

SYLVANIA

SERVICE MANUAL

Sec. 1: Main Section

- Specifications
- Preparation for Servicing
- Adjustment Procedures
- Schematic Diagrams
- CBA's

Sec. 2: Deck Mechanism Section

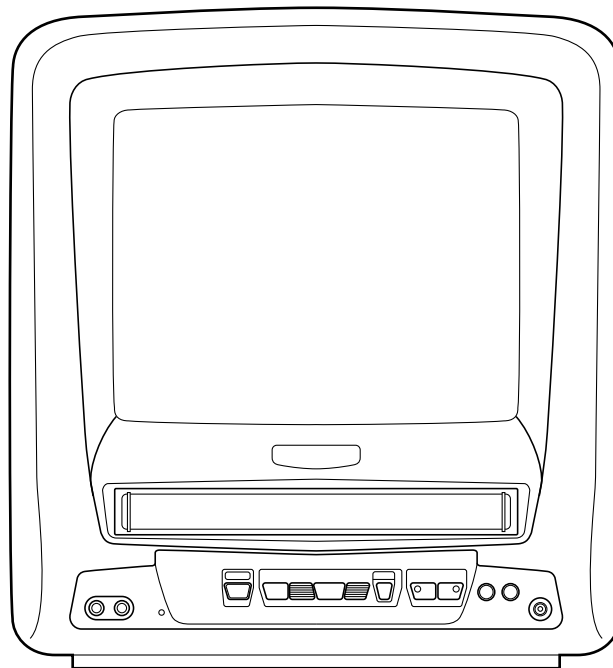
- Standard Maintenance
- Alignment for Mechanism
- Disassembly/Assembly of Mechanism

Sec. 3: Exploded views and Parts List Section

- Exploded views
- Parts List

9" COLOR TV/VCR COMBINATION

6309CCC



VHS

IMPORTANT SAFETY NOTICE

Proper service and repair is important to the safe, reliable operation of all Funai Equipment. The service procedures recommended by Funai and described in this service manual are effective methods of performing service operations. Some of these service special tools should be used when and as recommended.

It is important to note that this service manual contains various CAUTIONS and NOTICES which should be carefully read in order to minimize the risk of personal injury to service personnel. The possibility exists that improper service methods may damage the equipment. It also is important to understand that these CAUTIONS and NOTICES ARE NOT EXHAUSTIVE. Funai could not possibly know, evaluate and advise the service trade of all conceivable ways in which service might be done or of the possible hazardous consequences of each way. Consequently, Funai has not undertaken any such broad evaluation. Accordingly, a servicer who uses a service procedure or tool which is not recommended by Funai must first use all precautions thoroughly so that neither his safety nor the safe operation of the equipment will be jeopardized by the service method selected.

MAIN SECTION

9" COLOR TV/VCR COMBINATION 6309CCC

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| <p>Sec. 1: Main Section</p> <ul style="list-style-type: none">● Specifications● Preparation for Servicing● Adjustment Procedures● Schematic Diagrams● CBA's |
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SPECIFICATIONS

*Mode-----SP mode unless otherwise specified

*Test input terminal

<Except Tuner>-----Video input (1Vp-p)
Audio input (-10dB)

<Tuner>-----Ant. input (80dB μ V) Video: 87.5%
Audio: 25kHz dev (1kHz Sin)

<DEFLECTION>

Description	Condition	Unit	Nominal	Limit
1. Over Scan	—	%	90	± 5
2. Linearity	Horizontal	%	—	12
	Vertical	%	—	10
3. High Voltage	—	kV	18	—

<VIDEO & CHROMA>

Description	Condition	Unit	Nominal	Limit
1. Misconvergence	Center	m/m	—	0.3
	Corner	m/m	—	1.5
	Side	m/m	—	1.2
2. Tint Control Range	—	deg	± 30	—
3. Contrast Control Range	—	dB	6	—
4. Brightness	APL 100%	ft-L	30	—
5. Color Temperature	—	K	9200	—

<VCR>

Description	Condition	Unit	Nominal	Limit
1. Horizontal Resolution	(R/P)	Line	230	200
2. Jitter (Low)	(R/P)	μ S	0.05	0.2
3. S/N Chroma	AM(SP)	(R/P)	dB	38
	PM(SP)	(R/P)	dB	36
4. Wow & Flutter (RMS)	(R/P)	%	0.25	0.5

<TUNER>

Description	Condition	Unit	Nominal	Limit
1. Video S/N	—	dB	45	40
2. Audio S/N (W/LPF)	—	dB	43	40

<AUDIO>

All items are measured across 8Ω resistor at speaker output terminal.

Description	Condition	Unit	Nominal	Limit
1. Audio Output Power (Max.)	(R/P)	W	0.8	0.6
2. Audio S/N (W/LPF)	(R/P)	dB	40	36
3. Audio Distortion (W/LPF)	(R/P)	%	3.0	5.0
4. Audio Freq. Response (-10dB Ref. 1KHz)	200Hz (R/P)	dB	-2.0	-2.0±5.0
	8kHz (R/P)	dB	0	0±6.0

Note: Nominal specifications represent the design specifications. All units should be able to approximate these. Some will exceed and some may drop slightly below these specifications. Limit specifications represent the absolute worst condition that still might be considered acceptable. In no case should a unit fail to meet limit specifications.

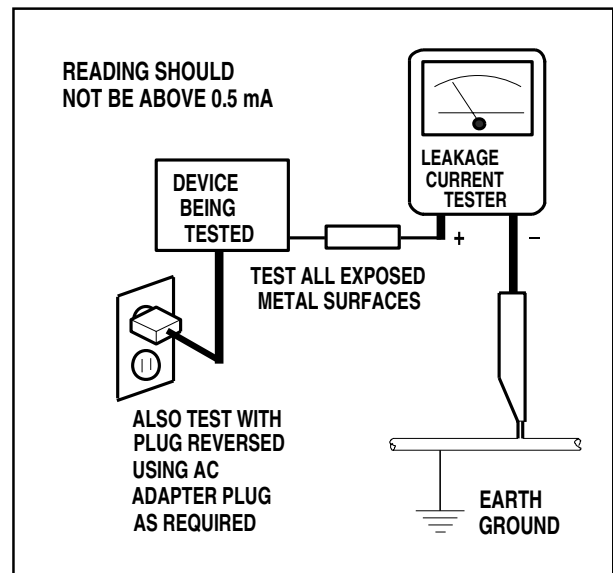
IMPORTANT SAFETY PRECAUTIONS

Prior to shipment from the factory, our products are strictly inspected for recognized product safety and electrical codes of the countries in which they are to be sold. However, in order to maintain such compliance, it is equally important to implement the following precautions when a set is being serviced.

Safety Precautions for TV Circuit

1. **Before returning an instrument to the customer**, always make a safety check of the entire instrument, including, but not limited to, the following items:
 - a. Be sure that no built-in protective devices are defective and have been defeated during servicing. (1) Protective shields are provided on this chassis to protect both the technician and the customer. Correctly replace all missing protective shields, including any removed for servicing convenience. (2) When reinstalling the chassis and/or other assembly in the cabinet, be sure to put back in place all protective devices, including but not limited to, nonmetallic control knobs, insulating fishpapers, adjustment and compartment covers/shields, and isolation resistor/capacitor networks. **Do not operate this instrument or permit it to be operated without all protective devices correctly installed and functioning. Servicers who defeat safety features or fail to perform safety checks may be liable for any resulting damage.**
 - b. Be sure that there are no cabinet openings through which an adult or child might be able to insert their fingers and contact a hazardous voltage. Such openings include, but are not limited to, (1) spacing between the picture tube and the cabinet mask, (2) excessively wide cabinet ventilation slots, and (3) an improperly fitted and/or incorrectly secured cabinet back cover.
 - c. **Antenna Cold Check** - With the instrument AC plug removed from any AC source, connect an electrical jumper across the two AC plug prongs. Place the instrument AC switch in the on position. Connect one lead of an ohmmeter to the AC plug prongs tied together and touch the other ohmmeter lead in turn to each tuner antenna input exposed terminal screw and, if applicable, to the coaxial connector. If the measured resistance is less than 1.0 megohm or greater than 5.2 megohm, an abnormality exists that must be corrected before the instrument is returned to the customer. Repeat this test with the instrument AC switch in the off position.
 - d. **Leakage Current Hot Check** - With the instrument completely reassembled, plug the AC line cord directly into a 120V AC outlet. (Do not use an isolation transformer during this test.) Use a leak-

age current tester or a metering system that complies with American National Standards Institute (ANSI) C101.1 Leakage Current for Appliances and Underwriters Laboratories (UL) 1410, (50.7). With the instrument AC switch first in the on position and then in the off position, measure from a known earth ground (metal water pipe, conduit, etc.) to all exposed metal parts of the instrument (antennas, handle brackets, metal cabinet, screw heads, metallic overlays, control shafts, etc.), especially any exposed metal parts that offer an electrical return path to the chassis. Any current measured must not exceed 0.5 milli-ampere. Reverse the instrument power cord plug in the outlet and repeat the test.



ANY MEASUREMENTS NOT WITHIN THE LIMITS SPECIFIED HEREIN INDICATE A POTENTIAL SHOCK HAZARD THAT MUST BE ELIMINATED BEFORE RETURNING THE INSTRUMENT TO THE CUSTOMER OR BEFORE CONNECTING THE ANTENNA OR ACCESSORIES.

- e. **X-Radiation and High Voltage Limits** - Because the picture tube is the primary potential source of X-radiation in solid-state TV receivers, it is specially constructed to prohibit X-radiation emissions. For continued X-radiation protection, the replacement picture tube must be the same type as the original. Also, because the picture tube shields and mounting hardware perform an X-radiation protection function, they must be correctly in place. High voltage must be measured each time servic-

ing is performed that involves B+, horizontal deflection or high voltage. Correct operation of the X-radiation protection circuits also must be reconfirmed each time they are serviced. (X-radiation protection circuits also may be called "horizontal disable" or "hold down.") Read and apply the high voltage limits and, if the chassis is so equipped, the X-radiation protection circuit specifications given on instrument labels and in the Product Safety & X-Radiation Warning note on the service data chassis schematic. High voltage is maintained within specified limits by close tolerance safety-related components/adjustments in the high-voltage circuit. If high voltage exceeds specified limits, check each component specified on the chassis schematic and take corrective action.

2. Read and comply with all caution and safety-related notes on or inside the receiver cabinet, on the receiver chassis, or on the picture tube.

3. **Design Alteration Warning** - Do not alter or add to the mechanical or electrical design of this TV receiver. Design alterations and additions, including, but not limited to circuit modifications and the addition of items such as auxiliary audio and/or video output connections, might alter the safety characteristics of this receiver and create a hazard to the user. Any design alterations or additions will void the manufacturer's warranty and may make you, the servicer, responsible for personal injury or property damage resulting therefrom.

4. **Picture Tube Implosion Protection Warning** - The picture tube in this receiver employs integral implosion protection. For continued implosion protection, replace the picture tube only with one of the same type number. Do not remove, install, or otherwise handle the picture tube in any manner without first putting on shatterproof goggles equipped with side shields. People not so equipped must be kept safely away while picture tubes are handled. Keep the picture tube away from your body. Do not handle the picture tube by its neck. Some "in-line" picture tubes are equipped with a permanently attached deflection yoke; because of potential hazard, do not try to remove such "permanently attached" yokes from the picture tube.

5. **Hot Chassis Warning** -

a. Some TV receiver chassis are electrically connected directly to one conductor of the AC power cord and maybe safety-serviced without an isolation transformer only if the AC power plug is inserted so that the chassis is connected to the ground side of the AC power source. To confirm that the AC power plug is inserted correctly, with an AC voltmeter, measure between the chassis and a known

earth ground. If a voltage reading in excess of 1.0V is obtained, remove and reinsert the AC power plug in the opposite polarity and again measure the voltage potential between the chassis and a known earth ground.

b. Some TV receiver chassis normally have 85V AC(RMS) between chassis and earth ground regardless of the AC plug polarity. This chassis can be safety-serviced only with an isolation transformer inserted in the power line between the receiver and the AC power source, for both personnel and test equipment protection.

c. Some TV receiver chassis have a secondary ground system in addition to the main chassis ground. This secondary ground system is not isolated from the AC power line. The two ground systems are electrically separated by insulation material that must not be defeated or altered.

6. Observe original lead dress. Take extra care to assure correct lead dress in the following areas: a. near sharp edges, b. near thermally hot parts- be sure that leads and components do not touch thermally hot parts, c. the AC supply, d. high voltage, and e. antenna wiring. Always inspect in all areas for pinched, out of place, or frayed wiring. Check AC power cord for damage.

7. Components, parts, and/or wiring that appear to have overheated or are otherwise damaged should be replaced with components, parts, or wiring that meet original specifications. Additionally, determine the cause of overheating and/or damage and, if necessary, take corrective action to remove any potential safety hazard.

8. **Product Safety Notice** - Some electrical and mechanical parts have special safety-related characteristics which are often not evident from visual inspection, nor can the protection they give necessarily be obtained by replacing them with components rated for higher voltage, wattage, etc.. Parts that have special safety characteristics are identified by a (▲) on schematics and in parts lists. Use of a substitute replacement that does not have the same safety characteristics as the recommended replacement part might create shock, fire, and/or other hazards. The Product's Safety is under review continuously and new instructions are issued whenever appropriate. Prior to shipment from the factory, our products are strictly inspected to confirm with the recognized product safety and electrical codes of the countries in which they are to be sold. However, in order to maintain such compliance, it is equally important to implement the following precautions when a set is being serviced.

Precautions during Servicing

- A.** Parts identified by the (▲) symbol are critical for safety.

Replace only with part number specified.

- B.** In addition to safety, other parts and assemblies are specified for conformance with regulations applying to spurious radiation. These must also be replaced only with specified replacements.

Examples: RF converters, RF cables, noise blocking capacitors, and noise blocking filters, etc.

- C.** Use specified internal wiring. Note especially:

- 1) Wires covered with PVC tubing
- 2) Double insulated wires
- 3) High voltage leads

- D.** Use specified insulating materials for hazardous live parts. Note especially:

- 1) Insulation Tape
- 2) PVC tubing
- 3) Spacers
- 4) Insulators for transistors.

- E.** When replacing AC primary side components (transformers, power cord, etc.), wrap ends of wires securely about the terminals before soldering.

- F.** Observe that the wires do not contact heat producing parts (heatsinks, oxide metal film resistors, fusible resistors, etc.)

- G.** Check that replaced wires do not contact sharp edged or pointed parts.

- H.** When a power cord has been replaced, check that 5~6 kg of force in any direction will not loosen it.

- I.** Also check areas surrounding repaired locations.

- J.** Use care that foreign objects (screws, solder droplets, etc.) do not remain inside the set.

- K.** Crimp type wire connector

When replacing the power transformer in sets where the connections between the power cord and power transformer primary lead wires are performed using crimp type connectors, in order to prevent shock hazards, perform carefully and precisely the following steps.

Replacement procedure

- 1) Remove the old connector by cutting the wires at a point close to the connector.

Important: Do not re-use a connector (discard it).

- 2) Strip about 15 mm of the insulation from the ends of the wires. If the wires are stranded, twist the strands to avoid frayed conductors.

- 3) Align the lengths of the wires to be connected. Insert the wires fully into the connector.

- 4) Use the crimping tool to crimp the metal sleeve at the center position. Be sure to crimp fully to the complete closure of the tool.

- L.** When connecting or disconnecting the VCR connectors, first, disconnect the AC plug from AC supply socket.

Safety Check after Servicing

Examine the area surrounding the repaired location for damage or deterioration. Observe that screws, parts and wires have been returned to original positions. Afterwards, perform the following tests and confirm the specified values in order to verify compliance with safety standards.

1. Clearance Distance

When replacing primary circuit components, confirm specified clearance distance (d) and (d') between soldered terminals, and between terminals and surrounding metallic parts. (See Fig. 1)

Table 1 : Ratings for selected area

AC Line Voltage	Region	Clearance Distance (d) (d')
110 to 130 V	USA or CANADA	≥ 3.2 mm (0.126 inches)

Note: This table is unofficial and for reference only. Be sure to confirm the precise values.

2. Leakage Current Test

Confirm the specified (or lower) leakage current between B (earth ground, power cord plug prongs) and externally exposed accessible parts (RF terminals, antenna terminals, video and audio input and output terminals, microphone jacks, earphone jacks, etc.).

Measuring Method : (Power ON)

Insert load Z between B (earth ground, power cord plug prongs) and exposed accessible parts. Use an AC voltmeter to measure across both terminals of load Z. See Fig. 2 and following table.

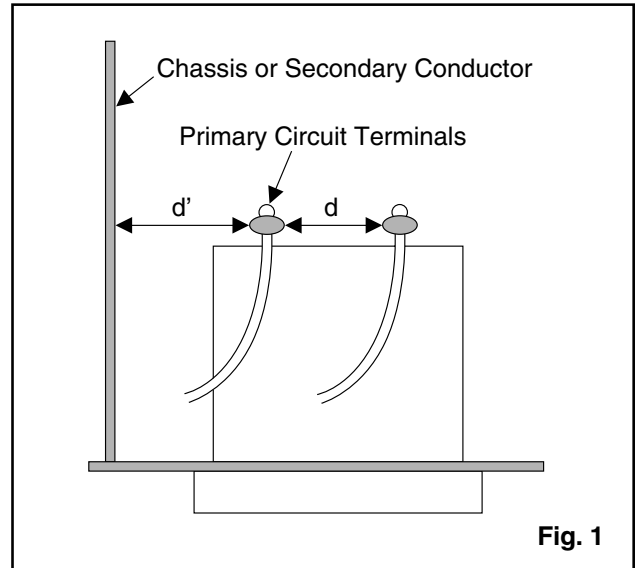


Fig. 1

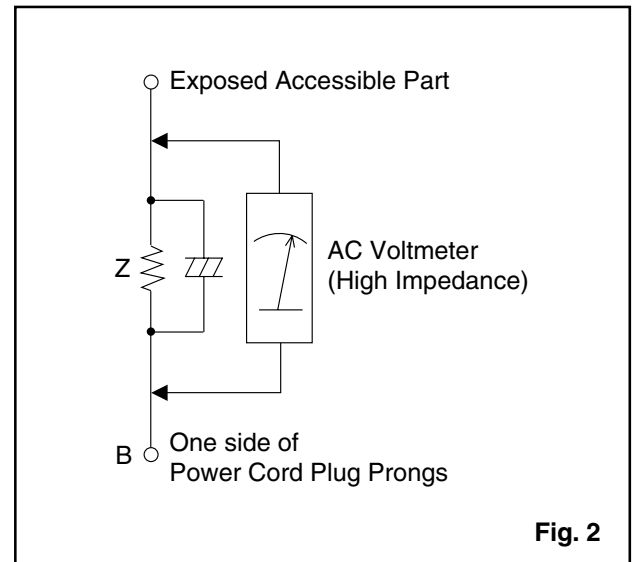


Fig. 2

Table 2 : Leakage current ratings for selected areas

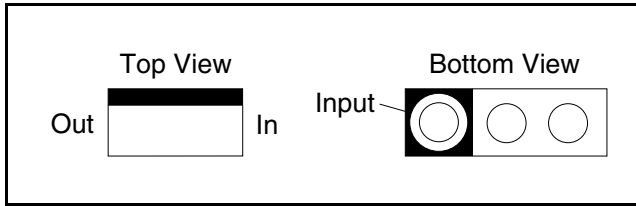
AC Line Voltage	Region	Load Z	Leakage Current (i)	Earth Ground (B) to:
110 to 130 V	USA or CANADA	0.15 μ F CAP. & 1.5k Ω RES. connected in parallel	$i \leq 0.5$ mA rms	Exposed accessible parts

Note: This table is unofficial and for reference only. Be sure to confirm the precise values.

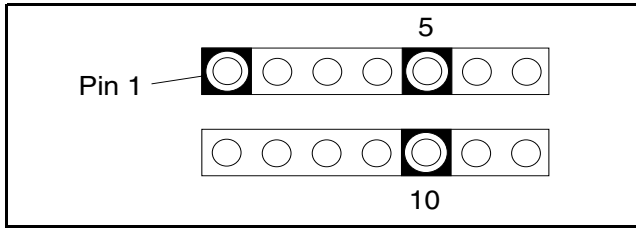
STANDARD NOTES FOR SERVICING

Circuit Board Indications

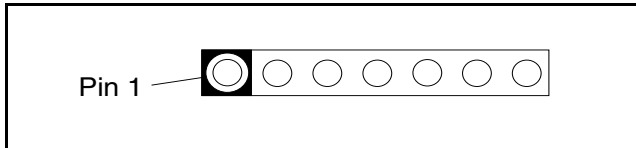
1. The output pin of the 3 pin Regulator ICs is indicated as shown:



2. For other ICs, pin 1 and every 5th pin is indicated as shown:

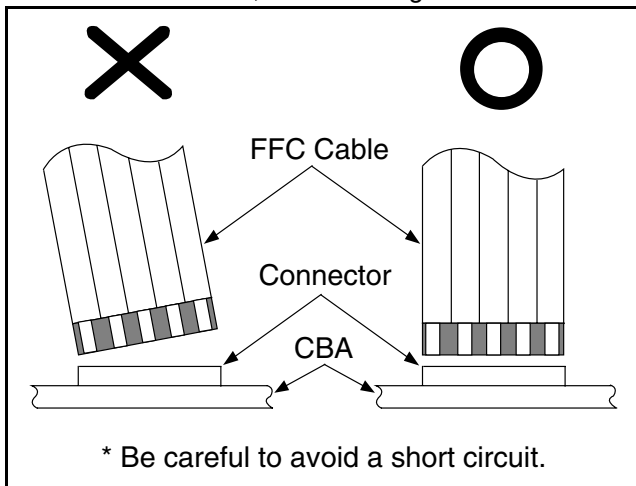


3. The 1st pin of every pin connector are indicated as shown:



Instructions for Connectors

1. When you connect or disconnect FFC cable (connector), be sure to disconnect the AC cord.
2. FFC cable (connector) should be inserted parallel into the connector, not at an angle.



[CBA= Circuit Board Assembly]

How to Remove / Install Flat Pack IC

Caution:

3. Do not apply the hot air to the chip parts around the Flat Pack-IC for over 6 seconds as damage may occur to the chip parts. Put Masking Tape around the Flat Pack-IC to protect other parts from damage. (Fig. S-1-2)
4. The Flat Pack-IC on the CBA is affixed with glue, so be careful not to break or damage the foil of each pin or solder lands under the IC when removing it.

1. Removal

With Hot - Air Flat Pack - IC Desoldering Machine:

- a. Prepare the Hot - Air Flat Pack - IC Desoldering Machine, then apply hot air to Flat Pack - IC (about 5~6 seconds). (Fig. S-1-1)
- b. Remove the Flat Pack- IC with tweezers while applying the hot air.

With Soldering Iron:

- a. Using desoldering braid, remove the solder from all pins of the Flat Pack - IC. When you use solder flux which is applied to all pins of the Flat Pack - IC, you can remove it easily. (Fig. S-1-3)
- b. Lift each lead of the Flat Pack - IC upward one by one, using a sharp pin or wire to which solder will not adhere (iron wire). When heating the pins, use a fine tip soldering iron or a hot air Desoldering Machine. (Fig. S-1-4)

With Iron Wire:

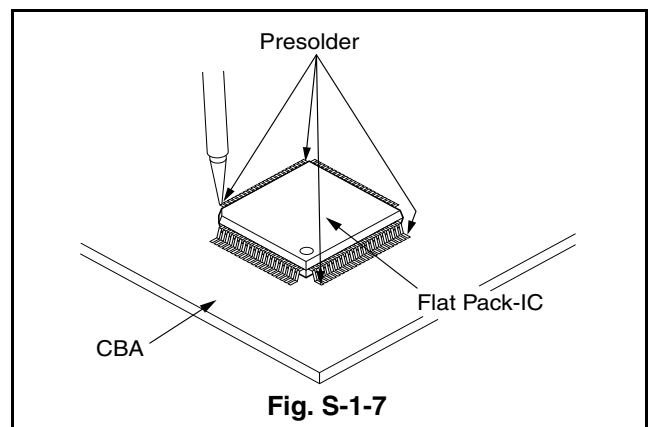
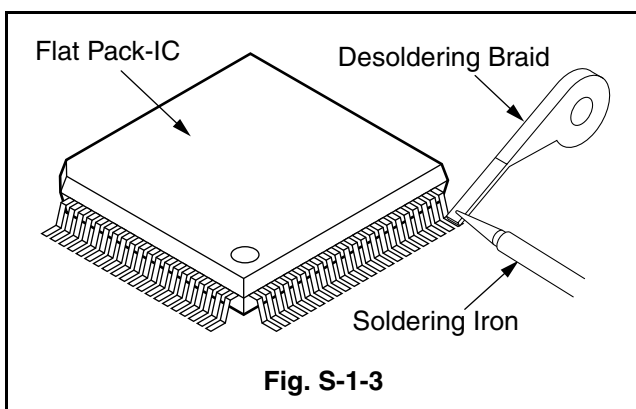
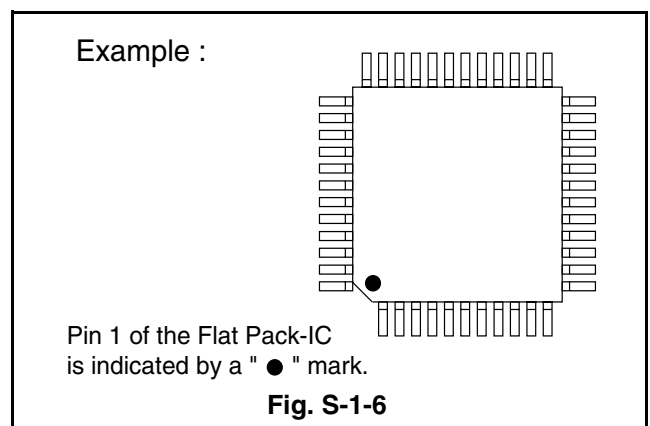
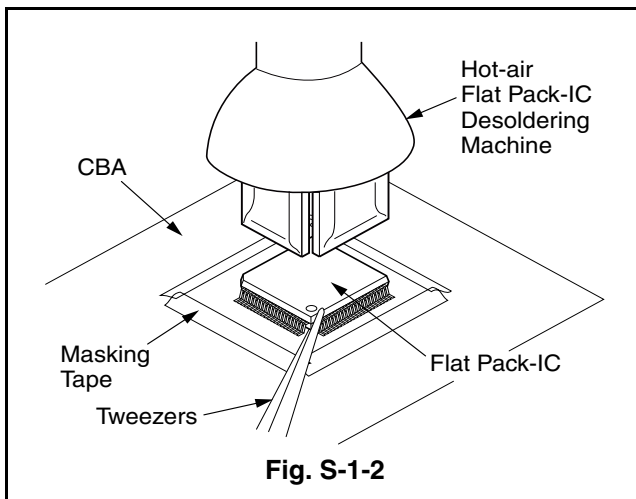
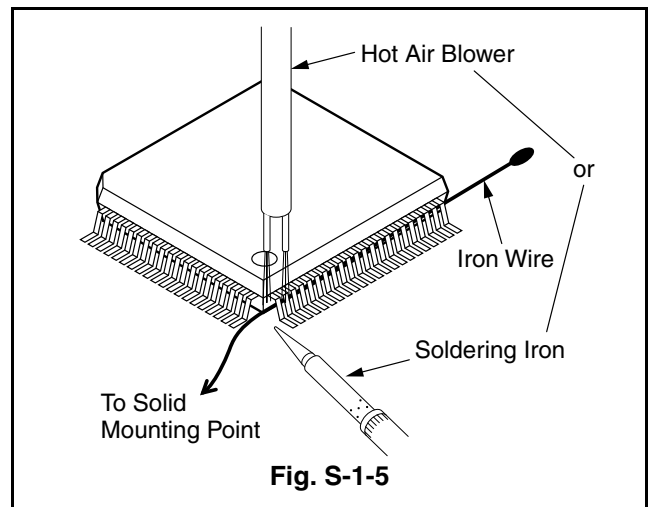
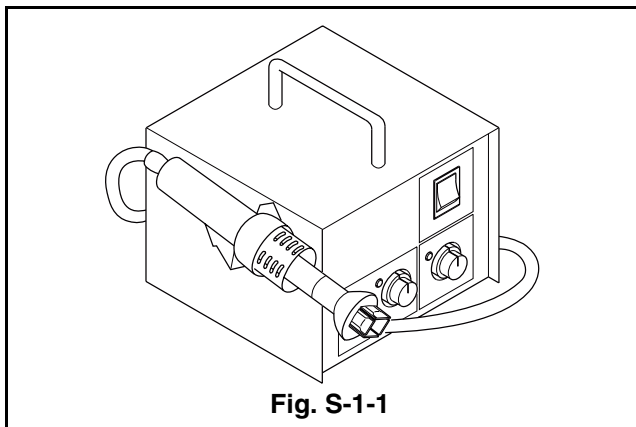
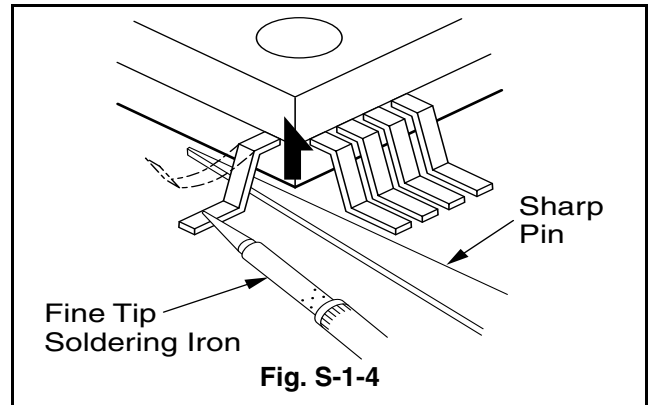
- a. Using desoldering braid, remove the solder from all pins of the Flat Pack - IC. When you use solder flux which is applied to all pins of the Flat Pack - IC, you can remove it easily. (Fig. S-1-3)
- b. Affix the wire to a workbench or solid mounting point, as shown in Fig. S-1-5.
- c. Pull up on the wire as the solder melts so as to lift the IC leads from the CBA contact pads, while heating the pins using a fine tip soldering iron or hot air blower.

Note:

When using a soldering iron, care must be taken to ensure that the Flat Pack - IC is not being held by glue, or when it is removed from the CBA, it may be damaged if force is used.

2. Installation

- Using desoldering braid, remove the solder from the foil of each pin of the Flat Pack - IC on the CBA, so you can install a replacement Flat Pack - IC more easily.
- The "●" mark on the Flat Pack - IC indicates pin 1 (See Fig. S-1-6). Make sure this mark matches the 1 on the CBA when positioning for installation. Then pre - solder the four corners of the Flat Pack-IC (See Fig. S-1-7).
- Solder all pins of the Flat Pack - IC. Make sure that none of the pins have solder bridges.



Instructions for Handling Semiconductors

Electrostatic breakdown of the semiconductors may occur due to a potential difference caused by electrostatic charge during unpacking or repair work.

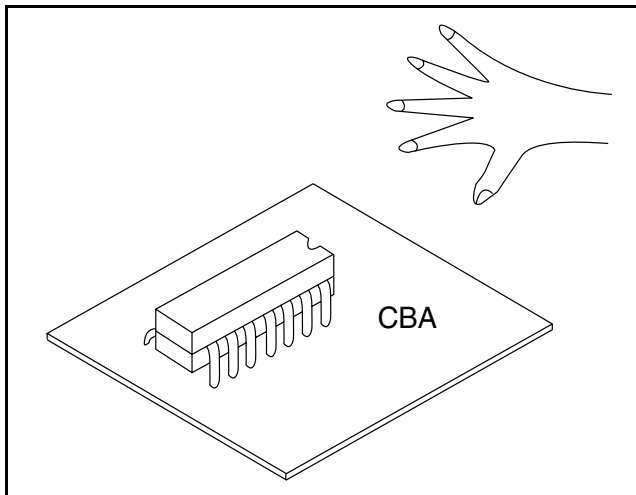
Ground for Human Body

Be sure to wear a grounding band ($1M\Omega$) that is properly grounded to remove any static electricity that may be charged on the body.

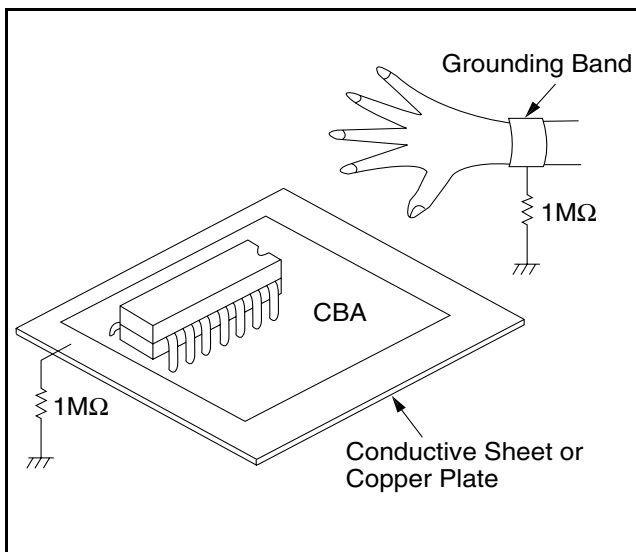
Ground for Work Bench

Be sure to place a conductive sheet or copper plate with proper grounding ($1M\Omega$) on the work bench or other surface, where the semiconductors are to be placed. Because the static electricity charge on the clothing will not escape through the body grounding band, be careful to avoid contacting semiconductors to clothing.

Incorrect



Correct



PREPARATION FOR SERVICING

How to Enter the Service Mode

Caution: 1

1. Optical sensors system are used for Tape Start and End Sensor on this equipment. Read this page carefully and prepare as described on this page before starting to service; otherwise, the unit may operate unexpectedly.

Preparing: 1

1. Cover Q202 (START SENSOR) and Q201 (END SENSOR) with Insulation Tape or enter the service mode to activate Sensor Inhibition automatically.

Note: Avoid playing, rewinding or fast forwarding the tape to its beginning or end, because both Tape End Sensors are not active.

How to Enter the Service Mode

1. Turn power on.
2. Use service remote control unit and press WAKE-UP/SLEEP key. (See page 1-7-1)
3. When entering the service mode, one of the number (1, 2 or 4) will display at corners of the screen.
4. During the service mode, electrical adjustment mode can be selected by remote control key. (Service remote control unit).

Details are as follows.

Key	Adjustment Mode
MENU	Picture adjustment mode: Press the MENU button to change from BRT (Bright), *CNT (Contrast), *CLR (Color), *TNT (Tint) and *V-T. Press CH UP/DOWN key to display Initial Value. Maximum and Minimum cyclically. *Marked items are not necessary to adjust normally.
0	C-Trap and Y DL Time adjustment mode: See adjustment instructions page 1-7-3.
1	No need to use.
2	AGC/H adjustment mode: See adjustment instructions page 1-7-2.
3	Auto AFT adjustment mode: See adjustment instructions page 1-7-2.
4	Auto record mode: Perform recording (15 Sec.)-->Stop-->Rewind (Zero return) automatically.
5	Head switching point adjustment mode: See adjustment instructions page 1-7-6.

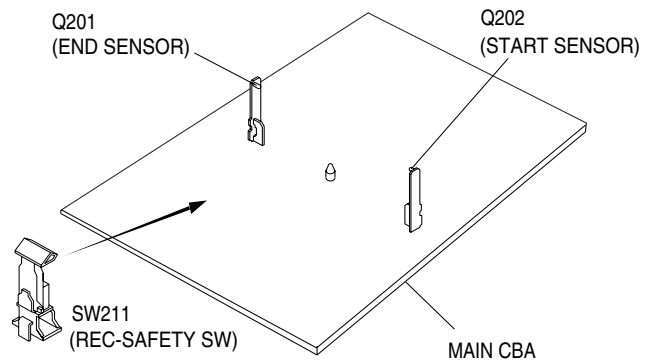
Key	Adjustment Mode
6	No need to use.
7	Purity check mode: Shows Red, Green, Blue or White cyclically on the screen each time the "7" key is pressed.
8	H. Shift adjustment mode: See adjustment instructions page 1-7-4.
9	V. size/V. shift adjustment: See adjustment instructions page 1-7-4.
VOL ▼	Cut-off Adjustment 1-7-4.

Caution: 2

1. The deck mechanism assembly is mounted on the Main CBA directly, and SW211 (REC-SAFETY SW) is mounted on the Main CBA. When deck mechanism assembly is removed from the Main CBA due to servicing, this switch can not be operated automatically.

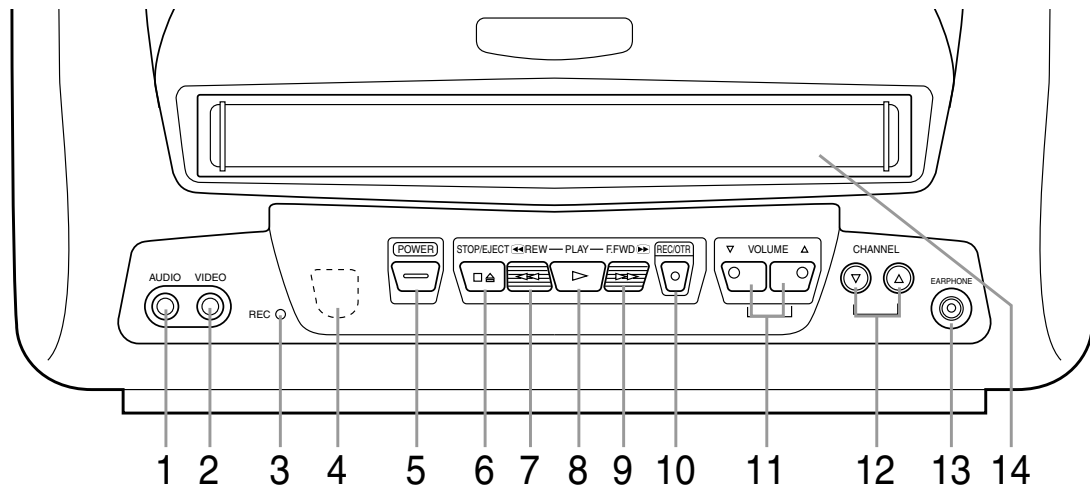
Preparing: 2

1. To eject the tape, press the STOP/EJECT button on the unit (or Remote Control).
2. When you want to record during the Service mode, press the Rec button while depressing SW211 (REC-SAFETY SW) on the Main CBA.

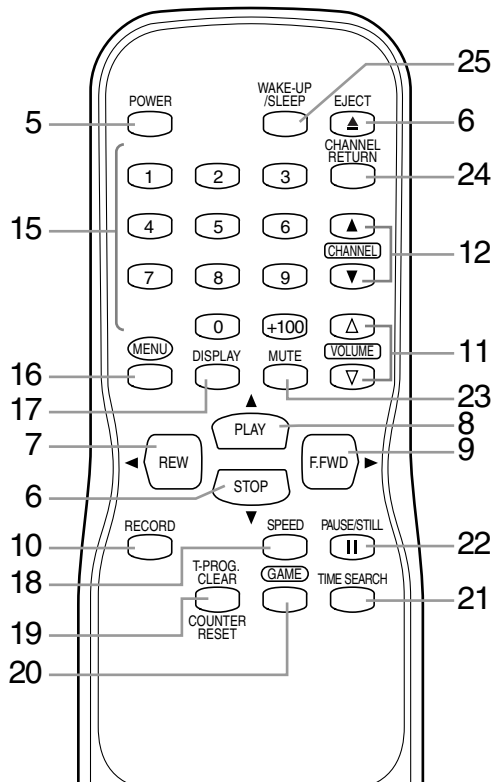


OPERATING CONTROLS AND FUNCTIONS

- TV/VCR FRONT PANEL -



- REMOTE CONTROL -



1 AUDIO input jack– Connect to the audio output jack of your audio equipment, video camera or another VCR.

2 VIDEO input jack– Connect to the video output jack of your video camera or another VCR.

3 RECORD indicator– Flashes during recording. Lights up in the Stand-by mode for Timer Recording.

4 Remote Sensor Window– Receives the infrared signals from the remote control.

5 POWER button– Press to turn TV/VCR on and off. Press to activate timer recording.

6 STOP button– Press to stop the tape motion.

EJECT button– Press in the Stop mode to remove tape from TV/VCR.

▼ button–

- Press to select setting modes from the on screen menu.

- Press to enter digits when setting program. (for example: setting clock or timer program)

7 REW button– Press to rewind the tape, or to view the picture rapidly in reverse during playback mode. (Rewind Search)

◀ button–

- Press to select a mode from a particular menu. (for example: LANGUAGE or USER'S SET UP)

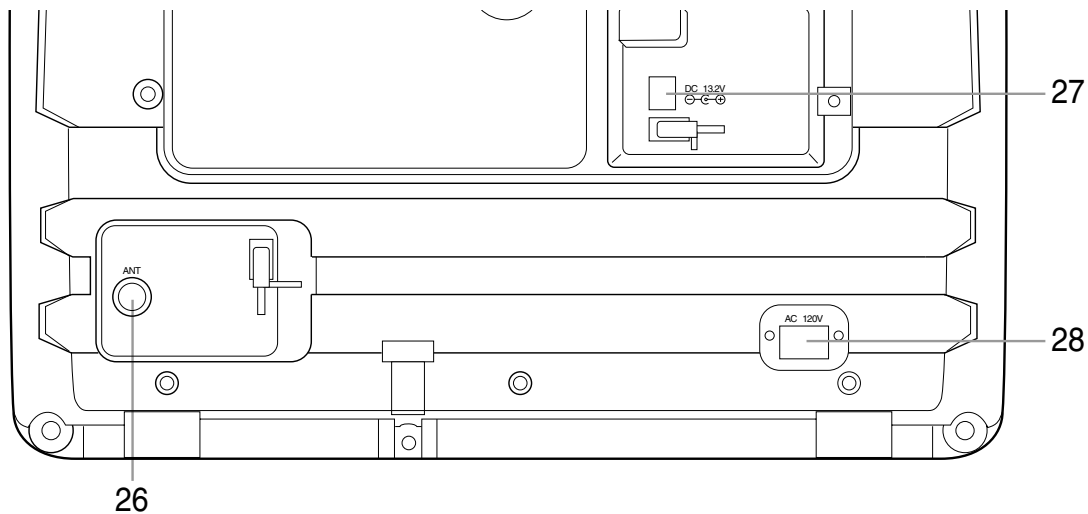
8 PLAY button– Press to begin playback.

▲ button–

- Press to select setting modes from the on screen menu.

- Press to enter digits when setting program. (for example: setting clock or timer program)

- REAR VIEW -



- 9 F.FWD button**– Press to rapidly advance the tape, or to view the picture rapidly in forward during playback mode. (Forward Search)
- ▶ button**–
- When setting program (for example: setting clock or timer program), press to determine your selection and proceed to the next step you want to input.
 - Press to determine setting modes from on screen menu.
 - Press to select a mode from a particular menu. (for example: LANGUAGE or USER’S SET UP)
- 10 REC button**– Press for manual recording.
- OTR button**– Activates One Touch Recording. (only on the TV/VCR)
- 11 VOLUME Δ / ∇ buttons**– Adjust the volume level.
- 12 CHANNEL \blacktriangle / \blacktriangledown buttons**– Press to select the desired channels for viewing or recording. You may display the main menu on the TV screen by pressing repeatedly this button on the TV/VCR.
- TRACKING function**– Press to minimize video ‘noise’ (lines or dots on screen) during playback mode.
- 13 EARPHONE jack**– Connects to earphones (not supplied) for personal listening. The size of jack is 1/8” monaural (3.5mm).
- 14 Cassette compartment**
- 15 Number buttons**– Press to select desired channels for viewing or recording. To select channels from 1 to 9, first press the 0 button and then 1 to 9.
- +100 button**– When selecting cable channels which are higher than 99, press this button first, then press the last two digits. (To select channel 125, first press the “+100” button then press “2” and “5”).
- 16 MENU button**– Press to display the main menu on the TV screen.
- 17 DISPLAY button**– Display the counter or the current channel number and current time on the TV screen.
- 18 SPEED button**– Press to choose the desired recording speed:SP/SLP.
- 19 T-PROG. CLEAR button**– Press to cancel a setting of timer program.
- COUNTER RESET button**– Press to reset counter to 0:00:00.
- 20 GAME button**– Sets the game mode and external input mode at the same time.
- 21 TIME SEARCH button**– Press to activate Time Search mode.
- 22 PAUSE/STILL button**– Press to temporarily stop the tape during the recording or to view a still picture during playback.
- 23 MUTE button**– Mutes the sound. Press it again to resume sound.
- 24 CHANNEL RETURN button**– Press to go back to the previously viewed channel. For example, pressing this button once will change channel display from 3 (present channel) to 10 (previously viewed channel), and pressing it a second time will return from 10 to 3.
- 25 WAKE-UP/SLEEP button**– Sets the Wake up or Sleep Timer.
- 26 ANT. terminal**– Connect to an antenna or cable system.
- 27 DC 13.2V jack**– Connect to the Car Battery Cord.
- 28 AC 120V jack**– Connect to the AC cord.

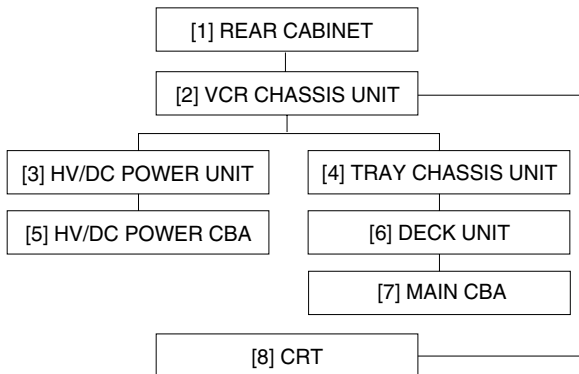
CABINET DISASSEMBLY INSTRUCTIONS

1. Disassembly Flowchart

This flowchart indicates the disassembly steps for the cabinet parts, and the CBA in order to gain access to item(s) to be serviced. When reassembling, follow the steps in reverse order. Bend, route and dress the cables as they were.

Caution !!

When removing the CRT, be sure to discharge the Anode Lead of the CRT with the CRT Ground Wire before removing the Anode Cap.



2. Disassembly Method

ID/ LOC. No.	PART	REMOVAL		
		Fig. No.	REMOVE/ *UNHOOK/ UNLOCK/RELEASE/ UNPLUG/ DESOLDER	Note
[1]	Rear Cabinet	1, 2	4(S-1), 3(S-2)	1
[2]	VCR Chassis Unit	3,4,5	Anode Cap, CN501, CRT CBA, CN601, CN801, CN571	2
[3]	HV/DC Power Unit	3, 5	2(S-3)	3
[4]	Tray Chassis Unit	3	-----	-
[5]	HV/DC Power CBA	3, 5	3(S-4)	4
[6]	Deck Unit	3, 5	7(S-5), 2(S-6), Desolder (CL201, CL401, CL402, CL403)	5
[7]	Main CBA	3, 5	3(S-7)	6
[8]	CRT	4	4(S-8)	7

(1) (2) (3) (4) (5)

(1): Order of steps in Procedure. When reassembling, follow the steps in reverse order. These numbers are also used as the identification (location) No. of parts in Figures.

(2): Parts to be removed or installed.

(3): Fig. No. showing Procedure of Part Location.

(4): Identification of part to be removed, unhooked, unlocked, released, unplugged, unclamped, or desoldered.

S=Screw, P=Spring, L=Locking Tab, CN=Connector, *=Unhook, Unlock, Release, Unplug, or Desolder

2(S-2) = two Screw (S-2)

(5): Refer to the following "Reference Notes in the Table" following.

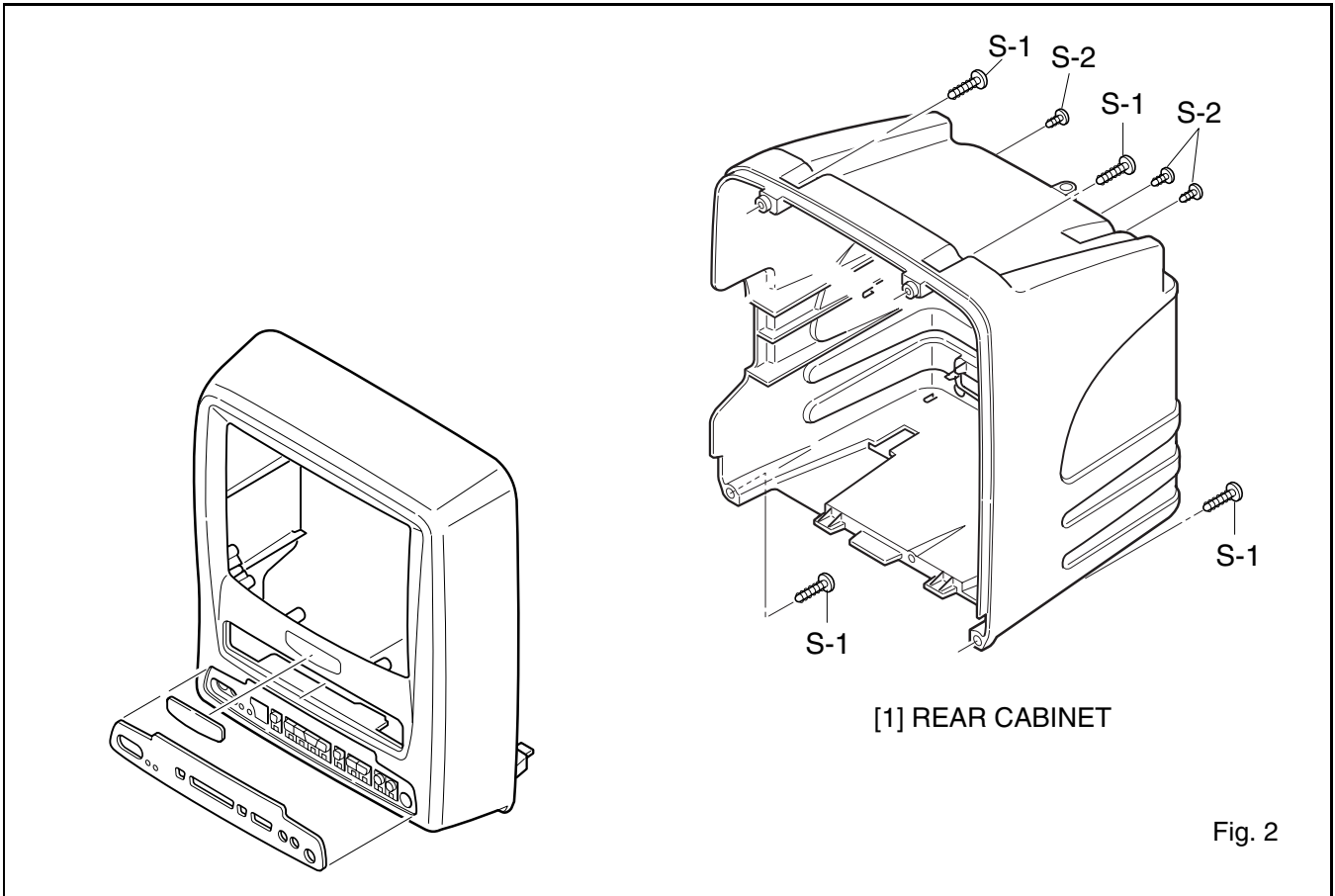
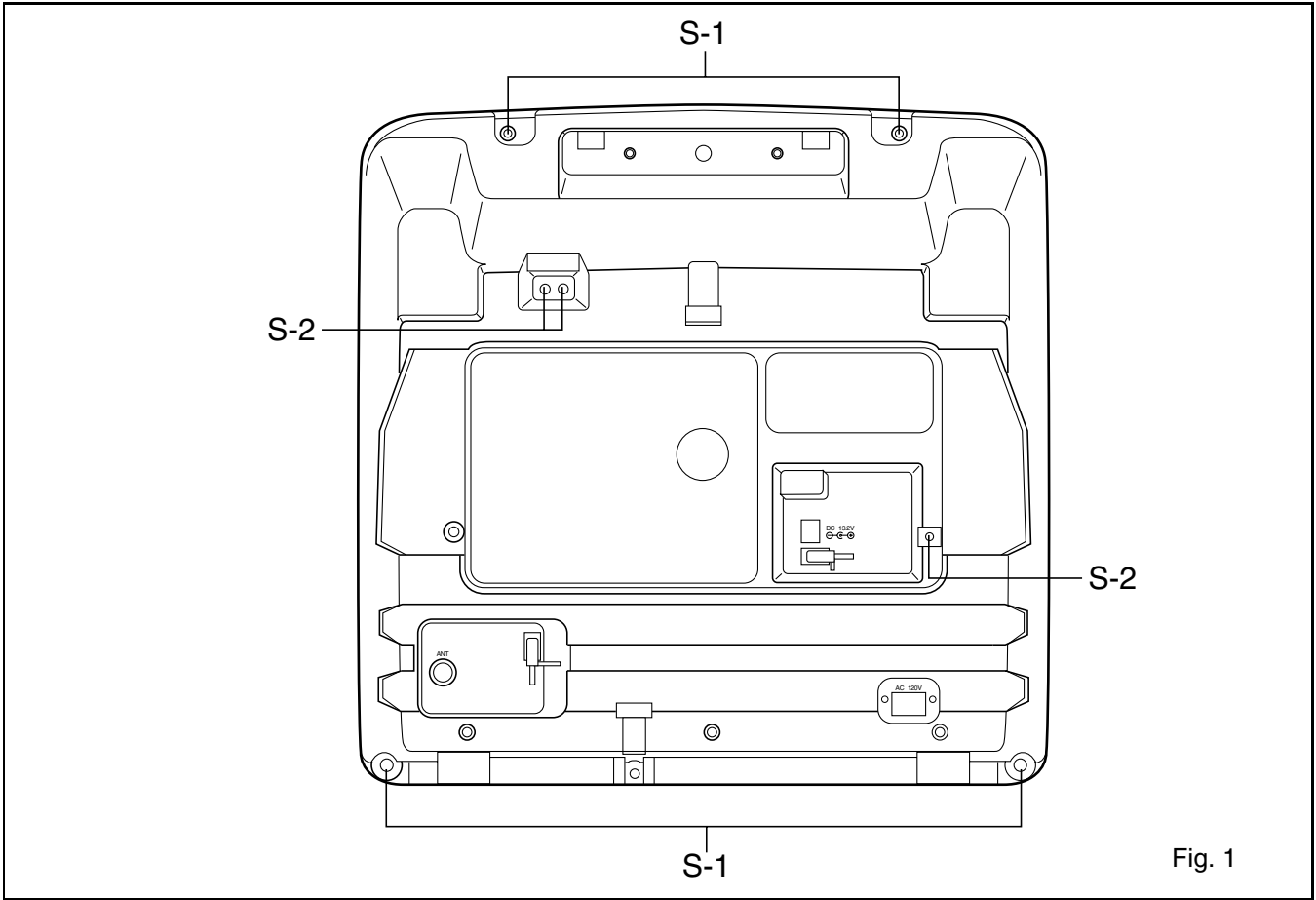
Reference Notes in the Table

1. Removal of the Rear Cabinet.
Remove Screws 4(S-1) and Screws 3(S-2).

Caution !!

Discharge the Anode Lead of the CRT with the CRT Ground Wire before removing the Anode Cap.

2. Removal of the Tray Chassis.
Discharge the Anode Lead of the CRT with the CRT Ground before removing the Anode Cap. Disconnect the following: Anode Cap, CN501, CRT CBA, CN601, CN571 and CN801. Then, pull the Tray Chassis backward.
3. Removal of the HV/DC Power Unit.
Remove Screws 2(S-3).
4. Removal of the HV/DC Power CBA.
Remove Screws 3(S-4).
5. Removal of the Deck Unit.
Remove Screws 7(S-5) and 2(S-6). Then, desolder connectors (CL201, CL401, CL402, CL403) and lift up the Deck Unit.
6. Removal of the Main CBA.
Remove Screws 3(S-7) and pull up the Main CBA.
7. Removal of the CRT.
Remove Screws 4(S-8) and pull the CRT backward.



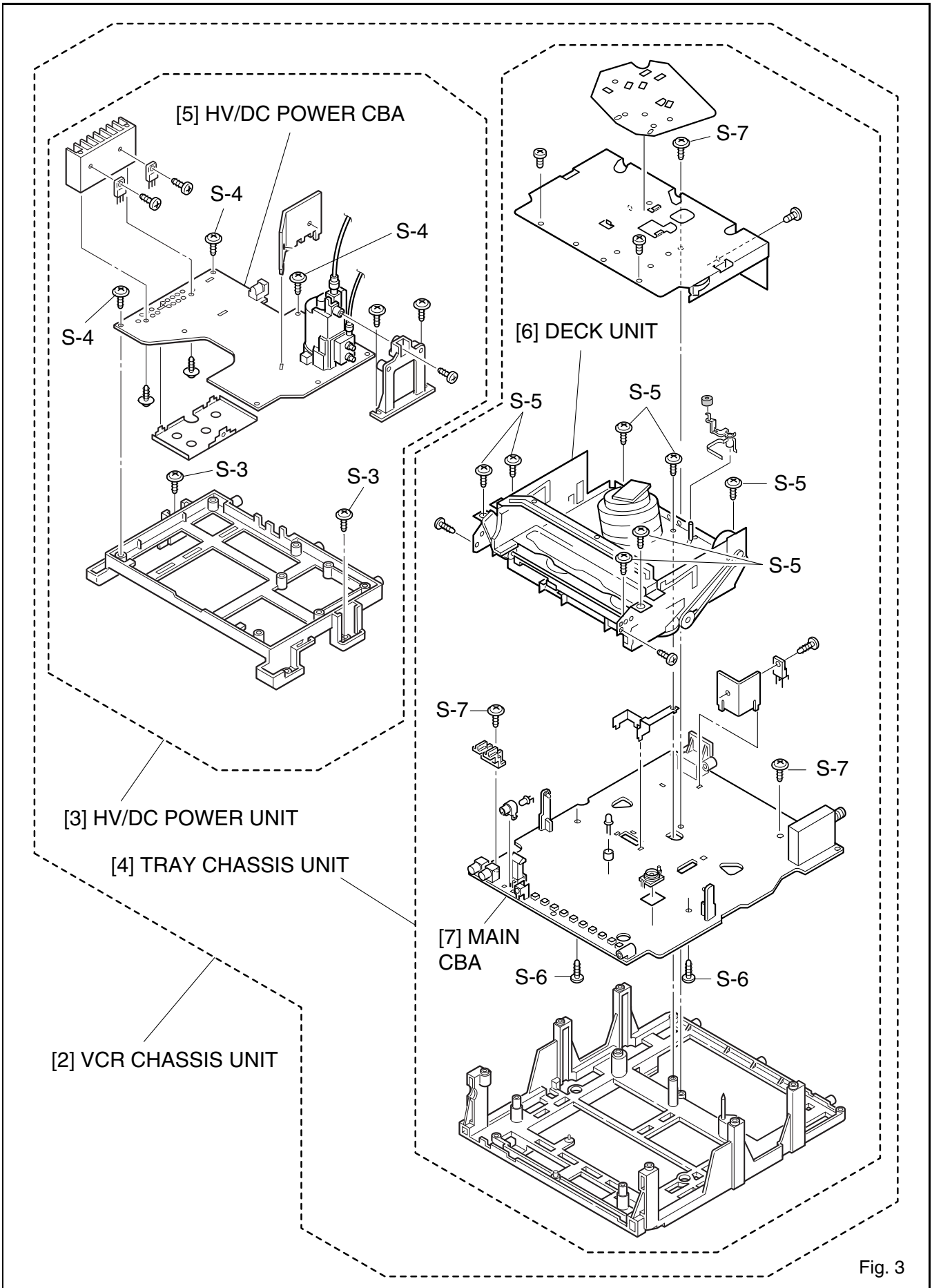


Fig. 3

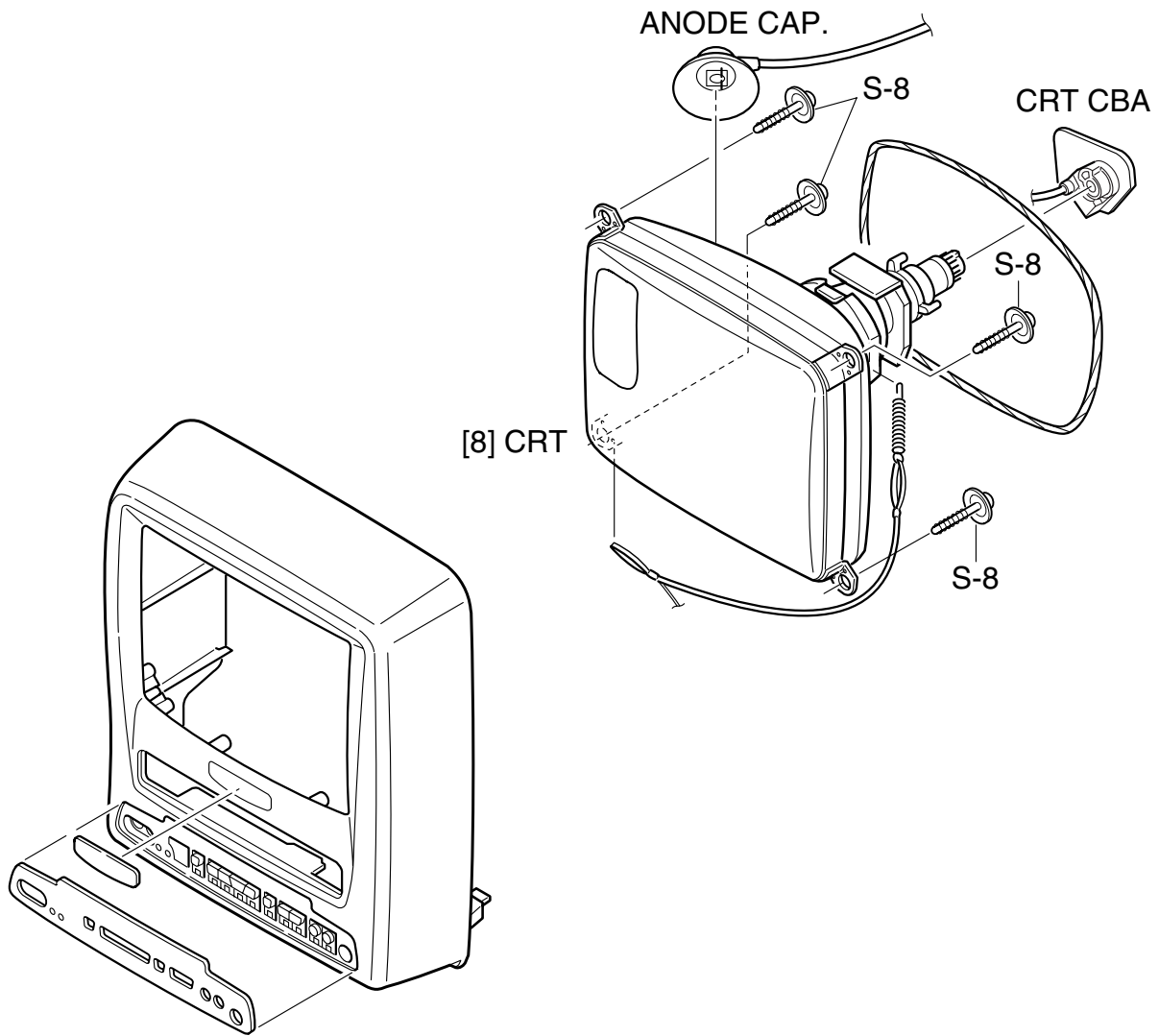


Fig. 4

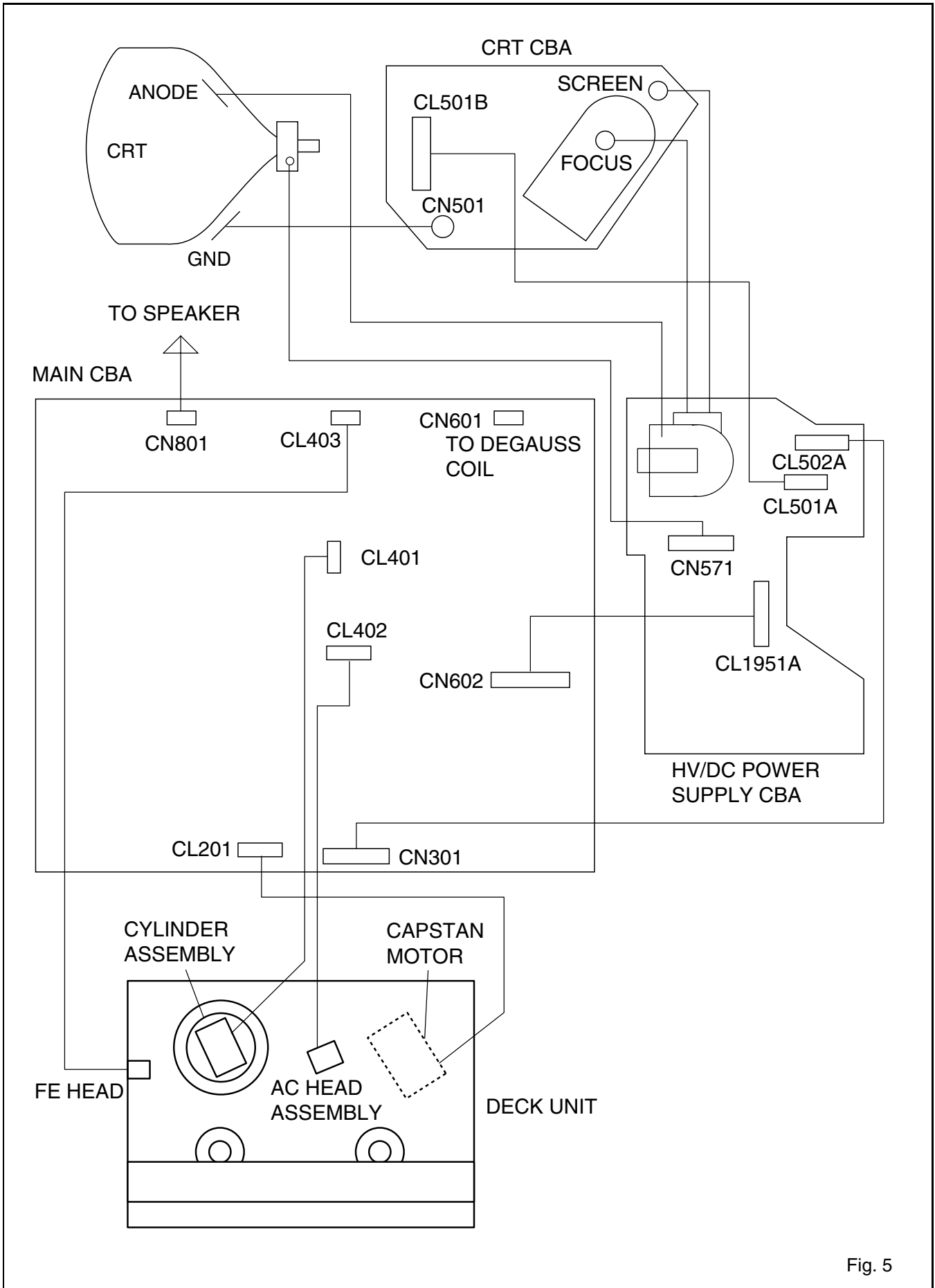


Fig. 5

ELECTRICAL ADJUSTMENT INSTRUCTIONS

General Note:

"CBA" is abbreviation for "Circuit Board Assembly."

NOTE:

Electrical adjustments are required after replacing circuit components and certain mechanical parts. It is important to perform these adjustments only after all repairs and replacements have been completed.

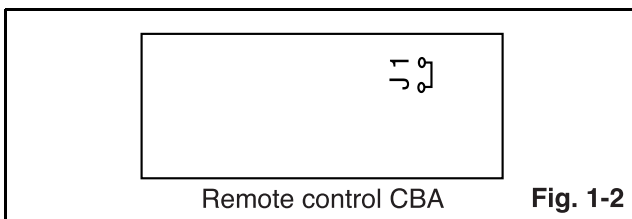
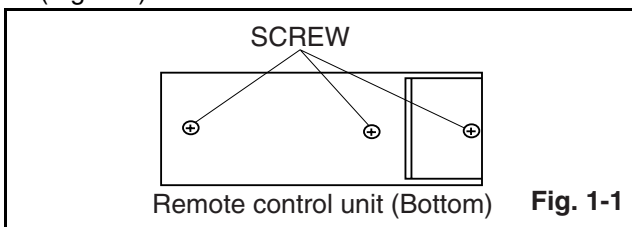
Also, do not attempt these adjustments unless the proper equipment is available.

Test Equipment Required

1. NTSC Pattern Generator (Color Bar W/White Window, Red Color, Dot Pattern, Gray Scale, Monoscope, Multi-Burst)
2. AC Milli Voltmeter (RMS)
3. Alignment Tape (FL8A, FL8N), Blank Tape
4. DC Voltmeter
5. Oscilloscope: Dual-trace with 10:1 probe, V-Range: 0.001~50V/Div, F-Range: DC~AC-60MHz
6. Frequency Counter
7. Plastic Tip Driver

How to make service remote control unit:

1. Prepare normal remote control unit. (Part No. N0107UD) Remove 3 screws from the back lid. (Fig. 1-1)
2. Add J1 (Jumper Wire) to the remote control CBA. (Fig. 1-2)



How to Set up the Service mode:

Service Mode:

1. Use the service remote control unit.
2. Turn the power on.
3. Press " WAKE-UP/SLEEP " button on the service remote control unit.

1a. DC 117V (+B) Adjustment (AC Power)

Purpose: To obtain correct operation.

Symptom of Misadjustment: The picture is dark and unit does not operate correctly.

Test point	Adj. Point	Mode	Input
TP601 (+B) TP602 (GND)	VR601	---	----
Tape	M. EQ.	Spec.	
---	DC Voltmeter Plastic Tip Driver	+117±0.5V DC	

Note: TP601(+B), TP602(GND), VR601 --- Main CBA

1. Connect the unit to AC Power Outlet.
2. Connect DC Volt Meter to TP601(+B) and TP602(GND).
3. Adjust VR601 so that the voltage of TP601(+B) becomes +117±0.5V DC.

1b. DC 117V (+B) Adjustment (DC Power)

Purpose: To obtain correct operation.

Symptom of Misadjustment: The picture is dark and unit does not operate correctly.

Test point	Adj. Point	Mode	Input
J1015 (+B) J1027 (GND)	VR1951	---	----
Tape	M. EQ.	Spec.	
---	DC Voltmeter Plastic Tip Driver	+117±0.5V DC	

Note: J1015(+B), J1027(GND), VR1951 --- HV/DC Power Supply CBA

1. Input 13.2V DC to DC Jack.
2. Connect DC Volt Meter to J1015(+B) and J1027(GND).
3. Adjust VR1951 so that the voltage of J1015(+B) becomes +117±0.5V DC.

2. Auto AFT (VCO) Adjustment

Purpose: To operate AFT correctly.

Symptom of Misadjustment: AFT does not work correctly and/or synchronization is faulty.

Test point	Adj. Point	Mode	Input
---	---	Video	----
Tape	M. EQ.	Spec.	
---	---	---	

1. Set the unit to the Video mode with no signal input.
2. Enter the Service mode. (See page 1-4-1.) Then press number "3" button on the remote control unit.
3. If the screen color changes to "Green" then this adjustment is finished.
4. If the screen color changes to "Red" then this adjustment is failed. Repeat steps 1 and 2 or check relative circuit or parts (IC).

3. TV AGC Adjustment

Purpose: Set AGC (Auto Gain Control) Level.

Symptom of Misadjustment: AGC does not synchronize correctly when RF input level is too weak and picture distortion may occur if it is too strong.

Test point	Adj. Point	Mode	Input
TP001 (AGC) TP602 (GND)	CH. ▲ / ▼ buttons	---	Color Bar 67.25MHz 60dBμV
Tape	M. EQ.	Spec.	
---	Pattern Generator DC Voltmeter	+2.8±0.3V DC	

Note: TP001 (AGC) --- Main CBA

1. Enter the Service mode. (See page 1-4-1.) Then press number "2" button on the remote control unit.
2. Receive the Color Bar signal for channel 4 (67.25MHz). (RF Input Level: 60dBμV)
3. Press CH. ▲ / ▼ buttons so that the voltage of TP001 (AGC) becomes +2.8V±0.3V DC.
4. Turn the power off and on again.

4-1. H Adjustment

Purpose: To get correct horizontal position and size of screen image.

Symptom of Misadjustment: Horizontal position and size of screen image may not be properly displayed.

Test point	Adj. Point	Mode	Input
D302 CATHODE	CH ▲ / ▼ buttons	Video	---
Tape	M. EQ.	Spec.	
---	Frequency Counter	15.734kHz±300Hz	

Note: D302 CATHODE --- Main CBA

1. Connect Frequency Counter to D302 CATHODE.
2. Set the unit to the VIDEO mode and no input is necessary. Enter the Service mode. (See page 1-4-1.)
3. Operate the unit for at least 20 minutes.
4. Press "2" button on the remote control unit and select H-Adj Mode. (Press "2" button, then display will change H-Adj and AGC.)
5. Press CH ▲ / ▼ buttons on the remote control unit so that the display will change "0" to "7."
At this moment, choose display "0" to "7" when the Frequency counter display is closest to 15.734kHz±300Hz.
6. Turn the power off and on again.

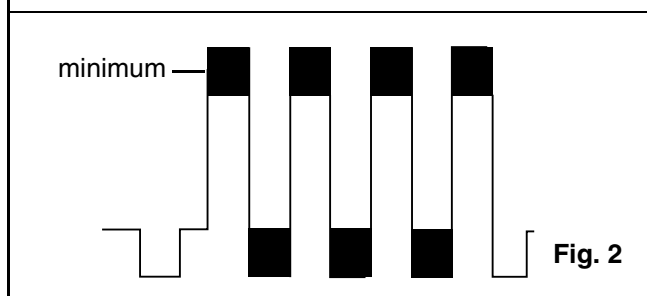
4-2. C-Trap Adjustment

Purpose: To get minimum leakage of the color signal carrier.

Symptom of Misadjustment: If C-Trap Adjustment is incorrect, stripes will appear on the screen.

Test point	Adj. Point	Mode	Input
D304 CATHODE (B-OUT)	CH ▲ / ▼ buttons	---	Color Bar
Tape	M. EQ.	Spec.	
---	Oscilloscope Pattern Generator	---	

Figure



Note: D304 CATHODE (B-Out)--- Main CBA

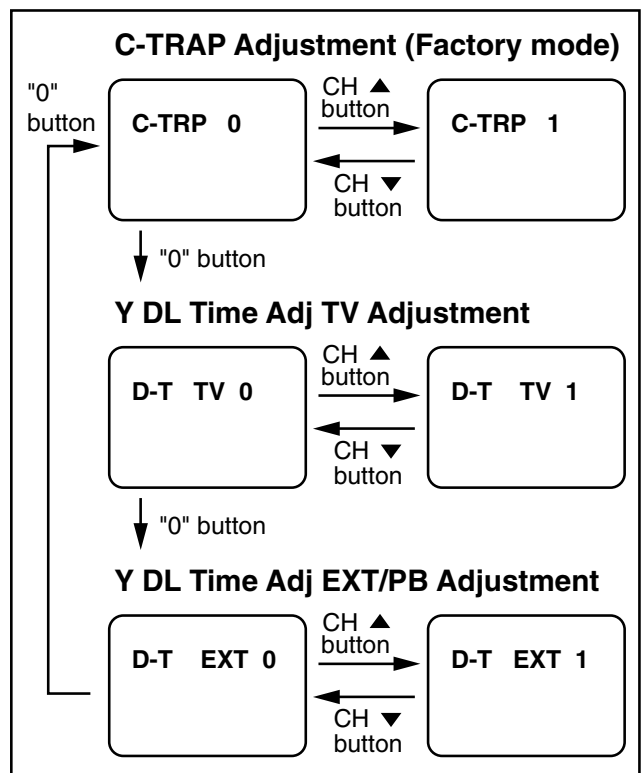
1. Connect Oscilloscope to D304 CATHODE.
2. Input a color bar signal from RF input. Enter the Service mode. (See page 1-4-1.)
3. Press "0" button on the remote control unit and select C-TRAP Mode.
4. Press CH ▲ / ▼ buttons on the remote control unit so that the carrier leakage B-Out (3.58MHz) value becomes minimum on the oscilloscope.
5. Turn the power off and on again.

4-3. Y DL Time Adjustment

Purpose: To get minimum leakage of the color signal carrier.

Symptom of Misadjustment: If Y DL Time Adjustment is incorrect, stripes will appear on the screen.

1. Enter the Service mode. (See page 1-4-1.)
2. Press "0" button on the remote control unit twice or three times to show "D-T" on the display.
3. Select "2" by pressing CH ▲ / ▼ buttons on the remote control to enter Y DL Time Adjustment mode.
4. If needed, perform the following.



5. V. Size Adjustment

Purpose: To obtain correct vertical height of screen image.

Symptom of Misadjustment: If V. Size is incorrect, vertical height of image on the screen may not be properly displayed.

Test point	Adj. Point	Mode	Input
---	CH ▲ / ▼ buttons	---	Monoscope
Tape	M. EQ.	Spec.	
---	Pattern Generator	90±5%	

1. Enter the Service mode. (See page 1-4-1.)
Press "9" button on the remote control unit and select V-S Mode. (Press "9" button then display will change to V-P and V-S).
2. Input monoscope pattern.
3. Press CH ▲ / ▼ buttons on the remote control unit so that the monoscope pattern is 90±5% of display size and the circle is round.

6. V. Shift Adjustment

Purpose: To obtain correct vertical position of screen image.

Symptom of Misadjustment: If V. position is incorrect, vertical position of image on the screen may not be properly displayed.

Test point	Adj. Point	Mode	Input
---	CH ▲ / ▼ buttons	---	Monoscope
Tape	M. EQ.	Spec.	
---	Pattern Generator	90±5%	

1. Enter the Service mode. (See page 1-4-1.)
Press "9" button on the remote control unit and select V-P Mode. (Press "9" button then display will change to V-P and V-S).
2. Input monoscope pattern.
3. Press CH ▲ / ▼ buttons on the remote control unit so that the top and bottom of the monoscope pattern are equal to each other.

7. H. Shift Adjustment

Purpose: To obtain correct horizontal position and size of screen image.

Symptom of Misadjustment: Horizontal position and size of screen image may not be properly displayed.

Test point	Adj. Point	Mode	Input
---	CH ▲ / ▼ buttons	---	Monoscope
Tape	M. EQ.	Spec.	
---	Pattern Generator	90±5%	

1. Enter the Service mode. (See page 1-4-1.)
Press "8" button on the remote control unit and select H-P Mode.
2. Input monoscope pattern.
3. Press CH ▲ / ▼ buttons on the remote control unit so that the left and right side of the monoscope pattern are equal to each other.
4. Turn the power off and on again.

8. Cut-off Adjustment

Purpose: To adjust the beam current of R, G, B, and screen voltage.

Symptom of Misadjustment: White color may be reddish, greenish or bluish.

Test point	Adj. Point	Mode	Input
---	Screen-Control	Ext.	Black Raster / White Raster
Tape	M. EQ.	Spec.	
---	Pattern Generator	See Reference Notes below	

Figure

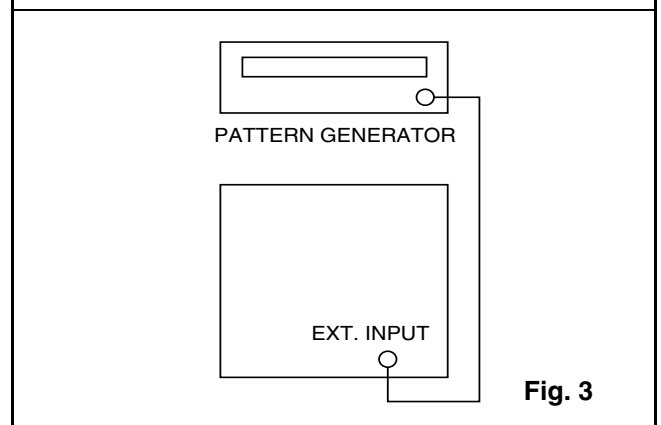


Fig. 3

Notes: Screen Control FBT --- HV/DC Power Supply CBA

F.B.T= Fly Back Transformer
Use the Remote Control Unit

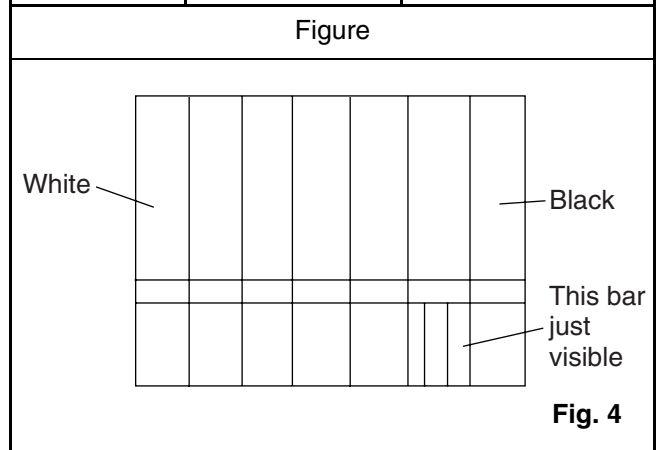
1. Degauss the CRT and allow CRT to operate for 20 minutes before starting the alignment.
2. Set the screen control to minimum position. Input the Black raster signal from RF input.
3. Enter the Service Mode. (See page 1-4-1.) Dimmed horizontal line appears on the CRT.
4. Press the "VOL ▼" button.
(Press "VOL ▼" then display will change CUT OFF/DRIVE, VCO adjustment, Analog OSD adjustment).
5. Choose CUT OFF/DRIVE Mode then press "1" button. This adjustment mode is CUT OFF (R).
6. Press the "CH ▲ / ▼" button until the horizontal line becomes white.
7. Choose CUT OFF/DRIVE mode then press "2" button. This adjustment mode is CUT OFF (G). Press "CH ▲ / ▼" until the horizontal line becomes white.
8. Choose CUT OFF/DRIVE Mode then press "3" button. This adjustment mode is CUT OFF (B). Press "CH ▲ / ▼" until the horizontal line becomes white.
9. Input the White Raster Signal from Video In.
10. Choose CUT OFF/DRIVE mode then press "4." Adjust the RED DRIVE as needed with the CH ▲ / ▼ buttons to get the following value, X= 286, Y= 294.
11. Choose CUT OFF/DRIVE mode then press "5." Adjust the BLUE DRIVE as needed with the CH ▲ / ▼ buttons to get the following value, X= 286.
12. Turn the power off and on again.

9. Sub-Brightness Adjustment

Purpose: To get proper brightness.

Symptom of Misadjustment: If Sub-Brightness is incorrect, proper brightness cannot be obtained by adjusting the Brightness Control.

Test point	Adj. Point	Mode	Input
---	CH ▲ / ▼ buttons	---	SYMPTE 7.5 IRE
Tape	M. EQ.	Spec.	
---	Pattern Generator	See below	



Note: SYMPTE Setup level --- 7 IRE

1. Enter the Service Mode. (See page 1-4-1.) Then input SYMPTE signal from RF input.
2. Press MENU button. (Press MENU button then display will change B R T, C N T, COL, T N T, V-T and SHP). Select BRT and press CH ▲ / ▼ buttons so that the bar is just visible (See above figure).
3. Turn the power off and on again.

10. Focus Adjustment

Purpose: Set the optimum Focus.

Symptom of Misadjustment: If Focus Adjustment is incorrect, blurred images are shown on the display.

Test point	Adj. Point	Mode	Input
---	Focus Control	---	Monoscope
Tape	M. EQ.	Spec.	
---	Pattern Generator	See below.	

Note: Focus VR (FBT) --- MAIN CBA

FBT= Fly Back Transformer

1. Operate the unit more than 30 minutes.
2. Face the unit to the East and degauss the CRT using a Degaussing Coil.
3. Input the monoscope pattern.
4. Adjust the Focus Control on the FBT to obtain clear picture.

11. Head Switching Position Adjustment

Purpose: Determine the Head Switching Point during Playback.

Symptom of Misadjustment: May cause Head Switching Noise or Vertical Jitter in the picture.

Note: Unit reads Head Switching Position automatically and displays it on the screen (Upper Left Corner).

1. Playback test tape (FL8A, FL8N).
2. Enter the Service Mode. (See page 1-4-1.) Then press the number 5 button on the remote control unit.
3. The Head Switching position will display on the screen; if adjustment is necessary follow step 4. 6.5H(412.7 μ s) is preferable.
4. Press "CH ▲" or "CH ▼" button on the remote control unit if necessary. The value will be changed in 0.5H steps up or down. Adjustable range is up to 9.5H. If the value is beyond adjustable range, the display will change as:
Lower out of range: 0.0H
Upper out of range: --H
5. Turn the power off and on again.

12. CCS Text Box Location

When replacing the CRT, the CCS Box might not stay in appropriate position. Then, replace micro computer.

Note: This adjustment automatically done by the microcomputer.

The following 2 adjustments normally are not attempted in the field. They should be done only when replacing the CRT then adjust as a preparation.

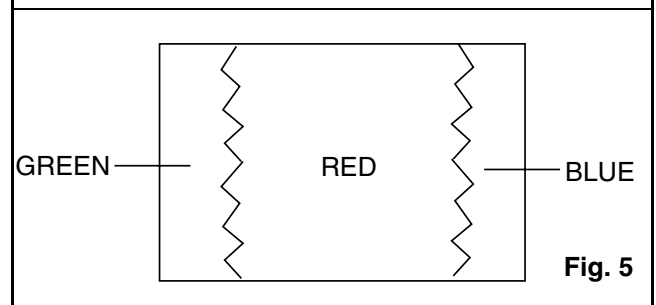
13. Purity Adjustment

Purpose: To obtain pure color.

Symptom of Misadjustment: If Color Purity Adjustment is incorrect, large areas of color may not be properly displayed.

Test point	Adj. Point	Mode	Input
---	Deflection Yoke Purity Magnet	---	*Red Color
Tape	M. EQ.	Spec.	
---	Pattern Generator	See below.	

Figure



* This becomes RED COLOR if push 7KEY with a service mode.

1. Set the unit facing east.
2. Operate the unit for over 30 minutes before adjusting.
3. Fully degauss the unit using an external degaussing coil.
4. Set the unit to the AUX Mode which is located before CH2 then input a red raster from video in.
5. Loosen the screw on the Deflection Yoke Clamper and pull the Deflection Yoke back away from the screen. (See Fig. 6.)
6. Loosen the Ring Lock and adjust the Purity Magnets so that a red field is obtained at the center of the screen. Tighten Ring Lock. (See Fig. 5,6.)
7. Slowly push the Deflection Yoke toward the bell of the CRT and set it where a uniform red field is obtained.
8. Tighten the clamp screw on the Deflection Yoke.

14. Convergence Adjustment

Purpose: To obtain proper convergence of red, green and blue beams.

Symptom of Misadjustment: If Convergence Adjustment is incorrect, the edge of white letters may have color edges.

Test point	Adj. Point	Mode	Input
---	C.P. Magnet (RB), C.P. Magnet (RB-G), Deflection Yoke	---	Dot Pattern or Crosshatch
Tape	M. EQ.		Spec.
---	Pattern Generator		See below.

Figure

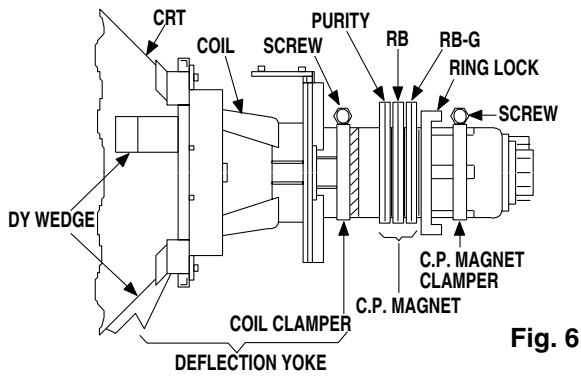


Fig. 6

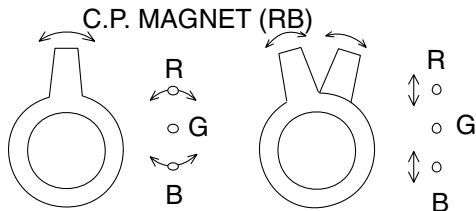


Fig. 7

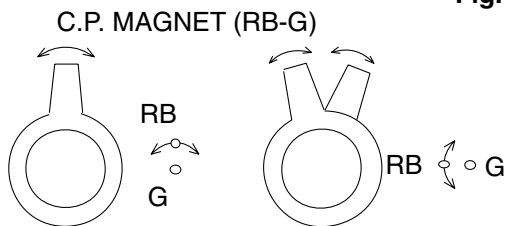
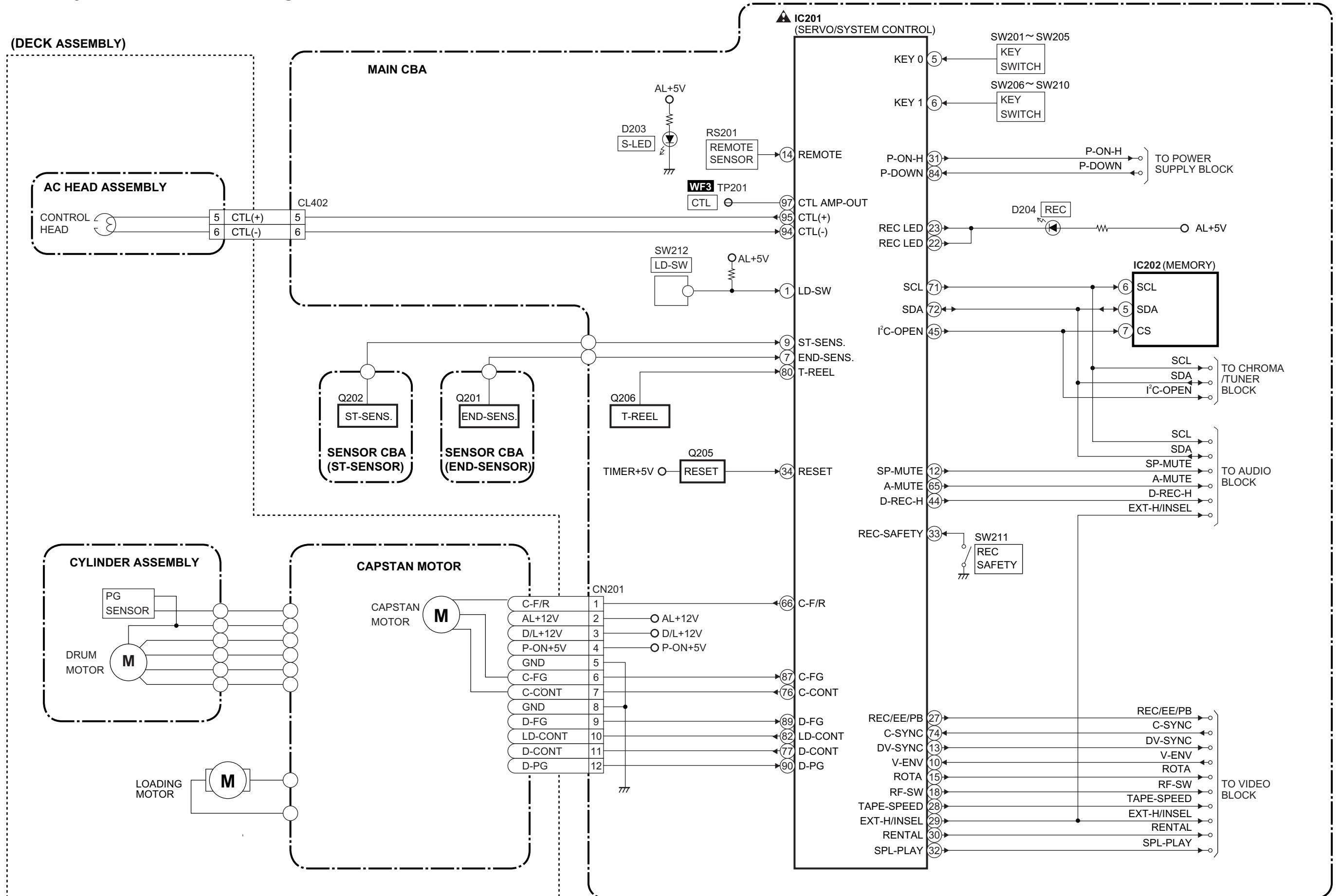


Fig. 8

1. Set the unit to the AUX Mode which is located before CH2 then input a Dot or crosshatch pattern.
2. Loosen the Ring Lock and align red with blue dots or Crosshatch at the center of the screen by rotating (RB) C.P. Magnets. (See Fig. 7.)
3. Align red / blue with green dots at the center of the screen by rotating (RB-G) C.P. Magnet. (See Fig. 8.)
4. Fix the C.P. Magnets by tightening the Ring Lock.
5. Remove the DY Wedges and slightly tilt the Deflection Yoke horizontally and vertically to obtain the best overall convergence.
6. Fix the Deflection Yoke by carefully inserting the DY Wedges between CRT and Deflection Yoke.

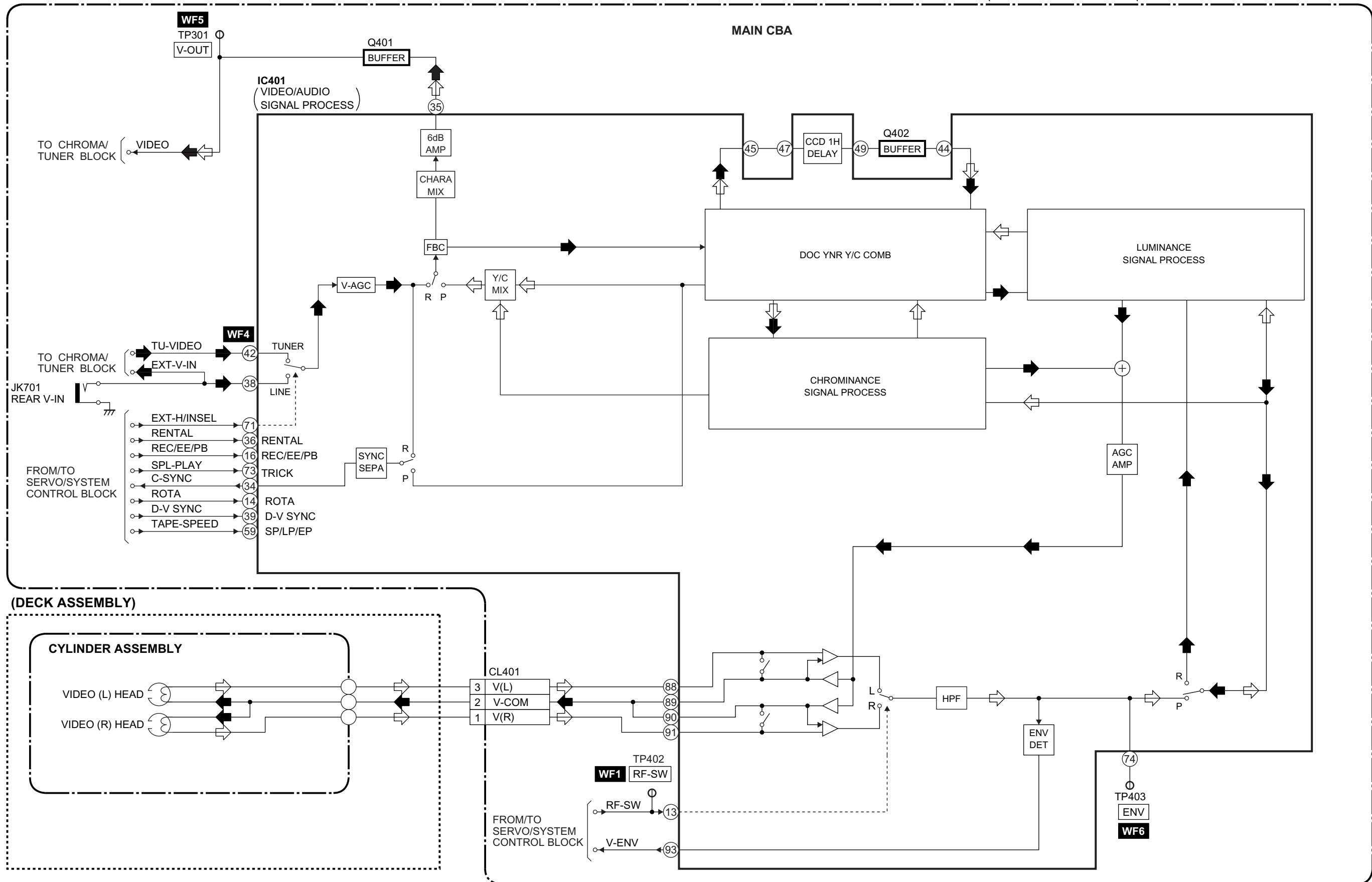
BLOCK DIAGRAMS

Servo/System Control Block Diagram

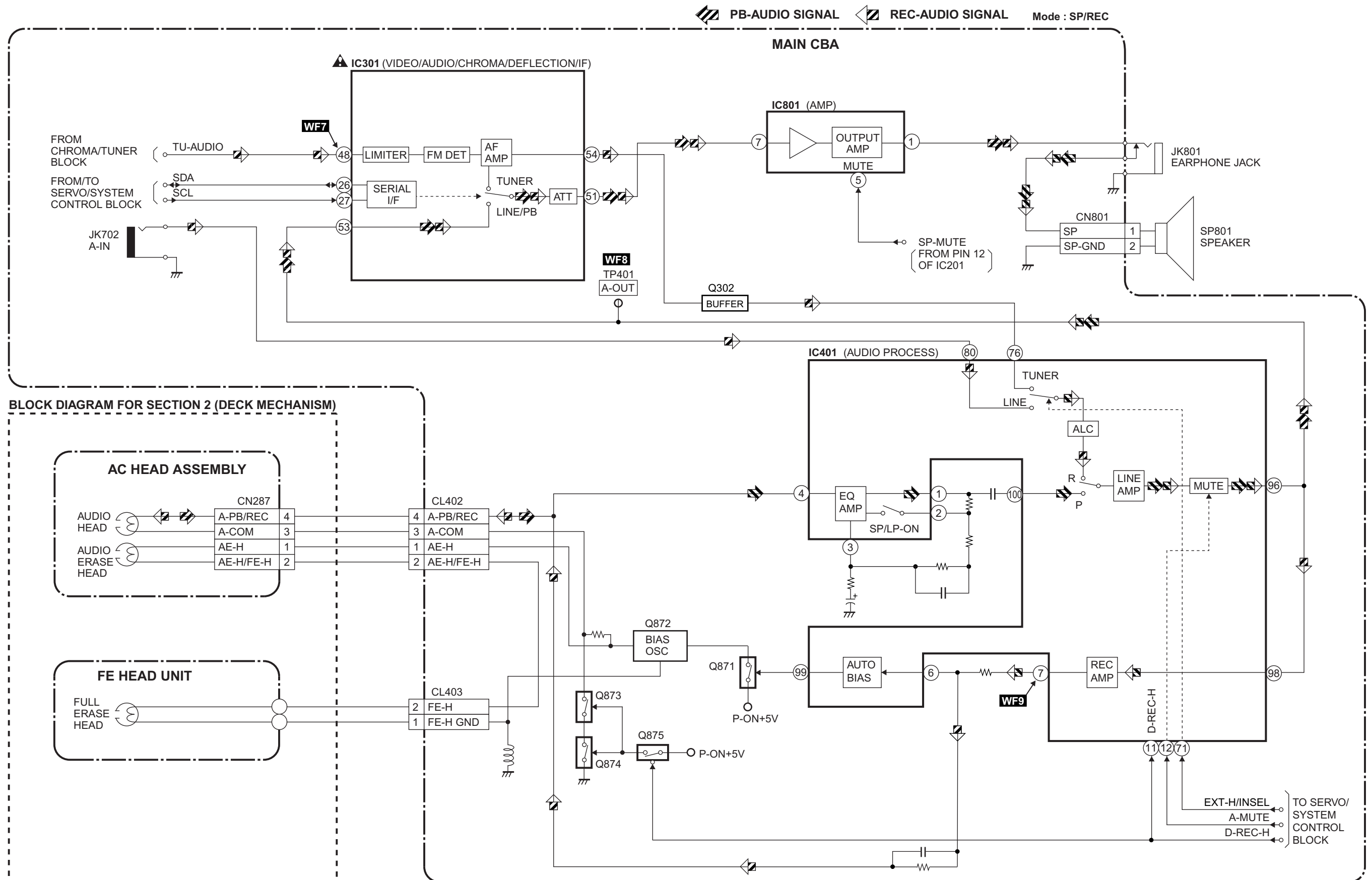


Video Block Diagram

REC VIDEO SIGNAL PB VIDEO SIGNAL MODE: SP/REC

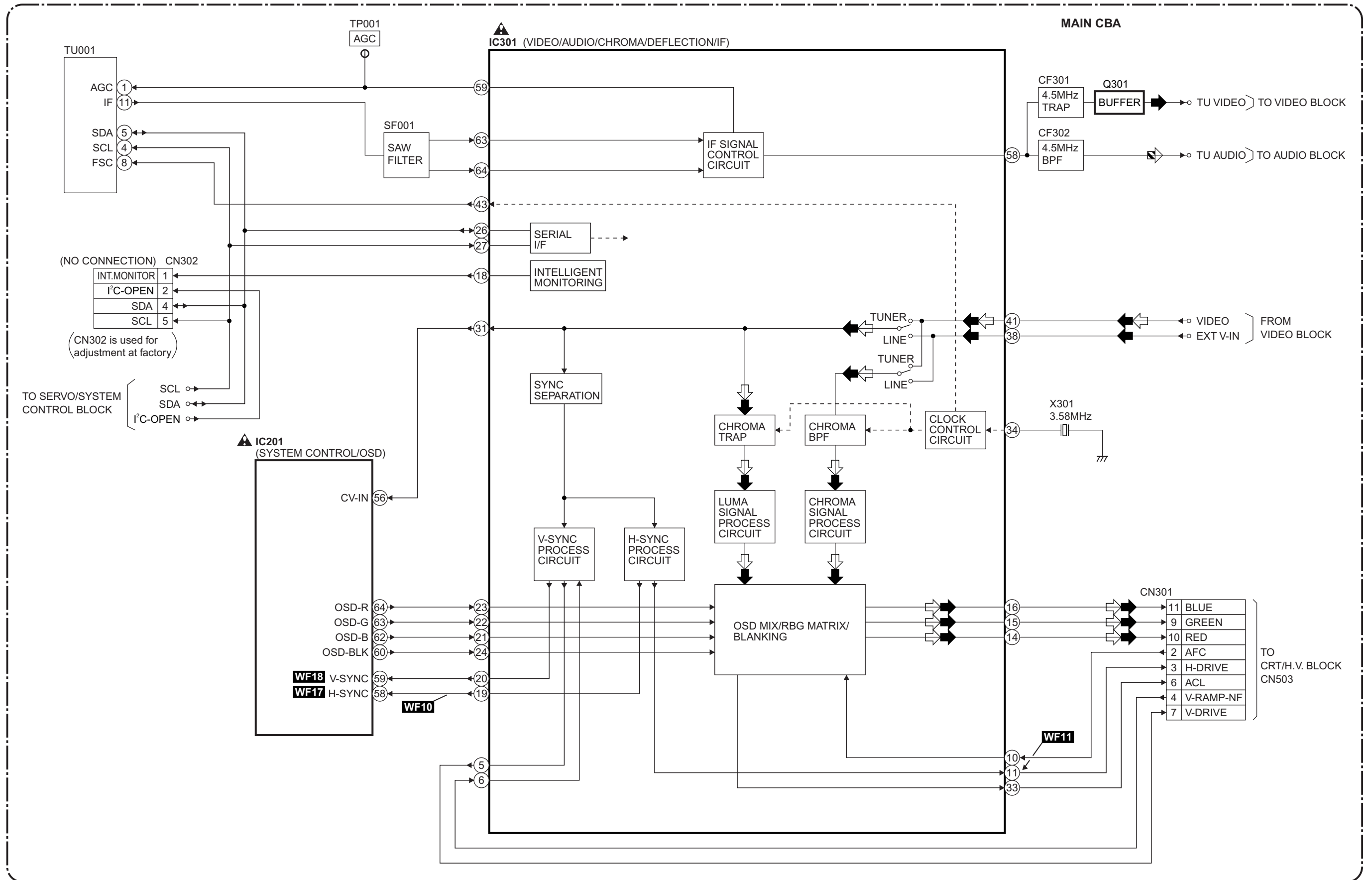


Audio Block Diagram

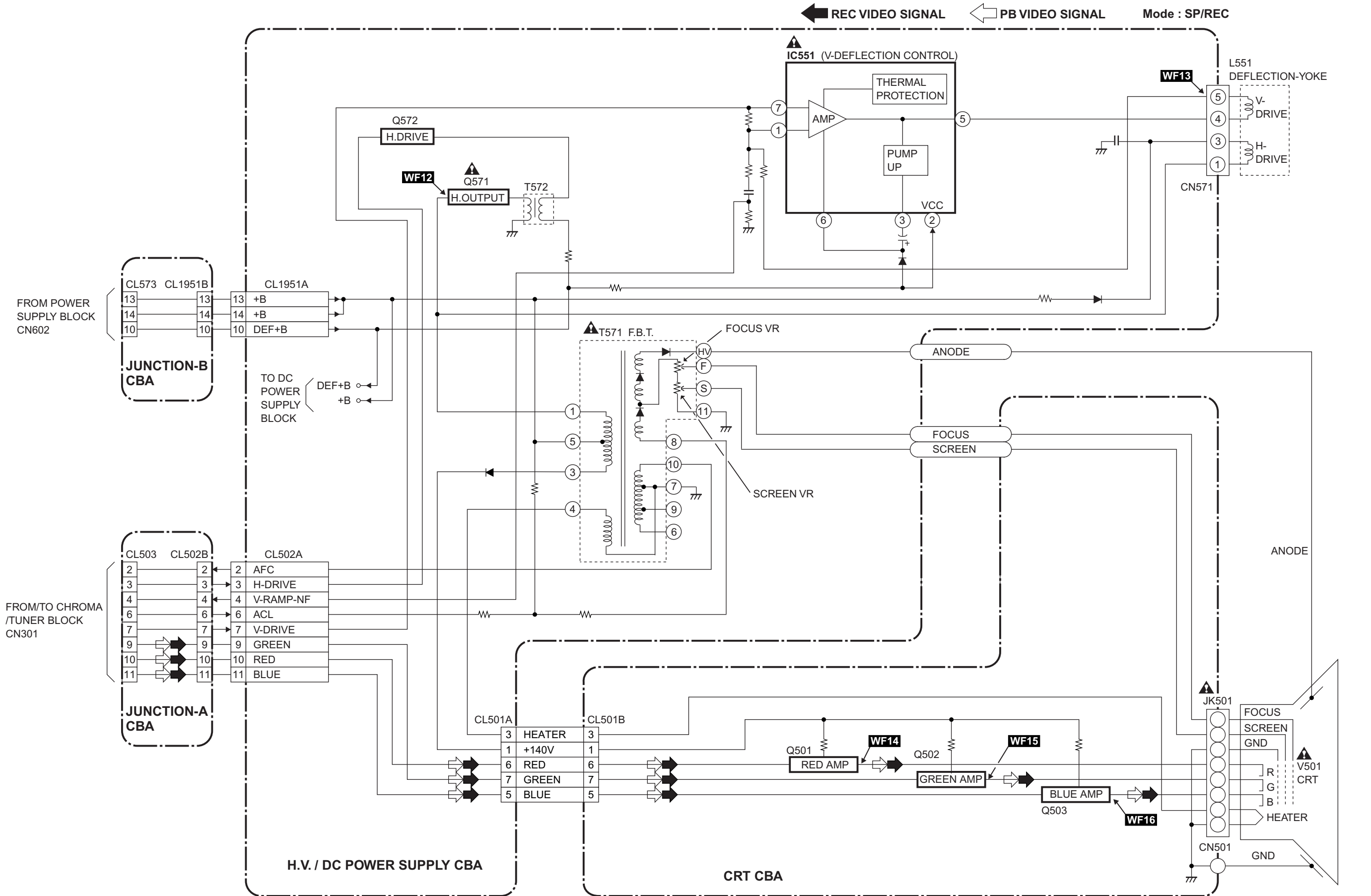


Chroma/Tuner Block Diagram

REC-AUDIO SIGNAL
 REC VIDEO SIGNAL
 PB VIDEO SIGNAL
 Mode : SP/REC



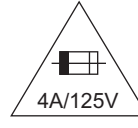
CRT/H.V. Block Diagram



Power Supply Block Diagram

CAUTION !

Fixed voltage power supply circuit is used in this unit.
 If Main Fuse (F601) is blown, check to see that all components in the power supply circuit are not defective before you connect the AC plug to the AC power supply.
 Otherwise it may cause some components in the power supply circuit to fail.



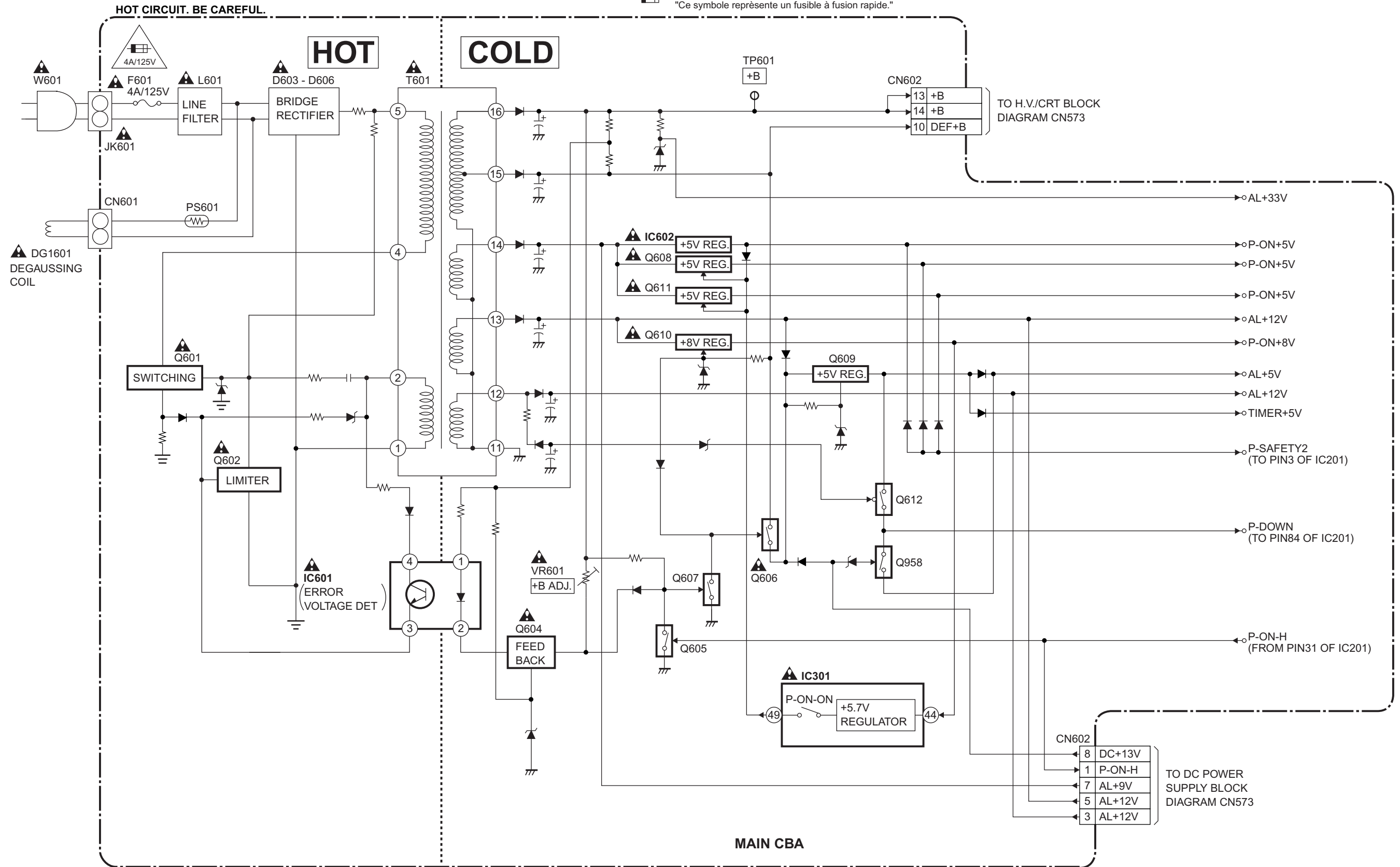
CAUTION

FOR CONTINUED PROTECTION AGAINST FIRE HAZARD,
 REPLACE ONLY WITH THE SAME TYPE FUSE.
 ATTENTION : POUR UNE PROTECTION CONTINUE LES RISQUES
 D'INCELE N'UTILISER QUE DES FUSIBLE DE MEMO TYPE.
RISK OF FIRE-REPLACE FUSE AS MARKED.

"This symbol means fast operating fuse."
 "Ce symbole représente un fusible à fusion rapide."

NOTE :

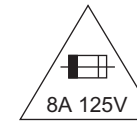
The voltage for parts in hot circuit is measured using hot GND as a common terminal.



DC Power Supply Block Diagram

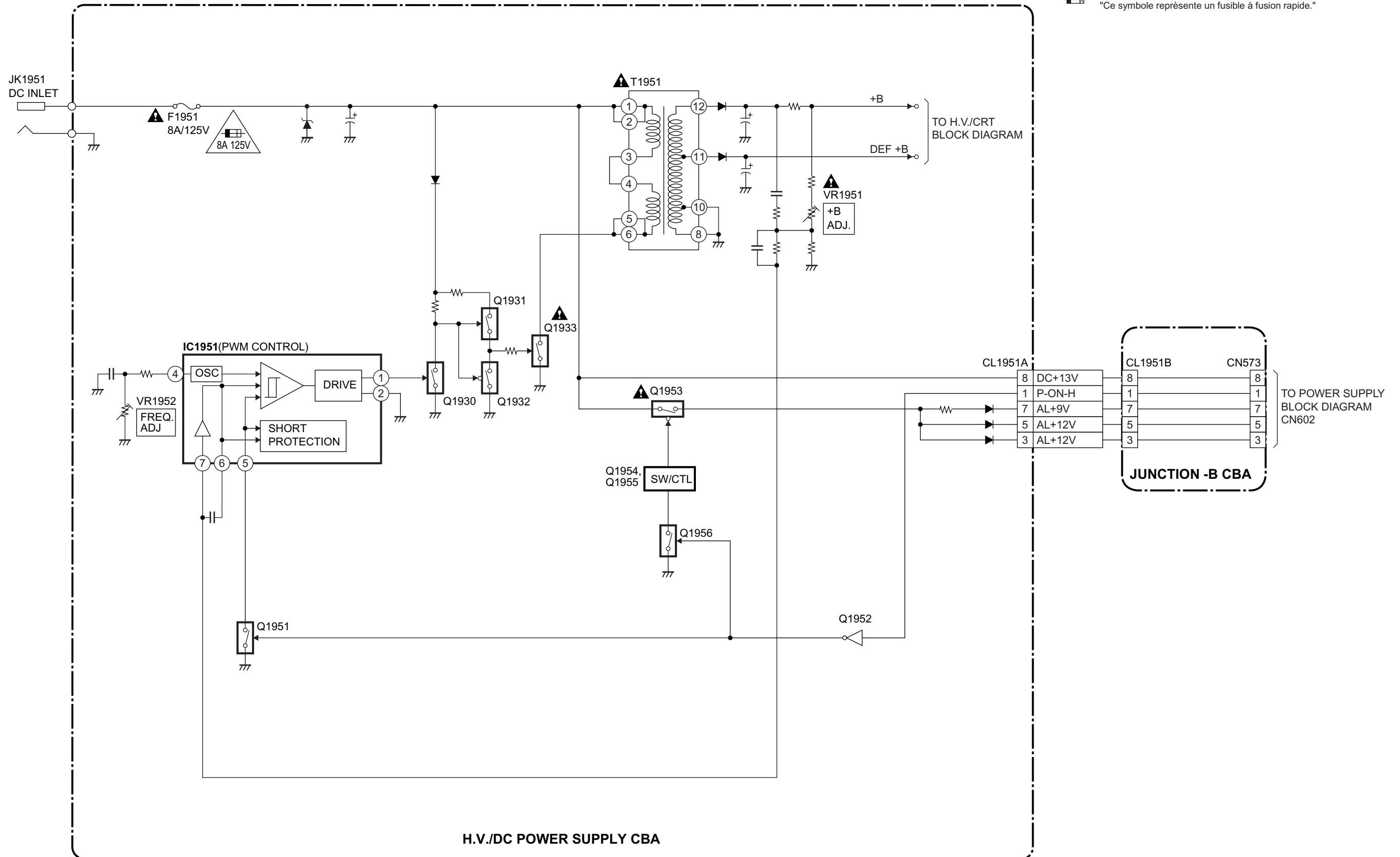
Fixed voltage power supply circuit is used in this unit.
 If Main Fuse (F1951) is blown, check to see that all components in the power supply circuit are not defective before you connect the DC plug to the DC power supply.
 Otherwise it may cause some components in the power supply circuit to fail.

NOTE :
 The voltage for parts in hot circuit is measured using hot GND as a common terminal.



CAUTION
 FOR CONTINUED PROTECTION AGAINST FIRE HAZARD,
 REPLACE ONLY WITH THE SAME TYPE FUSE.
 ATTENTION : POUR UNE PROTECTION CONTINUE LES RISQUES
 D'INCELE N'UTILISER QUE DES FUSIBLE DE MEMO TYPE.
RISK OF FIRE-REPLACE FUSE AS MARKED.

"This symbol means fast operating fuse."
 "Ce symbole représente un fusible à fusion rapide."



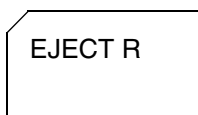
MECHANICAL TROUBLE INDICATOR

1, Each Malfunction Indication

If the MONITOR is turned ON right after the Mechanical Malfunction occurs or POWER SAFETY/X-RAY is turned ON, display the following character to show Malfunction after the EJECT display.

Immediately preceding Malfunction	Display character
REEL Malfunction	R
DRUM Malfunction	D
CASSETTE LOADING Malfunction	C
TAPE LOADING Malfunction	T
P-SAFETY 1	1
P-SAFETY 2	2
X-RAY	X

Example: If REEL Malfunction



2, Each Malfunction evaluation method

X-RAY protect

If X-RAY port becomes continuously 2.5V or more for 120 msec. (4 times 40 msec. interval), the unit shall immediately turn OFF the POWER/MONITOR and switch over to the Mechanical Malfunction mode with POWER OFF.

(To return from this mode shall become possible only by POWER Key as in the case of the Mechanical Malfunction).

POWER SAFETY

1) POWER SAFETY 1

If P-SAFETY 1 port becomes continuously 2.5V or less for 120 msec. (4 times 40 msec. interval) when MONITOR is ON, the unit shall be assumed to be the Power Malfunction 1 and immediately turn OFF the POWER/MONITOR and switch over the Mechanical Malfunction mode with POWER OFF.

(Shall not unload)

(To return from this mode shall become possible only by POWER Key as in the case of the Mechanical Malfunction).

* However the POWER SAFETY 1 function shall be disabled during 500 msec. right after the MONITOR turns ON.

2) POWER SAFETY 2

If P-SAFETY 2 port becomes continuously 2.5V or less for 120 msec. (4 times 40 msec. interval) when P-ON-H port is ON, the unit shall be assumed to be the Power Malfunction 2 and immediately turn OFF the POWER/MONITOR and switch over the Mechanical Malfunction mode with POWER OFF.

(Shall not unload)

(To return from this mode shall become possible only by POWER Key as in the case of the Mechanical Malfunction).

* However the POWER SAFETY 2 function shall be disabled during 500 msec. right after the P-ON-H turns ON.

Mechanical Malfunction determination

1) REEL Malfunction detection

Countermeasure for REEL and CAPSTAN motor rotation malfunction (Except CASSETTE LOADING function)

After the Malfunction detection with REEL/CAPSTAN sensor, the unit shall switch over to STOP (B) and be REEL Mechanical Malfunction.

- a) If the T-REEL pulse is not impressed after a lapse of 5 sec. at SP, 10 sec. at LP, 14 sec. at SLP, or more in the REEL Rotation Mode like PLAY/REC, FS/RS Mode, and the T-REEL or S-REEL pulse is not impress after a lapse of 4 sec. or more in REEL Rotation Mode of FF/REW, it shall be assumed to stop the rotation and switch over to STOP (B) position, then POWER be turned OFF and the unit be REEL Mechanical Malfunction. (T-REEL and S-REEL for the models on S-REEL and only T-REEL for other models)
- b) If the C-FG pulse is not impressed for a lapse of 1 sec. or more during the CAPSTAN MOTOR rotation, it shall be MOTOR Rotation Malfunction (REEL Malfunction).

2) DRUM Malfunction detection

Detect the DRUM rotation at the D-FG input terminal.

If the variation of D-FG input level is not detected for a lapse of 1 sec. or more when D-CONT is "H", it shall be assumed to be Rotation Malfunction and be DRUM Malfunction.

When detect Drum Malfunction, POWER shall be turned OFF after the unit switches over to STOP (B) Mode.

3) Countermeasure for TAPE LOADING Malfunction

Detect the Malfunction with the LOADING Switch.

a) TAPE LOADING Malfunction

If LD-SW does not go to the established position after a lapse of 7 sec. or more from TAPE LOADING or TAPE UNLOADING start, the LOADING function shall immediately be stopped and POWER be turned OFF, and inform the Timer about the LOADING Mechanical Malfunction.

b) LD-SW Position Malfunction at each mode

When the unit operates at each mode, even if the LD-SW position changes from the established one in its mode, it keeps the function according to its mode.

4) Countermeasure for CASSETTE LOADING Malfunction

a) CASSETTE IN operating Malfunction

If LD-SW does not go to SB position after a lapse of 5 sec. or more from the CASSETTE insertion start, the unit starts the CASSETTE OUT operation.

After switch over to CASSETTE OUT operation and then a laps of 5 sec. or more from the CASSETTE OUT operation start, if LD-SW does not go to the EJ position or if START Sensor and END Sensor does not turn "ON" at the EJ position, the unit starts again to insert CASSETTE.

(However in S-INH state, the START/END Sensor shall be disabled).

b) CASSETTE OUT operating Malfunction

After a lapse of 5 sec. or more from CASSETTE OUT operation start, if LD-SW does not go to the EJ position or if START Sensor and END Sensor does not turn "ON" at the EJ position, the unit starts to insert CASSETTE.

(However in S-INH state, the START/END Sensor shall be disabled).



When the unit switches over to CASSETTE insertion at CASSETTE IN or CASSETTE OUT Malfunction, if LD-SW does not go to the SB position after a lapse of 5 sec. or more from CASSETTE insertion start, the function shall immediately be stopped and POWER be turned OFF, and the unit be CASSETTE LOADING Malfunction.

c) When POWER is turned ON, if the CL position or GC position cannot be detected after 5 sec. LD-REV operation and 5 sec. LD-FWD operation, the function shall immediately be stopped and POWER be turned OFF, and the unit be CASSETTE LOADING Malfunction.

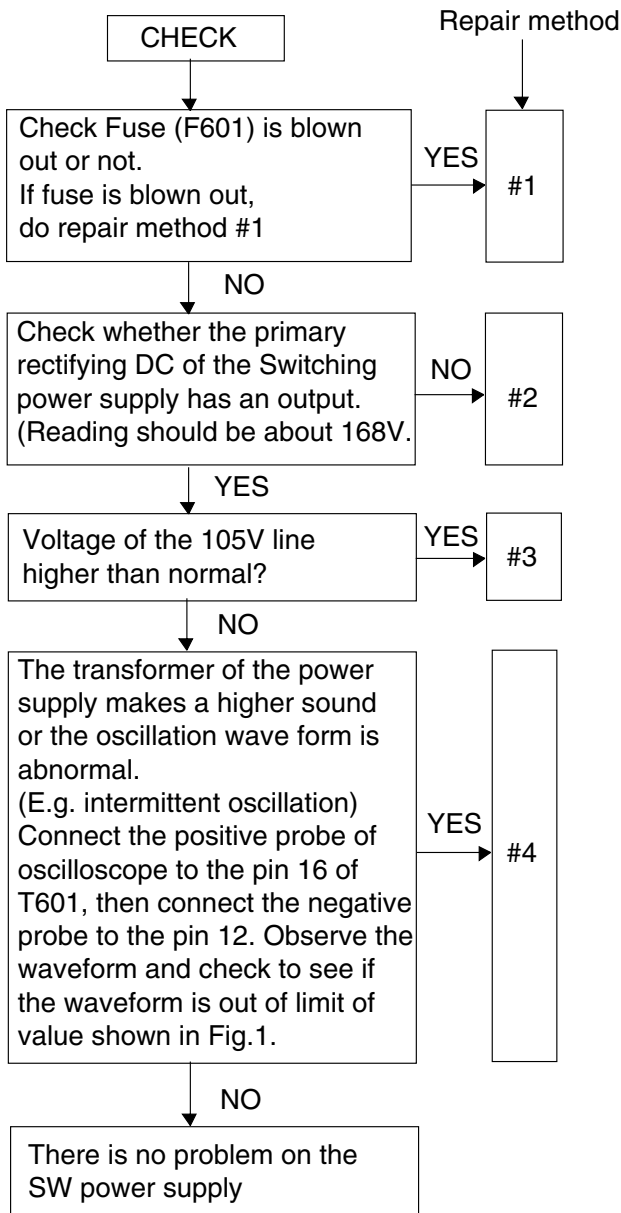
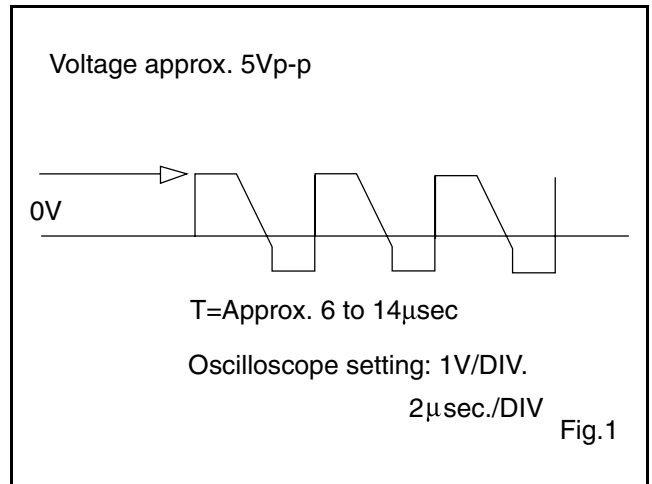
d) When POWER is turned ON without CASSETTE (EJ position) and LD-SW is monitored all the time, if the CL or GC position is detected continuously for 1 sec. or more, the POWER shall be turned OFF and the unit be CASSETTE LOADING Malfunction.

Countermeasure for Mechanical Malfunction

If the unit detects Mechanical Malfunction, turn the POWER OFF. If the unit is Mechanical Malfunction, Key input except POWER key shall be disabled and CASSETTE insertion disabled. When POWER Key is entered, the POWER is turned ON and the unit switches over the EJECT Mode. (Return with POWER ON)

Power Supply Trouble Shooting Guide

It is highly recommended that a variable isolation transformer which can monitor current be used. (Alternatively a variable AC source which monitors current will do). Read directions below before power is added!



Repair method #1

(Power must be off)

Short circuit in the secondary side. check diode D613, D614, D616, D617 and D618, switching transistor (Q601), control transistor (Q602), diode and resistor replace as necessary.

Disconnect 105V diode (D613), 25V diode (D614), 8V diode (D616), 12V diode (D617), 12V diode (D618) and Check the load continuity of 105V line, 25V line, 8V line, 12V line through a tester (resistance range).

If the tester indicates a lower resistance value around 0 ohm, the line is short-circuited.

Before repairing the switching power supply, find out the short-circuited area of such line and repair it.

If the tester does not indicate any low resistance value (around 0 ohm), no load is short-circuited and there is no problem.

Check for any defective parts while the secondary rectifying diodes are disconnected (D613, D614, D616, D617 and D618) perform a diode check in both forward and reverse directions through a tester.

Repair method #2

Check the primary rectifying diodes (D603-D606) as possible problems. Remove the above mentioned parts and check them. Perform check according to the step 1 and 2 of repair method #1 and check for defects following parts, then if necessary replace with factory originals.

R602 is open or not.

Q601, Q602, D607, D608 and D611 are short or not.

Repair method #3

The feedback circuit which is monitored by the output of D613 105V may not work and this may be regarded as a possible cause, remove IC601 (Photo Coupler), diode (D620) and transistor (Q604) check for defects.

Repair method #4

Check control circuitry which is connecting to Pin 2 and 1 of Switching Transformer T601.

SCHEMATIC DIAGRAMS / CBA'S AND TEST POINTS

Standard Notes

Warning

Many electrical and mechanical parts in this chassis have special characteristics. These characteristics often pass unnoticed and the protection afforded by them cannot necessarily be obtained by using replacement components rated for higher voltage, wattage, etc. Replacement parts that have these special safety characteristics are identified in this manual and its supplements; electrical components having such features are identified by the mark "▲" in the schematic diagram and the parts list. Before replacing any of these components, read the parts list in this manual carefully. The use of substitute replacement parts that do not have the same safety characteristics as specified in the parts list may create shock, fire, or other hazards.

Note:

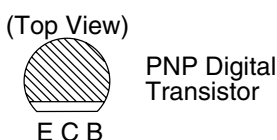
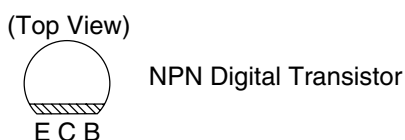
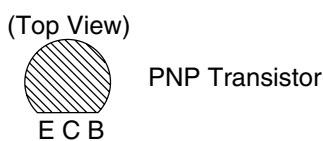
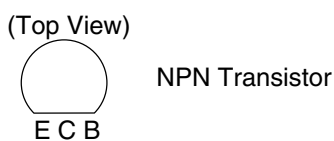
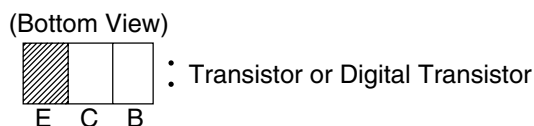
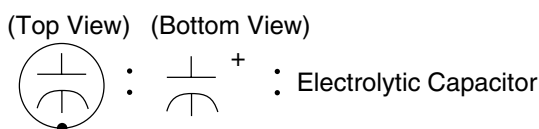
1. Do not use the part number shown on these drawings for ordering. The correct part number is shown in the parts list, and may be slightly different or amended since these drawings were prepared.
2. All resistance values are indicated in ohms ($K=10^3$, $M=10^6$).
3. Resistor wattages are 1/4W or 1/6W unless otherwise specified.
4. All capacitance values are indicated in μF ($P=10^{-6}\mu F$).
5. All voltages are DC voltages unless otherwise specified.

Capacitor Temperature Markings

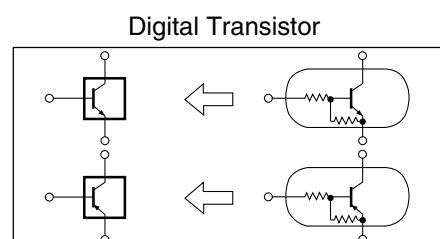
Mark	Capacity change rate	Standard temperature	Temperature range
(B)	$\pm 10\%$	20°C	-25~+85°C
(F)	+30 -80%	20°C	-25~+85°C
(SR)	$\pm 15\%$	20°C	-25~+85°C
(Z)	+30 -80%	20°C	-10~+70°C

Capacitors and transistors are represented by the following symbols.

CBA Symbols



Schematic Diagram Symbols



LIST OF CAUTION, NOTES, AND SYMBOLS USED IN THE SCHEMATIC DIAGRAMS ON THE FOLLOWING PAGES:

1. CAUTION:

FOR CONTINUED PROTECTION AGAINST FIRE HAZARD, REPLACE ONLY WITH THE SAME TYPE FUSE.

2. CAUTION:

Fixed Voltage (or Auto voltage selectable) power supply circuit is used in this unit.

If Main Fuse (F601) is blown, first check to see that all components in the power supply circuit are not defective before you connect the AC plug to the AC power supply. Otherwise it may cause some components in the power supply circuit to fail.

3. Note:

- (1) Do not use the part number shown on the drawings for ordering. The correct part number is shown in the parts list, and may be slightly different or amended since the drawings were prepared.
- (2) To maintain original function and reliability of repaired units, use only original replacement parts which are listed with their part numbers in the parts list section of the service manual.

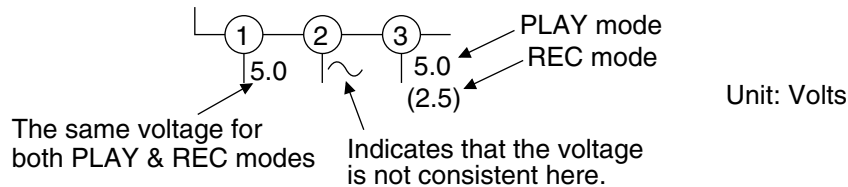
4. Wire Connectors

- (1) Prefix symbol "CN" means "connector" (can disconnect and reconnect).
- (2) Prefix symbol "CL" means "wire-solder holes of the PCB" (wire is soldered directly).

5. Note: Mark "•" is a leadless (chip) component.

6. Mode: SP/REC

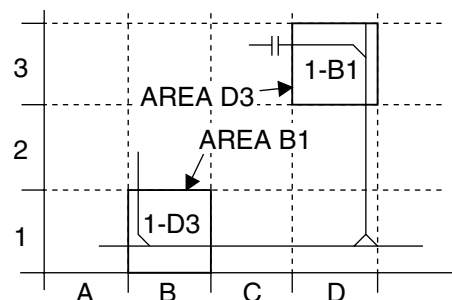
7. Voltage indications for PLAY and REC modes on the schematics are as shown below:



8. How to read converged lines

1-D3
 ↑
 Distinction Area
 Line Number
 (1 to 3 digits)
 Examples:

1. "1-D3" means that line number "1" goes to area "D3".
2. "1-B1" means that line number "1" goes to area "B1".

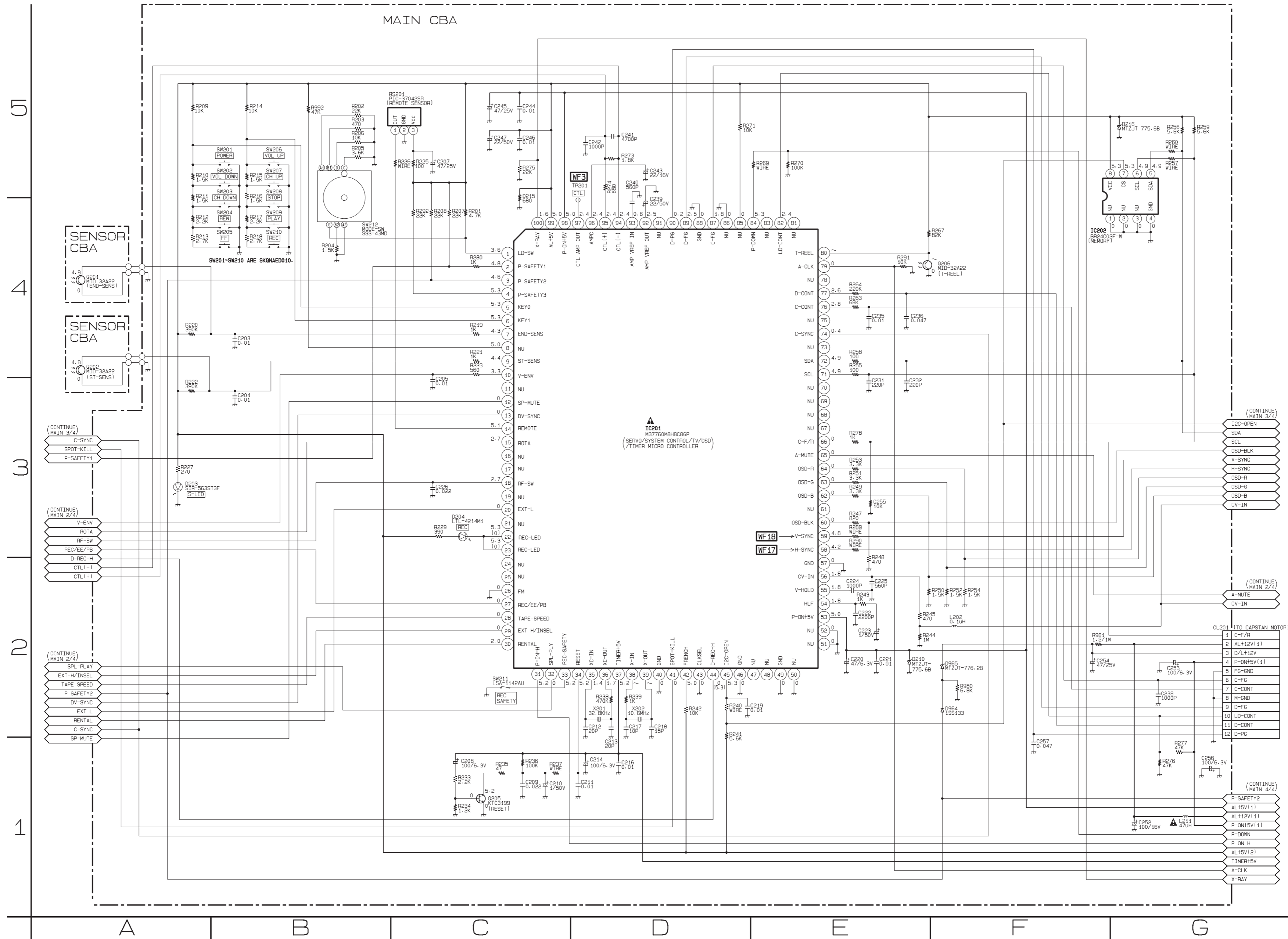


9. Test Point Information

- ⊙ : Indicates a test point with a jumper wire across a hole in the PCB.
- : Used to indicate a test point with a component lead on foil side.
- ⊘ : Used to indicate a test point with no test pin.
- : Used to indicate a test point with a test pin.

A5	B5	C5	D5	E5	F5	G5
A4	B4	C4	D4	E4	F4	G4
A3	B3	C3	D3	E3	F3	G3
A2	B2	C2	D2	E2	F2	G2
A1	B1	C1	D1	E1	F1	G1

Main 1/4 Schematic Diagram



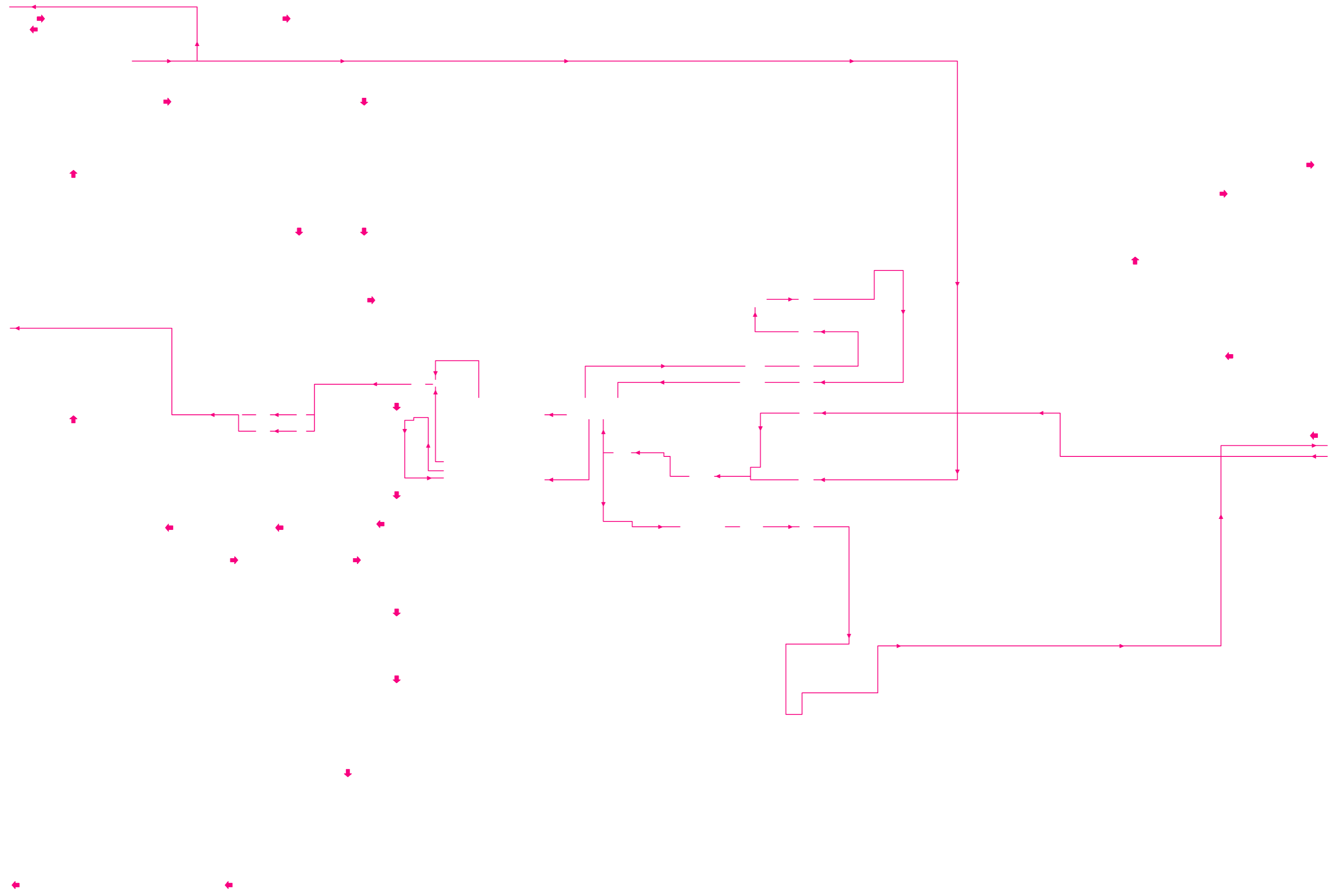
MAIN 1/4

Ref No.	Position
ICS	
IC201	D-3
IC202	F-4
TRANSISTORS	
Q205	C-1
Q206	F-4
TEST POINT	
TP201	D-5
CONNECTOR	
CL201	G-2

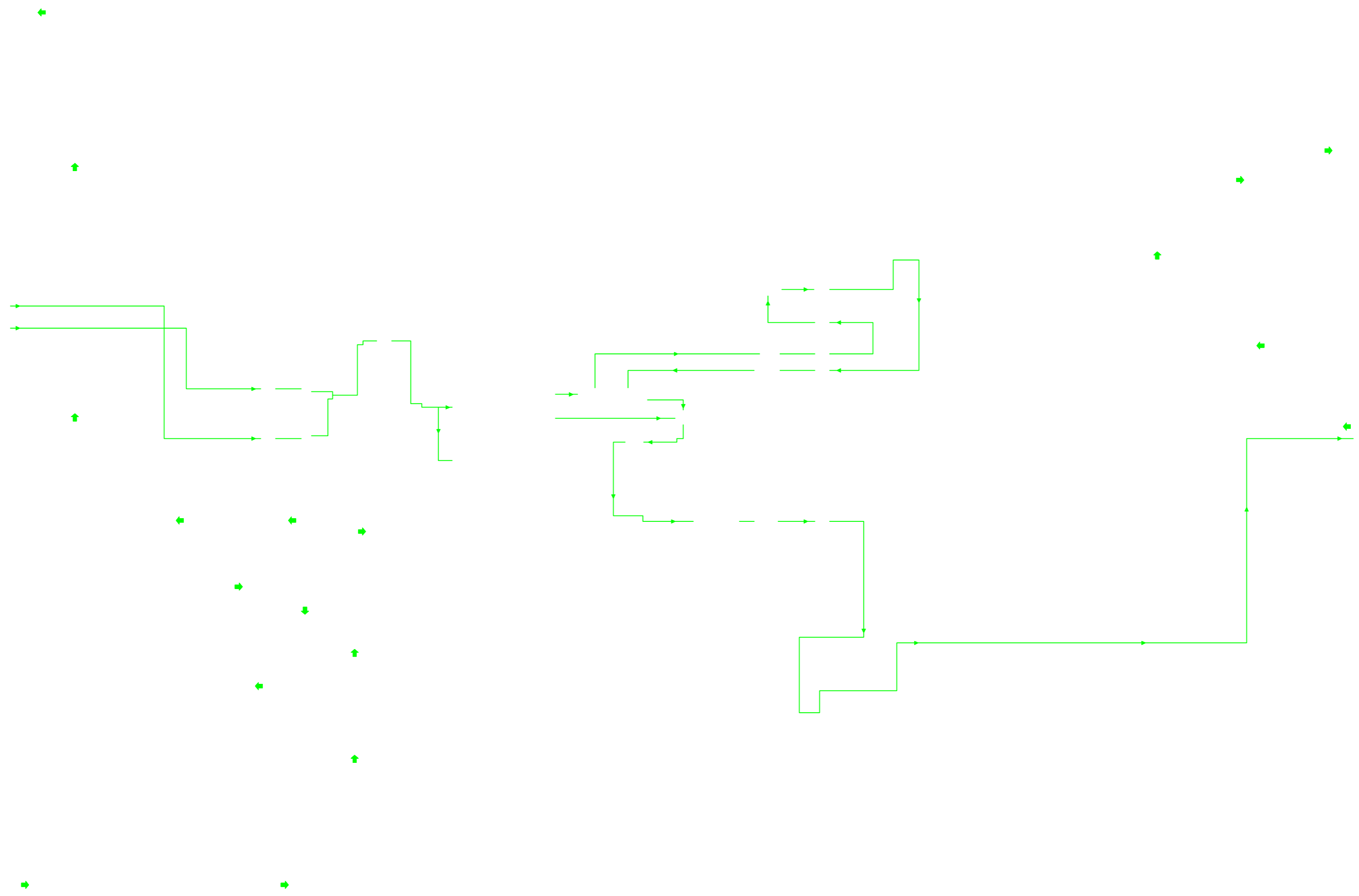
H5	I5	J5	K5	L5	M5	N5
H4	I4	J4	K4	L4	M4	N4
H3	I3	J3	K3	L3	M3	N3
H2	I2	J2	K2	L2	M2	N2
H1	I1	J1	K1	L1	M1	N1

REC Video Signal

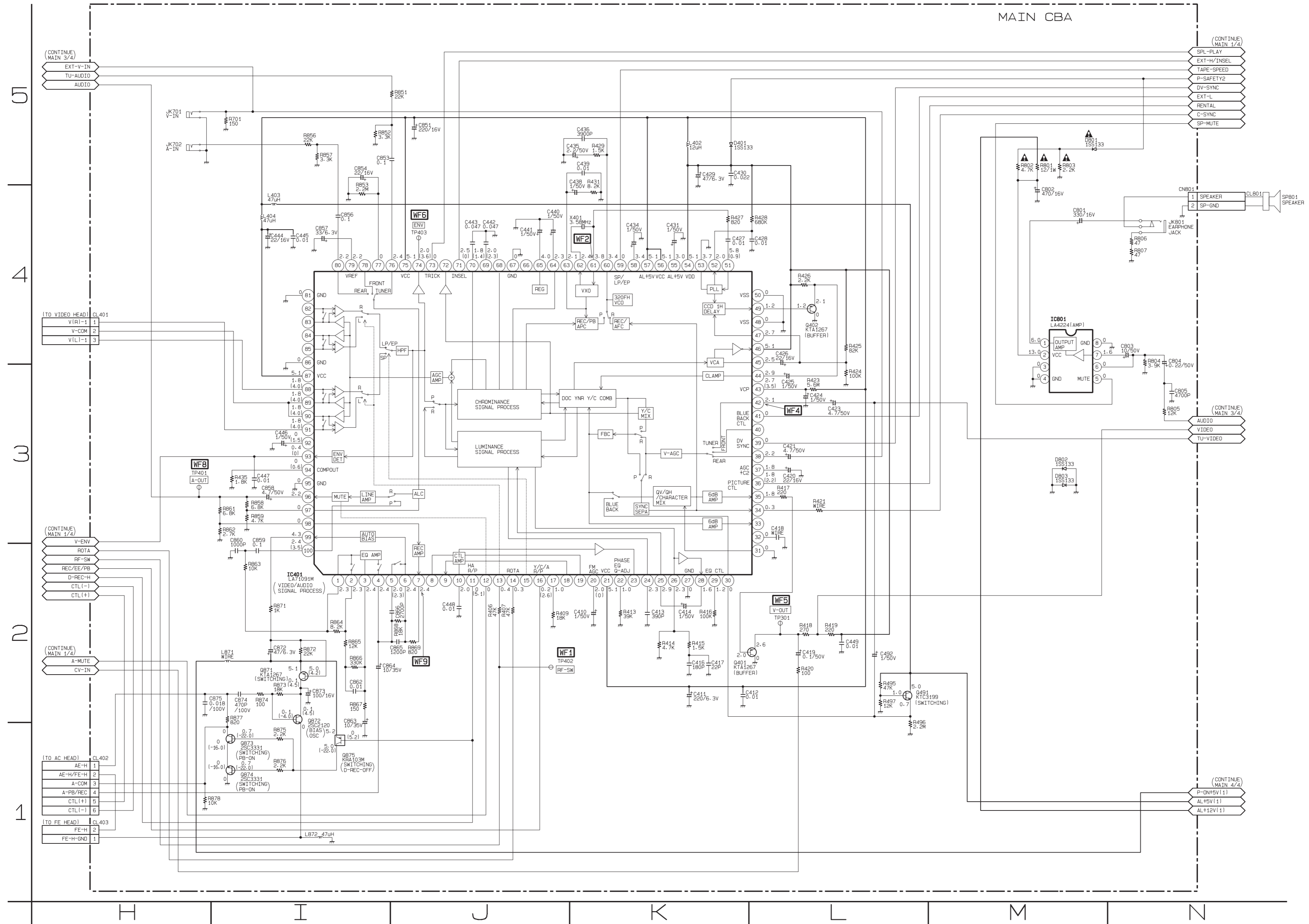
REC Audio Signal



— PB Video Signal
← PB Audio Signal



Main 2/4 Schematic Diagram



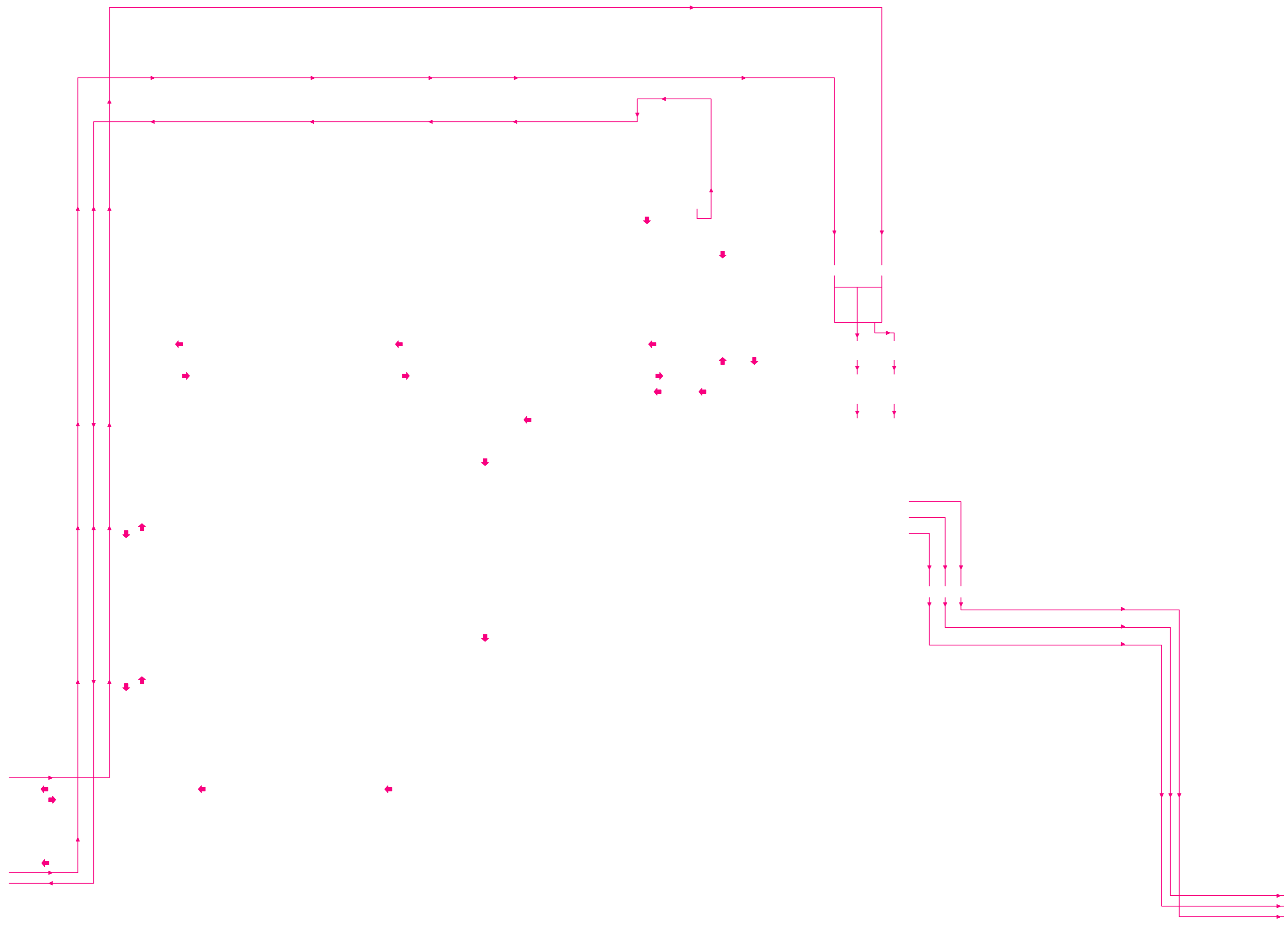
MAIN 2/4

Ref No.	Position
ICS	
IC401	I-2
IC801	M-4
TRANSISTORS	
Q401	K-2
Q402	L-4
Q491	L-2
Q871	I-2
Q872	I-2
Q873	I-1
Q874	I-1
Q875	I-1
TEST POINTS	
TP301	L-2
TP401	H-3
TP402	J-2
TP403	J-4
CONNECTORS	
CL401	H-4
CL402	H-1
CL403	H-1
CN801	N-4

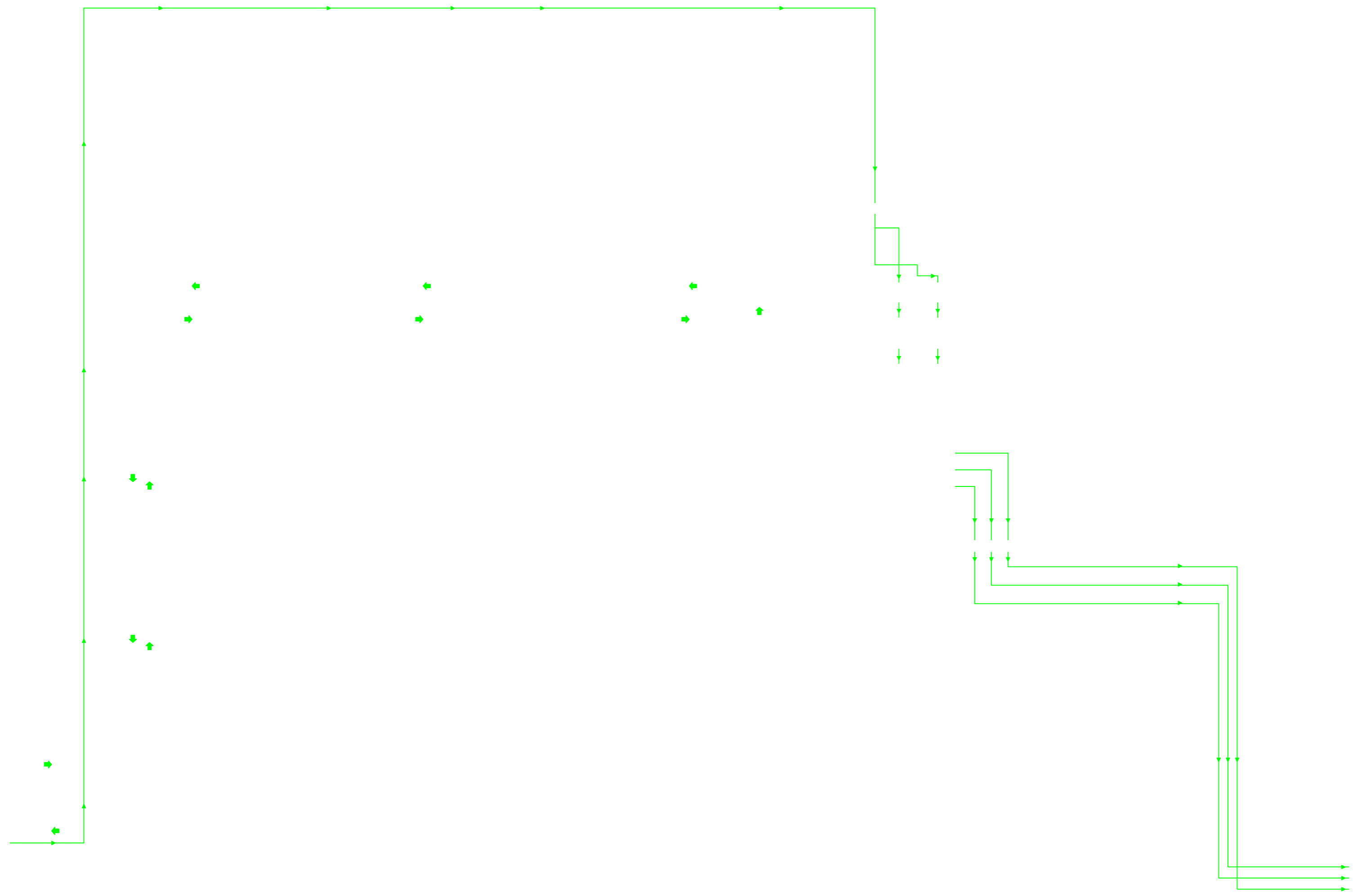
O5	P5	Q5	R5	S5	T5	U5
O4	P4	Q4	R4	S4	T4	U4
O3	P3	Q3	R3	S3	T3	U3
O2	P2	Q2	R2	S2	T2	U2
O1	P1	Q1	R1	S1	T1	U1

REC Video Signal

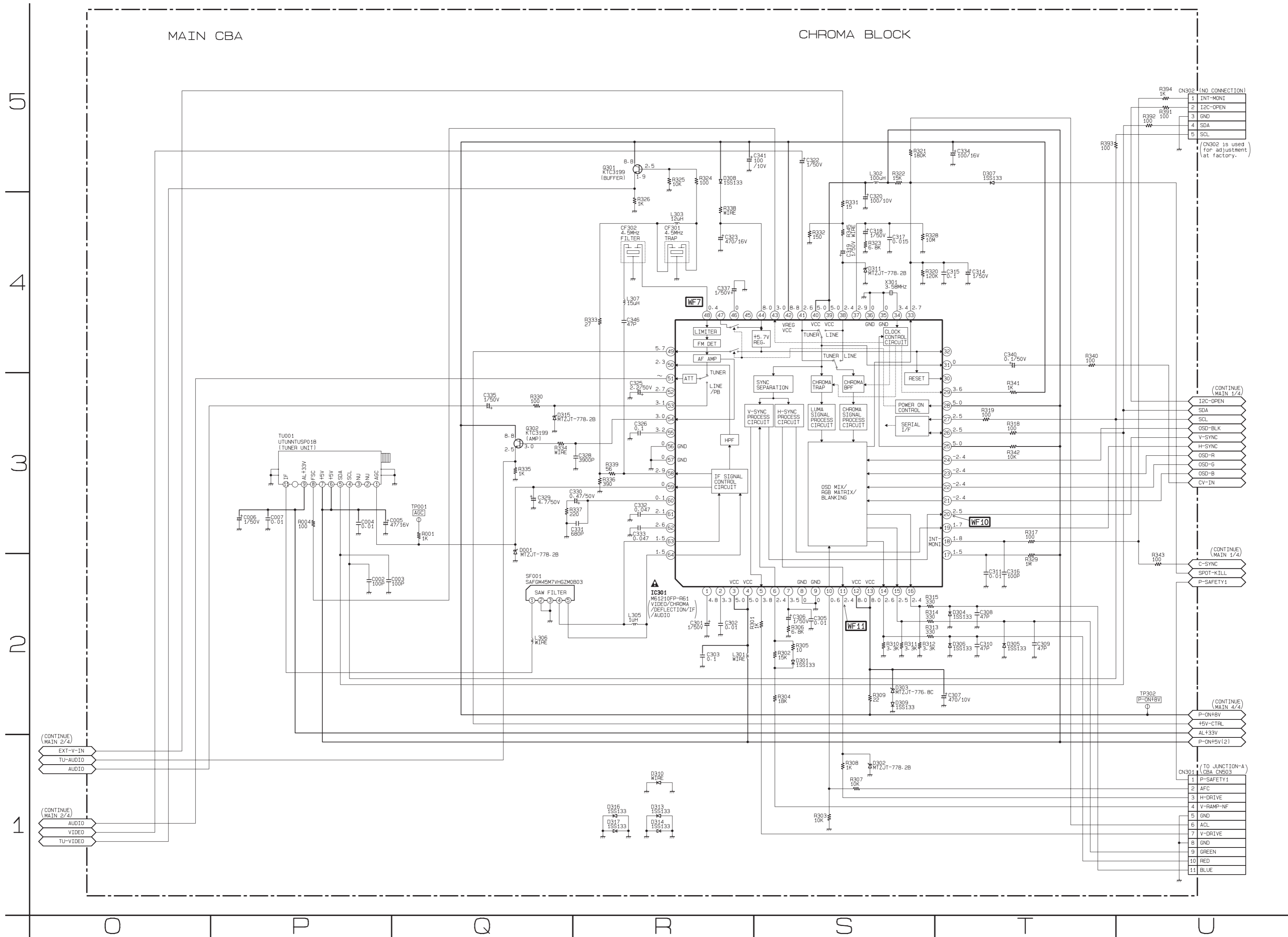
REC Audio Signal



— PB Video Signal
← PB Audio Signal



Main 3/4 Schematic Diagram



MAIN 3/4

Ref No.	Position
IC	
IC301	R-2
TRANSISTORS	
Q301	R-5
Q302	Q-3
TEST POINTS	
TP001	Q-3
TP302	U-2
CONNECTORS	
CN301	U-1
CN302	U-5

01
 4
 W
 N
 1

O P Q R S T U

V3	W3	X3	Y3	Z3	AA3
V2	W2	X2	Y2	Z2	AA2
V1	W1	X1	Y1	Z1	AA1

Main 4/4 Schematic Diagram

NOTE:
THE VOLTAGE FOR PARTS IN HOT CIRCUIT IS MEASURED USING
HOT GND AS A COMMON TERMINAL.

CAUTION !
Fixed voltage power supply circuit is used in this unit.
If Main Fuse (F601) is blown, check to see that all components in the power supply
circuit are not defective before you connect the AC plug to the AC power supply.
Otherwise it may cause some components in the power supply circuit to fail.

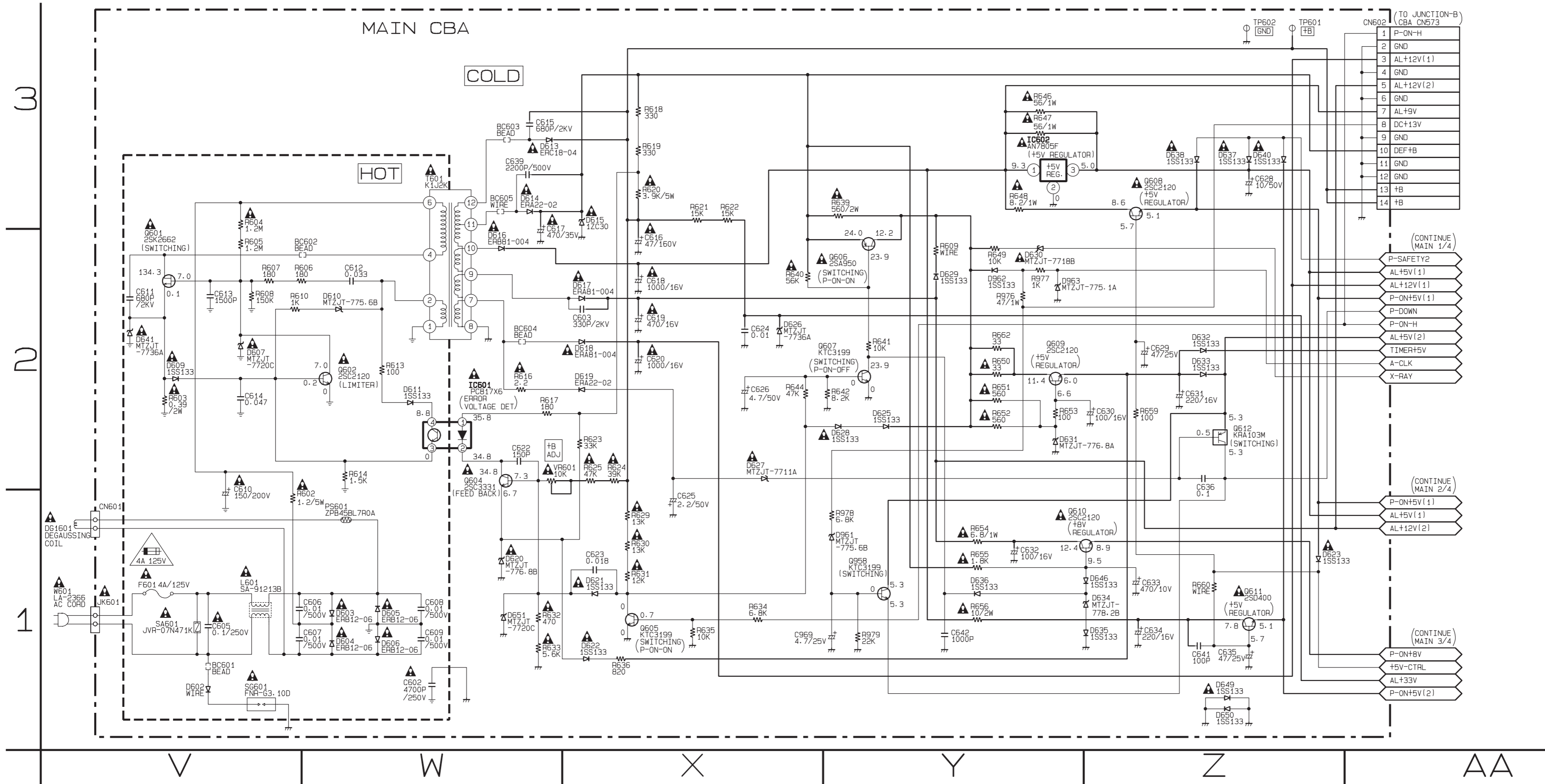


CAUTION
FOR CONTINUED PROTECTION AGAINST FIRE HAZARD,
REPLACE ONLY WITH THE SAME TYPE FUSE.
ATTENTION : POUR UNE PROTECTION CONTINUE LES RISQUES
D'INCELE N'UTILISER QUE DES FUSIBLE DE MEMO TYPE.
RISK OF FIRE-REPLACE FUSE AS MARKED.

"This symbol means fast operating fuse."
"Ce symbole représente un fusible à fusion rapide."

VOLTAGE CHART (Power off mode)

Ref. No.	S	D	G
Q601	0.0	137.0	1.8
Ref. No.	E	C	B
Q602	0	3.2	0.5
Q605	0	7.0	0
Q606	7.0	7.0	7.0
Q608	5.0	7.5	5.7
Q609	6.0	6.5	6.6
Q610	0.7	4.7	1.3
Q611	0	2.4	0
Q612	5.3	5.3	0.8



MAIN 4/4	
Ref. No.	Position
ICs	
IC601	W-2
IC602	Y-3
TRANSISTORS	
Q601	V-2
Q602	W-2
Q604	W-2
Q605	X-1
Q606	Y-2
Q607	Y-2
Q608	Z-3
Q609	Y-2
Q610	Y-1
Q611	Z-1
Q612	Z-2
Q958	Y-1
TEST POINTS	
TP601	Z-3
TP602	Z-3
CONNECTORS	
CN601	V-1
CN602	AA-3
ADJUSTMENT	
VR601	W-2

A3	B3	C3	D3	E3	F3
A2	B2	C2	D2	E2	F2
A1	B1	C1	D1	E1	F1

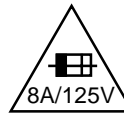
H.V./DC Power Supply Schematic Diagram

CAUTION !

Switching power supply circuit is used in this unit.

If Main Fuse (F1951) is blown, check to see that all components in the power supply circuit are not defective before you connect the DC plug to the DC power supply.

Otherwise it may cause some components in the power supply circuit to fail.



CAUTION

FOR CONTINUED PROTECTION AGAINST FIRE HAZARD, REPLACE ONLY WITH THE SAME TYPE FUSE.

ATTENTION : POUR UNE PROTECTION CONTINUE LES RISQUES D'INCELE N'UTILISER QUE DES FUSIBLE DE MEMO TYPE.

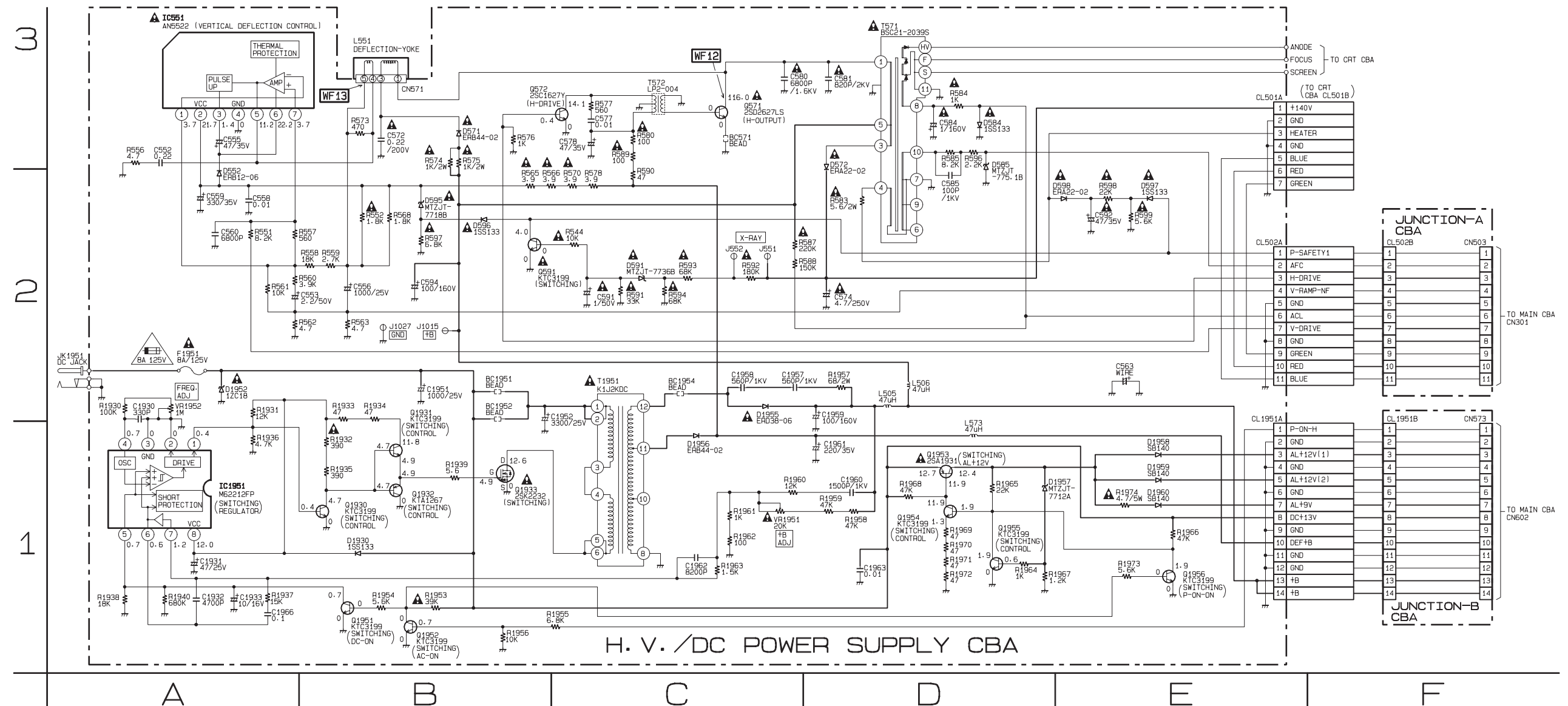
RISK OF FIRE-REPLACE FUSE AS MARKED.

"This symbol means fast operating fuse."

"Ce symbole représente un fusible à fusion rapide."

H.V./DC POWER SUPPLY

Ref No.	Position	Ref No.	Position
ICS		TRANSISTORS	
IC551	A-3	Q1956	E-1
IC1951	A-1	TEST POINTS	
TRANSISTORS		J551	C-2
Q571	C-3	J552	C-2
Q572	C-3	J1015	B-2
Q591	B-2	J1027	B-2
Q1930	B-1	CONNECTORS	
Q1931	B-1	CL501A	E-3
Q1932	B-1	CL502A	E-2
Q1933	B-1	CL1951A	E-1
Q1951	B-1	CN571	B-3
Q1952	B-1	ADJUSTMENTS	
Q1953	D-1	VR1951	C-1
Q1954	D-1	VR1952	A-2
TRANSISTORS			
Q1955	D-1		



A2

B2

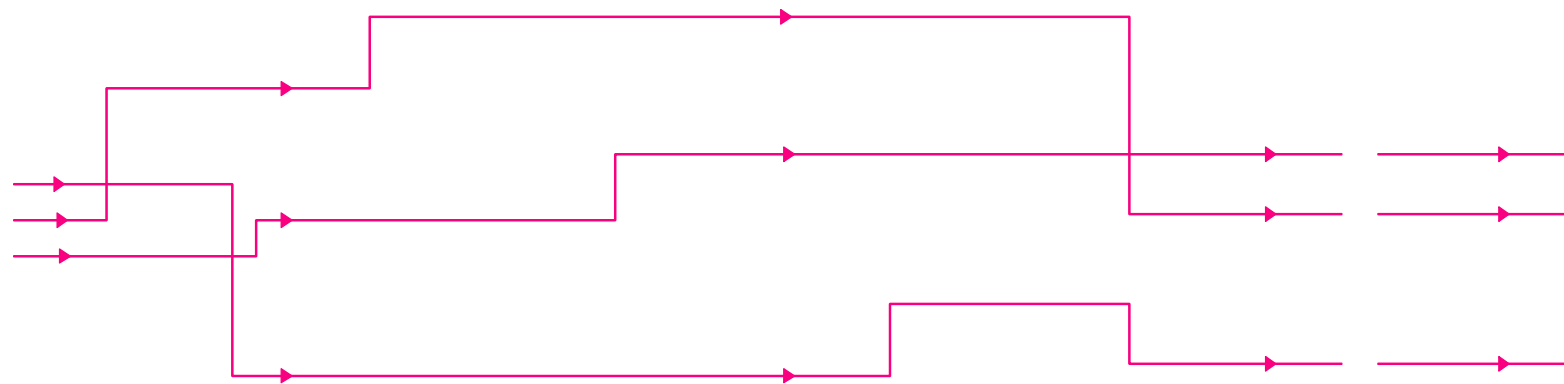
C2

A1

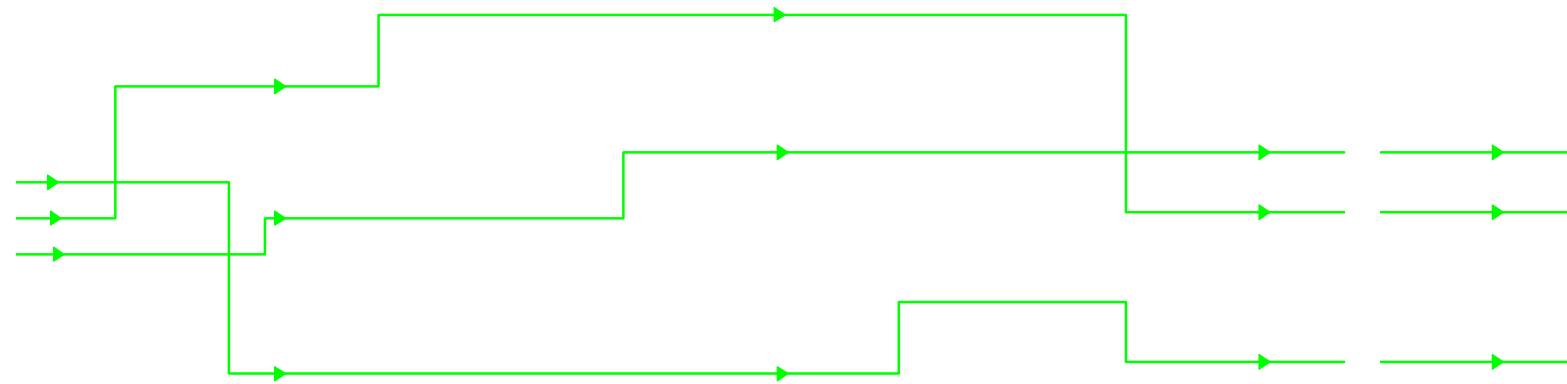
B1

C1

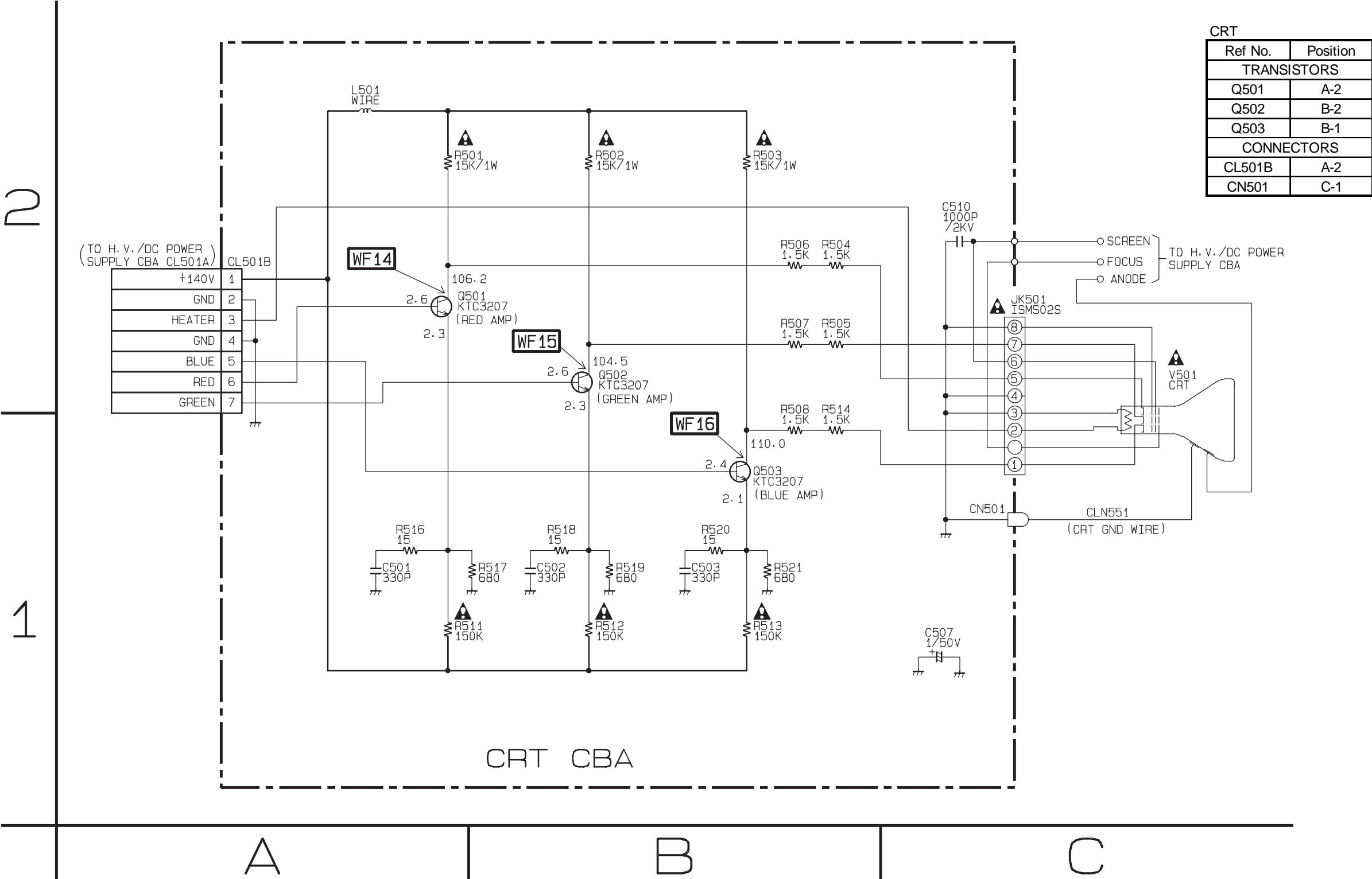
REC Video Signal



———— PB Video Signal



CRT Schematic Diagram

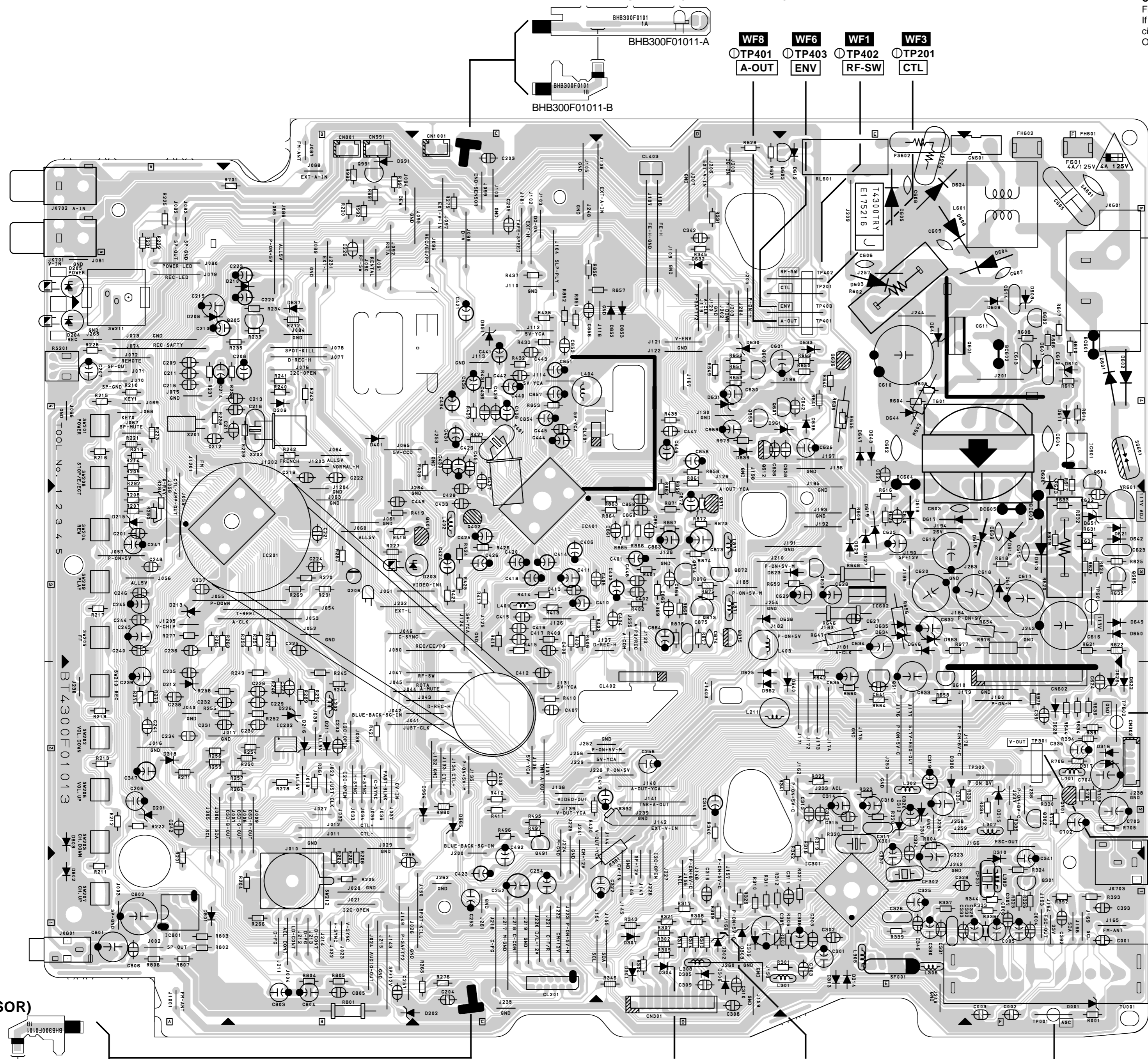


Sensor CBA Top View (END-SENSOR)

CAUTION !
Fixed voltage power supply circuit is used in this unit.
If Main Fuse (F601) is blown, check to see that all components in the power supply circuit are not defective before you connect the AC plug to the AC power supply.
Otherwise it may cause some components in the power supply circuit to fail.

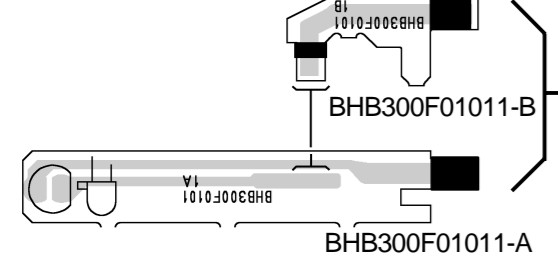
BECAUSE A HOT CHASSIS GROUND IS PRESENT IN THE POWER SUPPLY CIRCUIT, AN ISOLATION TRANSFORMER MUST BE USED. ALSO, IN ORDER TO HAVE THE ABILITY TO INCREASE THE INPUT SLOWLY, WHEN TROUBLESHOOTING THIS TYPE POWER SUPPLY CIRCUIT, A VARIABLE ISOLATION TRANSFORMER IS REQUIRED.

CAUTION
FOR CONTINUED PROTECTION AGAINST FIRE HAZARD, REPLACE ONLY WITH THE SAME TYPE FUSE.
ATTENTION : POUR UNE PROTECTION CONTINUE LES RISQUES D'INCELE N'UTILISER QUE DES FUSIBLE DE MEMO TYPE.
RISK OF FIRE-REPLACE FUSE AS MARKED.
This symbol means fast operating fuse.
Ce symbole représente un fusible à fusion rapide.



MAIN CBA	
Ref No.	Position
ICS	
IC201	B-3
IC202	B-2
IC301	E-1
IC401	C-3
IC601	F-4
IC602	E-3
IC801	A-1
TRANSISTORS	
Q205	B-4
Q206	B-3
Q301	F-1
Q302	F-2
Q401	C-3
Q402	C-3
Q491	C-2
Q601	F-4
Q602	F-4
Q604	F-4
Q605	F-3
Q606	E-4
Q607	D-4
Q608	E-3
Q609	D-4
Q610	E-2
Q611	E-2
Q612	D-4
Q871	D-3
Q872	D-3
Q873	D-3
Q874	D-3
Q875	D-3
Q958	D-4
TEST POINTS	
TP001	F-1
TP201	E-5
TP301	F-2
TP302	F-2
TP401	E-4
TP402	E-5
TP403	E-4
TP601	F-3
TP602	F-2
CONNECTORS	
CL201	C-1
CN301	D-1
CN302	F-2
CL401	C-3
CL402	D-2
CL403	D-5
CN601	F-5
CN602	F-2
CN801	B-5
ADJUSTMENT	
VR601	F-3

Sensor CBA Top View (START-SENSOR)



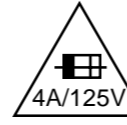
D304 Cathode (C-Trap Adjustment) D302 Cathode (H Adjustment)

TP001 AGC

Main CBA Bottom View

CAUTION !

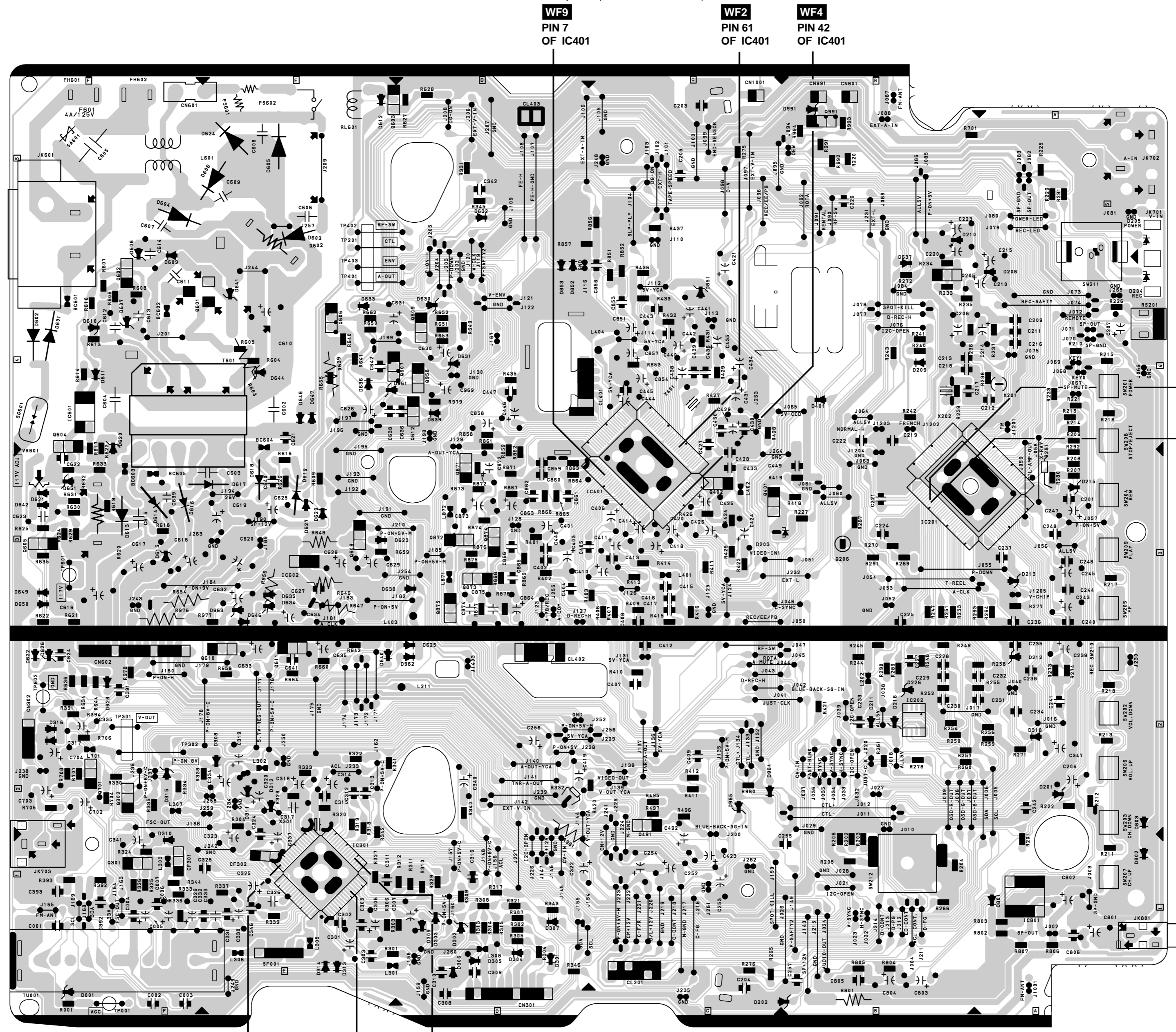
Fixed voltage power supply circuit is used in this unit.
If Main Fuse (F601) is blown, check to see that all components in the power supply circuit are not defective before you connect the AC plug to the AC power supply.
Otherwise it may cause some components in the power supply circuit to fail.



CAUTION
FOR CONTINUED PROTECTION AGAINST FIRE HAZARD,
REPLACE ONLY WITH THE SAME TYPE FUSE.
ATTENTION : POUR UNE PROTECTION CONTINUE LES RISQUES
D'INCELE N'UTILISER QUE DES FUSIBLE DE MEMO TYPE.
RISK OF FIRE-REPLACE FUSE AS MARKED.

This symbol means fast operating fuse.
Ce symbole représente un fusible à fusion rapide.

BECAUSE A HOT CHASSIS GROUND IS PRESENT IN THE POWER SUPPLY CIRCUIT, AN ISOLATION TRANSFORMER MUST BE USED.
ALSO, IN ORDER TO HAVE THE ABILITY TO INCREASE THE INPUT SLOWLY, WHEN TROUBLESHOOTING THIS TYPE POWER SUPPLY CIRCUIT, A VARIABLE ISOLATION TRANSFORMER IS REQUIRED.



WF9
PIN 7
OF IC401

WF2
PIN 61
OF IC401

WF4
PIN 42
OF IC401

WF17
PIN 58
OF IC201

WF18
PIN 59
OF IC201

WF7
PIN 48
OF IC301

WF11
PIN 11
OF IC301

WF10
PIN 20
OF IC301

H.V. / DC Power Supply CBA Top View

CAUTION !

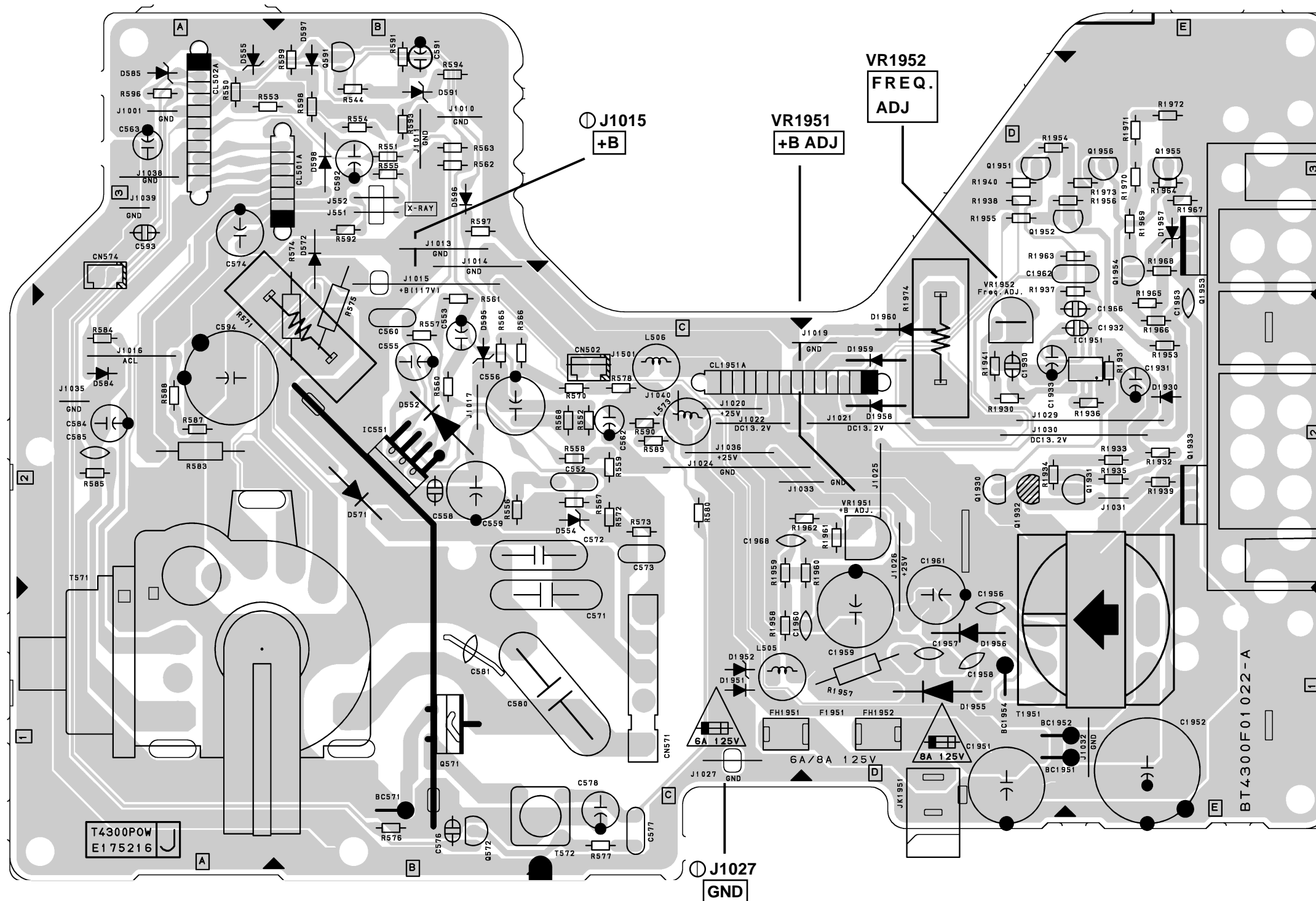
Fixed voltage power supply circuit is used in this unit.
If Main Fuse (F1951) is blown, check to see that all components in the power supply circuit are not defective before you connect the DC plug to the DC power supply.
Otherwise it may cause some components in the power supply circuit to fail.

CAUTION

FOR CONTINUED PROTECTION AGAINST FIRE HAZARD,
REPLACE ONLY WITH THE SAME TYPE FUSE.
ATTENTION : POUR UNE PROTECTION CONTINUE LES RISQUES
D'INCELE N'UTILISER QUE DES FUSIBLE DE MEMO TYPE.
RISK OF FIRE-REPLACE FUSE AS MARKED.



"This symbol means fast operating fuse."
"Ce symbole représente un fusible à fusion rapide."



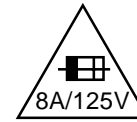
H.V./DC POWER SUPPLY CBA

Ref No.	Position
ICS	
IC551	B-2
IC1951	E-2
TRANSISTORS	
Q571	B-1
Q572	B-1
Q591	B-3
Q1930	D-2
Q1931	E-2
Q1932	D-2
Q1933	E-2
Q1951	D-3
Q1952	D-3
Q1953	E-3
Q1954	E-3
Q1955	E-3
Q1956	E-3
TEST POINTS	
J551	B-3
J552	B-3
J1015	B-3
J1027	C-1
CONNECTORS	
CL501A	B-3
CL502A	A-3
CL1951A	C-2
CN571	C-1
ADJUSTMENTS	
VR1951	D-2
VR1952	D-2

H.V. / DC Power Supply CBA Bottom View

CAUTION !

Fixed voltage power supply circuit is used in this unit.
 If Main Fuse (F1951) is blown, check to see that all components in the power supply circuit are not defective before you connect the DC plug to the DC power supply.
 Otherwise it may cause some components in the power supply circuit to fail.



8A/125V

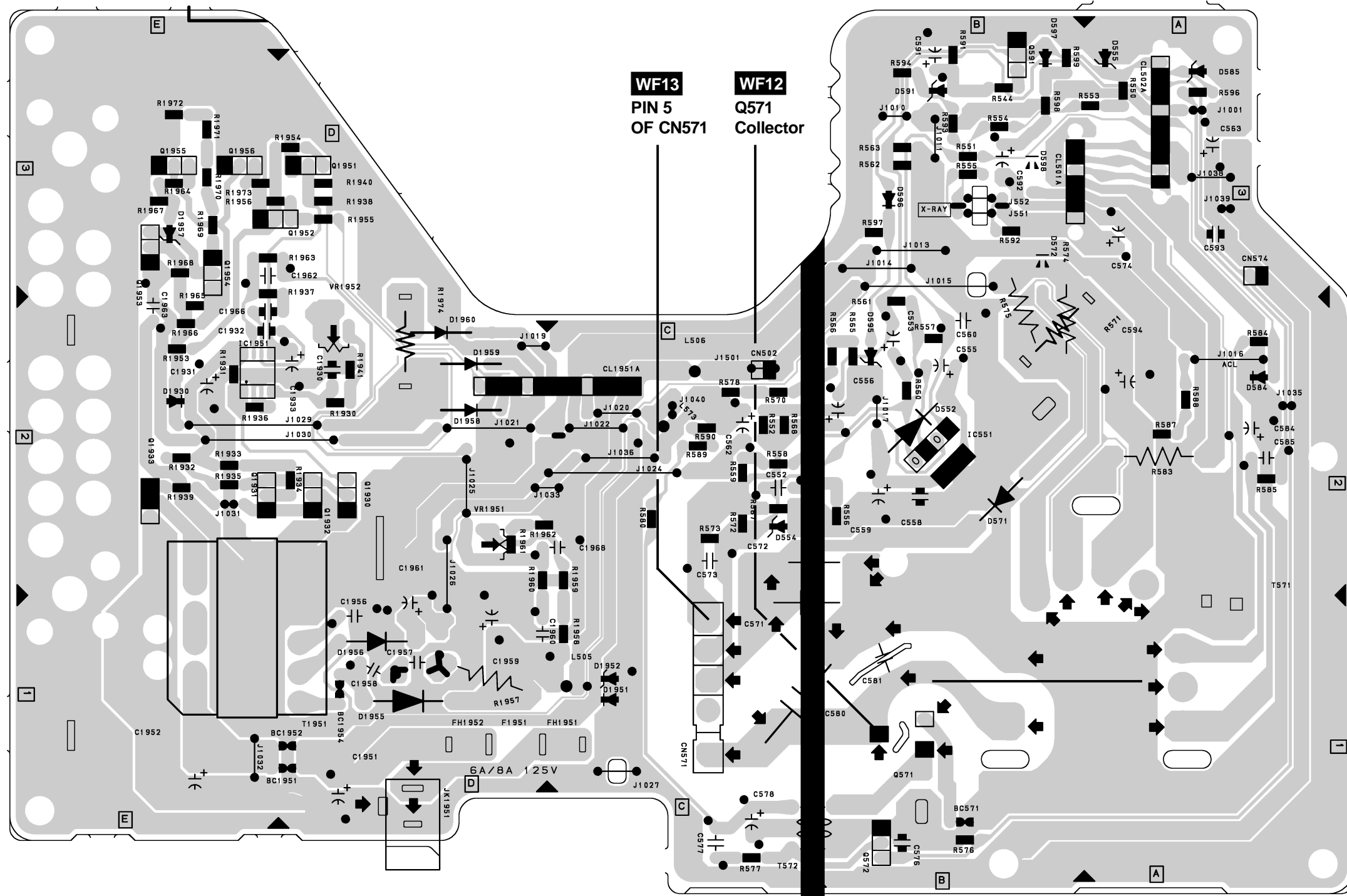
CAUTION

FOR CONTINUED PROTECTION AGAINST FIRE HAZARD,
 REPLACE ONLY WITH THE SAME TYPE FUSE.
 ATTENTION : POUR UNE PROTECTION CONTINUE LES RISQUES
 D'INCELE N'UTILISER QUE DES FUSIBLE DE MEMO TYPE.
RISK OF FIRE-REPLACE FUSE AS MARKED.



"This symbol means fast operating fuse."

"Ce symbole représente un fusible à fusion rapide."

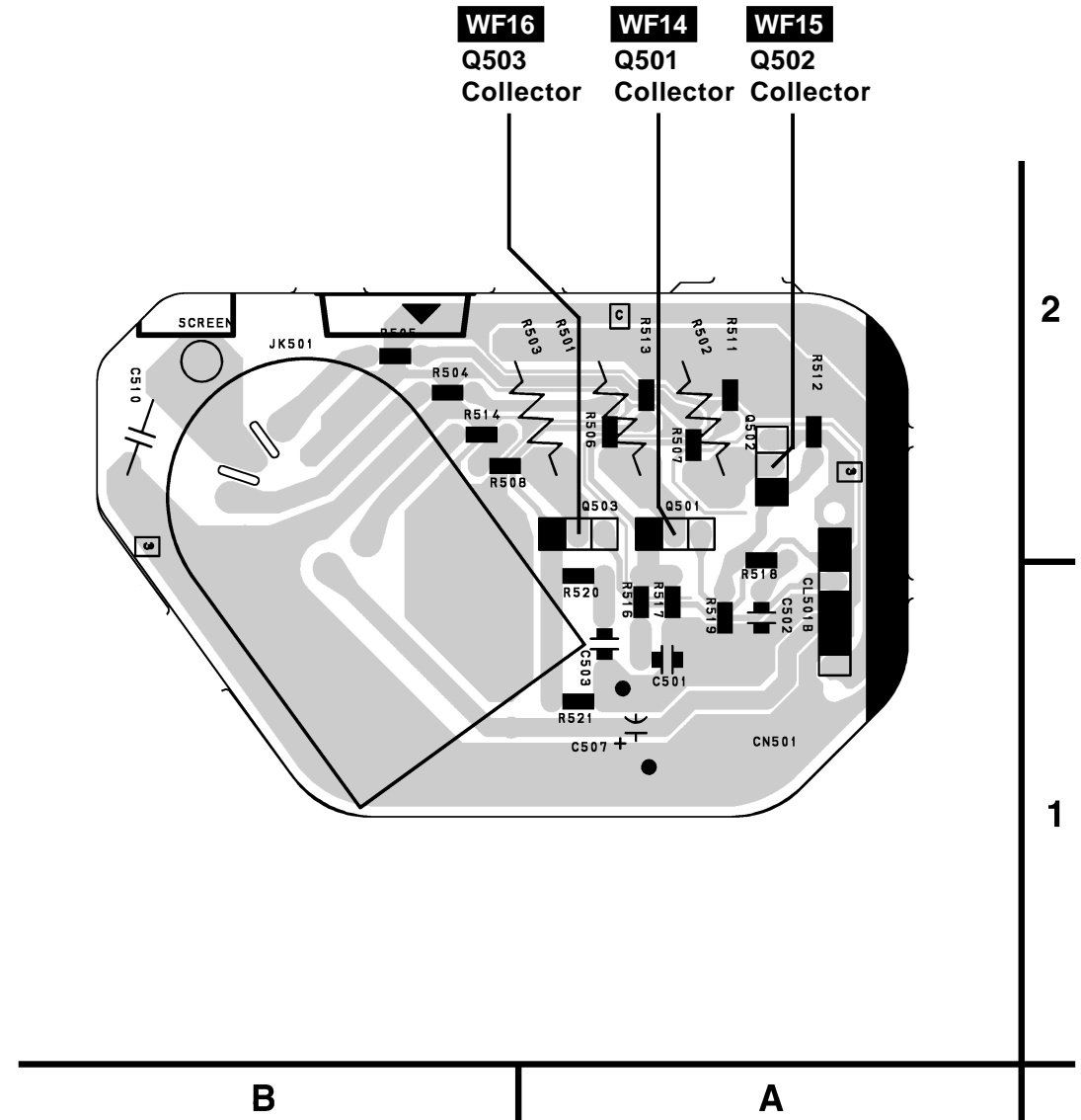
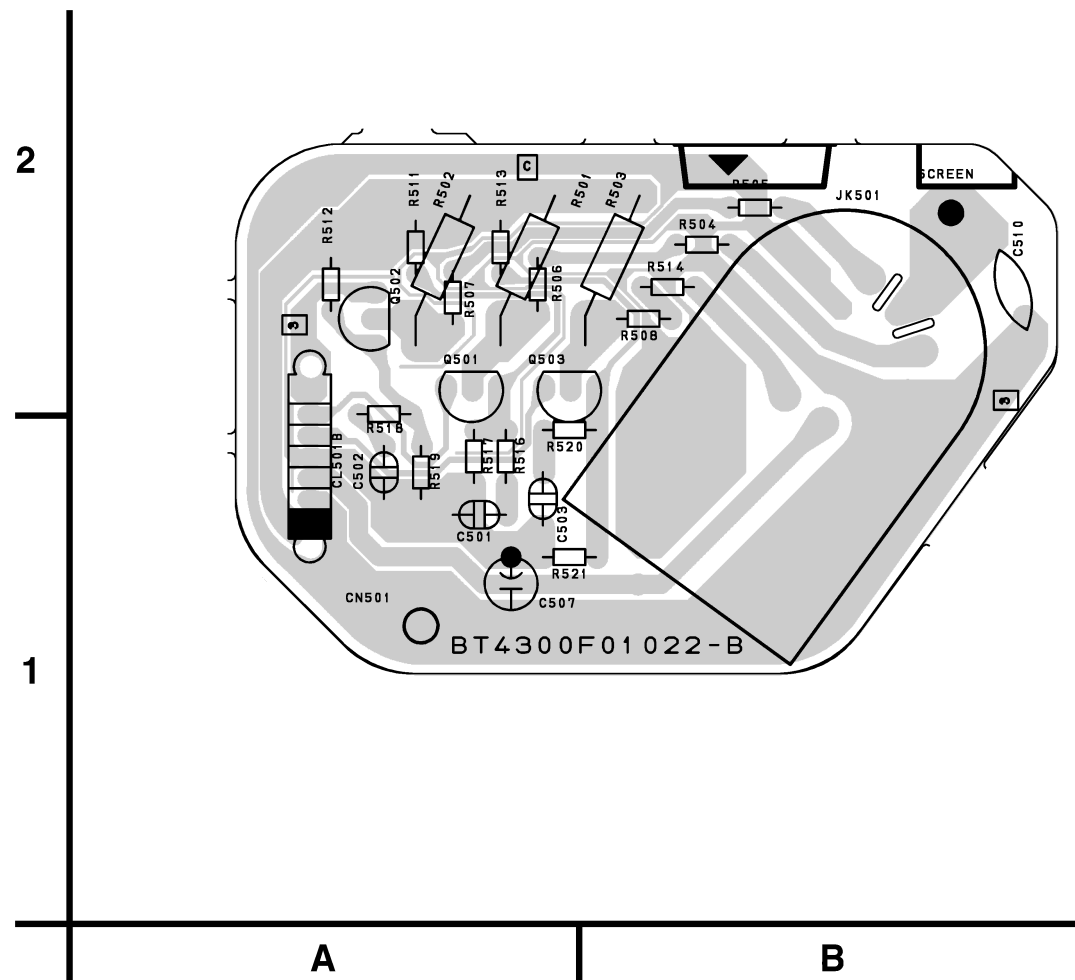


CRT CBA Top View

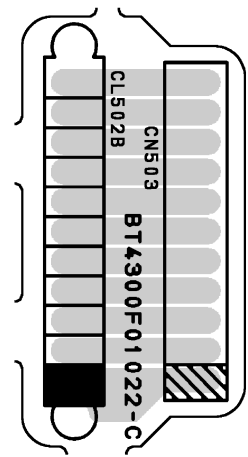
CRT CBA Bottom View

CRT CBA

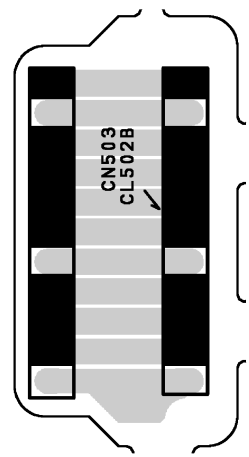
Ref No.	Position
TRANSISTORS	
Q501	A-2
Q502	A-2
Q503	A-2
CONNECTORS	
CL501B	A-1
CN501	A-1



**Junction-A CBA
Top View**

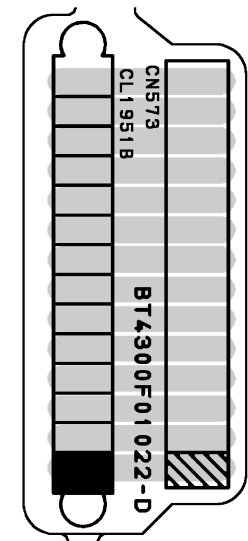


**Junction-A CBA
Bottom View**

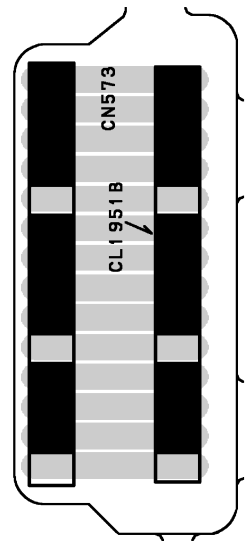


BT4300F01022-C

**Junction-B CBA
Top View**



**Junction-B CBA
Bottom View**



BT4300F01022-D

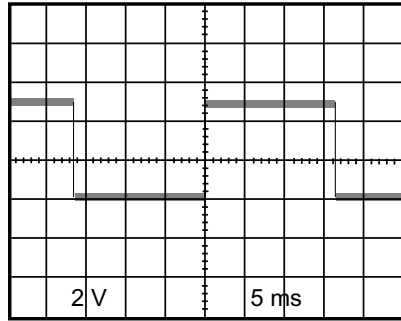
5
4
3
2
1

A B C D

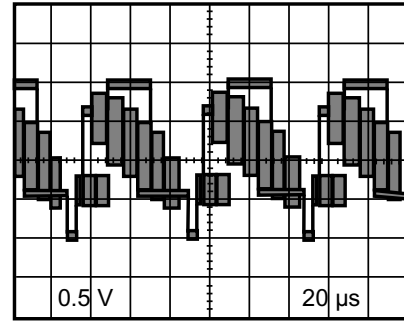
WAVEFORMS

WAVEFORM NOTES

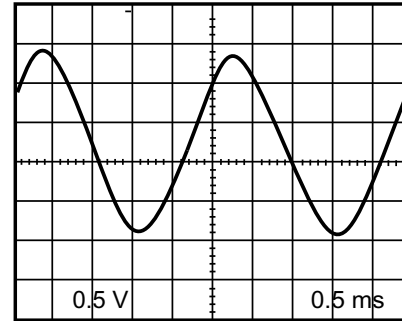
INPUT: NTSC COLOR BAR SIGNAL
 OTHER CONTROLS: CENTER POSITION
 VOLTAGES SHOWN ARE RANGE OF
 OSCILLOSCOPE SETTING



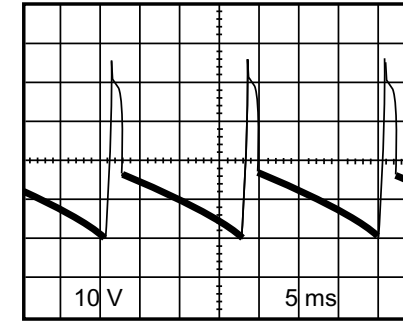
WF1 MAIN 2/4 SCHEMATIC DIAGRAM
TP402 RF-SW



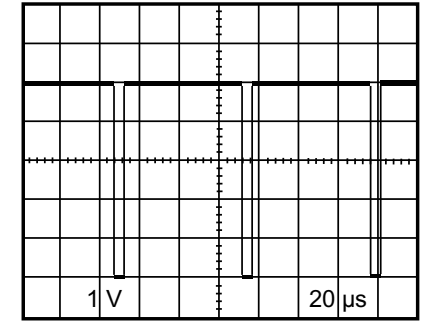
WF5 MAIN 2/4 SCHEMATIC DIAGRAM
TP301 V-OUT



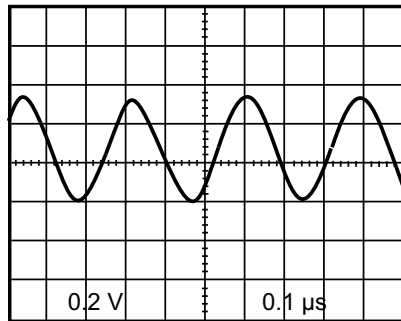
WF9 MAIN 2/4 SCHEMATIC DIAGRAM
IC401 PIN 7



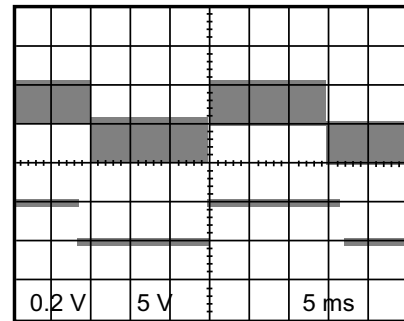
WF13 H.V./DC POWER SUPPLY
SCHEMATIC DIAGRAM
CN571 PIN 5



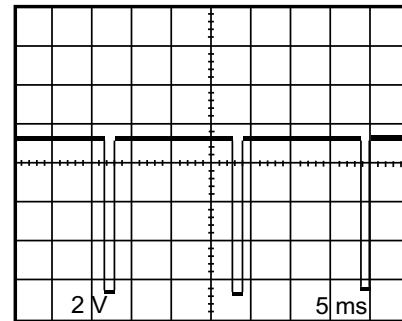
WF17 MAIN 1/4 SCHEMATIC DIAGRAM
IC201 PIN 58



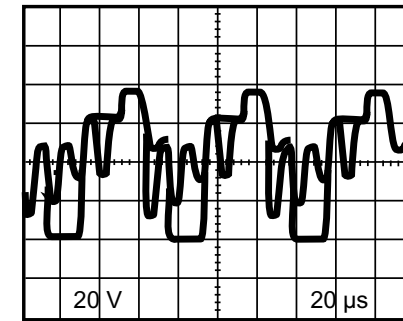
WF2 MAIN 2/4 SCHEMATIC DIAGRAM
IC401 PIN 61



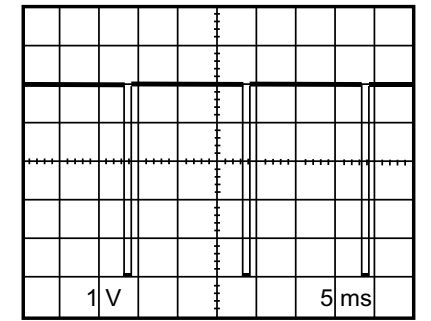
Upper: WF6 Lower: WF1
MAIN 2/4 SCHEMATIC DIAGRAM
TP403 ENV



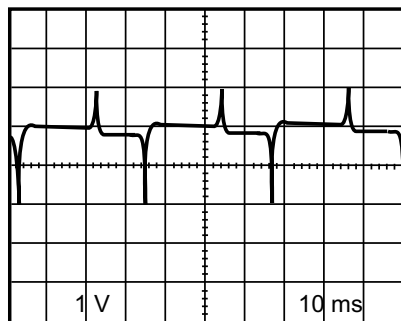
WF10 MAIN 3/4 SCHEMATIC DIAGRAM
IC301 PIN 20



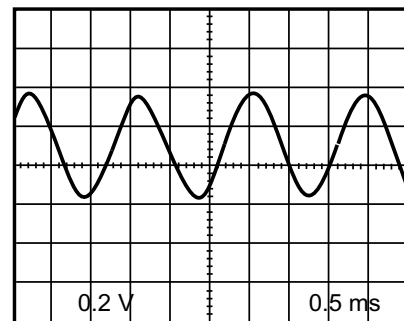
WF14 CRT SCHEMATIC DIAGRAM
Q501 COLLECTOR



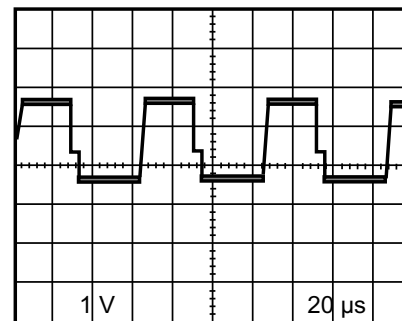
WF18 MAIN 1/4 SCHEMATIC DIAGRAM
IC201 PIN 59



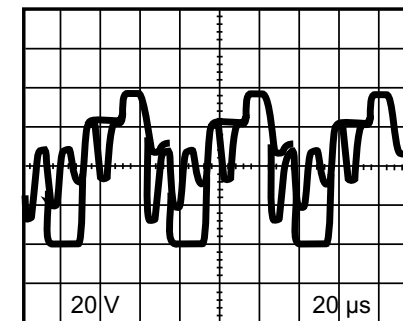
WF3 MAIN 1/4 SCHEMATIC DIAGRAM
TP201 CTL



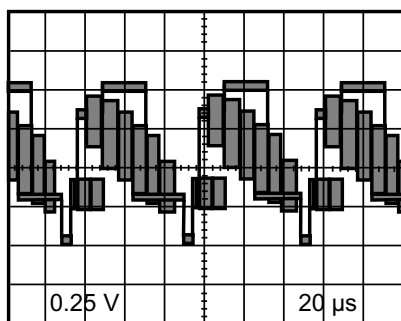
WF7 MAIN 3/4 SCHEMATIC DIAGRAM
IC301 PIN 48



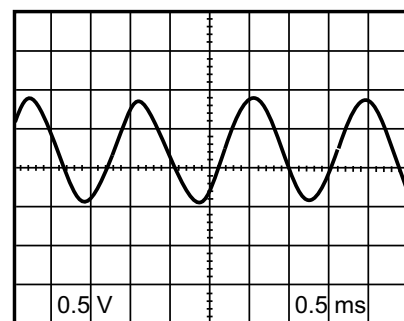
WF11 MAIN 3/4 SCHEMATIC DIAGRAM
IC301 PIN 11



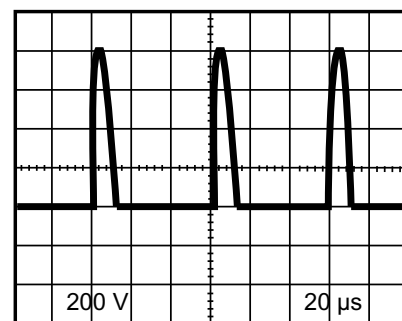
WF15 CRT SCHEMATIC DIAGRAM
Q502 COLLECTOR



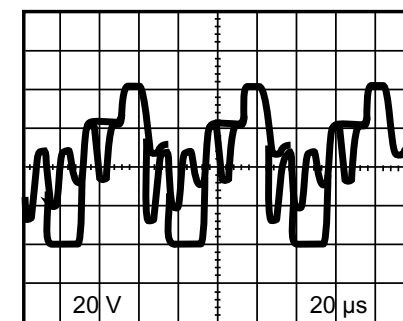
WF4 MAIN 2/4 SCHEMATIC DIAGRAM
IC401 PIN 42



WF8 MAIN 2/4 SCHEMATIC DIAGRAM
TP401 A-OUT

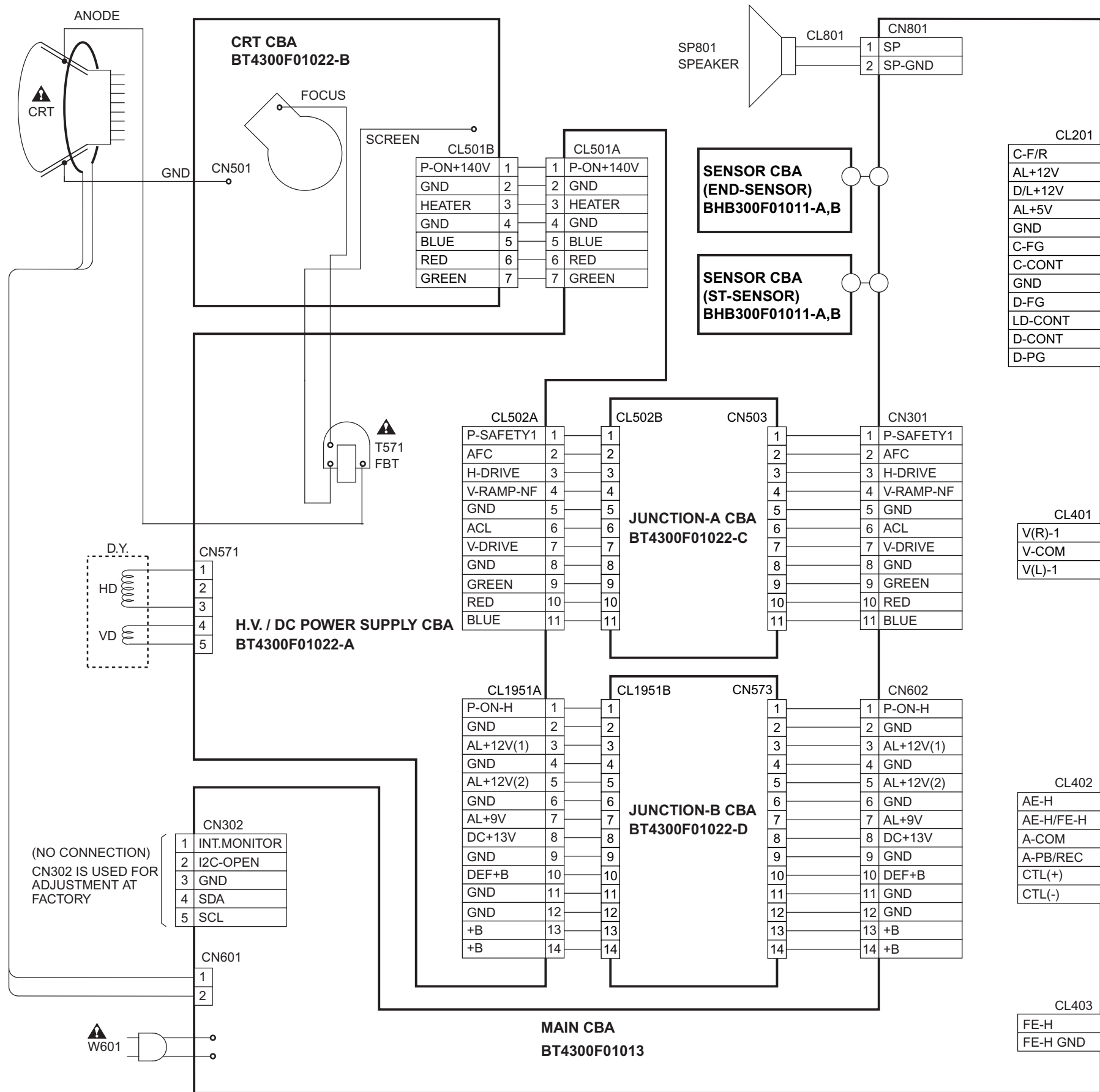


WF12 H.V./DC POWER SUPPLY
SCHEMATIC DIAGRAM
Q571 COLLECTOR

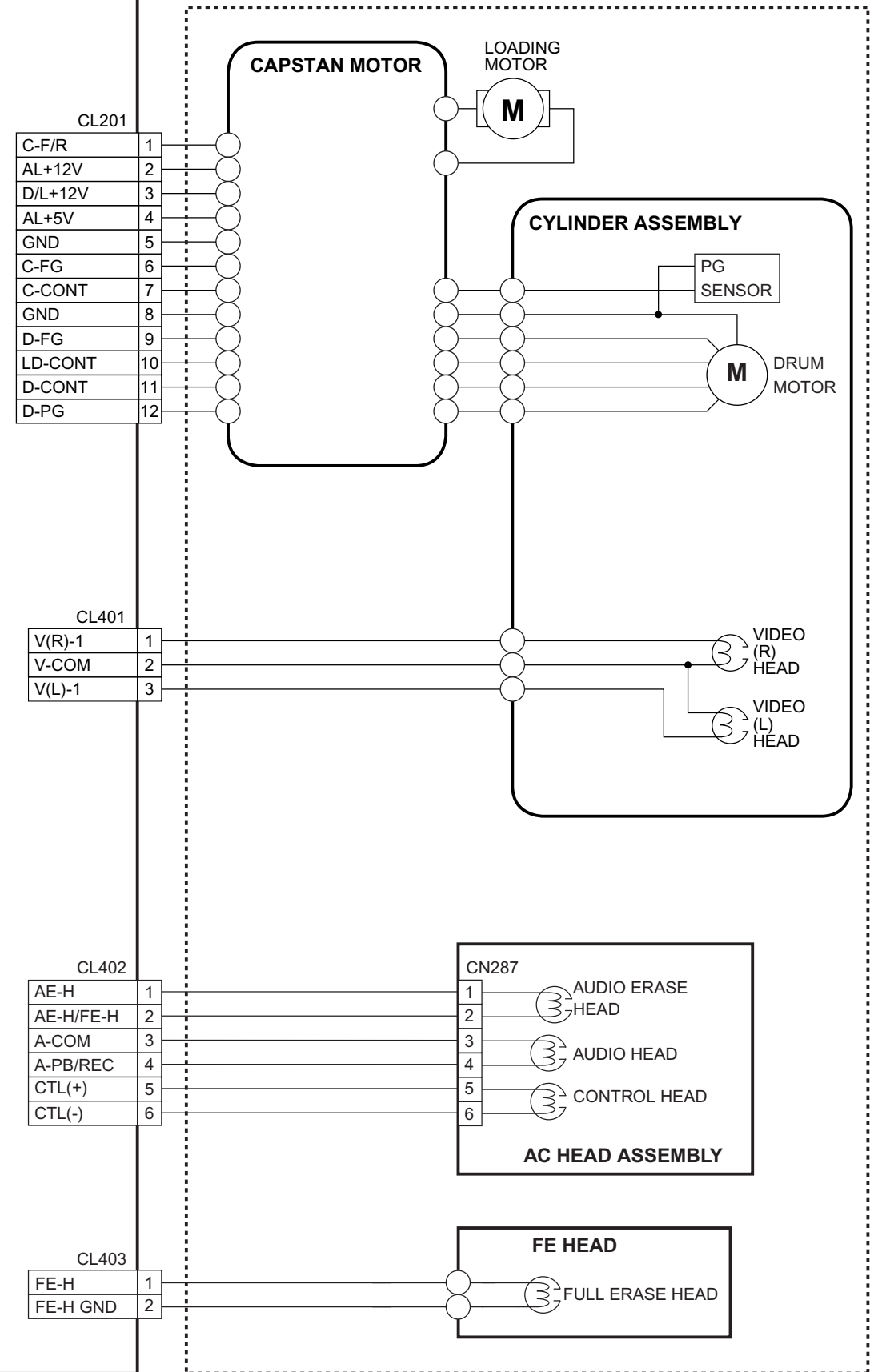


WF16 CRT SCHEMATIC DIAGRAM
Q503 COLLECTOR

WIRING DIAGRAM



WIRING DIAGRAM FOR SECTION 2 (DECK MECHANISM)



SYSTEM CONTROL TIMING CHARTS

Chart 1

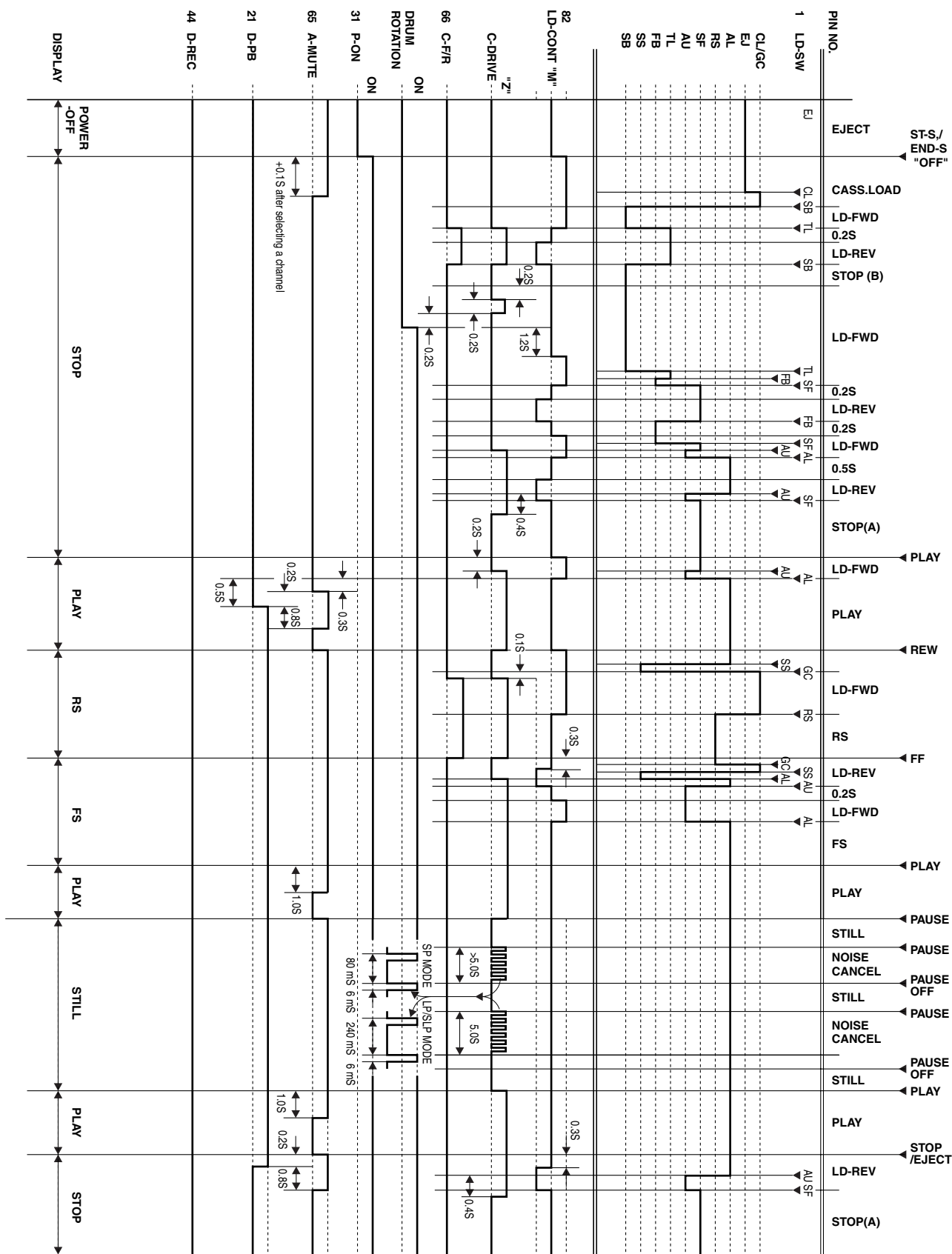
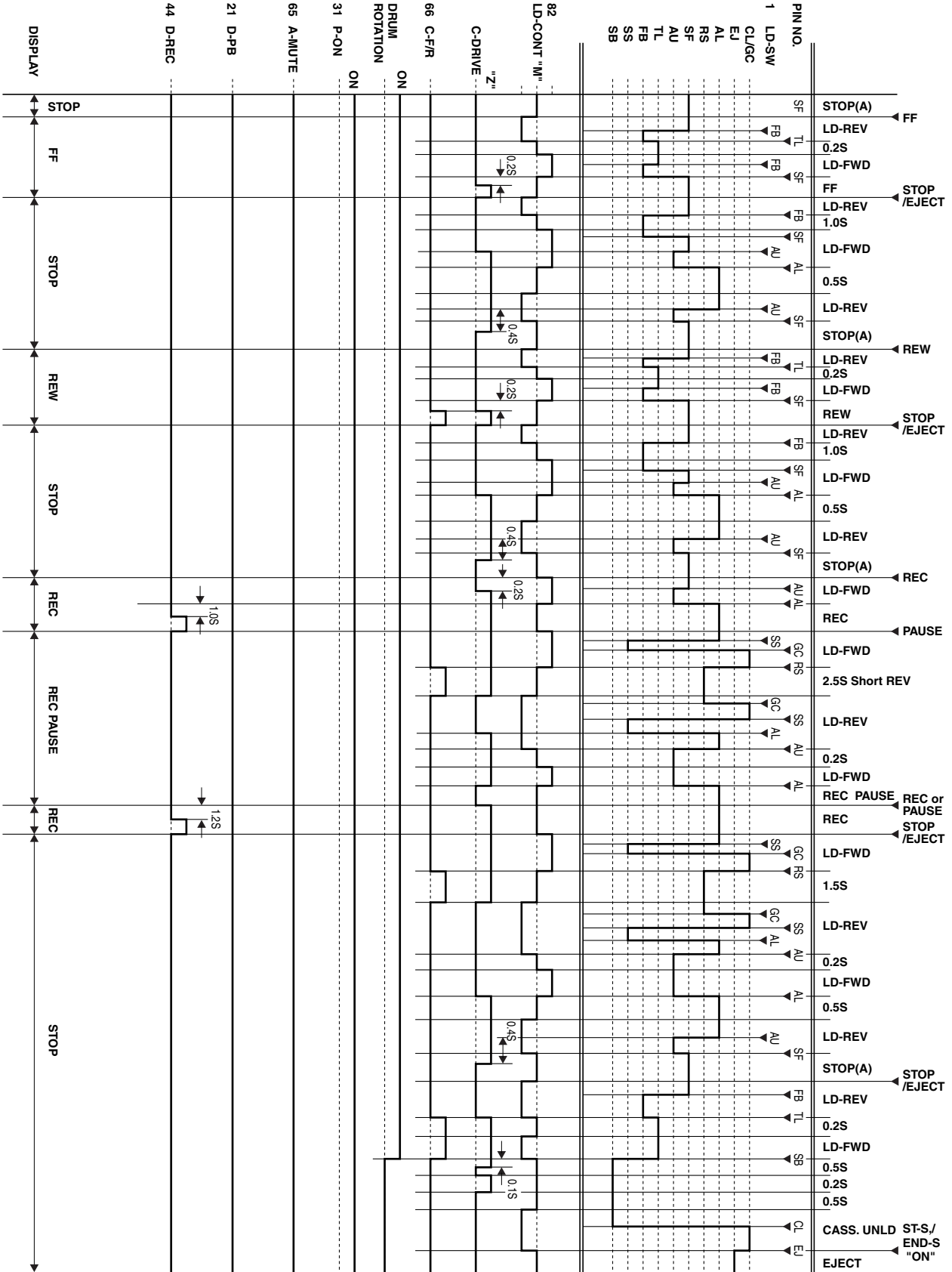


Chart 2

2. STOP(A) -> FF -> STOP(A) -> REW -> STOP(A) -> REC -> PAUSE -> PAUSE or REC -> STOP(A) -> EJECT



IC PIN FUNCTION DESCRIPTIONS

IC 201 (TV/VCR Micro Computer)

“H” ≥ 4.5V, “L” ≤ 1.0V

Pin No.	IN/OUT	Signal Name	Function
1	IN	LD-SW	Loading Switch Input
2	IN	P-SAFETY 1	Power Supply Failure Detection 1
3	IN	P-SAFETY 2	Power Supply Failure Detection 2
4	IN	P-SAFETY 3	Power Supply Failure Detection 3
5	IN	KEY0	Key 0 Input
6	IN	KEY1	Key 1 Input
7	IN	END-SENS	End-Sensor
8	-	NU	Not Used
9	IN	ST-SENS	Start-Sensor
10	IN	V-ENV	Video Envelope Input
11	-	NU	Not Used
12	OUT	SP-MUTE	Speaker Mute Output
13	IN/OUT	D-V SYNC	Artificial V-Sync Output
14	IN	REMOTE	Remote Signal Input
15	OUT	ROTA	Color Phase Rotary Changeover Signal
16	-	NU	Not Used
17	-	NU	Not Used
18	OUT	RF-SW	Video Head Switching Pulse
19	-	NU	Not Used
20	OUT	EXT-L	External Input or Playback = Output
21	OUT	D-PB-H	Playback Output
22	OUT	REC-LED	Recording LED Control Signal
23	OUT	REC-LED	Recording LED Control Signal
24	-	NU	Not Used
25	-	NU	Not Used
26	-	NU	Not Used
27	IN/OUT	REC/EE/PB	YCA IC Mode Output
28	IN/OUT	TAPE-SPEED	Tape Speed Control Output

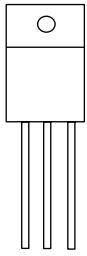
Pin No.	IN/OUT	Signal Name	Function
29	OUT	EXT-H/INSEL	External Input or Playback Signal Output/Input Selector Control Signal
30	IN/OUT	RENTAL	Rental Position Control Signal
31	OUT	P-ON-H	Power On Signal at High
32	OUT	SPL-PLAY	Special Playback Control Signal
33	IN	REC-SAFETY	Record Protection Tab Detection
34	IN	RESET	System Reset Signal (Reset="L")
35	IN	XC-IN	Sub Clock 32 kHz
36	OUT	XC-OUT	Sub Clock 32 kHz
37	-	TIMER+5V	Vcc
38	IN	X-IN	Main Clock Input
39	OUT	X-OUT	Main Clock Output
40	-	GND	GND
41	OUT	SPOT-KILL	Counter-measure for Spot
42	-	NU	Not Used
43	IN	CLKSEL	Clock Select (GND)
44	OUT	D-REC-H	Delayed Record Signal
45	IN	I2C-OPEN	White Balance Adjust Mode Judgment
46	-	GND	GND
47	-	NU	Not Used
48	-	NU	Not Used
49	-	GND	OSD GND
50	-	NU	Not Used
51	-	NU	Not Used
52	-	NU	Not Used
53	-	P-ON+5V	OSD Vcc
54	-	HLF	HLF
55	IN	V-HOLD	VHOLD
56	IN	CV-IN	Video Signal Input
57	-	GND	GND
58	IN	H-SYNC	H-SYNC Input
59	IN	V-SYNC	V-SYNC Input
60	OUT	OSD-BLK	Output for Picture Cut off
61	-	NU	Not Used

Pin No.	IN/OUT	Signal Name	Function
62	OUT	OSD-B	Blue Output
63	OUT	OSD-G	Green Output
64	OUT	OSD-R	Red Output
65	OUT	A-MUTE	Audio Mute Output
66	OUT	C-F/R	Capstan Motor FWD/REV Control Signal
67	-	NU	Not Used
68	-	NU	Not Used
69	-	NU	Not Used
70	-	NU	Not Used
71	OUT	SCL	E2PROM/CHROMA IC Tuner Communication Clock
72	IN/OUT	SDA	E2PROM/CHROMA IC Tuner Communication Data
73	-	NU	Not Used
74	IN	C-SYNC	C-Sync Input
75	-	NU	Not Used
76	OUT	C-CONT	Capstan Motor Control Signal
77	OUT	D-CONT	Drum Motor Control Signal
78	OUT	ACL-CONT	ACL Control Signal
79	IN	A-CLK	Auto Clock
80	IN	T-REEL	Take Up Reel Rotation Signal
81	-	NU	Not Used
82	OUT	LD-CONT	Loading Motor Control Signal
83	-	NU	Not Used
84	OUT	P-DOWN	Power Voltage Down Detector Signal
85	-	NU	Not Used
86	-	NU	Not Used
87	IN	C-FG	Capstan Motor Rotation Detection Pulse
88	-	GND	GND (AMP)
89	IN	D-FG	Drum Motor Rotation Detection Pulse
90	IN	D-PG	Drum Motor Pulse Generator
91	-	NU	Not Used
92	OUT	AMP VREF OUT	Standard Voltage Output

Pin No.	IN/OUT	Signal Name	Function
93	IN	AMP VREF IN	Standard Voltage Input
94	IN/OUT	CTL (-)	CTL (-)
95	IN/OUT	CTL (+)	CTL (+)
96	-	AMPC	AMPC
97	OUT	CTL AMP OUT	Control Amp Output
98	-	P-ON+5V	Power Supply for AMP
99	-	AL+5V	A/D, D/A Standard Voltage
100	IN	X-RAY	X-Ray Protection

LEAD IDENTIFICATIONS

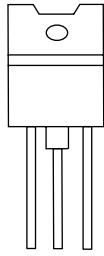
2SK2662



S D G

S: Source
D: Drain
G: Gate

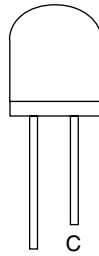
2SD2627LS-FEC-YB11
TT2140LS-YB11



B C E

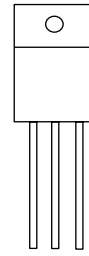
E: Emitter
C: Collector
B: Base

PT204-6B-12
MID-32A22



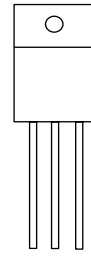
E C

FS30KMJ-06
2SK2232



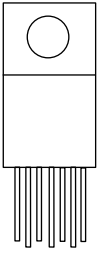
G D S

2SA1931
2SA1469(R)

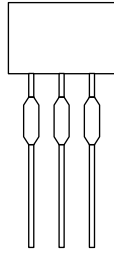


B C E

LA78040A
AN5522

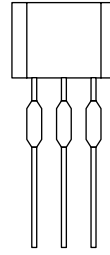


IN G OUT



E C B

KRA103M
2SC1815-GR(TPE2)
2SC3331(T,U)
2SC2120-(O,Y)(TPE2)
KTC3203(Y)
KTA1266(GR)

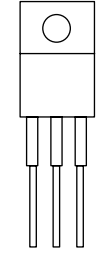


E C B

2SC1627Y-TPE2
2SA950(Y,O)
KTA1271(Y)
2SC2482 TPE6
2SC3468(E,D)-AE
KTC3207
2SA1175(F)
KTA1267(GR)
KTC3198(GR)

BN1F4M-T
KTC3199(GR)
2SC2785(J,H,F)
2SC2271(D)-AEMP
2SC2271(E)-AE

KIA7805API
KA7805A
AN7805F



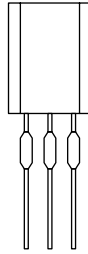
IN G OUT

LTV-817(B,C)-F
PC817X6



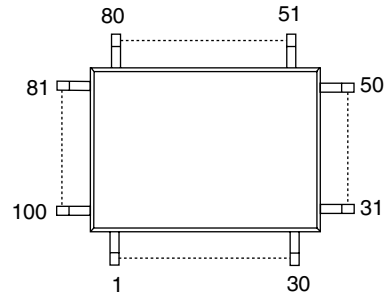
A C
K E

2SD400(F)

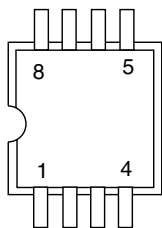


E C B

M37760M8H8C8GP
LA71091M

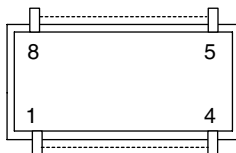


BR24C02F-W
BR24C02F
AT24C02N-10SC
M24C02-MN6
CAT24WC02JI



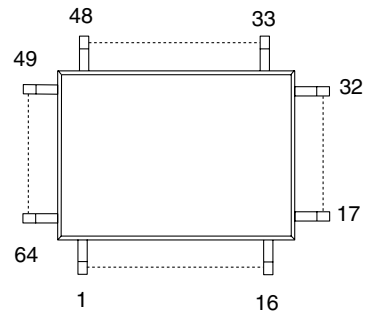
8 5
1 4

LA4224
M62212FP



8 5
1 4

M61210FP-R60*
M61210FP-R61
M61210FP-R62*



48 33
49 32
64 17
1 16

DECK MECHANISM SECTION

9" COLOR TV/VCR COMBINATION

6309CCC

Sec. 2: Deck Mechanism Section

- Standard Maintenance
- Alignment for Mechanism
- Disassembly/Assembly of Mechanism
- Alignment Procedures of Mechanism

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STANDARD MAINTENANCE

Service Schedule of Components

H: Hours ○: Check ●: Change

Deck		Periodic Service Schedule			
Ref.No.	Part Name	1,000 H	2,000 H	3,000 H	4,000 H
B2	Cylinder Assembly	○	●	○	●
B3	Loading Motor Assembly			●	
B8	Pulley Assembly		●		●
B27	Tension Lever Sub Assembly		●		●
B31	AC Head Assembly			●	
B573,B574	Reel S, Reel T			●	
B37	Capstan Motor		●		●
B52	Cap Belt		●		●
*B73	FE Head			●	
B133	Idler Assembly		●		●
B410	Pinch Arm (A) Assembly		●		●
B414	M Brake S Assembly		●		●
B416	M Brake T Assembly		●		●
B525	LDG Belt		●		●

Notes:

- Clean all parts for the tape transport (Upper Drum with Video Head / Pinch Roller / Audio Control Head / Full Erase Head) using 90% Isopropyl Alcohol.
 - After cleaning the parts, do all DECK ADJUSTMENTS.
 - For the reference numbers listed above, refer to Deck Exploded Views.
- * B73 ----- Recording Model only

Cleaning

Cleaning of Video Head

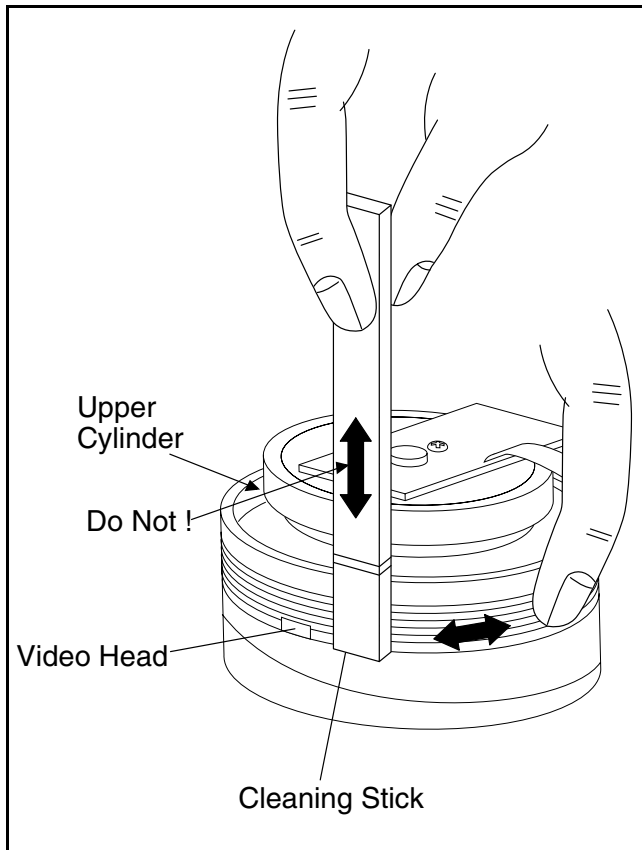
Clean the head with a head cleaning stick or chamois cloth.

Procedure

1. Remove the top cabinet.
2. Put on a glove (thin type) to avoid touching the upper and lower drum with your bare hand.
3. Put a few drops of 90% Isopropyl alcohol on the head cleaning stick or on the chamois cloth and, by slightly pressing it against the head tip, turn the upper drum to the right and to the left.

Notes:

1. The video head surface is made of very hard material, but since it is very thin, avoid cleaning it vertically.
2. Wait for the cleaned part to dry thoroughly before operating the unit.
3. Do not reuse a stained head cleaning stick or a stained chamois cloth.



Cleaning of Audio Control Head

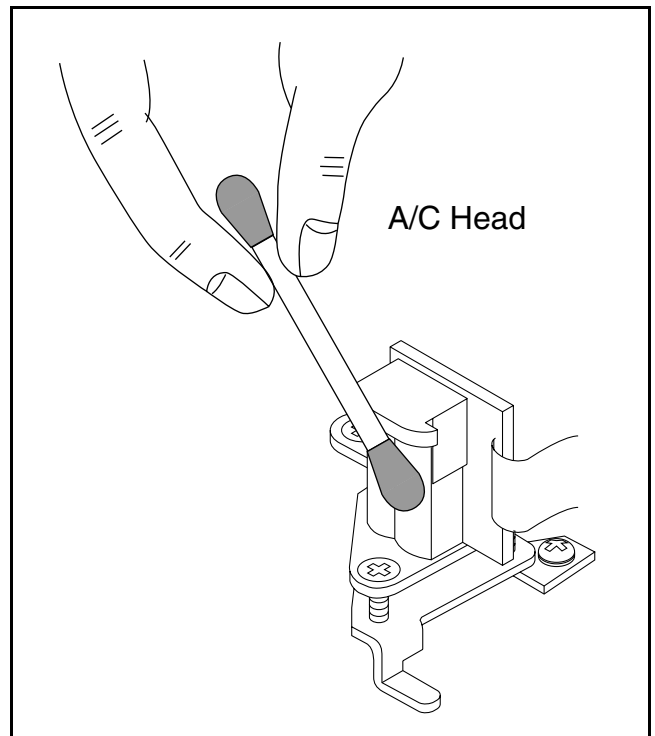
Clean the head with a cotton swab.

Procedure

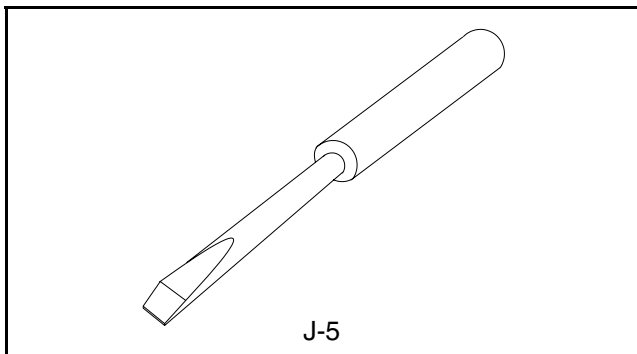
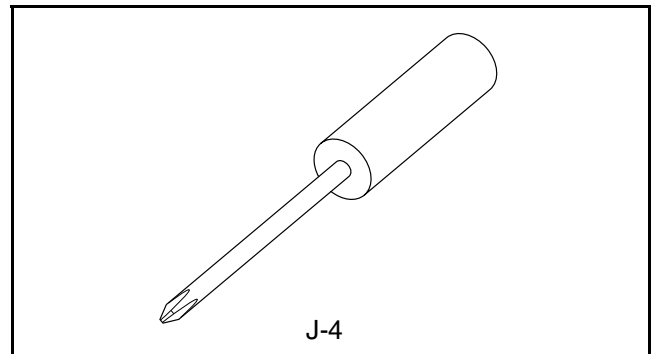
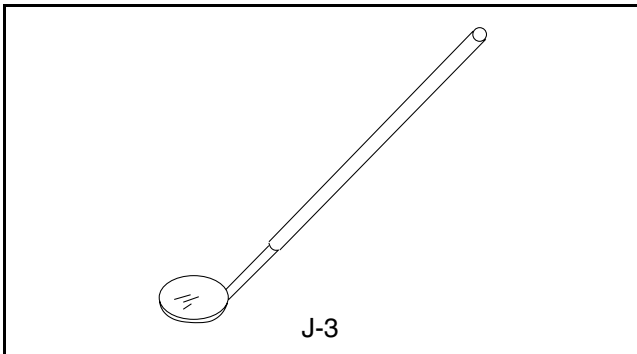
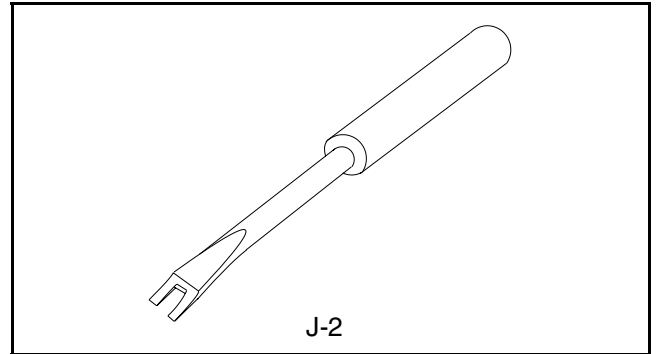
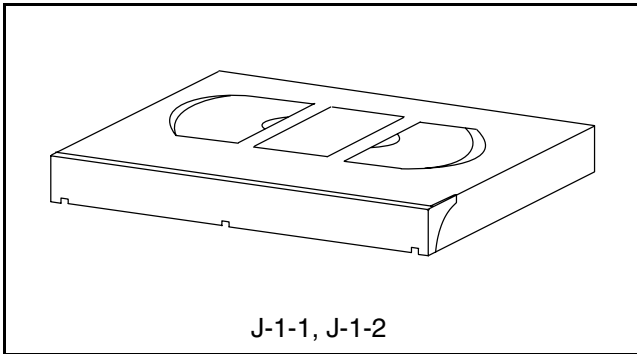
1. Remove the top cabinet.
2. Dip the cotton swab in 90% isopropyl alcohol and clean the audio control head. Be careful not to damage the upper drum and other tape running parts.

Notes:

1. Avoid cleaning the audio control head vertically.
2. Wait for the cleaned part to dry thoroughly before operating the unit or damage may occur.



SERVICE FIXTURE AND TOOLS



Ref. No.	Name	Part No.	Adjustment
J-1-1	Alignment Tape	FL8A	Head Adjustment of Audio Control Head
J-1-2	Alignment Tape	FL8N (2Head only) FL8NW (4Head only)	Azimuth and X Value Adjustment of Audio Control Head / Adjustment of Envelope Waveform
J-2	Guide Roller Adj.Screwdriver	Available Locally	Guide Roller
J-3	Mirror	Available Locally	Tape Transportation Check
J-4	Azimuth Adj.Screwdriver +	Available Locally	A/C Head Height
J-5	X Value Adj.Screwdriver -	Available Locally	X Value

MECHANICAL ALIGNMENT PROCEDURES

Explanation of alignment for the tape to correctly run starts on the next page. Refer to the information below on this page if a tape gets stuck, for example, in the mechanism due to some electrical trouble of the unit.

Service Information

A. Method for Manual Tape Loading/Unloading

To load a cassette tape manually:

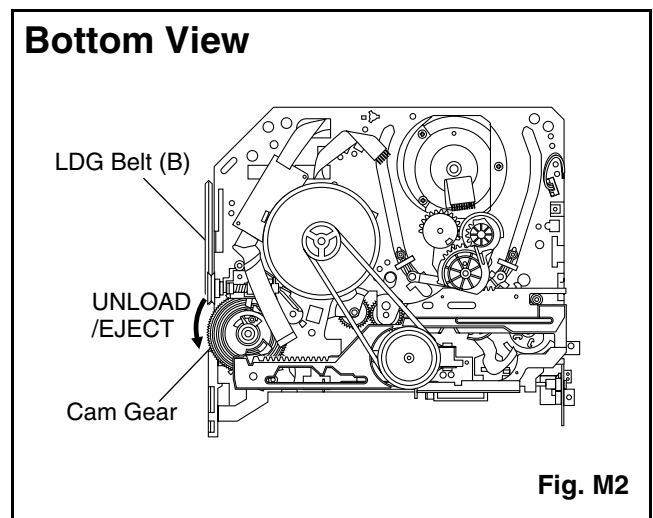
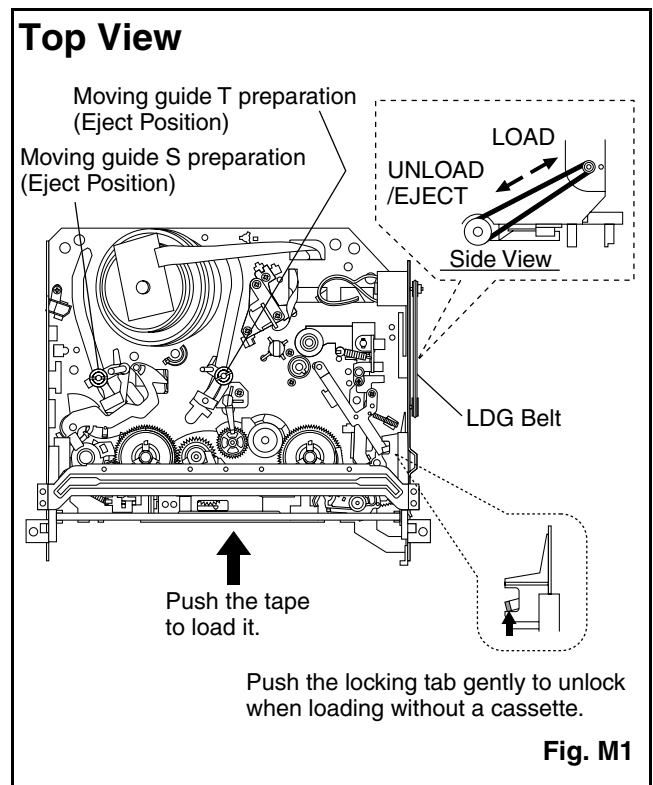
1. Disconnect the AC plug.
2. Remove the Top Case and Front Assembly.
3. Insert a cassette tape. Though the tape will not be automatically loaded, make sure that the cassette tape is all the way in at the inlet of the Cassette Holder. To confirm this, lightly push the cassette tape further in and see if the tape comes back out, by a spring motion, just as much as you have pushed in.
4. Turn the LDG Belt in the appropriate direction shown in Fig. M1 for a minute or two to complete this task.

To unload a cassette tape manually:

1. Disconnect the AC plug.
2. Remove the Top Case and Front Assembly.
3. Make sure that the Moving guide preparations are in the Eject Position.
4. Turn the LDG Belt in the appropriate direction shown in Fig. M1 until the Moving guide preparations come to the Eject Position. Stop turning when the preparations begin clicking or can not be moved further. However, the tape will be left wound around the cylinder.
5. Turn the LDG Belt in the appropriate direction continuously, and the cassette tape will be ejected. Allow a minute or two to complete this task.

B. Method to place the Cassette Holder in the tape-loaded position without a cassette tape

1. Disconnect the AC Plug.
2. Remove the Top Case and Front Assembly.
3. Turn the LDG Belt in the appropriate direction shown in Fig. M1. Release the locking tabs shown in Fig. M1 and continue turning the LDG Belt until the Cassette Holder comes to the tape-loaded position. Allow a minute or two to complete this task.



1. Tape Interchangeability Alignment

Note:

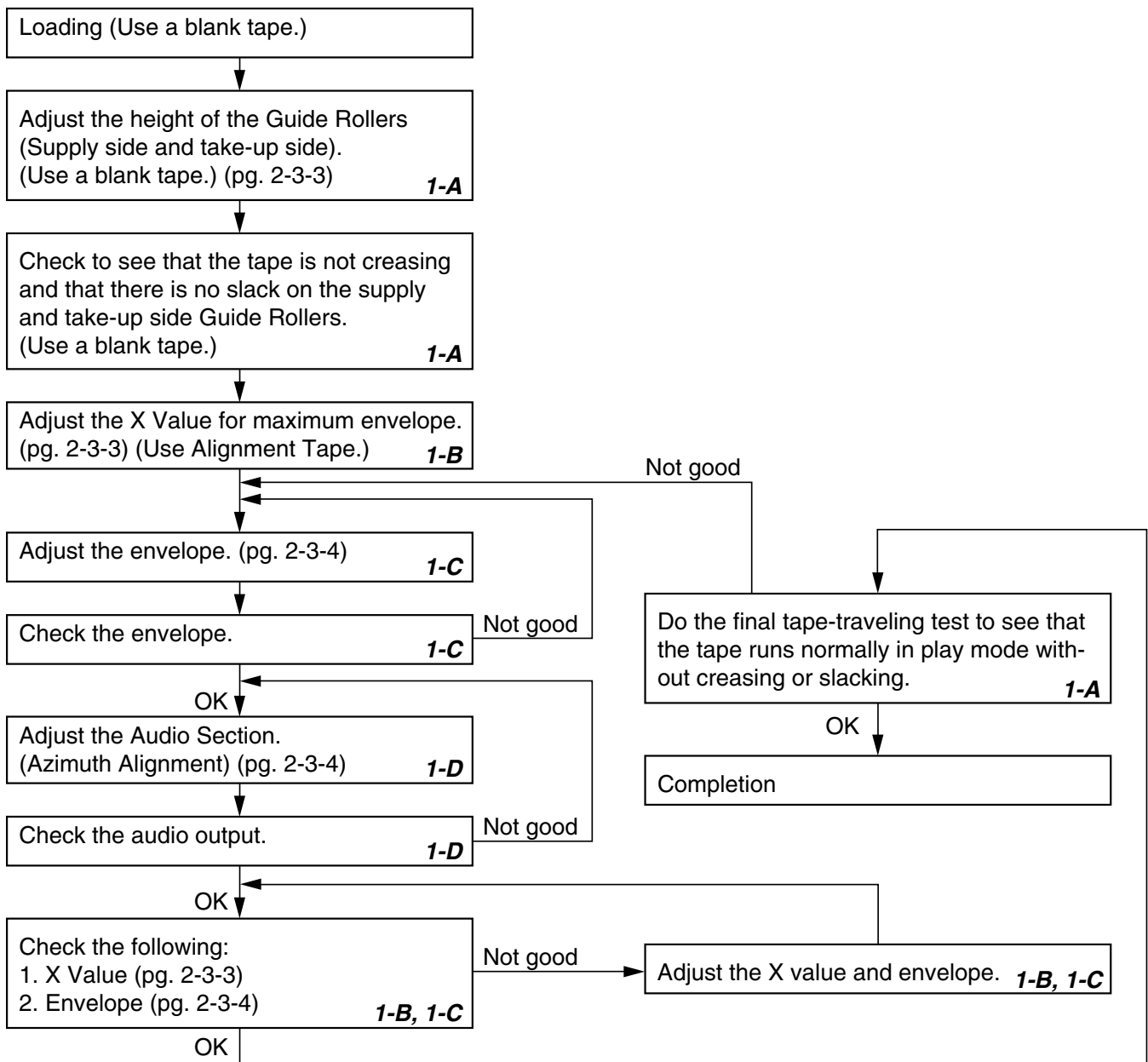
To do these alignment procedures, make sure that the Tracking Control Circuit is set to the center position every time a tape is loaded or unloaded. (Refer to page 2-3-4, procedure 1-C, step 2.)

Equipment required:

- Dual Trace Oscilloscope
- VHS Alignment Tape (FL8N)
- Guide Roller Adj. Screwdriver
- X-Value Adj. Screwdriver

Note: Before starting this Mechanical Alignment, do all Electrical Adjustment procedures.

Flowchart of Alignment for tape traveling



1-A. Preliminary/Final Checking and Alignment of Tape Path

Purpose:

To make sure that the tape path is well stabilized.

Symptom of Misalignment:

If the tape path is unstable, the tape will be damaged.

Note: Do not use an Alignment Tape for this procedure. If the unit is not correctly aligned, the tape may be damaged.

1. Playback a blank cassette tape and check to see that the tape runs without creasing at Guide Rollers [2] and [3], and at points A and B on the lead surface. (Refer to Fig M3 and M4.)
2. If creasing is apparent, align the height of the guide rollers by turning the top of Guide Rollers [2] and [3] with a Guide Roller Adj. Screwdriver. (Refer to Fig. M3 and M5.)

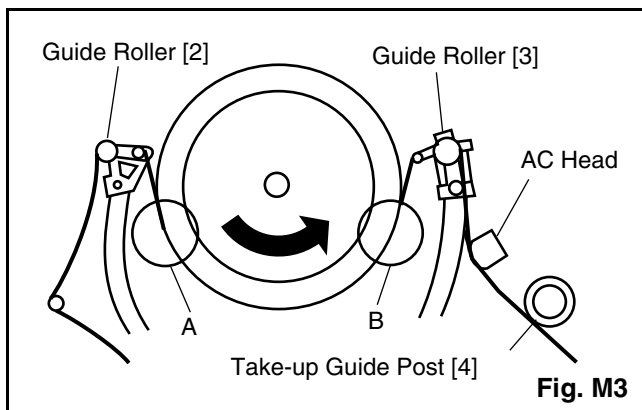


Fig. M3

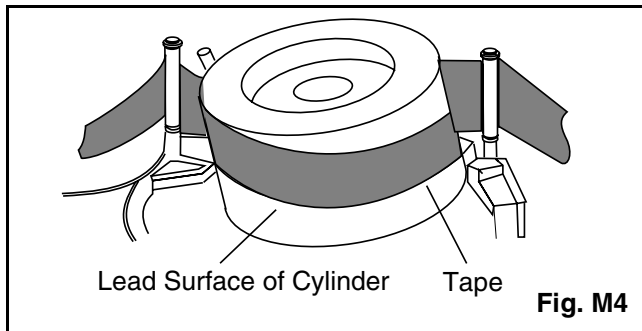


Fig. M4

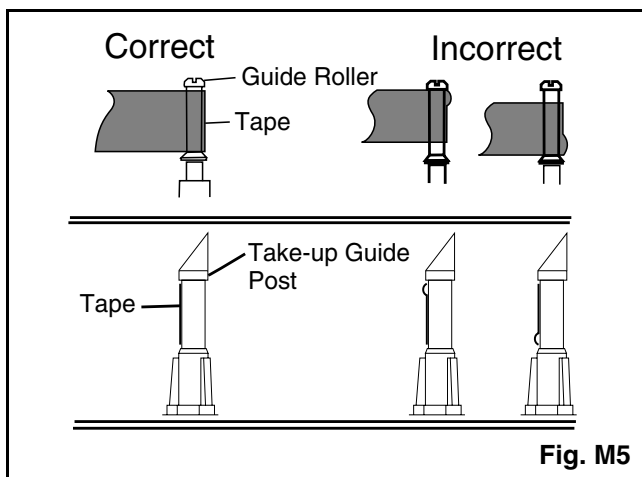


Fig. M5

3. Check to see that the tape runs without creasing at Take-up Guide Post [4] or without snaking between Guide Roller [3] and AC Head. (Fig. M3 and M5)
4. If creasing or snaking is apparent, adjust the Tilt Adj. Screw of the AC Head. (Fig. M6)

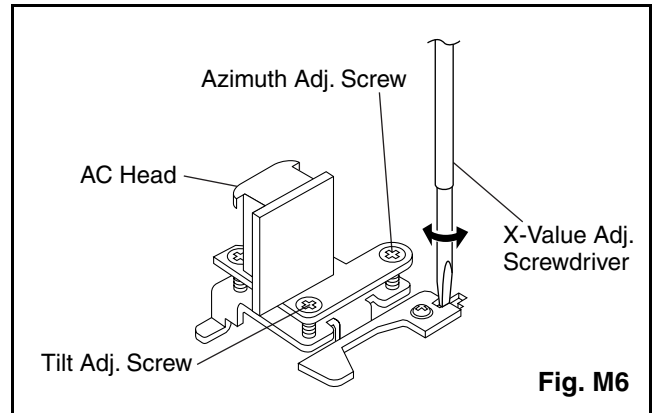


Fig. M6

1-B. X Value Alignment

Purpose:

To align the Horizontal Position of the Audio/Control/Erase Head.

Symptom of Misalignment:

If the Horizontal Position of the Audio/Control/Erase Head is not properly aligned, maximum envelope cannot be obtained at the Neutral position of the Tracking Control Circuit.

1. Connect the oscilloscope to TP403 (ENV) and TP201 (CTL) on the Main CBA. Use TP402 (RF-SW) as a trigger.
2. Playback the Gray Scale of the Alignment Tape (FL8N) and confirm that the PB FM signal is present.
3. Set the Tracking Control Circuit to the center position by pressing CH UP button then "PLAY" button on the unit. (Refer to note on bottom of page 2-3-4.)
4. Use the X-Value Adj. Screwdriver so that the PB FM signal at TP403 (ENV) is maximum. (Fig. M6)
5. Press CH UP button on the unit until the CTL waveform has shifted by approx. +2msec. Make sure that the envelope is simply attenuated (shrinks in height) during this process so that you will know the envelope has been at its peak.

6. Press CH DOWN button on the unit until the CTL waveform has shifted from its original position (not the position achieved in step 5, but the position of CTL waveform in step 4) by approximately -2msec. Make sure that the envelope is simply attenuated (shrinks in height) once CTL waveform passes its original position and is further brought in the minus direction.
7. Set the Tracking Control Circuit to the center position by pressing CH UP button and then "PLAY" button on the unit.

1-C. Checking/Adjustment of Envelope Waveform

Purpose:

To achieve a satisfactory picture and precise tracking.

Symptom of Misalignment:

If the envelope output is poor, noise will appear in the picture. The tracking will then lose precision and the playback picture will be distorted by any slight variation of the Tracking Control Circuit.

1. Connect the oscilloscope to TP403 (ENV) on the Main CBA. Use TP402 (RF-SW) as a trigger.
2. Playback the Gray Scale on the Alignment Tape (FL8N). Set the Tracking Control Circuit to the center position by pressing CH UP button and then "PLAY" button on the unit. Adjust the height of Guide Rollers [2] and [3] (Fig. M3, Page 2-3-3) watching the oscilloscope display so that the envelope becomes as flat as possible. To do this adjustment, turn the top of the Guide Roller with the Guide Roller Adj. Screwdriver.
3. If the envelope is as shown in Fig. M7, adjust the height of Guide Roller [2] (Refer to Fig. M3) so that the waveform looks like the one shown in Fig. M9.
4. If the envelope is as shown in Fig. M8, adjust the height of Guide Roller [3] (Refer to Fig. M3) so that the waveform looks like the one shown in Fig. M9.
5. When Guide Rollers [2] and [3] (Refer to Fig.M3) are aligned properly, there is no envelope drop either at the beginning or end of track as shown in Fig. M9.

Note: Upon completion of the adjustment of Guide Rollers [2] and [3] (Refer to Fig. M3), check the X Value by pushing the CH UP or DOWN buttons alternately, to check the symmetry of the envelope. Check the number of pushes to ensure center position. The number of pushes CH UP button to achieve 1/2 level of envelope should match the number of pushes CH DOWN button from center. If required, redo the "X Value Alignment."

1-D. Azimuth Alignment of Audio/Control/Erase Head

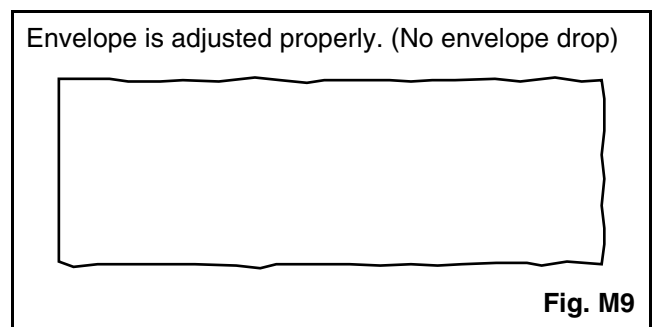
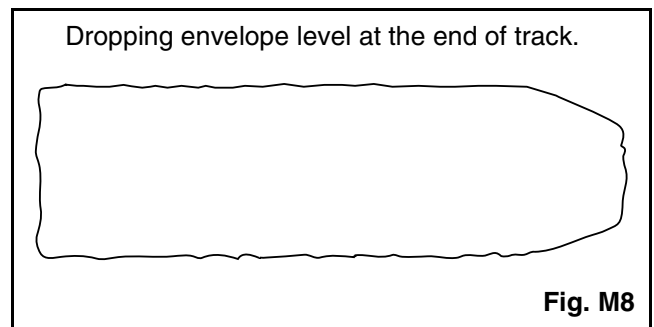
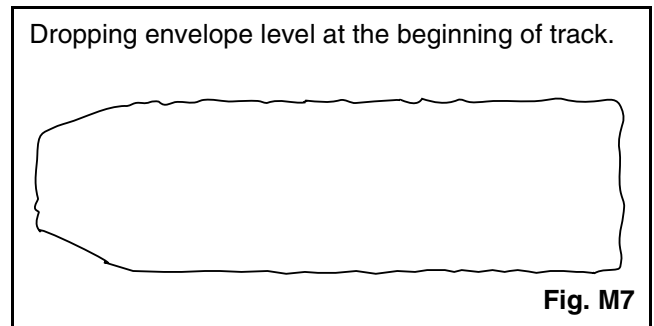
Purpose:

To correct the Azimuth alignment so that the Audio/Control/Erase Head meets tape tracks properly.

Symptom of Misalignment:

If the position of the Audio/Control/Erase Head is not properly aligned, the Audio S/N Ratio or Frequency Response will be poor.

1. Connect the oscilloscope to the audio output jack on the rear side of the deck.
2. Playback the alignment tape (FL8N) and confirm that the audio signal output level is 8kHz.
3. Adjust Azimuth Adj. Screw so that the output level on the AC Voltmeter or the waveform on the oscilloscope is at maximum. (Fig. M6)



DISASSEMBLY/ASSEMBLY PROCEDURES OF DECK MECHANISM

Before following the procedures described below, be sure to remove the deck assembly from the cabinet. (Refer to CABINET DISASSEMBLY INSTRUCTIONS on page 1-6-1.)

All the following procedures, including those for adjustment and replacement of parts, should be done in Eject mode; see the positions of [41] and [42] in Fig.DM1 on page 2-4-3. When reassembling, follow the steps in reverse order.

STEP /LOC. No.	START-ING No.	PART		REMOVAL		INSTALLATION
				Fig. No.	REMOVE/*UNHOOK/ UNLOCK/RELEASE/ UNPLUG/DESOLDER	ADJUSTMENT CONDITION
[1]	[1]	Guide Holder A	T	DM3	2(S-1)	
[2]	[1]	Cassette Holder Assembly	T	DM4		
[3]	[2]	Slider L	T	DM5	(S-2)	
[4]	[2]	Slider R	T	DM5	(S-3)	
[5]	[4]	Lock Lever	T	DM5	(S-4),*(P-1)	
[6]	[2]	C Plate	T	DM5		
[7]	[7]	Cylinder Assembly	T	DM1,DM6	Desolder, 3(S-5)	
[8]	[8]	Loading Motor Assembly	T	DM1,DM7	Desolder, LDG Belt, 2(S-6)	
[9]	[9]	AC Head Assembly	T	DM1,DM7	(S-7)	
[10]	[2]	Tape Guide Assembly	T	DM1,DM8	*(P-2)	
[11]	[10]	Door Opener B	T	DM1,DM8	*(L-1),*(L-2)	
[12]	[11]	Pinch Arm (B)	T	DM1,DM8	*(P-3)	
[13]	[12]	Pinch Arm (A) Assembly	T	DM1,DM8		
[14]	[14]	FE Head	T	DM1,DM9	(S-8)	
[15]	[15]	Prism	T	DM1,DM9	(S-9)	
[16]	[2]	Slider Shaft	T	DM10	(S-10),*(L-3)	
[17]	[16]	C Drive Lever L	T	DM10		
[18]	[16]	C Drive Lever R	T	DM10		
[19]	[7],[10]	Capstan Motor	B	DM2,DM11	3(S-11), Cap Belt	
[20]	[20]	Clutch Assembly	B	DM2,DM12	(C-1)	
[21]	[20]	FF Arm	B	DM2,DM12		
[22]	[22]	Cam Holder F	B	DM2,DM13	(C-2)	
[23]	[23]	Cam Gear (B)	B	DM2,DM13	(C-3),*(P-4)	
[24]	[24]	Mode Gear	B	DM2,DM14	(C-4)	
[25]	[20],[23], [24]	Mode Lever	B	DM2,DM14	(C-5), *(L-4)	
[26]	[22]	Worm Holder	B	DM2,DM14	(S-12)	
[27]	[26]	Pulley Assembly	B	DM2,DM14		
[28]	[25],[26]	Cam Gear (A)	B	DM2,DM14		
[29]	[25]	Idler Assembly	B	DM1,DM15	*(L-5)	
[30]	[25]	BT Arm	B	DM2,DM15	*(P-5)	
[31]	[25]	Loading Arm S (B) Assembly	B	DM2,DM15		(+)Refer to Alignment Sec.Pg.2-4-9
[32]	[31]	Loading Arm T (B) Assembly	B	DM2,DM15		(+)Refer to Alignment Sec.Pg.2-4-9

STEP /LOC. No.	START-ING No.	PART		REMOVAL		INSTALLATION
				Fig. No.	REMOVE/*UNHOOK/ UNLOCK/RELEASE/ UNPLUG/DESOLDER	ADJUSTMENT CONDITION
[33]	[2],[25]	M Brake T Assembly	T	DM1,DM16	*(P-6)	
[34]	[2],[25]	M Brake S Assembly	T	DM1,DM16	*(P-7)	
[35]	[34]	Tension Lever Sub Assembly	T	DM1,DM16		
[36]	[35]	T Lever Holder	T	DM1,DM16	*(L-6)	
[37]	[33]	M Gear	T	DM1,DM16	(C-6)	
[38]	[2],[15]	Sensor Gear	T	DM1,DM16	(C-7)	
[39]	[33]	Reel T	T	DM1,DM16		
[40]	[35]	Reel S	T	DM1,DM16		
[41]	[31],[35]	Moving Guide S Preparation	T	DM1,DM17		
[42]	[32]	Moving Guide T Preparation	T	DM1,DM17		
[43]	[19]	TG Post Assembly	T	DM1,DM17	*(L-7)	
[44]	[19],[28]	Rack Assembly	R	DM18		(+)Refer to Alignment Sec.Pg.2-4-10
[45]	[44]	F Door Opener	R	DM18		
[46]	[46]	Cleaner Lever Assembly	T	DM1,DM6		Type A
					*(L-8)	Type B
[47]	[46]	CL Post	T	DM6	*(L-9)	Type A
↓ (1)	↓ (2)	↓ (3)	↓ (4)	↓ (5)	↓ (6)	↓ (7)

(1): Follow steps in sequence. When reassembling, follow the steps in reverse order.

These numbers are also used as identification (location) No. of parts in the figures.

(2): Indicates the part to start disassembling with in order to disassemble the part in column (1).

(3): Name of the part

(4): Location of the part: T=Top B=Bottom R=Right L=Left

(5): Figure Number

(6): Identification of parts to be removed, unhooked, unlocked, released, unplugged, unclamped, or desoldered.

P=Spring, W=Washer, C=Cut Washer, S=Screw, *=Unhook, Unlock, Release, Unplug, or Desolder
e.g., 2(L-2) = two Locking Tabs (L-2).

(7): Adjustment Information for Installation

(+):Refer to Deck Exploded Views for lubrication.

Top View

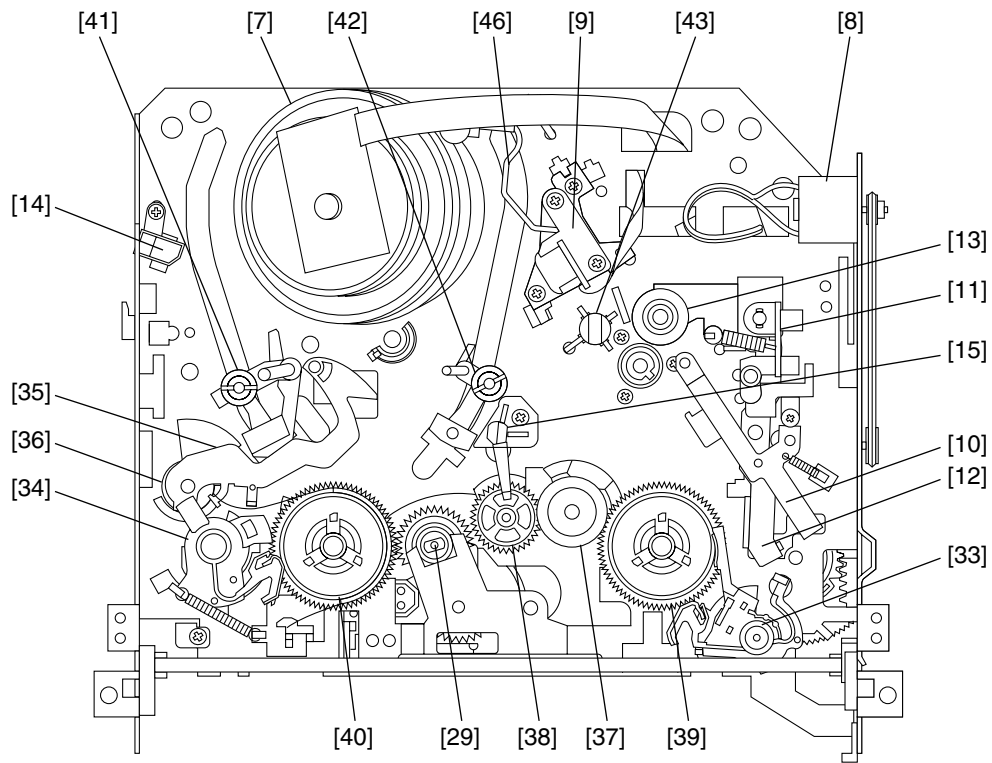


Fig. DM1

Bottom View

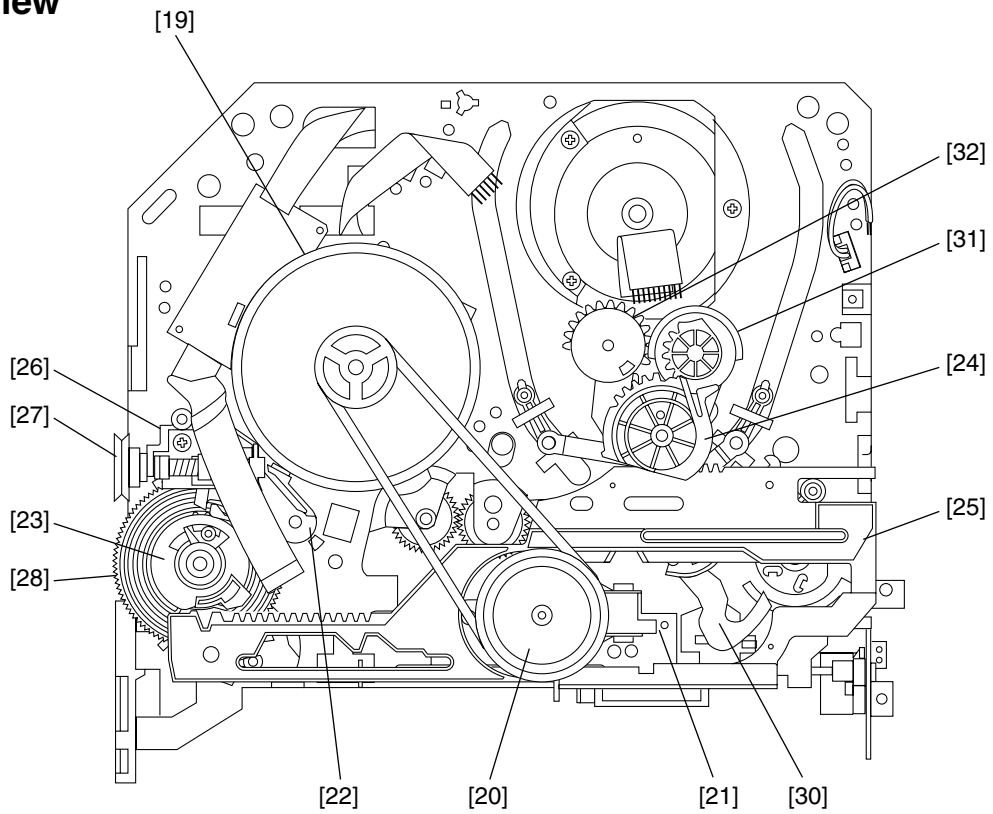


Fig. DM2

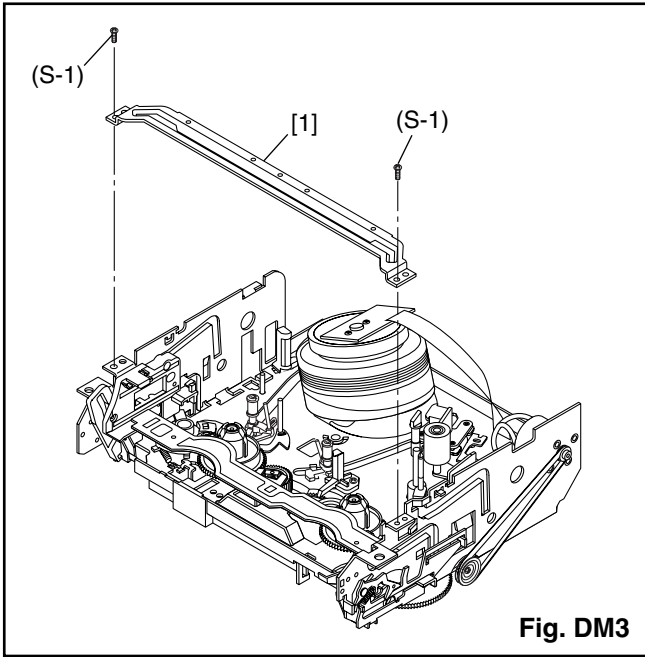


Fig. DM3

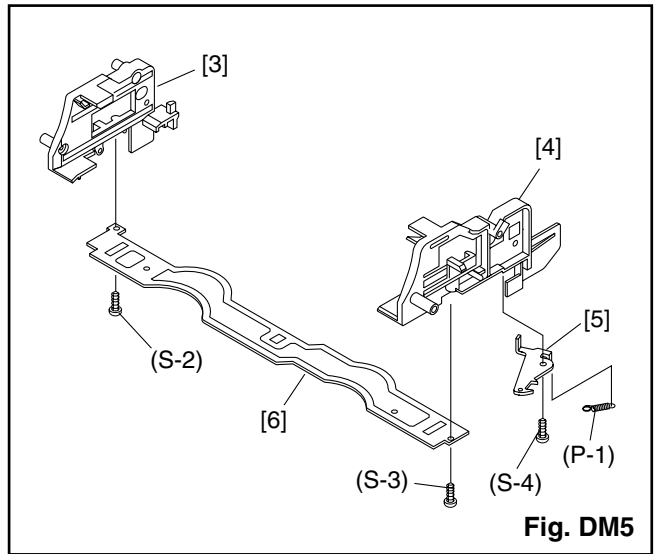


Fig. DM5

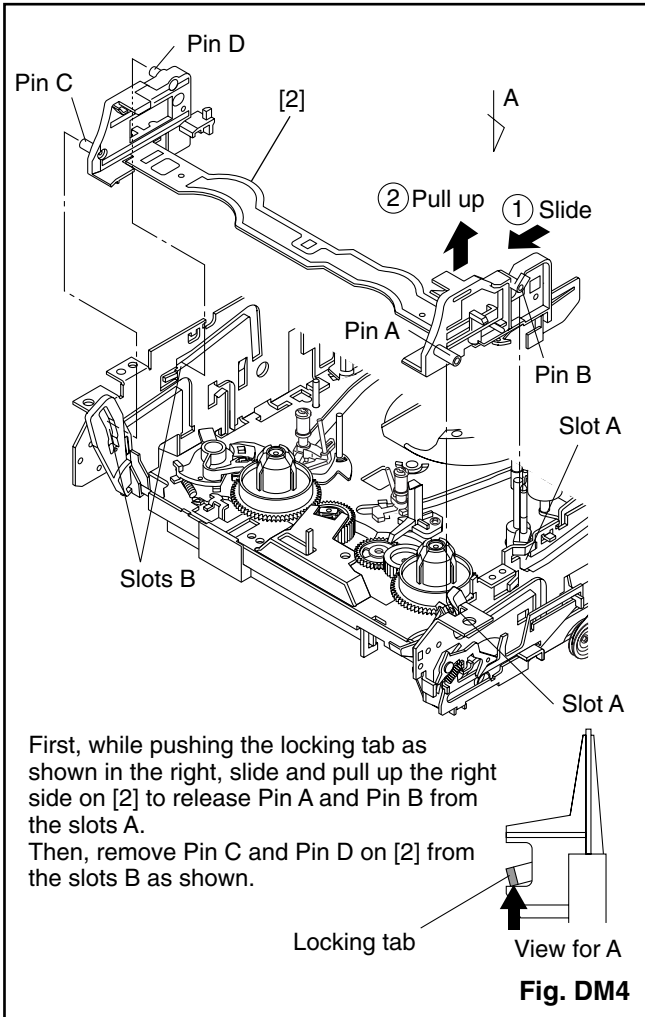


Fig. DM4

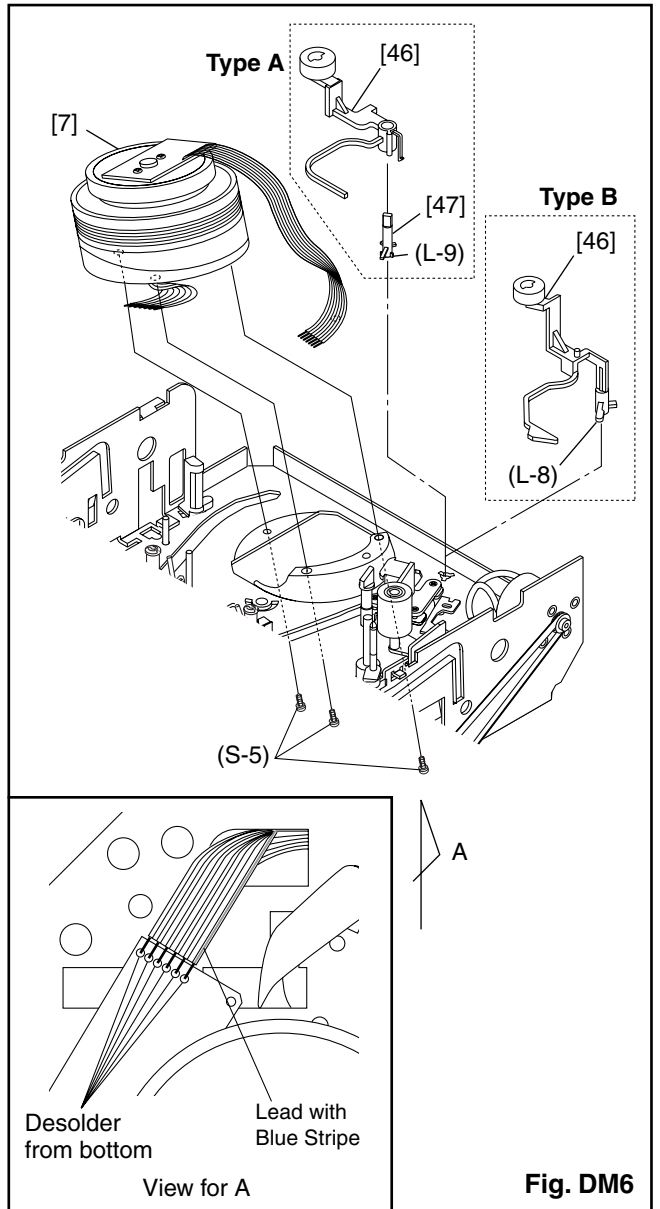
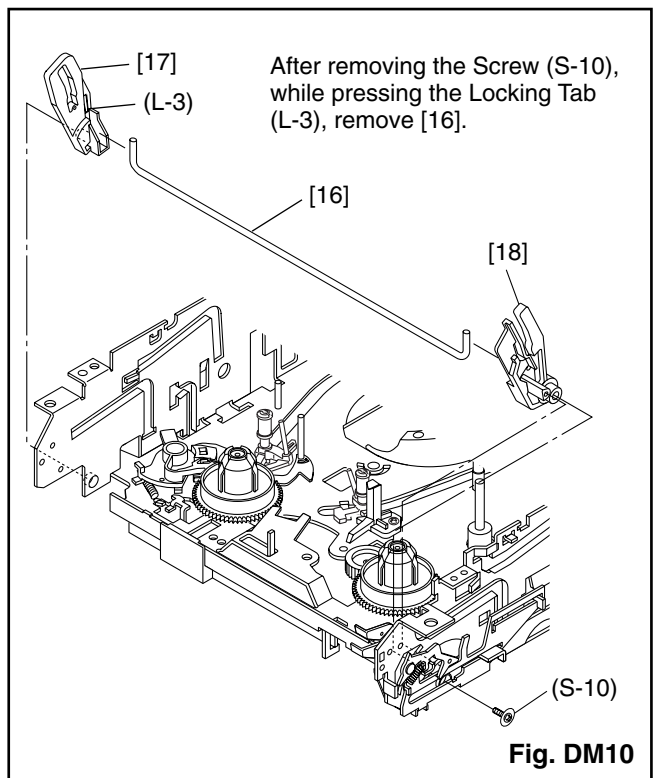
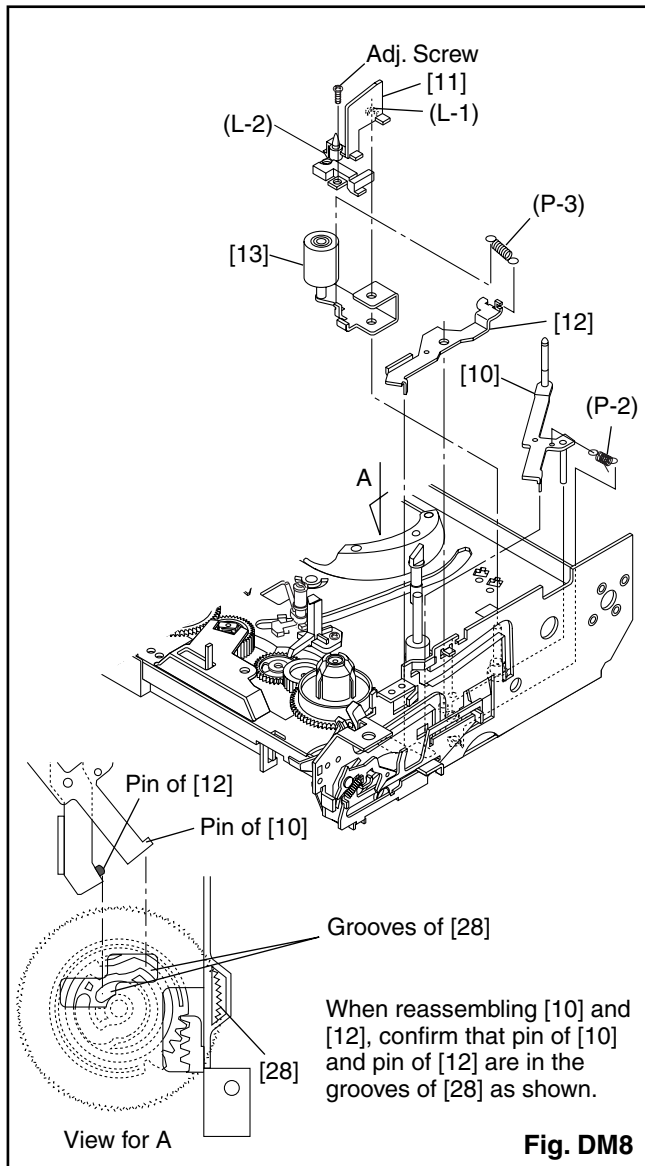
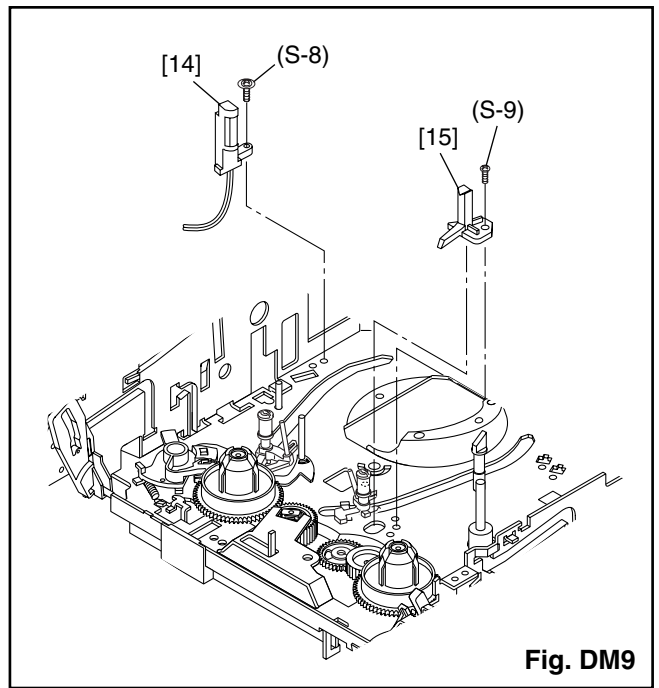
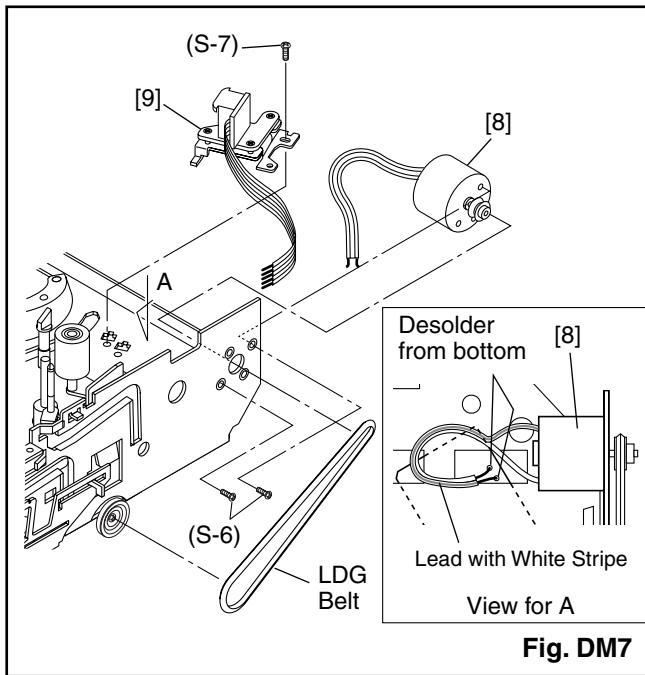
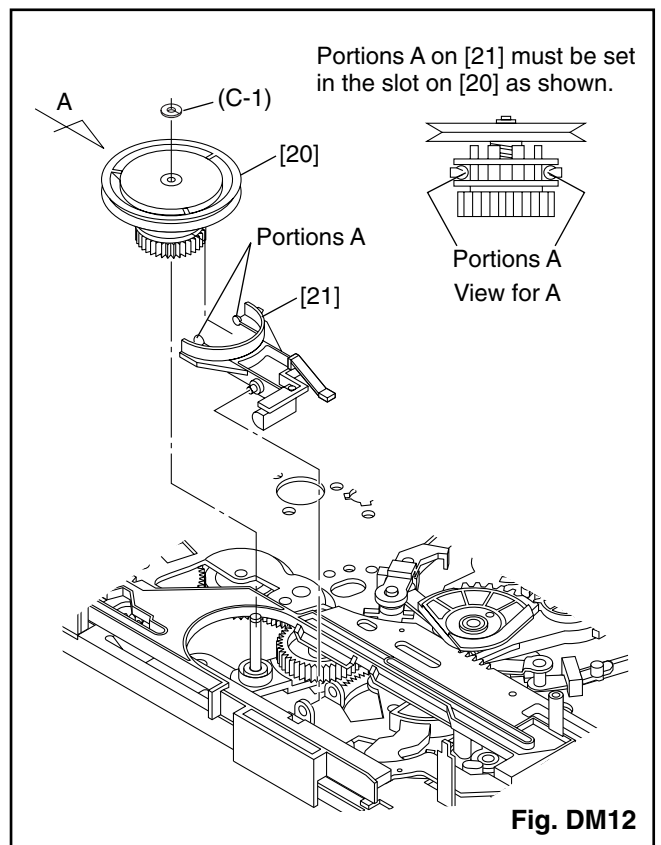
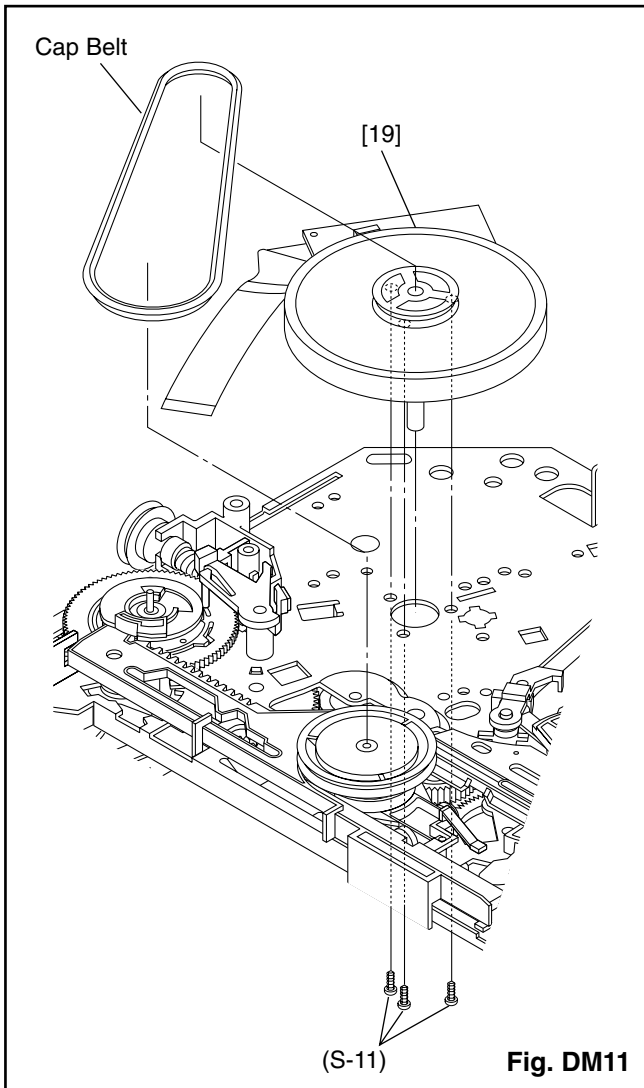
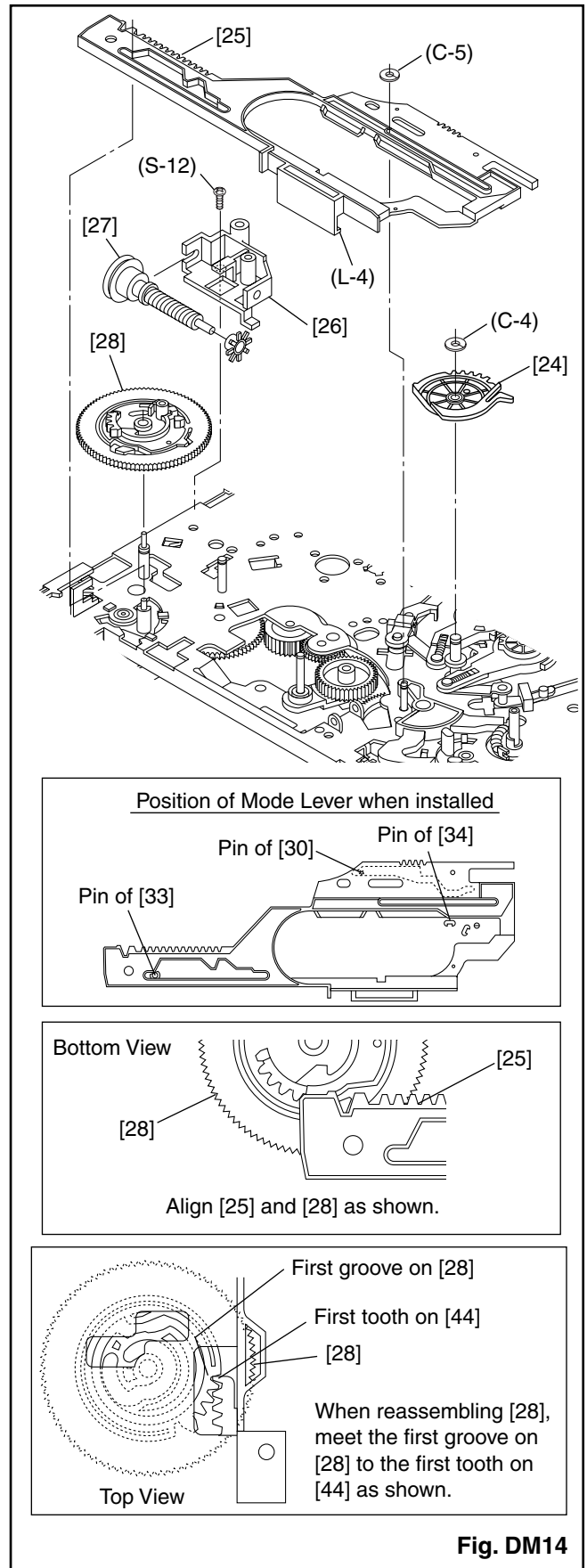
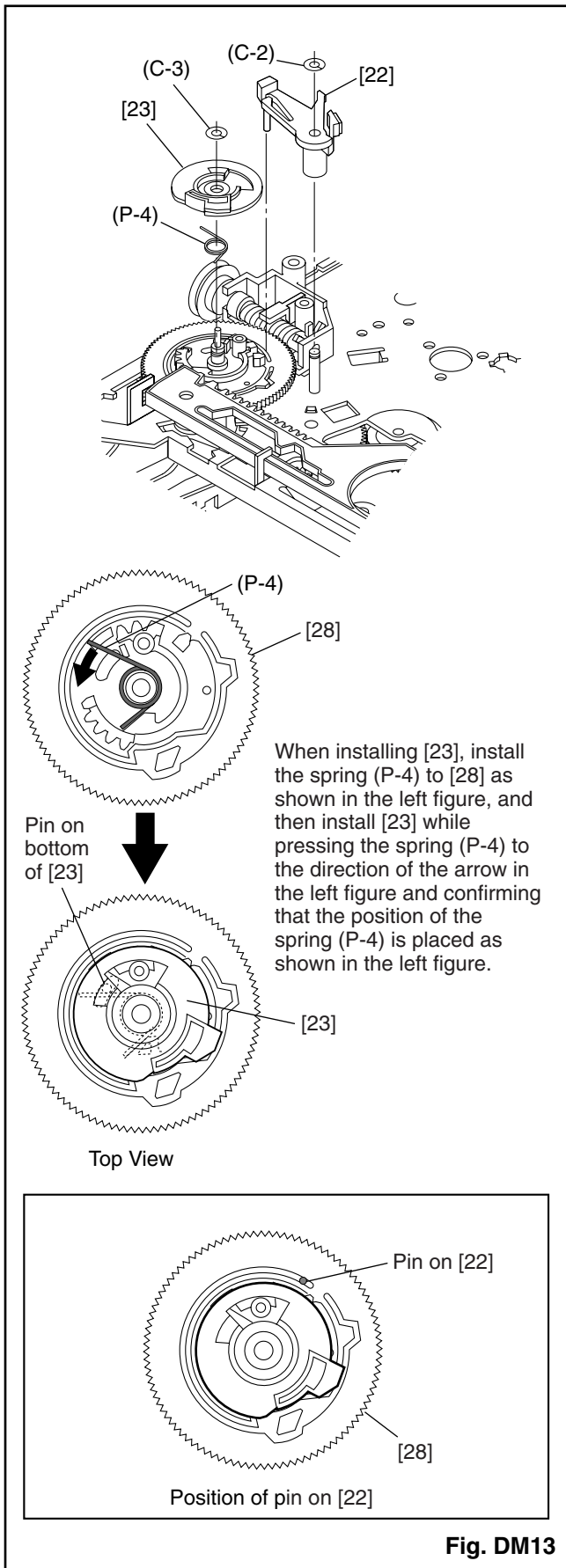
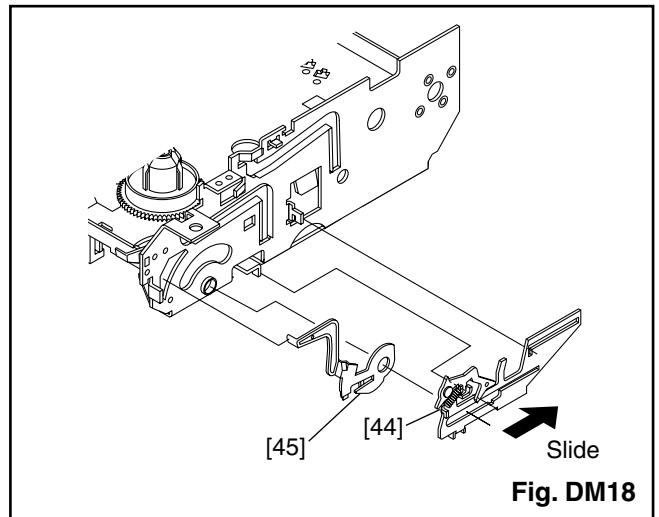
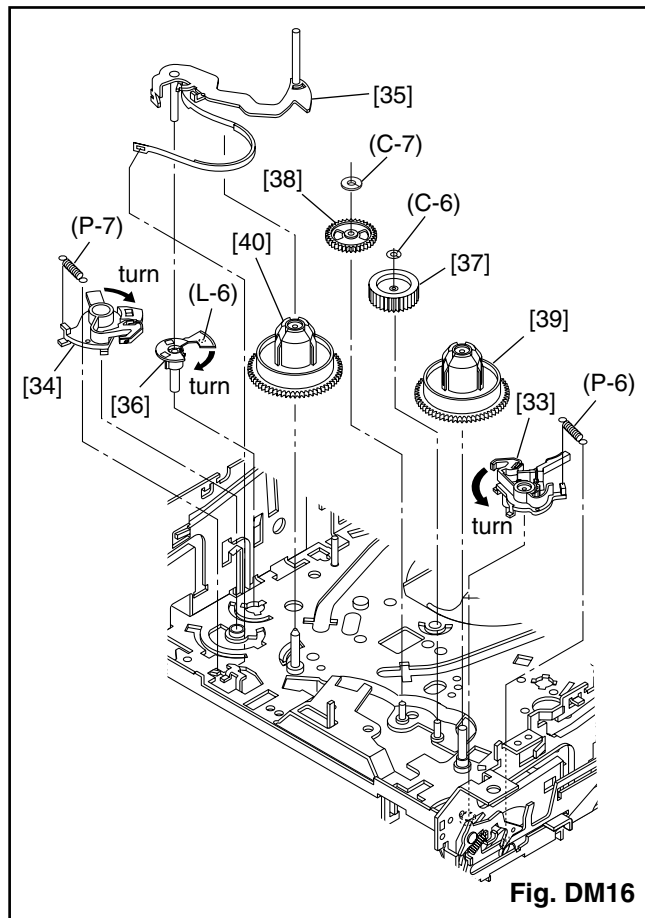
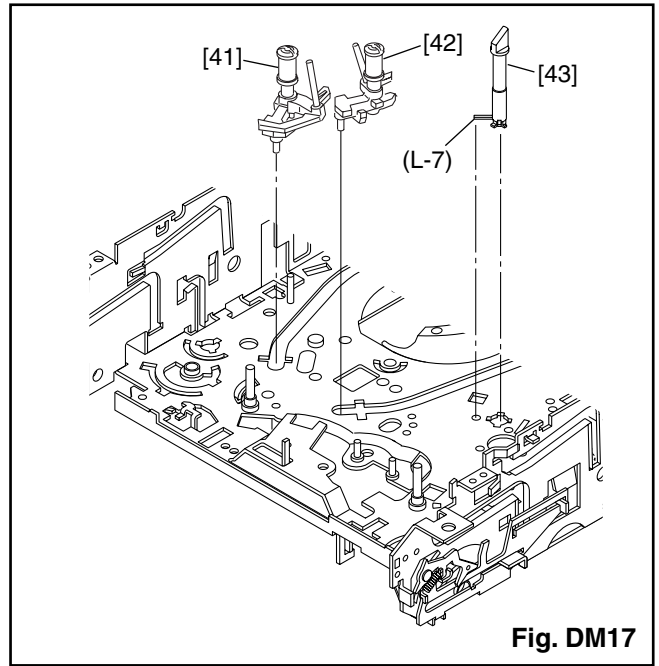
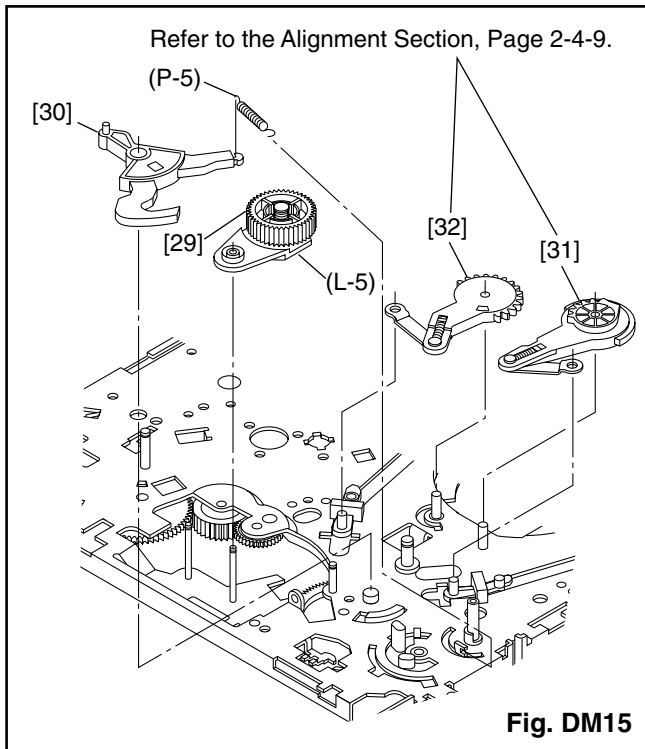


Fig. DM6









ALIGNMENT PROCEDURES OF MECHANISM

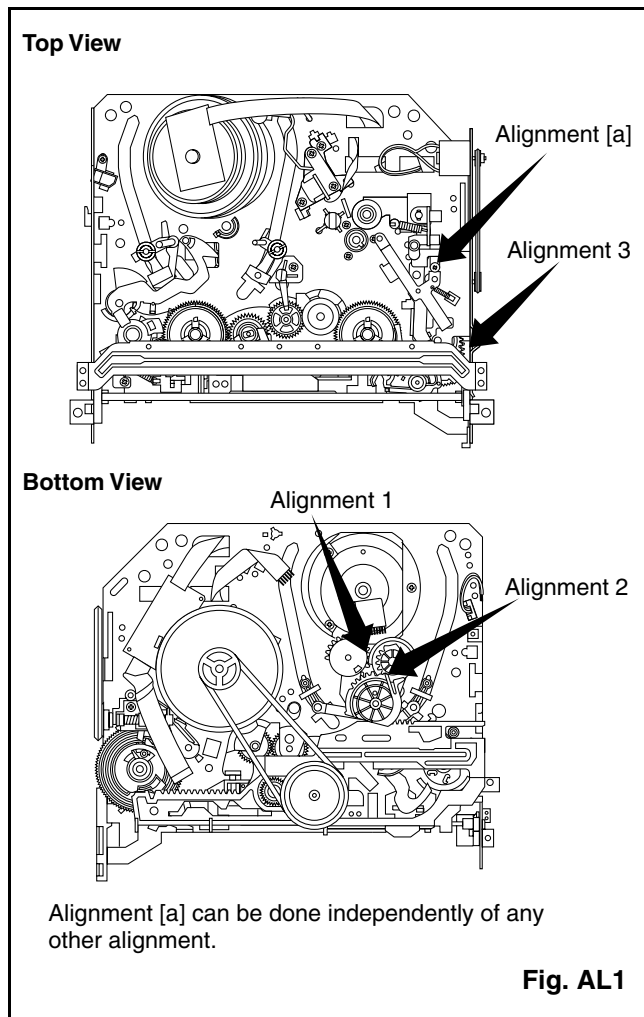
The following procedures describe how to align the individual gears and levers that make up the tape loading/unloading mechanism. Since information about the state of the mechanism is provided to the System Control Circuit only through the Mode Switch, it is essential that the correct relationship between individual gears and levers be maintained.

All alignments are to be performed with the mechanism in Eject mode, in the sequence given. Each procedure assumes that all previous procedures have been completed.

IMPORTANT:

If any one of these alignments is not performed properly, even if off by only one tooth, the unit will unload or stop and it may result in damage to the mechanical or electrical parts.

Alignment points in Eject Position



Alignment 1

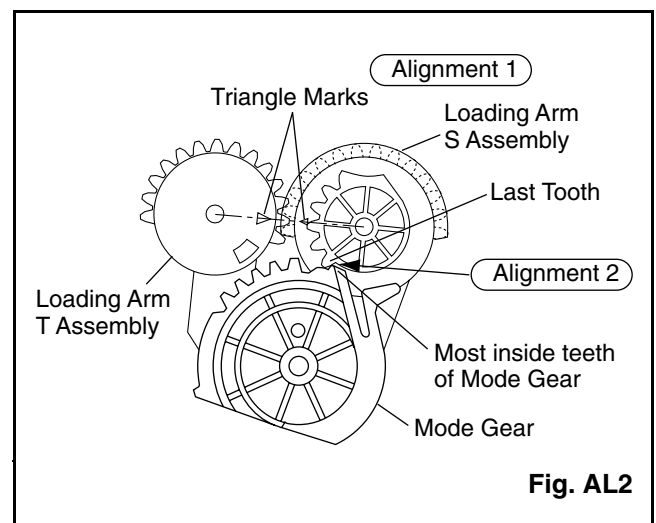
Loading Arm, S and T Assembly

Install Loading Arm S and T Assembly so that their triangle marks point to each other as shown in Fig. AL2.

Alignment 2

Mode Gear

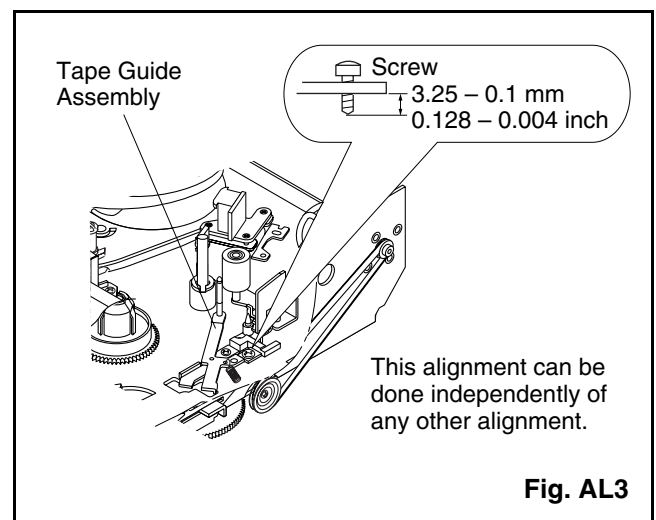
Keeping the two triangles pointing at each other, install the Loading Arm T Assembly so that the last tooth of the gear meets the most inside teeth of the Mode Gear. See Fig. AL2.



Alignment [a]

Tape Guide Assembly

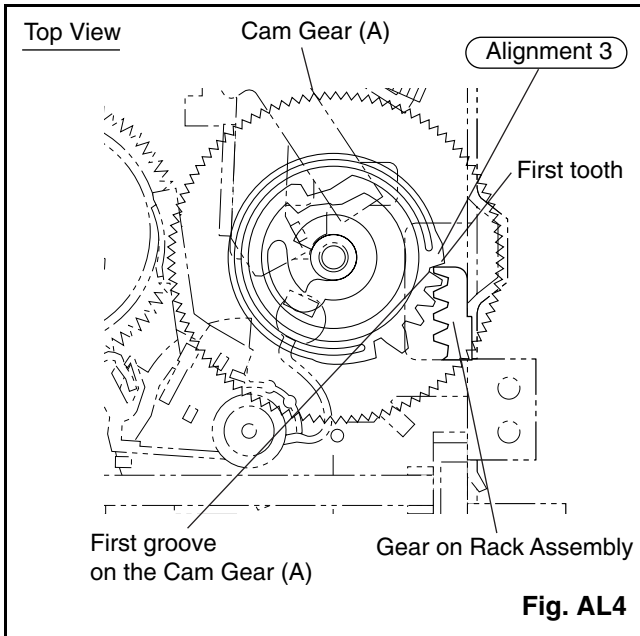
Measurement of the screw must be as specified in Fig. AL3.



Alignment 3

Cam Gear (A), Rack Assembly

Install the Rack Assembly so that the first tooth on the gear of the Rack Assembly meets the first groove on the Cam Gear (A) as shown in Fig. AL4.



EXPLODED VIEWS AND PARTS LIST SECTION

9" COLOR TV/VCR COMBINATION

6309CCC

**Sec. 3: Exploded views
and Parts List Section**

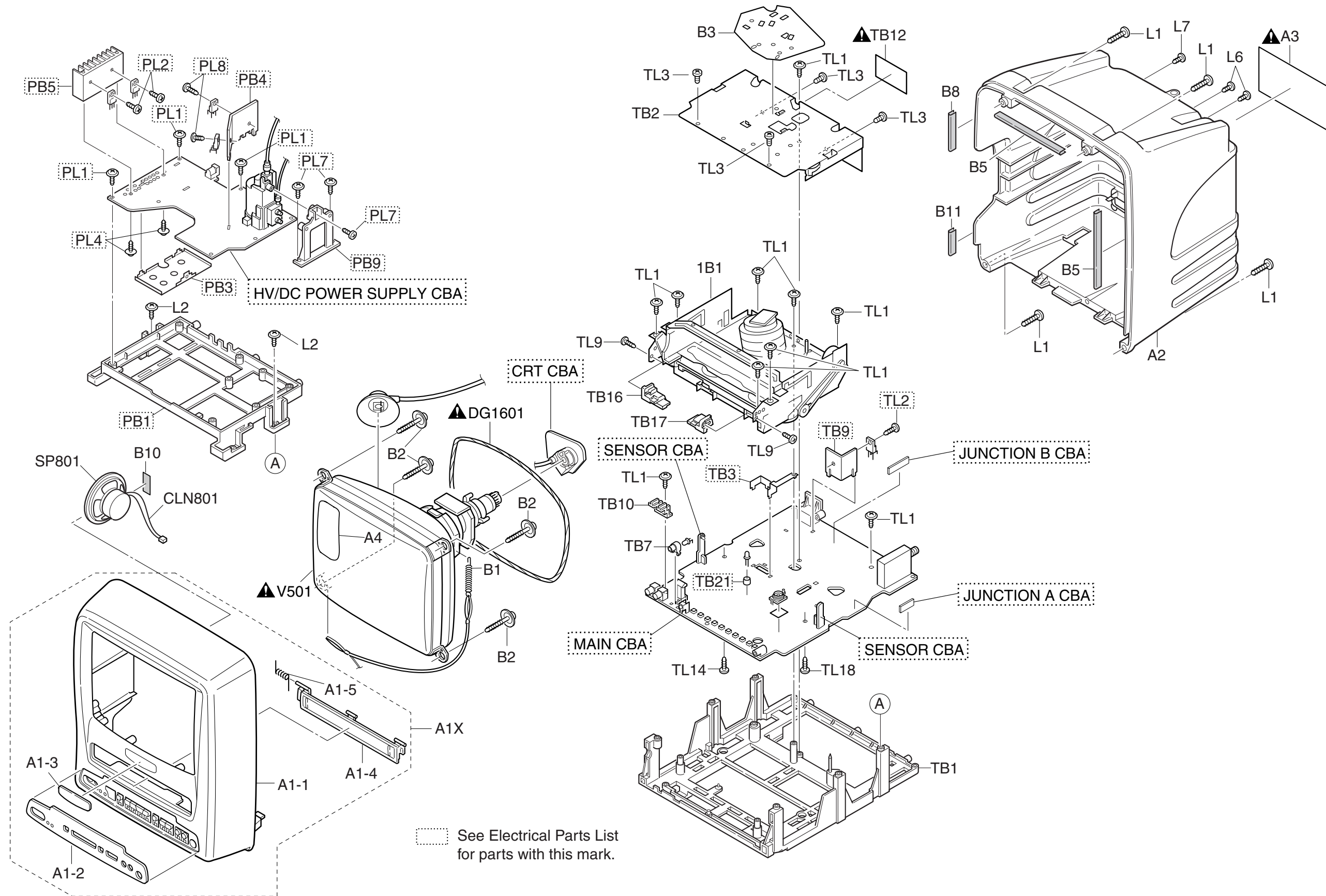
- Exploded views
- Parts List

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Deck Exploded Views	3-1-4
Mechanical Parts List	3-2-1
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Deck Parts List	3-4-1

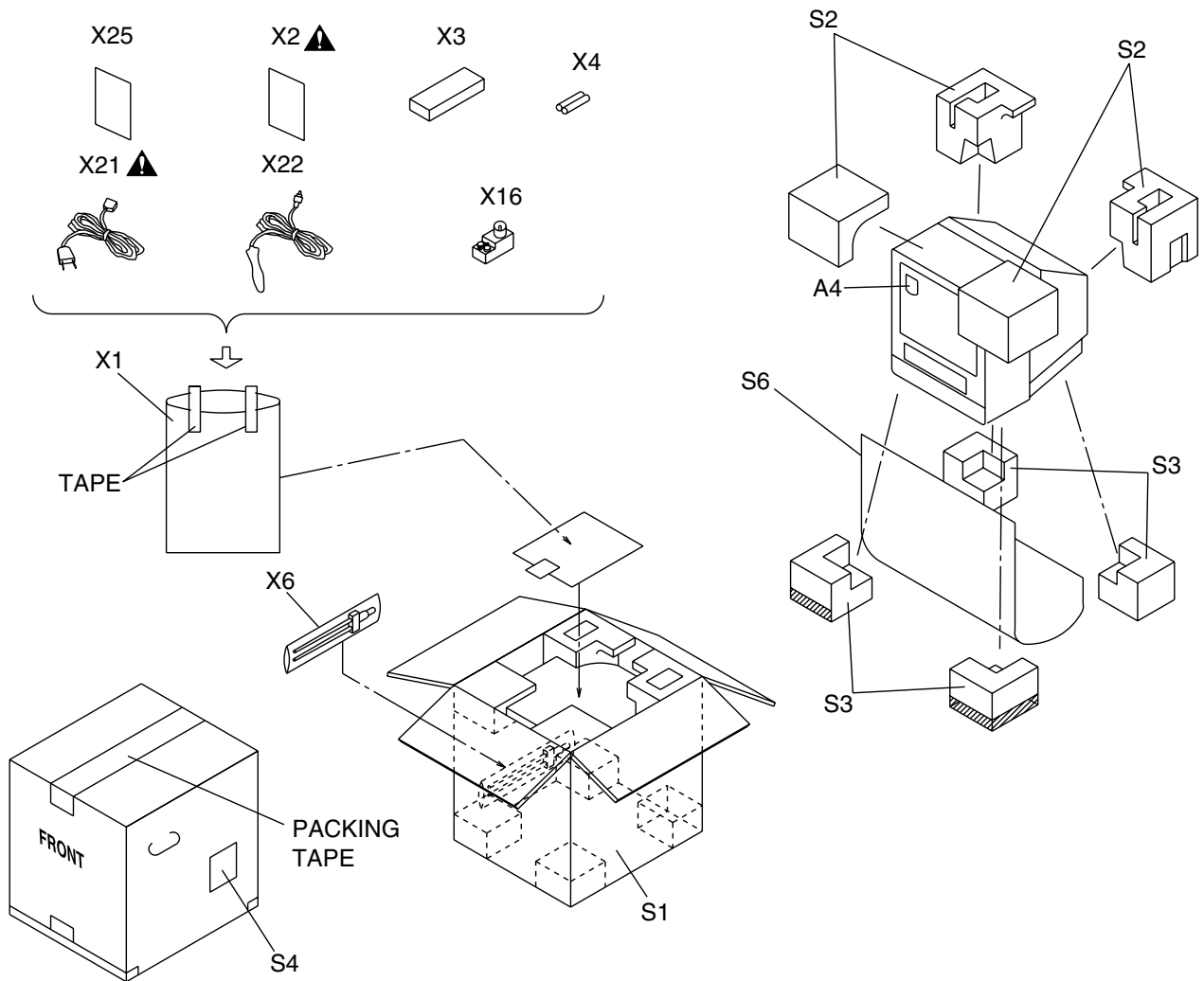
EXPLODED VIEWS

Cabinet



See Electrical Parts List for parts with this mark.

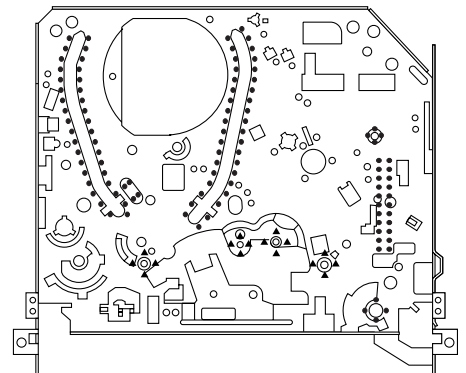
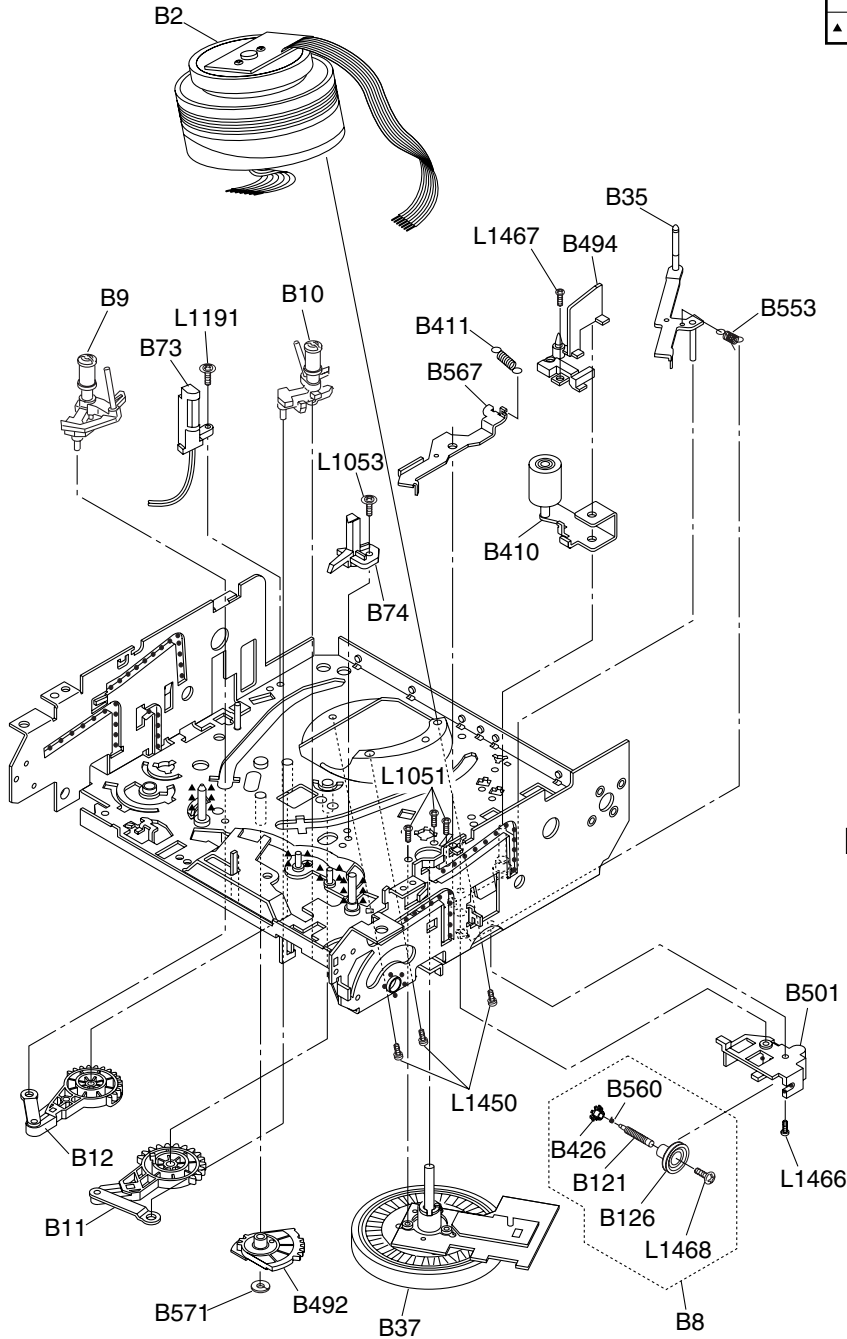
Packing



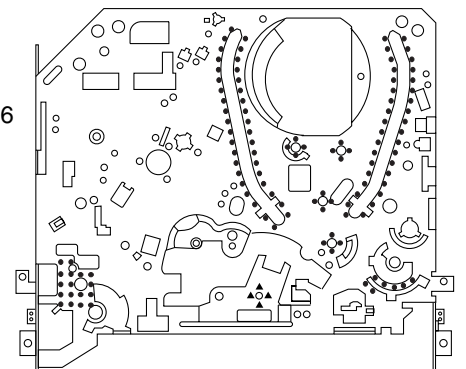
DECK EXPLODED VIEWS

Deck Mechanism View 1

Mark	Description
•••••	Foil G-374G (Blue grease)
▲▲▲▲▲	SLIDUS OIL #150



Chassis Assembly
Top View (Lubricating Point)



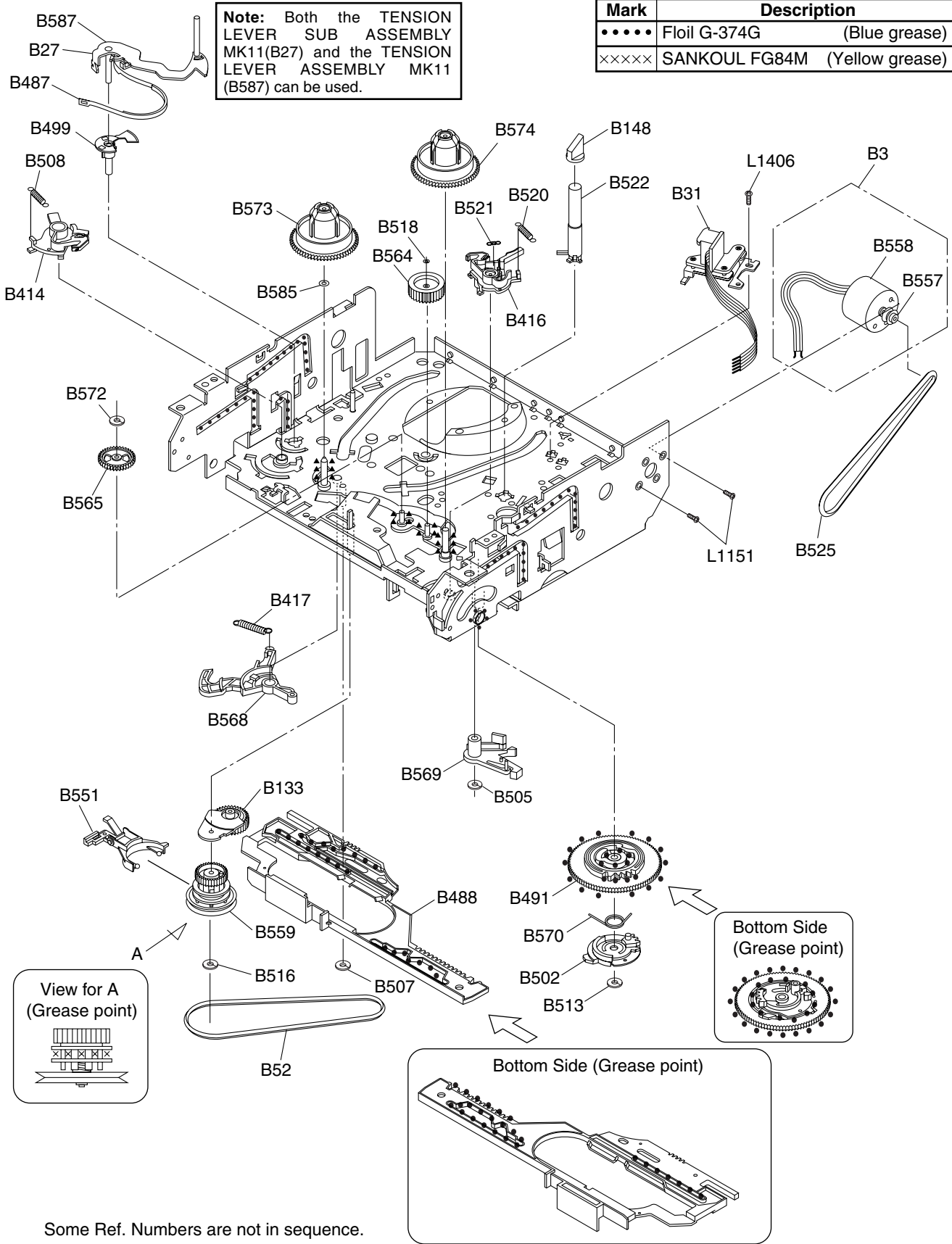
Chassis Assembly
Bottom View (Lubricating Point)

Some Ref. Numbers are not in sequence.

Deck Mechanism View 2

Note: Both the TENSION LEVER SUB ASSEMBLY MK11(B27) and the TENSION LEVER ASSEMBLY MK11 (B587) can be used.

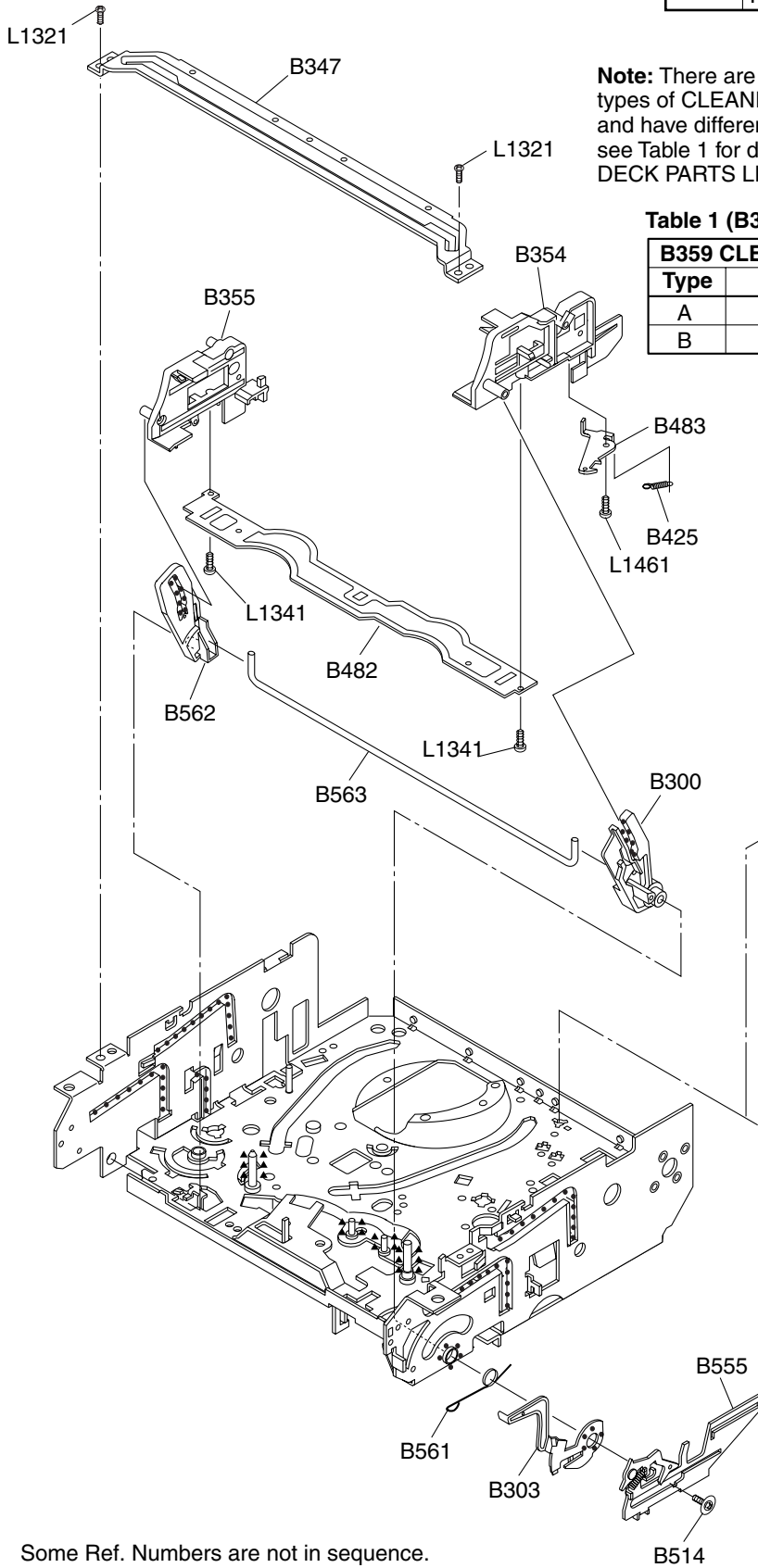
Mark	Description
•••••	Floil G-374G (Blue grease)
×××××	SANKOUL FG84M (Yellow grease)



Some Ref. Numbers are not in sequence.

Deck Mechanism View 3

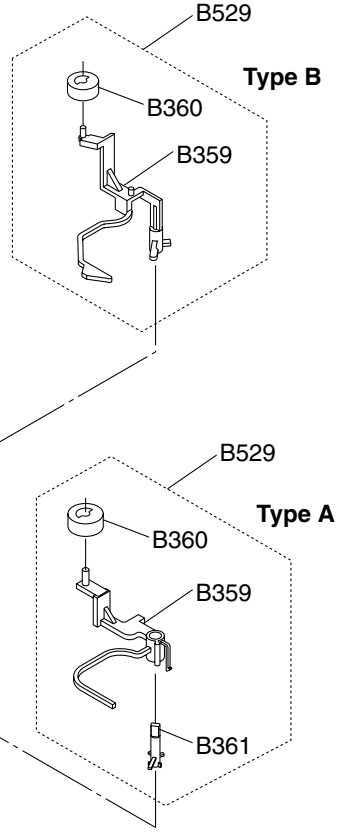
Mark	Description
•••••	Floil G-374G (Blue grease)



Note: There are two different, but interchangeable types of CLEANER LEVER(B359) in this model, and have different combination with B361. Please see Table 1 for details and combination. (Refer to DECK PARTS LIST section on page 3-4-1.)


Table 1 (B359 and B361 Combination)

B359 CLEANER LEVER		B361
Type	ID No.	ID No.
A	OVM304413	OVM411114
B	OVM305090	Not used



Some Ref. Numbers are not in sequence.

MECHANICAL PARTS LIST

PRODUCT SAFETY NOTE: Products marked with a  have special characteristics important to safety. Before replacing any of these components, read carefully the product safety notice in this service manual. Don't degrade the safety of the product through improper servicing.

NOTE:

Parts that are not assigned part numbers (-----) are not available.

Ref. No.	Description	Part No.
A1X	FRONT CABINET ASSEMBLY T4302UC	0EM201589
A1-1	FRONT CABINET T4000UA	0EM000351
A1-2	CONTROL PLATE T4302UC	0EM301593
A1-3	BRAND PLATE T4302UC:SYLVANIA	0EM407030
A1-4	CASSETTE DOOR T4302UC	0EM407059
A1-5	DOOR SPRING B5000UA or DOOR SPRING(Z10) T5200UA	0VM403773 0EM406687
A2	REAR CABINET T4300UA	0EM201565
A3 	RATING LABEL T4305CF	-----
A4	POP LABEL T4302UC	0EM407023
1B1	DECK ASSY CZD011/VM1426	N1426FT
B1	TENSION SPRING B0080B0:EM40808	26WH006
B2	M5 CRT SCREW(B) B4000UA	0VM403923
B3	SHIELD PLATE(Z9 V9) T4100UA	0EM405692A
B5	CLOTH 190X15XT0.5	TS7623
B8	CLOTH B0071V9:TS7346	24WE420
B10	CLOTH(10X30XT0.5) B5900UA	0EM404486
B11	CLOTH(10X30XT0.5) B5900UA	0EM404486
CLN801	WIRE ASSEMBLY 2P/170	WX1B4800-002
DG1601 	DEGAUSSING COIL F-046 or	LLBH00ZTM046
	DEGAUSSING COIL AVDG142	LLBH00ZWR045
L1	SCREW, P-TIGHT 4X18 BIND HEAD +	GBMP4180
L2	SCREW, P-TIGHT 3X12 WASHER HEAD+	GCMP3120
L6	SCREW, P-TIGHT 3X10 BIND HEAD+	GBKP3100
L7	SCREW, P-TIGHT 3X10 BIND HEAD+	GBKP3100
SP801	SPEAKER S08F02B	DSD0808XQ010
TB1	TRAY CHASSIS T4300UA	0EM000590
TB2	9V TOP SHIELD T4300UA	0EM101146
TB7	LED HOLDER T4304UE	0EM406930
TB10	RCA HOLDER(F) T4300UA	0EM406928
TB12 	CRITICAL PARTS WARNING LABEL B8007C3:EM41210	24LH199
TB16	PACK GUIDE L T5200UA	0EM301419
TB17	PACK GUIDE R T5200UA	0EM301420
TL1	SCREW, P-TIGHT 3X12 WASHER HEAD+	GCMP3120
TL3	SCREW, S-TIGHT 3X4 BIND HEAD+	GBMS3040
TL9	SCREW, P-TIGHT M3X6 BIND HEAD+	GBMP3060
TL14	SCREW, B-TIGHT M3X8 BIND HEAD+	GBMB3080
TL18	SCREW, P-TIGHT M3X8 BIND HEAD+	GBCP3080
V501 	CRT A23KQU22X01	TCRT190SM012
PACKING		
S1	CARTON T4305CF	0EM407089
S2	STYROFOAM TOP T4200UA	0EM000507
S3	STYROFOAM BOTTOM ASSEMBLY T4200UA	0EM406191
S4	SERIAL NO. LABEL T4305CF	0EM407088

Ref. No.	Description	Part No.
S6	SET SHEET:1000X600XT0.3 L7300UA	0EM401153
ACCESSORIES		
X1	POLYETHYLENE BAG B5310UL	Z223380
X2 	OWNER'S MANUAL T4305CF	0EMN01906
X3	REMOCON UNIT 512/ERC001/N0151UD	N0151UD
X4	DRY BATTERY R6P UM3 or DRY BATTERY R6P(AR)2PX or DRY BATTERY R6P(AR)2P X ICI or DRY BATTERY(SUNRISE) R6SSE/2S or DRY BATTERY R6P/2S	XB0M451GH001 XB0M451HU002 XB0M451HU003 XB0M451MS002 XB0M451T0001
X6	DIPOLE ANTENNA B5307UH or DIPOLE ANTENNA B5700UA	0EMN00723 0EMN01183
X16	MATCHING ADAPTOR ICM-02N or MATCHING ADAPTOR or MATCHING ADAPTOR	UCPGANTPK004 1813641 1780258
X21 	AC CORD SET LA-2142 or  AC CORD HHMAC-99-0031-B	WPV0182LW001 WPV0182HHH01
X22	CAR PLUG CORD	WPZ0202GA004
X25	QUICK SETUP GUIDE T4104CE	0EMN01725

ELECTRICAL PARTS LIST

PRODUCT SAFETY NOTE: Products marked with a have special characteristics important to safety. Before replacing any of these components, read carefully the product safety notice in this service manual. Don't degrade the safety of the product through improper servicing.

NOTES:

1. Parts that are not assigned part numbers (-----) are not available.
2. Tolerance of Capacitors and Resistors are noted with the following symbols.

C.....±0.25%	D.....±0.5%	F.....±1%
G.....±2%	J.....±5%	K.....±10%
M.....±20%	N.....±30%	Z.....+80/-20%

MMA CBA

Ref. No.	Description	Part No.
	MMA CBA (MAIN+SENSOR) Consists of the following	0ESA04719
	MAIN CBA	-----
	SENSOR CBA	0ESA04524

MAIN CBA

Ref. No.	Description	Part No.
	MAIN CBA Consists of the following	-----
CAPACITORS		
C002	CERAMIC CAP.(AX) CH J 100pF/50V	CA1J101TU008
C003	CERAMIC CAP.(AX) CH J 100pF/50V	CA1J101TU008
C004	CERAMIC CAP.(AX) B K 0.01µF/50V	CA1J103TU011
C005	ELECTROLYTIC CAP. 47µF/16V M or ELECTROLYTIC CAP. 47µF/16V M	CE1CMASDL470 CE1CMASL470
C006	ELECTROLYTIC CAP. 1µF/50V M or ELECTROLYTIC CAP. 1µF/50V M or ELECTROLYTIC CAP. 1µF/50V M	CE1JMASDL1R0 CE1JMASDL010 CE1JMASTL1R0
C007	CERAMIC CAP.(AX) B K 0.01µF/50V	CA1J103TU011
C203	CERAMIC CAP.(AX) Y M 0.01µF/16V	CCA1CMT0Y103
C204	CERAMIC CAP.(AX) Y M 0.01µF/16V	CCA1CMT0Y103
C205	CERAMIC CAP.(AX) Y M 0.01µF/16V	CCA1CMT0Y103
C207	ELECTROLYTIC CAP. 47µF/25V M or ELECTROLYTIC CAP. 47µF/25V M	CE1EMASDL470 CE1EMASTL470
C208	ELECTROLYTIC CAP. 100µF/6.3V M H7	CE0KMASSL101
C209	CERAMIC CAP.(AX) F Z 0.022µF/25V	CCA1EZTFZ223
C210	ELECTROLYTIC CAP. 1µF/50V M H7	CE1JMASSL1R0
C211	CERAMIC CAP.(AX) B K 0.01µF/50V	CA1J103TU011
C212	CERAMIC CAP.(AX) CH J 20pF/50V	CCA1JJTCH200
C213	CERAMIC CAP.(AX) CH J 20pF/50V	CCA1JJTCH200
C214	ELECTROLYTIC CAP. 100µF/6.3V M H7	CE0KMASSL101
C216	CERAMIC CAP.(AX) Y M 0.01µF/16V	CCA1CMT0Y103
C217	CERAMIC CAP.(AX) CH J 10pF/50V	CCA1JJTCH100
C218	CERAMIC CAP.(AX) CH J 15pF/50V	CCA1JJTCH150
C219	CERAMIC CAP.(AX) Y M 0.01µF/16V	CCA1CMT0Y103
C220	ELECTROLYTIC CAP. 47µF/6.3V M H7	CE0KMASSL470
C221	CERAMIC CAP.(AX) Y M 0.01µF/16V	CCA1CMT0Y103

Ref. No.	Description	Part No.
C222	CERAMIC CAP.(AX) X M 2200pF/16V	CCA1CMT0X222
C223	ELECTROLYTIC CAP. 1µF/50V M H7	CE1JMASSL1R0
C224	CERAMIC CAP.(AX) B K 1000pF/50V	CCA1JKTOB102
C225	CERAMIC CAP.(AX) B K 560pF/50V	CCA1JKTOB561
C226	CERAMIC CAP.(AX) F Z 0.022µF/25V	CCA1EZTFZ223
C231	CERAMIC CAP.(AX) CH J 220pF/50V	CA1J221TU008
C232	CERAMIC CAP.(AX) CH J 220pF/50V	CA1J221TU008
C235	CERAMIC CAP.(AX) Y M 0.01µF/16V	CCA1CMT0Y103
C236	CERAMIC CAP.(AX) F Z 0.047µF/16V	CCA1CZTFZ473
C238	CERAMIC CAP.(AX) B K 1000pF/50V	CCA1JKTOB102
C239	ELECTROLYTIC CAP. 22µF/50V M or ELECTROLYTIC CAP. 22µF/50V M	CE1JMASDL220 CE1JMASTL220
C240	CERAMIC CAP.(AX) B K 560pF/50V	CCA1JKTOB561
C241	CERAMIC CAP.(AX) B K 0.0047µF/50V	CA1J472TU011
C242	CERAMIC CAP.(AX) B K 1000pF/50V	CCA1JKTOB102
C243	ELECTROLYTIC CAP. 22µF/16V M LL or ELECTROLYTIC CAP. 22µF/16V M LL	CE1CMASLH220 CE1CMASLL220
C244	CERAMIC CAP.(AX) Y M 0.01µF/16V	CCA1CMT0Y103
C245	ELECTROLYTIC CAP. 47µF/25V M or ELECTROLYTIC CAP. 47µF/25V M	CE1EMASDL470 CE1EMASTL470
C246	CERAMIC CAP.(AX) Y M 0.01µF/16V	CCA1CMT0Y103
C247	ELECTROLYTIC CAP. 22µF/50V M or ELECTROLYTIC CAP. 22µF/50V M	CE1JMASDL220 CE1JMASTL220
C252	ELECTROLYTIC CAP. 100µF/16V M or ELECTROLYTIC CAP. 100µF/16V M	CE1CMASDL101 CE1CMASL101
C253	ELECTROLYTIC CAP. 100µF/6.3V M or ELECTROLYTIC CAP. 100µF/6.3V M	CE0KMASDL101 CE0KMASTL101
C254	ELECTROLYTIC CAP. 47µF/25V M H7	CE1EMASL470
C255	CARBON RES. 1/4W J 10k Ω	RCX4JATZ0103
C256	ELECTROLYTIC CAP. 100µF/6.3V M H7	CE0KMASSL101
C257	CERAMIC CAP.(AX) F Z 0.047µF/16V	CCA1CZTFZ473
C301	ELECTROLYTIC CAP. 1µF/50V LL or ELECTROLYTIC CAP. 1µF/50V M LL	CE1JMASLH1R0 CE1JMASLL010
C302	CERAMIC CAP.(AX) Y M 0.01µF/16V	CCA1CMT0Y103
C303	CERAMIC CAP.(AX) F Z 0.1µF/50V	CCA1JZTFZ104
C305	CERAMIC CAP.(AX) Y M 0.01µF/16V	CCA1CMT0Y103
C306	ELECTROLYTIC CAP. 1µF/50V M or ELECTROLYTIC CAP. 1µF/50V M or ELECTROLYTIC CAP. 1µF/50V M	CE1JMASDL1R0 CE1JMASDL010 CE1JMASTL1R0
C307	ELECTROLYTIC CAP. 470µF/10V M or ELECTROLYTIC CAP. 470µF/10V M	CE1AMASDL471 CE1AMASTL471
C308	CERAMIC CAP.(AX) SL J 47pF/50V	CCA1JJTSL470
C309	CERAMIC CAP.(AX) SL J 47pF/50V	CCA1JJTSL470
C310	CERAMIC CAP.(AX) SL J 47pF/50V	CCA1JJTSL470
C311	CERAMIC CAP.(AX) Y M 0.01µF/16V	CCA1CMT0Y103
C314	ELECTROLYTIC CAP. 1µF/50V M or ELECTROLYTIC CAP. 1µF/50V M	CE1JMASDL1R0 CE1JMASTL1R0
C315	CERAMIC CAP.(AX) F Z 0.1µF/50V	CCA1JZTFZ104
C316	CERAMIC CAP.(AX) B K 100pF/50V	CCA1JKTOB101
C317	FILM CAP.(P) 0.015µF/50V J or FILM CAP.(P) 0.015µF/50V J	CMA1JJS00153 CA1J153MS029
C318	ELECTROLYTIC CAP. 1µF/50V M or ELECTROLYTIC CAP. 1µF/50V M or ELECTROLYTIC CAP. 1µF/50V M	CE1JMASDL1R0 CE1JMASDL010 CE1JMASTL1R0
C319	ELECTROLYTIC CAP. 1µF/50V M H7	CE1JMASSL1R0
C320	ELECTROLYTIC CAP. 100µF/10V M or	CE1AMASDL101

Ref. No.	Description	Part No.
	ELECTROLYTIC CAP. 100µF/10V M	CE1AMASTL101
C322	ELECTROLYTIC CAP. 1µF/50V M or	CE1JMASDL1R0
	ELECTROLYTIC CAP. 1µF/50V M or	CE1JMASDL010
	ELECTROLYTIC CAP. 1µF/50V M	CE1JMASTL1R0
C323	ELECTROLYTIC CAP. 470µF/16V M or	CE1CMASDL471
	ELECTROLYTIC CAP. 470µF/16V M	CE1CMASDL471
C325	ELECTROLYTIC CAP. 2.2µF/50V LL or	CE1JMASH2R2
	ELECTROLYTIC CAP. 2.2µF/50V M LL	CE1JMASLL2R2
C326	FILM CAP.(P) 0.1µF/50V J or	CMA1JJS00104
	FILM CAP.(P) 0.1µF/50V J	CA1J104MS029
C328	CERAMIC CAP.(AX) XM 3900pF/16V	CCA1CMT0X392
C329	ELECTROLYTIC CAP. 4.7µF/50V M or	CE1JMASDL4R7
	ELECTROLYTIC CAP. 4.7µF/50V M	CE1JMASTL4R7
C330	ELECTROLYTIC CAP. 0.47µF/50V M or	CE1JMASDLR47
	ELECTROLYTIC CAP. 0.47µF/50V M	CE1JMASTLR47
C331	CERAMIC CAP.(AX) B K 680pF/50V	CCA1JKT0B681
C332	CERAMIC CAP.(AX) F Z 0.047µF/16V	CCA1CZTFZ473
C333	FILM CAP.(P) 0.047µF/50V J or	CMA1JJS00473
	FILM CAP.(P) 0.047µF/50V J	CA1J473MS029
C334	ELECTROLYTIC CAP. 100µF/16V M or	CE1CMASDL101
	ELECTROLYTIC CAP. 100µF/16V M	CE1CMASDL101
C335	ELECTROLYTIC CAP. 1µF/50V M or	CE1JMASDL1R0
	ELECTROLYTIC CAP. 1µF/50V M or	CE1JMASDL010
	ELECTROLYTIC CAP. 1µF/50V M	CE1JMASTL1R0
C337	ELECTROLYTIC CAP. 1µF/50V M or	CE1JMASDL1R0
	ELECTROLYTIC CAP. 1µF/50V M or	CE1JMASDL010
	ELECTROLYTIC CAP. 1µF/50V M	CE1JMASTL1R0
C340	ELECTROLYTIC CAP. 0.1µF/50V M H7	CE1JMASSLR10
C341	ELECTROLYTIC CAP. 100µF/10V M or	CE1AMASDL101
	ELECTROLYTIC CAP. 100µF/10V M	CE1AMASDL101
C346	CERAMIC CAP.(AX) SL J 47pF/50V	CCA1JUTSL470
C410	ELECTROLYTIC CAP. 1µF/50V M H7	CE1JMASSL1R0
C411	ELECTROLYTIC CAP. 220µF/6.3V M H7	CEOKMASSL221
C412	CERAMIC CAP.(AX) Y M 0.01µF/16V	CCA1CMT0Y103
C413	CERAMIC CAP.(AX) B K 390pF/50V	CCA1JKT0B391
C414	ELECTROLYTIC CAP. 1µF/50V M H7	CE1JMASSL1R0
C416	CERAMIC CAP.(AX) B K 180pF/50V	CCA1JKT0B181
C417	CERAMIC CAP.(AX) SL J 22pF/50V	CCA1JUTSL220
C418	PCB JUMPER D0.6-P5.0	JW5.0T
C419	ELECTROLYTIC CAP. 0.1µF/50V M H7	CE1JMASSLR10
C420	ELECTROLYTIC CAP. 22µF/16V M H7	CE1CMASSL220
C421	ELECTROLYTIC CAP. 4.7µF/50V M H7	CE1JMASSL4R7
C423	ELECTROLYTIC CAP. 4.7µF/50V M H7	CE1JMASSL4R7
C424	ELECTROLYTIC CAP. 1µF/50V M H7	CE1JMASSL1R0
C425	ELECTROLYTIC CAP. 1µF/50V M H7	CE1JMASSL1R0
C426	ELECTROLYTIC CAP. 22µF/16V M H7	CE1CMASSL220
C427	CERAMIC CAP.(AX) Y M 0.01µF/16V	CCA1CMT0Y103
C428	CERAMIC CAP.(AX) Y M 0.01µF/16V	CCA1CMT0Y103
C429	ELECTROLYTIC CAP. 47µF/6.3V M H7	CEOKMASSL470
C430	CERAMIC CAP.(AX) B K 0.022µF/50V	CA1J223TU011
C431	ELECTROLYTIC CAP. 1µF/50V M H7	CE1JMASSL1R0
C434	ELECTROLYTIC CAP. 1µF/50V M H7	CE1JMASSL1R0
C435	ELECTROLYTIC CAP. 2.2µF/50V M H7	CE1JMASSL2R2
C436	CERAMIC CAP.(AX) XM 3900pF/16V	CCA1CMT0X392
C438	ELECTROLYTIC CAP. 1µF/50V M H7	CE1JMASSL1R0
C439	CERAMIC CAP.(AX) Y M 0.01µF/16V	CCA1CMT0Y103
C440	ELECTROLYTIC CAP. 1µF/50V M H7	CE1JMASSL1R0
C441	ELECTROLYTIC CAP. 1µF/50V M H7	CE1JMASSL1R0
C442	CERAMIC CAP.(AX) F Z 0.047µF/16V	CCA1CZTFZ473
C443	CERAMIC CAP.(AX) F Z 0.047µF/16V	CCA1CZTFZ473
C444	ELECTROLYTIC CAP. 22µF/16V M H7	CE1CMASSL220

Ref. No.	Description	Part No.
C445	CERAMIC CAP.(AX) Y M 0.01µF/16V	CCA1CMT0Y103
C446	ELECTROLYTIC CAP. 1µF/50V M H7	CE1JMASSL1R0
C447	CERAMIC CAP.(AX) Y M 0.01µF/16V	CCA1CMT0Y103
C448	CERAMIC CAP.(AX) Y M 0.01µF/16V	CCA1CMT0Y103
C449	CERAMIC CAP.(AX) Y M 0.01µF/16V	CCA1CMT0Y103
C492	ELECTROLYTIC CAP. 1µF/50V M or	CE1JMASDL1R0
	ELECTROLYTIC CAP. 1µF/50V M or	CE1JMASDL010
	ELECTROLYTIC CAP. 1µF/50V M	CE1JMASTL1R0
C602▲	SAFETY CAP. 4700pF/250V KX	CA2E472MR050
C603	CERAMIC CAP. BN 330pF/2KV or	CCD3DKA0B331
	CERAMIC CAP. LB 330pF/2KV or	CA3D331KG004
	CERAMIC CAP. 330pF/2KV	CA3D331PAN04
C605▲	METALLIZED FILM CAP. 0.1µF/250V or	CT2E104MS037
▲	FILM CAP.(MP) 0.1µF/250V K or	CT2E104DC011
▲	METALLIZED FILM CAP. 0.1µF/275V K	CT2E104HJE06
C606	CERAMIC CAP. F Z 0.01µF/500V or	CCD2JZP0F103
	CERAMIC CAP. 0.01µF/AC250V	CCD2EZA0F103
C607	CERAMIC CAP. F Z 0.01µF/500V or	CCD2JZP0F103
	CERAMIC CAP. 0.01µF/AC250V	CCD2EZA0F103
C608	CERAMIC CAP. F Z 0.01µF/500V or	CCD2JZP0F103
	CERAMIC CAP. 0.01µF/AC250V	CCD2EZA0F103
C609	CERAMIC CAP. F Z 0.01µF/500V or	CCD2JZP0F103
	CERAMIC CAP. 0.01µF/AC250V	CCD2EZA0F103
C610	ELECTROLYTIC CAPACITOR 150µF/200V or	CA2D151S6012
	ALUMINIUM ELECTROLYTIC CAP 150µF/200V	CA2D151NC088
C611	CERAMIC CAP. BN 680pF/2KV or	CCD3DKA0B681
	CERAMIC CAP. LB 680pF/2K or	CA3D681KG004
	CERAMIC CAP. 680pF/2KV	CA3D681PAN04
C612	FILM CAP.(P) 0.033µF/50V J or	CMA1JJS00333
	FILM CAP.(P) 0.033µF/50V J	CA1J333MS029
C613	FILM CAP.(P) 0.0015µF/50V J or	CMA1JJS00152
	FILM CAP.(P) 0.0015µF/50V J	CA1J152MS029
C614	FILM CAP.(P) 0.047µF/50V J or	CMA1JJS00473
	FILM CAP.(P) 0.047µF/50V J	CA1J473MS029
C615	CERAMIC CAP. BN 680pF/2KV or	CCD3DKA0B681
	CERAMIC CAP. LB 680pF/2K or	CA3D681KG004
	CERAMIC CAP. 680pF/2KV	CA3D681PAN04
C616	ELECTROLYTIC CAP. 47µF/160V M W/F or	CE2CMZNDL470
	ELECTROLYTIC CAP. 47µF/160V M W/F	CE2CMZNTL470
C617	ELECTROLYTIC CAP. 470µF/35V M or	CE1GMASDL471
	ELECTROLYTIC CAP. 470µF/35V M	CE1GMASTL471
C618	ELECTROLYTIC CAP. 1000µF/16V M or	CE1CMZPDL102
	ELECTROLYTIC CAP. 1000µF/16V M	CE1CMZPTL102
C619	ELECTROLYTIC CAP. 470µF/16V M or	CE1CMASDL471
	ELECTROLYTIC CAP. 470µF/16V M	CE1CMASTL471
C620	ELECTROLYTIC CAP. 1000µF/16V M or	CE1CMZPDL102
	ELECTROLYTIC CAP. 1000µF/16V M	CE1CMZPTL102
C622	CERAMIC CAP.(AX) B K 150pF/50V	CCA1JKT0B151
C623	FILM CAP.(P) 0.018µF/50V J or	CMA1JJS00183
	FILM CAP.(P) 0.018µF/50V J	CA1J183MS029
C624	CERAMIC CAP.(AX) B K 0.01µF/50V	CA1J103TU011
C625	ELECTROLYTIC CAP. 2.2µF/50V M or	CE1JMASDL2R2
	ELECTROLYTIC CAP. 2.2µF/50V M	CE1JMASTL2R2
C626	ELECTROLYTIC CAP. 4.7µF/50V M or	CE1JMASDL4R7
	ELECTROLYTIC CAP. 4.7µF/50V M	CE1JMASTL4R7
C628	ELECTROLYTIC CAP. 10µF/50V M or	CE1JMASDL100
	ELECTROLYTIC CAP. 10µF/50V M	CE1JMASTL100
C629	ELECTROLYTIC CAP. 47µF/25V M or	CE1EMASDL470
	ELECTROLYTIC CAP. 47µF/25V M	CE1EMASTL470
C630	ELECTROLYTIC CAP. 100µF/16V M or	CE1CMASDL101
	ELECTROLYTIC CAP. 100µF/16V M	CE1CMASTL101

Ref. No.	Description	Part No.
C631	ELECTROLYTIC CAP. 220µF/16V M or ELECTROLYTIC CAP. 220µF/16V M	CE1CMASDL221 CE1CMASDL221
C632	ELECTROLYTIC CAP. 100µF/16V M or ELECTROLYTIC CAP. 100µF/16V M	CE1CMASDL101 CE1CMASDL101
C633	ELECTROLYTIC CAP. 470µF/10V M or ELECTROLYTIC CAP. 470µF/10V M	CE1AMASDL471 CE1AMASDL471
C634	ELECTROLYTIC CAP. 220µF/16V M or ELECTROLYTIC CAP. 220µF/16V M	CE1CMASDL221 CE1CMASDL221
C635	ELECTROLYTIC CAP. 47µF/25V M or ELECTROLYTIC CAP. 47µF/25V M	CE1EMASDL470 CE1EMASDL470
C636	CERAMIC CAP.(AX) F Z 0.1µF/50V	CCA1JZTFZ104
C639	CERAMIC CAP. B K 2200pF/500V or CERAMIC CAP. B K 2200pF/500V	CCD2JKP0B222 CCD2JKS0B222
C641	CERAMIC CAP.(AX) B K 100pF/50V	CCA1JKT0B101
C642	CERAMIC CAP.(AX) B K 1000pF/50V	CCA1JKT0B102
C801	ELECTROLYTIC CAP. 330µF/16V M or ELECTROLYTIC CAP. 330µF/16V M	CE1CMZPDL331 CE1CMZPTL331
C802	ELECTROLYTIC CAP. 470µF/16V M or ELECTROLYTIC CAP. 470µF/16V M	CE1CMASDL471 CE1CMASDL471
C803	ELECTROLYTIC CAP. 10µF/50V M or ELECTROLYTIC CAP. 10µF/50V M	CE1JMASDL100 CE1JMASTL100
C804	ELECTROLYTIC CAP. 0.22µF/50V M or ELECTROLYTIC CAP. 0.22µF/50V M	CE1JMASDLR22 CE1JMASTLR22
C805	CERAMIC CAP.(AX) X M 4700pF/16V	CCA1CMT0X472
C851	ELECTROLYTIC CAP. 220µF/6.3V M H7	CE0KMASSL221
C853	CERAMIC CAP.(AX) F Z 0.1µF/50V	CCA1JZTFZ104
C854	ELECTROLYTIC CAP. 22µF/16V M H7	CE1CMASDL220
C856	CERAMIC CAP.(AX) F Z 0.1µF/50V	CCA1JZTFZ104
C857	ELECTROLYTIC CAP. 33µF/6.3V M H7	CE0KMASSL330
C858	ELECTROLYTIC CAP. 4.7µF/50V M H7	CE1JMASSL4R7
C859	CERAMIC CAP.(AX) F Z 0.1µF/50V	CCA1JZTFZ104
C860	CERAMIC CAP.(AX) B K 1000pF/50V	CCA1JKT0B102
C862	CERAMIC CAP.(AX) Y M 0.01µF/16V	CCA1CMT0Y103
C863	ELECTROLYTIC CAP. 10µF/35V M H7	CE1GMASSL100
C864	ELECTROLYTIC CAP. 10µF/35V M H7	CE1GMASSL100
C865	CERAMIC CAP.(AX) X K 1200pF/16V	CCA1CKT0X122
C866	CERAMIC CAP.(AX) X K 2700pF/16V	CCA1CKT0X272
C872	ELECTROLYTIC CAP. 47µF/6.3V M H7	CE0KMASSL470
C873	ELECTROLYTIC CAP. 100µF/16V M H7	CE1CMASDL101
C874	CERAMIC CAP. B K 470pF/100V or CERAMIC CAP. B K 470pF/500V	CCD2AKS0B471 CCD2JKS0B471
C875	FILM CAP.(P) 0.018µF/100V J or FILM CAP.(P) 0.018µF/50V J	CMA2AJS00183 CA1J183MS029
C969	ELECTROLYTIC CAP. 4.7µF/25V M or ELECTROLYTIC CAP. 4.7µF/25V M	CE1EMASDL4R7 CE1EMASDL4R7
CONNECTORS		
CN301	CONNECTOR BASE 11P TUC-P11P-B1	J3TUA11TG001
CN302	CONNECTOR BASE, 5P TUC-P05P-B1	J3TUA05TG001
CN601	CONNECTOR BASE, 2P TV-50P-02-V3 or CONNECTOR BASE, 2P RTB-1.5-2P	J3TVC02TG002 J3RTC02JG001
CN602	CONNECTOR BASE, 14P TUC-P14P-B1	J3TUA14TG001
CN801	STRAIGHT CONNECTOR BASE 00 8283 0212 00 000 or STRAIGHT PIN HEADER, 2P 173981-2	J383C02UG002 1770258
DIODES		
D001	ZENER DIODE MTZJT-778.2B or ZENER DIODE DZ-8.2BSBT265	QDTB0MTZJ8R2 NDTB0DZ8R2BS
D203	LED SIR-563ST3F P or LED SIR-563ST3F Q	QPQPS1R563ST QPQQS1R563ST
D204	LED LTL-4214M1 or LED(RED)L-FORMING LT1814G-81-FL or	NPQZLTL4214M NP4Z0LT1814G

Ref. No.	Description	Part No.
	LED L-53HT or	NP4Z00L53HT
	LED LAMP 333HT/F45-50K or	NPWK333HTF45
	LED LAMP 333HT/F45-50L or	NPWL333HTF45
	LED LAMP 333HT/F45-50M	NPWM333HTF45
D210	ZENER DIODE MTZJT-775.6B or ZENER DIODE DZ-5.6BSBT265	QDTB0MTZJ5R6 NDTB0DZ5R6BS
D215	CARBON RES. 1/4W J 680 Ω or CARBON RES. 1/6W J 680 Ω	RCX4JATZ0681 RCX6JATZ0681
D216	ZENER DIODE MTZJT-775.6B or ZENER DIODE DZ-5.6BSBT265	QDTB0MTZJ5R6 NDTB0DZ5R6BS
D301	SWITCHING DIODE 1SS133(T-77) or SWITCHING DIODE 1N4148	QDTZ001SS133 NDTZ001N4148
D302	ZENER DIODE MTZJT-778.2B or ZENER DIODE DZ-8.2BSBT265	QDTB0MTZJ8R2 NDTB0DZ8R2BS
D303	ZENER DIODE MTZJT-776.8C or ZENER DIODE DZ-6.8BSCT265	QDTC0MTZJ6R8 NDTC0DZ6R8BS
D304	SWITCHING DIODE 1SS133(T-77) or SWITCHING DIODE 1N4148	QDTZ001SS133 NDTZ001N4148
D305	SWITCHING DIODE 1SS133(T-77) or SWITCHING DIODE 1N4148	QDTZ001SS133 NDTZ001N4148
D306	SWITCHING DIODE 1SS133(T-77) or SWITCHING DIODE 1N4148	QDTZ001SS133 NDTZ001N4148
D307	SWITCHING DIODE 1SS133(T-77) or SWITCHING DIODE 1N4148	QDTZ001SS133 NDTZ001N4148
D308	SWITCHING DIODE 1SS133(T-77) or SWITCHING DIODE 1N4148	QDTZ001SS133 NDTZ001N4148
D309	SWITCHING DIODE 1SS133(T-77) or SWITCHING DIODE 1N4148	QDTZ001SS133 NDTZ001N4148
D310	PCB JUMPER D0.6-P5.0	JW5.0T
D311	ZENER DIODE MTZJT-778.2B or ZENER DIODE DZ-8.2BSBT265	QDTB0MTZJ8R2 NDTB0DZ8R2BS
D313	SWITCHING DIODE 1SS133(T-77) or SWITCHING DIODE 1N4148	QDTZ001SS133 NDTZ001N4148
D314	SWITCHING DIODE 1SS133(T-77) or SWITCHING DIODE 1N4148	QDTZ001SS133 NDTZ001N4148
D315	ZENER DIODE MTZJT-778.2B or ZENER DIODE DZ-8.2BSBT265	QDTB0MTZJ8R2 NDTB0DZ8R2BS
D316	SWITCHING DIODE 1SS133(T-77) or SWITCHING DIODE 1N4148	QDTZ001SS133 NDTZ001N4148
D317	SWITCHING DIODE 1SS133(T-77) or SWITCHING DIODE 1N4148	QDTZ001SS133 NDTZ001N4148
D401	SWITCHING DIODE 1SS133(T-77) or SWITCHING DIODE 1N4148	QDTZ001SS133 NDTZ001N4148
D602	PCB JUMPER D0.6-P15.0	JW15.0T
D603	DIODE 1N5397-B or RECTIFIER DIODE ERB12-06	NDLZ001N5397 QDQZ0ERB1206
D604	DIODE 1N5397-B or RECTIFIER DIODE ERB12-06	NDLZ001N5397 QDQZ0ERB1206
D605	DIODE 1N5397-B or RECTIFIER DIODE ERB12-06	NDLZ001N5397 QDQZ0ERB1206
D606	DIODE 1N5397-B or RECTIFIER DIODE ERB12-06	NDLZ001N5397 QDQZ0ERB1206
D607	ZENER DIODE MTZJT-7720C or ZENER DIODE DZ-20BSCT265	QDTC00MTZJ20 NDTC00DZ20BS
D609	SWITCHING DIODE 1SS133(T-77) or SWITCHING DIODE 1N4148	QDTZ001SS133 NDTZ001N4148
D610	ZENER DIODE MTZJT-775.6B or ZENER DIODE DZ-5.6BSBT265	QDTB0MTZJ5R6 NDTB0DZ5R6BS
D611	SWITCHING DIODE 1SS133(T-77) or SWITCHING DIODE 1N4148	QDTZ001SS133 NDTZ001N4148
D613	FAST RECOVERY DIODE CA201-4 or	QDWZ00CA2014

Ref. No.	Description	Part No.
	RECOVERY DIODE ERC18-04 or	QDZZ0ERC1804
	FAST RECOVERY DIODE ERC25-06	QDQZ0ERC2506
D614	DIODE FR104-B or	NDLZ000FR104
	RECTIFIER DIODE 10ELS2 or	QDQZ0010ELS2
	RECTIFIER DIODE ERA22-02	QDPZ0ERA2202
D615	DIODE 1ZC30 or	QDQZ0001ZC30
	ZENER DIODE RD30FB	QDQZ000RD30F
D616	SCHOTTKY BARRIER DIODE 21DQ04 or	QDQZ0021DQ04
	SCHOTTKY BARRIER DIODE ERB81-004	AERB81004***
D617	SCHOTTKY BARRIER DIODE 11EQS04 or	QD4Z011EQS04
	SCHOTTKY BARRIER DIODE ERA81-004	QDPZERA81004
D618	SCHOTTKY BARRIER DIODE 11EQS04 or	QD4Z011EQS04
	SCHOTTKY BARRIER DIODE ERA81-004	QDPZERA81004
D619	DIODE FR104-B or	NDLZ000FR104
	RECTIFIER DIODE 10ELS2 or	QDQZ0010ELS2
	RECTIFIER DIODE ERA22-02	QDPZ0ERA2202
D620	ZENER DIODE MTZJT-776.8B or	QDTB0MTZJ6R8
	ZENER DIODE DZ-6.8BSBT265	NDTB0DZ6R8BS
D621	SWITCHING DIODE 1SS133(T-77) or	QDTZ001SS133
	SWITCHING DIODE 1N4148	NDTZ001N4148
D622	SWITCHING DIODE 1SS133(T-77) or	QDTZ001SS133
	SWITCHING DIODE 1N4148	NDTZ001N4148
D623	SWITCHING DIODE 1SS133(T-77) or	QDTZ001SS133
	SWITCHING DIODE 1N4148	NDTZ001N4148
D625	SWITCHING DIODE 1SS133(T-77) or	QDTZ001SS133
	SWITCHING DIODE 1N4148	NDTZ001N4148
D626	ZENER DIODE MTZJT-7736A or	QDTA00MTZJ36
	ZENER DIODE DZ-36BSAT265	NDTA00DZ36BS
D627	ZENER DIODE MTZJT-7711A or	QDTA00MTZJ11
	ZENER DIODE DZ-11BSAT265	NDTA00DZ11BS
D628	SWITCHING DIODE 1SS133(T-77) or	QDTZ001SS133
	SWITCHING DIODE 1N4148	NDTZ001N4148
D629	SWITCHING DIODE 1SS133(T-77) or	QDTZ001SS133
	SWITCHING DIODE 1N4148	NDTZ001N4148
D630▲	ZENER DIODE MTZJT-7718B or	QDTB00MTZJ18
▲	ZENER DIODE DZ-18BSBT265	NDTB00DZ18BS
D631	ZENER DIODE MTZJT-776.8A or	QDTA00MTZJ6R8
	ZENER DIODE DZ-6.8BSAT265	NDTA00DZ6R8BS
D632	SWITCHING DIODE 1SS133(T-77) or	QDTZ001SS133
	SWITCHING DIODE 1N4148	NDTZ001N4148
D633	SWITCHING DIODE 1SS133(T-77) or	QDTZ001SS133
	SWITCHING DIODE 1N4148	NDTZ001N4148
D634	ZENER DIODE MTZJT-778.2B or	QDTB0MTZJ8R2
	ZENER DIODE DZ-8.2BSBT265	NDTB0DZ8R2BS
D635	SWITCHING DIODE 1SS133(T-77) or	QDTZ001SS133
	SWITCHING DIODE 1N4148	NDTZ001N4148
D636	SWITCHING DIODE 1SS133(T-77) or	QDTZ001SS133
	SWITCHING DIODE 1N4148	NDTZ001N4148
D637	SWITCHING DIODE 1SS133(T-77) or	QDTZ001SS133
	SWITCHING DIODE 1N4148	NDTZ001N4148
D638	SWITCHING DIODE 1SS133(T-77) or	QDTZ001SS133
	SWITCHING DIODE 1N4148	NDTZ001N4148
D640	SWITCHING DIODE 1SS133(T-77) or	QDTZ001SS133
	SWITCHING DIODE 1N4148	NDTZ001N4148
D641	ZENER DIODE MTZJT-7736A or	QDTA00MTZJ36
	ZENER DIODE DZ-36BSAT265	NDTA00DZ36BS
D646	SWITCHING DIODE 1SS133(T-77) or	QDTZ001SS133
	SWITCHING DIODE 1N4148	NDTZ001N4148
D649	SWITCHING DIODE 1SS133(T-77) or	QDTZ001SS133
	SWITCHING DIODE 1N4148	NDTZ001N4148
D650	SWITCHING DIODE 1SS133(T-77) or	QDTZ001SS133

Ref. No.	Description	Part No.
	SWITCHING DIODE 1N4148	NDTZ001N4148
D651	ZENER DIODE MTZJT-7720C or	QDTC00MTZJ20
	ZENER DIODE DZ-20BSCT265	NDTC00DZ20BS
D801	SWITCHING DIODE 1SS133(T-77) or	QDTZ001SS133
	SWITCHING DIODE 1N4148	NDTZ001N4148
D802	SWITCHING DIODE 1SS133(T-77) or	QDTZ001SS133
	SWITCHING DIODE 1N4148	NDTZ001N4148
D803	SWITCHING DIODE 1SS133(T-77) or	QDTZ001SS133
	SWITCHING DIODE 1N4148	NDTZ001N4148
D961	ZENER DIODE MTZJT-775.6B or	QDTB0MTZJ5R6
	ZENER DIODE DZ-5.6BSBT265	NDTB0DZ5R6BS
D962	SWITCHING DIODE 1SS133(T-77) or	QDTZ001SS133
	SWITCHING DIODE 1N4148	NDTZ001N4148
D963	ZENER DIODE MTZJT-775.1A or	QDTA0MTZJ5R1
	ZENER DIODE DZ-5.1BSAT265	NDTA0DZ5R1BS
D964	SWITCHING DIODE 1SS133(T-77) or	QDTZ001SS133
	SWITCHING DIODE 1N4148	NDTZ001N4148
D965	ZENER DIODE MTZJT-776.2B or	QDTB0MTZJ6R2
	ZENER DIODE DZ-6.2BSBT265	NDTB0DZ6R2BS
ICS		
IC201▲	MICROCONTROLLER 16BIT M37760M8H8C8GP	QSZAB0RMB095
IC202	IC:MEMORY BR24C02F-W or	QSMBA0SRM003
	IC:MEMORY AT24C02N-10SC or	NSMMA0SAZ012
	IC(EEPROM) M24C02-MN6 or	NSMMA0SSS028
	IC:MEMORY BR24C02F or	QSMMA0SRM003
	IC:EEPROM CAT24WC02JI	NSZBA0SBG001
IC301▲	IC:CHROMA/IF 1 CHIP M61210FP-R60* or	QSZAA0RMB086
▲	IC:CHROMA/IF 1 CHIP M61210FP-R61 or	QSZAB0RMB086
▲	IC:CHROMA/IF 1 CHIP M61210FP-R62*	QSZAC0RMB086
IC401	IC:Y/C/A LA71091M	QSZBA0RSY012
IC601▲	PHOTOCOUPLER LTV-817B-F or	NPEB0LV817F
▲	PHOTOCOUPLER LTV-817C-F or	NPEC0LV817F
▲	PHOTO COUPLER PC817X6	QPPE600PC817X
IC602▲	VOLTAGE REGULATOR KIA7805API or	NSBBA0SJY011
▲	VOLTAGE REGULATOR KA7805A or	NSZBA0SF3052
▲	IC:VOLTAGE REGULATOR AN7805F	AN7805F
IC801	AUDIO AMP LA4224	QSZAA0SSY005
COILS		
L202	INDUCTOR 0.10μH-K-26T	LLAXKATTUR10
L211	CHOKE COIL 47μH-K or	LLBD00PKV007
	CHOKE COIL 47μH-K	LLBD00PKV005
L301	PCB JUMPER D0.6-P5.0	JW5.0T
L302	INDUCTOR 100μH-J-5FT or	LLARJCSJU101
	INDUCTOR 100μH-K-5FT	LLARKDSKA101
L303	INDUCTOR 12μH-J-26T or	LLAXJATTU120
	INDUCTOR 12μH-K-26T	LLAXKDTKA120
L305	INDUCTOR 1.0μH-J-26T or	LLAXJATTU1R0
	INDUCTOR 1.0μH-K-26T	LLAXKDTKA1R0
L306	PCB JUMPER D0.6-P5.0	JW5.0T
L307	INDUCTOR 15μH-J-26T or	LLAXJATTU150
	INDUCTOR 15μH-K-26T	LLAXKDTKA150
L402	INDUCTOR 12μH-J-26T or	LLAXJATTU120
	INDUCTOR 12μH-K-26T	LLAXKDTKA120
L403	CHOKE COIL 47μH-K or	LLBD00PKV007
	CHOKE COIL 47μH-K	LLBD00PKV005
L404	CHOKE COIL 47μH-K or	LLBD00PKV007
	CHOKE COIL 47μH-K	LLBD00PKV005
L601▲	LINE FILTER SA-91213B or	LLBG00ZSA002
▲	LINE FILTER TLF12UA302W1R0 or	LLBG00ZTU025
▲	LINE FILTER 5.0MH 6Y075 or	LLBG00ZKT004

Ref. No.	Description	Part No.
▲	LINE FILTER UU10.5-A or	LLBG00ZY2008
▲	LINE FILTER TLF14CB3321R0 or	LLBG00ZTU012
▲	LINE FILTER 6.35MH UU10-002	LLBG00ZKV001
L871	PCB JUMPER D0.6-P5.0	JW5.0T
L872	INDUCTOR 47μH-K-5FT or	LLARKBSTU470
	INDUCTOR 47μH-K-5FT	LLARKDSKA470
TRANSISTORS		
Q205	TRANSISTOR 2SC2785(F) or	QQSF02SC2785
	TRANSISTOR 2SC2785(H) or	QQSH02SC2785
	TRANSISTOR 2SC2785(J) or	QQSJ02SC2785
	TRANSISTOR KTC3199(GR) or	NQS10KTC3199
	TRANSISTOR KTC3198(GR) or	NQS40KTC3198
	TRANSISTOR 2SC1815-GR(TPE2)	QQS102SC1815
Q206	PHOTO TRANSISTOR MID-32A22	NPWZM1D32A22
Q301	TRANSISTOR 2SC2785(F) or	QQSF02SC2785
	TRANSISTOR 2SC2785(H) or	QQSH02SC2785
	TRANSISTOR 2SC2785(J) or	QQSJ02SC2785
	TRANSISTOR KTC3199(GR) or	NQS10KTC3199
	TRANSISTOR KTC3198(GR) or	NQS40KTC3198
	TRANSISTOR 2SC1815-GR(TPE2)	QQS102SC1815
Q302	TRANSISTOR 2SC2785(F) or	QQSF02SC2785
	TRANSISTOR 2SC2785(H) or	QQSH02SC2785
	TRANSISTOR 2SC2785(J) or	QQSJ02SC2785
	TRANSISTOR KTC3199(GR) or	NQS10KTC3199
	TRANSISTOR KTC3198(GR) or	NQS40KTC3198
	TRANSISTOR 2SC1815-GR(TPE2)	QQS102SC1815
Q401	TRANSISTOR 2SA1175(F) or	QQSF02SA1175
	TRANSISTOR KTA1267(GR) or	NQS10KTA1267
	TRANSISTOR KTA1266(GR)	NQS40KTA1266
Q402	TRANSISTOR 2SA1175(F) or	QQSF02SA1175
	TRANSISTOR KTA1267(GR) or	NQS10KTA1267
	TRANSISTOR KTA1266(GR)	NQS40KTA1266
Q491	TRANSISTOR 2SC2785(F) or	QQSF02SC2785
	TRANSISTOR 2SC2785(H) or	QQSH02SC2785
	TRANSISTOR 2SC2785(J) or	QQSJ02SC2785
	TRANSISTOR KTC3199(GR) or	NQS10KTC3199
	TRANSISTOR KTC3198(GR) or	NQS40KTC3198
	TRANSISTOR 2SC1815-GR(TPE2)	QQS102SC1815
Q601	MOS FET 2SK2662	QF5Z02SK2662
Q602▲	TRANSISTOR 2SC2120-O-TPE2 or	QQS002SC2120
▲	TRANSISTOR 2SC2120-Y(TPE2)	QQSY02SC2120
Q604▲	TRANSISTOR 2SC3331(T) or	QSC3331TNPAA
▲	TRANSISTOR 2SC3331(U) or	QSC3331UNPAA
▲	TRANSISTOR 2SC1815-GR(TPE2)	QQS102SC1815
Q605	TRANSISTOR 2SC2785(F) or	QQSF02SC2785
	TRANSISTOR 2SC2785(H) or	QQSH02SC2785
	TRANSISTOR 2SC2785(J) or	QQSJ02SC2785
	TRANSISTOR KTC3199(GR) or	NQS10KTC3199
	TRANSISTOR KTC3198(GR) or	NQS40KTC3198
	TRANSISTOR 2SC1815-GR(TPE2)	QQS102SC1815
Q606	TRANSISTOR 2SA950(O) or	Q2SA9500TPE2
	TRANSISTOR 2SA950(Y) or	Q2SA950YTPE2
	TRANSISTOR KTA1271(Y)	NQSY0KTA1271
Q607	TRANSISTOR 2SC2785(F) or	QQSF02SC2785
	TRANSISTOR 2SC2785(H) or	QQSH02SC2785
	TRANSISTOR 2SC2785(J) or	QQSJ02SC2785
	TRANSISTOR KTC3199(GR) or	NQS10KTC3199
	TRANSISTOR KTC3198(GR) or	NQS40KTC3198
	TRANSISTOR 2SC1815-GR(TPE2)	QQS102SC1815
Q608	TRANSISTOR 2SC2120-O-TPE2 or	QQS002SC2120

Ref. No.	Description	Part No.
	TRANSISTOR 2SC2120-Y(TPE2) or	QQSY02SC2120
	TRANSISTOR KTC3203(Y)	NQSY0KTC3203
Q609	TRANSISTOR 2SC2120-O-TPE2 or	QQS002SC2120
	TRANSISTOR 2SC2120-Y(TPE2) or	QQSY02SC2120
	TRANSISTOR KTC3203(Y)	NQSY0KTC3203
Q610	TRANSISTOR 2SC2120-O-TPE2 or	QQS002SC2120
	TRANSISTOR 2SC2120-Y(TPE2) or	QQSY02SC2120
	TRANSISTOR KTC3203(Y)	NQSY0KTC3203
Q611▲	TRANSISTOR 2SD400(F)	QQUF002SD400
Q612	RES. BUILT-IN TRANSISTOR KRA103M or	NQSZ0KRA103M
	RES. BUILT-IN TRANSISTOR BN1F4M-T	QQSZ00BN1F4M
Q871	TRANSISTOR 2SA1175(F) or	QQSF02SA1175
	TRANSISTOR KTA1267(GR) or	NQS10KTA1267
	TRANSISTOR KTA1266(GR)	NQS40KTA1266
Q872	TRANSISTOR 2SC2120-O-TPE2 or	QQS002SC2120
	TRANSISTOR 2SC2120-Y(TPE2) or	QQSY02SC2120
	TRANSISTOR KTC3203(Y)	NQSY0KTC3203
Q873	TRANSISTOR 2SC3331(T) or	QSC3331TNPAA
	TRANSISTOR 2SC3331(U) or	QSC3331UNPAA
	TRANSISTOR 2SC1815-GR(TPE2)	QQS102SC1815
Q874	TRANSISTOR 2SC3331(T) or	QSC3331TNPAA
	TRANSISTOR 2SC3331(U) or	QSC3331UNPAA
	TRANSISTOR 2SC1815-GR(TPE2)	QQS102SC1815
Q875	RES. BUILT-IN TRANSISTOR KRA103M or	NQSZ0KRA103M
	RES. BUILT-IN TRANSISTOR BN1F4M-T	QQSZ00BN1F4M
Q958	TRANSISTOR 2SC2785(F) or	QQSF02SC2785
	TRANSISTOR 2SC2785(H) or	QQSH02SC2785
	TRANSISTOR 2SC2785(J) or	QQSJ02SC2785
	TRANSISTOR KTC3199(GR) or	NQS10KTC3199
	TRANSISTOR KTC3198(GR) or	NQS40KTC3198
	TRANSISTOR 2SC1815-GR(TPE2)	QQS102SC1815
RESISTORS		
R001	CARBON RES. 1/4W J 1k Ω or	RCX4JATZ0102
	CARBON RES. 1/6W J 1k Ω	RCX6JATZ0102
R004	CARBON RES. 1/4W J 100 Ω or	RCX4JATZ0101
	CARBON RES. 1/6W J 100 Ω	RCX6JATZ0101
R201	CARBON RES. 1/4W G 4.7k Ω	RCX4GATZ0472
R202	CARBON RES. 1/4W G 22k Ω	RCX4GATZ0223
R203	CARBON RES. 1/4W G 470 Ω	RCX4GATZ0471
R204	CARBON RES. 1/4W G 1.5k Ω	RCX4GATZ0152
R205	CARBON RES. 1/4W G 3.6k Ω	RCX4GATZ0362
R206	CARBON RES. 1/4W G 10k Ω	RCX4GATZ0103
R207	CARBON RES. 1/4W J 22k Ω	RCX4JATZ0223
R208	CARBON RES. 1/4W J 22k Ω	RCX4JATZ0223
R209	CARBON RES. 1/4W J 10k Ω	RCX4JATZ0103
R210	CARBON RES. 1/4W J 1.5k Ω	RCX4JATZ0152
R211	CARBON RES. 1/4W J 1.5k Ω	RCX4JATZ0152
R212	CARBON RES. 1/4W J 2.2k Ω	RCX4JATZ0222
R213	CARBON RES. 1/4W J 2.7k Ω	RCX4JATZ0272
R214	CARBON RES. 1/4W J 10k Ω	RCX4JATZ0103
R215	CARBON RES. 1/4W J 1.5k Ω	RCX4JATZ0152
R216	CARBON RES. 1/4W J 1.5k Ω	RCX4JATZ0152
R217	CARBON RES. 1/4W J 2.2k Ω	RCX4JATZ0222
R218	CARBON RES. 1/4W J 2.7k Ω	RCX4JATZ0272
R219	CARBON RES. 1/4W J 1k Ω or	RCX4JATZ0102
	CARBON RES. 1/6W J 1k Ω	RCX6JATZ0102
R220	CARBON RES. 1/4W J 390k Ω	RCX4JATZ0394
R221	CARBON RES. 1/4W J 1k Ω or	RCX4JATZ0102
	CARBON RES. 1/6W J 1k Ω	RCX6JATZ0102
R222	CARBON RES. 1/4W J 390k Ω	RCX4JATZ0394

Ref. No.	Description	Part No.
R223	CARBON RES. 1/4W J 560 Ω or	RCX4JATZ0561
	CARBON RES. 1/6W J 560 Ω	RCX6JATZ0561
R225	CARBON RES. 1/4W J 100 Ω or	RCX4JATZ0101
	CARBON RES. 1/6W J 100 Ω	RCX6JATZ0101
R226	PCB JUMPER D0.6-P5.0	JW5.0T
R227	CARBON RES. 1/4W J 270 Ω or	RCX4JATZ0271
	CARBON RES. 1/6W J 270 Ω	RCX6JATZ0271
R229	CARBON RES. 1/4W J 390 Ω or	RCX4JATZ0391
	CARBON RES. 1/6W J 390 Ω	RCX6JATZ0391
R233	CARBON RES. 1/4W J 2.2k Ω	RCX4JATZ0222
R234	CARBON RES. 1/4W J 1.2k Ω	RCX4JATZ0122
R235	CARBON RES. 1/4W J 47 Ω or	RCX4JATZ0470
	CARBON RES. 1/6W J 47 Ω	RCX6JATZ0470
R236	CARBON RES. 1/4W J 100k Ω	RCX4JATZ0104
R237	PCB JUMPER D0.6-P5.0	JW5.0T
R238	CARBON RES. 1/4W J 470k Ω	RCX4JATZ0474
R239	CARBON RES. 1/4W J 1k Ω or	RCX4JATZ0102
	CARBON RES. 1/6W J 1k Ω	RCX6JATZ0102
R240	PCB JUMPER D0.6-P5.0	JW5.0T
R241	CARBON RES. 1/4W J 5.6k Ω	RCX4JATZ0562
R242	CARBON RES. 1/4W J 10k Ω	RCX4JATZ0103
R243	CARBON RES. 1/4W J 1k Ω or	RCX4JATZ0102
	CARBON RES. 1/6W J 1k Ω	RCX6JATZ0102
R244	CARBON RES. 1/4W J 1M Ω	RCX4JATZ0105
R245	CARBON RES. 1/4W J 470 Ω or	RCX4JATZ0471
	CARBON RES. 1/6W J 470 Ω	RCX6JATZ0471
R247	CARBON RES. 1/4W J 820 Ω or	RCX4JATZ0821
	CARBON RES. 1/6W J 820 Ω	RCX6JATZ0821
R248	CARBON RES. 1/4W J 470 Ω or	RCX4JATZ0471
	CARBON RES. 1/6W J 470 Ω	RCX6JATZ0471
R249	CARBON RES. 1/4W J 3.3k Ω	RCX4JATZ0332
R250	CARBON RES. 1/4W J 1.5k Ω	RCX4JATZ0152
R251	CARBON RES. 1/4W J 3.3k Ω	RCX4JATZ0332
R252	CARBON RES. 1/4W J 1.5k Ω	RCX4JATZ0152
R253	CARBON RES. 1/4W J 3.3k Ω	RCX4JATZ0332
R254	CARBON RES. 1/4W J 1.5k Ω	RCX4JATZ0152
R255	CARBON RES. 1/4W J 100 Ω or	RCX4JATZ0101
	CARBON RES. 1/6W J 100 Ω	RCX6JATZ0101
R256	CARBON RES. 1/4W J 5.6k Ω	RCX4JATZ0562
R257	PCB JUMPER D0.6-P5.0	JW5.0T
R258	CARBON RES. 1/4W J 100 Ω or	RCX4JATZ0101
	CARBON RES. 1/6W J 100 Ω	RCX6JATZ0101
R259	CARBON RES. 1/4W J 5.6k Ω	RCX4JATZ0562
R260	PCB JUMPER D0.6-P5.0	JW5.0T
R261	PCB JUMPER D0.6-P5.0	JW5.0T
R263	CARBON RES. 1/4W J 68k Ω	RCX4JATZ0683
R264	CARBON RES. 1/4W J 220k Ω	RCX4JATZ0224
R267	CARBON RES. 1/4W J 82k Ω	RCX4JATZ0823
R269	PCB JUMPER D0.6-P5.0	JW5.0T
R270	CARBON RES. 1/4W J 100k Ω	RCX4JATZ0104
R271	CARBON RES. 1/4W J 10k Ω	RCX4JATZ0103
R273	CARBON RES. 1/4W J 1.8k Ω	RCX4JATZ0182
R274	CARBON RES. 1/4W J 680 Ω or	RCX4JATZ0681
	CARBON RES. 1/6W J 680 Ω	RCX6JATZ0681
R275	CARBON RES. 1/4W J 22k Ω	RCX4JATZ0223
R276	CARBON RES. 1/4W J 47k Ω	RCX4JATZ0473
R277	CARBON RES. 1/4W J 47k Ω	RCX4JATZ0473
R278	CARBON RES. 1/4W J 1k Ω or	RCX4JATZ0102
	CARBON RES. 1/6W J 1k Ω	RCX6JATZ0102
R280	CARBON RES. 1/4W J 1k Ω or	RCX4JATZ0102
	CARBON RES. 1/6W J 1k Ω	RCX6JATZ0102

Ref. No.	Description	Part No.
R289	PCB JUMPER D0.6-P5.0	JW5.0T
R290	PCB JUMPER D0.6-P5.0	JW5.0T
R291	CARBON RES. 1/4W J 10k Ω	RCX4JATZ0103
R292	CARBON RES. 1/4W J 22k Ω	RCX4JATZ0223
R301	CARBON RES. 1/4W J 1k Ω or	RCX4JATZ0102
	CARBON RES. 1/6W J 1k Ω	RCX6JATZ0102
R302	CARBON RES. 1/4W J 15k Ω	RCX4JATZ0153
R303	CARBON RES. 1/4W J 10k Ω	RCX4JATZ0103
R304	CARBON RES. 1/4W J 18k Ω	RCX4JATZ0183
R305	CARBON RES. 1/4W J 10 Ω or	RCX4JATZ0100
	CARBON RES. 1/6W J 10 Ω	RCX6JATZ0100
R306	CARBON RES. 1/4W J 6.8k Ω	RCX4JATZ0682
R307	CARBON RES. 1/4W J 10k Ω	RCX4JATZ0103
R308	CARBON RES. 1/4W J 1k Ω or	RCX4JATZ0102
	CARBON RES. 1/6W J 1k Ω	RCX6JATZ0102
R309	CARBON RES. 1/4W J 22 Ω or	RCX4JATZ0220
	CARBON RES. 1/6W J 22 Ω	RCX6JATZ0220
R310	CARBON RES. 1/4W J 3.3k Ω	RCX4JATZ0332
R311	CARBON RES. 1/4W J 3.3k Ω	RCX4JATZ0332
R312	CARBON RES. 1/4W J 3.3k Ω	RCX4JATZ0332
R313	CARBON RES. 1/4W J 330 Ω or	RCX4JATZ0331
	CARBON RES. 1/6W J 330 Ω	RCX6JATZ0331
R314	CARBON RES. 1/4W J 330 Ω or	RCX4JATZ0331
	CARBON RES. 1/6W J 330 Ω	RCX6JATZ0331
R315	CARBON RES. 1/4W J 330 Ω or	RCX4JATZ0331
	CARBON RES. 1/6W J 330 Ω	RCX6JATZ0331
R317	CARBON RES. 1/4W J 100 Ω or	RCX4JATZ0101
	CARBON RES. 1/6W J 100 Ω	RCX6JATZ0101
R318	CARBON RES. 1/4W J 100 Ω or	RCX4JATZ0101
	CARBON RES. 1/6W J 100 Ω	RCX6JATZ0101
R319	CARBON RES. 1/4W J 100 Ω or	RCX4JATZ0101
	CARBON RES. 1/6W J 100 Ω	RCX6JATZ0101
R320	CARBON RES. 1/4W J 120k Ω	RCX4JATZ0124
R321	CARBON RES. 1/4W J 180k Ω	RCX4JATZ0184
R322	CARBON RES. 1/4W J 15k Ω	RCX4JATZ0153
R323	CARBON RES. 1/4W J 6.8k Ω	RCX4JATZ0682
R324	CARBON RES. 1/4W J 100 Ω or	RCX4JATZ0101
	CARBON RES. 1/6W J 100 Ω	RCX6JATZ0101
R325	CARBON RES. 1/4W J 10k Ω	RCX4JATZ0103
R326	CARBON RES. 1/4W J 1k Ω or	RCX4JATZ0102
	CARBON RES. 1/6W J 1k Ω	RCX6JATZ0102
R328	CARBON RES. 1/4W J 10M Ω	RCX4JATZ0106
R329	CARBON RES. 1/4W J 1M Ω	RCX4JATZ0105
R330	CARBON RES. 1/4W J 100 Ω or	RCX4JATZ0101
	CARBON RES. 1/6W J 100 Ω	RCX6JATZ0101
R331	CARBON RES. 1/4W J 15 Ω or	RCX4JATZ0150
	CARBON RES. 1/6W J 15 Ω	RCX6JATZ0150
R332	CARBON RES. 1/4W J 150 Ω or	RCX4JATZ0151
	CARBON RES. 1/6W J 150 Ω	RCX6JATZ0151
R333	CARBON RES. 1/4W J 27 Ω or	RCX4JATZ0270
	CARBON RES. 1/6W J 27 Ω	RCX6JATZ0270
R334	PCB JUMPER D0.6-P5.0	JW5.0T
R335	CARBON RES. 1/4W J 1k Ω or	RCX4JATZ0102
	CARBON RES. 1/6W J 1k Ω	RCX6JATZ0102
R336	CARBON RES. 1/4W J 390 Ω or	RCX4JATZ0391
	CARBON RES. 1/6W J 390 Ω	RCX6JATZ0391
R337	CARBON RES. 1/4W J 220 Ω or	RCX4JATZ0221
	CARBON RES. 1/6W J 220 Ω	RCX6JATZ0221
R338	PCB JUMPER D0.6-P5.0	JW5.0T
R339	CARBON RES. 1/4W J 56 Ω or	RCX4JATZ0560
	CARBON RES. 1/6W J 56 Ω	RCX6JATZ0560

Ref. No.	Description	Part No.
R340	CARBON RES. 1/4W J 100 Ω or	RCX4JATZ0101
	CARBON RES. 1/6W J 100 Ω	RCX6JATZ0101
R341	CARBON RES. 1/4W J 1k Ω or	RCX4JATZ0102
	CARBON RES. 1/6W J 1k Ω	RCX6JATZ0102
R342	CARBON RES. 1/4W J 10k Ω	RCX4JATZ0103
R343	CARBON RES. 1/4W J 100 Ω or	RCX4JATZ0101
	CARBON RES. 1/6W J 100 Ω	RCX6JATZ0101
R345	PCB JUMPER D0.6-P5.0	JW5.0T
R391	CARBON RES. 1/4W J 100 Ω or	RCX4JATZ0101
	CARBON RES. 1/6W J 100 Ω	RCX6JATZ0101
R392	CARBON RES. 1/4W J 100 Ω or	RCX4JATZ0101
	CARBON RES. 1/6W J 100 Ω	RCX6JATZ0101
R393	CARBON RES. 1/4W J 100 Ω or	RCX4JATZ0101
	CARBON RES. 1/6W J 100 Ω	RCX6JATZ0101
R394	CARBON RES. 1/4W J 1k Ω or	RCX4JATZ0102
	CARBON RES. 1/6W J 1k Ω	RCX6JATZ0102
R406	CARBON RES. 1/4W J 47k Ω	RCX4JATZ0473
R407	CARBON RES. 1/4W J 47k Ω	RCX4JATZ0473
R409	CARBON RES. 1/4W J 18k Ω	RCX4JATZ0183
R413	CARBON RES. 1/4W J 39k Ω	RCX4JATZ0393
R414	CARBON RES. 1/4W J 4.7k Ω	RCX4JATZ0472
R415	CARBON RES. 1/4W J 1.5k Ω	RCX4JATZ0152
R416	CARBON RES. 1/4W J 100k Ω	RCX4JATZ0104
R417	CARBON RES. 1/4W J 220 Ω or	RCX4JATZ0221
	CARBON RES. 1/6W J 220 Ω	RCX6JATZ0221
R418	CARBON RES. 1/4W J 270 Ω or	RCX4JATZ0271
	CARBON RES. 1/6W J 270 Ω	RCX6JATZ0271
R419	CARBON RES. 1/4W J 220 Ω or	RCX4JATZ0221
	CARBON RES. 1/6W J 220 Ω	RCX6JATZ0221
R420	CARBON RES. 1/4W J 100 Ω or	RCX4JATZ0101
	CARBON RES. 1/6W J 100 Ω	RCX6JATZ0101
R421	PCB JUMPER D0.6-P5.0	JW5.0T
R423	CARBON RES. 1/4W J 5.6M Ω	RCX4JATZ0565
R424	CARBON RES. 1/4W J 100k Ω	RCX4JATZ0104
R425	CARBON RES. 1/4W J 82k Ω	RCX4JATZ0823
R426	CARBON RES. 1/4W J 2.2k Ω	RCX4JATZ0222
R427	CARBON RES. 1/4W J 820 Ω or	RCX4JATZ0821
	CARBON RES. 1/6W J 820 Ω	RCX6JATZ0821
R428	CARBON RES. 1/4W J 680k Ω	RCX4JATZ0684
R429	CARBON RES. 1/4W J 1.5k Ω	RCX4JATZ0152
R431	CARBON RES. 1/4W J 8.2k Ω	RCX4JATZ0822
R435	CARBON RES. 1/4W J 1.8k Ω	RCX4JATZ0182
R495	CARBON RES. 1/4W J 47k Ω	RCX4JATZ0473
R496	CARBON RES. 1/4W J 2.2M Ω	RCX4JATZ0225
R497	CARBON RES. 1/4W J 12k Ω	RCX4JATZ0123
R602▲	CEMENT RES. 5W K 1.2 Ω or	RW051R2DP005
▲	CEMENT RESISTOR 5W K 1.2 Ω or	RW051R2PG001
▲	CEMENT RESISTOR 5W J 1.2 Ω	RW051R2Y4001
R603	METAL OXIDE FILM RES. 2W J 0.39 Ω or	RN02R39ZU001
	METAL OXIDE FILM RES. 2W J 0.39 Ω	RN02R39DP004
R604	CARBON RES. 1/4W J 1.2M Ω	RCX4JATZ0125
R605	CARBON RES. 1/4W J 1.2M Ω	RCX4JATZ0125
R606	CARBON RES. 1/4W J 180 Ω or	RCX4JATZ0181
	CARBON RES. 1/6W J 180 Ω	RCX6JATZ0181
R607	CARBON RES. 1/4W J 180 Ω or	RCX4JATZ0181
	CARBON RES. 1/6W J 180 Ω	RCX6JATZ0181
R608	CARBON RES. 1/4W J 150k Ω	RCX4JATZ0154
R609	PCB JUMPER D0.6-P5.0	JW5.0T
R610	CARBON RES. 1/4W J 1k Ω or	RCX4JATZ0102
	CARBON RES. 1/6W J 1k Ω	RCX6JATZ0102
R613	CARBON RES. 1/4W J 100 Ω or	RCX4JATZ0101

Ref. No.	Description	Part No.
	CARBON RES. 1/6W J 100 Ω	RCX6JATZ0101
R614	CARBON RES. 1/4W J 1.5k Ω	RCX4JATZ0152
R616	CARBON RES. 1/4W 2.2 Ω J or	RCX4JATZ02F2
	CARBON RES. 1/6W J 2.2 Ω	RCX6JATZ02F2
R617	CARBON RES. 1/4W J 180 Ω or	RCX4JATZ0181
	CARBON RES. 1/6W J 180 Ω	RCX6JATZ0181
R618	CARBON RES. 1/4W J 330 Ω or	RCX4JATZ0331
	CARBON RES. 1/6W J 330 Ω or	RCX6JATZ0331
R619	CARBON RES. 1/4W J 330 Ω or	RCX4JATZ0331
	CARBON RES. 1/6W J 330 Ω	RCX6JATZ0331
R620	CEMENT RES. 5W J 3.9k Ω or	RW05392DP008
	CEMENT RES. 5W 3.9K J H=25MM or	RW05392PG004
	CEMENT RES. 5W J 3.9k Ω	RW05392Y4004
R621	CARBON RES. 1/4W J 15k Ω	RCX4JATZ0153
R622	CARBON RES. 1/4W J 15k Ω	RCX4JATZ0153
R623	CARBON RES. 1/4W J 33k Ω	RCX4JATZ0333
R624	CARBON RES. 1/4W J 39k Ω	RCX4JATZ0393
R625	CARBON RES. 1/4W J 47k Ω	RCX4JATZ0473
R629	CARBON RES. 1/4W J 13k Ω	RCX4JATZ0133
R630	CARBON RES. 1/4W J 13k Ω	RCX4JATZ0133
R631	CARBON RES. 1/4W J 12k Ω	RCX4JATZ0123
R632	CARBON RES. 1/4W J 470 Ω or	RCX4JATZ0471
	CARBON RES. 1/6W J 470 Ω	RCX6JATZ0471
R633	CARBON RES. 1/4W J 5.6k Ω	RCX4JATZ0562
R634	CARBON RES. 1/4W J 6.8k Ω	RCX4JATZ0682
R635	CARBON RES. 1/4W J 10k Ω	RCX4JATZ0103
R636	CARBON RES. 1/4W J 820 Ω or	RCX4JATZ0821
	CARBON RES. 1/6W J 820 Ω	RCX6JATZ0821
R639	METAL OXIDE FILM RES. 2W J 560 Ω or	RN02561ZU001
	METAL OXIDE FILM RES. 2W J 560 Ω	RN02561DP004
R640	CARBON RES. 1/4W J 56k Ω	RCX4JATZ0563
R641	CARBON RES. 1/4W J 10k Ω	RCX4JATZ0103
R642	CARBON RES. 1/4W J 8.2k Ω	RCX4JATZ0822
R644	CARBON RES. 1/4W J 47k Ω	RCX4JATZ0473
R646▲	METAL OXIDE FILM RES. 1W J 56 Ω or	RN01560ZU001
▲	METAL OXIDE FILM RES. 1W J 56 Ω	RN01560DP003
R647▲	METAL OXIDE FILM RES. 1W J 56 Ω or	RN01560ZU001
▲	METAL OXIDE FILM RES. 1W J 56 Ω	RN01560DP003
R648▲	METAL OXIDE FILM RES. 1W J 8.2 Ω or	RN018R2ZU001
▲	METAL OXIDE FILM RES. 1W J 8.2 Ω	RN018R2DP003
R649	CARBON RES. 1/4W J 10k Ω	RCX4JATZ0103
R650▲	CARBON RES. 1/4W J 33 Ω or	RCX4JATZ0330
▲	CARBON RES. 1/6W J 33 Ω	RCX6JATZ0330
R651	CARBON RES. 1/4W J 560 Ω or	RCX4JATZ0561
	CARBON RES. 1/6W J 560 Ω	RCX6JATZ0561
R652▲	CARBON RES. 1/4W J 560 Ω or	RCX4JATZ0561
▲	CARBON RES. 1/6W J 560 Ω	RCX6JATZ0561
R653	CARBON RES. 1/4W J 100 Ω or	RCX4JATZ0101
	CARBON RES. 1/6W J 100 Ω	RCX6JATZ0101
R654	METAL OXIDE FILM RES. 1W J 6.8 Ω or	RN016R8ZU001
	METAL OXIDE FILM RES. 1W J 6.8 Ω	RN016R8DP003
R655	CARBON RES. 1/4W J 1.8k Ω	RCX4JATZ0182
R656▲	METAL OXIDE FILM RES. 2W J 10 Ω or	RN02100ZU001
▲	METAL OXIDE FILM RES. 2W J 10 Ω	RN02100DP004
R659	CARBON RES. 1/4W J 100 Ω or	RCX4JATZ0101
	CARBON RES. 1/6W J 100 Ω	RCX6JATZ0101
R660	PCB JUMPER D0.6-P5.0	JW5.0T
R662	CARBON RES. 1/4W J 33 Ω or	RCX4JATZ0330
	CARBON RES. 1/6W J 33 Ω	RCX6JATZ0330
R701	CARBON RES. 1/4W J 150 Ω or	RCX4JATZ0151
	CARBON RES. 1/6W J 150 Ω	RCX6JATZ0151

Ref. No.	Description	Part No.
R801▲	METAL OXIDE FILM RES. 1W J 12 Ω or	RN01120ZU001
▲	FIXED METAL OXIDE FILM RES. 1W J 12 Ω	RN01JZPZ0120
R802	CARBON RES. 1/4W J 4.7k Ω	RCX4JATZ0472
R803	CARBON RES. 1/4W J 2.2k Ω	RCX4JATZ0222
R804	CARBON RES. 1/4W J 3.9k Ω	RCX4JATZ0392
R805	CARBON RES. 1/4W J 12k Ω	RCX4JATZ0123
R806	CARBON RES. 1/4W J 47 Ω or	RCX4JATZ0470
	CARBON RES. 1/6W J 47 Ω	RCX6JATZ0470
R807	CARBON RES. 1/4W J 47 Ω or	RCX4JATZ0470
	CARBON RES. 1/6W J 47 Ω	RCX6JATZ0470
R851	CARBON RES. 1/4W J 22k Ω	RCX4JATZ0223
R852	CARBON RES. 1/4W J 3.3k Ω	RCX4JATZ0332
R853	CARBON RES. 1/4W J 2.2M Ω	RCX4JATZ0225
R856	CARBON RES. 1/4W J 22k Ω	RCX4JATZ0223
R857	CARBON RES. 1/4W J 3.3k Ω	RCX4JATZ0332
R858	CARBON RES. 1/4W J 6.8k Ω	RCX4JATZ0682
R859	CARBON RES. 1/4W J 4.7k Ω	RCX4JATZ0472
R861	CARBON RES. 1/4W J 6.8k Ω	RCX4JATZ0682
R862	CARBON RES. 1/4W J 2.7k Ω	RCX4JATZ0272
R863	CARBON RES. 1/4W J 10k Ω	RCX4JATZ0103
R864	CARBON RES. 1/4W J 8.2k Ω	RCX4JATZ0822
R865	CARBON RES. 1/4W J 12k Ω	RCX4JATZ0123
R866	CARBON RES. 1/4W J 330k Ω	RCX4JATZ0334
R867	CARBON RES. 1/4W J 150 Ω or	RCX4JATZ0151
	CARBON RES. 1/6W J 150 Ω	RCX6JATZ0151
R868	CARBON RES. 1/4W J 18k Ω	RCX4JATZ0183
R869	CARBON RES. 1/4W J 820 Ω or	RCX4JATZ0821
	CARBON RES. 1/6W J 820 Ω	RCX6JATZ0821
R871	CARBON RES. 1/4W J 1k Ω or	RCX4JATZ0102
	CARBON RES. 1/6W J 1k Ω	RCX6JATZ0102
R872	CARBON RES. 1/4W J 22k Ω	RCX4JATZ0223
R873	CARBON RES. 1/4W J 18k Ω	RCX4JATZ0183
R874	CARBON RES. 1/4W J 100 Ω or	RCX4JATZ0101
	CARBON RES. 1/6W J 100 Ω	RCX6JATZ0101
R875	CARBON RES. 1/4W J 2.2k Ω	RCX4JATZ0222
R876	CARBON RES. 1/4W J 2.2k Ω	RCX4JATZ0222
R877	CARBON RES. 1/4W J 820 Ω or	RCX4JATZ0821
	CARBON RES. 1/6W J 820 Ω	RCX6JATZ0821
R878	CARBON RES. 1/4W J 10k Ω	RCX4JATZ0103
R976	METAL OXIDE FILM RES. 1W J 47 Ω or	RN01470ZU001
	METAL OXIDE FILM RES. 1W J 47 Ω	RN01470DP003
R977	CARBON RES. 1/4W J 1k Ω or	RCX4JATZ0102
	CARBON RES. 1/6W J 1k Ω	RCX6JATZ0102
R978	CARBON RES. 1/4W J 6.8k Ω	RCX4JATZ0682
R979	CARBON RES. 1/4W J 22k Ω	RCX4JATZ0223
R980	CARBON RES. 1/4W J 6.8k Ω	RCX4JATZ0682
R981	METAL OXIDE FILM RES. 1W J 1.2 Ω or	RN011R2ZU001
	METAL OXIDE FILM RES. 1W J 1.2 Ω	RN011R2DP003
R992	CARBON RES. 1/4W J 47k Ω	RCX4JATZ0473
SWITCHES		
SW201	TACT SWITCH SKQNAED010	SST0101AL055
SW202	TACT SWITCH SKQNAED010	SST0101AL055
SW203	TACT SWITCH SKQNAED010	SST0101AL055
SW204	TACT SWITCH SKQNAED010	SST0101AL055
SW205	TACT SWITCH SKQNAED010	SST0101AL055
SW206	TACT SWITCH SKQNAED010	SST0101AL055
SW207	TACT SWITCH SKQNAED010	SST0101AL055
SW208	TACT SWITCH SKQNAED010	SST0101AL055
SW209	TACT SWITCH SKQNAED010	SST0101AL055
SW210	TACT SWITCH SKQNAED010	SST0101AL055

Ref. No.	Description	Part No.
SW211	LEAF SWITCH LSA-1142AU or	SSC0101KB013
	LEAF SWITCH MXS00052MPP0 or	SSC0101MCE01
	LEAF SWITCH MXS00981MPP0 or	SSC0101MCE02
	LEAF SWITCH LSA-1142-1AU	SSC0101KB014
SW212	ROTARY MODE SWITCH SSS-43MD or	SSR0106KB001
	ROTARY MODE SWITCH R8100212	SSR0106U3001
MISCELLANEOUS		
BC601	BEAD INDUCTORS FBR07HA121TB-00	LLBF00ZTU021
BC602	BEAD INDUCTORS FBR07HA121TB-00	LLBF00ZTU021
BC603	BEAD INDUCTORS FBR07HA121TB-00	LLBF00ZTU021
BC604	BEAD INDUCTORS FBR07HA121TB-00	LLBF00ZTU021
BC605	PCB JUMPER D0.6-P5.0	JW5.0T
CF301	CERAMIC TRAP 4.5MHz or	FBE455PMR003
	4.5M TRAP XT4.5MB2 or	FBE455PLN001
	CERAMIC TRAP 4.5MHz	FBE455PMS002
CF302	CERAMIC FILTER SFSRA4M50CF00-B0 or	FBB455PMR004
	4.5M FILTER LTH4.5MCB	FBB455PLN001
CL201	FMN CONNECTOR, TOP 12P 12FMN-BTRK	JCFNG12JG002
F601▲	FUSE 4.00A/125V or	PAGU20CAG400
▲	FUSE 51MS040L or	PAFC20CHV402
▲	FUSE 4A/125V 237 TYPE or	PAGJ20CAG402
▲	FUSE STC4A125V U/CT or	PAGE20CW3402
▲	FUSE 4.00A/125V	PAGG20CNG402
FH601	FUSE HOLDER MSF-015 or	XH01Z00LY001
	FUSE HOLDER FH-V-03078	XH01Z00DK001
FH602	FUSE HOLDER MSF-015 or	XH01Z00LY001
	FUSE HOLDER FH-V-03078	XH01Z00DK001
JK601▲	AC INLET CCT9302-0201M or	JTDCOP0SR001
▲	AC INLET HSC0555-010010 or	JTDCOP0HD001
▲	AC INLET YKE31-0120	JTDCOP0JC001
JK701	RCA JACK 1P AV-8.4-9Y	JXRL010RP010
JK702	RCA JACK 1P AV-8.4-9W	JXRL010RP011
JK801	EARPHONE JACK EX341BLB-1	JYSL030EXC01
PS601▲	THERMISTOR ZPB45BL7R0A	QNZZ45BL7R0A
RS201	REMOCON RECEIVE UNIT MIM-93M8DKL or	USESJRSUNT02
	REMOCON RECEIVE UNIT PIC-37042SR or	USESJRSKK034
	REMOCON RECEIVE UNIT PIC-26042SR-2	USESJRSKK032
SA601▲	SURGE ABSORBER JVR-07N471K or	NVQZVR07N471
▲	SURGE ABSORBER CNR-10D471K or	NVQZR10D471K
▲	SURGE ABSORBER CNR-07D471K or	NVQZR07D471K
▲	SURGE ABSORBER PVR-07D471KB	NVQZ07D471KB
SF001	SAW FILTER SAFGM45M7VHGZM0B03	FBB456PMR007
SG601▲	GAP. FNR-G3.10D	FAZ000LD6005
T601▲	SWITCHING TRANS AC K1J2K	LTT00CPKT092
TB3	HEAD SHIELD(NTSC) T5300UA	OEM301560
TB9	9V POW HEAT SINK PGH T4300UA	OEM406811
TB21	BUSH, LED(F) H3700UD	0VM409508
TL2	SCREW, B-TIGHT M3X8 BIND HEAD+	GBMB3080
TP001	PCB JUMPER D0.6-P10.0	JW10.0T
TP201	PCB JUMPER D0.6-P15.0	JW15.0T
TP301	PCB JUMPER D0.6-P10.0	JW10.0T
TP302	PCB JUMPER D0.6-P20.0	JW20.0T
TP401	PCB JUMPER D0.6-P15.0	JW15.0T
TP402	PCB JUMPER D0.6-P15.0	JW15.0T
TP403	PCB JUMPER D0.6-P15.0	JW15.0T
TP601	PCB JUMPER D0.6-P10.0	JW10.0T
TP602	PCB JUMPER D0.6-P10.0	JW10.0T
TU001	TUNER B8095AP or	UTUNNTUSP018
	TUNER ENV56DB3G3 or	UTUNNTUMS009
	TUNER UNIT TEDH9-309A	UTUNNTUAL031

Ref. No.	Description	Part No.
VR601	CARBON P.O.T. 10k Ω B or CARBON P.O.T. 10k Ω B	VRCB103KA011 VRCB103HH014
X201	XTAL 32.768kHz(20PPM) or XTAL 32.768kHz(20PPM) or XTAL 32.768kHz(20PPM)	FXC323LJNY01 FXC323LCT001 FXC323LDS002
X202	XTAL HC-49/U 10.6MHz or XTAL AT49-10.6 or XTAL :10.6MHz S8562	FXD106LLN001 FXD106LDS002 FXD106LCT001
X301	XTAL 3.579545 MHz or XTAL 3.579545MHz(30PPM)	FXD355LLN003 FXD355LCHE01
X401	XTAL 3.579545MHz(20PPM) or XTAL 3.579545MHz(20PPM) or XTAL 3.579545MHz(20PPM) or XTAL 3.579545MHz or XTAL 3.579545MHz(20PPM)	FXC355LJNY01 FXC355LLN003 FXC355LDS001 FXC355LLN001 FXC355LCHE01

SENSOR CBA

Ref. No.	Description	Part No.
	SENSOR CBA Consists of the following	0ESA04524
TRANSISTORS		
Q201	PHOTO TRANSISTOR MID-32A22	NPWZM1D32A22
Q202	PHOTO TRANSISTOR MID-32A22	NPWZM1D32A22

POWER CBA

Ref. No.	Description	Part No.
	POWER CBA Consists of the following	Z1109PS1
	HV/DC POWER SUPPLY CBA CRT CBA JUNCTION A CBA JUNCTION B CBA	----- ----- ----- -----

HV/DC POWER SUPPLY CBA

Ref. No.	Description	Part No.
	HV/DC POWER SUPPLY CBA Consists of the following	-----
CAPACITORS		
C552	MYLAR CAP. 0.22μF/50V J or FILM CAP.(P) 0.22μF/50V J	CMA1JJS00224 CA1J224MS029
C553	ELECTROLYTIC CAP. 2.2μF/50V M LL or ELECTROLYTIC CAP. 2.2μF/50V LL	CE1JMASLL2R2 CE1JMASLH2R2
C555	ELECTROLYTIC CAP. 47μF/35V M or ELECTROLYTIC CAP. 47μF/35V M	CE1GMASDL470 CE1GMASTL470
C556	ELECTROLYTIC CAP. 1000μF/25V M or ELECTROLYTIC CAP. 1000μF/25V M	CE1EMZPDL102 CE1EMZPTL102
C558	CERAMIC CAP.(AX) B K 0.01μF/50V	CA1J103TU011
C559	ELECTROLYTIC CAP. 330μF/35V M or ELECTROLYTIC CAP. 330μF/35V M	CE1GMZPDL331 CE1GMZPTL331
C560	FILM CAP.(P) 0.0068μF/50V J or FILM CAP.(P) 0.0068μF/50V J	CMA1JJS00682 CA1J682MS029
C563	PCB JUMPER D0.6-P5.0	JW5.0T
C572▲	P.P. CAP 0.22μF/200V J or ▲ PP CAP. 0.22μF/200V J	CA2D224VC012 CT2E224MS041
C574	ELECTROLYTIC CAP. 4.7μF/250V M or ELECTROLYTIC CAP. 4.7μF/250V M	CE2EMASDL4R7 CE2EMASTL4R7
C577	FILM CAP.(P) 0.01μF/50V J or FILM CAP.(P) 0.01μF/50V J	CMA1JJS00103 CA1J103MS029

Ref. No.	Description	Part No.
C578	ELECTROLYTIC CAP. 47μF/35V M or ELECTROLYTIC CAP. 47μF/35V M	CE1GMASDL470 CE1GMASTL470
C580▲	P.P.CAP 0.0068μF/1.6KV J or ▲ PP CAP. 0.0068μF/1.6KV J or ▲ PP CAP. 0.0068μF/1.6KV J	CA3C682VC011 CT3C682MS039 CBH3CJQ00682
C581▲	CERAMIC CAP. BN 820pF/2KV or ▲ CERAMIC CAP. LB 820pF/2KV or ▲ CERAMIC CAP. 820pF/2KV	CCD3DKA0B821 CA3D821KG004 CA3D821PAN04
C584▲	ELECTROLYTIC CAP. 1μF/160V M or ▲ ELECTROLYTIC CAP. 1μF/160V M	CE2CMASDL1R0 CE2CMASTL010
C585	CERAMIC CAP. B K 100pF/1KV or CERAMIC CAP. B K 100pF/1KV or CERAMIC CAP. B K 100pF/1KV	CCD3AKD0B101 CA3A101MR028 CCD3AKP0B101
C591▲	ELECTROLYTIC CAP. 1μF/50V M or ▲ ELECTROLYTIC CAP. 1μF/50V M or ▲ ELECTROLYTIC CAP. 1μF/50V M	CE1JMASDL1R0 CE1JMASDL010 CE1JMASTL010
C592▲	ELECTROLYTIC CAP. 47μF/35V M or ▲ ELECTROLYTIC CAP. 47μF/35V M	CE1GMASDL470 CE1GMASTL470
C594	ELECTROLYTIC CAP. 100μF/160V M or ELECTROLYTIC CAP. 100μF/160V M	CE2CMZPDL101 CE2CMZZTL101
C1930	CERAMIC CAP.(AX) CH J 330pF/50V	CA1J331TU008
C1931	ELECTROLYTIC CAP. 47μF/25V M or ELECTROLYTIC CAP. 47μF/25V M	CE1EMASDL470 CE1EMASTL470
C1932	CERAMIC CAP.(AX) B K 0.0047μF/50V	CA1J472TU011
C1933	ELECTROLYTIC CAP. 10μF/16V M or ELECTROLYTIC CAP. 10μF/16V M	CE1CMASDL100 CE1CMASTL100
C1951	ELECTROLYTIC CAP. 1000μF/25V M or ELECTROLYTIC CAP. 1000μF/25V M	CE1EMZPDL102 CE1EMZPTL102
C1952	ELECTROLYTIC CAP. 3300μF/25V(PJ) or ELECTROLYTIC CAP. 3300μF/25V M(KC)	CA1E332NC052 CA1E332EA041
C1957	CERAMIC CAP. B K 560pF/1KV or CERAMIC CAP. B K 560pF/1KV	CCD3AKD0B561 CCD3AKP0B561
C1958	CERAMIC CAP. B K 560pF/1KV or CERAMIC CAP. B K 560pF/1KV	CCD3AKD0B561 CCD3AKP0B561
C1959	ELECTROLYTIC CAP. 100μF/160V M or ELECTROLYTIC CAP. 100μF/160V M	CE2CMZPDL101 CE2CMZZTL101
C1960	CERAMIC CAP. B K 1500pF/1KV or CERAMIC CAP. B K 1500pF/1KV or CERAMIC CAP. B K 1500pF/1KV	CCD3AKD0B152 CA3A152MR028 CCD3AKP0B152
C1961	ELECTROLYTIC CAP. 220μF/35V M or ELECTROLYTIC CAP. 220μF/35V M	CE1GMASDL221 CE1GMASTL221
C1962	FILM CAP.(P) 0.0082μF/50V J or FILM CAP.(P) 0.0082μF/50V J	CMA1JJS00822 CA1J822MS029
C1963	CERAMIC CAP. YV Z 0.01μF/50V or CERAMIC CAP. F Z 0.01μF/50V	CCD1JZSYV103 CCD1JZSOF103
C1966	CERAMIC CAP.(AX) B K 0.1μF/50V	CA1J104TU011
CN571	CONNECTOR BASE, 5P TV-50P-05-V3 or CONNECTOR BASE, 5P RTB-1.5-5P	J3TVC05TG002 J3RTC05JG001
DIODES		
D552	DIODE 1N5397-B or RECTIFIER DIODE ERB12-06	NDLZ001N5397 QDQZ0ERB1206
D571▲	DIODE FR154 or ▲ FAST RECOVERY DIODE ERB44-02	NDLZ000FR154 QDPZ0ERB4402
D572▲	DIODE FR104-B or ▲ RECTIFIER DIODE 10ELS2 or ▲ RECTIFIER DIODE ERA22-02	NDLZ000FR104 QDQZ0010ELS2 QDPZ0ERA2202
D584▲	SWITCHING DIODE 1SS133(T-77) or ▲ SWITCHING DIODE 1N4148	QDTZ001SS133 NDTZ001N4148
D585	ZENER DIODE MTZJT-775.1B or ZENER DIODE DZ-5.1BSBT265	QDTB0MTZJ5R1 NDTB0DZ5R1BS

Ref. No.	Description	Part No.
D591▲	ZENER DIODE MTZJT-7736B or	QDTB00MTZJ36
▲	ZENER DIODE DZ-36BSBT265	NDTB00DZ36BS
D595	ZENER DIODE MTZJT-7718B or	QDTB00MTZJ18
	ZENER DIODE DZ-18BSBT265	NDTB00DZ18BS
D596▲	SWITCHING DIODE 1SS133(T-77) or	QDTZ001SS133
▲	SWITCHING DIODE 1N4148	NDTZ001N4148
D597▲	SWITCHING DIODE 1SS133(T-77) or	QDTZ001SS133
▲	SWITCHING DIODE 1N4148	NDTZ001N4148
D598▲	DIODE FR104-B or	NDLZ000FR104
▲	RECTIFIER DIODE 10ELS2 or	QDQZ0010ELS2
▲	RECTIFIER DIODE ERA22-02	QDPZ0ERA2202
D1930	SWITCHING DIODE 1SS133(T-77) or	QDTZ001SS133
	SWITCHING DIODE 1N4148	NDTZ001N4148
D1952▲	DIODE 1ZC18 or	QDQZ0001ZC18
▲	ZENER DIODE RD18F	QDQZ000RD18F
D1955▲	FAST RECOVERY DIODE 20NFA60 or	QDAZ020NFA60
▲	FAST RECOVERY DIODE ERD38-06	QDQZ0ERD3806
D1956	DIODE FR154 or	NDLZ000FR154
	FAST RECOVERY DIODE ERB44-02	QDPZ0ERB4402
D1957	ZENER DIODE MTZJT-7712A or	QDTA00MTZJ12
	ZENER DIODE DZ-12BSAT265	NDTA00DZ12BS
D1958	SCHOTTKY BARRIER DIODE SB140	NDQZ000SB140
D1959	SCHOTTKY BARRIER DIODE SB140	NDQZ000SB140
D1960	SCHOTTKY BARRIER DIODE SB140	NDQZ000SB140
ICS		
IC551▲	VERTICAL OUTPUT IC AN5522 or	QSZBA0SMS002
▲	VERTICAL OUTPUT IC LA78040A	QSBBA0SSY003
IC1951	IC:SWITCHING REGURATOR M62212FP	QSZBA0TMB004
COILS		
L505	CHOKE COIL 47μH-K	LLBD00PKV007
L506	CHOKE COIL 47μH-K	LLBD00PKV007
L573	CHOKE COIL 47μH-K	LLBD00PKV007
TRANSISTORS		
Q571▲	TRANSISTOR 2SD2627LS-FEC-YB11 or	QQZZ02SD2627
▲	TRANSISTOR TT2140LS-YB11	QQZZ00TT2140
Q572	TRANSISTOR 2SC1627Y-TPE2	QQSY02SC1627
Q591▲	TRANSISTOR 2SC2785(F) or	QQSF02SC2785
▲	TRANSISTOR 2SC2785(H) or	QQSH02SC2785
▲	TRANSISTOR 2SC2785(J) or	QQSJ02SC2785
▲	TRANSISTOR KTC3199(GR) or	NQS10KTC3199
▲	TRANSISTOR KTC3198(GR) or	NQS40KTC3198
▲	TRANSISTOR 2SC1815-GR(TPE2)	QQS102SC1815
Q1930	TRANSISTOR KTC3199(GR) or	NQS10KTC3199
	TRANSISTOR KTC3198(GR) or	NQS40KTC3198
	TRANSISTOR 2SC3331(T) or	QSC3331TNPAA
	TRANSISTOR 2SC3331(U) or	QSC3331UNPAA
	TRANSISTOR 2SC1815-GR(TPE2)	QQS102SC1815
Q1931	TRANSISTOR KTC3199(GR)	NQS10KTC3199
Q1932	TRANSISTOR KTA1267(GR)	NQS10KTA1267
Q1933▲	MOS FET 2SK2232 or	QF5Z02SK2232
▲	MOS FET FS30KMJ-06	QFZZ0FS30KMJ
Q1951	TRANSISTOR 2SC2785(F) or	QQSF02SC2785
	TRANSISTOR 2SC2785(H) or	QQSH02SC2785
	TRANSISTOR 2SC2785(J) or	QQSJ02SC2785
	TRANSISTOR KTC3199(GR) or	NQS10KTC3199
	TRANSISTOR KTC3198(GR) or	NQS40KTC3198
	TRANSISTOR 2SC1815-GR(TPE2)	QQS102SC1815
Q1952	TRANSISTOR 2SC2785(F) or	QQSF02SC2785
	TRANSISTOR 2SC2785(H) or	QQSH02SC2785
	TRANSISTOR 2SC2785(J) or	QQSJ02SC2785

Ref. No.	Description	Part No.
	TRANSISTOR KTC3199(GR) or	NQS10KTC3199
	TRANSISTOR KTC3198(GR) or	NQS40KTC3198
	TRANSISTOR 2SC1815-GR(TPE2)	QQS102SC1815
Q1953▲	TRANSISTOR 2SA1931 or	QQZZ02SA1931
▲	TRANSISTOR 2SA1469(F)	QQ9R02SA1469
Q1954	TRANSISTOR 2SC2785(F) or	QQSF02SC2785
	TRANSISTOR 2SC2785(H) or	QQSH02SC2785
	TRANSISTOR 2SC2785(J) or	QQSJ02SC2785
	TRANSISTOR KTC3199(GR) or	NQS10KTC3199
	TRANSISTOR KTC3198(GR) or	NQS40KTC3198
	TRANSISTOR 2SC1815-GR(TPE2)	QQS102SC1815
Q1955	TRANSISTOR 2SC2785(F) or	QQSF02SC2785
	TRANSISTOR 2SC2785(H) or	QQSH02SC2785
	TRANSISTOR 2SC2785(J) or	QQSJ02SC2785
	TRANSISTOR KTC3199(GR) or	NQS10KTC3199
	TRANSISTOR KTC3198(GR) or	NQS40KTC3198
	TRANSISTOR 2SC1815-GR(TPE2)	QQS102SC1815
Q1956	TRANSISTOR 2SC2785(F) or	QQSF02SC2785
	TRANSISTOR 2SC2785(H) or	QQSH02SC2785
	TRANSISTOR 2SC2785(J) or	QQSJ02SC2785
	TRANSISTOR KTC3199(GR) or	NQS10KTC3199
	TRANSISTOR KTC3198(GR) or	NQS40KTC3198
	TRANSISTOR 2SC1815-GR(TPE2)	QQS102SC1815
RESISTORS		
R544	CARBON RES. 1/4W J 10k Ω	RCX4JATZ0103
R551	CARBON RES. 1/4W J 8.2k Ω	RCX4JATZ0822
R552	CARBON RES. 1/4W J 1.8k Ω	RCX4JATZ0182
R556	CARBON RES. 1/4W J 4.7 Ω	RCX4JATZ0477
R557	CARBON RES. 1/4W J 560 Ω or	RCX4JATZ0561
	CARBON RES. 1/6W J 560 Ω	RCX6JATZ0561
R558	CARBON RES. 1/4W J 18k Ω	RCX4JATZ0183
R559	CARBON RES. 1/4W J 2.7k Ω	RCX4JATZ0272
R560	CARBON RES. 1/4W J 3.9k Ω	RCX4JATZ0392
R561	CARBON RES. 1/4W J 10k Ω	RCX4JATZ0103
R562	CARBON RES. 1/4W J 4.7 Ω	RCX4JATZ0477
R563	CARBON RES. 1/4W J 4.7 Ω	RCX4JATZ0477
R565▲	CARBON RES. 1/4W J 3.9 Ω	RCX4JATZ0399
R566▲	CARBON RES. 1/4W J 3.9 Ω	RCX4JATZ0399
R568	CARBON RES. 1/4W J 1.8k Ω	RCX4JATZ0182
R570▲	CARBON RES. 1/4W J 3.9 Ω	RCX4JATZ0399
R573	CARBON RES. 1/4W J 470 Ω or	RCX4JATZ0471
	CARBON RES. 1/6W J 470 Ω	RCX6JATZ0471
R574▲	METAL OXIDE FILM RES. 2W J 1k Ω or	RN02102ZU001
▲	METAL OXIDE FILM RES. 2W J 1k Ω	RN02102DP004
R575▲	METAL OXIDE FILM RES. 2W J 1k Ω or	RN02102ZU001
▲	METAL OXIDE FILM RES. 2W J 1k Ω	RN02102DP004
R576	CARBON RES. 1/4W J 1k Ω or	RCX4JATZ0102
	CARBON RES. 1/6W J 1k Ω	RCX6JATZ0102
R577	CARBON RES. 1/4W J 560 Ω or	RCX4JATZ0561
	CARBON RES. 1/6W J 560 Ω	RCX6JATZ0561
R578	CARBON RES. 1/4W J 3.9 Ω	RCX4JATZ0399
R580	CARBON RES. 1/4W J 100 Ω or	RCX4JATZ0101
	CARBON RES. 1/6W J 100 Ω	RCX6JATZ0101
R583	METAL OXIDE FILM RES. 2W J 5.6 Ω or	RN025R6ZU001
	METAL OXIDE FILM RES. 2W J 5.6 Ω	RN025R6DP004
R584▲	CARBON RES. 1/4W J 1k Ω or	RCX4JATZ0102
▲	CARBON RES. 1/6W J 1k Ω	RCX6JATZ0102
R585	CARBON RES. 1/4W J 8.2k Ω	RCX4JATZ0822
R587▲	CARBON RES. 1/4W J 220k Ω	RCX4JATZ0224
R588	CARBON RES. 1/4W J 150k Ω	RCX4JATZ0154

Ref. No.	Description	Part No.
R589	CARBON RES. 1/4W J 100 Ω or	RCX4JATZ0101
	CARBON RES. 1/6W J 100 Ω	RCX6JATZ0101
R590	CARBON RES. 1/4W J 47 Ω or	RCX4JATZ0470
	CARBON RES. 1/6W J 47 Ω	RCX6JATZ0470
R591▲	CARBON RES. 1/4W J 33k Ω	RCX4JATZ0333
R592▲	CARBON RES. 1/4W J 180k Ω	RCX4JATZ0184
R593▲	CARBON RES. 1/4W J 68k Ω	RCX4JATZ0683
R594▲	CARBON RES. 1/4W J 68k Ω	RCX4JATZ0683
R596	CARBON RES. 1/4W J 2.2k Ω	RCX4JATZ0222
R597▲	CARBON RES. 1/4W J 6.8k Ω	RCX4JATZ0682
R598▲	CARBON RES. 1/4W J 22k Ω	RCX4JATZ0223
R599▲	CARBON RES. 1/4W J 5.6k Ω	RCX4JATZ0562
R1930	CARBON RES. 1/4W J 100k Ω	RCX4JATZ0104
R1931	CARBON RES. 1/4W J 12k Ω	RCX4JATZ0123
R1932▲	CARBON RES. 1/4W J 390 Ω or	RCX4JATZ0391
▲	CARBON RES. 1/6W J 390 Ω	RCX6JATZ0391
R1933	CARBON RES. 1/4W J 47 Ω or	RCX4JATZ0470
	CARBON RES. 1/6W J 47 Ω	RCX6JATZ0470
R1934	CARBON RES. 1/4W J 47 Ω or	RCX4JATZ0470
	CARBON RES. 1/6W J 47 Ω	RCX6JATZ0470
R1935	CARBON RES. 1/4W J 390 Ω or	RCX4JATZ0391
	CARBON RES. 1/6W J 390 Ω	RCX6JATZ0391
R1936	CARBON RES. 1/4W J 4.7k Ω	RCX4JATZ0472
R1937	CARBON RES. 1/4W J 15k Ω	RCX4JATZ0153
R1938	CARBON RES. 1/4W J 18k Ω	RCX4JATZ0183
R1939	CARBON RES. 1/4W J 5.6 Ω or	RCX4JATZ05R6
	CARBON RES. 1/6W J 5.6 Ω	RCX6JATZ05R6
R1940	CARBON RES. 1/4W J 680k Ω	RCX4JATZ0684
R1953▲	CARBON RES. 1/4W J 39k Ω	RCX4JATZ0393
R1954	CARBON RES. 1/4W J 5.6k Ω	RCX4JATZ0562
R1955	CARBON RES. 1/4W J 6.8k Ω	RCX4JATZ0682
R1956	CARBON RES. 1/4W J 10k Ω	RCX4JATZ0103
R1957	METAL OXIDE FILM RES. 2W J 68 Ω or	RN02680ZU001
	METAL OXIDE FILM RES. 2W J 68 Ω	RN02680DP004
R1958	CARBON RES. 1/4W J 47k Ω	RCX4JATZ0473
R1959	CARBON RES. 1/4W J 47k Ω	RCX4JATZ0473
R1960	CARBON RES. 1/4W J 12k Ω	RCX4JATZ0123
R1961	CARBON RES. 1/4W J 1k Ω or	RCX4JATZ0102
	CARBON RES. 1/6W J 1k Ω	RCX6JATZ0102
R1962	CARBON RES. 1/4W J 100 Ω or	RCX4JATZ0101
	CARBON RES. 1/6W J 100 Ω	RCX6JATZ0101
R1963	CARBON RES. 1/4W J 1.5k Ω	RCX4JATZ0152
R1964	CARBON RES. 1/4W J 1k Ω or	RCX4JATZ0102
	CARBON RES. 1/6W J 1k Ω	RCX6JATZ0102
R1965	CARBON RES. 1/4W J 22k Ω	RCX4JATZ0223
R1966	CARBON RES. 1/4W J 47k Ω	RCX4JATZ0473
R1967	CARBON RES. 1/4W J 1.2k Ω	RCX4JATZ0122
R1968	CARBON RES. 1/4W J 47k Ω	RCX4JATZ0473
R1969	CARBON RES. 1/4W J 47 Ω or	RCX4JATZ0470
	CARBON RES. 1/6W J 47 Ω	RCX6JATZ0470
R1970	CARBON RES. 1/4W J 47 Ω or	RCX4JATZ0470
	CARBON RES. 1/6W J 47 Ω	RCX6JATZ0470
R1971	CARBON RES. 1/4W J 47 Ω or	RCX4JATZ0470
	CARBON RES. 1/6W J 47 Ω	RCX6JATZ0470
R1972	CARBON RES. 1/4W J 47 Ω or	RCX4JATZ0470
	CARBON RES. 1/6W J 47 Ω	RCX6JATZ0470
R1973	CARBON RES. 1/4W J 5.6k Ω	RCX4JATZ0562
R1974▲	CEMENT RES. 5W K 4.7 Ω or	RW054R7DP005
▲	CEMENT RES. 5W K 4.7 Ω or	RW054R7PG001
▲	CEMENT RES. 5W J 4.7 Ω	RW054R7Y4001

Ref. No.	Description	Part No.
MISCELLANEOUS		
BC571	BEAD INDUCTORS FBA04HA600VB-00	LLBF00STU026
BC1951	BEAD INDUCTORS FBR07HA121TB-00	LLBF00ZTU021
BC1952	BEAD INDUCTORS FBR07HA121TB-00	LLBF00ZTU021
BC1954	BEAD INDUCTORS FBR07HA121TB-00	LLBF00ZTU021
CL1951	LEAD WIRE 14P(7+7) 250MM	WX1T4300-002
CL501A	LEAD WIRE 7P 250MM	WX1T4300-003
CL502A	LEAD WIRE 11P(7+4) 200MM	WX1T4300-001
F1951▲	FUSE 8.00A/125V or	PAGU20CAG802
▲	FUSE 51MS080L or	PAFC20CHV802
▲	FUSE 8A/125V 237 TYPE	PAGJ20CAG802
FH1951	FUSE HOLDER MSF-015 or	XH01Z00LY001
	FUSE HOLDER FH-V-03078	XH01Z00DK001
FH1952	FUSE HOLDER MSF-015 or	XH01Z00LY001
	FUSE HOLDER FH-V-03078	XH01Z00DK001
JK1951	DC JACK	1630382
PB1	9V POWER PCB HOLDER T4300UA	0EM000599
PB3	BOTTOM SHIELD(DC) T4300UA	0EM301571
PB4	9V H/V HEAT SINK(PGC) T4300UA	0EM301558
PB5	HEAT SINK(EQ) T4300UA	0EM406810
PB9	FBT HOLDER T4300UA	0EM406929
PL1	SCREW, P-TIGHT 3X12 WASHER HEAD+	GCMP3120
PL2	SCREW, B-TIGHT M3X8 BIND HEAD+	GBMB3080
PL4	SCREW, B-TIGHT 3X10 WASHER HEAD	GCMB3100
PL7	SCREW TAPPING M4X14	DBU14140
PL8	SCREW, B-TIGHT M3X8 BIND HEAD+	GBMB3080
T571▲	FLYBACK TRANS BSC21-2039S or	LTF00CPS2048
▲	FLYBACK TRANS BSC25-0110	LTF00CPP1013
T572	HORIZONTAL DRIVE TRANS LP2-004	LTH00CPA5004
T1951▲	SWITCHING TRANS DC K1J2KDC	LTT00ZPKT091
VR1951▲	CARBON P.O.T. 20k Ω B or	VRCB203KA011
▲	CARBON P.O.T. 20k Ω B	VRCB203HH014
VR1952▲	CARBON P.O.T. 1M Ω B or	VRCB105KA011
▲	CARBON P.O.T. 1M Ω B or	VRCB105HH014
▲	CARBON P.O.T. 1M Ω B(H)	VRCB105AL038

CRT CBA

Ref. No.	Description	Part No.
	CRT CBA Consists of the following	-----
CAPACITORS		
C501	CERAMIC CAP.(AX) B K 330pF/50V	CCA1JKT0B331
C502	CERAMIC CAP.(AX) B K 330pF/50V	CCA1JKT0B331
C503	CERAMIC CAP.(AX) B K 330pF/50V	CCA1JKT0B331
C507	ELECTROLYTIC CAP. 1μF/50V M or	CE1JMASDL1R0
	ELECTROLYTIC CAP. 1μF/50V M or	CE1JMASDL010
	ELECTROLYTIC CAP. 1μF/50V M	CE1JMASTL010
C510	CERAMIC CAP. B K 1000pF/2KV or	CCD3DKP0B102
	CERAMIC CAP. B K 1000pF/2KV or	CA3D102MR030
	CERAMIC CAP. B K 1000pF/2KV	CCD3DKD0B102
CONNECTORS		
CN501	PIN CONNECTOR 005P-5100 or	JTEA001TG001
	CONNECTOR PIN, 1P LV or	1700576
	CONNECTOR PIN, 1P RT-01N-2.3A	1730688
TRANSISTORS		
Q501	TRANSISTOR 2SC2482 TPE6 or	QQS202SC2482
	TRANSISTOR 2SC3468(E)-AE or	QQSE02SC3468
	TRANSISTOR 2SC3468(D)-AE or	QQSD02SC3468
	TRANSISTOR 2SC2271(D)-AEMP or	2SC2271DZ

Ref. No.	Description	Part No.
	TRANSISTOR 2SC2271(E)-AE or	QQSE02SC2271
	TRANSISTOR KTC3207	NQSZ0KTC3207
Q502	TRANSISTOR 2SC2482 TPE6 or	QQS202SC2482
	TRANSISTOR 2SC3468(E)-AE or	QQSE02SC3468
	TRANSISTOR 2SC3468(D)-AE or	QQSD02SC3468
	TRANSISTOR 2SC2271(D)-AEMP or	2SC2271DZ
	TRANSISTOR 2SC2271(E)-AE or	QQSE02SC2271
	TRANSISTOR KTC3207	NQSZ0KTC3207
Q503	TRANSISTOR 2SC2482 TPE6 or	QQS202SC2482
	TRANSISTOR 2SC3468(E)-AE or	QQSE02SC3468
	TRANSISTOR 2SC3468(D)-AE or	QQSD02SC3468
	TRANSISTOR 2SC2271(D)-AEMP or	2SC2271DZ
	TRANSISTOR 2SC2271(E)-AE or	QQSE02SC2271
	TRANSISTOR KTC3207	NQSZ0KTC3207
RESISTORS		
R501▲	METAL OXIDE FILM RES. 1W J 15k Ω or	RN01153ZU001
▲	METAL OXIDE FILM RES. 1W J 15k Ω	RN01153DP003
R502▲	METAL OXIDE FILM RES. 1W J 15k Ω or	RN01153ZU001
▲	METAL OXIDE FILM RES. 1W J 15k Ω	RN01153DP003
R503▲	METAL OXIDE FILM RES. 1W J 15k Ω or	RN01153ZU001
▲	METAL OXIDE FILM RES. 1W J 15k Ω	RN01153DP003
R504	CARBON RES. 1/4W J 1.5k Ω	RCX4JATZ0152
R505	CARBON RES. 1/4W J 1.5k Ω	RCX4JATZ0152
R506	CARBON RES. 1/4W J 1.5k Ω	RCX4JATZ0152
R507	CARBON RES. 1/4W J 1.5k Ω	RCX4JATZ0152
R508	CARBON RES. 1/4W J 1.5k Ω	RCX4JATZ0152
R511	CARBON RES. 1/4W J 150k Ω	RCX4JATZ0154
R512	CARBON RES. 1/4W J 150k Ω	RCX4JATZ0154
R513	CARBON RES. 1/4W J 150k Ω	RCX4JATZ0154
R514	CARBON RES. 1/4W J 1.5k Ω	RCX4JATZ0152
R516	CARBON RES. 1/4W J 15 Ω or	RCX4JATZ0150
	CARBON RES. 1/6W J 15 Ω	RCX6JATZ0150
R517	CARBON RES. 1/4W J 680 Ω or	RCX4JATZ0681
	CARBON RES. 1/6W J 680 Ω	RCX6JATZ0681
R518	CARBON RES. 1/4W J 15 Ω or	RCX4JATZ0150
	CARBON RES. 1/6W J 15 Ω	RCX6JATZ0150
R519	CARBON RES. 1/4W J 680 Ω or	RCX4JATZ0681
	CARBON RES. 1/6W J 680 Ω	RCX6JATZ0681
R520	CARBON RES. 1/4W J 15 Ω or	RCX4JATZ0150
	CARBON RES. 1/6W J 15 Ω	RCX6JATZ0150
R521	CARBON RES. 1/4W J 680 Ω or	RCX4JATZ0681
	CARBON RES. 1/6W J 680 Ω	RCX6JATZ0681
MISCELLANEOUS		
JK501▲	CRT SOCKET ISMS02S	JSCC220PK003

JUNCTION A CBA

Ref. No.	Description	Part No.
	JUNCTION A CBA Consists of the following	-----
CONNECTOR		
CN503	CONNECTOR, 11P TUC-P11X-B1	JCTUS11TG001

JUNCTION B CBA

Ref. No.	Description	Part No.
	JUNCTION B CBA Consists of the following	-----
CONNECTOR		
CN573	CONNECTOR, 14P TUC-P14X-B1	JCTUS14TG001

DECK PARTS LIST

Notes:

- There are two different, but interchangeable types of CLEANER LEVER(B359) in this model, and have different combination with B361. Please see Table 1 for details and combination.

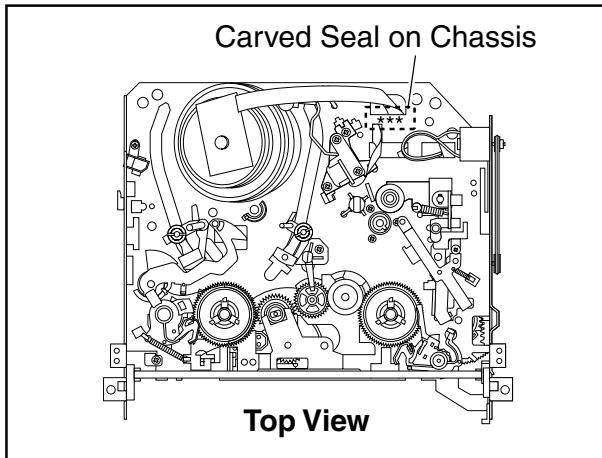
Table 1 (B359 and B361 Combination)

B359 CLEANER LEVER		B361
Type	Part No.	Part No.
A	OVM304413	OVM411114
B	OVM305090	Not used

- There are two different types of RACK ASSEMBLY(B555), and have different combination with B514. Please see Table 2 for details and combination.

Table 2 (B555 and B514 Combination)

Carved Seal on Chassis (see below)	B555 RACK ASSEMBLY		B514
	Type	Part No.	Part No.
"1xx" or "2xx"	A	OVSA12071	OVM412597
"3xx" or "4xx"	B	OVSA12887	OVM411535



Ref. No	Description	Part No.
B2	CYLINDER ASSEMBLY MK11 NTSC 2HD SQPB	N1428CYL
B3	LOADING MOTOR ASSEMBLY MK11	OVSA12093
B8	PULLEY ASSEMBLY MK11	OVSA12078
B9	MOVING GUIDE S PREPARATION MK10	OVSA11002
B10	MOVING GUIDE T PREPARATION MK10	OVSA11004
B11	LOADING ARM T(B) ASSEMBLY MK11	OVSA12110
B12	LOADING ARM S(B) ASSEMBLY MK11	OVSA12109
B27	TENSION LEVER SUB ASSEMBLY MK11	OVSA12076
B31	AC HEAD ASSEMBLY MK11(TVCR)	OVSA12305
B35	TAPE GUIDE ASSEMBLY MK11	OVSA12069
B37	CAPSTAN MOTOR 288/VCCM011	N9660CMT
B52	CAP BELT MK10	OVM411138

Ref. No	Description	Part No.
B73	FE HEAD ASSEMBLY MK11 or	N9742FEL
	FE HEAD(MK11) MH-131SF11 or	DHVEC01Z0005
	FE HEAD ASSEMBLY MK11 or	N9743FEL
	FE HEAD(MK11) VTR-1X2ERS11-148	DHVEC01TE004
B74	PRISM MK10	OVM202870
B121	WORM MK11	OVM412544
B126	PULLEY MK11	OVM412543
B133	IDLER ASSEMBLY MK10	OVSA11017
B148	TG CAP MK11	OVM412972
B300	C DRIVE LEVER R MK11	OVM305068
B303	F DOOR OPENER MK11	OVM203299
B347	GUIDE HOLDER A MK10	OVM304920
B354	SLIDER R MK11	OVM101040
B355	SLIDER L MK11	OVM203296
B359	CLEANER LEVER MK10 or	OVM304413
	CLEANER LEVER MK11	OVM305090
B360	CLEANER ROLLER MK9	OVM410032C
B361	CL POST MK10	OVM411114
B410	PINCH ARM(A) ASSEMBLY(Y) MK11 or	OVSA12807
	PINCH ARM(A) ASSEMBLY(M) MK11 or	OVSA12808
	PINCH ARM(A) ASSEMBLY(F) MK11	OVSA12809
B411	PINCH SPRING MK10	OVM411092
B414	M BRAKE S ASSEMBLY MK11	OVSA12211
B416	M BRAKE T ASSEMBLY MK11	OVSA12212
B417	TENSION SPG(190265) MK11	OVM412984
B425	LOCK LEVER SPRING MK10	OVM411110
B426	KICK PULLEY MK10	OVM411095
B482	C PLATE MK11	OVM203297
B483	LOCK LEVER MK10	OVM411109D
B487	BAND BRAKE MK10	OVM304416B
B488	MODE LEVER MK11 or	OVM101043
	MODE LEVER(PB) MK11	OVM101112
B491	CAM GEAR(A) MK11	OVM101044
B492	MODE GEAR MK11	OVM305074
B494	DOOR OPENER B MK11	OVM305072
B499	T LEVER HOLDER MK10	OVM304419
B501	WORM HOLDER MK11	OVM305067
B502	CAM GEAR(B) MK10	OVM304403
B505	PSCW(625504) MK11	OVM413288
B507	REEL WASHER MK9 5*2.1*0.5	OVM410058
B508	S BRAKE SPRING MK10	OVM411121
B513	PSCW(752605) MK10	OVM411516
B514	SCREW RACK MK11 or	OVM412597
	SCREW RACK MK10	OVM411535
B516	REEL WASHER MK9 5*2.1*0.5	OVM410058
B518	P.S.W CUT 1.6X4.0X0.5T	OVM408485A
B520	T BRAKE SPRING MK10	OVM411123
B521	SOFT SPRING MK10	OVM411122
B522	TG POST ASSEMBLY MK11	OVSA12080
B525	LDG BELT MK11	OVM412804
B529	CLEANER ASSEMBLY MK11	OVSA12086
B551	FF ARM MK11	OVM305069
B553	REV SPRING MK11	OVM412555
B555	RACK ASSEMBLY MK11 or	OVSA12071
	RACK(T1.2) ASSEMBLY MK11	OVSA12887
B557	MOTOR PULLEY U5	OVM403205A
B558	LOADING MOTOR M31E-1 R14 7351	MMDZB12MM002
B559	CLUTCH ASSEMBLY MK11	OVSA12350

Ref. No	Description	Part No.
B560	KICK SPRING MK10	OVM411475A
B561	F DOOR SPRING MK10	OVM411430
B562	C DRIVE LEVER L MK10	OVM304408
B563	SLIDER SHAFT MK10	OVM411112
B564	M GEAR MK10	OVM411136E
B565	SENSOR GEAR MK11	OVM305080
B567	PINCH ARM(B) MK10	OVM304396
B568	BT ARM MK10	OVM304417H
B569	CAM HOLDER F MK11	OVM305075
B570	CAM RACK SPRING(HI) MK11	OVM412923
B571	P.S.W F 6*2.55*0.5	OVM402629A
B572	P.S.W CUT 1.6X4.0X0.5T	OVM408485A
B573	REEL S MK11	OVM203436
B574	REEL T MK10	OVM202872C
B585	PSW(317505) MK11	OVM413663
B587	TENSION LEVER ASSEMBLY MK11	0VSA12075
L1051	SCREW, B-TIGHT M2.6X6 PAN HEAD+	GPMB9060
L1053	SCREW, S-TIGHT M2.6X8 WASHER HEAD+	GCMS9080
L1151	SCREW, SEMS M2.6X4 PAN HEAD+	CPM39040
L1191	SCREW, S-TIGHT M2.6X8 WASHER HEAD+	GCMS9080
L1321	SCREW, S-TIGHT M3X6 BIND HEAD+	GBMS3060
L1341	SCREW, P-TIGHT M2.6X6 BIND HEAD+	GBMP9060
L1406	AC HEAD SCREW MK9	OVM410964
L1450	SCREW, SEMS M2.6X5 PAN HEAD+	CPM39050
L1461	SCREW, P-TIGHT M2.6X6 WASHER HEAD+	GCMP9060
L1466	SCREW, S-TIGHT M2.6X6 BIND HEAD+	GBMS9060
L1467	SCREW, S-TIGHT M2.6X5 WASHER HEAD+	GCMS9050
L1468	SCREW, B-TIGHT M1.7X12	GAMB7120

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