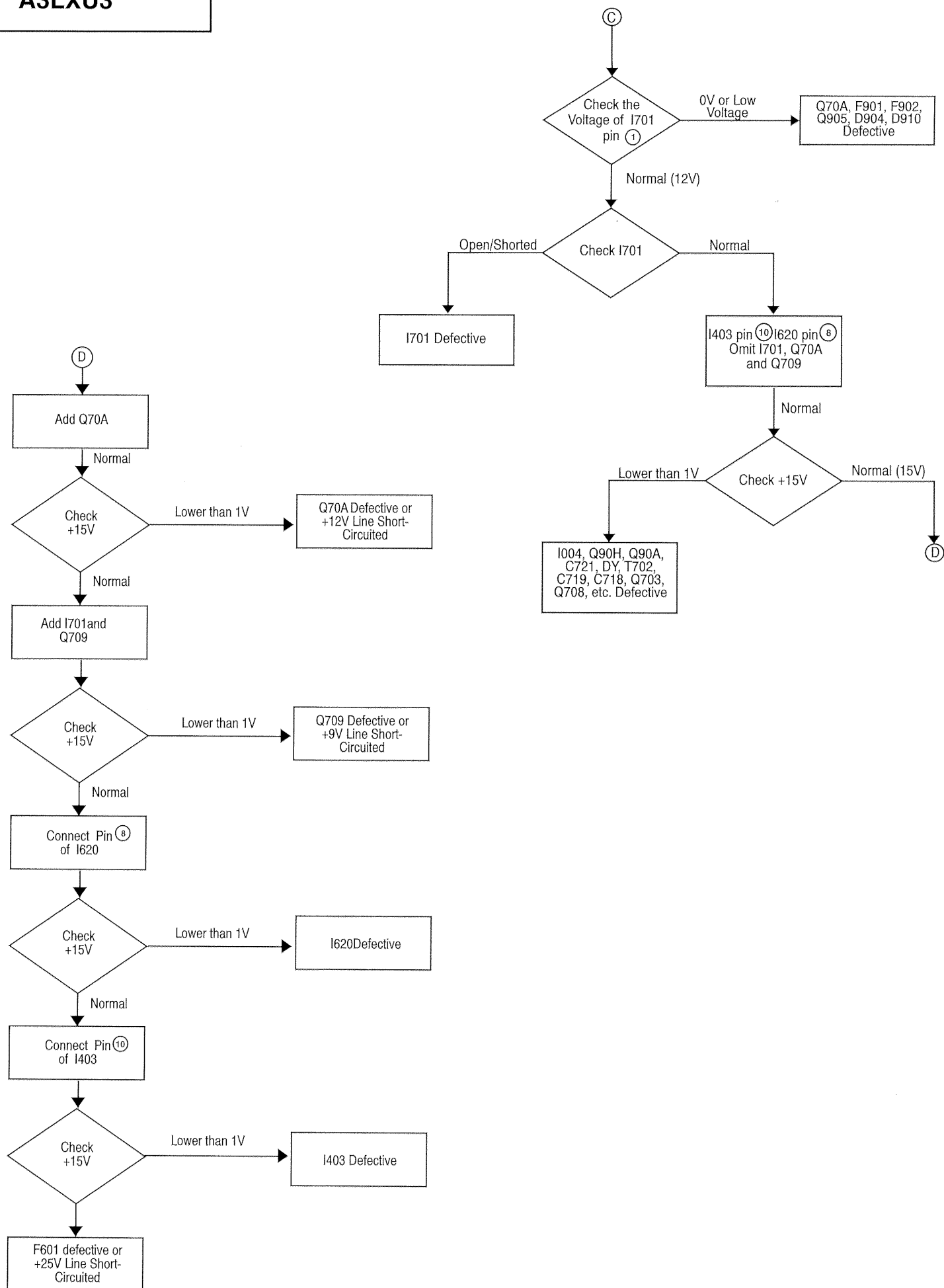
PRECAUTION ON MAKING MEASUREMENTS AND ON HANDLING

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

A3LXU3





REPLACEMENT PARTS LIST

A3LXU3

PRODUCT SAFETY NOTE: Components marked with a \triangle have special characters 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	SYMBOL NO.	PART NO.	PART DESCRIPTION
		MAIN CHASSIS ASSEMBLY PARTS	C201	0800015R	EL 10UF-M 16V
		MAIN PWB CAPACITORS	C202	0800082F	EL 1000UF-M 16V
C001	0890087R	CD 1000PF-K 50V	C203	0244105R	CD 2200PF-K 50V TAPE
C002	0800047R	EL 100UF-M 6.3V	C204	0880044R	PF 0.01UF-KEB 50V
C003	0800072R	EL 470UF-M 6.3V	C205	0880053R	PF 0.047UF-KEB 50V
C004	0244141R	CD 0.01UF-KB B 50V	C206	0890087R	CD 1000PF-K 50V
C005	0890121R	CD 33PF-J CH 50V	C208	0880055R	PF 0.068UF-KEB 50V
C006	0890121R	CD 33PF-J CH 50V	C20A	0246464R	CD 100PF-J CH 50V TAPE
C007	0800003R	EL 1.0UF-M 50V	C20C	0890118R	CD 22PF-J CH 50V
C008	0276717R	PP 0.1UF-J 50V (TF TYP E)	C20E	0246463R	CD 91PF-J CH 50V
C00E	0800009R	EL 4.7UF-M 25V	C20F	0880044R	PF 0.01UF-KEB 50V
C010	0800009R	EL 4.7UF-M 25V	C20H	0800001R	EL 0.47UF-M 50V (SME)
C011	0800049R	EL 100UF-M 16V	C20K	0890063R	CD 15PF-J 50V
C012	0800009R	EL 4.7UF-M 25V	C210	0890121R	CD 33PF-J CH 50V
C013	0800015R	EL 10UF-M 16V	C211	0890121R	CD 33PF-J CH 50V
C014	0800015R	EL 10UF-M 16V	C212	0244105R	CD 2200PF-K 50V TAPE
C015	0800009R	EL 4.7UF-M 25V	C213	0890089R	CD 1500PF-K 50V
C016	0800009R	EL 4.7UF-M 25V	C214	0880053R	PF 0.047UF-KEB 50V
C017	0800009R	EL 4.7UF-M 25V	C215	0800041R	EL 47UF-M 16V
C018	0880051R	PF 0.033UF-KEB 50V	C217	0890118R	CD 22PF-J CH 50V
C019	0890086R	CD 820PF-K 50V	C301	0800003R	EL 1.0UF-M 50V
C01A	0880048R	PF 0.022UF-KEB 50V	C302	0800005R	EL 2.2UF-M 50V
C01E	0800074N	EL 470UF-M 16V	C303	0800015R	EL 10UF-M 16V
C01H	0800015R	EL 10UF-M 16V	C304	0800003R	EL 1.0UF-M 50V
C022	0880048R	PF 0.022UF-KEB 50V	C305	0244141R	CD 0.01UF-KB B 50V
C023	0880044R	PF 0.01UF-KEB 50V	C307	0800005R	EL 2.2UF-M 50V
C024	0890087R	CD 1000PF-K 50V	C309	0800009R	EL 4.7UF-M 25V
C025	0800009R	EL 4.7UF-M 25V	C30A	0890073R	CD 82PF-J 50V
C030	0244105R	CD 2200PF-K 50V TAPE	C30C	0890061R	CD 10PF- 50V
C031	0276717R	PP 0.1UF-J 50V (TF TYP E)	C30E	0244141R	CD 0.01UF-KB B 50V
C032	0890078R	CD 220PF-K 50V	C30K	0800015R	EL 10UF-M 16V
C090	0890087R	CD 1000PF-K 50V	C310	0880044R	PF 0.01UF-KEB 50V
C091	0800015R	EL 1.0UF-M 50V	C311	0890073R	CD 82PF-J 50V
C091	0284623R	BIPOLAR 1.0UF- 50V (Upgrade)	C313	0880044R	PF 0.01UF-KEB 50V
C092	0880048R	PF 0.022UF-KEB 50V	C314	0880044R	PF 0.01UF-KEB 50V
C093	0800005R	EL 2.2UF-M 50V	C315	0800049R	EL 100UF-M 16V
C094	0800047R	EL 100UF-M 6.3V	C316	0800009R	EL 4.7UF-M 25V
C095	0890121R	CD 33PF-J CH 50V	C317	0800049R	EL 100UF-M 16V
C096	0890121R	CD 33PF-J CH 50V	C318	0800015R	EL 10UF-M 16V
C101	0800047R	EL 100UF-M 6.3V	C319	0880044R	PF 0.01UF-KEB 50V
C102	0244105R	CD 2200PF-K 50V TAPE	C31A	0800015R	EL 10UF-M 16V
C103	0244141R	CD 0.01UF-KB B 50V	C31C	0880044R	PF 0.01UF-KEB 50V
C104	0800082F	EL1000UF-M 16V	C31E	0244141R	CD 0.01UF-KB B 50V
C105	0244141R	CD 0.01UF-KB B 50V	C31H	0800015R	EL 10UF-M 16V
C106	0244105R	CD 2200PF-K 50V TAPE	C31K	0880044R	PF 0.01UF-KEB 50V
C107	0890063R	CD 15PF-J 50V	C322	0800049R	EL 100UF-M 16V
C108	0244105R	CD 2200PF-K 50V TAPE	C325	0800015R	EL 10UF-M 16V
C109	0244105R	CD 2200PF-K 50V TAPE	C326	0800009R	EL 4.7UF-M 25V
C110	0890072R	CD 68PF-J 50V	C327	0800049R	EL 100UF-M 16V
C111	0890072R	CD 68PF-J 50V	C330	0800042R	EL 47UF-M 25V
C112	0890072R	CD 68PF-J 50V	C332	0244141R	CD 0.01UF-KB B 50V
			C390	0890063R	CD 15PF-J 50V
			C391	0880044R	PF 0.01UF-KEB 50V

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SYMBOL NO.	PART NO.	PART DESCRIPTION	SYMBOL NO.	PART NO.	PART DESCRIPTION
C392	0890078R	CD 220PF-K 50V	C443	0800023R	EL 22UF-M 16V
C399	0244141R	CD 0.01UF-KB B 50V	C444	0800042R	EL 47UF-M 25V
C401	0800049R	EL 100UF-M 16V	C445	0800042R	EL 47UF-M 25V
C402	0800015R	EL 10UF-M 16V	C450	0800009R	EL 4.7UF-M 25V
C403	0800015R	EL 10UF-M 16V	C451	0800009R	EL 4.7UF-M 25V
C404	0800049R	EL 100UF-M 16V	C453	0800009R	EL 4.7UF-M 25V
C405	0880044R	PF 0.01UF-KEB 50V	C454	0800009R	EL 4.7UF-M 25V
C406	0800009R	EL 4.7UF-M 25V	C455	0800009R	EL 4.7UF-M 25V
C407	0800009R	EL 4.7UF-M 25V	C456	0800009R	EL 4.7UF-M 25V
C408	0800039R	EL 47UF-M 10V	C457	0800009R	EL 4.7UF-M 25V
C409	0276717R	PP 0.1UF-J 50V (TF TYP E)	C458	0800009R	EL 4.7UF-M 25V
C40A	0292712F	TA 3.3UF-K16V	C470	0800015R	EL 10UF-M 16V
C40C	0292714F	TA 10UF-K16V	C471	0800049R	EL 100UF-M 16V
C40E	0800001R	EL 0.47UF-M 0V (SME)	C501	0246445R	CD 16PF-J CH 50V
C40H	0800015R	EL 10UF-M 16V	C502	0244141R	CD 0.01UF-KB B 50V
C40K	0800001R	EL 0.47UF-M 50V (SME)	C503	0800001R	EL 0.47UF-M 50V (SME)
C410	0800009R	EL 4.7UF-M 25V	C504	0800082F	EL 1000UF-M 16V
C411	0800001R	EL 0.47UF-M 50V (SME)	C507	0800074N	EL 470UF-M 16V
C412	0244141R	CD 0.01UF-KB B 50V	C510	0880044R	PF 0.01UF-KEB 50V
C413	0800009R	EL 4.7UF-M 25V	C601	0800003R	EL 1.0UF-M 50V
C414	0800001R	EL 0.47UF-M 50V (SME)	C602	0890089R	CD 1500PF-K 50V
C415	0800001R	EL 0.47UF-M 50V (SME)	C603	0880046R	PF 0.015UF-K 50V
C416	0800001R	EL 0.47UF-M 50V (SME)	C604	0800048R	EL 100UF-M 10V
C417	0800001R	EL 0.47UF-M 50V (SME)	C605	0800003R	EL 1.0UF-M 50V
C418	0800007R	EL 3.3UF-M 50V	C606	0890087R	CD 1000PF-K 50V
C419	0800049R	EL 100UF-M 16V	C607	0244107R	CD 3300PF-K 50V TAPE
C41C	0244105R	CD 2200PF-K 50V TAPE	C608	0800003R	EL 1.0UF-M 50V
C41E	0880048R	PF 0.022UF-KEB 50V	C609	0800015R	EL 10UF-M 16V
C41H	0276717R	PP 0.1UF-J 50V (TF TYP E)	C60F	0890082R	CD 390PF-K 50V
C41K	0880048R	PF 0.022UF-KEB 50V	C620	0800057R	EL 220UF-M 10V
C420	0800003R	EL 1.0UF-M 50V	C621	0880042R	PF 0.0068UF-KEB 50V
C421	0244111R	CD 6800PF-K 50V TAPE	C622	0292716R	TA 1.0UF-K 20V
C422	0276719R	PF 0.15UF-J 50V	C623	0248696R	CD 330PF-J SL 50V TAPE
C423	0800015R	EL 10UF-M 16V	C624	0800061N	EL 220UF-M 35V
C424	0800015R	EL 10UF-M 16V	C625	0800007R	EL 3.3UF-M 50V
C425	0890087R	CD 1000PF-K 50V	C626	0276717R	PP 0.1UF-J 50V (TF TYP E)
C426	0880056R	PF 0.082UF-KEB 50V	C627	0800007R	EL 3.3UF-M 50V
C427	0248700R	CD 680PF-J SL 50V	C628	0800003R	EL 1.0UF-M 50V
C428	0800023R	EL 22UF-M 16V	C629	0800084F	EL 1000UF-M 35V (35V)
C429	0244111R	CD 6800PF-K 50V TAPE	C629	0800083F	EL 1000UF-M 25V (32V)
C42A	0276719R	PF 0.15UF-J 50V	C62A	0800056R	EL 220UF-M 6.3V
C42C	0276717R	PP 0.1UF-J 50V (TF TYP E)	C62H	0276717R	PP 0.1UF-J 50V (TF TYP E)
C42E	0276717R	PP 0.1UF-J 50V (TF TYP E)	C630	0890087R	CD 1000PF-K 50V
C42H	0276717R	PP 0.1UF-J 50V (TF TYP E)	C701	0890087R	CD 1000PF-K 50V
C42K	0276717R	PP 0.1UF-J 50V (TF TYP E)	Δ C702	0800003R	EL 1.0UF-M 50V
C430	0800001R	EL 0.47UF-M 50V (SME)	C703	0800003R	EL 1.0UF-M 50V
C431	0800001R	EL 0.47UF-M 50V (SME)	C704	0880051R	PF 0.033UF-KEB 50V
C432	0800016R	EL 10UF-M 25V	C705	0890087R	CD 1000PF-K 50V
C433	0800047R	EL 100UF-M 6.3V	C706	0244141R	CD 0.01UF-KB B 50V
C434	0244105R	CD 2200PF-K 50V TAPE	C707	0800049R	EL 100UF-M 16V
C435	0800059R	EL 220UF-M 25V	C708	0800001R	EL 0.47UF-M 50V (SME)
C436	0244105R	CD 2200PF-K 50V TAPE	C714	0880044R	PF 0.01UF-KEB 50V
C437	0800059R	EL 220UF-M 25V	C715	0247842R	CD 33PF-SL 500V
C438	0800047R	EL 100UF-M 6.3V	C716	0880019R	PF 0.33UF-KB 50V
C439	0276717R	PP 0.1UF-J 50V (TF TYP E)	Δ C718	0244729	CD 2200PF 2KV
C43A	0800083F	EL 1000UF-M 25V	Δ C719	0244728	CD 1800PF 2KV
C43C	0800082F	EL 1000UF-M 16V	Δ C71A	0244212	CD 1200PF-K 2KV (35V)
C43E	0800041R	EL 47UF-M 16V	Δ C71A	0244211	CD 1000PF-K 2KV (32V)
C43H	0276717R	PP 0.1UF-J 50V (TF TYP E)	C71C	0244105R	CD 2200PF-K 50V TAPE
C43K	0800082F	EL 1000UF-M 16V	C71F	0243506R	CD 270PF-K 500V
C440	0800059R	EL 220UF-M 25V	Δ C71H	0244725	CD 1000PF-K 2.0KV B (35V)
C441	0800015R	EL 10UF-M 16V	C720	0244501R	CD 1000PF-K 500V
C442	0800023R	EL 22UF-M 16V	Δ C721	0262429F	CAP-POLYPRO. 12000PF-J 1800V

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SYMBOL NO.	PART NO.	PART DESCRIPTION	SYMBOL NO.	PART NO.	PART DESCRIPTION
\triangle C722	0299707F	CAP.-POLYESTOR 0.015UF-K 630V	C630	0880053R	PF 0.047UF-KEB 50V
\triangle C723	0263001	EL 3.3UF-M 100V	C631	0800041R	EL 47UF-M 16V
\triangle C724	0299931F	CAP.-POLYPRO. 0.27UF-K 200V	C632	0880042R	PF 0.0068UF-KEB50V (35V)
\triangle C725	0800003R	EL 1.0UF-M 50V	C632	0880039R	PF 0.0047UF-KEB50V (32V)
\triangle C726	0299932F	CAP.-POLYPRO. 0.33UF-K 200V (35V)	C633	0800005R	EL 2.2UF-M 50V
\triangle C726	0299931F	CAP.-POLYPRO. 0.27UF-K 200V (32V)	C634	0800003R	EL 1.0UF-M 50V
C72A	0244501R	CD 1000PF-K 500V	C636	0800005R	EL 2.2UF-M 50V
C72C	0800073R	EL 470UF-M 10V	C637	0800018R	EL 10UF-M 50V
C72H	0800048R	EL 100UF-M 10V	C735	0800007R	EL 3.3UF-M 50V (35V)
C730	0800084F	EL 1000UF-M 35V	C735	0800005R	EL 2.2UF-M 50V (32V)
C732	0800083F	EL 1000UF-M 25V	C750	0800005R	EL 2.2UF-M 50V
C733	0800056R	EL 220UF-M 6.3V	C751	0800044R	EL 47UF-M 50V
C736	0244501R	CD 1000PF-K 500V	C752	0284623R	EL 1UF-SME(BP) 50V
\triangle C737	0800019R	EL 10UF-M 63V	C851	0800049R	EL 100UF-M 16V
C738	0253974F	EL 33UF 250V CE04W2E33 (35V)	C852	0890087R	CD 1000PF-K 50V
C738	0255524F	EL 4.7MF-M 250V (KME) (32V)	C853	0255524F	EL 4.7MF-M 250V (KME)
C73A	0800041R	EL 47UF-M 16V	C856	0244729F	CD 2200PF 2KV
C73C	0890086R	CD 820PF-K 50V	C860	0890087R	CD 1000PF-K 50V
C73H	0890087R	CD 1000PF-K 50V	C861	0890087R	CD 1000PF-K 50V
C742	0254823G	EL 100UF-M 160V	C862	0890087R	CD 1000PF-K 50V
C747	0276717R	PP .1UF-J 50V (TF TYP E)	C864	0890077R	CD 180PF-K 50V
C74A	0258130F	EL 330MF-M 100V(KME) (35V)	C865	0890082R	CD 390PF-K 50V (35V)
C74H	0243508R	CD 390PF-K 500V (35V)	C865	0890079R	CD 270PF-K 50V (32V)
C755	0880035R	PP 2200PF-50V	C866	0890077R	CD 180PF-K 50V (35V)
C756	0800015R	EL 10UF-M 16V	C866	0890079R	CD 270PF-K 50V (32V)
C757	0800015R	EL 10UF-M 16V	C870	0890079R	CD 270PF-K 50V (35V)
\triangle C901	0279697	PF 0.1MF-M 250V	C870	0890077R	CD 180PF-K 50V (32V)
\triangle C902	0248593F	CD 4700PF-Z 250V	C872	0890074R	CD 100PF-J 50V
\triangle C903	0248593F	CD 4700PF-Z 250V	C873	0890074R	CD 100PF-J 50V
\triangle C904	0244505F	CD 0.0022MF-K 500V	C874	0890074R	CD 100PF-J 50V
\triangle C905	0253891	EL 470UF 200V HR	C875	0890074R	CD 100PF-J 50V (35V)
C906	0253957F	EL 22UF-M 160V	C875	0890079R	CD 270PF-K 50V (32V)
C907	0800064R	EL 330UF-M 6.3V	C887	0890084R	CD 560PF-K 50V (35V)
C908	0800003R	EL 1.0UF-M 50V	C887	0890078R	CD 220PF-K 50V (32V)
C909	0800001R	EL 0.47UF-M 50V (SME)	C888	0890087R	CD 1000PF-K 50V
\triangle C90A	0248593F	CD 4700PF-Z 250V	C889	0244171R	CD 0.01UF-Z F 50V TAPE
C90C	0880044R	PF 0.01UF-KEB 50V			PINP PWB CAPACITORS
C90E	0880031R	PP1000PF-K 50V	CA01	0890086R	CD 820PF-K 50V
C90F	0880044R	PF 0.01UF-KEB 50V	CA02	0880044R	PF 0.01UF-KEB 50V
C90H	0284891F	EL 150UF 200V	CA03	0880044R	PF 0.01UF-KEB 50V
C90K	0880066F	PF 0.47 50V	CA04	0800049R	EL 100UF-M 16V
C910	0880044R	PF 0.01UF-KEB 50V	CA05	0880044R	PF 0.01UF-KEB 50V
C911	0890081R	CD 330PF 50V	CA07	0880044R	PF 0.01UF-KEB 50V
C912	0258192F	EL 2200UF 25V	CA08	0800049R	EL 100UF-M 16V
C913	0890087R	CD 1000PF-K 50V	CA09	0880044R	PF 0.01UF-KEB 50V
C914	0800024R	EL 22UF-M 25V	CA10	0880044R	PF 0.01UF-KEB 50V
C915	0800015R	EL 10UF-M 16V	CA11	0800041R	EL 47UF-M 16V
C917	0245612F	CD 4700PF-KF B 1KV	CA12	0800049R	EL 100UF-M 16V
C919	0245608F	CD 1000PF-K B 1000V	CA13	0880044R	PF 0.01UF-KEB 50V
C91C	0890082R	CD 390PF-K 50V	CA14	0890078R	CD 220PF-K 50V
C91H	0800061N	EL 220UF-M 35V	CA15	0880044R	PF 0.01UF-KEB 50V
C91K	0276717R	PP 0.1UF-J 50V (TF TYP E)	CA16	0800015R	EL 10UF-M 16V
\triangle C920	0279697	PF 0.1MF-M 250V	CA17	0800001R	EL 0.47UF-M 50V (SME)
\triangle C969	0248593	CD 4700PF-Z 250V	CA18	0246445R	CD 16PF-J CH 50V
CA01	0800047R	EL 100UF-M 6.3V (35V)	CA19	0890085R	CD 680PF-K 50V
CAZ1	0890084R	CD 560PF-K 50V	CA20	0800001R	EL 0.47UF-M 50V (SME)
CAZ2	0800015R	EL 10UF-M 16V	CA21	0880044R	PF 0.01UF-KEB 50V
		CPT PWB CAPACITORS	CA22	0890078R	CD 220PF-K 50V
C320	0800015R	EL 10UF-M 16V	CA25	0800003R	EL 1.0UF-M 50V
C321	0244141R	CD 0.01UF-KB B 50V	CA26	0880044R	PF 0.01UF-KEB 50V

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SYMBOL NO.	PART NO.	PART DESCRIPTION	SYMBOL NO.	PART NO.	PART DESCRIPTION
CA27	0800005R	EL 2.2UF-M 50V	D012	2339889M	ZD HZS12 (C3) 0.005A
CA28	0880044R	PF 0.01UF-KEB 50V	D013	2339889M	ZD HZS12 (C3) 0.005A
CA29	0880044R	PF 0.01UF-KEB 50V	D014	2339889M	ZD HZS12 (C3) 0.005A
CA32	0800015R	EL 10UF-M 16V	D016	2398611M	DI 1SS254 TAPE (35V) SI 4NSEC
CA35	0800058R	EL 220UF-M 16V	D017	2398611M	DI 1SS254 TAPE (35V) SI 4NSEC
CA37	0880057R	PF 0.1UF-KEB 50V	D020	2398611M	DI 1SS254 TAPE (35V) SI 4NSEC
CA38	0880044R	PF 0.01UF-KEB 50V	D022	2398611M	DI 1SS254 TAPE (35V) SI 4NSEC
CA40	0800049R	EL 100UF-M 16V	D023	2339862M	ZD HZS-9A2 TA
CA41	0880044R	PF 0.01UF-KEB 50V	D024	2398611M	DI 1SS254 TAPE (35V) SI 4NSEC
CA42	0800049R	EL 100UF-M 16V	D101	2339971M	ZD HZS33-1 TA
CA43	0880044R	PF 0.01UF-KEB 50V	D301	2398611M	DI 1SS254 TAPE (35V) SI 4NSEC
CA44	0800041R	EL 47UF-M 16V	D302	2398611M	DI 1SS254 TAPE (35V) SI 4NSEC
CA48	0880044R	PF 0.01UF-KEB 50V	D303	2398611M	DI 1SS254 TAPE (35V) SI 4NSEC
CA49	0880044R	PF 0.01UF-KEB 50V	D304	2339889M	ZD HZS12 (C3) 0.005A
CA54	0880044R	PF 0.01UF-KEB 50V	D305	2339862M	ZD HZS-9A2 TA
CA55	0800049R	EL 100UF-M 16V	D306	2339862M	ZD HZS-9A2 TA
CA60	0800015R	EL 10UF-M 16V	D307	2398611M	DI 1SS254 TAPE (35V) SI 4NSEC
CA61	0800007R	EL 3.3UF-M 50V	D308	2398611M	DI 1SS254 TAPE (35V) SI 4NSEC
CA62	0890085R	CD 680PF-K 50V	D390	2398611M	DI 1SS254 TAPE (35V) SI 4NSEC
CA63	0890089R	CD 1500PF-K 50V	D391	2398611M	DI 1SS254 TAPE (35V) SI 4NSEC
CA66	0890066R	CD 27PF-J 50V	D401	2339812M	ZD HZS3A2 TA (SI.200MA)
CA67	0800015R	EL 10UF-M 16V	D402	2339812M	ZD HZS3A2 TA (SI.200MA)
CA68	0880044R	PF 0.01UF-KEB 50V	D403	2398611M	DI 1SS254 TAPE (35V) SI 4NSEC
CA69	0800003R	EL 1.0UF-M 50V	D404	2398611M	DI 1SS254 TAPE (35V) SI 4NSEC
CA70	0880057R	PF 0.1UF-KEB 50V	D405	2398611M	DI 1SS254 TAPE (35V) SI 4NSEC
CA71	0880057R	PF 0.1UF-KEB 50V	D406	2398611M	DI 1SS254 TAPE (35V) SI 4NSEC
CA72	0890087R	CD 1000PF-K 50V	D407	2398611M	DI 1SS254 TAPE (35V) SI 4NSEC
CE20	0800015R	EL 10UF-M 16V	D410	2339889M	ZD HZS12 (C3) 0.005A (35V)
CE21	0880044R	PF 0.01UF-KEB 50V	D501	2339889M	ZD HZS12 (C3) 0.005A
CE22	0800015R	EL 10UF-M 16V	D502	2339889M	ZD HZS12 (C3) 0.005A
CE25	0244105R	CD 2200PF-K 50V TAPE	D503	2339889M	ZD HZS12 (C3) 0.005A
		35V MAGNETIC FIELD PWB CAPACITORS	D601	2398611M	DI 1SS254 TAPE (35V) SI 4NSEC
CMF1	0800015R	EL 10UF-M 16V (35V)	D602	2398611M	DI 1SS254 TAPE (35V) SI 4NSEC
CMF2	0800049R	EL 100UF-M 16V (35V)	D605	2398611M	DI 1SS254 TAPE (35V) SI 4NSEC
CMF3	0284623R	EL 1UF-SME(BP) 50V (35V)	D620	2339862M	ZD HZS-9A2 TA
CY01	0890083R	CD 470PF-K 50V (35V)	D621	2339491M	DI AM01Z (200 TAPE) 1A
CY02	0890083R	CD 470PF-K 50V (35V)	D622	2339491M	DI AM01Z (200 TAPE) 1A
CY03	0880044R	PF 0.01UF-KEB 50V (35V)	D623	2398611M	DI 1SS254 TAPE (35V) SI 4NSEC
CY04	0800015R	EL 10UF-M 16V (35V)	D701	2398611M	DI 1SS254 TAPE (35V) SI 4NSEC
CY05	0276717R	PP 0.1UF-J 50V (TF TYP E) (35V)	D703	2398611M	DI 1SS254 TAPE (35V) SI 4NSEC
CY06	0890076R	CD 150PF-K 50V (35V)	D704	2398611M	DI 1SS254 TAPE (35V) SI 4NSEC
CY07	0800049R	EL 100UF-M 16V (35V)	D705	CH00031M	DI AU02V1 (280V)
CY08	0880044R	PF 0.01UF-KEB 50V (35V)	\triangle D707	2339242M	ZD HZS33L2 TAPE
		MAIN PWB DIODES	\triangle D708	2339223M	ZD HZS27 (3L)
D001	2398611M	DI 1SS254 TAPE (35V) SI 4NSEC	D712	2339251M	ZD HZS36-1L TAPE
D003	2398611M	DI 1SS254 TAPE (35V) SI 4NSEC	D713	2339491M	DI AM01Z (200 TAPE) 1A
D004	2398611M	DI 1SS254 TAPE (35V) SI 4NSEC	D714	2398611M	DI 1SS254 TAPE (35V) SI 4NSEC
D005	2339833M	ZD HZS5A3 TA SI 200MA	D715	2338944	DI FML-G12S (F) (200V) SI 0.04US (35V)
D006	2398611M	DI 1SS254 TAPE (35V) SI 4NSEC	\triangle D716	2348511	DI RS3FS
D007	2398611M	DI 1SS254 TAPE (35V) SI 4NSEC	\triangle D717	2348511	DI RS3FS (35V)
D009	2398611M	DI 1SS254 TAPE (35V) SI 4NSEC	\triangle D718	2336612M	DI RU3AM TA
D00A	2398611M	DI 1SS254 TAPE (35V) SI 4NSEC	D71A	2339481M	DI AS01Z (200 TAPE) SI 0.6A
D00C	2398611M	DI 1SS254 TAPE (35V) SI 4NSEC	D72A	2331809M	ZD DI HZ-6 TAPE (C3) SI 500MW
D00E	2398611M	DI 1SS254 TAPE (35V) SI 4NSEC	D72H	2331812M	ZD DI HZ-7 TAPE (A2) SI 500MW
D00H	2398611M	DI 1SS254 TAPE (35V) SI 4NSEC	D73A	2339851M	ZD HZS7A1 TAPE (SI.200MA)
D00K	2398611M	DI 1SS254 TAPE (35V) SI 4NSEC	\triangle D73C	2339481M	DI AS01Z (200 TAPE) SI 0.6A
D010	2398611M	DI 1SS254 TAPE (35V) SI 4NSEC	D73F	2398611M	DI 1SS254 TAPE (35V) SI 4NSEC
D011	2398611M	DI 1SS254 TAPE (35V) SI 4NSEC	D73H	CH00031M	DI AU02V1(280V)
			D740	2398611M	DI 1SS254 TAPE (35V) SI 4NSEC
			D741	2339491M	DI AM01Z (200 TAPE) 1A
			D742	2339851M	ZD HZS7A1 TAPE (SI.200MA)
			D743	2339834M	ZD HZS5(B1) TAPE

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SYMBOL NO.	PART NO.	PART DESCRIPTION	SYMBOL NO.	PART NO.	PART DESCRIPTION
D744	2339882M	ZD DI HZS-12(A2) TAPE			35V CONTROL PWB DIODES
D745	2339491M	DI AM01Z (200 TAPE) 1A (35V)			
D750	2398611M	DI 1SS254 TAPE (35V) SI 4NSEC	ZD0501	2339885M	ZD HZS12B2 TA (35V)
D781	2339822M	ZD HZS4A2 TA	ZD0502	2339885M	ZD HZS12B2 TA (35V)
\triangle D901	2342062	DI D3SBA60-4103	ZD3801	2331154M	ZD HZ-12 (A1-3 B1-3.TA) SI 200MA (35V)
D902	2339491M	DI AM01Z (200 TAPE) 1A	ZD3802	2331154M	ZD HZ-12 (A1-3 B1-3.TA) SI 200MA (35V)
D903	2339491M	DI AM01Z (200 TAPE) 1A			
D904	2331991M	DI R02A (V) SI 1.2A 6			MAIN PWB FUSES
D905	2339481M	DI AS01Z (200 TAPE) SI 0.6A	\triangle F601	2722382	FUSE-DC0.75A-J/UL(L)
D906	2339876M	ZD HZS11B3 TA	\triangle F901	2722358	FUSE AC05A
D907	2339481M	DI AS01Z (200 TAPE) SI 0.6A	\triangle F902	2722353	FUSE AC1.6A
D908	2339481M	DI AS01Z (200 TAPE) SI 0.6A			
D909	2339812M	ZD HZS3A2 TA (SI.200MA)			MAIN PWB SURGE PROTECTOR
\triangle D90A	2398611M	DI 1SS254 TAPE (35V) SI 4NSEC			
D90C	2398611M	DI 1SS254 TAPE (35V) SI 4NSEC	\triangle G901	2340741	SURGE PROTECTOR DSP-301N-S00B
D90E	2339835M	ZD HZS5B2 TAPE			
D90F	2398611M	DI 1SS254 TAPE (35V) SI 4NSEC			CPT PWB SPARK GAP
D90H	2339835M	ZD HZS5B2 TAPE			
D90K	2339833M	ZD HZS5A3 TA SI 200MA	G851	2340037	SPARK GAP
D910	2338944	DI FML-G12S (F) (200V) SI 0.04US	G854	2340039	SPARK GAP (35V)
D912	2339481M	DI AS01Z (200 TAPE) SI 0.6A	G855	2340039	SPARK GAP (35V)
D913	2339835M	ZD HZS5B2 TAPE	G856	2340039	SPARK GAP (35V)
D914	2339491M	DI AM01Z (200 TAPE) 1A			
D915	2339848M	ZD HZS-6-C2 TAPE			MAIN PWB FILTERS
D916	2339848M	ZD HZS-6-C2 TAPE			
D917	2339491M	DI AM01Z (200 TAPE) 1A			
D920	2398611M	DI 1SS254 TAPE (35V) SI 4NSEC	H301	2151041	DELAY LINE AND BAND PASS FILTER
D921	2339191M	ZD HZS20-1L TAPE	\triangle H901	2793313	CP-EXN-G131P365L
		CPT PWB DIODES			PINP PWB FILTERS
D626	2398611M	DI 1SS254 TAPE (35V) SI 4NSEC			
D627	2398611M	DI 1SS254 TAPE (35V) SI 4NSEC	HA02	2791754	FX-DSS306B101M
D628	2398611M	DI 1SS254 TAPE (35V) SI 4NSEC	HA03	2791754	FX-DSS306B101M
D719	2398611M	DI 1SS254 TAPE (35V) SI 4NSEC	HA07	2791759	FX-DSS306B102M
D720	2398611M	DI 1SS254 TAPE (35V) SI 4NSEC	HA08	2791759	FX-DSS306B102M
D721	2335991M	ZD HZ-T33 (02 TP)	HA09	2791762	FX-DSS306FZ103M
D722	2398611M	DI 1SS254 TAPE (35V) SI 4NSEC	HA10	2791762	FX-DSS306FZ103M
D801	2398611M	DI 1SS254 TAPE (35V) SI 4NSEC			MAIN PWB INTEGRATED CIRCUITS
D802	2398611M	DI 1SS254 TAPE (35V) SI 4NSEC			
D803	2331781M	ZD HZ-4 TAPE (A1) SI 500MW	I001	CP03141	IC LC864164B-5A78
D810	2339601M	ZD HZS-2 TAPE (ALL) SI 400MW	I001	CP03142	IC LC864164B (UPGRADE)
D811	2339601M	ZD HZS-2 TAPE (ALL) SI 400MW	I002	2381111	IC M6M80021L
D812	2339601M	ZD HZS-2 TAPE (ALL) SI 400MW	I003	2917391	IC MSC11371RS
D821	2398611M	DI 1SS254 TAPE (35V) SI 4NSEC	I004	2020461	IC AN78L05
D822	2398611M	DI 1SS254 TAPE (35V) SI 4NSEC	\triangle I201	2004133	IC LA7674
D823	2398611M	DI 1SS254 TAPE (35V) SI 4NSEC	I301	2003981	IC BA7604N
		PINP PWB DIODES	I302	CZ00081	IC LA7952-ANALOG MONOLITHIC
DA01	2398611M	DI 1SS254 TAPE (35V) SI 4NSEC	I401	2004592	IC AN5817K
DA02	2339867M	ZD HZS-9-C1 TAPE (SI.200MA)	I402	CK00121	IC UPC1892-SURROUND
DA03	2339867M	ZD HZS-9-C1 TAPE (SI.200MA)	\triangle I403	2004341	IC AN7178
DA04	2339867M	ZD HZS-9-C1 TAPE (SI.200MA)	I404	2366301	IC UPD4052BC
DA05	2398611M	DI 1SS254 TAPE (35V) SI 4NSEC	\triangle I620	2003541	IC LA7838
DA06	2339867M	ZD HZS-9-C1 TAPE (SI.200MA)	I701	2003423	IC UPC7893AHF-ICL
DA07	2398611M	DI 1SS254 TAPE (35V) SI 4NSEC	\triangle I901	2912177	IC STR30130
DA08	2398611M	DI 1SS254 TAPE (35V) SI 4NSEC	\triangle I902	2000521	IC PC713F6
DA09	2398611M	DI 1SS254 TAPE (35V) SI 4NSEC	\triangle I903	2000465	IC PS2501-1(KC/LC)
DA10	2398611M	DI 1SS254 TAPE (35V) SI 4NSEC	\triangle I904	2000465	IC PS2501-1(KC/LC)
DA11	2398611M	DI 1SS254 TAPE (35V) SI 4NSEC			
DE20	2398611M	DI 1SS254 TAPE (35V) SI 4NSEC			

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SYMBOL NO.	PART NO.	PART DESCRIPTION	SYMBOL NO.	PART NO.	PART DESCRIPTION
I621 △ I720	2362601	CPT PWB INTEGRATED CIRCUITS IC HA17458PS	△ L902 L905 L906 L907 L908 L909 L90A L920 L922 LA01	2121676	LINE FILTER
	2000521	IC PC713F6		2122652M	FERRITE CORE
	PINP PWB INTEGRATED CIRCUITS			2122652M	FERRITE CORE
IA01	2020341	IC MM1111XS	L905 L906 L907 L908 L909 L90A L920 L922 LA01	2122652M	FERRITE CORE
IA02	CP00841	IC M52694P-ANALOG MONOLITHIC		2122652M	FERRITE CORE
IA03	CP00831	IC M65607SP-DIGITAL MONOLITHIC		2122652M	FERRITE CORE
IA04	CP00851	IC HM53461-10-DIGITAL MONOLITHIC	L905 L906 L907 L908 L909 L90A L920 L922 LA01	2122652M	FERRITE CORE
IA05	2366361	IC.AN7805		2122652M	FERRITE CORE
I05	CP01771	IC M52684AP-ANALOG MONOLITHIC		2122652M	FERRITE CORE
35V MAG. FIELD PWB INTEGRATED CIRCUITS			CPT PWB INDUCTORS/COILS		
IY01	2381211	IC M51494L (35V)	L850 L851 L852 L853 L854 L855 L856 L861 L862 L863 L864 L865 L866 L867 L868 L869 L871	2120482	FILTER COIL 100 UHK
				2122945M	COIL-AXIAL 15UHKM BELTING
				2122945M	COIL-AXIAL 15UHKM BELTING
MAIN PWB INDUCTORS/COILS			CPT PWB INDUCTORS/COILS		
L001	2122253M	COIL-AXIAL 100UH-K	L850 L851 L852 L853 L854 L855 L856 L861 L862 L863 L864 L865 L866 L867 L868 L869 L871	2122945M	COIL-AXIAL 15UHKM BELTING
L003	2122942M	COIL-AXIAL 8.2UHKM BELTING		2122945M	COIL-AXIAL 15UHKM BELTING
L004	2122942M	COIL-AXIAL 8.2UHKM BELTING		2122945M	COIL-AXIAL 15UHKM BELTING
L005	2122942M	COIL-AXIAL 8.2UHKM BELTING	L850 L851 L852 L853 L854 L855 L856 L861 L862 L863 L864 L865 L866 L867 L868 L869 L871	2122956M	COIL-AXIAL 100UHKM BELTING
L006	2122942M	COIL-AXIAL 8.2UHKM BELTING		2122956M	COIL-AXIAL 100UHKM BELTING
L008	2120482	FILTER COIL 100 UHK		2122956M	COIL-AXIAL 100UHKM BELTING
L010	BH00101	OSC COIL	L850 L851 L852 L853 L854 L855 L856 L861 L862 L863 L864 L865 L866 L867 L868 L869 L871	2123468M	FERRITE BEADS CORE LEAD 0.8MH
L101	2122253M	COIL-AXIAL 100UH-K		2123468M	FERRITE BEADS CORE LEAD 0.8MH
L102	2122253M	COIL-AXIAL 100UH-K		2123468M	FERRITE BEADS CORE LEAD 0.8MH
L103	2122927M	COIL-AXIAL 0.68UH-M	L850 L851 L852 L853 L854 L855 L856 L861 L862 L863 L864 L865 L866 L867 L868 L869 L871	2123468M	FERRITE BEADS CORE LEAD 0.8MH
L201	2122253M	COIL-AXIAL 100UH-K		2123468M	FERRITE BEADS CORE LEAD 0.8MH
L202	2145982	COIL-DISCR1 4.7MHZ		2123468M	FERRITE BEADS CORE LEAD 0.8MH
L203	2143672	IF COIL WITH 7 CASE 1:3 INCORE	L850 L851 L852 L853 L854 L855 L856 L861 L862 L863 L864 L865 L866 L867 L868 L869 L871	2123468M	FERRITE BEADS CORE LEAD 0.8MH
L204	2143678	IF COIL WITH 7 CASE 10T		2123468M	FERRITE BEADS CORE LEAD 0.8MH
L205	2142445	COIL-AFC		2123468M	FERRITE BEADS CORE LEAD 0.8MH
L206	2122949M	COIL-AXIAL 33UHKM BELTING	LA01 LA02 LA03 LA04 LA07 LA09	2123468M	FERRITE BEADS CORE LEAD 0.8MH
L207	2122944M	COIL-AXIAL 12UHKM BELTING		2123468M	FERRITE BEADS CORE LEAD 0.8MH
L208	2122952M	COIL-AXIAL 47UHKM BELTING		2123468M	FERRITE BEADS CORE LEAD 0.8MH
L301	2122253M	COIL-AXIAL 100UH-K	LA01 LA02 LA03 LA04 LA07 LA09	2123468M	FERRITE BEADS CORE LEAD 0.8MH
L302	2145891	1H DELAY LINE		2123468M	FERRITE BEADS CORE LEAD 0.8MH
L303	2122939M	COIL-AXIAL 5.6UHKM BELTING		2123468M	FERRITE BEADS CORE LEAD 0.8MH
L304	2122943M	COIL-AXIAL 10UHKM BELTING	LA01 LA02 LA03 LA04 LA07 LA09	2123468M	FERRITE BEADS CORE LEAD 0.8MH
L305	2122943M	COIL-AXIAL 10UHKM BELTING (35V)		2123468M	FERRITE BEADS CORE LEAD 0.8MH
L305	2122947M	COIL-AXIAL 22UHKM BELTING		2123468M	FERRITE BEADS CORE LEAD 0.8MH
L308	2122951M	COIL-AXIAL 39UHKM BELTING	LA01 LA02 LA03 LA04 LA07 LA09	2123468M	FERRITE BEADS CORE LEAD 0.8MH
L309	2122956M	COIL-AXIAL 100UHKM BELTING		2123468M	FERRITE BEADS CORE LEAD 0.8MH
L311	2122253M	COIL-AXIAL 100UH-K		2123468M	FERRITE BEADS CORE LEAD 0.8MH
L601	2122956M	COIL-AXIAL 100UHKM BELTING	LA01 LA02 LA03 LA04 LA07 LA09	2123468M	FERRITE BEADS CORE LEAD 0.8MH
L602	BH00204R	FILTER COIL 18UH (35V)		2123468M	FERRITE BEADS CORE LEAD 0.8MH
L700	2122938M	COIL-AXIAL 4.7UHKM BELTING		2123468M	FERRITE BEADS CORE LEAD 0.8MH
L701	2122652M	FERRITE CORE	LA01 LA02 LA03 LA04 LA07 LA09	2123468M	FERRITE BEADS CORE LEAD 0.8MH
L702	2124513	COIL-H.LINEARITY M1LXU1		2123468M	FERRITE BEADS CORE LEAD 0.8MH
L703	2771893	FERITE BEADS CORE (005)		2123468M	FERRITE BEADS CORE LEAD 0.8MH
△ L704	2275381	COIL-CHOKING 1000UH	LA01 LA02 LA03 LA04 LA07 LA09	2123468M	FERRITE BEADS CORE LEAD 0.8MH
L705	2122253M	COIL-AXIAL 100UH-K (35V)		2123468M	FERRITE BEADS CORE LEAD 0.8MH
L705	2122248M	COIL-AXIAL 47UH-K (32V)		2123468M	FERRITE BEADS CORE LEAD 0.8MH
L709	BH00206R	FILTER COIL 27UH (35V)	LA01 LA02 LA03 LA04 LA07 LA09	2123468M	FERRITE BEADS CORE LEAD 0.8MH
L709	BH00205R	FILTER COIL 22UH (32V)		2123468M	FERRITE BEADS CORE LEAD 0.8MH
△ L710	2122244M	COIL-AXIAL 22UH-K		2123468M	FERRITE BEADS CORE LEAD 0.8MH
L711	2122652M	FERRITE CORE	LA01 LA02 LA03 LA04 LA07 LA09	2123468M	FERRITE BEADS CORE LEAD 0.8MH
L71A	2122652M	FERRITE CORE		2123468M	FERRITE BEADS CORE LEAD 0.8MH
△ L901	2272293	LINE FILTER-LL		2123468M	FERRITE BEADS CORE LEAD 0.8MH

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SYMBOL NO.	PART NO.	PART DESCRIPTION	SYMBOL NO.	PART NO.	PART DESCRIPTION
Q309	2320637M	TRS. 2SA673 (C 26TZ/D 26TZ) SI 80MHZ	Q814	2320596M	TRS. 2SC458 (C TZ/D TZ) SI 230MHZ
Q30A	2320596M	TRS. 2SC458 (C TZ/D TZ) SI 230MHZ	Q815	2320637M	TRS. 2SA673 (C 26TZ/D 26TZ) SI 80MHZ
Q30C	2320596M	TRS. 2SC458 (C TZ/D TZ) SI 230MHZ	Q851	2320591M	TRS. 2SC458 (B TZ/C TZ) SI 230MHZ
Q30E	2320596M	TRS. 2SC458 (C TZ/D TZ) SI 230MHZ	Q852	2320591M	TRS. 2SC458 (B TZ/C TZ) SI 230MHZ
Q30H	2320596M	TRS. 2SC458 (C TZ/D TZ) SI 230MHZ	Q853	2320591M	TRS. 2SC458 (B TZ/C TZ) SI 230MHZ
Q30K	2320637M	TRS. 2SA673 (C 26TZ/D 26TZ) SI 80MHZ	Q854	2312371	TRS. 2SC3942 (RL)
Q310	2320596M	TRS. 2SC458 (C TZ/D TZ) SI 230MHZ	Q855	2312371	TRS. 2SC3942 (RL)
Q312	2320596M	TRS. 2SC458 (C TZ/D TZ) SI 230MHZ	Q856	2312371	TRS. 2SC3942 (RL)
Q314	2320637M	TRS. 2SA673 (C 26TZ/D 26TZ) SI 80MHZ	Q857	2320596M	TRS. 2SC458 (C TZ/D TZ) SI 230MHZ
Q315	2320596M	TRS. 2SC458 (C TZ/D TZ) SI 230MHZ	Q864	2320596M	TRS. 2SC458 (C TZ/D TZ) SI 230MHZ
Q401	2320637M	TRS. 2SA673 (C 26TZ/D 26TZ) SI 80MHZ			
Q402	2320596M	TRS. 2SC458 (C TZ/D TZ) SI 230MHZ			PINP PWB TRANSISTORS
Q403	2320637M	TRS. 2SA673 (C 26TZ/D 26TZ) SI 80MHZ	QA01	2320596M	TRS. 2SC458 (C TZ/D TZ) SI 230MHZ
Q404	2320596M	TRS. 2SC458 (C TZ/D TZ) SI 230MHZ	QA02	2320596M	TRS. 2SC458 (C TZ/D TZ) SI 230MHZ
Q405	2320596M	TRS. 2SC458 (C TZ/D TZ) SI 230MHZ	QA03	2320637M	TRS. 2SA673 (C 26TZ/D 26TZ) SI 80MHZ
Q406	2320596M	TRS. 2SC458 (C TZ/D TZ) SI 230MHZ	QA04	2320596M	TRS. 2SC458 (C TZ/D TZ) SI 230MHZ
Q407	2320647M	TRS. 2SC1213 (C 21 TZ/D 21 TZ) SI 80MHZ4	QA05	2320596M	TRS. 2SC458 (C TZ/D TZ) SI 230MHZ
Q50C	2320596M	TRS. 2SC458 (C TZ/D TZ) SI 230MHZ	QA08	2320596M	TRS. 2SC458 (C TZ/D TZ) SI 230MHZ
Q601	2320596M	TRS. 2SC458 (C TZ/D TZ) SI 230MHZ	QA09	2320596M	TRS. 2SC458 (C TZ/D TZ) SI 230MHZ
Q602	2320596M	TRS. 2SC458 (C TZ/D TZ) SI 230MHZ	QA10	2320596M	TRS. 2SC458 (C TZ/D TZ) SI 230MHZ
Q603	2320637M	TRS. 2SA673 (C 26TZ/D 26TZ) SI 80MHZ	QA11	2320596M	TRS. 2SC458 (C TZ/D TZ) SI 230MHZ
Q701	2323523M	TRS. 2SD789 D TAPE	QA16	2320596M	TRS. 2SC458 (C TZ/D TZ) SI 230MHZ
\triangle Q702	2315275F	TRS. 2SC4589-06 (1500V)	QA17	2320596M	TRS. 2SC458 (C TZ/D TZ) SI 230MHZ
\triangle Q703	2320637M	TRS. 2SA673 (C 26TZ/D 26TZ) SI 80MHZ	QA18	2320637M	TRS. 2SA673 (C 26TZ/D 26TZ) SI 80MHZ
\triangle Q708	2320596M	TRS. 2SC458 (C TZ/D TZ) SI 230MHZ	QA19	2320596M	TRS. 2SC458 (C TZ/D TZ) SI 230MHZ
Q709	2320637M	TRS. 2SA673 (C 26TZ/D 26TZ) SI 80MHZ	QA20	2320596M	TRS. 2SC458 (C TZ/D TZ) SI 230MHZ
Q70A	2323431	TRS. 2SC1983			35V CONTROL PWB TRANSISTORS
Q70H	2315411	TRS. 2SD2012			
Q710	2320637M	TRS. 2SA673 (C 26TZ/D 26TZ) SI 80MHZ	Q3801	2320598M	TRS. 2SC458 (B TZ/C TZ/D TZ) (35V)
Q752	2323434	TRS. 2SC1983 (O/Y)	Q3802	2320598M	TRS. 2SC458 (B TZ/C TZ/D TZ) (35V)
Q761	2320596M	TRS. 2SC458 (C TZ/D TZ) SI 230MHZ			35V MAGNETIC FIELD PWB TRANSISTORS
Q901	2327883M	TRS. 2SA1207 (S/T) SI 150MHZ			
Q904	2326216	TRS. 2SC3116 (S/T)			
\triangle Q905	2328451	TRS. FN651			
Q906	2320631M	TRS. 2SA673 (B 26TZ/C 26TZ) SI 80MHZ	QMF1	2320647M	TRS. 2SC1213 (C 21 TZ/D 21 TZ) SI 80MHZ4 (35V)
Q907	2323526M	TRS. 2SD789 D/E TAPE	QY01	2320596M	TRS. 2SC458 (C TZ/D TZ) SI 230MHZ (35V)
Q908	2320591M	TRS. 2SC458 (B TZ/C TZ) SI 230MHZ	QY02	2320596M	TRS. 2SC458 (C TZ/D TZ) SI 230MHZ (35V)
Q909	2320596M	TRS. 2SC458 (C TZ/D TZ) SI 230MHZ			MAIN PWB RESISTORS
Q90A	2320681M	TRS. 2SA673A (BC) TAPE			
Q90C	2326631	THYRISTOR CR5AS-8 (B-A1)			
Q90H	2320663M	TRS. 2SC1213A (C)			
		CPT PWB TRANSISTORS			
Q650	2320598M	TRS. 2SC458 (B TZ/C TZ/D TZ)	R001	0700041M	CF 1/16W 1.0K-JB
Q750	2320596M	TRS. 2SC458 (C TZ/D TZ) SI 230MHZ	R002	0700041M	CF 1/16W 1.0K-JB
Q751	2320637M	TRS. 2SA673 (C 26TZ/D 26TZ) SI 80MHZ	R003	0700041M	CF 1/16W 1.0K-JB
Q752	2320663M	TRS. 2SC1213A (C)	R004	0700041M	CF 1/16W 1.0K-JB (32V)
Q753	2321321M	TRS. 2SA844 (D TZ/E TZ) SI 200MHZ	R005	0700041M	CF 1/16W 1.0K-JB
Q801	2320637M	TRS. 2SA673 (C 26TZ/D 26TZ) SI 80MHZ	R006	0700041M	CF 1/16W 1.0K-JB
Q802	2320637M	TRS. 2SA673 (C 26TZ/D 26TZ) SI 80MHZ	R007	0700041M	CF 1/16W 1.0K-JB
Q803	2320637M	TRS. 2SA673 (C 26TZ/D 26TZ) SI 80MHZ	R008	0700049M	CF 1/16W 4.7K-JB
Q804	2320637M	TRS. 2SA673 (C 26TZ/D 26TZ) SI 80MHZ	R009	0700041M	CF 1/16W 1.0K-JB
Q805	2320637M	TRS. 2SA673 (C 26TZ/D 26TZ) SI 80MHZ	R00A	0700041M	CF 1/16W 1.0K-JB
Q806	2320596M	TRS. 2SC458 (C TZ/D TZ) SI 230MHZ	R00C	0700067M	CF 1/16W 100K-JB
Q807	2320596M	TRS. 2SC458 (C TZ/D TZ) SI 230MHZ	R00E	0700051M	CF 1/16W 5.6K-JB
Q808	2320596M	TRS. 2SC458 (C TZ/D TZ) SI 230MHZ	R00H	0700067M	CF 1/16W 100K-JB
Q809	2320637M	TRS. 2SA673 (C 26TZ/D 26TZ) SI 80MHZ	R00K	0700064M	CF 1/16W 56K-JB
Q810	2320637M	TRS. 2SA673 (C 26TZ/D 26TZ) SI 80MHZ	R010	0700045M	CF 1/16W 2.2K-JB
Q811	2320637M	TRS. 2SA673 (C 26TZ/D 26TZ) SI 80MHZ	R011	0700049M	CF 1/16W 4.7K-JB
Q812	2320596M	TRS. 2SC458 (C TZ/D TZ) SI 230MHZ	R012	0700042M	CF 1/16W 1.2K-JB (32V)
Q813	2320596M	TRS. 2SC458 (C TZ/D TZ) SI 230MHZ	R013	0700041M	CF 1/16W 1.0K-JB (32V)
			R014	0700043M	CF 1/16W 1.5K-JB (32V)
			R015	0700046M	CF 1/16W 2.7K-JB (32V)
			R016	0700049M	CF 1/16W 4.7K-JB (32V)

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SYMBOL NO.	PART NO.	PART DESCRIPTION	SYMBOL NO.	PART NO.	PART DESCRIPTION
R017	0700032M	CF 1/16W 220-JB	R056	0700054M	CF 1/16W 10K-JB
R019	0700047M	CF 1/16W 3.3K-JB	R057	0700041M	CF 1/16W 1.0K-JB
R01A	0700041M	CF 1/16W 1.0K-JB	R058	0700041M	CF 1/16W 1.0K-JB
R01C	0700054M	CF 1/16W 10K-JB	R059	0700052M	CF 1/16W 6.8K-JB
R01E	0700041M	CF 1/16W 1.0K-JB	R05A	0700054M	CF 1/16W 10K-JB
R01H	0700041M	CF 1/16W 1.0K-JB	R05C	0700041M	CF 1/16W 1.0K-JB
R01K	0700041M	CF 1/16W 1.0K-JB	R05E	0700054M	CF 1/16W 10K-JB
R020	0700041M	CF 1/16W 1.0K-JB	R05H	0700054M	CF 1/16W 10K-JB
R021	0700038M	CF 1/16W 680-JB (35V)	R05K	0700058M	CF 1/16W 22K-JB
R021	0700036M	CF 1/16W 470-JB (32V)	R060	0700058M	CF 1/16W 22K-JB
R022	0700058M	CF 1/16W 22K-JB	R061	0700061M	CF 1/16W 33K-JB
R023	0700048M	CF 1/16W 3.9K-JB	R062	0100065M	CF 1/8W 1K-JB
R024	0700041M	CF 1/16W 1.0K-JB	R063	0100065M	CF 1/8W 1K-JB
R025	0700041M	CF 1/16W 1.0K-JB	R064	0100065M	CF 1/8W 1K-JB
R026	0700052M	CF 1/16W 6.8K-JB	\triangle R066	0119514S	CF RN 1/4P 10-J
R027	0700046M	CF 1/16W 2.7K-JB (35V)	R067	0700036M	CF 1/16W 470-JB
R027	0700047M	CF 1/16W 3.3K-JB (32V)	R068	0700041M	CF 1/16W 1.0K-JB
R028	0700043M	CF 1/16W 1.5K-JB	R069	0700041M	CF 1/16W 1.0K-JB
R029	0700052M	CF 1/16W 6.8K-JB	R06C	0700051M	CF 1/16W 5.6K-JB
R02A	0700056M	CF 1/16W 15K-JB	R06E	0700045M	CF 1/16W 2.2K-JB
R02C	0700059M	CF 1/16W 27K-JB	R06F	0700049M	CF 1/16W 4.7K-JB
R02E	0700056M	CF 1/16W 15K-JB	R06H	0700041M	CF 1/16W 1.0K-JB
R02H	0700058M	CF 1/16W 22K-JB	R06K	0700067M	CF 1/16W 100K-JB
R02K	0700059M	CF 1/16W 27K-JB	R070	0700049M	CF 1/16W 4.7K-JB
R030	0700056M	CF 1/16W 15K-JB	R071	0700054M	CF 1/16W 10K-JB (32V)
R031	0700056M	CF 1/16W 15K-JB	R072	0700049M	CF 1/16W 4.7K-JB (35V)
R032	0700046M	CF 1/16W 2.7K-JB (35V)	R072	0700047M	CF 1/16W 3.3K-JB (32V)
R032	0700049M	CF 1/16W 4.7K-JB (32V)	R073	0700049M	CF 1/16W 4.7K-JB (35V)
R033	0700052M	CF 1/16W 6.8K-JB	R073	0700047M	CF 1/16W 3.3K-JB (32V)
R034	0700053M	CF 1/16W 8.2K-JB (35V)	R074	0700049M	CF 1/16W 4.7K-JB (35V)
R034	0700054M	CF 1/16W 10K-JB (32V)	R074	0700047M	CF 1/16W 3.3K-JB (32V)
R035	0700052M	CF 1/16W 6.8K-JB (35V)	R075	0100065M	CF 1/8W 1K-JB
R035	0700055M	CF 1/16W 12K-JB (32V)	R080	0700054M	CF 1/16W 10K-JB
R036	0700055M	CF 1/16W 12K-JB	R081	0700054M	CF 1/16W 10K-JB
R037	0700041M	CF 1/16W 1.0K-JB	R083	0700049M	CF 1/16W 4.7K-JB
R038	0100065M	CF 1/8W 1K-JB	R084	0700058M	CF 1/16W 22K-JB
R039	0700041M	CF 1/16W 1.0K-JB	R085	0700067M	CF 1/16W 100K-JB
R03A	0700041M	CF 1/16W 1.0K-JB	R086	0700031M	CF 1/16W 180-JB
R03C	0700041M	CF 1/16W 1.0K-JB	R087	0700041M	CF 1/16W 1.0K-JB
R03E	0700041M	CF 1/16W 1.0K-JB	R08C	0700056M	CF 1/16W 15K-JB
R03H	0700041M	CF 1/16W 1.0K-JB	R091	0700058M	CF 1/16W 22K-JB
R03K	0700041M	CF 1/16W 1.0K-JB	R092	0700054M	CF 1/16W 10K-JB
R040	0700041M	CF 1/16W 1.0K-JB	R093	0700041M	CF 1/16W 1.0K-JB
R041	0700041M	CF 1/16W 1.0K-JB	R094	0700049M	CF 1/16W 4.7K-JB
R042	0700041M	CF 1/16W 1.0K-JB	R095	0700041M	CF 1/16W 1.0K-JB
R043	0700041M	CF 1/16W 1.0K-JB	R096	0700054M	CF 1/16W 10K-JB
R044	0700055M	CF 1/16W 12K-JB	R097	0700054M	CF 1/16W 10K-JB
R045	0700058M	CF 1/16W 22K-JB	R098	0700049M	CF 1/16W 4.7K-JB
R046	0700067M	CF 1/16W 100K-JB	R099	0700054M	CF 1/16W 10K-JB
R047	0700045M	CF 1/16W 2.2K-JB	R09A	0700054M	CF 1/16W 10K-JB
R048	0700047M	CF 1/16W 3.3K-JB	R09C	0700041M	CF 1/16W 1.0K-JB
R049	0700053M	CF 1/16W 8.2K-JB	R09H	0700054M	CF 1/16W 10K-JB
R04A	0700046M	CF 1/16W 2.7K-JB (35V)	R09K	0700041M	CF 1/16W 1.0K-JB
R04A	0700045M	CF 1/16W 2.2K-JB (32V)	R0L1	0700054M	CF 1/16W 10K-JB
R04C	0700041M	CF 1/16W 1.0K-JB	R101	0700031M	CF 1/16W 180-JB
R04E	0700041M	CF 1/16W 1.0K-JB	R102	0700046M	CF 1/16W 2.7K-JB
R04H	0700048M	CF 1/16W 3.9K-JB (35V)	R103	0700014M	CF 1/16W 10-J
R04H	0700045M	CF 1/16W 2.2K-JB (32V)	R104	0700042M	CF 1/16W 1.2K-JB
R04K	0700041M	CF 1/16W 1.0K-JB	R105	0700023M	CF 1/16W 47-J
R050	0700041M	CF 1/16W 1.0K-JB	R106	0700033M	CF 1/16W 270-JB
R051	0700041M	CF 1/16W 1.0K-JB	R107	0100061M	CF 1/8W 680-JB
R055	0700054M	CF 1/16W 10K-JB	R108	0187040M	CF 1/16W 91-J

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SYMBOL NO.	PART NO.	PART DESCRIPTION	SYMBOL NO.	PART NO.	PART DESCRIPTION
R109	0700045M	CF 1/16W 2.2K-JB (35V)	R32K	0700037M	CF 1/16W 560-JB
R109	0700048M	CF 1/16W 3.9K-JB (32V)	R330	0700041M	CF 1/16W 1.0K-JB
R110	0700045M	CF 1/16W 2.2K-JB (35V)	R331	0700027M	CF 1/16W 100-JB
R110	0700048M	CF 1/16W 3.9K-JB (32V)	R332	0700038M	CF 1/16W 680-JB
R201	0700058M	CF 1/16W 22K-JB	R333	0150282	VR RV06 500-B
R202	0150287	VR RV06 10K-B	R334	0100055M	CF 1/8W 390-JB
R203	0700067M	CF 1/16W 100K-JB	R335	0700032M	CF 1/16W 220-JB
R204	0700043M	CF 1/16W 1.5K-JB	R336	0700054M	CF 1/16W 10K-JB
R205	0700049M	CF 1/16W 4.7K-JB	R337	0700058M	CF 1/16W 22K-JB
R206	0700027M	CF 1/16W 100-JB	R338	0700036M	CF 1/16W 470-JB
R207	0700041M	CF 1/16W 1.0K-JB	R339	0187060M	CF 1/16W 620-JB
R208	0700033M	CF 1/16W 270-JB	R33A	0700035M	CF 1/16W 390-JB
R209	0700051M	CF 1/16W 5.6K-JB	R33C	0700037M	CF 1/16W 560-JB
R20A	0100121M	CF 1/8W 220K-JB	R33E	0700057M	CF 1/16W 18K-JB
R20C	0100127M	CF 1/8W 390K-JB	R33H	0700032M	CF 1/16W 220-JB
R20E	0700041M	CF 1/16W 1.0K-JB	R340	0150287	VR RV06 10K-B
R20H	0100117M	CF 1/8W 150K-JB	R341	0700052M	CF 1/16W 6.8K-JB
R20K	0700041M	CF 1/16W 1.0K-JB	R342	0700049M	CF 1/16W 4.7K-JB
R210	0700036M	CF 1/16W 470-JB	R343	0700049M	CF 1/16W 4.7K-JB
R211	0100055M	CF 1/8W 390-JB	R344	0700051M	CF 1/16W 5.6K-JB
R212	0700027M	CF 1/16W 100-JB	R345	0700031M	CF 1/16W 180-JB
R213	0700041M	CF 1/16W 1.0K-JB	R346	0700061M	CF 1/16W 33K-JB
R214	0700033M	CF 1/16W 270-JB	R348	0100041M	CF 1/8W 100-JB
R216	0700027M	CF 1/16W 100-JB	R349	0100041M	CF 1/8W 100-JB
R217	0700027M	CF 1/16W 100-JB	R34A	0100038M	CF 1/8W 75-JB
R2Z1	0700036M	CF 1/16W 470-JB	R34C	0100041M	CF 1/8W 100-JB
R2Z2	0700037M	CF 1/16W 560-JB	R34H	0100038M	CF 1/8W 75-JB
R302	0100133M	CF 1/8W 680K-JB (35V)	R34K	0100038M	CF 1/8W 75-JB (32V)
R302	0100127M	CF 1/8W 390K-JB (32V)	R350	0100041M	CF 1/8W 100-JB
R303	0700056M	CF 1/16W 15K-JB	R351	0100041M	CF 1/8W 100-JB
R305	0700036M	CF 1/16W 470-JB	R352	0700041M	CF 1/16W 1.0K-JB
R306	0700034M	CF 1/16W 330-JB (35V)	R354	0700027M	CF 1/16W 100-JB
R306	0700033M	CF 1/16W 270-JB (32V)	R355	0700049M	CF 1/16W 4.7K-JB
R307	0700034M	CF 1/16W 330-JB (35V)	R356	0700054M	CF 1/16W 10K-JB
R307	0700035M	CF 1/16W 390-JB (32V)	R358	0700056M	CF 1/16W 15K-JB
R308	0700038M	CF 1/16W 680-JB	R359	0700054M	CF 1/16W 10K-JB
R309	0700037M	CF 1/16W 560-JB	R35A	0700057M	CF 1/16W 18K-JB
R30E	0700054M	CF 1/16W 10K-JB	R35E	0700041M	CF 1/16W 1.0K-JB
R30H	0700038M	CF 1/16W 680-JB	R360	0700041M	CF 1/16W 1.0K-JB
R30K	0700063M	CF 1/16W 47K-JB	R364	0700054M	CF 1/16W 10K-JB
R310	0700054M	CF 1/16W 10K-JB	R365	0700034M	CF 1/16W 330-JB
R312	0100033M	CF 1/8W 47-JB	R366	0700054M	CF 1/16W 10K-JB
R316	0700037M	CF 1/16W 560-JB	R367	0700054M	CF 1/16W 10K-JB
R317	0700029M	CF 1/16W 150-JB	R390	0700035M	CF 1/16W 390-JB
R318	0187060M	CF 1/16W 620-JB	R391	0100133M	CF 1/8W 680K-JB (32V)
R31C	0700041M	CF 1/16W 1.0K-JB	R392	0700032M	CF 1/16W 220-JB
R31E	0700063M	CF 1/16W 47K-JB	R393	0100049M	CF 1/8W 220-JB
R31H	0700041M	CF 1/16W 1.0K-JB	R395	0700027M	CF 1/16W 100-JB
R31K	0700041M	CF 1/16W 1.0K-JB	R396	0700042M	CF 1/16W 1.2K-JB
R320	0700063M	CF 1/16W 47K-JB	R397	0700051M	CF 1/16W 5.6K-JB
R321	0700037M	CF 1/16W 560-JB	R39A	0700054M	CF 1/16W 10K-JB
R322	0700041M	CF 1/16W 1.0K-JB	R401	0700041M	CF 1/16W 1.0K-JB
R323	0150282	VR RV06 500-B	R402	0700034M	CF 1/16W 330-JB
R324	0700038M	CF 1/16W 680-JB	R403	0700041M	CF 1/16W 1.0K-JB
R325	0700045M	CF 1/16W 2.2K-JB	R404	0700062M	CF 1/16W 39K-JB
R326	0700032M	CF 1/16W 220-JB	R405	0700041M	CF 1/16W 1.0K-JB
R327	0700033M	CF 1/16W 270-JB	R406	0700054M	CF 1/16W 10K-JB
R328	0700033M	CF 1/16W 270-JB	R407	0700041M	CF 1/16W 1.0K-JB
R329	0700039M	CF 1/16W 820-JB	R408	0700041M	CF 1/16W 1.0K-JB
R32C	0700037M	CF 1/16W 560-JB	R409	0700034M	CF 1/16W 330-JB
R32E	0150283	VR RV6 1K-B CARBON FL	R40A	0700041M	CF 1/16W 1.0K-JB
R32H	0700039M	CF 1/16W 820-JB	R40C	0700054M	CF 1/16W 10K-JB

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SYMBOL NO.	PART NO.	PART DESCRIPTION	SYMBOL NO.	PART NO.	PART DESCRIPTION
R40E	0700063M	CF 1/16W 47K-JB	R452	0700063M	CF 1/16W 47K-JB
R40H	0700062M	CF 1/16W 39K-JB	R453	0700045M	CF 1/16W 2.2K-JB
R40K	0700063M	CF 1/16W 47K-JB	R454	0700063M	CF 1/16W 47K-JB
R410	0700063M	CF 1/16W 47K-JB	R458	0700063M	CF 1/16W 47K-JB
R411	0700063M	CF 1/16W 47K-JB	R45A	0700049M	CF 1/16W 4.7K-JB
R412	0700063M	CF 1/16W 47K-JB	R45H	0700049M	CF 1/16W 4.7K-JB
R413	0700063M	CF 1/16W 47K-JB	R470	0100065M	CF 1/8W 1K-JB
R415	0187082M	CF 1/16W 5.1K-JB	R471	0100113M	CF 1/8W 100K-JB
R416	0100116M	CF 1/8W 130K-JB	R472	0700063M	CF 1/16W 47K-JB
R417	0100117M	CF 1/8W 150K-JB	R473	0100113M	CF 1/8W 100K-JB
R418	0150160	VR RV06 100K-B 0.1W	R474	0100065M	CF 1/8W 1K-JB
R419	0700036M	CF 1/16W 470-JB	R475	0700063M	CF 1/16W 47K-JB
R41A	0700036M	CF 1/16W 470-JB	R476	0100113M	CF 1/8W 100K-JB
R41C	0700041M	CF 1/16W 1.0K-JB	R477	0100065M	CF 1/8W 1K-JB
R41E	0700046M	CF 1/16W 2.7K-JB	R478	0700063M	CF 1/16W 47K-JB
R41K	0150287	VR RV06 10K-B	R479	0100113M	CF 1/8W 100K-JB
R420	0100125M	CF 1/8W 330K-JB	R47A	0100065M	CF 1/8W 1K-JB
R421	0700054M	CF 1/16W 10K-JB	R47C	0100065M	CF 1/8W 1K-JB
R422	0700045M	CF 1/16W 2.2K-JB	R47E	0100113M	CF 1/8W 100K-JB
R423	0150157	VR RV06 20K-B 0.1W	R47F	0100065M	CF 1/8W 1K-JB
R424	0700061M	CF 1/16W 33K-JB	R47H	0700063M	CF 1/16W 47K-JB
R425	0100133M	CF 1/8W 680K-JB	R47K	0100113M	CF 1/8W 100K-JB
R427	0700067M	CF 1/16W 100K-JB	R480	0100065M	CF 1/8W 1K-JB
R428	0100116M	CF 1/8W 130K-JB	R481	0100113M	CF 1/8W 100K-JB (32V)
R429	0150290	VR RV06 50K-B	R482	0700063M	CF 1/16W 47K-JB
R42A	0150290	VR RV06 50K-B	R483	0100065M	CF 1/8W 1K-JB
R42E	0700047M	CF 1/16W 3.3K-JB	R484	0100113M	CF 1/8W 100K-JB (32V)
R42F	0700036M	CF 1/16W 470-JB	R485	0700063M	CF 1/16W 47K-JB
R42G	0100133M	CF 1/8W 680K-JB	Δ R490	0119514	MF 1/4W 10-J
R42K	0100117M	CF 1/8W 150K-JB	R501	0700057M	CF 1/16W 18K-JB
R430	0700041M	CF 1/16W 1.0K-JB	R502	0700058M	CF 1/16W 22K-JB
R431	0700041M	CF 1/16W 1.0K-JB	R519	0700054M	CF 1/16W 10K-JB
R432	0700046M	CF 1/16W 2.7K-JB	R51A	0700041M	CF 1/16W 1.0K-JB
R433	0700041M	CF 1/16W 1.0K-JB	R51C	0700054M	CF 1/16W 10K-JB
R434	0700041M	CF 1/16W 1.0K-JB	R51E	0100049M	CF 1/8W 220-JB
R435	0700037M	CF 1/16W 560-JB	R51H	0700054M	CF 1/16W 10K-JB
R436	0700037M	CF 1/16W 560-JB	R51K	0100049M	CF 1/8W 220-JB
R437	0700037M	CF 1/16W 560-JB	R520	0100049M	CF 1/8W 220-JB
R438	0700037M	CF 1/16W 560-JB	R521	0700061M	CF 1/16W 33K-JB
R439	0700041M	CF 1/16W 1.0K-JB	R522	0700031M	CF 1/16W 180-JB
R43A	0700041M	CF 1/16W 1.0K-JB	R601	0700058M	CF 1/16W 22K-JB
R43C	0700041M	CF 1/16W 1.0K-JB	R602	0700027M	CF 1/16W 100-JB
R43E	0700049M	CF 1/16W 4.7K-JB	R603	0700059M	CF 1/16W 27K-JB
R43H	0700041M	CF 1/16W 1.0K-JB	R604	0700054M	CF 1/16W 10K-JB
R43K	0700054M	CF 1/16W 10K-JB	R607	0100119M	CF 1/8W 180K-JB
R440	0700045M	CF 1/16W 2.2K-JB	R608	0700038M	CF 1/16W 680-JB
R441	0700045M	CF 1/16W 2.2K-JB	R609	0700042M	CF 1/16W 1.2K-JB
R442	0700041M	CF 1/16W 1.0K-JB	R60A	0700041M	CF 1/16W 1.0K-JB
R443	0700041M	CF 1/16W 1.0K-JB	R60C	0100055M	CF 1/8W 390-JB
R444	0700048M	CF 1/16W 3.9K-JB	R60E	0700041M	CF 1/16W 1.0K-JB
R445	0700048M	CF 1/16W 3.9K-JB	R60H	0700032M	CF 1/16W 220-JB
R446	0700034M	CF 1/16W 330-JB	R610	0700048M	CF 1/16W 3.9K-JB
R447	0100113M	CF 1/8W 100K-JB	R613	0700055M	CF 1/16W 12K-JB
R448	0700034M	CF 1/16W 330-JB	R614	0700048M	CF 1/16W 3.9K-JB
Δ R449	0119505G	MF 2.2-J	R621	0700035M	CF 1/16W 390-JB
R44A	0700063M	CF 1/16W 47K-JB	R622	0700065M	CF 1/16W 68K-JB
R44C	0700063M	CF 1/16W 47K-JB	R623	0700058M	CF 1/16W 22K-JB
R44E	0100077M	CF 1/8W 3.3K-JB	R624	0100131M	CF 1/8W 560K-JB
Δ R44H	0119505G	MF 2.2-J	R625	0114135M	CF 1/4W 150-JB
Δ R44K	0119687S	MF 4.7-J 1/4W	R626	0700059M	CF 1/16W 27K-JB
R450	0100077M	CF 1/8W 3.3K-JB	R627	0100129M	CF 1/8W 470K-JB
R451	0100133M	CF 1/8W 680K-JB (35V)	R628	0187106M	CF 1/16W 51K-JB

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SYMBOL NO.	PART NO.	PART DESCRIPTION	SYMBOL NO.	PART NO.	PART DESCRIPTION
R629	0187104M	CF 1/16W 43K-JB (35V)	R765	0100071M	CF 1/8W 1.8K-JB
R629	0700064M	CF 1/16W 56K-JB (32V)	\triangle R781	0100073M	CF 1/8W 2.2K-JB
R62A	0150160	VR RV06 100K-B 0.1W	R782	0700054M	CF 1/16W 10K-JB
R62C	0119731M	MF 1W R68-K TAPE (35V)	R783	0700046M	CF 1/16W 2.7K-JB
R62C	0119841M	MF 1W 0.82-JB (32V)	R785	0700054M	CF 1/16W 10K-JB
R62H	0700043M	CF 1/16W 1.5K-JB (35V)	R786	0110241S	MF 680-JS
R62H	0700044M	CF 1/16W 1.8K-JB (32V)	R787	0110219	MF 82-J 2W
R62K	0700037M	CF 1/16W 560-JB	R788	0700063M	CF 1/16W 47K-JB
R630	0700032M	CF 1/16W 220-JB	R789	0700061M	CF 1/16W 33K-JB
R631	0700067M	CF 1/16W 100K-JB (35V)	R790	0700046M	CF 1/16W 2.7K-JB
R631	0700065M	CF 1/16W 68K-JB (32V)	R791	0700049M	CF 1/16W 4.7K-JB
R632	0114161M	CF 1/4W 1K-JB (35V)	R793	0110177S	MF 22K-JS
R632	0114163M	CF 1/4W 1.2K-JB (32V)	R794	0110257S	MF 3.3K-JS
R634	0114161M	CF 1/4W 1K-JB (35V)	R798	0113760M	CF 1/2W 2.7K-JB
R636	0113746M	CF 1/2W 680-JB	\triangle R901	2341281	THERMISTOR 3R0Q
R637	0110115S	MF 56-JS	\triangle R902	0147811	WW 15W 1.5-KM
R64C	0700049M	CF 1/16W 4.7K-JB	\triangle R903	0141161	WW 15W 220-JF
R650	0700067M	CF 1/16W 100K-JB	R904	0110221S	MF 100-JS
R651	0100125M	CF 1/8W 330K-JB	R905	0110197S	MF 2W 10-JS
R652	0700057M	CF 1/16W 18K-JB	R906	0110197S	MF 2W 10-JS
R701	0700036M	CF 1/16W 470-JB	R907	0110173S	MF 15K-JS
R702	0700045M	CF 1/16W 2.2K-JB	R908	0100113M	CF 1/8W 100K-JB
R703	0700041M	CF 1/16W 1.0K-JB	R909	0100129M	CF 1/8W 470K-JB
R704	0150287	VR RV06 10K-B	R90A	0119722M	MF 1.0-JB/W
\triangle R705	0700054M	CF 1/16W 10K-JB	R90C	0700053M	CF 1/16W 8.2K-JB
R706	0700045M	CF 1/16W 2.2K-JB	R90F	0110125S	MF 150-JS
R707	0700029M	CF 1/16W 150-JB	R90H	0114059M	CF SRD 1/4 PF 56-J
R708	0100125M	CF 1/8W 330K-JB	R90K	0110125S	MF 150-JS
R709	0114141M	CF 1/4W 270-JB	R910	0100133M	CF 1/8W 680K-JB
R70A	0114141M	CF 1/4W 270-JB	R912	0141161	WW 15W 220-JF (35V)
R710	0700033M	CF 1/16W 270-JB	R912	0141159	WW 15W 180-JF (32V)
R716	0113729M	CF 1/2W 150-JB	R914	0110155S	MF 2.7K-JS 1W
R717	0700067M	CF 1/16W 100K-JB	R915	0110261S	MF 4.7K-JS
\triangle R718	0100037M	CF 1/8W 68-JB	R916	0114221M	CF 1/4 PB 68K-J
R720	0114141M	CF 1/4W 270-JB	R917	0114209M	CF SRD 1/4 PF 22K-J
\triangle R721	0119838S	MF 1/4-S 0.5-J	R918	0100010M	CF 1/8W 5.1-JB
\triangle R725	0119505G	MF 2.2-J	R919	0700027M	CF 1/16W 100-JB
\triangle R726	0119505G	MF 2.2-J	R91A	0700032M	CF 1/16W 220-JB
R727	0119688M	MF 1W 0.22-JB	R91C	0100101M	CF 1/8W 33K-JB
R728	0700044M	CF 1/16W 1.8K-JB	R91E	0110129S	MF 220-JS
\triangle R729	0700048M	CF 1/16W 3.9K-JB	R91F	0114171M	CF 1/4W 2.7K-JB
R732	0100077M	CF 1/8W 3.3K-JB	R91H	0114053M	CF SRD 1/4 PB 33-J
R734	0113748M	CF 1/2 P-B 820-JB	R91K	0110141S	MF 680-JS
R735	0113750M	CF 1/2W 1K-JB	R920	0700027M	CF 1/16W 100-JB
\triangle R736	0700032M	CF 1/16W 220-JB	R921	0700067M	CF 1/16W 100K-JB
\triangle R738	0700045M	CF 1/16W 2.2K-JB	R922	0114179M	CFSRD 1/4 PF 5.6K-J
R739	0700041M	CF 1/16W 1.0K-JB	R923	0114149M	CF SRD 1/4 PF 560-J
R73A	0114049M	CF 1/4W 22-JB	R924	0147620	WW 2.7-KF
R73C	0700023M	CF 1/16W 47-J	R925	0100073M	CF 1/8W 2.2K-JB
\triangle R73E	0119838S	MF 1/4-S 0.5-J	R926	0700049M	CF 1/16W 4.7K-JB
R73H	0114161M	CF 1/4W 1K-JB	R927	0700064M	CF 1/16W 56K-JB
R73K	0700036M	CF 1/16W 470-JB	R928	0700051M	CF 1/16W 5.6K-JB
R740	0110125S	MF 150-JS (32V)	R929	0700061M	CF 1/16W 33K-JB
\triangle R745	0700054M	CF 1/16W 10K-JB	R92A	0113750M	CF 1/2W 1K-JB
\triangle R746	0700053M	CF 1/16W 8.2K-JB	R92C	0700046M	CF 1/16W 2.7K-JB
R74A	0100061M	CF 1/8W 680-JB	R92E	0113725M	CF SRD1/2P-B 100-J
R74C	0100103M	CF 1/8W 39K-JB (35V)	R92F	0113746M	CF 1/2W 680-JB
R74C	0100107M	CF 1/8W 56K-JB (32V)	R92H	0700032M	CF 1/16W 220-JB
R74H	0100109M	CF 1/8W 68K-JB (35V)	R92K	0700064M	CF 1/16W 56K-JB
R74H	0100107M	CF 1/8W 56K-JB (32V)	R930	0700051M	CF 1/16W 5.6K-JB
R750A	0114131M	CF 1/4W 100-JB	R931	0700051M	CF 1/16W 5.6K-JB
R763	0110259S	MF 3.9K-JS	R932	0700051M	CF 1/16W 5.6K-JB

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SYMBOL NO.	PART NO.	PART DESCRIPTION	SYMBOL NO.	PART NO.	PART DESCRIPTION
Δ R933	0119508S	MF 1/4W 56-JF	R758	0700051M	CF 1/16W 5.6K-JB
R934	0100029M	CF 1/8W 33-JB	R759	0700064M	CF 1/16W 56K-JB
R935	0700051M	CF 1/16W 5.6K-JB	R760	0700066M	CF 1/16W 82K-JB
R936	0110197S	MF 2W 10-JS	R762	0700058M	CF 1/16W 22K-JB
R937	0700051M	CF 1/16W 5.6K-JB	R764	0100075M	CF 1/8W 2.7K-JB
R938	0110281S	MF 33K-JS	R766	0700027M	CF 1/16W 100-JB
Δ R939	0119505G	MF 2.2-J	R767	0700044M	CF 1/16W 1.8K-JB
R93A	0100111M	CF 1/8W 82K-JB	R768	0700056M	CF 1/16W 15K-JB
R93H	0113746M	CF 1/2W 680-JB	R769	0700054M	CF 1/16W 10K-JB
R941	0100101M	CF 1/8W 33K-JB	R770	0100115M	CF 1/8W 120K-JB
R942	0110217S	MF 68-JS	R771	0700055M	CF 1/16W 12K-JB
R944	0110223S	MF 120-JS	R772	0700046M	CF 1/16W 2.7K-JB
R969	0147060	WW 2W 33-K	R773	0700049M	CF 1/16W 4.7K-JB
R970	0141195	WW 10W 330-J	R774	0700055M	CF 1/16W 12K-JB
RA01	0100066M	CF 1/8W 1.1K-JB (35V)	R775	0150275	VR RV06 10K-B (V)
RA02	0100065M	CF 1/8W 1K-JB (35V)	R776	0700051M	CF 1/16W 5.6K-JB
RA03	0100065M	CF 1/8W 1K-JB (35V)	R801	0700043M	CF 1/16W 1.5K-JB
RA04	0100065M	CF 1/8W 1K-JB (35V)	R802	0700054M	CF 1/16W 10K-JB
RAZ1	0700036M	CF 1/16W 470-JB	R805	0700023M	CF 1/16W 47-J (35V)
RAZ2	0700037M	CF 1/16W 560-JB	R805	0700026M	CF 1/16P 82-JB (32V)
RTP15	0110125S	MF 150-JS	R806	0150109	VR RV6 200-B
RV1N	0700037M	CF 1/16W 560-JB	R807	0150272	VR RV06 2K-B (V)
CPT PWB RESISTORS			R808	0700038M	CF 1/16W 680-JB
R361	0100038M	CF 1/8W 75-JB	R809	0700038M	CF 1/16W 680-JB
R362	0100038M	CF 1/8W 75-JB	R811	0700026M	CF 1/16P 82-JB (35V)
R647	0700044M	CF 1/16W 1.8K-JB	R811	0700024M	CF 1/16W 56-J (32V)
R648	0114143M	CF 1/4W 330-JB	R813	0700038M	CF 1/16W 680-JB
R649	0100056M	CF 1/8W 430-JB	R814	0150272	VR RV06 2K-B (V)
R651	0700067M	CF 1/16W 100K-JB (35V)	R815	0700023M	CF 1/16W 47-J (35V)
R651	0700066M	CF 1/16W 82K-JB (32V)	R815	0700027M	CF 1/16W 100-JB (32V)
R652	0700064M	CF 1/16W 56K-JB (35V)	R816	0150109	VR RV6 200-B
R652	0700066M	CF 1/16W 82K-JB (32V)	R817	0700038M	CF 1/16W 680-JB
R653	0700064M	CF 1/16W 56K-JB	R818	0150272	VR RV06 2K-B (V)
R654	0700057M	CF 1/16W 18K-JB	R819	0700064M	CF 1/16W 56K-JB
R655	0700059M	CF 1/16W 27K-JB (35V)	R820	0100049M	CF 1/8W 220-JB
R655	0700063M	CF 1/16W 47K-JB (32V)	R821	0100049M	CF 1/8W 220-JB
R656	0700049M	CF 1/16W 4.7K-JB	R822	0100049M	CF 1/8W 220-JB
R657	0100117M	CF 1/8W 150K-JB (35V)	R824	0100063M	CF 1/8W 820-JB
R657	0100119M	CF 1/8W 180K-JB (32V)	R825	0100063M	CF 1/8W 820-JB
R658	0700055M	CF 1/16W 12K-JB (35V)	R826	0100057M	CF 1/8W 470-JB
R658	0700058M	CF 1/16W 22K-JB (32V)	R827	0100057M	CF 1/8W 470-JB
R659	0100117M	CF 1/8W 150K-JB	R828	0100057M	CF 1/8W 470-JB
R663	0700059M	CF 1/16W 27K-JB	R829	0700043M	CF 1/16W 1.5K-JB
R664	0700066M	CF 1/16W 82K-JB (35V)	R830	0700043M	CF 1/16W 1.5K-JB
R664	0700063M	CF 1/16W 47K-JB (32V)	R831	0700043M	CF 1/16W 1.5K-JB
R665	0700064M	CF 1/16W 56K-JB	R832	0700032M	CF 1/16W 220-JB
R666	0700061M	CF 1/16W 33K-JB	R833	0700032M	CF 1/16W 220-JB
R667	0100133M	CF 1/8W 680K-JB	R834	0700032M	CF 1/16W 220-JB
R668	2340371	THERMISTOR 112301-9	R835	0187074M	CF 1/16W 2.4K-JB
R669	0700067M	CF 1/16W 100K-JB	R836	0700044M	CF 1/16W 1.8K-JB
R670	0700045M	CF 1/16W 2.2K-JB	R837	0700038M	CF 1/16W 680-JB
R671	0700065M	CF 1/16W 68K-JB (35V)	R838	0700035M	CF 1/16W 390-JB
R750	0100073M	CF 1/8W 2.2K-JB	R839	0700041M	CF 1/16W 1.0K-JB
R751	0700065M	CF 1/16W 68K-JB	R840	0700046M	CF 1/16W 2.7K-JB
R752	0150279	VR RV06 100K-B (V)	R841	0700041M	CF 1/16W 1.0K-JB
R753	0700056M	CF 1/16W 15K-JB	R842	0700051M	CF 1/16W 5.6K-JB
R754	0700038M	CF 1/16W 680-JB	R843	0700043M	CF 1/16W 1.5K-JB
R755	0150276	VR RV06 20K-B (V)	R844	0700052M	CF 1/16W 6.8K-JB
R756	0700057M	CF 1/16W 18K-JB	R845	0700035M	CF 1/16W 390-JB
R757	0700064M	CF 1/16W 56K-JB	R846	0700041M	CF 1/16W 1.0K-JB
			R847	0700041M	CF 1/16W 1.0K-JB
			R848	0700051M	CF 1/16W 5.6K-JB

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SYMBOL NO.	PART NO.	PART DESCRIPTION	SYMBOL NO.	PART NO.	PART DESCRIPTION
R849	0700055M	CF 1/16W 12K-JB	RA53	0100041M	CF 1/8W 100-JB
R850	0100041M	CF 1/8W 100-JB	RA55	0700027M	CF 1/16W 100-JB
Δ R851	0110367S	MF 3W 8.2K-JS (35V)	RA56	0100097M	CF 1/8W 22K-JB
Δ R851	0110271S	MF 2W 12K-JS (32V)	RA57	0700027M	CF 1/16W 100-JB
Δ R852	0110367S	MF 3W 8.2K-JS (35V)	RA58	0700027M	CF 1/16W 100-JB
Δ R852	0110271S	MF 2W 12K-JS (32V)	RA59	0700037M	CF 1/16W 560-JB
Δ R853	0110367S	MF 3W 8.2K-JS (35V)	RA60	0700066M	CF 1/16W 82K-JB
Δ R853	0110271S	MF 2W 12K-JS (32V)	RA61	0700036M	CF 1/16W 470-JB
R861	0100063M	CF 1/8W 820-JB	RA62	0700028M	CF 1/16W 120-JB
R862	0100063M	CF 1/8W 820-JB	RA63	0179536M	MG 1M J TAPE
R863	0100049M	CF 1/8W 220-JB	RA64	0700043M	CF 1/16W 1.5K-JB
R864	0700054M	CF 1/16W 10K-JB	RA65	0187034M	CF 1/16W 51-J
R865	0700048M	CF 1/16W 3.9K-JB	RA66	0700034M	CF 1/16W 330-JB
R875	0113750M	CF 1/2W 1K-JB	RA69	0700027M	CF 1/16W 100-JB
R876	0113750M	CF 1/2W 1K-JB	RA73	0700032M	CF 1/16W 220-JB
R877	0113750M	CF 1/2W 1K-JB	RA74	0700032M	CF 1/16W 220-JB
R878	0100049M	CF 1/8W 220-JB	RA78	0100059M	CF 1/8W 560-JB
R879	0100049M	CF 1/8W 220-JB	RA80	0700041M	CF 1/16W 1.0K-JB
R880	0100049M	CF 1/8W 220-JB	RA81	0700052M	CF 1/16W 6.8K-JB
R881	0114131M	CF 1/4W 100-JB	RA82	0700041M	CF 1/16W 1.0K-JB
R882	0114131M	CF 1/4W 100-JB	RA83	0100059M	CF 1/8W 560-JB
R883	0114131M	CF 1/4W 100-JB	RA84	0700054M	CF 1/16W 10K-JB
R884	0100037M	CF 1/8W 68-JB (35V)	RA85	0700063M	CF 1/16W 47K-JB
R884	0100040M	CF 1/8W 91-JB (32V)	RA86	0700054M	CF 1/16W 10K-JB
R885	0100037M	CF 1/8W 68-JB (35V)	RA87	0100065M	CF 1/8W 1K-JB
R885	0100040M	CF 1/8W 91-JB (32V)	RA89	0700058M	CF 1/16W 22K-JB
R886	0100037M	CF 1/8W 68-JB (35V)	RA90	0700054M	CF 1/16W 10K-JB
R886	0100040M	CF 1/8W 91-JB (32V)	RA91	0700054M	CF 1/16W 10K-JB
R888	0700023M	CF 1/16W 47-J (35V)	RA92	0700054M	CF 1/16W 10K-JB
R888	0700027M	CF 1/16W 100-JB (32V)	RA93	0700054M	CF 1/16W 10K-JB
		PINP PWB RESISTORS	RA94	0700041M	CF 1/16W 1.0K-JB
RA02	0700027M	CF 1/16W 100-JB	RA95	0700053M	CF 1/16W 8.2K-JB
RA03	0700027M	CF 1/16W 100-JB	RA96	0700056M	CF 1/16W 15K-JB
RA04	0700036M	CF 1/16W 470-JB	RA97	0700033M	CF 1/16W 270-JB
RA05	0100117M	CF 1/8W 150K-JB	RA98	0700043M	CF 1/16W 1.5K-JB
RA06	0700037M	CF 1/16W 560-JB	RE01	0700054M	CF 1/16W 10K-JB
RA07	0700041M	CF 1/16W 1.0K-JB	RE02	0700037M	CF 1/16W 560-JB
RA08	0700054M	CF 1/16W 10K-JB	RE04	0100041M	CF 1/8W 100-JB
RA09	0700054M	CF 1/16W 10K-JB	RE05	0100041M	CF 1/8W 100-JB
RA10	0700027M	CF 1/16W 100-JB	RE10	0700055M	CF 1/16W 12K-JB
RA11	0700027M	CF 1/16W 100-JB	RE11	0700041M	CF 1/16W 1.0K-JB
RA15	0700041M	CF 1/16W 1.0K-JB	RE12	0700058M	CF 1/16W 22K-JB
RA32	0700047M	CF 1/16W 3.3K-JB	RE13	0700058M	CF 1/16W 22K-JB
RA33	0700052M	CF 1/16W 6.8K-JB	RE20	0700059M	CF 1/16W 27K-JB
RA34	0700063M	CF 1/16W 47K-JB	RE21	0700059M	CF 1/16W 27K-JB
RA35	0700058M	CF 1/16W 22K-JB	RE22	0700063M	CF 1/16W 47K-JB
RA36	0700054M	CF 1/16W 10K-JB	RE23	0700059M	CF 1/16W 27K-JB
RA37	0700058M	CF 1/16W 22K-JB	RE24	0700059M	CF 1/16W 27K-JB
RA38	0700054M	CF 1/16W 10K-JB	RE25	0700045M	CF 1/16W 2.2K-JB
RA39	0700035M	CF 1/16W 390-JB	RE26	0700042M	CF 1/16W 1.2K-JB
RA40	0700054M	CF 1/16W 10K-JB			35V CONTROL PWB RESISTORS
RA43	0700067M	CF 1/16W 100K-JB	R0504	0100065M	CF 1/8W 1K-JB (35V)
RA44	0700063M	CF 1/16W 47K-JB	R0516	0700041M	CF 1/16W 1.0K-JB (35V)
RA45	0700039M	CF 1/16W 820-JB	R0517	0700043M	CF 1/16W 1.5K-JB (35V)
RA46	0110209S	MF 33-JS	R0518	0700046M	CF 1/16W 2.7K-JB (35V)
RA47	0110209S	MF 33-JS	R0519	0700049M	CF 1/16W 4.7K-JB (35V)
RA48	0187038M	CF 1/16W 75-J	R0520	0100065M	CF 1/8W 1K-JB (35V)
RA49	0187038M	CF 1/16W 75-J	R3801	0187038M	CF 1/16W 75-J (35V)
RA50	0700028M	CF 1/16W 120-JB	R3802	0100041M	CF 1/8W 100-JB (35V)
RA51	0700032M	CF 1/16W 220-JB	R3803	0700041M	CF 1/16W 1.0K-JB (35V)

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SYMBOL NO.	PART NO.	PART DESCRIPTION	SYMBOL NO.	PART NO.	PART DESCRIPTION
R3804	0700041M	CF 1/16W 1.0K-JB (35V)			MAIN PWB CRYSTALS/OSCILLATORS
R3805	0100123M	CF 1/8W 270K-JB (35V)			
R3806	0700064M	CF 1/16W 56K-JB (35V)	X001	2168831	CRYSTAL CSA12.0MTZ
R3807	0700047M	CF 1/16W 3.3K-JB (35V)	X103	2300477	SAW FILTER HW2267
R3808	0700045M	CF 1/16W 2.2K-JB (35V)	X201	2167311	FILTER CERAMIC (4.5MHZ)
R3809	0700064M	CF 1/16W 56K-JB (35V)	X202	2167201	TRAP CERAMIC (4.5MHZ)
R3810	0100123M	CF 1/8W 270K-JB (35V)	X301	2793281	DELAY LINE
R3811	0700041M	CF 1/16W 1.0K-JB (35V)	X302	2794401	DELAY LINE GLASS 63.5US
R3812	0700041M	CF 1/16W 1.0K-JB (35V)	X501	2791505	CRYSTAL HC-491U 3.58MHZ
R3813	0100041M	CF 1/8W 100-JB (35V)	X701	2167241	CERAMIC OSC CSB503F
		35V MAGNETIC FIELD PWB RESISTORS			PINP PWB CRYSTALS/OSCILLATORS
RMF1	0700051M	CF 1/16W 5.6K-JB (35V)	XA01	BP00171	X'TAL 14R3X16THC-49/U
RMF2	0100053M	CF 1/8W 330-JB (35V)	XA02	2167241	CERAMIC OSC CSB503F
RMF3	0100056M	CF 1/8W 430-JB (35V)			MAIN PWB MISCELLANEOUS PARTS
RMF4	0100093M	CF 1/8W 15K-JB (35V)			
RY01	0700041M	CF 1/16W 1.0K-JB (35V)	#	H310431	REMOTE CONTROL FILM
RY02	0700041M	CF 1/16W 1.0K-JB (35V)	#021	3701202	PWB HOLDER G7-A PA
RY03	0100057M	CF 1/8W 470-JB (35V)	#106	NT00122	A3LXU3 TERMINAL BOARD
RY04	0700036M	CF 1/16W 470-JB (35V)	#160	3739671	BS CORD HOLDER NYLON6
RY05	0700036M	CF 1/16W 470-JB (35V)	#906	PH00971	TERMINAL LABEL (32V)
RY06	0700027M	CF 1/16W 100-JB (35V)	#908	PH00972	TERMINAL LABEL (35V)
RY07	0100073M	CF 1/8W 2.2K-JB (35V)	E0P	EF02911	CONNECTOR CO-08CB2-331
RY08	0700047M	CF 1/16W 3.3K-JB (35V)	E3P1	2976661	CONN. W/WIRE SEH 12J (L300)
RY09	0700058M	CF 1/16W 22K-JB (35V)	E3P2	EF01321	CONNECTOR CO-08C-B2R5-561
RY10	0700057M	CF 1/16W 18K-JB (35V)	E801	2976671	CONN. W/WIRE SEH 4J (L560)
RY11	0700055M	CF 1/16W 12K-JB (35V)	Δ E901	2745411	AC POWER CORD
		MAIN PWB SWITCHES/RELAY	EF901	2720641	FUSE HOLDER
S001	2632851	5KEY TACT SWITCH (CY61)	EF902	2720641	FUSE HOLDER
S001	2633402	5KEY PUSH SWITCH (CY60)	Δ J301	2983095	8P PIN JACK WITH SWITCH
S002	2632901	1P TACT SWITCH (CY61)	Δ J30F	2673602	US13 (32V)
S002	FE00081	PUSH SWITCH KSM0635B (CY60)	JG	2973682S	CONN.W/WIRE SEH 2J(L620) UL1007 (35V)
S003	2632901	1P TACT SWITCH (CY61)	N001	3443231	SHIELD PLATE M1C TC-30
S003	FE00081	PUSH SWITCH KSM0635B (CY60)	N403	3446863	S HEAT SINK (M1-K) AL
Δ S901	2641222	POWER RELAY	N620	3446862	VERTICAL HEAT SINK A3LXU3
		35V CONTROL PWB SWITCHES	N701A	4243445	G51 INSULATION WASHER PL-11T
S0501	2633321	5KEY TACT SWITCH (35V)	N702	3445542	H.HEAT SINK HY09 A11DOP-H2
S0502	2632901	1P TACT SWITCH (35V)	N702A	4514061	SCREW FLANGED 3*12
		35V MAGNETIC FIELD PWB SWITCHES	N702B	8821234	NUT-3
Δ SMF1	2620971	SLIDE SWITCH (35V)	N702C	8813124	SPRING WASHER-3
Δ SMF2	2620802	SLIDE SWITCH (35V)	N702D	4284311	2000 EARTH PIN
		MAIN PWB TRANSFORMERS	N702E	4159411	SCREW 3*8 KNURLED TAPPING SWRM
Δ T701	2274353	TRANSFORMER-H.DRIVE	N706	4276993	VERTICAL HEAT SINK
Δ T702	2437094	FLY BACK TRANSFORMER-C87LUI	N70A	4276993	VERTICAL HEAT SINK
Δ T901	2216002	SWITCHING TRANSFORMER A3LXU3	N752	3445563	HEAT SINK A3LXU3
		MAIN PWB MODULES	N901	3446873	POWER HEAT SINK 35V (35V)
Δ U001	2574762	R/C MODULE SPS-409-1K (32V/35V)	N901	3446871	POWER HEAT SINK A3LXU3 (32V)
Δ U101	2428681	TUNER ET-352A	N901D	2787531	MICA SHEET
			N910	4107502	PWB METAL R (A3) TC-30
			N912	4107512	A3LXU3 PWB METAL TC-30
			NC901	2784342	CONDENSER COVER
			NE901	3772201	AC CORD HOLDER NYLON
			P301	2959053	5P POST PIN 4P TYPE PH
			P3S	2902264	PLUG PIN SUB MINI 5P
			P65A	2675583	PLUG.JL-BT-E-5P
			P66A	2675583	PLUG.JL-BT-E-5P
			P901	2782611	CENTER PIN
			P902	2782611	CENTER PIN
			PFJ	2902266	PLUG PIN SUB MINI 7P (35V)
			PFV	2902265	PLUG PIN SUB MINI 6P (35V)

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SYMBOL NO.	PART NO.	PART DESCRIPTION	SYMBOL NO.	PART NO.	PART DESCRIPTION
PG	2902261	PLUGPIN SUB MINI 2P (35V)			ACCESSORY ASSEMBLY PARTS REMOTE CONTROLS
PM	2665272	4P PLUG PIN WITH BASE			
PSL	2902262	PLUG PIN SUB MINI 3P			
PSR	2902263	PLUG PIN SUB MINI 4P	E301	HL00234	R/C-CLU-418U (35CX30B ONLY)
PW	2661753	4P PLUG PIN WITH BASE	E301	HL00229	R/C-CLU-419UI
PYNR	2675585	PLUG PIN JL-BT-E 7P (35V)			
		CPT PWB MISCELLANEOUS PARTS			SPEAKER PARTS
E3S	2976691	CONN. W/WIRE SEH 5J (L300)	Δ SP451	GK00181	SPEAKER 4 OHM 5W (32CX11B/35CX30B)
E851	2953344	CPT SOCKET	Δ SP451	2412922	SP160 ROUND 4 OHM 5W (35TX88B/89K)
Δ JSIN	2983122	S-SOCKET	Δ SP451	2414872	SP100 ROUND 4 OHM 5W (32TX78B/79K)
N854	4348493	CPT HEAT SINK A2LXU3 (35V)	Δ SP452	GK00181	SPEAKER 4 OHM 5W (32CX11B/35CX30B)
N855	4348493	CPT HEAT SINK A2LXU3 (35V)	Δ SP452	2412922	SP160 ROUND 4 OHM 5W (35TX88B/89K)
N856	4348493	CPT HEAT SINK A2LXU3 (35V)	Δ SP452	2414872	SP100 ROUND 4 OHM 5W (32TX78B/79K)
P31	2663131	2P PLUG PIN WITH BASE	Δ SP453	2414943	SP50 ROUND 4 OHM 3W (35TX88B/89K)
P65B	2675563	PLUG JL-F-E-5P	Δ SP454	2414943	SP50 ROUND 4 OHM 3W (35TX88B/89K)
P66B	2675563	PLUG JL-F-E-5P			
P801	2902267	PLUG PIN SUB MINI 8P			SPEAKER WIRING ASSEMBLY PARTS
P802	2902263	PLUG PIN SUB MINI 4P			
		PINP PWB MISCELLANEOUS PARTS			
EA01	2974231S	CONN. W/WIRE SEH 9J L60 (C-B)	C4501	0258616	EL 2.2UF-M 50V (35TX88B/89K)
EA02	2974201S	CONN. W/WIRE SEH 8J L60 (C-B)	C4502	0258616	EL 2.2UF-M 50V (35TX88B/89K)
NA01	MD01161	M3 PIP SHIELD CASE A	JSL	2976751	CONN. W/WIRE EH 3J (L620) (32CX11B/35CX30B)
NA02	MD01171	M3 PIP SHIELD CASE B	JSL	2976754	3J CONN W/W (35TX88B/89K)
PA01	2902248	PLUG PIN SUB MINI9P	JSL	2976754	3J CONN W/W (32TX78B/79K)
PA02	2902247	PLUG PIN SUB MINI 8P	JSR	2976761	CONN. W/WIRE EH 4J (L680) (32CX11B/35CX30B)
P001	2675287	PLUG PIN (PH 8P)	JSR	2976764	4J CONN W/WIRE (35TX88B/89K)
P301	2902252	12P PLUG PIN	JSR	2976764	4J CONN W/WIRE (32TX78B/79K)
ZA01	3787482	PCB HOLDER (16L)	N101	0544510	TERMINAL PIECE (32CX11B/35CX30B/35TX88B/89K)
		35V CONTROL PWB MISCELLANEOUS PARTS	N102	EK00011	LEAD WIRE UL1007-24 (35TX88B/89K)
JFV	EF01511	CONN.W/WIRE EH C-C 11J-6J L430 (35V)	N103	EK00012	LEAD WIRE UL1007 AWG24 PINK (35TX88B/89K)
J01	2983116	3P PIN JACK S.TERMINAL (35V)			
PFJ	2902246	PLUG PIN SUB MINI 7P (35V)			CPT PARTS
PFV	2902251	11P PLUG PIN (35V)	Δ V1	DE00961	CPT A80LJF30X (32V)
		35V MAG. FIELD PWB MISCELLANEOUS PARTS	Δ V1	2471593	CPT A89AEJ15X01 (35V)
EY02	2956485	CONNECTOR CO-01C-A—471 (35V)			DEFLECTION YOKE PARTS
PG2	2902241	PLUG PIN SUB MINI 2P (35V)			
PG3	2661942	3P PLUG PIN WITH L TYPE (35V)			
PY01	2675565	PLUG PIN JL-F-E 7P (35V)			
PY02	2661756	1P PLUG PIN WITH BASE (35V)			CPT SUB ASSEMBLY PARTS
		COMPLETE CTV ASSEMBLY PARTS			
		INSTRUCTION BOOK			
N201	QR05931	A3LXU3 INSTRUCTION BOOK (ENGLISH)	E602	2994511	CRT EARTH WIRE (32V)
N201	QR05941	A3LXU3 INSTRUCTION BOOK (FRENCH)	E602	2908402	CRT EARTH WIRE (35V)
		OWNERS ASSEMBLY PARTS	E603	2771461	EDGE MAGNET (32V)
E203	2784243	DRY BATTERY SUM-3 (G)	E603	GX00131	MAGNET-CHEVRON FUNNEL (35V)
N202	H461705	WARRANTY CARD (E) 20V ~ 35V	E604	2773672	CF-MAGNET (32V)
N209	H461901	HITACHI EXT. SVC CARD	JM	2665293	6P MINI CONN LEAD (35V)
N302	4712247	CUSTOMER REGISTRATION CARD (CTV)	Δ L905	2229022	DEGAUSSING COIL (32V)
			Δ L970	2229023	DEGAUSSING COIL (35V)
			LMFC	BZ00411	COIL M.F.COIL (35V)
			N601	4615641	WEDGE (32V)
			N606	3330941	EARTH SPRING (32V)
			N606	3333922	EARTH SPRING (35V)
			N610	2772981	FERRITE SHEET ASS'Y
			N611	2772211	MAGNETIC PIECE (32V)
			N612	2956801	EARTH RING (32V)
			N612	H420831	HOOK (35V)
			N613	4621186	CUSHION 2908 (35V)

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SYMBOL NO.	PART NO.	PART DESCRIPTION	SYMBOL NO.	PART NO.	PART DESCRIPTION
		FINAL/CABINET ASSEMBLY PARTS			35CX30B FINAL/CABINET ASSEMBLY PARTS
		32CX11B FINAL ASSEMBLY PARTS	#086	H920131	THREE BOND TB1521 1KG CAN (35CX30B)
#010	H920182	VELCRO (32CX11B)	#100	4326625	CT3170 EVER TIGHT BOLT (L) (35CX30B)
#150	QD00265	FRAME (32CX11B)	#103	H420631	FRAME SUPPORT BRACKET (35CX30B)
#200	PH03841	DOOR (32CX11B)	#110	3707943	INSULATOR FOOT (35CX30B)
#225	3875771	LATCH 4T02 NYLON (32CX11B)	#111	4107241	SUPPORT METAL AV JACK SECC 20/ (35CX30B)
#250	3487425	HITACHI BADGE (32CX11B)	#145	3768982	BC STOPPER (35CX30B)
#300	H310885	R/C LENS (32CX11B)	#160	3742021	CABINET WIRE CLAMPER (35CX30B)
#400	PH00911	INDOOR PLATE (32CX11B)	#180	NT00803	CHASSIS RAIL 27500-A (35CX30B) PS
#521	3164048	BACKCOVER (32CX11B)	#180	NT00804	CHASSIS RAIL 27500-B (35CX30B) PS
#530	8440444	SP HIMERON C29-BV20	#250	3727972	POWER CORD HANGER (35CX30B)
#601	3727972	POWER CORD HANGER	#260	3874421	BRACKET (35CX30B)
#680	H461171	PATENT AND TELESONICS LABEL	#260	4778201	LABEL BASE (35CX30B) PVC
#900	PC00345	BUTTONS	#261	4778202	LABEL BASE (35CX30B) PVC (CANADA)
N105	3705232	ANODE CLAMPER 94V0	#269	3756631	PLASTIC RIVET
N120	4690171	CAUTION LABEL C (F)	#284	3487425	HITACHI BADGE (35CX30B)
N401	QN01007	SERVICEMAN WARNING LABEL A(E)	#293A	H390041	HIMERON SHEET 85X10
N401	QN01017	SERVICEMAN WARNING LABEL A(F)	#293B	H390051	BUTTON CUSHION
		32TX78B/79K FINAL/CABINET ASSEMBLY PARTS	#294	4733887H	HIMERON 3170 (35CX30B)
			#299	H390043	HIMERON SHEET 740X10 (35CX30B)
#006	3827633	IN-DOOR PLATE L (32TX78B/79K)	N108	3705232	ANODE CLAMPER 94V0
#022	H920181	VELCRO	N120	4690171	CAUTION LABEL C (F)
#032	H840011	GLIDE PIN	N401	QN00325	SERVICEMAN WARNING LABEL A (35V)(E)
#040	3103046	FRAME (32TX78B/79K)	N401	QN00335	SERVICEMAN WARNING LABEL A (35V)(F)
#064	PH02502	INDOOR PLATE R (32TX78B/79K)			35TX88B/89K FINAL/CABINET ASSEMBLY PARTS
#095	H520262	TERMINAL COVER (32TX78B/79K)	#013	H410311	MAGNETIC LOU
#113	PH01421	DOOR (32TX78B/79K)	#020	H840011	GLIDE PIN
#114A	3785043	D40 PUSHLOCK A (32TX78B/79K)	#100	4326625	CT3170 EVER TIGHT BOLT (L) SWCH18A
#119A	3209062	R/C PANEL (32TX78B/79K)	#103	H420631	FRAME SUPPORT BRACKET
#119B	3826142	LED LENS (32TX78B/79K)	#111	4107241	SUPPORT METAL AV JACK SECC 20/
#124A	3487421	HITACHI BADGE 55 (S) PS	#116	NT00803	CHASSIS RAIL 27500-A (35TX88B/89K) PS
#126	3209103	FRONT PANEL (R) (32TX78B/79K)	#117	NT00804	CHASSIS RAIL 27500-B (35TX88B/89K) PS
#127	3209104	FRONT PANEL (L) (32TX78B/79K)	#130	4492661	CHASSIS FIXING METAL (F) SECC
#130	H410311	MAGNETIC LOU	#145	3768982	BC STOPPER N
#202	3871591	CPT BRACKET 3190 (A) NORYL	#151	H830071	WASHER 1/4 FLAT
#204	3871592	CPT BRACKET 3190 (B) NORYL	#250	3727972	POWER CORD HANGER
#211	NT00803	CHASSIS RAIL (32TX78B/79K)	#260	3874421	BRACKET PS
#214	NT00804	CHASSIS RAIL 27500-B (32TX78B/79K) PS	#283	3273872	BUTTON (35TX88B/89K)
#400	84000002	METAL CATCH 1	#284	3487425	HITACHI BADGE (35TX88B/89K)
#405	3871481	SUPPORT REAR BOARD (32TX78B/79K)	#285	3204184	R/C LENS (35TX88B/89K)
#420	84000003	METAL CATCH	#286B	PH01061	DECO PANEL R (35TX88B/89K)
#440	63066861	FLIPPER DOOR SLIDE	#287B	PH01062	DECO PANEL L (35TX88B/89K)
#480	61020001	DUOMATIC HINGE	#288B	3828164	INDOOR PLATE (35TX88B/89K) PC
#500	61030001	DUOMATIC MOUNTING PLATE	#293	3798068H	BUTTON CUSHION
#501	H520181	CHASSIS STOPPER (32TX78B/79K)	#296	3106403	FRONT FRAME (35TX88B/89K)
#602	3163102	PROTECTOR (32TX78B/79K)	#297B	3821953	DOOR (35TX88B/89K) PS
#603	H520252	BACKBOARD (32TX78B/79K) HARDBOARD	#298	3875771	LATCH 4T02 NYLON
#606	H461171	PATENT AND TELESONICS LABEL	#400	H310613	TERMINAL BLOCK WEDGE
#650	3727972	POWER CORD HANGER	#400	84000002	METAL CATCH 1
#660	H310122	PLASTIC RIVET	#405A	3871481	SUPPORT REAR BOARD PVC
N105	3705232	ANODE CLAMPER 94V0 (101)	#410	4107241	SUPPORT METAL AV JACK SECC 20/
N120	4690171	CAUTION LABEL C (F)	#420	84000003	METAL CATCH
N401	QN01007	SERVICEMAN WARNING LABEL A(E)	#440	63066861	FLIPPER DOOR SLIDE
N401	QN01017	SERVICEMAN WARNING LABEL A(F)	#460	63068861	PIVOT ROLLER
			#480	61020001	DUOMATIC HINGE
			#500	61030001	DUOMATIC MOUNTING PLATE
			#505	H320001	PCB SUPPORT SPACER
			#602	3163103	CPT PROTECTOR CUP
			#603	H512164	BACKBOARD ASSEMBLY (35TX88B/89K)

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SYMBOL NO.	PART NO.	PART DESCRIPTION	SYMBOL NO.	PART NO.	PART DESCRIPTION
#608	H520365	REAR BOARD (35TX88B/89K)			
#621	H512202	TERMINAL BLOCK SPACER			
#625	35200030	VERTICAL SUPPORT			
#660	H310121	PLASTIC RIVET			
N108	3705232	ANODE CLAMPER 94V0			
N120	4690171	CAUTION LABEL C (F)			
N401	QN00325	SERVICEMAN WARNING LABEL A (35V)(E)			
N401	QN00335	SERVICEMAN WARNING LABEL A (35V)(F)			
		PACKING ASSEMBLY PARTS			
#011	H361003	CARTON BOX (32CX11B)			
#011	H360985	CARTON BOX (35CX30B)			
#011	3548797	CARTON BOX (32TX78B/79K)			
#013	H360914	CARTON BOX (5TX88B/89K)			
#021	H370562	BOTTOM PAD (32TX78B/79K)			
#021	H370572	TOP PAD (32TX78B/79K)			
#021	H360112	BOTTOM PAD (35TX88B/89K)			
#025	H361021	TOP CUSHION (32CX11B)			
#026	H361031	BOTTOM CUSHION (32CX11B)			
#028A	H370552	BOTTOM TRAY BLANK (32TX78B/79K)			
#029A	H370386	TOP TRAY BLANK (32TX78B/79K)			
#031	H360703	TOP TRAY (35TX88B/89K)			
#052	H462002	MODEL NAME LABEL (32CX11B)-511			
#100	H370458	TRAY BLANK BOTTOM (35TX88B/89K)			
#110	H370459	TRAY BLANK TOP (35TX88B/89K)			

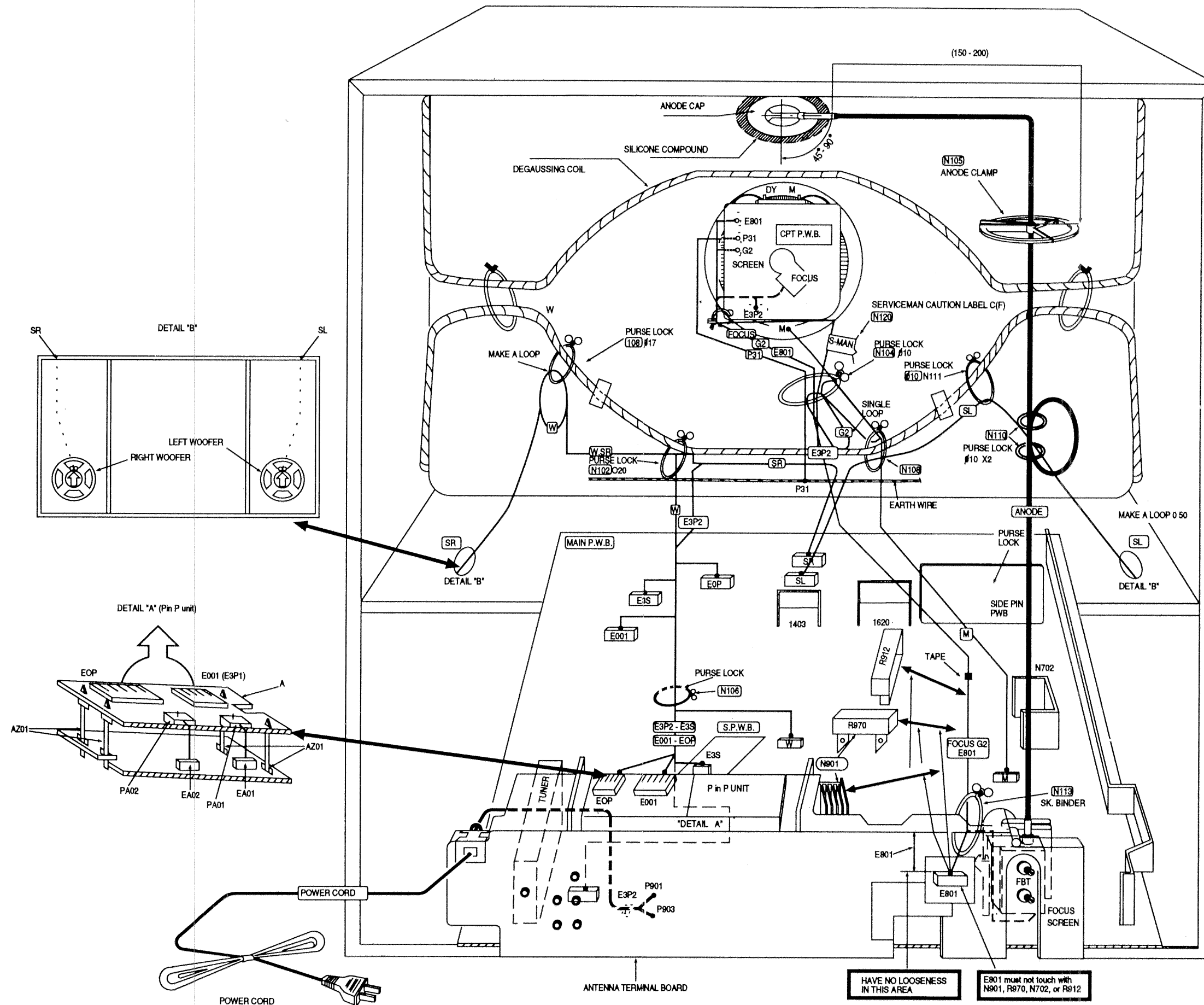
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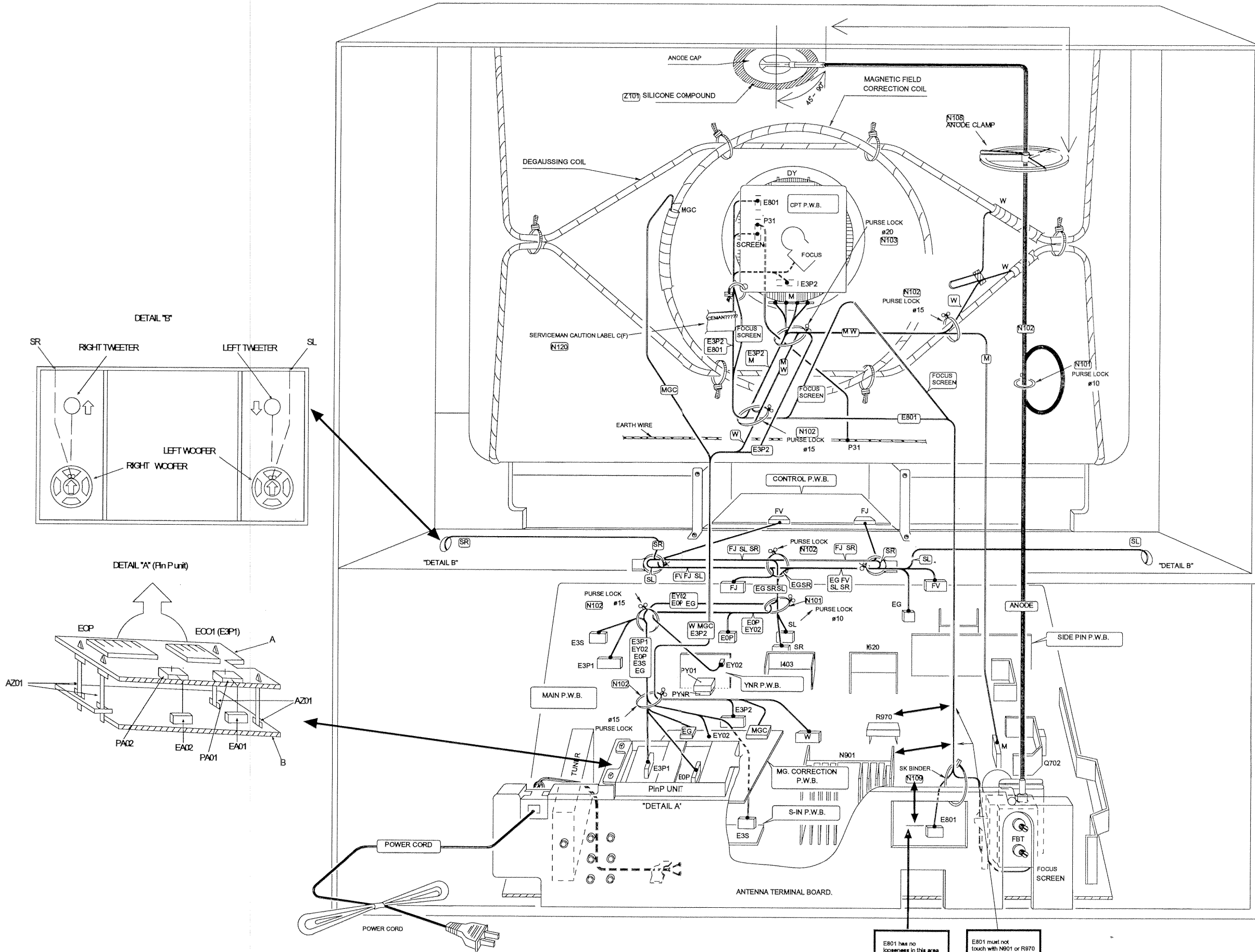
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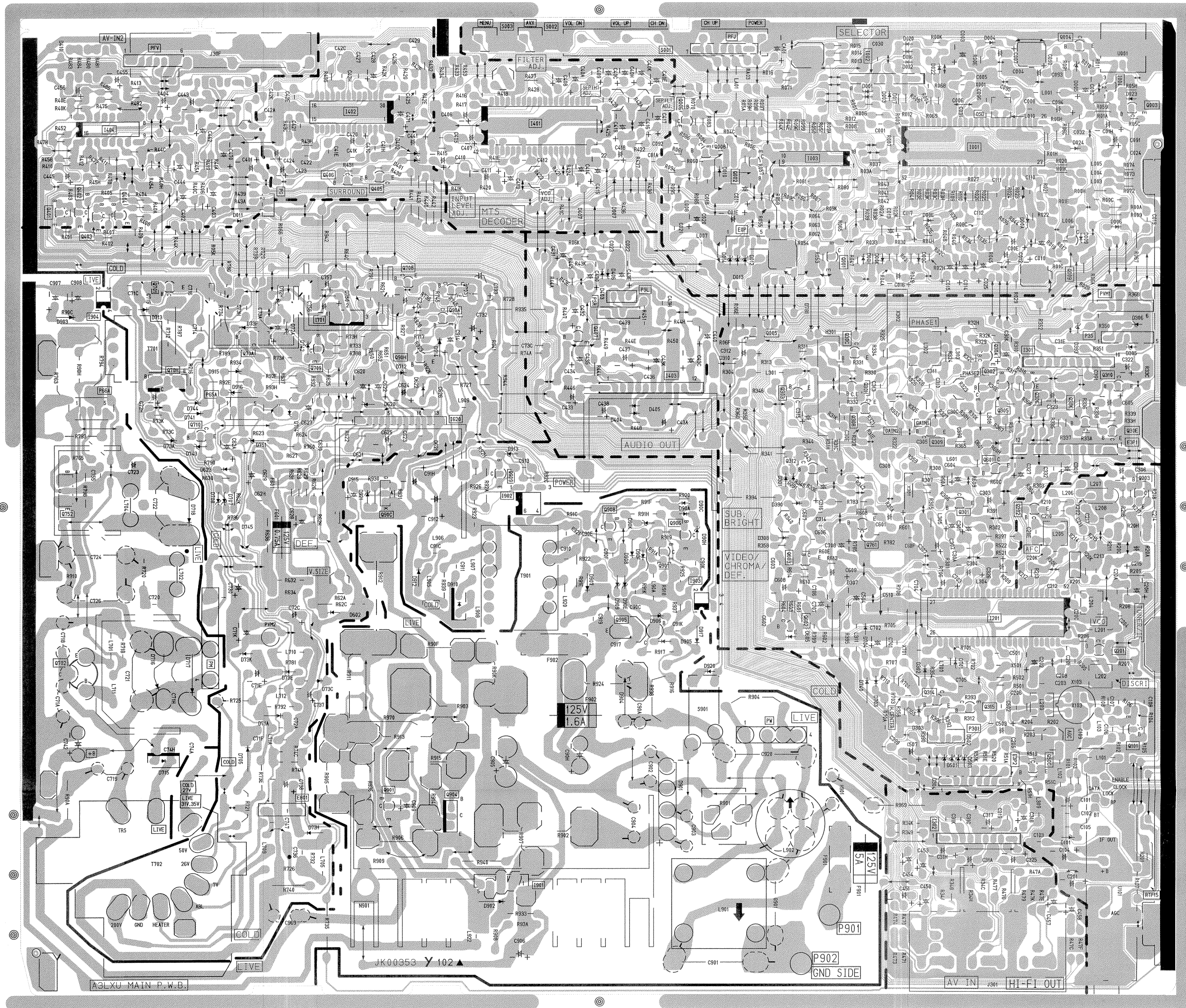
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WIRING DRAWING OF 32TX78B, 32TX79K/CY60 FINAL ASSEMBLY



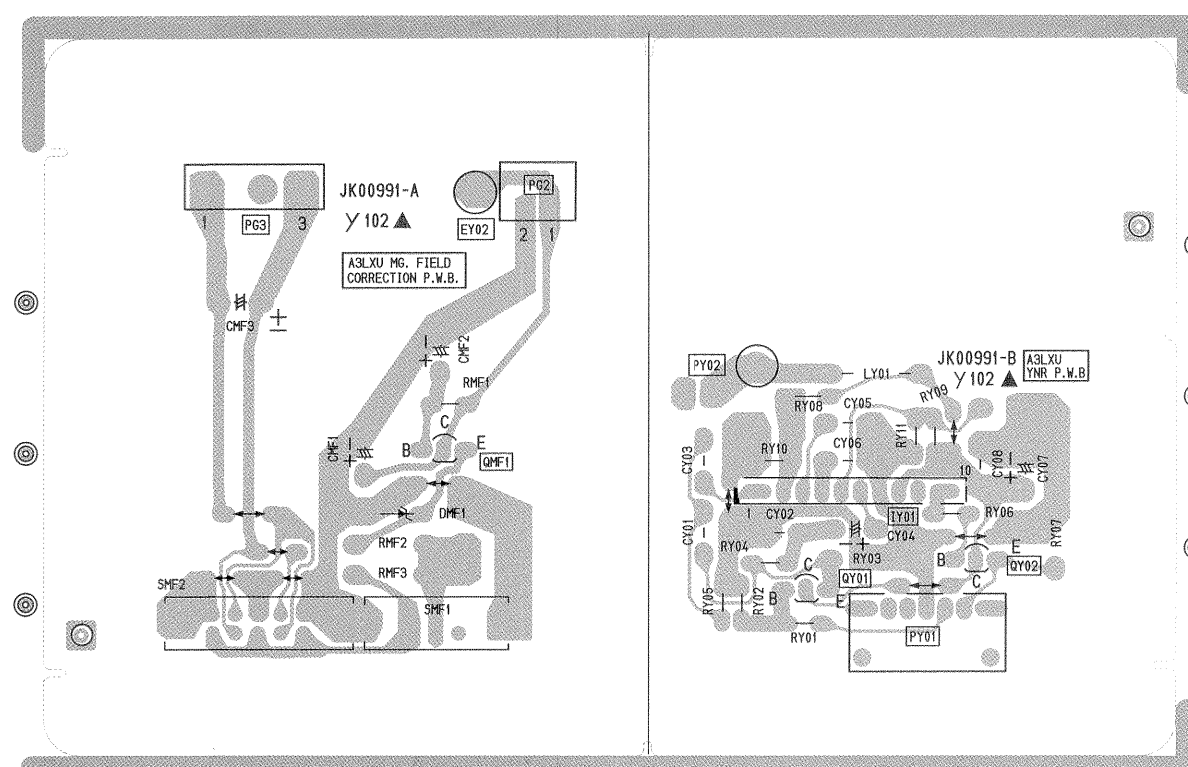
WIRING DRAWING OF 35TX88B/35TX89K/CZ63 FINAL ASSEMBLY





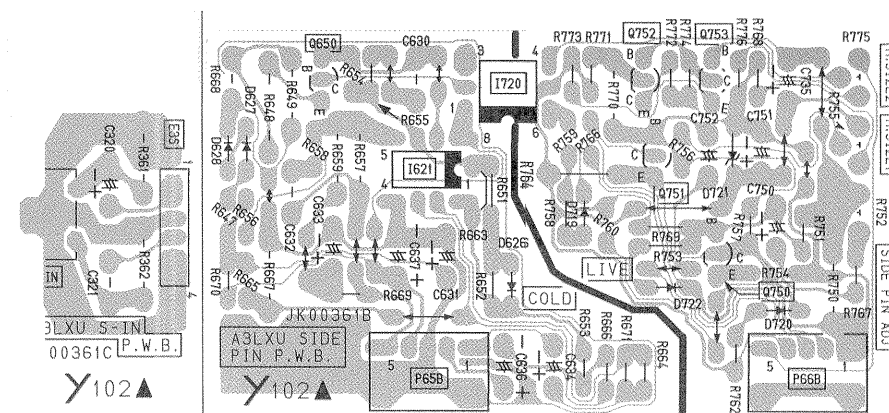
A3LXU3 MAIN P.W.B.

A3LXU3 MAG. FIELD CORRECTION P.W.B.

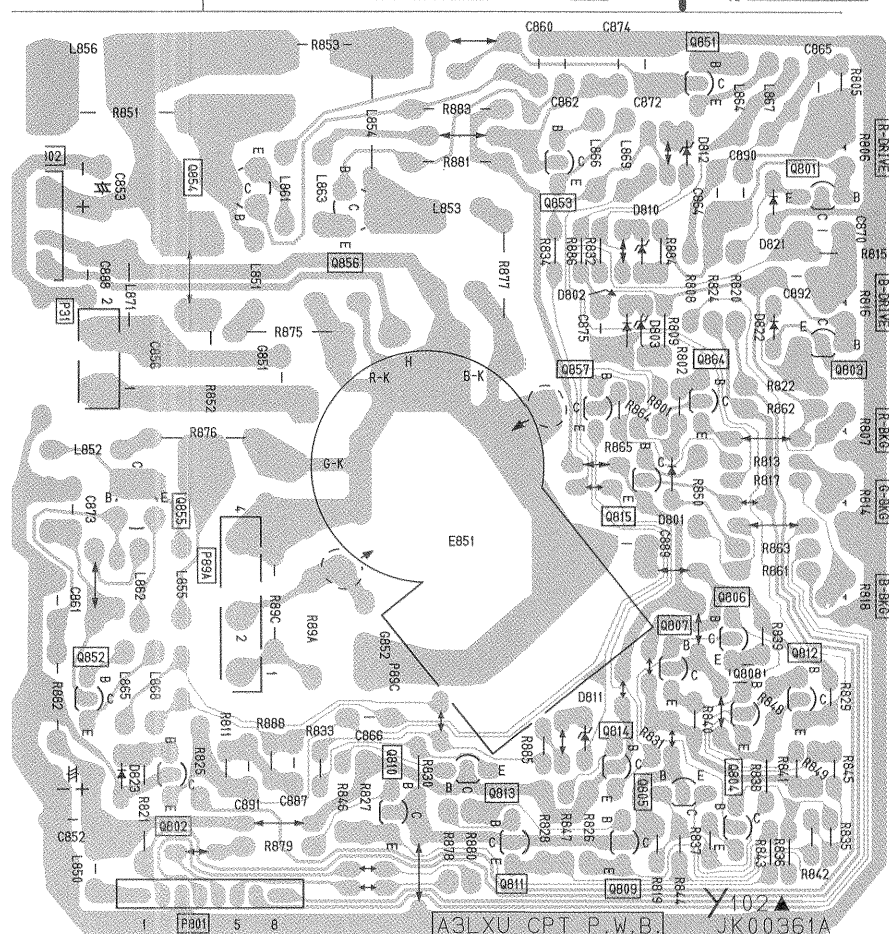


A3LXU3 YNR P.W.B.

A3LXU3 S P.W.B.



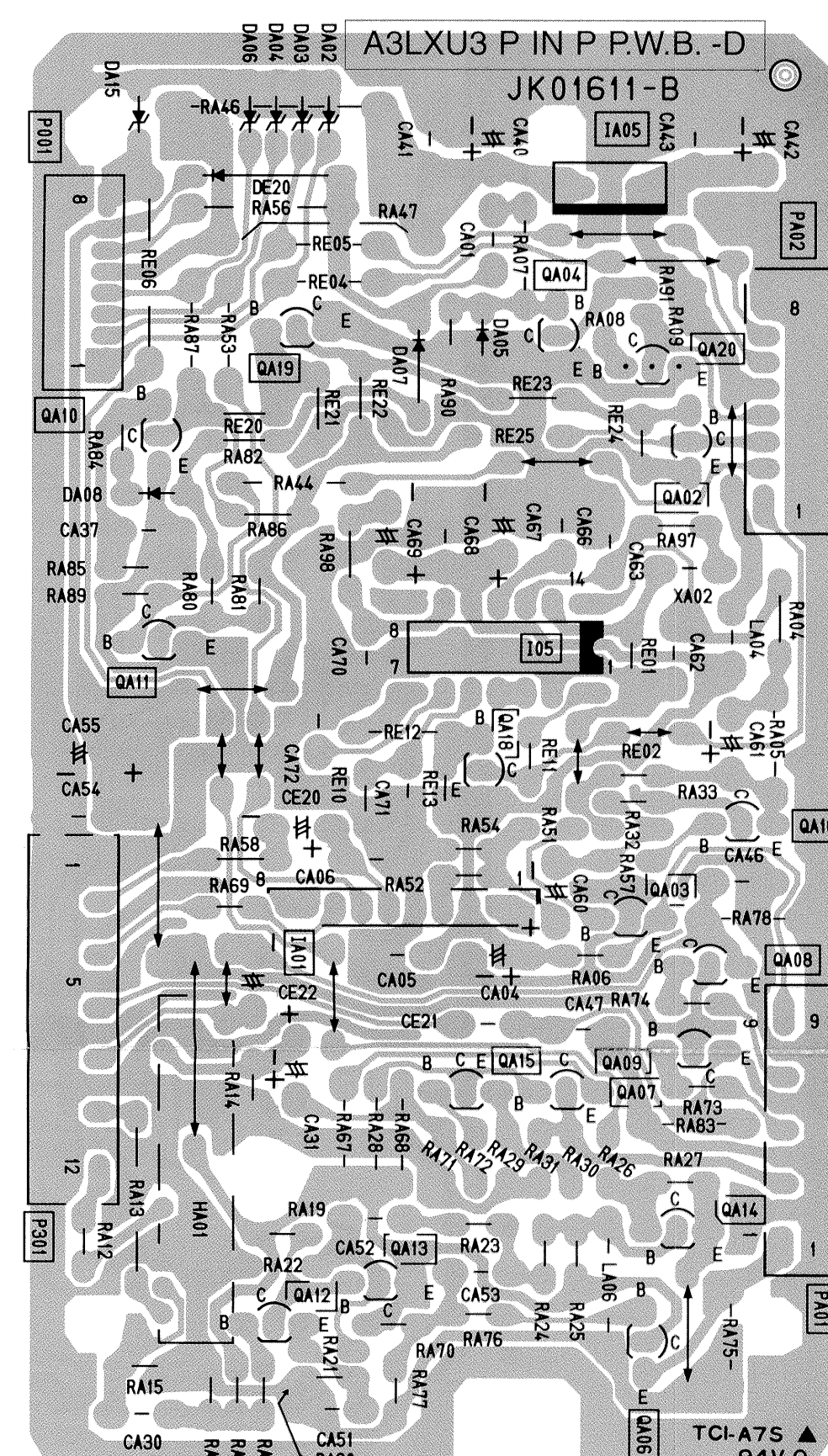
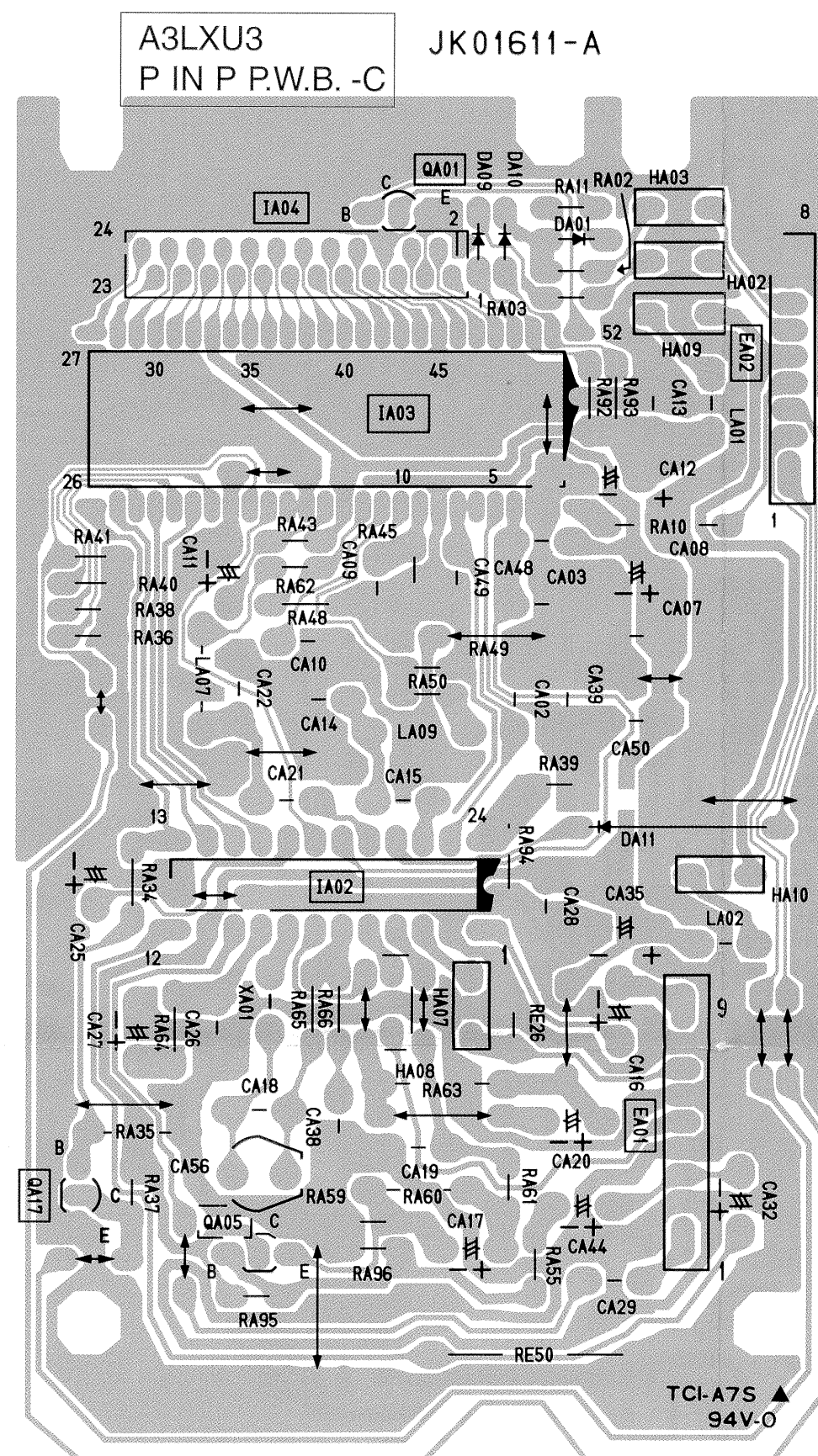
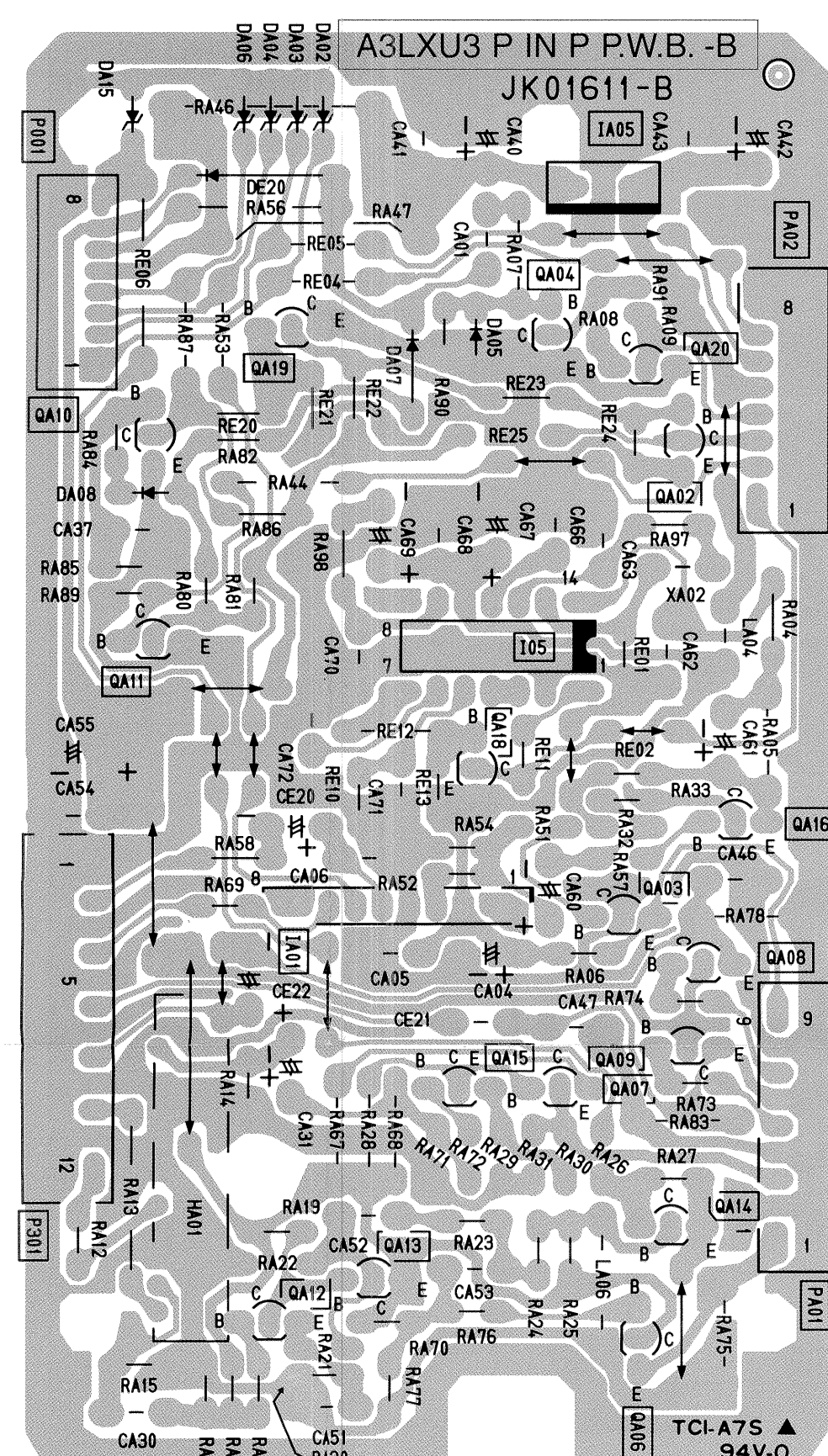
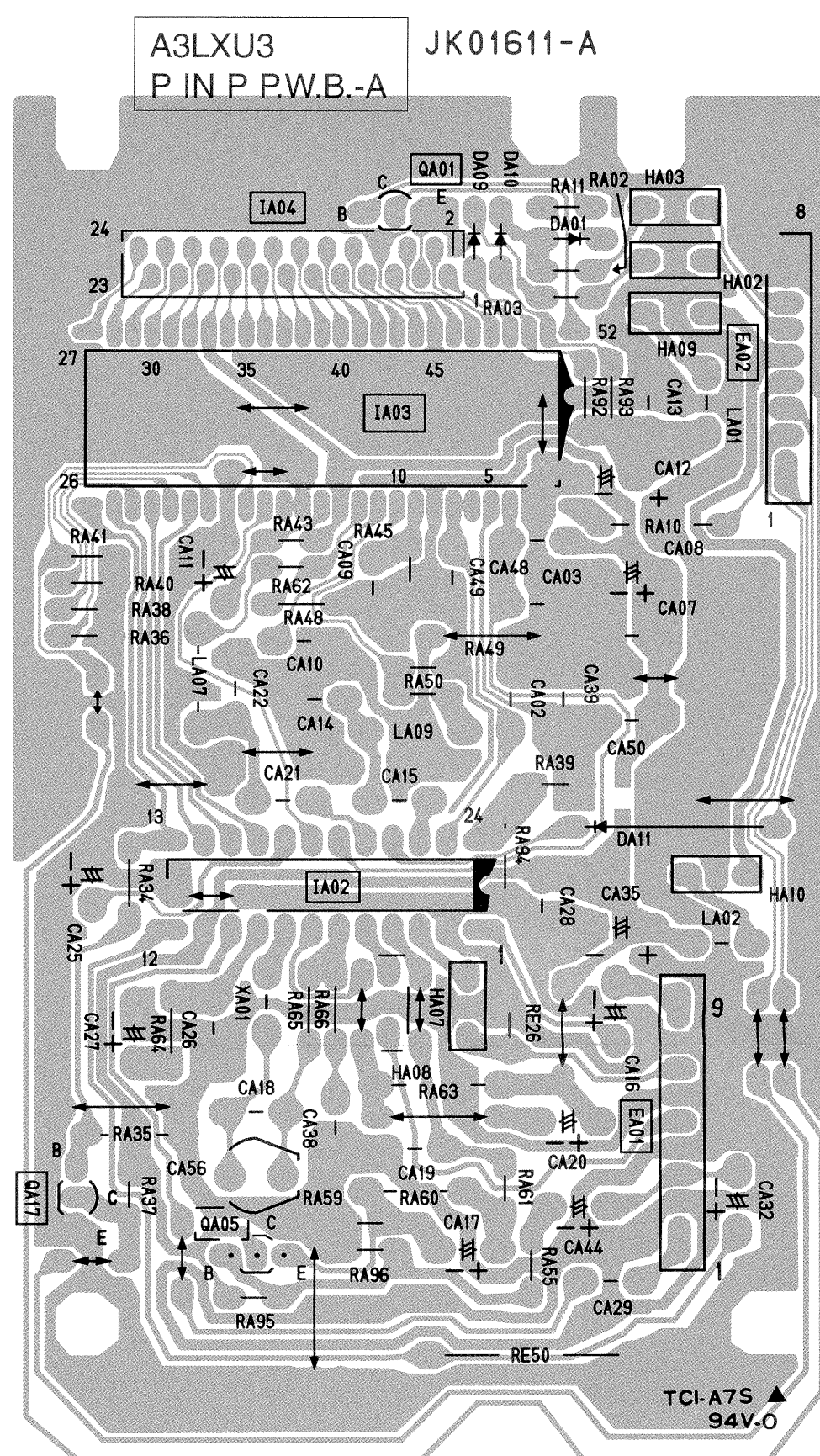
A3LXU3 SIDE PIN P.W.B.



A3LXU3 C.P.T. P.W.B.

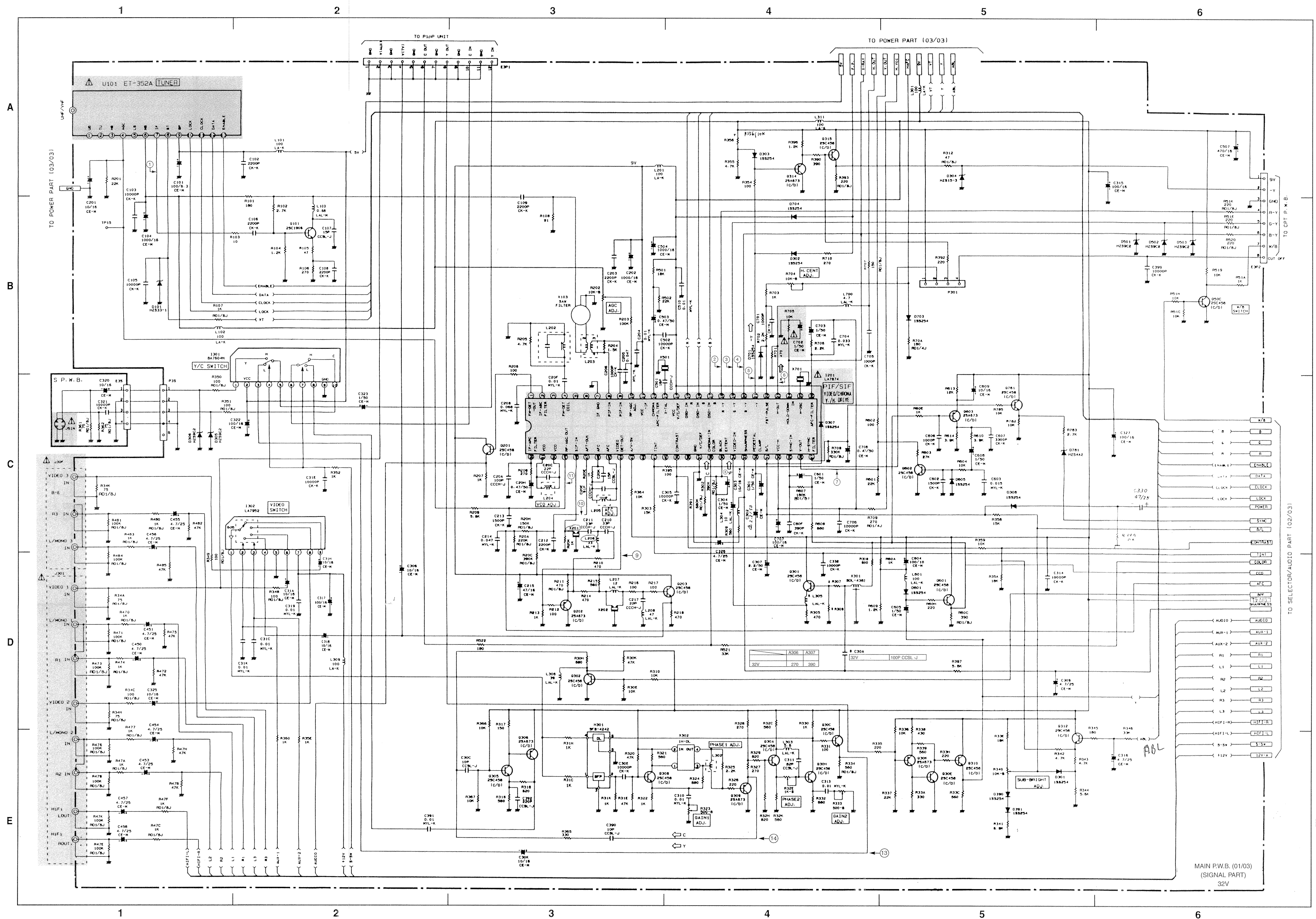
PRINTED WIRING BOARD FOIL PATTERN

A3LXU3 P in P.W.B.



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 SCHEMATIC DIAGRAM 32CX11B/CY61, 32TX78B/CY60, 32TX79K/CY60



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	4.8
	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

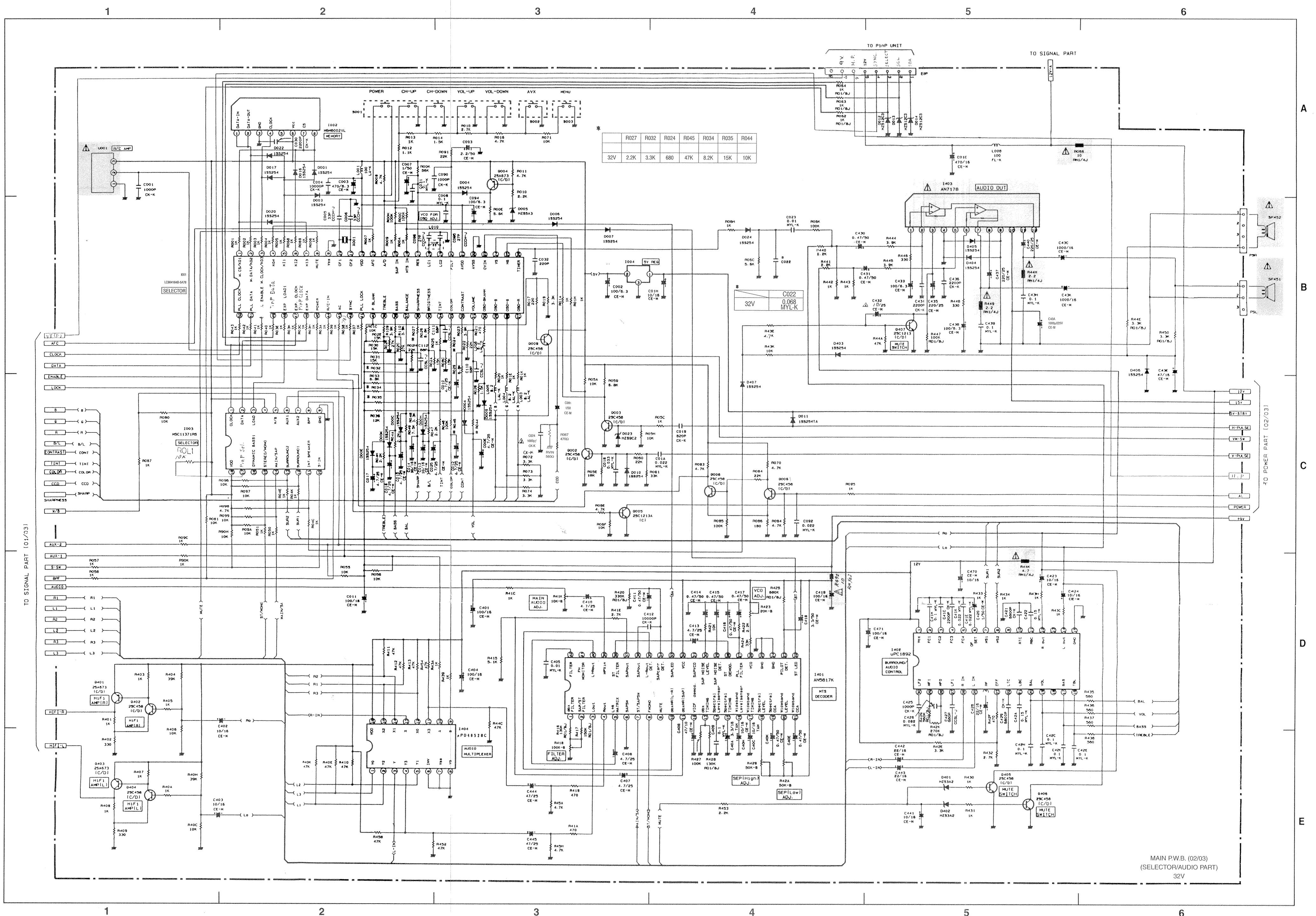
Circuit No.	Pin No.	Voltage VDC
I302	1	6.7
	2	9.4
	3	9.4
	4	3.5
	5	0.0
	6	3.1
	7	11.6
	8	3.1
	9	3.1

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
	F	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
Q30I	B	1.5
	C	9.0
	E	0.5
Q302	B	0.5
	C	0.0
	F	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 32CX11B/CY61, 32TX78B/CY61, 32TX79K/CY61



• 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). Voltage taken on a complex color bar signal including a standard color bar signal.

Circuit No.	Pin No.	Voltage VDC
1001	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
1001	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
1002	1	5.0
	2	5.0
	3	0.0
	4	5.0
	5	5.0
	6	5.0
	7	5.0
	8	5.0
1003	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
1004	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
1004	1	15.0
	2	5.0
	3	0.0
1403	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

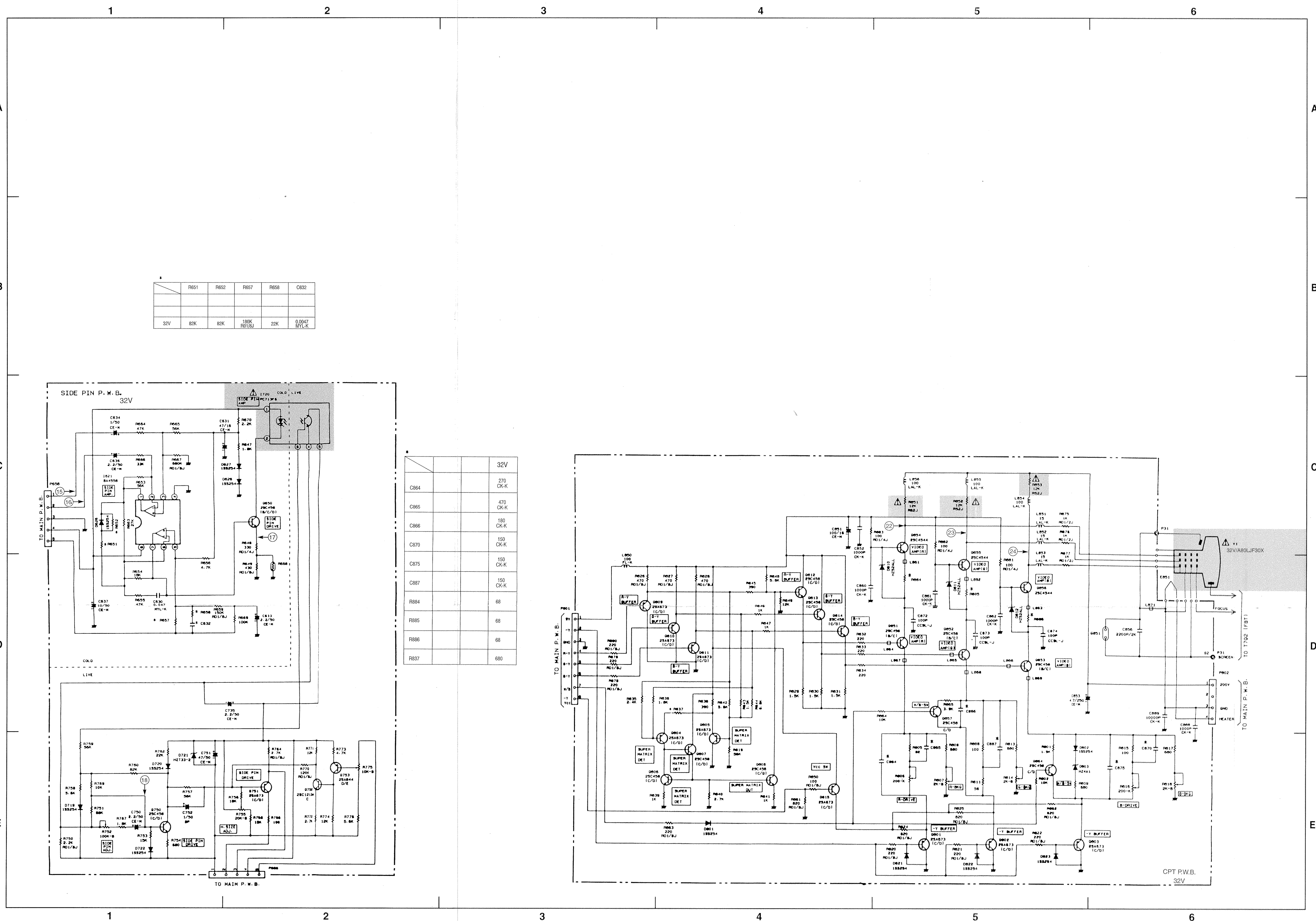
Circuit No.	Pin No.	Voltage VDC
1401	1	1.2
	2	1.2
	3	5.0
	4	5.0
	5	5.0
	6	0.0
	7	5.0
	8	3.5
	9	—
	10	4.5
	11	5.0
	12	5.0
	13	1.2
	14	5.0
	15	0.3
	16	5.0
	17	0.6
	18	0.0
	19	5.0
	20	8.0
	21	5.0
	22	0.0
	23	7.0
	24	0.0
	25	0.0
	26	8.3
	27	5.0
	28	5.0
	29	3.0

Circuit No.	Pin No.	Voltage VDC
1401	30	3.0
	31	—
	32	9.5
	33	0.0
	34	6.0
	35	6.0
	36	4.5
	37	0.5
	38	3.8
	39	4.2
	40	5.0
	41	4.0
	42	5.0

Circuit No.	Pin No.	Voltage VDC
1402	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
1404	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 32CX11B/CY61, 32TX78B/CY60, 32TX79K/CY60



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
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

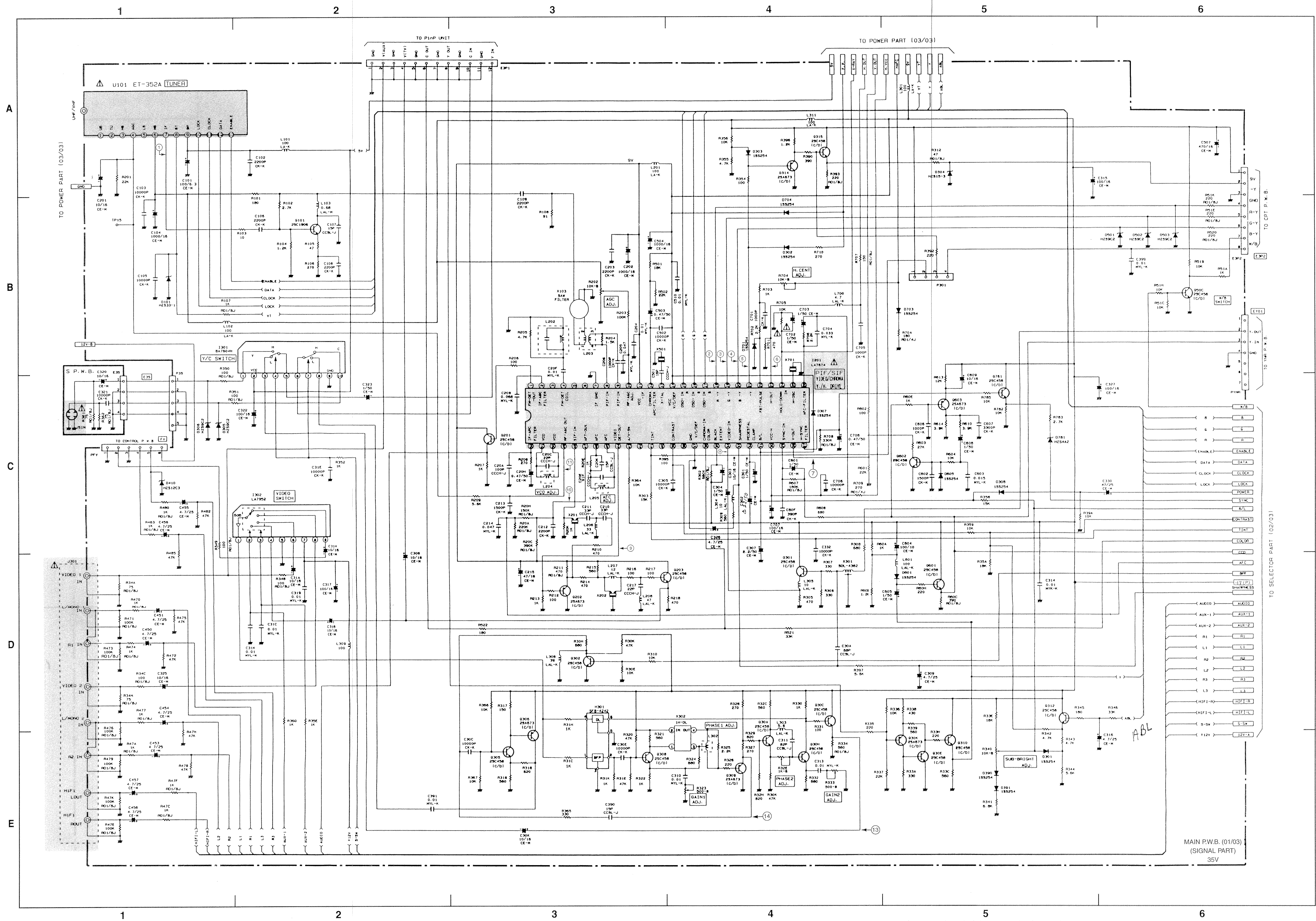
Circuit No.	Pin No.	Voltage VDC
Q851 CPT	B	5.0
	C	8.0
	E	5.0
Q852 CPT	B	5.0
	C	7.6
	E	4.7
Q853 CPT	B	5.0
	C	8.0
	E	5.0
Q854 CPT	B	1.5
	C	26.0
	E	1.5
Q855 CPT	B	1.2
	C	24.0
	E	1.2
Q856 CPT	B	1.2
	C	24.0
	E	1.2
Q857 CPT	B	4.5
	C	3.9
	E	3.9
Q864 CPT	B	4.6
	C	4.0
	E	4.0

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

• 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.

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CIRCUIT SCHEMATIC DIAGRAM 35CX30B/ 35TX88B/ 35TX89K/CZ63



• 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/M). 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

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

Circuit No.	Pin No.	Voltage VDC
I301	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

Circuit No.	Pin No.	Voltage VDC
I302	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

Circuit No.	Pin No.	Voltage VDC
I303	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

Circuit No.	Pin No.	Voltage VDC
I304	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

Circuit No.	Pin No.	Voltage VDC
I305	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

Circuit No.	Pin No.	Voltage VDC
I306	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

Circuit No.	Pin No.	Voltage VDC
I307	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

Circuit No.	Pin No.	Voltage VDC
I308	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

Circuit No.	Pin No.	Voltage VDC
I309	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

Circuit No.	Pin No.	Voltage VDC
I310	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

Circuit No.	Pin No.	Voltage VDC
I311	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

Circuit No.	Pin No.	Voltage VDC
I312	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

Circuit No.	Pin No.	Voltage VDC
I313	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

Circuit No.	Pin No.	Voltage VDC
I314	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

Circuit No.	Pin No.	Voltage VDC
I315	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

Circuit No.	Pin No.	Voltage VDC
I316	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

Circuit No.	Pin No.	Voltage VDC
I317	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

Circuit No.	Pin No.	Voltage VDC
I318	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

Circuit No.	Pin No.	Voltage VDC
I319	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

Circuit No.	Pin No.	Voltage VDC
I320	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

Circuit No.	Pin No.	Voltage VDC
I321	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

Circuit No.	Pin No.	Voltage VDC
I322	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

Circuit No.	Pin No.	Voltage VDC
I323	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

Circuit No.	Pin No.	Voltage VDC
I324	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

Circuit No.	Pin No.	Voltage VDC
I325	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

Circuit No.	Pin No.	Voltage VDC
I326	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

Circuit No.	Pin No.	Voltage VDC
I327	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

Circuit No.	Pin No.	Voltage VDC
I328	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

Circuit No.	Pin No.	Voltage VDC
I329	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

Circuit No.	Pin No.	Voltage VDC
I330	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

Circuit No.	Pin No.	Voltage VDC
I331	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


Circuit No.	Pin No.	Voltage VDC
I332	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

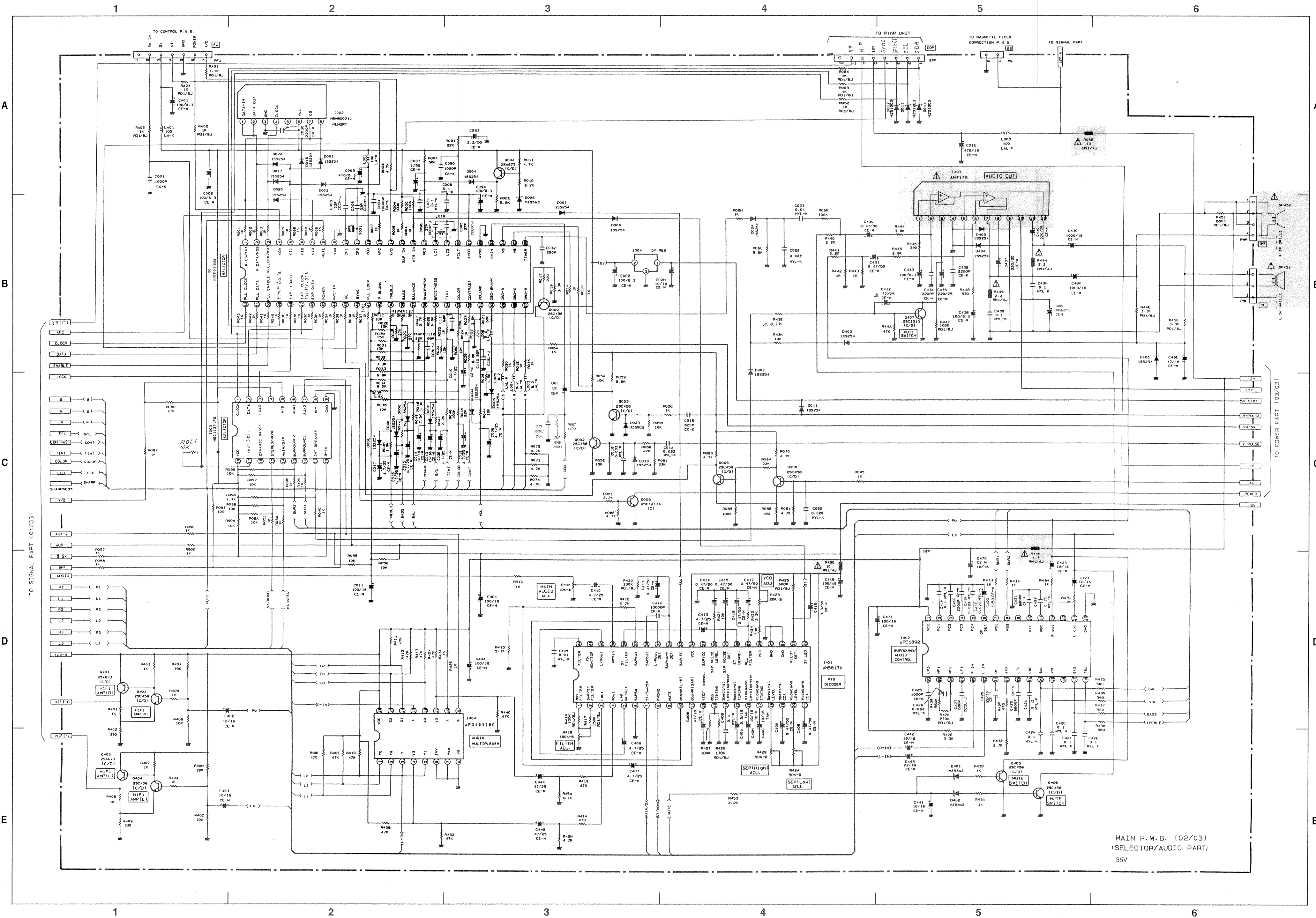
Circuit No.	Pin No.	Voltage VDC
I333	29	7.0
	30	7.6
	31	4.4
	32	2.7
	33	5.9
	34	4.3
	35	4.2
	36	4.8
	37	0.0
	38	3.5

Circuit No.	Pin No.	Voltage VDC
I334	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

Circuit No.	Pin No.	Voltage VDC
I335	29	7.0

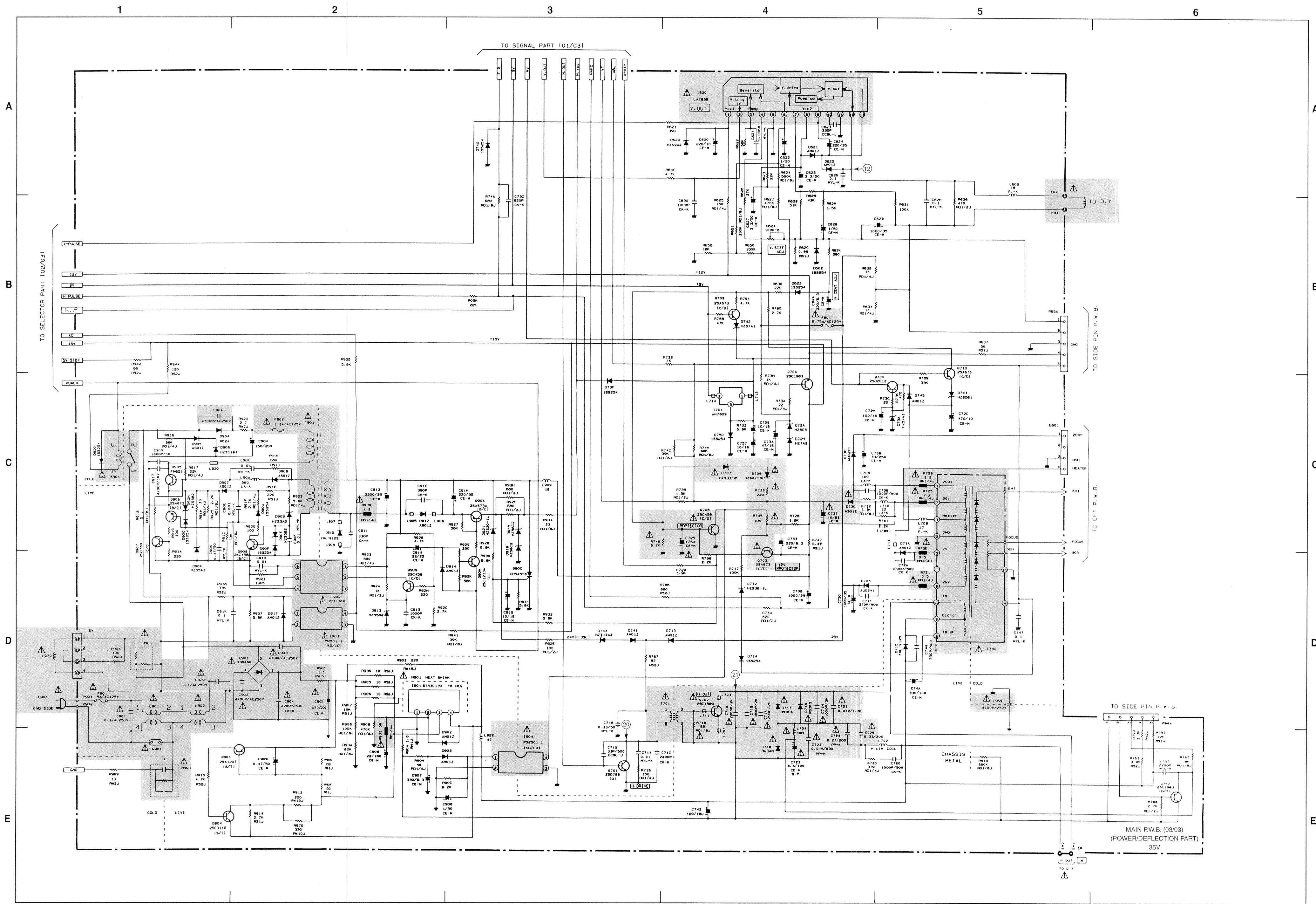
CIRCUIT SCHEMATIC DIAGRAM 35CX30B, 35TX88B, 35TX89K/CZ63

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 service.



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CIRCUIT SCHEMATIC DIAGRAM 35CX30B, 35TX88B, 35TX89K/CZ63



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
I701	1	12.0
	2	9.0
	3	0.5
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
I903	1	1.2
	2	0.5
	3	0.5
	4	0.0
I904	1	—
	2	-60.0
	3	-60.0
	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	3.0
	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

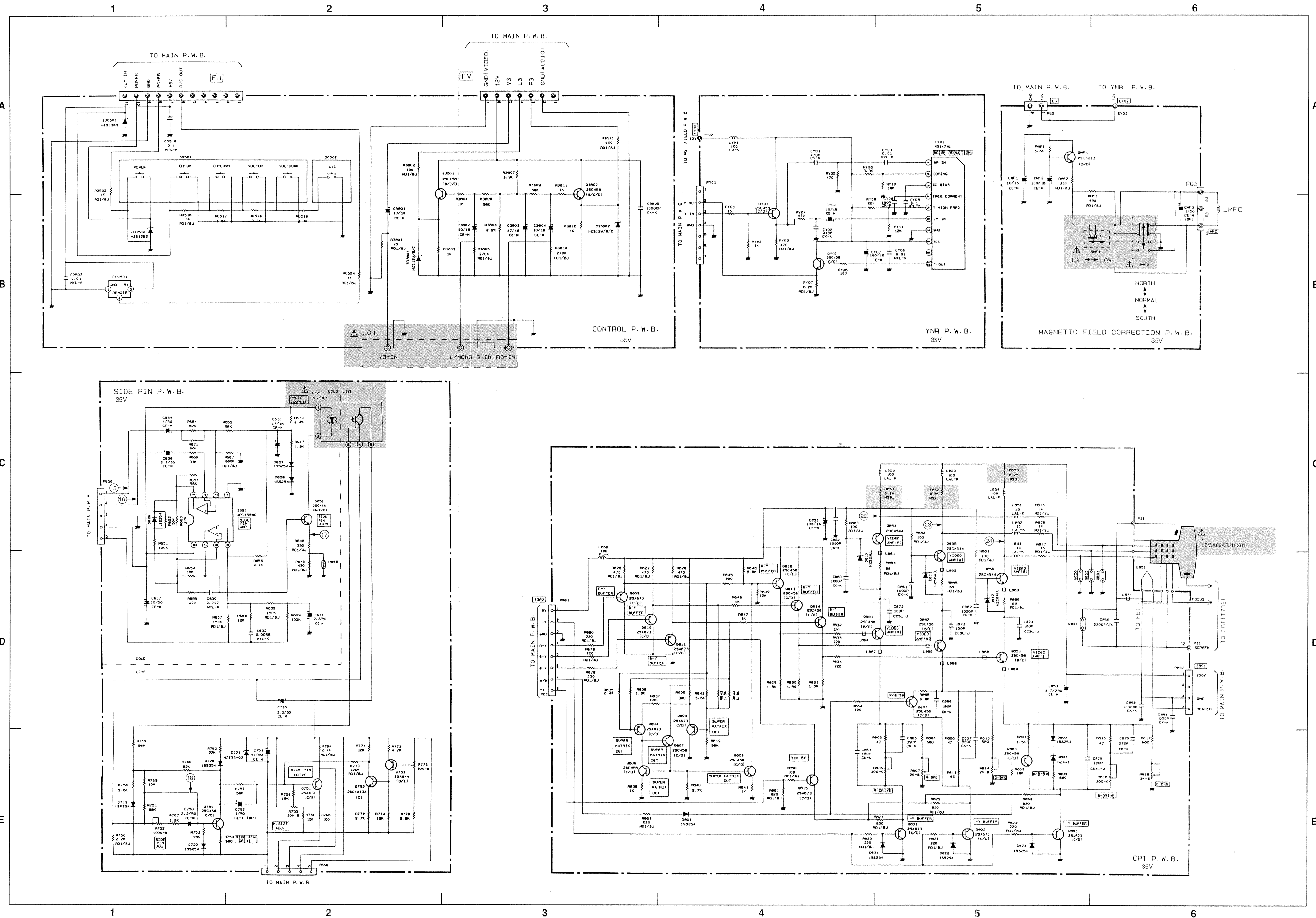
Circuit No.	Pin No.	Voltage VDC
Q406	B	0.5
	C	0.0
	E	0.0
Q407	B	0.0
	C	15.0
	E	0.0
Q50C	B	0.0
	C	6.5
	E	0.0
Q601	B	5.2
	C	9.0
	E	4.5
Q602	B	0.0
	C	4.4
	E	0.0
Q603	B	5.0
	C	1.3
	E	4.5
Q70A	B	12.0
	C	15.0
	E	12.0

Circuit No.	Pin No.	Voltage VDC
Q70H	B	0.5
	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	33.0
Q904	B	0.0
	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). Voltage taken on a complex color bar signal including a standard color bar signal.

CIRCUIT SCHEMATIC DIAGRAM 35CX30B, 35TX88B, 35TX89K/CZ63



Circuit No.	Pin No.	Voltage VDC
I621	1	5.0
	2	5.0
	3	5.6
	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
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 35v	B	0.0
	C	0.0
	E	0.0
Q3801 35v	B	3.8
	C	12.0
	E	3.2
Q3802 35v	B	3.6
	C	12.0
	E	3.2

Circuit No.	Pin No.	Voltage VDC
QMF1	B	9.6
	C	10
	E	9

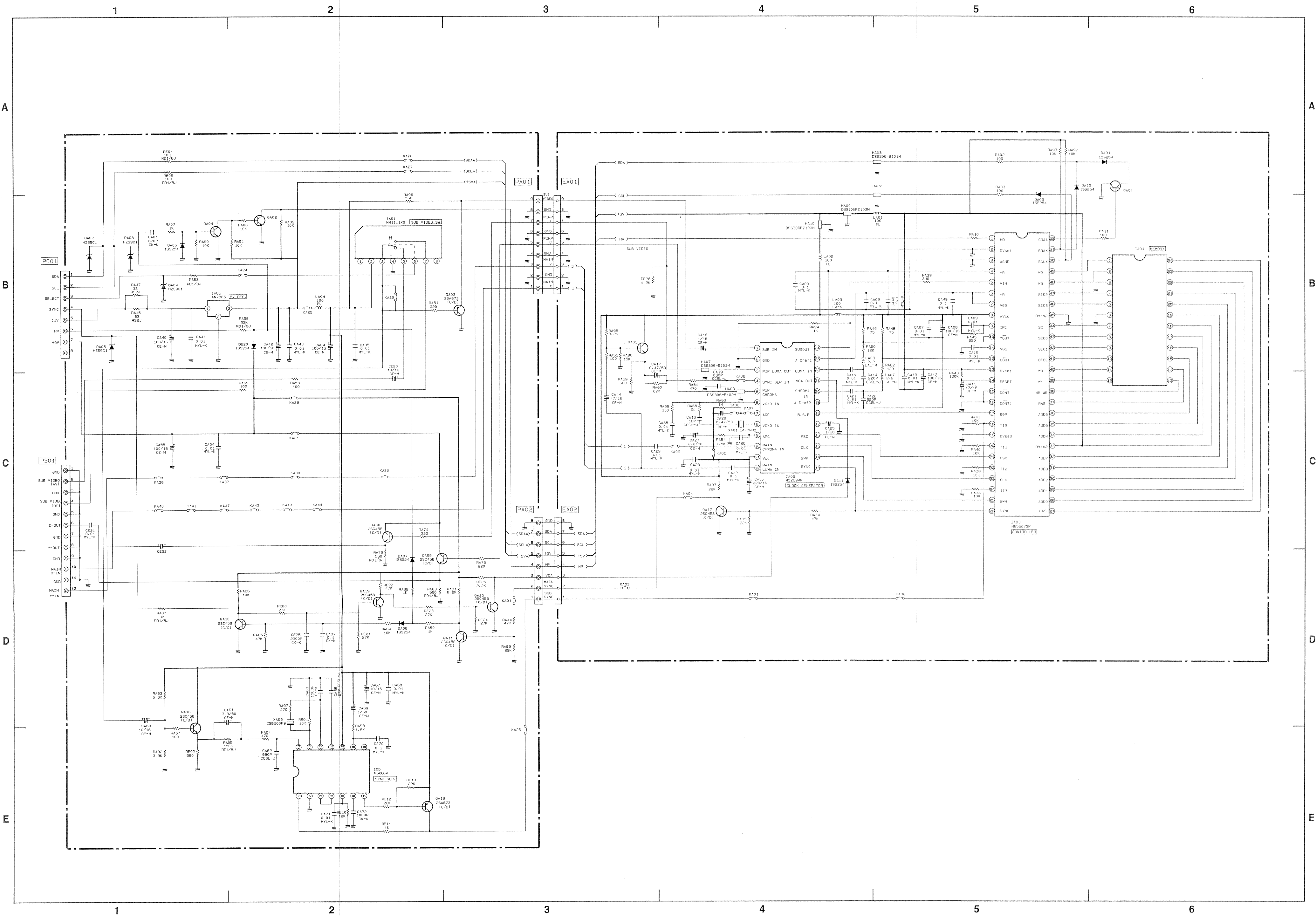
Circuit No.	Pin No.	Voltage VDC
QY01 YNR	B	2.2
	C	0.5
	E	1.5
QY02 YNR	B	7.4
	C	10.2
	E	6.7

Circuit No.	Pin No.	Voltage VDC
IY01	1	4.2
	2	8.4
	3	4.1
	4	3.4
	5	3.4
	6	4.3
	7	0
	8	10
	9	7.2
	10	7.3

• 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). Voltage taken on a complex color bar signal including a standard color bar signal.

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CIRCUIT SCHEMATIC DIAGRAM OF P in P



• 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/M). Voltage taken on a complex color bar signal including a standard color bar signal.

Circuit No.	Pin No.	Voltage VDC
I05	1	0.85
	2	0
	3	0.99
	4	0.99
	5	0.94
	6	0.39
	7	4.16
	8	3.8
	9	2.6
	10	5
	11	2
	12	2
	13	2.8
	14	3
IA01	1	0
	2	5
	3	1.9
	4	0
	5	2.75
	6	3
	7	2.7
	8	0

Circuit No.	Pin No.	Voltage VDC
IA02	1	2.9
	2	1.8
	3	1.7
	4	3
	5	1.29
	6	3.3
	7	4.1
	8	2.8
	9	2.4
	10	2.8
	11	5
	12	3.4
	13	1.1
	14	0
	15	1.6
	16	1.8
	17	2.3
	18	0
IA03	19	2.5
	20	2.5
	21	2.8
	22	3.2
	23	3.7
	24	2.9
	25	0
	26	1

Circuit No.	Pin No.	Voltage VDC
IA03	1	0.6
	2	0
	3	0
	4	2.5
	5	3
	6	3.7
	7	3.7
	8	5
	9	3.7
	10	4.2
	11	2
	12	4.5
	13	5
	14	5
	15	0
	16	0
	17	0
	18	0
IA04	19	0
	20	5
	21	1.8
	22	0
	23	1.6
	24	0
	25	0
	26	1

Circuit No.	Pin No.	Voltage VDC
IA03	29	2.3
	30	2.7
	31	2.8
	32	0.5
	33	5
	34	2.8
	35	2.8
	36	2.3
	37	3.7
	38	3.8
	39	2.2
	40	1.7
	41	5
	42	1.5
	43	3
	44	0.5
	45	0
	46	1
IA05	47	0
	48	1
	49	1.9
	50	4.9
	51	5
	52	0
	53	0
	54	0

Circuit No.	Pin No.	Voltage VDC
IA04	1	1.8
	2	1
	3	0
	4	2
	5	0.9
	6	0
	7	0.5
	8	2.9
	9	1
	10	5
	11	1.8
	12	2.2
	13	3.8
	14	3.7
	15	2.3
	16	2.8
	17	2.8
	18	5
IA05	19	0.5
	20	2.8
	21	2.7
	22	2.3
	23	1.9
	24	4.1
	25	0
	26	0

Circuit No.	Pin No.	Voltage VDC
IA05	1	7
	2	0
	3	5

Circuit No.	Pin No.	Voltage VDC
QA01	B	0
	C	5
	E	0
QA02	B	0.5
	C	0.6
	E	0
QA03	B	1.9
	C	0
	E	2.6
QA04	B	0
	C	2.3
	E	0
QA05	B	3
	C	5
	E	2.3
QA06	B	1.7
	C	8.9
	E	1.1
QA07	B	1.3
	C	8.9
	E	0.6
QA08	B	0.6
	C	0
	E	0
QA09	B	0.6
	C	0.7
	E	0

Circuit No.	Pin No.	Voltage VDC
QA16	B	1.6
	C	5
	E	0.9
QA17	B	0.3
	C	3.1
	E	0
QA18	B	4.5
	C	0.8
	E	5
QA19	B	0
	C	3.7
	E	0
QA20	B	0.7
	C	0
	E	0