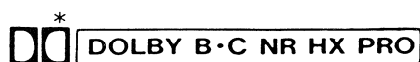


Service Manual

Dolby NR-Equipped
Stereo Cassette Deck

Cassette Deck
RS-BX707



Color

(K)... Black Type



Area

Country Code	Area	Color
(EB)	Great Britain.	(K)
(EG)	F.R. Germany and Italy./Continental Europe.	

*HX Pro headroom extension originated by Bang Olufsen and manufactured under license from Dolby Laboratories Licensing Corporation. "DOLBY", the double-D symbol, and "HX PRO" are trademarks of Dolby Laboratories Licensing Corporation.

RS-TR555 MECHANISM SERIES (AR350)

SPECIFICATIONS

■ CASSETTE DECK SECTION

Deck system	Stereo cassette deck
Track system	4-track, 2-channel
Recording system	AC bias
Bias frequency	80 kHz
Erasing system	AC erase
Heads	

Recording head [Permalloy (Combination)]×1
Playback head [Permalloy (Combination)]×1
Erasing head (Double-gap ferrite)×1

Motors

Capstan drive (Quartz DD motor)×1
Reel table drive (DC motor)×1
Cassette holder open/close (DC motor)×1

Tape speed	4.8 cm/sec. (1 $\frac{7}{8}$ ips)
Wow and flutter	0.05% (WRMS) ±0.14% (DIN)

Fast forward and rewind time

Approx. 100 seconds with C-60 cassette tape

Frequency response (Dolby NR off)

NORMAL	30 Hz~17 kHz, ±3 dB 20 Hz~18 kHz (DIN)
CrO ₂	30 Hz~18 kHz, ±3 dB 20 Hz~19 kHz (DIN)
METAL	30 Hz~19 kHz, ±3 dB 20 Hz~20 kHz (DIN)

S/N (signal level=max recording level, CrO₂ type tape)

NR off	57 dB (A weighted)
Dolby B NR on	66 dB (CCIR)
Dolby C NR on	74 dB (CCIR)

Input sensitivity and impedance

LINE IN	60 mV/47 kΩ
---------	-------------

Output voltage and impedance

LINE OUT	400 mV/800 Ω
HEADPHONES	125 mV/8 Ω
	(Load impedance 8 Ω~600 Ω)

■ GENERAL

Power consumption	20 W
Power supply	AC 50 Hz/60 Hz, 230 V~240 V
Dimensions (W×H×D)	430×135×300 mm (16 $\frac{15}{16}$ "×5 $\frac{5}{16}$ "×11 $\frac{13}{16}$ ")
Weight	5.0 kg (11 lb.)

Note:

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

Technics

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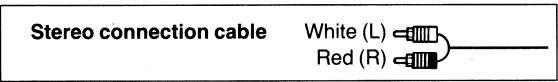
TECHNICAL INFORMATION

This technical information is located on pp 45-51 of the RS-B555 Service Manual (Order No. AD8907231C5). Therefore, refer to that Service Manual. There is a few differences in this schematic diagram. But this is the same as RS-B555 basically.

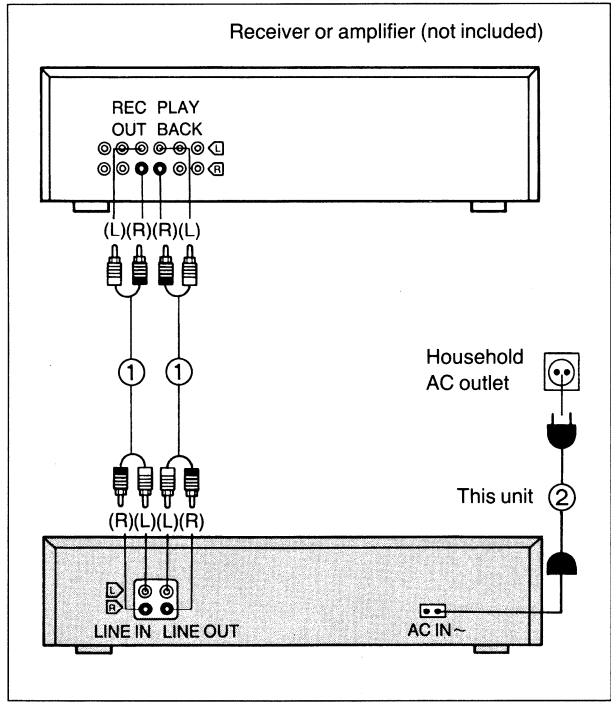
CONNECTIONS

Make connections in the numbered sequence by using the included cables.

1 Connect the stereo connection cables.



2 Connect the AC power supply cord.



AC power supply cord (2)

The configuration of the AC outlet and AC power supply cord differs according to area.

Placement hints

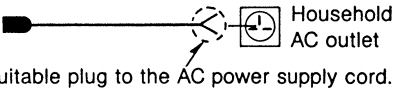
If this unit is placed near a receiver or a tuner, a “hum” noise may be heard during tape playback, recording, or AM reception of the receiver or the tuner. If this occurs, leave as much space as possible between the units, or place them where is the least amount of “hum”.

Note:

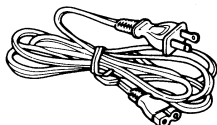
This unit is a precision instrument. Be sure to place it on a flat surface.

For (EB) area

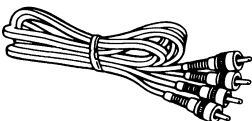
Cut off and dispose of the plug and replace with a suitable plug.



ACCESSORIES



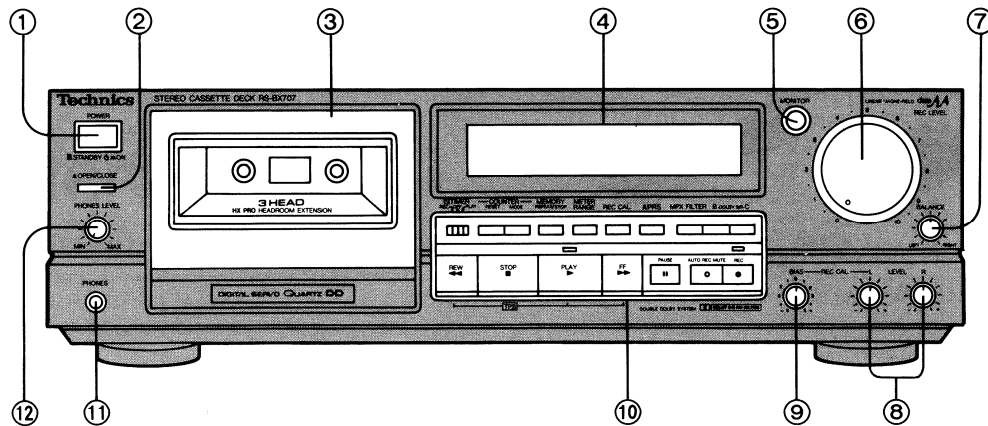
AC power supply cord
[SFDAC05E03] (EG) 1 pc.
[SJA193] (EB)



Stereo connection cables
(SJP2249-3) 2 pcs.

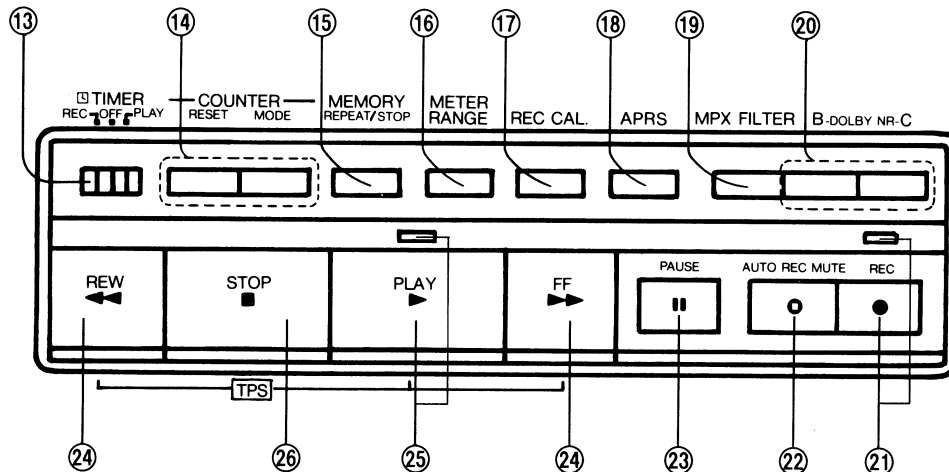
Note: Configuration of AC power supply cord differs according to area.

LOCATION OF CONTROLS



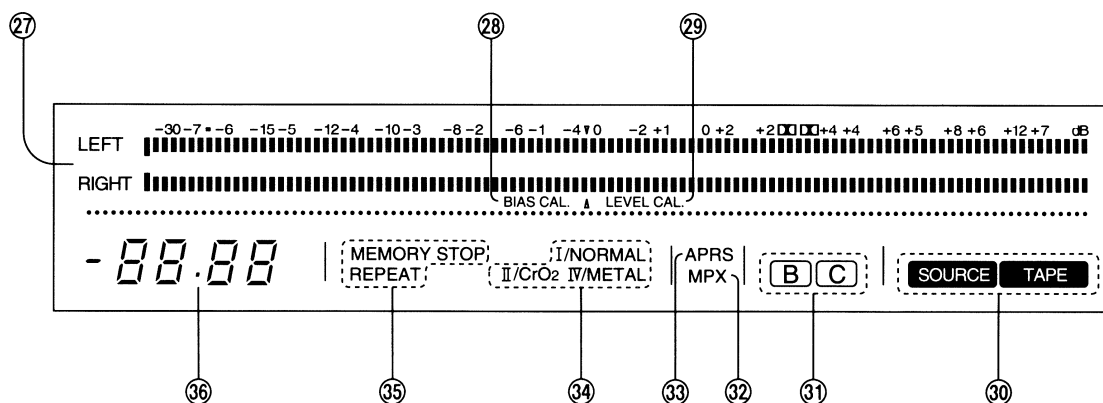
Control section I

- ① **Power “STANDBY $\odot$ /ON” switch (POWER $\blacksquare$ STANDBY $\odot$ $\blacksquare$ ON)**
This switch switches ON and OFF the secondary circuit power only. The unit is in the “standby” condition when this switch is set to the STANDBY $\odot$ position. Regardless of the switch setting, the primary circuit is always “live” as long as the power cord is connected to an electrical outlet.
- ② **Open/close button ($\blacktriangle$ OPEN/CLOSE)**
This button can be used to open or close the cassette holder.
- ③ **Cassette holder**
- ④ **Indicators section**
(Refer to page 4.)
- ⑤ **Monitor switch (MONITOR)**
In order to monitor the tape (check the recording condition), the sound on the tape (immediately after recording) and the sound of the sound source (the original sound, before recording) can be alternately selected by pressing this button. (The corresponding indicator will illuminate.)
- ⑥ **Recording-level control (REC LEVEL)**
This control can be used to regulate the recording level.
- ⑦ **Recording-balance control (BALANCE)**
This control can be used to balance the left and right sound levels during recording.
- ⑧ **Calibration-level control (REC CAL LEVEL)**
The sensitivity differences (high or low recording levels) for each tape type can be corrected by using these controls.
- ⑨ **Calibration-bias control (REC CAL BIAS)**
The frequency response for each tape type can be equalized by using this control.
- ⑩ **Operation section**
(Refer to “Control section II” on pages 3, 4.)
- ⑪ **Headphones jack (PHONES)**
- ⑫ **Headphones volume control (PHONES LEVEL)**



Control section II

- 13 Timer switch (⏰ TIMER)**
This switch is used to automatically begin a tape recording or tape playback at a certain time, selected by a timer (not included).
- 14 Counter buttons (COUNTER RESET, MODE)**
RESET: This button can be used to reset the tape/linear counter indication to "000_/00.00".
MODE: This button can be used to select the tape/linear counter indication.
- 15 Memory-mode button (MEMORY REPEAT/STOP)**
REPEAT: This button can be used to set this unit to the "A-B repeat" mode.
STOP: This button can be used to rewind the tape to the preset "000_/00.00" point when the rewind (◀◀) button is pressed.
- 16 Meter-range selector (METER RANGE)**
This selector can be used to select the meter-range display of the input level meter.
- 17 Calibration selector (REC CAL)**
This selector can switch the input level display between the level adjustment indicator and bias adjustment indicator.
- 18 APRS button (APRS)**
This button can be used to hold the peak level while monitoring the input sound.
- 19 Multiplex filter switch (MPX FILTER)**
This prevents the Dolby NR circuit from operating in error when FM stereo broadcasts are recorded using the noise reduction function.
- 20 Dolby noise-reduction buttons (B-DOLBY NR-C)**
These buttons can be used to reduce the hiss noise that is characteristic of tape. This unit is provided with both the Dolby B type and C type noise-reduction systems.
- 21 Record button and indicator (● REC)**
This button can be used to change the tape deck to the recording stand-by mode.
- 22 Automatic-record-muting button (⏏ AUTO REC MUTE)**
This button can be used to make a silent interval on the tape being recorded on tape deck.
- 23 Pause button (⏸ PAUSE)**
This button can be used to temporarily stop the tape playback or recording of tape deck.
- 24 Rewind/fast-forward/search buttons (◀◀ REW, ▶▶ FF, [TPS])**
These buttons can be used to fast forward or rewind the tape, or to easily search for the tune's beginning of the tape quickly.
- 25 Playback button and indicator (▶ PLAY)**
This button can be used to start the playback or recording of the cassette.
(The tape will then begin moving in the left-to-right direction.)
When this indicator illuminates steadily, it indicates that this tape deck is in the playback mode or the recording mode.
When it flashes continually, this is an indication that this tape deck is in the pause mode or the recording stand-by mode.
- 26 Stop button (■ STOP)**
This button can be used to stop tape movement.



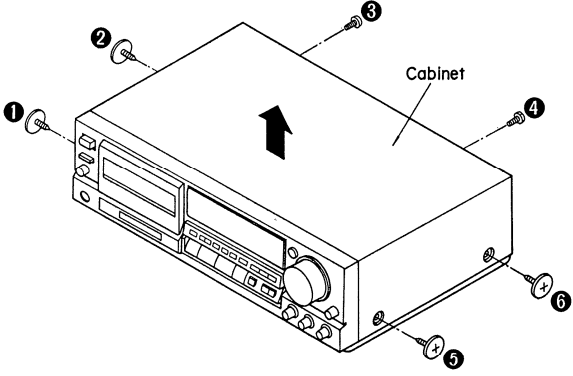
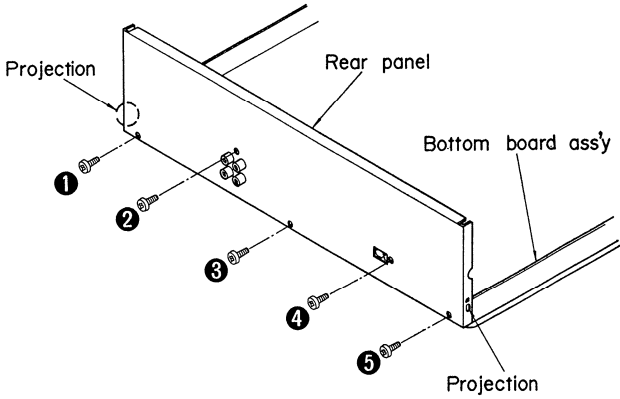
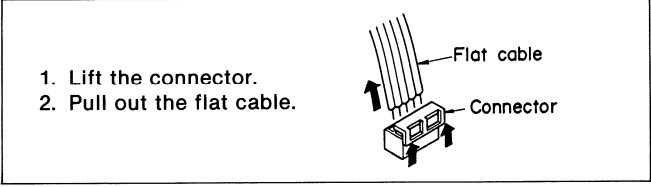
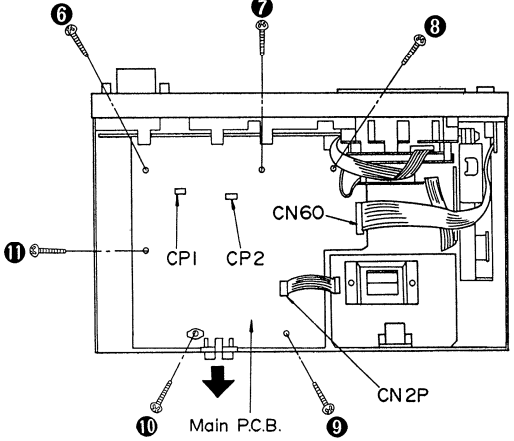
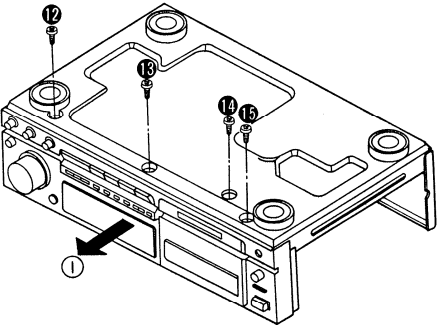
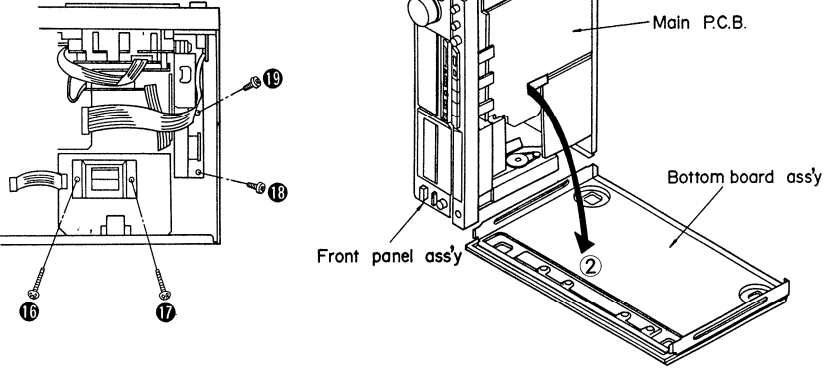
Indicators section

- 27 Input level meter**
During playback, this meter indicates the level of the recorded sound.
During recording, it indicates the level being recorded, adjusted by the recording-level control.
- 28 Bias adjustment indicator (BIAS CAL.)**
Indicates that the bias can now be adjusted.
- 29 Level adjustment indicator (LEVEL CAL.)**
Indicates that the recording level can now be adjusted.
- 30 Monitor indicators (SOURCE, TAPE)**
Each indicator illuminates to show which of the monitor was set by the monitor switch.
- 31 Dolby noise-reduction indicators (B, C)**
Each indicator illuminates to show the type of Dolby noise-reduction system selected by pressing one of the Dolby noise-reduction buttons.
- 32 Multiplex filter indicator (MPX)**
Illuminates to indicate that the multiplex filter is set to "ON".
- 33 APRS indicator (APRS)**
Illuminates to indicate that the "APRS" is set to "on" in the recording stand-by mode.
- 34 Tape-select indicators (I/NORMAL, II/CrO₂, IV/METAL)**
The type of tape being used will be automatically detected and the indicator will illuminate.
- 35 Memory-mode indicators (MEMORY REPEAT, MEMORY STOP)**
Each indicator illuminates to show which of the memory modes was set by the memory-mode button.
- 36 Tape/Linear counter**
Indicates the amount of tape movement or elapsed time.

DISASSEMBLY INSTRUCTIONS

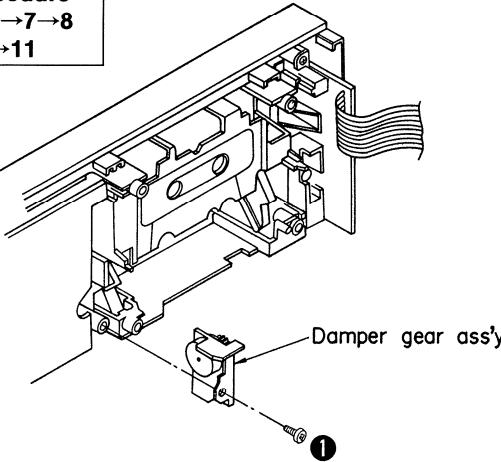
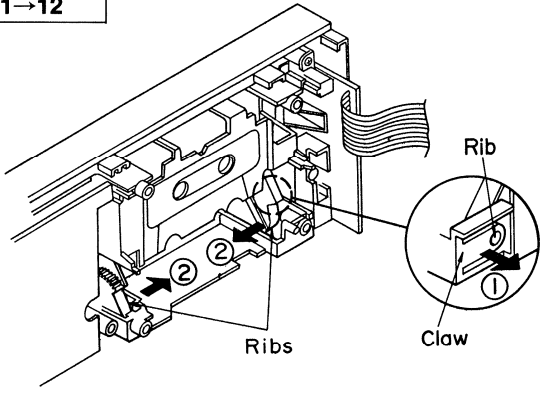
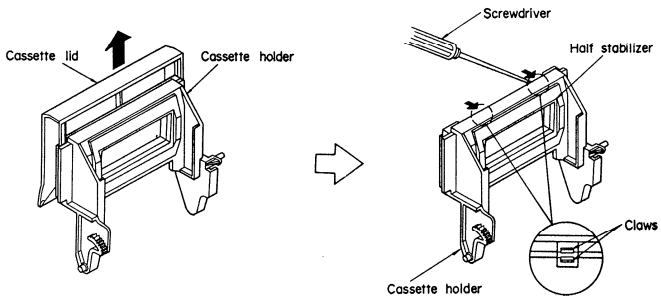
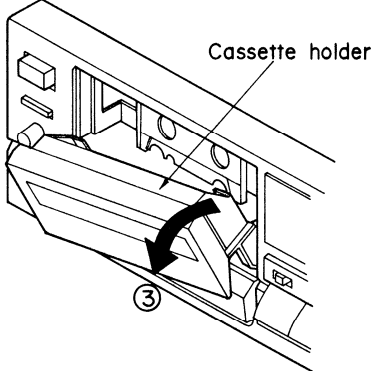
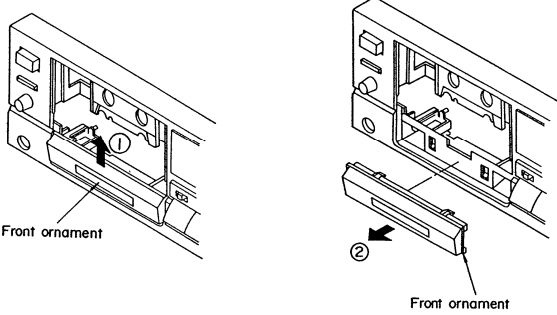
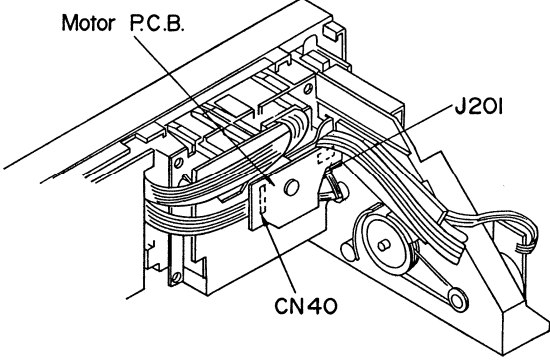
“ATTENTION SERVICER”

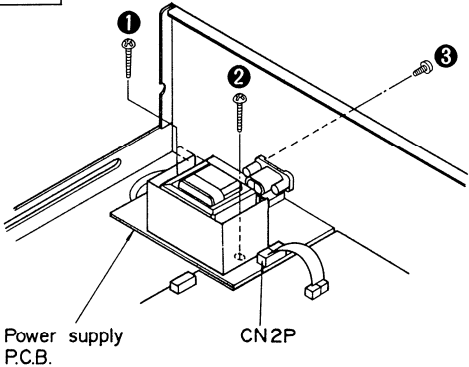
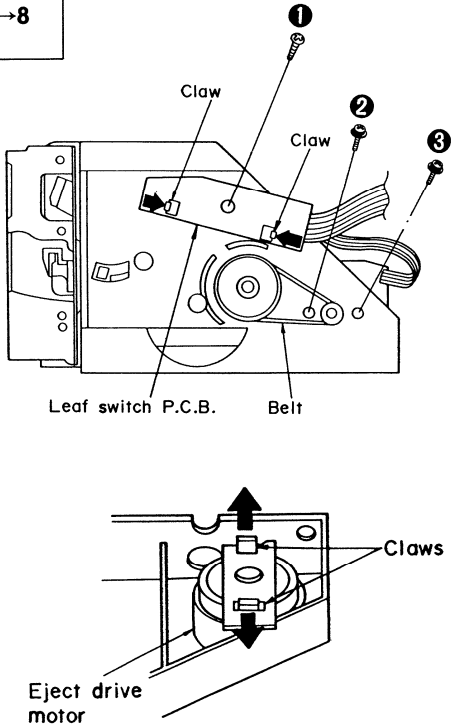
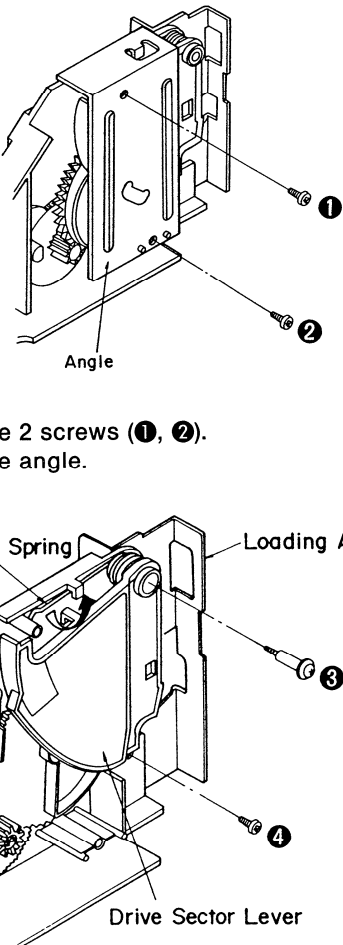
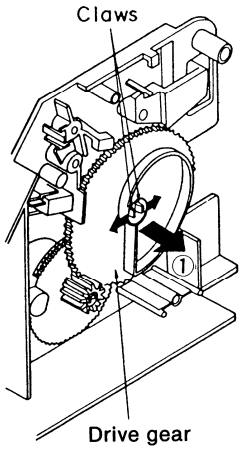
Some chassis components may have sharp edges. Be careful when disassembling and servicing.

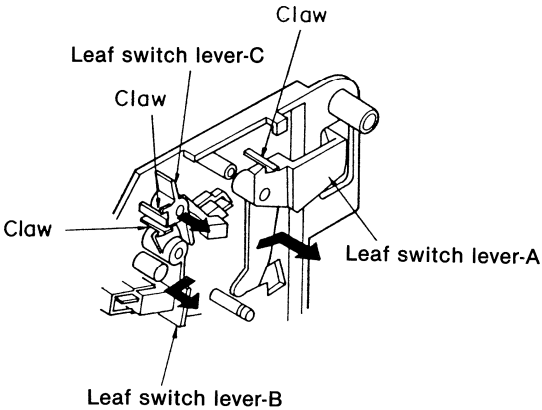
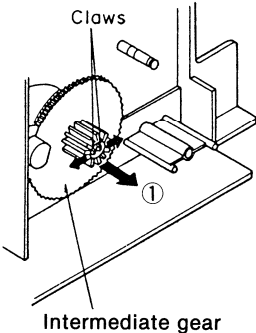
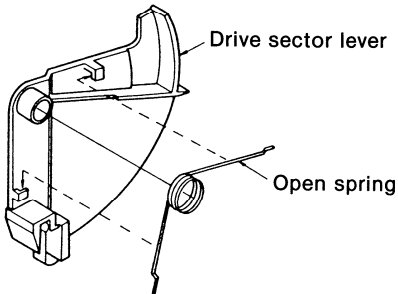
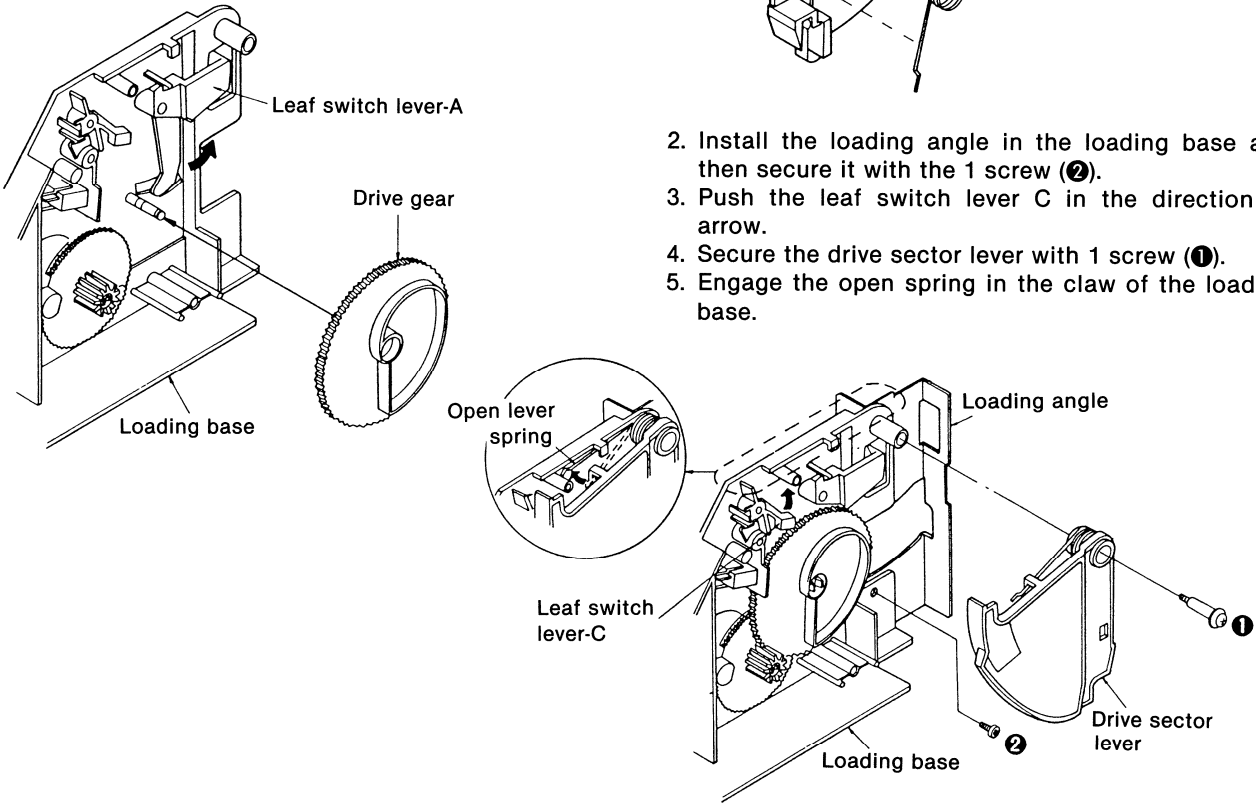
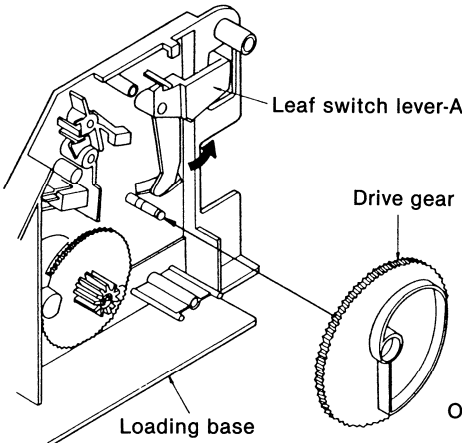
Ref. No. 1	Removal of the cabinet	Ref. No. 2	Removal of the main P.C.B.
Procedure 1	 • Remove the 6 screws (①~⑥).	Procedure 1→2	1. Remove the 5 screws (①~⑤). 2. Remove the rear panel from the projection of the bottom board ass'y. 
3. Remove the 6 screws (⑥~⑪). 4. Remove the 2 connectors (CP1, CP2). 5. Remove the 2 flat cables (CN2P, CN60). 6. Remove the main P.C.B. in the direction of arrow. How to remove the flat cable 			
How to check the main P.C.B. When checking the soldered surfaces of main P.C.B. and replacing the parts, do as show. 1. Remove the 9 screws (①, ③, ⑤~⑪) in above figure. 2. Remove the 8 screws (⑫~⑱). 3. Remove the front panel ass'y in the direction of arrow ①. 		4. Remove the bottom board ass'y in the direction of arrow ②. 5. Reinstall the front panel ass'y to the main P.C.B. 	

Ref. No. 3	Removal of the front panel ass'y	2. Remove the 2 connectors (CP1, CP2). 3. Remove the 1 flat cable (CN60). 4. Remove the boss from bottom chassis. 5. Remove the front panel ass'y in the direction of arrow.
Ref. No. 4	Removal of the FL drive P.C.B.	1. Pull out the rec level knob. 2. Remove the nut. How to remove the flat cable • Pull out the flat cable while pressing the connector. 3. Remove the 2 flat cables (CN40, J971). 4. Remove the 1 screw (1). 5. Release the 5 claws. 6. Remove the FL drive P.C.B. in the direction of arrow.
Ref. No. 5	Removal of the operation P.C.B.	1. Pull out the 4 knobs. 2. Remove the 7 screws (1~7). 3. Remove the 9 claws.

Ref. No. 6	Removal of the rec level P.C.B.	Ref. No. 7	Removal of the mechanism unit
Procedure 1→3→4→6	FL drive P.C.B. Rec level P.C.B. • Remove the rec level P.C.B. in the direction of arrow.	Procedure 1→3→7	1. Turn the pulley gear in the direction of arrow, and open the cassette holder. 2. Remove the 2 flat cables (CN40, J971). 3. Remove the 4 screws (①~④).
Ref. No. 8	Removal of the loading base	Ref. No. 9	Removal of the power switch/ headphones P.C.B.
Procedure 1→3→7→8	1. Close the cassette holder. 2. Remove the loading base in the direction of arrow.	Procedure 1→3→7→8→9	1. Pull out the headphones level knob.
Ref. No. 10	Removal of the open/close lever and open/close button	Removal of the power switch/ headphones P.C.B.	
Procedure 1→3→7→8 →9→10	• Release the 1 claw.	2. Remove the 2 screws (①, ②). 3. Remove the headphones holder. 4. Remove the power switch/headphones P.C.B. in the direction of arrow.	

Ref. No. 11 Procedure 1→3→7→8 →11	Removal of the damper gear ass'y  Damper gear ass'y 1 • Remove the 1 screw (1).	Ref. No. 12 Procedure 1→3→7→8 →11→12	Removal of the cassette holder  Rib Ribs Claw 1. Remove the claw in the direction of arrow 1. 2. Remove the ribs in the direction of arrow 2.
Ref. No. 13 Procedure 1→3→7→8 →11→12→13	Removal of the cassette lid and cassette half stabilizer  Cassette lid Cassette holder Screwdriver Half stabilizer Claws Cassette holder 1. Remove the cassette lid in the direction of arrow. 2. Release the 2 claws.	Ref. No. 15 Procedure 1→3→15	Removal of the motor P.C.B.  Cassette holder 3 3. Remove the cassette holder in the direction of arrow 3.
Ref. No. 14 Procedure 1→3→7→8 →11→12→14	Removal of the front ornament  Front ornament Front ornament 2 • Remove the front ornament in the direction of arrow 1, 2.	Ref. No. 15 Procedure 1→3→15	Removal of the motor P.C.B.  Motor P.C.B. J201 CN40 1. Remove the 2 flat cables (CN40, J201). 2. Unsolder the motor terminal.

Ref. No. 16	Removal of the power supply P.C.B.	Ref. No. 17	Removal of the leaf switch P.C.B. and eject drive motor
Procedure 1→16	 Power supply P.C.B. CN2P 1. Remove the 1 flat cable (CN2P). 2. Remove the 3 screws (①~③).	Procedure 1→3→7→8 →17	 Claw Claw ① ② ③ Leaf switch P.C.B. Belt Claws Eject drive motor ■ Removal of the leaf switch P.C.B. 1. Remove the 1 screw (①). 2. Release the 2 claws. ■ Removal of the eject drive motor 1. Remove the belt. 2. Remove the 2 screws (②, ③). 3. Release the 2 claws.
Ref. No. 18	Removal of the drive sector lever and loading angle		
Procedure 1→3→7→8 →18	 Angle 1. Remove the 2 screws (①, ②). 2. Remove the angle. Open Spring Loading Angle Drive Sector Lever 3. Remove the 2 screws (③, ④). 4. Remove the loading angle. 5. Remove the open lever spring in the direction of arrow.	Ref. No. 19	Removal of the drive gear
		Procedure 1→3→7→8 →18→19	 Claws Drive gear 1. Release the 2 claws. 2. Remove the drive gear in the direction of arrow ①.

Ref. No. 20	Removal of the intermediate gear, leaf switch lever-A, leaf switch lever-B, and leaf switch lever-C	 ■ Removal of the leaf switch lever-A • Release the 1 claw. ■ Removal of the leaf switch lever-B • Release the 1 claw. ■ Removal of the leaf switch lever-C • Release the 1 claw.
Procedure 1→3→7→8 →18→19→20	 ■ Removal of the intermediate gear 1. Release the 2 claws. 2. Remove the intermediate gear in the direction of arrow ①.	
Ref. No. 21	Installation of the drive gear and drive sector lever	■ Installation of the drive sector lever 1. Temporarily install the open spring in the drive sector lever.  2. Install the loading angle in the loading base and then secure it with the 1 screw (②). 3. Push the leaf switch lever C in the direction of arrow. 4. Secure the drive sector lever with 1 screw (①). 5. Engage the open spring in the claw of the loading base. 
Procedure 21	■ Installation of the drive gear 1. Push the leaf switch lever A in the direction of arrow. 2. Place the drive gear as shown below and then install it in the loading base. 	

MEASUREMENT AND ADJUSTMENT METHODS

Measurement Condition

- Rec. level control; Maximum
- Timer switch; Off
- MPX filter switch; off
- Calibration-bias control; Center
- Rec. balance control; Center

Measuring Instrument

- EVM (Electronic Voltmeter)
- Oscilloscope
- Digital frequency counter
- AF oscillator

Test tape

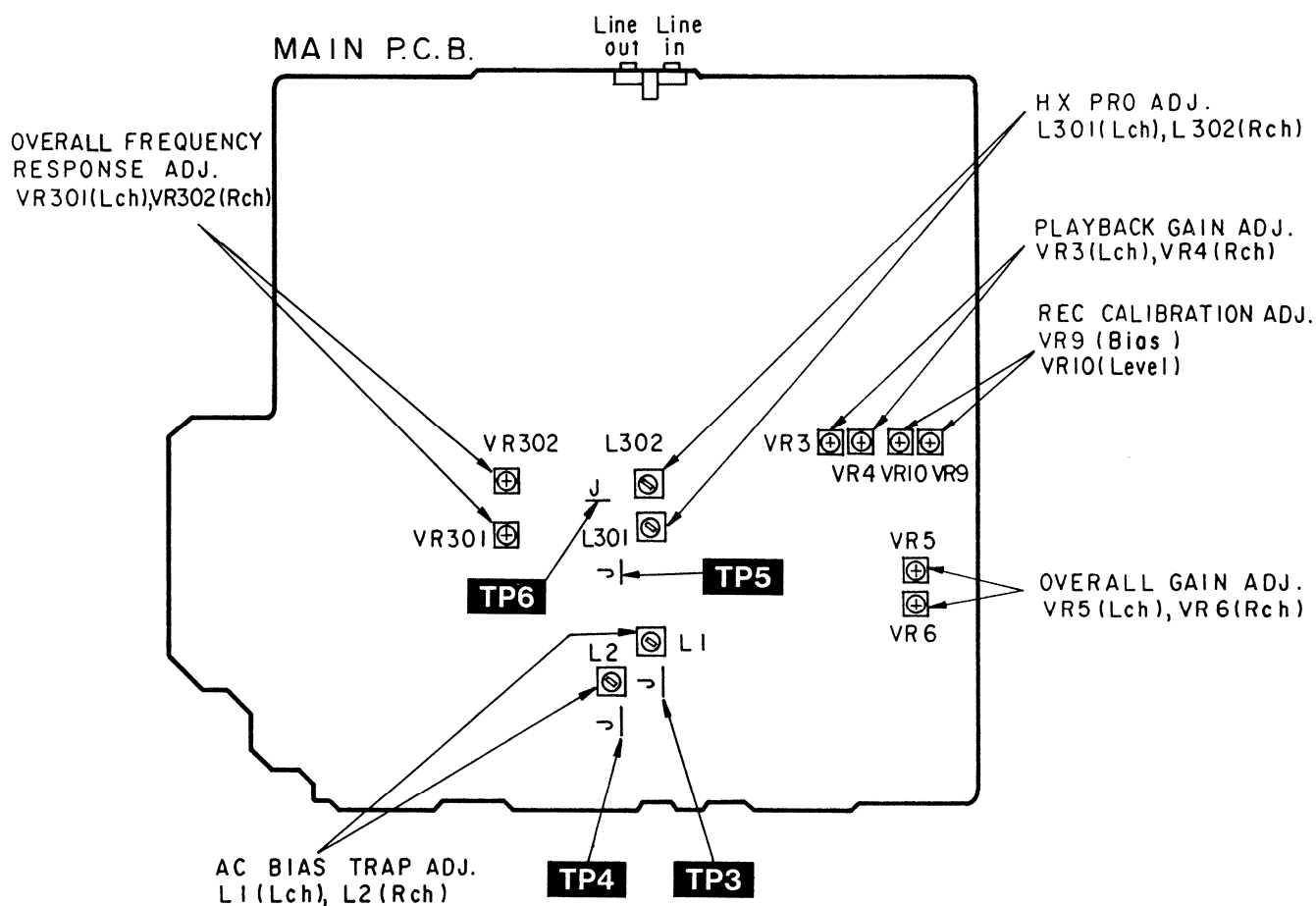
- Head azimuth adjustment (8kHz, -20dB); QZZCFM
- Tape speed adjustment (3kHz, -10dB); QZZCWAT
- Playback frequency response (315Hz, 12.5kHz, 10kHz, 8kHz, 4kHz, 1kHz, 250Hz, 125Hz, 63Hz, -20dB); QZZCFM

- Calibration-level control; Center
- Dolby NR switch; Off
- Make sure heads are clean
- Make sure capstan and pressure roller are clean
- Judgeable room temperature $20 \pm 5^\circ\text{C}$ ($68 \pm 9^\circ\text{F}$)

- ATT (Attenuator)
- Resistor (600 Ω)

- Playback gain adjustment (315Hz, 0dB); QZZCFM
- Overall frequency response, Overall gain adjustment
Normal reference blank tape; QZZCRA
CrO₂ reference blank tape; QZZCRX
Metal reference blank tape; QZZCRZ

Adjustment Points



HEAD AZIMUTH ADJUSTMENT

- 1.Playback the azimuth adjustment portion (8 kHz, -20 dB) of the test tape (QZZCFM). Vary the azimuth adjusting screw until the output of the R-CH are maximized.
- 2.Perform the same adjustment in the play mode.
- 3.After the adjustment, apply screwlock to the azimuth adjusting screw.

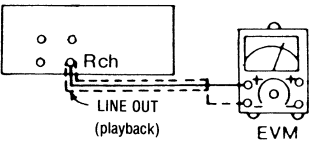


Fig.1

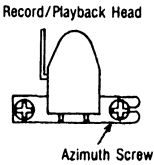


Fig.2

PLAYBACK GAIN ADJUSTMENT

- 1.Playback the gain adjusted portion (315 Hz, 0 dB) of the test tape (QZZCFM).
- 2.Adjust VR3 (L-CH) and VR4 (R-CH) so that the output is within the standard value.

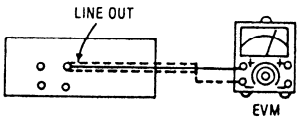


Fig. 3

Standard value: 0.4V±0.5dB

PLAYBACK FREQUENCY RESPONSE

- 1. Playback the frequency response portion (315Hz, 12.5kHz~63Hz, -20dB) of the test tape (QZZCFM).
- 2. Assure that the frequency response is within the range shown in Fig. 5 for both L-CH and R-CH.

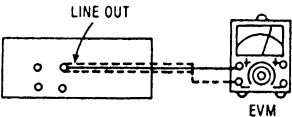


Fig. 4

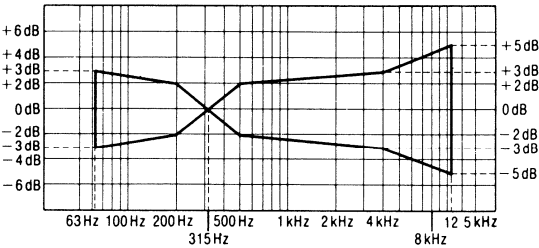


Fig. 5

AC BIAS TRAP ADJUSTMENT

- 1. Insert the Metal blank test tape (QZZCRZ) and set the unit to the Record mode.
- 2. Adjust L1 (L-CH) [[L2 (R-CH)]] so that the output voltage between TP3 (TP4) and GND is less than the minimum value.

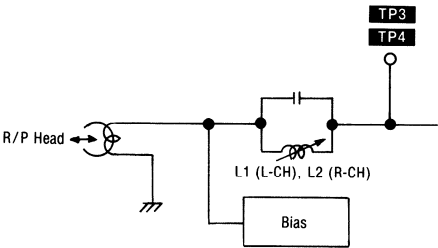


Fig. 6

HX PRO ADJUSTMENT

- 1.Insert the Metal blank tape (QZZCRZ) and set the unit to the Record Pause mode.
- 2. Connect a DC voltmeter across TP5 (L-CH) and GND, TP6 (R-CH) and GND.
- 3.Adjust L301 (L-CH) and L302 (R-CH)so that the output is the minimum value.

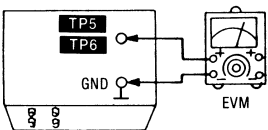


Fig. 7

OVERALL FREQUENCY RESPONSE

1. Insert the normal blank test tape (QZZCRA) and set the unit to the record pause mode.
2. Apply a reference input signal (1 kHz, -24 dB) through an attenuator.
3. Attenuate the signal by 20 dB and adjust the frequency from 50 Hz~10 kHz.
4. Record the frequency sweep.
5. Playback the recorded signal and assure that it is within the range shown in Fig. 8 in comparison to the reference frequency (1 kHz).
6. If it is not within the standard range, adjust VR301 (L-CH) and VR302 (R-CH) so that the frequency level is within the standard range.
 - Level up in high frequency rangeIncrease the bias current.
 - Level down in high frequency range ...Decrease the bias current.
7. Repeat steps 2~6 above using the CrO₂ tape (QZZCRX) and the metal tape (QZZCRZ) increasing the frequency range to 12.5 kHz (50 Hz~12.5 kHz).
8. Assure that the level is within the range shown in Fig. 9.

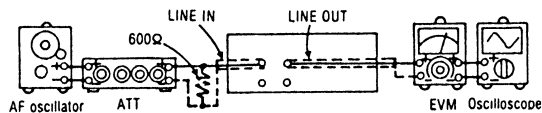


Fig. 10

Normal Overall frequency response chart (NR OUT)

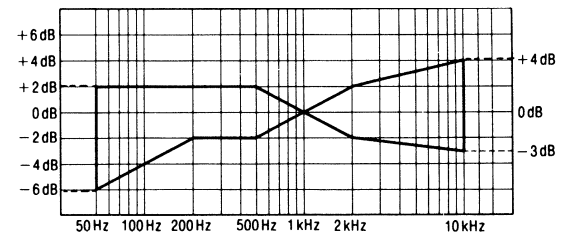


Fig. 8

CrO₂-Metal Overall frequency response chart (NR OUT)

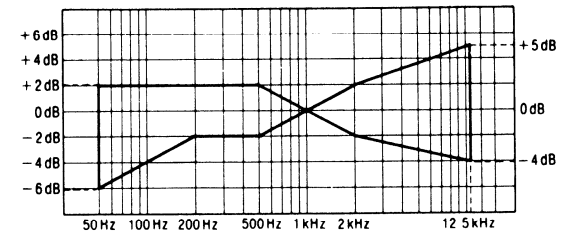


Fig. 9

OVERALL GAIN ADJUSTMENT

1. Insert the normal blank test tape (QZZCRA) and set the unit to the record pause mode.
2. Apply a reference input signal (1 kHz, -24 dB). Attenuate the output so that its level becomes 0.4 V.
3. Record this input signal.
4. Playback the signal recorded in step 3 above, and assure that the output is within the standard value.
5. If it is not within the standard value, adjust VR5 (L-CH) and VR6 (R-CH).
6. Repeat the step 2~5 above until the output is within the standard value.

Standard value: $0.4\text{ V} \pm 0.5\text{ dB}$

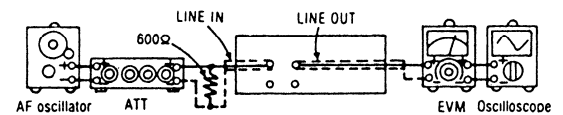


Fig. 11

REC CAL. ADJUSTMENT

1. After the overall frequency characteristics and over all gain are adjusted, insert the test tape (QZZCRA) in the unit and then set the recording mode (REC/PLAY).

— Level Adjustment —

2. First, press the REC CAL button. (The indication "LEVEL CAL" will appear in the FL meter.)
3. Adjust VR10 so that the level of the right and left channels reach the ∇ mark as shown.

— Bias Adjustment —

4. Next, press the REC CAL button again. ("BIAS CAL" will be displayed in the FL meter.)
5. Adjust VR9 so that the indication of the left channel level reaches the ∇ mark as shown.

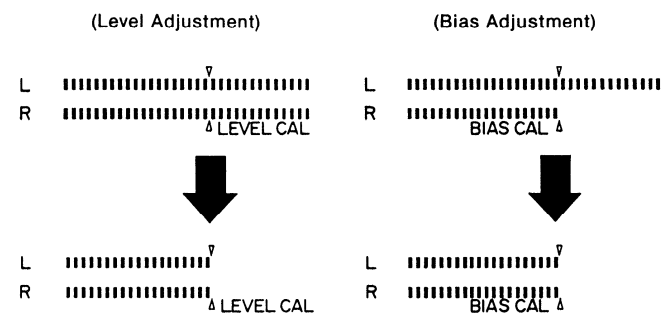


Fig. 12

Fig. 13

Note: Unless the overall frequency and overall gain are adjusted so that the L/R channel levels are the same, there will be a difference between the L/R channels levels in the level and bias adjustments.

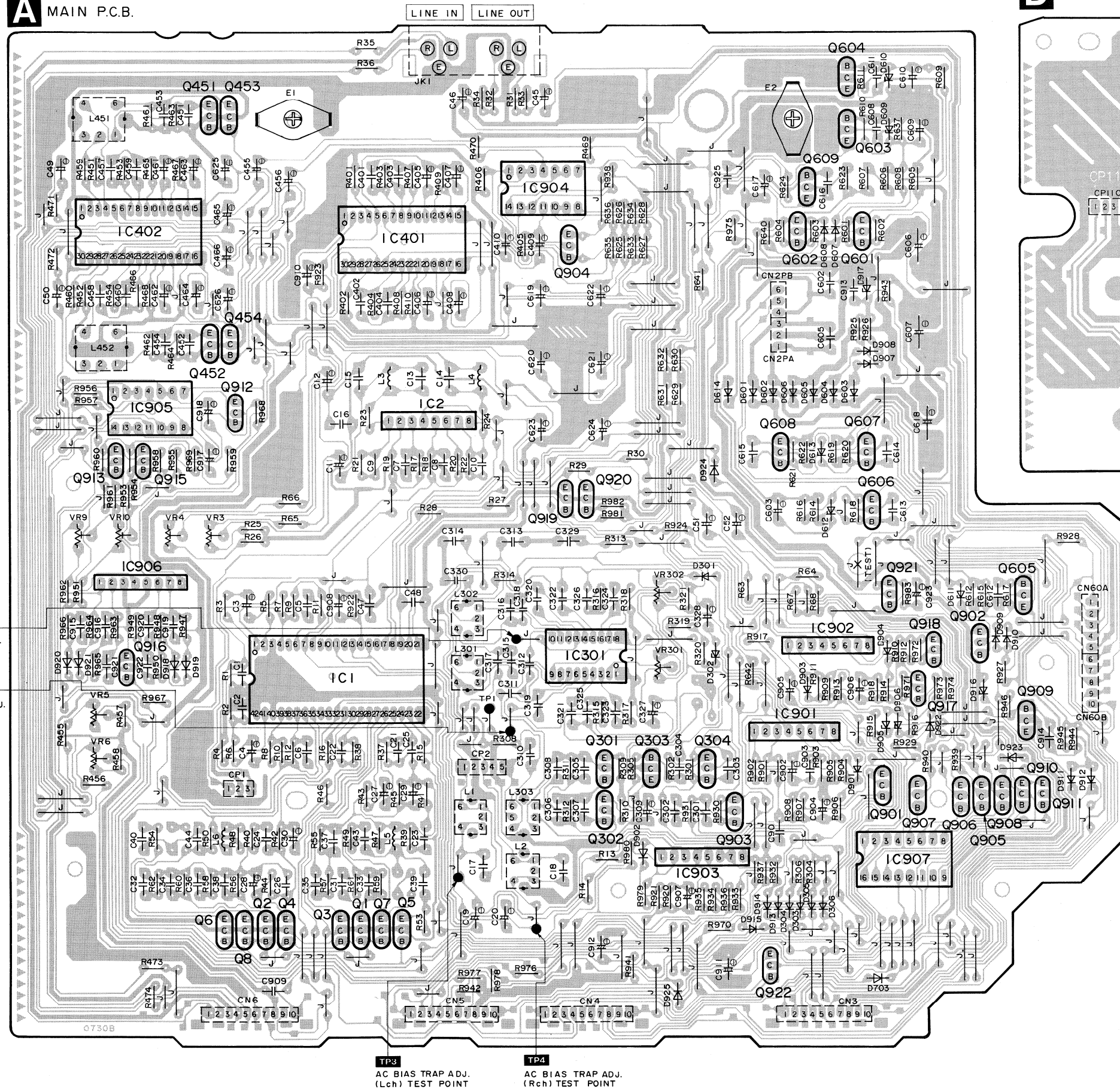
■ TERMINAL FUNCTION OF IC'S

• IC501 (M50942-518SP): MICROCOMPUTER (This microcomputer is used for mechanical/FL DRIVE operation.)

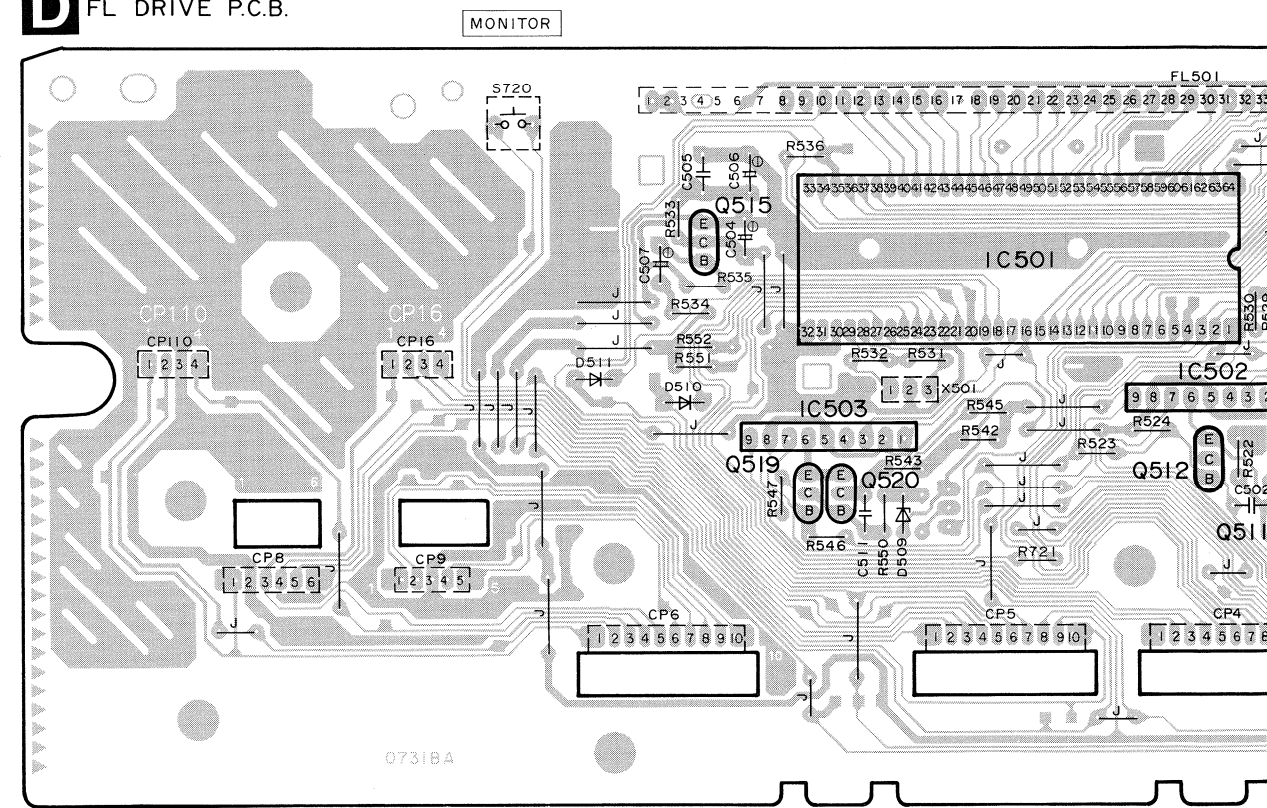
Pin No.	Mark	I/O Division	Function	Pin No.	Mark	I/O Division	Function
1	V _{REF}	I	A/D converter reference voltage (Connected to AV _{CC})	20	CLOCK	O	Serial clock for amp, logic control (MPX, C, B, T/S, PLAY, REC, CALF, OSCON)
2	KEY1	I	Key switch input STOP, FF, REW, PLAY, REC, PAUSE, Dolby, B.C, MPX, TPLAY, TREC	21	DATA	O	Serial clock for amp, logic control (MPX, C, B, T/S, PLAY, REC, CALF, OSCON)
3	KEY2	I	Key switch input C-RESET, C-MODE, M-RANGE, MEMORY, ARM, APRS, RECAL	22	EJTSEL	I	Model select terminal Always: "H"
4	MLCH	I	Lch indication level input	23	CNTSEL	I	Model select terminal Always: "H"
5	MRCH	I	Rch indication level input	24	POF	I	Power off det. OFF: "L"
6	APRS	I	Input Vol. position det. for APRS	25	REM	I	Not used
7	R. INH	I	Motor switch, rec. inh. switch motor switch OFF: 0V, Rec. OK: 1.5V, NG: 5V	26	CNV _{SS}	I	Connected to V _{SS}
8	TAPE	I	OPEN switch, ATS switch input OPEN: 0V, Nor: 1.1V, CrO ₂ : 2.4V, Metal: 5V	27	RESET	I	Reset input Normal: "H", Reset: "L"
9	RPT	I	Reel table (take up side) rotary det.	28	X _{IN}	I	Clock OSC terminal (4MHz)
10	CAPM	O	Capstan motor ON/OFF control ON: "H", OFF: "L"	29	X _{OUT}	O	
11	RMR	O	Reel motor ON/OFF control REW, R • TPS: "H", Others: "L"	30	X _{CIN}	I	Not used, connected to V _{SS}
12	RMF	O	Reel motor ON/OFF control (REC) PLAY, FF, F • TPS: "H", Others: "L"	31	X _{COUT}	O	Not used
13	T. SOL	O	Trigger solenoid ON/OFF control ON: "H", OFF: "L"	32	V _{SS}	I	GND terminal
14	B. SOL	O	Brake solenoid ON/OFF control FF/REW/TPS: "H", Others: "L"	33	φ	O	Not used
15	C/R SOL	O	Brake solenoid keep and reel motor speed select FF/REW/TPS: "H", Others: "L"	34	RPS	I	Reel table (supply side) rotary det.
16	EJECT R	O	Eject motor ON/OFF control OPEN: "H", others: "L"	35	MSP	I	TPS (MS) det. No signal: "H" signal ON: "L"
17	EJECT F	O	Eject motor ON/OFF control CLOSE: "H", others: "L"	36	MODE	I	Mech. mode switch (REC) PLAY, TPS: "L" Others: "H"
18	DMT	O	Line out muting control ON: "H", OFF: "L"	37	HALF	I	Mech. Half switch ON: "L", OFF: "H"
19	RMT	O	Rec amp muting control ON: "H", OFF: "L"	38	V _P	I	Reference voltage terminal
				39 } 44 } G1 } G6 }		O	FL grid control signal
				45 } 62 } S1 } S18 }		O	FL segment control signal
				63	AV _{CC}	I	Power supply terminal for A/D converter
				64	V _{CC}	I	Power supply terminal for micro computer

PRINTED CIRCUIT BOARDS

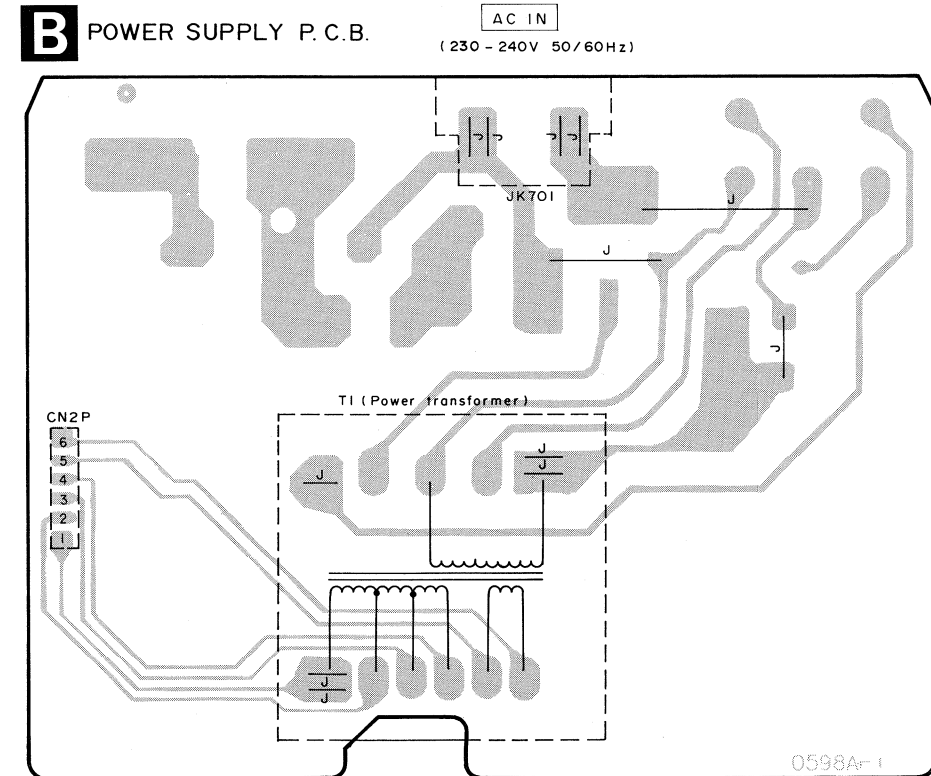
A MAIN P.C.B.

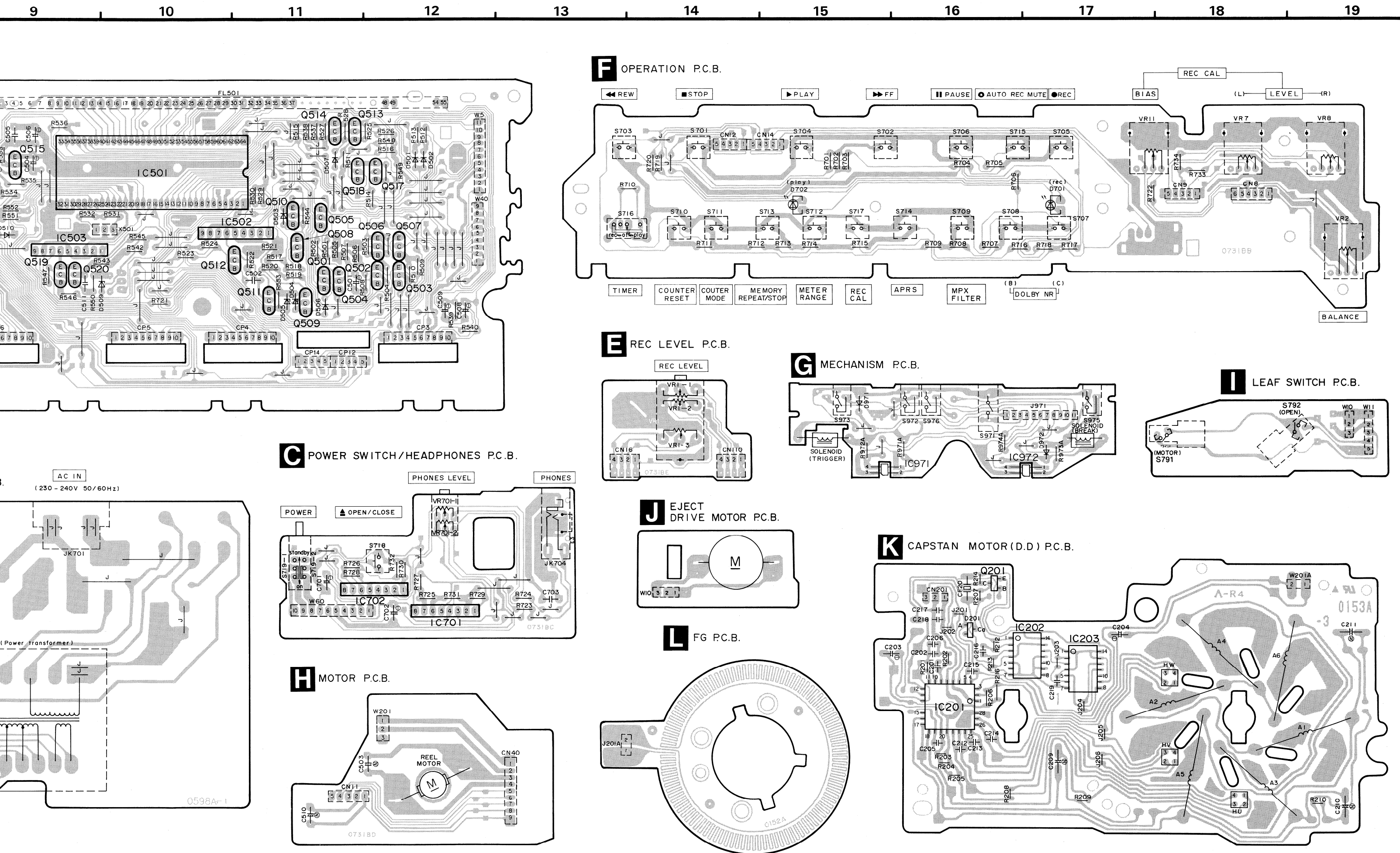


D FL DRIVE P.C.B.



B POWER SUPPLY P.C.B.





SCHEMATIC DIAGRAM (Parts list on pages 38~42.)

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

Notes:

- S701 : Stop switch (■ STOP).
- S702 : Fast-forward switch (TPS ▶▶).
- S703 : Rewind switch (◀◀ TPS).
- S704 : Playback switch (▶ PLAY).
- S705 : Record switch (● REC).
- S706 : Pause switch (■ PAUSE).
- S707 : Dolby noise-reduction switch (Dolby NR; C).
- S708 : Dolby noise-reduction switch (Dolby NR; B).
- S709 : Multiplex filter switch (MPX FILTER).
- S710 : Counter reset switch (COUNTER RESET).
- S711 : Counter mode switch (COUNTER MODE).
- S712 : Meter-range selector switch (METER RANGE).
- S713 : Memory mode switch (MEMORY REPEAT/STOP).
- S714 : APRS switch (APRS).
- S715 : Automatic-record-muting switch (● AUTO REC MUTE).
- S716 : Timer switch in "off" position (□ TIMER).
- S717 : Calibration selector switch (REC CAL).
- S718 : Open/close switch (▲ OPEN/CLOSE).
- S719 : Power switch in "on" position (POWER ■ standby ◻ ON).
- S720 : Monitor switch (MONITOR).
- S791 : Motor switch in "off" position. (Loading)
- S792 : Open switch in "off" position. (Loading)
- S971 : Mode switch in "off" position.
- S972 : Cassette half detection switch in "off" position.
- S973 : ATS (CrO₂) switch in "off" position.
- S975 : Rec. inhibit switch in "off" position.
- S976 : ATS (Metal) switch in "off" position.
- Resistance are in ohms (Ω), 1/4 watt unless specified otherwise.
1K=1,000 (Ω), 1M=1,000k (Ω)
- Capacity are in micro-farads (μF) 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 record 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
- (———— +B ————) indicates +B (bias).
- (———— -B ————) indicates -B (bias).
- (————) indicates the flow of the playback signal.
- (————) indicates the flow of the record signal.
- The supply part number is described alone in the replacement parts list.

Ref. No.	Production Part No.	Supply Part No.
IC2, 701, 702, 901, 902, 903, 906	M5218AL	M5218L
IC203	SN74LS74AMEL	SN74LS74AM

* 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.

A

B

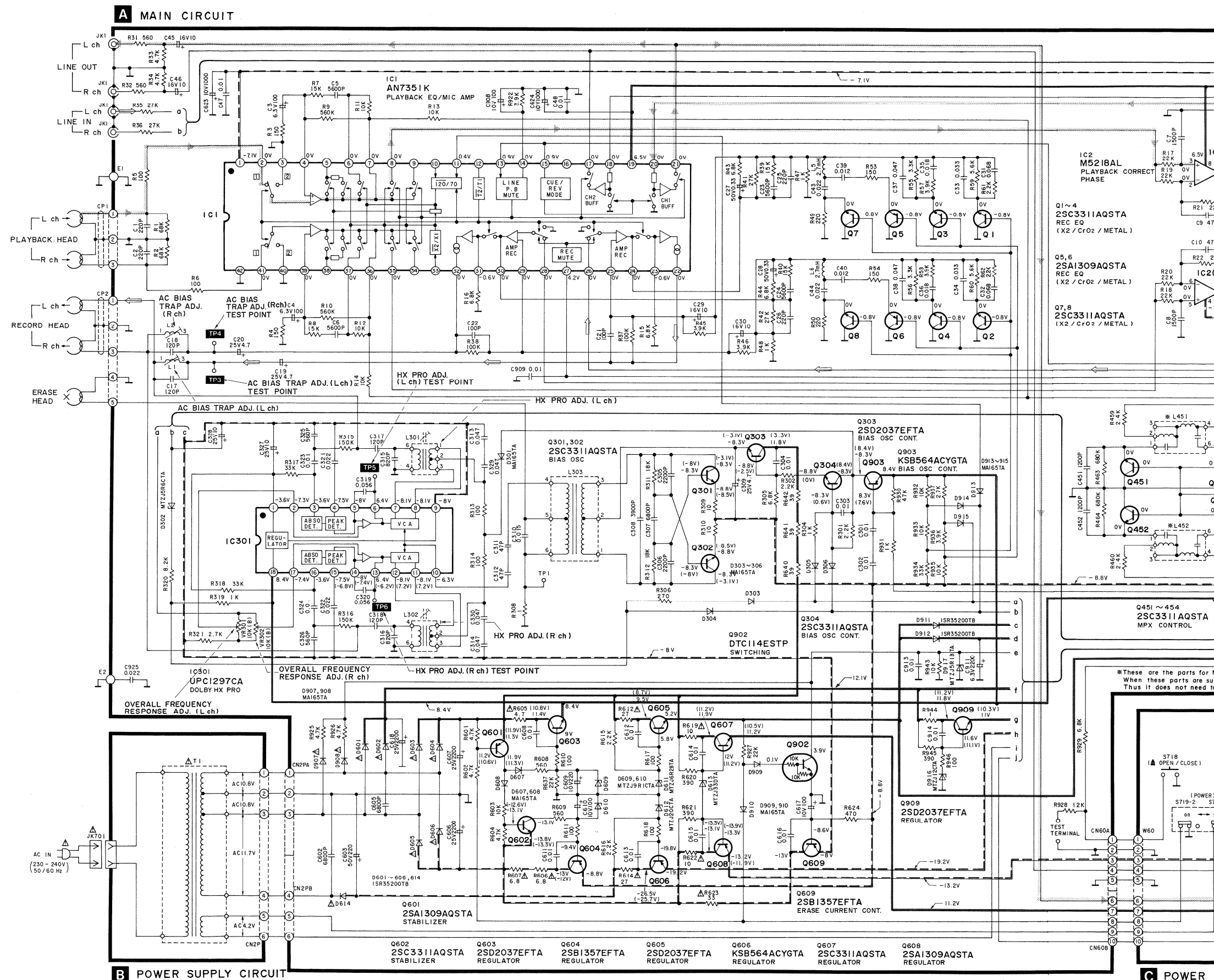
C

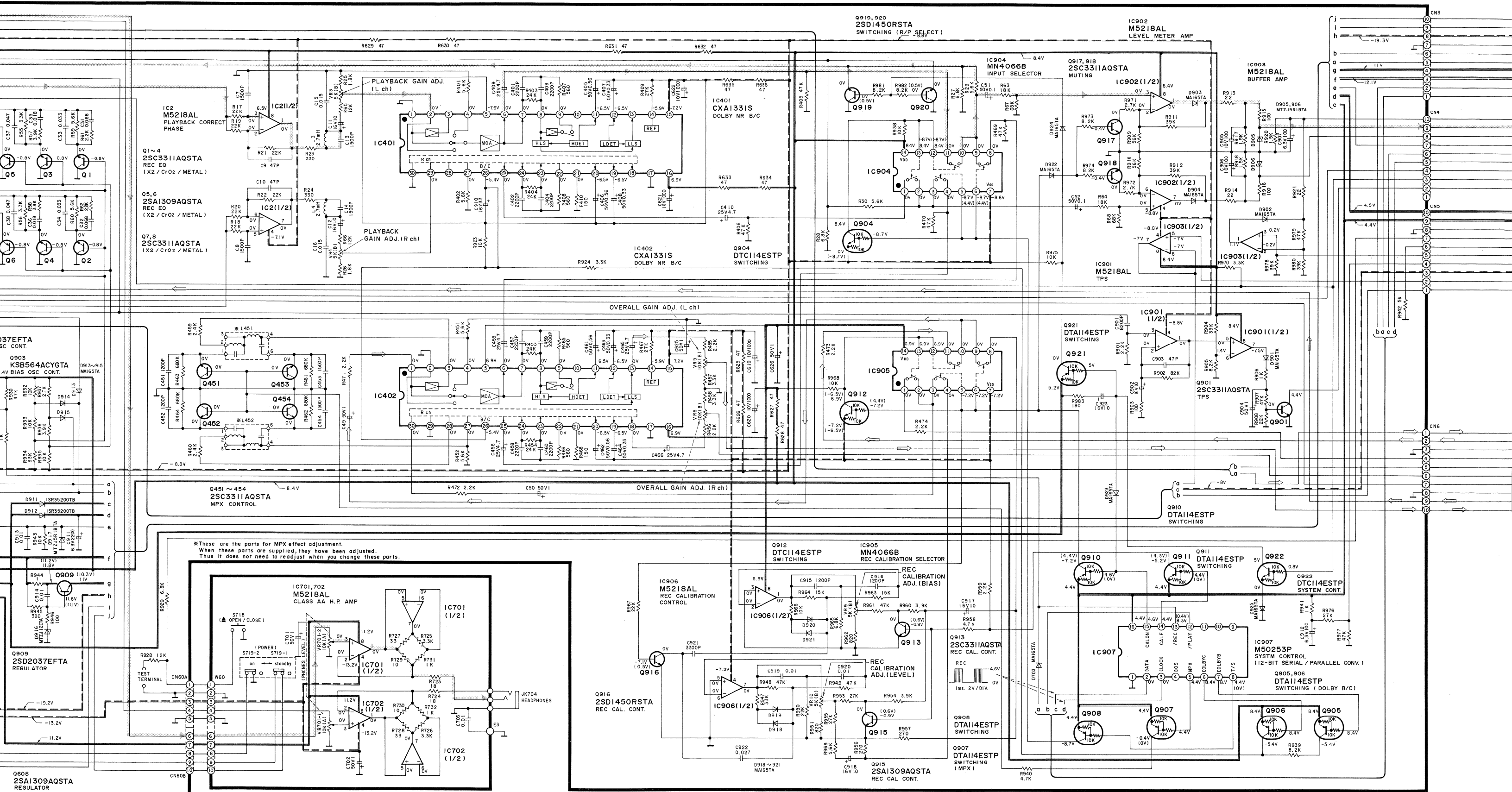
D

E

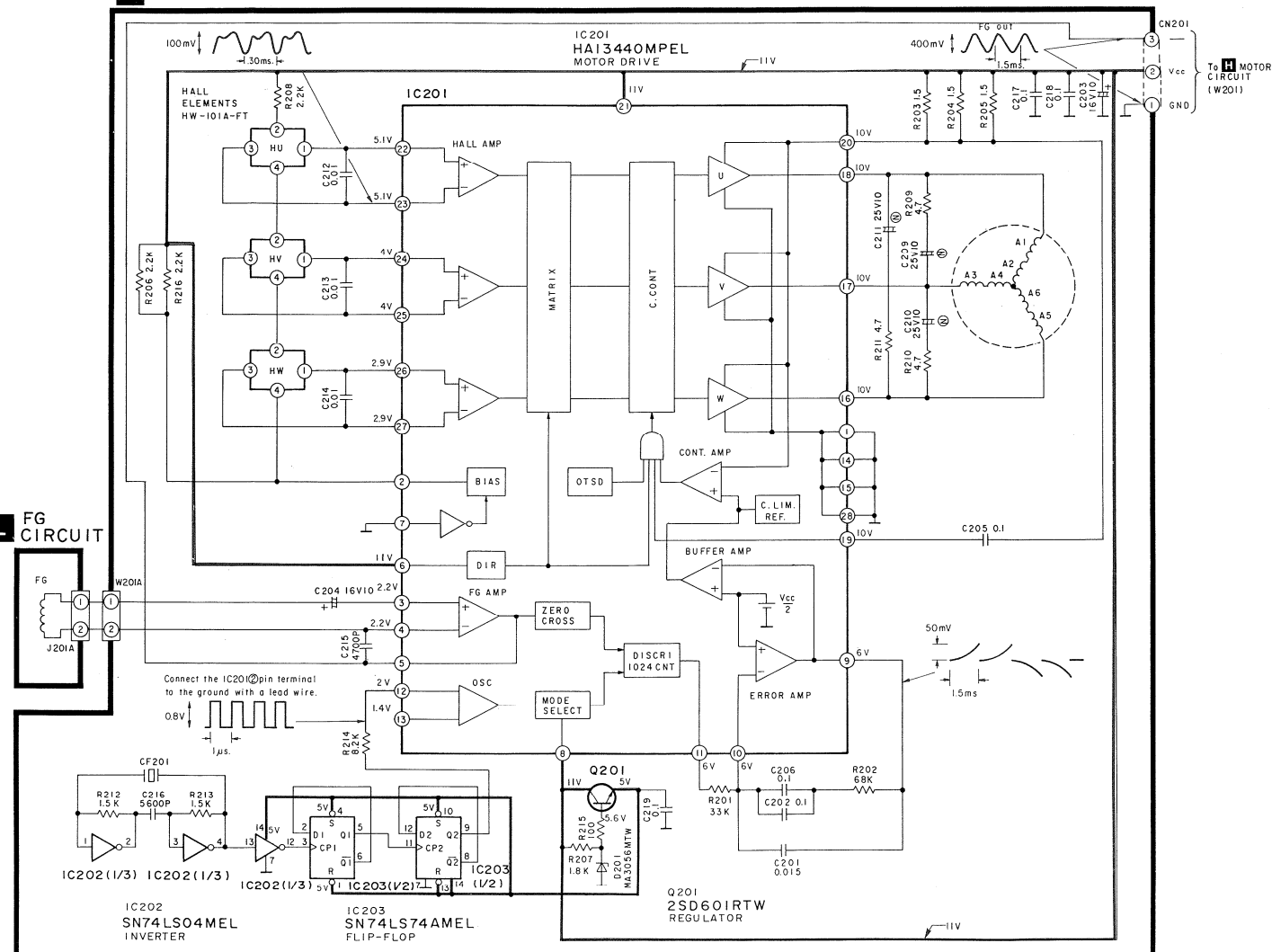
F

G

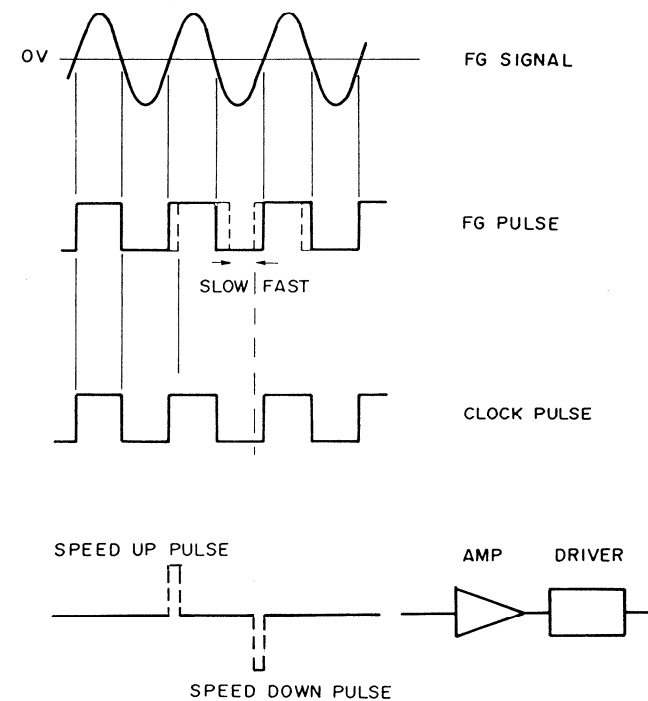




C POWER SWITCH / HEADPHONES CIRCUIT

K CAPSTAN MOTOR(D.D) CIRCUIT**■ TROUBLESHOOTING OF DIRECT DRIVE MOTOR****• OUTLINE OF THE DIRECT DRIVE MOTOR SYSTEM**

The capstan motor is actuated by the DD motor digital servo system. The FG pulse is generated after the detection of the zero crosspoint, and the reference signal generated from the quartz oscillator is compared with this FG pulse. From this comparison, the accelerated and reduced speed pulses are generated, causing the driving coil to function.

**• TROUBLESHOOTING OF DIRECT DRIVE MOTOR**

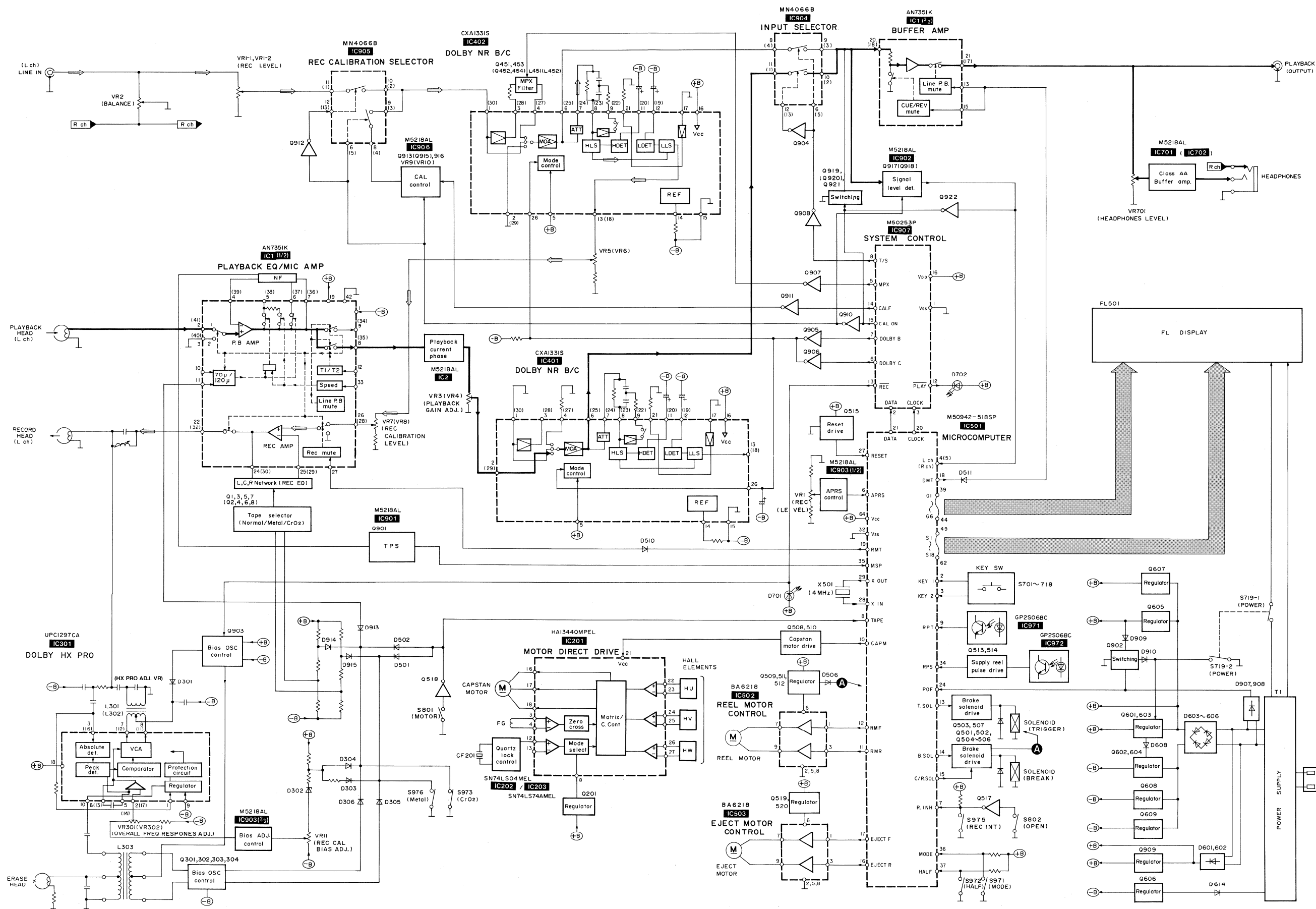
Problem	Possible Cause	Check Points
1. The motor does not rotate.	1. No power supply (+12V). 2. The Hall element has failed (Current does not flow). 3. The ceramic (or crystal) does not oscillate.	• Check the voltage applied to the connector. • Check the DC potential on IC201 pins ②~⑦. *Check the waveform of IC201 pin ②.
2. The motor does not rotate properly. (When pressed, it stops at certain angles. Sometimes it does not rotate even if power is ON.)	1. The coil is broken or not properly soldered. 2. Output of the Hall element is not proper.	*Check the conductance of the coil. If normal, the resistances between IC201 pins ⑥~⑦, ⑦~⑧, ⑧~⑨ will reach 20 ohms. • Check the waveform of IC201 pins ②~⑦.
3. The motor is out of control.	1. The FG coil is broken.	• Check the waveform of IC201 pin ⑤. • Check if the FG coil is broken.
4. Abnormal wow.	1. Same as those described for problem 2.	

Note: Check the points marked with an asterisk (*) by removing the DD motor control P.C.B. and then connecting IC201 pin ② to GND with a lead wire. (After the DD motor control P.C.B. is removed, current will start flowing through the coil, heating the IC.)

■ TERMINAL GUIDE OF IC'S, TRANSISTORS AND DIODES

SN74LS04MEL 14 Pin SN74LS74AMEL 14 Pin 	HA13440MPEL 	AN7351K
M50253P 16 Pin M50942-518SP 64 Pin 	MN4066B 14 Pin UPC1297CA 18 Pin CXA1331S 30 Pin 	
M5218AL 	BA6218 	GP2S06BC
2SD592AQRSTA KSB564ACYGTA 	DTA114ESTP DTC114ESTP 	2SB1357EFTA 2SD2037EFTA
	2SA1309AQSTA 2SC3311AQSTA 2SD1450RSTA 	2SD601RTW
MA165TA RVD1SS133TA 1SR35200TB 		MTZJ5R1BTA MTZJ5R6CTA MTZJ6R2BTA MTZJ8R2CTA MTZJ9R1CTA MTZJ12CTA MTZJ20CTA MTZJ33DCTA
MA3056-MTX 		LN373GP3ULSC LN873RP-C

BLOCK DIAGRAM



Notes:
 • Playback signal
 • Recording signal

INTERNAL CONNECTION

• Anode connection

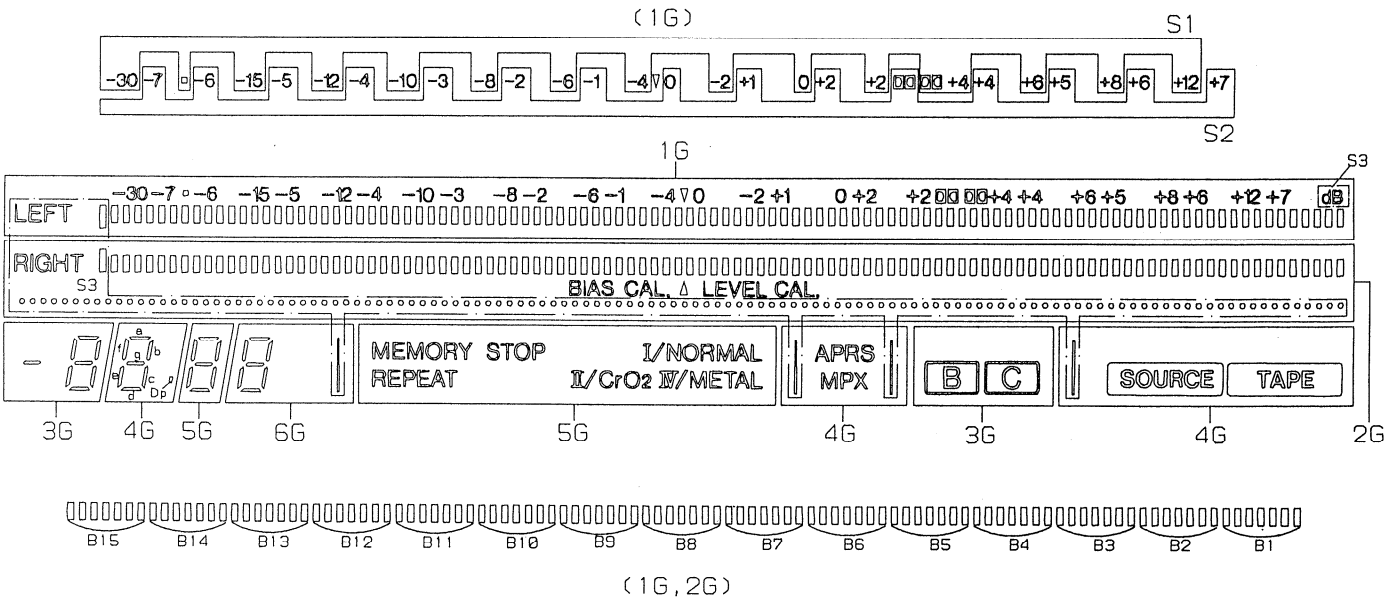
	1G
P1	S1
P2	S2
P3	▽
P 4	B1
P 5	B2
P 6	B3
P 7	B4
P 8	B5
P 9	B6
P10	B7
P11	B8
P12	B9
P13	B10
P14	B11
P15	B12
P16	B13
P17	B14
P18	B15
P19	S3

INTERNAL CONNECTION OF FL

Anode connection table

	1G	2G	3G	4G	5G	6G
P1	S1	LEVEL CAL.	—	APRS	—	—
P2	S2	BIAS CAL.	—	—	—	—
P3	▽	△	—	—	—	—
P 4	B1	B1	—	—	—	—
P 5	B2	B2	—	—	MEMORY	—
P 6	B3	B3	—	—	REPEAT	—
P 7	B4	B4	—	TAPE	STOP	—
P 8	B5	B5	B	SOURCE	—	—
P 9	B6	B6	C	—	I/NORMAL	—
P10	B7	B7	—	MPX	IL/CrO2	—
P11	B8	B8	Dp	Dp	II/METAL	—
P12	B9	B9	a	a	a	a
P13	B10	B10	b	b	b	b
P14	B11	B11	f	f	f	f
P15	B12	B12	g	g	g	g
P16	B13	B13	c	c	c	c
P17	B14	B14	e	e	e	e
P18	B15	B15	d	d	d	d
P19	S3	S3	—	S3	—	S3

Grid connection diagram



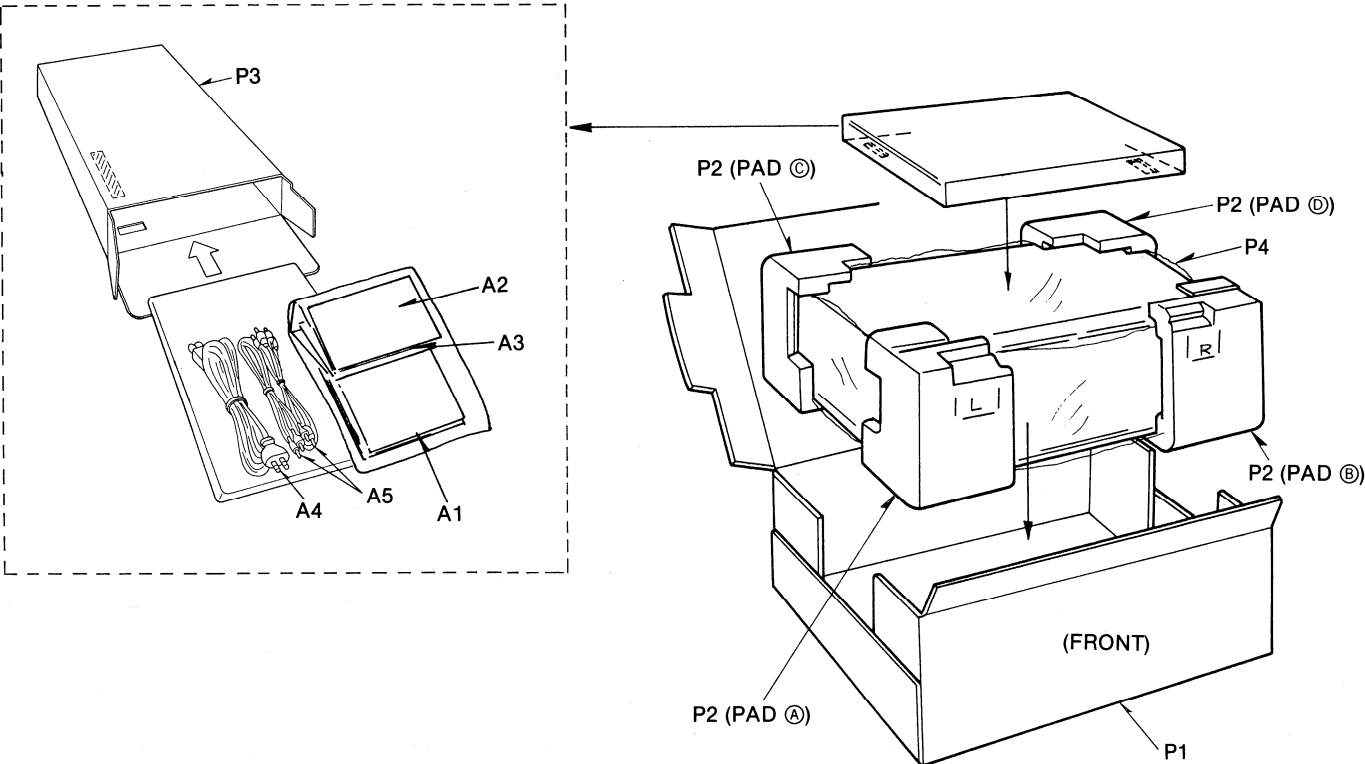
Pin connection

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	N	N	N	N	N	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	N	6	5	4	3	2	1	P	N	N	N	N	N	N	N	F	F	1
	P	P	P	P	C	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	C	G	G	G	G	G	G	19	P	P	P	P	P	P	P	1	1

PIN NO.	55	54	53	52	51	50	49	48	47	46	45	44	43	42	41
CONNECTION	F	F	N	N	N	N	N	N	N	N	N	N	N	N	N

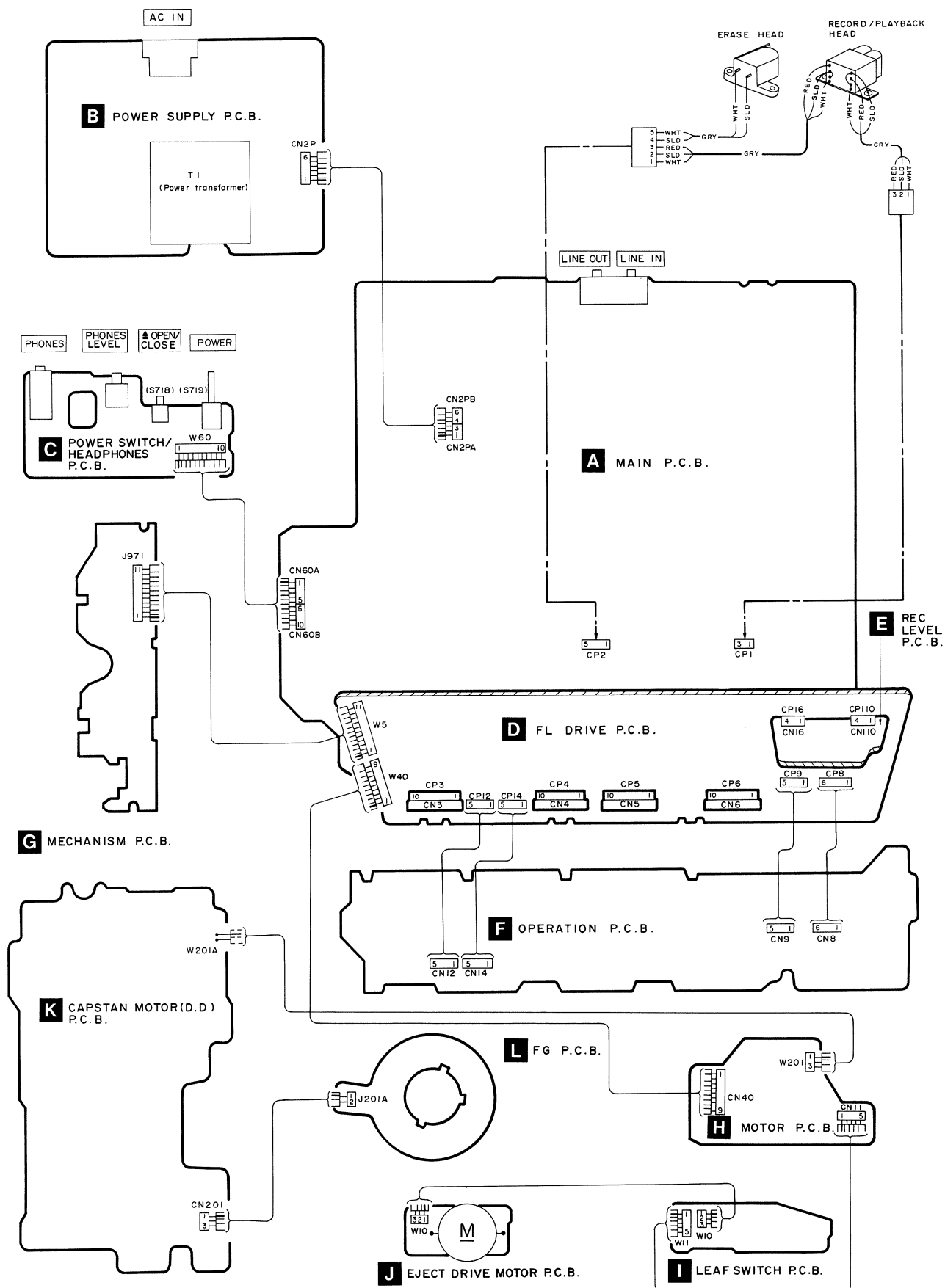
- 1) F1, F2..... Filament
- 2) NP No pin
- 3) NC..... No connection
- 4) 1G~6G..... Grid

PACKING



<PAD A, B, C, D, Part No.: RPN0366-1>

WIRING CONNECTION DIAGRAM



REPLACEMENT PARTS LIST

Notes : * Important safety notice:

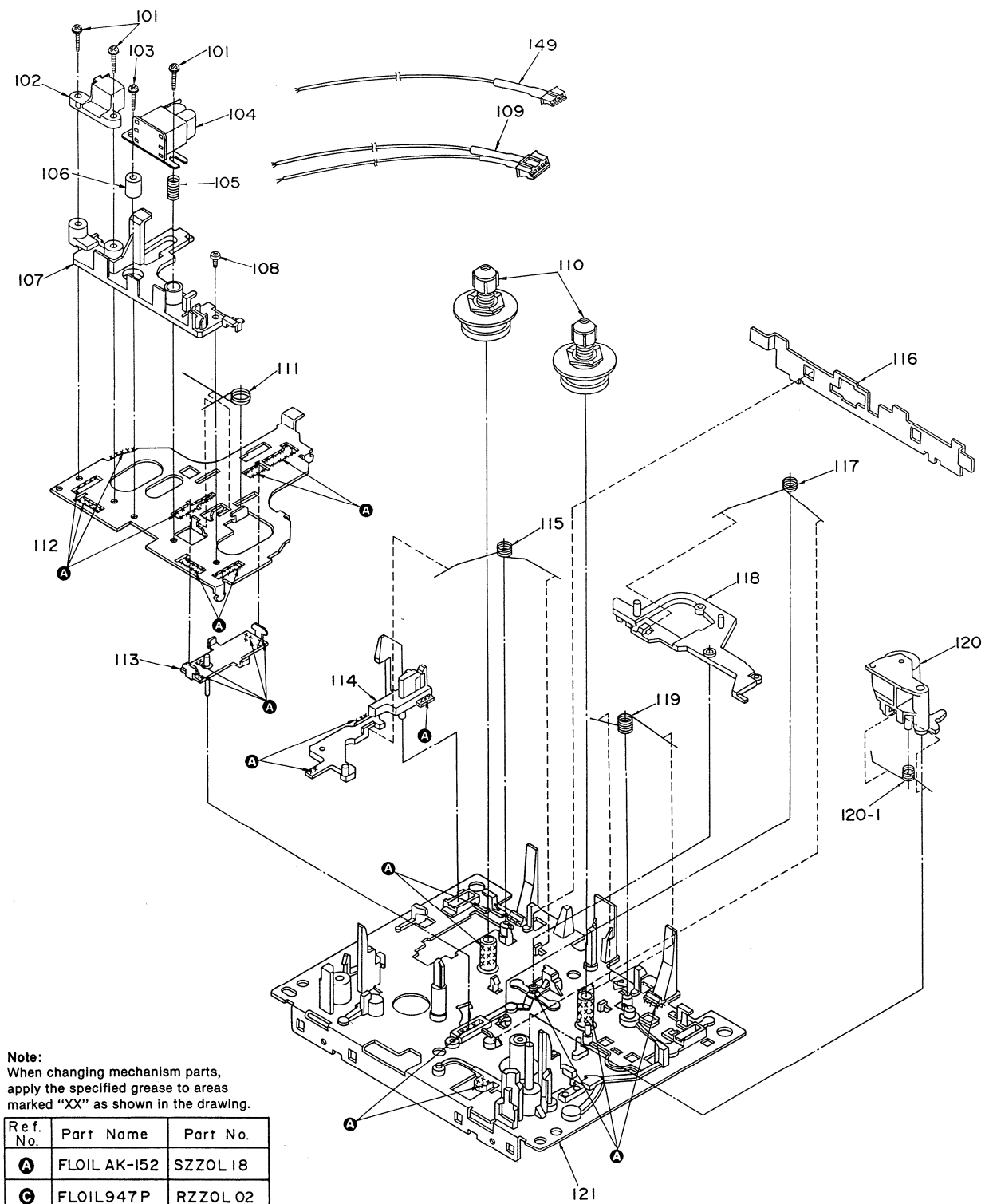
Components identified by $\triangle$ mark have special characteristics important for safety. When replacing any of these components use only manufacturer's specified parts.

* 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.

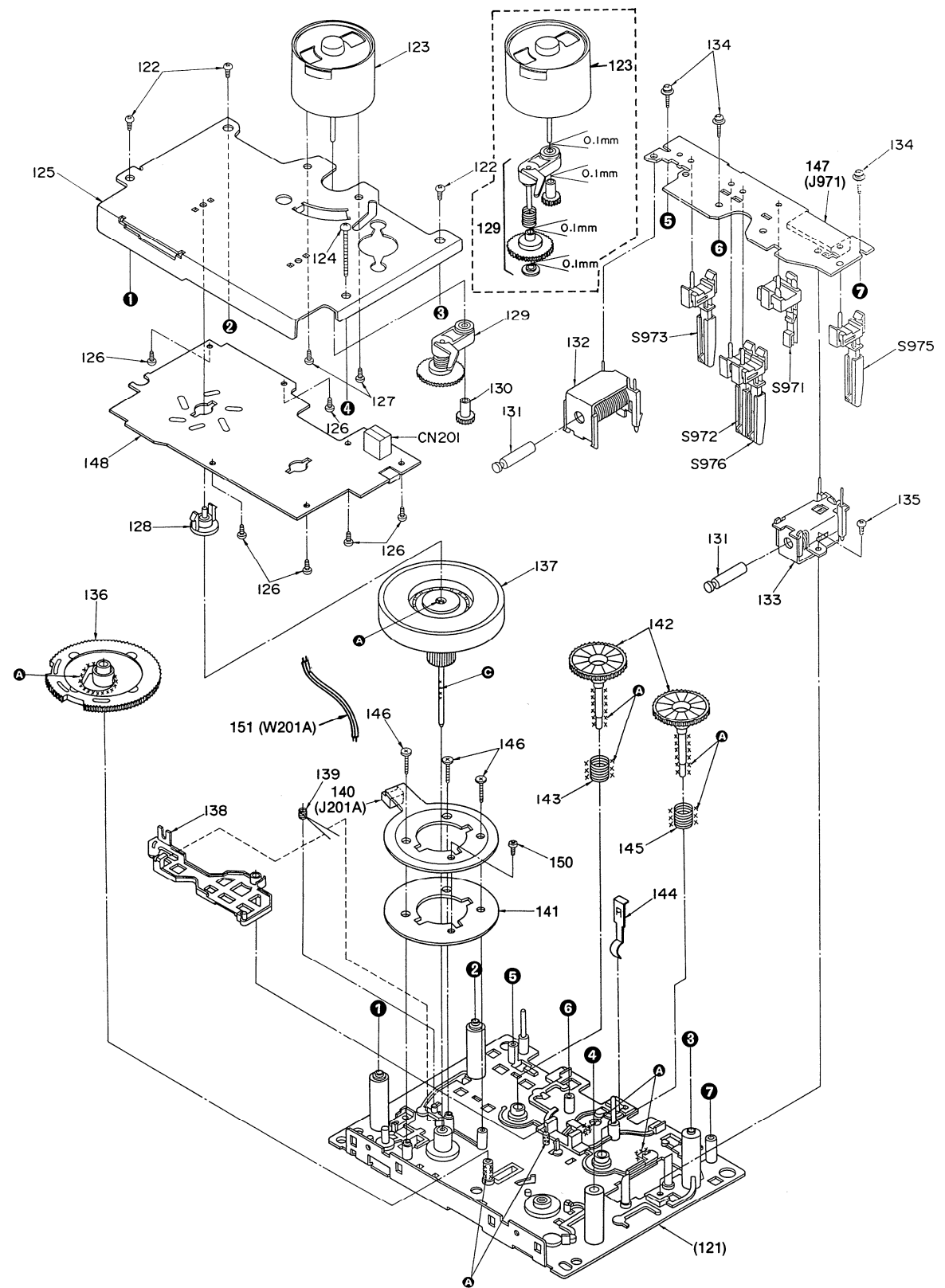
Ref. No.	Part No.	Part Name & Description	Remarks	Ref. No.	Part No.	Part Name & Description	Remarks
		CABINET AND CHASSIS		43	RGU0620-K	BUTTON, MONITOR	
				44	RMA0535	HOLDER ANGLE	
				45	RMCO056-1	SHIELD PLATE, REC LEVEL	
1	RKM0036-K	CABINET		46	RMRO185	BUTTON SPACER	
2	RYF0146A-K	CASSETTE LID		47	RFKNSBX707EB	CASSETTE HOLDER ASS'Y	
3	RYQ0070-K	FRONT ORNAMENT		48	RMCO038	HALF SPRING	
4	SNE2129-1	SCREW		49	RMQ0072	HALF STABILIZER	
5	XTBS3+8JFZ1	SCREW		50	XTB3+6J	SCREW	
6	RMNO141	FL HOLDER		51	XTB3+10JFZ	SCREW	
7	RGRO128A-E1	REAR PANEL	(EG)	52	SNE4021-1	NUT	
7	RGRO128A-F	REAR PANEL	(EB)	53	XTB3+10GFZ	SCREW	
8	RGU0030	BUTTON, POWER SWITCH		54	XTB3+16CFN	SCREW	
9	RGV0080-K	KNOB, TIMER		55	XTB3+20JFZ	SCREW	
10	RGW0033-K1	KNOB, REC LEVEL		56	XTB3+8JFZ	SCREW	
11	RGW0110-K	KNOB, BAL. /BIAS/HL P. /REC. CAL					
12	RKA0009-1	FOOT				PACKING MATERIAL	
13	RKQ0089	P. C. B. HOLDER					
14	RKU0009-2	BOTTOM BOARD		P1	RPG0994	CARTON BOX	
15	RFKGSBX707EB	FRONT PANEL ASS'Y		P2	RPN0366-1	PAD	
15-1	RKW0171B-K	TRANSPARENT PLATE		P3	SPSD152	ACCESSORIES BOX	
16	RMA0517	BRACKET, BOTTOM CHASSIS		P4	SPP756	PROTECTION COVER	
17	RMCO137	SHIELD PLATE, MECH UNIT					
18	RMCO139	SHIELD PLATE, P. TRANSFORMER				ACCESSORIES	
19	RMKO026-6	BOTTOM CHASSIS					
20	RMNO140	ORNAMENT, HEADPHONES		A1	RFKSSBX707EG	INSTRUCTION MANUAL ASS'Y	(EG)
21	RFKPSB755E-K	EJECT DRIVE MOTOR ASS'Y		A1	RQT1192-B	INSTRUCTION MANUAL ASS'Y	(EB)
22	RDG0080	DRIVE GEAR		A2	RQA0013	WARRANTY CARD	
23	RDG0081	PULLEY GEAR		A3	RQCB0169	SERVICENTER LIST	
24	RMA0146-1	LOADING ANGLE		A4	SFDAC05E03	AC POWER SUPPLY CORD	(EG) $\triangle$
25	RMA0242	ANGLE		A4	SJA193	AC POWER SUPPLY CORD	(EB) $\triangle$
26	RMCO039	BRACKET		A5	SJP2249-3	STEREO CONNECTION CABLE	
27	RME0039	OPEN SPRING					
28	RML0110	LEAF SWITCH LEVER(B)					
29	RML0111	LEAF SWITCH LEVER(C)					
30	RML0112	DRIVE SELECTOR LEVER					
31	RML0113	LEAF SWITCH LEVER(A)					
32	RFKNSB755EDK	LOADING BASE ASS'Y					
33	SFUGF01N02	INTERMEDIATE GEAR					
34	SHDD8	SCREW					
35	SMBD7-2	BELT					
36	XYN26+F6	SCREW					
37	RFKNSDN7AK	DAMPER GEAR ASS'Y					
38	RGK0407-A	ORNAMENT, MONITOR BUTTON					
39	RGK0411-K	ORNAMENT, OPERATION BUTTON					
40	RGL0030	PANEL LIGHT					
41	RGU0195	BUTTON, OPEN/CLOSE					
42	RGU0619-K	BUTTON, OPERATION					

• Mechanical parts

(Top view)



(Bottom view)



REPLACEMENT PARTS LIST

Ref. No.	Part No.	Part Name & Description	Remarks	Ref. No.	Part No.	Part Name & Description	Remarks
		MECHANISM PARTS LIST		149	REX0093-2	LEAD WIRE BLOCK	
				150	XQN2+AF3	SCREW	
				151	RWJ0202090XX	FLAT CABLE (2P), W201A	
101	QH01361A	SCREW					
102	SJH96-1	E HEAD					
103	RHE5201ZA	SCREW					
104	RBR4CY009-C	R/P HEAD					
105	QBC1278A	HEAD SPRING					
106	RMX0014	SPACER					
107	RM0184	HEAD SPACER					
108	XTN2+5F	SCREW					
109	REX0092-1	LEAD WIRE BLOCK					
110	RXR0009	REEL TABLE					
111	RJW139ZA	HEAD BASE SPRING					
112	RMA0047A-1	HEAD BASE					
113	RXQ0078	MAIN ROD ASS'Y					
114	RMM0012-2	EJECT ROD (L)					
115	RME0018-1	SPRING, EJECT ROD (L)					
116	RML0069-1	LEVER					
117	RME0020	BRAKE SPRING					
118	RML0040-2	BRAKE LEVER					
119	RJW142ZA	SPRING					
120	RXP0004	PINCH ROLLER ARM (F)					
120-1	RJW140ZC	SPRING, PINCH ROLLER ARM (F)					
121	RFKRSB555E-K	CHASSIS ASS'Y					
122	XTN26+7J	SCREW					
123	MMN-6F4RA88	REEL MOTOR					
124	XTN26+26F	SCREW					
125	RMA0048A	FLYWHEEL PLATE					
126	XTN2+3F	SCREW					
127	XSN26+3	SCREW					
128	RM0141	THRUST BEARING					
129	RXG0009	IDLE GEAR ASS'Y					
130	RDG0034	REEL MOTOR GEAR					
131	RUB428ZE	MOVING IRON CORE					
132	RSJ0003	SOLENOID					
133	RXQ0011	BLAKE SOLENOID					
134	XTW2+8S	SCREW					
135	XTN26+4F	SCREW					
136	RDG0030	MAIN GEAR					
137	RXF0008	FLYWHEEL					
138	RML0037	TRIGGER LEVER					
139	RJW147ZA	TRIGGER LEVER SPRING					
140	RJS2T7ZA	CONNECTOR (2P), J201A					
141	RMQ0037	FG YOKE					
142	RXG0003	REEL TABLE GEAR					
143	RUQ112ZA	SPRING					
144	RUS609ZC	TAPE PRESSURE SPRING					
145	RUQ111ZB	SPRING					
146	RHE5204ZB	SCREW					
147	RJS11T7ZA	CONNECTOR (11P), J971					
148	REP0268C	STATOR P. C. B. ASS'Y					

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)		Q602	2SC3311A-Q	TRANSISTOR	
				Q603	2SD2037EFTA	TRANSISTOR	
				Q604	2SB1357EFTA	TRANSISTOR	
IC1	AN7351K	PLAYBACK/REC AMP		Q605	2SD2037EFTA	TRANSISTOR	
IC2	M5218L	PLAYBACK CORRECT PHASE		Q606	KSB564ACYGTA	TRANSISTOR	
IC201	HA13440MPEL	MOTOR DRIVE		Q607	2SC3311A-Q	TRANSISTOR	
IC202	SN74LS04MEL	INVERTER		Q608	2SA1309A-R	TRANSISTOR	
IC203	SN74LS74AM	FLIP-FLOP		Q609	2SB1357EFTA	TRANSISTOR	
IC301	UPC1297CA	DOLBY HX PRO		Q901	2SC3311A-Q	TRANSISTOR	
IC401, 402	CXA1331S	DOLBY B/C NR		Q902	DTC114ESTP	TRANSISTOR	
IC501	M50942-518SP	MICROCOMPUTER		Q903	KSB564ACYGTA	TRANSISTOR	
IC502	BA6218	REEL MOTOR DRIVE		Q904	DTC114ESTP	TRANSISTOR	
IC503	BA6218	EJECT MOTOR DRIVE		Q905-908	DTA114ESTP	TRANSISTOR	
IC701, 702	M5218L	Class AA:H P. AMP		Q909	2SD2037EFTA	TRANSISTOR	
IC901	M5218L	TPS		Q910, 911	DTA114ESTP	TRANSISTOR	
IC902	M5218L	LEVEL METER AMP		Q912	DTC114ESTP	TRANSISTOR	
IC903	M5218L	BUFFER AMP		Q913	2SC3311A-Q	TRANSISTOR	
IC904	MN4066B	INPUT SELECTOR		Q915	2SA1309A-R	TRANSISTOR	
IC905	MN4066B	REC CALIBRATION SELECTOR		Q916	2SD1450RSTA	TRANSISTOR	
IC906	M5218L	REC CALIBRATION CONTROL		Q917, 918	2SC3311A-Q	TRANSISTOR	
IC907	M50253P	SYSTEM CONTROL		Q919, 920	2SD1450RSTA	TRANSISTOR	
IC971, 972	GP2S06BC	PHOTO COUPLER		Q921	DTA114ESTP	TRANSISTOR	
		TRANSISTOR(S)		Q922	DTC114ESTP	TRANSISTOR	
						DIODE(S)	
Q1-4	2SC3311A-Q	TRANSISTOR		D201	MA3056-MTX	DIODE	
Q5, 6	2SA1309A-R	TRANSISTOR		D301	MA165	DIODE	
Q7, 8	2SC3311A-Q	TRANSISTOR		D302	MTZJ5R6CTA	DIODE	
Q201	2SD601R	TRANSISTOR		D303-306	MA165	DIODE	
Q301, 302	2SC3311A-Q	TRANSISTOR		D501-503	MA165	DIODE	
Q303	2SD2037EFTA	TRANSISTOR		D504	MTZJ5R6CTA	DIODE	
Q304	2SC3311A-Q	TRANSISTOR		D505	MTZJ9R1CTA	DIODE	
Q451-454	2SC3311A-Q	TRANSISTOR		D506, 507	MA165	DIODE	
Q501-503	DTC114ESTP	TRANSISTOR		D509	MTZJ8R2CTA	DIODE	
Q504	2SC3311A-Q	TRANSISTOR		D510, 511	1SR35200TB	DIODE	
Q505-507	KSB564ACYGTA	TRANSISTOR		D601-606	1SR35200TB	DIODE	Δ
Q508, 509	DTC114ESTP	TRANSISTOR		D607, 608	MA165	DIODE	
Q510	KSB564ACYGTA	TRANSISTOR		D609, 610	MTZJ9R1CTA	DIODE	
Q511	2SD592ANCQ	TRANSISTOR		D611	MTZJ6R2BTA	DIODE	
Q512	2SD1450RSTA	TRANSISTOR		D612	MTZJ20CTA	DIODE	
Q513	2SC3311A-Q	TRANSISTOR		D613	MTZJ33DTA	DIODE	
Q514	DTC114ESTP	TRANSISTOR		D614	1SR35200TB	DIODE	Δ
Q515	2SC3311A-Q	TRANSISTOR		D701	LN873RP-C	L. E. D.	
Q517, 518	2SC3311A-Q	TRANSISTOR		D702	LN373GP3ULSC	L. E. D.	
Q519	2SD1450RSTA	TRANSISTOR		D703	MA165	DIODE	
Q520	2SD592ANCQ	TRANSISTOR		D901-904	MA165	DIODE	
Q601	2SA1309A-R	TRANSISTOR					

Ref. No.	Part No.	Part Name & Description	Remarks	Ref. No.	Part No.	Part Name & Description	Remarks
D905, 906	MTZJ5R1BTA	DIODE		S705	EVQ21405R	REC	
D907, 908	MA165	DIODE	△	S706	EVQ21405R	PAUSE	
D909, 910	MA165	DIODE		S707	EVQ21405R	DOLBY NR C	
D911, 912	1SR35200TB	DIODE	△	S708	EVQ21405R	DOLBY NR B	
D913-915	MA165	DIODE		S709	EVQ21405R	MPX FILTER	
D916	MTZJ12CTA	DIODE		S710	EVQ21405R	COUNTER RESET	
D917	MTZJ5R1BTA	DIODE		S711	EVQ21405R	COUNTER MODE	
D918-925	MA165	DIODE		S712	EVQ21405R	METER RANGE	
D971, 972	RVD1SS133TA	DIODE		S713	EVQ21405R	MEMORY (REPEAT/STOP)	
				S714	EVQ21405R	APRS	
		VARIABLE RESISTOR(S)		S715	EVQ21405R	AUTO REC MUTE	
				S716	SSS166	TIMER	
VR1	EWGU2A029A54	REC. LEVEL CONTROL		S717	EVQ21405R	REC CAL	
VR2	EVJ02SFA5G15	BALANCE CONTROL		S718	EVQ21405R	OPEN/CLOSE	
VR3, 4	EVNDXAA00B53	PLAYBACK GAIN ADJ.		S719	SSH1238	POWER	
VR5, 6	EVNDXAA00B14	OVERALL GAIN ADJ.		S720	EVQ21405R	MONITOR (SOURCE/TAPE)	
VR7, 8	EVJ02KFA5B24	REC. CALIBRATION		S791	SSPD18-1	MOTOR, LOADING	
VR9, 10	EVNDXAA00B53	CALIBRATION LEVEL ADJ.		S792	SSPD18-1	OPEN, LOADING	
VR11	EVJ02KFA5B53	BIAS CURRENT ADJ.		S971	RSH1A89ZB-U	MODE	
VR301, 302	EVNDXAA00B14	OVERALL FREQ ADJ.		S972	RSH1A90YB-U	HALF	
VR701	EVU57A064A14	HEADPHONES CONTROL		S973	RSH1A90YB-U	ATS	
				S975	RSH1A90YB-U	REC INHIBIT	
		COIL (S)		S976	RSH1A90YB-U	ATS	
L1, 2	RLZ0003	COIL (AC BIAS TRAP ADJ.)				CONNECTOR(S) AND SOCKET(S)	
L3-6	SLQX272-1YT	COIL					
L301, 302	SL09B1-Z	COIL (HK PRO ADJ.)		CN2P	SJT30643-V	CONNECTOR (6P)	
L303	SL09B4-K	COIL		CN2PA	RJS1A1703	CONNECTOR (3P)	
L451, 452	QLM9Z10K	COIL		CN2PB	RJS1A1703	CONNECTOR (3P)	
				CN3-6	RJU003K010M1	SOCKET (10P)	
		TRANSFORMER (S)		CN8	SJS50681BB	SOCKET (6P)	
				CN9	SJS50581BB	SOCKET (5P)	
T1	RTP1K4E014-V	POWE TRANSFORMER	△	CN11	SJT30544-H	CONNECTOR (5P)	
				CN12	SJS50581BB	SOCKET (5P)	
		OSILLATOR (S)		CN14	SJS50581BB	SOCKET (5P)	
				CN16	RJU057W004	SOCKET (4P)	
CF201	RSXA3M74S01	CRYSTAL OSILLATOR		CN40	RJS9T72A	CONNECTOR (9P)	
				CN60A	RJS1A1705	CONNECTOR (5P)	
		FILTER (S)		CN60B	RJS1A1705	CONNECTOR (5P)	
				CN110	RJU057W004	SOCKET (4P)	
X501	EF0GC4004A4	CERAMIC FILTER (4MHz)		CN201	RJS3T4ZA	CONNECTOR (3P)	
				CP1	RJP3G18ZA	CONNECTOR (3P)	
		DISPLAY TUBE (S)		CP2	RJP5G18ZA	CONNECTOR (5P)	
				CP3-6	RJT003K010M1	CONNECTOR (10P)	
FL501	RSL0103-F	DISPLAY TUBE		CP8	SJT30648BB1	CONNECTOR (6P)	
				CP9	SJT30548BB1	CONNECTOR (5P)	
		SWITCH (ES)		CP12	SJT30548BB1	CONNECTOR (5P)	
				CP14	SJT30548BB1	CONNECTOR (5P)	
S701	EVQ21405R	STOP		CP16	RJT057W004	CONNECTOR (4P)	
S702	EVQ21405R	FF		CP110	RJT057W004	CONNECTOR (4P)	
S703	EVQ21405R	REW					
S704	EVQ21405R	PLAY				JACK (S)	

Ref. No.	Part No.	Part Name & Description	Remarks	Ref. No.	Part No.	Part Name & Description	Remarks
				W11	RWJ1805170KQ	FLAT CABLE (5P)	
JK1	SJF3069N	TERMIANL BOARD		W40	RWJ0209180KQ	FLAT CABLE (9P)	
JK701	SJS9236	AC INLET	△	W60	RWJ1810260KQ	FLAT CABLE (10P)	
JK704	SJJD19	JACK, HEADPHONES		W201	RWJ1803120KQ	FLAT CABLE (3P)	
		FLAT CABLE (S)					
						GND PART (S)	
W2P	RWJ1806110QQ	FLAT CABLE (6P)					
W5	RWJ0211220KQ	FLAT CABLE (11P)		E1, 2	SNE1004-1	GND PLATE	
W10	RWJ1803160KK	FLAT CABLE (3P)		E3	SUSD165	GND SPRING	

RESISTORS & CAPACITORS

Notes : * Capacity valuse are in microfarads (uF) unless specified otherwise,P=Pico-farads (pF) F=Farads (F)
* Resistance values are in ohms,unless specified otherwise,1K=1,000(0HM) , 1M=1,000k(0HM)

Ref. No.	Part No.	Values & Remarks	Ref. No.	Part No.	Values & Remarks	Ref. No.	Part No.	Values & Remarks
			R59, 60	ERDS2TJ562	1/4W 5. 6K	R321	ERDS2TJ272T	1/4W 2. 7K
		RESISTORS	R61, 62	ERDS2TJ222	1/4W 2. 2K	R401, 402	ERDS2TJ562	1/4W 5. 6K
			R63, 64	ERDS2TJ183T	1/4W 18K	R403, 404	ERDS2TJ243T	1/4W 24K
R1, 2	ERDS2TJ683	1/4W 68K	R65, 66	ERDS2TJ123	1/4W 12K	R405, 406	ERDS2TJ473	1/4W 47K
R3, 4	ERDS2TJ151	1/4W 150	R67, 68	ERDS2TJ683	1/4W 68K	R407, 408	ERDS2TJ561	1/4W 560
R5, 6	ERDS2TJ101	1/4W 100	R201	ERJ6GEYJ333V	1/10W 33K	R409	ERDS2TJ273	1/4W 27K
R7, 8	ERDS2TJ153	1/4W 15K	R202	ERJ6GEYJ683V	1/10W 68K	R410	ERDS2TJ151	1/4W 150
R9, 10	ERDS2TJ564	1/4W 560K	R203-205	ERJ6GEYJ1R5V	1/10W 1. 5	R451, 452	ERDS2TJ562	1/4W 5. 6K
R11-14	ERDS2TJ103	1/4W 10K	R206	ERJ8GEYJ222V	1/8W 2. 2K	R453, 454	ERDS2TJ243T	1/4W 24K
R15, 16	ERDS2TJ682T	1/4W 6. 8K	R207	ERJ6GEYJ182V	1/10W 1. 8K	R455, 456	ERDS2TJ222	1/4W 2. 2K
R17-22	ERDS2TJ223	1/4W 22K	R208	ERJ6GEYJ222V	1/10W 2. 2K	R457, 458	ERDS2TJ332	1/4W 3. 3K
R23, 24	ERDS2TJ331	1/4W 330	R209-211	ERJ6GEYJ4R7V	1/10W 4. 7	R459, 460	ERDS2TJ242	1/4W 2. 4K
R25, 26	ERDS2TJ182	1/4W 1. 8K	R212, 213	ERJ6GEYJ152V	1/10W 1. 5K	R461-464	ERDS2TJ684	1/4W 680K
R27, 28	ERDS2TJ682T	1/4W 6. 8K	R214	ERJ6GEYJ822V	1/10W 8. 2K	R465, 466	ERDS2TJ561	1/4W 560
R29, 30	ERDS2TJ562	1/4W 5. 6K	R215	ERJ6GEYJ101V	1/10W 100	R467	ERDS2TJ273	1/4W 27K
R31, 32	ERDS2TJ561	1/4W 560	R216	ERJ8GEYJ222V	1/8W 2. 2K	R468	ERDS2TJ151	1/4W 150
R33, 34	ERDS2TJ472	1/4W 4. 7K	R301, 302	ERDS2TJ222	1/4W 2. 2K	R469, 470	ERDS2TJ473	1/4W 47K
R35, 36	ERDS2TJ273	1/4W 27K	R304	ERDS2TJ102	1/4W 1K	R471-474	ERDS2TJ222	1/4W 2. 2K
R37, 38	ERDS2TJ104	1/4W 100K	R305	ERDS2TJ682T	1/4W 6. 8K	R501	ERDS2TJ223	1/4W 22K
R39, 40	ERDS2TJ153	1/4W 15K	R306	ERDS2TJ271	1/4W 270	R502	ERDS2TJ821	1/4W 820
R41, 42	ERDS2TJ273	1/4W 27K	R308	ERDS2TJ1R0	1/4W 1. 0	R503	ERDS2TJ223	1/4W 22K
R43, 44	ERDS2TJ682T	1/4W 6. 8K	R309, 310	ERDS2TJ100	1/4W 10	R504	ERDS2TJ821	1/4W 820
R45, 46	ERDS2TJ392T	1/4W 3. 9K	R311, 312	ERDS2TJ183T	1/4W 18K	R505	ERG1SJ150E	1W 15
R47, 48	ERDS2TJ102	1/4W 1K	R313, 314	ERDS2TJ101	1/4W 100	R506	ERG1SJ180E	1W 18
R49, 50	ERDS2TJ221	1/4W 220	R315, 316	ERDS2TJ154	1/4W 150K	R507, 508	ERDS2TJ472	1/4W 4. 7K
R53, 54	ERDS2TJ151	1/4W 150	R317, 318	ERDS2TJ333	1/4W 33K	R509	ERDS2TJ223	1/4W 22K
R55, 56	ERDS2TJ332	1/4W 3. 3K	R319	ERDS2TJ102	1/4W 1K	R510	ERDS2TJ821	1/4W 820
R57, 58	ERDS2TJ392T	1/4W 3. 9K	R320	ERDS2TJ822	1/4W 8. 2K	R511	ERDS2TJ822	1/4W 8. 2K

Ref. No.	Part No.	Values & Remarks	Ref. No.	Part No.	Values & Remarks	Ref. No.	Part No.	Values & Remarks
R512	ERDS2TJ182	1/4W 1.8K	R701	ERDS2TJ821	1/4W 820	R932, 933	ERDS2TJ103	1/4W 10K
R513	ERDS2TJ682T	1/4W 6.8K	R702	ERDS2TJ102	1/4W 1K	R934	ERDS2TJ333	1/4W 33K
R514	ERDS2TJ152	1/4W 1.5K	R703	ERDS2TJ122	1/4W 1.2K	R935	ERDS2TJ103	1/4W 10K
R515	ERDS2TJ332	1/4W 3.3K	R704	ERDS2TJ152	1/4W 1.5K	R936	ERDS2TJ392T	1/4W 3.9K
R516	ERDS2TJ103	1/4W 10K	R705	ERDS2TJ182	1/4W 1.8K	R937	ERDS2TJ272T	1/4W 2.7K
R517	ERDS2TJ223	1/4W 22K	R706	ERDS2TJ222	1/4W 2.2K	R938	ERDS2TJ103	1/4W 10K
R518	ERDS2TJ821	1/4W 820	R707	ERDS2TJ332	1/4W 3.3K	R939	ERDS2TJ822	1/4W 8.2K
R519	ERDS2TJ103	1/4W 10K	R708	ERDS2TJ472	1/4W 4.7K	R940	ERDS2TJ472	1/4W 4.7K
R520	ERDS2TJ102	1/4W 1K	R709	ERDS2TJ682T	1/4W 6.8K	R941	ERDS2TJ102	1/4W 1K
R521, 522	ERDS1FVJ180T	1/2W 18 Δ	R710	ERDS2TJ123	1/4W 12K	R942	ERDS2TJ560T	1/4W 56
R523	ERDS2TJ332	1/4W 3.3K	R711	ERDS2TJ821	1/4W 820	R943	ERDS2TJ103	1/4W 10K
R524	ERDS2TJ222	1/4W 2.2K	R712	ERDS2TJ102	1/4W 1K	R944	ERDS2TJ180	1/4W 1.0
R525	ERDS2TJ473	1/4W 47K	R713	ERDS2TJ122	1/4W 1.2K	R945	ERDS2TJ391	1/4W 390
R526	ERDS2TJ223	1/4W 22K	R714	ERDS2TJ152	1/4W 1.5K	R946	ERDS2TJ101	1/4W 100
R527	ERDS2TJ562	1/4W 5.6K	R715	ERDS2TJ182	1/4W 1.8K	R947	ERDS2TJ333	1/4W 33K
R528	ERDS2TJ682T	1/4W 6.8K	R716	ERDS2TJ222	1/4W 2.2K	R948, 949	ERDS2TJ473	1/4W 47K
R529, 530	ERDS2TJ103	1/4W 10K	R717	ERDS2TJ332	1/4W 3.3K	R950	ERDS2TJ223	1/4W 22K
R531	ERDS2TJ105T	1/4W 1M	R718	ERDS2TJ472	1/4W 4.7K	R951	ERDS2TJ821	1/4W 820
R532	ERDS2TJ102	1/4W 1K	R719	ERDS2TJ271	1/4W 270	R953	ERDS2TJ273	1/4W 27K
R533	ERDS2TJ103	1/4W 10K	R720	ERDS2TJ181T	1/4W 180	R954	ERDS2TJ392T	1/4W 3.9K
R534	ERDS2TJ471	1/4W 470	R721	ERDS2TJ472	1/4W 4.7K	R955	ERDS2TJ273	1/4W 27K
R535, 536	ERDS2TJ103	1/4W 10K	R722	ERDS2TJ332	1/4W 3.3K	R956, 957	ERDS2TJ271	1/4W 270
R537, 538	ERDS2TJ472	1/4W 4.7K	R723, 724	ERDS2TJ180T	1/4W 18	R958	ERDS2TJ472	1/4W 4.7K
R539, 540	ERDS2TJ681	1/4W 680	R725, 726	ERDS2TJ332	1/4W 3.3K	R959	ERDS2TJ222	1/4W 2.2K
R542, 543	ERDS1FVJ3R3T	1/2W 3.3 Δ	R727, 728	ERDS2TJ330	1/4W 33	R960	ERDS2TJ392T	1/4W 3.9K
R544	ERDS2TJ331	1/4W 330	R729, 730	ERDS2TJ100	1/4W 10	R961	ERDS2TJ473	1/4W 47K
R545	ERDS2TJ102	1/4W 1K	R731, 732	ERDS2TJ102	1/4W 1K	R962	ERDS2TJ821	1/4W 820
R546	ERDS2TJ332	1/4W 3.3K	R733, 734	ERDS2TJ472	1/4W 4.7K	R963, 964	ERDS2TJ153	1/4W 15K
R547	ERDS2TJ222	1/4W 2.2K	R901	ERDS2TJ222	1/4W 2.2K	R965	ERDS2TJ682T	1/4W 6.8K
R548, 549	ERDS2TJ472	1/4W 4.7K	R902	ERDS2TJ823T	1/4W 82K	R966	ERDS2TJ103	1/4W 10K
R550	ERDS2TJ101	1/4W 100	R903	ERDS2TJ101	1/4W 100	R967	ERDS2TJ223	1/4W 22K
R551, 552	ERDS2TJ103	1/4W 10K	R904	ERDS2TJ393	1/4W 39K	R968	ERDS2TJ103	1/4W 10K
R553	ERDS2TJ101	1/4W 100	R905	ERDS2TJ822	1/4W 8.2K	R969	ERDS2TJ562	1/4W 5.6K
R601, 602	ERDS2TJ472	1/4W 4.7K	R906	ERDS2TJ102	1/4W 1K	R970	ERDS2TJ332	1/4W 3.3K
R603	ERDS2TJ103	1/4W 10K	R907	ERDS2TJ473	1/4W 47K	R971	ERDS2TJ272T	1/4W 2.7K
R604	ERDS2TJ472	1/4W 4.7K	R908	ERDS2TJ223	1/4W 22K	R971A	ERDS2TJ221	1/4W 220
R605	ERD2FCVJ4R7T	1/4W 4.7 Δ	R909, 910	ERDS2TJ563	1/4W 56K	R972	ERDS2TJ272T	1/4W 2.7K
R606, 607	ERD2FCVJ6R8T	1/4W 6.8 Δ	R911, 912	ERDS2TJ393	1/4W 39K	R972A	ERDS2TJ183T	1/4W 18K
R608, 609	ERDS2TJ561	1/4W 560	R913, 914	ERDS2TJ220T	1/4W 22	R973	ERDS2TJ822	1/4W 8.2K
R610, 611	ERDS2TJ101	1/4W 100	R915, 916	ERDS2TJ101	1/4W 100	R973A	ERDS2TJ221	1/4W 220
R612	ERD2FCVG270T	1/4W 27 Δ	R917, 918	ERDS2TJ152	1/4W 1.5K	R974	ERDS2TJ822	1/4W 8.2K
R614	ERD2FCVG270T	1/4W 27 Δ	R920	ERDS2TJ152	1/4W 1.5K	R974A	ERDS2TJ183T	1/4W 18K
R615, 616	ERDS2TJ222	1/4W 2.2K	R921	ERDS2TJ220T	1/4W 22	R975	ERDS2TJ103	1/4W 10K
R617, 618	ERDS2TJ101	1/4W 100	R922	ERDS2TJ392T	1/4W 3.9K	R976	ERDS2TJ273	1/4W 27K
R619	ERD2FCVG100T	1/4W 10 Δ	R923	ERDS2TJ103	1/4W 10K	R977	ERDS2TJ473	1/4W 47K
R620, 621	ERDS2TJ391	1/4W 390	R924	ERDS2TJ332	1/4W 3.3K	R978	ERDS2TJ393	1/4W 39K
R622	ERD2FCVG100T	1/4W 10 Δ	R925, 926	ERDS2TJ472	1/4W 4.7K	R979	ERDS2TJ473	1/4W 47K
R623	ERD2FCVG330T	1/4W 33 Δ	R927	ERDS2TJ223	1/4W 22K	R980	ERDS2TJ393	1/4W 39K
R624	ERDS2TJ471	1/4W 470	R928	ERDS2TJ123	1/4W 12K	R981, 982	ERDS2TJ822	1/4W 8.2K
R625-636	ERDS2TJ470	1/4W 47	R929	ERDS2TJ682T	1/4W 6.8K	R983	ERDS2TJ181T	1/4W 180
R637	ERDS2TJ223	1/4W 22K	R930	ERDS2TJ473	1/4W 47K			
R640-642	ERG1SJ390E	1W 39	R931	ERDS2TJ102	1/4W 1K			CHIP JUMPER(S)

Ref. No.	Part No.	Values & Remarks	Ref. No.	Part No.	Values & Remarks	Ref. No.	Part No.	Values & Remarks
J201-206	ERJ6GEY0R00V	CHIP JUMPER	C323, 324	ECQB1H103JF3	50V 0.01U	C915, 916	ECQB1H122JF3	50V 1200P
			C325, 326	ECBT1H561KB5	50V 560P	C917, 918	ECEA1CK100B	16V 10U
		CAPACITORS	C327, 328	ECEA1EK100	25V 10U	C919, 920	ECQB1H103JF3	50V 0.01U
			C329, 330	ECKR1H473ZF5	50V 0.047U	C921	ECQB1H332JF3	50V 3300P
C1, 2	ECBT1H221KB5	50V 220P	C401-404	ECQB1H222JF3	50V 2200P	C922	ECQB1H273JF3	50V 0.027U
C3, 4	ECEA0JK101	6.3V 100U	C405, 406	ECEA1HUR56B	50V 0.56U	C923	ECEA1CK100B	16V 10U
C5, 6	ECQB1H562JF3	50V 5600P	C407, 408	ECEA1HUR33	50V 0.33U	C925	ECKT1H223ZF	50V 0.022U
C7, 8	ECQB1H152JF3	50V 1500P	C409, 410	ECEA1EK4R7	25V 4.7U			
C9, 10	ECBT1H470J5	50V 47P	C451, 452	ECKT1H122KB	50V 1200P			
C11, 12	ECEA1CK100B	16V 10U	C453, 454	ECKD1H152KB	50V 1500P			
C13, 14	ECQB1H152JF3	50V 1500P	C455, 456	ECEA1EK4R7	25V 4.7U			
C15, 16	ECQB1H153JF3	50V 0.015U	C457-460	ECQB1H222JF3	50V 2200P			
C17, 18	ECQP1121JZ3	100V 120P	C461, 462	ECEA1HUR56B	50V 0.56U			
C19, 20	ECEA1EK4R7	25V 4.7U	C463, 464	ECEA1HUR33	50V 0.33U			
C21, 22	ECBT1H101KB5	50V 100P	C465, 466	ECEA1EK4R7	25V 4.7U			
C23, 24	ECQB1H562JF3	50V 5600P	C501	ECEA1HK010B	50V 1U			
C25, 26	ECBT1H221KB5	50V 220P	C502	ECBT1E103ZF	25V 0.01U			
C27, 28	ECEA1HUR33	50V 0.33U	C503	ECEA1CN100SB	16V 10U			
C29, 30	ECEA1CK100B	16V 10U	C504	ECEA1HK010B	50V 1U			
C31, 32	ECQV1H683JZ3	50V 0.068U	C505	ECKR1H103ZF5	50V 0.01U			
C33, 34	ECQB1H333JF3	50V 0.033U	C506	ECEA0JU470B	6.3V 47U			
C35, 36	ECQB1H183JF3	50V 0.018U	C507	ECEA1EK4R7	25V 4.7U			
C37, 38	ECQV1H473JZ3	50V 0.047U	C508, 509	ECEA1VK100B	35V 10U			
C39, 40	ECQB1H123JF3	50V 0.012U	C510	ECEA1CN100SB	16V 10U			
C43, 44	ECQB1H223JF3	50V 0.022U	C511	ECBT1E103ZF	25V 0.01U			
C45, 46	ECEA1CK100B	16V 10U	C512	ECEA0JU470B	6.3V 47U			
C47, 48	ECKR1H103ZF5	50V 0.01U	C602	ECKR2H682PE	500V 6800P			
C49, 50	ECEA1HK010B	50V 1U	C603	ECEA1HJ221B	50V 220U			
C51, 52	ECEA1HK0R1	50V 0.1U	C605	ECKR2H682PE	500V 6800P			
C201	ECUV1E153KBN	25V 0.015U	C606, 607	ECEA1EU222B	25V 2200U			
C202	ECUV1E104KBN	25V 0.1U	C608	ECKR1H103ZF5	50V 0.01U			
C203, 204	ECEV1CA100R	16V 10U	C609	ECEA1AU221	10V 220U			
C205	ECUV1E104ZFN	25V 0.1U	C610	ECEA1AU101	10V 100U			
C206	ECUV1E104KBN	25V 0.1U	C611-616	ECKR1H103ZF5	50V 0.01U			
C209-211	ECEV1EN100R	25V 10U	C617	ECEA1AU101	10V 100U			
C212-214	ECUV1H103ZFN	50V 0.01U	C618	ECEA1EU222B	25V 2200U			
C215	ECUV1H472ZFN	50V 4700P	C619-624	ECEA1AU102B	10V 1000U			
C216	ECUV1E562KBN	25V 5600P	C625, 626	ECEA1HK010B	50V 1U			
C217-219	ECUV1E104ZFN	25V 0.1U	C701, 702	ECEA1HK010B	50V 1U			
C301-304	ECKR1H103ZF5	50V 0.01U	C703	ECKR1H103ZF5	50V 0.01U			
C305, 306	ECKW1H222KB5	50V 2200P	C901	ECQB1H822JF3	50V 8200P			
C307	ECKD1H682KB	50V 6800P	C902	ECEA1CK100B	16V 10U			
C308	ECKR1H392KB5	50V 3900P	C903	ECBT1H470J5	50V 47P			
C309	ECEA1EK4R7	25V 4.7U	C904	ECEA1HK010B	50V 1U			
C310	ECQP1153JZ	100V 0.015U	C905, 906	ECEA1AU101	10V 100U			
C311, 312	ECBT1H470J5	50V 47P	C907	ECEA0JK101	6.3V 100U			
C313, 314	ECKR1H473ZF5	50V 0.047U	C908	ECEA1AK101	10V 100U			
C315, 316	ECKR2H821KB5	500V 820P	C909	ECBT1E103ZF	25V 0.01U			
C317, 318	ECBT1H121KB5	50V 120P	C910	ECEA1CK330	16V 33U			
C319, 320	ECQV1H563JZ3	50V 0.056U	C911	ECEA0JU222B	6.3V 2200U			
C321, 322	ECQB1H223JF3	50V 0.022U	C912	ECEA0JK101	6.3V 100U			
			C913, 914	ECKR1H103ZF5	50V 0.01U			