

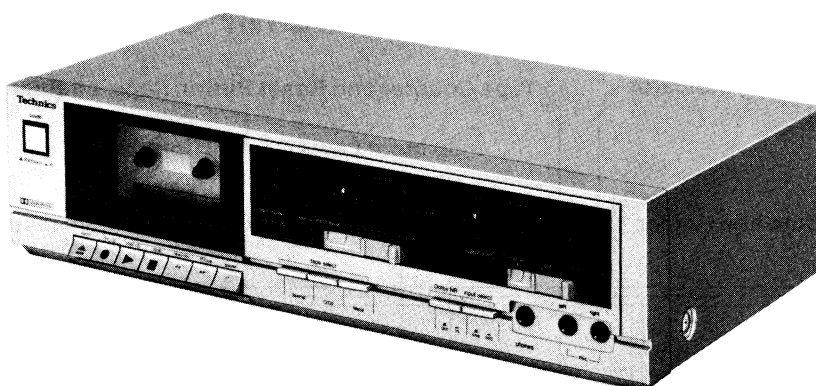
# Service Manual

Cassette Deck

## RS-B10

(Silver Face)  
(Black Face)

Dolby NR-Equipped  
Stereo Cassette Deck



This is the Service Manual  
for the following areas.

- D** **D4** ...For all  
European areas  
except United  
Kingdom.
- B** ...For United Kingdom.

### RS-B10 MECHANISM SERIES

- Model RS-B10 **D4** is type of Model RS-B10 **D** with DIN jack.

### Specifications

Track system:	4-track 2-channel stereo recording and playback		
Tape speed:	4.8cm/s		
Wow and flutter:	0.07% (WRMS), $\pm 0.14\%$ (DIN)		
Frequency response:	Metal tape; 20—17,000Hz 30—15,000Hz (DIN) 40—14,000Hz CrO <sub>2</sub> tape; 20—16,000Hz 30—15,000Hz (DIN) 40—14,000Hz Normal tape; 20—15,000Hz 30—13,000Hz (DIN) 40—12,000Hz	Output:	MIC; sensitivity 0.25mV, applicable microphone impedance 5.6k $\Omega$ for the model with DIN jack LINE; sensitivity 60mV, input impedance 47k $\Omega$ or more LINE; output level 400mV, output impedance 1.5k $\Omega$ or less HEADPHONES; output level 65mV (8 $\Omega$ ) applicable headphone impedance 8 $\Omega$ —600 $\Omega$
Signal-to-noise ratio:	Dolby* B NR in; 66dB (CCIR) NR out; 56dB (Signal level = max. input level A weighted, CrO <sub>2</sub> type tape)	Bias frequency:	80kHz
Fast forward and rewind time:	Approx. 100 seconds with C-60 cassette tape	Heads:	2-head system 1-MX head for record/playback 1-double-gap ferrite head for erasure
Inputs:	MIC; sensitivity 0.25mV, applicable microphones impedance 400 $\Omega$ —10k $\Omega$	Motor:	Electrical governor motor
		Power requirements:	<b>D</b> <b>D4</b> ...AC; 220V, 50-60Hz <b>B</b> ...AC; 240V/110V, 50-60Hz Pre-set power voltage 240V
		Power consumption:	7W
		Dimensions:	43cm(W) $\times$ 10.8cm(H) $\times$ 22cm(D)
		Weight:	2.7kg

Design and specifications are subject to change without notice.

\* 'Dolby' and the double-D symbol are trademarks of Dolby Laboratories Licensing Corporation.

# Technics

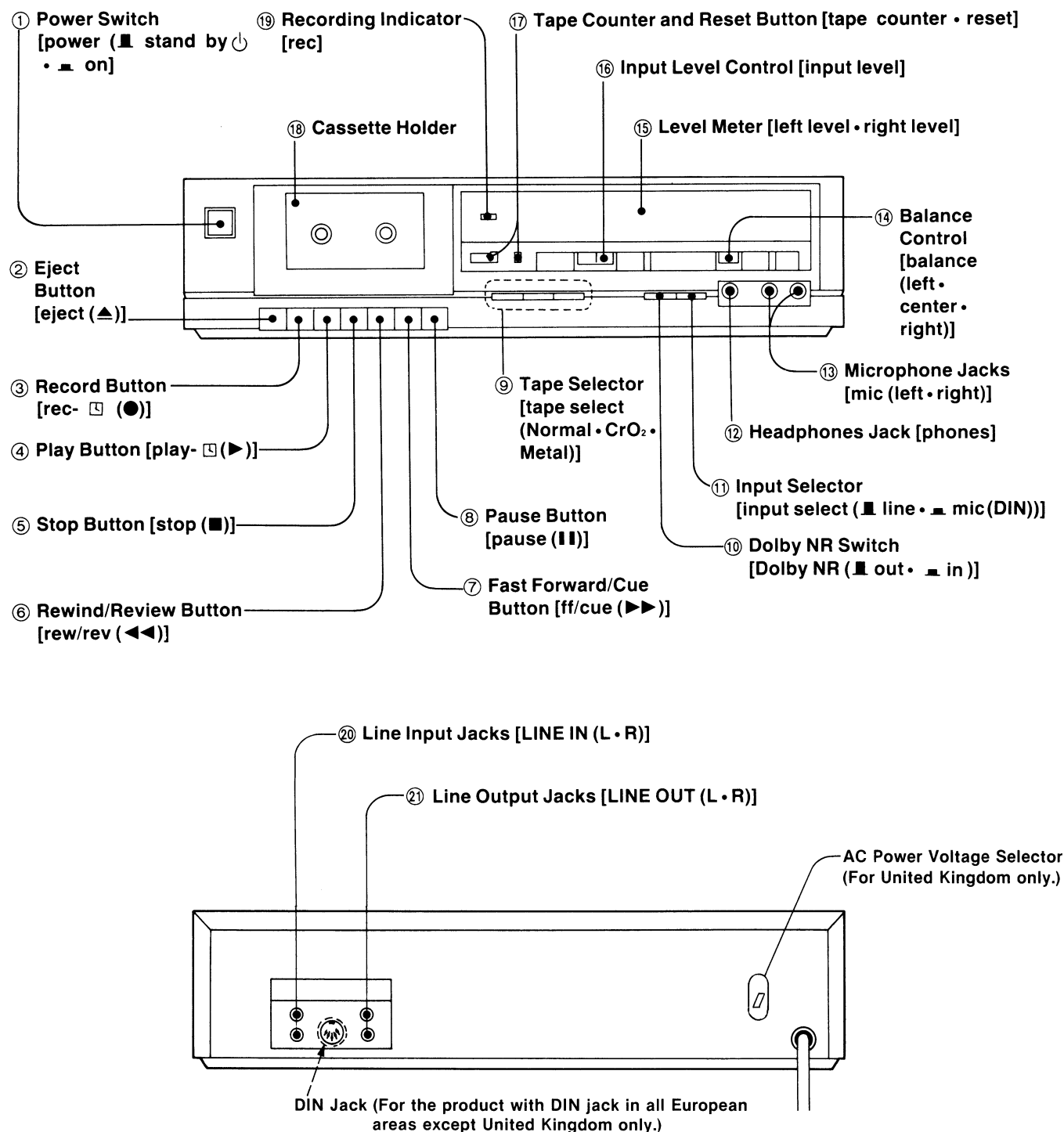
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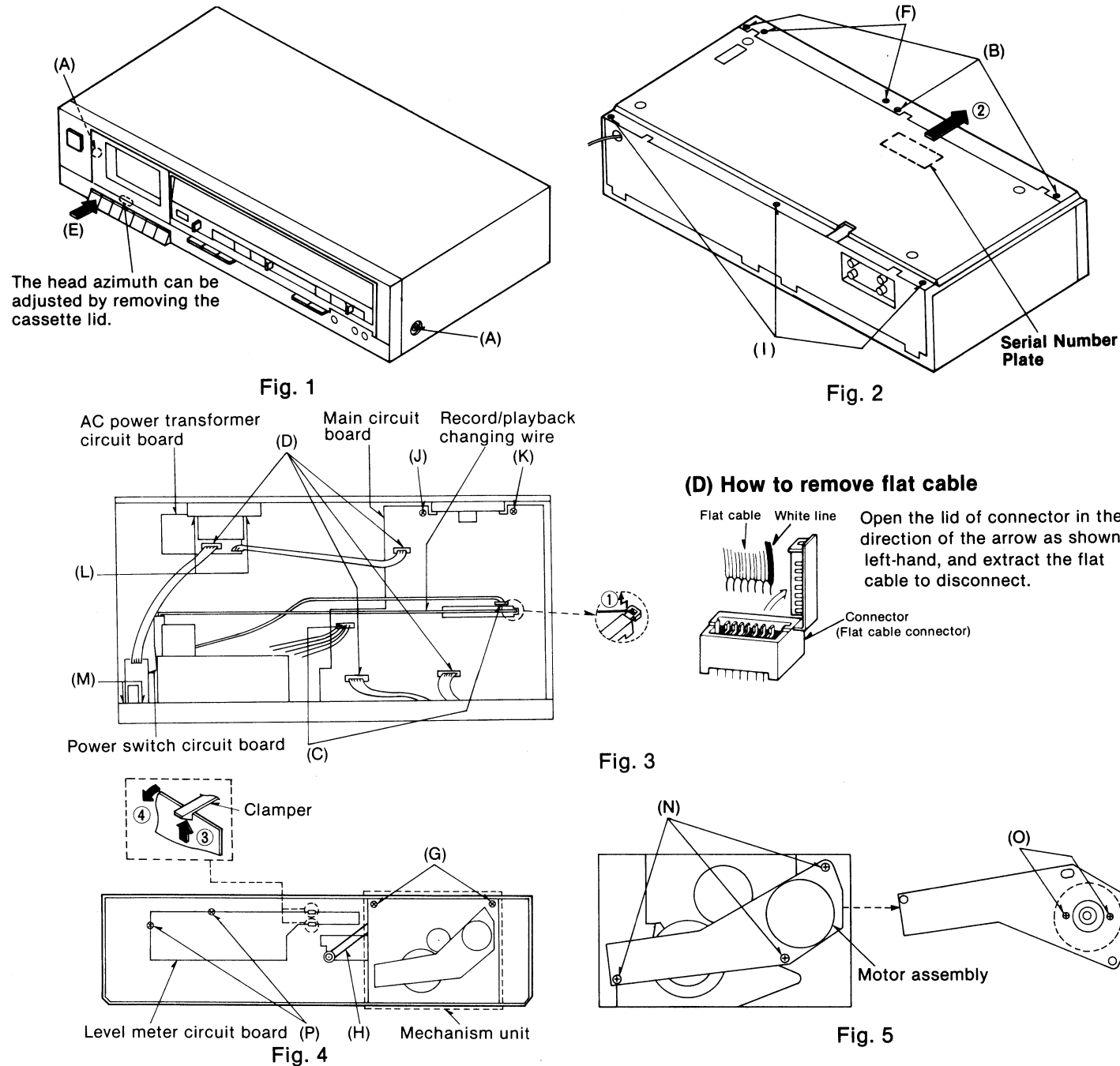
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## LOCATION OF CONTROLS AND COMPONENTS



# DISASSEMBLY INSTRUCTIONS



Ref. No.	Procedure	To remove —.	Remove —.	Shown in fig. —.
1	1	Case cover	• 2 screws .....(A)	1
2	1 → 2	Front panel assembly and mechanism unit	• 3 screws .....(B) • Pull out the connectors <b>A</b> <b>B</b> .....(C) • How to remove flat cable <b>C</b> <b>D</b> <b>F</b> .....(D)	2 3 3
3	1 → 3	Mechanism unit	• Push the eject button .....(E) • 2 screws .....(F) • 2 screws .....(G) • Remove the counter belt .....(H) • Pull out the connectors <b>A</b> <b>B</b> .....(C) • How to remove flat cable <b>F</b> .....(D) • As shown in fig. 3, remove the record/ playback changing wire in the direction of arrow ①.	1 2 4 4 3 3 3

Ref. No.	Procedure	To remove —.	Remove —.	Shown in fig. —.
4	1 → 4	Bottom cover	• 3 screws .....(B) • 3 screws .....(I) • 1 screw .....(J) • As shown in fig. 3, remove the record/ playback changing wire in the direction of arrow ①. • As shown in fig. 2, pull bottom cover in the direction of arrow ②.	2 2 3 3 2
5	1 → 2 → 5	Main circuit board	• 1 screw .....(J) • 1 screw .....(K) • How to remove flat cable <b>E</b> .....(D) • As shown in fig. 3, remove the record/ playback changing wire in the direction of arrow ①.	3 3 3 3
6	1 → 6	Level meter circuit board	• How to remove flat cable <b>C</b> <b>D</b> .....(D) • As shown in fig. 4, raise the clammers in the direction of arrow ③ and remove the meter circuit board in the direction of arrow ④. • 2 screws .....(P)	3 4 4
7	1 → 7	Power supply circuit board	• 2 screws .....(L) • How to remove flat cable <b>E</b> <b>F</b> .....(D)	3 3
8	1 → 8	Power switch circuit board	• 2 screws .....(M) • How to remove flat cable <b>F</b> .....(D)	3 3
9	1 → 3 → 9	Motor assembly	• 3 screws .....(N) • 2 screws .....(O)	5 5

## \* Serial No. Indication

• The serial number plate of this product is attached to the bottom cover. (Shown in fig. 2.).

# MEASUREMENT AND ADJUSTMENT METHODS

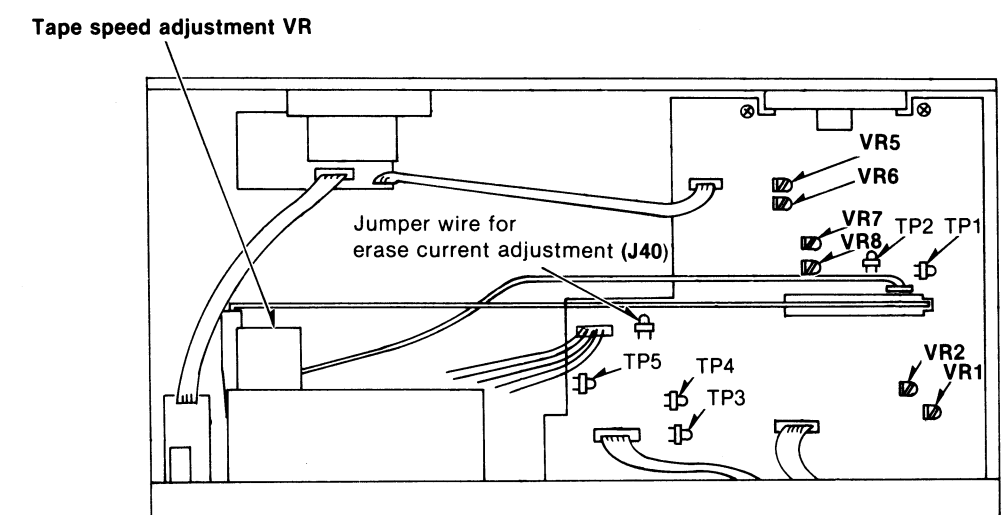


Fig. 1

- NOTES: Set switches and controls in the following positions, unless otherwise specified.
- Make sure heads are clean

• Make sure capstan and pinch roller are clean

• Judgeable room temperature 20±5°C (68±9°F)

• NR switch: OUT

• Tape selector: Normal

• Input selector: Line in

• Input level controls: Maximum

• Balance control: Center

- Ⓐ Head azimuth adjustment

Condition:

• Playback mode

• Normal tape mode

Equipment:

• VTVM

• Oscilloscope

• Test tape (azimuth)...QZZCFM

L-CH/R-CH output balance adjustment

1. Make connections as shown in fig. 2.
2. Playback the 8kHz signal from the test tape (QZZCFM). Adjust screw (B) in fig. 3 for maximum output L-CH and R-CH levels. When the output levels of L-CH and R-CH are not at maximum at the same point adjust as follows.
3. Turn screw (B) shown in fig. 3 to find angles A and C (points where peak output levels for left and right channels are obtained). Then, locate angle B between angles A and C, i.e., point where L-CH and R-CH outputs are balanced. (Refer to figs. 3 and 4.)

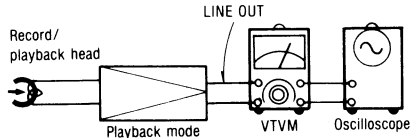


Fig. 2

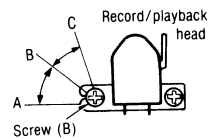


Fig. 3

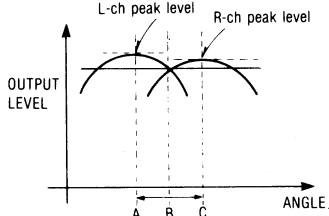


Fig. 4

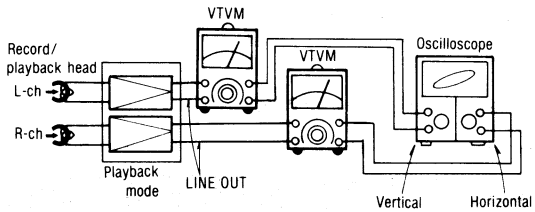


Fig. 5

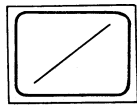


Fig. 6

- Ⓑ Tape speed

Condition:

• Playback mode

Equipment:

• Digital frequency counter

• Test tape...QZZCWAT

Tape speed accuracy

1. Test equipment connection is shown in fig. 7.
2. Playback test tape (QZZCWAT 3,000Hz), and supply playback signal to the digital frequency counter.
3. Measure this frequency.
4. On the basis of 3,000Hz, determine value by following formula:

$$\text{Tape speed accuracy} = \frac{f-3,000}{3,000} \times 100(\%)$$
where, f = measured value
5. Take measurement at middle section of tape.

Standard value: ±1.5%

6. If measured value is not within the standard value, adjust it by using the tape speed adjustment VR shown in fig. 1.
- Note: Please use non metal type screwdriver when you adjust tape speed accuracy on this unit.

Tape speed fluctuation

Make measurements in same manner as above (beginning, middle and end of tape), and determine the difference between maximum and minimum values and calculate as follows:

$$\text{Tape speed fluctuation} = \frac{f_1-f_2}{3,000} \times 100(\%) \quad f_1 = \text{maximum value, } f_2 = \text{minimum value}$$

Standard value: Less than 1%

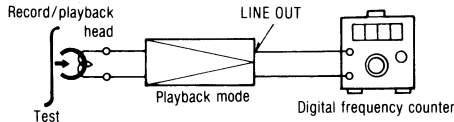


Fig. 7

- Ⓒ Playback frequency response

Condition:

• Playback mode

• Normal tape mode

Equipment:

• VTVM

• Oscilloscope

• Test tape...QZZCFM

1. Test equipment connection is shown in fig. 2.
2. Playback the frequency response portion of test tape (QZZCFM).
3. Measure output level at 315Hz, 12.5kHz, 8kHz, 4kHz, 1kHz, 250Hz, 125Hz and 63Hz, and compare each output level with the standard frequency 315Hz, at LINE OUT.
4. Make measurements for both channels.
5. Make sure that the measured values are within the range specified in the frequency response chart. (Shown in fig. 8).

Playback frequency response chart

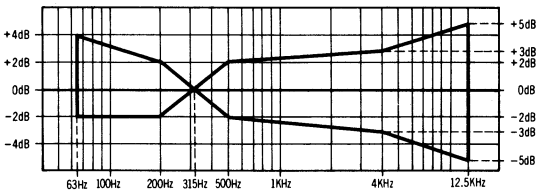


Fig. 8

- Ⓓ Playback gain

Condition:

• Playback mode

• Normal tape mode

Equipment:

• VTVM

• Oscilloscope

• Test tape...QZZCFM

1. Test equipment connection is shown in fig. 2.
2. Playback standard recording level portion on test tape (QZZCFM 315Hz) and, using VTVM, measure the output level at test points [TP3 (L-CH), TP4 (R-CH)].
3. Make measurements for both channels.

Standard value: 0.42V [0.4V±1dB: at LINE OUT jack]

Adjustment

1. If the measured value is not within the standard, adjust VR1 (L-CH) or VR2 (R-CH) (See fig. 1).
2. After adjustment, check "Playback frequency response" again.

- Ⓔ Erase current

Condition:

• Record mode

• Metal tape mode

Equipment:

• VTVM

• Oscilloscope

1. Test equipment connection is shown in fig. 9.
2. Place UNIT into metal tape mode.
3. Press the record and pause buttons.
4. Read voltage on VTVM and calculate erase current by following formula:

$$\text{Erase current (A)} = \frac{\text{Voltage across resistor R84}}{1 (\Omega)}$$

Standard value: 155±15mA (Metal)

5. If the measured value is not within the standard value adjust it by following the adjustment instructions.

Adjustment

- If the erase current is more than 165mA, cut the jumper wire (See fig. 1).

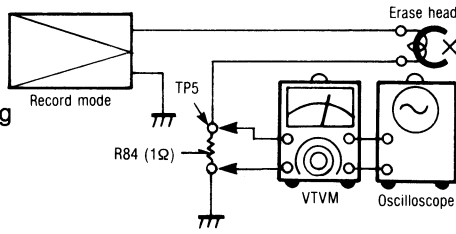


Fig. 9



- Overall frequency response**
- Condition:
- Record/playback mode
  - Normal tape mode
  - CrO<sub>2</sub> tape mode
  - Metal tape mode
  - Input level controls...MAX
- Equipment:
- VTVM
  - ATT
  - AF oscillator
  - Oscilloscope
  - Resistor (600Ω)
- Test tape (reference blank tape)
- ...QZZCRA for Normal
  - ...QZZCRX for CrO<sub>2</sub>
  - ...QZZCRZ for Metal

**Note:**

Before measuring and adjusting, the overall frequency response make sure of the playback frequency response (For the method of measurement, please refer to the playback frequency response).

(Recording equalizer is fixed)

- Make connections as shown in fig. 11.
  - Place UNIT into normal tape mode and insert the normal reference blank test tape (QZZCRA).
  - Supply a 1kHz signal from the AF oscillator through ATT to LINE IN.
  - Adjust ATT so that input level is -20dB below standard recording level (standard recording level = 0 VU).
  - Adjust the AF oscillator frequency to 1kHz, 50Hz, 100Hz, 200Hz, 500Hz, 4kHz, 8kHz and 10kHz signals, and record these signals on the test tape.
  - Playback the signals recorded in step 5, and check if the frequency response curve is within the limits shown in the overall frequency response chart for normal tapes (fig. 10). (If the curve is within the charted specifications, proceed to steps 7, 8 and 9.)
- If the curve is not within the charted specifications, adjust as follows;

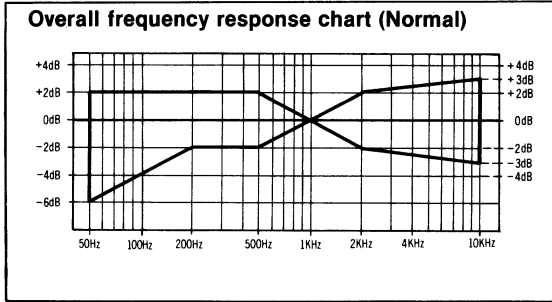


Fig. 10

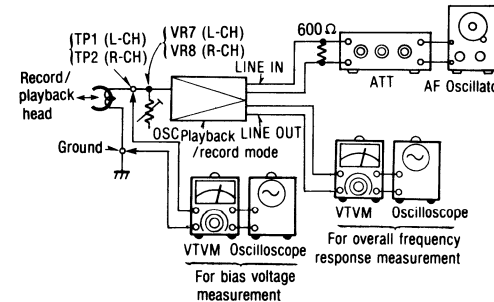


Fig. 11

**Adjustment (A):**

When the curve exceeds the overall specified frequency response chart (fig. 10) as shown in fig. 12.

- Increase bias current by turning VR7 (L-CH) and VR8 (R-CH). (See fig. 1 on page 4.)
- Repeat steps 5 and 6 for confirmation (Proceed to steps 7, 8 and 9 if the curve is now within the charted specifications as shown fig. 10.)
- If the curve still exceeds the specifications (fig. 10), increase bias current further and repeat steps 5 and 6.

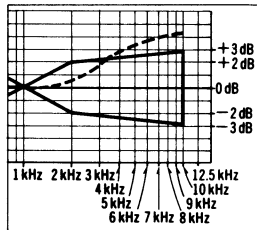


Fig. 12

**Adjustment (B):**

When the curve falls below the overall specified frequency response chart (fig. 10) as shown in fig. 13.

- Reduce bias current by turning VR7 (L-CH) and VR8 (R-CH).
- Repeat steps 5 and 6 for confirmation (Proceed to steps 7, 8 and 9 if the curve is now within the charted specifications as shown fig. 10.)
- If the curve still falls below the charted specifications (fig. 10), reduce bias current further and repeat steps 5 and 6.

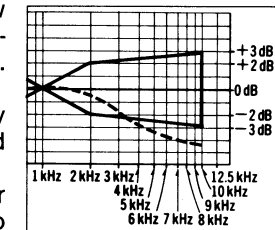


Fig. 13

- Place UNIT into CrO<sub>2</sub> tape mode.
- Change test tape to CrO<sub>2</sub> reference blank test tape (QZZCRX), and record 1kHz, 50Hz, 100Hz, 200Hz, 500Hz, 4kHz, 8kHz, 10kHz and 12.5kHz signals. Then, playback the signals and check if the curve is within the limits shown in the overall frequency response chart for CrO<sub>2</sub> tapes (fig. 14).
- Place UNIT into metal tape mode and change test tape to metal reference blank test tape (QZZCRZ), and record 1kHz, 50Hz, 100Hz, 200Hz, 500Hz, 4kHz, 8kHz, 10kHz and 12.5kHz signals. Then, playback the signals and check if the curve is within the limits shown in the overall frequency response chart for metal tapes (fig. 14).

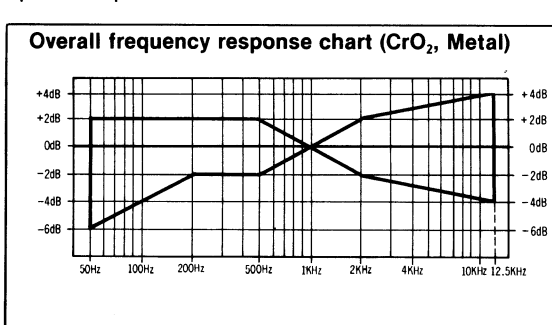


Fig. 14

around 6.2V (Normal position)  
Reference value: around 8.9V (CrO<sub>2</sub> position)  
around 15.7V (Metal position)

- Overall gain**
- Condition:
- Record/playback mode
  - Normal tape mode
  - Input level controls...MAX
  - Standard input level;
- Equipment:
- VTVM
  - ATT
  - Resistor (600Ω)
  - Test tape
- Test tape (reference blank tape)
- ...QZZCRA for Normal
- MIC ..... -72 ± 5 dB  
LINE IN ..... -24 ± 4 dB  
DIN ..... -44 ± 4 dB

- Test equipment connection is shown in fig. 15.
- Insert the normal reference blank tape (QZZCRA).
- Place UNIT into record mode.
- Supply a 1kHz signal through ATT (-24dB) from AF oscillator, to LINE IN.
- Adjust ATT until monitor level at test points [TP3 (L-CH), TP4 (R-CH)] becomes 0.42V [0.4V ± 2dB at test LINE OUT jack].
- Playback recorded tape, and make sure that the output level at test points [TP3 (L-CH), TP4 (R-CH)] becomes 0.42V [0.4V ± 2dB at test LINE OUT jack].
- If measured value is not 0.42V, adjust it by using VR5 (L-CH) or VR6 (R-CH).
- Repeat from step (2).

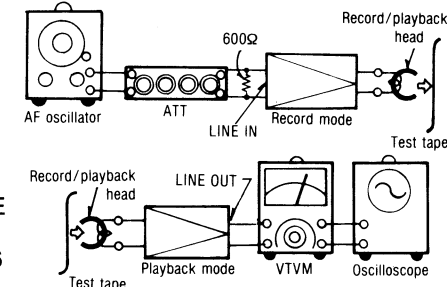


Fig. 15

- Level meter**
- Condition:
- Record mode
  - Input level controls...MAX
- Equipment:
- VTVM
  - ATT
  - Resistor (600Ω)
  - AF oscillator
  - Oscilloscope

- Test equipment connection is shown fig. 16.
- Place UNIT into record mode.
- Supply 1kHz signal (-24dB) from AF oscillator, through ATT to LINE IN.
- Adjust ATT until monitor level at LINE OUT becomes 0.4V.
- Check that the level meter LED "0" is lit when 0.4V ± 1dB output appears at the LINE OUT.

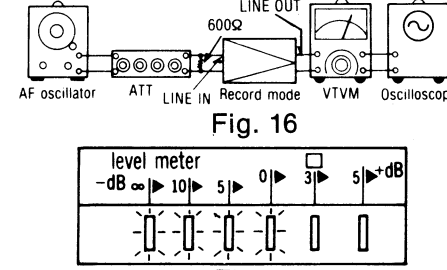


Fig. 16

- Dolby NR circuit**
- Condition:
- Record mode
  - Input level controls...MAX
- Equipment:
- VTVM
  - ATT
  - Resistor (600Ω)
  - AF oscillator
  - Oscilloscope

- Test equipment connection is shown in fig. 18.
- Place UNIT into record mode, set the Dolby NR switch to OUT position and supply a 5kHz signal to LINE IN to obtain 17.5mV at TP3 (L-CH), TP4 (R-CH).
- Confirm that the values at test points TP3, TP4 with Dolby NR switch in the IN position are 8 (±2.5)dB greater than the values at the OUT position of the Dolby NR switch.

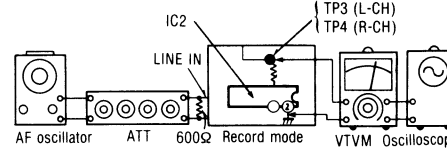
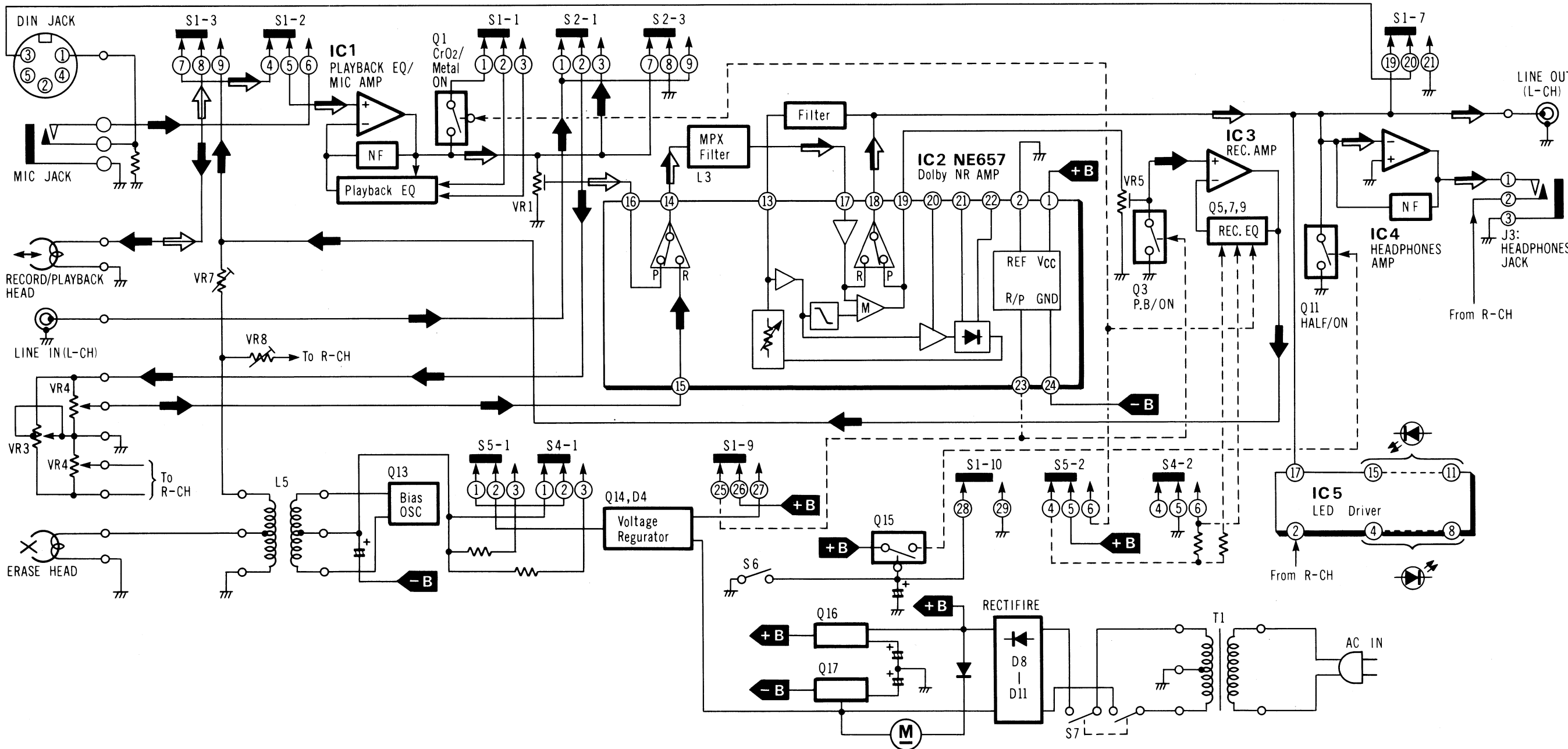


Fig. 18

**BLOCK DIAGRAM**



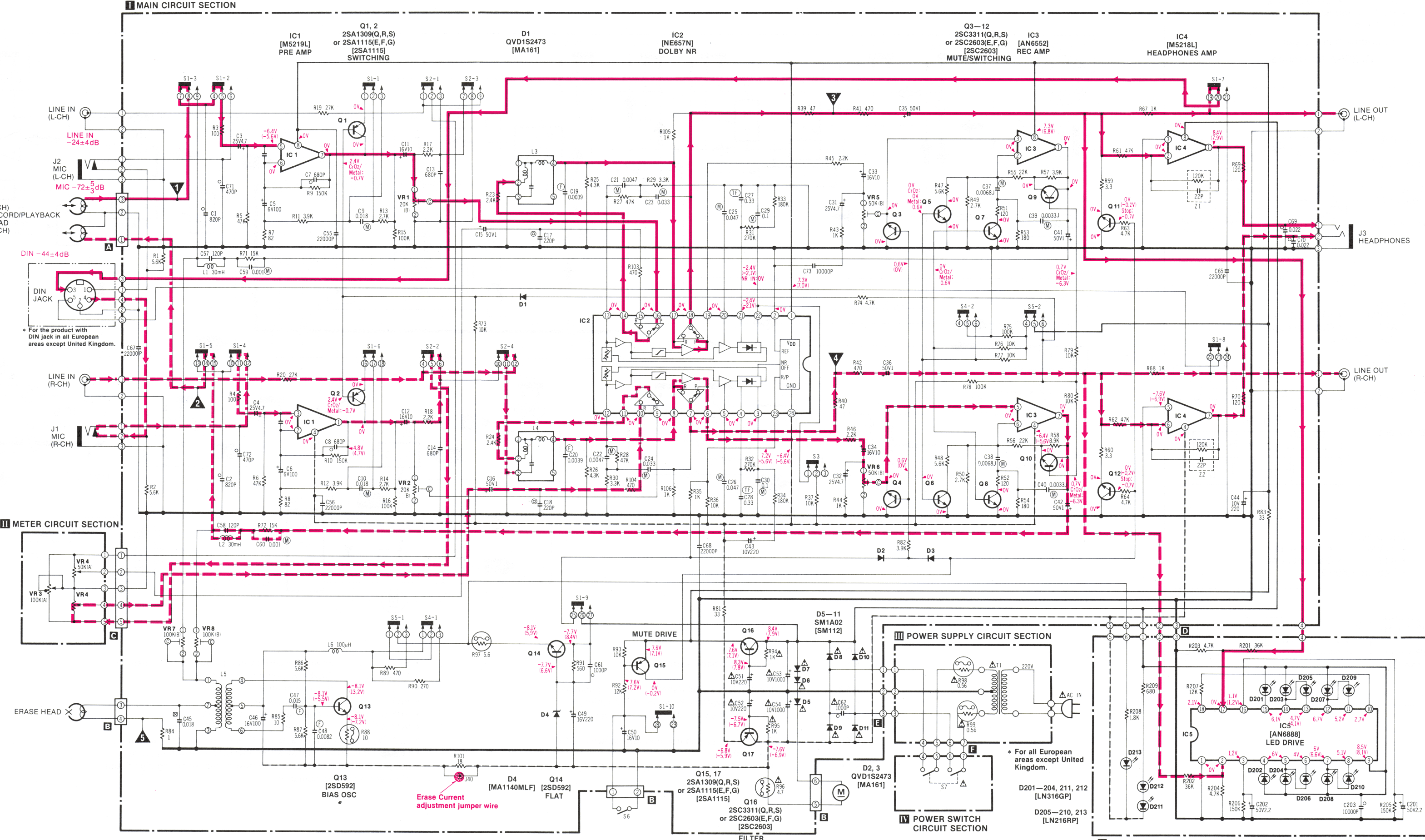
**NOTES:**

- S1.....Record/Playback switch (shown in playback position).
- S2.....Input select switch (shown in line in position).
- S3.....Dolby NR switch (shown in OFF position).
- S4.....Tape select switch (for CrO<sub>2</sub>) (shown in OFF position).
- S5.....Tape select switch (for normal) (shown in OFF position).
- S6.....FF/CUE/REW/REV switch (shown in OFF position).

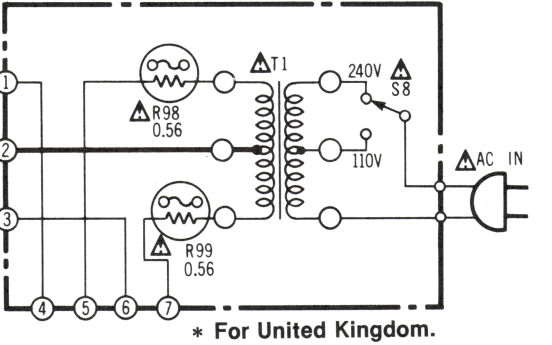
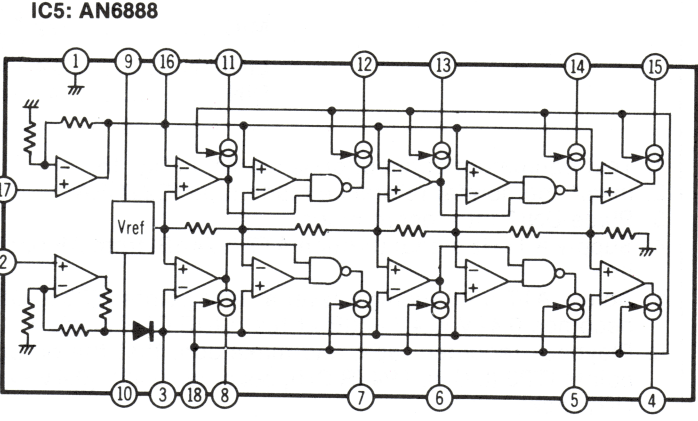
- S7.....Power ON/OFF switch (shown in OFF position).
- VR1, 2 .....Playback gain adjustment VR.
- VR3 .....Balance control.
- VR4 .....Input level control.
- VR5, 6 .....Overall gain adjustment VR.
- VR7, 8 .....Bias current adjustment VR.
- (→) this arrow indicates the flow of the playback signal.
- (→) this arrow indicates the flow of the recording signal.
- (→) this arrow indicates the flow of the recording signal and playback signal combination.



SCHEMATIC DIAGRAM



EQUIVALENT CIRCUIT



**SPECIFICATIONS**

Playback S/N ratio * Test tape...QZZCFM	Greater than 45dB
Overall distortion * Test tape ...QZZCRA for Normal ...QZZCRX for CrO <sub>2</sub> ...QZZCRZ for Metal	Normal..... Less than 3.5% CrO <sub>2</sub> , Metal..... Less than 4%
Overall S/N ratio * Test tape...QZZCRA	Greater than 43dB (without NAB filter)

- NOTES:**
- S1-1—S1-10.....Record/playback switch (shown in playback position).
  - S2-1—S2-4 .....Input select switch (shown in line in position).
  - S3.....Dolby NR switch (shown in OFF position).
  - S4-1, S4-2.....CrO<sub>2</sub> tape select switch (shown in OFF position).
  - S5-1, S5-2.....Normal tape select switch (shown in OFF position).
  - S6.....FF/CUE/REW/REV switch (shown in OFF position).
  - S7.....Power ON/OFF switch (shown in OFF position).
  - S8.....AC power voltage selector.
  - [For United Kingdom only.]
  - VR1, 2.....Playback gain adjustment VR.
  - VR3.....Balance control.
  - VR4.....Input level control.
  - VR5, 6.....Overall gain adjustment VR.
  - VR7, 8.....Bias current adjustment VR.
  - L1, 2.....Bias trap coil.
  - L3, 4.....MPX filter.
  - L5.....Bias oscillation coil.
  - L6.....Choke coil.
  - Resistance are in ohms (Ω), 1/4 watt unless specified otherwise.
  - 1K = 1,000(Ω), 1M = 1,000(KΩ).
  - Capacity are in micro-farads (μF) unless specified otherwise.
  - The mark (▼) shows test point. e.g. ▼ = Test point 1.
  - 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.
  - CrO<sub>2</sub>.....Voltage values at CrO<sub>2</sub> tape mode.
- Metal** .....Voltage values at Metal tape mode.
- Stop** .....Voltage values at Stop mode.
- NR IN** .....Voltage value at which the noise reduction switch is turned on.
- For measurement use VTVM.
- (+) indicates B + (bias).
  - (-) indicates B - (bias).
  - (▶) indicates the flow of the playback signal. (NR out).
  - (◀) indicates the flow of the recording signal. (NR out).
- 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.
- Described in the schematic diagram are two types of numbers; the supply parts numbers and production parts number for transistors and diodes. One type of number is used for supply parts number and production parts number when they are identical.
- e.g. Q1  
2SC1844(E,F) — Production parts number  
[2SC1844E] — Supply parts number  
D212  
1S2473777 — Production parts number  
[MA161] — Supply parts number
- The supply parts number is described alone in the replacement parts list.
- This schematic diagram may be modified at any time with the development of new technology.

ELECTRICAL PARTS LIST

NOTES: RESISTORS

ERD.....Carbon

ECBA.....Ceramic

ECOE.....Polyester film

ERG.....Metal-oxide

ECGD.....Ceramic

ECOF.....Polypropylene

ERS.....Metal-oxide

ECHE.....Ceramic

ECOD.....Electrolytic

ERO.....Metal-film

ECOC.....Ceramic

ECODN.....Non polar electrolytic

ERX.....Metal-film

ECFO.....Ceramic

ECOS.....Polystyrene

ERQ.....Fuse type metallic

ECQM.....Polyester film

ECST.....Tantalum

ERF.....Cement

QCS.....Tantalum

REPLACEMENT PARTS LIST

Important safety notice

Components identified by  $\Delta$  mark have special characteristics important for safety.

When replacing any of these components, use only manufacturer's specified parts.

Ref. No.	Part No.	Ref. No.	Part No.	Ref. No.	Part No.	Ref. No.	Part No.	Part Name & Description		
RESISTORS				COILS						
R 89	ERD25FJ471	R 89	ERD25FJ471	C 46	ECEA1ES101	L 1, 2	QLQX0343KW	Bias Trap Coil		
R 90	ERD25FJ271	R 90	ERD25FJ271	C 47	ECFDD153KVY	L 3, 4	QLM9Z9K	MPX Filter		
R 91	ERD25FJ561	R 91	ERD25FJ561	C 48	ECFDD822KVY	L 5	QLB0198	Bias Oscillation Coil		
R 92	ERD25FJ123	R 92	ERD25FJ123	C 49	ECEA1CS221	L 6	QLQX1012DT	Choke Coil		
R 93	ERD25FJ103	R 93	ERD25FJ103	C 50	ECEA1HS100	TRANSFORMERS				
R 94, 95 $\Delta$	ERD25FJ102	R 94, 95 $\Delta$	ERD25FJ102	C 51, 52 $\Delta$	ECEA1AS221	T 1 [B]	QLPA77EJC	AC Power Transformer		
R 96 $\Delta$	ERD25FJ477	R 96 $\Delta$	ERD25FJ477	C 53, 54	ECEA1AS102	[For the product without DIN jack in United Kingdom.]				
R 97	ERD25FJ392	R 97	ERD25FJ392	C 55, 56	ECKD1H223KB	[D] [D4]	QLPD87EJC	AC Power Transformer		
R 98, 99 $\Delta$	ERD25FJ472	R 98, 99 $\Delta$	ERD25FJ472	C 57, 58	ECKD2H21KBL	[For all European areas except United Kingdom.]				
R 101	ERD25FJ190	R 101	ERD25FJ190	C 59, 60	ECKD1H102KZ	SWITCHES				
R 103, 104	ERD25FJ471	R 103, 104	ERD25FJ471	C 61, 62 $\Delta$	ECKD1H102KB	S 1	QSSA209	Slide Switch (Record/ Playback Selector)		
R 105, 106	ERD25FJ102	R 105, 106	ERD25FJ102	C 65	ECKD1H223ZF	S 2, 3, 4, 5	QSWX507	Push Switch		
R 201, 202	ERD25FJ363	R 201, 202	ERD25FJ363	C 67, 68, 69, 70	ECKD1H223ZF	S 6	QSWB251	Leaf Switch		
R 203, 204	ERD25FJ472	R 203, 204	ERD25FJ472	C 71, 72	ECKD1H471KB	S 7	QSW2245	Push Switch (Power ON/OFF)		
R 205, 206	ERD25FJ154	R 205, 206	ERD25FJ154	C 73	ECKD1H103ZF	S 8 [B]	QSR1201H	AC Power Voltage Selector		
R 207	ERD25FJ123	R 207	ERD25FJ123	C 201, 202	ECEA1HS32F	[For the product without DIN jack in United Kingdom.]				
R 208	ERD25FJ182	R 208	ERD25FJ182	C 203	ECKD1H103ZF	JACKS				
R 209	ERD25FJ681	R 209	ERD25FJ681	COMBINATION PARTS						
				Z 1, 2	EXRPP220K124	J 1, 2	QJA0454	Microphone Jack		
				TRANSISTORS				J 3	QJA0455	Headphones Jack
VR 1, 2	EVNKA4AA00B24	VR 1, 2	EVNKA4AA00B24					CONNECTORS		
VR 3	EWANX5X5315	VR 3	EWANX5X5315	D 1, 2, 3	MA161	CN 1	QJT1090	Check Pin		
VR 4	EWAPB1X05A54	VR 4	EWAPB1X05A54	D 4	MA1140MLF	CN 2	QJS1997S	3P Socket		
VR 5, 6	EVNKA4AA00B54	VR 5, 6	EVNKA4AA00B54	D 5, 6, 7, 8, 9, 10, 11, 12	SM112	CN 3	QJS1987S	5P Socket		
VR 7, 8	EVNKA4AA00B15	VR 7, 8	EVNKA4AA00B15	C 1, 2	2SA1151	CN 4	QJS1981S	4P Socket		
				C 3, 4	2SA1152	CN 5	QJS1993S	6P Socket		
				C 5, 6	2SA1153	CN 6	QJP1921TN	3P Plug		
				C 7, 8	2SA1154	CN 7	QJP1922TN	6P Plug		
				C 9, 10	2SA1155	CN 8	QJT1054	Contact		
				C 11, 12	2SA1156	CN 9	QJS1921TN	3P Socket		
				C 13, 14	2SA1157	CN 10	QJS1922TN	6P Socket		
				C 15, 16	2SA1158	INTEGRATED CIRCUITS				
				C 17, 18	2SA1159	IC 1	M5219L			
				C 19, 20	2SA1160	IC 2	NE657			
				C 21, 22	2SA1161	IC 3	AN6552			
				C 23, 24	2SA1162	IC 4	M5218L			
				C 25, 26	2SA1163	IC 5	AN6888			
				C 27, 28	2SA1164					
				C 29, 30	2SA1165					
				C 31, 32	2SA1166					
				C 33, 34	2SA1167					
				C 35, 36	2SA1168					
				C 37, 38	2SA1169					
				C 39, 40	2SA1170					
				C 41, 42	2SA1171					
				C 43, 44	2SA1172					
				C 45	2SA1173					



**II METER CIRCUIT BOARD**

**RECORD/PLAYBACK HEAD**

**MAIN CIRCUIT BOARD**

**LUG TERMINAL (To mechanism Unit)**

**ERASE HEAD**

**S6: FF/REW SWITCH**

**\* Erase current adjustment jumper wire.**

**J1 MIC**

**J2 MIC**

**J3 HEADPHONES**

**DIN JACK**

**LINE IN**

**LINE OUT**

**VR4**

**VR3**

**VR1**

**VR2**

**VR5**

**VR6**

**VR7**

**VR8**

**VR9**

**VR10**

**VR11**

**VR12**

**VR13**

**VR14**

**VR15**

**VR16**

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**VR273**

**VR274**

**VR275**

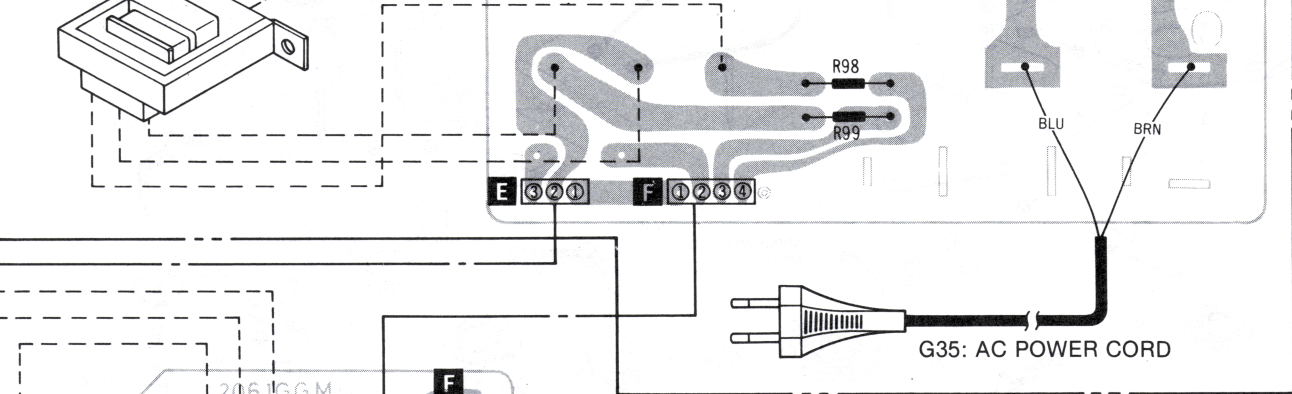
**VR276**

**VR277**

**VR278**

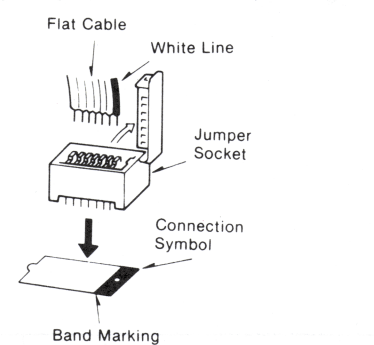
**VR279**

T1: AC POWER  
TRANSFORMER




Connect the flat cable to the jumper

Connect the flat cable to the jumper socket so that the white line on the flat cable corresponds to the band mark side of the connection symbol (yellow or white symbol on the PC board) for the jumper socket. (This connection may differ from those for conventional models.)



- The ci

- The circuit shown in  on the conductor side indicates printed circuit on the back side of the printed circuit board.
- All voltage values shown in circuitry are under no signal condition and playback mode with volume control at minimum position.  
For measurement, use VTVM.

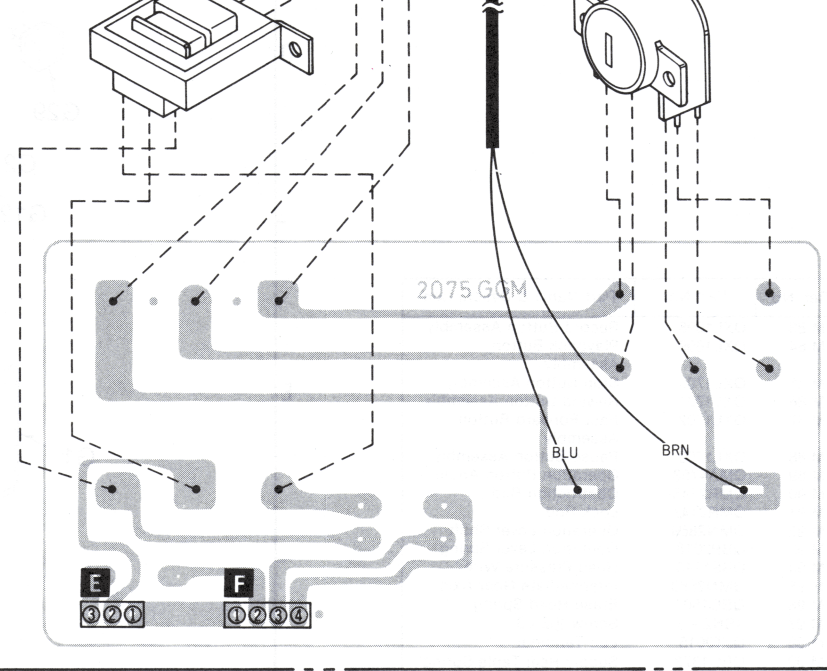
- This circuit board diagram may be modified at any time with the development of new technology.

- NOTES:**
- |                        |                      |
|------------------------|----------------------|
| BLK .....Black         | ORG .....Orange      |
| BLU .....Blue          | PNK .....Pink        |
| BRN .....Brown         | RED .....Red         |
| GRY .....Gray          | SLD .....Shield Wire |
| GRN .....Green         | VLV .....Violet      |
| L. BLU .....Light Blue | WHT .....White       |
| NIL .....No Color Mark | YEL .....Yellow      |

\* For United Kingdom.

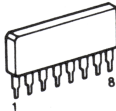
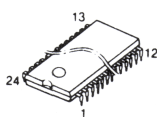
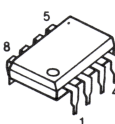
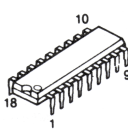
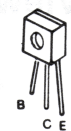
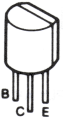
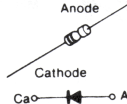
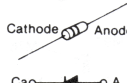
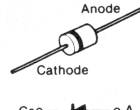
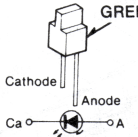
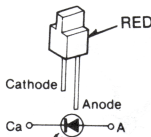
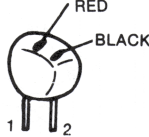
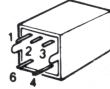
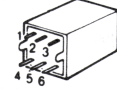
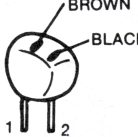
T1: AC POWER TRANSFORMER

Diagram showing the transformer connection for the 1000 Hz test signal. The primary winding is connected to the 1000 Hz test signal source. The secondary winding is connected to the input of the amplifier.


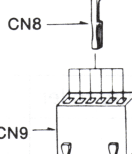
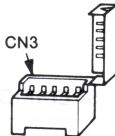
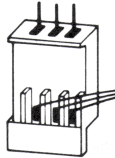
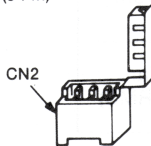

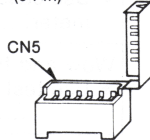
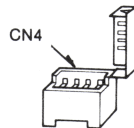
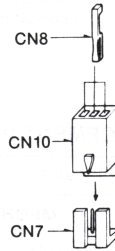


\* For United Kingdom.

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 <p>IC1, 4</p>	 <p>IC2</p>	 <p>IC3</p>	 <p>IC5</p>	 <p>Q1—12, 15—17</p>
 <p>Q13, 14</p>	 <p>D1—3</p>	 <p>D4</p>	 <p>D5—11</p>	 <p>D201—204, 211, 213</p>
 <p>D205—210, 213</p>	 <p>L1, 2</p>	 <p>L3, 4</p>	 <p>L5</p>	 <p>L6</p>

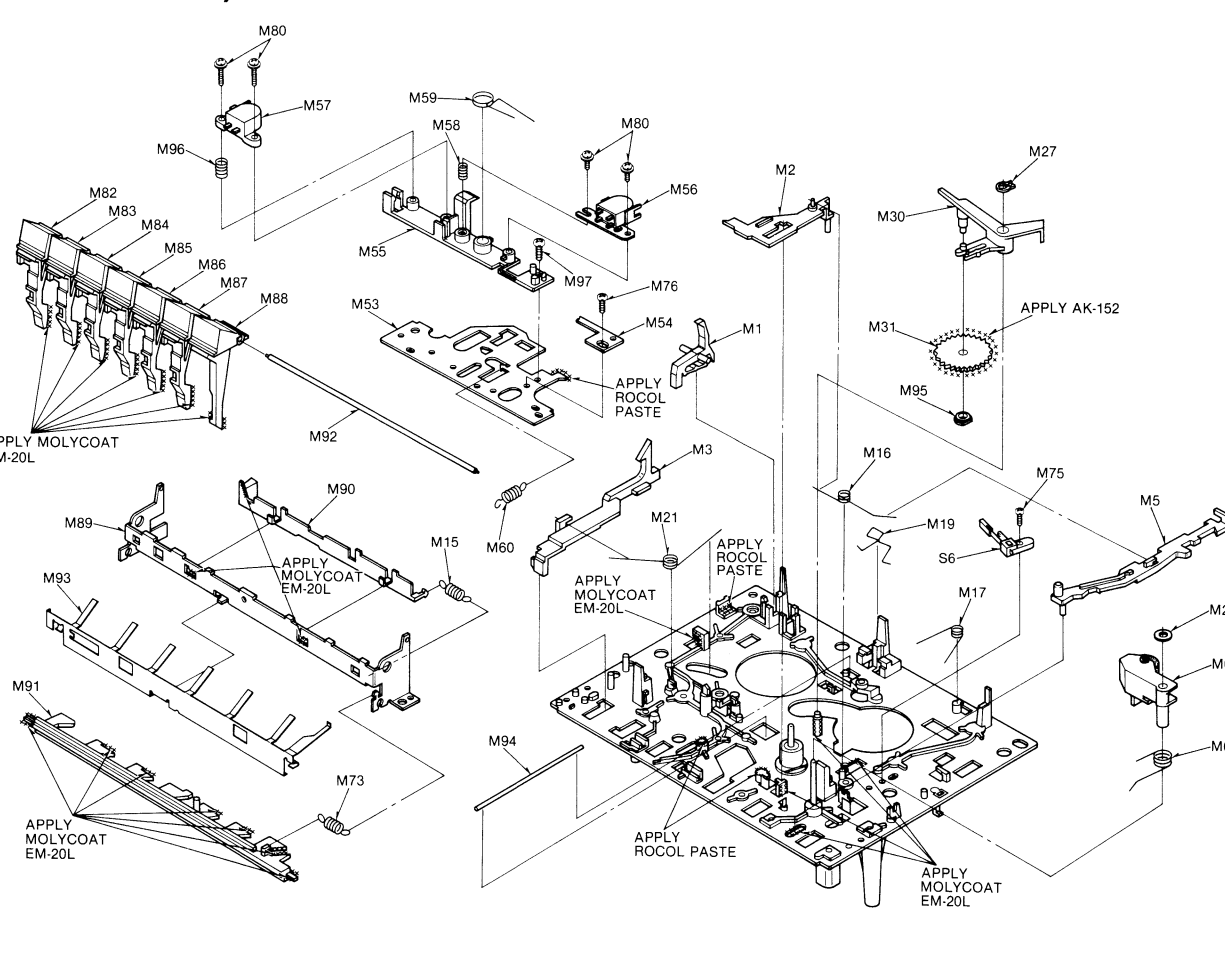
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 <p>CN1</p>	<p>(6 Pin)</p>  <p>CN8</p>	<p>(5 Pin)</p>  <p>CN3</p>	<p>Removing contacts</p>  <p>Push the pawl of a contact in each hole in the housing with a flat bladed screwdriver and pull its lead wire to remove the contact.</p>
<p>(3 Pin)</p>  <p>CN2</p>	<p>(6 Pin)</p>  <p>CN6</p>	<p>(6 Pin)</p>  <p>CN5</p>	<p>(4 Pin)</p>  <p>CN4</p>
<p>(3 Pin)</p>  <p>CN8</p> <p>CN10</p> <p>CN7</p>			

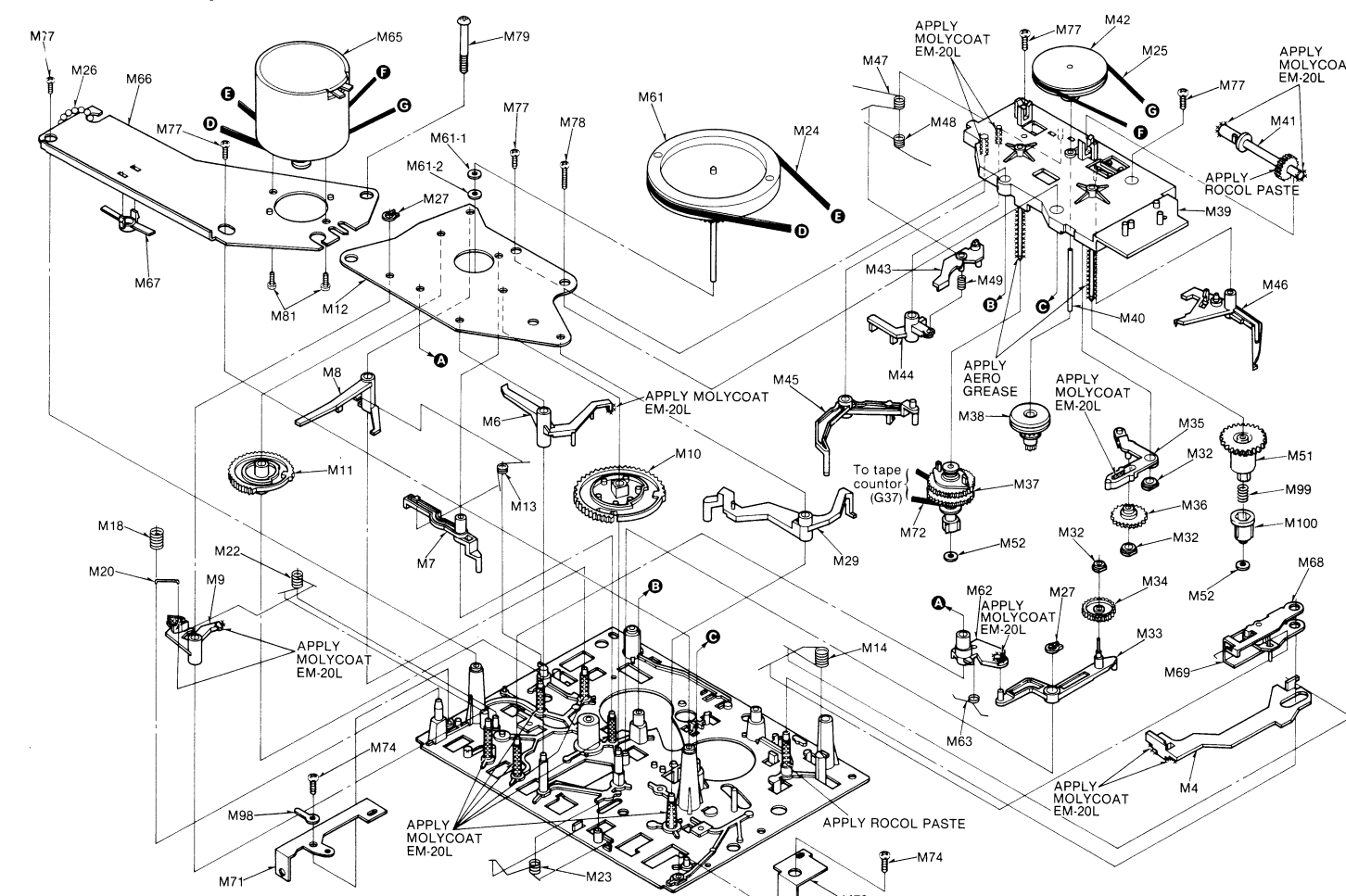


## MECHANICAL PARTS LOCATION

(Front View)



(Rear View)



**NOTE:**  
When changing mechanism parts, apply the specified grease and oil to the area marked "xx" shown in the drawing "Mechanical Parts Location".  
• Molycoat: Lubricating oil  
• Rocol paste: Lubricating oil  
• AK-152: Lubricating oil

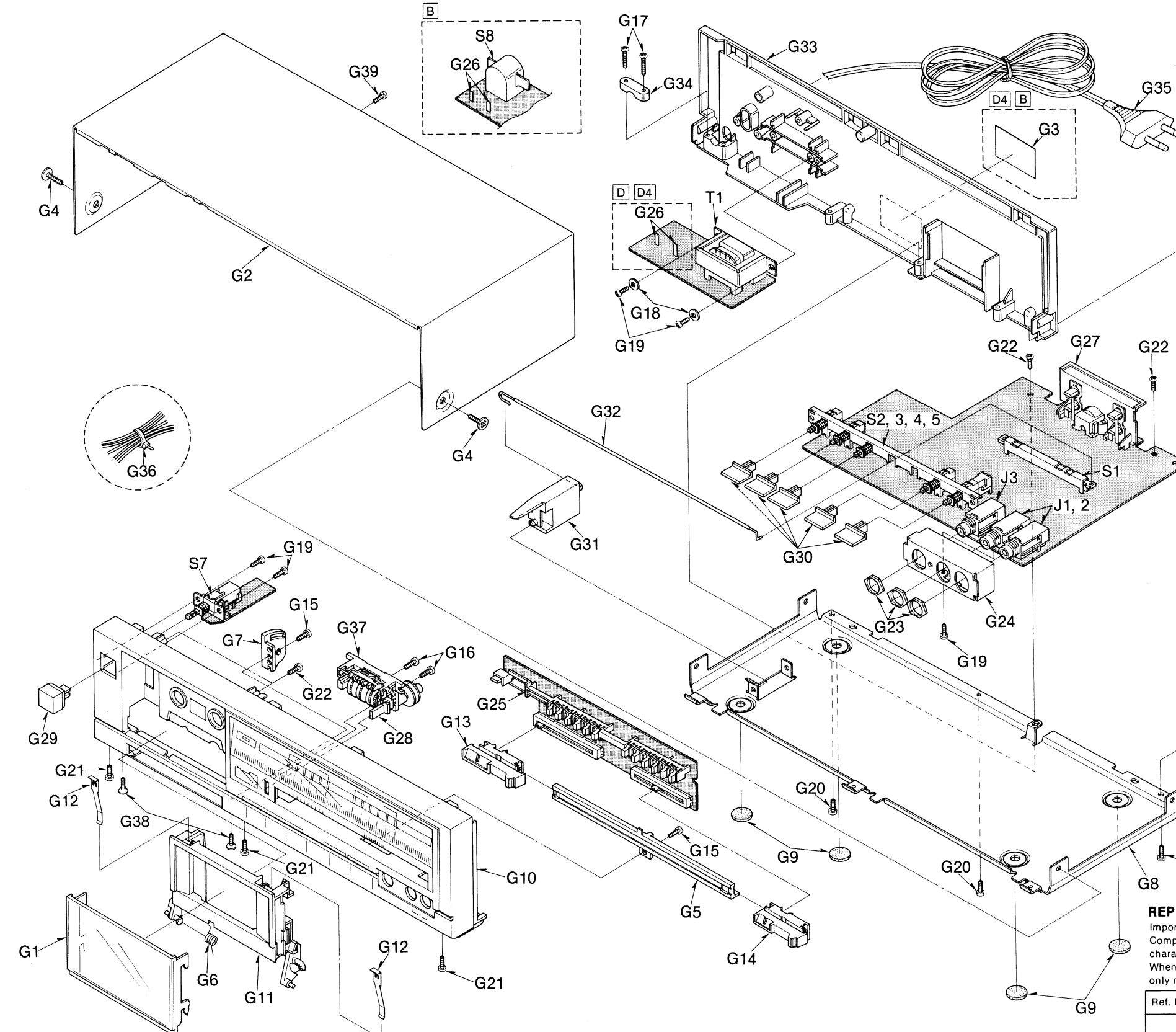
## SPECIFICATIONS

Pressure of pressure roller	350±50g
Takeup tension * Use cassette torque meter.....QZZSRKCT	45 + 15 - 10 g-cm
Wow and flutter; (JIS) * Use test tape .....QZZCWAT	Less than 0.07% (WRMS)

## REPLACEMENT PARTS LIST

Ref. No.	Part No.	Part Name & Description	Ref. No.	Part No.	Part Name & Description	Ref. No.	Part No.	Part Name & Description	Ref. No.	Part No.	Part Name & Description	Ref. No.	Part No.	Part Name & Description	Ref. No.	Part No.	Part Name & Description
<b>MECHANICAL PARTS</b>																	
M 1	QML4104	Erase Safety Lever	M 16	QBN2039	Auto-Stop Rod Spring	M 33	QML4098	Fast Forward Lever	M 52	QBW2006	Poly Washer	M 66	QMF2335	Flywheel Holding Plate	M 83	QXL1698	Record Button Assembly
M 2	QMR2144	Fast Forward Rod	M 17	QBN2044	Auto-Stop Lever Spring	M 34	QDG1335	Fast Forward Gear	M 53	QMK2108	Head Base Plate	M 67	QM21313	Thrust Retainer	M 84	QXL1699	Playback Button Assembly
M 3	QMR2145	Eject Rod	M 18	QBC1483	Pause Pin Spring	M 35	QML4099	Rewind Lever	M 54	QMF2334	Head Adjustment Plate	M 68	QXL1695	Record/Playback Arm Assembly	M 85	QXL1700	Stop Button Assembly
M 4	QMR2146	Record Rod	M 19	QBS1143	Half Retain Spring	M 36	QDG1336	Takeup Reel Table	M 55	QWY4155G	Record/Playback Head	M 69	QBN2045	Record/Playback Spring	M 86	QXL1701	Rewind Button Assembly
M 5	QMR2149	Auto-Stop Rod	M 20	QBS1128	Lock Pin	M 37	QXD0158	Assembly	M 56	QWY4155G	Erase Head	M 70	QMA4766	Mechanism Angle-L	M 87	QXL1702	Fast Forward Button Assembly
M 6	QML4093	Main Control Lever	M 21	QBN2031	Main Lever Spring	M 38	QXG1082	Takeup Gear Assembly	M 57	QWY2138G	Erase Spring	M 71	QMA4767	Mechanism Angle-R	M 88	QXL1703	Pause Button Assembly
M 7	QML4094	Sub Lever	M 22	QBN2032	Pause Return Spring	M 39	QXK2902	Sub Chassis Assembly	M 58	QBC1278	Head Spring	M 72	QDB0143	Counter Belt	M 89	QMA4753	Operation Button Angle
M 8	QML4095	Sub Control Lever	M 23	QBN2034	Main Control Lever Spring	M 40	QMS2634	Takeup Axis	M 59	QBN2033	Head Pressure Spring	M 73	QDB0148	Obstruction Button Angle	M 90	QMR2148	Obstruction Rod
M 9	QML4096	Pause Lock Lever	M 24	QDB0380	Capstan Belt	M 41	QDG1339	Auto-Stop Cam Gear	M 60	QBT2018	Head Return Spring	M 74	QBC1500	Lock Rod Spring	M 91	QMR2147	Lock Rod
M 10	QDG1330	Main Gear	M 25	QDB0359	Fast Forward Belt	M 42	QDP1989	Intermediation Pulley	M 61	QXF0237	Flywheel Assembly	M 75	XTN2+6B	Tapping Screw @3×6	M 92	QMN2869	Operation Lever Shaft
M 11	QDG1331	Sub Gear	M 26	QTD1181	Wire Clamper	M 43	QML4101	Auto-Stop Detection Lever	M 62	QBW2049	Poly Washer	M 76	XTN26+6B	Tapping Screw @2.6×6	M 93	QBP2018	Operation Lever Spring
M 12	QMF2333	Pressure Plate	M 27	XUBQ3FT	Stop Ring 3ø	M 44	QML4102	Auto-Stop Driving Lever	M 63	QML4100	Washer	M 77	XTV3+10B	Tapping Screw @3×10	M 94	QBS1145	Head Pressure Wire
M 13	QBN2035	Sub Lever Spring	M 28	QBW2046	Poly Washer	M 45	QML4103	Auto-Stop Change Lever	M 64	QBN2038	Change Lever Spring	M 78	XTN3+20B	Tapping Screw @3×20	M 95	QMN2883	Intermediate Gear Axis
M 14	QBN2036	Record/Playback Arm Spring	M 29	QXL1699	Main Level Assembly	M 46	QML4108	Brake Lever	M 65	QXL1694	Pinch Roller Arm Assembly	M 79	XTN3+37B	Tapping Screw @3×37	M 96	QBC1502	Erase Head Spring
M 15	QBT1868D	Obstruction Rod Spring	M 30	QML4097	Takeup Lever	M 47	QBN2040	Auto-Stop Release Spring	M 64-1	QBN2047	Pinch Roller Arm Assembly	M 80	QHQ1361	Screw @2×12	M 97	XSN2+3	Screw @2×3
			M 31	QDG1333	Takeup Intermediate Gear	M 48	QBN2046	Brake Spring	M 81	QXU0355	Motor Assembly	M 82	QXL1697	Eject Button Assembly	M 98	QJT0015	Lug Terminal
			M 32	QMB1434	Cap	M 49	QBC1484	Auto-Stop Pressure Spring							M 99	QBC1372	Supply Reel Table Spring
						M 50	QDR1179	Supply Reel Table							M 100	QMB1336	Supply Drive Claw

## CABINET PARTS LOCATION



## REPLACEMENT PARTS LIST

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.

Ref. No.	Part No.	Part Name & Description
<b>CABINET PARTS</b>		
G 1	QYF0703 "Silver Type" QYF0703Y "Black Type"	Cassette Lid Assembly
G 2	QGC1251 "Silver Type" QGC1251K "Black Type"	Case Cover

## ACCESSORIES

A 1	QQT3593	Instruction Book
A 2	QEB0125	Connection Cord
<b>PACKINGS</b>		
P 1	QPN4558	Inside Carton
P 2	QPA0763	Cushion-A
P 3	QPA0764	Cushion-B
P 4	QPS0710	Pad
P 5	XZB40X60A02	Poly Bag
P 6	QPC0072	Poly Sheet

## NOTES:

- [D] .....For the product without DIN jack in all European areas except United Kingdom.  
[D4] .....For the product with DIN jack in all European areas except United Kingdom.  
[B] .....For the product without DIN jack in United Kingdom.