ORDER NO. ARD82110201C2-14

Service Manual

Cassette Deck

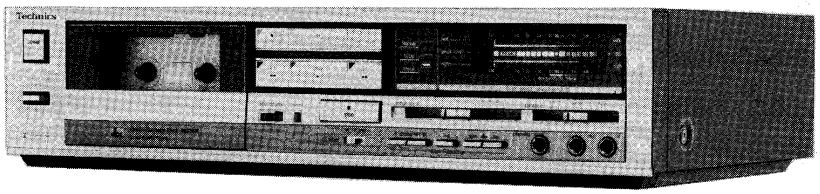
RS-M235X

(Silver Face
Black Face)

dbx/Dolby B • C NR, 2 Motor
Stereo Cassette Deck

DOLBY B•C NR

This is the Service Manual for the following areas.
[D] ····· For all European areas except United Kingdom.
[B] ····· For United Kingdom.



RS-M235X in black is also available in some countries.

RS-M250 MECHANISM SERIES

Specifications

Track system:	4-track 2-channel stereo recording and playback
Tape speed:	4.8cm/s
Wow and flutter:	0.045% (WRMS), ±0.14% (DIN)
Frequency response:	Metal tape; 20—20,000Hz 30—18,000Hz (DIN) 50—17,000Hz ±3dB CrO_2 tape; 20—19,000Hz 30—18,000Hz (DIN) 50—16,000Hz ±3dB Normal tape; 20—18,000Hz 30—16,000Hz (DIN) 50—15,000Hz ±3dB
Dynamic range:	110dB (at 1kHz) with dbx* in
Max. input level improvement:	10dB or more improved with dbx in (at 1kHz)
Signal-to-noise ratio:	dbx in; 92dB Dolby** C NR in; 75dB (CCIR) Dolby B NR in; 67dB (CCIR) NR out; 57dB (Signal level = max. input level A weighted, CrO_2 type tape)
Fast forward and rewind time:	Approx. 90 seconds with C-60 cassette tape
Inputs:	MIC; sensitivity 0.25mV, applicable microphone impedance 400Ω—10kΩ LINE; sensitivity 60mV, input impedance 47kΩ or more
Outputs:	LINE; output level 400mV, output impedance 1.5kΩ or less HEADPHONES; output level 80mV (at 8Ω) applicable headphones impedance 8Ω—600Ω
Bias frequency:	80kHz
Heads:	2-head system 1-MX head for record/playback 1-double-gap ferrite head for erasure
Motor:	2-motor system
Power requirements:	[D]...AC; 220V, 50-60Hz [B]...AC; 110/125/220/240V, 50-60Hz Pre-set power voltage 240V
Power consumption:	18W
Dimensions (W×H×D):	43cm×9.8cm×27.3cm
Weight:	5.0kg

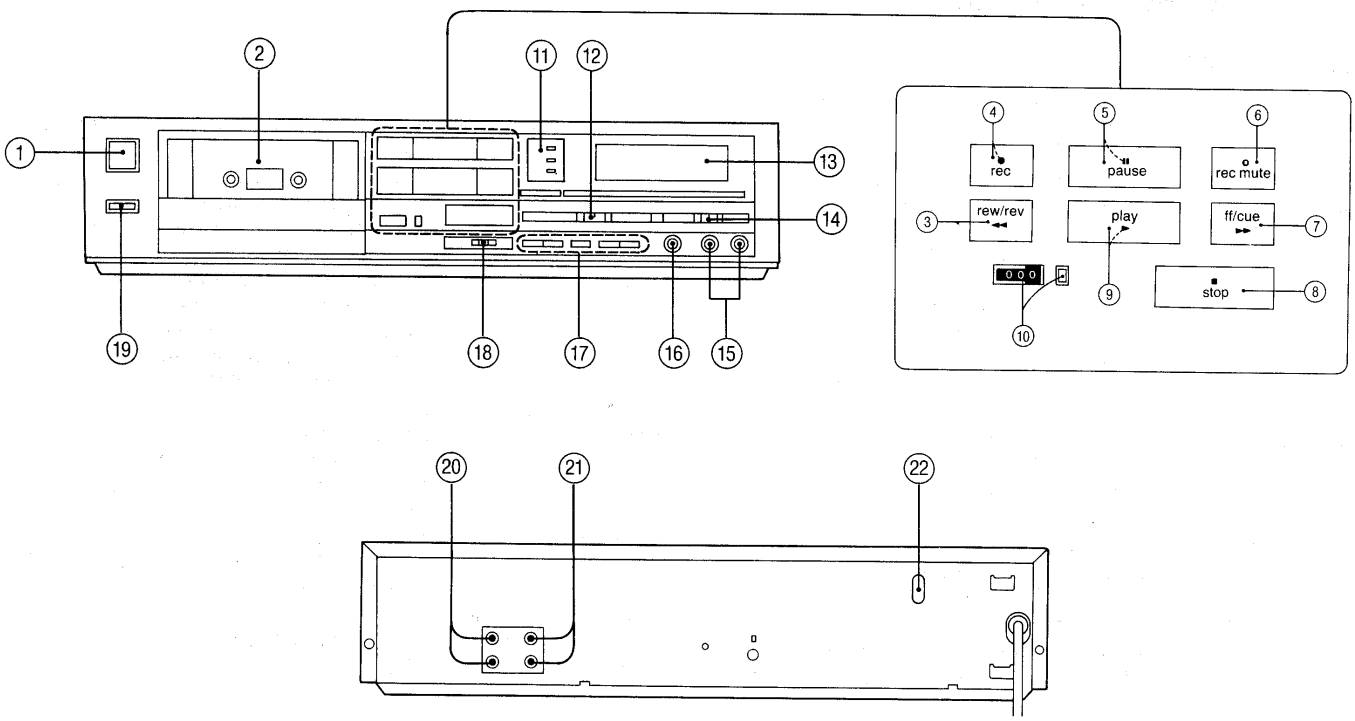
Design and specifications are subject to change without notice.
*The term dbx is a registered trademark of dbx Inc.
**'Dolby' and the double-D symbol are trademarks of Dolby Laboratories.

Technics

Matsushita Electric Trading Co., Ltd.
P.O. Box 288, Central Osaka Japan

CONTENTS

LOCATION OF CONTROLS AND COMPONENTS



① Power Switch [power (push on)]

② Cassette Holder

③ Rewind/Review Button [rew/rev (◀◀)]

④ Record Button and Indicator [rec (○)]

⑤ Pause Button and Indicator [pause (■)]

⑥ Record Muting Button [rec mute (O)]

⑦ Fast Forward/Cue Button [ff/cue (▶▶)]

⑧ Stop Button [stop (■)]

⑨ Play Button and Indicator [play (▶)]

⑩ Tape Counter and Reset Button [tape counter-reset]

⑪ Tape Indicator [Auto Tape Select (Normal • CrO_2 • Metal)]

⑫ Input Level Control [input level]

⑬ FL (fluorescent level) Meters

⑭ Balance Control [balance (lef • center • right)]

⑮ Microphone Jacks [mic (L • R)]

⑯ Headphones Jack [phones]

⑰ Noise Reduction Select Switch [Noise Reduction (Dolby NR C • B • out • dbx tape • disc)]

⑱ Timer Start Switch (timer (rec • off • play)]

⑲ Eject Button [eject (▲)]

⑳ Line Input Jacks [LINE IN (R • L)]

㉑ Line Output Jacks [LINE OUT (R • L)]

㉒ Voltage Selector [VOLTAGE SELECTOR]
* For United Kingdom.

DISASSEMBLY INSTRUCTIONS

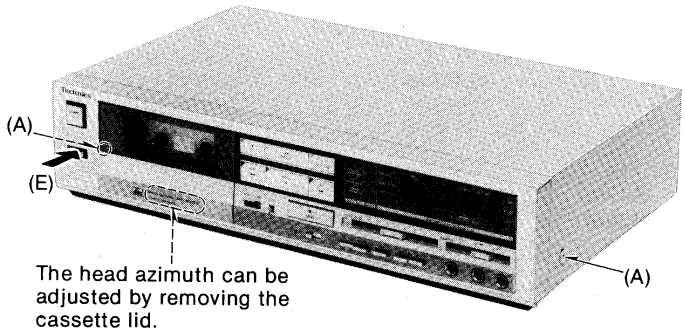


Fig. 1

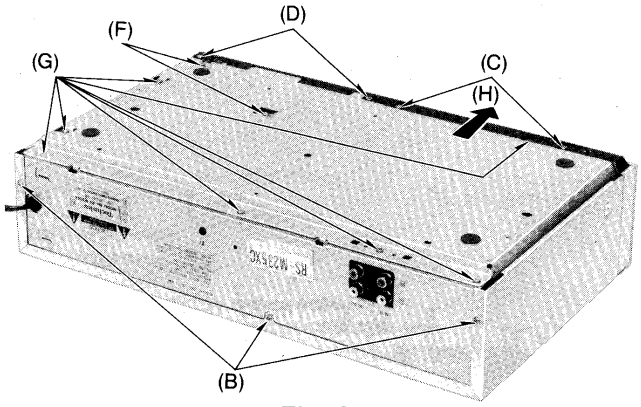


Fig. 2

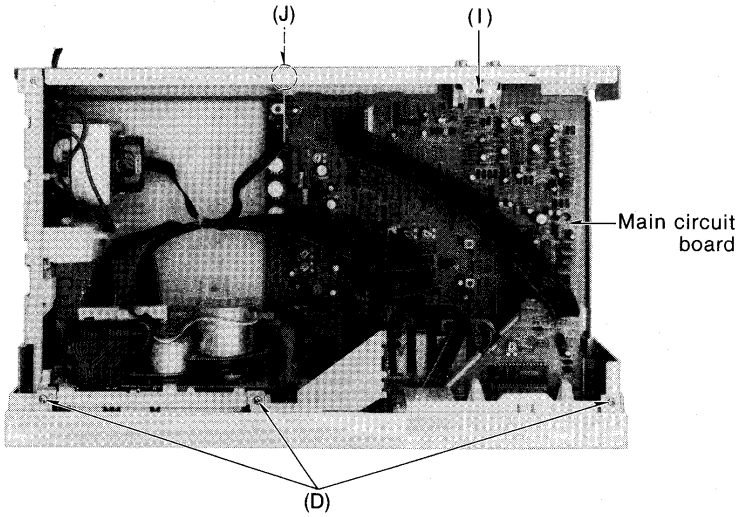
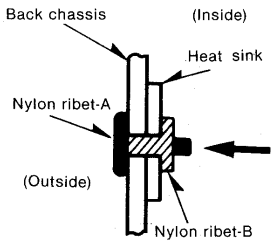


Fig. 3

(J) How to remove nylon rivet



To remove a heat sink from the back chassis, first press nylon rivet-A from the inside in the direction indicated by the arrow as shown above, and extract the rivet to the outside. Next remove nylon rivet-B from the inside. Consequently, the head sink can be removed from the back chassis.

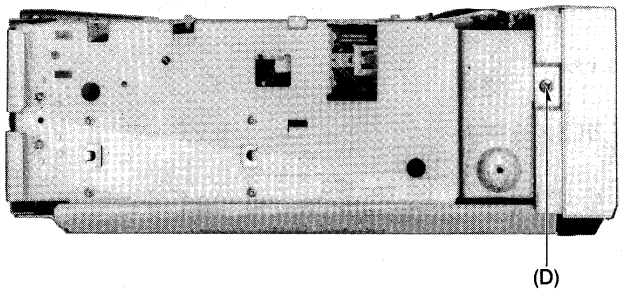


Fig. 4

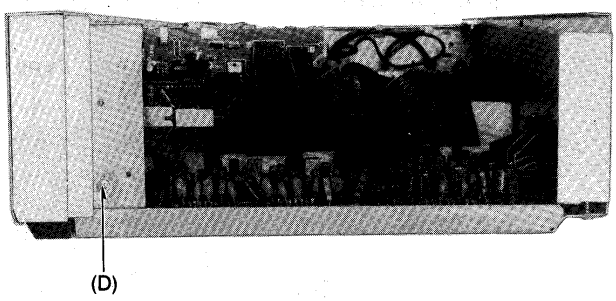


Fig. 5

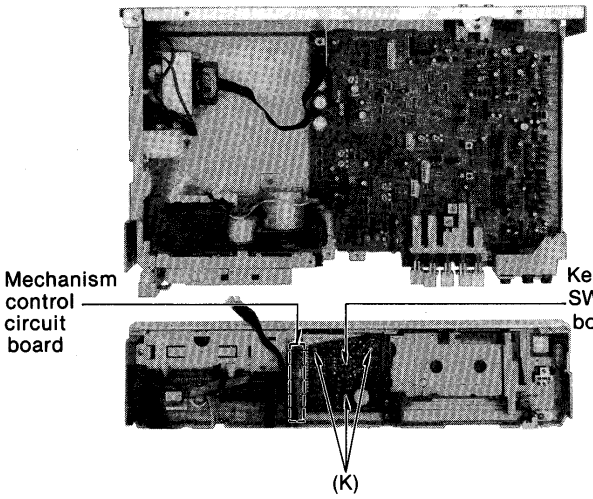


Fig. 6

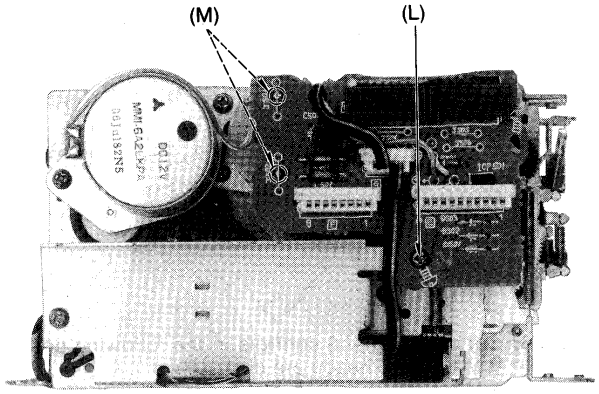


Fig. 7

Ref. No.	Procedure	To remove —.	Remove —.	Shown in fig. —.
1	1	Case cover	• 2 ornament screws .....(A) • 3 screws .....(B)	1 2
2	1 → 2	Front panel assembly	• 2 screws .....(C) • 7 screws .....(D) • Push the eject button .....(E)	2 2, 3, 4, 5 1
3	1 → 2 → 3	Mechanism unit	• 2 screws .....(F)	2
4	4	Bottom cover assembly	• 2 screws .....(C) • 2 screws .....(F) • 7 screws .....(G) • As shown in fig. 2, pull Bottom cover in the direction of arrow (H).	2 2 2 2
5	1 → 2 → 4	Main circuit board	• 1 screw .....(I) • How to remove nylon rivet .....(J)	3 3
6	1 → 2 → 6	Key board SW & Mechanism control circuit board	• 3 screws .....(K)	6
7	1 → 2 → 3 → 7	Mechanism circuit board	• 1 screw .....(L) • Unsolder the soldered portion of the reel motor terminal .....(M)	7 7

MEASUREMENT AND ADJUSTMENT METHODS

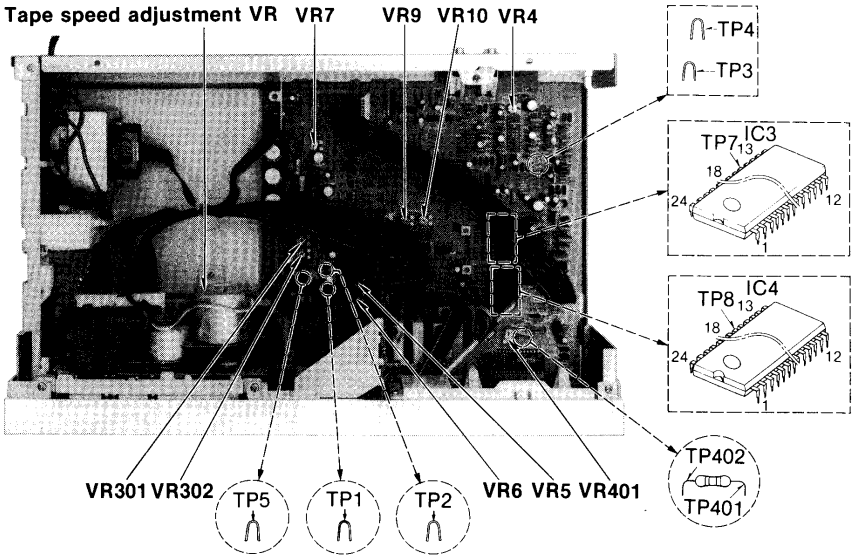


Fig. 1

NOTES: Set switches and controls in the following positions, unless otherwise specified.

- Make sure heads are clean
- Make sure capstan and pressure roller are clean
- Judgeable room temperature 20±5°C (68±9°F)
- NR switch: OUT
- Timer start switch: OFF
- 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.

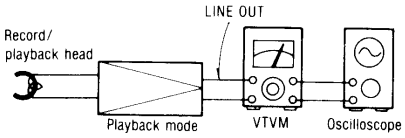


Fig. 2

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., and point where L-CH and R-CH outputs are balanced. (Refer to figs. 3 and 4.)

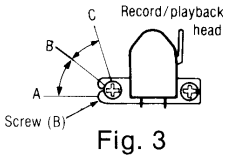


Fig. 3

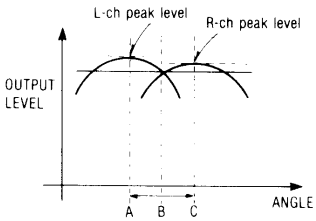


Fig. 4

L-CH/R-CH phase adjustment

4. Make connections as shown in fig. 5.
5. Playback the 8kHz signal from the test tape (QZZCFM). Adjust screw (B) shown in fig. 3 so that pointers of the two VTVMs swing to maximum and a lissajous waveform as illustrated in fig. 6 is obtained on the oscilloscope.

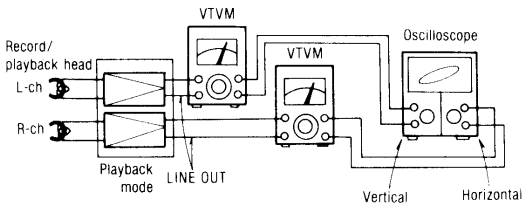


Fig. 5

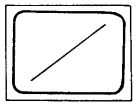


Fig. 6

Ⓑ 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:

$$\text{Tape speed accuracy} = \frac{f-3{,}000}{3{,}000} \times 100(\%) \qquad \text{where, } f = \text{measured value}$$

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.

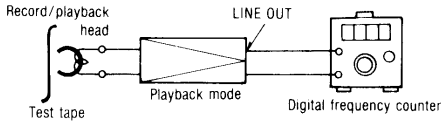


Fig. 7

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:

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

Standard value: Less than 1%

NOTE:

Please use non metal type screwdriver when you adjust tape speed on this unit.
Do not use a metal type screwdriver. If used, the IC protector (ICP501) may be damaged, and the capstan motor may not be driven.

Ⓒ 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. 9).

Playback frequency response

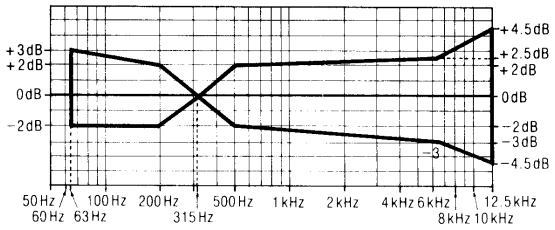


Fig. 9

Ⓓ 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 [TP7 (L-CH), TP8 (R-CH)].
3. Make measurements for both channels.

Standard value: 0.28V [0.38±0.05V: at LINE OUT jack]

Adjustment

1. If the measured value is not within standard the adjust VR9 (L-CH) or VR10 (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. 10.
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:

$$\text{Erase current (A)} = \frac{\text{Voltage across resistor R301}}{1\,(\Omega)}$$

Standard value: 155±15mA (Metal)

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

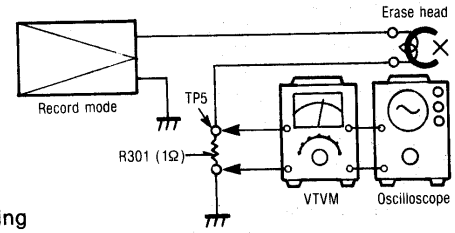


Fig. 10

Adjustment
If the erase current is less than 140mA, open the point (A).

Ⓕ Overall frequency response

Condition:
- Record/playback mode
- Normal tape mode
- CrO_2 tape mode
- Metal tape mode
- Input level controls...MAX
- Balance control...Center

Equipment:
- VTVM
- ATT
- AF oscillator
- Oscilloscope
- Resistor (600Ω)
- Test tape (reference blank tape)
  ...QZZCRA for Normal
  ...QZZCRX for CrO_2
  ...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)
1. Make connections as shown in fig. 10.
2. Place UNIT into normal tape mode and insert the normal reference blank test tape (QZZCRA).
3. Supply a 1kHz signal from the AF oscillator through ATT to LINE IN.
4. Adjust ATT so that input level is −20dB below standard recording level (standard recording level = 0 VU).
5. Adjust the AF oscillator frequency to 1kHz, 50Hz, 100Hz, 200Hz, 500Hz, 4kHz, 8kHz, 10kHz and 12.5kHz signals, and record these signals on the test tape.
6. Playback the signals recorded in step 6, and check if the frequency response curve is within the limits shown in the overall frequency response chart for normal tapes (fig. 11).
   (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;

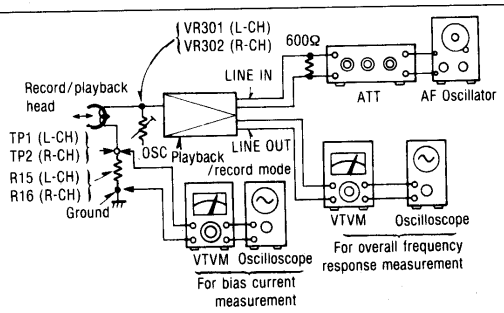


Fig. 10

Overall frequency response chart (Normal)

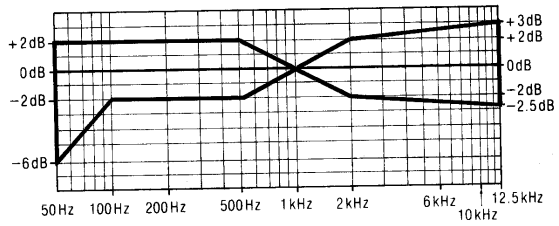


Fig. 11

Adjustment (A):
When the curve exceeds the overall specified frequency response chart (fig. 11) as shown in fig. 12.
1) Increase bias current by turning VR301 (L-CH) and VR302 (R-CH).
   (See fig. 1 on page 5.)
2) 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. 11.)
3) If the curve still exceeds the specifications (fig. 11), increase bias current further and repeat steps 5 and 6.

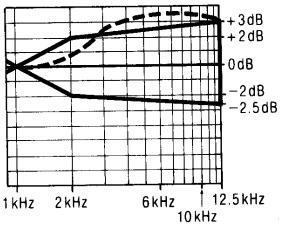


Fig. 12

Adjustment (B):
When the curve falls below the overall specified frequency response chart (fig. 11) as shown in fig. 13.
1) Reduce bias current by turning VR301 (L-CH) and VR302 (R-CH).
2) 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. 11.)
3) If the curve still falls below the charted specifications (fig. 11), reduce bias current further and repeat steps 5 and 6.

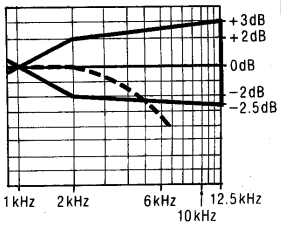


Fig. 13

7. Place UNIT into CrO_2 tape mode.
8. Change test tape to CrO_2 reference blank test tape (QZZCRX), and record 1kHz, 50Hz, 100Hz, 200Hz, 500Hz, 4kHz, 8kHz, 10kHz and 15kHz signals. Then, playback the signals and check if the curve is within the limits shown in the overall frequency response chart or CrO_2 tapes (fig. 14).
9. 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, 12.5kHz and 15kHz 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).
10. Confirm that bias currents are approximately as follows when the UNIT is set at different tape mode.
    • Read voltage on VTVM between ground and test point (TP1 for L-CH, TP2 for R-CH) and calculate bias current by following formula:

$$\text{Bias current (A)} = \frac{\text{Value read on VTVM (V)}}{10\ (\Omega)}$$

Standard value: around 410μA (Normal position)
around 530μA (CrO_2 position)
around 850μA (Metal position)

Overall frequency response chart (CrO_2, Metal)

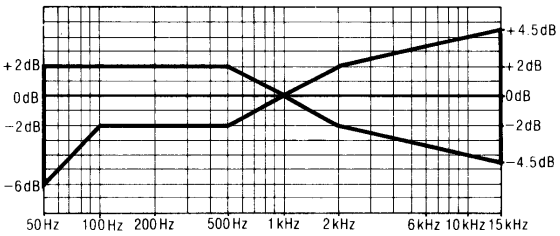


Fig. 14

G Overall gain

Condition:
- Record/playback mode
- Normal tape mode
- Input level controls...MAX
- Balance control...Center
- Standard input level;
  MIC .....−72±4dB
  LINE IN .....−24±4dB

Equipment:
- VTVM
- AF oscillator
- ATT
- Oscilloscope
- Resistor (600Ω)
- Test tape (reference blank tape) ...QZZCRA for Normal

1. Test equipment connection is shown in fig. 15.
2. Insert the normal reference blank tape (QZZCRA).
3. Place UNIT into record mode.
4. Supply a 1kHz signal through ATT (−24dB) from AF oscillator, to LINE IN.
5. Adjust ATT until monitor level at LINE OUT becomes 0.38V.
6. Playback recorded tape, and make sure that the output level at LINE OUT becomes 0.38V.
7. If measured value is not 0.38V±2dB, adjust it by using VR5 (L-CH) or VR6 (R-CH).
8. Repeat from step (2).

Standard value 0.38V−2dB (300mV)—0.38V + 2dB (480mV)

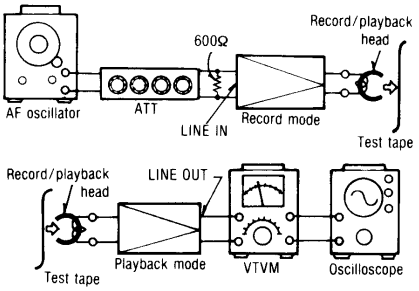


Fig. 15

H Fluorescent meter

Condition:
- Record mode
- Input level controls...MAX
- Balance control...Center

Equipment:
- VTVM
- ATT
- AF oscillator

• Check for FL meter

To check the accuracy of the FL meter, measure the output level at LINE OUT.

1. Make connections as shown (See fig. 16).
2. Connect a wire between TP401 and TP402 terminal (See fig. 17).
3. In the recording pause mode, apply 1kHz (−24dB) to LINE IN.
4. Adjust ATT so that output level at LINE OUT is 0.38V

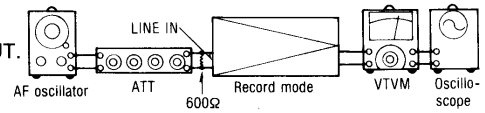


Fig. 16

Checking FL meter 0dB segment display ON/OFF

Change the output level at LINE OUT from 0.38V −1dB (≒340mV) to 0.38V + 1dB (≒430mV) by adjusting the attenuator, and check that the FL meter 0dB segment display OFF state changes to the ON state.

Checking FL meter −40dB segment display ON/OFF

Lower the signal level 28dB below the standard input level (−24dB−28dB = −52dB≒2.5mV) and then further lower the level 12dB (−52dB−12dB = −64dB≒0.63mV) by adjusting the attenuator. While lowering the level as described above, make sure that only the −40dB display remains lit the dims or goes off at the lowest level.

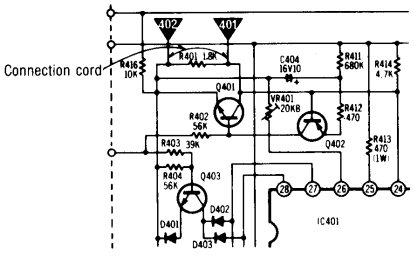


Fig. 17

• Adjustment for FL meter

1. Make connections as shown (See fig. 16).
2. Connect a wire between TP401 and TP402 (See fig. 17).
3. In the recording pause mode, apply 1kHz (−24dB) to LINE IN.
4. Adjust ATT so that output level at LINE OUT is 0.38V.

−40dB adjustment

5. Adjust ATT so that the level adjusted at step 4 is reuced by 40dB.
6. At this time, check that −40dB indicator is dimmed (intermediate brightness between full brightness and light-out: See fig. 18).
7. If the indicator is not lighted halfway as described in step 6, adjust VR7.

0dB adjustment

8. Restore the condition of step 4 (set output level to 0.38V at LINE OUT.
9. At this time, check that 0dB indicator is dimmed (intermediate brightness between full brightness and light-out (See fig. 19).
10. If improper, adjust VR401.
11. Repeat adjustments at steps 4, 5, 6, 7, 8, 9 and 10 two or three times.
12. Disconnect the wire between TP401 and TP402 terminal, which had been connected at step 2.

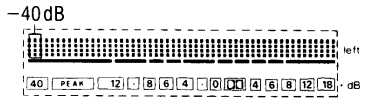


Fig. 18

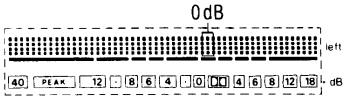


Fig. 19

❶ Dolby NR circuit

Condition:
- Record mode
- Dolby NR switch...IN/OUT
- Dolby NR select switch...B/C
- Input level controls...MAX

Equipment:
- VTVM
- AF oscillator
- ATT
- Oscilloscope
- Resistor (600Ω)
- Balance control...Center

Record side

• Check of the Dolby-B type encoder characteristics

1. Make connections as shown in fig. 20.
2. Set the unit to the record mode. (NR select switch is OUT.)
3. Apply a 1kHz signal to LINE IN.
4. Adjust the ATT so that the output level at TP7 (L-CH) and TP8 (R-CH) is 12.3mV.
5. The output level at pin 14 should be 0dB.
6. Set the NR select switch to B, and make sure that the output signal level at pin 14 of IC3 (L-CH) and IC4 (R-CH) is +6dB±2.5dB.
7. Set the NR select switch to OUT, and adjust the frequency to 5kHz. The output signal level at pin 14 should be 0dB.
8. Set the NR select switch to B and make sure that the output signal level at pin 14 of IC3 (L-CH) and IC4 (R-CH) is +8dB±2.5dB.

• Check to Dolby-C type encoder characteristics

9. Repeat steps 1-5 above.
10. Set the NR select switch to C and make sure that the output signal level at pin 14 of IC3 (L-CH) and IC4 (R-CH) is +11.5dB±2.5dB.
11. Set the NR select switch to OUT and adjust the frequency to 5kHz. The output signal at pin 14 should be 0dB.
12. Set the NR select switch to C and make sure that the output signal level at pin 14 of IC3 (L-CH) and IC4 (R-CH) is +8.5dB±2.5dB.

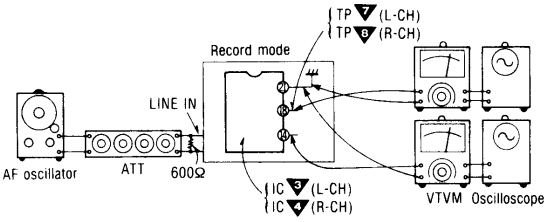


Fig. 20

❷ Attack recovery time adjustment (dbx circuit)

Condition:
- Record mode
- Input level control...MAX
- Balance control...Center

Equipment:
- VTVM
- ATT
- AF oscillator
- DC voltmeter
- Noise reduction selector ...dbx tape

1. Make the connections as shown in fig. 21 and apply 1kHz −27dB signal from LINE IN, and set the noise reduction selector to dbx tape position.
2. Set the unit to record mode, adjust ATT so that the signal level at C97 (L-CH) and C98 (R-CH) is 300mV.
3. Read voltage on DC volt meter.

   Reference value: 15±0.5mV

4. If measured value is not within reference, adjust VR4 (shown in electrical parts location).

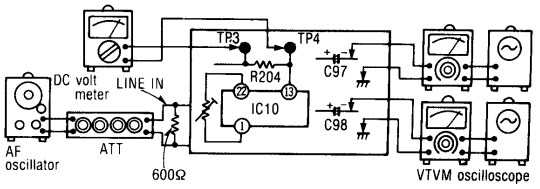


Fig. 21

K Input scanning time adjustment

Condition:
- Stop mode

Equipment:
- Oscilloscope

1. Connect an oscilloscope to terminal 23 of IC601.
2. Measure the time of the input scanning signal with an oscilloscope as shown in fig. 22.

Standard value: 8.8msec—7.2msec

3. If the measured value is different from the signal shown (fig. 22) make the necessary adjustment as follows:

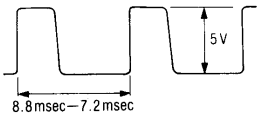
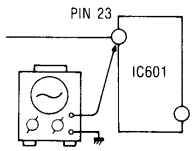


Fig. 22



Adjustment

1. Open point C and short point B on the main circuit board (See fig. 23).
2. Measure the wave form.
3. Make sure that the measured value is within 8msec±0.8msec.
4. If it is beyond the specified value, carry out the following adjustments:
   - If the measured value is less than 7.2msec, open the point B.
   - If the measured value is more than 8.8msec, short the point C.

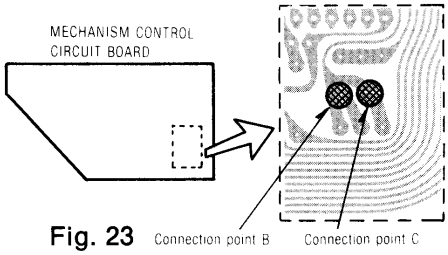
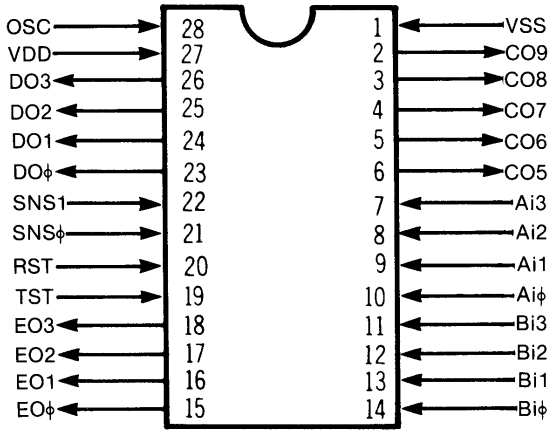
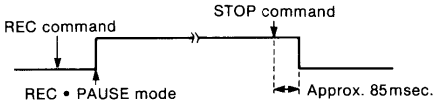
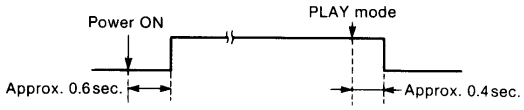
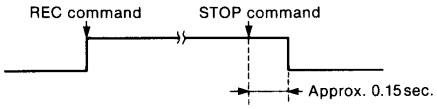
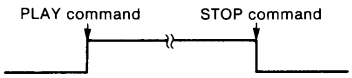
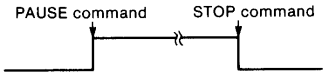
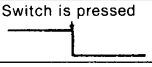
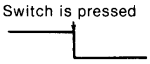
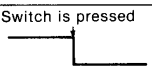
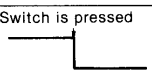


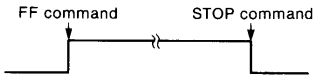
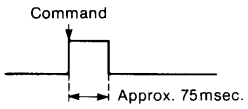
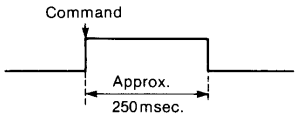
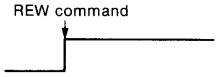
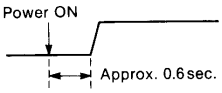
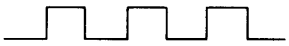
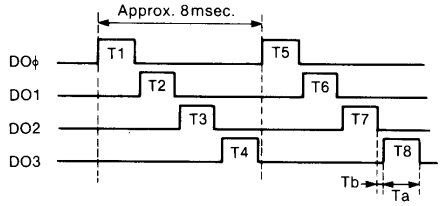
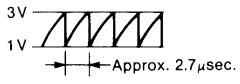
Fig. 23

MN14001RMA (IC601) EACH TERMINAL FUNCTION AND WAVEFORM

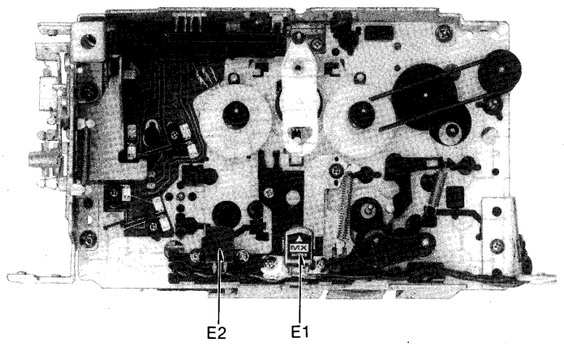
(BOTTOM VIEW)

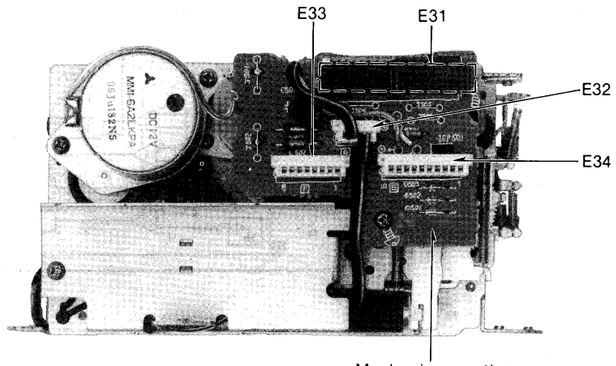


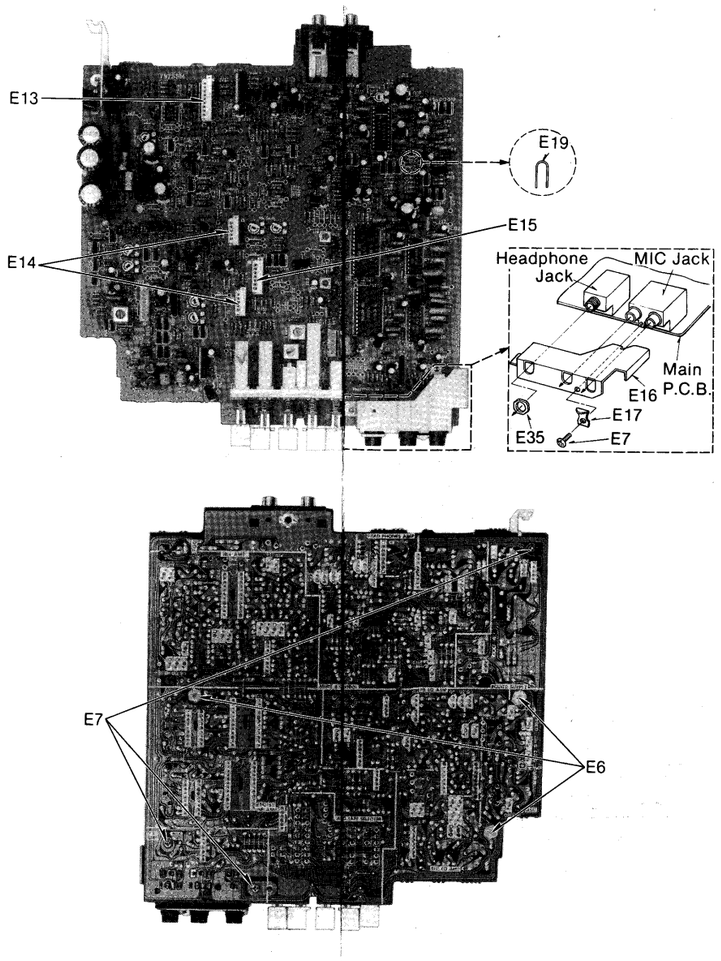
Terminal No.	Symbol	Name	Function/operation
1	Vss	GND	
2	CO9	BIAS Control	○ Goes to H immediately after REC or PAUSE operation. ○ Remains in H during REC or PLAY operation. ○ Goes to L approximately 85msec after the STOP command is given. 
3	CO8	DMT (Muting)	○ Goes to L approximately 0.4sec after PLAY operation. ○ Remains in H in the PAUSE, FF, REW, or STOP mode. ○ Goes to L approximately 0.5sec after the REC command is given. ○ Goes to L approximately 0.18sec after CUE or REV operation is begun. 
4	CO7	REC Indication	○ Goes to H when the REC command is given. ○ Goes to H immediately after power is supplied in the TIMER REC mode. ○ Remains in H if the TIMER REC mode is selected when the automatic STOP return mechanism functions at power on. ○ Goes to L approximately 0.15sec after the STOP command is given in the REC, PAUSE, or REC PLAY mode. 
5	CO6	PLAY Indication	○ Goes to H when the PLAY command is given. ○ Goes to H in the TIMER REC or TIMER PLAY mode. 
6	CO5	PAUSE Indication	○ Goes to H when the PAUSE or REC command is given. 
7	Ai3	Reading of input switch state	○ Reads switch state according to the scanning of DOϕ—3. (Accidental eracing protection leaf switch S501 and PAUSE switch).
8	Ai2	Reading of input switch state	○ Reads switch state according to the scanning of DOϕ—3. (Mode detection leaf switch S502, REC switch).
9	Ai1	Reading of input switch state	○ Reads switch state according to the scanning of DOϕ—3. (PLAY position detection leaf switch S503, TIMER PLAY switch).
10	Aiϕ	Reading of input switch state	○ Reads switch state according to the scanning of DOϕ—2. (STOP position detection leaf switch S503, TIMER REC switch).
11	Bi3	REW key switch	○ Goes to L when switch is pressed (normal H). 
12	Bi2	FF key switch	○ Goes to L when switch is pressed (normal H). 
13	Bi1	PLAY key switch	○ Goes to L when switch is pressed (normal H). 
14	Biϕ	STOP key switch	○ Goes to L when switch is pressed (normal H). 

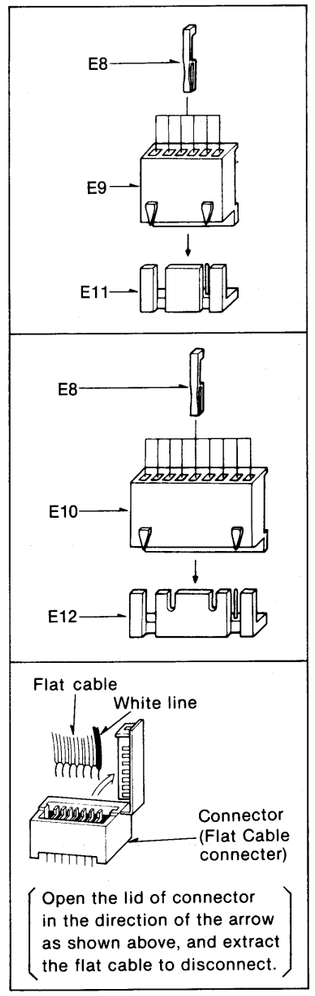
Terminal No.	Symbol	Name	Function/operation
15	EOϕ	Brake solenoid output	○ Goes to H in the FF, REW, CUE or REV mode. 
16	EO1	Trigger solenoid output	○ Remains in H after input of the mechanism selection command (PLAY, PAUSE, STOP, etc.) and until mode detection leaf switch is closed. (H period is approximately 75msec although it differs according to mechanism state.) 
17	EO2	Reel motor rotation output (Reverse): counterclockwise rotation	○ Remains in H from command input until mode detection leaf switch S502 opens during mechanism mode selection. 
			○ Goes to H in REW and REV modes. 
18	EO3	Reel motor rotation output (Forward): clockwise rotation	○ The above description is applicable during mode selection. ○ Remains in H in FF or CUE mode.
19	TST	IC test terminal	○ Normally connected to GND.
20	RST	Reset terminal	○ Goes to H approximately 0.6sec after power on to start computer. 
21	SNSϕ	Rotation detection input	○ Accepts Hall IC output according to reel table rotation. 
22	SNS1		○ Non connection.
23	DOϕ	Input switch scanning	 Pulse width Ta = 1.8msec Tb = 200μsec.
24	DO1		
25	DO2		
26	DO3		
27	V_{DD}	Power supply terminal	○ Functions at 4.5—6.0V (normally 5.4V).
28	OSC	Oscillation terminal	○ Generates oscillation at approximately 300—350kHz. • Because the connection of a probe affects the terminal, nothing should be connected to this terminal for any other measurements. • Use Dϕ to 3 in measuring the computer's velocity; Approx. 125Hz in STOP condition. 

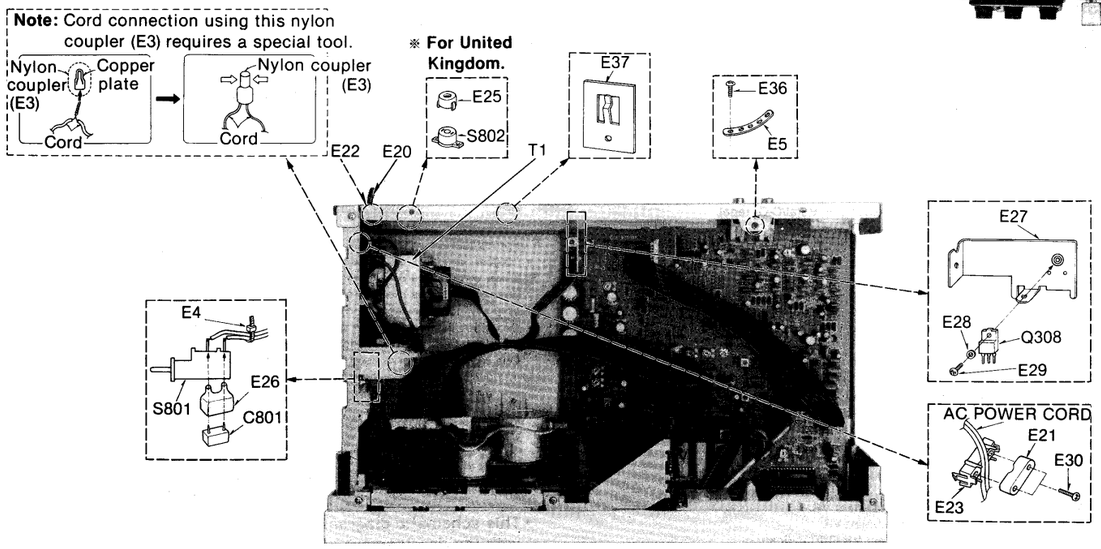
ELECTRICAL PARTS LOCATION









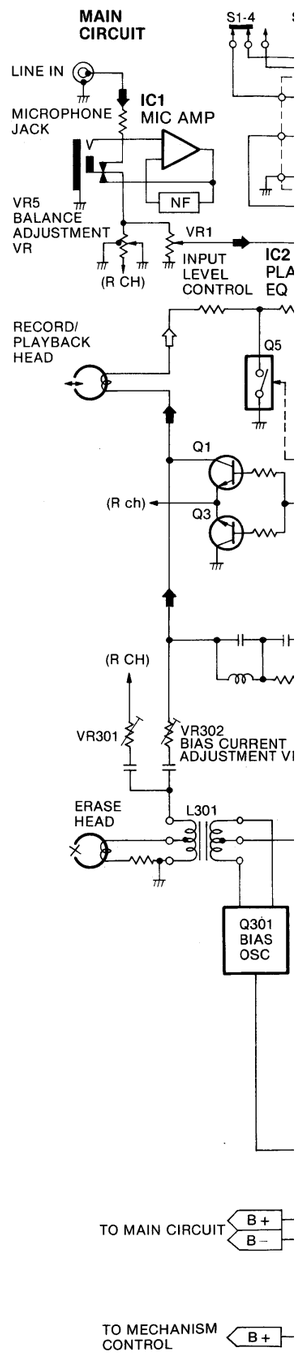


REPLACEMENT PARTS LIST

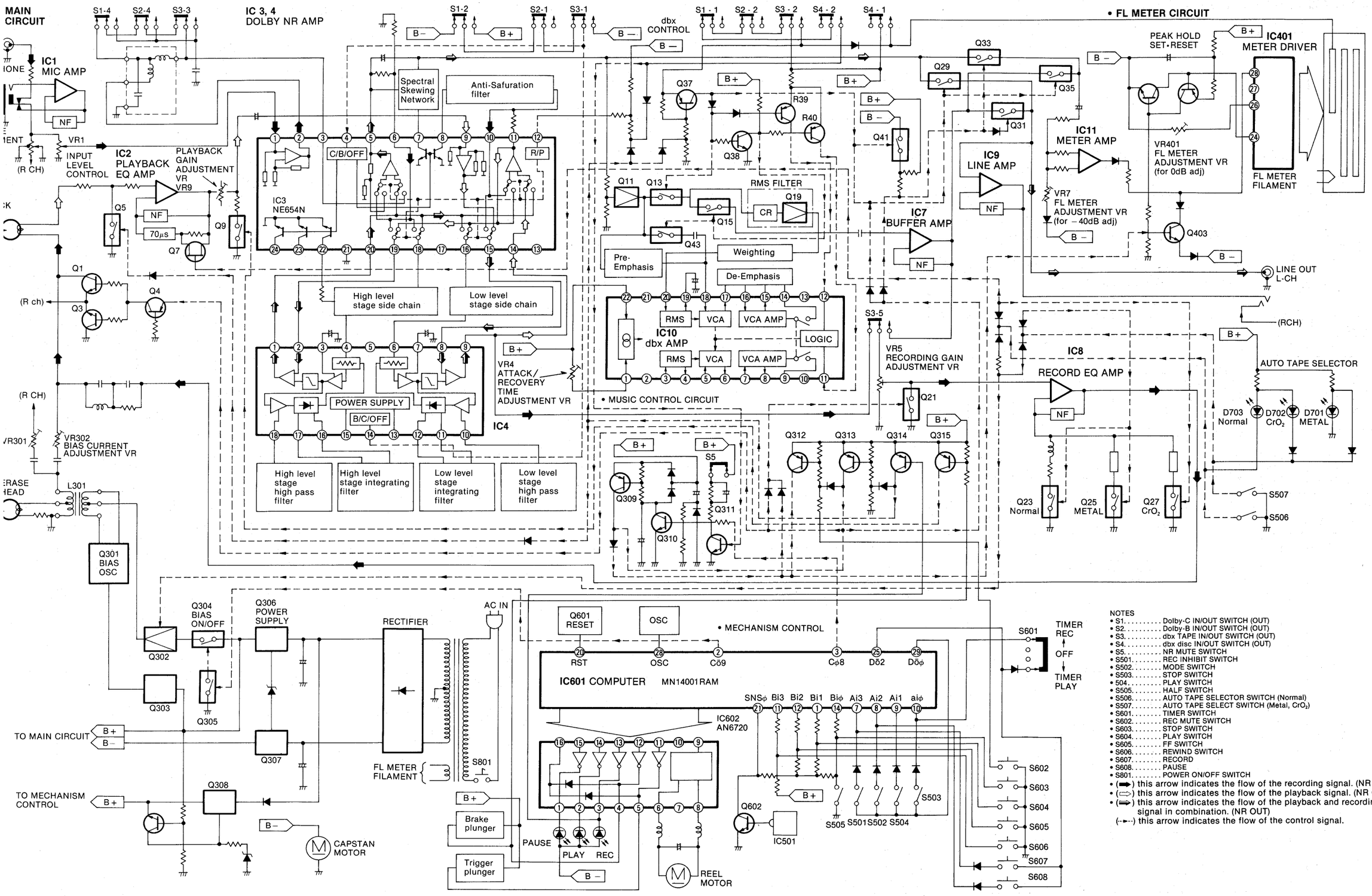
Important safety notice
Components identified by △ mark have special characteristics important for safety.
When replacing any of these components, use only manufacturer's specified parts.

Ref No.	Part No.	Part Name & Description
		ELECTRICAL PARTS
E 1	QWY4122Z	Record/Playback Head
E 2	QWY2138Z	Erase Head
E 3	△ QJT1079	Nylon Coupler
E 4	QTD1315	Nylon Binder
E 5	RME143ZA	Cord Clamper-A
E 6	QKJ0608	Spacer (for P.C.B)
E 7	XTB3+8BFN	Tapping Screw ⊕3×8
E 8	QJT1054	Contact
E 9	QJS1922TN	6 Pin Socket
E 10	QJS1923TN	9 Pin Socket
E 11	QJP1922TN	6 Pin Post
E 12	QJP1923TN	9 Pin Post
E 13	QJS1988S	Jumper Socket (9 Pin)
E 14	QJS1961S	Jumper Socket (5 Pin)
E 15	QJS1962S	Jumper Socket (7 Pin)
E 16	QMA4556	Microphne Angle
E 17	QJC0061	Earth Plate-A
E 19	QJT1090	Check Pin
E 20		
[B]	△ QFC1205	AC Power Cord
		[For United Kingdom]
[D]	△ SJA88	AC Power Cord
		[For all Eulopean areas except United Kingdom]
E 21	QTD1164	Cord Clamper-A
E 22	QBJ1425	Cord Bushing
E 23	QTD1322	Cord Clamper-B
E 25	[B] QTWM0026	Switch Cover (for S802)
		[For United Kingdom]
E 26	QTW1195	Spark Killer Cover
E 27	QTH1178	Heat Sink
E 28	XWA3B	Washer 3φ
E 29	XSN3+8S	Screw ⊕3×8
E 30	XTN3+24B	Tapping Screw 3+24B
E 31	QJS1996T	Jumper Socket (14 Pin)
E 32	QJS1987S	Jumper Socket (4 Pin)
E 33	QJS1983S	Jumper Socket (8 Pin)
E 34	QJS1989S	Jumper Socket (10 Pin)
E 35	QNQ1070	Nut 12φ
E 36	XTB3+12BFZ	Tapping Screw ⊕3×12
E 37	QKJ0636	Cord Clamper-B

BLOCK DIAGRAM



CK DIAGRAM (L-CH ONLY)



NOTES
- S1. . . . . Dolby-C IN/OUT SWITCH (OUT)
- S2. . . . . Dolby-B IN/OUT SWITCH (OUT)
- S3. . . . . dbx TAPE IN/OUT SWITCH (OUT)
- S4. . . . . dbx disc IN/OUT SWITCH (OUT)
- S5. . . . . NR MUTE SWITCH
- S501. . . . . REC INHIBIT SWITCH
- S502. . . . . MODE SWITCH
- S503. . . . . STOP SWITCH
- 504. . . . . PLAY SWITCH
- S505. . . . . HALF SWITCH
- S506. . . . . AUTO TAPE SELECTOR SWITCH (Normal)
- S507. . . . . AUTO TAPE SELECT SWITCH (Metal, CrO_2)
- S601. . . . . TIMER SWITCH
- S602. . . . . REC MUTE SWITCH
- S603. . . . . STOP SWITCH
- S604. . . . . PLAY SWITCH
- S605. . . . . FF SWITCH
- S606. . . . . REWIND SWITCH
- S607. . . . . RECORD
- S608. . . . . PAUSE
- S801. . . . . POWER ON/OFF SWITCH
- (➡) this arrow indicates the flow of the recording signal. (NR OUT)
- (⇨) this arrow indicates the flow of the playback signal. (NR OUT)
- (➡) this arrow indicates the flow of the playback and recording signal in combination. (NR OUT)

(⇢) this arrow indicates the flow of the control signal.

SCHEMATIC DIAGRAM

I MAIN CIRCUIT SECTION

V SLIDE VOLUME CIRCUIT SECTION

VI KEY BOARD CIRCUIT SECTION

Q1—3 2SD1011 (R, S, T) [2SD1011]
IC1 [M5218L]
Q4 2SA921 (R, S) [2SA921]
Q5, 6, 9, 10 2SD636 (Q, R, S) [2SD636]
IC2 [M5220L]
Q7,8 2SK246GRY [2SK246]
IC3 [NE654N]
IC5 [NE652N]
IC4 [NE654]
D2 QVD1S2473T [MA161]
IC6 [NE652N]
D3—9 QVD1S2473 [MA161]
Q11—16, 38, 43, 44 2SD636 (Q, R, S) [2SD636]
D10 MA1051MTA [MA1051M]
Q37, 39, 40 2SB641 (Q, R, S) [2SB641]
Q19, 20 2SD636 (Q, R, S) [2SD636]
Q41 2SD636 (Q, R, S) [2SD636]
D12, 20—25 QVD1S2473T [MA161]
Q29—36 2SJ103GRY [2SJ103]
Q23, 24 2SB641 (Q, R, S) [2SB641]
Q25—28 2SD636 (Q, R, S) [2SD636]
D13—17 QVD1S2473T [MA161]
IC11 [AN6552]

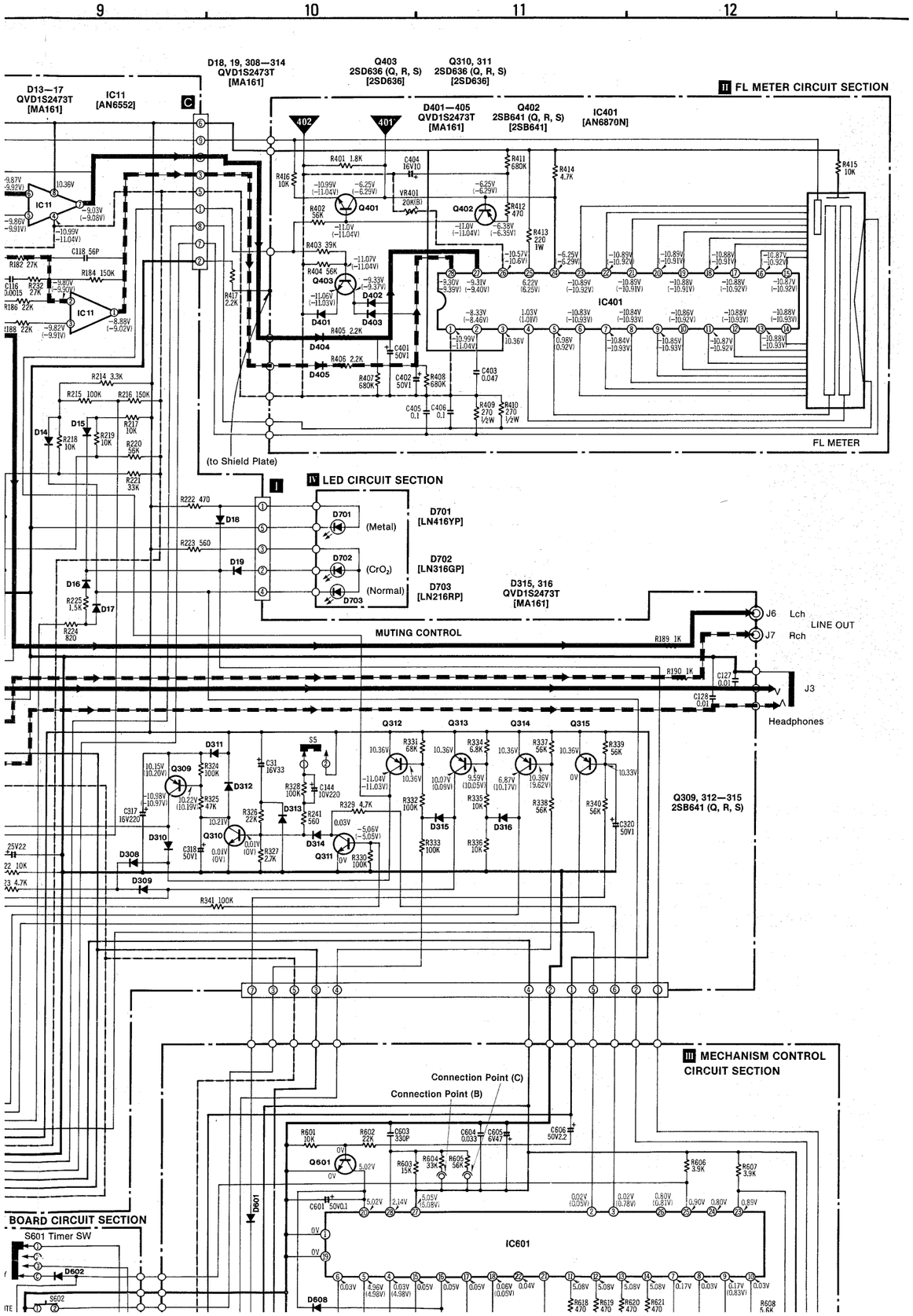
DOLBY NR AMP.
dbx AMP.
IC1 MIC AMP
IC2 PB. EQ. AMP.

Lch LINE IN
Lch MIC
RECORD/ PLAYBACK HEAD
Rch
(QWY4122Z)
Rch LINE IN
Rch MIC

Q17,18 2SD661 (R, S, T) [2SD661]
IC10 [AN6291]
IC7—9 [M5218L]
Q308 [2SD1275]
Q21, 22 2SD636 (Q, R, S) [2SD636]

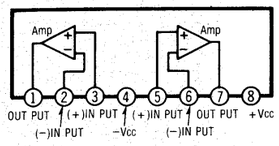
IC8 REC. EQ. AMP
IC9 HEADPHONES AMP.
IC11 FL METER AMP.

S601 Timer SW
T. REC
OFF
T. PLAY

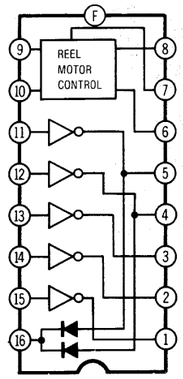


EQUIVALENT CIRCUIT

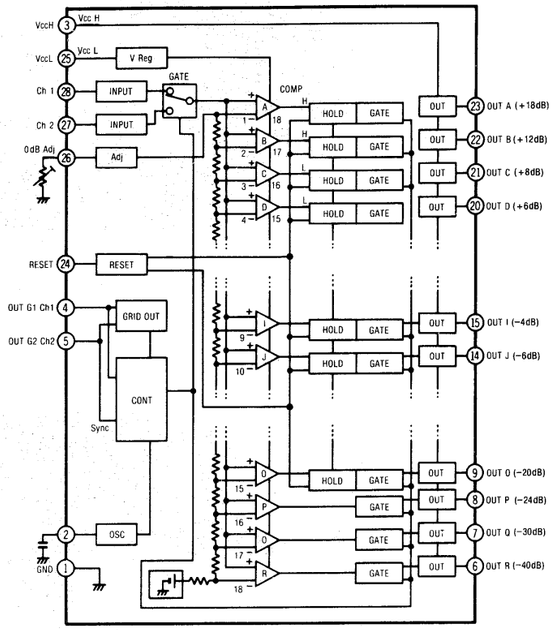
IC1, 2, 7, 8, 9 M5218L



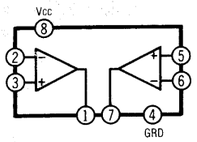
IC602 AN6270



IC401 AN6870N



IC11 AN6552



SPECIFICATIONS

∗ Input level controls...MAX
∗ Valance control .....Center

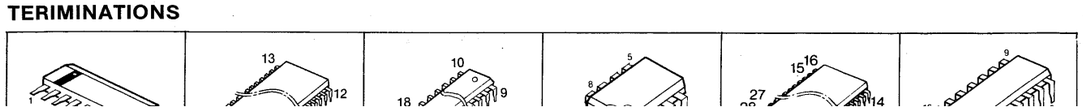
Playback S/N ratio ∗ Test tape...QZZCFM	Greater than 45dB
Overall distortion ∗ Test tape ...QZZCRA for Normal ...QZZCRX for CrO_2 ...QZZCRZ for Metal	Less than 4%
Overall S/N ratio ∗Test tape...QZZCRA	Greater than 43dB (without NAB filter)

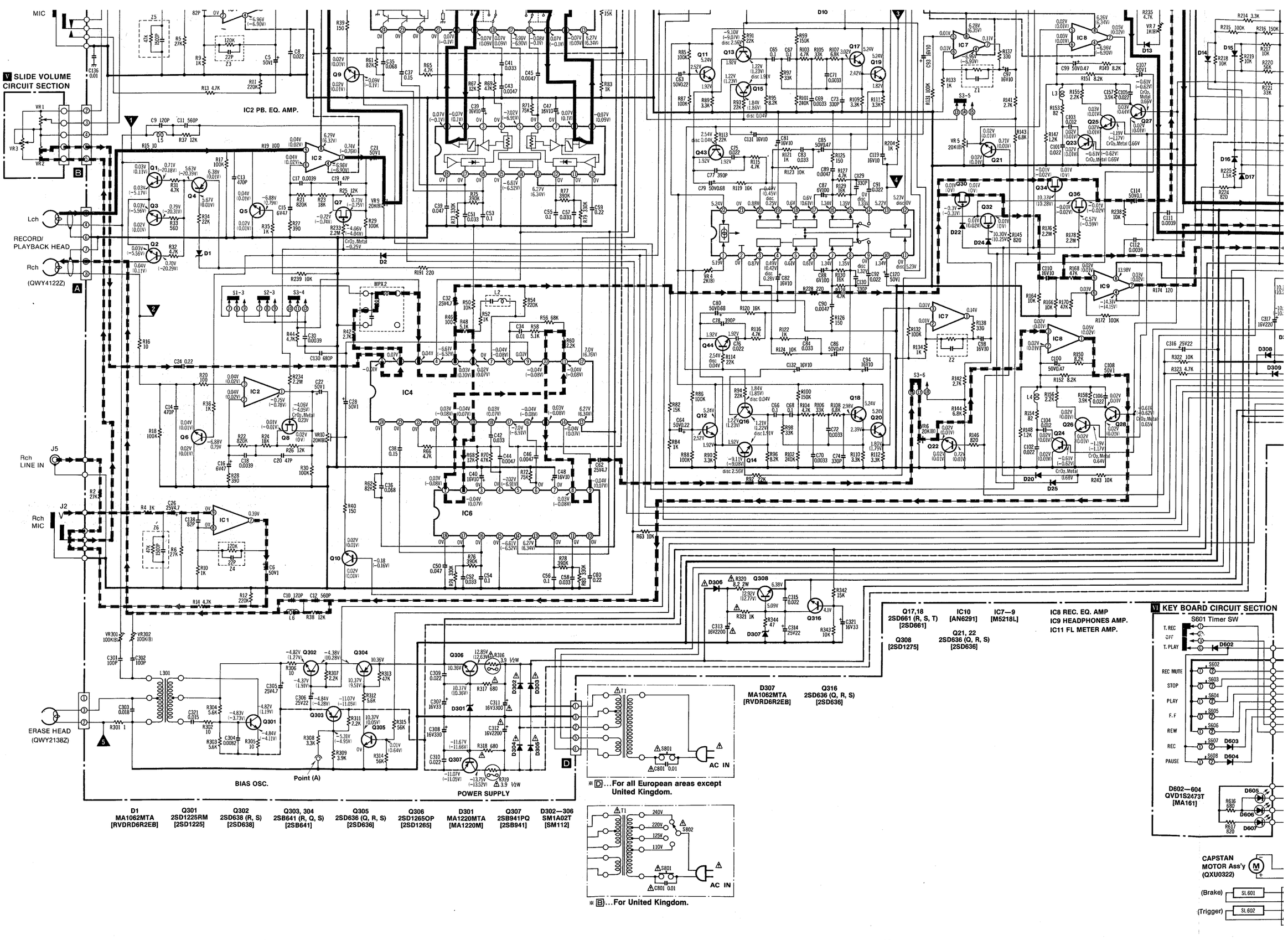
NOTES:

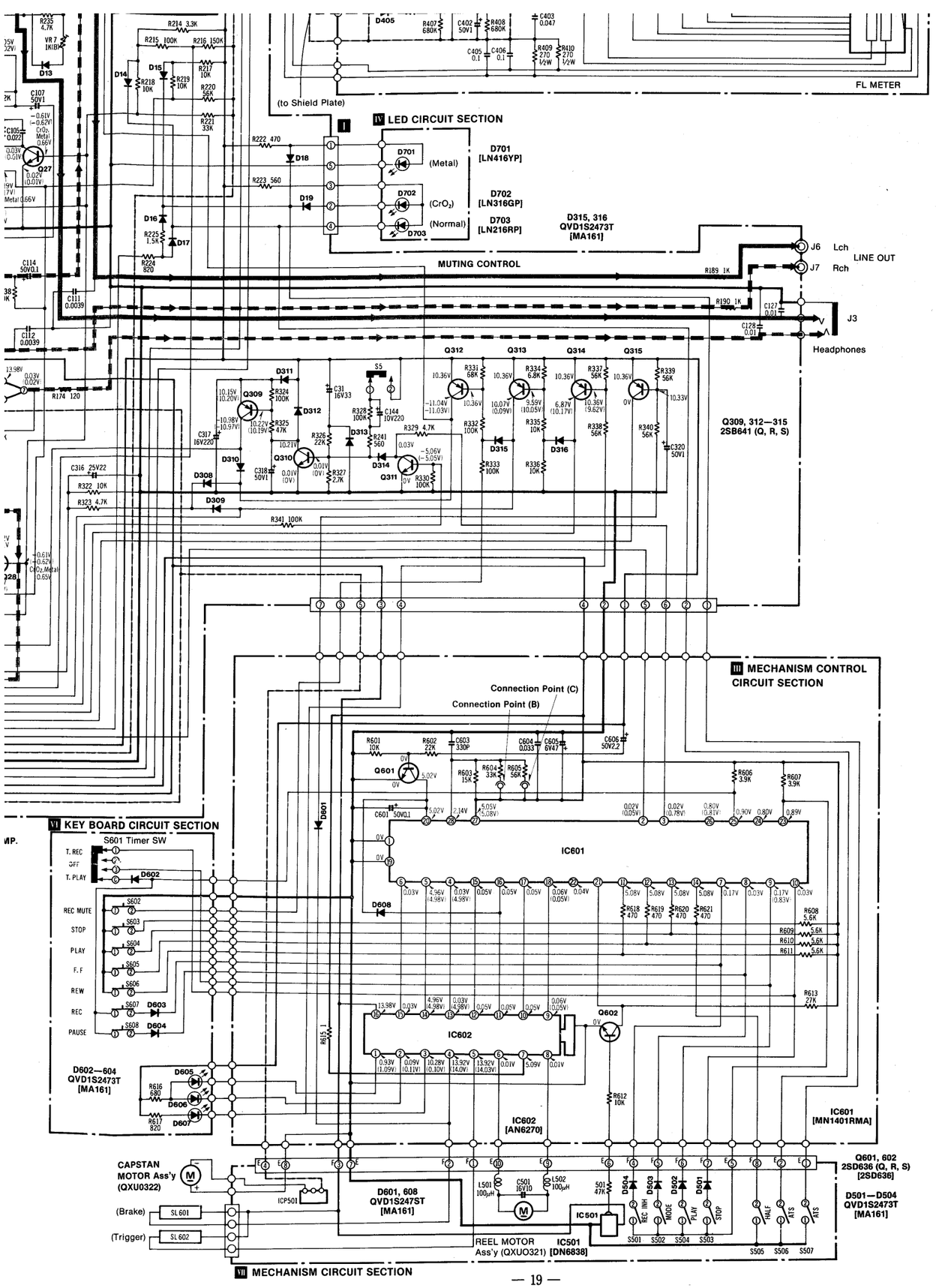
- S1-1—S1-4 .....Dolby-C IN/OUT switch (shown in out position).
- S2-1—S2-4 .....Dolby-B IN/OUT switch (shown in out position).
- S3-1—S3-6 .....dbx tape IN/OUT switch (shown in out position).
- S4-1, S4-2.....dbx disc IN/OUT switch (shown in out position).
- S5.....NR Mute switch (shown in OFF position).
- S501.....REC inhibit switch (shown in OFF position).
- S502.....Mode switch (shown in OFF position).
- S503.....Stop switch (shown in OFF position).
- S504.....Play switch (shown in OFF position).
- S505.....Half switch (shown in OFF position).
- S506.....Auto tape select switch (for Normal tape).
- S507.....Auto tape select switch (for Metal/CrO_2 tape).
- S601.....Timer switch (shown in (1) position).
  ((1)...T. REC, (2)...OFF, (3)...T. PLAY).
- S602.....REC Mute switch (shown in OFF position).
- S603.....Stop switch (shown in OFF position).
- S604.....Play switch (shown in OFF position).
- S605.....FF switch (shown in OFF position).
- S606.....Rewind switch (shown in OFF position).
- S607.....Record switch (shown in OFF position).
- S608.....Pause switch (shown in OFF position).
- S801.....Power ON/OFF switch (shown in OFF position).
- S802.....AC power voltage select switch (shown in 240V position).
  ∗ For United Kingdom.
- VR1, 2 .....Input level control.
- VR3 .....Channel valunce control.
- VR4 .....Attack recoverly time adjustment VR.
- VR5, 6 .....Recording gain adjustment VR.
- VR7 .....FL meter adjustment VR (−40dB indication).
- VR9, 10 .....Playback gain adjustment VR.
- VR301, 302 .....Bias current adjustment VR.
- VR401 .....FL meter adjustment VR (0dB indication).
- Point (A) .....Erase Current adjustment point.
- Point (B), (C) ...Input scanning time adjustment points.
- Resistance are in ohms (Ω), 1/4 watt unless specified otherwise.
  1K = 1,000(Ω), 1M = 1000k(Ω).
- 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.
  No mark .....Voltage values at OUT (NR select switch) mode.
  ( ) .....Voltage values at record mode.
  disc .....Voltage values at dbx disc mode.
  CrO_2.....Voltage values at CrO_2 tape mode.
  Metal .....Voltage values at Metal tape mode.
  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).
- 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
  1S2473T77◀—Production parts number
  [MA161]◀—Supply parts numbers
- The supply parts number is described alone in the replacement parts list.

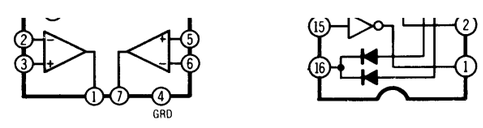
• This schematic diagram may be modified at any time with the development of new technology.

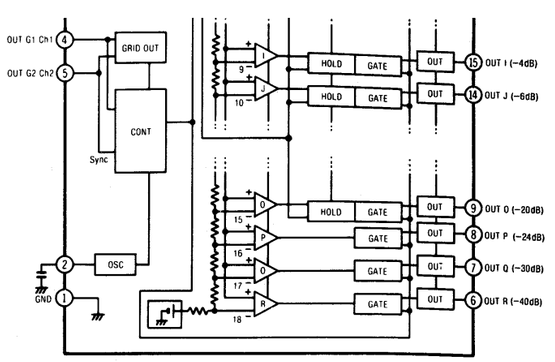
TERIMINATIONS




V SLIDE VOLUME CIRCUIT SECTION
IC2 PB. EQ. AMP.
MIC
Lch
RECORD/ PLAYBACK HEAD
Rch
(QWY4122Z)
ERASE HEAD
(QWY2138Z)
Rch LINE IN
Rch MIC
BIAS OSC.
Point (A)
POWER SUPPLY
IC1
IC2
IC4
IC6
IC7
IC8
IC9
D10
MPX2
D1 MA1062MTA [RVDRD6R2EB]
Q301 2SD1225RM [2SD1225]
Q302 2SD638 (R, S) [2SD638]
Q303, 304 2SB641 (R, Q, S) [2SB641]
Q305 2SD636 (Q, R, S) [2SD636]
Q306 2SD1265OP [2SD1265]
D301 MA1220MTA [MA1220M]
Q307 2SB941PQ [2SB941]
D302—306 SM1A02T [SM112]
D307 MA1062MTA [RVDRD6R2EB]
Q316 2SD636 (Q, R, S) [2SD636]
Q17,18 2SD661 (R, S, T) [2SD661]
Q308 [2SD1275]
IC10 [AN6291]
Q21, 22 2SD636 (Q, R, S) [2SD636]
IC7—9 [M5218L]
IC8 REC. EQ. AMP
IC9 HEADPHONES AMP.
IC11 FL METER AMP.
※D...For all European areas except United Kingdom.
※B...For United Kingdom.
VI KEY BOARD CIRCUIT SECTION
S601 Timer SW
T. REC
OFF
T. PLAY
REC MUTE
STOP
PLAY
F. F
REW
REC
PAUSE
D602—604 QVD1S2473T [MA161]
CAPSTAN MOTOR Ass'y (QXU0322)
(Brake)
(Trigger)
SL601
SL602







* Input level controls...MAX
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  CrO_2 .....Voltage values at CrO_2 tape mode.
  Metal .....Voltage values at Metal tape mode.
  For measurement use VTVM.
- (▬▶) indicates B + (bias).
- (■▶■) indicates B − (bias).
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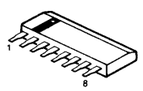
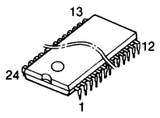
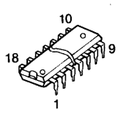
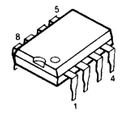
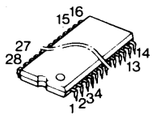
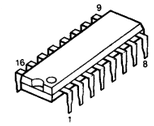
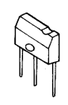
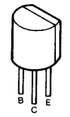
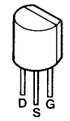
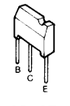
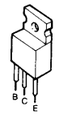
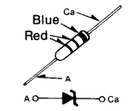
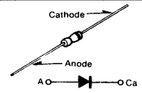
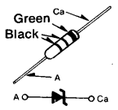
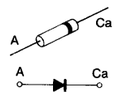
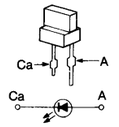
TERIMINATIONS

 IC1, 2, 7, 8	 IC3, 4	 IC5, 6	 IC11	 IC601	 IC602
 ICP501	 Q1—4	 Q7, 8, 29—36	 Q9—28, 37—41, 43, 44	 Q306—308	 D1, 307
 D2—9, 12—25, 310—316, 401—405, 501—504, 601—604, 608	 D10	 D302—306	 D701—703		

13 12 11 10 9 8 7 6 5

CIRCUIT BOARDS AND WIRING CONNECTION DIAGRAM

IC1 [M5218L]

1	0.43V
2	0.00V
3	0.00V
4	−6.96V (−6.90V)
5	0V
6	0V
7	0.39V
8	6.26V (6.31V)

IC2 [M5220L]

1	−0.75V (−0.78V)
2	0.04V (0.02V)
3	0.04V (0.02V)
4	−6.96V (−6.90V)
5	0.04V (0.02V)
6	0.04V (0.02V)
7	0.74V (−0.76V)
8	6.29V (6.32V)

IC3 [NE654N]

1	−0.01V
2	0.09V
3	0.06V
4	−6.61V (−6.54V)
5	0.09V (0.14V)
6	0.06V (0.09V)
7	0V
8	−0.07V (−0.10V)
9	−0.01V
10	−0.07V (−0.10V)
11	−0.07V (−0.10V)
12	−7.01V (6.77V)
13	−6.27V (6.34V)
14	−0.07V (0.09V)
15	0.07V (−0.10V)
16	−0.08V (−0.10V)
17	−6.96V (−6.90V)
18	0.07V (0.09V)
19	−0.07V (0.09V)
20	0.07V (−0.10V)
21	0V
22	0V
23	0V
24	0V

IC4 [NE654N]

1	−0.01V
2	0.07V
3	0.04V
4	−6.61V (−6.52V)
5	0.03V (0.10V)
6	0.02V (0.07V)
7	0V
8	−0.04V (−0.08V)
9	−0.01V
10	−0.04V (−0.08V)
11	−0.04V (−0.08V)
12	−7.00V (6.76V)
13	6.27V (6.34V)
14	−0.04V (0.07V)
15	0.03V (−0.08V)
16	−0.04V (−0.08V)
17	−7.00V (−6.91V)
18	0.03V (0.07V)
19	−0.04V (0.07V)
20	0.03V (−0.08V)
21	0V
22	0V
23	0V
24	0V

IC5 [NE652N]

1	0.07V (−0.10V)
2	−0.07V (0.10V)
3	0V
4	0V
5	−7.02V (−6.91V)
6	0V
7	0V
8	0.07V (−0.10V)
9	−0.07V (0.09V)
10	0V
11	0V
12	0V
13	6.27V (6.34V)
14	−6.61V (−6.52V)
15	0V
16	0V
17	0V
18	0V

IC6 [NE652N]

1	0.03V (−0.08V)
2	−0.04V (0.07V)
3	0V
4	0V
5	−7.02V (−6.91V)
6	0V
7	0V
8	0.03V (−0.08V)
9	−0.04V (0.07V)
10	0V
11	0V
12	0V
13	6.27V (6.34V)
14	−6.61V (−6.52V)
15	0V
16	0V
17	0V
18	0V

IC7 [M5218L]

1	0.14V
2	0.01V
3	0.01V
4	−6.96V (−6.90V)
5	0.01V
6	0.01V
7	0.11V
8	6.28V (6.35V)

IC8 [M5218L]

1	0.05V (0.02V)
2	0.02V (0.01V)
3	0.02V (0.01V)
4	−6.96V (−6.90V)
5	0.02V (0.01V)
6	0.03V (0.01V)
7	0.05V (0.02V)
8	6.26V (6.34V)

IC9 [M5218L]

1	0.02V (0.01V)
2	0.04V (0.03V)
3	0.02V (0.01V)
4	−14.31V (−14.15V)
5	0.02V (0.01V)
6	0.03V (0.03V)
7	0.03V (0.02V)
8	13.98V (13.98V)

IC10 [AN6219]

1	5.19V
2	0V
3	0.87V
4	0.49V (0.42V) disc 0.28V
5	0.61V
6	0.61V
7	1.34V
8	1.35V
9	0V disc 1.32V
10	1.34V
11	0V disc 5.23V
12	5.23V disc 0V
13	5.22V
14	0V disc 1.33V
15	1.35V
16	1.34V
17	0.60V (0.61V)
18	0.60V
19	0.49V (0.45V) disc 0.25V
20	0.88V
21	0V
22	5.24V

IC11 [AN6552]

1	−8.88V (−9.02V)
2	−9.80V (−9.90V)
3	−9.82V (−9.91V)
4	−10.99V (−11.04V)
5	−9.86V (−9.91V)
6	−9.87V (−9.92V)
7	−9.03V (−9.08V)
8	10.36V

IC401 [AN6870N]

1	−10.99V (−11.04V)
2	−8.33V (−8.46V)
3	10.36V
4	1.03V (1.01V)
5	0.98V (0.92V)
6	−10.83V (−10.93V)
7	−10.84V (−10.93V)
8	−10.84V (−10.93V)
9	−10.85V (−10.93V)
10	−10.86V (−10.92V)
11	−10.87V (−10.92V)
12	−10.88V (−10.93V)
13	−10.88V (−10.93V)
14	−10.88V (−10.93V)
15	−10.87V (−10.92V)
16	−10.87V (−10.92V)
17	−10.88V (−10.92V)
18	−10.88V (−10.91V)
19	−10.88V (−10.91V)
20	−10.89V (−10.91V)
21	−10.89V (−10.91V)
22	−10.89V (−10.92V)
23	−10.89V (−10.92V)
24	−6.29V
25	6.22V (6.25V)
26	−10.57V (−10.60V)
27	−9.31V (−9.40V)
28	−9.30V (−9.39V)

IC601 [MN14001RMA]

1	0V
2	0.02V (0.05V)
3	0.02V (0.78V)
4	0.03V (4.98V)
5	4.96V (4.98V)
6	0.03V
7	0.17V
8	0.03V
9	0.17V (0.83V)
10	0.03V
11	5.08V
12	5.08V
13	5.08V
14	5.08V
15	0.05V
16	0.05V
17	0.05V
18	0.06V (0.05V)
19	0V
20	5.02V
21	———
22	0.04V
23	0.89V
24	0.80V
25	0.90V
26	0.80V (0.81V)
27	5.05V (5.08V)
28	2.14V

IC602 [AN6270]

1	0.93V (1.09V)
2	0.09V (0.11V)
3	10.28V (0.10V)
4	13.92V (14.0V)
5	13.92V (14.03V)
6	0.01V
7	5.09V
8	0.01V
9	0.06V (0.05V)
10	0.05V
11	0.05V
12	0.05V
13	0.03V (4.98V)
14	4.98V
15	0.03V
16	13.98V

Q1 [2SD1011]

B	0.71V (−20.18V)
C	0.03V (0.11V)
E	0.03V (−5.17V)

Q2 [2SD1011]

B	0.70V (−20.29V)
C	0.04V (0.11V)
E	0.03V (−5.56V)

Q3 [2SD1011]

B	0.79V (−20.31V)
C	0.02V (0.01V)
E	0.03V (−5.56V)

Q4 [2SA921]

B	5.67V (0.01V)
C	5.63V (−20.39V)
E	6.38V (0.10V)

Q5, 6 [2SD636]

B	−6.88V (−0.79V)
C	0.02V (0.01V)
E	0.04V (0.01V)

Q7 [2SK246]

S	−0.72V (−0.74V)
D	−0.73V (−0.75V)
G	−4.06V (−4.04V) CrO_2, Metal, −0.25V

Q8 [2SK246]

S	0.02V (0V)
D	0.01V (−0.01V)
G	−4.06V (−4.05V) CrO_2, Metal 0.23V

Q9 [2SD636]

B	−0.09V (−0.10V)
C	0.02V (0.01V)
E	0.02V (0.01V)

Q10 [2SD636]

B	−0.18V (−0.16V)
C	0.02V (0.01V)
E	0.02V (0.01V)

Q11, 12 [2SD636]

B	2.52V
C	5.24V
E	1.92V

Q13 [2SD636]

B	−9.10V (−9.07V) disc 2.56V
C	1.92V
E	1.22V (1.23V) disc 1.91V

Q14 [2SD636]

B	−9.11V (−9.08V) disc 2.56V
C	1.92V
E	1.21V (1.22V) disc 1.91V

Q15 [2SD636]

B	1.84V (1.86V) disc 0.04V
C	1.22V (1.23V)
E	1.22V (1.23V) disc 1.91V

Q16 [2SD636]

B	1.84V (1.85V) disc 0.04V
C	1.22V (1.23V)
E	1.21V (1.22V) disc (1.91V)

Q17 [2SD661]

B	3.02V
C	5.24V
E	2.42V

Q18 [2SD661]

B	2.98V
C	5.24V
E	2.39V

Q19 [2SD636]

B	2.42V
C	5.24V
E	1.82V

Q20 [2SD636]

B	2.39V
C	5.24V
E	1.80V (1.79V)

Q21 [2SD636]

B	0.71V (0.01V)
C	0.02V (0.01V)
E	0.02V (0.01V)

Q22 [2SD636]

B	0.72V (0.01V)
C	0.02V (0.01V)
E	0.02V (0.01V)

Q23, 24 [2SB641]

B	−0.61V (−0.62V) CrO_2, Metal 0.66V
C	0.02V (0.01V)
E	0.02V (0.01V)

Q25 [2SD636]

B	−1.19V (−1.17V) CrO_2, Metal 0.64V
C	0.03V (0.01V)
E	0.02V (0.01V)

Q26 [2SD636]

B	−1.19V (−1.17V) CrO_2, Metal 0.64V
C	0.02V (0.01V)
E	0.02V (0.01V)

Q27 [2SD636]

B	−0.61V (−0.62V) CrO_2, Metal 0.66V
C	0.03V (0.01V)
E	0.02V (0.01V)

Q28 [2SD636]

B	−0.61V (−0.62V) CrO_2, Metal 0.65V
C	0.02V (0.01V)
E	0.02V (0.01V)

Q29 [2SJ103]

S	0.01V (0V)
D	0.01V (0V)
G	−0.34V (−0.35V)

Q30 [2SJ103]

S	0.01V (0V)
D	0.01V (0V)
G	−0.30V (−0.31V)

Q31 [2SJ103]

S	0.02V (0V)
D	0.01V (0V)
G	10.34V (10.25V)

Q32 [2SJ103]

S	−0.01V (−0.02V)
D	0.01V (0V)
G	10.30V (10.25V)

Q33 [2SJ103]

S	0.01V (0V)
D	0.01V (0V)
G	10.30V (10.25V)

Q34 [2SJ103]

S	−0.01V (−0.02V)
D	0.01V (0V)
G	10.33V (10.28V)

Q35 [2SJ103]

S	0.02V (0V)
D	0.02V (0V)
G	−0.92V (−0.25V)

Q36 [2SJ103]

S	−0.01V (−0.02V)
D	−0.01V (−0.02V)
G	−0.57V (−0.59V)

Q37 [2SB641]

B	−7.51V (0.32V) disc 9.07V
C	−10.60V (−10.58V) disc 9.66V
E	−10.20V (−8.94V) disc 9.66V

Q38 [2SD636]

B	−9.13V (−9.07V) disc 0.66V
C	5.10V (5.15V) disc 0.04V
E	0V

Q39 [2SB641]

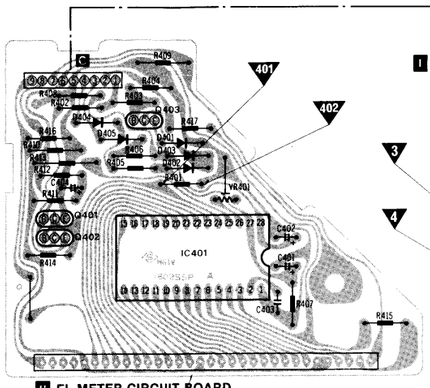
B	4.61V disc 8.58V
C	5.23V
E	5.24V

Q40 [2SB641]

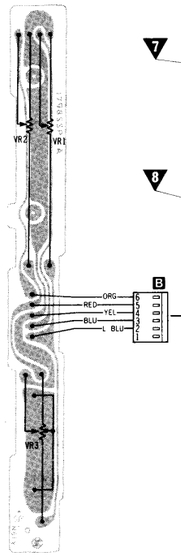
B	5.10V (5.15V) disc 4.61V
C	0V disc 5.23V
E	5.24V

Q41 [2SD636]

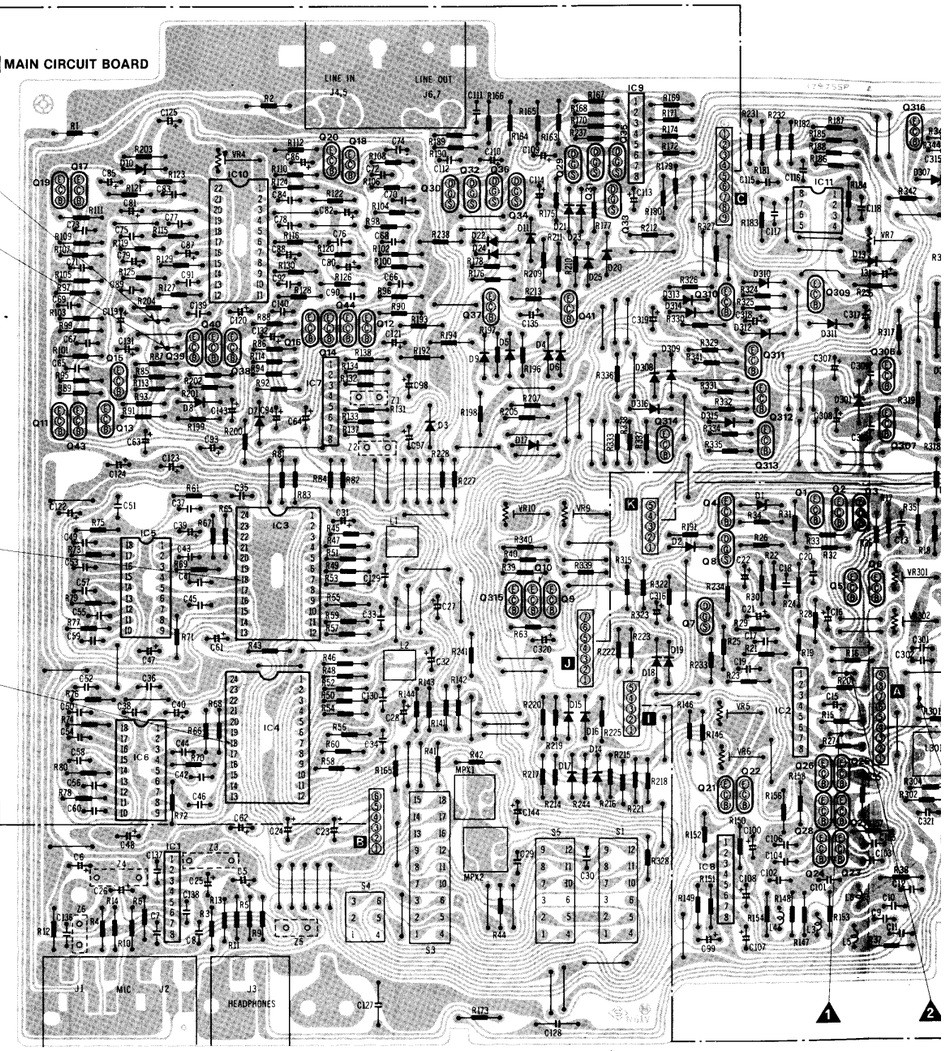
B	−11.03V (−11.01V) disc −10.38V
C	10.32V disc −11.09V
E	−10.99V (−11.04V)



II FL METER CIRCUIT BOARD



V SLIDE VOLUME CIRCUIT BOARD



I MAIN CIRCUIT BOARD

Q301 [2SD1225]

B	−4.83V (−3.73V)
C	−4.82V (1.19V)
E	−4.84V (−4.11V)

Q302 [2SD638]

B	−4.37V (1.91V)
C	−4.38V (10.28V)
E	−4.82V (1.27V)

Q303 [2SB641]

B	−5.31V (−4.95V)
C	−11.07V (−11.05V)
E	−4.84V (−4.28V)

Q305 [2SD636]

B	0.01V (0.64V)
C	10.37V (0.05V)
E	0V

Q306 [2SD1265]

B	10.37V (10.36V)
C	12.85V (12.63V)
E	10.36V

Q307 [2SB941]

B	−11.67V (−11.66V)
C	−13.75V (−13.52V)
E	−11.07V (−11.05V)

Q308 [2SD1275]

B	5.09V
C	12.92V (12.77V)
E	6.38V

Q310 [2SD636]

B	0.01V (0V)
C	10.21V
E	0.01V (0V)

Q311 [2SD636]

B	−5.06V (−5.05V)
C	0.03V
E	0V

Q312 [2SB641]

B	10.36V
C	−11.04V (−11.03V)
E	10.36V

Q313 [2SB641]

B	9.59V (10.05V)
C	10.07V (0.09V)
E	10.36V

Q315 [2SB641]

B	10.33V
C	0V
E	10.3V

Q316 [2SD636]

B	4.1V
C	5.09V
E	6.38V

Q401 [2SD636]

B	−11.0V (−11.04V)
C	−6.25V (−6.29V)
E	−10.99V (−11.04V)

Q402 [2SB641]

B	−6.25V (−6.29V)
C	−11.00V (−11.04V)
E	−6.38V (−6.58V)

Q601 [2SD636]

B	0V
C	5.02V
E	0V

Q602 [2SD636]

B	———
C	———
E	0V

Q43, 44 [2SD636]

B	2.54V disc 0.04V
C	1.92V
E	1.92V

Q304 [2SB641]

B	10.37V (9.57V)
C	−4.38V (10.28V)
E	10.36V

Q309 [2SB641]

B	10.22V (10.19V)
C	−10.98V (−10.97V)
E	10.15V (10.20V)

Q314 [2SB641]

B	10.36V (9.62V)
C	−6.87V (10.17V)
E	10.36V

Q403 [2SD636]

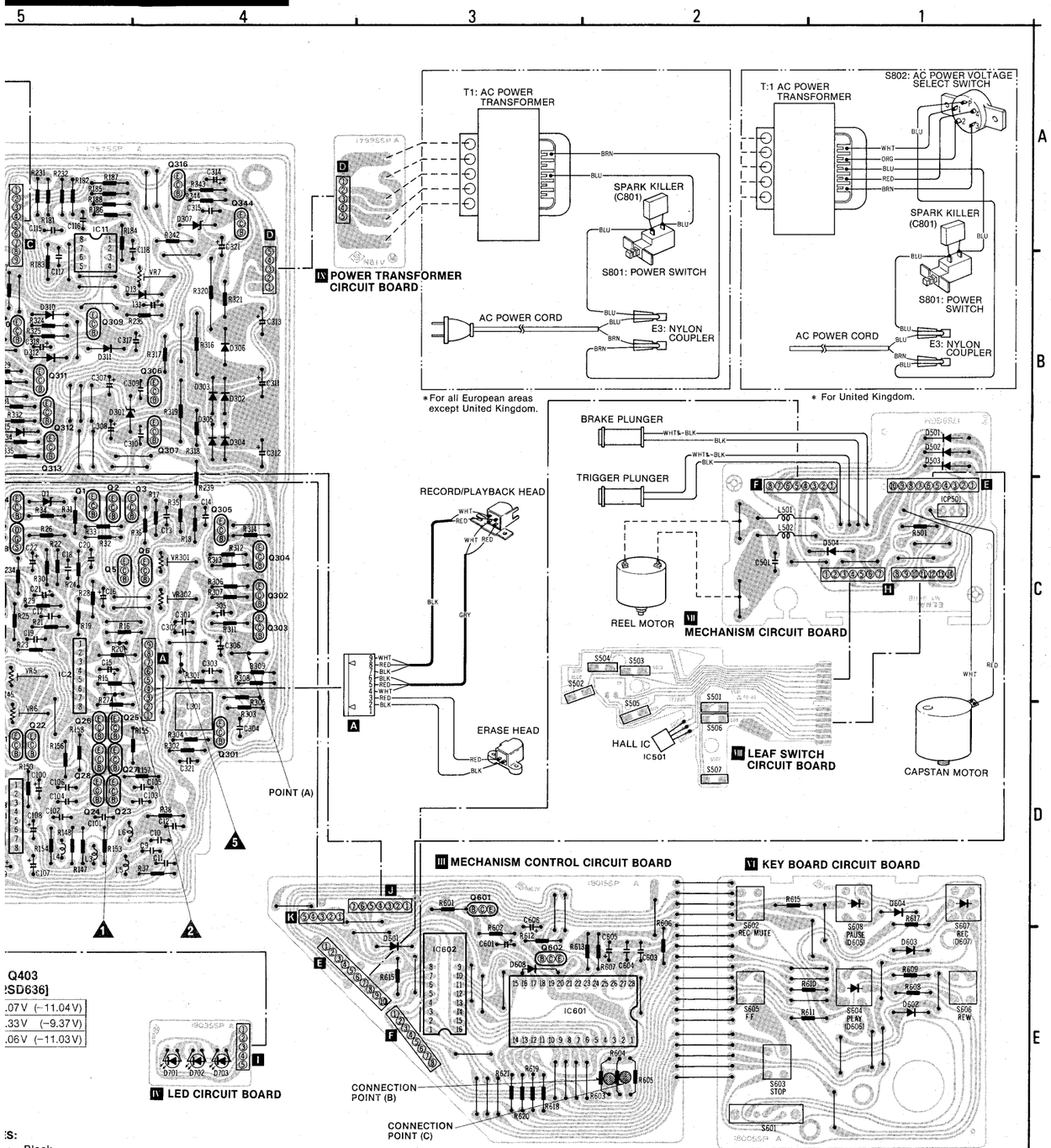
B	−11.07V (−11.04V)
C	−9.33V (−9.37V)
E	−11.06V (−11.03V)

IV LED C

NOTES:

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

RS-M235X



Q403
:SD636]
.07V (−11.04V)
.33V (−9.37V)
.06V (−11.03V)

:S:
.....Black
.....Blue
.....Brown
.....Gray
.....Green
J ....Light Blue
.....No Color Mark
.....Orange
.....Pink
.....Red
.....Shield Wire
.....Violet
.....White
.....Yellow

NOTES:

- The circuit shown in ▨ on the conductor side indicates printed circuit to the back side of the printed circuit board.
- Values indicated in ☐ are under no signal condition and playback mode with volume control at minimum position otherwise specified.
  No mark .....Voltage values at OUT (NR select switch) mode.
  ( ) .....Voltage values at record mode.
  disc .....Voltage values at dbx disc mode.

CrO_2 .....Voltage values at CrO_2 tape mode.
Metal .....Voltage values at Metal tape mode.
For measurement use VTVM.

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

REPLACEMENT PARTS LIST

Important safety notice
Components identified by ⚠ mark have special characteristics important for safety.
When replacing any of these components, use only manufacturer's specified parts.

NOTES: RESISTORS
ERD .....Carbon
ERG .....Metal-oxide
ERS.....Metal-oxide
ERO .....Metal-film
ERX.....Metal-film
ERQ .....Fuse type metallic
ERC .....Solid
ERF.....Cement

CAPACITORS
ECBA .....Ceramic
ECG□.....Ceramic
ECK□.....Ceramic
ECC□.....Ceramic
ECF□.....Ceramic
ECQM.....Polyester film
ECQE .....Polyester film
ECQF .....Polypropylene

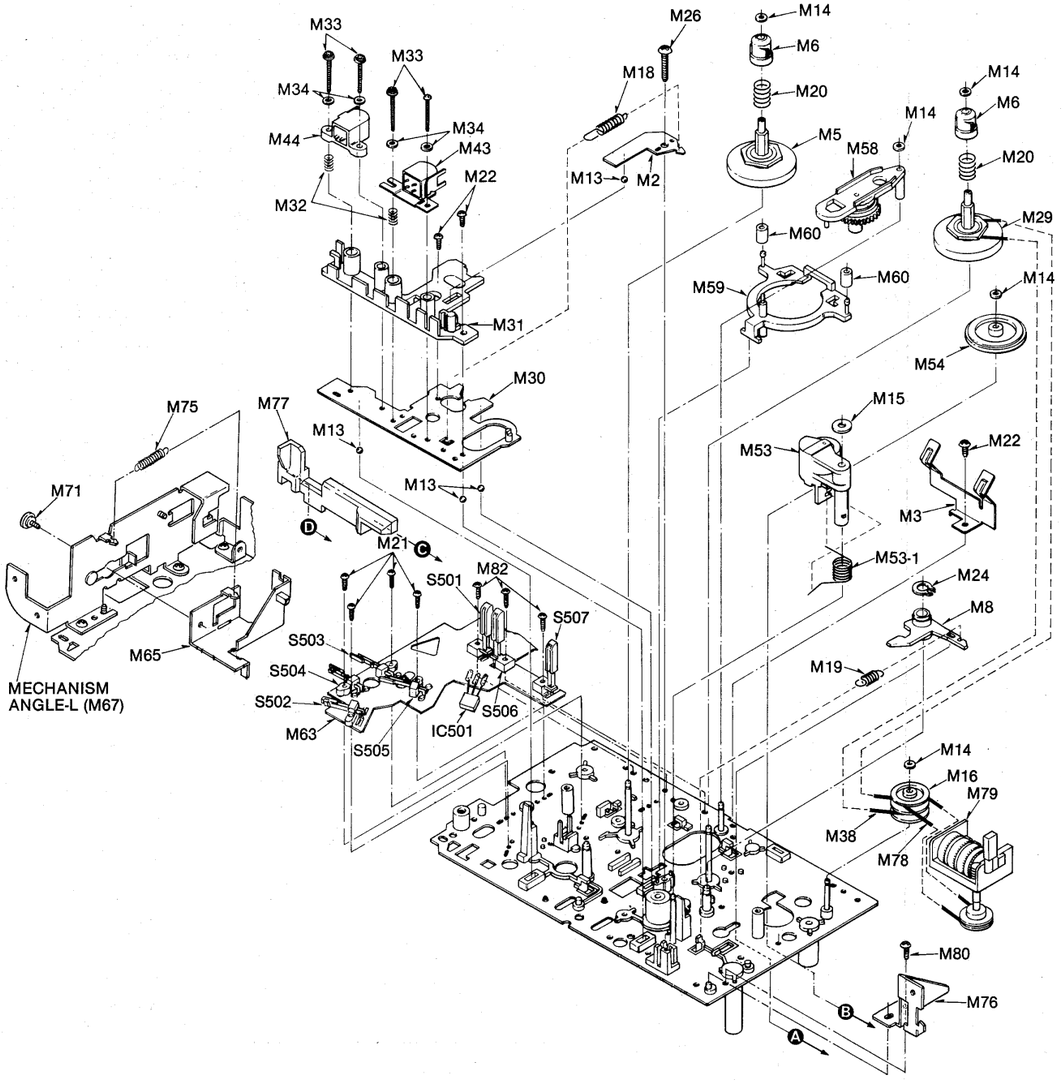
ECE□ .....Electrolytic
ECE□N ...Non polar electrolytic
ECQS .....Polystyrene
ECS□ .....Tantalum
QCS .....Tantalum

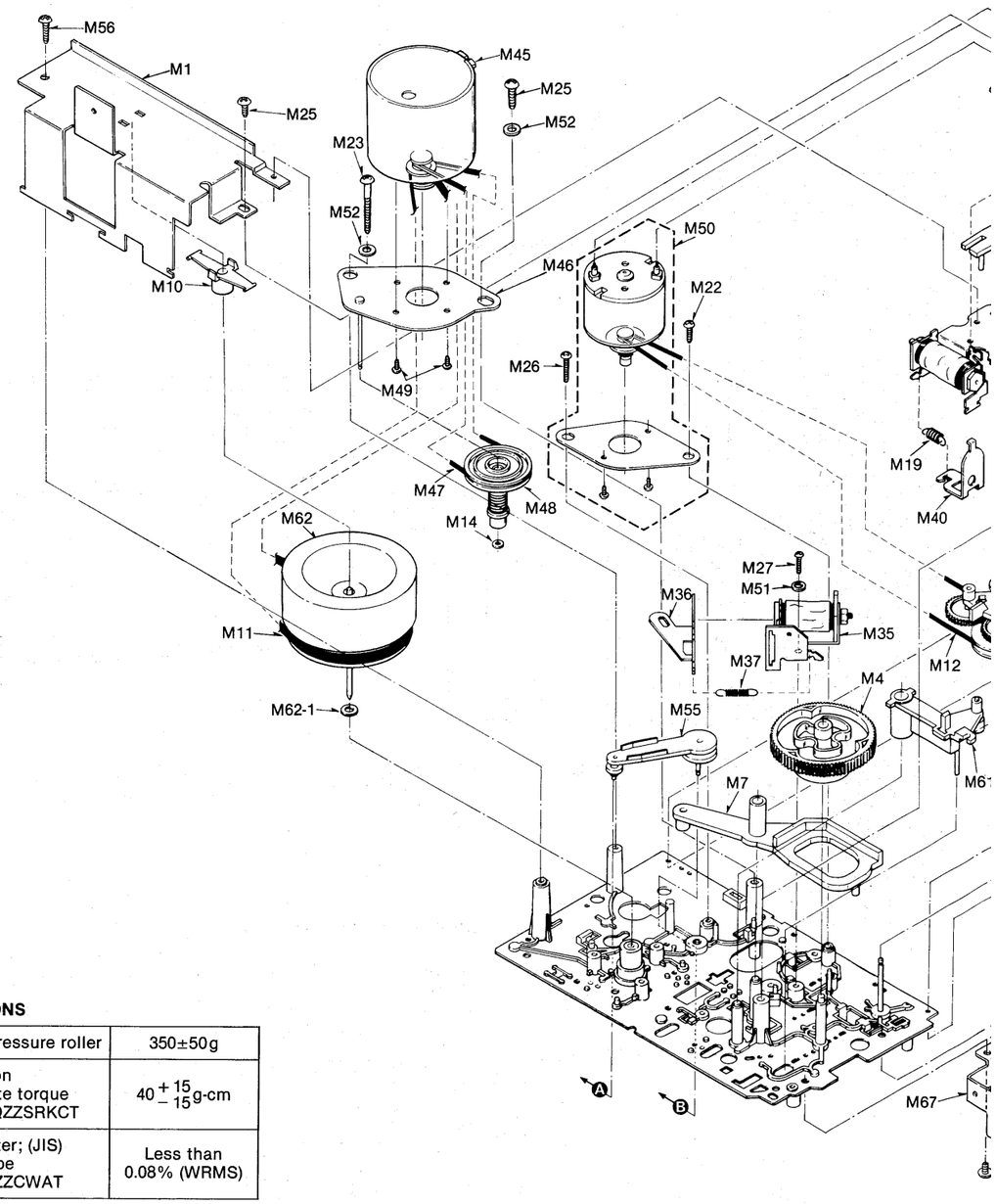
Ref No.	Part No.
RESISTORS	
R 1, 2	ERD25TJ273
R 3, 4	ERD25FJ102
R 5, 6	ERD25TJ273
R 9, 10	ERD25FJ102
R 11, 12	ERD25TJ224
R 13, 14	ERD25FJ472
R 15, 16	ERD25FJ100
R 17, 18	ERD25TJ104
R 19, 20	ERD25FJ101
R 21, 22	ERD25TJ824
R 23, 24	ERD25TJ183
R 25, 26	ERD25TJ123
R 27, 28	ERD25FJ391
R 29, 30	ERD25TJ104
R 31, 32	ERD25FJ472
R 33	ERD25FJ561
R 34	ERD25TJ223
R 35, 36	ERD25FJ102
R 37, 38	ERD25TJ123
R 39, 40	ERD25FJ151
R 41, 42	ERD25FJ272
R 43, 44	ERD25FJ472
R 45, 46	ERD25FJ101
R 47, 48	ERD25FJ512
R 49, 50	ERD25FJ103
R 51, 52	ERD25FJ102
R 53, 54	ERD25TJ224
R 55, 56	ERD25TJ683
R 57, 58	ERD25FJ512
R 59, 60	ERD25FJ222
R 61, 62	ERD25TJ823
R 63	ERD25TJ103
R 65, 66	ERD25FJ472
R 67, 68	ERD25TJ123
R 69, 70	ERD25TJ473
R 71, 72	ERD25TJ753
R 73, 74	ERD25TJ334
R 75, 76, 77, 78	ERD25TJ394
R 79, 80	ERD25TJ334
R 81	ERD25TJ153
R 82	ERD25TJ153
R 83, 84	ERD25FJ102
R 85, 86, 87, 88	ERD25TJ104
R 89, 90	ERD25FJ332
R 91, 92, 93, 94	ERD25TJ223
R 95, 96	ERD25FJ822
R 97, 98	ERD25TJ333
R 99, 100	ERD25TJ154
R 101, 102	ERD25TJ244
R 103, 104	ERD25FJ472
R 105, 106	ERD25TJ333
R 107, 108	ERD25FJ682
R 109, 110, 111, 112	ERD25FJ332
R 113, 114	ERD25TJ223
R 115, 116	ERD25FJ472
R 119, 120	ERD25TJ163
R 121, 122	ERD25FJ102
R 123, 124	ERD25FJ103
R 125, 126	ERD25FJ151
R 127, 128	ERD25FJ472
R 129, 130	ERD25TJ163
R 131, 132	ERD25TJ104
R 133, 134	ERD25FJ102
R 137, 138	ERD25FJ331
R 141, 142	ERD25FJ272
R 143, 144	ERD25FJ682
R 145, 146	ERD25FJ821
R 147, 148	ERD25FJ122
R 149, 150, 151, 152	ERD25FJ822
R 153, 154	ERD25FJ820
R 155, 156	ERD25FJ222
R 157, 158	ERD25FJ392
R 163, 164, 165, 166	ERD25FJ103
R 167, 168, 169, 170	ERD25TJ473
R 171, 172	ERD25TJ104
R 173, 174 ⚠	ERD25FJ121
R 175, 176, 177, 178	ERD25TJ225
R 181, 182	ERD25TJ273
R 183, 184	ERD25TJ154
R 185, 186, 187, 188	ERD25TJ223
R 189, 190	ERD25FJ102
R 191	ERD25FJ221
R 192	ERD25TJ104
R 193	ERD25FJ103
R 194	ERD25FJ102
R 195	ERD25FJ332
R 196 197	ERD25TJ563
R 198	ERD25TJ104
R 199	ERD25TJ563
R 200	ERD25FJ222
R 201, 202	ERD25TJ563
R 203	ERD25FJ151
R 204	ERD25FJ102
R 205, 207	ERG2ANJ560
R 209	ERD25FJ103
R 211	ERD25FJ182
R 212	ERD25TJ225
R 213	ERD25TJ684
R 213	ERD25TJ223
R 214	ERD25FJ332
R 215	ERD25TJ104
R 216	ERD25TJ154
R 217, 218, 219	ERD25FJ103
R 220	ERD25TJ563
R 221	ERD25TJ333
R 222	ERD25FJ471
R 223	ERD25FJ561
R 224	ERD25FJ821
R 225	ERD25FJ152
R 227 228	ERD25FJ221
R 231, 232	ERD25TJ273
R 233, 234	ERD25TJ225
R 235	ERD25FJ472
R 237, 238, 239	ERD25FJ103
R 240	ERD25FJ181
R 241	ERD25FJ561
R 242	ERD25TJ684
R 243	ERD25FJ103
R 301	ERD25FJ1R0
R 302	ERD25FJ100
R 303, 304	ERD25FJ562
R 305, 306	ERD25FJ100
R 307	ERD25FJ222
R 308	ERD25FJ332
R 309	ERD25FJ392
R 311	ERD25FJ222
R 312	ERD25FJ562
R 313	ERD25TJ473
R 314, 315	ERD25TJ563
R 316 ⚠	ERQ12HJ3R9
R 317, 318 ⚠	ERD25FJ681
R 319 ⚠	ERQ12HJ3R9
R 320	ERX2ANJ8R2
R 321 ⚠	ERD25FJ102
R 322 ⚠	ERD25FJ103
R 323	ERD25FJ472
R 324	ERD25TJ104
R 325	ERD25TJ473
R 326	ERD25TJ223
R 327	ERD25FJ272
R 328	ERD25TJ104
R 329	ERD25FJ472
R 330	ERD25TJ104
R 331	ERD25TJ683
R 332, 333	ERD25TJ104
R 334	ERD25FJ682
R 335, 336	ERD25FJ103
R 337, 338, 339, 340	ERD25TJ563
R 341	ERD25TJ104
R 342	ERD25TJ153
R 343	ERD25FJ103
R 344	ERD25FJ470
R 401	ERD25FJ182
R 402	ERD25TJ563
R 403	ERD25TJ393
R 404	ERD25TJ563
R 405, 406	ERD25FJ222
R 407, 408	ERD25TJ684
R 409, 410	ERD50FJ271
R 411	ERD25TJ684
R 412	ERD25FJ471
R 413	ERG1ANJ221
R 414	ERD25FJ472
R 415, 416	ERD25FJ103
R 417	ERD25FJ222
R 501	ERD25TJ473
R 601	ERD25FJ103
R 602	ERD25TJ223
R 603	ERD25TJ153
R 604	ERD25TJ333
R 605	ERD25TJ563
R 606, 607	ERD25FJ392
R 608, 609, 610, 611	ERD25FJ562
R 612	ERD25FJ103
R 613	ERD25FJ273
R 615	ERD25FJ1R0
R 616	ERD25FJ681
R 617	ERD25FJ821
R 618, 619, 620, 621	ERD25FJ471
VARIABLE RESISTORS	
VR 1, 2	QVBP1PUA54
VR 3	QVAV5KUG15
VR 4	EVNM4AA00B23
VR 5, 6	EVNM4AA00B24
VR 7	EVNM4AA00B13
VR 9, 10	EVNM4AA00B24
VR 301, 302	EVNM4AA00B15
VR 401	EVNM4AA00B24
CAPACITORS	
C 5, 6	ECEA50Z1
C 7, 8	ECFDD223KVY
C 9, 10	ECKD2H121KB
C 11, 12	ECKD1H561KB
C 13, 14	ECKD1H471KB
C 15, 16	ECEA1AS470
C 17, 18	ECQM1H392JZ
C 19, 20	ECCD1H470KC
C 21, 22	ECEA50Z1
C 23, 24	ECQV05224JZ
C 25, 26	ECEA25Z4R7
C 27, 28	ECEA50Z1
C 29, 30	ECFDD392KVY
C 31, 32	ECEA25Z4R7
C 33, 34	ECQM1H103JZ
C 35, 36	ECQM1H683JZ
C 37, 38	ECQV05154JZ
C 39, 40	ECEA1HS100
C 41, 42	ECQM1H333JZ
C 43, 44, 45, 46	ECQM1H472JZ
C 47, 48	ECEA1HS100
C 49, 50	ECQM1H473JZ
C 51, 52	ECQM1H333JZ
C 53, 54, 55, 56	ECQM1H104JZ
C 57, 58	ECQM1H333JZ
C 59, 60	ECQV05224JZ
C 61, 62	ECEA25Z4R7
C 63, 64	ECEA50ZR22
C 65, 66, 67, 68	ECQV05104JZ
C 69, 70, 71, 72	ECQM1H332JZ
C 73, 74	ECCD1H331J
C 75, 76	ECQM1H223JZ
C 77, 78	ECCD1H391J
C 79, 80	ECEA50MR68R
C 81, 82	ECEA1HS100
C 83, 84	ECQM1H333JZ
C 85, 86	ECEA50MR47R
C 87, 88	ECEA1AS101
C 89, 90	ECQM1H472JZ
C 91, 92	ECQM1H223JZ
C 93, 94, 97, 98	ECEA1HS100
C 99, 100	ECEA50ZR47
C 101, 102	ECQM1H223JZ
C 103, 104	ECFDD123KXY
C 105, 106	ECFDD223KVY
C 107, 108	ECEA50Z1
C 109, 110	ECEA1HS100
C 111, 112	ECFDD392KVY
C 113, 114	ECQV05104JZ
C 115, 116	ECFDD152KVY
C 117, 118	ECCD1H560K
C 119	ECEA1HS100
C 120, 121	ECEA50Z1
C 122	ECEA1HS100
C 123	ECEA1ASS471
C 124	ECEA1AS101
C 125	ECEA1AS331
C 127, 128	ECBS1C103NYY
C 129, 130	ECKD1H681KB
C 131, 132	ECEA1HS100
C 133	ECEA25Z4R7
C 135	ECEA1HS100
C 136	ECFDD103KVY
C 137, 138	ECCD1H820K
C 139, 140	ECCD1H331J
C 143	ECEA1HS100
C 144	ECEA1AS221
C 301, 302	ECCD1H101K
C 303	ECQP1183JZ
C 304	ECFDD822KVY
C 305	ECEA25Z4R7
C 306	ECEA1ES220
C 307	ECEA1CS330
C 308	ECEA1CSS331
C 309, 310	ECKD1H223ZF
C 311 ⚠	ECEA1ES332
C 312, 313 ⚠	ECEA1CS222
C 314	ECEA1ES220
C 315	ECKD1H223ZF
C 316	ECEA1ES220
C 317	ECEA1CS221
C 318	ECEA50Z1
C 319	ECEA1CS330
C 320	ECEA50Z1
C 321	ECFDD153KXY
C 322	ECEA1CS330
C 401, 402	ECEA50Z1
C 403	ECFDD473KXY
C 404	ECEA1HS100
C 405, 406	ECQM1H104JZ
C 501	ECEA1CN100
C 601	EDEA50ZR1
C 603	ECCD1H331K
C 604	ECKD1H333ZF
C 605	ECEA1AS470
C 606	ECEA50Z2R2
C 801 ⚠	ECQU2A103MF
COMBINTATION PARTS	
Z 1, 2	EXRP181K153
Z 3, 4	EXRP220K124
Z 5, 6	EXRP152K473
TRANSISTORS	
Q 1, 2, 3	2SD1011
Q 4	2SA921
Q 5, 6	2SD636
Q 7, 8	2SK246
Q 9, 10, 11, 12, 13, 14, 15, 16	2SD636
Q 17, 18	2SD661
Q 19, 20, 21, 22	2SD636
Q 23, 24	2SB641
Q 25, 26, 27, 28	2SD636
Q 29, 30, 31, 32, 33, 34, 35, 36	2SJ103
Q 37	2SB641
Q 38	2SD636
Q 40	2SB641
Q 41, 43, 44	2SD636
Q 49	2SB641
Q 301	2SD1225
Q 302	2SD638
Q 303, 304	2SB641
Q 305	2SD636
Q 306	2SD1265
Q 307	2SB941
Q 308	2SD1275
Q 309	2SB641
Q 310, 311	2SD636
Q 312, 313, 314, 315	2SB641
Q 316, 401	2SD636
Q 402	2SB641
Q 403	2SD636
Q 601, 602	2SD636
DIODES & RECTIFIERS	
D 1	RVDRD6R2EB
D 2, 3, 4, 5, 6, 7, 8, 9	MA161
D 10	MA1051M
D 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25	MA161
D 301	MA1220M
D 302, 303, 304, 305, 306 ⚠	SM112
D 307	RVDRD6R2EB
D 308, 309, 310, 311, 312, 313, 314, 315, 316	MA161
D 401, 402, 403, 404, 405	MA161
D 501, 502, 503, 504	MA161
D 601, 602, 603, 604	MA161
D 608	MA161
D 701	LN416YP
D 702	LN316GP
D 703	LN216RP

Ref No.	Part No.
INTEGRATED CIRCUITS	
IC 1	M5218L
IC 2	M5220L
IC 3, 4	NE654N
IC 5, 6	NE652N
IC 7, 8, 9	M5218L
IC 10	AN6291
IC 11	AN6552
IC 401	AN6870N
IC 501	DN6838
IC 601	MN14001RMA
IC 602	AN6270
IC PROTECTOR	
ICP 501	QRUF10WH

Ref. No.	Part No.	Part Name & Description
		MULTIPLEX FILTERS
MPX 1, 2	QLM9Z9K	Coil
		COILS
L 1, 2	ELM7Q306A	Skewing Network
L 3, 4	QLQX2721D	Peaking Coil
L 5, 6	QLQX0343KWA	Bias Trap Coil
L 301	QLB0198	Bias Oscillation Coil
L 501, 502	QLQZ1014D	Choke Coil
		TRANSFORMERS
T 1 [B] ⚠	QLPA69ELX	AC Power Transformer [For United Kingdom]
[D] ⚠	QLPD74EIX	AC Power Transformer [For all Eulopean areas except United Kingdom]
		SWITCHES
S 1, 2, 3, 4, 5	QSWX413A	Push Switch (NR Selectar/NR MUTE)
S 501	QSB0289	Leaf Switch (REC Inhibit)
S 502, 503	QSB0287	Leaf Switch (Mode/Play)
S 504, 505	QSB0288	Leaf Switch (Stop/Half)
S 506	QSB0290	Leaf Switch (for Normal Tape)
S 507	QSB0289	Leaf Switch (for CrO2/Metal)
S 601	QSS1305	Slide Switch (Timer)
S 602, 603	SSG13	Key Board Switch (Rec Mute/Stop)
S 604	QSW1125	Key Board Switch with D606 (Play)
S 605, 606	SSG13	Key Board Switch (F.F/REW)
S 607	QSW1124	Key Board Switch with D607 (Record)
S 608	QSW1126	Key Board Switch with D605 (Pause)
S 801 ⚠	QSW1127	Push Switch (Power ON/OFF)
S 802 [B] ⚠	QSR1407H	Rotary Switch (AC Power Voltage Selector) [For United Kingdom]
		JACKS
J 1, 2	QJA0542	Microphone Jack
J 3	QJA0266	HeadPhone Jack
J 4, 5, 6, 7	QEJ5030C	Jack Board (LINE IN/OUT)

MECHANICAL PARTS LOCATION



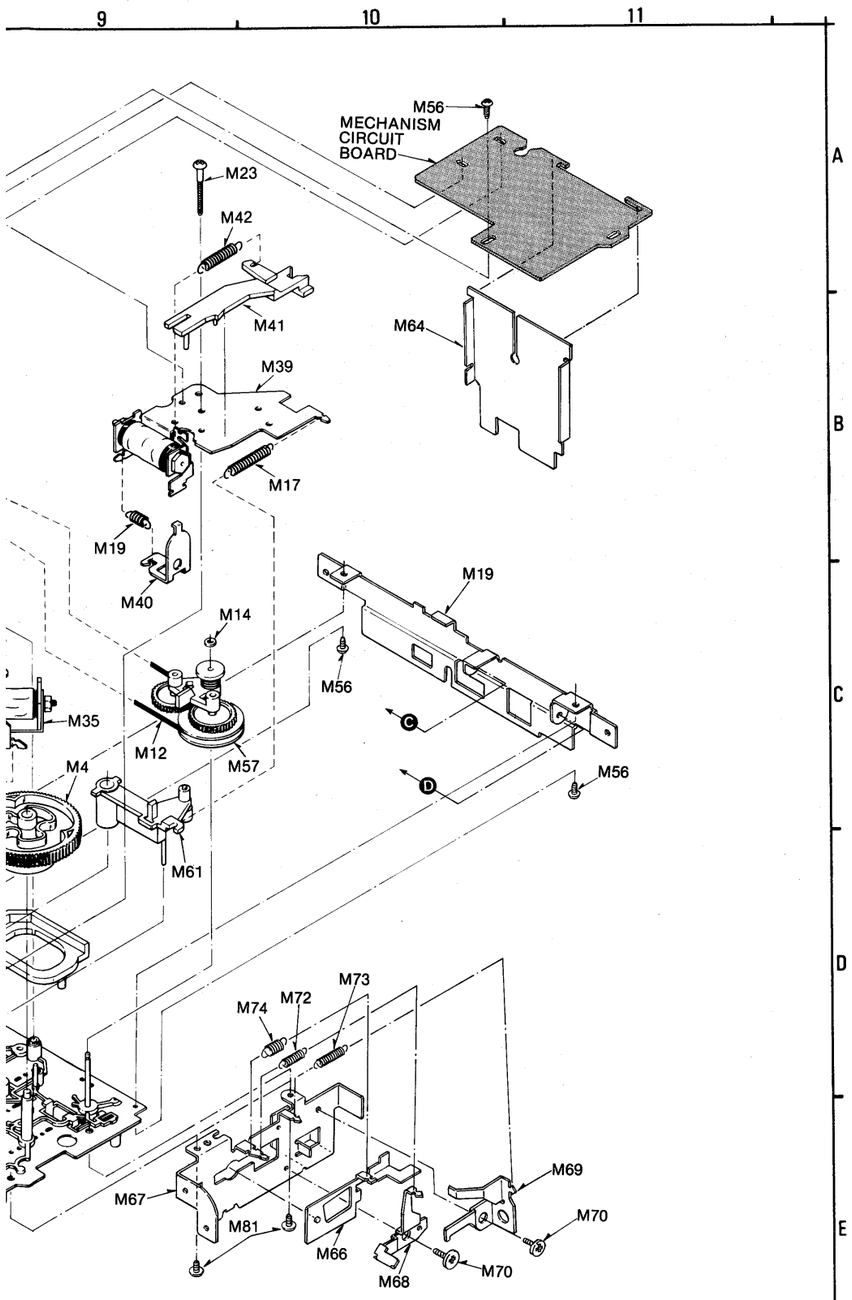


SPECIFICATIONS

Pressure of pressure roller	350±50g
Takeup tension * Use cassette torque meter.....QZZSRKCT	40^{+15}_{-15}g-cm
Wow and flutter; (JIS) * Use test tape .....QZZCWAT	Less than 0.08% (WRMS)

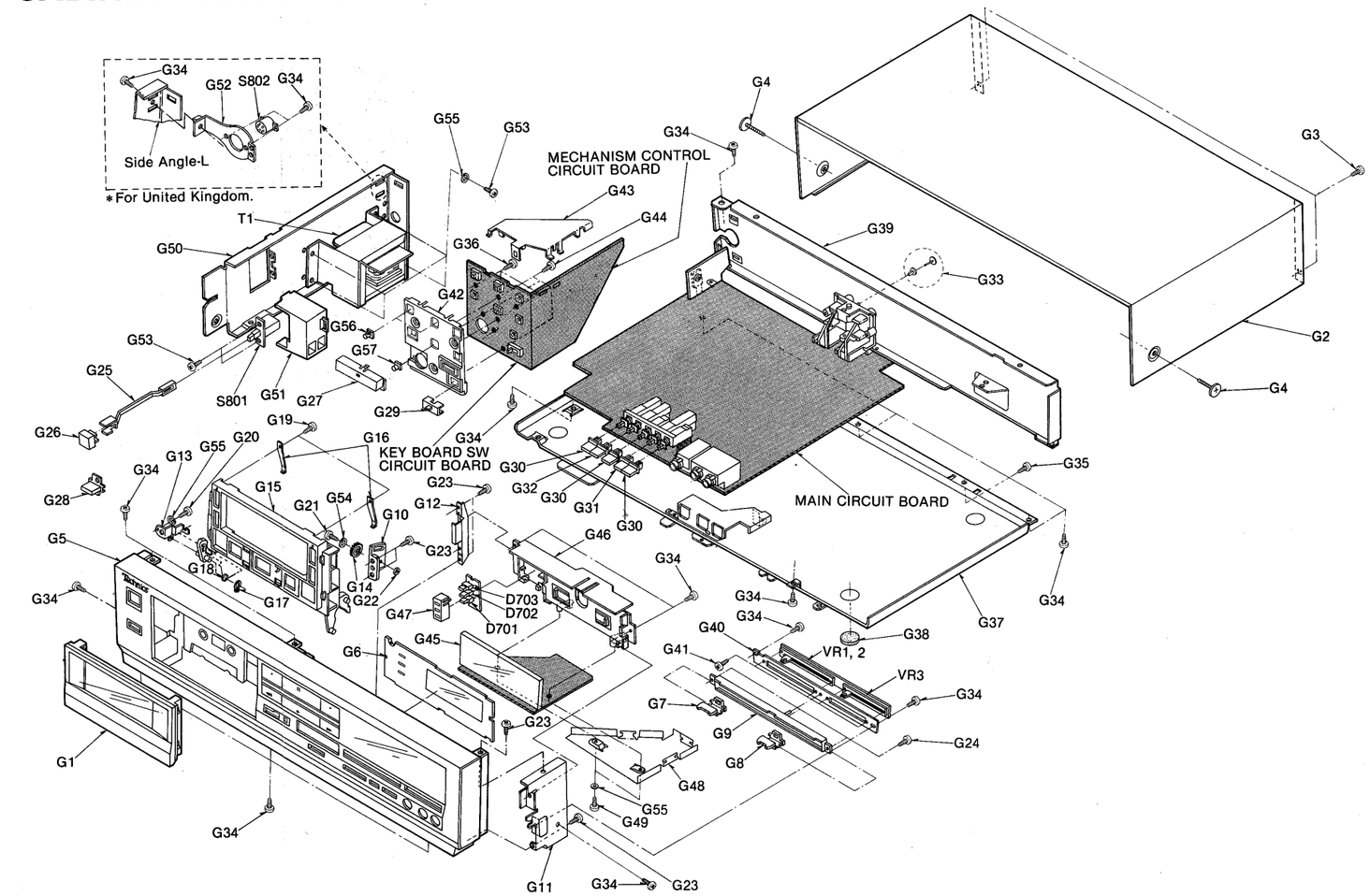
REPLACEMENT PARTS LIST

Ref No.	Part No.	Part Name & Description
		MECHANIAL PARTS
M 1	QMA4528	Flywheel Retainer
M 2	QBP1894	Head Base Plate Spring
M 3	QBP1979	Cassette Pressure Spring
M 4	QXG1059	Main Gear Assembly
M 5	QXD0147	Supply Reel Table
M 6	QMB1336	Reel Table Hub
M 7	QML3655	Cam Follower
M 8	QML3660	Idler Select Lever
M 9	QMA4543	Mechanism Upper Angle
M 10	QMZ1293	Flywheel Thrust Retaimer
M 11	QDB0333	Flywheel Belt
M 12	QDB0287	Changing Belt
M 13	QDK1012	Steel Ball 2.5×
M 14	QBW2008	Snap Washer
M 15	QBW2046	Snap Washer
M 16	QDP1946	Intermediate Pulley
M 17	QBT1725	Lock Lever Spring
M 18	QBT1927	Head Base Plate Spring
M 19	QBT1920	Idler Spring
M 20	QBC1373	Reel Table Spring
M 21	XTN2+5B	Tapping Screw ⊕2×5
M 22	XTN26+6B	Tapping Screw ⊕2.6×6
M 23	XTN3+24B	Tapping Screw ⊕3×24
M 24	XUB4FT	Stop Ring 4φ
M 25	XTN3+10B	Tapping Screw ⊕3×10
M 26	XTN26+12B	Tapping Screw ⊕2.6×12
M 27	XTN26+8B	Tapping Screw ⊕2.6×8
M 29	QDR1164	Takeup Reel Table
M 30	QMK1867	Head Base Plate
M 31	QMZ1263	Spacer
M 32	QBC1103	Spring
M 33	XSN2+16	Screw ⊕2×16
M 34	XWG2	Washer 2φ
M 35	QXA1232	Brake Plunger Assembly
M 36	QML3865	Plunger Lever
M 37	QBT1955	Plunger Spring
M 38	QDB0167	Counter Belt-A
M 39	QXA1076	Trigger Plunger Assembly
M 40	QML3651	Trigger Plunger Lever
M 41	QML3653	Control Lever
M 42	QBT1278	Record Lock Lever Spring
M 43	refer to E1	Record/Playback Head
M 44	refer to E2	Erase Head
M 45	QXU0322	Capstan Motor Assembly
M 46	QXA1328	Motor Retainer Assembly
M 47	QDB0332	Takeup Belt
M 48	QXP0621	Takeup Pulley Assembly
M 49	XSN26+3	Screw ⊕2.6×3
M 50	QXU0321	Reel Motor Assembly
M 51	XWG26	Washer 2.6φ
M 52	XWG3	Washer 3φ
M 53	QXL1550	Pressure Roller Assembly
M 53-1	QBN1771	Pressure Roller Spring
M 54	QXI0113	Takeup Idler Assembly
M 55	QXL1603	Idler Lever Assembly
M 56	XTN3+6B	Tapping Screw ⊕3×6
M 57	QXL1408	Swing Gear Assembly
M 58	QXL1604	Fast Wind Gear Assembly
M 59	QML3659	Brake Lever
M 60	QBG1132	Brake Rubber
M 61	QXL1411	Lock Lever Assembly
M 62	QXF0211	Flywheel Assembly
M 62-1	QBW2099	Poly Washer
M 63	QJI1776RR	Leaf Switch P.C.B.
M 64	QTW1315	Insulating Plate
M 65	QXL1600	Lock Lever-C Assembly
M 66	QXL1601	Lock Lever-B Assembly
M 67	QMA4555	Mechanism Angle-L
M 68	QML3976	Eject Lever
M 69	QML3978	Mechanism Lever-A
M 70	QHQ1161	Step Screw
M 71	QHQ1168	Step Screw



Part Name & Description	Ref No.	Part No.	Part Name & Description
.ock Lever Assembly	M 72	QBT1947	Eject Lever Spring
·lywheel Assembly	M 73	QBT1948	Lock Lever-A Spring
'oly Washer	M 74	QBT1756	Lock Lever-B Spring
.eaf Switch P.C.B.	M 75	QBT1767	Lock Lever-C Spring
nsulating Plate	M 76	QMA4554	Mechanism Angle-R
.ock Lever-C Assembly	M 77	QML3972	Auto Tape Select Lever
.ock Lever-B Assembly	M 78	QDB0317	Counter Belt-B
Aechanism Angle-L	M 79	QXC0081	Counter Assembly
:ject Lever	M 80	XTN26 + 8B	Tapping Screw ⊕2.6×8
Aechanism Lever-A			
:tep Screw	M 81	XTN3 + 6B	Tapping Screw ⊕3×6
:tep Screw	M 82	XTN2 + 8B	Tapping Screw ⊕2×8

CABINET PARTS LOCATION



REPLACEMENT PARTS LIST

Ref No.	Part No.	Part Name & Description
	CABINET PARTS	
G 1	QYF0601 Silver Type	Cassette Lid
	QYF0601K Black Type	Cassette Lid
G 2	QGC1239 Silver Type	Case Cover
	QGC1239K Black Type	Case Cover
G 3	XTB3 + 8BFN Silver Type	Tapping Screw ⊕3×8
	XTB3 + 8BFZ Black Type	Tapping Screw ⊕3×8
G 4	SNE2095-2 Silver Type	Ornament Screw
	SNE2095-3 Black Type	Ornament Screw
G 5	QYP1141 Silver Type	Front Panel Assembly
	QYP1141K Black Type	Front Panel Assembly
G 6	QGL1179 Silver Type	Meter Filter
	QGL1179K Black Type	Meter Filter
G 7	QYT0657	Slide Knob-A Assembly
G 8	QYT0658	Slide Knob-B Assembly
G 9	QGG0208 Silver Type	Slide Guide
	QGG0208K Black Type	Slide Guide
G 10	QKJ0596	Damper Gear Holding Angle
G 11	QMA4551	Side Angle-R
G 12	QMA4550	Meter Holding Angle
G 13	QMA4552	Holder Angle-L
G 14	QDG1254	Damper Gear
G 15	QMH2098 Silver Type	Cassette Holder
	QMH2098k Black Type	Cassette Holder
G 16	QBP1946	Spring
G 17	XUB4FT	Stop Ring 4φ
G 18	QBN1961	Holder Spring
G 19	XTN26 + 5BFZ	Tapping Screw ⊕2.6×5
G 20	XTN3 + 8B	Tapping Screw ⊕3×8
G 21	XSN26 + 10	Tapping Screw ⊕2.6×10
G 22	XNG26E	Nut 2.6φ
G 23	XTB3 + 10BFN	Tapping Screw ⊕3×10
G 24	XTN26 + 8B	Tapping Screw ⊕2.6×8
G 25	QMR2059	Power Rod
G 26	QGO2142	Push Botton (Power ON/OFF)
G 27	QGO2140	Push Botton (STOP)
G 28	QGO2141	Push Botton (EJECT)
G 29	QGO2144	Push Botton (Timer)
G 30	QGO2145	Push Botton-A
G 31	QGO2146	Push Botton-B
G 32	QGO2147	Push Botton-C
G 33	QKJ0609	Nylon Ribet
G 34	XTB3 + 8BFN	Tapping Screw ⊕3×8
G 35	XTB3 + 12BFZ	Tapping Scrw ⊕3×12
G 36	XTB3 + 12BFN	Tapping Scrw ⊕3×12
G 37	QGC1240	Bottom Cover
G 38	QKA1086	Case Foot
G 39 [D]	QMK2022	Back Chassis
	[For all Eulopean areas except United Kingdom]	
[B]	QMK2026	Back Chassis
	[For all United Kingdom]	
G 40	QMA4557	Volume Angle
G 41	XSN2 + 3	Screw ⊕2×3
G 42	QMK2021	Operation Chassis
G 43	QMA4558	P.C.B. Angle
G 44	XTN26 + 8B	Tapping Screw ⊕2.6×8
G 45	QSiFL007F	FL Meter
G 46	QKJ0593	Meter Holder
G 47	QKJ0597	Led Holder
G 48	QTS1594	Shild Plate
G 49	XTN3 + 10B	Tapping Screw ⊕3×10
G 50	QMA4553	Side Angle-L
G 51	QKJ0598	Switch Cover (for S801)
G 52 [B]	QMA4603	Switch Angle (for S802)
	[For United Kingdom]	
G 53	XTN3 + 6B	Tapping Screw ⊕3×6
G 54	XWG26	Washer 2.6φ
G 55	XWG3	Washer 3φ
G 56	QKJ0634	LED Cover-A
G 57	QKJ0635	LED Cover-B
	ACCESSORIES	
A 1 [B]	QQT3391	Instruction Book
	[For United Kingdom]	
[D]	QQT3390	Instruction Book
	[For all Eulopean areas except United Kingdom]	
A 2	QEB0125	Connection Cord
	PACKINGS	
P 1	QPN4395	Inside Carton
P 2	QPA0701	Cushion-R
P 3	QPA0702	Cushion-L
P 4	QPS0434	Pad
P 5	QPA0712	Spacer
P 6	XZB40X60A02	Poly Sheet (for UNIT)
P 7	QPC0072	Poly Sheet (for AC Power Cord)

ARD
H.M D DK B BK
Printed in Japan