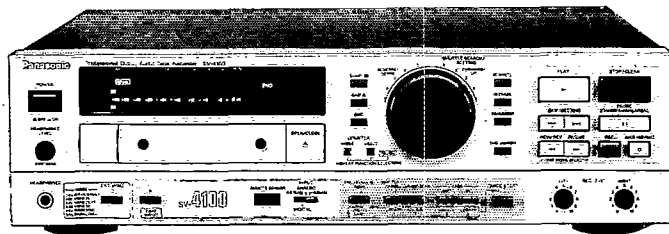


Service Manual

Professional Digital Audio Tape Recorder

DAT

SV-4100



Colour

(H) ... Gray Type

Area

Suffix for Model No.	Area	Colour
(EB)	Great Britain.	(H)
(EG)	Germany and Italy.	

RA1001 MECHANISM SERIES SPECIFICATIONS

■ Signal Format

Tape recording system:	Rotary head type DAT
Sampling frequency:	
Analog input recording	48 kHz, 44.1 kHz
Playback/Digital Input recording	48 kHz, 44.1 kHz, 32 kHz (selected automatically)
No. of quantizing bits:	16-bit linear
No. of channels:	2 (stereo)

■ Audio Parameters

(Analog recording and Playback System)

Frequency response:	
fs: 48 kHz	10 Hz—22000 kHz (± 0.5 dB)
fs: 44.1 kHz	10 Hz—20000 kHz (± 0.5 dB)
Total harmonic distortion:	Less than 0.05% (-18 dB, 1 kHz)* Less than 0.007% (0 dB, 1 kHz)*
Dynamic range:	Greater than 92 dB*
SN ratio:	Greater than 92 dB*
*DIN audio weighted (22.4 Hz to 22.4 kHz bandpass filter)	
Wow and flutter:	Unmeasurable

■ Remote Control

Parallel remote:	8 pin DIN connector (60 functions available)
GPI remote:	Stereo 6mm jack (Play & Pause functions)

■ Input/Output jacks

Analog input:	
Input jacks	XLR-3 type
Nominal input level (-18 dB rec level)	+4 dBu
Input impedance	10 k Ω balanced
Analog output:	
Output jacks	XLR-3 type
Nominal output level (-18 dB)	+4/ -10 dBu
Output impedance	75 Ω balanced
Headphones output:	
Maximum level	30 mW + 30 mW (32 Ω)
Matching impedance	8—600 Ω

Digital (AES/EBU type):

Input	XLR-3 type/110 Ω balanced
Output	XLR-3 type/110 Ω balanced

Digital (IEC type II):

Input	RCA phono type (Coaxial)/75 Ω , Optical
Output	RCA phono type (Coaxial)/75 Ω , Optical

Video Sync Input:

Input jack	BNC type
Input signal	NTSC: 29.97 FPS, 30 FPS PAL/SECAM: 25 FPS 1 Vp-p/75 Ω

Nominal input level

Word Sync Input:

Input jack	BNC type
Input level	TTL Level compatible/75 Ω

Word Sync Output:

Output jack	BNC type
Output level	TTL Level compatible/75 Ω

■ Mechanism

Cylinder diameter:	30 mm
Cylinder rotation speed:	200 r.p.m.
Tape speed:	
(Normal track)	8.150 mm/Sec.
(Wide track)	12.225 mm/Sec.
Search speed:	Up to 250 times normal playback speed
FF/Rewind speed:	Up to 250 times normal playback speed
FF/Rewind time:	Approx. 35 sec. (2 hours DAT tape)

■ General

Power consumption:	35 W
Power supply:	AC 50 Hz/60 Hz, 230—240 V
External Dimensions (W $\times$ H $\times$ D):	430 $\times$ 122 $\times$ 315 mm
Weight:	6.4 kg

Note:

Design and specifications are subject to change without notice.
Weight and dimensions are approximate.

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△ WARNING

This service information is designed for experienced repair technicians only and is not designed for use by the general public. It does not contain warnings or cautions to advise non-technical individuals of potential dangers in attempting to service a product. Products powered by electricity should be serviced or repaired only by experienced professional technicians. Any attempt to service or repair the product or products dealt with in this service information by anyone else could result in serious injury or death.

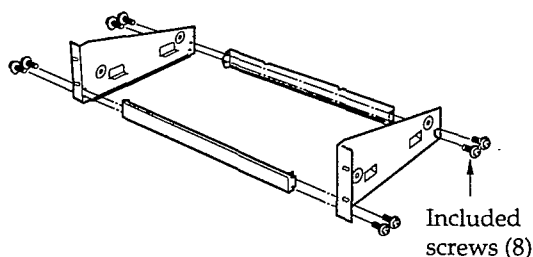
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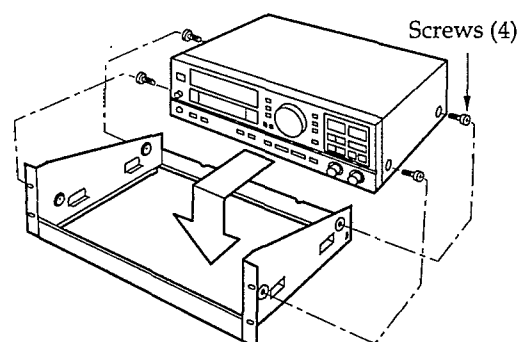
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■ INSTALLATION**Installation of rack mount kit**

- 1 Assemble the rack ears and panels, and tighten with included screws.



- 2 Remove the 4 screws on side enclosure, and attach the unit to the rack mount.

**Notes on placement**

- Place on a flat, level surface so that the front-rear inclination does not exceed 15°.
- Avoid places such as the following:
 - Near any equipment or device that generates strong magnetism.
 - On any heat-generating equipment or device, or in any place where the temperature is high (40°C or higher).
 - Extremely cold places (5°C or below).
 - Near an AM/FM tuner or TV.
(It may produce noise in the broadcast, or disturb the TV picture.)
 - For long periods of time in direct sunlight.
 - In dusty or smoky locations.
 - In locations prone to vibrations.
 - In locations where the rear panel is less than 10 cm away from the wall or back of an audio rack.
 - Within reach of children.
- Do not place heavy objects, other than system components, on top of the unit.
- When carrying or storing the unit, handle it with care so it is not subjected to any strong bumps.
- To avoid problems due to vibration.
 - Do not place a book or similar object under this unit.
 - Do not route the connection cables (of this or other units) across the operation panel, across the top, or under the unit.

■ ACCESSORIES

AC power supply cord [For (EB) area, (RJA0045-K)]	1 pc.
AC power supply cord [For (EG) area, (RJA0003-K)]	1 pc.
Coaxial cable (SJPD19-1E)	1 pc.
Remote control transmitter (RAK-SV012WH)	1 pc.
Batteries (AAA, R03, UM-4)	2 pcs.
Note: There are available on sale route.	
Rack mount kit	
(The rack ears: [For (EB) area, (RYQ0059-1)])	1 pc.
(The rack ears: [For (EG) area, (RYQ0059-2)])	1 pc.
(The rack panels: RYQ0060-1)	1 pc.
Screws (XYN3+F10FZ)	8 pcs.

■ CAUTION FOR AC MAINS LEAD

(For [EB] area)

As the colours of the wires in the mains lead of this appliance may not correspond with the coloured markings identifying the terminals in your plug, proceed as follows:

The wire which is coloured GREEN-AND-YELLOW must be connected to the terminal in the plug which is marked with the letter E or by the Earth symbol $\perp$ or coloured GREEN or GREEN-AND-YELLOW.

The wire which is coloured BLUE must be connected to the terminal in the plug which is marked with the letter N or coloured BLACK.

The wire which is coloured BROWN must be connected to the terminal in the plug which is marked with the letter L or coloured RED.

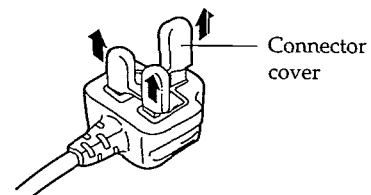
IMPORTANT A 5 amp fuse is fitted in this plug.
Should the fuse need to be replaced please ensure that the replacement fuse has a rating of 5 amps and that it is approved by ASTA or BSI to BS1362. Check for the ASTA mark or BSI mark on the body of the fuse. IF THE FITTED MOULDED PLUG IS UNSUITABLE FOR THE SOCKET OUTLET IN YOUR HOME THEN THE FUSE SHOULD BE REMOVED AND THE PLUG CUT OFF AND DISPOSED OF SAFELY. THERE IS A DANGER OF SEVERE ELECTRICAL SHOCK IF THE CUT OFF PLUG IS INSERTED INTO ANY 13 AMP SOCKET.
If a new plug is to be fitted please observe the wiring code as shown below. If in any doubt please consult a qualified electrician.

IMPORTANT The wires in this mains lead are coloured in accordance with the following code:
Green-and-Yellow: Earth
Blue: Neutral Brown: Live

WARNING THIS APPLIANCE MUST BE EARTHED.

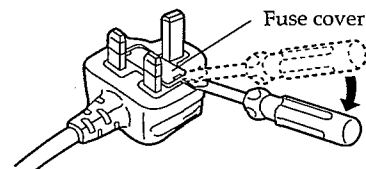
Before use

Remove the connector cover as follows.

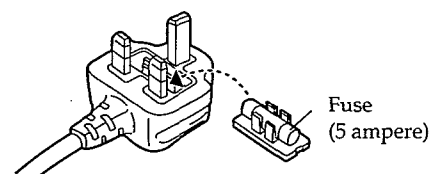


How to replace the fuse

1 Remove the fuse cover with a screwdriver.

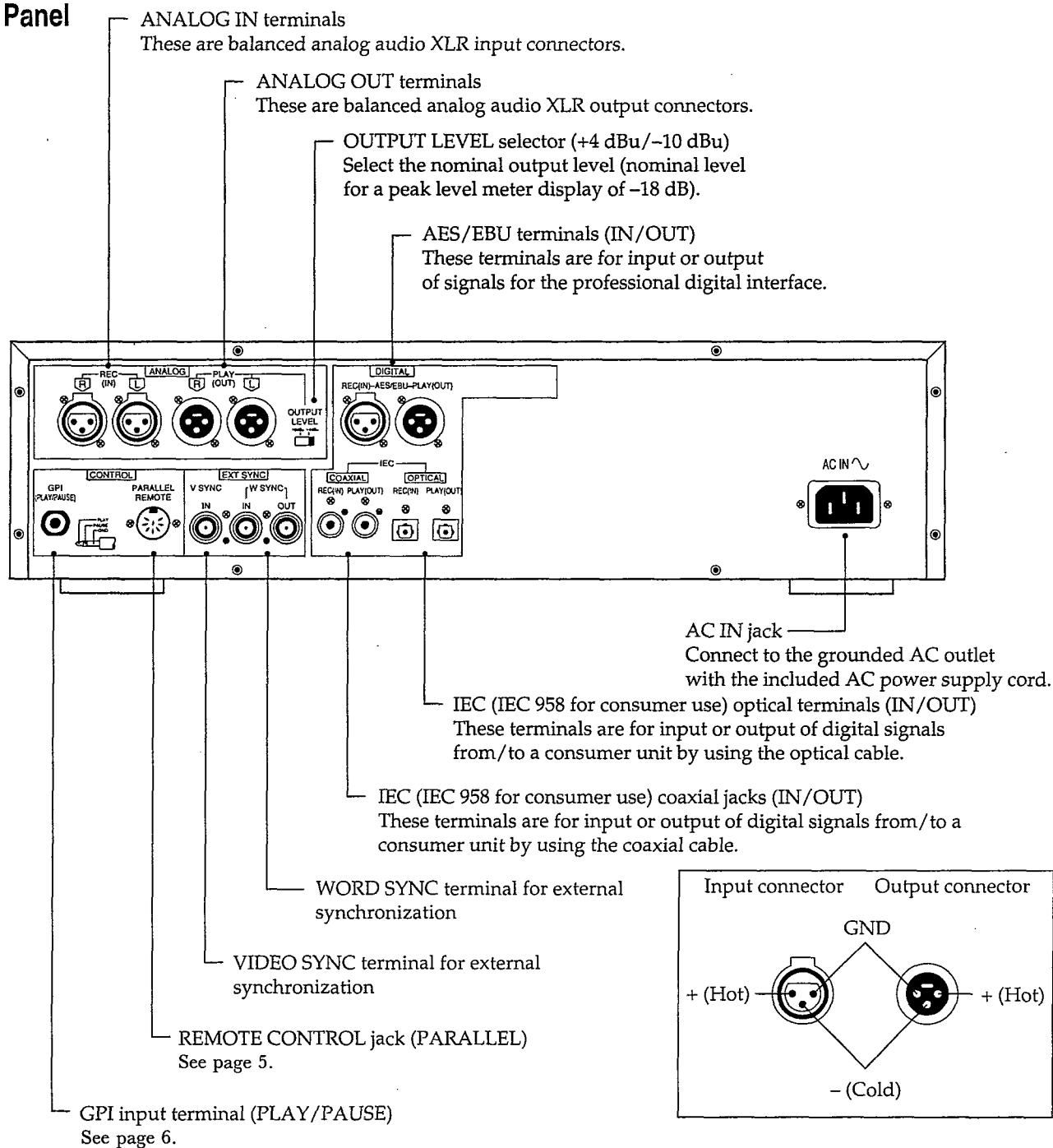


2 Replace the fuse and attach the fuse cover.



■ CONNECTIONS

Rear Panel



When making digital IN/OUT connections

If the connections to studio equipment are set incorrectly, a loop may be set up where the output of the unit is connected to its recording input. This will not only set up an oscillation but may also damage the monitor speakers. Attention should therefore be paid to the following points:

- 1) When recording or playing back through the unit's DIGITAL IN/OUT terminals, be sure to connect these terminals to the DIGITAL PLAYBACK (IN)/DIGITAL REC OUT (OUT) terminals of other equipment.
- 2) If the monitor amplifier has no DIGITAL PLAYBACK or DIGITAL REC OUT terminals, this unit (DAT) can be used only for playback through the ordinary DIGITAL INPUT terminals on the amplifier.
- 3) If connections are made as in 2) and it is desired to record, do not on any account set the INPUT SELECTOR of the amplifier to "DIGITAL".

■ CONCERNING THE REMOTE CONTROL

This unit has three systems for remote control operation, using the infra-red remote sensor, the 8-pin parallel input terminals or GPI input terminal.

Remote Control Transmitter

Battery installation

Insert the batteries with using two AAA, R03, UM-4 (1.5 V) or equivalent batteries in the correct polarities (+, -).

To remove the batteries, push down the - side.

- Notes:**
- Do not mix old and new batteries, or batteries of different types (manganese and alkaline, etc.).
 - Never subject batteries to excessive heat or flame; do not attempt to disassemble them; and be sure they are not short-circuited.
 - If the remote control is not to be used for a long period of time, remove the batteries and store them in a cool, dark place.
 - Do not attempt to recharge alkaline or manganese batteries.

Battery life:

The battery life is about one year. The batteries should be replaced if commands from the remote control transmitter do not operate the unit even when the transmitter is held close to the front panel.

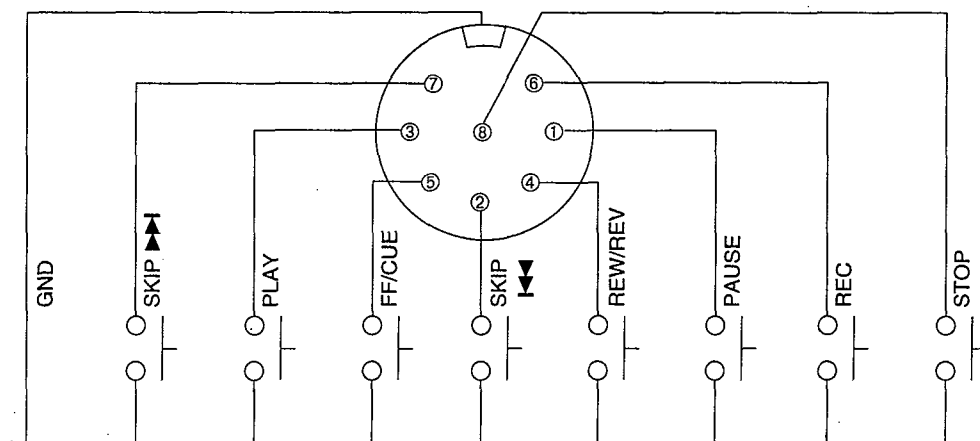
Correct method of use

- 1 Aim the remote control's transmission window toward the unit's sensor. Avoid any obstacles.
 - 2 Use the remote control within a 60-degree angle of the unit.
- The maximum distance is within 7 meters directly facing toward the unit.

- Notes:**
- Be sure the transmission window and the unit's sensor are free from dust. Excessive dust might affect its performance.
 - The operation may not be correct if direct sunlight or other strong light source strikes the receiving sensor of this unit. If there is a problem, place the unit away from the light source.
 - If this unit is installed in a rack with glass doors, the glass doors' thickness or color might make it necessary to use the remote control a shorter distance from the unit.

8-Pin Parallel Input Terminals

By connecting the following circuits, the SV-4100 can be operated by remote control using normal switches.



8-Pin Remote Specifications

8-pin remote key code:

Note: The time taken until the key code for operating multiple commands must be less than 1 ms, and each code input must be more than 60 ms.

Function	8-pin DIN jack key	Function	8-pin DIN jack key
	Code No. 87654321		Code No. 87654321
open	00000001	6 (key pad)	10001001
music scan	00011000	7 (key pad)	10101000
skip cancel	00110000	8 (key pad)	10101001
stop	01111111	9 (key pad)	11000000
play	11111011	memory	01000000
write	01101001	recall	01000001
		repeat	01100001
auto rec mute	00100000		
rec	11011111	write_start-ID	01010000
pause	11111110	write_skip-ID	01010001
forward skip	10111111	erase_start-ID	01110000
reverse skip	11111101	erase_skip-ID	01110001
counter mode	00101000	rec+play	11011011
auto PNO	00110001	direct rec_pause	00011001
fade in	00100001	direct rec_play	00111000
fade out	00001000	unload	00111001
ff	11101111	mode+reset+pause	10110000
rew	11110111		
renumber	00010001	locate last	10000010
		locate 1	10000011
counter reset	00001001	locate 2	10100010
end-ID	01101000	locate 3	10100011
skip-ID	01001001	locate 4	10001010
start-ID	01001000	time input	10010000
end search	01100000	external SYNC	10010001
erase	00010000	quick start	10110001
0 (key pad)	11000001	skip cancel on	00000010
1 (key pad)	10000000	skip cancel off	00000011
2 (key pad)	10000001	auto PNO on	00100010
3 (key pad)	10100000	auto PNO off	00100011
4 (key pad)	10100001	quick start on	00001010
5 (key pad)	10001000	quick start off	00001011

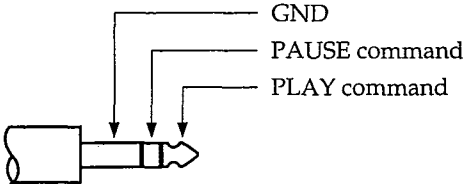
0: The connection is shorted.
1: The connection is open.

GPI Input Terminal

This unit is equipped with a frequently used "PLAY" function and "PAUSE (REHEARSAL)" function in the form of GPI (General Purpose Interface) input terminal provided in addition to the 8-pin parallel input jack.

GPI input:

The "PLAY" and "PAUSE (REHEARSAL)" commands are read from the GPI terminals (stereo 6 mm jack on the rear panel).



These commands are set by changing their logic status from open circuit to GND shorting.

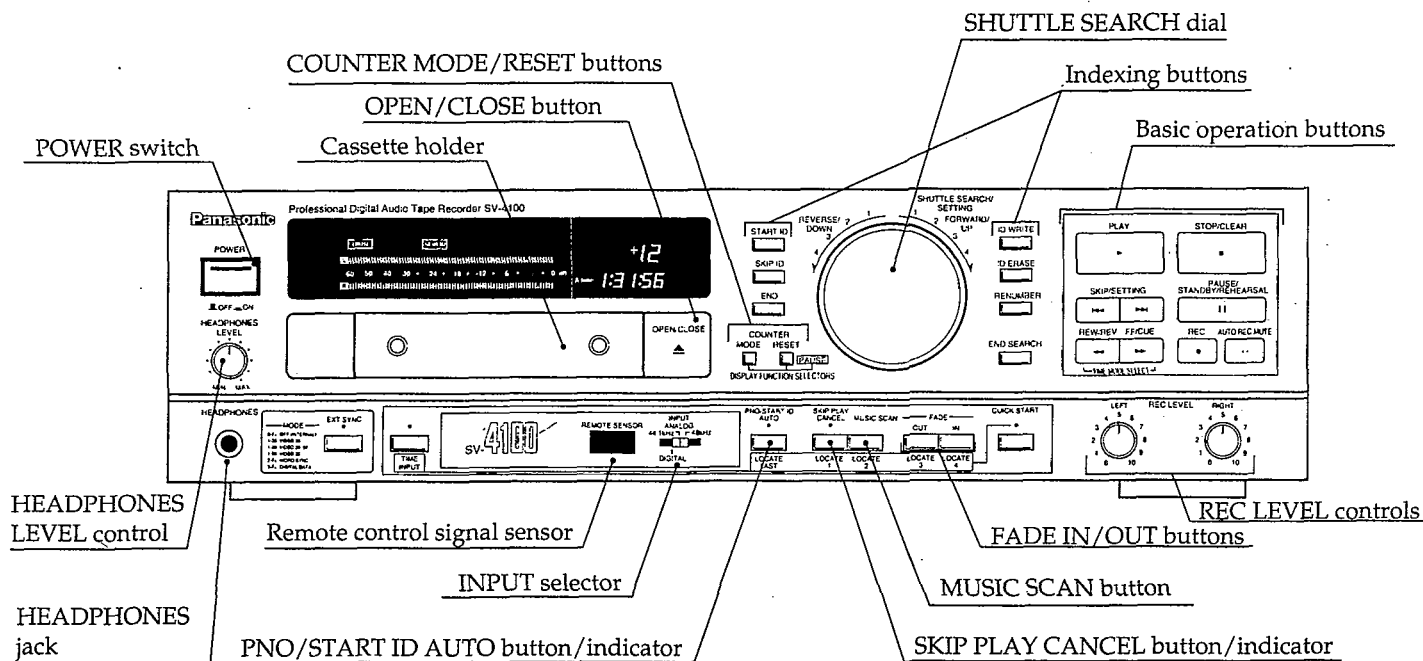
CAUTION! If you decide to make a remote control (8-pin remote or GPI) for the unit yourself, be sure it is properly shielded in order to prevent the radiation of unwanted noise from the unit and the connection cables.

LOCATION OF CONTROLS

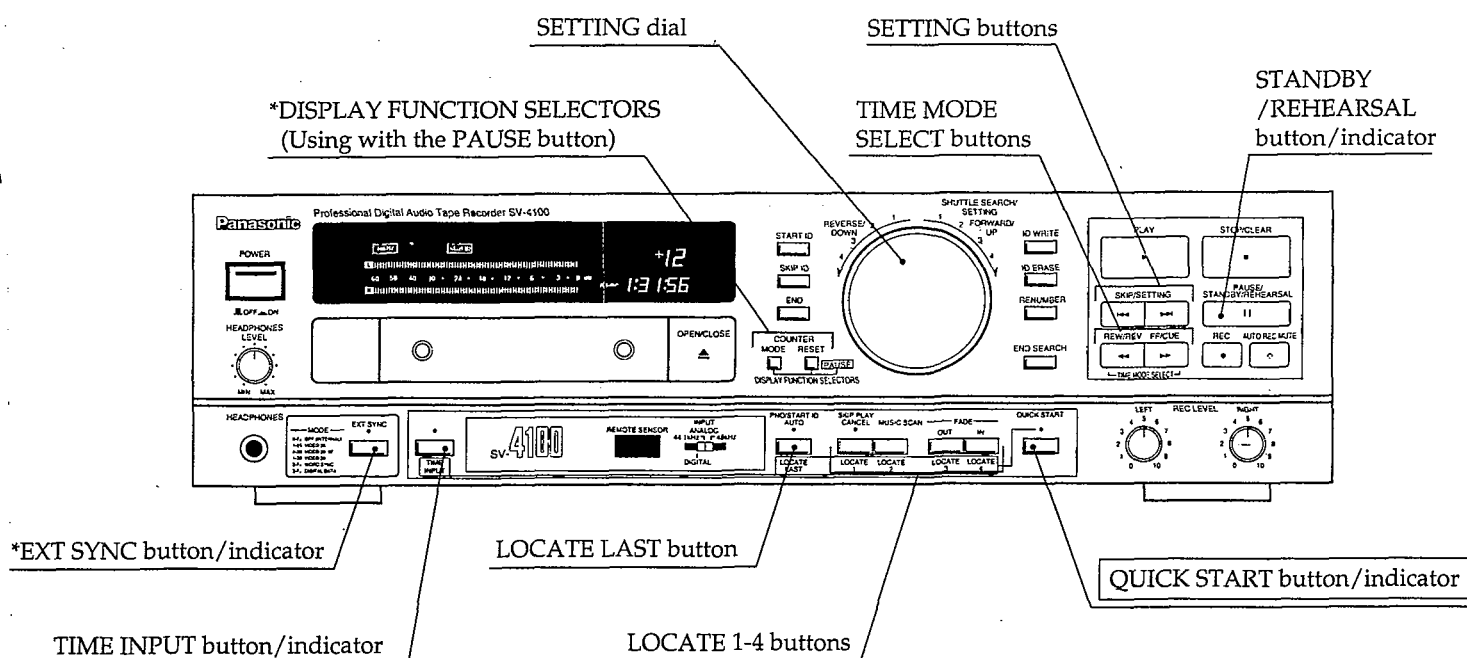
Front Panel

This unit comes with two modes, the regular operating mode and quick play mode, and the modes can be selected by setting the QUICK START button to ON or OFF.

(1) Controls mainly used in the regular operating mode



(2) Controls mainly used in the quick start mode



*These controls can also be used in the regular operating mode.

SV-4100 DAT MAINTENANCE CHART

• REGULAR MAINTENANCE

The purpose of periodic maintenance as recommended is to keep the equipment in the best possible operating condition throughout its useful life. Observance of this maintenance schedule ensures that maximum performance and reliability is obtained from the machine.

Regular maintenance is necessary because the DAT Recorder is a high-technology piece of equipment, containing DC motors, head cylinder assemblies, and a complex mechanism. These components deteriorate over time. Dust and dirt can clog the head gap, which affects the sound. In light of this, it is very important that overall maintenance be performed according to the maintenance chart to avoid problems resulting from heavy image. Maintenance should also be performed after any repairs on the equipment.

Maintenance is particularly recommended for DAT Recorders used in commercial and broadcast applications for several reasons. Installation and application are frequently under less than ideal conditions, such as long usage times and poor environmental conditions. All of this adversely affects the life span and performance of the machine. Regular maintenance assures that the purchaser obtains maximum value for this expenditure.

Note: Refer to the hour meter to know when to perform the maintenance.

Part Name	Part Number	500	1000	1500	2000	2500	3000	3500	4000	4500	5000
Upper Cylinder	VEH0460	○	●	○	●	○	●	○	●	○	●
Cylinder Unit	VEG0752	○	○	○	○	○	○	○	○	○	○
S. Load Arm Ass'y	RXL0052										●
T. Load Arm Ass'y	RXL0054										●
Load Cam	RDK0006-1						●				
Capstan Unit	REM0001	○	○	○	○	○	○	○	○	○	○
Post Roller	RXP0008	○	○	○	○	○	○	○	○	○	○
Guide Roller	RXP0027	○	○	○	○	○	○	○	○	○	○
Pinch Roller	1NB0001ZA	○	○	○	○	○	○	○	○	○	○
S. Reel Ass'y	RXR0006										●
T. Reel Ass'y	RXR0007										●
BT Lever	RXL0048										●
Tension Band Ass'y	RXL0036						●				
S. Brake Ass'y	RXL0049						●				
T. Brake Ass'y	RXL0050						●				
Idler Gear	RDG0071										●
Mode Motor Ass'y	REM0009								●		
Mode Cam	RDK0007-1										●
M Gear B	RDG0067										●
Drive Gear Ass'y	RXG0011						●				
Idler Gear (F)	RDG0069										●
Idler Gear (P)	RDG0068										●
Mode SW Ass'y	RES0002						●				
Load SW Ass'y	RES0001										●
Cassette SW	EVQWR4002										●
Earth Terminal	RUS740ZA										●
Loading Motor	MMN-6FBRC8S										●
Belt	SMQ20025										●
Leaf SW	SSPD18										●

● Replacement, ○ Cleaning

• DAT Head and Tape Transport Cleaning

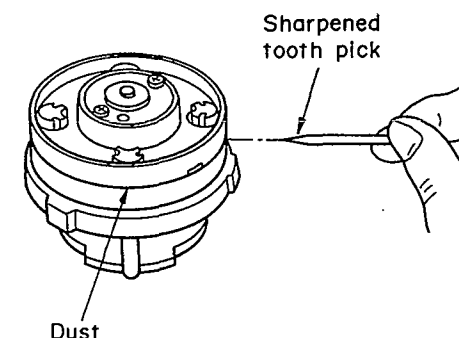
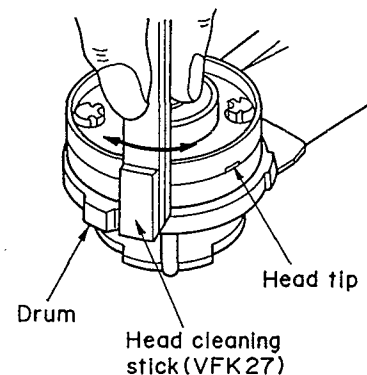
Through normal usage of any tape machine, dirt and debris from the tape accumulates on the heads, which eventually causes performance problems. By using a cleaning cassette regularly, dirt buildup can be minimized, prolonging the life of the tape heads, and also keeping tape posts, tape guides, and the pinch roller clean.

• CLEANING

1. Play the cleaning cassette (Panasonic Part No. RT-RCLP) for 15-20 seconds.
2. Do not use the same part of the cleaning tape more than once.
3. Clean all tape contact surface, including A/C head upper and lower drum, thoroughly with a soft cloth soaked in alcohol.
4. Clean both heads by gently rubbing in a horizontal direction, as depicted, using a head cleaning stick (VFK27) or a lint free cloth moistened with alcohol.
5. Wipe all tape contact surfaces, including upper and lower drum, with a dry soft cloth to ensure that all residual moisture is removed from the tape contact surfaces.

Note:

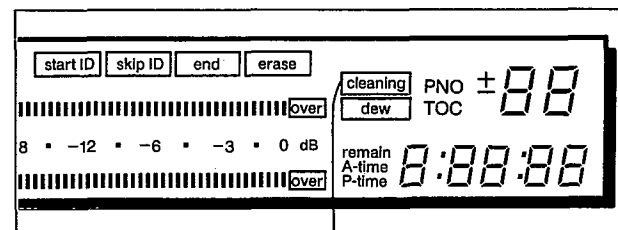
1. When cleaning the upper drum, hold it secure with your finger tips.
2. Occasionally, dirt or debris may become lodged in the air bearing channels that are cut in the upper drum's surface. This can be removed by gently dislodging it with a sharpened toothpick.
3. Modest amounts of solvent are used. Excess alcohol will dilute and remove the bearing lubricant in the capstan motor and rotary guides.



• IMPORTANCE

Check the Error Rates at several points in the tape and average the values. If the Error Rates increase to around 300, a Panasonic Head Cleaner Tape can be used as follows: Play the cleaning tape through the SV-3700 for approximately 15 seconds, and remove it. **DO NOT REWIND** the cleaning tape, since this action might very well spread previously removed dirt and dust onto an otherwise clean head and transport. After the Head Cleaner Tape has been used up, dispose of it properly and start to use a new one.

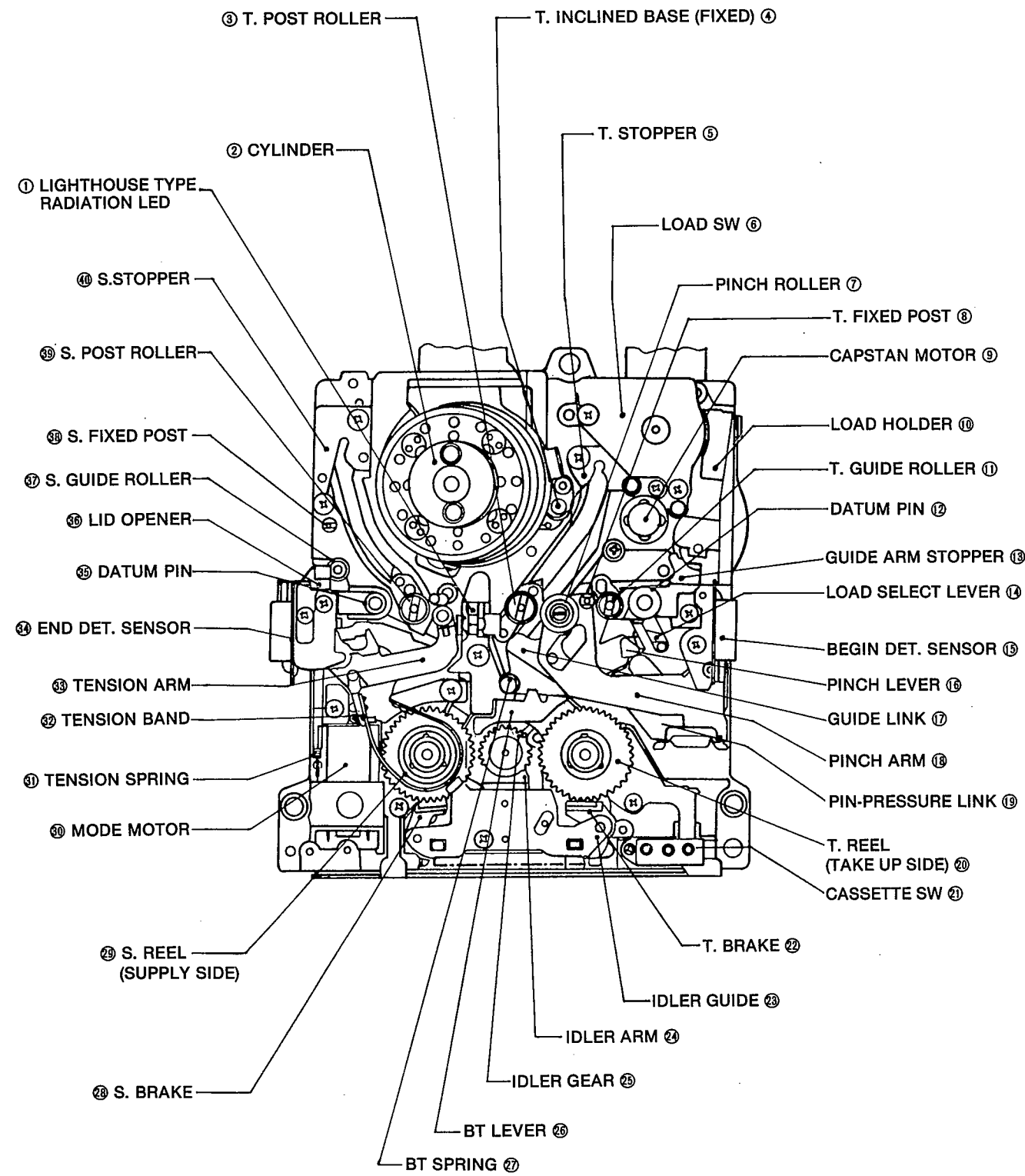
If the DAT heads become very contaminated with dirt and dust, the CLEANING indicator within the display panel will flash. In this case, use a Head Cleaner Tape as described above.



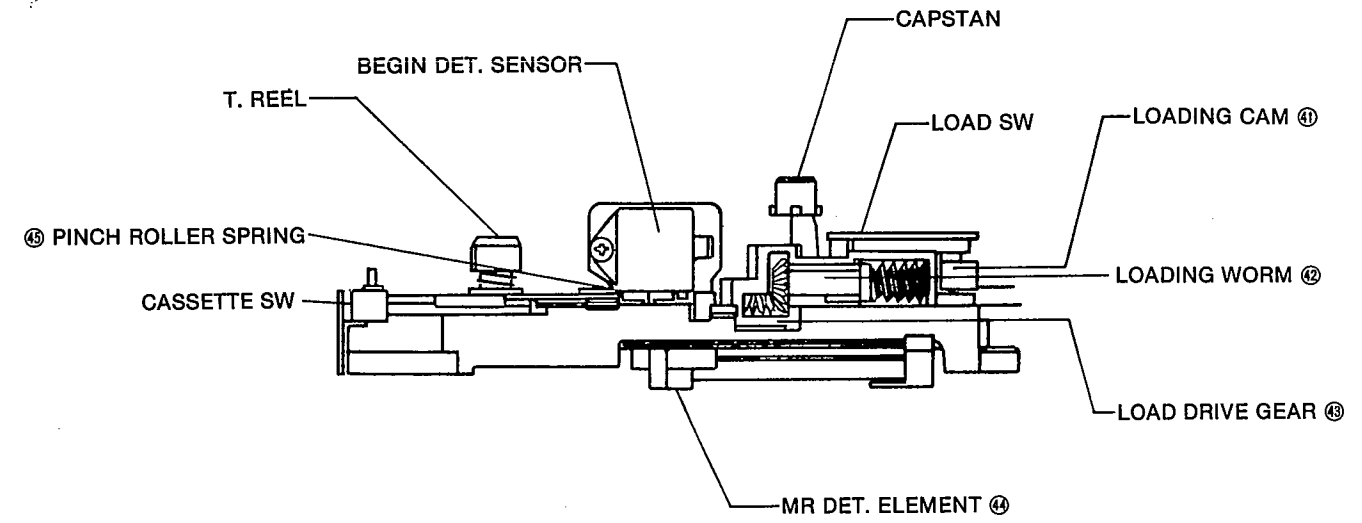
- If playback quality improves after cleaning, but then deteriorates immediately after recording or playing back several times, the cassette tape has probably reached its useful lifetime. In this case, use a new tape.
- If sound quality does not improve even after cleaning, consult your dealer.
- Cleaning tapes cannot be used for recording or playback (be sure to read also the operating instructions supplied with the tape).

• MECHANISM COMPONENT LAYOUT

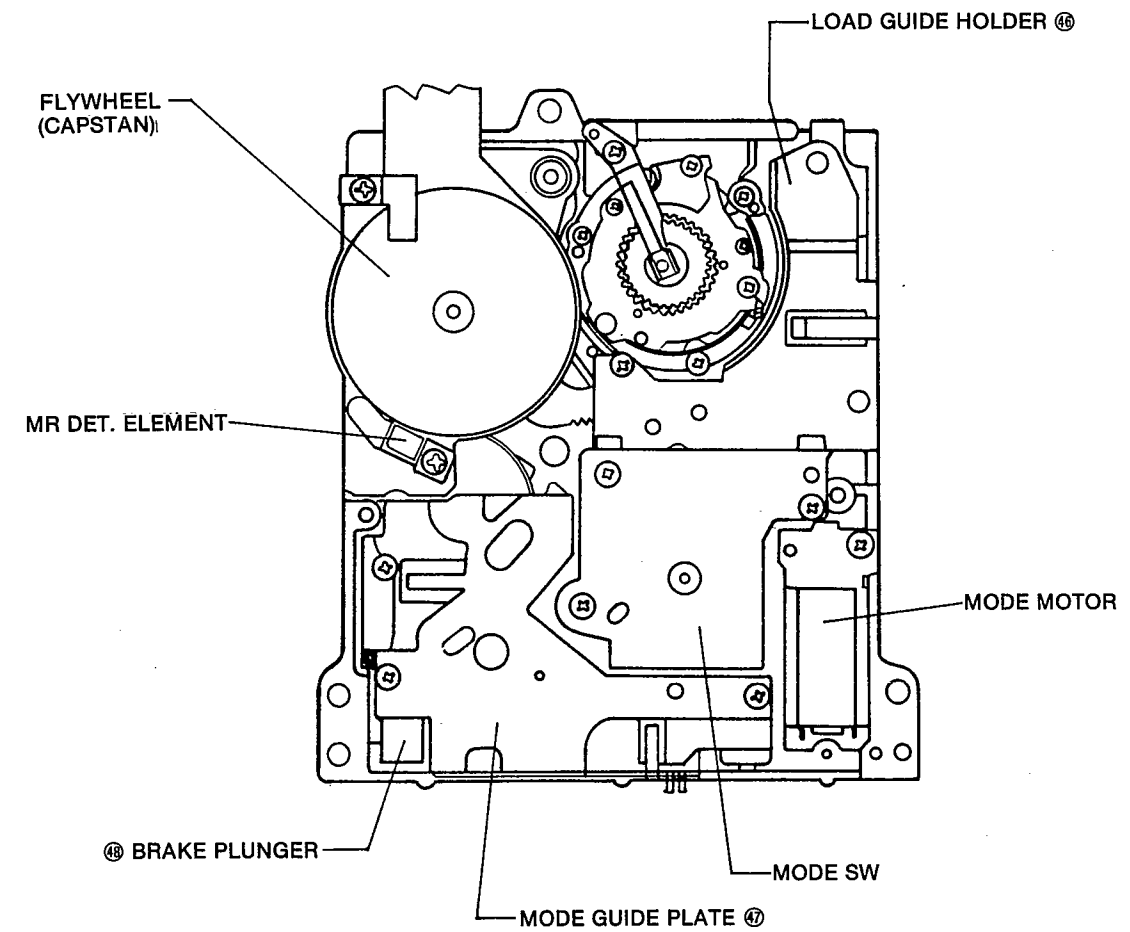
• Top view



• Side view



• Bottom view



• MECHANISM CONTROLS AND FUNCTIONS

① LIGHT HOUSE TYPE RADIATION LED	Lighthouse-shaped, LEDs blink at start and end of tape.	②⑤ IDLER GEAR	Transmits movement to S and T reels in accordance with mode.
② CYLINDER	30mm in diameter, 40 FG pulses, maintains specified speed of 1000 to 3000rpm.	②⑥ BT LEVER	Applies back tension to T reel during review.
③ T. POST ROLLER	Regulates tape travel position (upper edge).	②⑦ BT SPRING	Provides pressure for back tension lever.
④ T. INCLINED BASE (FIXED)	Regulates angle (90°) at which tape is wound around cylinder (stationary).	②⑧ S. BRAKE	Presses brake shoe against S reel base gear to perform braking.
⑤ T. STOPPER	Determines position of T post roller base during loading.	②⑨ S. REEL (SUPPLY SIDE)	Supply reel base, 64 FG pulses.
⑥ LOAD SW	Two-bit rotary switch, detects loading position.	③⑩ MODE MOTOR	6.5V DC motor, switches mode by forward and reverse revolution.
⑦ PINCH ROLLER	Presses against tape during play and review.	③⑪ TENSION SPRING	Provides back tension force of tension regulator.
⑧ T. FIXED POST	Regulates tape travel position.	③⑫ TENSION BAND	Mounted to tension regulator, applies back tension to S reel base.
⑨ CAPSTAN MOTOR	1.5mm in diameter, 290 FG pulses.	③⑬ TENSION ARM	Detects tape condition and applies back tension during play and review.
⑩ LOAD HOLDER	Contains loading drive gear and worm gear, engages and disengages M gear A.	③⑭ END DET. SENSOR	Light-receiving element for LED (detection at end of tape).
⑪ T. GUIDE ROLLER	Regulates tape travel position (top edge).	③⑮ DATUM PIN	Regulates width and height (left side) during loading of cassette tape.
⑫ DATUM PIN	Regulates width and height (right side) during loading of cassette tape.	③⑯ LID OPENER	Opens cassette lid during loading of tape.
⑬ GUIDE ARM STOPPER	Determines position of T guide roller base K during loading.	③⑰ S. GUIDE ROLLER	Regulates tape travel position (bottom edge).
⑭ LOAD SELECT LEVER	Switches engagement and disengagement of loading gear in accordance with loading conditions.	③⑱ S. FIXED POST	Regulates tape travel (bottom edge).
⑮ BEGIN DET. SENSOR	Light-receiving element for LED (detection at start of tape).	③⑲ S. POST ROLLER	Regulates tape travel position (top edge).
⑯ PINCH LEVER	Presses pinch roller against tape during play and review.	④① S. STOPPER	Determines position of S post roller base during loading.
⑰ GUIDE LINK	Links T post roller base and guide roller base.	④② LOADING CAM	Uses movement transmitted from loading worm to move loading lever.
⑱ PINCH ARM	Comprised of pinch roller and T holding post, presses against the capstan.	④③ LOADING WORM	Transmits movement of loading drive gear and loading cam.
⑲ PIN-PRESSURE LINK	Connected by the pin pressure spring and the pinch arm.	④④ LOAD DRIVE GEAR	Transmits movement of M gear A and loading worm, engages and disengages in accordance with mode.
⑳ T. REEL (TAKE UP SIDE)	Take-up reel base, 64 FG pulses.	④⑤ MR DET. ELEMENT	Detects magnetic changes (290 pulses) of flywheel.
㉑ CASSETTE SW	Detects cassette information (mistaken erasure, cassette detection).	④⑥ PINCH ROLLER SPRING	Mounted to the pinch arm, returns the pinch roller.
㉒ T. BRAKE	Presses brake gear against reel base gear to perform braking.	④⑦ LOAD GUIDE HOLDER	Holding cover of the loading arm and loading lever.
㉓ IDLER GUIDE	Holding cover for idler arm and S and T brakes.	④⑧ MODE GUIDE PLATE	Holding cover of the various gears, holds the plunger in position.
㉔ IDLER ARM	Moves left or right in accordance with mode condition, transmits movement of counter gear to S and T reels.	④⑨ BRAKE PLUNGER	5V, 200mA, switches brakes on and off in accordance with the mode.

SYSTEM DISPLAY MODE SELECTION

System Display Mode

The SV-4100 has several operating parameters that can be accessed by the front panel display. In system display mode, these parameters may be checked or altered. The values set in this mode are retained when the power is turned off.

(1) Entering the system display mode

Press the COUNTER MODE + COUNTER RESET + PAUSE buttons (=DISPLAY FUNCTION SELECTORS) simultaneously.

Deck is set to the digital input/output terminal selection mode (mode No.0) of system display mode. "0-" appears on the program number display.

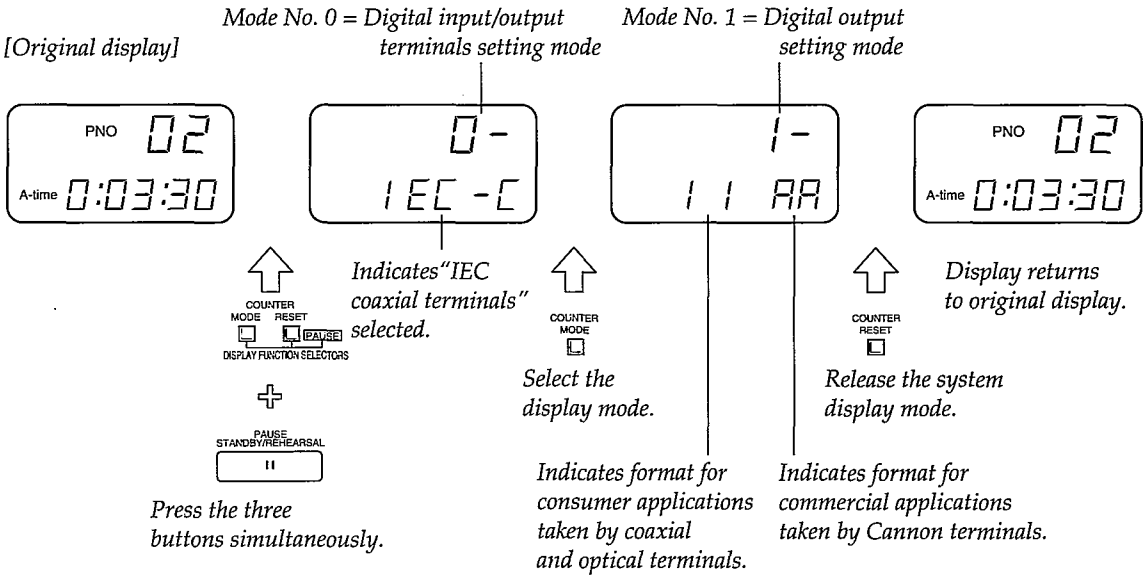
(2) Selecting the display mode

Press the COUNTER MODE button. Each time the button is pressed, the display mode changes in the order of the mode number. The mode No. of the selected display mode is displayed.

(3) Returning to the regular display (releasing the system display mode)

Press the COUNTER RESET button.

Selecting the system display mode:



Mode Displays and Their Setting Methods

Selecting the digital input/output terminals (mode No.0)

What is displayed	Actual display	Significance
The currently selected terminals appear on the counter display.	1) IEC-C	"Coaxial terminals" selected.
	2) IEC-0	"Optical terminals" selected.
	3) AES	"XLR-3 terminals" selected.

To change the setting:
Press the SETTING button (forward). The display changes in the sequence of 1) through 3) above, thus changing the terminals selected. The setting established after initialization is "IEC-C".

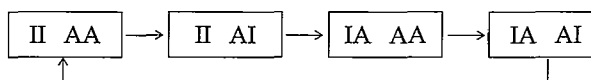
Notes: When "IEC-C" or "IEC-0" has been selected, the digital output signals are supplied from both the coaxial and optical terminals. When "AES" has been selected, the digital output signals are supplied from the XLR-3 terminals only.

Selecting the digital output mode (mode No.1)

What is displayed	Actual display	Significance
The output mode (format for commercial or consumer applications) of the digital output terminals appears on the counter display.	1) II	Format for consumer applications taken by coaxial and optical terminals.
According to standards, the coaxial and optical terminals are for IEC consumer use. The XLR, or Cannon connectors are for AES/EBU professional use. In order to increase compatibility with equipment using non-standard digital interfaces, this display permits the format and interface connectors to be interchanged. For example, AES/EBU may be sent to the coaxial and optical connectors, while IEC may be sent to the XLR connectors.	2) IA	Format for commercial applications taken by coaxial and optical terminals.
	3) AI	Format for consumer applications taken by XLR-3 terminals.
	4) AA	Format for commercial applications taken by XLR-3 terminals.

To change the setting:

Press the SETTING button (forward). The display changes in the sequence shown below, thus changing the output format. The settings established after initialization are "II" for the coaxial and optical terminals and "AA" for the XLR-3 terminals, which is the standard for IEC and AES/EBU.



Selecting the error rate display (mode No.2)

What is displayed	Actual display
1) The total error rate for data played back by head A and head B appears on the counter display.	"A" and "B" light on the display. The error rate is indicated by (the value displayed/9984).
2) The error rate for data played back by head A appears on the counter display.	Only "A" lights on the display. The error rate is indicated by (the value displayed/4492).
3) The error rate for data played back by head B appears on the counter display.	Only "B" lights on the display. The error rate is indicated by (the value displayed/4492).

To change the setting:

Press the SETTING button (forward). The display changes in the sequence of 1) through 3) above.

Selecting the single play mode (mode No.3)

Single play is a function which suspends playback when a Skip ID or Start ID which has been recorded is detected during playback.

Basically, when single play mode is on, the unit will playback normally until the next Start ID or Skip ID is encountered. The tape will then "park" in PAUSE mode so the next selection is ready for playback at any time. To resume playback, simply press the PLAY button.

What is displayed	Actual display	Significance
The present single play mode setting appears on the counter display.	1) SP- - -	The single play mode has been set to off.
	2) SP-00	The single play mode has been set to on.

The unit operates as follows depending on the operating mode.

Note: Single play mode does not take effect during Program Play, such as when programming a random sequence of selections using the program number and MEMORY buttons on the remote control.

When a Skip ID recorded is detected during playback:

Sequence of priority	Operating mode	When the single play mode is off (normal)	When the single play mode is on
1	* Sub code editing mode	Playback continues.	Playback continues.
2	Skip play cancel mode	Playback continues.	PAUSE mode is established.
3	Skip play mode	The tape advances to the next Start ID and playback mode is established.	The tape advances to the next Start ID and pause mode is established.

When a Start ID recorded is detected during playback:

Sequence of priority	Operating mode	When the single play mode is off (normal)	When the single play mode is on
1	* Sub code editing mode	Playback continues.	Playback continues.
2	Other mode Cancel mode	Playback continues.	PAUSE mode is established.

* Sub-code editing mode: refers to when the Start ID or Skip ID indicator is flashing after either of those buttons has been pressed.

To change the setting:

Press the SETTING button (forward). The mode is switched alternately between on and off. The setting established after initialization is "OFF".

Note: Any ID recorded is ignored if it is detected during the first for two seconds after playback starts.

Selecting the program playback blank skip mode (mode No.4)

Program playback blank skip determines which way the SV-4100 recognizes the end of a program. This is necessary for program play since the machine must skip to a selection at another location on the tape when the currently playing program ends.

When blank skip mode is on, the machine skips to the next programmed selection as soon as it encounters audio level below -42 dB for 2 seconds or more. When blank skip mode is off, the machine skips to the next programmed selection as soon as it encounters the next Start ID or Skip ID following the present program.

What is displayed	Actual display	Significance
The present program playback blank skip mode setting appears on the counter display.	1) PS-00	The program playback blank skip mode has been set to on.
	2) PS--	The program playback blank skip mode has been set to off.

To change the setting:

Press the SETTING button (forward). The mode is switched alternately between on and off. The setting established after initialization is "ON".

Note: If the Start ID recorded is detected at the beginning of a blank section, the blank is not skipped until the playback of the recorded section is completed.

Selecting the main ID6 display (mode No.5)

(1) SCMS

The Serial Copy Management System (SCMS) is designed to control digital-to-digital DAT copying that a consumer can perform on various digital audio material, including Compact Discs, pre-recorded DAT tapes, and other material via IEC 958 "consumer use" digital audio interfaces (also commonly referred to as "S/PDIF"). SCMS does not affect the ability to make copies using a DAT recorder's analog inputs and outputs.

Only one serial (or generational) digital-to-digital copy can be made from a copyright protected source, such as a commercial CD or pre-recorded DAT. Serial Copy Management System labels are generated onto tape each time an SCMS-equipped consumer DAT machine records an audio signal to tape, no matter whether the source is from the analog or digital inputs.

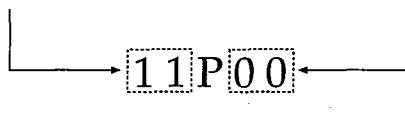
(2) Setting the main ID6

Technically, the SCMS labels for DAT are encoded into the sub code sections of the main digital data area, specifically "main ID6". The SV-4100 allows the user to preset the SCMS status bits of main ID6 onto the DAT recording. For legal reasons, the ID6 bits are only modified if the source input is the AES/EBU Digital I/O; analog input during digital copying via the IEC "consumer use" input, the SV-4100 simply copies across the current status of SCMS codes from the source tape.

What is displayed	Actual display	Significance (When using consumer- type DAT recorder)
The two digits on the left show the value of main ID6 that are user-selectable and will be recorded onto tape when using the analog inputs or the AES/EBU Digital Input terminal. The two digits on the right show the actual main ID6 value recorded on the tape.	1) 00	ID6 value set to 00: Copy-free. Unlimited digital copies can be made from the source tape or its copies.
	2) 11	ID6 value set to 11: Copy-restricted. Digital copies can be made from the source tape with this code, but the copies cannot be duplicated digitally.
	3) 10	ID6 value set to 10: Copy-prohibited. Digital copies cannot be made using a consumer type DAT Recorder.

Display example: When "11P00" is displayed

The first two digits denote the value of main ID6 which is "user-selectable bits" and to be recorded onto the tape during recording. In this case, these digits are "11."



The last two digits denote the value of main ID6 which has been recorded onto the tape being played back. In this case, these digits are "00."

To change the setting:

Press the SETTING button (forward). The display changes in the sequence of 1) through 3) above, thus changing the value of main ID6 which is to be recorded onto the tape during recording. The setting established after initialization is "00."

Setting the monitor output attenuate level (mode No.6)

Various types of audio equipment work at different reference levels. The monitor output attenuate level reduces the level of the analog outputs. This feature, when used in combination with the +4/-10 dB pad switch, makes it possible to vary the analog output level over a 28 dB range. This virtually eliminates any likelihood of level incompatibility with other equipment.

(1) Attenuate level setting methods

This level can be set in the following 3 ways.

- 1) The level is set using the SETTING buttons or SETTING dial.
- 2) The level which has been preset in one of the LOCATE button is used.
- 3) The level is defined by the user by the LOCATE LAST button and recalled for use.

(2) Setting the attenuate level

Button operated	Operation	Display
SETTING button (forward or reverse)	Each time the forward button is pressed, the setting is incremented by 1; conversely, each time the reverse button is pressed, the setting is decremented by 1.	The digital attenuate setting appears on the counter display.
SETTING dial	The setting is continuously incremented or decremented by turning the dial in the UP or DOWN direction.	

The attenuate level (DATT) can be set from 200 (approx. -14 dB) to 1024 (0 dB). The attenuate level is $20 \times \log_{10} \frac{(DATT)}{1024}$ [dB]. The setting established after initialization is 1024.

(3) Using a preset level in a LOCATE button

There are four factory preset levels programmed into LOCATE 1-4 buttons which can be easily recalled by simply pressing the buttons.

Example: Press the LOCATE button 2 to set the level to -2 dB. While this button is kept depressed, the decibel level ("-2" in this case) is displayed and when the button is released, it is set to a value (813) for establishing the -2 dB level.

LOCATE button No.	Default setting	Display
LOCATE 1	-0 dB (=1024)	"-00" → A1024
LOCATE 2	-2 dB (=813)	"-02" → A0813
LOCATE 3	-4 dB (=646)	"-04" → A0646
LOCATE 4	-6 dB (=513)	"-06" → A0513

(4) Using a setting which has been entered by the user in the LOCATE LAST button by recalling it**Setting method:**

Set the attenuate level to the desired value.

Keep the LOCATE LAST button depressed (for at least 1.5 or so sec.).

After "---" is displayed, "-PP" appears indicating the value is stored.

Recall method:

Press the LOCATE LAST button for a short duration (less than 1.5 or so sec.).

The entered setting is displayed.

The value recalled is set.

Displaying the head cylinder rotation time (mode No.7)

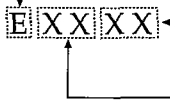
This is an hour meter which increments any time the head cylinder rotates.

The total cylinder rotation time is indicated on the counter display in 5 digits (hours).

Use this as a guide to determine when your deck needs maintenance.

Displaying the error codes, etc. (mode No.8)

The following four test results appear on the counter display.

What is displayed	Description of function	Actual display	Significance
1) Error code	Display of the system controller and mechanism controller error codes. When the cassette tray is opened, the error code display mode is released. These codes are primarily to aid diagnosis of any malfunction. Refer to qualified service personnel if you should ever experience a problem.	Example: 	Denotes that this is the error code display mode.
2) Microcomputer operation mode	Not available to users	—	—
3) Microcomputer software version	The version of the system controller is displayed.	Example: "1-00"	In this case, version 1.00 is denoted.

To select what is to be displayed:

Press the SETTING button (forward). The display is changed in the sequence of 1) through 3) above, and the test results are displayed.

Re-initializing all stored data settings

Press the EXT SYNC + TIME INPUT + COUNTER RESET buttons simultaneously.

All the settings except for the value indicated for the cylinder rotation time are reset to the initialized value.

When this operation is received, "00000" appears on the counter display.

List of settings which are retained even when the power is turned off

Setting to be retained	Setting in the system display mode	Initialization setting
Selecting the digital input/output terminals	●	IEC-C
Selecting the digital output terminals mode	●	II AA
Setting the single play mode	●	OFF
Setting the program play blank skip mode	●	ON
Selecting the main ID6 to be recorded	●	ID6=00
Setting the monitor output attenuate level	●	-0 dB
The total cylinder rotation time	●	No initialization possible
Setting the quick start play mode	—	OFF
Setting the PNO/START ID AUTO mode	—	ON
Setting the SKIP PLAY CANCEL mode	—	ON
Selecting the external sync mode	—	Internal
Setting the A-Time in the LOCATE button	—	0

If "EEEE" appears for 1 second on the counter display when the power has been turned on:

This indicates that the data back-up function described above is not working properly.

■ OPERATION CHECKS AND MAIN COMPONENT REPLACEMENT PROCEDURES

NOTE

- 1. This section describes procedures for checking the operation of the major printed circuit boards and replacing the main components.
- 2. For reassembly after operation checks or replacement, reverse the respective procedures. Special reassembly procedures are described only when required.
- 3. Select items from the following index when checks or replacement are required.
- 4. Illustrated screws are equivalent to actual size.
- 5. Refer the parts No. on the page of "Main component Replacement Procedures", if necessary.

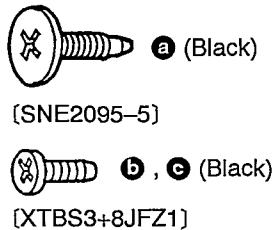
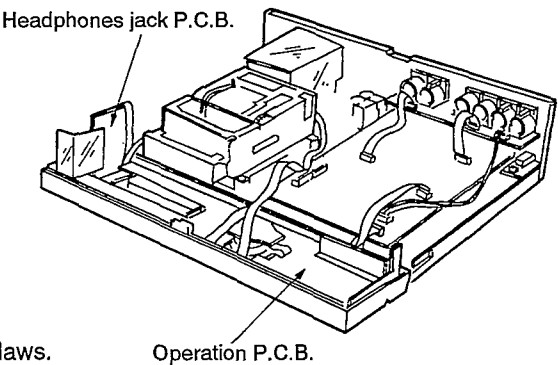
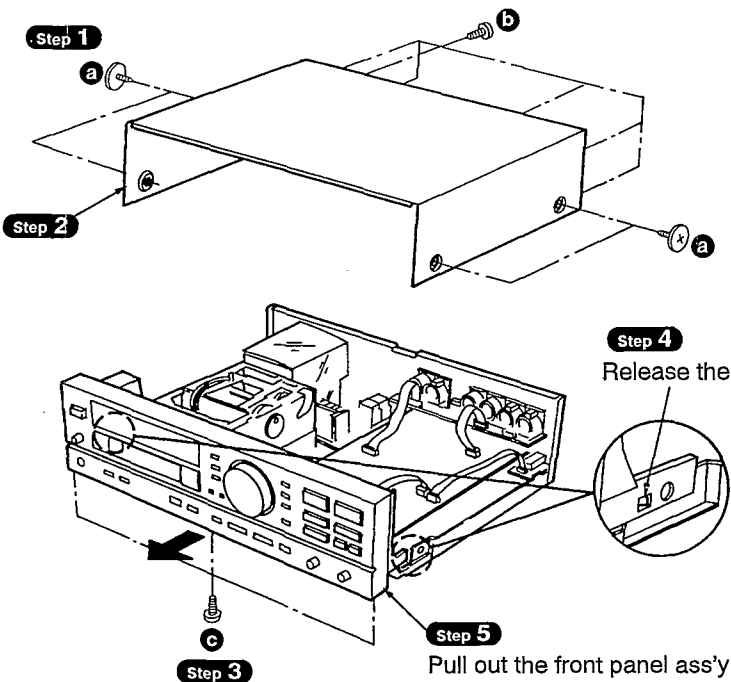
● Contents

•Checking Procedure for each P.C.B.	page.
1. Checking for the operation P.C.B. and headphones jack P.C.B.	20.
2. Checking for the power supply P.C.B.	21.
3. Checking for the main P.C.B.	21,22
4. Checking for the servo P.C.B.	22.
5. Checking for the RF P.C.B.	22,23.
•Main Component Replacement Procedures	
1. Replacement for the regulator IC	24.
2. Replacement for the upper cylinder	24,25.
3. Replacement for the belt and motor ass'y	25.

■ Checking Procedure for each P.C.B.

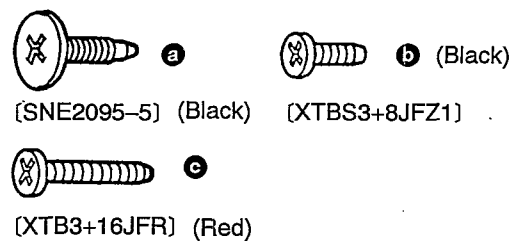
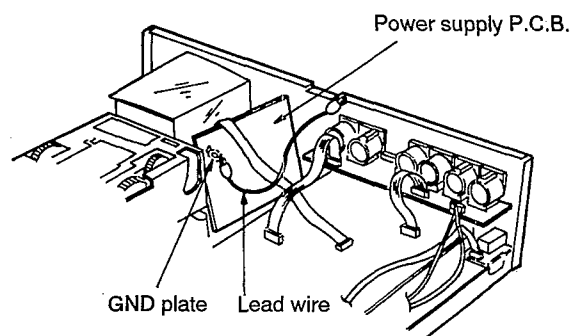
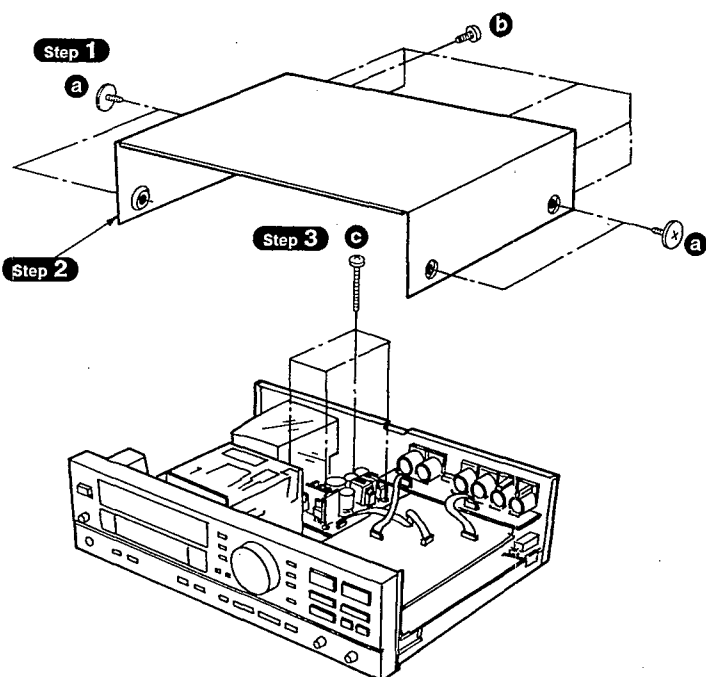
1. Checking for the operation P.C.B. and headphones jack P.C.B.

•Check the operation P.C.B. and headphones jack P.C.B. as shown below.

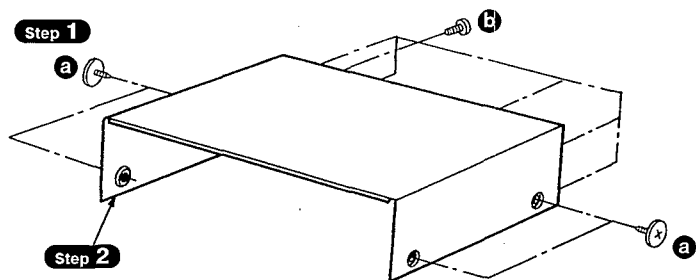


2. Checking for the power supply P.C.B.

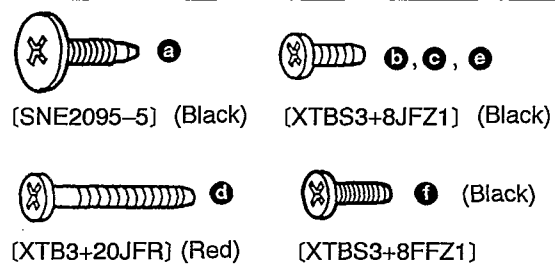
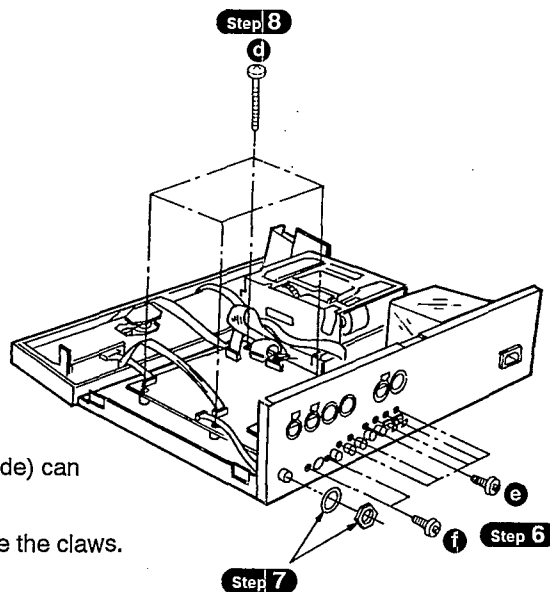
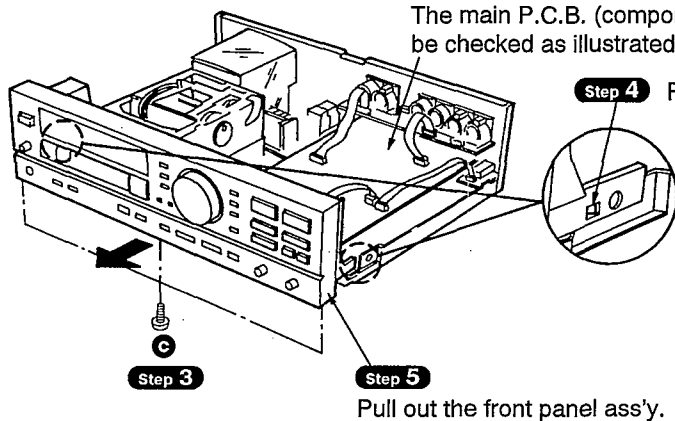
•Check the power supply P.C.B. as shown below.



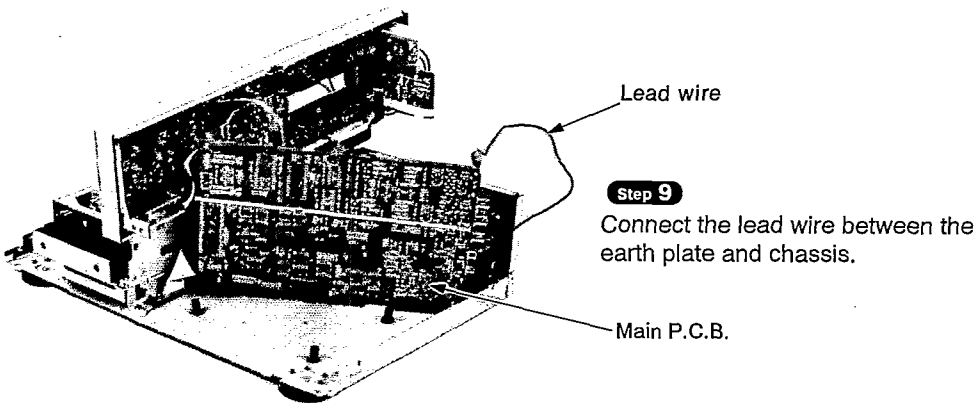
3. Checking for the main P.C.B.



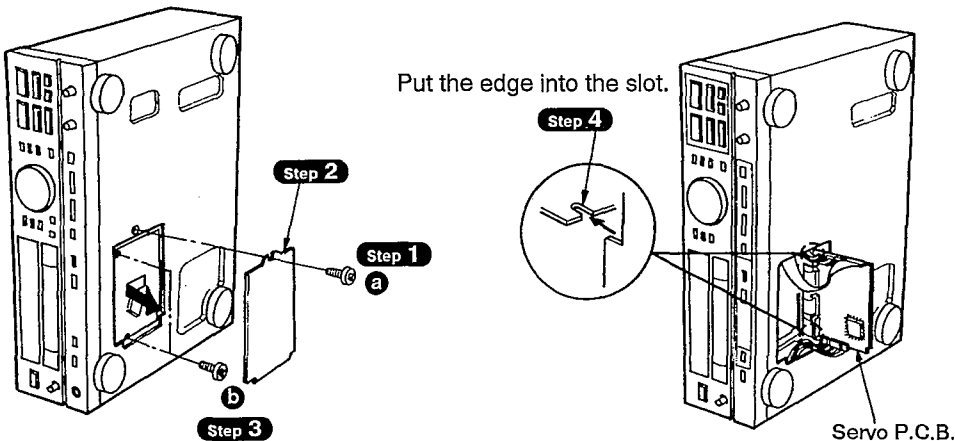
The main P.C.B. (component side) can be checked as illustrated.



•Check the main P.C.B. (back side) as shown below.



4. Checking for the servo P.C.B.

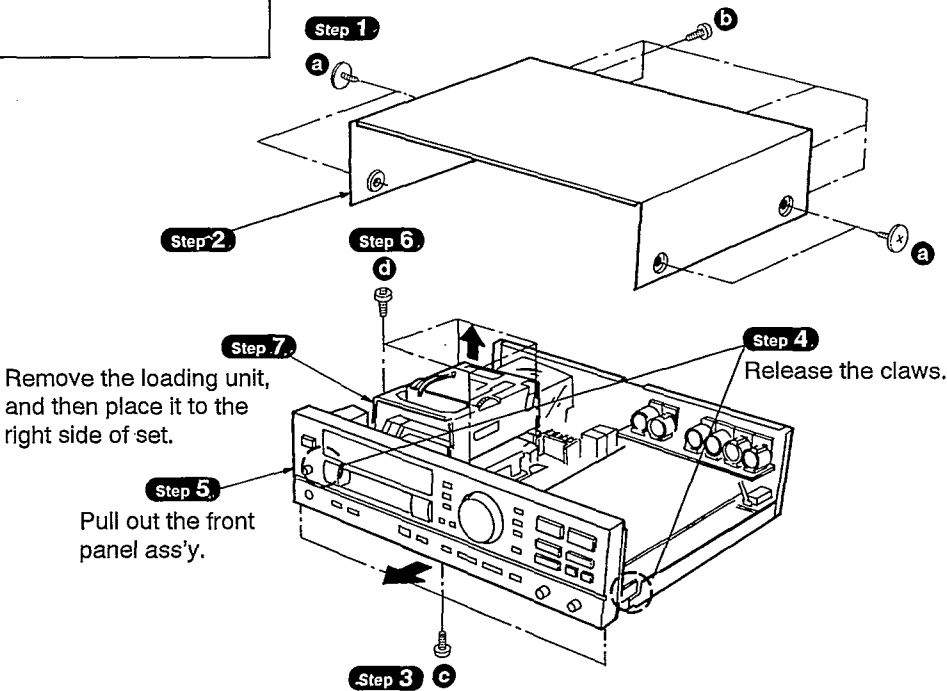


-  **a** (Black)
[XTBS3+8JFZ1]
-  **b** (Black)
[XTB3+6F]

NOTE
Take care not to short circuit the servo P.C.B. with chassis.

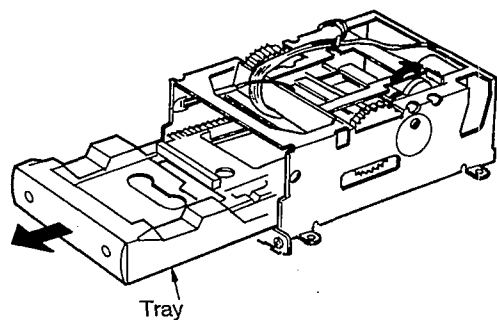
• Check the servo P.C.B. as shown above.

5. Checking for the RF P.C.B.

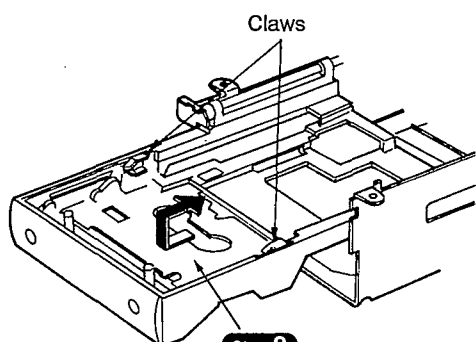


-  **a**
[SNE2095-5] (Black)
-  **b**, **c**
[XTBS3+8JFZ1] (Black)
-  **d**
[XTB3+6F]

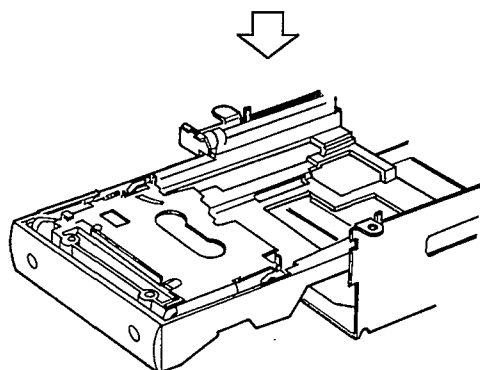
- Step 8** Rotate the pulley gear, and then move the tray forward.



(Upset)



- Step 9** Put the slider cassette holder angle on the claws.



Caution: The slider cassette holder angle will be deformed if it is left as is.

Notice for reassembling the loading unit

- Step 1**

Draw the tray forward more than 50mm.

More than 50mm

- Step 3**

a

Fix with screws, and then put the tray fully.

- Step 2**

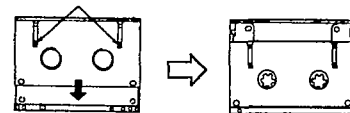
Install the loading unit to the mechanism frame.

Mechanism frame



[XTB3+6F]

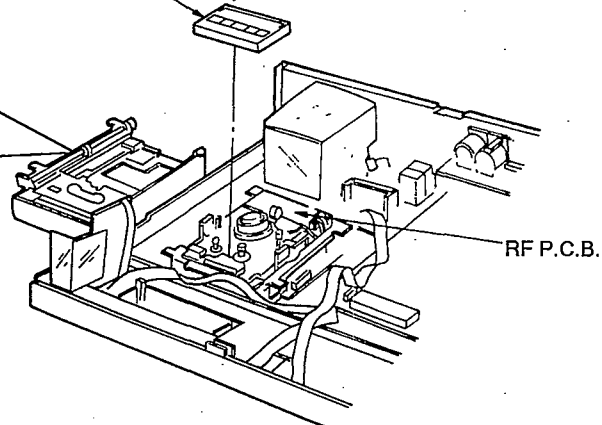
Slider lock



- Unlock the slider lock.

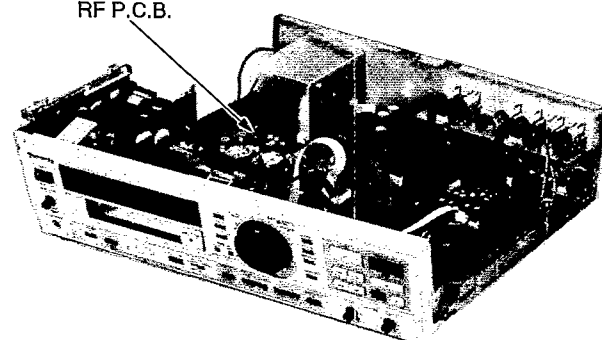
- Step 10**

Place the cassette tape.



- Check and adjust the RF P.C.B. as shown below.

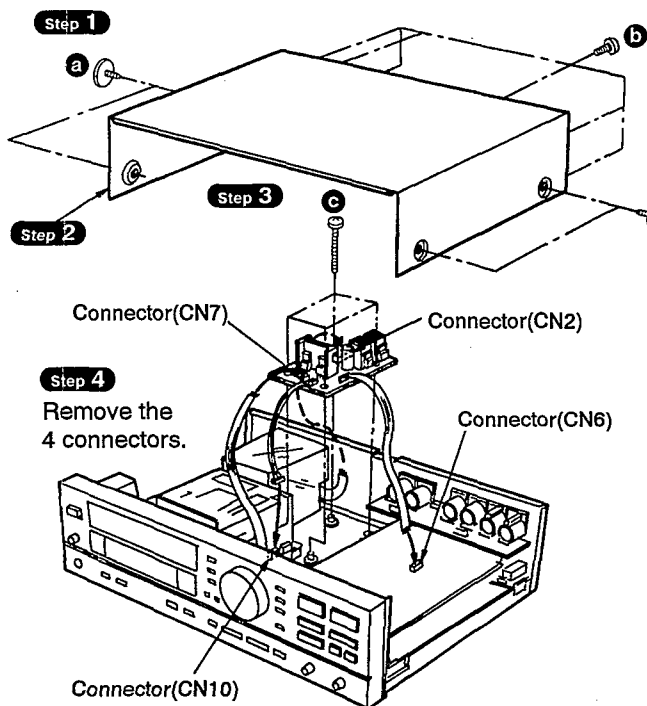
RF P.C.B.



Fix the cassette tape with adhesive tape.

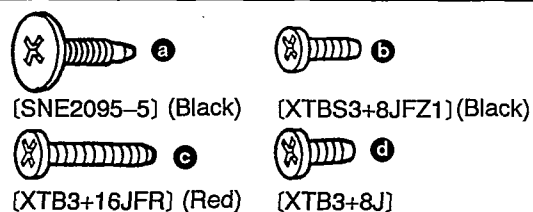
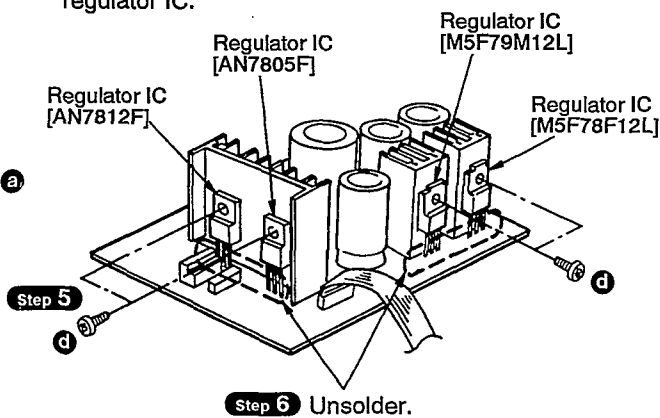
Main Component Replacement Procedures

1. Replacement for the regulator IC



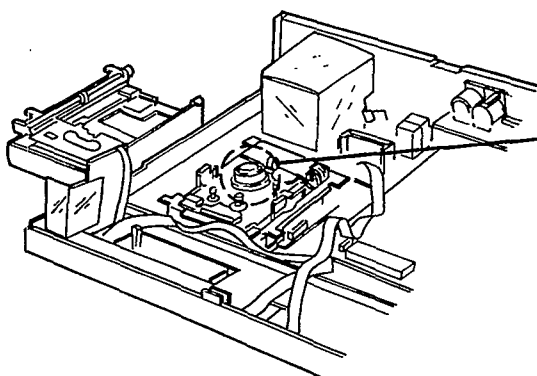
NOTE

When mounting the regulator IC, apply silicon compound (RFKX0002) to the rear side of regulator IC.

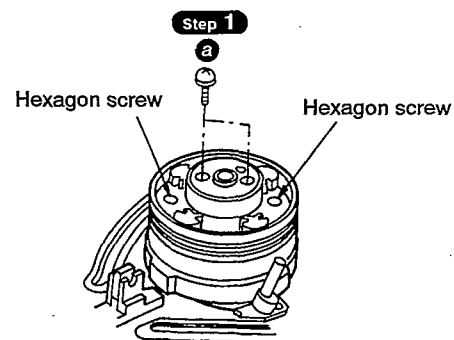


2. Replacement for the upper cylinder

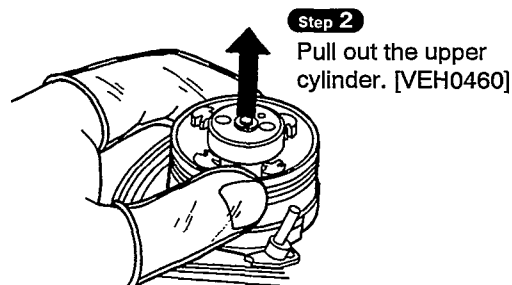
•Follow Step 1 ~ Step 6 in item 5 on checking procedure for each P.C.B..



a) [VHD0593]



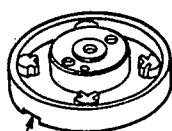
NOTE Please do not touch hexagon screws.



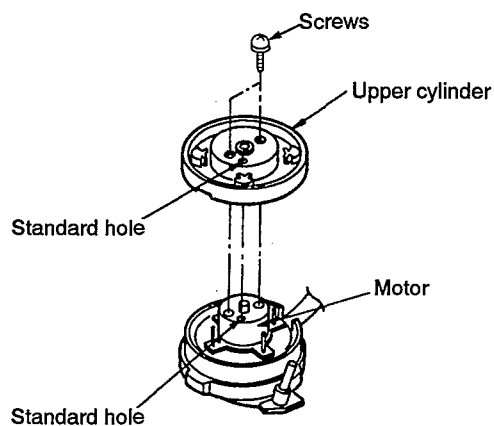
NOTE

Do not touch the cylinder (head) with your bare hand; always be sure to wear a glove or other protection.

Notice for installing the Upper cylinder



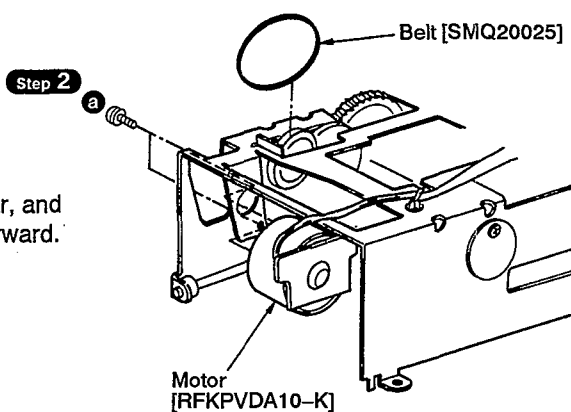
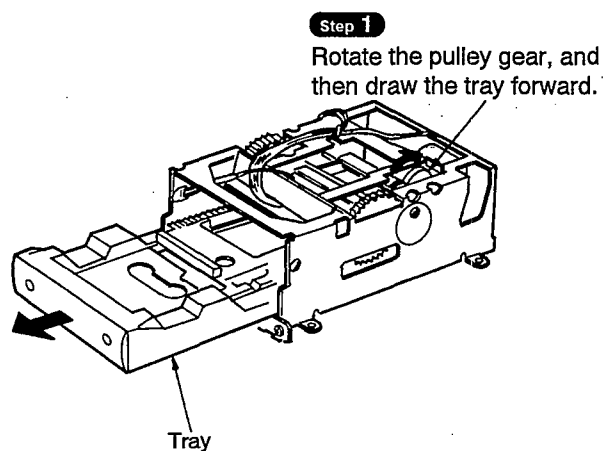
NOTE Be sure not to touch the head part.



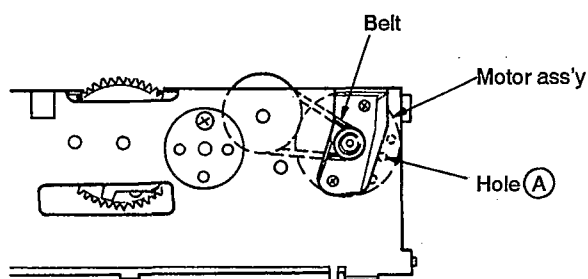
•Mount the upper cylinder matching the motor's standard hole with the cylinder.

3. Replacement for the belt and motor ass'y

•Follow **Step 1** ~ **Step 6** in item 5 on checking procedure for each P.C.B..



■ Installing the motor ass'y



•Install the motor ass'y so that the hole (A) is located as shown above.



[XYN26+C33]

MEASUREMENTS AND ADJUSTMENTS

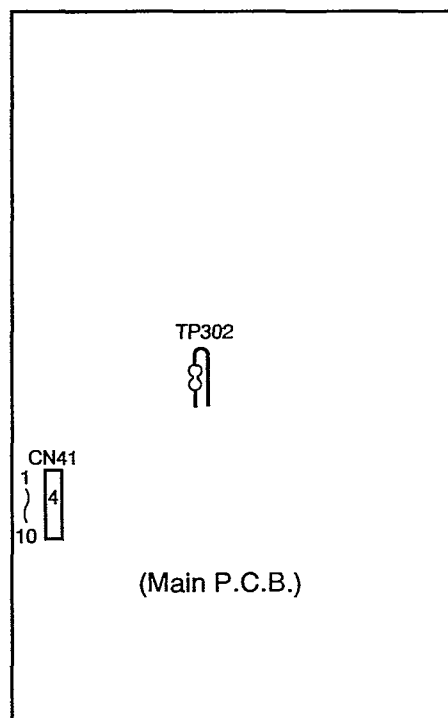
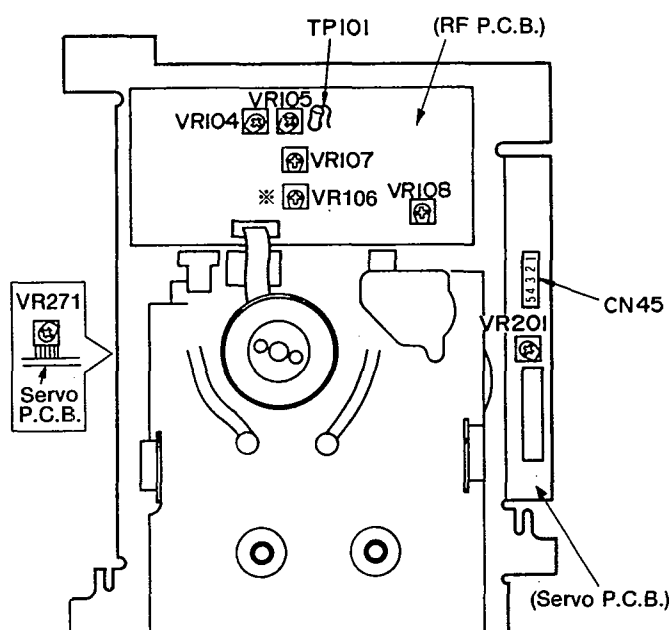
• PREPARATION

Refer to the "5. Checking for the RF P.C.B." of operation check and main component replacement procedure on page 22.

• ELECTRICAL ADJUSTMENT

• Adjustment points

※ VR106 do not require adjustment; if the VR is replaced or require readjustment, set the dial to the center positions.



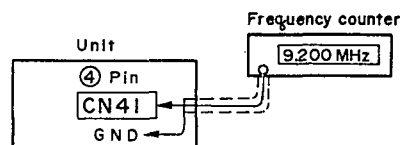
Equipment and Tools

- 2-channel 30MHz oscilloscope with external trigger and dual time base
- 2 oscilloscope probes (10 : 1)*
- Frequency counter
- AF oscillator (OSC)
- Distortion analyser
- DC electronic voltmeter (EVM)
- Post roller adjustment screwdriver
 - : SZZV1102C
- Standard test tapes
 - : RD-PG01 (PG reference tape)
 - : RD-ER01 (Error rate tape)
 - : RD-LR02 (Linearity adjustment tape)
- Blank DAT cassette for recording and playback
 - : RT-R60P, RT-R90P, RT-R120P
- Standard electrical tools and equipment

* **NOTE:** The oscilloscope voltage settings in the charts and the waveform examples assume use of the specified 10: 1 probes.

1. PLL Free Run Adjustment

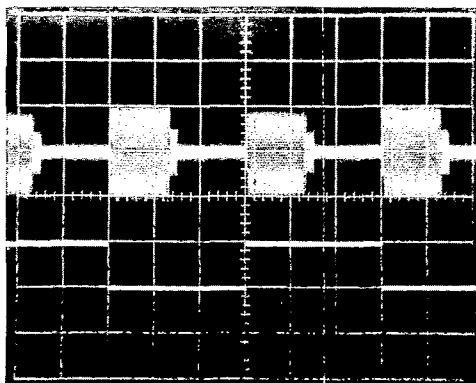
1. Connect the frequency counter as shown in figure.
2. Set the power switch to "ON".
3. Open the cassette holder drawer.
4. Adjust **VR108** as required until the frequency counter reads 9.2 ± 0.2 MHz.



2. PG Phase Adjustment

1. Set up the oscilloscope and connect as shown below.

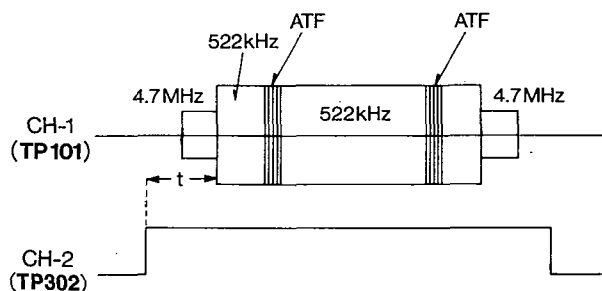
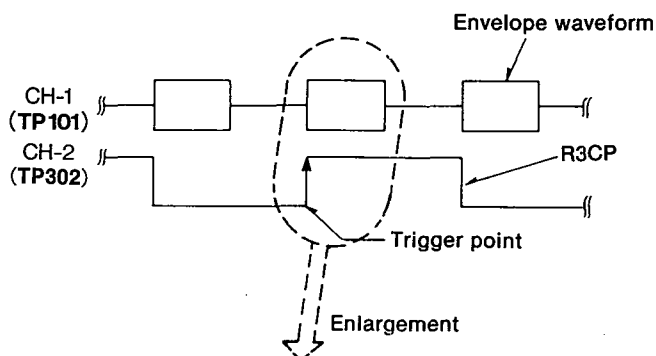
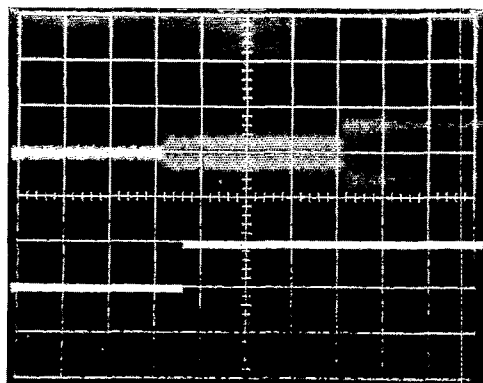
	CH-1	CH-2
Test point	TP101 (RPRF)	TP302 (R3CP)
Volts/Div.	50 mV	0.5 V
Time/Div.	5 msec.	
Delay Time/Div.	50 μ sec.	
Trig.	CH-2	
AC-GND-DC	AC	DC
Adjustment point	VR201	



Note:

If the output levels of heads A and B are not equal, the "ATF RF Recording Level Adjustment" described in procedure 4 might be made improperly. Adjust the ATF RF Recording Level by following procedure 4 and then check the output level of the heads again. (At this time, it is not necessary to make adjustment described in procedure 2.)

2. Note the "t" time indicated on the PG reference tape (RD-PG01), then load and play the tape.
3. While the tape is being played, the waveform shown on the right should appear.
4. Adjust the delay time for the dual time base to display the leading edge of the CH-2 (R3CP) waveform.
5. The time from the leading edge of R3CP to the leading edge of the 522kHz portion of the RF waveform must be within $\pm 40 \mu$ sec of the time indicated on the PG reference tape. Adjust **VR201** as required, so that the time "t" (in the figure below), falls within specified limits.



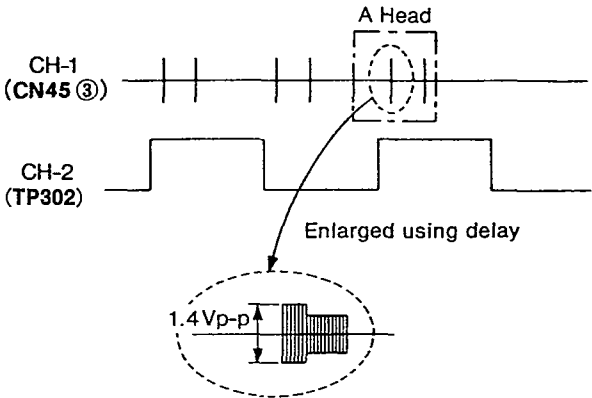
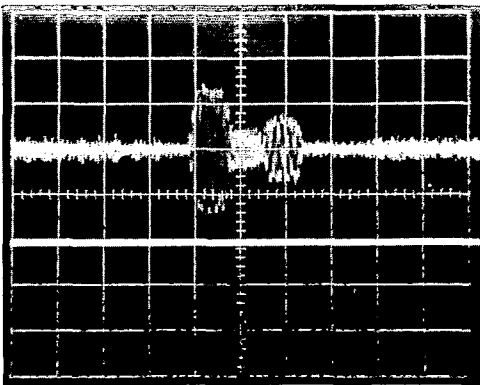
t: Value (μ sec) indicated on the standard tape $\pm 40 \mu$ sec.

3. ATF Gain Adjustment

1. Set up the oscilloscope and connect as shown below.

	CH-1	CH-2
Test point	CN45 ③ (PILOT)	TP302 (R3CP)
Volts/Div.	50mV	0.5V
Time/Div.	5msec.	
Delay	0.1msec.	
Trig.	CH-2	
AC-GND-DC	AC	DC
Adjustment point	VR107	

2. Load and play the error rate tape (RD-ER01).
3. Adjust the delay time for the dual time base to select and display the PILOT signal with the largest amplitude.
4. Adjust VR107 so that the amplitude of the PILOT signal is $1.4 \pm 0.2V_{p-p}$. Check the amplitudes of the other PILOT signals to insure that they are a minimum of $1.2V_{p-p}$. If not optimize the adjustment of VR107 for the minimum signal level.



4. ATF RF Recording Level Adjustment

NOTE: This adjustment should only be made after confirming the playback “ATF Gain Adjustment” in step 3 above. Failing to do so will invalidate this adjustment.

1. Make a “0” level recording:
(a) Load a blank tape (RT-R60P etc.) into the unit.
(b) Put the unit into RECORD mode.
(c) Run the tape, recording for a minimum of 20 to 30 seconds.
(d) Rewind the tape to the beginning of the “0” level signal recording.
2. Connect and set up the oscilloscope as follows:

	CH-1	CH-2
Test point	CN45 ③ (PILOT)	TP302 (R3CP)
Volts/Div.	50mV	0.5V
Time/Div.	2msec.	
Delay Time/Div.	0.2msec.	
Trig.	CH-2	
AC-GND-DC	AC	DC
Adjustment point	VR104: Head A, VR105: Head B	

3. While playing back the blank signal portion of the tape, verify that the signal amplitude falls in the range of $1.4 \pm 0.2V_{p-p}$.

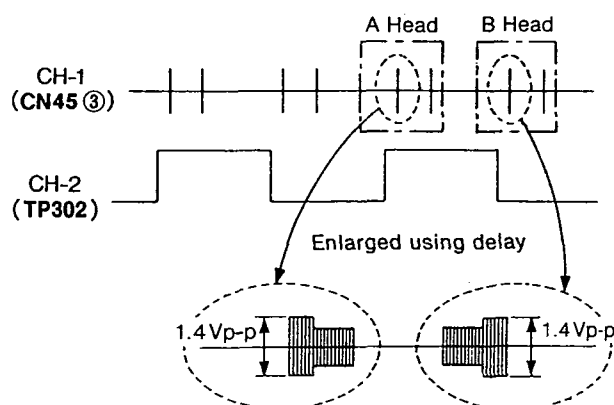
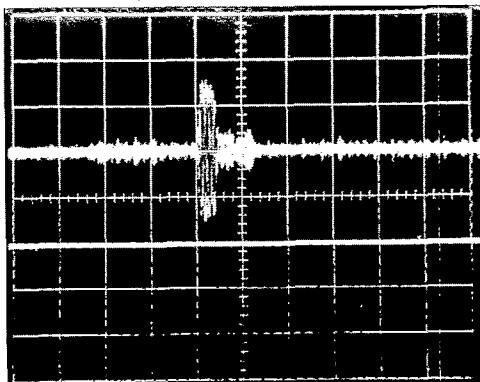
Standard value: $1.4 \pm 0.2V_{p-p}$

4. If the ATF signal is not within specification press the stop button and adjust VR104 and VR105 accordingly. Making finer adjustments as the trials approach the specified level.

LEVEL/HEAD	A: VR104	B: VR105
More than 1.6V	Turn ⌚	Turn ⌚
Less than 1.4V	Turn ⌚	Turn ⌚

After making the adjustment, make another blank signal recording, on a different portion of the tape (use the END SEARCH feature), for 20 to 30 seconds. Rewind the tape to the beginning of the new recording and repeat from step 3 until the specification is met.

Note:
It is necessary to use a different portion of the tape for each trial because DAT does not erase the original signal, it “over writes” the new signal. Using a new portion of the tape will prevent maladjustment due to incomplete “over write” of the previously recorded signal.



5. BOT/EOT Detection Sensitivity Verification and Adjustment

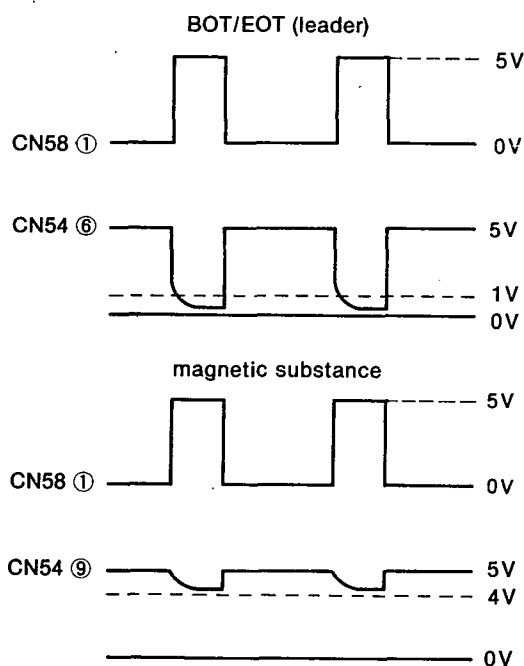
1. Make sure that the tape stops with the leader portion (the beginning and ending portion).

※ If the tape does not stop at the leader, make adjustment by following procedure outlined below.

- ① Insert a blank tape into the tape compartment of the set and press the playback button at the end of the tape.
- ② Set up the oscilloscope and connect as shown below.

	CH-1	CH-2
Test point	CN54 ⑥ (BOT/EOT) ⑨ (magnetic substance)	CN58 ①
Volts/Div.	0.2V	0.2V
Time/Div.	2msec.	
Delay	—	
Trig.	CH-2	
AC-GND-DC	AC	DC
Adjustment point	VR271	

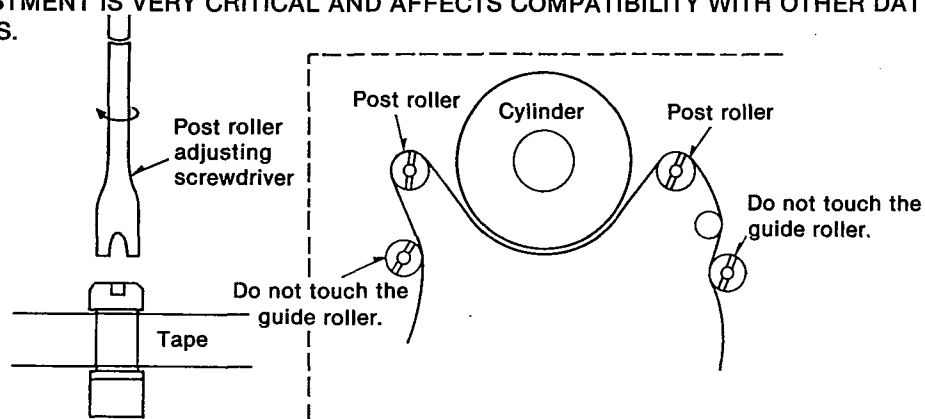
- ③ Adjust the amplitude of waveform to less than 1V at the magnetic substance and more than 4V at the leader on VR271.



6. Linearity Adjustment

CAUTION: ONLY THE POST ROLLERS ARE USED FOR THE LINEARITY ADJUSTMENT. DO NOT ADJUST THE GUIDE ROLLERS.

THIS ADJUSTMENT IS VERY CRITICAL AND AFFECTS COMPATIBILITY WITH OTHER DAT RECORDERS.



1. Connect and set up the oscilloscope as follows:

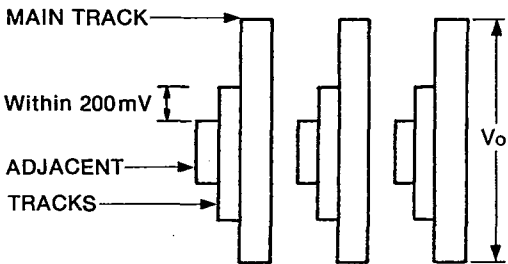
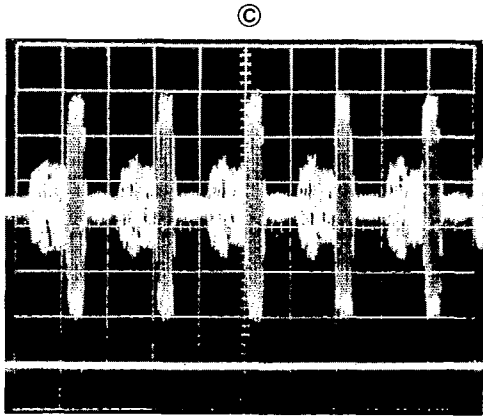
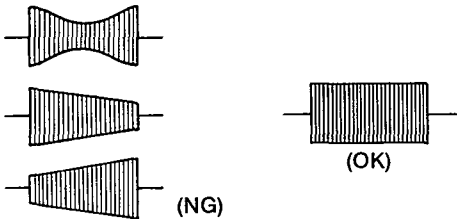
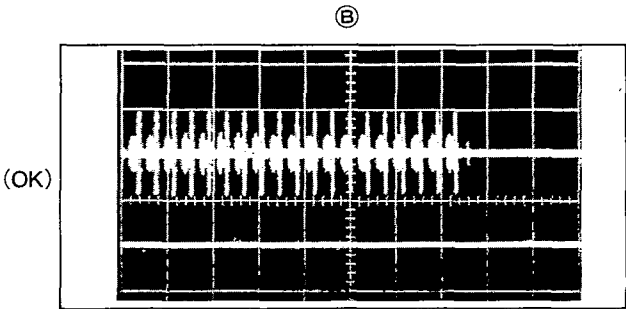
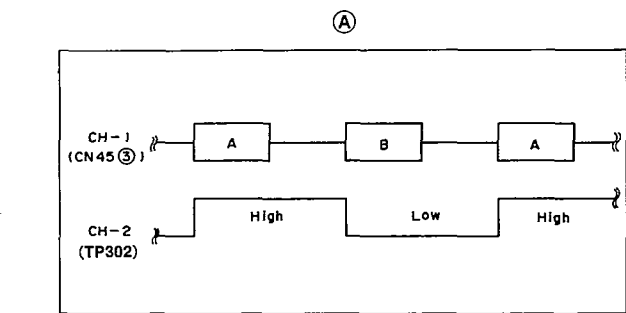
	CH-1	CH-2
Test point	CN45 ③ (PILOT)	TP302 (R3CP)
Volts/Div.	0.2V	2.0V
Time/Div.	Ⓐ 5msec. Ⓑ 1msec. Ⓒ 0.2msec.	
Delay Time/Div.	—	
Trig.	CH-2	
AC-GND-DC	AC	DC
Adjustment point	Post rollers (only)	

2. Load and play the linearity adjustment tape (RD-LR02). Please use the recorded signal portion on tape (after 600 count from beginning of tape)
3. Use the leading edge of the CH-2 (R3CP) waveform to trigger the oscilloscope to monitor the head “A” side of the RF signal envelope.
4. While the tape is playing, gradually adjust the height of the POST ROLLERS until the RF envelope (B) is rectangular.

CAUTION 1:
ADJUSTMENTS MUST BE MADE VERY GRADUALLY.

CAUTION 2:
DO NOT “OVER ADJUST” the POST ROLLERS. It is unlikely that the POST ROLLERS will require more than a QUARTER of a turn in either direction to make the waveform rectangular.

5. Adjust VR107 so that the amplitude (V_o) of the PILOT waveform ③ is 1.0Vp-p.
6. On the PILOT signal waveform ③, verify that the amplitude difference between adjacent tracks falls **within 200mV** (See figure below). If not, adjust the post rollers.
7. Play the standard test tape (RD-ER01), and do “PG Phase adjustment” and “ATF gain adjustment” again.



SCHEMATIC DIAGRAM

(Parts list on pages 92~95, 104~107.)

(This schematic diagram may be modified at any time with the development of new technology.)

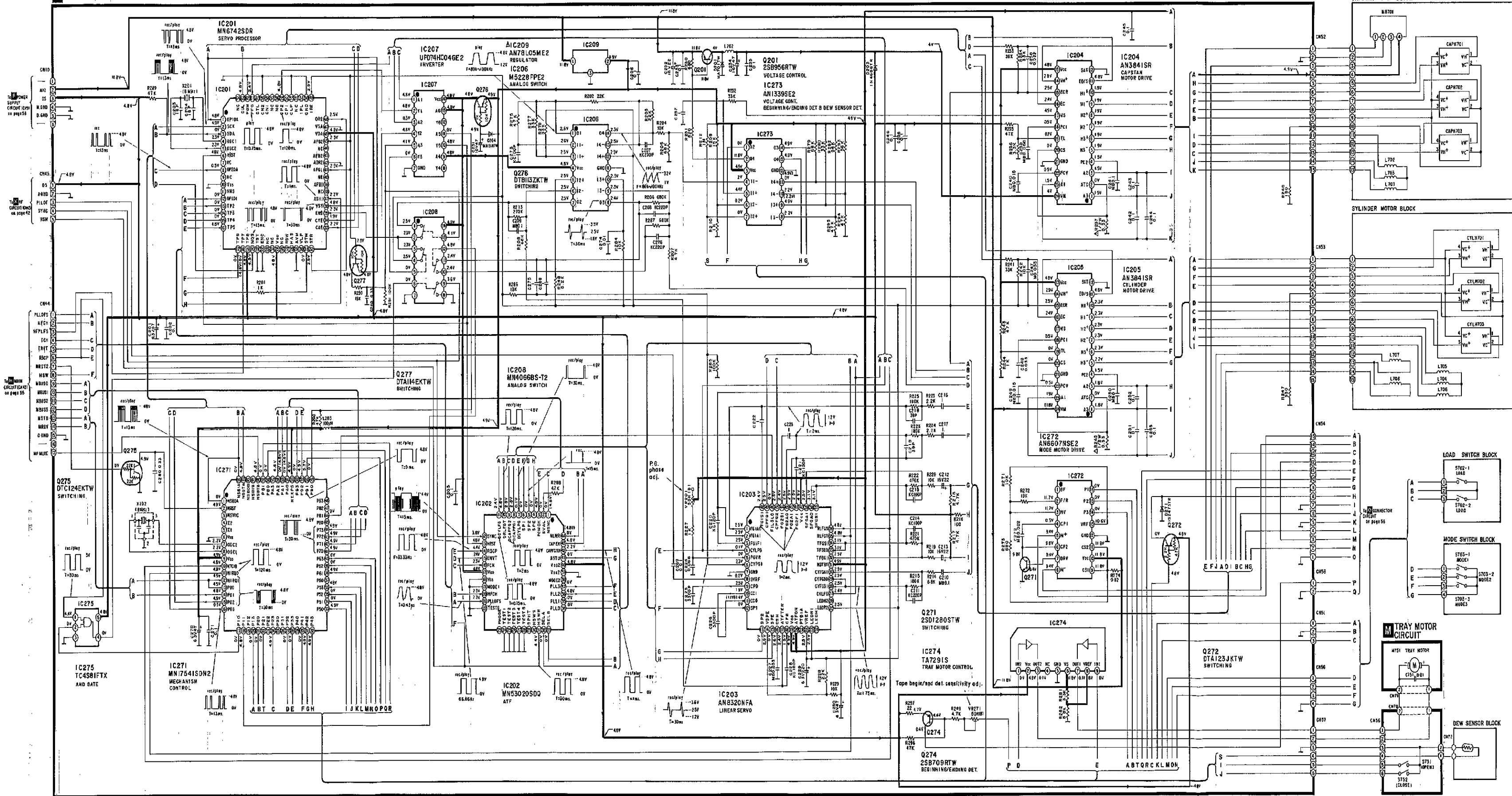
Note 1:

- S301 : TIME INPUT switch.
 - S302 : EXT SYNC switch.
 - S751 : Cassette tray open detection switch.
 - S752 : Cassette tray close detection switch.
- All voltage values shown in circuitry are under no signal condition and playback mode with volume control at minimum position otherwise specified.
- ().....Voltage values at recording mode.
- For measurement use EVM.
- Important safety notice
- Components identified by Δ mark have special characteristics important for safety. When replacing any of these components, use only manufacturer's specified parts.
- () Indicates +B (bias).
 - () Indicates -B (bias).
 - () Indicates the flow of the playback signal.
 - () Indicates the flow of the recording signal.

* Caution !

- IC and LSI are sensitive to static electricity. Secondary trouble can be prevented by taking care during repair.
- * Cover the parts boxes made of plastics with aluminum foil.
 - * Ground the soldering iron.
 - * Put a conductive mat on the work table.
 - * Do not touch the legs of IC or LSI with fingers directly.

SERVO CIRCUIT



SWITCH CIRCUIT

N

SWITCH CIRCUIT

A

B

C

D

E

F

G

REC LEVEL
VR CIRCUIT

REC LEVEL
VR CIRCUIT

REC LEVEL
VR CIRCUIT

REC LEVEL
VR CIRCUIT

REC LEVEL
VR CIRCUIT

REC LEVEL
VR CIRCUIT

REC LEVEL
VR CIRCUIT

REC LEVEL
VR CIRCUIT

REC LEVEL
VR CIRCUIT

REC LEVEL
VR CIRCUIT

REC LEVEL
VR CIRCUIT

REC LEVEL
VR CIRCUIT

MAIN CIRCUIT

REC LEVEL
VR CIRCUIT

REC LEVEL
VR CIRCUIT

REC LEVEL
VR CIRCUIT

REC LEVEL
VR CIRCUIT

REC LEVEL
VR CIRCUIT

REC LEVEL
VR CIRCUIT

REC LEVEL
VR CIRCUIT

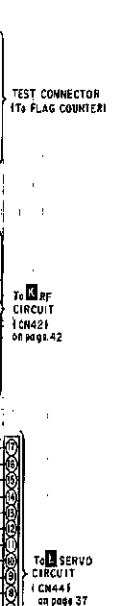
REC LEVEL
VR CIRCUIT

REC LEVEL
VR CIRCUIT

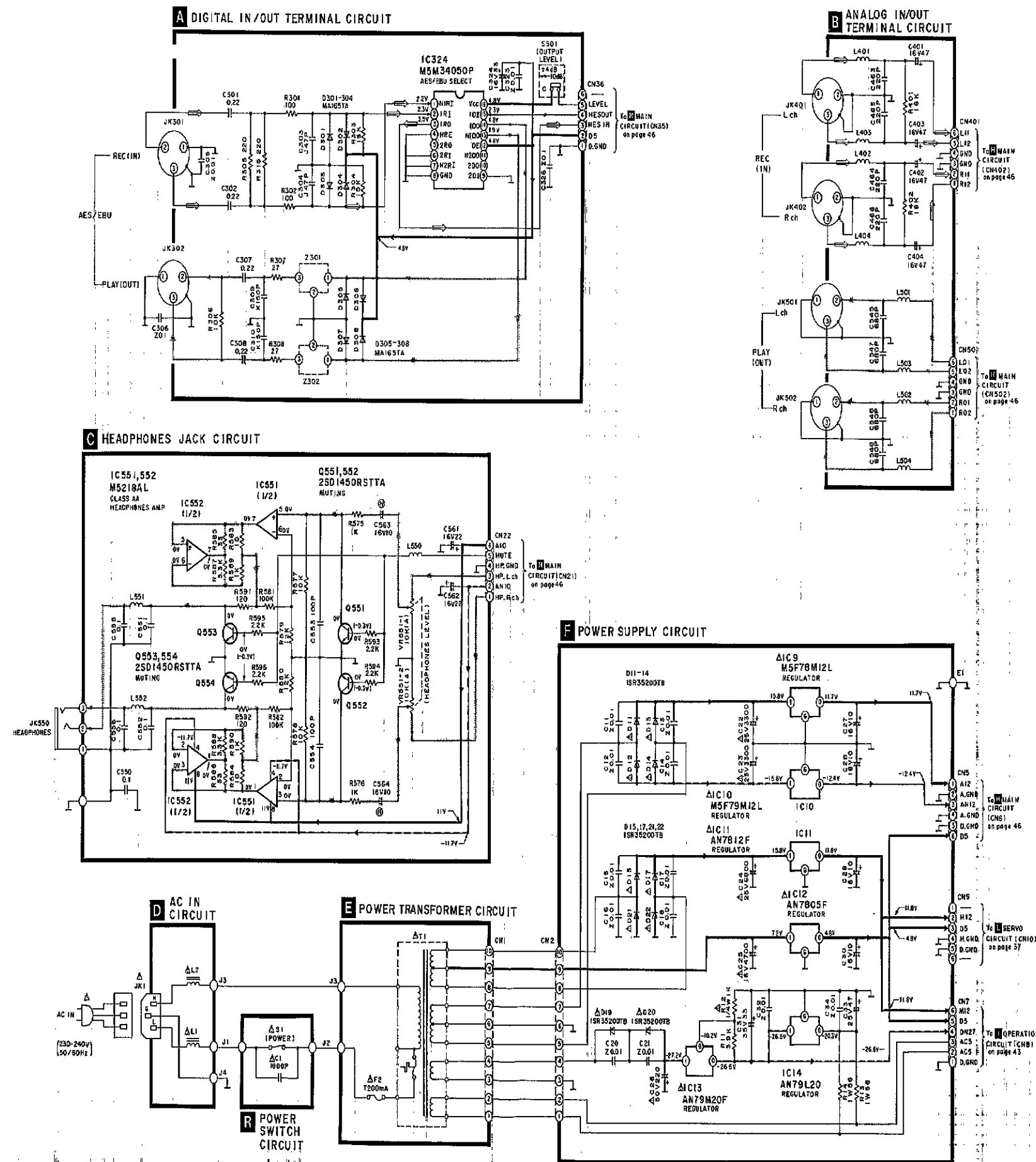
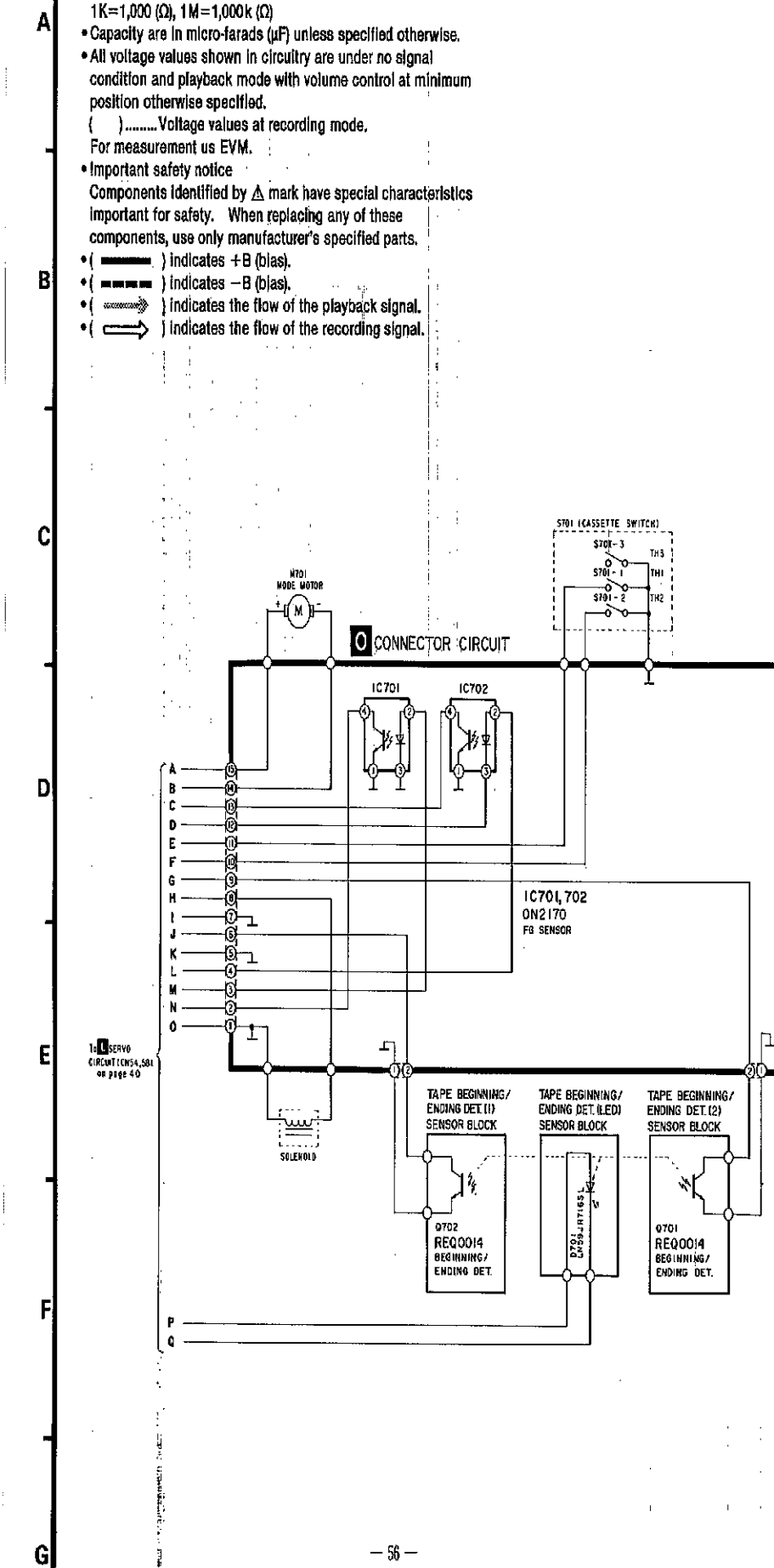
REC LEVEL
VR CIRCUIT

REC LEVEL
VR CIRCUIT

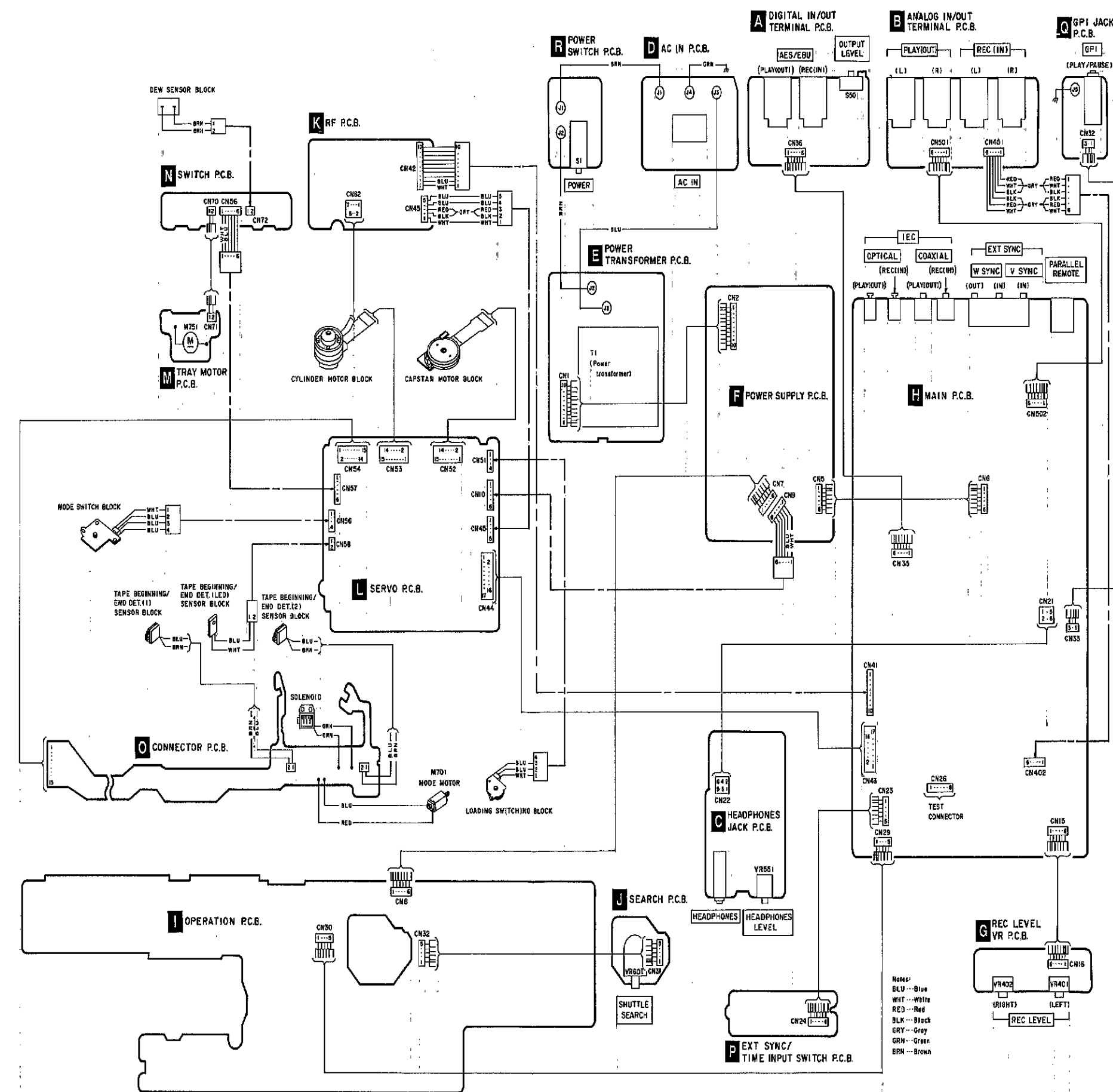
REC LEVEL
VR CIRCUIT



- () indicates +B (bias).
- () indicates -B (bias).
- () indicates the flow of the playback signal.
- () indicates the flow of the recording signal.



■ WIRING CONNECTION DIAGRAM



Notes:
BLU --- Blue
WHT --- White
RED --- Red
BLK --- Black
GRY --- Gray
GRN --- Green
BRN --- Brown

A -

B -

C -

D -

E -

F -

G

- In this printed circuit board diagram, the parts and foil patterns on the board facing toward you are printed in black.
The opposite side is printed in blue.
- The “●” mark denotes the connection points of double-faced foil patterns (through holes) on both sides of the printed circuit board.
- This printed circuit board diagram may be modified at any time with the development of new technology.

TP302

-(PLAY{OUT})

A



E



D

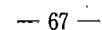


C

M



N



11

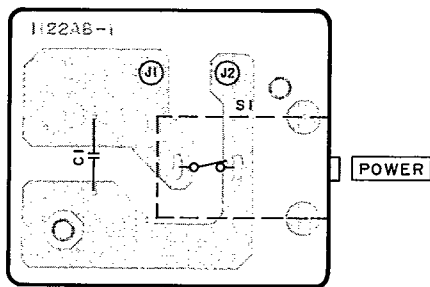
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13

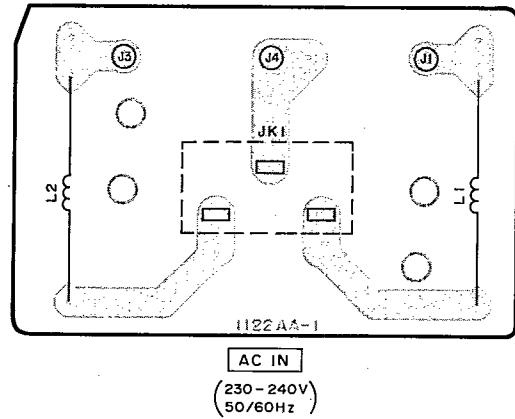
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15

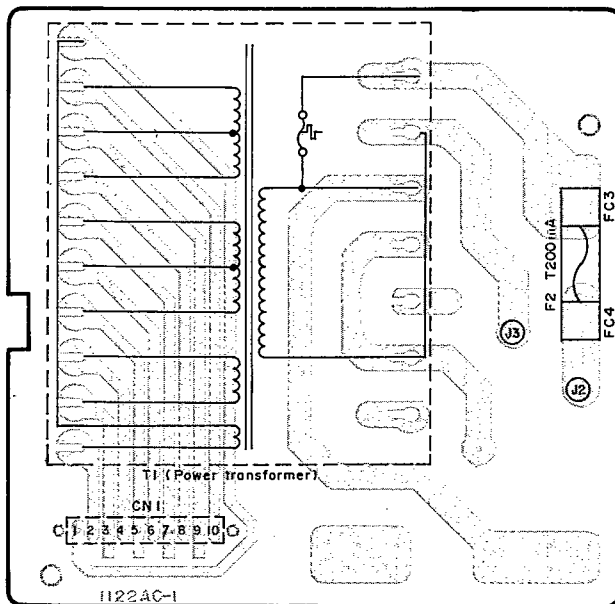
R POWER SWITCH P.C.B. (REP1951B)



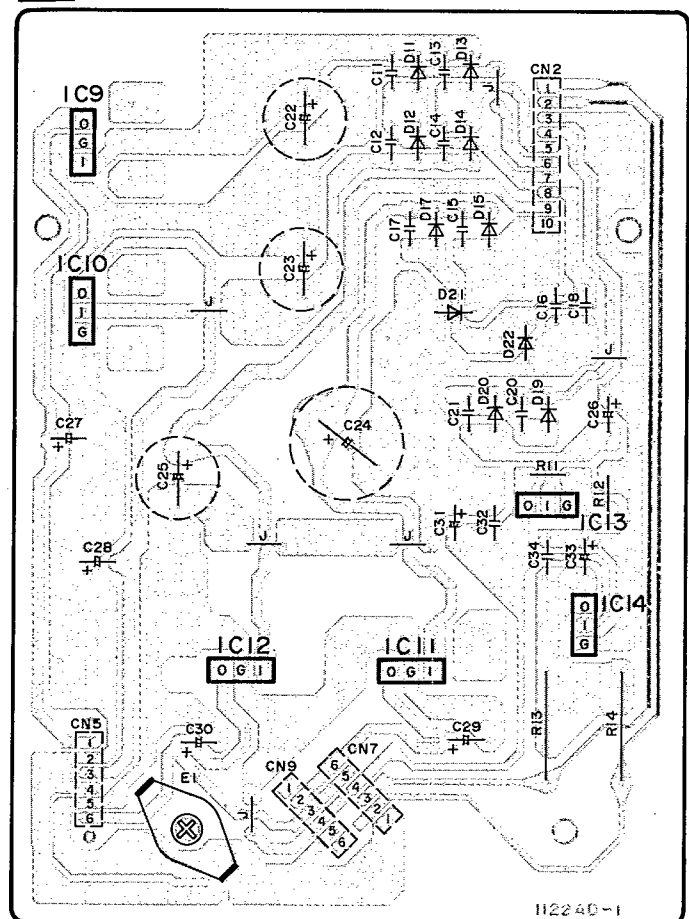
D AC IN P.C.B. (REP1951B)



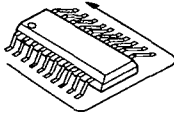
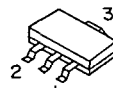
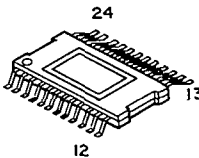
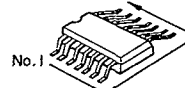
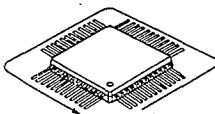
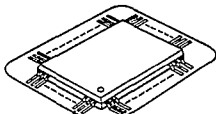
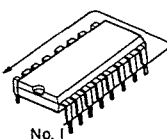
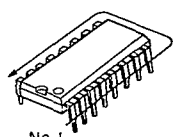
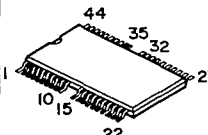
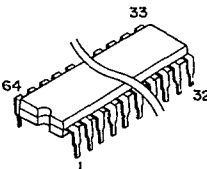
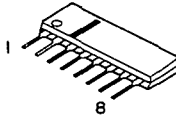
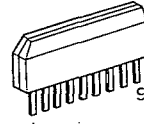
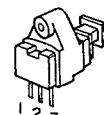
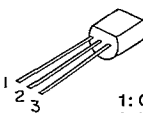
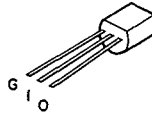
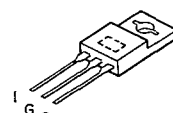
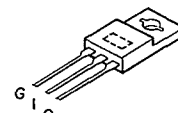
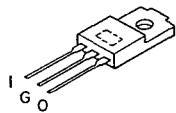
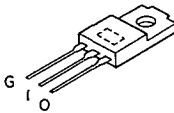
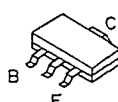
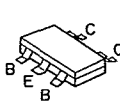
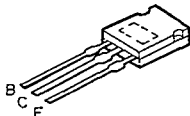
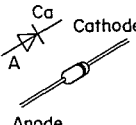
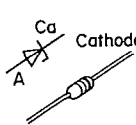
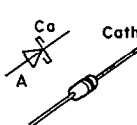
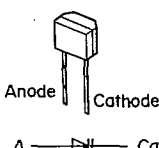
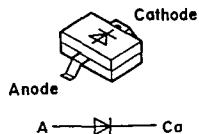
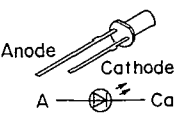
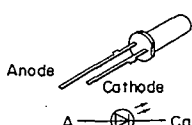
E POWER TRANSFORMER P.C.B. (REP1951B)



F POWER SUPPLY P.C.B. (REP1951B)



■ TERMINAL GUIDE OF IC'S, TRANSISTORS AND DIODES

No.1		<table><tr><td>AN1393S</td><td>8 Pin</td><td>M5228FPE2</td><td>14 Pin</td><td>UPD74HC00G</td><td>14 Pin</td><td>AN6873S</td><td>18 Pin</td></tr><tr><td>M5219FPE1</td><td>8 Pin</td><td>MC74HC02AF</td><td>14 Pin</td><td>UPD74HC04G</td><td>14 Pin</td><td>S22S12IF10</td><td>18 Pin</td></tr><tr><td>M5238FPE1</td><td>8 Pin</td><td>MC74HC125AF</td><td>14 Pin</td><td>UPD74HC04GE2</td><td>14 Pin</td><td>MC74HC273AF</td><td>20 Pin</td></tr><tr><td>NJM4580EDTE1</td><td>8 Pin</td><td>MC74HC164F</td><td>14 Pin</td><td>AN6607NSE2</td><td>16 Pin</td><td>AN7035SCE2</td><td>32 Pin</td></tr><tr><td>AN1339SE2</td><td>14 Pin</td><td>MN4066BS-T2</td><td>14 Pin</td><td>MC74HC595AF</td><td>16 Pin</td><td>AN7030SE2</td><td>42 Pin</td></tr><tr><td>NJM5532DD</td><td>8 Pin</td><td></td><td></td><td></td><td></td><td></td><td></td></tr></table>		AN1393S	8 Pin	M5228FPE2	14 Pin	UPD74HC00G	14 Pin	AN6873S	18 Pin	M5219FPE1	8 Pin	MC74HC02AF	14 Pin	UPD74HC04G	14 Pin	S22S12IF10	18 Pin	M5238FPE1	8 Pin	MC74HC125AF	14 Pin	UPD74HC04GE2	14 Pin	MC74HC273AF	20 Pin	NJM4580EDTE1	8 Pin	MC74HC164F	14 Pin	AN6607NSE2	16 Pin	AN7035SCE2	32 Pin	AN1339SE2	14 Pin	MN4066BS-T2	14 Pin	MC74HC595AF	16 Pin	AN7030SE2	42 Pin	NJM5532DD	8 Pin						
AN1393S	8 Pin	M5228FPE2	14 Pin	UPD74HC00G	14 Pin	AN6873S	18 Pin																																												
M5219FPE1	8 Pin	MC74HC02AF	14 Pin	UPD74HC04G	14 Pin	S22S12IF10	18 Pin																																												
M5238FPE1	8 Pin	MC74HC125AF	14 Pin	UPD74HC04GE2	14 Pin	MC74HC273AF	20 Pin																																												
NJM4580EDTE1	8 Pin	MC74HC164F	14 Pin	AN6607NSE2	16 Pin	AN7035SCE2	32 Pin																																												
AN1339SE2	14 Pin	MN4066BS-T2	14 Pin	MC74HC595AF	16 Pin	AN7030SE2	42 Pin																																												
NJM5532DD	8 Pin																																																		
TC4S81FTX 	AN78L05ME2 	AN3841SR 	No.1 <table><tr><td>T74HCU04AFTP</td><td>14 Pin</td></tr><tr><td>UPD74HC74GE2</td><td>14 Pin</td></tr><tr><td>TC74HC166AF</td><td>16 Pin</td></tr><tr><td>TC74HC541AF</td><td>20 Pin</td></tr></table>				T74HCU04AFTP	14 Pin	UPD74HC74GE2	14 Pin	TC74HC166AF	16 Pin	TC74HC541AF	20 Pin																																					
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■ TERMINAL FUNCTION OF IC'S

• IC101 (AN7030SE2): RF AMP.

Pin No.	Mark	I/O Division	Function
1	V _{CC} 1	I	Power supply terminal
2	ACH FB	O	Playback feed back signal (A ch)
3	ACH IN	I	Playback amp. signal (A ch)
4	GND 1	—	GND terminal
5	BCH IN	I	Playback amp. signal (B ch)
6	BCH FB	O	Playback feed back signal (B ch)
7	AREC PCM	I	RF recording level adj. terminal
8	AREC PLT		
9	AREC ATF		
10	BREC ATF		
11	BREC PLT		
12	BREC PCM		
13	REC CNT 1	I	Track pitch signal
14	REC CNT 2	I	ATF area det. signal
15	SRRF IN	I	Recording signal
16	GND 2	—	GND terminal
17	VREF	O	Reference voltage terminal (Not used, open)
18	AREC OUT	O	Recording signal (A ch)
19	BREC OUT	O	Recording signal (B ch)
20	BTL REC	O	Recording control signal
21	V _{CC} 2	I	Power supply terminal
22	REC ON	O	Recording drive terminal (REC: "H")

Pin No.	Mark	I/O Division	Function
23	PLAY ON	O	Playback drive terminal (PLAY: "H")
24	HSW	I	Head switching signal
25	AR/RSEL	I	Not used, connected to power supply
26	R/PSEL	I	Recording/playback select signal (REC: "H", PLAY: "L")
27	EQ OUT	O	Equalization signal
28	EQ IN 3	I	Equalization amp. signal
29	EQ IN 2		
30	EQ IN 1		
31	BF REQ	I	Equalization amplitude drive terminal (B ch)
32	B PHASE	I	Equalization phase drive terminal (B ch)
33	B GAIN	I	Equalization gain drive terminal (B ch)
34	AF REQ	I	Equalization amplitude drive terminal (A ch)
35	A PHASE	I	Equalization phase drive terminal (A ch)
36	A GAIN	I	Equalization gain drive terminal (A ch)
37	SV RF	O	Playback signal
38	GND 3	—	GND terminal
39	A INT	I	Playback amp. signal (A ch)
40	B INT	I	Playback amp. signal (B ch)
41	B INT IN	O	Playback amp. signal (B ch)
42	A INT IN	O	Playback amp. signal (A ch)

• IC102 (AN7035SCE2): Playback PLL

Pin No.	Mark	I/O Division	Function
1	LPF	O	Buffer amp. 1 reference terminal
2	GND 1	—	GND terminal
3	ENVC	O	ENV time constant setting terminal
4	ENVR	I	ENV threshold voltage adj. terminal
5	RFENV	O	RF envelope signal
6	RSENV	O	RSENV time constant setting terminal
7	RSRF	I	RF signal

Pin No.	Mark	I/O Division	Function
8	DELOUT	O	RF signal
9	DELIN 1	I	Delay (45°) signal
10	DELIN 2	I	Delay (90°) signal
11	PDOUT	O	Phase comparator signal
12	VREF 1	I	V/I converter reference voltage terminal
13	VC OV	I	OSC frequency control terminal
14	R/P	I	Recording/playback select terminal (Not used, connected to GND)

Pin No.	Mark	I/O Division	Function
15	VCOR	I	OSC frequency adj. terminal
16	V _{CC} 1	I	Power supply terminal
17	VCOC 1	O	VCO terminal
18	VCOC 2	O	VCO terminal
19	V _{CC} 2	I	Power supply terminal
20	PLL CP 1	O	Clock (2 CK) signal (Not used, open)
21	PLL CP 2	O	Clock (CK) signal
22	DEMCOD	O	NRZI demodulated signal for playback signal with PLL
23	SVSYNC	O	ATF sync. signal

Pin No.	Mark	I/O Division	Function
24	GND 2	—	GND terminal
25	OP OUT 3	O	ATF 3 signal
26	OP IN 3	I	ATF 3 signal
27	OP OUT 2	O	ATF 2 signal
28	OP IN 2	I	ATF 2 signal
29	OP OUT 1	O	ATF 1 signal
30	OP IN 1	I	ATF 1 signal
31	VREF	I	Reference voltage terminal
32	SYNC IN	I	ATF sync. det. terminal

• IC201 (MN6742SDR): Servo processor

Pin No.	Mark	I/O Division	Function
1	OP10A	O	Cylinder rotative stop signal
2	SCK	I	Serial clock signal
3	SDA	I/O	Serial data signal
4	OSC 1	I	System clock (8 MHz) signal
5	OSC 2	O	
6	NRST	I	Reset signal
7	NC	—	Not connection
8	OP20A	O	SSP ready signal
9	NC	—	Not connection
10	V _{SS}	—	GND terminal
11	VHS	—	Not used, open
12	OP 101	O	CAPFG/RLFGT select signal
13	TP 2	O	R3CP/RLFGT select signal
14	TP 3	I	PLL off-set/parallel data signal
15	TP 4		
16	TP 5		
17	TP 6		
18	TP 7	I	PLL off-set/data effective flag terminal
19	TP 8	I	Not used, connected to power supply
20	MOS	I	Serial port/strobe signal
21	TST	I	Test mode terminal (Normal, connected to GND)
22	ENC	—	Connected to GND terminal

Pin No.	Mark	I/O Division	Function
23	NC	—	Not connection
24	NC		
25	V _{DD}	I	Power supply terminal
26	NC	—	Not connection
27	RSW	—	Not used, open
28	HAS	O	A/D input select signal
29	AVM	—	Not used, connected to GND
30	VLP	—	Not used, open
31	STM	I	R3TU or RLFGT (64 P/R) signal
32	STR	I	Comparator reference signal of STM input
33	CAE	O	Capstan velocity control signal
34	CYE	O	Cylinder velocity control signal
35	END	I	VREF or ATFTER voltage signal
36	VSY	I	CYLPG signal
37	ASH 1	I	Capstan FG or RLFGT signal after EXOR
38	NC	—	Not connection
39	AFB 1	O	Inverter amp. signal of ATFTER input (Not used, open)
40	NC	—	Not connection
41	AFG 1	I	ATF tracking error voltage terminal
42	ASH 2	O	Not used, connected to GND
43	AFB 2	O	Not used, open
44	NC	—	Not connection

Pin No.	Mark	I/O Division	Function
45	AFG 2	I	Reference voltage terminal
46	VDA	I	Power supply terminal
47	VSA	—	GND terminal
48	ORE	O	Reference voltage terminal
49	IRE	I	
50	GND	—	GND terminal
51	IPL	O	Not used, open
52	NC	—	Not connection
53	CLP	I	Not used, connected to GND
54	CP 1	O	Not used, open

Pin No.	Mark	I/O Division	Function
55	CP 2	I	Supply reel FG signal
56	NC	—	Not connection
57	NC		
58	CN 1	O	Not used, open
59	CN 2	I	Not used, connected to GND
60	CTL	O	Not used, open
61	PFG	I	Cylinder FG signal
62	PGM	I	Not used, connected to GND
63	CUL	O	Capstan rotative direction signal
64	NC	—	Not connection

• IC202 (MN53020SDQ): ATF

Pin No.	Mark	I/O Division	Function
1	NSNC	O	SYNC det. monitor terminal
2	SVAL	I	ATF select terminal
3	PCMOK	I	PCM playback monitor terminal
4	SPE	O	Starting pulse of counter track lock
5	SP 2	O	Sampling pulse signal for pilot signal of adjacent track
6	SP 1		
7	DCYLPG	I	Cylinder PG signal
8	DCAPFG 1	I	Capstan FG signal
9	DCAPFG 2		
10	DRLFGT	I	Take-up reel FG signal
11	DCYLFG	I	Cylinder FG signal
12	SYNC	I	ATF sync. det. terminal
13	NRST	I	Reset signal
14	R3CP	I	Timing signal for RF envelope signal control
15	ENVT		
16	FCH	I	System clock signal (9.408 MHz)
17	V _{DD}	I	Power supply terminal
18	V _{SS}	—	GND terminal
19	MODE 1	I	SYNC det. select terminal (Not used, connected to GND)
20	HFCH	I	Clock signal for PLL off-set data
21	PLLOFS	I	PLL off-set data signal

Pin No.	Mark	I/O Division	Function
22	TEST 6	—	Not used, connected to GND
23	P MODE	I	Pulse width select terminal
24 { 28	TEST 1 } TEST 5	I	Test terminal (Not used, connected to GND)
29	SPHT	—	Not used, open
30	HSWS	O	Head switching signal (33.33 Hz)
31	HSWR		
32	SEL A	I	CAPFGTU signal select terminal
33	SEL B	I	R3TU signal select terminal
34	PLL 0	O	Output signal after decoded 4 bit parallel data of PLLOFS
35	PLL 1		
36	PLL 2		
37	PLL 3		
38	MODE 2	—	Not used, open
39	V _{SS} 2	—	GND terminal
40	V _{DD} 2	I	Power supply terminal
41	R3TU	O	Building-up edge signal of R3CP/DRLFGT
42	CAPFGTU	O	Capstan FG signal/Take-up reel FG signal
43	CAPER	O	Capstan rotative direction control signal
44	NLNR	O	Track linearity monitor terminal

• IC203 (AN8320NFA): Linear servo

Pin No.	Mark	I/O Division	Function
1	FG1 AO	O	Capstan FG signal
2	FG1 AI	I	Capstan FG (—) signal
3	FG1 FI	I	Frequency characteristic setting terminal
4	CYL PG	O	Cylinder PG signal
5	PGVR	I	PG delay time adj. terminal
6	CYPGI	I	PG schmidt comparator terminal
7	GND	—	GND terminal
8	SVRF	I	ATF terminal
9	CPD	O	Det. capacity connection terminal
10	CCI	O	Full-wave rectification buffer terminal
11	CCO	I	Clamp circuit terminal
12	SP 1	I	SP 1 terminal
13	SP 2	I	SP 2 terminal
14	VSPE	I	SPE setting terminal
15	SPE	I	SPE terminal
16	CSH	I	Hold capacity connection terminal
17	ATFTER	O	ATF control command signal
18	CFB	—	Phase compensation terminal
19	V _{CC}	I	Power supply terminal
20	ATFON	I	ATF ON terminal (Not used, connected to power supply)
21	PTBIA	—	Photo-transistor bias terminal (Not used, open)
22	VREF	O	Reference voltage terminal
23	LEDR 1	I	Bias voltage terminal
24	LEDH 1	—	Constant current terminal (Not used, open)
25	LEDR 2	I	Bias voltage terminal

Pin No.	Mark	I/O Division	Function
26	LEDH 2	—	Constant current terminal (Not used, open)
27	CYL FG	O	Cylinder FG signal
28	CYF GSI	I	Cylinder schmidt comparator terminal
29	CYF GAO	O	Cylinder op. amp. terminal
30	CYF GAI	I	Cylinder op. amp. (—) terminal
31	NST BY	I	STAND BY signal (Not used, connected to power supply)
32	TF GAI	I	Take-up reel op. amp. (—) terminal
33	TF GAO	I	Take-up reel op. amp. terminal
34	TF GSI	I	Take-up reel schmidt comparator terminal
35	RLFGT	O	Take-up reel FG signal
36	RLFGS	O	Supply reel FG signal
37	SF GSI	I	Supply reel schmidt comparator terminal
38	SF GAO	O	Supply reel op. amp. terminal
39	SF GAI	I	Supply reel op. amp. terminal
40	V _{CC}	I	Power supply terminal
41	FG 2FI	—	Frequency characteristic setting terminal
42	FG 2AI	I	Capstan FG (—) signal
43	FG 2AO	O	Capstan FG signal
44	FG 2SI	I	Capstan FG schmidt comparator terminal
45	CPFG 2	O	Capstan FG signal
46	FILSLD	I	Frequency characteristic DOWN terminal
47	CPFG 1	O	Capstan FG signal
48	FG 1SI	I	Capstan FG schmidt comparator terminal

• IC271 (MN17541SDN2): Mechanism control

Pin No.	Mark	I/O Division	Function
1	NSBOA	O	Serial data signal
2	NRST	I	Reset signal
3	NSYNC	—	Not used, open
4	X 2		
5	X 1		

Pin No.	Mark	I/O Division	Function
6	V _{SS}	—	GND terminal
7	OSC 2	—	Not used, open
8	OSC 1	I	Clock signal
9	V _{DD}	I	Power supply terminal
10	NTC1B	I	Supply reel FG signal

Pin No.	Mark	I/O Division	Function	Pin No.	Mark	I/O Division	Function
11	NIRQ 0	I	Take-up reel FG signal	37	P 60 (SW 2)	O	Test terminal
12	NIRQ 1	I	Transfer strobe signal of system control	38	P 61 (MMOD 0)	I	Tape mode det. signal
13	P 00 (MSTB)			39	P 63 (MMOD 2)		
14	P 01 (MRDY)	O	Transfer ready signal of system control	40			
15	P 02 (NSSTB)	O	Transfer strobe signal	41	P 70 (MBUS 0)	I	Transfer bus terminal of system control
16	P 03 (NSRDY)	I	Transfer ready signal	42	P 73 (MBUS 3)		
17	P 10 (ATFGT)	O	ATF gain (X 1/2) select terminal	43			
18	P 11 (REWGT)	O	REW FG · PG gain select terminal	44			
19	P 12 (LPMOD)	—	Not used, open	45	P 80 (RCC)	—	Not used, open
20	P 13 (MODMT0)	O	Mode motor control signal	46	P 81 (FIL)	O	FILTER select signal
21	P 20 (MODMT1)			47	P 82 (ATFON)	—	Not used, open
22	P 21 (MODMT2)			48	P 83 (NSTBY)	—	Not used, open
23	P 22	—	Not used, open	49	P 90 (NSRST)	O	Reset signal
24	P 23 (PLG)	O	Plunger control signal	50	P 91 (LEDDR)	O	Tape begin/end LED control signal
25	P 30	—	Not used, open	51	P 92 (PCMOK)	I	PCM playback det. signal
26	P 31			52	P 93 (SVAL 0)	I	ATF effective position setting terminal
27	P 32 (LOAD 1)	O	Tray motor control (+) terminal	53	NEXPS	I	Not used, connected to power supply
28	P 33 (LOAD 2)	O	Tray motor control (—) terminal	54	PA 0 (NSNCOK)	I	ATF sync. det. terminal
29	P 40	—	Not used, open	55	PA 1 (NLNOK)	I	Track linearity det. terminal
30	P 41 (DEW)	I	Dew sensor det. signal	56	PA 2 (CAPER)	I	Capstan rotative direction command signal
31	P 42 (EOT)	I	Tape end det. signal	57	PA 3	—	Not used, open
32	P 43 (BOT)	I	Tape begin det. signal	58	PB 0 (TH 1)	I	Tape hall det. signal
33	P 50 (OPEN)	I	Cassette open det. signal	59	PB 1 (TH 2)		
34	P 51 (CLOSE)	I	Cassette close det. signal	60	NSBTB	I	Muting det. signal
35	P 52 (LOAD S)	I	Loading start det. signal	61	NSBIB	I	Test terminal
36	P 53 (LOAD E)	I	Loading stop det. signal	62	NSBOB		
				63	NSBTA (SCLK)	I	Serial transfer clock signal
				64	NSBIA (SDAT)	I/O	Serial transfer data signal

• IC301 (MN18P8321SDP): System control

Pin No.	Mark	I/O Division	Function	Pin No.	Mark	I/O Division	Function
1	V _{CC}	I	Power supply terminal	35	P 26 (TRQ)	I	Reception side interrupt request input (LOW-active)
2 3 9	P 67 (SPDT7) P 60 (SPDT0)	I/O	Signal processor transfer address and data bus terminal	36	P 25 (RFENV)	I	Envelope detection terminal
10	P 57 (SPRDY)	I	Signal processor data transfer command signal	37	P 37 (DINPLINH)	O	Digital-in PLL prohibition signal ("H": prohibition)
11	P 56 (R3CP)	I	Frame sync. signal	38	P 36 (ALP0)	O	Address latch pulse 0
12	P 55 (NGPIPLY)	I	GP1 pulse input (PLAY) (0: on 1: off)	39	P 35 (ALP1)	O	Address latch pulse 1
13	P 54 (NGIPAS)	I	GP1 pulse input (PAUSE) (0: on 1: off)	40	P 34 (NCSNVRAM)	O	Chip select NVRAM (0: select)
14	R 53 (UBITSKIN)	I	DIN U bit input (SK-ID) (1: yes)	41	P 33 (MSTB)	O	Transfer command terminal of mechanism control
15	P 52 (UBITSTIN)	I	DIN U bit input (SK-ID) (1: yes)	42	P 32 (RST2)	O	Reset signal (1: Reset on)
16	P 51 (NEXTSYNC)	I	Panel additional key (EXTSYNC) (0: on)	43	P 31 (NRD)	O	Signal processor strobe signal
17	P 50 (NTIMEINP)	I	Panel additional key (TIME INPUT) (0: on)	44	P 30 (NWR)	O	Signal processor address setting terminal
18	EXI	I	Not used, connected to GND	45	P 21 (HSW)	I	Head switching pulse signal
19	EXO	O	Not used, open	46	P 20 (NMRDY)	I	Transfer command signal from mechanism control
20	NRST	I	Reset signal ("L": RESET)	47	P 01 (IFTXD)	O	UART output (Not used, open) (for expanded microprocessor)
21	P 47 (FLGDT)	O	Data signal of flag counter	48	P 00 (IFRXD)	I	UART input (Not used, open) (for expanded microprocessor)
22	P 46 (FLGCK)	O	Clock signal of flag counter	49	P 17 (PTXD)	O	Serial data transmission terminal
23	P 45 (DOUTTH)	O	Digital out through select ("H": through)	50	P 16 (PRXD)	I	Serial data reception terminal
24	P 44 (DOUTDS)	O	Digital out select (1: DSP output)	51	P 15 (PCLK)	O	Serial data transmission/reception clock signal
25	P 43 (UNLOCK)	O	Digital-in PLL unlock signal (0: during detection)	52	P 14 (DINLOCK)	I	External PLL lock detection input (During lock: "H")
26	P 42 (SLAD)	O	Digital-in PLL/crystal select ("L": PLL, "H": crystal)	53	P 13 (MDT3)	I/O	Transfer data bus of mechanism control
27	P 41 (NDISCHG)	O	Digital-in PLL discharge terminal (0: discharge)	54	P 12 (MDT2)		
28	P 40 (WSYNCCHK)	O	FS check signal select (0: DIOLR 1: WSYNC)	55	P 11 (MDT1)	I/O	Transfer data bus of mechanism control
29	P 27 (NPRDY)	I	Panel processor transfer terminal	56	P 10 (MDT0)		
30	OSC 1	I	Crystal OSC terminal (f=8 MHz)	57	P 77 (DFDEMP)	O	Digital filter de-emphasis (1: on)
31	OSC 2	O		58	P 76 (DFMTG)	O	Digital filter mute (1: on)
32	V _{SS}	—	GND terminal	59	P75 (LOMTG)	O	Line output mute (1: mute on)
33	XI (RRQ)	I	Transmission side interrupt request input (LOW-active)	60	P74 (HPMTG)	O	Headphones output mute (1: mute on)
34	XO	O	Not used, open	61	P73 (ADCAL)	O	Reset signal (1: reset)
				62	P72 (NDFMLE)	O	Digital filter mode set latch enable
				63	P71 (DFMCK)	O	Digital filter mode set clock
				64	P70 (DFMDT)	O	Digital filter mode set data

• IC302 (MN6624): Digital signal processor

Pin No.	Mark	I/O Division	Function	Pin No.	Mark	I/O Division	Function
1	PCMCIF	O	Flag counter terminal	34	TEST 0	—	Not used, connected to GND
2	IDPP			35	XO 3	—	Not used, open
3	IDP	O	Test terminal	36	XI 3	I	Crystal terminal (44.1 kHz×512)
4	V _{DD}	I	Power supply terminal	37	TEST 1	—	Not used, connected to GND
5	TEST5	—	Not used, connected to GND	38	XO 2	—	Not used, open
6	V _{SS}	—	GND terminal	39	XI 2	I	Crystal terminal (48 kHz×512)
7	CHIO FS	—	Not used, open	40	V _{DD}	I	Power supply terminal
8	CHIO 128	O	Test terminal	41	XO 1	O	Crystal OSC terminal
9	CHIO 512	—	Not used, open	42	XI 1	I	
10	NDALOAD	—	Not used, open	43	V _{SS}	—	GND terminal
11	DADAT	O	DA data signal	44	PC OUT	—	Not used, open
12	DALRCK	O	LR discrimination signal	45	RAD 0	O	RAM address bus terminal
13	DABCK	O	Serial bit clock signal	46	RAD 1		
14	DAMCK	—	Not used, open	47	RAD 2		
15	V _{DD}	I	Power supply terminal	48	RAD 3		
16	TEST 6	—	Not used, open	49	RAD 4		
17	V _{SS}	—	GND terminal	50	RAD 5		
18	ADDAT	I	AD data signal	51	RAD 6		
19	ADLRCK	O	LR discrimination signal	52	RAD 7		
20	ADBCK	O	Serial bit clock signal	53	V _{DD}	I	Power supply terminal
21	ADMCK	O	External clock signal	54	TEST 2	—	Not used, connected to GND
22	TX	O	Digital signal	55	V _{SS}	—	GND terminal
23	RX	I		56	RAD C	O	RAM address bus terminal
24	VCOS L32	—	Not used, open	57	RAD E		
25	VCOS L44			58	NWE	O	Write enable for memory
26	VCOS L48			59	RAD D	O	RAM address bus terminal
27	DIO REF	O	Digital signal (PLL control)	60	RAD 8		
28	DIO VAR	O		61	RAD 9		
29	V _{DD}	I	Power supply terminal	62	RAD B	O	RAM address bus terminal
30	DI 512	I	Digital signal (512 FS)	63	NOE	O	Output enable for memory
31	V _{SS}	—	GND terminal	64	RAD A	O	RAM address bus terminal
32	XO 4	—	Not used, open	65	V _{DD}	I	Power supply terminal
33	XI 4	I	Crystal terminal (32 kHz×512)	66	NCS	O	Chip select terminal for memory

Pin No.	Mark	I/O Division	Function
67	V _{SS}	—	GND terminal
68	RDT 7	I/O	RAM data bus terminal
69	RDT 6		
70	RDT 5		
71	RDT 4		
72	RDT 3		
73	RDT 2		
74	RDT 1		
75	RDT 0		
76	V _{SS}	—	GND terminal
77	TEST 3	—	Not used, connected to GND
78	V _{DD}	I	Power supply terminal
79	SPDT 7	I/O	Address and data bus terminal
80	SPDT 6		
81	SPDT 5		
82	SPDT 4		
83	SPDT 3		
84	SPDT 2		
85	SPDT 1		
86	SPDT 0		
87	V _{SS}	—	GND terminal
88	TEST 4	—	Not used, connected to GND
89	V _{DD}	I	Power supply terminal
90	SPAW	I	Signal processor address setting terminal
91	SPSTB	I	Signal processor strobe signal
92	SPRDY	O	Data transfer command signal
93	UNLOK	O	PLL unlock signal
94	DISYND	—	Not used, open
95	NSTBY	I	Not used, connected to power supply

Pin No.	Mark	I/O Division	Function
96	NRST	I	Reset signal
97	M7CK	—	Master clock signal (Not used, open)
98	R6CP/(ENVT)	O	Timing signal for RF envelope signal control
99	R3CP		
100	V _{SS}	—	GND terminal
101	SRRF	O	Recording signal
102	V _{DD}	I	Power supply terminal
103	SRPR	O	Recording/playback select signal (REC: "H", PLAY: "L")
104	SRWND 2	O	ATF area det. signal
105	SRWND 1	O	Track pitch signal
106	PBDT	I	Playback signal
107	PBCK	I	Playback envelope signal
108	RFMSK	O	Not used, open
109	PLLOFS	O	PLL off-set information signal
110	HFCH	O	System clock signal
111	VFPLFS	O	PLL OFS effective information signal
112	EXFCH	—	Not used, connected to GND
113	EEMD	—	Not used, connected to GND
114	V _{SS}	—	GND terminal
115	SL NRZI	—	Not used, connected to GND
116	SELF CH0		
117	SELF CH1	—	Not used, connected to GND
118	V _{DD}	I	Power supply terminal
119	M9CP	O	Master clock signal
120	HSW	I	Head switching signal
121	NR TRST	—	Not used, connected to power supply
122	SUBWND	—	Not used, open
123	IPF	O	Output terminal for flag counter
124	SUBC 1		

• IC303 (MN53040VPS): Memory control

Pin No.	Mark	I/O Division	Function
1	V _{SS}	I	GND terminal
2	OLP	O	Memory parallel output data latch pulse
3	NRAS	O	Low address strobe signal
4	NCASL	O	Column address strobe signal (L ch)
5	NCASR	O	Column address strobe signal (R ch)
6	NWEL	O	Write enable signal (L ch)
7	NWER	O	Write enable signal (R ch)
8	NOE	O	SP conversion output enable signal
9	ADR0	O	DRAM address bus BIT0 (LSB)
10	V _{DD}	I	5 V power supply
11	ADR1	O	DRAM address bus BIT1
12	V _{SS}	I	GND terminal
13 ┌ └ 20	ADR2 ┌ └ ADR9	O	DRAM address bus BIT2~9
21	V _{SS}	I	GND terminal
22	V _{DD}	I	5 V power supply
23	TMRD	O	Trim memory read signal
24	INTL	O	L ch interrupt signal
25	INTR	O	R ch interrupt signal
26	SPA0	I	DSP address bus BIT0
27	SPA1	I	DSP address bus BIT1
28	NSPRW	I	DSP read write signal
29	NSPSTB	I	DSP strobe signal
30	NSPIS	I	DSP interrupt signal
31	V _{SS}	I	GND terminal
32	BCK	I	Bit clock D-VTR=64 Fs
33	V _{DD}	I	5 V power supply
34 ┌ └ 41	SPD0 ┌ └ SPD7	O	DSP data bus BIT0~7
42	RDRQ	I	JOG data read request signal
43	MUTE	O	Mute signal
44 ┌ └ 47	TMODE1 ┌ └ TMODE4	I	Test mode input 1~4: Normal L

Pin No.	Mark	I/O Division	Function
48 ┌ └ 50	MSEL0 ┌ └ MSEL2	I	Flexible RAM select signal
51	MTEST	O	Select signal during memory test
52	V _{SS}	I	GND terminal
53	REFO	I	Memory test reference data
54	V _{DD}	I	5 V power supply
55	RAMD	I	Memory output data (PS output): Used during memory test
56	TSTD	O	Memory test data (BCK 1/2 divide data)
57	CMPFLG	O	Cross fade start timing in synch mode H: start
58	SIGPAS	O	Memory bypass select signal L: memory H: direct
59	MCK	I	Internal processor master clock MCK=32 Fs
60	NMODE	O	Test mode output 0: normal state 1: test mode state (GA test)
61	LRCK	I	FS word clock (duty cycle = 50:50)
62	LRCKN	I	Memory JOG word clock (1/N divide) This clock is connected to LRCK when not in use.
63	FIELD	I	Frame/field reference clock
64 ┌ └ 71	MPD0 ┌ └ MPD7	I/O	System microprocessor data bus BIT0 (LSB)~7 (MSB)
72	TMCS	I	Trim memory LSI select signal
73	V _{DD}	I	5 V power supply
74	NRST	I	Trim memory LSI reset signal L: reset
75	V _{SS}	I	GND terminal
76	NMPWR	I	System microprocessor write pulse input
77	NMPRD	I	System microprocessor read pulse input
78 ┌ └ 81	MPA0 ┌ └ MPA3	I	System microprocessor address bus BIT0~3
82	NC	—	Not used, open
83	MDOWR	O	Output data latch pulse from DSP (16 bit data)
84	V _{DD}	I	5 V power supply

● IC304 (MN56100SDS): Time code/clock generator

Pin No.	Mark	I/O Division	Function
1	V _{SS}	I	GND terminal
2	VSYNC	I	External VIDEO SYNC signal input
3	FILMI	I	Film pulse input with square H wave at 24 Hz
4	P1VI	I	VCO oscillation input for PLL1
5	P1SEL	I	PLL1 phase comparison input select 0: RC filter 1: active filter
6	PL1PP	O	PLL1 lock decision output 0: unlock 1: lock
7	P1PD	O	PLL1 phase comparison output
8	V _{SS}	I	GND terminal
9	WSYNC	I	External WORD SYNC signal input
10	DIFS	I	LRCK input during DIN
11	DILOCK	I	Plug input for LRCK input during DIN 0: invalid 1: valid
12	P2VI	I	VCO oscillator input for PLL2
13	P2SEL	I	PLL2 phase comparison input select 0: RC filter 1: active filter
14	PL2PP	O	PLL2 lock decision output 0: unlock 1: lock
15	P2PD	O	PLL2 phase comparison output
16	V _{DD}	I	5 V power supply
17	P3VI	I	VCO oscillator input for PLL3
18	P3SEL	I	PLL3 phase comparison input select 0: RC filter 1: active filter
19	PL3PP	O	PLL3 lock decision output 0: unlock 1: lock
20	P3PD	O	PLL3 phase comparison output
21	V _{SS}	I	GND terminal
22	V _{DD}	I	5 V power supply
23	P4PD	O	PLL4 phase comparison output
24	PL4PP	O	PLL4 lock decision output 0: unlock 1: lock
25	P4SEL	I	PLL4 phase comparison input select 0: RC filter 1: active filter
26	P4VI	I	VCO oscillator input for PLL4
27	P5SEL	I	PLL5 phase comparison input select 0: RC filter 1: active filter
28	P5VI	I	VCO oscillator input for PLL5
29	PL5PP	O	PLL5 lock decision output 0: unlock 1: lock
30	P5PD	O	PLL5 phase comparison output

Pin No.	Mark	I/O Division	Function
31	V _{SS}	I	GND terminal
32	TEST1	I/O	Test I/O
33	V _{DD}	I	5 V power supply
34	TEST2	I/O	Test I/O
35	FCH	O	FCH master clock
36	IFS2	O	96 kHz output
37	CKMST	O	512 Fs or 256 Fs
38	C18MOUT	O	FCH master clock
39	NROTRST	O	DAT frame reset pulse output
40	LRCK	I	LRCK input
41	R3CP	I	DAT frame signal input
42	V _{DD}	I	5 V power supply
43	V _{SS}	I	GND terminal
44	X14I	I	Crystal input at 14.112 MHz
45	X14O	O	Crystal output at 14.112 MHz
46	V _{SS}	I	GND terminal
47	C9K6IN	I	Synchronize input from external synch source 9.6 kHz square wave
48	X9I	I	Crystal input at 9.8304 MHz
49	X9O	O	Crystal output at 9.8304 MHz
50	V _{SS}	I	GND terminal
51	XFREI	I	Free run timer master clock input
52	XFREO	O	Free run timer master clock output
53	TCTEST	I	Time code block test mode set terminal Normal: Lo
54	CKTEST	I	Clock block test mode set terminal Normal: Lo
55	TCIN	I	Time code input 0-5 V
56	TCOUT	O	Time code output 0-5 V
57 58 62	A5 5 A0	I	Address bus 5~0
63	V _{SS}	I	GND terminal
64	V _{DD}	I	5 V power supply
65 66 72	D7 7 D0	I/O	Data bus 7~0

Pin No.	Mark	I/O Division	Function
73	V _{DD}	I	5 V power supply
74	RST	I	Reset input 0: normal 1: reset
75	V _{SS}	I	GND terminal
76	NWR	I	Write signal
77	NRD	I	Read signal
78	CS	I	Chip select
79	TCRIRQ	O	Interrupt request signal with DAT frame edge

Pin No.	Mark	I/O Division	Function
80	TCGIRQ	O	Interrupt request signal with video frame reference
81	SELSF1	O	Fs mode select
82	SELSF0	O	Fs mode select
83	NBACK	I	Backup mode set terminal 1: normal 0: backup
84	V _{DD}	I	5 V power supply

• IC305 (L7A0541): Gate array

Pin No.	Mark	I/O Division	Function
1	TEST1	I	Test mode
2	TEST2	I	Test mode
3	DINLOCK	O	External PLL lock detection output During lock: H
4	RXBCK	O	Reception PCM sound bit clock output
5	RXPCM	O	Reception PCM sound output
6	RXLCK	O	Reception PCM sound L/R ch identification output Fs
7	RXVFLG	O	Reception V flag output
8	RXWCK	O	Reception PCM sound word clock output
9	RXBLK	O	Reception signal block detection output
10	ODF0	I	Reception PCM sound output format set input
11	ODF1	I	Reception PCM sound output format set input
12	V _{DD}	I	5 V power supply
13	V _{SS}	I	GND terminal
14	TXMCK	I	Transmission master clock input 128 Fs
15	NC	—	Not used, open
16	TXBCK	I	Transmission PCM sound bit clock input
17	TXPCM	I	Transmission PCM sound input
18	TXLCK	I	Transmission PCM sound L/R ch identification input Fs
19	TXVFLG	I	Transmission V flag input
20	BLKIN	I	Transmission block sync input

Pin No.	Mark	I/O Division	Function
21	IDF0	I	Transmission PCM sound input format set input
22	IDF1	I	Transmission PCM sound input format set input
23	CRCON	I	C bit CRC set and select input
24	TRESET	I	Initialize pulse input
25	CRCOUT	O	Reception C bit CRC check output
26	PTYOUT	O	Reception parity check output
27	RXUBIT	O	Reception U bit output
28	RXCBIT	O	Reception C bit output
29	NC	—	Not used, open
30	TSDATA	O	Reception C bit serial communications data output
31	TSCK	I	Reception C bit serial communications clock input
32	V _{SS}	I	GND terminal
33	V _{DD}	I	5 V power supply
34	RSCK	I	Transmission C bit serial communications clock input
35	RSDATA	I	Transmission C bit serial communications data input
36	CDRCT	I	Transmission C bit select input Serial communication: L
37	TXUBIT	I	Transmission U bit input
38	TXCBIT	I	Transmission C bit input
39	UPS	I	Transmission U bit select input Parallel communication: H
40	CPS	I	Transmission C bit select input Parallel communication: H

Pin No.	Mark	I/O Division	Function
41	RRQ	I	Transmission side interrupt request input Low-active
42	TRQ	I	Reception side interrupt request input Low-active
43 ┌ 50	DB0 ┌ DB7	I	Parallel communications data bus
51	WE	I	Parallel communications WE pulse input
52	CS	I	Parallel communications CS input
53	V _{SS}	I	GND terminal
54	V _{DD}	I	5 V power supply
55	LRCON	I	Parallel communications L/R control input
56	IO	I	Parallel communications I/O select input During input: H
57 ┌ 63	AB0 ┌ AB6	I	Parallel communications address bus
64	TXBLK	O	Transmission signal block detection output
65	NC	—	Not used, open

Pin No.	Mark	I/O Division	Function
66	TX	O	Digital interface transmission signal output
67	NC	—	Not used, open
68	NC	—	Not used, open
69	RX	I	Digital interface reception signal input
70	MSEL	I	External PLL clock frequency select input
71	DICK	I	External PLL clock input
72	V _{SS}	I	GND terminal
73	V _{DD}	I	5 V power supply
74	DISCHG	O	External PLL trigger output
75	NC	—	Not used, open
76	VAR	O	External PLL sink current output Low-active
77	NC	—	Not used, open
78	REF	O	External PLL source current output High-active
79	NC	—	Not used, open
80	TSTOUT	O	Test signal output

• IC405 (CS5339-KP): A/D converter

Pin No.	Mark	I/O Division	Function
1	A. GND	—	Analog GND terminal
2	AINL	I	Analog data (L ch) signal
3	ZEROL	—	Not used, connected to GND
4	VA+	I	Power supply terminal (+)
5	VA—	I	Power supply terminal (—)
6	APD	I	Reset signal
7	ACAL	—	Not used, connected to GND
8	NC	—	Not used, open
9	DCAL	O	Relay control terminal
10	DPO	I	Reset signal
11	TST	—	Not used, connected to GND
12	CMODE	—	Not used, connected to GND
13	SMODE	—	Not used, connected to GND
14	L/R	I/O	L/R discrimination signal

Pin No.	Mark	I/O Division	Function
15	SCLK	I/O	Serial bit clock output terminal
16	SDATA	O	Digital data signal
17	FSYNC	I	Not used, connected to power supply
18	VD+	I	Power supply terminal
19	D. GND	—	Digital GND terminal
20	CLK	I	Clock input terminal
21	OCLK	O	Clock output terminal
22	NC	—	Not used, open
23	ICLK	I	Clock input terminal
24	LGND	—	GND terminal
25	VL+	I	Power supply terminal (+)
26	ZEROR	—	Not used, connected to GND
27	AINR	I	Analog data (R ch) signal
28	VREF	O	Reference voltage terminal

• IC406 (SM5843AP): Digital filter

Pin No.	Mark	I/O Division	Function
1	DI/INF2	I	Input data (INF1N: "L") Input format select 2 (INF1N: "H")
2	BCKI	I	Serial bit clock input terminal
3	CKSL	I	Clock input frequency select terminal ("H": 384 fs, "L": 256 fs)
4	INF1	I	Input format select 1
5	IW1/DIL	I	Input bit select 1 (INF1N: "L") L ch data input (INF1N: "H")
6	XTI	I	Clock input terminal
7	XTO	O	Clock output terminal
8	V _{SS}	—	GND terminal
9	CKO	O	Clock output terminal
10	IW2/DIR	I	Input bit select 2 (INF1N: "L") R ch data input (INF1N: "H")
11	MDT	I	Attenuation command serial data input terminal
12	MCK	I	Attenuation command bit clock input terminal
13	MLE	I	Attenuation command latch clock input terminal
14	RST	I	System reset terminal ("L": Active)

Pin No.	Mark	I/O Division	Function
15	MUTE	I	Muting control terminal ("H": Mute)
16	DEMP	I	Digital de-emphasis ON/OFF ("H": ON)
17	FSEL1	I	De-emphasis filter select terminal
18	FSEL2		
19	OW2O	I	Output bit select terminal ("H": 18 bit, "L": 20 bit)
20	SYNC	I	Synchronizing mode select ("L": Forced mode, "H": Jitter free mode)
21	NC	—	No connected, open
22	V _{DD}	I	Power supply terminal
23	DOR	O	R ch data output
24	DOL	O	L ch data output
25	WCKO	O	Word clock output
26	BCKO	O	Serial bit clock output terminal
27	TMOD	I	Filter response select ("H": Response 1, "L": Response 2)
28	LRCI	I	Sample rate (fs) clock signal

• IC407, 408 (PCM1702P): D/A converter

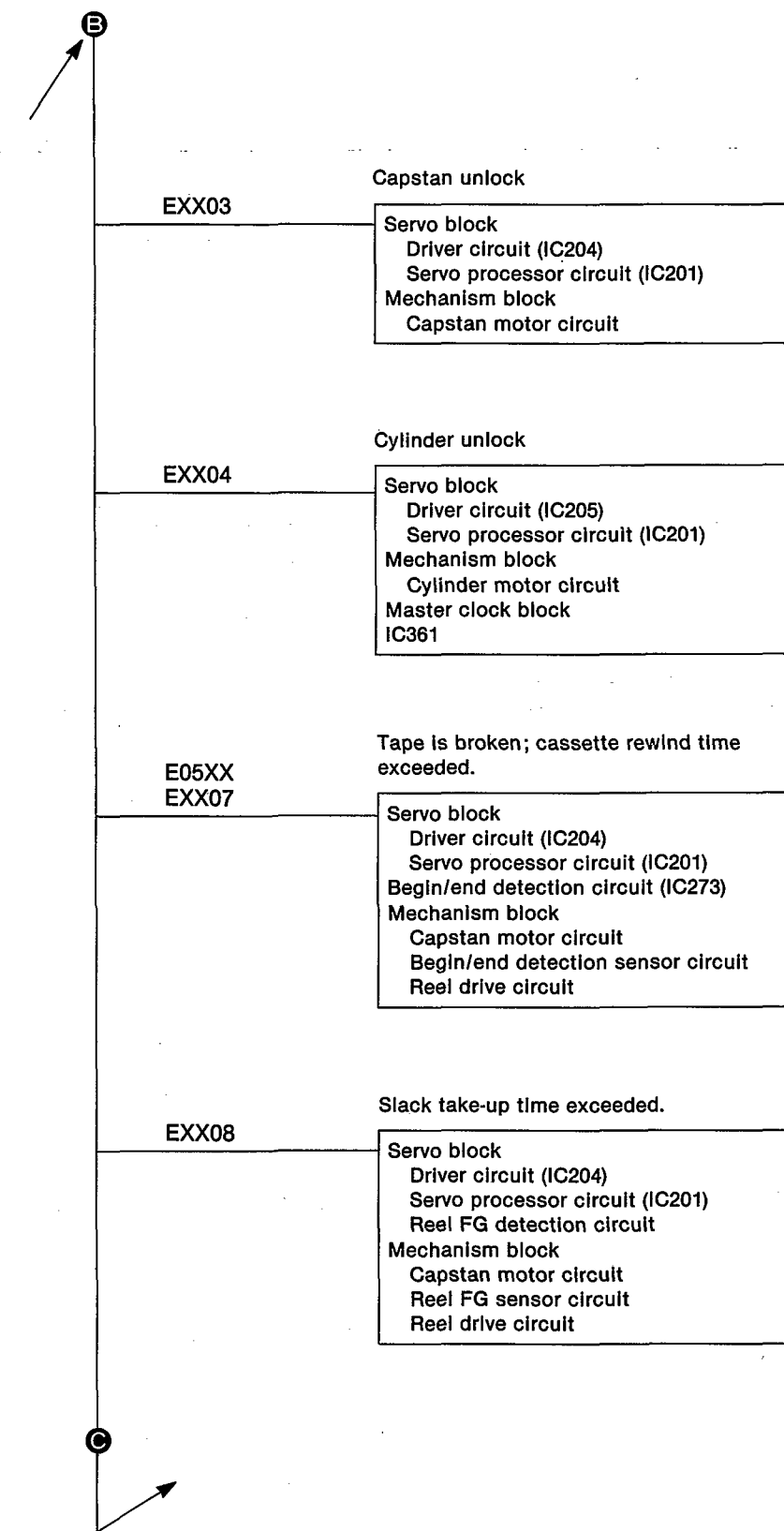
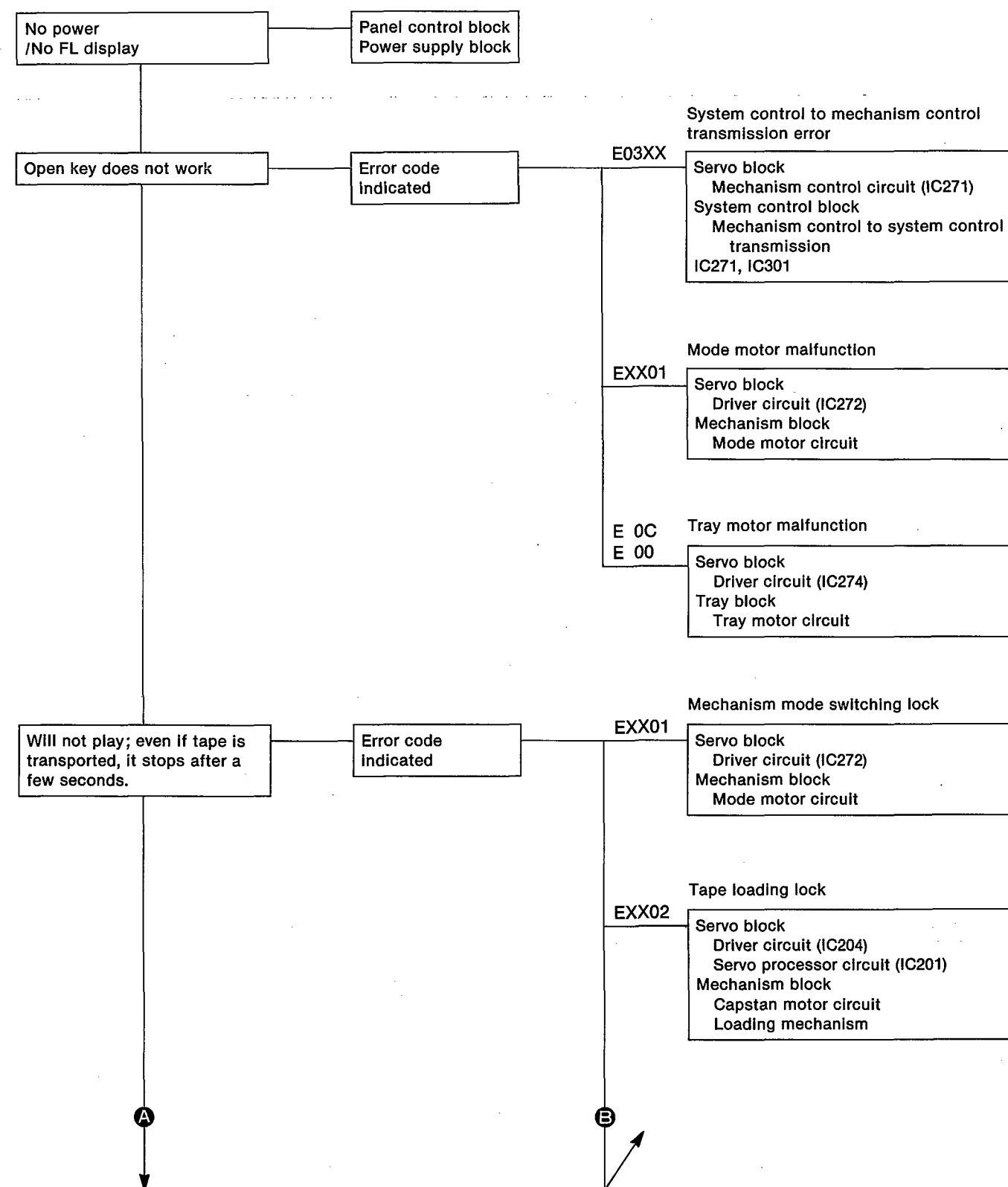
Pin No.	Mark	I/O Division	Function	Pin No.	Mark	I/O Division	Function
1	DATA	I	Serial data	9	+V _{CC}	I	Analog +5 V power supply
2	CLOCK	I	Bit clock	10	BPO DC	I/O	Bpo decouple
3	+V _{DD}	I	Digital +5 V power supply	11	IOUT	O	Current out
4	DGND	I	Digital GND terminal	12	AGND	I	Analog GND terminal
5	−V _{DD}	I	Digital −5 V power supply	13	AGND	I	Analog GND terminal
6	LE	I	Latch enable	14	SERV	I/O	Servo decouple
7	NC	—	Reserved	15	REF	I/O	Ref decouple
8	NC	—	Reserved	16	−V _{CC}	I	Analog −5 V power supply

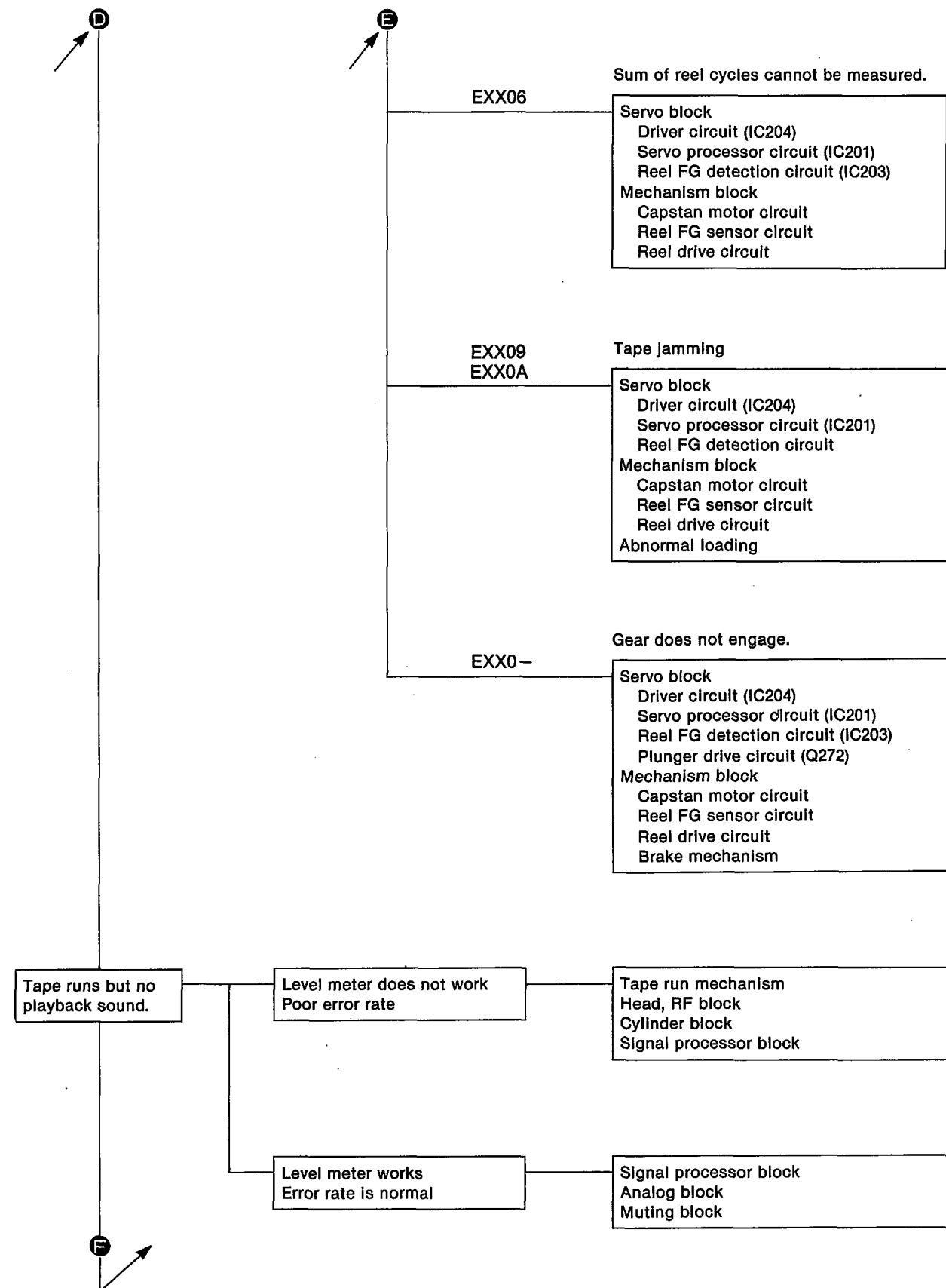
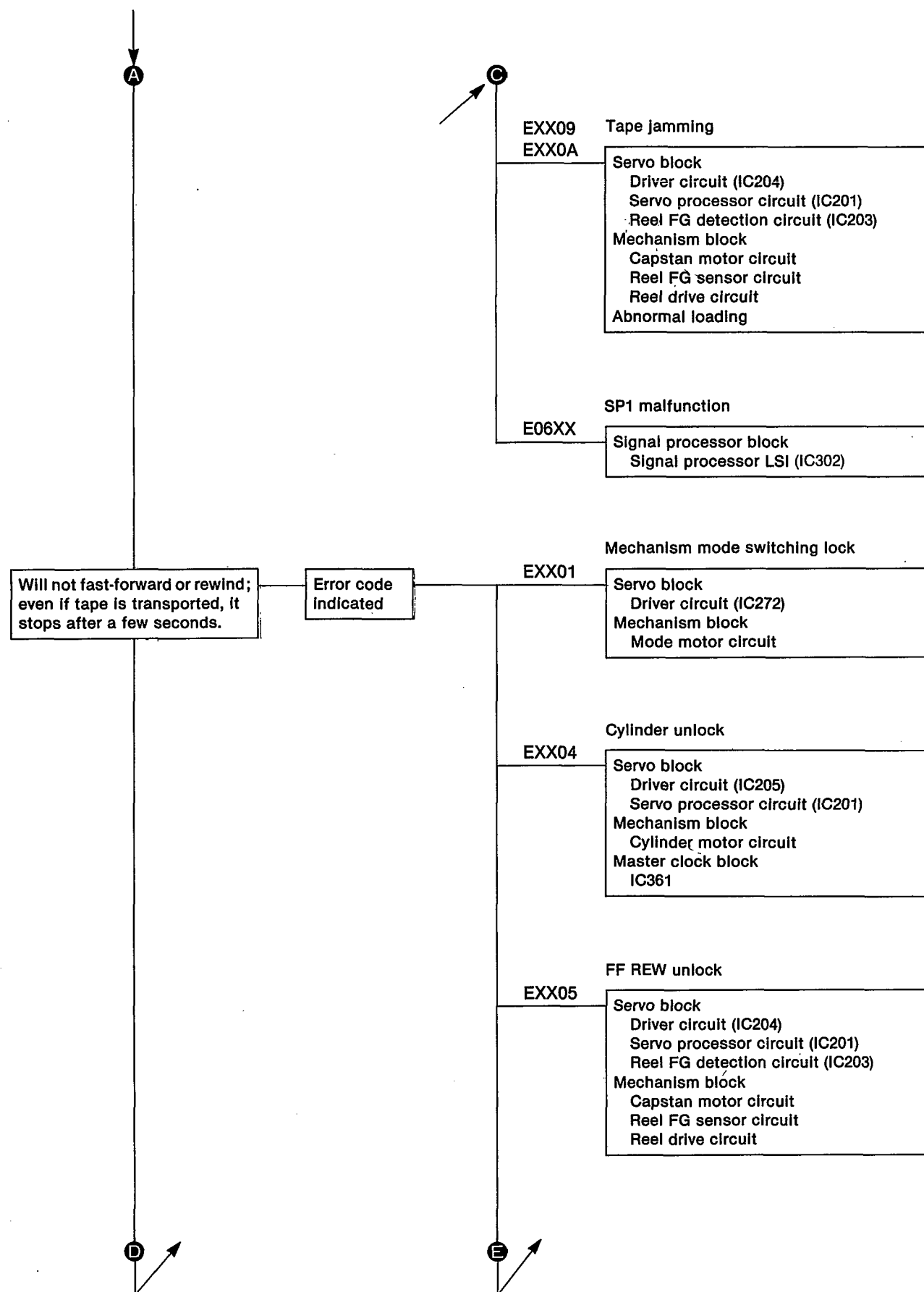
● IC601 (M50754-165FP): Panel control & FL drive

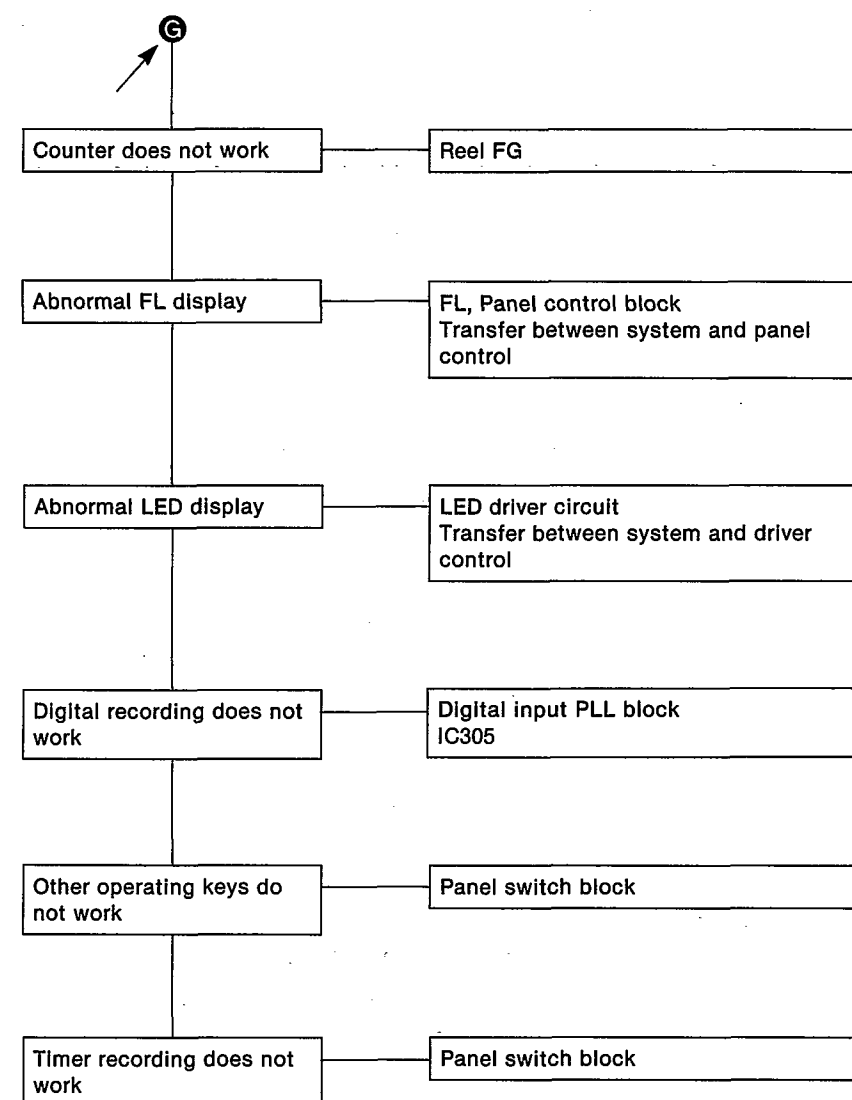
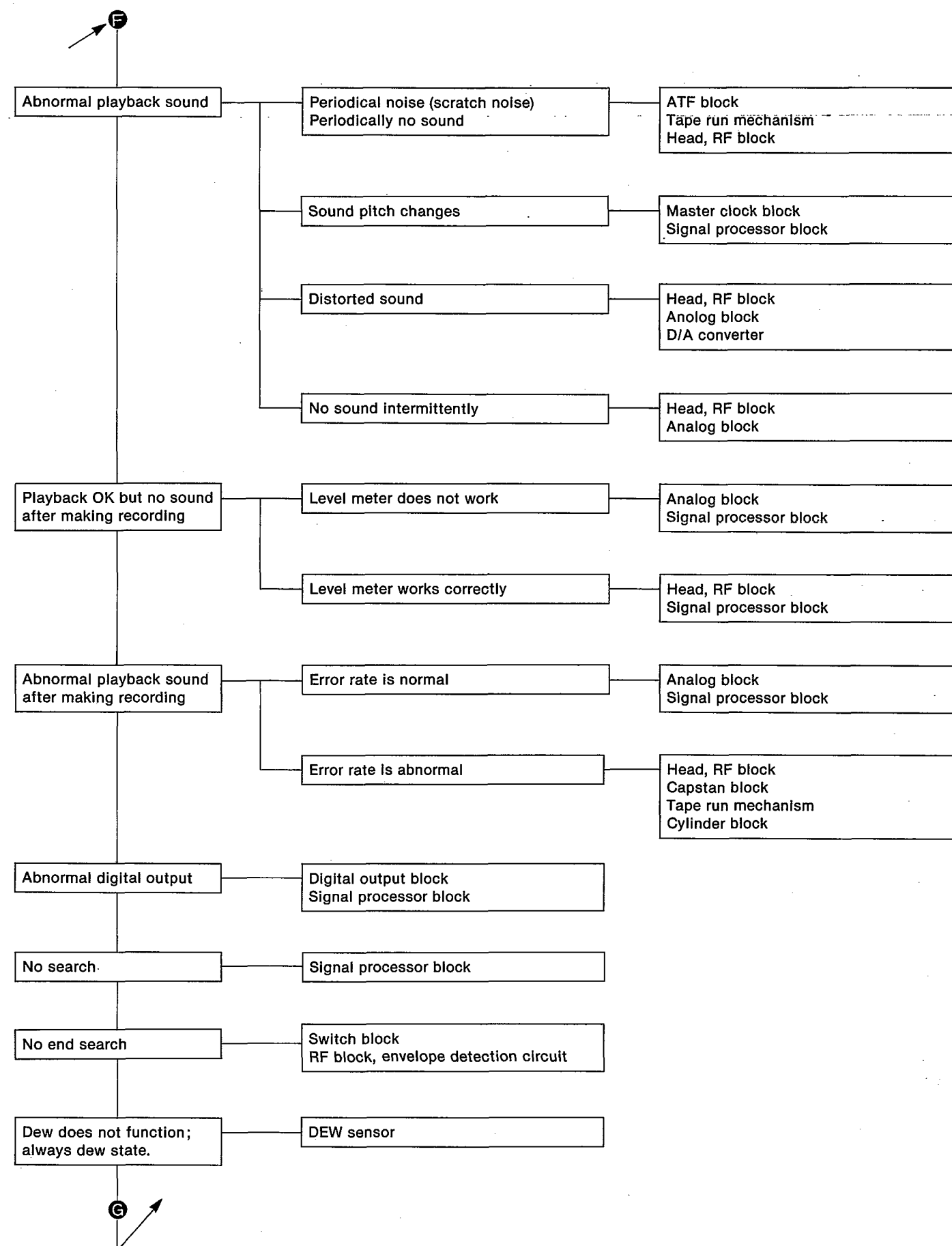
Pin No.	Mark	I/O Division	Function
1	V _{SS}	—	GND terminal
2	P 27	O	Input select signal (DIGITAL ↔ ANALOG)
3	P 26	O	LED display drive terminal (PAUSE)
4	P 25	O	LED display drive terminal (REC)
5	P 24	O	LED display drive terminal (PLAY)
6 7 8	P 23 P 21	I	Key return signal
9	P 20	O	Buffer control signal
10	NC	—	Not connection
11	NPRDY	O	Ready signal
12	NTRCLK	I/O	Serial data transmission/reception clock signal
13	RXD	O	Serial data transmission signal
14	TXD	I	Serial data reception signal
15	P 33	O	Not connection
16	P 32	—	
17	P 31	O	LED display drive terminal (S. PLAY)
18	P 30	O	LED display drive terminal (A. PNO)
19	INT 1	I	Remote control signal
20	INT 2	I	Not used, connected to power supply
21	CNV _{SS}	—	GND terminal
22	RST	I	Reset signal ("L": RESET)
23	NC	—	Not connection
24	X IN	I	Master clock terminal (6 MHz)
25	X OUT	O	
26	NC	—	Not connection
27	X CIN	—	Not used, connected to GND
28	X COUT	—	Not used, open
29	V _{SS}	—	GND terminal
30	NC	—	Not connection
31	P 57	I	Key return signal
32	P 56		
33	P 55		
34	P 54		

Pin No.	Mark	I/O Division	Function
35	VP	I	Power supply terminal for FL drive
36	P 51	O	Segment signal for FL drive
37	P 50		
38 39 40 41 42 43 44 45	P 17 P 10		
46	NC	—	Not connection
47	P 07	O	Segment signal for FL drive
48	P 06		
49	P 05		
50	P 04		
51	P 03		
52	P 02		
53	P 01		
54	P 00		
55	P 47		
56	P 46		
57	P 45		
58	P 44		
59	P 43		
60	P 42		
61	P 41	I	Power supply terminal
62	P 40		
63	V _{CC}	I	Power supply terminal
64	V _{CC}		
65	V _{SS}	—	GND terminal
66	P 65	O	Digit signal for FL drive and key scan signal
67	P 64		
68	P 63		
69	P 62		
70	P 61		
71	P 60		
72	NC	—	Not connection

TROUBLESHOOTING







■ KEY POINTS FOR TROUBLESHOOTING

Mechanism block
 Loading mechanism
 Post roller
 Tension regulator
 Pinch roller
 Brake lever
 Brake mechanism
 Brake lever
 Solenoid
 Solenoid driver
 Mechanism switch block
 Tape hole detection switch
 Cassette detection switch
 Holder switch
 Reel FG block
 Detection photo transistor
 Detection LED
 Reel FG amp (servo P.C.B.)
 FPC & FPC connector

Mode motor block
 Mode motor
 Mode switch
 Mode motor driver circuit

Master clock block
 28MHz oscillator
 16MHz, 22MHz, 24MHz oscillate and select circuit

Panel switch block
 Switch
 Panel control IC

Head, RF block
 Head FPC & FPC connector
 Head dirty
 Head cracked or damaged
 RF recording current
 Playback eye pattern

Tape begin/end detection block
 Begin/end detection photo transistor
 Begin/end detection LED
 Comparator circuit
 FPC & FPC connector

Power supply block
 Power supply regulator output
 Fuse

Capstan block
 Capstan FG
 FG amp
 Motor driver output
 Motor current

Cylinder block
 Cylinder FG
 Cylinder PG
 FG amp
 PG amp
 Motor driver output
 Motor current

ATF block
 RF ATF output
 ATF SYNC output
 ATF select circuit
 ATF gate alloy

Signal processor block
 Data & clock to D/A
 Data & clock to A/D
 All clocks

Digital output block
 Digital output PB

Panel control block
 Panel control block
 Transfer between panel and system control
 Panel control reset

Analog block
 Input amplifier
 Output amplifier
 Muting circuit
 A/D converter
 D/A converter

■ REPLACEMENT PARTS LIST

Notes: *Important safety notice:
 Components identified by Δ mark have special characteristics important for safety.
 Furthermore, special parts which have purposes of fire-retardant (resistors), high-quality sound (capacitors), low-noise (resistors), etc. are used.
 When replacing any of components, be sure to use only manufacturer's specified parts shown in the parts list.
 *The parenthesized indications in the Remarks columns specify the areas. (Refer to the cover page for area.)
 Parts without these indications can be used for all areas.

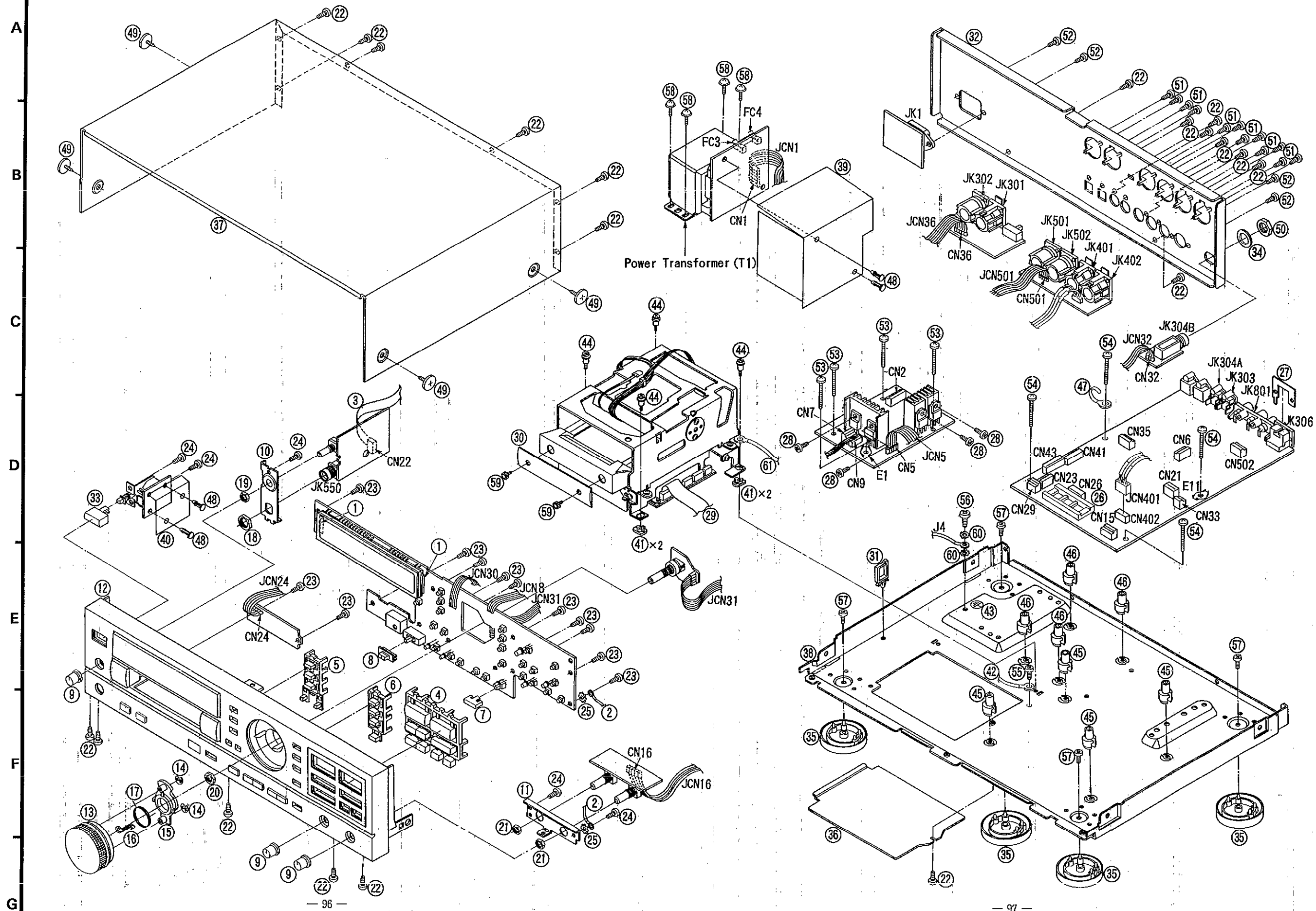
Ref. No.	Part No.	Part Name & Description	Remarks	Ref. No.	Part No.	Part Name & Description	Remarks
		INTEGRATED CIRCUIT(S)		IC333, 334	UPD74HC00G	NAND GATE	
				IC335, 336	MC74HC02AF	NOR GATE	
				IC337	UPD74HC00G	NAND GATE	
IC9	MSF78M12L	REGULATOR	Δ	IC338, 339	MC74HC125AF	3-STATE BUS BUFFER	
IC10	MSF79M12L	REGULATOR	Δ	IC340	T74HCU04AFTP	INVERTER	
IC11	AN7812F	REGULATOR	Δ	IC341	UPD74HC00G	NAND GATE	
IC12	AN7805F	REGULATOR	Δ	IC342	T74HCU04AFTP	INVERTER	
IC13	AN79M20F	REGULATOR	Δ	IC401-404	NJM4580EDTE1	INPUT AMP/FILTER AMP	
IC14	AN79L20	REGULATOR		IC405	CS5339-KP	A/D CONVERTER	
IC101	AN7030SE2	RF AMP		IC406	SM5843AP	DIGITAL FILTER	
IC102	AN7035SCE2	PLAYBACK PLL		IC407, 408	PCM1702P	D/A CONVERTER	
IC201	MN6742SDR	SERVO PROCESSOR		IC409, 410	M5238FPE1	C-V AMP	
IC202	MN53020SDQ	ATF		IC501, 502	NJM4580EDTE1	BUFFER AMP	
IC203	AN8320NFA	LINEAR SERVO		IC503, 504	NJM5532DD	BUFFER AMP	
IC204, 205	AN3841SR	MOTOR DRIVE		IC551, 552	M5218L	CLASS AA AMP	
IC206	M5228FPE2	ANALOG SWITCH		IC601	M50754-165FP	PANEL CONTROL	
IC207	UPD74HC04GE2	INVERTER		IC602	AN6873S	INVERTER	
IC208	MN4066BS-T2	ANALOG SWITCH		IC603	UPD74HC04G	INVERTER	
IC209	AN78L05ME2	REGULATOR	Δ	IC801	M5219FPE1	INPUT AMP(V SYNC)	
IC271	MN17541SDN2	MECHANISM CONTROL		IC802	AN6914S	INPUT AMP(V SYNC)	
IC272	AN6607NSE2	MOTOR DRIVE		IC803, 804	M5238FPE1	PLL(D IN/V SYNC)	
IC273	AN1339SE2	VOLTAGE CONTROL				TRANSISTOR(S)	
IC274	TA7291S	TRAY MOTOR CONTROL					
IC275	TC4S81FTX	AND GATE		Q102-105	UN5216-Q	TRANSISTOR	
IC301	MN18P8321SDP	SYSTEM CONTROL		Q106, 107	2SC3937TW	TRANSISTOR	
IC302	MN6624	DIGITAL SIGNAL PROCESSOR		Q109	UN5216-Q	TRANSISTOR	
IC303	MN53040VPS	MEMORY CONTROL		Q201	2SB956R	TRANSISTOR	
IC304	MN56100SDS	CLOCK GENERATOR		Q271	2SD1280STW	TRANSISTOR	
IC305	L7A0541	GATE ARRAY		Q272	DTA123JKTW	TRANSISTOR	
IC306	MN1281R-TA	RESET GENERATOR		Q274	2SB709RTW	TRANSISTOR	
IC307	SRM2A256LM10	S RAM		Q275	DTC124EKTW	TRANSISTOR	
IC308, 309	MC74HC273AF	D-FFS		Q276	DTB113ZKTW	TRANSISTOR	
IC310	S22S121F10	NON-VOLATILE RAM		Q277	DTA114EKTW	TRANSISTOR	
IC311, 312	UPD74HC74GE2	D-FF		Q301, 302	XN1112TW	TRANSISTOR	
IC313, 314	MC74HC273AF	D-FF		Q303	XN1212TW	TRANSISTOR	
IC315	TC74HC541AF	3-STATE BUFFER		Q401	XN1212TW	TRANSISTOR	
IC316	MC74HC164F	8-BIT SHIFT REGISTER		Q471	2SD2037DEFTA	TRANSISTOR	Δ
IC317	TC74HC166AF	8-BIT SHIFT REGISTER		Q472	2SB1357DEFTA	TRANSISTOR	Δ
IC318, 319	UPD424260-80	4M DRAM		Q501, 502	2SC3931CTX	TRANSISTOR	
IC320, 321	TC74HC166AF	8-BIT SHIFT REGISTER		Q503	XN1212TW	TRANSISTOR	
IC322, 323	MC74HC595AF	8-BIT SHIFT REGISTER		Q551-554	2SD1450RTA	TRANSISTOR	
IC324	M5M34050P	AES/EBU SELECT		Q571	2SC3311A-Q	TRANSISTOR	
IC325	TORX178A	DIGITAL IN		Q572	2SA1309A-R	TRANSISTOR	
IC326	TOTX178	DIGITAL OUT		Q601-605	UN4111	TRANSISTOR	
IC331	MC74HC125AF	3-STATE BUS BUFFER		Q801-804	2SD1819ASTX	TRANSISTOR	
IC332	UPD74HC04GE2	INVERTER					

Ref. No.	Part No.	Part Name & Description	Remarks	Ref. No.	Part No.	Part Name & Description	Remarks
Q805	XN1212TW	TRANSISTOR		VR271	EVNDCAA03B54	TAPE BEGIN/END DET. ADJ.	
Q806	2SB1218ASTX	TRANSISTOR		VR401, 402	EVJC20F03A24	REC BALANCE/LEVEL CONTROL	
Q807	2SC3931CTX	TRANSISTOR		VR551	EVU57A022A14	HEADPHONES LEVEL CONTROL	
Q808	2SD1819ASTX	TRANSISTOR		VR601	EVQWVS00004E	SHUTTLE SEARCH DIAL	
Q809	2SB1218ASTX	TRANSISTOR					
Q810	XN1112TW	TRANSISTOR				COIL (S) AND COMBINATION (S)	
Q811-814	2SC3931CTX	TRANSISTOR					
Q816	2SC3931CTX	TRANSISTOR		L1, 2	SLQX400-D	COIL	△
Q817	XN1112TW	TRANSISTOR		L101	ELJFA470KF	COIL	
Q818	2SD1819ASTX	TRANSISTOR		L104	ELJFA180KF	COIL	
Q880	2SA1309A-R	TRANSISTOR	△	L106	ELJFA101KF	COIL	
Q881	2SC3311A-Q	TRANSISTOR	△	L108	RLQZB471KT-D	COIL	
Q882	2SA1309A-R	TRANSISTOR	△	L109, 110	ELJFA180KF	COIL	
				L120	RLQZB101KT-D	COIL	
		DIODE (S)		L202	RLM9R001-Z	COIL	
				L203	RLQZB101KT-D	COIL	
D11-15	1SR35200TB	DIODE	△	L301	EXCELD35V	COMPONENT COMBINATION	
D17	1SR35200TB	DIODE	△	L303	RLQZB470KT-D	COIL	
D19-22	1SR35200TB	DIODE	△	L305	RLQZB2R2KT-D	COIL	
D201	MA701TX	DIODE		L310-317	EXCELD35V	COMPONENT COMBINATION	
D203	1N4606TR	DIODE		L320-322	EXCELD35V	COMPONENT COMBINATION	
D204	MA151ATW	DIODE		L401-404	EXCELD35V	COMPONENT COMBINATION	
D271	1S2473TR	DIODE		L501-504	EXCELD35V	COMPONENT COMBINATION	
D301-312	MA165	DIODE		L550-552	EXCELD35V	COMPONENT COMBINATION	
D313	MA719TA	DIODE		L801-803	RL03B002-M	COIL	
D316, 317	LN28RCPP-JF	L. E. D.					
D318-327	MA165	DIODE				TRANSFORMER (S)	
D328, 329	MA4056MTA	DIODE					
D403-407	MA165	DIODE		T1	SLT5M523	POWER TRANSFORMER	△
D471-474	MA719TA	DIODE		T301	RLZ0006-0	TRANSFORMER	△
D475, 476	MA4056MTA	DIODE	△				
D501-504	MA165	DIODE				COMPONENT COMBINATION (S)	
D511, 512	MA719TA	DIODE					
D601-603	LN28RCPP-JF	L. E. D.		Z301, 302	EXCEMT471BT	COMPONENT COMBINATION	
D605	LN31GPH-JF2	L. E. D.					
D607	LN49YPH-JF1	L. E. D.				REMOTE SENSOR (S)	
D608	LN29RPH-JF1	L. E. D.					
D611-628	MA165	DIODE		RM601	RCDHC-212	REMOTE SENSOR	
D630-643	MA165	DIODE					
D801-805	MA165	DIODE				OSCILLATOR (S)	
D806	RVDSVC321	DIODE					
D807-812	MA165	DIODE		X201	RSXC8M00J01T	OSCILLATOR	
D813-815	RVDSVC321	DIODE		X202	RSXY8M00M01T	OSCILLATOR	
D880-882	MA4056MTA	DIODE	△	X301	RSXY8M00M01T	OSCILLATOR	
D2001, 2002	MA165	DIODE		X302	RSXC28M2S01T	OSCILLATOR	
				X601	RSXY6M00M01T	OSCILLATOR	
		VARIABLE RESISTOR (S)		X801	RSXB8M82H01	OSCILLATOR	
				X802	RSXB9M60H01	OSCILLATOR	
VR104, 105	EVNDXAA00B53	RF REC LEVEL ADJ.					
VR106	EVNDXAA00B14	RF REC LEVEL ADJ.				DISPLAY TUBE	
VR107, 108	EVNDXAA00B13	ATF GAIN/PLL FREE RUN ADJ.					
VR201	EVNDXAA00B54	PG PHASE ADJ.		FL601	RSL0062-F	DISPLAY TUBE	

Ref. No.	Part No.	Part Name & Description	Remarks	Ref. No.	Part No.	Part Name & Description	Remarks
		FUSE (S)		CN10	RJP6G27ZA	CONNECTOR (6P)	
				CN15	RJS6T4ZA	CONNECTOR (6P)	
				CN16	RHR193ZA	CONNECTOR (6P)	
F2	XBA2C02TB0S	FUSE 250V 200mA	△	CN21, 22	RJS6Q8ZA	CONNECTOR (6P)	
				CN23	RJS6T4ZA	CONNECTOR (6P)	
		SWITCH (ES)		CN24	RHR193ZA	CONNECTOR (6P)	
				CN26	RJP6G27ZA	CONNECTOR (8P)	
S1	ESB8249V	POWER	△	CN29	RJS5T4ZA	CONNECTOR (5P)	
S301	EVQQTG05R	TIME		CN31	RHR192ZA	CONNECTOR (5P)	
S302	EVQQTG05R	EXIT SYNC		CN32	RHR190ZA	CONNECTOR (3P)	
S501	ESD1521201	OUTPUT LEVEL		CN33	RJS3T4ZA	CONNECTOR (3P)	
S601	ESD1511301	ANALOG/DIGITAL		CN35	RJS6T4ZA	CONNECTOR (6P)	
S602	ESB64807	QUICK START		CN36	RHR193ZA	CONNECTOR (6P)	
S611	EVQQTG05R	ERASE		CN41	RJP10G27ZA	CONNECTOR (10P)	
S612	EVQQTG05R	END SEARCH		CN43, 44	SJSD1721	CONNECTOR (17P)	
S613	EVQQTG05R	START ID		CN45	RJP5G27ZA	CONNECTOR (5P)	
S614	EVQQTG05R	SKIP ID		CN51	RJP3G27ZA	CONNECTOR (3P)	
S615	EVQQTG05R	END		CN52-54	RJS1A6315	CONNECTOR (15P)	
S616	EVQQTG05R	RESET		CN56	RJP4G28ZA	CONNECTOR (4P)	
S617	EVQQTG05R	RENUMBER		CN57	RJP6G28ZA	CONNECTOR (6P)	
S618	EVQQTG05R	REW		CN58	RJT036W002	CONNECTOR (2P)	
S619	EVQQTG05R	FF		CN62	RJS7Q11ZA	CONNECTOR (7P)	
S620	EVQQTG05R	FADE OUT		CN402	RJP6G27ZA	CONNECTOR (6P)	
S621	EVQQTG05R	FADE IN		CN501	RHR193ZA	CONNECTOR (6P)	
S622	EVQQTG05R	LOCATE LAST		CN502	RJS6T4ZA	CONNECTOR (6P)	
S623	EVQQTG05R	COUNTER MODE					
S624	EVQQTG05R	RVS SKIP				CONNECTOR ASS'Y	
S625	EVQQTG05R	FWD SKIP					
S626	EVQQTG05R	PAUSE		J4	REZ0237A-1	CONNECTOR ASS'Y (1P)	
S627	EVQQTG05R	REC		JCN1	RWJ4310110QQ	FLAT CABLE (10P)	
S628	EVQQTG05R	AUTO REC MUTE		JCN5	REZ0692	CONNECTOR ASS'Y (6P)	
S630	EVQQTG05R	WRITE		JCN8	RWJ6506400KQ	FLAT CABLE (6P)	
S631	EVQQTG05R	PLAY		JCN16	REZ0689	CONNECTOR ASS'Y (6P)	
S632	EVQQTG05R	STOP		JCN24	REZ0690	CONNECTOR ASS'Y (6P)	
S633	EVQQTG05R	SKIP PLAY CANCEL		JCN30	RWJ6505230KQ	FLAT CABLE (5P)	
S634	EVQQTG05R	MUSIC SCAN		JCN31	RWJ6505070KQ	FLAT CABLE (5P)	
S635	EVQQTG05R	OPEN/CLOSE		JCN32	REZ0688	CONNECTOR ASS'Y (3P)	
S751	SSPD18-1	OPEN DET.		JCN36	REZ0691	CONNECTOR ASS'Y (6P)	
S752	SSPD18-1	CLOSE DET.		JCN42	REZ0125A	CONNECTOR ASS'Y (10P)	
				JCN46	REZ0126A	CONNECTOR ASS'Y (5P)	
		RELAY (S)		JCN56	REZ0127A	CONNECTOR ASS'Y (6P)	
				JCN70	RWJ4302200KK	FLAT CABLE (2P)	
RL401	AG80239	RELAY		JCN401	REZ0687	CONNECTOR ASS'Y (6P)	
RL501, 502	AG80239	RELAY		JCN501	REZ0693	CONNECTOR ASS'Y (6P)	
		CONNECTOR (S)				JACK (S)	
CN1	RHR197ZA	CONNECTOR (10P)		JK1	SWCD470M1	AC INLET	△
CN2	SJSD1005	CONNECTOR (10P)		JK301	RJS1A9703-R	DIGITAL AES/EBU REC IN	
CN5	RHR193ZA	CONNECTOR (6P)		JK302	RJS1A9803-R	DIGITAL AES/EBU PLAY OUT	
CN6, 7	RJS6T4ZA	CONNECTOR (6P)		JK303	SJFD7-2	IEC COAXIAL REC IN	
CN9	REZ0121A	CONNECTOR (6P)		JK304A	SJFD7-2	IEC COAXIAL PLAY OUT	

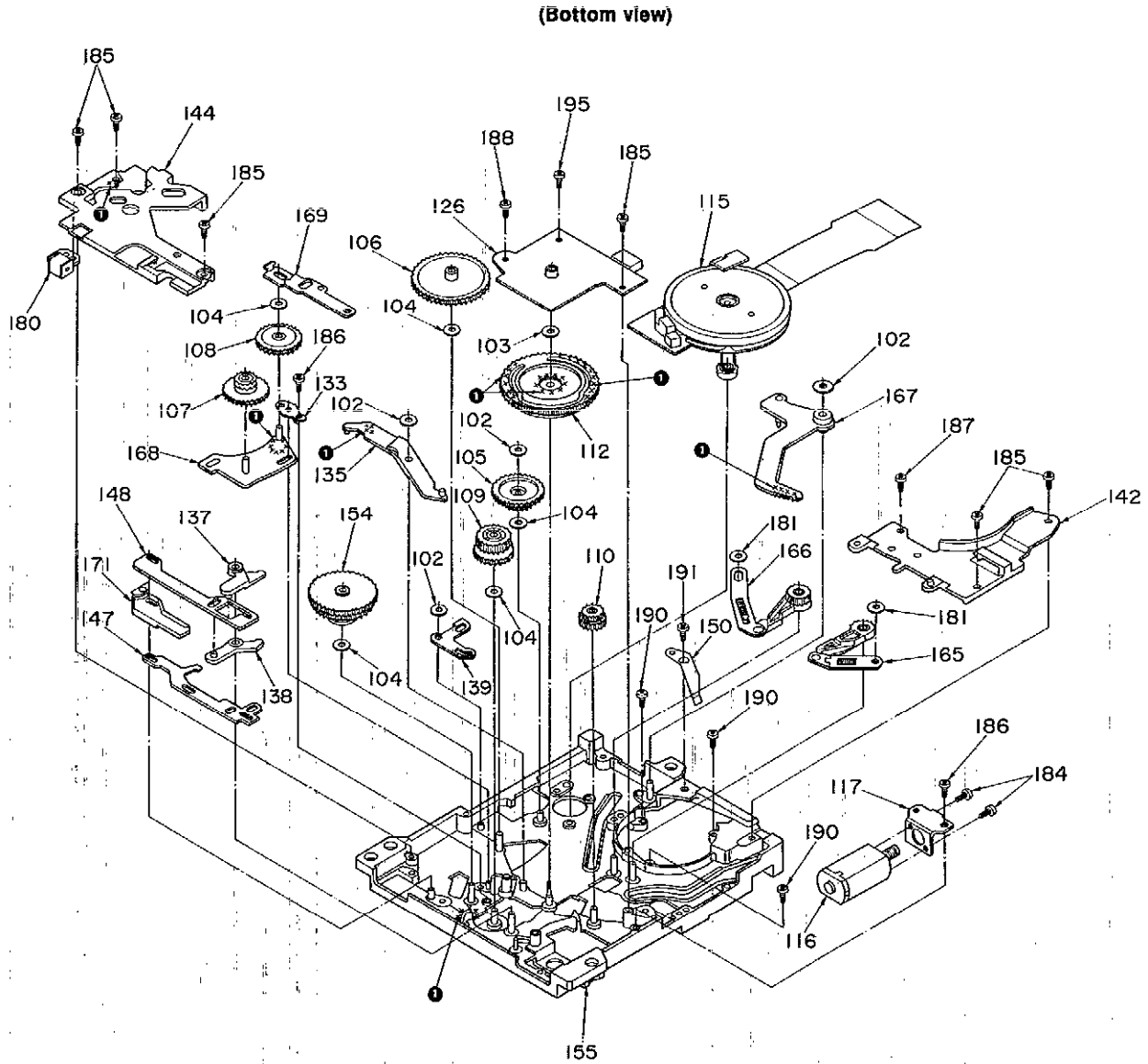
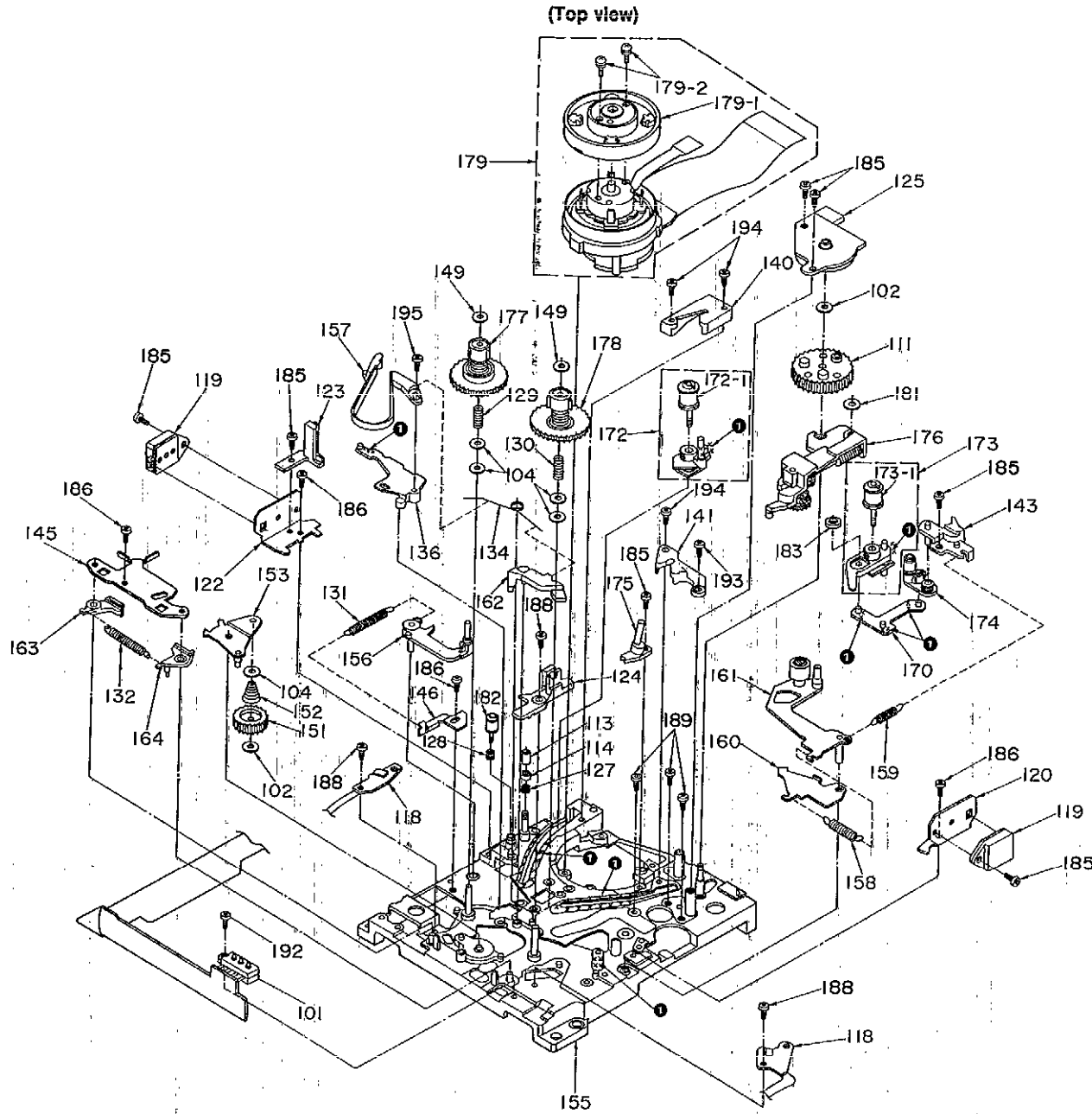
Ref. No.	Part No.	Part Name & Description	Remarks	Ref. No.	Part No.	Part Name & Description	Remarks
JK304B	RJ163TS01	GP1 (PLAY/PAUSE)		32	RFK1W4100EGH	REAR PANEL ASS'Y	(EG)
JK306	QJS1955H	REMOTE CONTROL (PARALLEL)		33	RGU0030A	POWER BUTTON	
JK401	RJS1A9703-R	ANALOG REC IN(R)		34	RHW1A001	WASHER	
JK402	RJS1A9703-R	ANALOG REC IN(L)		35	RKA0009-K	FOOT	
JK501	RJS1A9803-R	ANALOG PLAY OUT(R)		36	RKF0089	HOLDER (SERVO P.C.B.)	
JK502	RJS1A9803-R	ANALOG PLAY OUT(L)		37	RKM0076-H1	CABINET	
JK550	SJJD19	HEADPHONES		38	RMD0068-2	CHASSIS	
JK801	RJH301	EXT SYNC IN/OUT		39	RMZ0095-1	INSULATION SHEET (A)	
		EARTH PLATE (S)		40	RMZ0096	INSULATION SHEET (B)	
E1	SNE1004-2	EARTH PLATE		41	RMG0134	MECHANISM SUPPORT	
E11	SNE1004-2	EARTH PLATE		42	YD20020417A	CONNECTOR ASS'Y (1P)	
		FUSE HOLDER(S)		43	SGK867	EARTH LABEL	
FC3, 4	EYF52BC	FUSE HOLDER		44	SHDD4-1	SCREW	
		CABINET AND CHASSIS		45	SHE181	P.C.B. SUPPORT (A)	
				46	SHE185-2	P.C.B. SUPPORT (B)	
				47	SHE36-3	BINDER	
				48	SHR9815	RIVET	
				49	SNE2095-5	SCREW	
				50	XNS12FN	MUT	
				51	XSN3+6FZ	SCREW	
1	RMA0202	FL HOLDER		52	XTBS3+8FFZ1	SCREW	
2	REZ0135A	CONNECTOR ASS'Y (1P)		53	XTB3+16JFR	SCREW	
3	REZ0136A	FFC (6P)		54	XTB3+20JFR	SCREW	
4	RGU0235-H	OPERATION (A) BUTTON		55	XTB3+6F	SCREW	
5	RGU0236-H	OPERATION (B) BUTTON		56	XTB4+8F	SCREW	
6	RGU0237-H	OPERATION (C) BUTTON		57	XTV3+6G	SCREW	
7	RGU0238	INPUT SELECTOR BUTTON		58	XTW3+6T	SCREW	
8	RGV0033	TIMER SWITCH KNOB		59	XVE3A4FP	SCREW	
9	RGW0055	H.P. BALANCE/REC LEVEL KNOB		60	XWC4B	WASHER	
10	RMA0192	HEADPHONES HOLDER					
11	RMA0193	BALANCE/REC LEVEL HOLDER					
12	RFKGV4100P-H	FRONT PANEL ASS'Y					
13	RFKGV3700PH	SHUTTLE KNOB ASS'Y					
14	CSTW-2	RING					
15	SHRD202	RESIN PARTS					
16	SHR9451	NYLON STOPPER					
17	SUSD162-1	SPRING					
18	XNS12	MUT					
19	XNS7S	MUT					
20	XNS8S	MUT					
21	XNS9	MUT					
22	XTBS3+8JFZ1	SCREW					
23	XTB3+10GFR	SCREW					
24	XTB3+8GFR	SCREW					
25	XWC3B	WASHER					
26	RJS1E0164	IC SOCKET					
27	RMA0408	REMOTE CONTROL ANGLE					
28	XTB3+8J	SCREW					
29	REZ0137A	FFC (17P)					
30	RGKD165A-H	TRAY ORNAMENT					
31	RGQ0046	WIRE SADDLE					
32	RFK1W4100EGH	REAR PANEL ASS'Y	(EB)				

CABINET PARTS LOCATION



MECHANISM PARTS LOCATION

A
B
C
D
E
F
G



Note: When changing mechanism parts, apply the specified grease to the areas marked "x x" as shown in the drawing.

Ref. No.	Part No.
①	RZZ0L05

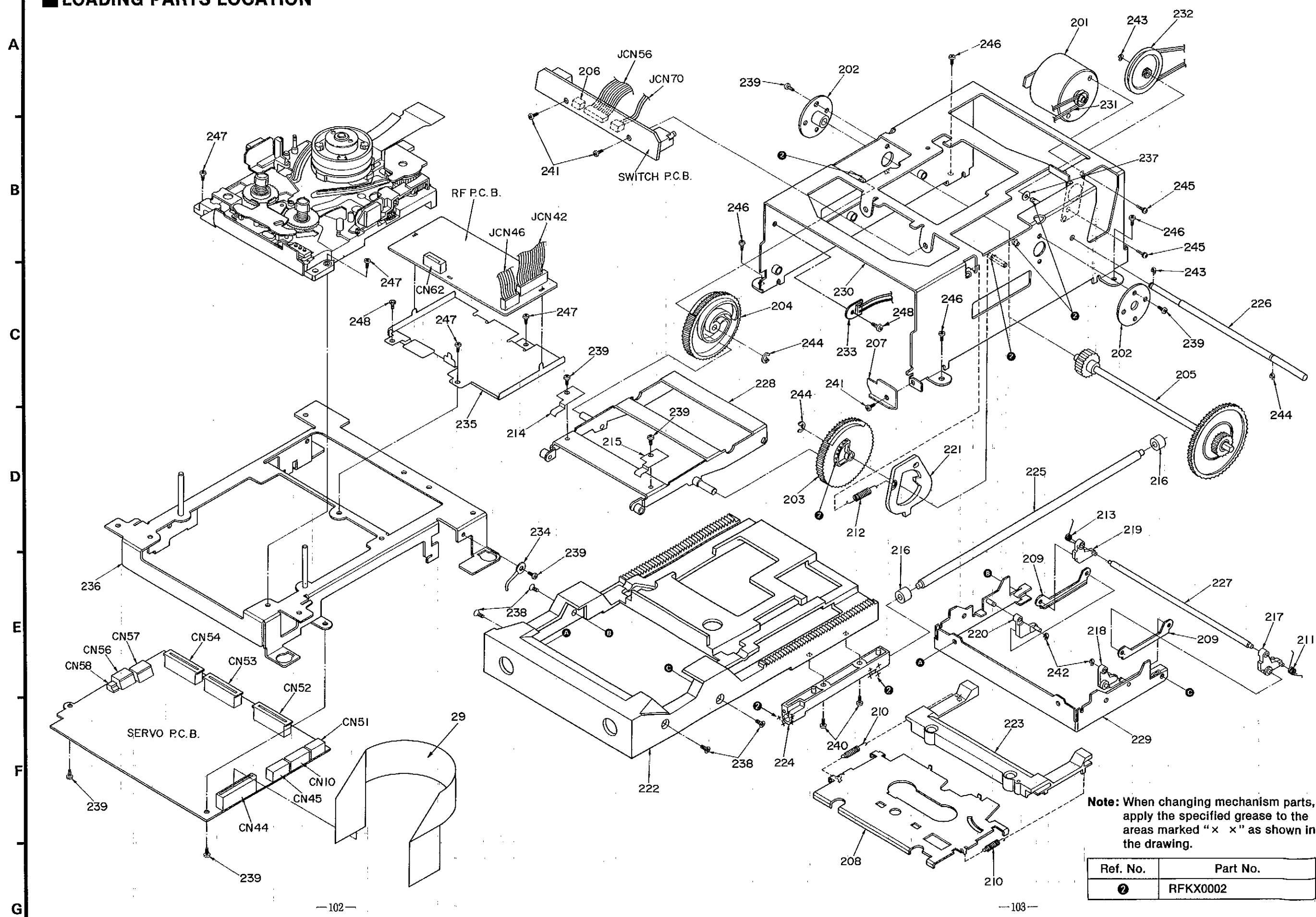
REPLACEMENT PARTS LIST

Ref. No.	Part No.	Part Name & Description	Remarks	Ref. No.	Part No.	Part Name & Description	Remarks
		MECHANISM PARTS		151	RDG0071	IDLER GEAR	
				152	RMB0069	IDLER SPRING	
				153	RXL0051	IDLER ARM ASS'Y	
101	EVQWR4002	CASSETTE SW.		154	RXG0011-2	DRIVE GEAR	
102	QBW2008	WASHER		155	RXK0019	CHASSIS UNIT	
103	QBW2030	WASHER		156	RXL0035-6	TENSION ARM ASS'Y	
104	QBW2059	WASHER		157	RXL0036	TENSION BAND ASS'Y	
105	RDG0066-1	MAIN GEAR A		158	RMB0066	PIN-PRESSURE SPRING	
106	RDG0067	MAIN GEAR B		159	RMB0067	PINCH ROLLER SPRING	
107	RDG0068	IDLER GEAR(P)		160	RMB0036	PIN-PRESSURE LINK	
108	RDG0069	IDLER GEAR(F)		161	RXL0046	PINCH ARM ASS'Y	
109	RDG0070	COUNTER GEAR		162	RXL0048	BT LEVER ASS'Y	
110	RDG0073-1	MODE REPEATING GEAR		163	RXL0049	S. BRAKE ASS'Y	
111	RDK0006-1	LOAD CAM		164	RXL0050	T. BRAKE ASS'Y	
112	RDK0007-1	MODE CAM		165	RXL0052-1	S. LOAD ARM	
113	RDPO020	FIXED POST		166	RXL0054-1	T. LOAD ARM	
114	RDPO021	FIXED POST PLATE		167	RXL0056-2	LOAD LEVER	
115	REM0001-1	CAPSTAN UNIT		168	RXL0057	P. F. IDLER ASS'Y	
116	REM0009	MODE MOTOR ASS'Y		169	RXL0058	LEVER, P. F. SELECTION	
117	RMB0028	HOLDER, MODE MOTOR		170	RXK0018	GUIDE LINK ASS'Y	
118	REQ0012	INTERFACE P. C. B.		171	RXK0019-1	PLUNGER LINK ASS'Y	
119	REQ0014	BEGIN/END DET. SENSER ASS'Y		172	RXPO016-4	S. POST ROLLER ASS'Y	
120	RMB0030	BEGIN DET. ANGLE		172-1	RXPO008	POST ROLLER	
122	RMB0029	END DET. ANGLE		173	RXPO017-3	T. POST ROLLER ASS'Y	
123	RMB0059	LEAD OPENER		173-1	RXPO008	POST ROLLER	
124	REQ0018	BEGIN/END DET. LED ASS'Y		174	RXPO020-1	T. GUIDE ROLLER	
125	EVQWXM001	LOAD SW ASS'Y		175	RXK0057	T. INCLINED BASE ASS'Y	
126	EVQWXM001	MODE SW ASS'Y		176	RXQ0079-1	LOAD HOLDER ASS'Y	
127	RMB0061	SPRING, FIXED POST		177	RXK0006-1	S. REEL ASS'Y	
128	RMB0063	SPRING, GUIDE ROLLER		178	RXK0007-1	T. REEL ASS'Y	
129	RMB0071	SPRING, S. REEL		179	VEG0752-1	CYLINDER UNIT	
130	RMB0073-1	SPRING, T. REEL		179-1	VEH0460	UPPER CYLINDER	
131	RMB0074	SPRING, TENSION		179-2	VHD0593	SCREW	
132	RMB0075	SPRING, BRAKE		180	RSJ0006	PLUNGER	
133	RMB0034	ANGLE		181	QBW2081A	WASHER	
134	RMB0037-1	SPRING, BT		182	RXPO031	GUIDE ROLLER	
135	RML0088	LEVER, PINCH		183	RHW12009	GUIDE WASHER	
136	RML0090-1	LEVER, TENSION		184	XQN14-C16	SCREW	
137	RML0094	LEVER, S. BRAKE		185	RHQ0014	SCREW	
138	RML0095	LEVER, T. BRAKE		186	RHQ0007	SCREW	
139	RML0103	LEVER, LOAD SELECT		187	RHQ0015	SCREW	
140	RMQ0052	S. STOPPER		188	RHQ0016	SCREW	
141	RMQ0053	T. STOPPER		189	RHQ0017	SCREW	
142	RMQ0055	LOAD GUIDE HOLDER		190	XQN16-A45T	SCREW	
143	RMQ0056-1	GUIDE ARM STOPPER		191	XQN2-A2	SCREW	
144	RMQ0058-1	MODE GUIDE PLATE		192	RHQ0018	SCREW	
145	RMQ0062	IDLER GUIDE		193	RHQ0019	SCREW	
146	RMQ0063	TENSION SPRING HOOK		194	RHQ0020	SCREW	
147	RMQ0064-1	S. BRAKE DRIVE PLATE		195	QWQ1371	SCREW	
148	RMQ0065-1	T. BRAKE DRIVE PLATE					
149	RHW1722A	WASHER					
150	RUS7407A	EARTH ANGLE					

Ref. No.	Part No.	Part Name & Description	Remarks	Ref. No.	Part No.	Part Name & Description	Remarks
		LOADING PARTS				<MECHANISM ASS'Y>	
201	RFKPYDA10-K	MOTOR ASS'Y (M751)		MECH1	RAA1001	MECHANISM UNIT	(RTL)
202	RDB0032	GEAR SHAFT HOLDER				<PRINTED CIRCUIT BOARDS ASS'Y>	
203	RDG0120-2	MAIN GEAR (R)					
204	RDG0122-1	MAIN GEAR (L)					
205	RFKNVDA10BK	GEAR SHAFT ASS'Y		PCB1	REP1952A	OPERATION P. C. B.	(RTL)
206	RJP26272A	CONNECTOR (CN72) (2P)		PCB2	REP1950A	MAIN P. C. B.	(RTL)
207	FWA0194	SHAFT FRAME		PCB3	REP1951B	POWER SUPPLY P. C. B.	(RTL)
208	FWA0486	CASSETTE HOLDER ANGLE		PCB4	REP0417A	RF/SERVO P. C. B.	(RTL)
209	FWA0200	HOLDER ARM		PCB4-1	RFKBV3700-N	RF P. C. B.	(RTL)
210	FWB0110	SPRING		PCB4-2	RFKBV3700-0	SERVO P. C. B.	(RTL)
211	FWB0111	SPRING		PCB5	REP0421A	TRAY/SWITCH P. C. B.	(RTL)
212	FWB0131	SPRING					
213	FWB0144	SPRING					
214	FWC0050-1	ANGLE (L)					
215	FWC0051-1	ANGLE (R)					
216	FWG0090	RUBBER					
217	FWL0139-1	SHAFT HOLDER (R)					
218	FWL0140-1	HOLDER (R)					
219	FWL0141-1	SHAFT HOLDER (L)					
220	FWL0142-1	HOLDER (L)					
221	FWL0150-1	MAIN GEAR HOLDER					
222	FWR0206-H	TRAY					
223	FWR0207-H	CASSETTE HOLDER					
224	FWR0209-1	SHAFT ANGLE					
225	FWR0158-1	SHAFT					
226	FWR0160	SHAFT					
227	FWR0165	SHAFT					
228	FWA0046	SUB FRAME					
229	FWA0047	CASSETTE HOLDER					
230	FWK0059	FRAME					
231	SMQ20025	BELT					
232	SMQ40032	PULLEY GEAR					
233	EYHS78R	DEW SENSOR					
234	SHE36-3	EARTH TERMINAL					
235	RSQ0066	SHIELD PLATE					
236	FWA0060	MECHANISM FRAME					
237	FWX0044	WASHER					
238	XSS26+4FZ	SCREW					
239	XTB3+6J	SCREW					
240	XTN3+10G	SCREW					
241	XTN3+6B	SCREW					
242	XUC15FT	WASHER					
243	XUC2FT	WASHER					
244	XUC3FT	WASHER					
245	XYN26+C33	SCREW					
246	XTB3+6F	SCREW					
247	XTN3+8F	SCREW					
248	XSN2+3	SCREW					

Note:

The marking (RTL) indicates that the Retention Time is limited for this item. After the discontinuation of this assembly in production, the item will continue to be available for a specific period of time. The retention period of availability is dependant on the type of assembly, and in accordance with the laws governing part and product retention. After the end of this period, the assembly will no longer be available.

LOADING PARTS LOCATION

Note: When changing mechanism parts, apply the specified grease to the areas marked "x x" as shown in the drawing.

Ref. No.	Part No.
②	RFKX0002

■ RESISTORS AND CAPACITORS

Notes : • Capacity values are in microfarads (uF) unless specified otherwise, P=Pico-farads (pF) F=Farads (F)
• Resistance values are in ohms, unless specified otherwise, 1 K =1,000 (OHM), 1 M=1,000k (OHM)

Ref. No.	Part No.	Values & Remarks	Ref. No.	Part No.	Values & Remarks	Ref. No.	Part No.	Values & Remarks
		RESISTORS						
R11	ERDS2TJ392T	1/4W 3.9K	R209	ERJ6GEYJ153V	1/10W 15K	R294-296	ERJ6GEYJ473V	1/10W 47K
R12	ERD25FJ102	1/4W 1K Δ	R210	ERJ6GEYJ102V	1/10W 1K	R297	ERJ6GEYJ220	1/10W 22
R13, 14	ERG1ANJP560S	1W 56	R212	ERJ6GEYJ105	1/10W 1M	R298	ERJ6GEYJ473V	1/10W 47K
R101, 102	ERJ6GEYJ221V	1/10W 220	R213	ERJ6GEYJ274V	1/10W 270K	R301, 302	ERDS2TJ101	1/4W 100
R103, 104	ERJ6GEYJ681V	1/10W 680	R214	ERJ6GEYJ682V	1/10W 6.8K	R303, 304	ERDS2TJ153	1/4W 15K
R112, 113	ERJ6GEYJ332V	1/10W 3.3K	R215	ERJ6GEYJ184V	1/10W 180K	R305	ERDS2TJ221	1/4W 220
R115	ERJ6GEYJ332V	1/10W 3.3K	R216	ERJ6GEYJ101V	1/10W 100	R306	ERDS2TJ103	1/4W 10K
R117	ERJ6GEYJ102V	1/10W 1K	R217, 218	ERJ6GEYJ472V	1/10W 4.7K	R307, 308	ERDS2TJ270T	1/4W 27
R118	ERJ6GEYJ471V	1/10W 470	R219, 220	ERJ6GEYJ103V	1/10W 10K	R309	RRJ6GCAD750T	1/10W 75
R123	ERJ6GEYJ822V	1/10W 8.2K	R221, 222	ERJ6GEYJ474V	1/10W 470K	R310	ERJ6GEYJ473V	1/10W 47K
R124	ERJ6GEYJ152V	1/10W 1.5K	R223, 224	ERJ6GEYJ222V	1/10W 2.2K	R311	ERJ6GEYJ334V	1/10W 330K
R126	ERJ6GEYJ152V	1/10W 1.5K	R225, 226	ERJ6GEYJ184V	1/10W 180K	R312	RRJ6GCAD750T	1/10W 75
R128	ERJ6GEYJ822V	1/10W 8.2K	R227	ERJ6GEYJ102V	1/10W 1K	R313	ERJ6GEYJ100	1/10W 10
R131	ERJ6GEYJ331V	1/10W 330	R228	ERJ6GEYJ222V	1/10W 2.2K	R314	ERJ6GEYJ3223V	1/10W 22K
R132, 133	ERJ6GEYJ221V	1/10W 220	R229	ERJ6GEYJ103V	1/10W 10K	R315	ERDS2TJ221	1/4W 220
R134	ERJ6GEYJ102V	1/10W 1K	R230	ERJ6GEYJ681V	1/10W 680	R316	ERJ6GEYJ473V	1/10W 47K
R135, 136	ERJ6GEYJ471V	1/10W 470	R231	ERJ6GEYJ821V	1/10W 820	R317, 318	ERJ6GEYJ104V	1/10W 100K
R150	ERJ6GEYJ102V	1/10W 1K	R232	ERJ6GEYJ333V	1/10W 33K	R319	ERJ6GEYJ331V	1/10W 330
R151, 152	ERJ6GEYJ471V	1/10W 470	R233	ERJ6GEYJ104V	1/10W 39K	R320-329	ERJ6GEYJ104V	1/10W 100K
R153	ERJ6GEYJ223V	1/10W 22K	R234	ERJ6GEYJ333V	1/10W 33K	R330-337	ERJ6GEYJ101V	1/10W 100
R154, 155	ERJ6GEYJ471V	1/10W 470	R235	ERJ6GEYJ473V	1/10W 47K	R338-340	ERJ6GEYJ104V	1/10W 100K
R156, 157	ERJ6GEYJ222V	1/10W 2.2K	R236	ERJ6GEYJ332V	1/10W 3.3K	R341, 342	ERDS2TJ331	1/4W 330
R158	ERJ6GEYJ102V	1/10W 1K	R237	ERK12SJ33E	1/2W 0.33 Δ	R343, 344	ERJ6GEYJ104V	1/10W 100K
R159	ERJ6GEYJ223V	1/10W 22K	R240	ERJ6GEYJ151V	1/10W 150	R345-347	ERJ6GEYJ473V	1/10W 47K
R160	ERJ6GEYJ221V	1/10W 220	R241	ERJ6GEYJ333V	1/10W 33K	R348-351	ERJ6GEYJ332V	1/10W 3.3K
R162	ERJ6GEYJ472V	1/10W 4.7K	R242	ERJ6GEYJ103V	1/10W 10K	R352, 353	ERJ6GEYJ104V	1/10W 100K
R164, 165	ERJ6GEYJ472V	1/10W 4.7K	R243	ERJ6GEYJ473V	1/10W 47K	R354	ERJ6GEYJ332V	1/10W 3.3K
R167	ERJ6GEYJ332V	1/10W 3.3K	R244	ERJ6GEYJ102V	1/10W 1K	R356	ERJ6GEYJ331V	1/10W 330
R168	ERJ6GEYJ102V	1/10W 1K	R245	ERK12SJ33E	1/2W 0.33 Δ	R357, 358	ERJ6GEYJ561V	1/10W 560
R169	ERJ6GEYJ471V	1/10W 470	R247	ERJ6GEYJ331V	1/10W 330	R359	ERJ6GEYJ331V	1/10W 330
R172	ERJ6GEYJ102V	1/10W 1K	R248	ERJ6GEYJ822V	1/10W 8.2K	R360-366	ERJ6GEYJ561V	1/10W 560
R173, 174	ERJ6GEYJ222V	1/10W 2.2K	R249	ERJ6GEYJ472V	1/10W 4.7K	R367	ERJ6GEYJ331V	1/10W 330
R175	ERJ6GEYJ151V	1/10W 150	R250	ERJ6GEYJ153V	1/10W 15K	R368-371	ERJ6GEYJ561V	1/10W 560
R176	ERJ6GEYJ104V	1/10W 100K	R251	ERJ6GEYJ104V	1/10W 100K	R372, 373	ERJ6GEYJ102V	1/10W 1K
R178	ERJ6GEYJ820V	1/10W 82	R271, 272	ERJ6GEYJ103V	1/10W 10K	R374	ERJ6GEYJ221V	1/10W 220
R181	ERJ6GEYJ331V	1/10W 330	R273	ERJ6GEYJ681V	1/10W 680	R375	ERJ6GEYJ561V	1/10W 560
R193-195	ERJ6GEYJ102V	1/10W 1K	R274	ERSB39JR82U	1/4W 0.82	R376	RRJ6GCAD750T	1/10W 75
R196	ERJ6GEYJ103V	1/10W 10K	R275	ERJ6GEYJ473V	1/10W 47K	R377	ERJ6GEYJ470V	1/10W 47
R197	ERJ6GEYJ102V	1/10W 1K	R277, 278	ERJ6GEYJ333V	1/10W 33K	R378-381	ERJ6GEYJ561V	1/10W 560
R201	ERJ6GEYJ102V	1/10W 1K	R279	ERJ6GEYJ683V	1/10W 68K	R382, 383	ERJ6GEYJ104V	1/10W 100K
R202, 203	ERJ6GEYJ223V	1/10W 22K	R280	ERJ6GEYJ333V	1/10W 33K	R401, 402	ERDS2TJ183T	1/4W 18K
R204	ERJ6GEYJ103V	1/10W 10K	R281	ERJ6GEYJ332V	1/10W 3.3K	R403-406	RRJ6GCAD103T	1/10W 10K
R205	ERJ6GEYJ683V	1/10W 68K	R282	ERJ6GEYJ682V	1/10W 6.8K	R407-410	RRJ6GCAD332T	1/10W 3.3K
R206	ERJ6GEYJ684V	1/10W 680K	R284	ERJ6GEYJ103V	1/10W 10K	R411-416	RRJ6GCAD472T	1/10W 4.7K
R207	ERJ6GEYJ472V	1/10W 4.7K	R285	ERJ6GEYJ104V	1/10W 100K	R417-420	RRJ6GCAD103T	1/10W 10K
R208	ERJ6GEYJ683V	1/10W 68K	R286	ERJ6GEYJ103V	1/10W 10K	R421-424	RRJ6GCAD72T	1/10W 4.7K
			R287	ERJ6GEYJ684V	1/10W 680K	R425, 426	ERJ6GEYJ101V	1/10W 100
			R289, 290	ERJ6GEYJ473V	1/10W 47K	R427, 428	RRJ6GCAD103T	1/10W 10K
			R292, 293	ERJ6GEYJ563V	1/10W 56K	R429, 430	RRJ6GCAD72T	1/10W 4.7K

Ref. No.	Part No.	Values & Remarks	Ref. No.	Part No.	Values & Remarks	Ref. No.	Part No.	Values & Remarks
R431, 432	RRJ6GCAD273T	1/10W 27K	R621	ERDS2TJ105T	1/4W 1M	R880-882	ERJ6GEYJ471V	1/10W 470
R433, 434	ERJ6GEYJ225V	1/10W 2.2M	R622	ERDS2TJ102	1/4W 1K	R890	ERJ6GEYJ682V	1/10W 6.8K
R435, 436	ERJ6GEYJ220	1/10W 22	R801	RRJ6GCAD750T	1/10W 75	R891	ERJ6GEYJ392V	1/10W 3.9K
R437, 438	ERJ6GEYJ331V	1/10W 330	R802	ERJ6GEYJ101V	1/10W 100	R892	ERJ6GEYJ682V	1/10W 6.8K
R439, 440	ERJ6GEYJ220	1/10W 22	R803	ERJ6GEYJ103V	1/10W 10K	R893	ERJ6GEYJ332V	1/10W 3.3K
R441, 442	RRJ6GCAD222T	1/10W 2.2K	R804	ERJ6GEYJ473V	1/10W 47K	R894	ERJ6GEYJ103V	1/10W 10K
R443-446	RRJ6GCAD272T	1/10W 2.7K	R805	ERJ6GEYJ392V	1/10W 3.9K	R895	ERJ6GEYJ105	1/10W 1M
R447, 448	RRJ6GCAD222T	1/10W 2.2K	R806	ERJ6GEYJ103V	1/10W 10K			CAPACITORS
R449, 450	RRJ6GCAD562T	1/10W 5.6K	R807	ERJ6GEYJ392V	1/10W 3.9K			
R451	ERJ6GEYJ331V	1/10W 330	R808	ERJ6GEYJ103V	1/10W 10K			
R452	ERJ6GEYJ561V	1/10W 560	R809	ERJ6GEYJ332V	1/10W 3.3K	C1	ECKWNS102MBN	400V 1000P Δ
R471, 472	ERJ6GEYJ471V	1/10W 470	R810, 811	ERJ6GEYJ103V	1/10W 10K	C11-18	ECKRH1H03ZF5	50V 0.01U
R473-478	ERJ6GEYJ473V	1/10W 47K	R812	ERJ6GEYJ223V	1/10W 22K	C20, 21	ECKRH1H03ZF5	50V 0.01U
R501, 502	ERJ6GEYJ102V	1/10W 1K	R813	ERJ6GEYJ103V	1/10W 10K	C22, 23	ECEA1EP2332E	25V 3300U Δ
R503, 504	RRJ6GCAD472T	1/10W 4.7K	R814	ERJ6GEYJ223V	1/10W 22K	C24	ECES1EU682G	25V 6800U Δ
R505, 506	RRJ6GCAD122T	1/10W 1.2K	R815	ERJ6GEYJ103V	1/10W 10K	C25	ECEA1CU472E	16V 4700U Δ
R507, 508	ERJ6GEYJ105	1/10W 1M	R816	ERJ6GEYJ471V	1/10W 470	C26	ECEA1H0221B	50V 220U Δ
R509, 510	RRJ6GCAD332T	1/10W 3.3K	R817	ERJ6GEYJ105	1/10W 1M	C27-30	ECEA1CU100	16V 10U
R511, 512	RRJ6GCAD562T	1/10W 5.6K	R818	ERJ6GEYJ472V	1/10W 4.7K	C31	ECEA1VU330	35V 33U
R513-520	RRJ6GCAD822T	1/10W 8.2K	R819-821	ERJ6GEYJ103V	1/10W 10K	C32	ECKRH1H03ZF5	50V 0.01U
R521, 522	RRJ6GCAD183T	1/10W 18K	R822	RRJ6GCAD183T	1/10W 18K	C33	ECEA1EU470	25V 47U
R523, 524	ERJ6GEYJ124V	1/10W 120K	R823	RRJ6GCAD683T	1/10W 68K	C34	ECKRH1H03ZF5	50V 0.01U
R525-528	RRJ6GCAD822T	1/10W 8.2K	R824	ERJ6GEYJ103V	1/10W 10K	C101, 102	ECUV1H222KBN	50V 2200P
R529, 530	RRJ6GCAD183T	1/10W 18K	R825	RRJ6GCAD153T	1/10W 15K	C103, 104	ECUV1H471KCN	50V 470P
R531, 532	ERJ6GEYJ394V	1/10W 390K	R826	ERJ6GEYJ102V	1/10W 1K	C105	ECUV1H470JCN	50V 47P
R533, 534	RRJ6GCAD183T	1/10W 18K	R827	RRJ6GCAD822T	1/10W 8.2K	C107	ECUV1H222KBN	50V 2200P
R535, 536	ERJ6GEYJ394V	1/10W 390K	R828	ERJ6GEYJ332V	1/10W 3.3K	C110	ECEA0JK221B	6.3V 220U
R537-540	RRJ6GCAD750T	1/10W 75	R829	RRJ6GCAD822T	1/10W 8.2K	C123	ECUV1C1052FM	16V 1U
R541-544	ERJ6GEYJ331V	1/10W 330	R830	ERJ6GEYJ103V	1/10W 10K	C124, 125	ECUV1H472KBN	50V 4700P
R545-548	ERJ6GEYJ103V	1/10W 10K	R831	ERJ6GEYJ393V	1/10W 39K	C126, 127	ECUV1H470JCN	50V 47P
R549, 550	ERJ6GEYJ473V	1/10W 47K	R832	ERJ6GEYJ102V	1/10W 1K	C129, 130	ECEA0JKS220B	6.3V 22U
R561-564	ERJ6GEYJ472V	1/10W 4.7K	R833	ERJ6GEYJ105	1/10W 1M	C131	ECUV1H222KBN	50V 2200P
R571, 572	ERJ6GEYJ102V	1/10W 1K	R834	RRJ6GCAD750T	1/10W 75	C150	ECUV1H471KCN	50V 470P
R575, 576	ERDS2TJ102	1/4W 1K	R835, 836	ERJ6GEYJ102V	1/10W 1K	C151	ECUV1H222KBN	50V 2200P
R577, 578	ERDS2TJ103	1/4W 10K	R837	RRJ6GCAD750T	1/10W 75	C152	ECUV1H102KBN	50V 1000P
R579, 580	ERDS2TJ123	1/4W 12K	R838, 839	ERJ6GEYJ100V	1/10W 1.0	C154	ECUV1H220JCN	50V 22P
R581, 582	ERDS2TJ104	1/4W 100K	R840, 841	ERJ6GEYJ102V	1/10W 1K	C155, 156	ECUV1H102KBN	50V 1000P
R583, 584	ERDAS3G100T	1/4W 10	R842	ERJ6GEYJ472V	1/10W 4.7K	C157	ECUV1C1052FM	16V 1U
R585, 586	ERDAS3G330T	1/4W 33	R843, 844	ERJ6GEYJ103V	1/10W 10K	C159	ECUV1H220JCN	50V 22P
R587, 588	ERDAS3G332T	1/4W 3.3K	R845	ERJ6GEYJ334V	1/10W 330K	C161	ECUV1H562KBN	50V 5600P
R589, 590	ERDAS3G102T	1/4W 1K	R846, 847	ERJ6GEYJ473V	1/10W 47K	C163	ECUV1H562KBN	50V 5600P
R591, 592	ERDS2EJ121	1/4W 120	R848, 849	ERJ6GEYJ472V	1/10W 4.7K	C166	ECUV1E153MBN	25V 0.015U
R593-596	ERDS2TJ222	1/4W 2.2K	R850	ERJ6GEYJ683V	1/10W 68K	C167	ECUV1H102KBN	50V 1000P
R601, 602	ERDS2TJ472	1/4W 4.7K	R851	ERJ6GEYJ473V	1/10W 47K	C168	ECUV1H270JCN	50V 27P
R603	ERDS2TJ473	1/4W 47K	R852, 853	ERJ6GEYJ152V	1/10W 1.5K	C169	ECUV1H100JCN	50V 10P
R604	ERDS2TJ472	1/4W 4.7K	R854	ERJ6GEYJ105	1/10W 1M	C171, 172	ECUV1H680JCN	50V 68P
R605	ERDS2TJ100	1/4W 10	R855	ERJ6GEYJ472V	1/10W 4.7K	C173	ECUV1H471KCN	50V 470P
R606, 607	ERDS2TJ102	1/4W 1K	R856, 857	ERJ6GEYJ103V	1/10W 10K	C174	ECUV1E104MBN	25V 0.1U
R610, 611	ERDS2TJ471	1/4W 470	R859	ERJ6GEYJ92V	1/10W 1K	C175	ECUV1H472KBN	50V 4700P
R612	ERDS2TJ102	1/4W 1K	R860	ERJ6GEYJ393V	1/10W 39K	C176	ECUV1E333MDN	25V 0.033U
R613-619	ERDS2TJ103	1/4W 10K	R861	ERJ6GEYJ102V	1/10W 1K	C177, 178	ECUV1H101KCN	50V 100P
R620	ERDS2TJ471	1/4W 470	R862	ERJ6GEYJ105	1/10W 1M	C179	ECUV1E104MBN	25V 0.1U

Ref. No.	Part No.	Values & Remarks	Ref. No.	Part No.	Values & Remarks	Ref. No.
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Ref. No.	Part No.	Values & Remarks	Ref. No.	Part No.	Values & Remarks	Ref. No.	Part No.	Values & Remarks
C803	ECUV1H100CCN	50V 10P	C821	ECUV1H221JCN	50V 220P	C840	ECUV1H681KBN	50V 680P
C804	ECUV1H050CCN	50V 5P	C822	ECUV1H681KBN	50V 680P	C841	ECUV1H101KCN	50V 100P
C805	ECEA1CN330S	16V 33U	C823	ECUV1H101KCN	50V 100P	C842, 843	ECUV1E104ZFN	25V 0.1U
C806	ECQV1H224JZ	50V 0.22U	C824	ECUV1E103KBN	25V 0.01U	C844	ECUV1H221JCN	50V 220P
C807	ECEA1CN330S	16V 33U	C825, 826	ECUV1H103ZFN	50V 0.01U	C847	ECEA0JU101B	6.3V 100U
C808	ECQV1H105JZ3	50V 1U	C827	ECUV1E104ZFN	25V 0.1U	C848	ECEA0JU221	6.3V 220U
C809	ECUV1H103ZFN	50V 0.01U	C828	ECUV1E103KBN	25V 0.01U	C850	ECUV1H050CCN	50V 5P
C810, 811	ECEA0JU101B	6.3V 100U	C829	ECQV1H105JZ3	50V 1U	C851	ECUV1H100CCN	50V 10P
C812	ECUV1H103ZFN	50V 0.01U	C830	ECUV1H820JCN	50V 82P	C852	ECUV1H050CCN	50V 5P
C813	ECUV1E104ZFN	25V 0.1U	C831	ECUV1H680JCN	50V 68P	C881, 882	ECEA0JU101B	6.3V 100U
C814	ECUV1E473MBN	25V 0.047U	C832	ECEA0JU101B	6.3V 100U	C883, 884	ECEA0JU221	6.3V 220U
C815	ECUV1H820JCN	50V 82P	C833	ECUV1H103ZFN	50V 0.01U	C885, 886	ECUV1H100CCN	50V 10P
C816	ECUV1E104ZFN	25V 0.1U	C835	ECUV1E104MBN	25V 0.1U	C887	ECUV1E104ZFN	25V 0.1U
C817	ECUV1H103ZFN	50V 0.01U	C836	ECUV1H822KBN	50V 8200P	C898	ECUV1H331KCN	50V 330P
C818	ECUV1H471JCN	50V 470P	C837	ECUV1H560KCN	50V 56P			
C819, 820	ECUV1E104ZFN	25V 0.1U	C839	ECUV1H221JCN	50V 220P			

REPLACEMENT PARTS LIST

Notes: *Important safety notice:

Components identified by Δ mark have special characteristics important for safety.

Furthermore, special parts which have purposes of fire-retardant (resistors), high-quality sound (capacitors), low-noise (resistors), etc. are used.

When replacing any of components, be sure to use only manufacturer's specified parts shown in the parts list.

*The parenthesized indications in the Remarks columns specify the areas. (Refer to the cover page for area.)

Parts without these indications can be used for all areas.

*Remote Control Ass'y: Supply period for three years from termination of production.

*The "(SF)" mark denotes the standard part.

Ref. No.	Part No.	Part Name & Description	Remarks	Ref. No.	Part No.	Part Name & Description	Remarks
		PACKING MATERIAL					
P1	RPG2224	PACKING CASE		A1	RFKSV4100EBH	INSTRUCTION MANUAL ASS'Y	
P2	RPN0391-1	ACCESSORIES BOX		A2	RJA0045-K	AC POWER SUPPLY CORD	(EB) Δ
P3	RPN0392	PAD (ACCESSORIES)		A2	RJA0003-K	AC POWER SUPPLY CORD	(EG) Δ (SF)
P4	XZB09X10C03	PROTECTION BAG (SCREW)		A3	RYQ0059-1	RACK EARS	(EB)
P5	RPFO017	PROTECTION BAG (UNIT)		A3	RYQ0059-2	RACK EARS	(EG)
P6	RPN0221-1	PAD (FRONT)		A4	RYQ0060-1	RACK PANELS	
P7	RPN0222-1	PAD (BACK)		A5	SJPD19-1E	COAXIAL CABLE	
P8	XZB25X34C03Y	PROTECTION BAG (F. B.)		A6	XYN3-F10FZ	SCREW	
P9	RPH0065-1	SOFT SHEET		A7	RAK-SV012WH	REMOTE CONTROL TRANSMITTER	
		ACCESSORIES		A7-1	RKK0020-K	BATTERY COVER	FOR R/C TRANSMITTER
				A8	RQA0013	WARRANTY CARD	
				A9	RQCB0169	SERVICENTER LIST	

PACKAGING

