

Service Manual

Digital Audio Tape Deck

SV-DA10



Color

(K)... Black Type
(A)... Gold Type

Area

Country Code	Area	Color
(E)	Continental Europe.	(K) (A)
(EB)	Great Britain.	
(EG)	F.R. Germany & Italy.	

SPECIFICATIONS

■ Signaling Format

Tape recording system: Rotary head type DAT
Sampling frequencies:
 For recording; 48 kHz/44.1 kHz
 32 kHz (automatically selected during digital recording)
 For playback; 48 kHz/44.1 kHz/32 kHz
 (selected automatically)
No. of quantizing bits: 16-bit linear
No. of channels: 2 (stereo)

■ Audio Parameters (Digital recording/playback)

Frequency response: 2 Hz~22,000 Hz
 (Sampling frequency 48 kHz)
 2 Hz~20,000 Hz
 (Sampling frequency 44.1 kHz)
 2 Hz~15,000 Hz
 (Sampling frequency 32 kHz)
Dynamic range: Greater than 95 dB (IHF'A weighted)
Signal to noise ratio: Greater than 107 dB (IHF'A weighted)
Total harmonic distortion: Less than 0.003% (1 kHz)
Wow and flutter: Unmeasurable

(Analog recording/playback)

Frequency response: 2 Hz~22,000 Hz (± 0.5 dB)
Dynamic range: Greater than 90 dB (IHF'A weighted)
Signal to noise ratio: Greater than 90 dB (IHF'A weighted)
Total harmonic distortion: Less than 0.007% (1 kHz)
Wow and flutter: Unmeasurable

- Technics world first developed the MASH type DAC. MASH technology was invented by NTT (LSI lab).
- MASH is a trademark of NTT.

■ Input/Output Jacks

Analog input jacks
Minimum input level: 140 mV (-12 dB rec level)
Input impedance: 47 k Ω
Analog output jacks
Full-scale output level: 2 V
Output impedance: 600 Ω
Phones output: Max. 30 mW + 30 mW/32 Ω
 (Matching impedance 8~600 Ω)
Digital input jacks: Coaxial/75 Ω , Optical
 (with selector switch)
Digital output jacks: Coaxial/75 Ω , Optical
 (parallel output)

■ Mechanism

Heads: Amorphous ferrite composite type
Cylinder diameter: 30 mm
Cylinder rotation speed: 2000 r.p.m.
 (recording and playback)
Tape speed: 8.15 mm/sec., 12.225 mm/sec.
 (selected automatically)
Search speed: Up to 400 times normal playback speed
FF/Rewind time: Approx. 27 sec. (2 hours DAT tape)

■ General

Power supply
For Great Britain AC 50 Hz/60 Hz, 240 V
For others AC 50 Hz/60 Hz, 220 V
Power consumption: 27 W
External dimensions (W×H×D): 43×12.2×33.9 cm
 (17"×4 $\frac{3}{4}$ "×13 $\frac{5}{16}$ ")
Weight: 5.7 kg (12 $\frac{1}{2}$ pounds)

Note:

Specifications are subject to change without notice.
 Weight and dimensions are approximate.

Technics

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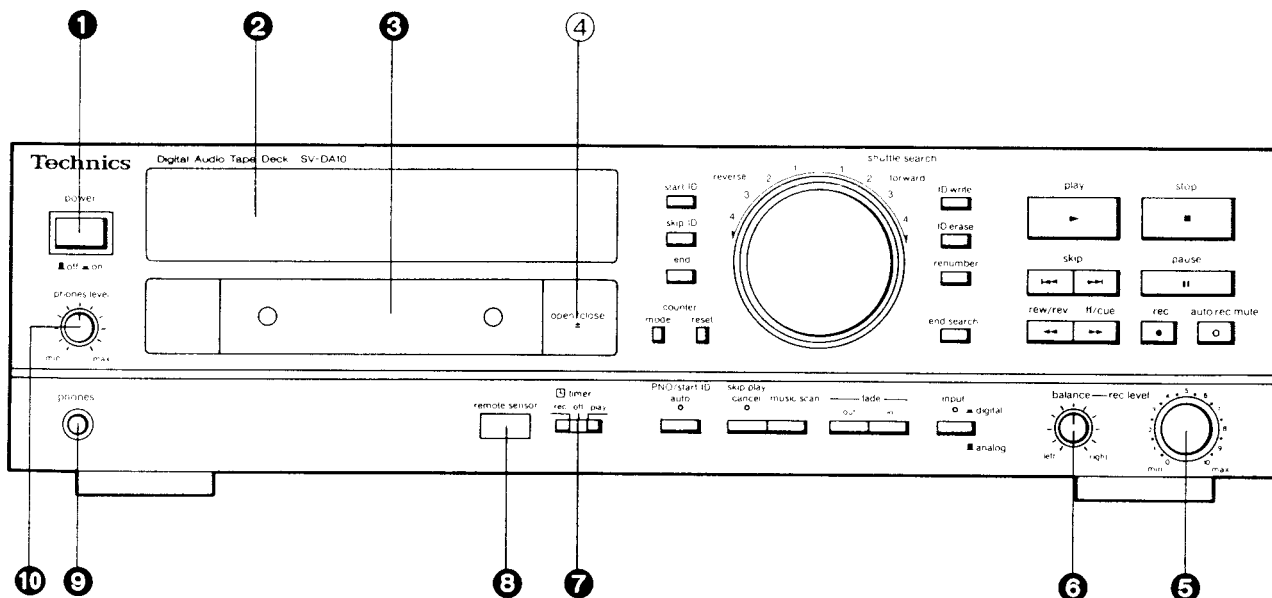
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LOCATION OF CONTROLS

The functions indicated by the black numbers (with white background, ④ etc.) can also be activated using the remote control transmitter.

Front panel



① Power switch (power)

② Display panel
(Refer to page 5.)

③ Cassette holder

④ Open/close button (▲ open/close)

⑤ Rec level control (rec level)
Use to adjust the recording level of left and right channels.

⑥ Rec balance control (balance)
Use to adjust recording balance between left and right channels.

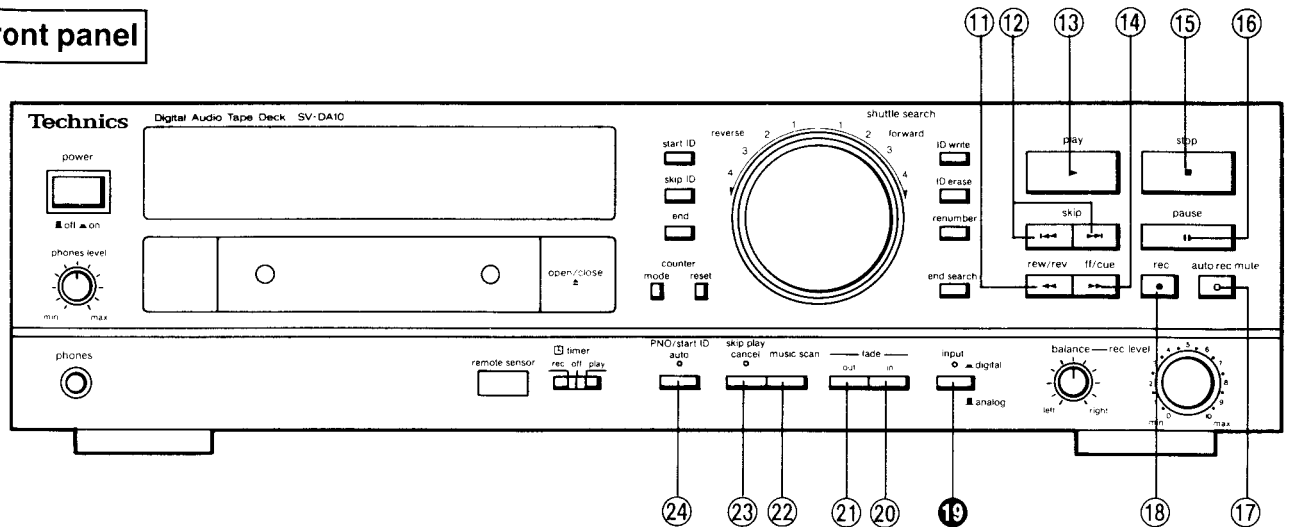
⑦ Timer Selector (☐ timer)
Used to automatically begin playback or record when the unit is connected to an AC line timer. Setting this switch to "rec" or "play" causes the unit to switch to record or playback mode as soon as AC power is applied.
If a timer is not used, leave this switch in the "off" position.

⑧ Remote control signal sensor
(remote sensor)

⑨ Phones jack (phones)
A 6 mm connector for standard stereo headphones.

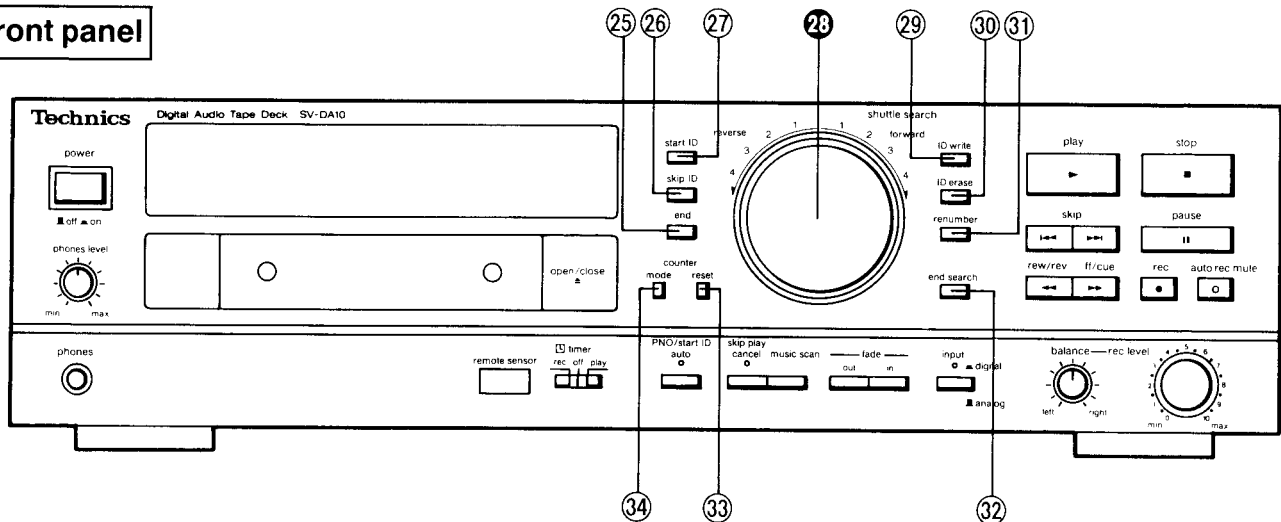
⑩ Phone level control (phones level)
Use this control to adjust the output level to the headphones.

Front panel



- ①① **Rew/rev button (◀◀ rew/rev)**
Use to rewind the tape or for audible high-speed search in play mode (review).
- ①② **Skip buttons (◀◀•▶▶▶ skip)**
Use the skip buttons to advance to the desired program. The ▶▶▶ button skips the program forward. The ◀◀◀ button skips the program backward. Repeated pressing of the skip buttons causes the unit to skip forwards or backwards several programs.
- ①③ **Play button/indicator (▶ play)**
Use to initiate recording or playback mode. Use also to record program numbers manually.
- ①④ **Ff/cue button (▶▶ ff/cue)**
Use to advance the tape rapidly or for audible high-speed search (cue).
- ①⑤ **Stop button (■ stop)**
Use to stop all functions. This button also clears the program memory.
- ①⑥ **Pause button/indicator (▬▬ pause)**
Use to temporarily interrupt playback or recording mode.
- ①⑦ **Auto rec mute button (◻ auto rec mute)**
Use to automatically insert a silent space approximately four seconds long during a recording.
- ①⑧ **Record button/indicator (● rec)**
Use to place the unit in record standby mode.
- ①⑨ **Input selector button/indicator (input)**
Use to select digital or analog recording input.
- ②⑦ **Fade in button (fade in)**
Use to start recording increasing the level of sound gradually for approx. 2½ seconds.
- ②① **Fade out button (fade out)**
Use to cease recording reducing the level of the sound gradually for approx. 5 seconds.
- ②② **Music scan button (music scan)**
Use to play back the beginning of each recorded program on the tape for about 15 seconds. This is useful for quick identification of program contents.
- ②③ **Skip play cancel button/indicator (skip play cancel)**
Use to release skip mode.
- ②④ **PNO/start ID auto button/indicator (PNO/start ID auto)**
Use to automatically record program numbers or start ID's during recording or indexing by detecting the beginning of signal after a blank position.

Front panel



25 End button (end)

Use to record an end mark on a recording.

26 Skip ID button (skip ID)

Use to enter the skip ID mode.

27 Start ID button (start ID)

Use to enter the start ID mode.

28 Shuttle search dial (shuttle search)

Use to locate specific places on the tape during play and pause mode at high speed, in either forward or reverse directions.

29 ID write button (ID write)

Use to record start or skip ID's during indexing*.

*Indexing allows certain DAT subcode data that has been recorded on the tape to be changed without affecting to the actual program recording.

With this unit, the following types of indexing are possible.

1. Recording or erasure of start ID's at the beginning of a program
2. Recording or erasure of skip ID's
3. Renumber function

30 ID erase button (ID erase)

Use to erase start or skip ID's during indexing.

31 Renumber button (renumber)

Use to assign program numbers (01, 02, 03...) to start ID's recorded during indexing.

32 End search button (end search)

Use to advance at high speed to the end of the recorded portion of the tape.

Use also to continue recording from the last recorded position, or to find the total number of programs or total time recorded on the tape (in the case of tapes where absolute time and program numbers have been recorded).

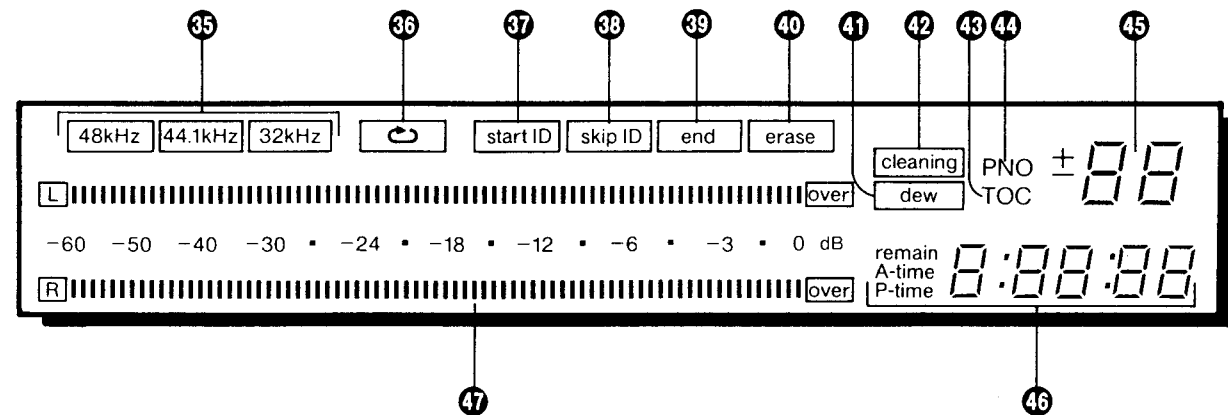
33 Counter reset button (counter reset)

Use to reset the tape counter to "0000" (when the display mode is set to tape counter).

34 Counter mode button (counter mode)

Use to select the desired counter mode.
(absolute time, program time, remain time, TOC, tape counter)

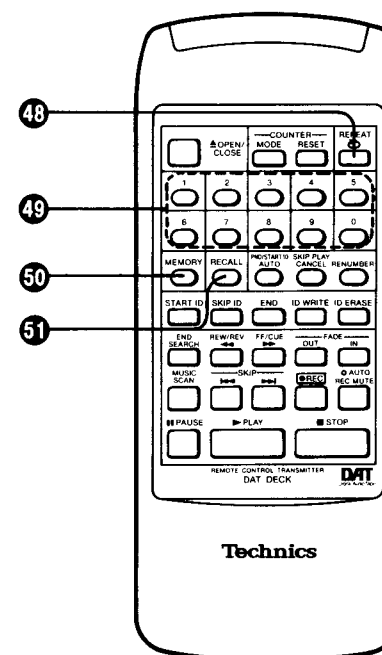
Display panel



- 35 Sampling frequency indicators**
Displays sampling frequency of digital signals during recording or playback.
Changes automatically depending on the input signal.
- 36 Repeat indicator**
This indicator is used for the repeat loop-play function. Indicates that all programs or memorized programs can be played back repeatedly (REPEAT).
- 37 start ID indicator**
Indicates that a start ID is being or has been recorded.
- 38 skip ID indicator**
Indicates that a skip ID is being or has been recorded.
- 39 end indicator**
Indicates that an end mark is being or has been recorded.
- 40 erase indicator**
Indicates that a start ID or skip ID is being erased.
- 41 dew indicator**
Indicates the formation of dew within the unit.
- 42 cleaning indicator**
Indicates that the DAT heads need cleaning.

- 43 TOC (table of contents) indicator**
Indicates the total program count and tape length of a tape onto which the TOC information has been recorded.
- 44 PNO (program number) indicator**
Indicates the number of the current program.
- 45 Program number display**
Displays the TOC information when TOC indicator appears. Displays the number of the program when PNO indicator appears.
- 46 Counter display panel**
The following are displayed according to the setting of the counter mode button:
1) absolute time
This display is always shown when power is first switched on.
2) program time
3) remaining time
4) TOC information
5) tape counter
- 47 Peak level meter**
Recording level in recording and playback level in playback are indicated by a bar graph.

Remote control transmitter



- 48 REPEAT button (REPEAT)**
Use for a repeat playback of a tape or a programmed sequence.
- 49 PROGRAM buttons (1~9, 0)**
Use to select program numbers, to cue to a desired program, etc.
- 50 MEMORY button (MEMORY)**
Use to program a random playback sequence.
- 51 RECALL button (RECALL)**
Use to display and check program numbers that have been memorized.

Unnumbered buttons on the remote control transmitter function identically to their corresponding parts on the unit.

ACCESSORIES

<ul style="list-style-type: none"> • AC power supply cord 1 SJA187 (E, EG) SJA193 (EB) 	<ul style="list-style-type: none"> • Stereo connection cables } 2 (SJP2249-4) 	<ul style="list-style-type: none"> • Remote control transmitter } 1 (RAK-SV303W) 	<ul style="list-style-type: none"> • Batteries } 2 (UM-4NEP-2S)
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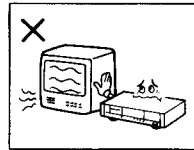
The configuration of the AC power supply cord differs according to area.

INSTALLATION

Installation

■ Avoid locations nearby tuners or television sets.

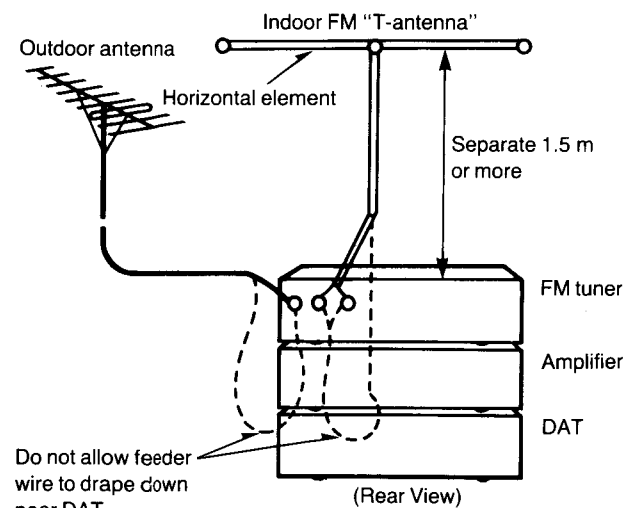
Since this unit uses high-frequency signals, placing it near a tuner or television set may result in interference with the tuner/TV reception. If this kind of audio or video interference is experienced, move the DAT unit away from other AV components.



The some kind of phenomenon may occur when using an indoor TV antenna; whenever possible, use an outdoor antenna instead.

■ Precautions when using an indoor wire-strip antenna (T-antenna) with FM tuner.

- Separate the horizontal elements of the FM antenna at least 1.5 m from the tuner.
- Do not allow the feeder wire from an indoor or outdoor FM antenna to drape near the DAT unit. If excess feeder wire is present inside the room, coil it up as far as possible away from the DAT unit.



Placement notes

■ This unit is a precision instrument. Be sure to place it on a flat surface.

■ 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 (35°C or higher).
- Extremely cold places (5°C or below).
- Near a tuner or TV (It may cause noise in the broadcast, or disturbance of 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 (about 4") away from the wall or back of an audio rack.
- Within reach of children.

■ 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.

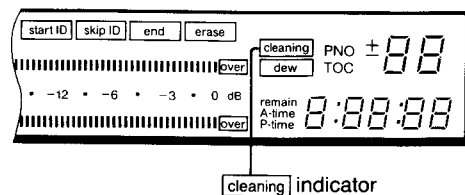
- Do not place a book or similar object under this unit.
- Do not route the connection cables (of this or other units) across the operation panel, across the top, or under the unit.

DAT head and tape transport cleaning

As with any tape based recording media, the head and transport may become contaminated due to exposure to dust or dirt. To maintain the best possible recording/playback, we recommend periodic cleaning.

Depending on how dirty the head and/or mechanism becomes, the **cleaning** indicator will flash. In such a case, playback the optional cleaning tape (RT-RCLP), according to the following procedure:

1. Insert the head cleaning tape.
2. Press the play button, let the tape play for 15~20 seconds, then press the stop button.
3. Remove the cassette without rewinding it.
4. Check the recording and playback sound quality.



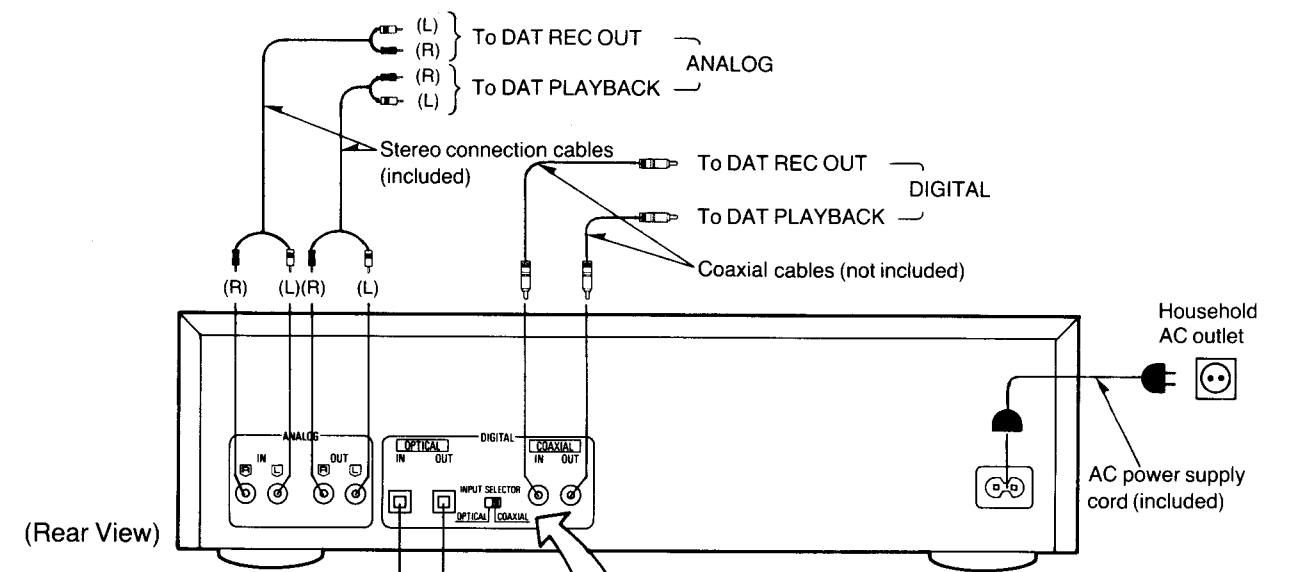
- Cleaning tapes cannot be used for recording or playback (be sure to read the operating instructions supplied with the tape).

- If sound quality does not improve after two consecutive cleanings, consult your dealer.

- If playback quality improve after cleaning, but then deteriorates immediately after recording or playback, the tape has probably reached its usefulness. In this case, use a new tape.

CONNECTIONS

Turn power off on all components before making connections.



• Optical input terminal (DIGITAL IN/OPTICAL)

This terminal can be used for connection with other equipment that has a digital output terminal, such as an amplifier, by using an optical cable (optional).

• Optical output terminal (DIGITAL OUT/OPTICAL)

This terminal can be used for connection with other equipment that has a digital input terminal, such as an amplifier, by using an optical cable (optional).

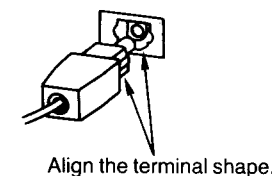
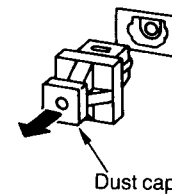
DIGITAL INPUT SELECTOR

Select the setting when connecting to digital terminals. When using optical fiber cables, set the selector to "OPTICAL". When using coaxial cables, set the selector to "COAXIAL".

About Optical Fiber Cables

To connect optical fiber cables

- (1) Remove the dust cap from the terminal.
- (2) Connect the cable.



Notes:

- Do not attempt to bend optical fiber cables at severe angles.
- Be sure that connections are made securely.
- Store the dust cap securely, and replace it whenever cables are not connected to the terminals. If dust is allowed to enter the terminal connector, signal errors may result.

About OPTICAL connector

When the optical connectors are used, electrical signals are converted into light signals for transmission between units, making the signals impervious to adverse effects from external noise. This form of connection thus allows the highest quality of digital audio signal transmission.

Precautions when using this unit's DIGITAL OUT connection

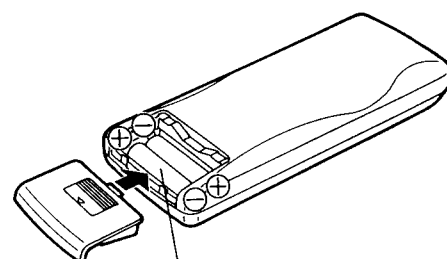
If this unit is connected incorrectly to your stereo amplifier, a recording feedback loop may occur within which the DAT unit's output is fed back into the DAT unit for recording, resulting in and possible damage to your speakers. Be sure to abide by the following precautions:

- 1) When using the unit's DIGITAL IN/OUT terminals for recording or playback, be sure to connect only to your amplifier's DIGITAL REC OUT (OUTPUT) and DIGITAL PLAYBACK (INPUT) terminals.
- 2) If your amplifier has no DIGITAL PLAYBACK or DIGITAL REC OUT terminals, and you make your connections to the amplifier's conventional DIGITAL INPUT terminals for playback, be sure to use this unit (DAT recorder) for playback only (not for recording).
- 3) If your unit is used for recording when connected as described in step 2 above, do not set the DAT unit's INPUT SELECTOR to the DIGITAL position.

■ REMOTE CONTROL TRANSMITTER

Insertion of remote control transmitter batteries

Battery life is about 1 year.



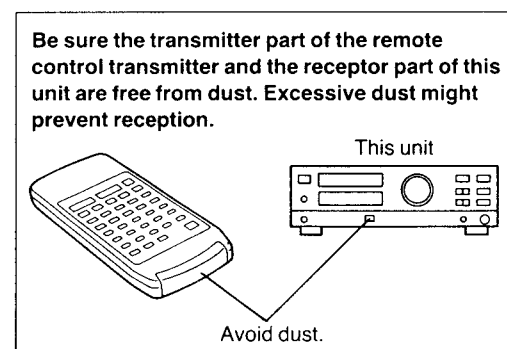
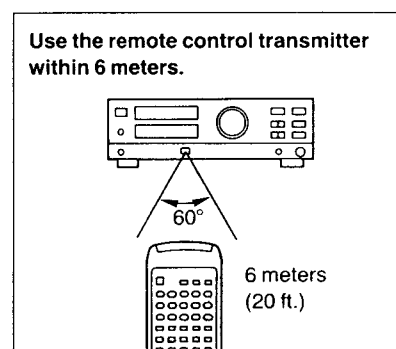
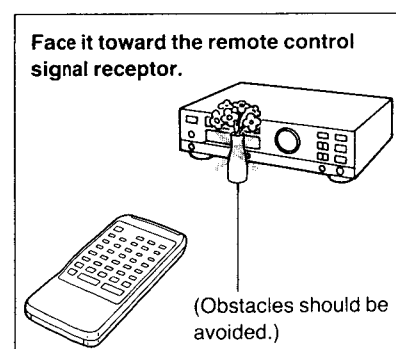
Use two UM-4, "AAA" (R03) size (1.5 V) batteries.

■ Notes concerning use of batteries

- Do not use rechargeable batteries (Ni-Cd type).
- Be sure the batteries are inserted so that the positive (+) and negative (-) polarities are correct. Batteries installed with incorrect polarities may leak and damage the remote control transmitter.
- Never subject the batteries to excessive heat or flame; do not attempt to disassemble them; and be sure they are not short-circuited.
- If the remote control transmitter is not to be used for a long time, remove the batteries.
- Remove old, weak or worn-out batteries promptly and dispose of them.
- Never mix old and new batteries, nor batteries of different types (carbon or alkaline).

Remote control transmitter operation notes

Note that operation may not be correct if direct sunlight or other strong light strikes the remote control signal receptor part of this unit. If there is a problem, place the unit away from the direct sunlight or other strong light source.



Notes:

- The control panel of the remote control transmitter may be covered by a clear protective sheet. This sheet may be removed if desired.
- If this unit is installed in a rack with glass doors, the glass door's thickness or color might make it necessary to use the remote control transmitter a shorter distance from the unit.
- Do not use a remote control transmitter for a TV set, VCR or other component at the same time as this unit's remote control transmitter is being used, because this could result in an operation error.

■ SV-DA10 DAT MAINTENANCE CHART

• DAT Head and Tape Transport Cleaning

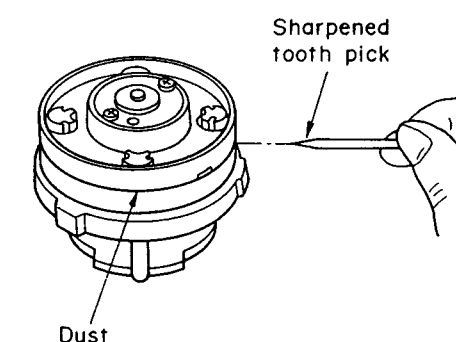
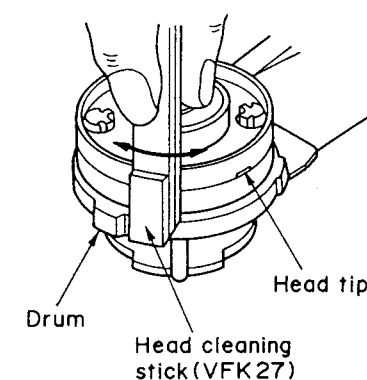
Through normal usage of any tape machine, dirt and debris from the tape accumulates on the heads, which eventually causes performance problems. By using a cleaning cassette regularly, dirt buildup can be minimized, prolonging the life of the tape heads, and also keeping tape posts, tape guides, and the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

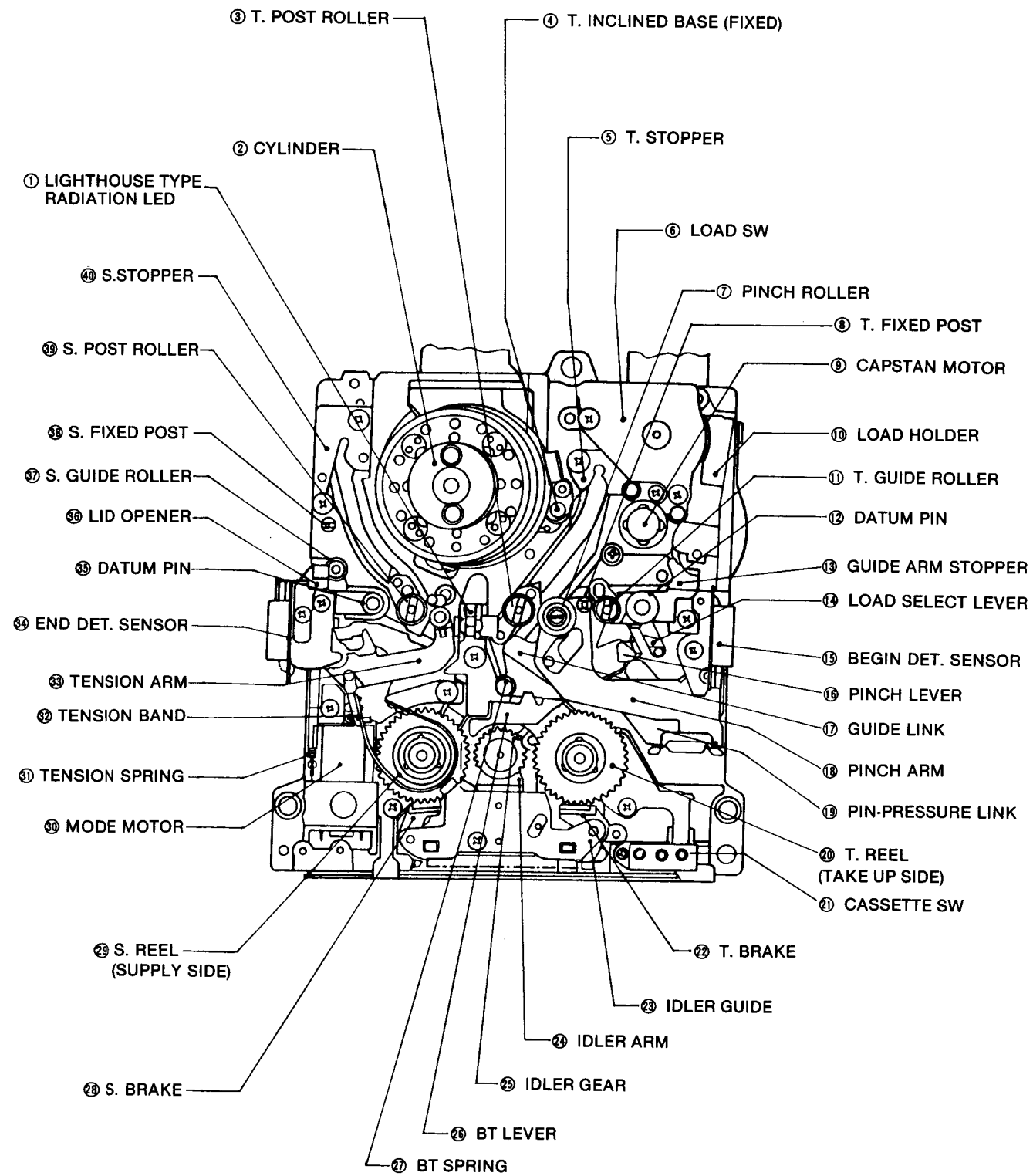
Note:

1. When cleaning the upper drum, hold it secure by the top edges 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. The amount of solvent applied to the head drum should be used in moderation. Excess alcohol will dilute and remove the bearing lubricant in the capstan motor and rotary guides.

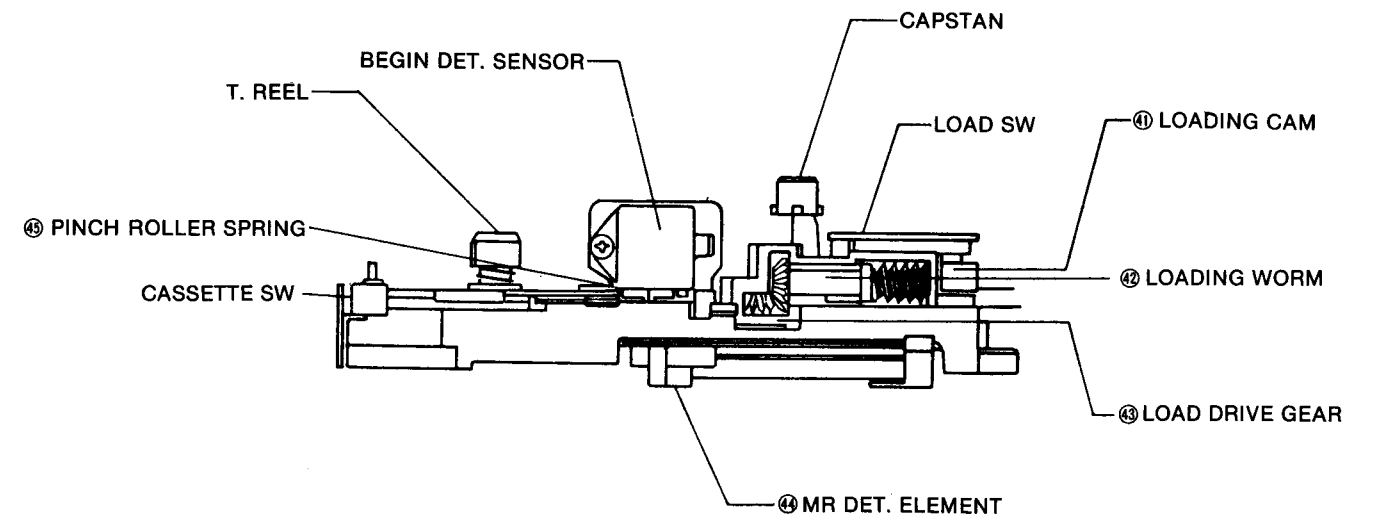


• MECHANISM COMPONENT LAYOUT

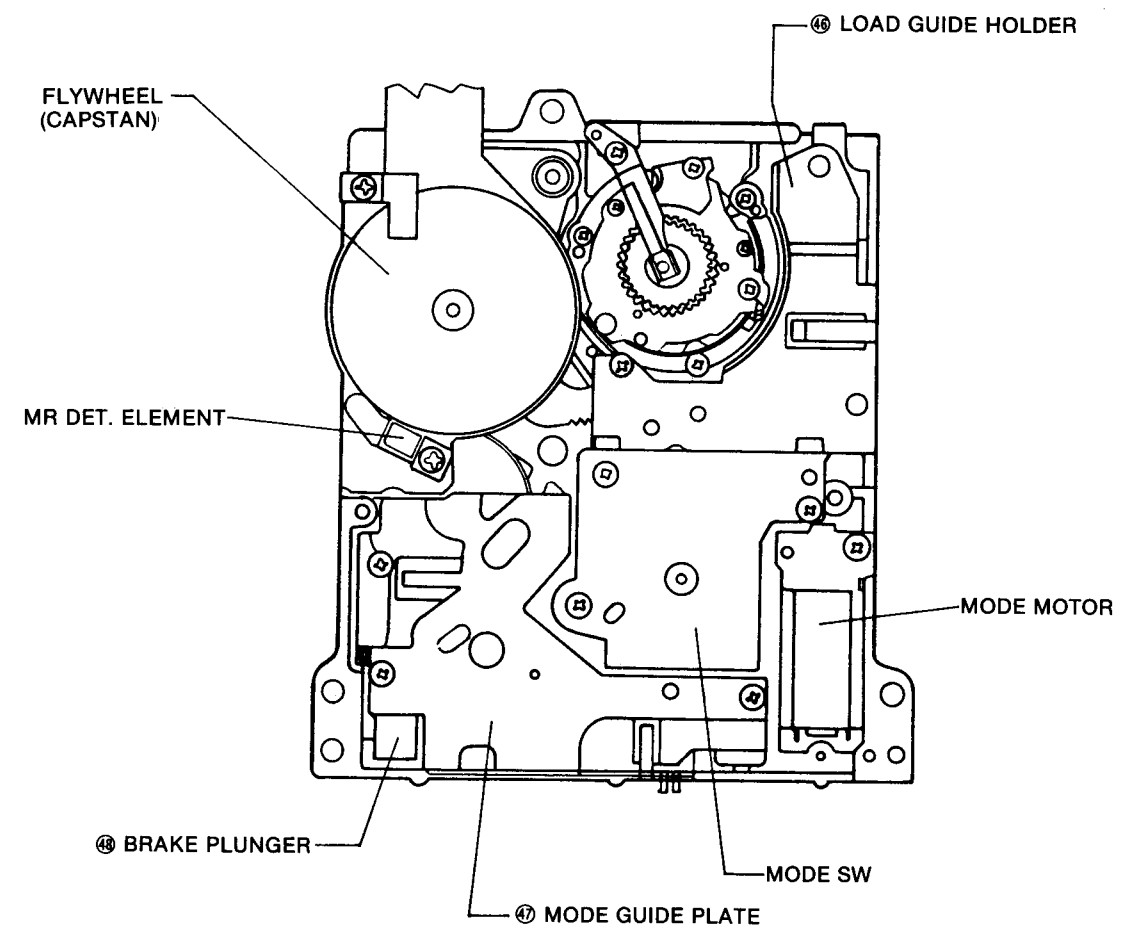
• Top view



• Side view



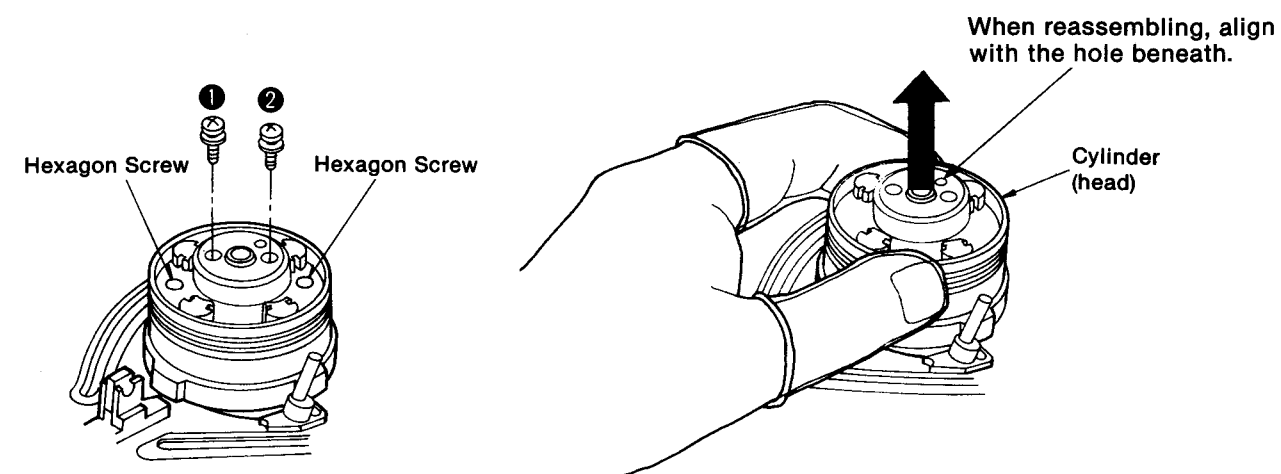
• Bottom view



• MECHANISM CONTROLS AND FUNCTIONS

① LIGHT HOUSE TYPE RADIATION LED	Lighthouse-shaped, LEDs blink at start and end of tape.	⑳ 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.	㉑ BT LEVER	Applies back tension to T reel during review.
③ T. POST ROLLER	Regulates tape travel position (upper edge).	㉒ BT SPRING	Provides pressure for back tension lever.
④ T. INCLINED BASE (FIXED)	Regulates angle (90°) at which tape is wound around cylinder (stationary).	㉓ 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.	㉔ S. REEL (SUPPLY SIDE)	Supply reel base, 64 FG pulses.
⑥ LOAD SW	Two-bit rotary switch, detects loading position.	㉕ MODE MOTOR	6.5V DC motor, switches mode by forward and reverse revolution.
⑦ PINCH ROLLER	Presses against tape during play and review.	㉖ TENSION SPRING	Provides back tension force of tension regulator.
⑧ T. FIXED POST	Regulates tape travel position.	㉗ TENSION BAND	Mounted to tension regulator, applies back tension to S reel base.
⑨ CAPSTAN MOTOR	1.5mm in diameter, 290 FG pulses.	㉘ 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.	㉙ END DET. SENSOR	Light-receiving element for LED (detection at end of tape).
⑪ T. GUIDE ROLLER	Regulates tape travel position (top edge).	㉚ 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.	㉛ LID OPENER	Opens cassette lid during loading of tape.
⑬ GUIDE ARM STOPPER	Determines position of T guide roller base K during loading.	㉜ 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.	㉝ S. FIXED POST	Regulates tape travel (bottom edge).
⑮ BEGIN DET. SENSOR	Light-receiving element for LED (detection at start of tape).	㉞ S. POST ROLLER	Regulates tape travel position (top edge).
⑯ PINCH LEVER	Presses pinch roller against tape during play and review.	㉟ S. STOPPER	Determines position of S post roller base during loading.
⑰ GUIDE LINK	Links T post roller base and guide roller base.	㊱ 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.	㊲ LOADING WORM	Transmits movement of loading drive gear and loading cam.
㉀ PIN-PRESSURE LINK	Connected by the pin pressure spring and the pinch arm.	㊳ LOAD DRIVE GEAR	Transmits movement of M gear A and loading worm, engages and disengages in accordance with mode.
㉁ T. REEL (TAKE UP SIDE)	Take-up reel base, 64 FG pulses.	㊴ MR DET. ELEMENT	Detects magnetic changes (290 pulses) of flywheel.
㉂ CASSETTE SW	Detects cassette information (mistaken erasure, cassette detection).	㊵ PINCH ROLLER SPRING	Mounted to the pinch arm, returns the pinch roller.
㉃ T. BRAKE	Presses brake gear against reel base gear to perform braking.	㊶ LOAD GUIDE HOLDER	Holding cover of the loading arm and loading lever.
㉄ IDLER GUIDE	Holding cover for idler arm and S and T brakes.	㊷ MODE GUIDE PLATE	Holding cover of the various gears, holds the plunger in position.
㉅ IDLER ARM	Moves left or right in accordance with mode condition, transmits movement of counter gear to S and T reels.	㊸ BRAKE PLUNGER	5V, 200mA, switches brakes on and off in accordance with the mode.

• REMOVAL OF THE UPPER CYLINDER

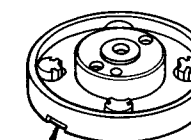


1. Remove the 2 screws (①, ②).

2. Remove the cylinder (head) in the direction of the arrow.

Caution: Please do not touch Hexagon screws.

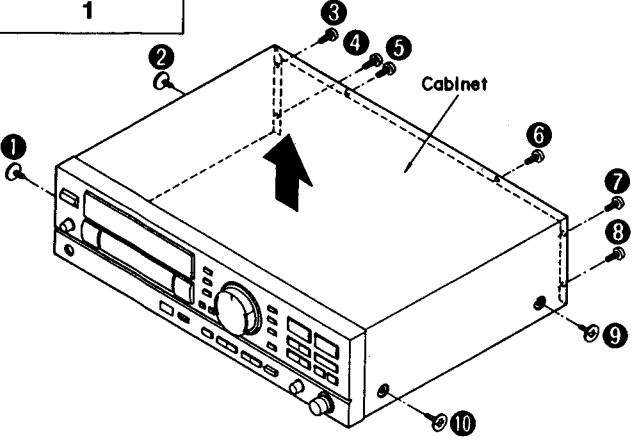
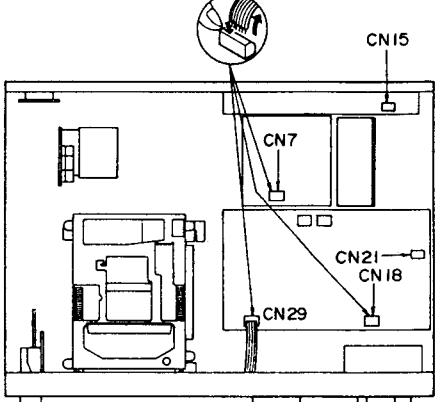
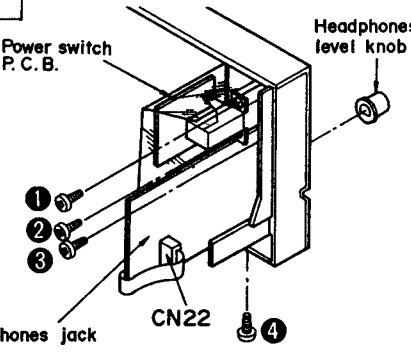
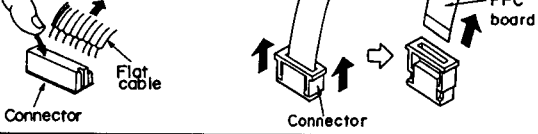
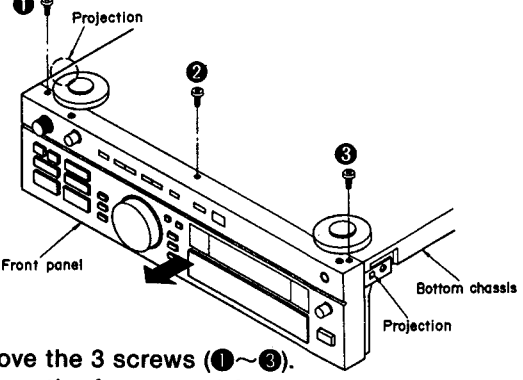
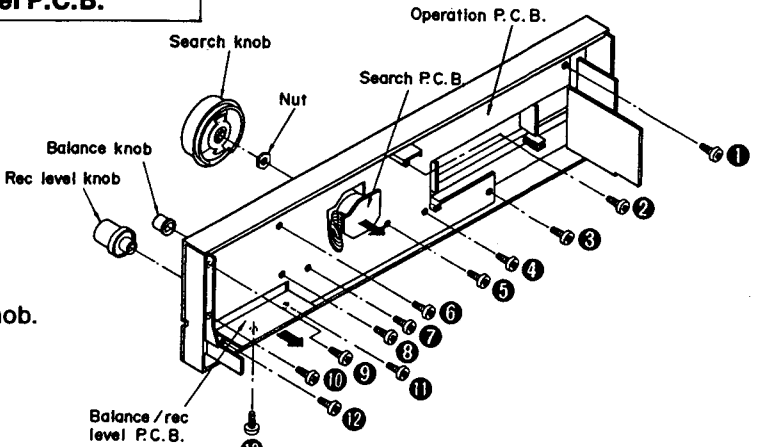
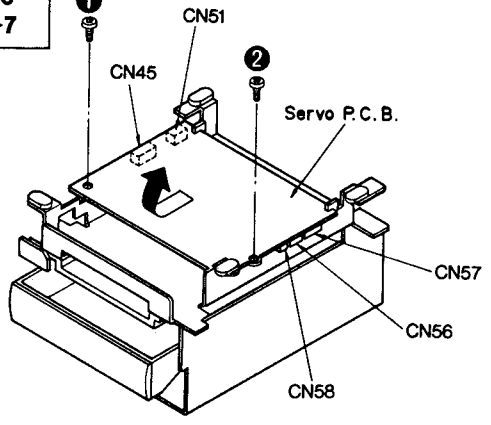
Note: Do not touch the cylinder (head) with your bare hand; always be sure to wear a glove or other protection.

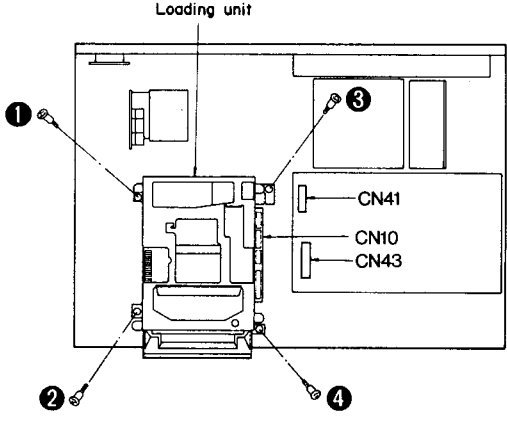
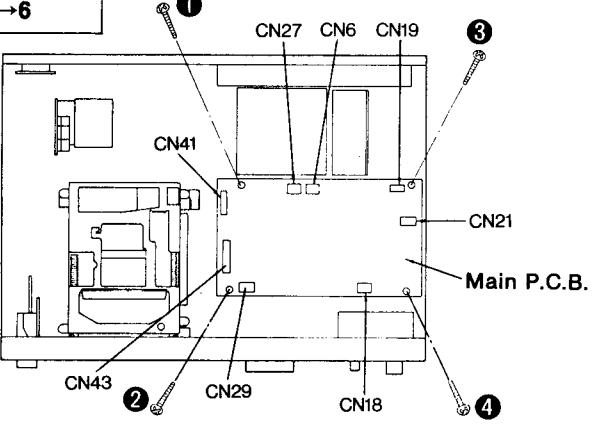
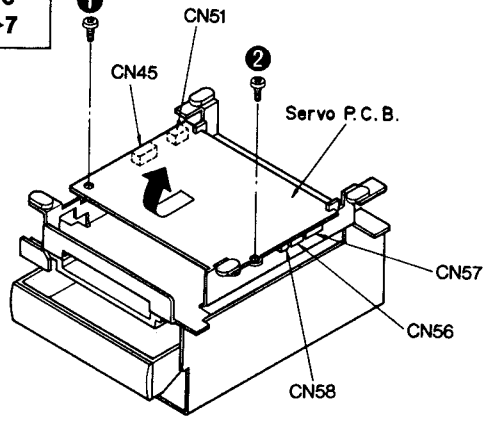
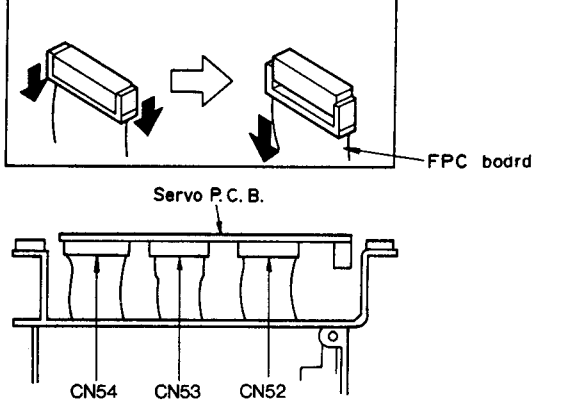
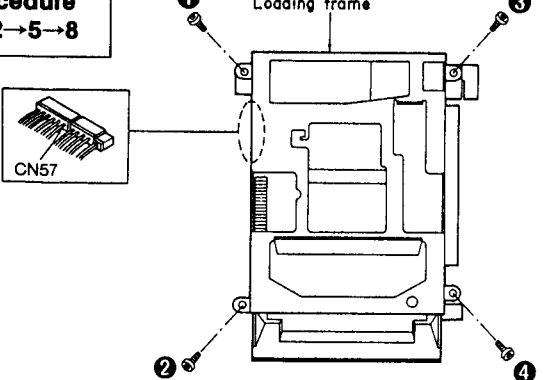
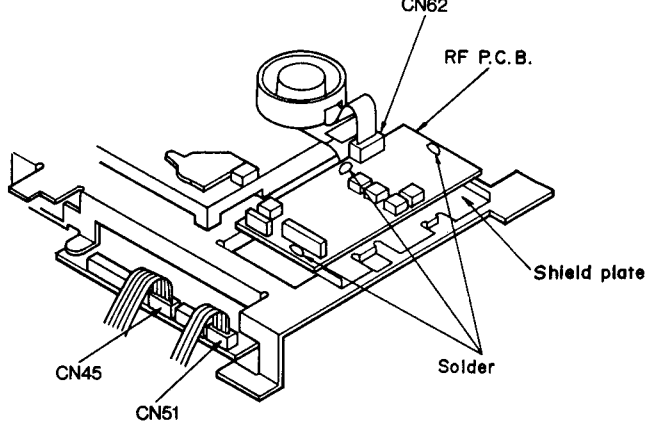


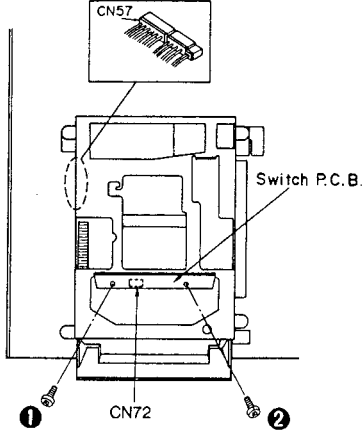
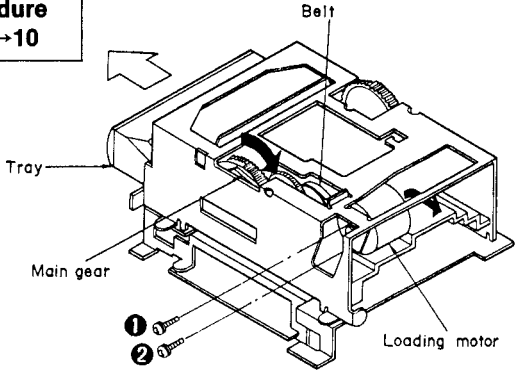
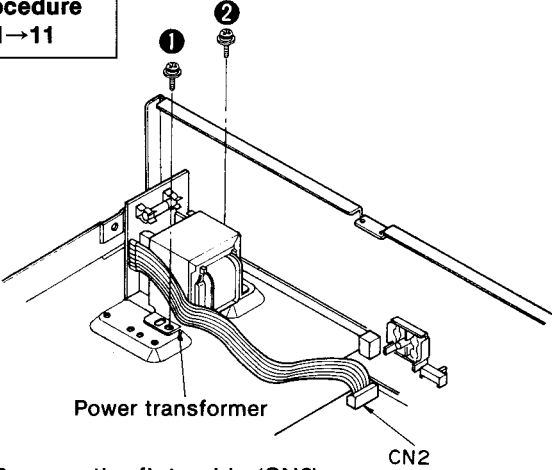
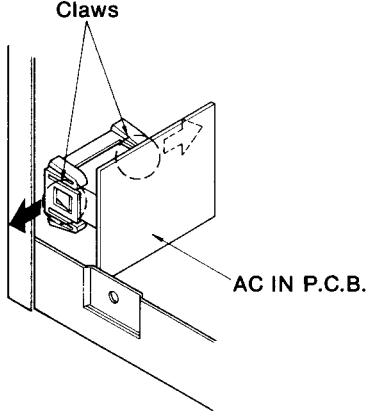
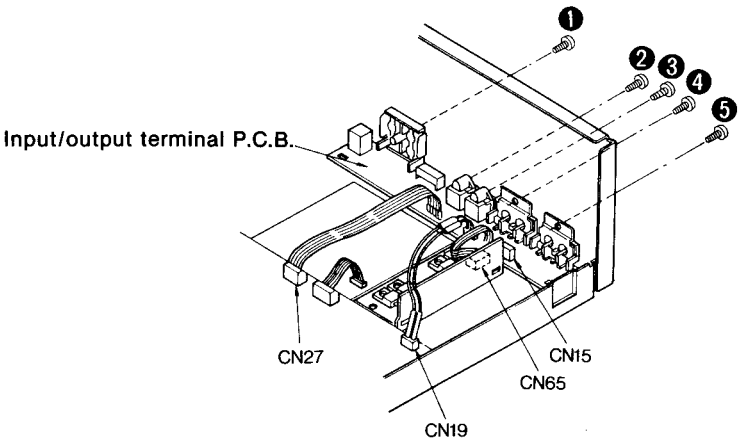
Be sure not to touch the head part.

* When reassembling the cylinder (head), be sure that the direction is correct. (If it is assembled in the wrong direction, the left and right channels will be reversed during recording and playback.)

DISASSEMBLY INSTRUCTIONS

<p>Ref. No. 1</p>	<p>Ref. No. 2</p>
<p>Removal of the cabinet</p> <p>Procedure 1</p>  <p>• Remove the 10 screws (①~⑩).</p>	<p>Removal of the front panel</p> <p>Procedure 1→2</p> <ol style="list-style-type: none"> 1. Remove the flat cables (CN7, CN18, CN21, CN29). 2. Remove the connector (CN15). 
<p>Ref. No. 3</p>	<p>Ref. No. 3</p>
<p>Removal of the power switch P.C.B. and headphones jack P.C.B.</p> <p>Procedure 1→2→3</p>  <p>Power switch P.C.B.</p> <ol style="list-style-type: none"> 1. Remove the 2 screws (①, ②). <p>Headphones jack P.C.B.</p> <ol style="list-style-type: none"> 1. Remove the headphones level knob. 2. Remove the FPC board (CN22). 3. Remove the 2 screws (③, ④). 	<p>Removal of the front panel</p> <p>Procedure 1→2→3</p> <p>• Pull out the flat cable while pressing the connector.</p>  <ol style="list-style-type: none"> 1. Lift the connector. 2. Pull out the FPC board.  <ol style="list-style-type: none"> 3. Remove the 3 screws (①~③). 4. Remove the front panel from the projection of the bottom chassis.
<p>Ref. No. 4</p>	<p>Ref. No. 4</p>
<p>Removal of the search P.C.B., operation P.C.B. and balance/rec level P.C.B.</p> <p>Procedure 1→2→4</p> <p>Search P.C.B.</p> <ol style="list-style-type: none"> 1. Pull out the search knob. 2. Remove the nut. <p>Operation P.C.B.</p> <ol style="list-style-type: none"> 1. Remove the 10 screws (①~⑩). <p>Balance/rec level P.C.B.</p> <ol style="list-style-type: none"> 1. Pull out the balance knob and rec level knob. 2. Remove the 3 screws (⑪~⑬). 	<p>Removal of the servo P.C.B.</p> <p>Procedure 1→2→5→7</p>  <ol style="list-style-type: none"> 1. Remove the connectors (CN45, CN51, CN56, CN57, CN58). 2. Remove the 2 screws (①, ②).

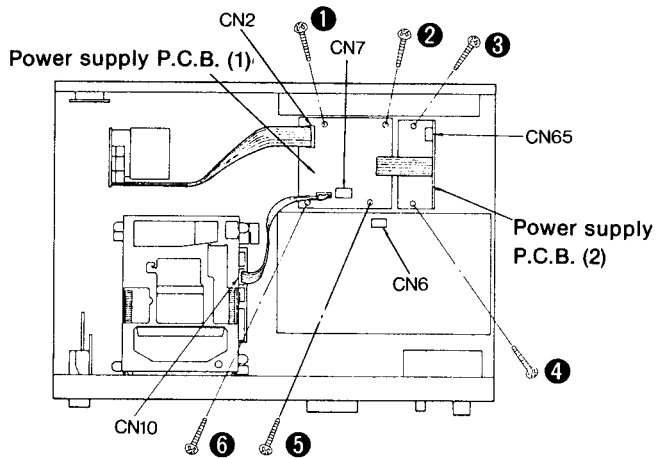
<p>Ref. No. 5</p>	<p>Ref. No. 6</p>
<p>Removal of the loading unit</p> <p>Procedure 1→2→5</p>  <ol style="list-style-type: none"> 1. Remove the FPC board (CN43). 2. Remove the connectors (CN10, CN41). 3. Remove the 4 screws (①~④). 	<p>Removal of the main P.C.B.</p> <p>Procedure 1→6</p>  <ol style="list-style-type: none"> 1. Remove the connectors (CN19, CN41). 2. Remove the flat cables (CN6, CN18, CN21, CN27, CN29, CN43). 3. Remove the 4 screws (①~④).
<p>Ref. No. 7</p>	<p>Ref. No. 7</p>
<p>Removal of the servo P.C.B.</p> <p>Procedure 1→2→5→7</p>  <ol style="list-style-type: none"> 1. Remove the connectors (CN45, CN51, CN56, CN57, CN58). 2. Remove the 2 screws (①, ②). 	<p>Removal of the main P.C.B.</p> <p>Procedure 1→6</p>  <ol style="list-style-type: none"> 3. Remove the servo P.C.B. in the direction of the arrow. 4. Remove the FPC boards (CN52, CN53, CN54).
<p>Ref. No. 8</p>	<p>Ref. No. 8</p>
<p>Removal of the RF P.C.B.</p> <p>Procedure 1→2→5→8</p>  <ol style="list-style-type: none"> 1. Remove the 4 screws (①~④). 2. Remove the loading frame. 3. Remove the connector (CN57). 	<p>Removal of the main P.C.B.</p> <p>Procedure 1→6</p>  <ol style="list-style-type: none"> 4. Unsolder the shield plate. 5. Remove the FPC board (CN62). 6. Remove the connectors (CN45, CN51).

Ref. No. 9	Removal of the switch P.C.B.	Ref. No. 10	Removal of the loading motor
Procedure 1→2→9	 <ol style="list-style-type: none"> 1. Remove the 2 screws (①, ②). 2. Remove the connectors (CN57, CN72). 	Procedure 1→2→10	 <ol style="list-style-type: none"> 1. Roll the main gear in the direction of the arrow, and draw out the tray. 2. Remove the belt. 3. Remove the 2 screws (①, ②). 4. Remove the loading motor in the direction of the arrow.
Ref. No. 11	Removal of the power transformer	Ref. No. 12	Removal of the AC IN P.C.B.
Procedure 1→11	 <ol style="list-style-type: none"> 1. Remove the flat cable (CN2). 2. Remove the 2 screws (①, ②). 	Procedure 1→12	 <ul style="list-style-type: none"> • Release the 2 claws in the direction of the arrow.
Ref. No. 13	Removal of the digital input/output terminal P.C.B.		
Procedure 1→13	 <ol style="list-style-type: none"> 1. Remove the connectors (CN15, CN19). 2. Remove the flat cables (CN27, CN65). 3. Remove the 5 screws (①~⑤). 		

Ref. No. 14 **Removal of the power supply P.C.B. (1), (2)**

Procedure
1→14

1. Remove the connector (CN10).
2. Remove the flat cables (CN2, CN6, CN7, CN65).
3. Remove the 6 screws (①~⑥).

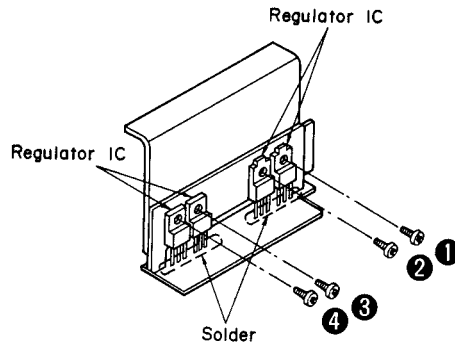


Ref. No. 15 **Removal of the regulator IC**

Procedure
1→14→15

1. Unsolder the regulator IC.
2. Remove the 4 screws (①~④).

- When mounting the regulator IC, apply silicone compound (SZZ0L15 or equivalent) to the rear of the regulator IC.



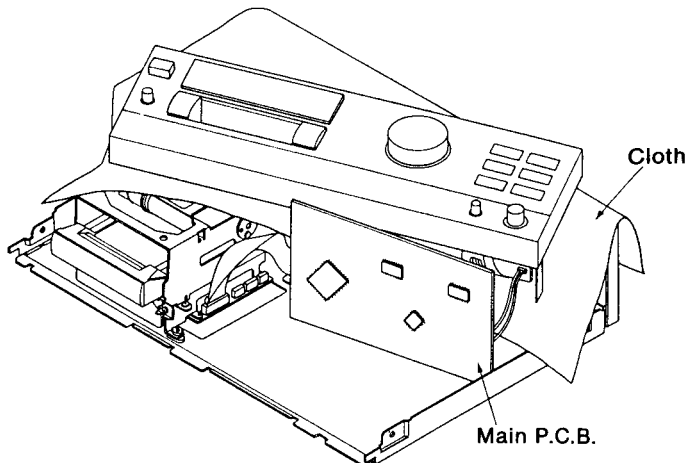
Ref. No. 16 **How to check the main P.C.B.**

Procedure
1→2→6→16

To check the backside of the main P.C.B., stand the P.C.B. up as shown in the figure at right.

Note:

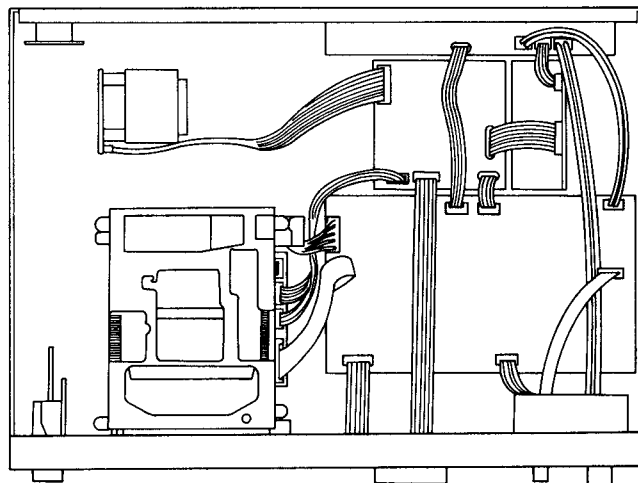
Spread a cloth or insulating sheet to prevent shortcircuiting of the operation P.C.B.



MEASUREMENTS AND ADJUSTMENTS

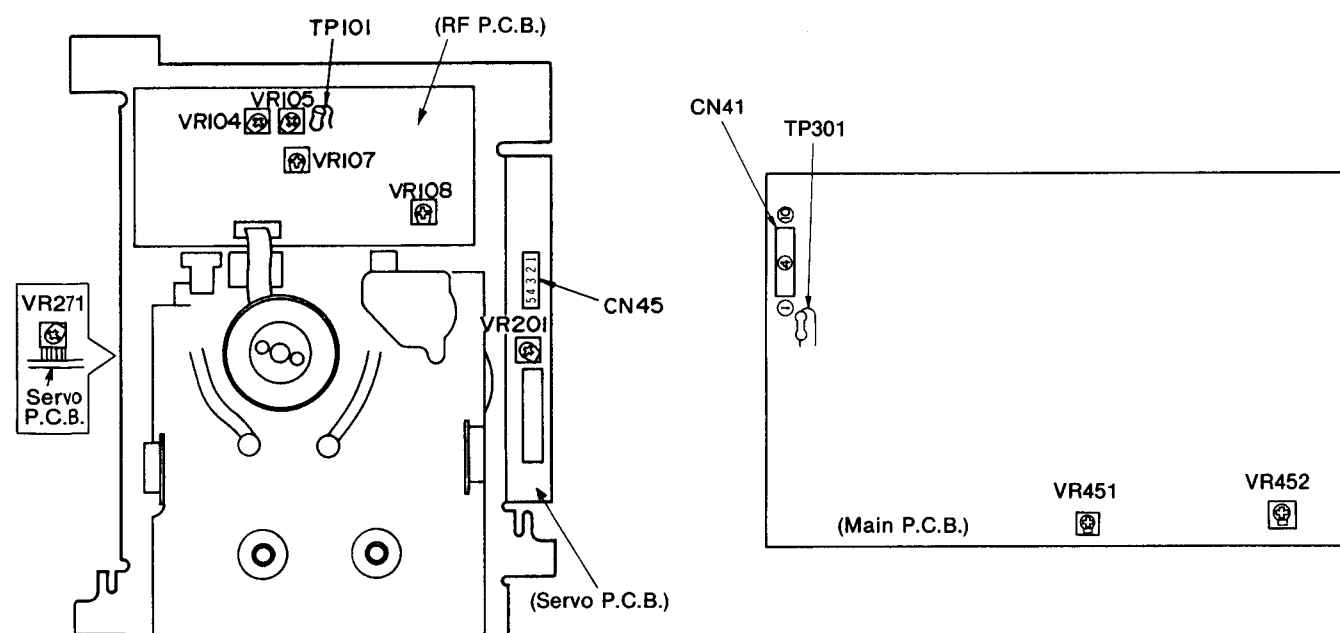
PREPARATION

- Remove the cabinet
(Refer to Procedure 1 under "Disassembly Instructions").



ELECTRICAL ADJUSTMENT

Adjustment points

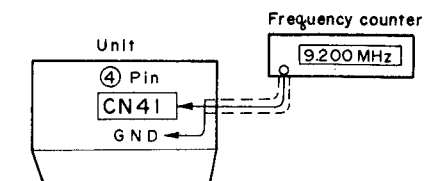


Equipment and Tools

- 2-channel 30MHz oscilloscope (with external trigger and delay sweep) (with a 10 : 1 probe)
- Standard electrical tools and equipment
- Standard test tapes - RD-PG01 (PG reference), RD-ER01 (error rate)
- Blank tape for recording and playback (commercially available blank tape)
- Linearity adjusting tape: RD-LR02
- Post roller adjusting screwdriver: SZZV1102C
- Frequency counter

1. PLL Free Run Adjustment

- Test equipment connection is shown in figure.
- Power switch in "on" position.
- Set the unit to cassette holder in "open" position.
- Adjust **VR108** for 9.2 ± 0.2 MHz on frequency counter reading.



2. PG Phase Adjustment

- Play the PG reference portion of the standard test tape (RD-PG01).
- Set up the oscilloscope and connect as shown below.

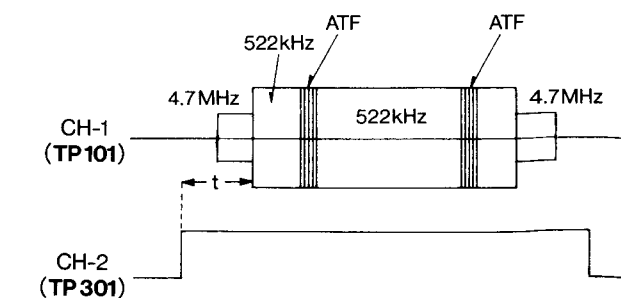
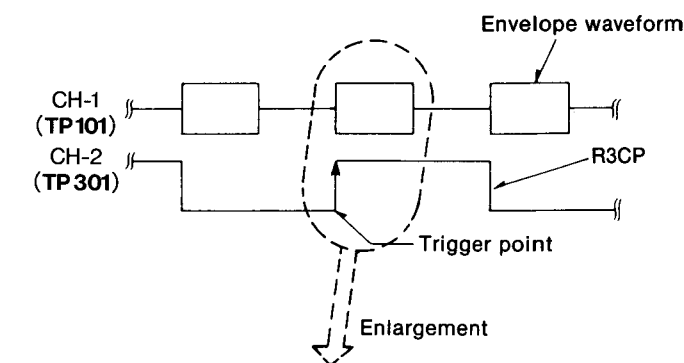
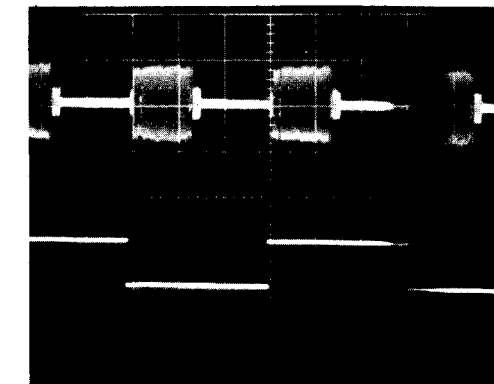
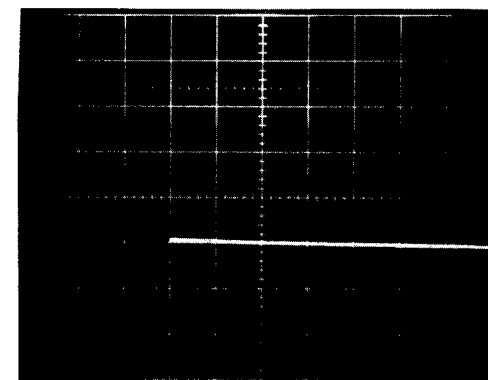
	CH-1	CH-2
Test point	TP101 (RPRF)	TP301 (R3CP)
Volts/Div.	50mV	0.5V
Time/Div.	5msec.	
Delay	50μsec.	
Trig.	CH-2	
Mode	CHOP	
AC-GND-DC	AC	DC
Adjustment point	VR201	

Note: GND is the shield plate of the RF circuit.

- After set up, the waveform shown on the right appears.
- The waveform in the figure on the right is enlarged using the delayed sweep. The point where the delayed sweep is used to enlarge the waveform is the leading edge of the CH-2 (R3CP) waveform.

Delayed sweep - 50μsec.

- Adjust **VR201** (located on the servo P.C.B.) so that the time "t" (in the figure below) from the leading edge of the waveform of CH-2 to the leading edge of the 522kHz waveform of CH-1 it is within $\pm 40\mu\text{sec}$ of the time indicated on the label of the standard tape (e.g. $170\mu\text{sec}$).



t: Value (μsec) indicated on the standard tape $\pm 40\mu\text{sec}$.

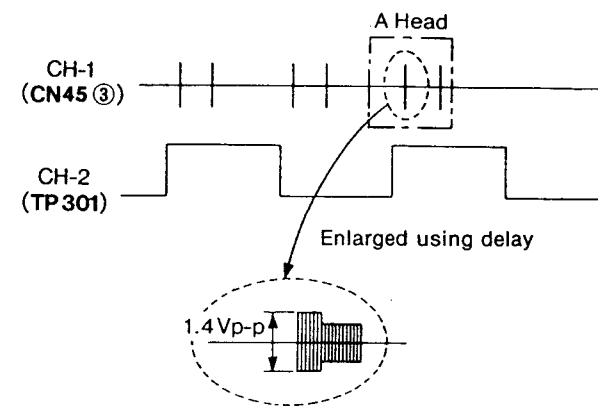
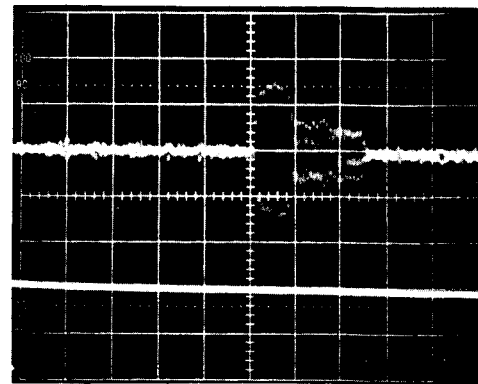
3. ATF Gain Adjustment

1. Play the **error rate measurement** standard test tape (RD-ER01).
2. Set up the oscilloscope and connect as shown below.

	CH-1	CH-2
Test point	CN45 ③ (PILOT)	TP301 (R3CP)
Volts/Div.	50mV	0.5V
Time/Div.	5msec.	
Delay	0.1 msec.	
Trig.	CH-2	
AC-GND-DC	AC	DC
Adjustment point	VR107	

3. Monitor about 8 lines of the ATF waveform. Select the line with the largest amplitude and enlarge it using the 50μsec. delayed sweep.
4. Adjust VR107 so that the amplitude of the waveform is 1.4Vp-p check that the other smaller amplitudes are 1.2Vp-p or higher.

Standard value: 1.4 ± 0.2 Vp-p



4. RF Recording Level Adjustment

1. Load a blank tape into the unit, place the unit in the REC-play mode, and make a blank signal recording for 10 to 15sec. Rewind the tape and play back the recorded portion.
2. Connect and set up the oscilloscope as follows:

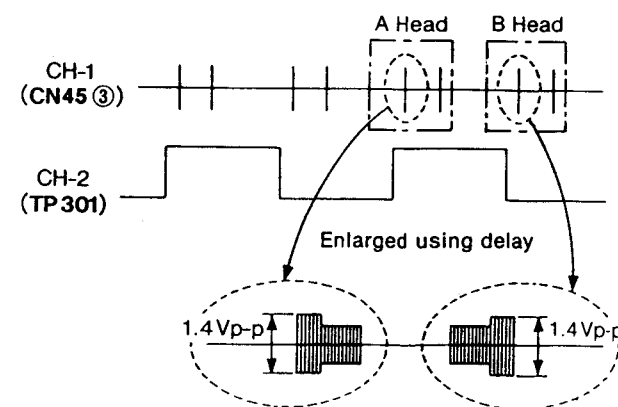
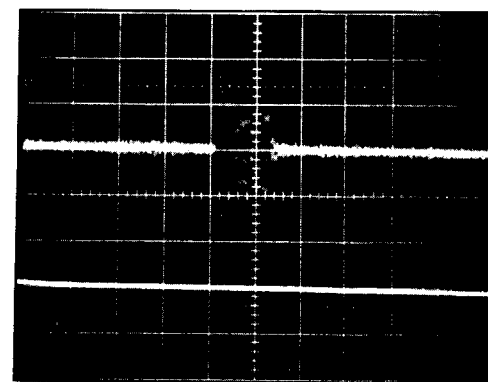
	CH-1	CH-2
Test point	CN45 ③ (PILOT)	TP301 (R3CP)
Volts/Div.	50mV	0.5V
Time/Div.	2msec.	
Delay	0.2msec.	
Trig.	CH-2	
AC-GND-DC	AC	DC
Adjustment point	VR104: Head A, VR105: Head B	

3. While playing back the erased portion of the tape, verify that the signal amplitude falls in the range of 1.4 ± 0.2 Vp-p.

Standard value: 1.4 ± 0.2 Vp-p

4. If the signal amplitude is less than 1.2V, turn VR104 (head A) or VR105 (head B) counter-clockwise until the amplitude falls into the specification. If it exceeds 1.4V, turn the same variable resistors clockwise until the specification is met.

5. Repeat step 2 above again, then verify that the playback signal amplitude falls in the range specified in step 3. (Repeat step 2, 3 and 4 above until the specification is met.)



5. ADC Offset Adjustment

This adjustment is necessary when the indication of the level meter is abnormal.

1. Load a blank tape into the deck and place the deck in REC-PAUSE mode.
2. Adjust VR451 (Lch) and VR452 (Rch) so that the indication of the level meter is not illuminated.

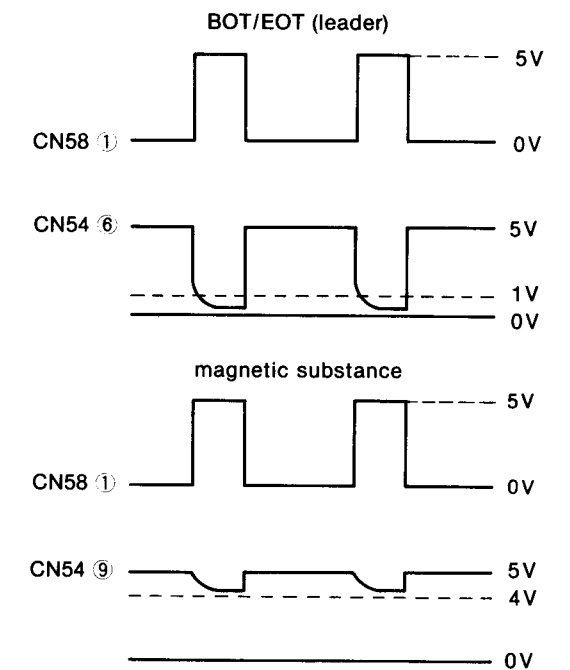
6. BOT/EOT Detection Sensitivity Verification and Adjustment

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.

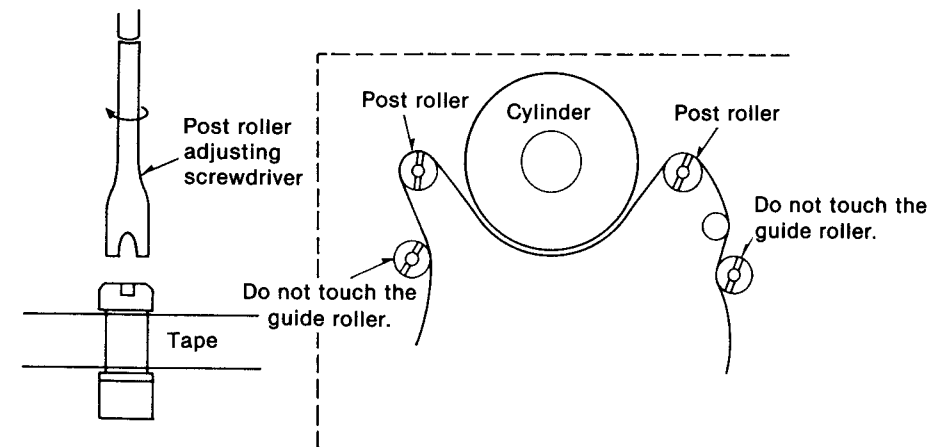
	CH-1	CH-2
Test point	CN54 ⑥ (BOT/EOT) ⑨ (magnetic substance)	CN58 ①
Volts/Div.	0.2V	0.2V
Time/Div.	2msec.	
Delay	—	
Trig.	CH-2	
AC-GND-DC	AC	DC
Adjustment point	VR271	

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



7. Linearity Adjustment

Caution: The post rollers are used for linearity adjustment. Gradually change the post roller heights until the RF signal envelope becomes rectangular.



• **DAT Linearity Adjustment**

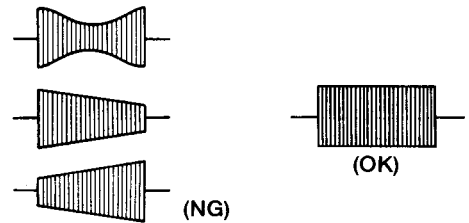
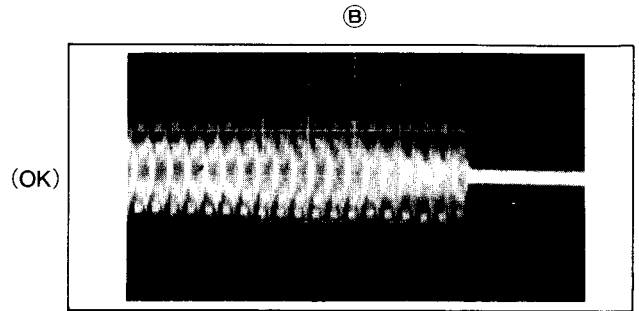
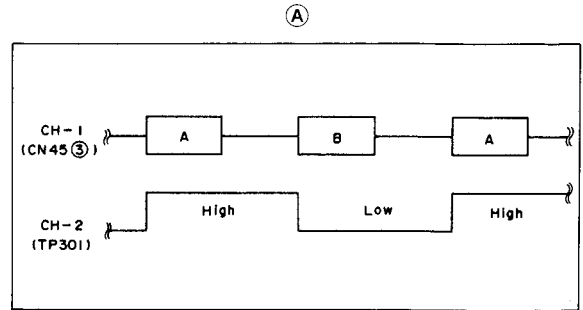
1. Load the linearity adjusting tape (RD-LR02) into the deck.
2. Connect and set up the oscilloscope as follows:

	CH-1	CH-2
Test point	CN45 ③ (PILOT)	TP301 (R3CP)
Volts/Div.	0.2V	2.0V
Time/Div.	Ⓐ 5msec. Ⓑ 1msec. Ⓒ 0.2msec.	
Delay	—	
Trig.	CH-2	
AC-GND-DC	AC	DC
Adjustment point	Post rollers	

3. Monitor the head "A" side of RF envelope waveform.

Note: When the waveform of TP301 (R3CP) is high, the envelope is output from the head "A".

4. While playing back the linearity adjusting tape, gradually adjust the **post roller** heights until the RF signal envelope ⑥ becomes rectangular.



■ **If the loading unit is to be removed for adjustment, note the following.**

(PREPARATIONS)

- (1) Remove the loading unit. (With the underside facing up.)
(Refer to Procedure 5 under "Disassembly Instructions." However, leave the flat cable and the connector as they are.)
- (2) Open the cassette holder.
- (3) Move the slider opening/closing plate of the removed loading unit in the direction indicated by the arrow in Fig. 1, and hook it above the prong of the reinforcement plate.
Caution: The slider opening/closing plate will be deformed if it is left as is.
- (4) Place a tape with the slider lock released in the mechanism.
- (5) Switch on the power and check the loading operation.

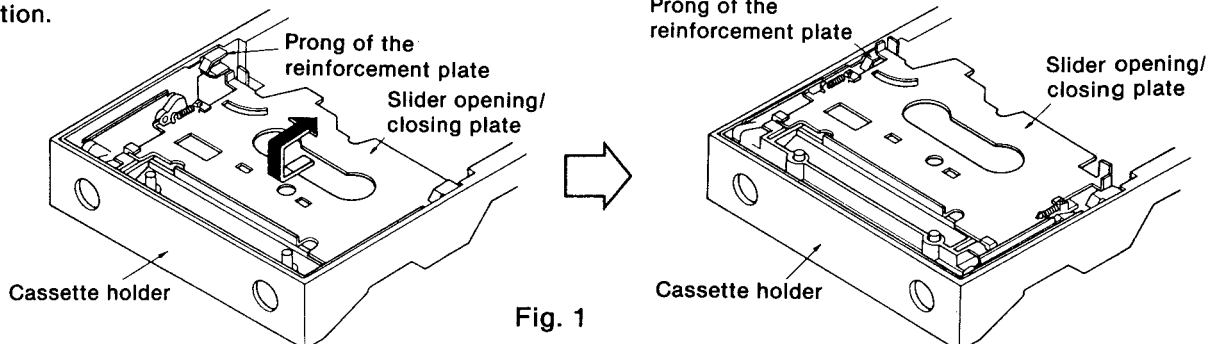
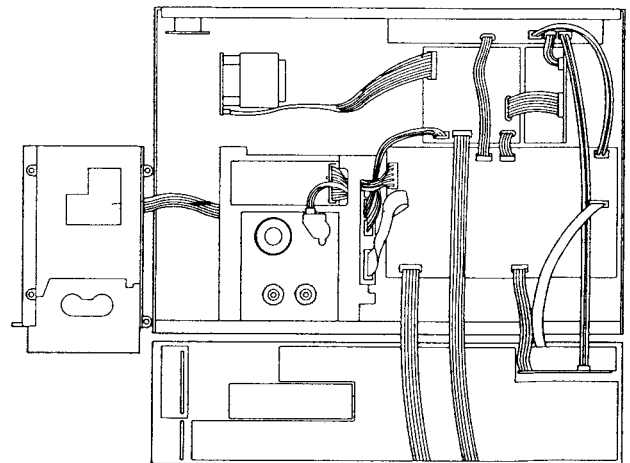


Fig. 1

■ TERMINAL FUNCTION OF IC'S

• IC101 (AN7030SE2): RF AMP.

Pin No.	Mark	I/O Division	Function	Pin No.	Mark	I/O Division	Function
1	V _{CC} 1	I	Power supply terminal	24	HSW	I	Head switching signal
2	ACH FB	O	Playback feed back signal (Ach)	25	AR/RSEL	I	Not used, connected to power supply
3	ACH IN	I	Playback amp. signal (Ach)	26	R/PSEL	I	Recording/playback select signal (REC: "H", PLAY: "L")
4	GND 1	—	GND terminal	27	EQ OUT	O	Equalization signal
5	BCH IN	I	Playback amp. signal (Bch)	28	EQ IN 3	I	Equalization amp. signal
6	BCH FB	O	Playback feed back signal (Bch)	29	EQ IN 2		
7	AREC PCM	I	RF recording level adj. terminal	30	EQ IN 1		
8	AREC PLT			I	Equalization amplitude drive terminal (Bch)		
9	AREC ATF						
10	BREC ATF			I	Equalization phase drive terminal (Bch)		
11	BREC PLT						
12	BREC PCM			I	Equalization gain drive terminal (Bch)		
13	REC CNT 1						
14	REC CNT 2	I	ATF area det. signal	33	B GAIN	I	Equalization gain drive terminal (Bch)
15	SRRF IN	I	Recording signal	34	AF REQ	I	Equalization amplitude drive terminal (Ach)
16	GND 2	—	GND terminal	35	A PHASE	I	Equalization phase drive terminal (Ach)
17	VREF	O	Reference voltage terminal (Not used, open)	36	A GAIN	I	Equalization gain drive terminal (Ach)
18	AREC OUT	O	Recording signal (Ach)	37	SV RF	O	Playback signal
19	BREC OUT	O	Recording signal (Bch)	38	GND 3	—	GND terminal
20	BTL REC	O	Recording control signal	39	A INT	I	Playback amp. signal (Ach)
21	V _{CC} 2	I	Power supply terminal	40	B INT	I	Playback amp. signal (Bch)
22	REC ON	O	Recording drive terminal (REC: "H")	41	B INT IN	O	Playback amp. signal (Bch)
	PLAY ON	O	Playback drive terminal (PLAY: "H")	42	A INT IN	O	Playback amp. signal (Ach)

• IC102 (AN7035SCE2): Playback PLL

Pin No.	Mark	I/O Division	Function	Pin No.	Mark	I/O Division	Function
1	LPF	O	Buffer amp. 1 reference terminal	16	V _{CC} 1	I	Power supply terminal
2	GND 1	—	GND terminal	17	VCOC 1	O	VCO terminal
3	ENVC	O	ENV time constant setting terminal	18	VCOC 2	O	VCO terminal
4	ENVR	I	ENV threshold voltage adj. terminal	19	V _{CC} 2	I	Power supply terminal
5	RSENV	O	RF envelope signal	20	PLL CP 1	O	Clock (2CK) signal (Not used, open)
6	RSENV C	O	RSENV time constant setting terminal	21	PLL CP 2	O	Clock (CK) signal
7	RSRF	I	RF signal	22	DEMCOD	O	NRZI demodulated signal for playback signal with PLL
8	DELOUT	O	RF signal	23	SVSYNC	O	ATF sync. signal
9	DELIN 1	I	Delay (45°) signal	24	GND 2	—	GND terminal
10	DELIN 2	I	Delay (90°) signal	25	OP OUT 3	O	ATF 3 signal
11	PDOUT	O	Phase comparator signal	26	OP IN 3	I	ATF 3 signal
12	VREF 1	I	V/I converter reference voltage terminal	27	OP OUT 2	O	ATF 2 signal
13	VCOV	I	OSC frequency control terminal	28	OP IN 2	I	ATF 2 signal
14	R/P	I	Recording/playback select terminal (Not used, connected to GND)	29	OP OUT 1	O	ATF 1 signal
15	VCOR	I	OSC frequency adj. terminal	30	OP IN 1	I	ATF 1 signal
				31	VREF 2	I	Reference voltage terminal
				32	COMP 1	I	Output amp. 1 (+) signal

• IC201 (MN6742SDR): Servo processor

Pin No.	Mark	I/O Division	Function	Pin No.	Mark	I/O Division	Function
1	OP10A	O	Cylinder rotative stop signal	33	CAE	O	Capstan velocity control signal
2	SCK	I	Serial clock signal	34	CYE	O	Cylinder velocity control signal
3	SDA	I/O	Serial data signal	35	END	I	VREF or ATFTER voltage signal
4	OSC 1	I	System clock (8MHz) signal	36	VSY	I	CYLPG signal
5	OSC 2	O		37	ASH 1	I	Capstan FG or RLFGT signal after EXOR
6	NRST	I	Reset signal	38	NC	—	Not connection
7	NC	—	Not connection	39	AFB 1	O	Inverter amp. signal of ATFTER input (Not used, open)
8	OP20A	O	SSP ready signal	40	NC	—	Not connection
9	NC	—	Not connection	41	AFG 1	I	ATF tracking error voltage terminal
10	V _{SS}	—	GND terminal	42	ASH 2	O	Not used, connected to GND
11	VHS	—	Not used, open	43	AFB 2	O	Not used, open
12	OP 101	O	CAPFG/RLFGT select signal	44	NC	—	Not connection
13	TP 2	O	R3CP/RLFGT select signal	45	AFG 2	I	Reference voltage terminal
14	TP 3	I	PLL off-set/parallel data signal	46	VDA	I	Power supply terminal
15	TP 4			47	VSA	—	GND terminal
16	TP 5			48	ORE	O	Reference voltage terminal
17	TP 6			49	IRE	I	
18	TP 7	I	PLL off-set/data effective flag terminal	50	GND	—	GND terminal
19	TP 8	I	Not used, connected to power supply	51	IPL	O	Not used, open
20	MOS	I	Serial port/strobe signal	52	NC	—	Not connection
21	TST	I	Test mode terminal (Normal, connected to GND)	53	CLP	I	Not used, connected to GND
22	ENC	—	Connected to GND terminal	54	CP 1	O	Not used, open
23	NC	—	Not connection	55	CP 2	I	Supply reel FG signal
24	NC			56	NC	—	Not connection
25	V _{DD}	I	Power supply terminal	57	NC	—	Not connection
26	NC	—	Not connection	58	CN 1	O	Not used, open
27	RSW	—	Not used, open	59	CN 2	I	Not used, connected to GND
28	HAS	O	A/D input select signal	60	CTL	O	Not used, open
29	AVM	—	Not used, connected to GND	61	PFG	I	Cylinder FG signal
30	VLP	—	Not used, open	62	PGM	I	Not used, connected to GND
31	STM	I	R3TU or RLFGT (64 P/R) signal	63	CUL	O	Capstan rotative direction signal
32	STR	I	Comparator reference signal of STM input	64	NC	—	Not connection

• IC202 (MN53020SDQ): ATF

Pin No.	Mark	I/O Division	Function	Pin No.	Mark	I/O Division	Function
1	NSNCOK	O	SYNC det. monitor terminal	22	TEST 6	—	Not used, connected to GND
2	SVAL	I	ATF select terminal	23	P MODE	I	Pulse width select terminal
3	PCMOK	I	PCM playback monitor terminal	24	TEST 1 TEST 5	I	Test terminal (Not used, connected to GND)
4	SPE	O	Starting pulse of counter track lock	28			
5	SP 2	O	Sampling pulse signal for pilot signal of adjacent track	29	SPHT	—	Not used, open
6	SP 1						
7	DCYLPG	I	Cylinder PG signal	30	HSWS	O	Head switching signal (33.33Hz)
8	DCAPFG 1	I	Capstan FG signal	31	HSWR		
9	DCAPFG 2						
10	DRLFGT	I	Take-up reel FG signal	32	SEL A	I	CAPFGTU signal select terminal
11	DCYLFG	I	Cylinder FG signal	33	SEL B	I	R3TU signal select terminal
12	SYNC	I	ATF sync. det. terminal	34	PLL 0	O	Output signal after decoded 4 bit parallel data of PLL0FS
13	NRST	I	Reset signal	35	PLL 1		
14	R3CP	I	Timing signal for RF envelope signal control	36	PLL 2		
15	ENVT						
16	FCH	I	System clock signal (9.408MHz)	37	PLL 3		
17	V _{DD}	I	Power supply terminal	38	MODE 2	—	Not used, open
18	V _{SS}	—	GND terminal	39	V _{SS} 2	—	GND terminal
19	MODE 1	I	SYNC det. select terminal (Not used, connected to GND)	40	V _{DD} 2	I	Power supply terminal
20	HFCH	I	Clock signal for PLL off-set data	41	R3TU	O	Building-up edge signal of R3CP/DRLFGT
21	PLLOFS	I	PLL off-set data signal	42	CAPFGTU	O	Capstan FG signal/Take-up reel FG signal
				43	CAPER	O	Capstan rotative direction control signal
				44	NLNROK	O	Track linearity monitor terminal

• IC203 (AN8320NFA): Linear servo

Pin No.	Mark	I/O Division	Function	Pin No.	Mark	I/O Division	Function
1	FG1 AO	O	Capstan FG signal	26	LEDH 2	—	Constant current terminal (Not used, open)
2	FG1 AI	I	Capstan FG (-) signal	27	CYL FG	O	Cylinder FG signal
3	FG1 FI	—	Frequency characteristic setting terminal	28	CYF GSI	I	Cylinder schmidt comparator terminal
4	CYL PG	O	Cylinder PG signal	29	CYF GAO	O	Cylinder op. amp. terminal
5	PGVR	—	PG delay time adj. terminal	30	CYF GAI	I	Cylinder op. amp. (-) terminal
6	CYPGI	I	PG schmidt comparator terminal	31	NST BY	I	STAND BY signal (Not used, connected to power supply)
7	GND	—	GND terminal	32	TF GAI	I	Take-up reel op. amp. (-) terminal
8	SVRF	I	ATF terminal	33	TF GAO	I	Take-up reel op. amp. terminal
9	CPD	—	Det. capacity connection terminal	34	TF GSI	I	Take-up reel schmidt comparator terminal
10	CCI	O	Full-wave rectification buffer terminal	35	RLFGT	O	Take-up reel FG signal
11	CCO	I	Clamp circuit terminal	36	RLFGS	O	Supply reel FG signal
12	SP 1	I	SP 1 terminal	37	SF GSI	I	Supply reel schmidt comparator terminal
13	SP 2	I	SP 2 terminal	38	SF GAO	O	Supply reel op. amp. terminal
14	VSPE	—	SPE setting terminal	39	SF GAI	I	Supply reel op. amp. terminal
15	SPE	I	SPE terminal	40	V _{CC}	I	Power supply terminal
16	CSH	I	Hold capacity connection terminal	41	FG 2FI	—	Frequency characteristic setting terminal
17	ATFTER	O	ATF control command signal	42	FG 2AI	I	Capstan FG (-) signal
18	CFB	—	Phase compensation terminal	43	FG 2AO	O	Capstan FG signal
19	V _{CC}	I	Power supply terminal	44	FG 2SI	I	Capstan FG schmidt comparator terminal
20	ATFON	I	ATF ON terminal (Not used, connected to power supply)	45	CPFG 2	O	Capstan FG signal
21	PTBIA	—	Photo-transistor bias terminal (Not used, open)	46	FILSLD	I	Frequency characteristic DOWN terminal
22	VREF	O	Reference voltage terminal	47	CPFG 1	O	Capstan FG signal
23	LEDR 1	I	Bias voltage terminal	48	FG 1SI	I	Capstan FG schmidt comparator terminal
24	LEDH 1	—	Constant current terminal (Not used, open)				
25	LEDR 2	I	Bias voltage terminal				

• IC271 (MN17541SDN2): Mechanism control

Pin No.	Mark	I/O Division	Function	Pin No.	Mark	I/O Division	Function
1	NSBOA	O	Serial data signal	34	P 51 (CLOSE)	I	Cassette close det. signal
2	NRST	I	Reset signal	35	P 52 (LOADS)	I	Loading start det. signal
3	NSYNC	—	Not used, open	36	P 53 (LOADE)	I	Loading stop det. signal
4	X 2			37	P 60 (SW 2)	O	Test terminal
5	X 1			38 39 40	P 61 (MMOD 0) P 63 (MMOD 2)	I	Tape mode det. signal
6	V _{SS}	—	GND terminal	41 42 43 44	P 70 (MBUS 0) P 73 (MBUS 3)	I/O	Transfer bus terminal of system control
7	OSC 2	—	Not used, open	45	P 80 (RCC)	—	Not used, open
8	OSC 1	I	Clock signal	46	P 81 (FIL)	O	FILTER select signal
9	V _{DD}	I	Power supply terminal	47	P 82 (ATFON)	—	Not used, open
10	NTC1B	I	Supply reel FG signal	48	P 83 (NSTBY)	—	Not used, open
11	NIRQ 0	I	Take-up reel FG signal	49	P 90 (NSRST)	O	Reset signal
12	NIRQ 1	I	Transfer strobe signal of system control	50	P 91 (LEDDRV)	O	Tape begin/end LED control signal
13	P00 (MSTB)			51	P 92 (PCMOK)	I	PCM playback det. signal
14	P 01 (MRDY)			O	Transfer ready signal of system control	52	P 93 (SVAL 0)
15	P 02 (NSSTB)	O	Transfer strobe signal	53	NEXPS	I	Not used, connected to power supply
16	P 03 (NSRDY)	I	Transfer ready signal	54	PA 0 (NSNCOK)	I	ATF sync. det. terminal
17	P 10 (ATFGT)	O	ATF gain (× 1/2) select terminal	55	PA 1 (NLNOK)	I	Track linearity det. terminal
18	P 11 (REWGT)	O	REW FG · PG gain select terminal	56	PA 2 (CAPER)	I	Capstan rotative direction command signal
19	P 12 (LPMOD)	—	Not used, open	57	PA 3	—	Not used, open
20	P 13 (MODMT0)	O	Mode motor control signal	58	PB 0 (TH 1)	I	Tape hall det. signal
21	P 20 (MODMT1)			59	PB 1 (TH 2)	I	Tape hall det. signal
22	P 21 (MODMT2)			60	NSBTB	I	Muting det. signal
23	P 22	—	Not used, open	61	NSBIB	I	Test terminal
24	P23 (PLG)	O	Plunger control signal	62	NSBOB	I	Test terminal
25	P 30	—	Not used, open	63	NSBTA (SCLK)	I	Serial transfer clock signal
26	P 31	—	Not used, open	64	NSBIA (SDAT)	I/O	Serial transfer data signal
27	P 32 (LOAD 1)	O	Tray motor control (+) terminal				
28	P 33 (LOAD 2)	O	Tray motor control (−) terminal				
29	P 40	—	Not used, open				
30	P 41 (DEW)	I	Dew sensor det. signal				
31	P 42 (EOT)	I	Tape end det. signal				
32	P 43 (BOT)	I	Tape begin det. signal				
33	P 50 (OPEN)	I	Cassette open det. signal				

• IC301 (MN188161SDS4): System control

Pin No.	Mark	I/O Division	Function	Pin No.	Mark	I/O Division	Function
1	V _{DD}	I	Power supply terminal	37	P 37 (FLGCLK)	O	Clock signal of flag counter
2 3 9	P 67 (SPDT 7) P 60 (SPDT 0)	I/O	Signal processor transfer address and data bus terminal	38	P 36 (FLGDT)	O	Data signal of flag counter
10	P 57 (SPRDY)	I	Signal processor data transfer command signal	39	P 35 (TP)	O	Track pitch signal ("L": normal)
11	P 56 (PBLANK)	I	Blank skip select ("H": no skip, "L": skip)	40	P 34 (UNLOCK)	O	DIGITAL-IN PLL unlock signal ("L": det.)
12	P 55 (R3CP)	I	Frame sync. signal	41	P 33	—	Not used, open
13	P 54 (PMID6B)	—	Main ID6 select terminal	42	P 32 (DISCHG)	O	DIGITAL-IN PLL discharge signal
14	P 53 (PMID6A)			43	P 31 (DINPLINH)	O	DIGITAL-IN PLL prohibition signal ("H": prohibition)
15	P 52	I	Not used, connected to resistor	44	P 30 (ANRST)	O	Reset signal ("H": RESET) to DAC
16	P 51	I	Not used, connected to resistor	45	P 21 (HSW)	I	Head switching pulse signal
17	P 50 (PDIOSEL)	I	D I/O select ("H": AES/EBV, "L": IEC)	46	P 20 (NMRDY)	I	Transfer command signal from mechanism control
18	EX1	—	Not used, connected to GND	47	P 01	—	Not used, open
19	EXO	—	Not used, open	48	P 00	—	Not used, open
20	NRST 1	I	Reset signal ("L": RESET)	49	P 17 (PTXD)	O	Serial data transmission terminal
21	P 47 (NSERVRST)	O	Reset signal to servo block	50	P 16 (PRXD)	I	Serial data reception terminal
22	P 46	—	Not used, open	51	P 15 (PCLK)	O	Serial data transmission/reception clock signal
23	P 45	—		52	P 14	—	Not used, open
24	P 44	—		53 54 55 56	P 13 (MDT 3) P 10 (MDT 0)	I/O	Transfer data bus of mechanism control
25	P 43 (SLAD)	O	DIGITAL IN PLL/crystal select terminal ("L": PLL, "H": crystal)	57	P 77	—	Not used, open
26	P 42 (XCK32)	O	32kHz OSC control ("H": OSC, "L": STOP)	58	P 76 (NDEMP)	O	de-emphasis signal
27	P 41 (XCK44)	O	44.1kHz OSC control ("H": OSC, "L": STOP)	59	P 75 (SGMTG)	O	Muting signal
28	P 40 (XCK48)	O	48kHz OSC control ("H": OSC, "L": STOP)	60	P 74 (DOUTTH)	O	Digital out through select ("H": through)
29	P 27 (NPRDY)	I	Transfer ready signal from panel control	61	P 73 (NRST 2)	O	Reset signal
30	OSC 1	I	Crystal OSC terminal	62	P 72 (MSTB)	O	Transfer command terminal of mechanism control
31	OSC 2	O		63	P 71 (SPSTB)	O	Signal processor strobe signal
32	V _{SS}	—	GND terminal	64	P 70 (SPAW)	O	Signal processor address setting signal
33	XI	—	Not used, open				
34	XO	—					
35	P 26	—	Not used, connected to power supply				
36	P 25 (RF ENV)	I	RF envelope signal				

• IC351 (MN6624): Digital signal processor

Pin No.	Mark	I/O Division	Function	Pin No.	Mark	I/O Division	Function
1	PCMCIF	O	Flag counter terminal	40	V _{DD}	I	Power supply terminal
2	IDPP			41	XO 1	O	Crystal OSC terminal
3	IDP	O	Test terminal	42	XI 1	I	
4	V _{DD}	I	Power supply terminal	43	V _{SS}	—	GND terminal
5	TESTS	—	Not used, connected to GND	44	PC OUT	—	Not used, open
6	V _{SS}	—	GND terminal	45	RAD 0	O	RAM address bus terminal
7	CKIO FS	—	Not used, open	46	RAD 1		
8	CKIO 128	O	Test terminal	47	RAD 2		
9	CKIO 512	—	Not used, open	48	RAD 3		
10	NDALOAD	—	Not used, open	49	RAD 4		
11	DADAT	O	DA data signal	50	RAD 5		
12	DALRCK	O	LR discrimination signal	51	RAD 6		
13	DABCK	O	Serial bit clock signal	52	RAD 7		
14	DAMCK	—	Not used, open	53	V _{DD}	I	Power supply terminal
15	V _{DD}	I	Power supply terminal	54	TEST 2	—	Not used, connected to GND
16	TEST 6	—	Not used, open	55	V _{SS}	—	GND terminal
17	V _{SS}	—	GND terminal	56	RAD C	O	RAM address bus terminal
18	ADDAT	I	AD data signal	57	RAD E		
19	ADLRCK	O	LR discrimination signal	58	NWE	O	Write enable for memory
20	ADBCK	O	Serial bit clock signal	59	RAD D	O	RAM address bus terminal
21	ADMCK	O	External clock signal	60	RAD 8		
22	TX	O	Digital signal	61	RAD 9		
23	RX	I					
24	VCOS L32	—	Not used, open	62	RAD B	O	Output enable for memory
25	VCOS L44						
26	VCOS L48						
27	DIO REF	O	Digital signal (PLL control)	63	NOE	O	Output enable for memory
28	DIO VAR	O					
29	V _{DD}	I	Power supply terminal	64	RAD A	O	RAM address bus terminal
30	DI 512	I	Digital signal (512FS)	65	V _{DD}	I	Power supply terminal
31	V _{SS}	—	GND terminal	66	NCS	O	Chip select terminal for memory
32	XO 4	—	Not used, open	67	V _{SS}	—	GND terminal
33	XI 4	I	Crystal terminal (32kHz × 512)	68	RDT 7	I/O	RAM data bus terminal
34	TEST 0	—	Not used, connected to GND	69	RDT 6		
35	XO 3	—	Not used, open	70	RDT 5		
36	XI 3	I	Crystal terminal (44.1kHz × 512)	71	RDT 4		
37	TEST 1	—	Not used, connected to GND	72	RDT 3		
38	XO 2	—	Not used, open	73	RDT 2		
39	XI 2	I	Crystal terminal (48kHz × 512)	74	RDT 1		
				75	RDT 0	—	GND terminal
				76	V _{SS}	—	GND terminal
				77	TEST 3	—	Not used, connected to GND
				78	V _{DD}	I	Power supply terminal

Pin No.	Mark	I/O Division	Function	Pin No.	Mark	I/O Division	Function
79	SPDT 7	I/O	Address and data bus terminal	102	V _{DD}	I	Power supply terminal
80	SPDT 6			103	SRPR	O	Recording/playback select signal (REC: "H", PLAY: "L")
81	SPDT 5			104	SRWND 2	O	ATF area det. signal
82	SPDT 4			105	SRWND 1	O	Track pitch signal
83	SPDT 3			106	PBDT	I	Playback signal
84	SPDT 2			107	PBCK	I	Playback envelope signal
85	SPDT 1			108	RFMSK	O	Not used, open
86	SPDT 0			109	PLLOFS	O	PLL off-set information signal
87	V _{SS}			—	GND terminal	110	HFCH
88	TEST 4	—	Not used, connected to GND	111	VFPLFS	O	PLL OFS effective information signal
89	V _{DD}	I	Power supply terminal	112	EXFCH	—	Not used, connected to GND
90	SPAW	I	Signal processor address setting terminal	113	EEMD	—	Not used, connected to GND
91	SPSTB	I	Signal processor strobe signal	114	V _{SS}	—	GND terminal
92	SPRDY	O	Data transfer command signal	115	SL NRZI	—	Not used, connected to GND
93	UNLOK	O	PLL unlock signal	116	SELF CH0		
94	DISYND	—	Not used, open	117	SELF CH1		
95	NSTBY	I	Not used, connected to power supply	118	V _{DD}	I	Power supply terminal
96	NRST	I	Reset signal	119	M9CP	O	Master clock signal
97	M7CK	—	Master clock signal (Not used, open)	120	HSW	I	Head switching signal
98	R6CP/ (ENVT)	O	Timing signal for RF envelope signal control	121	NR TRST	—	Not used, connected to power supply
99	R3CP						
100	V _{SS}	—	GND terminal	122	SUBWND	—	Not used, open
101	SRRF	O	Recording signal	123	IPF	O	Output terminal for flag counter
				124	SUBC 1		

• IC405, 406 (MN6460): A/D converter

Pin No.	Mark	I/O Division	Function	Pin No.	Mark	I/O Division	Function
1	D V _{DD}	I	Power supply terminal	17	CV _{DD}	I	Power supply terminal
2	LRPOL	I	LR clock polarity select terminal (Not used, connected to GND)	18	DAV _{SS}	—	GND terminal
3	I-E	—	Not used, connected to GND	19	DAV _{DD}	I	Power supply terminal
4	LRCLK	I	LR discrimination signal	20	AV _{SS}	—	GND terminal
5	BCLK	I	Serial bit clock signal	21	AV _{DD}	I	Power supply terminal
6	CLR	I	Reset signal	22	VREF	I	Reference voltage terminal
7	OFCLR	I	Clock det. terminal	23	AG	I	GND terminal
8 14	IC	—	Not used, open	24	AIN	I	Analog data signal
15	EXCLK	I	External clock signal	25	AV _{DD}	I	Power supply terminal
16	CV _{SS}	—	GND terminal	26	AV _{SS}	—	GND terminal
				27	DAV _{SS}	—	GND terminal
				28	AMP BIAS	I	Bias voltage adj. terminal of OP amp.

Pin No.	Mark	I/O Division	Function
29 35	IC	—	Not used, open
36	NC	—	Not connection
37	NSUB	—	Not used, connected to power supply terminal
38	TV _{DD}	I	Power supply terminal

Pin No.	Mark	I/O Division	Function
39	DOUT	O	Digital data signal
40	TV _{SS}	—	GND terminal
41	TEST	I	Test terminal (Connected to power supply)
42	DV _{SS}	—	GND terminal

• IC501 (MN6470): Digital filter & D/A converter

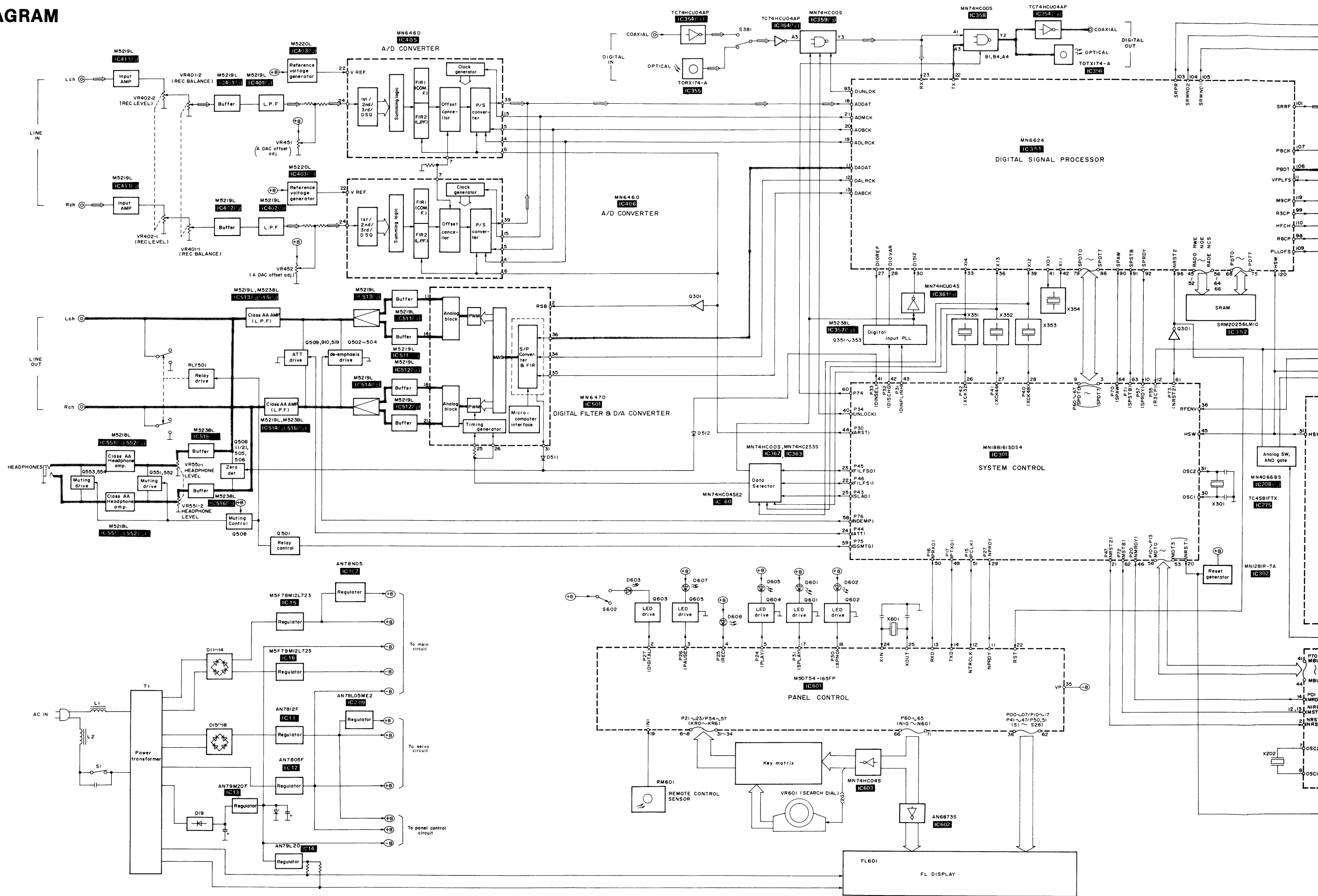
Pin No.	Mark	I/O Division	Function
1	MLD	I	Microcomputer command load signal (Not used, connected to power supply)
2	RSB	I	Reset terminal ("L": reset)
3	IE	I	Not used, connected to GND
4	TP1	O	Test terminal
5	TP2		
6	TEST 1	I	Test terminal (Connected to GND)
7	TEST 2		
8, 9	NC	—	Not connection
10	V _{DD} 4	I	Power supply terminal
11	OUT L-	O	Lch (-) data signal
12	A V _{SS} 4	—	GND terminal
13	A V _{SS} 3		
14	OUT L+	O	Lch (+) data signal
15	A V _{DD} 3	I	Power supply terminal
16	NC	—	Not connection
17	A V _{DD}	I	Power supply terminal
18	OUT R+	O	Rch (+) data signal
19	A V _{SS}	—	GND terminal
20	A V _{SS}		
21	OUT R-	O	Rch (-) data signal
22	A V _{DD}	I	Power supply terminal
23	D V _{DD}	I	Power supply terminal
24	D V _{SS}	—	GND terminal

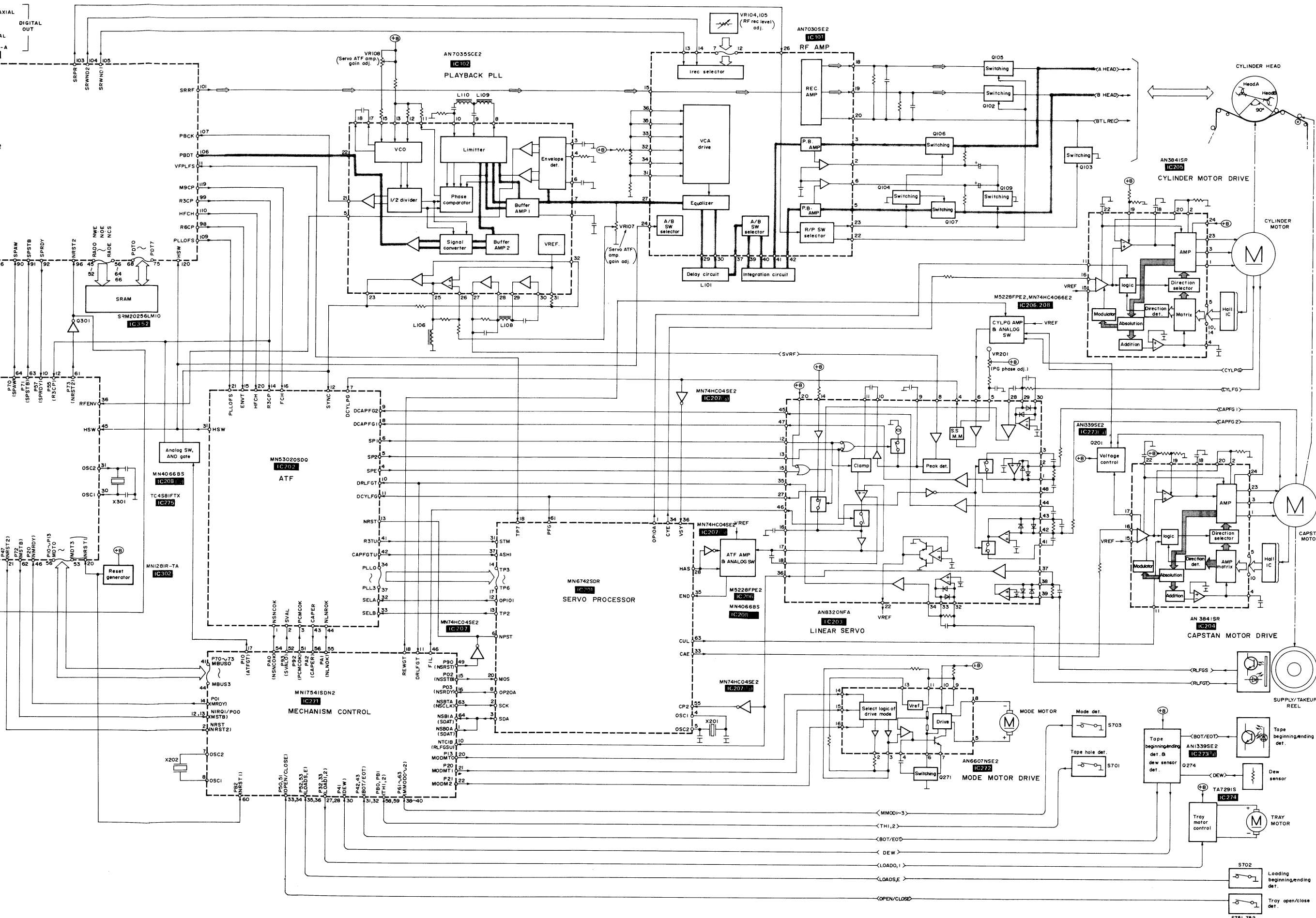
Pin No.	Mark	I/O Division	Function
25	X2	I	Crystal OSC terminal
26	X1		
27	NC	—	Not connection
28	D V _{DD}	I	Power supply terminal
29	D V _{SS}	—	GND terminal
30	NSUB	I	Sub straight terminal (Not used, connected to power supply)
31	ZFLGB	O	Zero det. terminal
32	128FS	—	Not used, open
33	LRPOL	I	LR clock polarity select terminal (Not used, connected to GND)
34	LRCLK	I	LR discrimination signal
35	BCLK	I	Serial bit clock signal
36	SRDATA	I	Serial data signal
37	D V _{SS}	—	GND terminal
38	D V _{DD}	I	Power supply terminal
39	256FS	O	256fs signal
40	PD	I	Power down terminal (Not used, connected to GND)
41	MDATA	I	Microcomputer command data signal (Not used, open)
42	MCLK	I	Microcomputer command clock signal (Not used, connected to power supply)

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

Pin No.	Mark	I/O Division	Function	Pin No.	Mark	I/O Division	Function
1	V _{SS}	—	GND terminal	33	P 55	I	Key return signal
2	P 27	O	Input select signal (DIGITAL↔ANALOG)	34	P 54		
3	P 26	O	LED display drive terminal (PAUSE)	35	VP	I	Power supply terminal for FL drive
4	P 25	O	LED display drive terminal (REC)	36	P 51	O	Segment signal for FL drive
5	P 24	O	LED display drive terminal (PLAY)	37	P 50		
6 7 8	P 23 P 21	I	Key return signal	38 45	P 17 P 10		
9	P 20			O	Buffer control signal		
10	NC	—	Not connection	47	P 07	O	Segment signal for FL drive
11	NPRDY	O	Ready signal	48	P 06		
12	NTRCLK	I/O	Serial data transmission/reception clock signal	49	P 05		
13	RXD	O	Serial data transmission signal	50	P 04		
14	TXD	I	Serial data reception signal	51	P 03		
15	P 33	—	Not connection	52	P 02		
16	P 32						
17	P 31	O	LED display drive terminal (S. PLAY)	53	P 01		
18	P 30	O	LED display drive terminal (A. PNO)	54	P 00		
19	INT 1	I	Remote control signal	55	P 47		
20	INT 2	I	Not used, connected to power supply	56	P 46		
21	CNV _{SS}	—	GND terminal	57	P 45		
22	RST	I	Reset signal ("L": RESET)	58	P 44		
23	NC	—	Not connection	59	P 43		
24	X IN	I	Master clock terminal (6MHz)	60	P 42		
25	X OUT	O					
26	NC	—	Not connection	61	P 41	I	Power supply terminal
27	X CIN	—	Not used, connected to GND	62	P 40		
28	X COUT	—	Not used, open	63	V _{CC}	—	GND terminal
29	V _{SS}	—	GND terminal	64	V _{CC}		
30	NC	—	Not connection	65	V _{SS}	O	Digit signal for FL drive and key scan signal
31	P 57	I	Key return signal	66	P 65		
32	P 56						
				67	P 64		
				68	P 63		
				69	P 62		
				70	P 61		
				71	P 60		
				72	NC	—	Not connection

BLOCK DIAGRAM

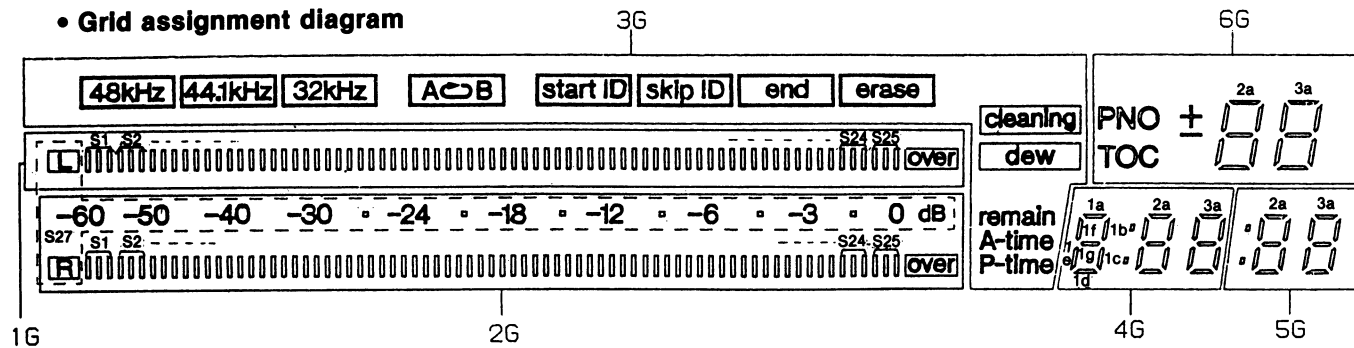




Note)
 • : Playback signal
 • : Recording signal

INTERNAL CONNECTION OF FL

• Grid assignment diagram



• Anode connection table

	1G	2G	3G	4G	5G	6G
S1			48KHz	-	-	-
S2			44.1KHz	-	-	-
S3			32KHz	-	-	-
S4			A	1a	-	-
S5			B	1b	-	-
S6			B	1f	-	-
S7			start ID	1g	-	PNO
S8			skip ID	1c	-	TOC
S9			end	1e	-	+
S10			erase	1d	-	-
S11			-	col,1	col,2	-
S12			-	2a	2a	2a
S13			cleaning	2b	2b	2b
S14			dew	2f	2f	2f
S15			-	2g	2g	2g
S16			remain	2c	2c	2c
S17			A-time	2e	2e	2e
S18			P-time	2d	2d	2d
S19			-	-	-	-
S20			-	3a	3a	3a
S21			-	3b	3b	3b
S22			-	3f	3f	3f
S23			-	3g	3g	3g
S24			-	3c	3c	3c
S25			-	3e	3e	3e
S26	over	over	-	3d	3d	3d
S27	L	R	-60~0 dB	-	-	-

• Pin connection

PIN NO.	55	54	53	52	51	50	49	48	47	46	45	44	43	42	41
CONNECTION	F	F	N	N	S	S	S	S	S	S	S	S	S	S	S
	2	2	P	P	1	2	3	4	5	6	7	8	9	10	11

PIN NO.	40	39	38	37	36	35	34	33	32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
CONNECTION	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	1	2	3	4	5	6	N	N	F	F
	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	P	P	P	P	P	P	P	P	P	P	P	P	P	G	G	G	G	G	G	P	P	1	1	

TERMINAL GUIDE OF IC'S, TRANSISTORS AND DIODES

 TC4S81FTX 5 pin AN1339SE2 14 pin MN74HC04S 14 pin MN74HC04SE2 14 pin M5228FPE2 14 pin MN74HCU04S 14 pin MN4066BS-T2 14 pin MN74HC00S 14 pin AN3841SR 24 pin	AN6607NSE2 16 pin MN74HC253S 16 pin AN6873S 18 pin SRM20256LM10 28 pin AN7035SCE2 32 pin MN6460 42 pin AN7030SE2 42 pin			
 TC74HCU04AP 14 pin MN188161SDS4 64 pin	 MN6470 42 pin AN8320NFA 48 pin MN6742SDR 64 pin MN17541SDN2 64 pin M50754-165FP 72 pin MN53020SDQ 44 pin MN6624 124 pin			
 AN7812F 3 pin AN7805F (AN79M20F) 3 pin M5F78M12L723 (M5F79M12L723) 3 pin	 M5218AL 8 pin M5219L 8 pin M5220L 8 pin M5238L 8 pin TA7291S 9 pin			
 AN79L20	 MN1281R-TA	 TORX174-A TOTX174-A	 AN78N05	 2SC1047DTA
 2SA1309STA 2SA1309QRSTA 2SC3311QRSTA 2SC3315CTA 2SD1450RSTTA	 UN4124TA UN4112TA UN4111TA	 DTB113ZKTW DTA114EKTW 2SB709RTW 2SC3937TW UN5216TW DTA123JKTW DTC124EKTW		
 XN1112TW XN1212TW	 Anode Cathode 1SR35200TB MA165TA SVDS2V20 1N4606TR 1S2473TR	 Anode Cathode MA4051TA MA4033MTA	 Anode Cathode LN28RCPP-JF LN31GPH-JF2 LN49YPH-JF1 LN29RPH-JF1	
 AN78L05ME2	 2SB956RTW 2SD1280STW	 MA701TW	 MA151ATW	 RVDSVC321

SCHEMATIC

(Parts list on pages...)

(This schematic diagram is for development of new...)

- Note 1:
- S701 : Tape
 - Resistance are in ohms otherwise. 1K=1,000 (Ω), 1M=1,000,000 (Ω)
 - Capacity are in microfarads
 - All voltage values are standard condition and playback minimum position condition ()..... Voltage
 - For measurement use
 - Important safety note: Components identified by these characteristics improve these components,

Part No.	Original
IC551, 552	M

- (———) indicate
- (- - -) indicate
- (.....) indicate
- (⇨) indicate

- * Caution!
- IC and LSI are sensitive to static electricity. Secondary trouble can occur after repair.
 - * Cover the parts box
 - * Ground the soldering iron
 - * Put a conductive mat
 - * Do not touch the lead

SCHEMATIC DIAGRAM

(Parts list on pages 80~82, 92~94.)

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

Note 1:

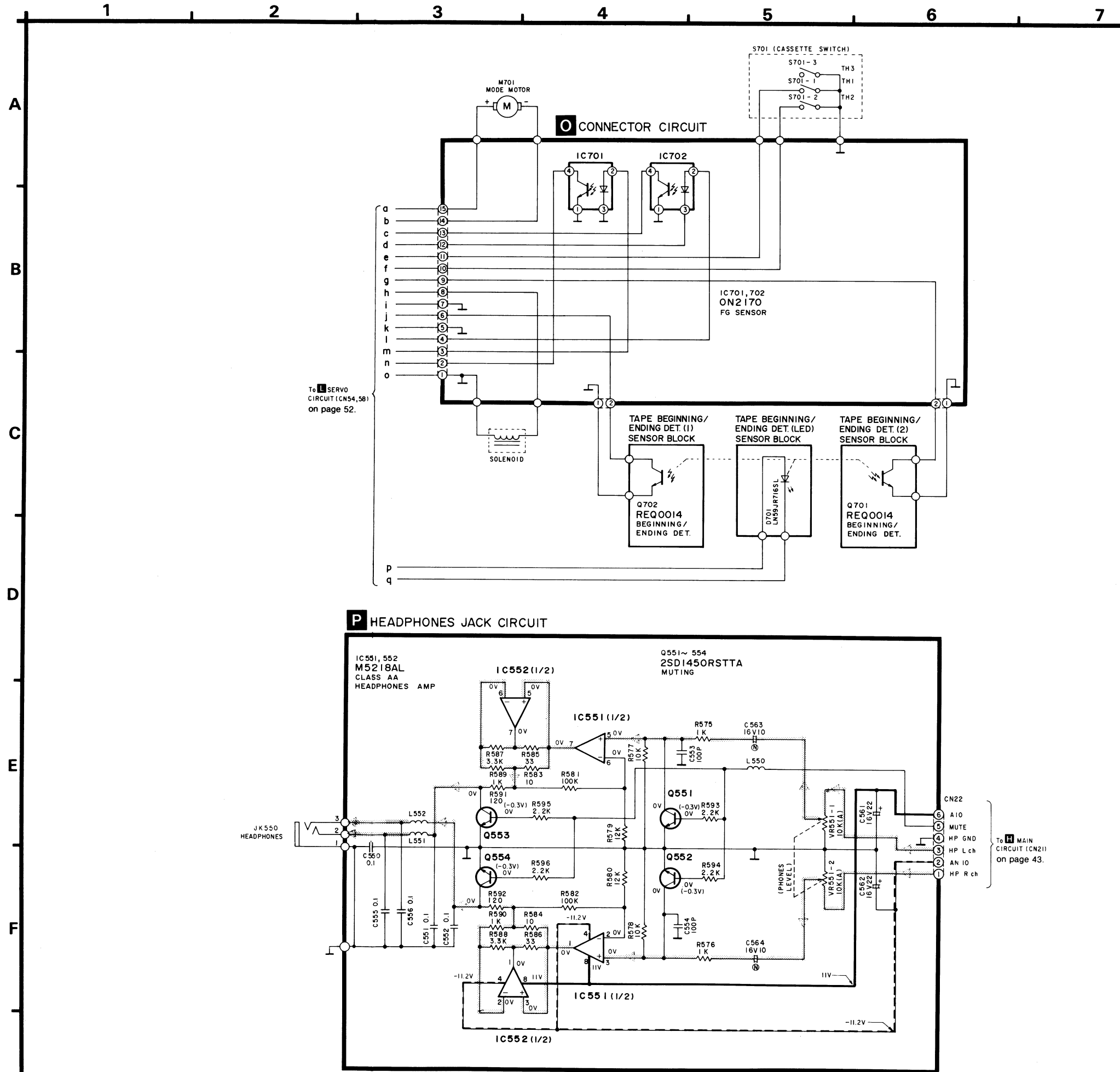
- **S701** : Tape hole detection switch.
- Resistance are in ohms (Ω), 1/4 watt unless specified otherwise.
1K=1,000 (Ω), 1M=1,000k (Ω)
- Capacity are in micro-farads (μ F) unless specified otherwise.
- All voltage values shown in circuitry are under no signal condition and playback mode with volume control at minimum position otherwise specified.
() Voltage values at recording mode.
- For measurement us 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.

Part No.	Original Part No.	Supply Part No.
IC551, 552	M5218AL	M5218L

- (—) indicates +B (bias).
- (- - -) indicates -B (bias).
- (\rightarrow) indicates the flow of the playback signal.
- (\Rightarrow) 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 the fingers directly.



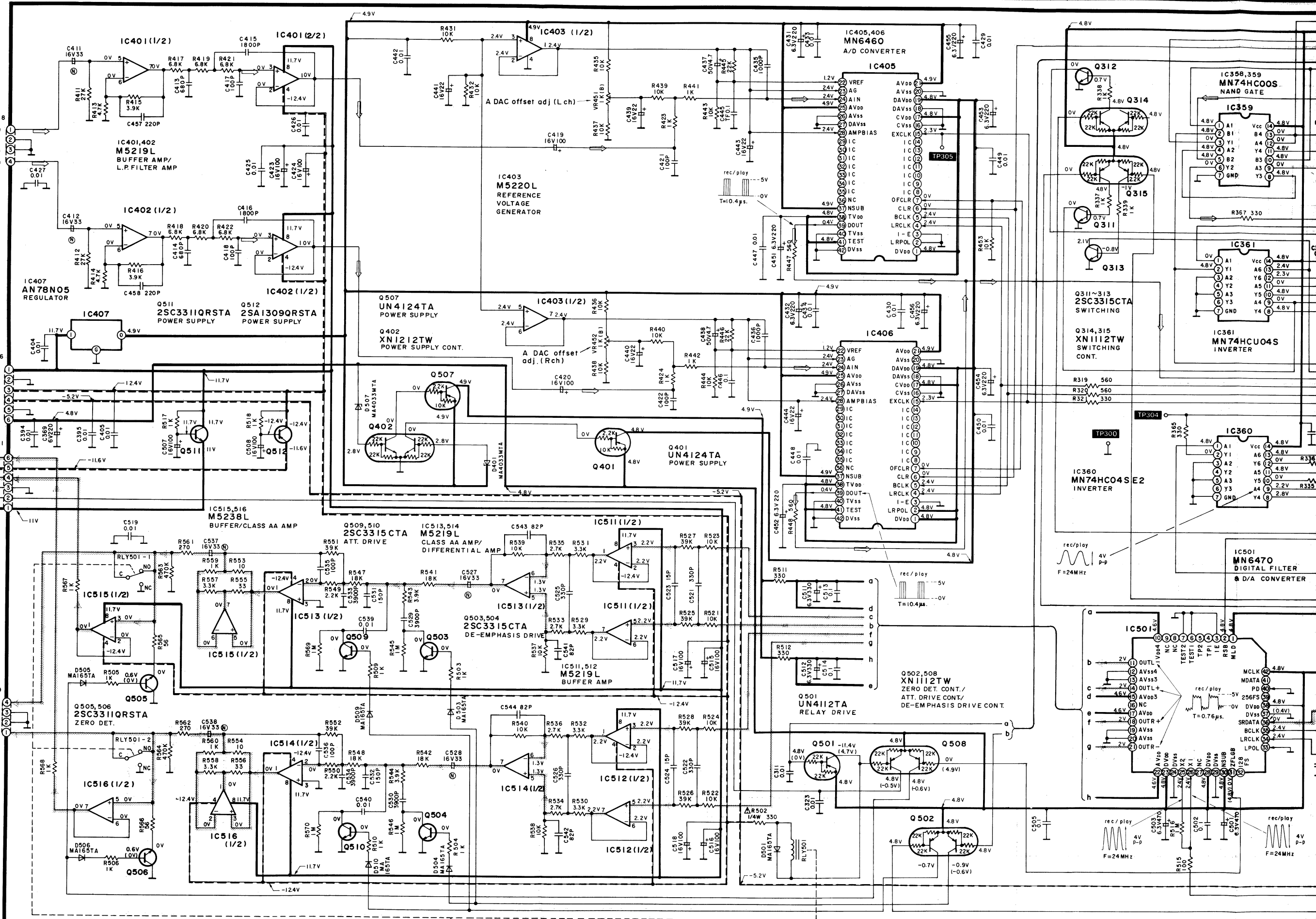
H MAIN CIRCUIT

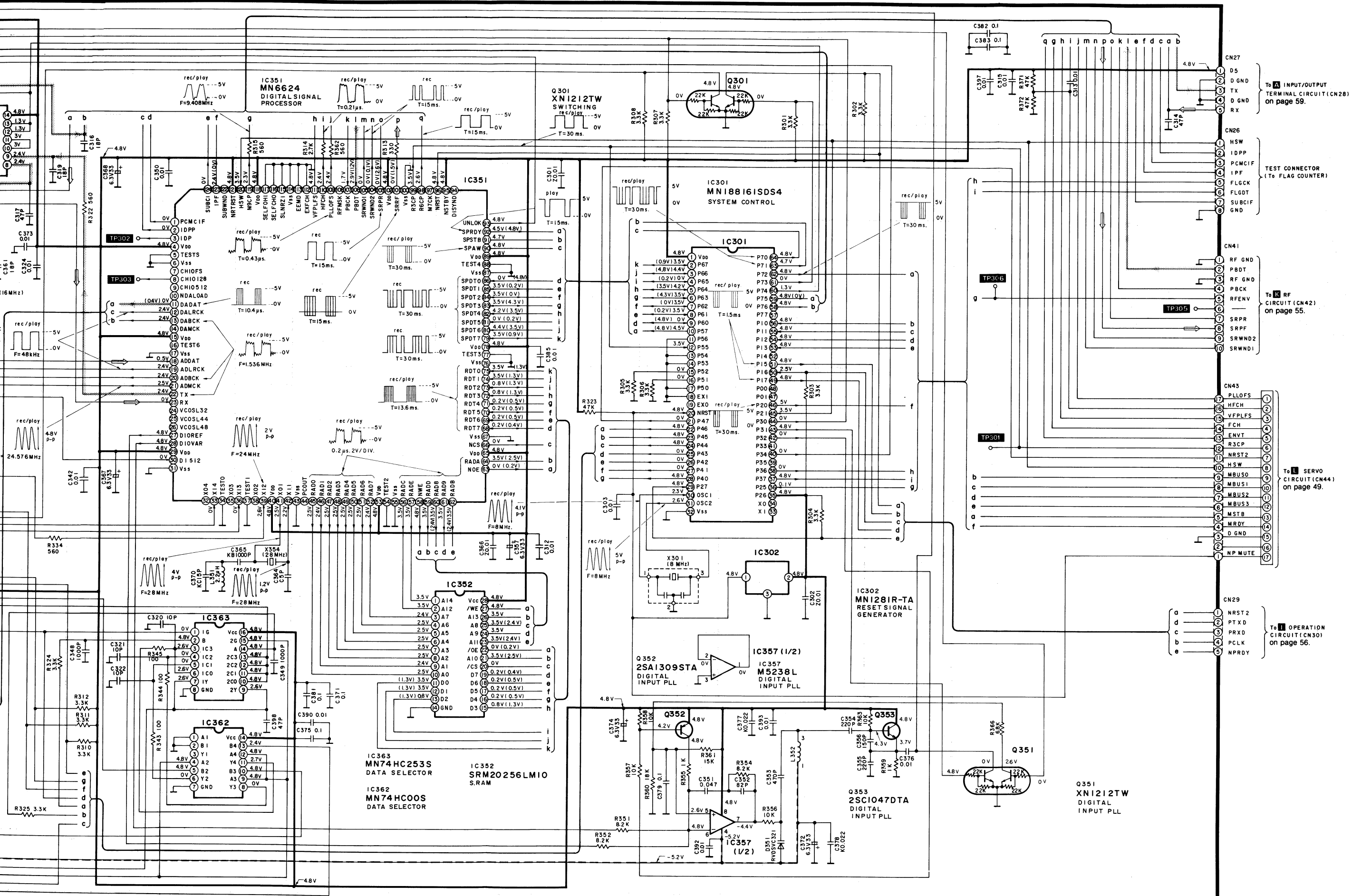
To [6] BALANCE/ REC LEVEL CIRCUIT (CN17) on page 60.

To [6] POWER SUPPLY (I) CIRCUIT (CN5) on page 60.

To [6] HEADPHONES JACK CIRCUIT (CN22) on page 42.

To [A] INPUT/OUTPUT TERMINAL JACK CIRCUIT (CN20) on page 59.





To **A** INPUT/OUTPUT
TERMINAL CIRCUIT (CN28)
on page 59.

TEST CONNECTOR
(To FLAG COUNTER)

To **B** RF
CIRCUIT (CN42)
on page 55.

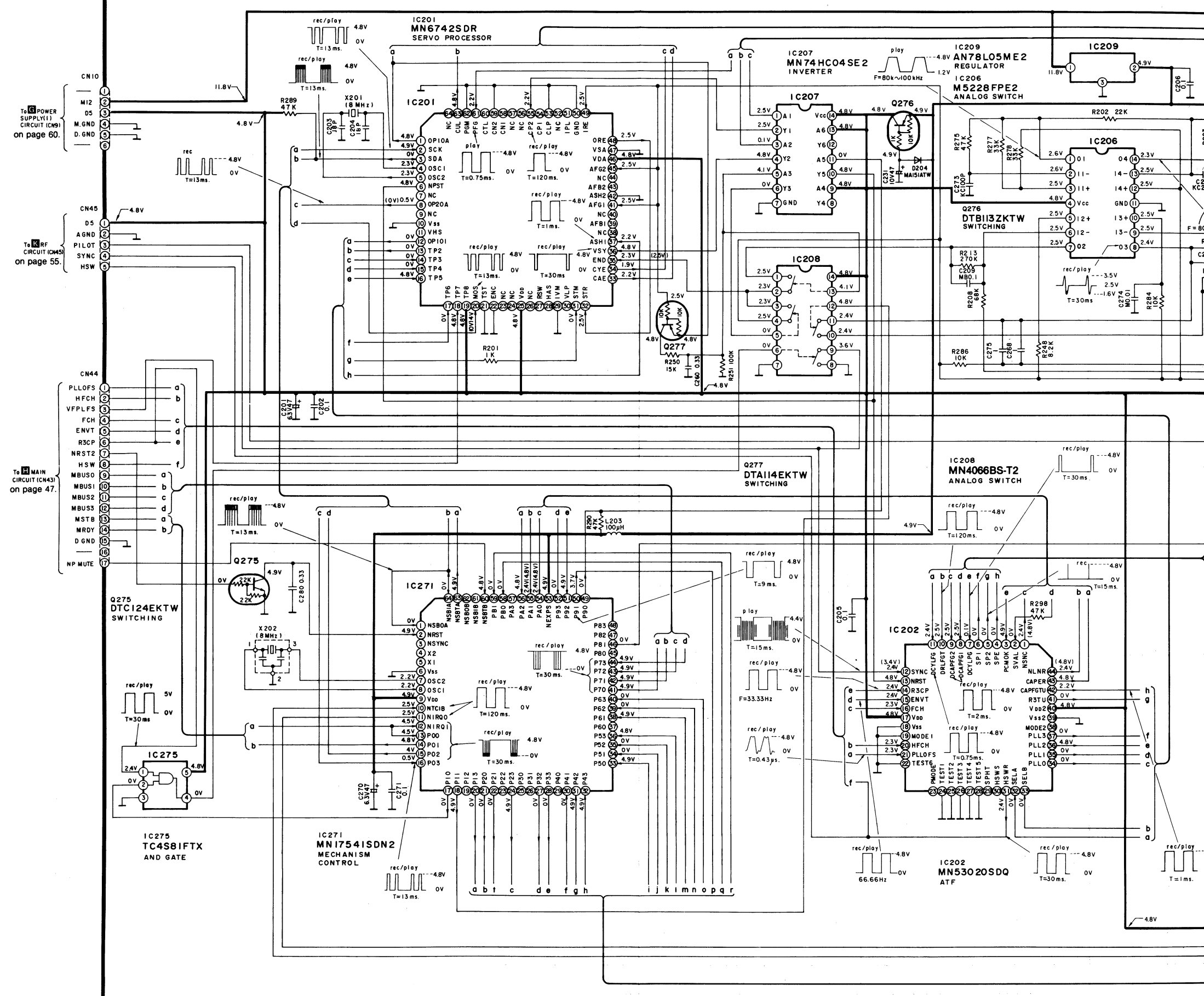
To **C** SERVO
CIRCUIT (CN44)
on page 49.

To **D** OPERATION
CIRCUIT (CN30)
on page 56.

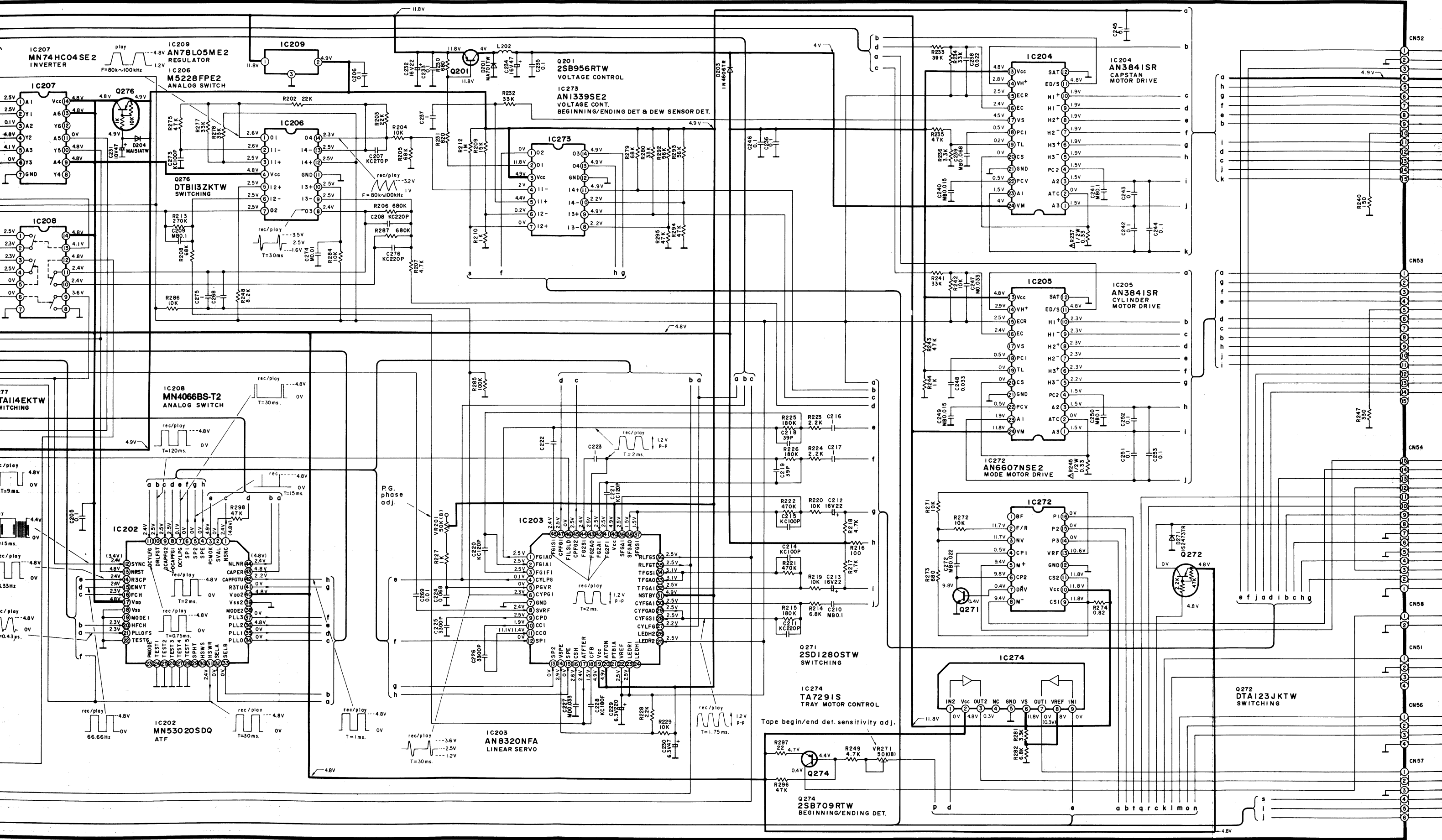
SERVO CIRCUIT

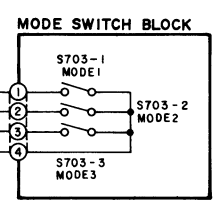
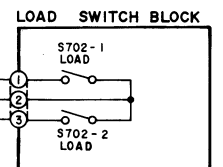
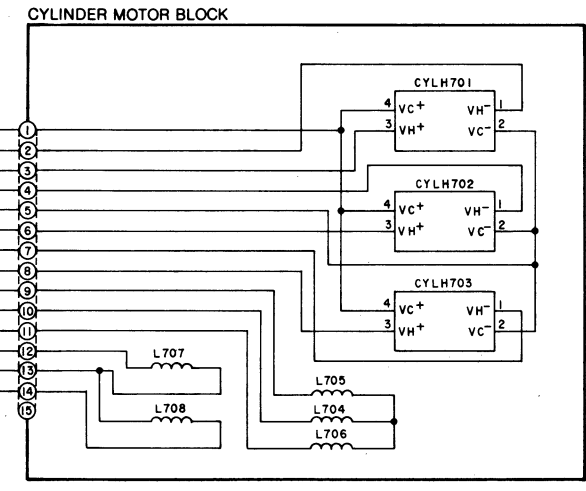
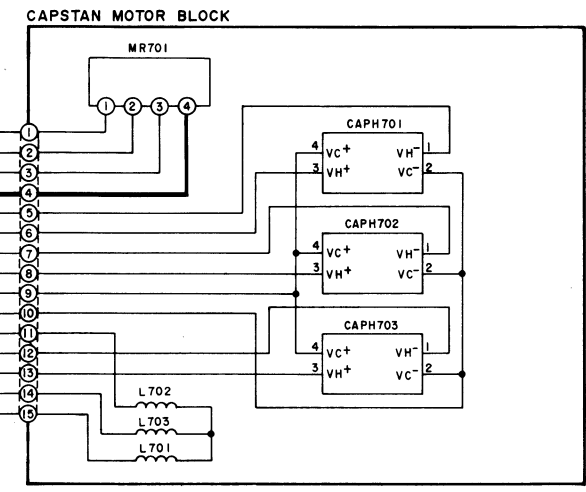
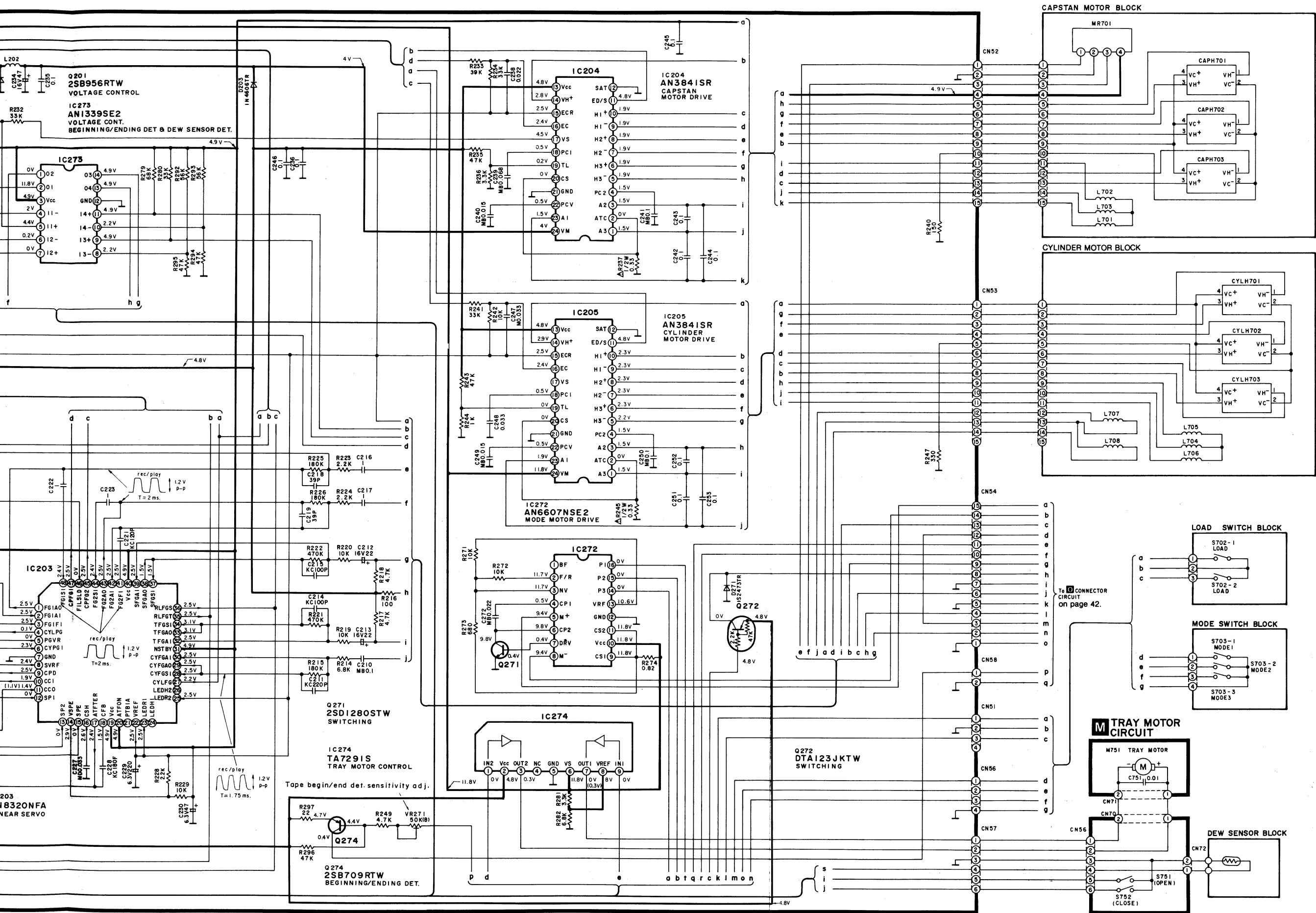
Note 2:

- S702 : Loading detection switch.
- S703 : Mode detection 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 us 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).
- (\rightarrow) indicates the flow of the playback signal.
- (\leftarrow) indicates the flow of the recording signal.
- The "IC701, IC702, Q701, Q702, D701, MR701, L701~708, CAPH701~703, CYLH701~703" parts are not supplied separately and are thus not found on the replacement parts list.

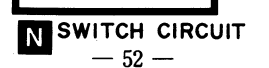
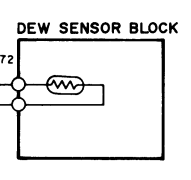
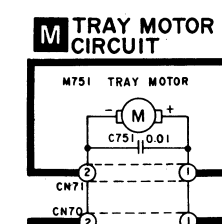


A B C D E F G





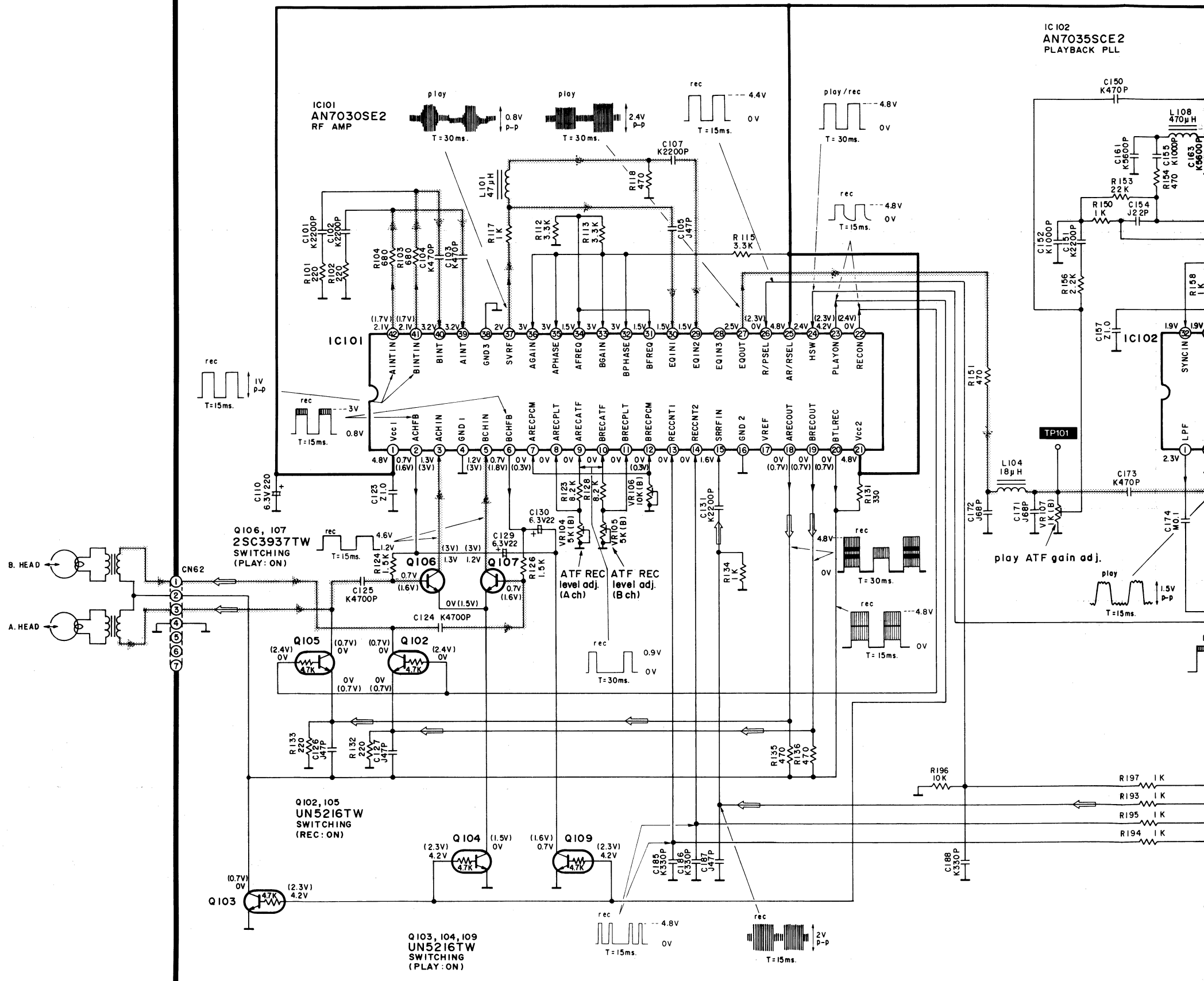
To **Q** CONNECTOR CIRCUIT on page 42.



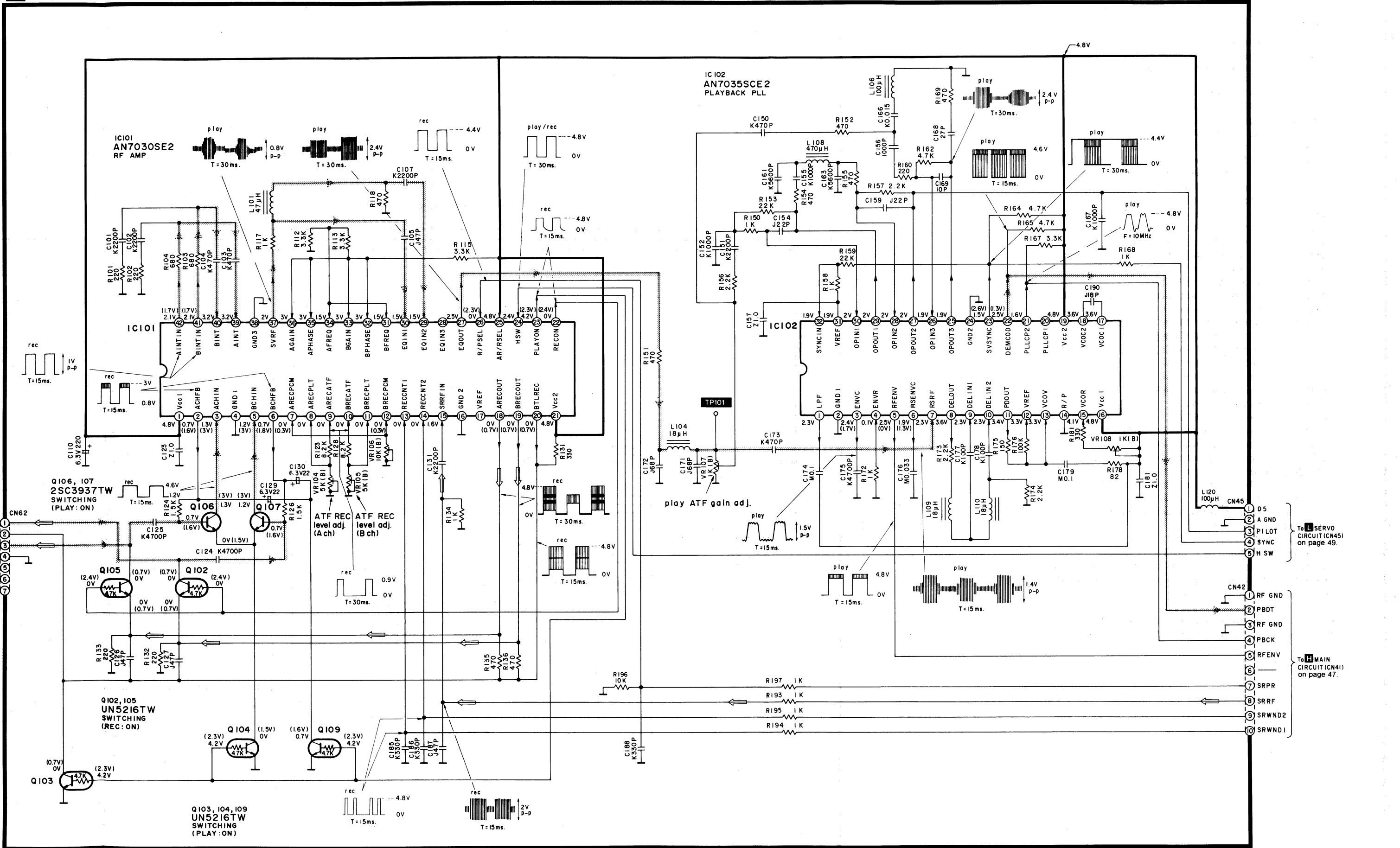
K RF CIRCUIT

Note 3:

- 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 us 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).
- (\rightarrow) indicates the flow of the playback signal.
- (\Rightarrow) indicates the flow of the recording signal.



K RF CIRCUIT

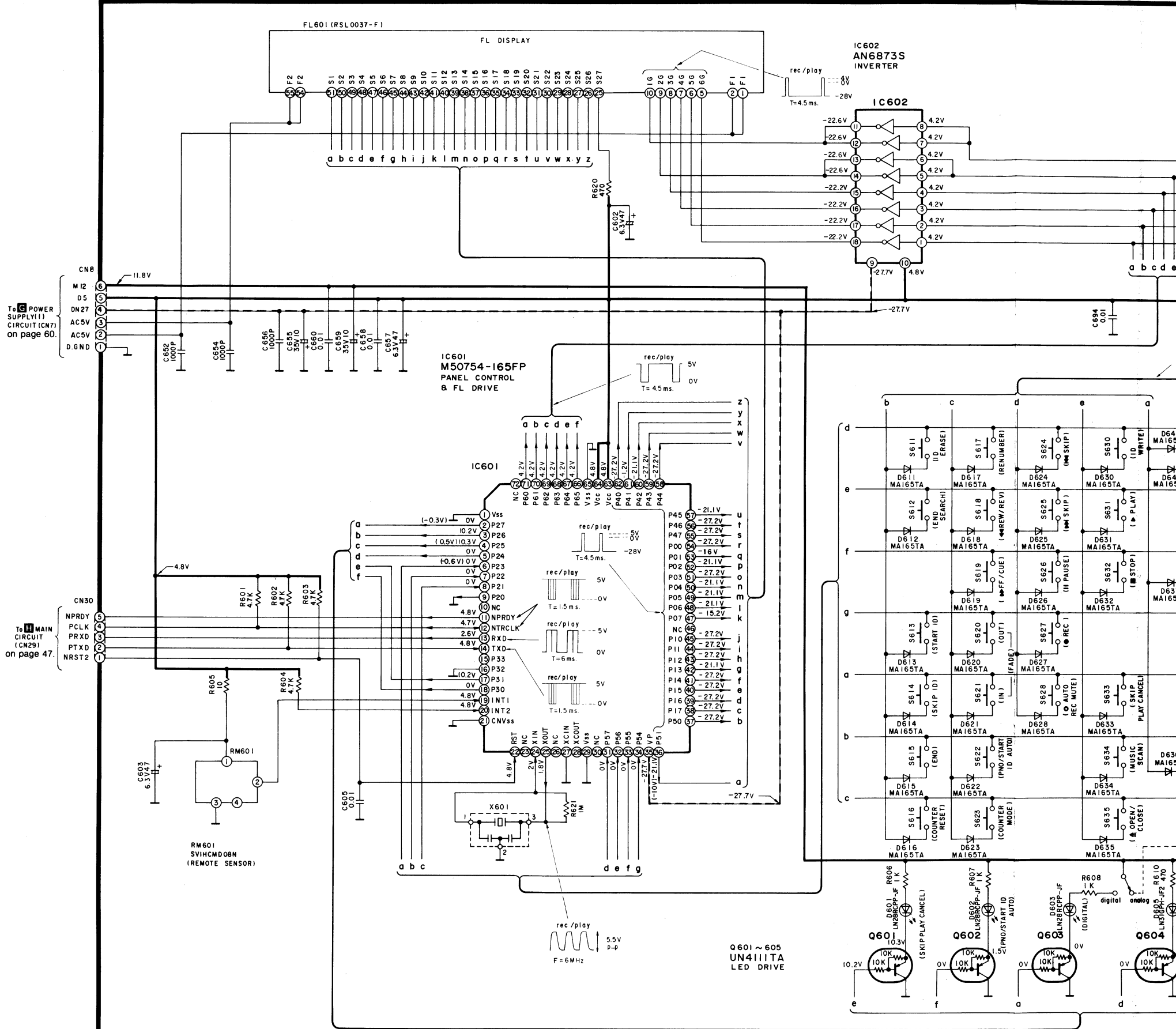


1 2 3 4 5 6 7 8 9 10

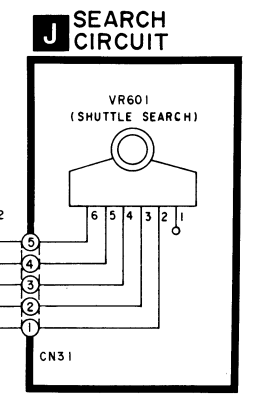
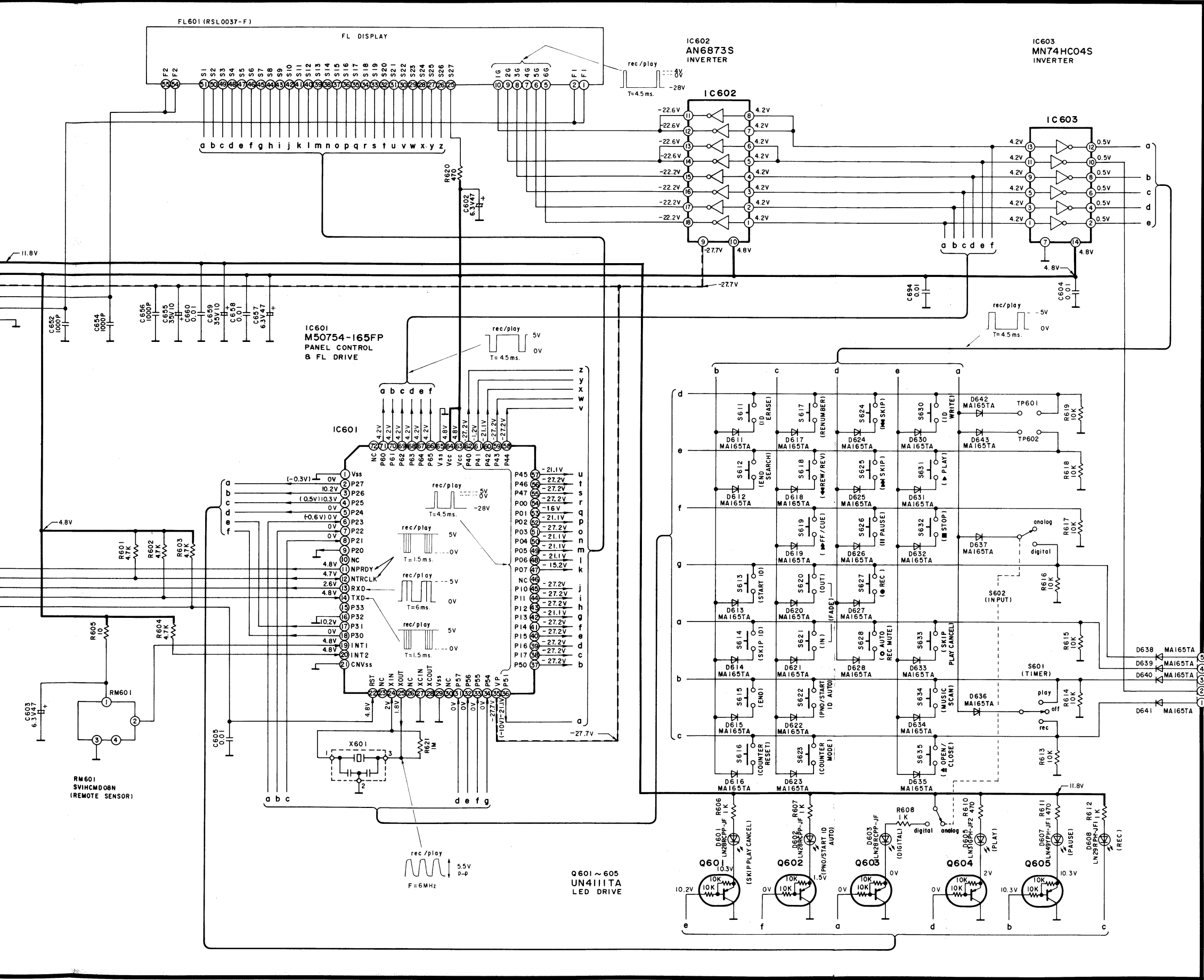
A B C D E F G

OPERATION CIRCUIT

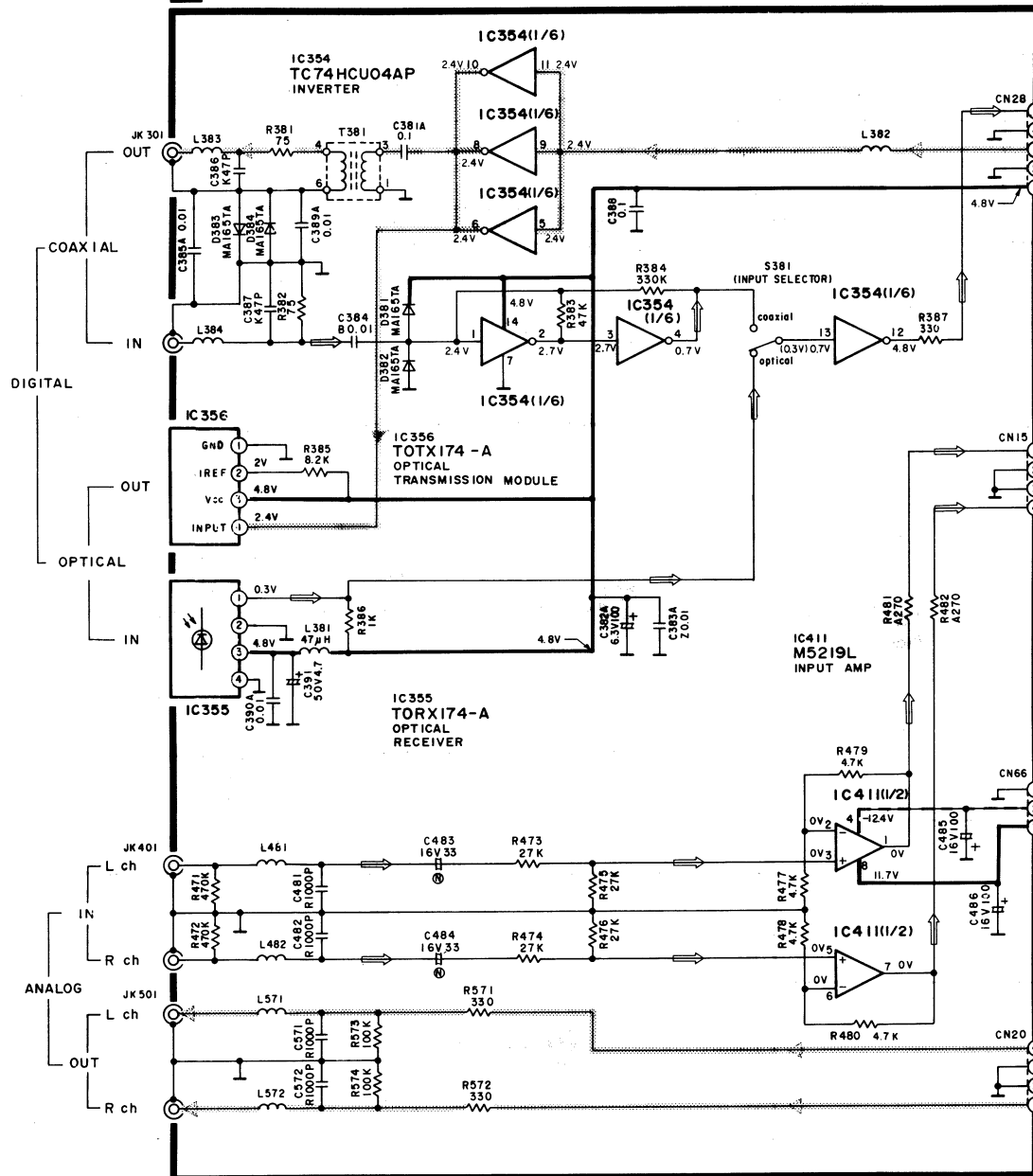
- Note 4:**
- **S1** : Power switch (POWER).
 - **S381** : Digital input selector switch. (DIGITAL INPUT SELECTOR) (OPTICAL ↔ COAXIAL)
 - **S601** : Timer switch (TIMER). (rec ↔ off ↔ play)
 - **S602** : Input selector switch (INPUT) (DIGITAL/ANALOG).
 - **S611** : ID erase switch (ID ERASE).
 - **S612** : End search switch (END SEARCH).
 - **S613** : Start ID switch (START ID).
 - **S614** : Skip ID switch (SKIP ID).
 - **S615** : End switch (END).
 - **S616** : Counter reset switch (COUNTER RESET).
 - **S617** : Renumber switch (RENUMBER).
 - **S618** : Rew/rev switch (REW/REV).
 - **S619** : FF/cue switch (FF/CUE).
 - **S620** : Fade out switch (FADE OUT).
 - **S621** : Fade in switch (FADE IN).
 - **S622** : PNO/start ID auto switch (PNO/START ID AUTO).
 - **S623** : Counter mode switch (COUNTER MODE).
 - **S624, 625** : Skip switches (SKIP). [S624 ◀◀, S625 ▶▶]
 - **S626** : Pause switch (PAUSE).
 - **S627** : Record switch (REC).
 - **S628** : Auto rec mute switch (AUTO REC MUTE).
 - **S630** : ID write switch (ID WRITE).
 - **S631** : Play switch (PLAY).
 - **S632** : Stop switch (STOP).
 - **S633** : Skip play cancel switch (SKIP PLAY CANCEL).
 - **S634** : Music scan switch (MUSIC SCAN).
 - **S635** : Open/close switch (OPEN/CLOSE).
- 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 us 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.



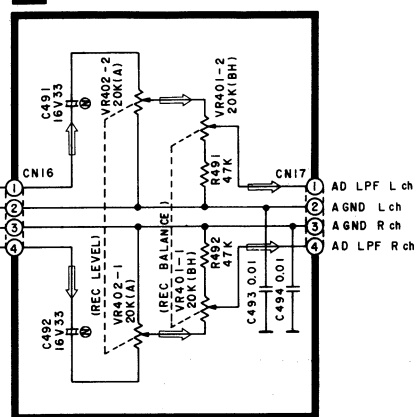
OPERATION CIRCUIT



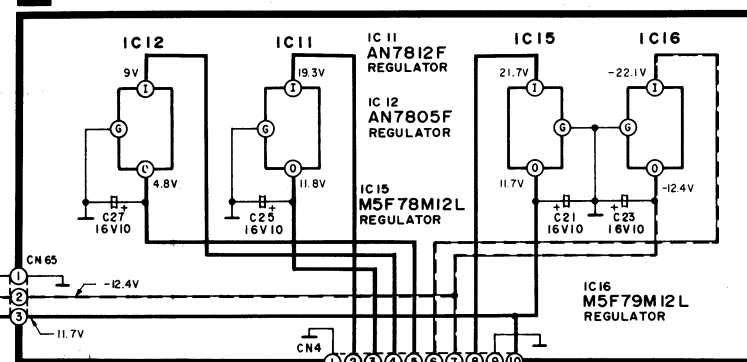
A INPUT/OUTPUT TERMINAL CIRCUIT



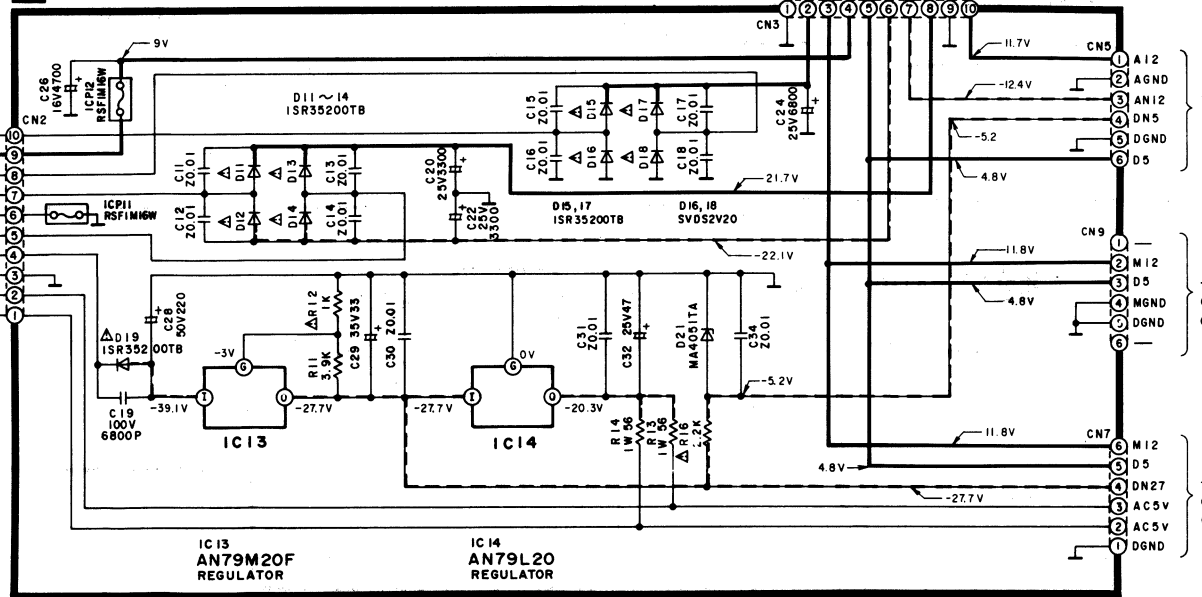
B BALANCE/REC LEVEL CIRCUIT



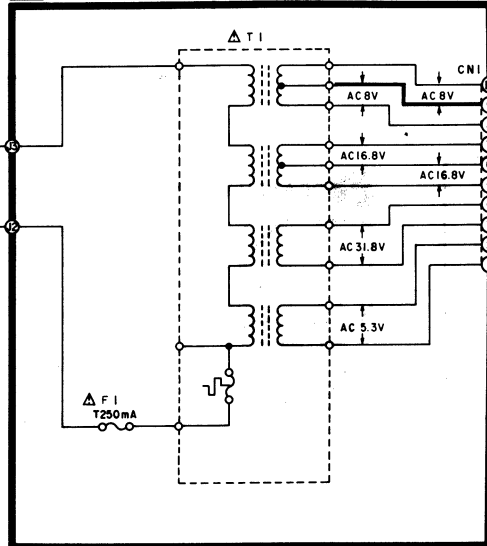
C POWER SUPPLY (2) CIRCUIT



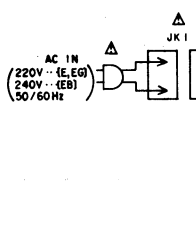
G POWER SUPPLY (1) CIRCUIT



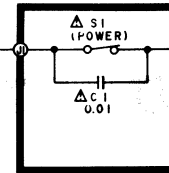
F POWER TRANSFORMER CIRCUIT



D AC IN TERMINAL CIRCUIT



E POWER SWITCH CIRCUIT



To MAIN CIRCUIT (CN27) on page 47.

To MAIN CIRCUIT (CN18) on page 43.

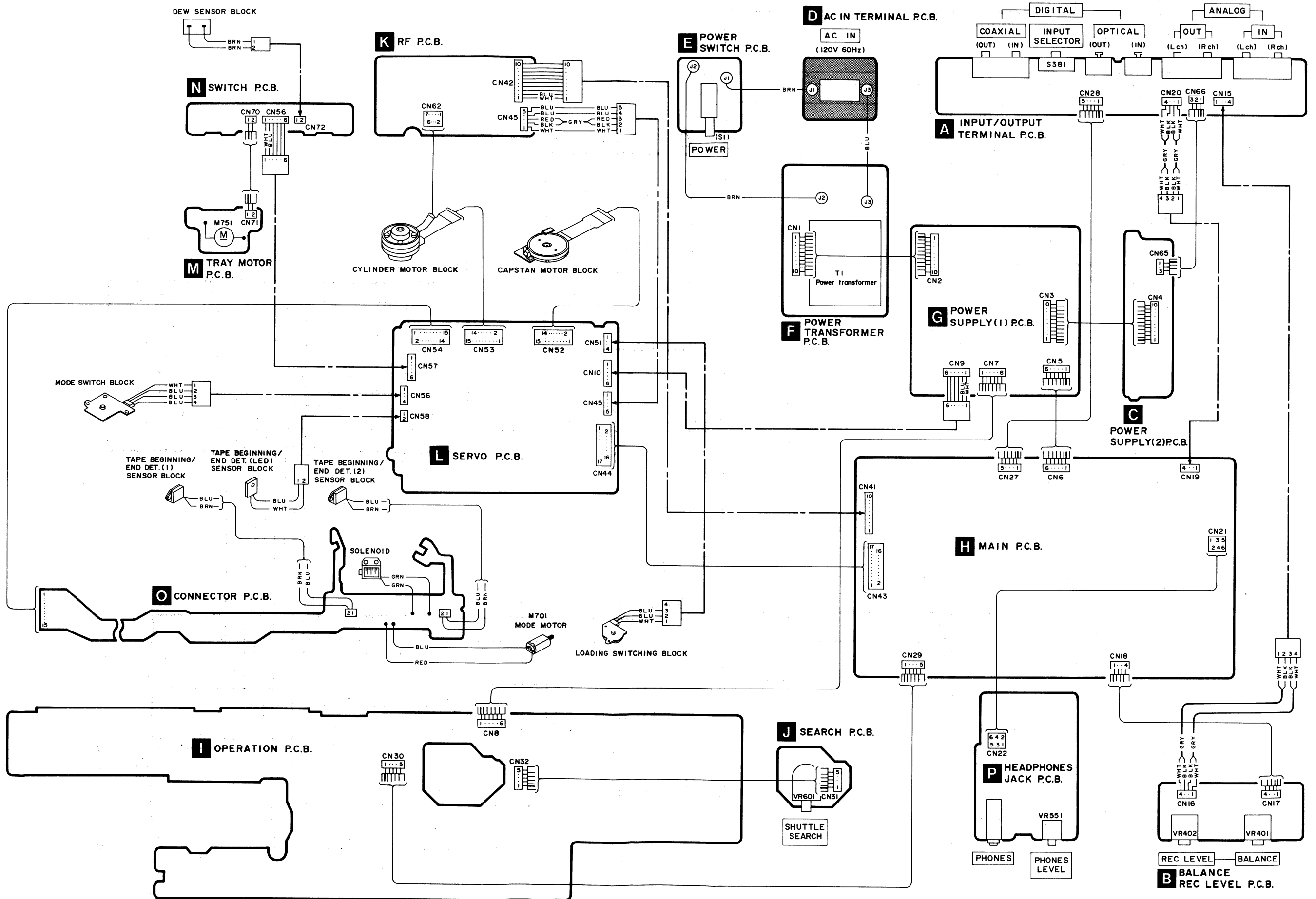
To MAIN CIRCUIT (CN19) on page 43.

To MAIN CIRCUIT (CN6) on page 43.

To SERVO CIRCUIT (CN10) on page 49.

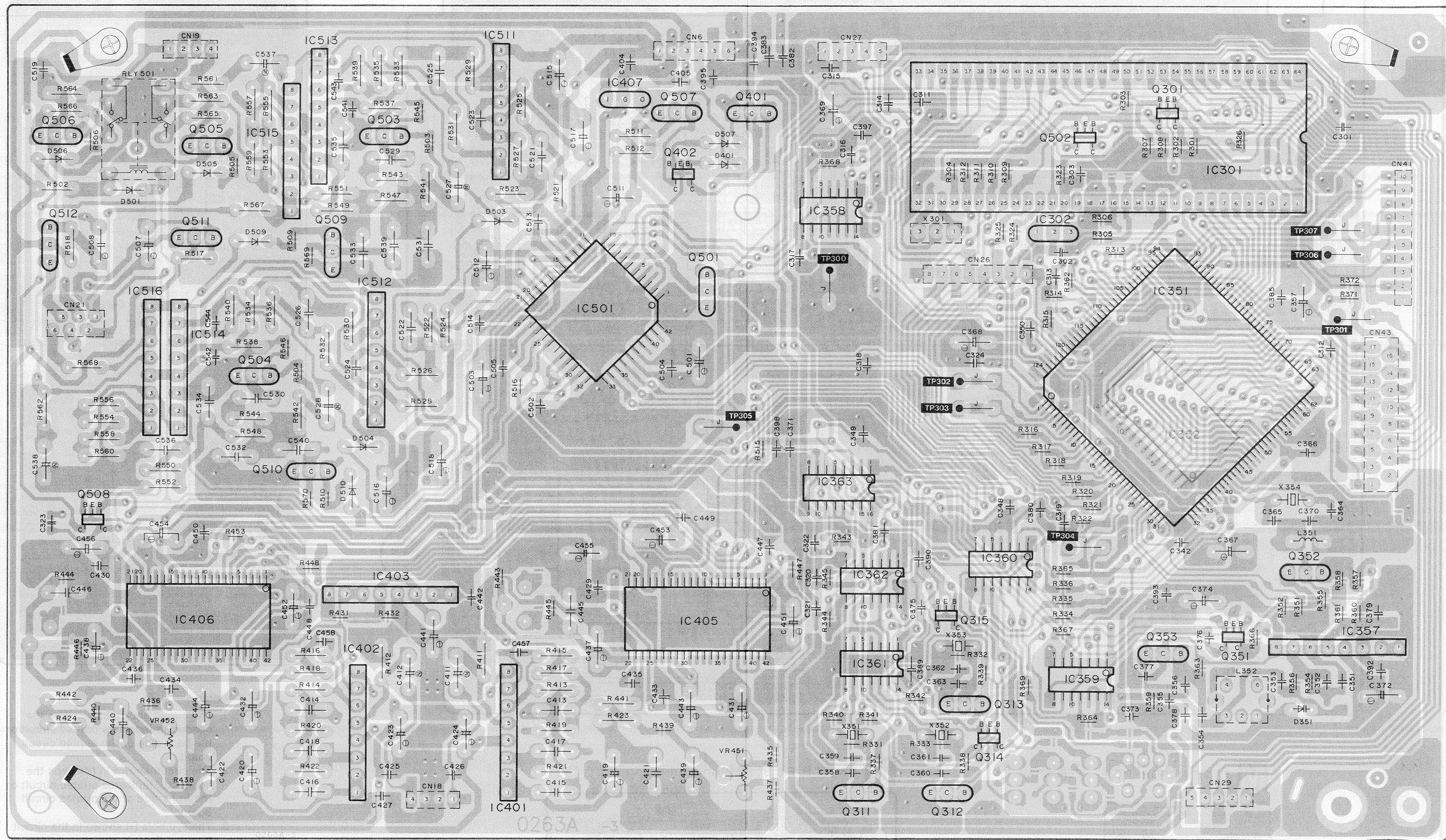
To OPERATION CIRCUIT (CN8) on page 56.

WIRING CONNECTION DIAGRAM



PRINTED CIRCUIT BOARDS

MAIN P.C.B. (REP0419A-1)



Notes:

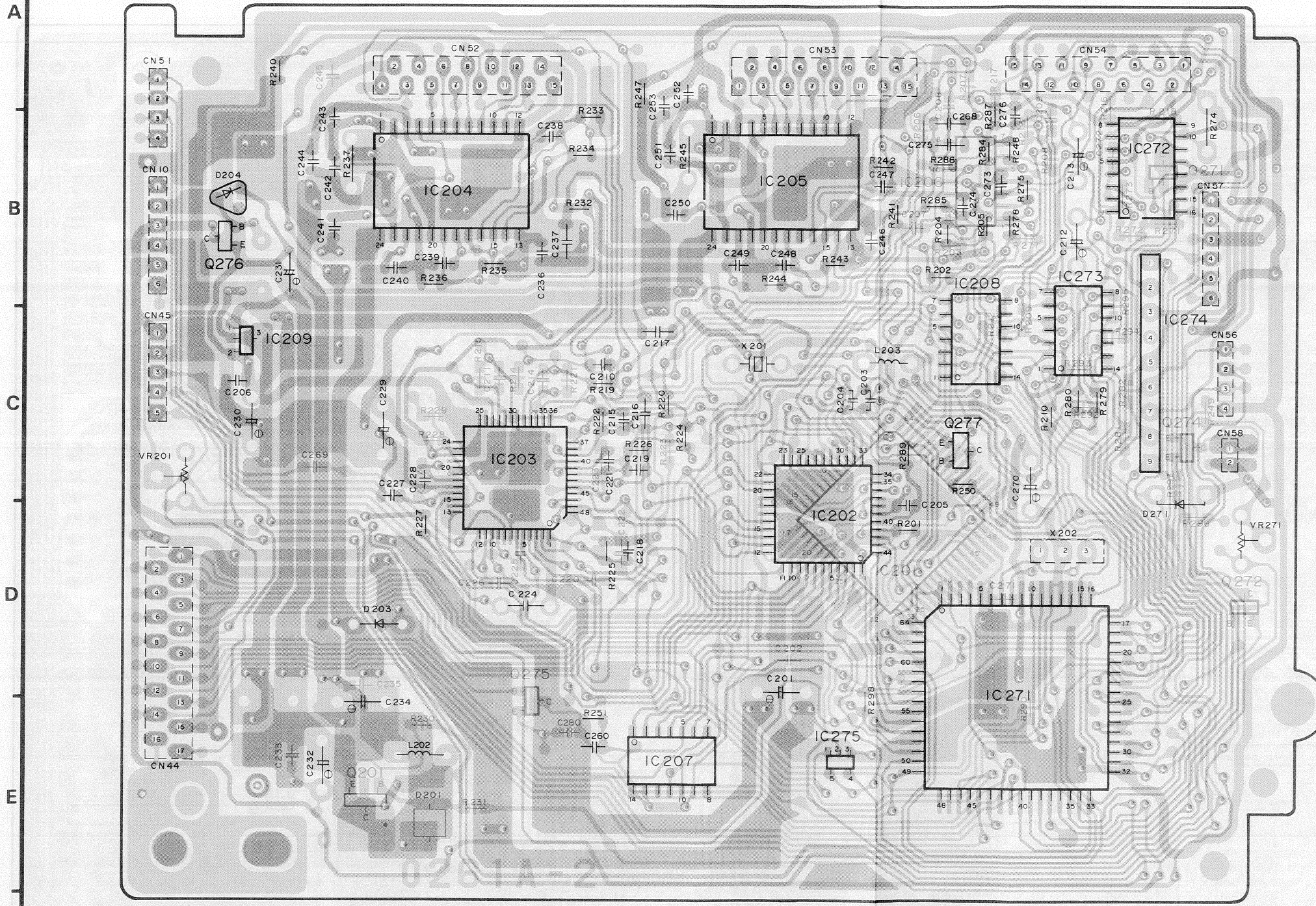
1. The circuit shown in () on the conductor indicates printed circuit on the back side of the printed circuit board.

2. The circuit shown in () on the conductor indicates printed circuit on the front side of the printed circuit board.

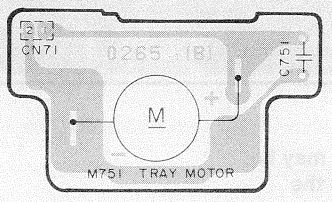
3. The symbols (*) shown in the circuit board indicate connection points between conductors on the front side and back side of the circuit board.

• This printed circuit board may be modified at any time with the development of new technology.

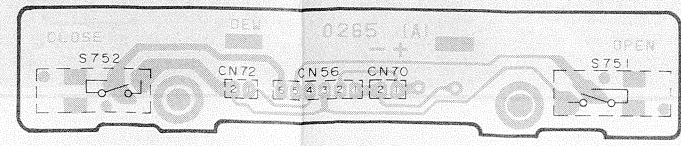
L SERVO P.C.B. (RFKBV3700-O)



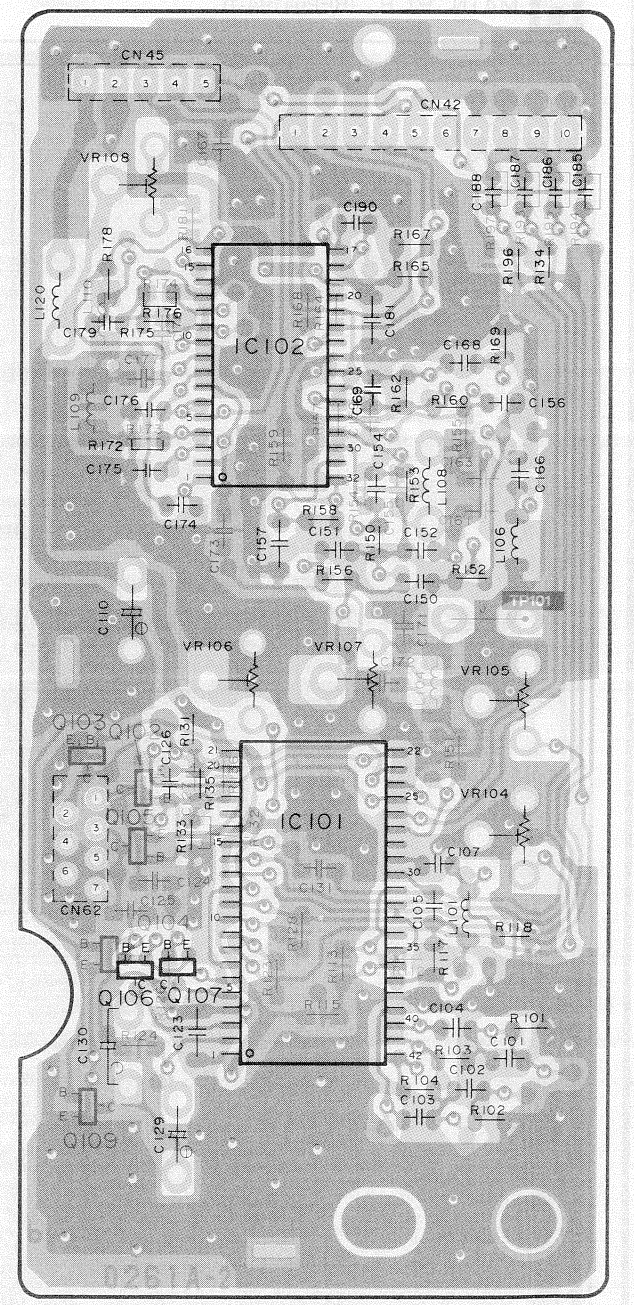
M TRAY MOTOR P.C.B. (REP0421A)



N SWITCH P.C.B. (REP0421A)



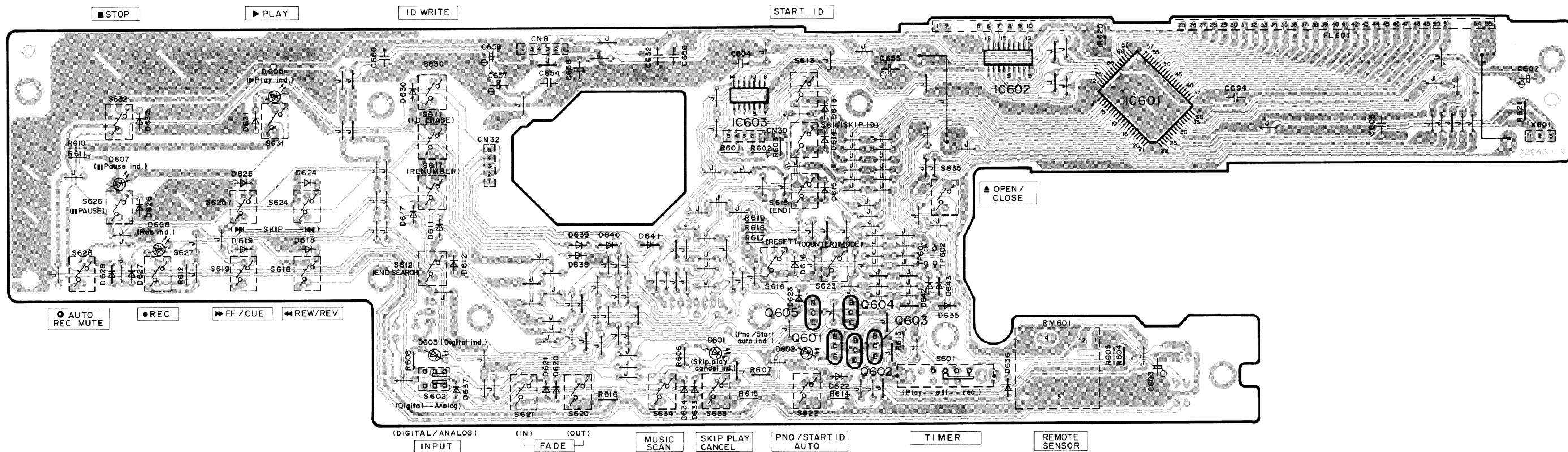
K RF P.C.B. (RFKBV3700-N)



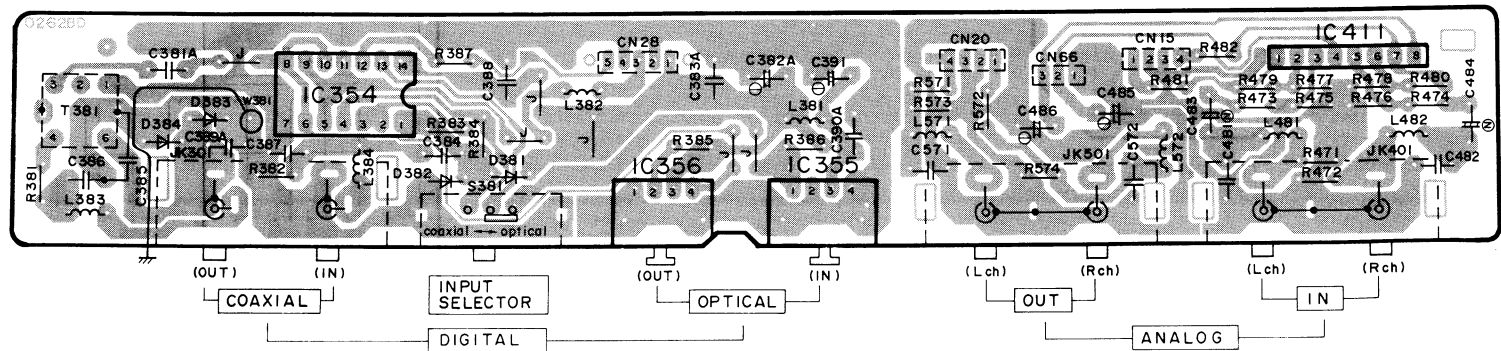
- Notes:**
1. The circuit shown in (○) on the conductor indicates printed circuit on the back side of the printed circuit board.
 2. The circuit shown in (●) on the conductor indicates printed circuit on the front side of the printed circuit board.
 3. The symbols (•) shown in the circuit board indicate connection points between conductors on the front side and back side of the circuit board.
- This printed circuit board may be modified at any time with the development of new technology.

10 11 12 13 14 15 16 17 18 19

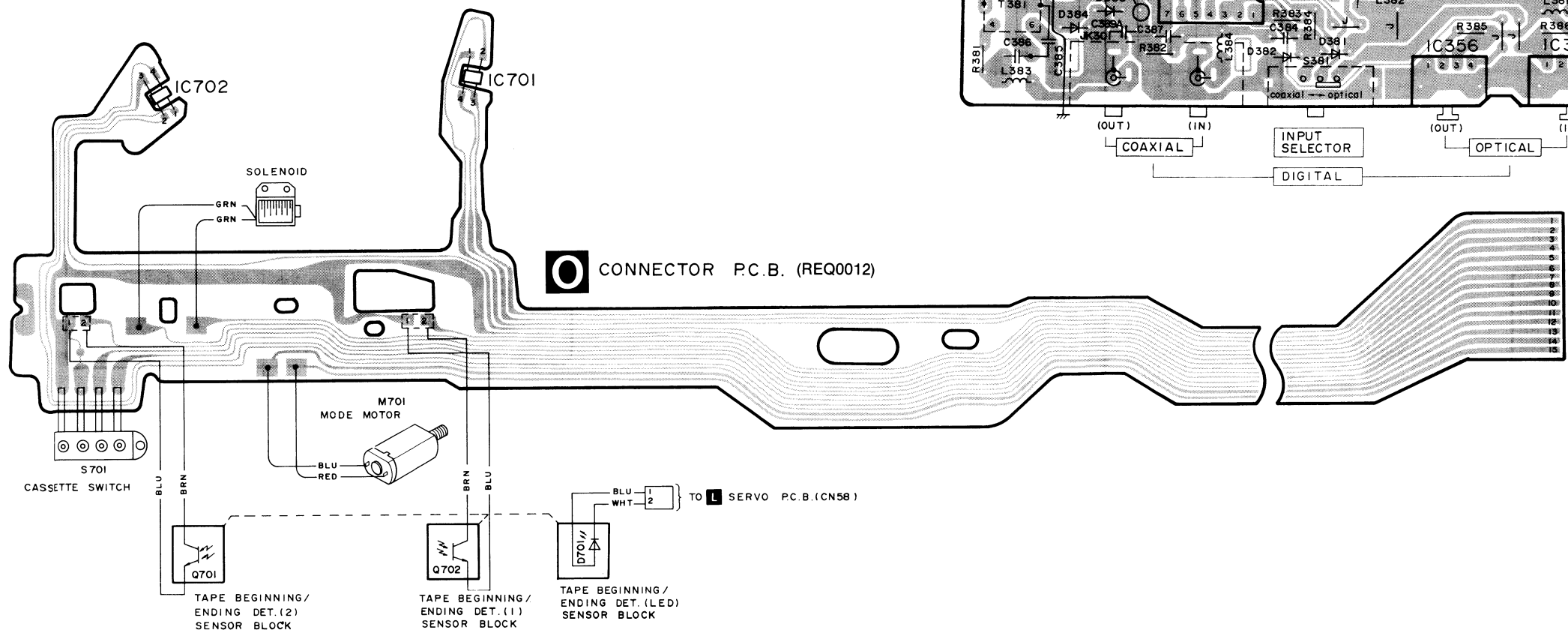
I OPERATION P.C.B. (REP0420A-1)



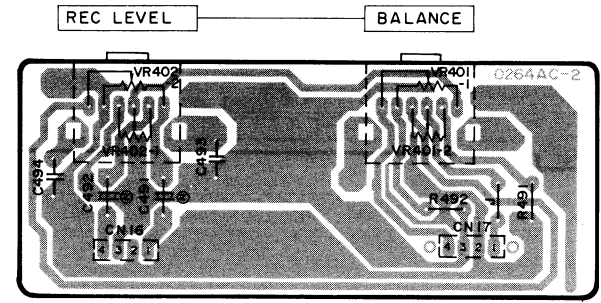
A INPUT/OUTPUT TERMINAL P.C.B.(REPO418C/REPO418D)



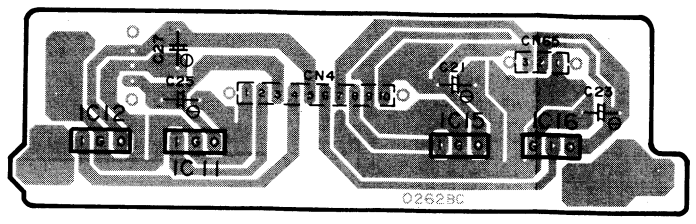
O CONNECTOR P.C.B. (REQ0012)



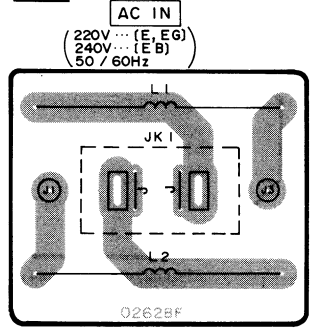
B BALANCE/REC LEVEL P.C.B. (REP0420A-1)



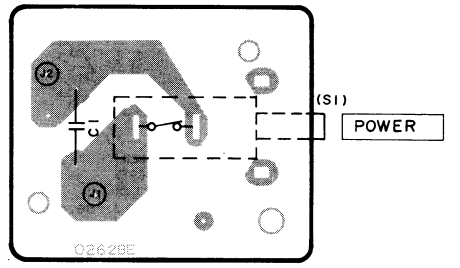
C POWER SUPPLY (2) P.C.B. (REPO418C/REPO418D)



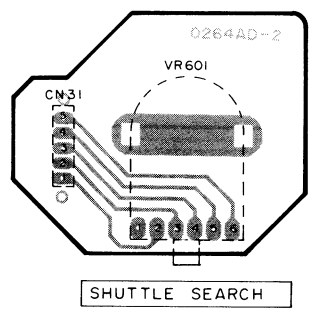
D AC IN TERMINAL P.C.B. (REPO418C/REPO418D)



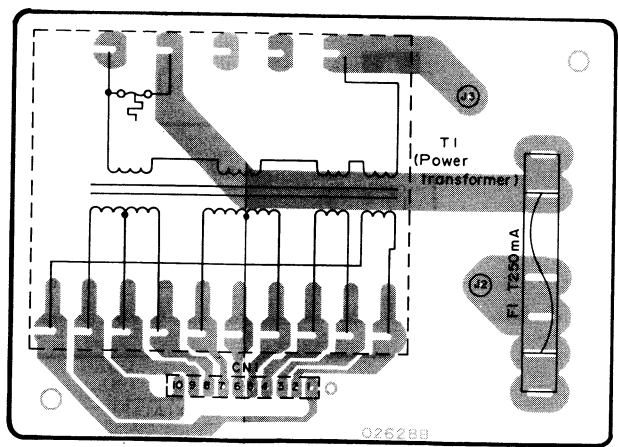
E POWER SWITCH P.C.B. (REPO418C/REPO418D)



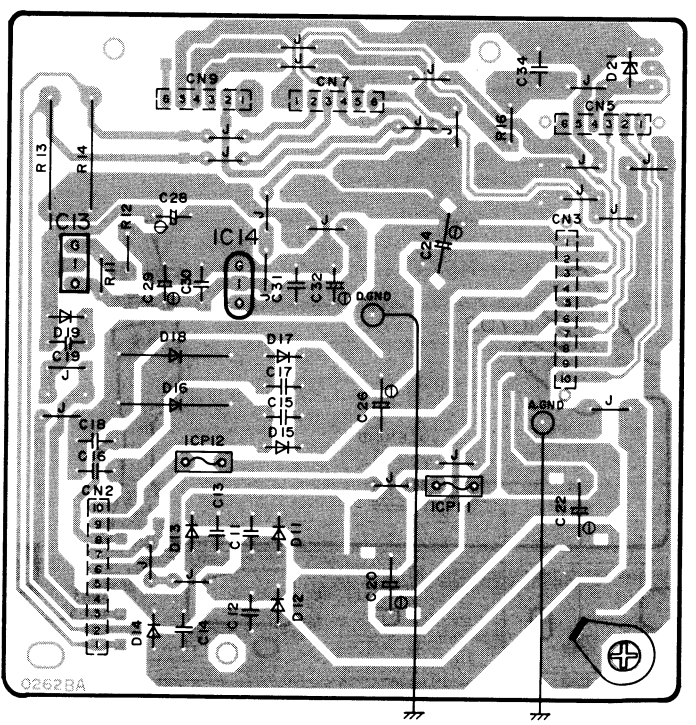
J SEARCH P.C.B. (REP0420A-1)



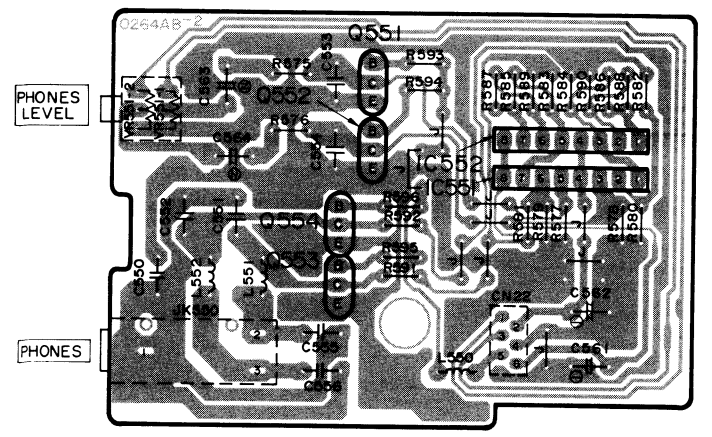
F POWER TRANSFORMER P.C.B. (REPO418C/REPO418D)



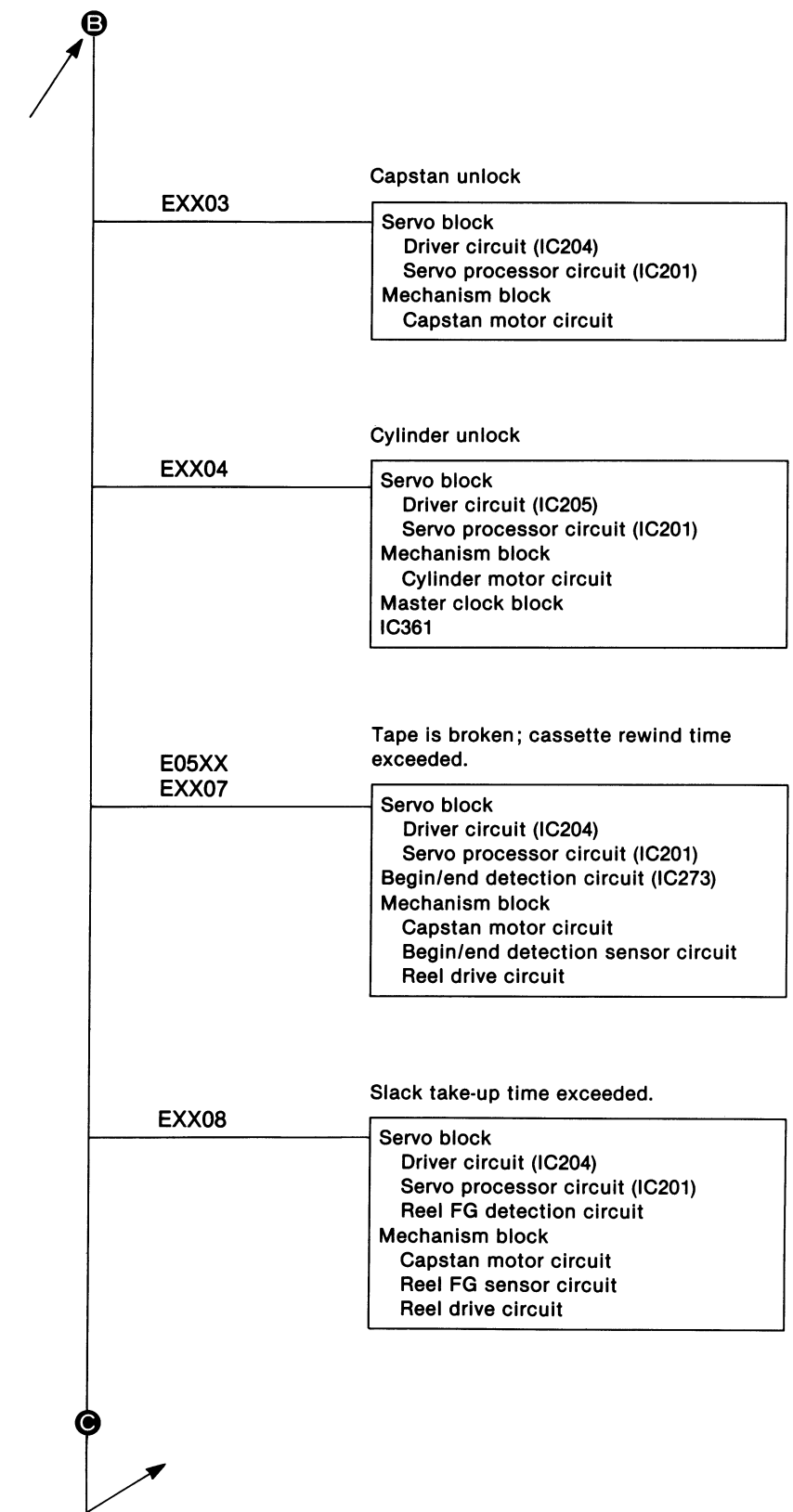
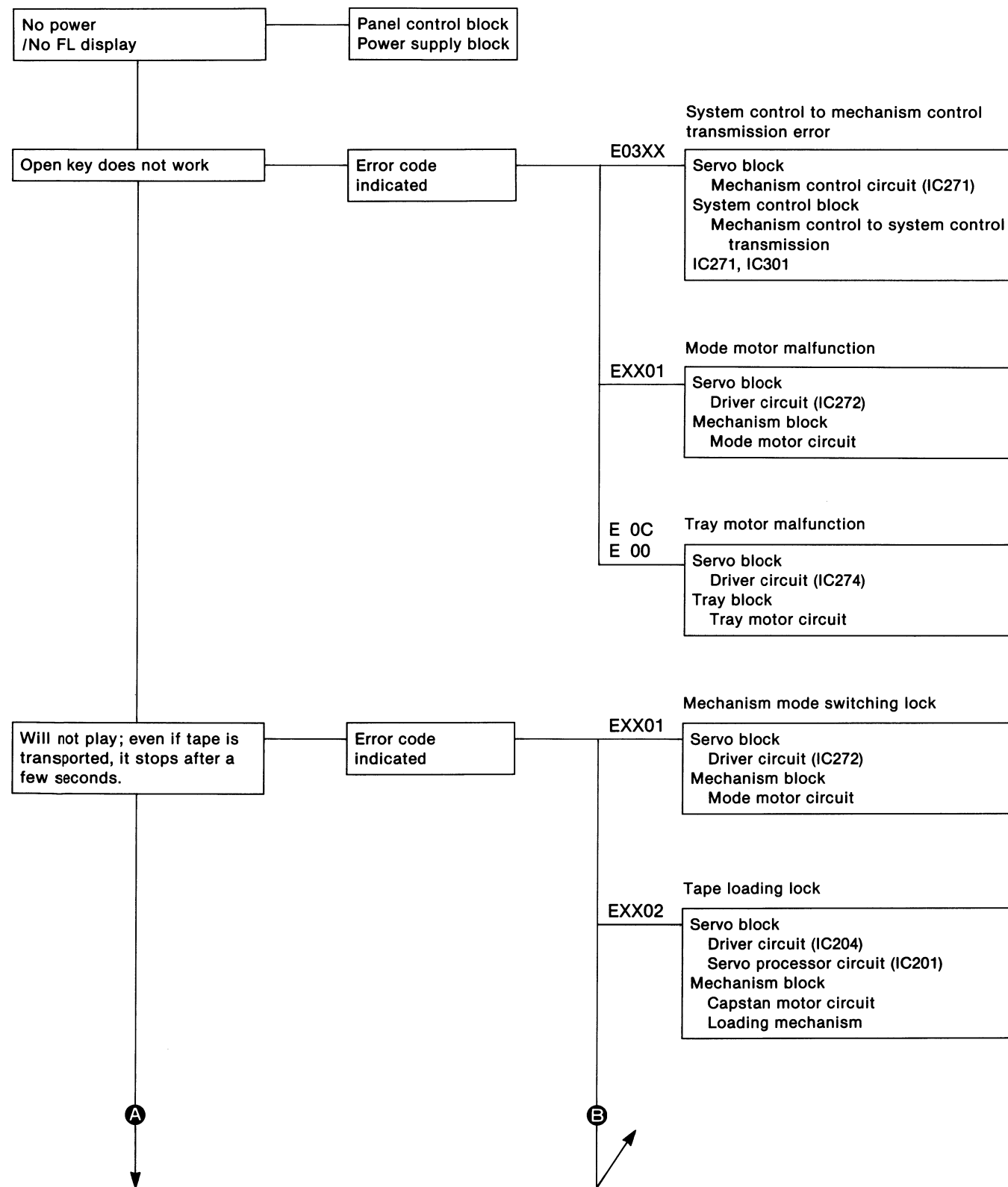
G POWER SUPPLY (1) P.C.B. (REPO418C/REPO418D)

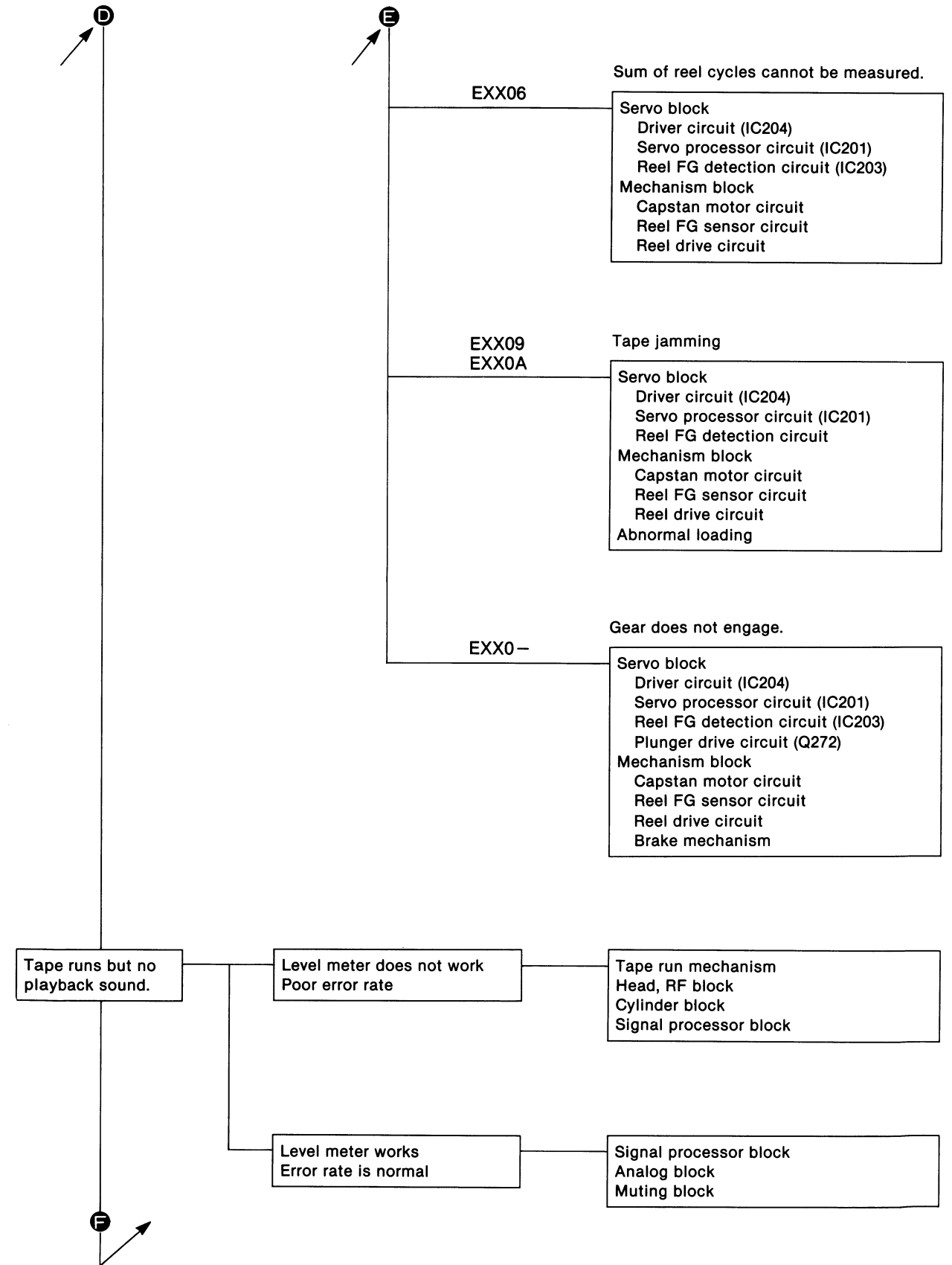
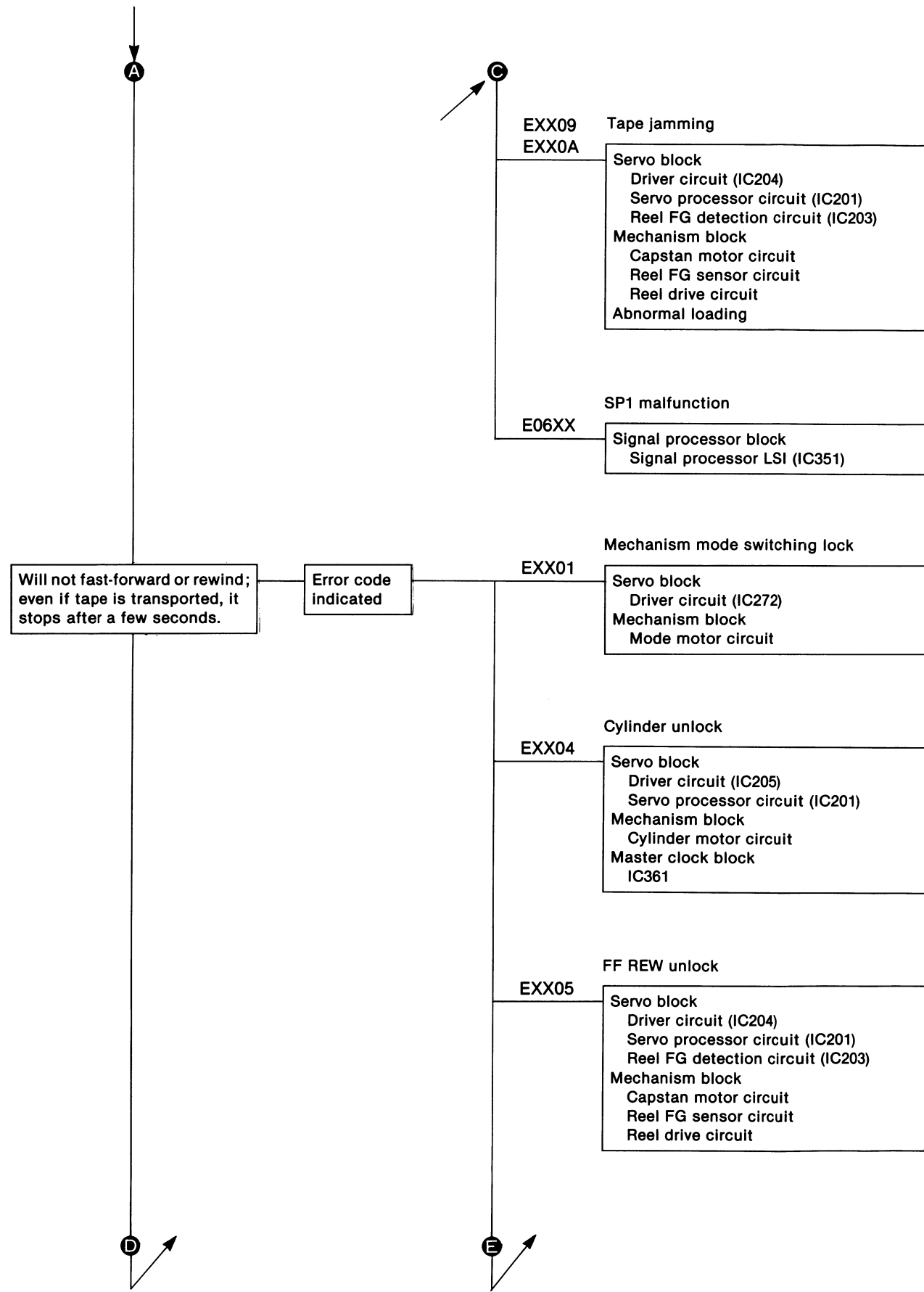


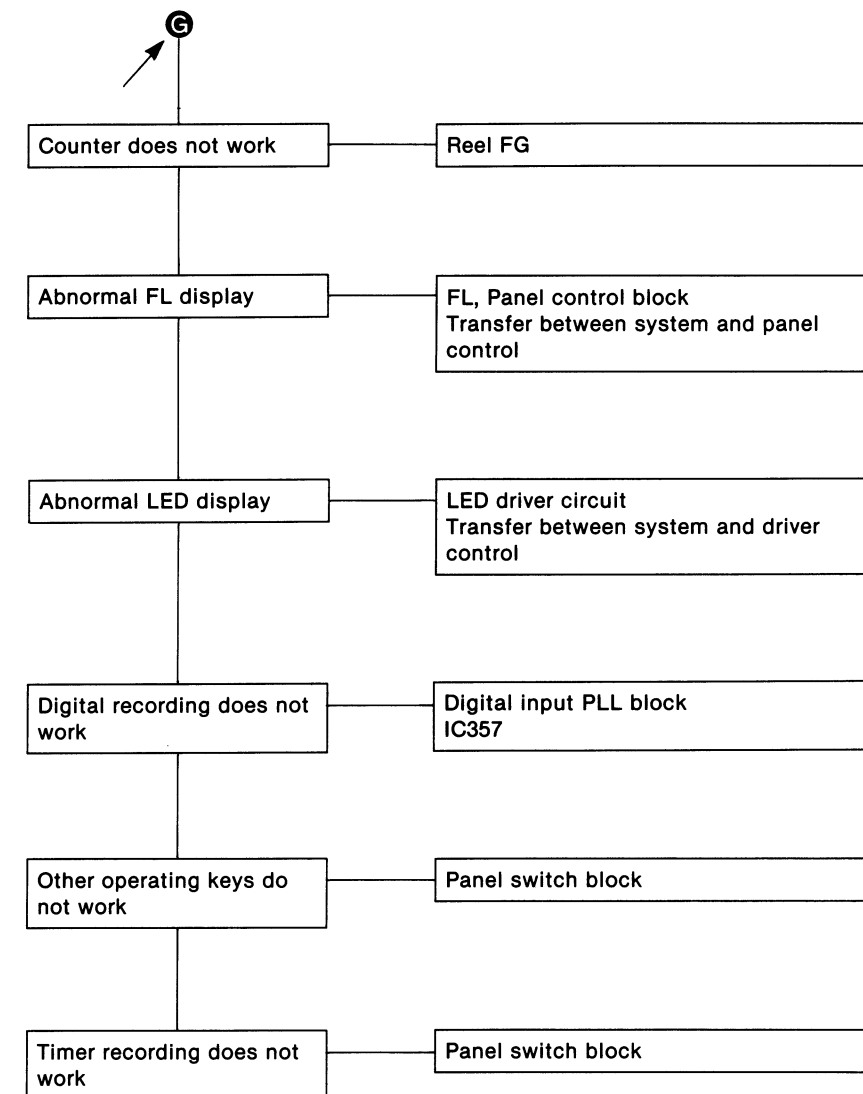
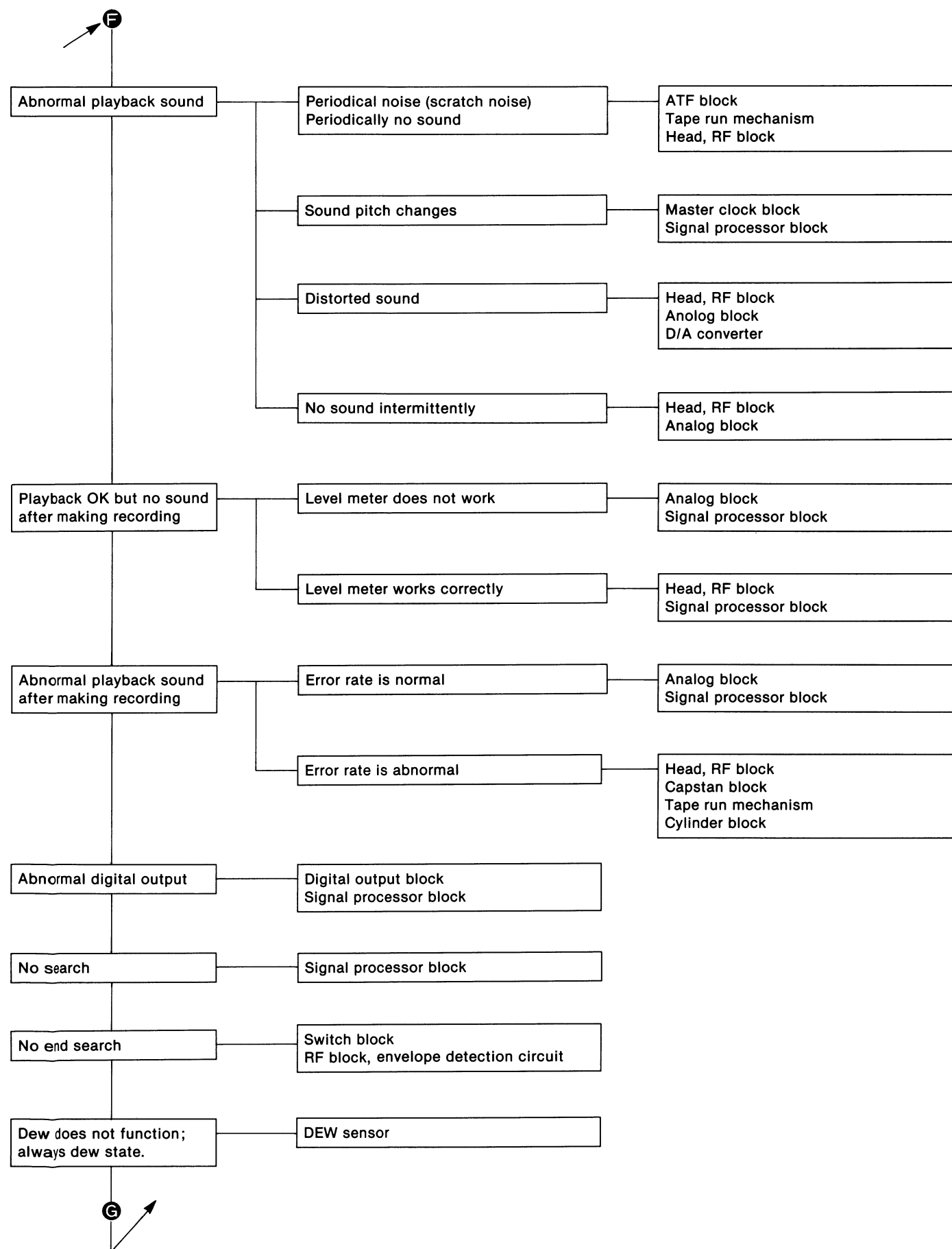
P HEADPHONES JACK P.C.B. (REP0420A-1)



■ 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 array

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

■ ABOUT THE ERROR RATE

If the error rate is normal, it can be judged that everything up to signal processing, meaning the operation of the RF head mechanism, is normal. Thus, when there is a problem with playback, if the error is normal, it can be assumed that the origin of the problem is in the analog system.

■ ABOUT THE LEVEL METER

Just as for the error rate, if the level meter is operating normally, it indicates that the signal is reaching signal processing. In other words, if there is no problem with the level meter during playback, it indicates that the head and the RF are outputting the signal. In addition, if there is no problem with the level meter during recording, it indicates that the analog system (input amplifier and AD) is functioning normally.

■ ERROR DISPLAY AND PROBLEM LOCATION

Display procedure

Simultaneously press the counter mode key, the counter reset key, and the pause key. The various internal data will be indicated in the counter section of the fluorescent lamp display.

There are four types of data as shown below; the data indicated will change each time the counter mode key is pressed.

① Total error rate for head A and head B.	"A" and "B" will light up in the repeat indication of the fluorescent lamp display.
② Error rate for head A	"A" will light up in the repeat indication of the fluorescent lamp display.
③ Internal code for microcomputer processing	
④ Error codes for system control (left) and mechanism control (right) (Refer to the next page.)	"E" will light up in the farthest left digit of the counter.

To return to the normal display mode, press the counter reset key. Note that the error codes will be cleared when the tray is opened.

■ ERROR CODE TABLE

Error code (Note. 1)	System control error code		Mechanism control error code	
	Processing (Note 2)	Contents	Processing (Note 2)	Contents
1	Test operation	R3CP clock malfunction	Unload	Mechanism mode switching lock
2	Test operation	HSW clock malfunction	Unload	Tape loading lock
3	Transmission omitted	Faulty transmission of the mechanism control	Unload	Capstan unlock
4	Unload	Still protection during operation	Unload	Cylinder unlock
5	Unload	Broken tape	Unload	Reel unlock
6	Unload	Faulty transmission of SP1	Unload	Sum of reel cycles cannot be measured.
7			Unload	In-cassette rewind time exceeded.
8			Unload	Slack tape-up time exceeded.
9			Unload	Tape jamming (Supply side)
A			Unload	Tape jamming (Take-up side)
B (-)			Unload	Gear does not engage.
C			Tray stop	Initial tray setting not possible.
O		—		No error
FF (blank)		No error		—

Note 1: Display mode

E	X1	X2
---	----	----

- E: Indicates that mode is the error rate display mode.
 X1: System control error code
 X2: Mechanism control error code

Note 2: Processing when an error occurs

Test operation:

Internal clock of the system control temporarily connects for operation.

Transmission omitted:

Transmission processing stopped.

Unload:

Tape is unloaded.

REPLACEMENT PARTS LIST

Notes : * 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.

* 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.

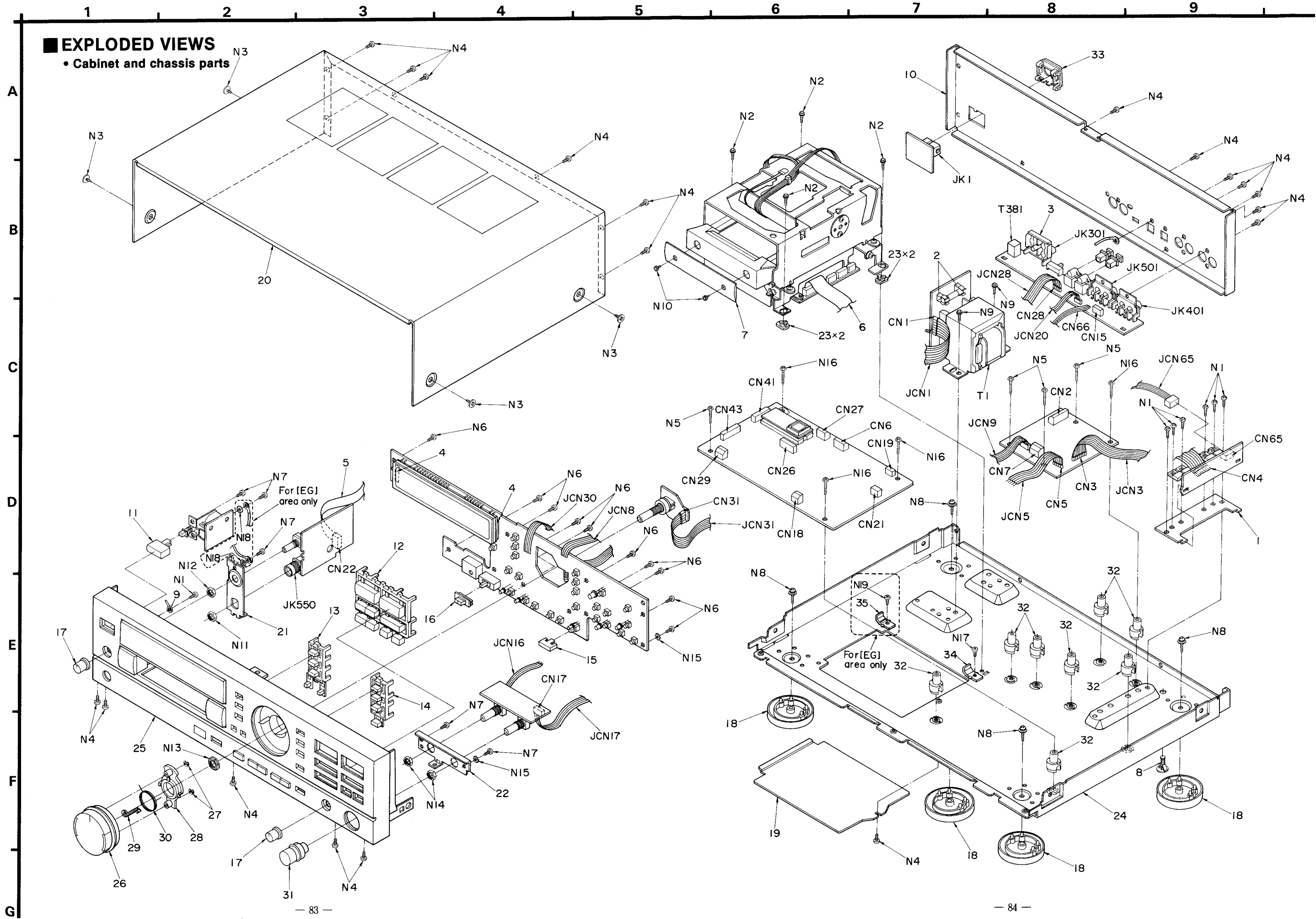
Ref. No.	Part No.	Part Name & Description	Remarks	Ref. No.	Part No.	Part Name & Description	Remarks
		INTEGRATED CIRCUIT (S)		IC602	AN6873S	IC, INVERTER	
				IC603	MN74HC04S	IC, INVERTER	
IC11	AN7812F	IC, REGULATOR				IC PROTECTOR (S)	
IC12	AN7805F	IC, REGULATOR					
IC13	AN79M20F	IC, REGULATOR		ICP11, 12	R5FMA16W-U	IC PROTECTOR	
IC14	AN79L20	IC, REGULATOR					
IC15	M5F78M12L723	IC, REGULATOR				TRANSISTOR (S)	
IC16	M5F79M12L723	IC, REGULATOR					
IC101	AN7030SE2	IC, RF AMP		Q102-105	UN5216-Q	TRANSISTOR	
IC102	AN7035SCE2	IC, PLAYBACK PLL		Q106, 107	2SC3937TW	TRANSISTOR	
IC201	MN6742SDR	IC, SERVO PROCESSOR		Q109	UN5216-Q	TRANSISTOR	
IC202	MN53020SDQ	IC, ATF		Q201	2SB956R	TRANSISTOR	
IC203	AN8320NFA	IC, LINEAR SERVO		Q271	2SD1280STW	TRANSISTOR	
IC204, 205	AN3841SR	IC, MOTOR DRIVE		Q272	DTA123JKTW	TRANSISTOR	
IC206	M5228FPE2	IC, ANALOG SW.		Q274	2SB709RTW	TRANSISTOR	
IC207	MN74HC04SE2	IC, INVERTER		Q275	DTC124EKTW	TRANSISTOR	
IC208	MN4066BS-T2	IC, ANALOG SW.		Q276	DTB113ZKTW	TRANSISTOR	
IC209	AN78L05ME2	IC, REGULATOR		Q277	DTA114EKTW	TRANSISTOR	
IC271	MN17541SDN2	IC, MECHANISM CONTROL		Q301	XN1212TW	TRANSISTOR	
IC272	AN6607NSE2	IC, MOTOR DRIVE		Q311-313	2SC3315CTA	TRANSISTOR	
IC273	AN1339SE2	IC, VOLTAGE CONTROL		Q314, 315	XN1112TW	TRANSISTOR	
IC274	TA7291S	IC, TRAY MOTOR CONTROL		Q351	XN1212TW	TRANSISTOR	
IC275	TC4S81FTX	IC, AND GATE		Q352	2SA1309A-R	TRANSISTOR	
IC301	MN188161SDS4	IC, SYSTEM CONTROL		Q353	2SC1047DTA	TRANSISTOR	
IC302	MN1281R-TA	IC, RESET GENERATOR		Q401	UN4124TA	TRANSISTOR	
IC351	MN6624	IC, DIGITAL SIGNAL PROCESSOR		Q402	XN1212TW	TRANSISTOR	
IC352	SRM20256LM10	IC, S RAM		Q501	UN4112	TRANSISTOR	
IC354	TC74HC04AP	IC, INVERTER		Q502	XN1112TW	TRANSISTOR	
IC355	TORX174-A	IC, DIGITAL INPUT (OPTICAL)		Q503, 504	2SC3315CTA	TRANSISTOR	
IC356	TOTX174-A	IC, DIGITAL OUTPUT (OPTICAL)		Q505, 506	2SC3311A-Q	TRANSISTOR	
IC357	M5238L	IC, DIGITAL INPUT PLL		Q507	UN4124TA	TRANSISTOR	
IC358, 359	MN74HC00S	IC, NAND GATE		Q508	XN1112TW	TRANSISTOR	
IC360	MN74HC04SE2	IC, INVERTER		Q509, 510	2SC3315CTA	TRANSISTOR	
IC361	MN74HC04S	IC, INVERTER		Q511	2SC3311A-Q	TRANSISTOR	
IC362	MN74HC00S	IC, NAND GATE		Q512	2SA1309A-R	TRANSISTOR	
IC363	MN74HC253S	IC, DATA SELECTOR		Q551-554	2SD1450RTA	TRANSISTOR	
IC401, 402	M5219L	IC, BUFFER		Q601-605	UN4111	TRANSISTOR	
IC403	M5220L	IC, BUFFER				DIODE (S)	
IC405, 406	MN6460	IC, A/D CONVERTER					
IC407	AN78N05	IC, REGULATOR		D11-15	1SR35200TB	DIODE	Δ
IC411	M5219L	IC, INPUT AMP		D16	SVDS2V20	DIODE	Δ
IC501	MN6470	IC, DIF. &D/A CONVERTER		D17	1SR35200TB	DIODE	Δ
IC511-514	M5219L	IC, BUFFER		D18	SVDS2V20	DIODE	Δ
IC515, 516	M5238L	IC, BUFFER		D19	1SR35200TB	DIODE	Δ
IC551, 552	M5218L	IC, CLASS AA AMP		D21	MA4051TA	DIODE	
IC601	M50754-165FP	IC, PANEL CONTROL					

Ref. No.	Part No.	Part Name & Description	Remarks	Ref. No.	Part No.	Part Name & Description	Remarks
D201	MA701TX	DIODE		T1	RTP1L4E001	POWER TRANSFORMER	△ (E, EG)
D203	1N4606TR	DIODE		T1	RTP1L4B001	POWER TRANSFORMER	△ (EB)
D204	MA151ATW	DIODE		T381	RLZ0006-0	TRANSFORMER	△
D271	1S2473TR	DIODE					
D351	RVDSVC321	DIODE				FUSE (S)	
D381-384	MA165	DIODE					
D401	MA4033TA	DIODE		F1	XBA2C025TB0S	FUSE (250V, 250mA)	△
D501	MA165	DIODE					
D503-506	MA165	DIODE				OSCILLATOR (S)	
D507	MA4033TA	DIODE					
D509, 510	MA165	DIODE		X201	RSXC8M00J01T	OSCILLATOR	
D601-603	LN28RCPP-JF	DIODE		X202	RSXY8M00M01T	OSCILLATOR	
D605	LN31GPH-JF2	DIODE		X301	RSXY8M00M01T	OSCILLATOR	
D607	LN49YPH-JF1	DIODE		X351	RSXC16M3J01	OSCILLATOR	
D608	LN29RPH-JF1	DIODE		X352	RSXC22M5J01	OSCILLATOR	
D611-628	MA165	DIODE		X353	RSXC24M5J01	OSCILLATOR	
D630-643	MA165	DIODE		X354	RSXA28M2J01	OSCILLATOR	
				X601	RSXY6M00M01T	OSCILLATOR	
		VARIABLE RESISTOR(S)					
						DISPLAY TUBE	
VR104, 105	EVNDXAA00B53	V. R, RF REC LEVEL					
VR106	EVNDXAA00B14	V. R, RF REC LEVEL		FL601	RSL0037-F	DISPLAY TUBE	
VR107, 108	EVNDXAA00B13	V. R, SERVO ATF AMP GAIN ADJ.					
VR201	EVNDXAA00B54	V. R, PG PHASE ADJ.				SWITCH(ES)	
VR271	EVNDCAA03B54	V. R, TAPE BEGIN/END DET. ADJ.					
VR401	EVJCS1F04703	V. R, REC BALANCE		S1	ESB8249V	SW, POWER	△
VR402	EVJCF20F02A24	V. R, REC LEVEL		S381	ESD1521201	SW, D-IN SELECTOR	
VR451, 452	EVNDXAA00B13	V. R, ADAC OFFSET ADJ.		S601	ESD1511301	SW, TIMER	
VR551	EVU57A022A14	V. R, HEADPHONES LEVEL		S602	ESB64801	SW, ANALOG/DIGITAL	
VR601	EVQWVS00004E	V. R, SEARCH DIAL		S611	EVQQTG05R	SW, ERASE	
				S612	EVQQTG05R	SW, END SEARCH	
		COIL (S)		S613	EVQQTG05R	SW, START ID	
				S614	EVQQTG05R	SW, SKIP ID	
L1, 2	SLQX400-D	COIL	△	S615	EVQQTG05R	SW, END	
L101	ELJFA470KF	COIL		S616	EVQQTG05R	SW, COUNTER RESET	
L104	ELJFA180KF	COIL		S617	EVQQTG05R	SW, RENUMBER	
L106	ELJFA101KF	COIL		S618	EVQQTG05R	SW, REW	
L108	RLQZB471KT-D	COIL		S619	EVQQTG05R	SW, FF	
L109, 110	ELJFA180KF	COIL		S620	EVQQTG05R	SW, FADE OUT	
L120	RLQZB101KT-D	COIL		S621	EVQQTG05R	SW, FADE IN	
L202	RLM9R001-Z	COIL		S622	EVQQTG05R	SW, AUTO PNO	
L203	RLQZB101KT-D	COIL		S623	EVQQTG05R	SW, COUNTER MODE	
L351	RLQZB2R2KT-D	COIL		S624	EVQQTG05R	SW, REVERSE SKIP	
L352	RL03B002-M	COIL		S625	EVQQTG05R	SW, FORWARD SKIP	
L381	RLQZB470KT-D	COIL		S626	EVQQTG05R	SW, PAUSE	
L382-384	EXCELD35V	COMBINATION PART		S627	EVQQTG05R	SW, REC	
L481, 482	EXCELD35V	COMBINATION PART		S628	EVQQTG05R	SW, AUTO REC MUTE	
L550-552	EXCELD35V	COMBINATION PART		S630	EVQQTG05R	SW, WRITE	
L571, 572	EXCELD35V	COMBINATION PART		S631	EVQQTG05R	SW, PLAY	
				S632	EVQQTG05R	SW, STOP	
		TRANSFORMER (S)		S633	EVQQTG05R	SW, SKIP PLAY CANCEL	
				S634	EVQQTG05R	SW, MUSIC SCAN	

Ref. No.	Part No.	Part Name & Description	Remarks	Ref. No.	Part No.	Part Name & Description	Remarks
S635	EVQQTG05R	SW, OPEN/CLOSE		JCN65	REZ0142A	CONNECTOR ASS' Y(3P)	
S701	EVQWR4002	SW, TAPE HOLE DET.		JCN70	REZ0138A-1	CONNECTOR ASS' Y(2P)	
S702	EVQWXN001	SW, LOAD DET.				RELAY(S)	
S703	EVQWXM001	SW, MODE DET.					
S751, 752	SSPD18-1	SW, LEAF (OPEN/CLOSE)					
		CONNECTOR (S)		RLY501	AG80239	RELAY	
						REMOTE CONTROL SENSOR	
CN1	RHR197ZA	CONNECTOR (10P)					
CN2	SJSD1005	CONNECTOR (10P)		RM601	SVIHCMD08N	REMOTE CONTROL SENSOR	
CN3, 4	RHR197ZA	CONNECTOR (10P)				JACK(S)	
CN5	RHR193ZA	CONNECTOR (6P)					
CN6, 7	RJS6T4ZA	CONNECTOR (6P)		JK1	SJS9231B	AC INLET	△
CN10	RJP6G27ZA	CONNECTOR (6P)		JK301	SJF3057-7A-1	COAXIAL D-IN/OUT	
CN15	RJP4G27ZA	CONNECTOR (4P)		JK401	SJFD4-1	LINE IN	
CN17	RHR191ZA	CONNECTOR (4P)		JK501	SJFD4-1	LINE OUT	
CN18	RJS4T4ZA	CONNECTOR (4P)		JK550	SJJD19	HEADPHONE	
CN19	RJP4G27ZA	CONNECTOR (4P)					
CN21, 22	RJS6Q8ZA	CONNECTOR (6P)					
CN26	RJP8G27ZA	CONNECTOR (8P)					
CN27	RJS5T4ZA	CONNECTOR (5P)					
CN28	RHR192ZA	CONNECTOR (5P)					
CN29	RJS5T4ZA	CONNECTOR (5P)					
CN31	RHR192ZA	CONNECTOR (5P)					
CN41	RJP10G27ZA	CONNECTOR (10P)					
CN43, 44	SJSD1721	CONNECTOR (17P)					
CN45	RJP5G27ZA	CONNECTOR (5P)					
CN51	RJP3G27ZA	CONNECTOR (3P)					
CN52-54	RJU051W015	CONNECTOR (15P)					
CN56	RJP4G28ZA	CONNECTOR (4P)					
CN57	RJP6G28ZA	CONNECTOR (6P)					
CN58	RJT036W002	CONNECTOR (2P)					
CN62	RJS7Q11ZA	CONNECTOR (7P)					
CN65	RHR190ZA	CONNECTOR (3P)					
CN66	RJS3T4ZA	CONNECTOR (3P)					
		CONNECTOR ASS' Y					
JCN1	REZ0140A-1	CONNECTOR ASS' Y(10P)					
JCN3	REZ0120A	CONNECTOR ASS' Y(10P)					
JCN5	REZ0122A	CONNECTOR ASS' Y(6P)					
JCN8	REZ0133A	CONNECTOR ASS' Y(6P)					
JCN9	REZ0121A	CONNECTOR ASS' Y(6P)					
JCN16	REZ0134A	CONNECTOR ASS' Y(4P)					
JCN17	REZ0131A	CONNECTOR ASS' Y(4P)					
JCN20	REZ0119A	CONNECTOR ASS' Y(4P)					
JCN28	REZ0118A	CONNECTOR ASS' Y(5P)					
JCN30	REZ0132A	CONNECTOR ASS' Y(5P)					
JCN31	REZ0180A	CONNECTOR ASS' Y(5P)					
JCN42	REZ0125A	CONNECTOR ASS' Y(10P)					
JCN46	REZ0126A	CONNECTOR ASS' Y(5P)					
JCN56	REZ0127A	CONNECTOR ASS' Y(6P)					

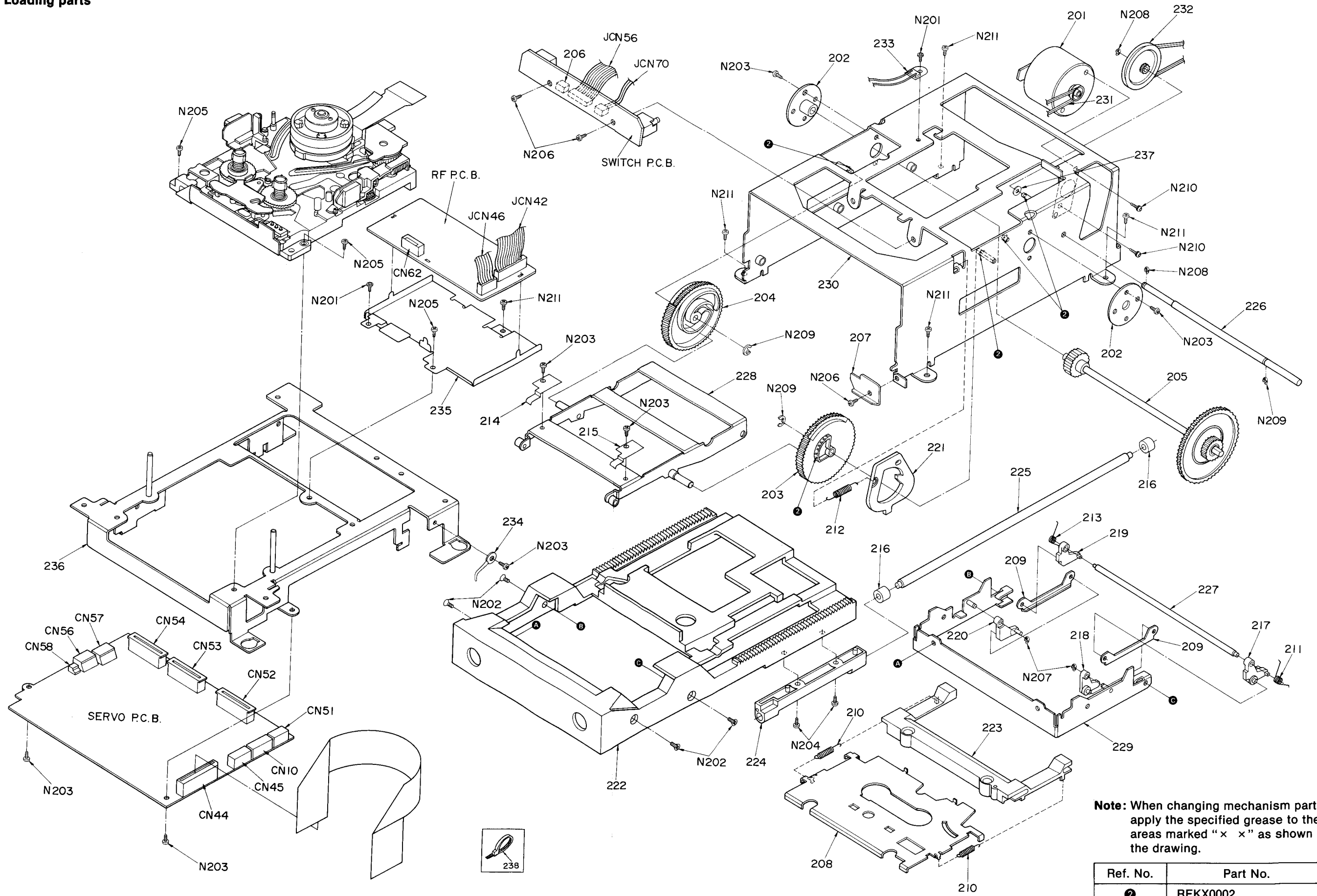
EXPLODED VIEWS

• Cabinet and chassis parts



• Loading parts

A
B
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D
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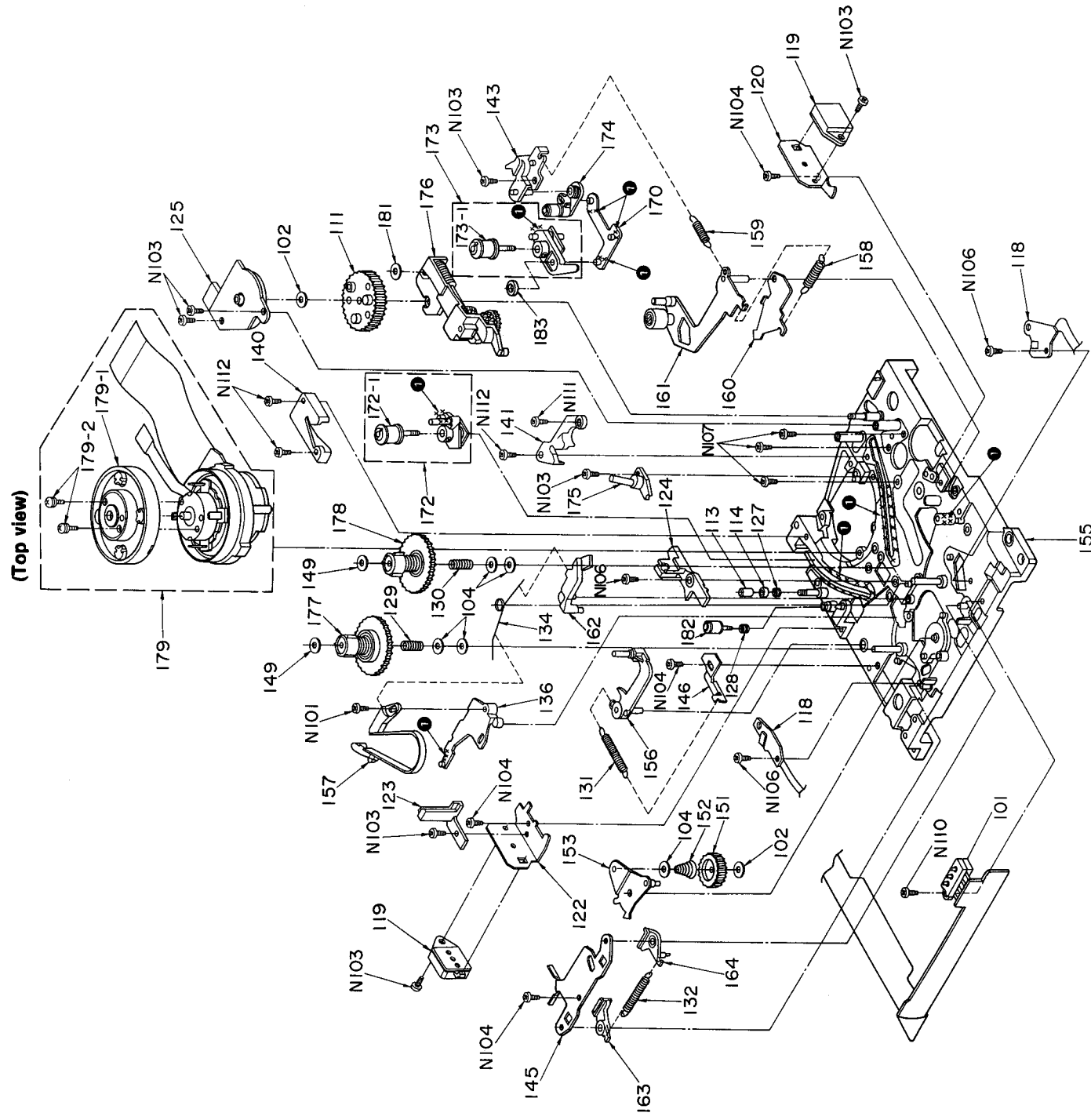
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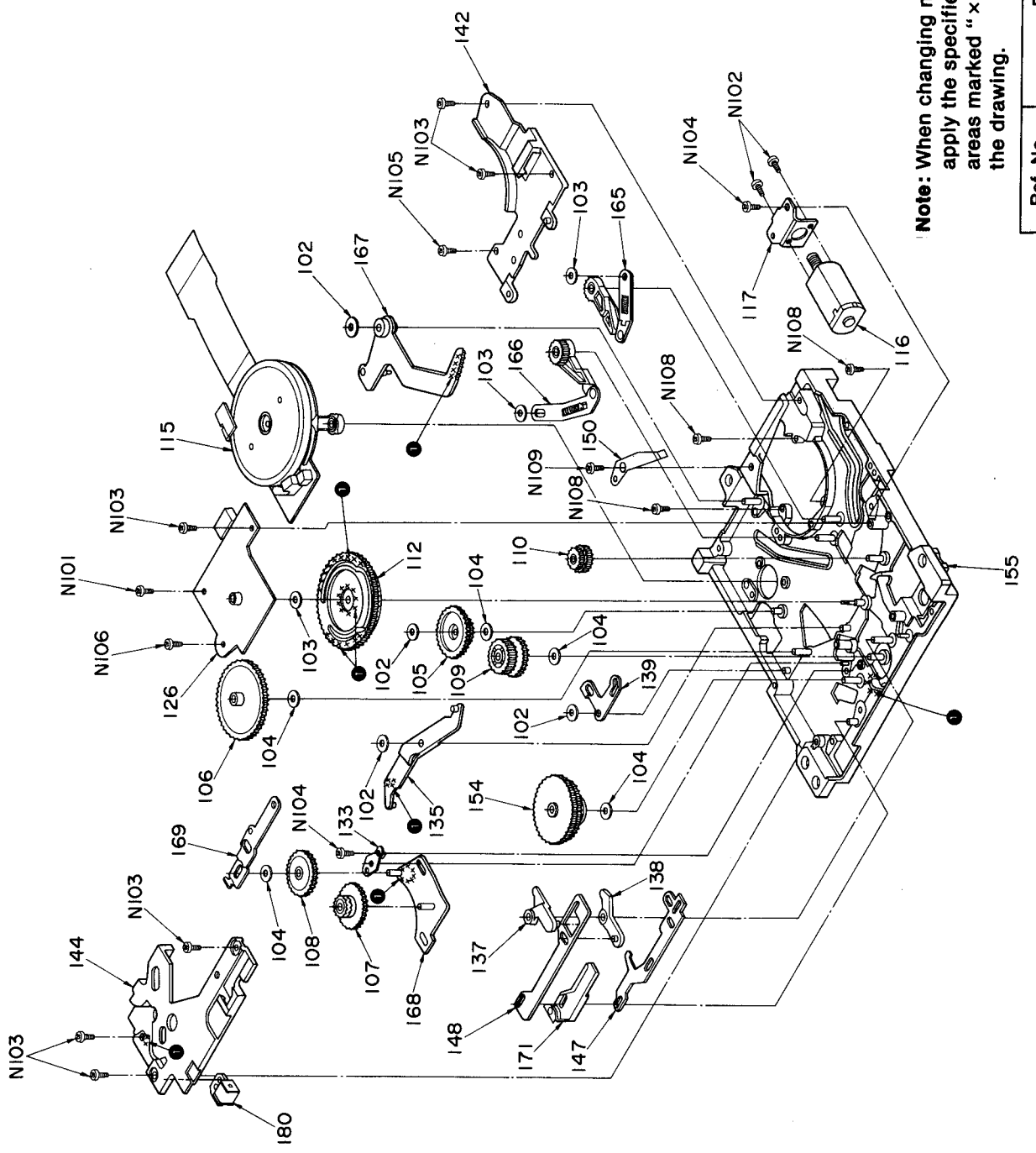
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• Mechanism parts (RAA1001)



(Bottom view)



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

Ref. No.	Part No.
1	RZZ0L05

REPLACEMENT PARTS LIST

Notes : * 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.
 * 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.
 * "(K)" mark parts are used for black type only, while "(A)" mark parts are used for gold type only.
 * Parts other than "(K)" and "(A)" marked are used for all color types.

Ref. No.	Part No.	Part Name & Description	Remarks	Ref. No.	Part No.	Part Name & Description	Remarks
		CABINET AND CHASSIS					
1	RM0030	RADIATOR		31	SBN1232-7A	KNOB, REC LEVEL	(A)
2	SJT347	FUSE HOLDER		32	SHE185-1	P. C. B. SUPPORT	
3	SMN2080	EARTH PLATE		33	SJS9231A	AC INLET COVER	
4	RMA0202	FL HOLDER		34	RMC0117	EARTH PLATE	
5	REZ0136A	CONNECTOR		35	RMC0117	EARTH PLATE	(EG)
6	REZ0137A	CONNECTOR				SCREWS	
7	RGK0165-K	TRAY ORNAMENT	(K)	N1	XTB3+8J	SCREW	
7	RGK0165-A	TRAY ORNAMENT	(A)	N2	SHDD4-1	SCREW	
8	RGQ0045	SPACER		N3	SNE2095-5	SCREW	(K)
9	SHR330	SPACER		N3	SNE2095-4	SCREW	(A)
10	RFKHVDA10EK	REAR PANEL ASS' Y	(E, EG)	N4	XTBS3+8JFZ1	SCREW	
10	RFKHVDA10EBK	REAR PANEL ASS' Y	(EB)	N5	XTB3+16JFR	SCREW	
11	RGU0030	BUTTON, POWER	(K)	N6	XTB3+10GFR	SCREW	
11	RGU0030-A	BUTTON, POWER	(A)	N7	XTB3+8GFR	SCREW	
12	RGU0235-K	BUTTON, OPERATION A	(K)	N8	XTV3+6G	SCREW	
12	RGU0235-A	BUTTON, OPERATION A	(A)	N9	XIW3+6T	SCREW	
13	RGU0236	BUTTON, OPERATION B	(K)	N10	XVE3A4FP	SCREW	(K)
13	RGU0236-A	BUTTON, OPERATION B	(A)	N10	XVE3A4FN	SCREW	(A)
14	RGU0237	BUTTON, OPERATION C	(K)	N11	XNS12	NUT	
14	RGU0237-A	BUTTON, OPERATION C	(A)	N12	XNS7S	NUT	
15	RGU0238	BUTTON, SWITCH	(K)	N13	XNS8S	NUT	
15	RGU0238-A	BUTTON, SWITCH	(A)	N14	XNS9	NUT	
16	RGV0033	KNOB, TIMER SWITCH	(K)	N15	XWC3B	WASHER	
16	RGV0033-A	KNOB, TIMER SWITCH	(A)	N16	XYA3+CJ16FR	SCREW	
17	RGW0055	KNOB, BALANCE/H. P LEVEL	(K)	N17	XTB3+6F	SCREW	
17	RGW0055-A	KNOB, BALANCE/H. P LEVEL	(A)	N18	XWC3B	WASHER	(EG)
18	RKA0009-1	FOOT	(K)	N19	XTB3+6F	SCREW	(EG)
18	RKA0009-H	FOOT	(A)			MECHANISM PARTS	
19	RKF0089	HOLDER (SERVO P. C. B.)					
20	RKM0076-K	CABINET	(K)	101	EVQWR4002	CASSETTE SW.	
20	RKM0076-A	CABINET	(A)	102	QBW2008	WASHER	
21	RMA0192	HOLDER (HEADPHONES)		103	QBW2030	WASHER	
22	RMA0193	HOLDER (BALANCE/REC LEVEL)		104	QBW2059	WASHER	
23	RMG0134	MECHANISM SUPPORT		105	RDG0066-1	MAIN GEAR A	
24	RMK0068-2	CHASSIS		106	RDG0067	MAIN GEAR B	
25	RFKGVDA10PPK	FRONT PANEL ASS' Y	(K)	107	RDG0068	IDLER GEAR (P)	
25	RFKGVDA10EA	FRONT PANEL ASS' Y	(A)	108	RDG0069	IDLER GEAR (F)	
26	RFKNVDA10EK	SHUTTLE KNOB ASS' Y	(K)	109	RDG0070	COUNTER GEAR	
26	RFKNVDA10EA	SHUTTLE KNOB ASS' Y	(A)	110	RDG0073-1	MODE REPEATING GEAR	
27	CSTW-2	RING		111	RDK0006-1	LOAD CAM	
28	SHRD202	SHUTTLE KNOB HOLDER		112	RDK0007-1	MODE CAM	
29	SHR9451	SPACER		113	RDPO020	FIXED POST	
30	SJSD162-1	SPRING		114	RDPO021	FIXED POST FLANGE	
31	SBN1232-7	KNOB, REC LEVEL	(K)	115	REM0001	CAPSTAN UNIT	

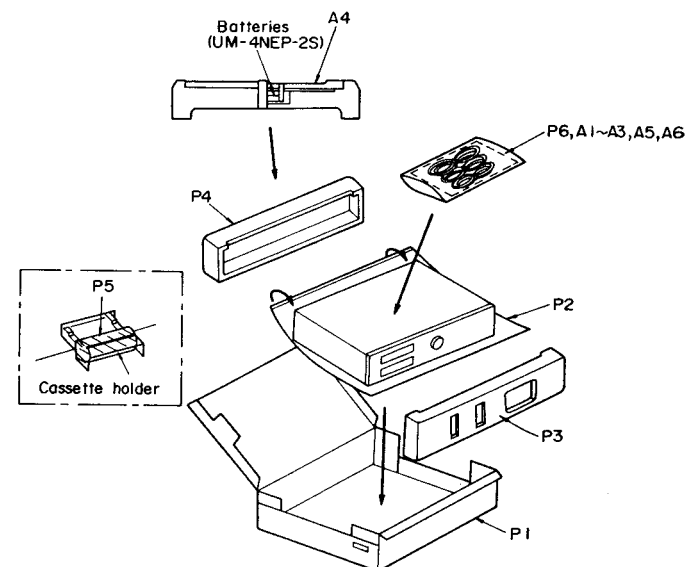
Ref. No.	Part No.	Part Name & Description	Remarks	Ref. No.	Part No.	Part Name & Description	Remarks
116	REM0009	MODE MOTOR ASS' Y		169	RXL0058	LEVER, P. F. SELECTION	
117	RMN0028	HOLDER, MODE MOTOR		170	RXM0018	GUIDE LINK ASS' Y	
118	REQ0012	INTERFACE P. C. B.		171	RXM0019	PLUNGER LINK ASS' Y	
119	REQ0014	BEGIN/END DET. SENSOR ASS' Y		172	RXP0016-2	S. POST ROLLER ASS' Y	
120	RMN0030	BEGIN DET. ANGLE		172-1	RXP0008	POST ROLLER	
122	RMN0029	END DET. ANGLE		173	RXP0017-1	T. POST ROLLER ASS' Y	
123	RMQ0059	LEAD OPENER		173-1	RXP0008	POST ROLLER	
124	REQ0018	BEGIN/END DET. LED ASS' Y		174	RXP0020-1	T. GUIDE ROLLER	
125	EVQWXN001	LOAD SW, ASS' Y		175	RXQ0057	T. INCLINED BASE ASS' Y	
126	EVQWXM001	MODE SW, ASS' Y		176	RXQ0079-1	LOAD HOLDER ASS' Y	
127	RMB0061	SPRING, FIXED POST		177	RXR0006	S. REEL ASS' Y	
128	RMB0063	SPRING, GUIDE ROLLER		178	RXR0007	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	RMC0034	ANGLE		181	QBW2081A	WASHER	
134	RME0037-1	SPRING, BT		182	RXP0027	GUIDE ROLLER	
135	RML0088	LEVER, PINCH		183	RHW12009	GUIDE WASHER	
136	RML0090	LEVER, TENSION				SCREWS	
137	RML0094	LEVER, S. BRAKE					
138	RML0095	LEVER, T. BRAKE					
139	RML0103	LEVER, LOAD SELECT		N101	QH1371	SCREW	
140	RMQ0052	S. STOPPER		N102	XQN14+C16	SCREW	
141	RMQ0053	T. STOPPER		N103	RHQ0014	SCREW	
142	RMQ0055	LOAD GUIDE HOLDER		N104	RHQ0007	SCREW	
143	RMQ0056-1	GUIDE ARM STOPPER		N105	RHQ0015	SCREW	
144	RMQ0058	MODE GUIDE PLATE		N106	RHQ0016	SCREW	
145	RMQ0062	IDLER GUIDE		N107	RHQ0017	SCREW	
146	RMQ0063	TENSION SPRING HOOK		N108	XQN16+A45T	SCREW	
147	RMQ0064-1	S. BRAKE DRIVE PLATE		N109	XQN2+A2	SCREW	
148	RMQ0065-1	T. BRAKE DRIVE PLATE		N110	RHQ0018	SCREW	
149	RNW1722A	WASHER		N111	RHQ0019	SCREW	
150	RUS740ZA	EARTH ANGLE		N112	RHQ0020	SCREW	
151	RDG0071	IDLER GEAR				LOADING PARTS	
152	RMB0069-1	IDLER SPRING					
153	RXL0051	IDLER ARM ASS' Y					
154	RXG0011-2	DRIVE GEAR		201	RFKPVDA10-K	MOTOR ASS' Y	
155	RXK0019	CHASSIS UNIT		202	RDB0032	HOLDER, GEAR SHAFT	
156	RXL0035-4	TENSION ARM ASS' Y		203	RDG0120-2	MAIN GEAR	
157	RXL0036	TENSION BAND ASS' Y		204	RDG0122-1	MAIN GEAR	
158	RMB0066	PIN PRESSURE SPRING		205	RFKNVDA10BK	GEAR SHAFT ASS' Y	
159	RMB0067	PINCH ROLLER SPRING		206	RJP2G27ZA	CONNECTOR (CN72)	
160	RMN0036	PIN PRESSURE LINK		207	RMA0194	SHAFT FRAME	
161	RXL0046	PINCH ARM ASS' Y		208	RMA0197	ANGLE, CASSETTE HOLDER	
162	RXL0048	BT LEVER ASS' Y		209	RMA0200	HOLDER ARM	
163	RXL0049	S. BRAKE ASS' Y		210	RMB0110	SPRING	
164	RXL0050	T. BRAKE ASS' Y		211	RMB0111	SPRING	
165	RXL0052-1	S. LOAD ARM		212	RMB0131	SPRING	
166	RXL0054-1	T. LOAD ARM		213	RMB0144	SPRING	
167	RXL0056-2	LOAD LEVER		214	RMC0050	ANGLE	
168	RXL0057	P. F. IDLER ASS' Y		215	RMC0051	ANGLE	

Ref. No.	Part No.	Part Name & Description	Remarks
216	RMG0090	RUBBER	
217	RML0139-1	HOLDER, SHAFT	
218	RML0140-1	HOLDER	
219	RML0141-1	HOLDER, SHAFT	
220	RML0142-1	HOLDER	
221	RML0150-1	HOLDER, MAIN GEAR	
222	RMRO206	TRAY	
223	RMRO207	CASSETTE HOLDER	
224	RMRO209-1	SHAFT ANGLE	
225	RMS0158-1	SHAFT	
226	RMS0160	SHAFT	
227	RMS0165	SHAFT	
228	RXA0046	SUB FRAME	
229	RXA0047	CASSETTE HOLDER	
230	RXK0059	FRAME	
231	SMQ20025	BELT	
232	SMQ40032	PULLEY GEAR	
233	EYH-S78A4	DEW SENSOR	
234	SHE36-3	EARTH TERMINAL	
235	RSC0066	SHIELD PLATE	
236	RXA0060	MECHANISM FRAME	
237	RMX0044	WASHER	
		SCREWS	
N201	XSN2+3	SCREW	
N202	XSS26+4FZ	SCREW	
N203	XTB3+6J	SCREW	
N204	XTN3+10G	SCREW	
N205	XTN3+6F	SCREW	
N207	XUC15FT	WASHER	
N208	XUC2FT	WASHER	
N209	XUC3FT	WASHER	
N210	XYN26+C33	SCREW	
N211	XTB3+6F	SCREW	
		PACKING MATERIAL	
P1	RPG0815	PACKING CASE	(K)
P1	RPG0816	PACKING CASE	(A)
P2	RPF0017	PROTECTION BAG (UNIT)	
P3	RPN0221	PAD (FRONT)	
P4	RPN0222-1	PAD (BACK)	
P5	RPH0065	TRAY COVER	
P6	XZB24X33C04	PROTECTION BAG (F. B.)	
		ACCESSORIES	
A1	RFKSYDA10EK	INST. MANUAL ASS'Y	(E)
A1	RQT0826-D	INSTRUCTION MANUAL	(EG)
A1	RQT0825-B	INSTRUCTION MANUAL	(EB)
A2	SJA187	AC POWER SUPPLY CORD	△ (E, EG)

Ref. No.	Part No.	Part Name & Description	Remarks
A2	SJA193	AC POWER SUPPLY CORD	△ (EB)
A3	SJP2249-4	STEREO CONNECTION CABLE	
A4	RAK-SV303W	REMOTE CONTROL TRANSMITTER	
A4-1	RKK0020-K	BATTERY COVER	
A5	RQAD013	WARRANTY CARD	
A6	RQCB0169	SERVICENTER LIST	
		<PRINTED CIRCUIT BOARD ASS'Y>	
PCB1	REPO418C	INPUT/OUTPUT TERMINAL P. C. B.	(NLA) (E, EB)
	REPO418D	POWER SUPPLY(2) P. C. B.	(NLA) (EG)
		AC IN P. C. B.	(NLA)
		POWER SWITCH P. C. B.,	(NLA)
		POWER TRANSFORMER P. C. B.	(NLA)
		POWER SUPPLY(1) P. C. B.	(NLA)
PCB2	REPO419A-1	MAIN P. C. B.	(NLA)
PCB3	REPO420A-1	BALANCE/REC LEVEL P. C. B.	(NLA)
		OPERATION P. C. B.	(NLA)
		SEARCH P. C. B.	(NLA)
		HEADPHONES JACK P. C. B.	(NLA)
PCB4	REPO417A	RF P. C. B., SERVO P. C. B.	(NLA)
PCB4-1	RFKBV3700-N	RF P. C. B. ASS'Y	(NLA)
PCB4-2	RFKBV3700-0	SERVO P. C. B. ASS'Y	(NLA)
PCB5	REPO421A	TRAY MOTOR P. C. B.	(NLA)
		SWITCH P. C. B.	(NLA)
PCB6	REQ0012	CONNECTOR P. C. B.	(NLA)
		<MECHANISM ASS'Y>	
MECH1	RAA1001	MECHANISM UNIT	(NLA)

Note: Printed circuit board assembly and mechanism assembly with mark (NLA) is no longer available after discontinuation of the product.

PACKING



RESISTORS & CAPACITORS

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

Ref. No.	Part No.	Values & Remarks	Ref. No.	Part No.	Values & Remarks	Ref. No.	Part No.	Values & Remarks
			R205	ERJ6GEYJ683V	1/10W 68K	R286	ERJ6GEYJ103V	1/10W 10K
			R206	ERJ6GEYJ684V	1/10W 680K	R287	ERJ6GEYJ684V	1/10W 680K
			R207	ERJ6GEYJ472V	1/10W 4.7K	R289, 290	ERJ6GEYJ473V	1/10W 47K
			R208	ERJ6GEYJ683V	1/10W 68K	R292, 293	ERJ6GEYJ563V	1/10W 56K
		RESISTORS	R209	ERJ6GEYJ153V	1/10W 15K	R294-296	ERJ6GEYJ473V	1/10W 47K
			R210	ERJ6GEYJ102V	1/10W 1K	R297	ERJ6GEYJ220	1/10W 22
R11	ERDS2TJ392T	1/4W 3.9K	R212	ERJ6GEYJ105	1/10W 1M	R298	ERJ6GEYJ473V	1/10W 47K
R12	ERD25FJ102	1/4W 1K Δ	R213	ERJ6GEYJ274V	1/10W 270K	R301-312	ERJ6GEYJ332V	1/10W 3.3K
R13, 14	ERGIANJP560S	1W 56	R214	ERJ6GEYJ682V	1/10W 6.8K	R313	ERJ6GEYJ331V	1/10W 330
R16	ERD25FVJ222T	1/4W 2.2K Δ	R215	ERJ6GEYJ184V	1/10W 180K	R314	ERJ6GEYJ272V	1/10W 2.7K
R101, 102	ERJ6GEYJ221V	1/10W 220	R216	ERJ6GEYJ101V	1/10W 100	R315-320	ERJ6GEYJ561V	1/10W 560
R103, 104	ERJ6GEYJ681V	1/10W 680	R217, 218	ERJ6GEYJ472V	1/10W 4.7K	R321	ERJ6GEYJ331V	1/10W 330
R112, 113	ERJ6GEYJ332V	1/10W 3.3K	R219, 220	ERJ6GEYJ103V	1/10W 10K	R322	ERJ6GEYJ561V	1/10W 560
R115	ERJ6GEYJ332V	1/10W 3.3K	R221, 222	ERJ6GEYJ474V	1/10W 470K	R323	ERJ6GEYJ473V	1/10W 47K
R117	ERJ6GEYJ102V	1/10W 1K	R223, 224	ERJ6GEYJ222V	1/10W 2.2K	R324-326	ERJ6GEYJ332V	1/10W 3.3K
R118	ERJ6GEYJ471V	1/10W 470	R225, 226	ERJ6GEYJ184V	1/10W 180K	R331-333	ERJ6GEYJ105	1/10W 1M
R123	ERJ6GEYJ822V	1/10W 8.2K	R227	ERJ6GEYJ102V	1/10W 1K	R334-336	ERJ6GEYJ561V	1/10W 560
R124	ERJ6GEYJ152V	1/10W 1.5K	R228	ERJ6GEYJ222V	1/10W 2.2K	R337-339	ERJ6GEYJ102V	1/10W 1K
R126	ERJ6GEYJ152V	1/10W 1.5K	R229	ERJ6GEYJ103V	1/10W 10K	R340-345	ERJ6GEYJ101V	1/10W 100
R128	ERJ6GEYJ822V	1/10W 8.2K	R230	ERJ6GEYJ681V	1/10W 680	R351, 352	RRJ6GCAD822T	1/10W 8.2K
R131	ERJ6GEYJ331V	1/10W 330	R231	ERJ6GEYJ821V	1/10W 820	R354	RRJ6GCAD822T	1/10W 8.2K
R132, 133	ERJ6GEYJ221V	1/10W 220	R232	ERJ6GEYJ333V	1/10W 33K	R355	ERJ6GEYJ102V	1/10W 1K
R134	ERJ6GEYJ102V	1/10W 1K	R233	ERJ6GEYJ393V	1/10W 39K	R356-358	ERJ6GEYJ103V	1/10W 10K
R135, 136	ERJ6GEYJ471V	1/10W 470	R234	ERJ6GEYJ333V	1/10W 33K	R359	ERJ6GEYJ102V	1/10W 1K
R150	ERJ6GEYJ102V	1/10W 1K	R235	ERJ6GEYJ473V	1/10W 47K	R360	RRJ6GCAD183T	1/10W 18K
R151, 152	ERJ6GEYJ471V	1/10W 470	R236	ERJ6GEYJ332V	1/10W 3.3K	R361	RRJ6GCAD153T	1/10W 15K
R153	ERJ6GEYJ223V	1/10W 22K	R237	ERX12SJR33E	1/2W 0.33 Δ	R362	ERJ6GEYJ561V	1/10W 560
R154, 155	ERJ6GEYJ471V	1/10W 470	R240	ERJ6GEYJ151V	1/10W 150	R363	ERJ6GEYJ103V	1/10W 10K
R156, 157	ERJ6GEYJ222V	1/10W 2.2K	R241	ERJ6GEYJ333V	1/10W 33K	R364	ERJ6GEYJ105	1/10W 1M
R158	ERJ6GEYJ102V	1/10W 1K	R242	ERJ6GEYJ103V	1/10W 10K	R365	ERJ6GEYJ331V	1/10W 330
R159	ERJ6GEYJ223V	1/10W 22K	R243	ERJ6GEYJ473V	1/10W 47K	R366	RRJ6GCAD683T	1/10W 68K
R160	ERJ6GEYJ221V	1/10W 220	R244	ERJ6GEYJ102V	1/10W 1K	R367	ERJ6GEYJ331V	1/10W 330
R162	ERJ6GEYJ472V	1/10W 4.7K	R245	ERX12SJR33E	1/2W 0.33 Δ	R368	ERJ6GEYJ561V	1/10W 560
R164, 165	ERJ6GEYJ472V	1/10W 4.7K	R247	ERJ6GEYJ331V	1/10W 330	R369	ERJ6GEYJ330V	1/10W 33
R167	ERJ6GEYJ332V	1/10W 3.3K	R248	ERJ6GEYJ822V	1/10W 8.2K	R371, 372	ERJ6GEYJ473V	1/10W 47K
R168	ERJ6GEYJ102V	1/10W 1K	R249	ERJ6GEYJ472V	1/10W 4.7K	R381, 382	ERDS2TJ750	1/4W 75
R169	ERJ6GEYJ471V	1/10W 470	R250	ERJ6GEYJ153V	1/10W 15K	R383	ERDS2TJ473	1/4W 47K
R172	ERJ6GEYJ102V	1/10W 1K	R251	ERJ6GEYJ104V	1/10W 100K	R384	ERDS2TJ334	1/4W 330K
R173, 174	ERJ6GEYJ222V	1/10W 2.2K	R271, 272	ERJ6GEYJ103V	1/10W 10K	R385	ERDS2TJ822	1/4W 8.2K
R175	ERJ6GEYJ151V	1/10W 150	R273	ERJ6GEYJ681V	1/10W 680	R386	ERDS2TJ102	1/4W 1K
R176	ERJ6GEYJ104V	1/10W 100K	R274	ERSB39JR82U	1/4W 0.82	R387	ERDS2TJ331	1/4W 330
R178	ERJ6GEYJ820V	1/10W 82	R275	ERJ6GEYJ473V	1/10W 47K	R411, 412	ERDAS3J273T	1/4W 27K
R181	ERJ6GEYJ331V	1/10W 330	R277, 278	ERJ6GEYJ333V	1/10W 33K	R413, 414	ERDAS3J472T	1/4W 4.7K
R193-195	ERJ6GEYJ102V	1/10W 1K	R279	ERJ6GEYJ683V	1/10W 68K	R415, 416	ERDAS3J392T	1/4W 3.9K
R196	ERJ6GEYJ103V	1/10W 10K	R280	ERJ6GEYJ333V	1/10W 33K	R417-422	ERDAS3J682T	1/4W 6.8K
R197	ERJ6GEYJ102V	1/10W 1K	R281	ERJ6GEYJ332V	1/10W 3.3K	R423, 424	ERDAS3J102T	1/4W 1K
R201	ERJ6GEYJ102V	1/10W 1K	R282	ERJ6GEYJ682V	1/10W 6.8K	R431, 432	ERJ6GEYJ103V	1/10W 10K
R202, 203	ERJ6GEYJ223V	1/10W 22K	R284	ERJ6GEYJ103V	1/10W 10K	R435-440	ERJ6GEYJ103V	1/10W 10K
R204	ERJ6GEYJ103V	1/10W 10K	R285	ERJ6GEYJ104V	1/10W 100K	R441, 442	ERDAS3J102T	1/4W 1K

Ref. No.	Part No.	Values & Remarks	Ref. No.	Part No.	Values & Remarks	Ref. No.	Part No.	Values & Remarks
R443, 444	ERJ6GEYJ103V	1/10W 10K	R612	ERDS2TJ102	1/4W 1K	C177, 178	ECUV1H101KCN	50V 100P
R445, 446	ERJ6GEYJ223V	1/10W 22K	R613-619	ERDS2TJ103	1/4W 10K	C179	ECUV1E104MBN	25V 0.1U
R447, 448	ERJ6GEYJ561V	1/10W 560	R620	ERDS2TJ471	1/4W 470	C181	ECUV1C1052FM	16V 1U
R453	ERJ6GEYJ103V	1/10W 10K	R621	ERDS2TJ105T	1/4W 1M	C185, 186	ECUV1H331KCN	50V 330P
R471, 472	ERDS2TJ474	1/4W 470K				C187	ECUV1H470JCN	50V 47P
R473-476	ERDAS3J273T	1/4W 27K			CAPACITORS	C188	ECUV1H331KCN	50V 330P
R477-480	ERDAS3J472T	1/4W 4.7K				C190	ECUV1H180JCN	50V 18P
R481, 482	ERDAS3J271T	1/4W 270K	C1	ECKWKC103PF2	400V 0.01U (E, EB) Δ	C201	ECEA0JK470	6.3V 47U
R491, 492	ERDS2TJ473	1/4W 47K	C1	ECKWNS103ZVS	400V 0.01U (EG) Δ	C202	ECUV1E104ZFN	25V 0.1U
R502	ERD25FJ331	1/4W 330 Δ	C11-18	ECKR1H103ZF5	50V 0.01U	C203, 204	ECUV1H180JCN	50V 18P
R503-506	ERJ6GEYJ102V	1/10W 1K	C19	ECKR2H682PE	500V 6800P	C205, 206	ECUV1E104ZFN	25V 0.1U
R509, 510	ERJ6GEYJ102V	1/10W 1K	C20	ECEA1EPZ332E	25V 3300U	C207	ECUV1H271KCN	50V 270P
R511, 512	ERDS2TJ331	1/4W 330	C21	ECEA1CU100	16V 10U	C208	ECUV1H221KCN	50V 220P
R515	ERJ6GEYJ101V	1/10W 100	C22	ECEA1EPZ332E	25V 3300U	C209, 210	ECUV1E104MBN	25V 0.1U
R516	ERJ6GEYJ105	1/10W 1M	C23	ECEA1CU100	16V 10U	C211	ECUV1H221KCN	50V 220P
R517, 518	ERDS2TJ102	1/4W 1K	C24	ECES1EU682G	25V 6800P	C212, 213	ECEA1CK220	16V 22U
R521-524	ERDAS3J103T	1/4W 10K	C25	ECEA1CU100	16V 10U	C214, 215	ECUV1H101KCN	50V 100P
R525-528	ERDAS3J393T	1/4W 39K	C26	ECEA1CU472E	16V 4700U	C216, 217	ECUV1C1052FM	16V 1U
R529-532	ERDAS3J332T	1/4W 3.3K	C27	ECEA1CU100	16V 10U	C218, 219	ECUV1H390KCN	50V 39P
R533-536	ERDAS3J272T	1/4W 2.7K	C28	ECEA1HJ221B	50V 220U	C220, 221	ECUV1H121KCN	50V 120P
R537-540	ERDAS3J103T	1/4W 10K	C29	ECEA1VU330	35V 33U	C222, 223	ECUV1C1052FM	16V 1U
R541, 542	ERDAS3J183T	1/4W 18K	C30, 31	ECKR1H103ZF5	50V 0.01U	C224	ECQV1H683JZ3	50V 0.68U
R543, 544	ERDAS3J392T	1/4W 3.9K	C32	ECEA1EU470	25V 47U	C225, 226	ECUV1H332MBN	50V 3300P
R545, 546	ERJ6GEYJ105	1/10W 1M	C34	ECKR1H103ZF5	50V 0.01U	C227	ECUV1E333MDN	25V 0.033U
R547, 548	ERDAS3J183T	1/4W 18K	C101, 102	ECUV1H222KBN	50V 2200P	C228	ECUV1H181KCN	50V 180P
R549, 550	ERDAS3J222T	1/4W 2.2K	C103, 104	ECUV1H471KCN	50V 470P	C229	ECEA0JK221B	6.3V 220U
R551, 552	ERDAS3J393T	1/4W 39K	C105	ECUV1H470JCN	50V 47P	C230	ECEA0JK470	6.3V 47U
R553, 554	ERDAS3G100T	1/4W 10	C107	ECUV1H222KBN	50V 2200P	C231	ECEA1AJ470	10V 47U
R555, 556	ERDAS3G330T	1/4W 33	C110	ECEA0JK221B	6.3V 220U	C232	ECEA1CK220	16V 22U
R557, 558	ERDAS3G332T	1/4W 3.3K	C123	ECUV1C1052FM	16V 1U	C233	ECUV1E104ZFN	25V 0.1U
R559, 560	ERDAS3G102T	1/4W 1K	C124, 125	ECUV1H472KBN	50V 4700P	C234	ECEA1CK470	16V 47U
R561, 562	ERDAS3J271T	1/4W 270	C126, 127	ECUV1H470JCN	50V 47P	C235, 236	ECUV1E104ZFN	25V 0.1U
R563, 564	ERDS2TJ474	1/4W 470K	C129, 130	ECEA0JKS220B	6.3V 22U	C237	ECUV1C1052FM	16V 1U
R565, 566	ERDS2TJ560T	1/4W 56	C131	ECUV1H222KBN	50V 2200P	C238	ECUV1E223MBN	25V 0.022U
R567, 568	ERDS2TJ102	1/4W 1K	C150	ECUV1H471KCN	50V 470P	C239	ECUV1E683MBN	25V 0.068U
R569, 570	ERJ6GEYJ105	1/10W 1M	C151	ECUV1H222KBN	50V 2200P	C240	ECUV1E153MBN	25V 0.015U
R571, 572	ERDAS3J331T	1/4W 330	C152	ECUV1H102KBN	50V 1000P	C241	ECUV1E104MBN	25V 0.1U
R573, 574	ERDS2TJ104	1/4W 100K	C154	ECUV1H220JCN	50V 22P	C242-246	ECUV1E104ZFN	25V 0.1U
R575, 576	ERDS2TJ102	1/4W 1K	C155, 156	ECUV1H102KBN	50V 1000P	C247, 248	ECUV1E333MDN	25V 0.033U
R577, 578	ERDS2TJ103	1/4W 10K	C157	ECUV1C1052FM	16V 1U	C249	ECUV1E153MBN	25V 0.015U
R579, 580	ERDS2TJ123	1/4W 12K	C159	ECUV1H220JCN	50V 22P	C250	ECUV1E104MBN	25V 0.1U
R581, 582	ERDS2TJ104	1/4W 100K	C161	ECUV1H562KBN	50V 5600P	C251-253	ECUV1E104ZFN	25V 0.1U
R583, 584	ERDAS3G100T	1/4W 10	C163	ECUV1H562KBN	50V 5600P	C260	ECUV1E334ZFM	25V 0.33U
R585, 586	ERDAS3G330T	1/4W 33	C166	ECUV1E153MBN	25V 0.015U	C268	ECUV1C1052FM	16V 1U
R587, 588	ERDAS3G332T	1/4W 3.3K	C167	ECUV1H102KBN	50V 1000P	C269	ECUV1E103KBN	25V 0.01U
R589, 590	ERDAS3G102T	1/4W 1K	C168	ECUV1H270JCN	50V 27P	C270	ECEA0JK470	6.3V 47U
R591, 592	ERDS2EJ121	1/4W 120	C169	ECUV1H100JCN	50V 10P	C271	ECUV1E104ZFN	25V 0.1U
R593-596	ERDS2TJ222	1/4W 2.2K	C171, 172	ECUV1H680JCN	50V 68P	C272	ECUV1E223MBN	25V 0.022U
R601-604	ERDS2TJ472	1/4W 4.7K	C173	ECUV1H471KCN	50V 470P	C273	ECUV1H101KCN	50V 100P
R605	ERDS2TJ100	1/4W 10	C174	ECUV1E104MBN	25V 0.1U	C274	ECUV1E103KBN	25V 0.01U
R606-608	ERDS2TJ102	1/4W 1K	C175	ECUV1H472KBN	50V 4700P	C275	ECUV1C1052FM	16V 1U
R610, 611	ERDS2TJ471	1/4W 470	C176	ECUV1E333MDN	25V 0.033U	C276	ECUV1H221KCN	50V 220P

Ref. No.	Part No.	Values & Remarks	Ref. No.	Part No.	Values & Remarks	Ref. No.	Part No.	Values & Remarks
C280	ECUV1C334ZFN	16V 0.33U	C391	ECEA1H4R7	50V 4.7U	C553, 554	ECKT1H101KB	50V 100P
C301-303	ECUV1H103ZFN	50V 0.01U	C392-395	ECUV1H103ZFN	50V 0.01U	C555, 556	ECQV1H104JZ3	50V 0.1U
C311-313	ECUV1H103ZFN	50V 0.01U	C397	ECUV1H103ZFN	50V 0.01U	C561, 562	ECEA1CU220	16V 22U
C314	ECUV1H470KCN	50V 47P	C398	ECUV1H470KCN	50V 47P	C563, 564	ECEA1CN100SB	16V 10U
C315	ECUV1H103ZFN	50V 0.01U	C404, 405	ECUV1H103ZFN	50V 0.01U	C571, 572	ECHR1H102JZ3	50V 1000P
C316	ECUV1H180JCN	50V 18P	C411, 412	ECEA1CBZ330B	16V 33U	C602, 603	ECEA0JK470	6.3V 47U
C317, 318	ECUV1H470KCN	50V 47P	C413, 414	ECHR1H681JZ3	50V 680P	C604, 605	ECBT1E103ZF	25V 0.01U
C319	ECUV1H180JCN	50V 18P	C415, 416	ECHR1H182JZ3	50V 1800P	C652	ECBT1H102KB5	50V 1000P
C320-322	ECUV1H100JCN	50V 10P	C417, 418	ECHR1H101JZ3	50V 100P	C654	ECBT1H102KB5	50V 1000P
C323, 324	ECUV1H103ZFN	50V 0.01U	C419, 420	ECEA1CPZ101B	16V 100U	C655	ECEA1VK100B	35V 10U
C342	ECUV1H103ZFN	50V 0.01U	C421, 422	ECHR1H101JZ3	50V 100P	C656	ECBT1H102KB5	50V 1000P
C348, 349	ECUV1H102KBN	50V 1000P	C423, 424	ECEA1CPZ101B	16V 100U	C657	ECEA0JK470	6.3V 47U
C350	ECUV1H103ZFN	50V 0.01U	C425-427	ECUV1H103ZFN	50V 0.01U	C658	ECBT1E103ZF	25V 0.01U
C351	ECUV1E473MBN	25V 0.047U	C429, 430	ECUV1H103ZFN	50V 0.01U	C659	ECEA1VK100B	35V 10U
C352	ECUV1H820JCN	50V 82P	C431, 432	ECEA0JPZ221B	6.3V 220U	C660	ECBT1E103ZF	25V 0.01U
C353	ECUV1H471JCN	50V 470P	C433, 434	ECUV1H103ZFN	50V 0.01U	C694	ECBT1E103ZF	25V 0.01U
C354, 355	ECUV1H221JCN	50V 220P	C435, 436	ECUV1H102KBN	50V 1000P	C751	ECKW1H103ZF5	50V 0.01U
C356	ECUV1H151JCN	50V 150P	C437, 438	ECEA1H4R7	50V 4.7U			
C357	ECEA0JU330	6.3V 33U	C439-441	ECEA1CU220	16V 22U			
C358-361	ECUV1H180JCN	50V 18P	C442	ECUV1H103ZFN	50V 0.01U			
C362, 363	ECUV1H150JCN	50V 15P	C443, 444	ECEA1CU220	16V 22U			
C364	ECUV1H050CCN	50V 5P	C445, 446	ECQV1H104JZ3	50V 0.1U			
C365	ECUV1H102KBN	50V 1000P	C447-450	ECUV1H103ZFN	50V 0.01U			
C366	ECUV1H103ZFN	50V 0.01U	C451-454	ECEA0JU221	6.3V 220U			
C367, 368	ECEA0JU330	6.3V 33U	C455, 456	ECEA0JPZ221B	6.3V 220U			
C369	ECEA0JU221	6.3V 220U	C457, 458	ECUV1H221JCN	50V 220P			
C370	ECUV1H150JCN	50V 15P	C481, 482	ECHR1H102JZ3	50V 1000P			
C371	ECUV1E104ZFN	25V 0.1U	C483, 484	ECEA1CBZ330B	16V 33U			
C372	ECEA0JU330	6.3V 33U	C485, 486	ECEA1CPZ101B	16V 100U			
C373	ECUV1H103ZFN	50V 0.01U	C491, 492	ECEA1CBZ330B	16V 33U			
C374	ECEA0JU330	6.3V 33U	C493, 494	ECKR1H103ZF5	50V 0.01U			
C375	ECUV1E104ZFN	25V 0.1U	C501	ECEA0JU471	6.3V 470U			
C376	ECUV1E103KBN	25V 0.01U	C502	ECUV1E104ZFN	25V 0.1U			
C377, 378	ECUV1E223MBN	25V 0.022U	C503	ECEA0JU471	6.3V 470U			
C379	ECUV1E104ZFN	25V 0.1U	C504, 505	ECUV1E104ZFN	25V 0.1U			
C380	ECUV1H103ZFN	50V 0.01U	C507, 508	ECEA1CU101	16V 100U			
C381	ECQV1H104JZ3	50V 0.1U	C511, 512	ECEA0JPZ331B	6.3V 330U			
C381	ECUV1E104ZFN	25V 0.1U	C513, 514	ECUV1E104ZFN	25V 0.1U			
C382	ECEA0JU101B	6.3V 100U	C515-518	ECEA1CPZ101B	16V 100U			
C382	ECUV1E104ZFN	25V 0.1U	C519	ECUV1H103ZFN	50V 0.01U			
C383	ECKR1H103ZF5	50V 0.01U	C521, 522	ECHR1H331JZ3	50V 330P			
C383	ECUV1E104ZFN	25V 0.1U	C523, 524	ECUV1H150KCN	50V 15P			
C384	ECQB1H103JZ	50V 0.01U	C525, 526	ECHR1H331JZ3	50V 330P			
C385	ECKW1H103ZF5	50V 0.01U	C527, 528	ECEA1CBZ330B	16V 33U			
C385	ECUV1H103ZFN	50V 0.01U	C529, 530	ECHR1H392JZ3	50V 3900P			
C386	ECKD1H471KB	50V 470P	C531, 532	ECHR1H151JZ3	50V 150P			
C387	ECCR1H470K5	50V 47P	C533, 534	ECHR1H392JZ3	50V 3900P			
C388	ECQV1H104JZ3	50V 0.1U	C535, 536	ECHR1H101JZ3	50V 100P			
C389	ECKR1H103ZF5	50V 0.01U	C537, 538	ECEA1CBZ330B	16V 33U			
C389	ECUV1E104ZFN	25V 0.1U	C539, 540	ECQB1H103JZ	50V 0.01U			
C390	ECKR1H103ZF5	50V 0.01U	C541-544	ECUV1H820JCN	50V 82P			
C390	ECUV1H103ZFN	50V 0.01U	C550-552	ECQV1H104JZ3	50V 0.1U			