

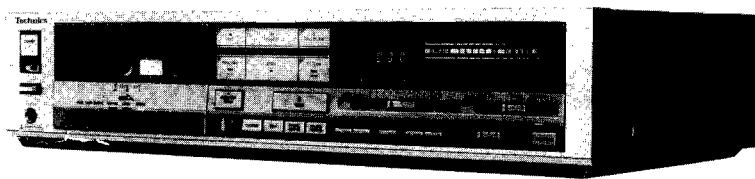
Service Manual

Cassette Deck

RS-M253X

(Silver Face)
(Black Face)

dbx/Dolby B-C 2 Motor 3 Head
Cassette Deck



RS-M253X in black is also available in some countries.

This is the Service Manual for the following areas.

- For all European areas except United Kingdom.
- For United Kingdom.
- For Asia, Latin America, Middle East and Africa areas.
- For Australia.

RS-M250 MECHANISM SERIES

Specifications

Track system:	4-track 2-channel stereo recording and playback	Fast forward and rewind:	30 seconds with C-60 tape
Tape speed:	4.8cm/s	Inputs:	sensitivity 0.25mV, applicable phone impedance 600Ω—10kΩ sensitivity 60mV, input impedance 47kΩ or more
Wow and flutter:	0.04% (WRMS), ±0.14% (DIN)	Outputs:	output level 400mV, output impedance 3.5kΩ or less
Frequency response:	Metal tape; 20—22,000Hz 20—21,000Hz (DIN) 30—19,000Hz±3dB CrO ₂ tape; 20—21,000Hz 20—20,000Hz (DIN) 30—18,000Hz±3dB Normal tape; 20—19,000Hz 20—18,000Hz (DIN) 30—17,000Hz±3dB	Bias frequency:	85kHz
Dynamic range:	110dB (at 1kHz) with dbx in	Heads:	3-head system 2-AX (AMORPHOUS) head for record/playback 1-double-gap sendust head for erasure
Max. input level improvement:	10dB or more improved with dbx in (at 1kHz)	Motor:	2-motor system
Signal-to-noise ratio:	dbx in; 92dB Dolby C NR in; 78dB (CCIR) Dolby B NR in; 70dB (CCIR) NR out; 60dB (Signal level = max. input level A weighted, CrO ₂ type tape)	Power requirements:	AC; 110/125/220/240V, 50-60 Hz Pre-set power voltage; <input type="checkbox"/> ; 220V <input type="checkbox"/> ; 240V
		Power consumption:	<input type="checkbox"/> ; 25W <input type="checkbox"/> ; 18W
		Dimensions:	43cm(W)×9.76cm(H)×27.3cm(D)
		Weight:	5.3kg

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 Licensing Corporation.

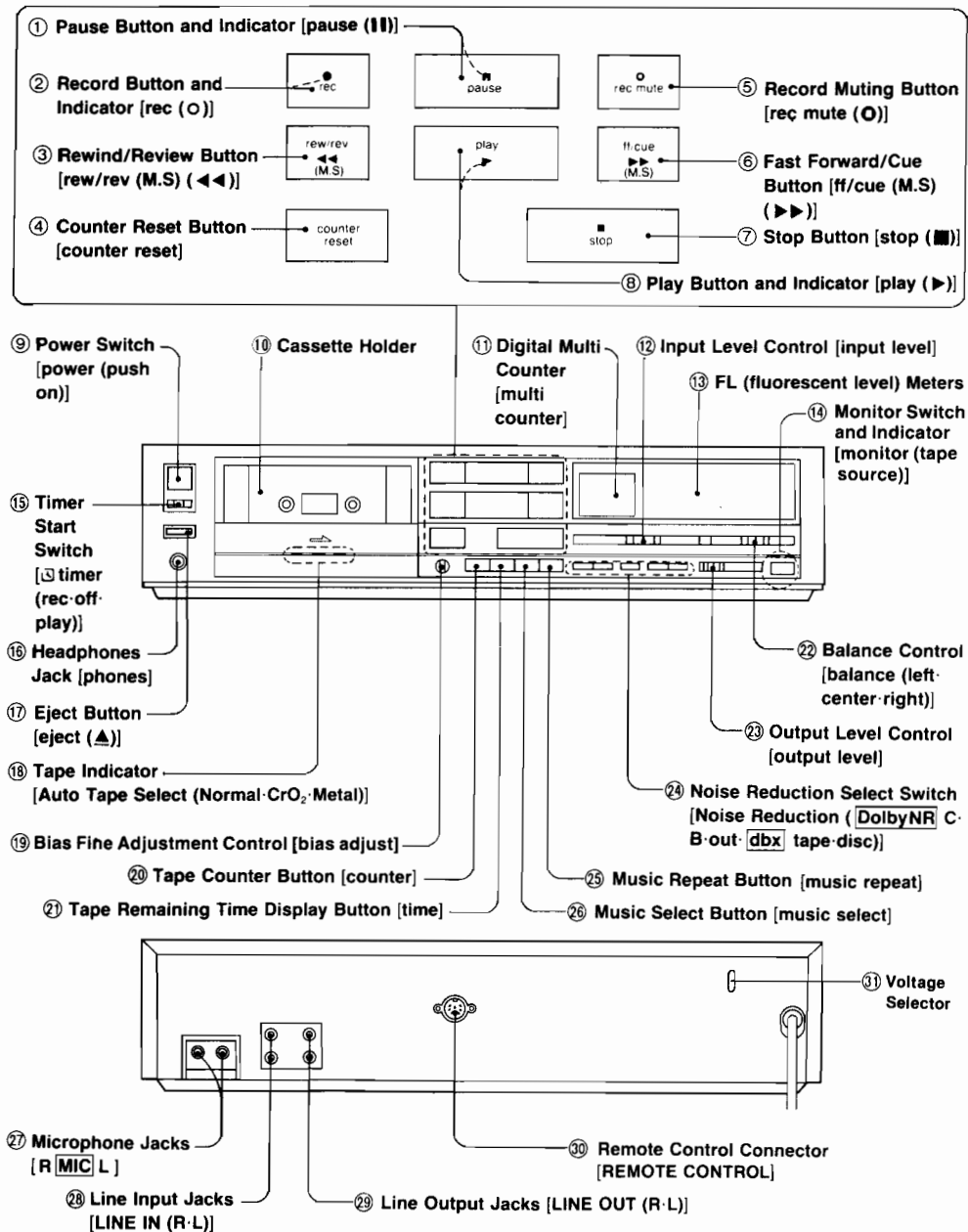
Technics

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

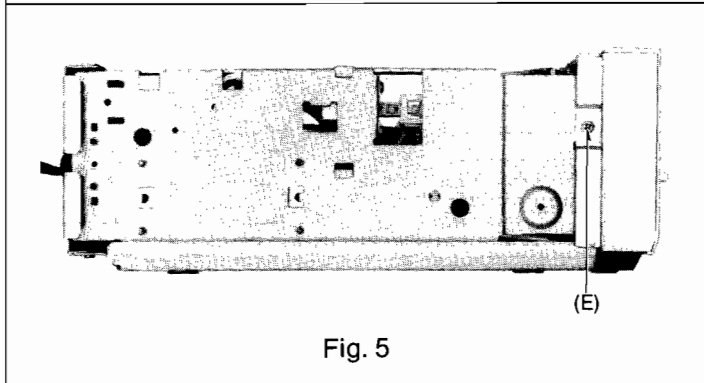
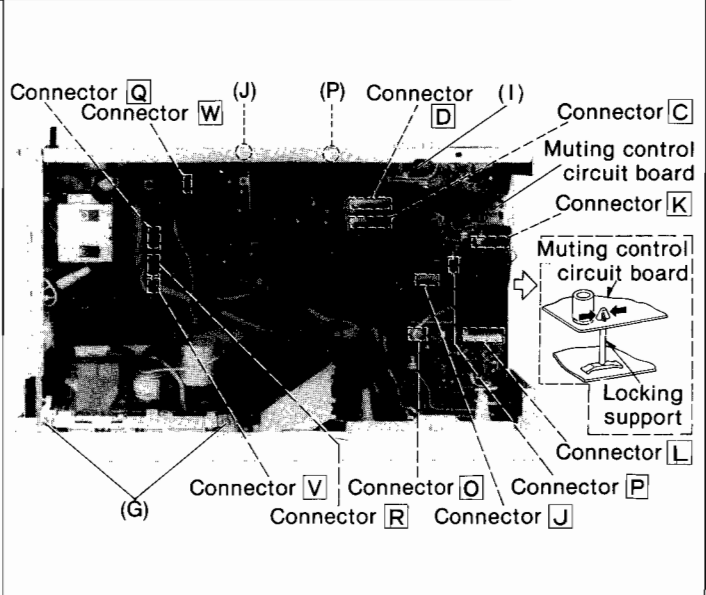
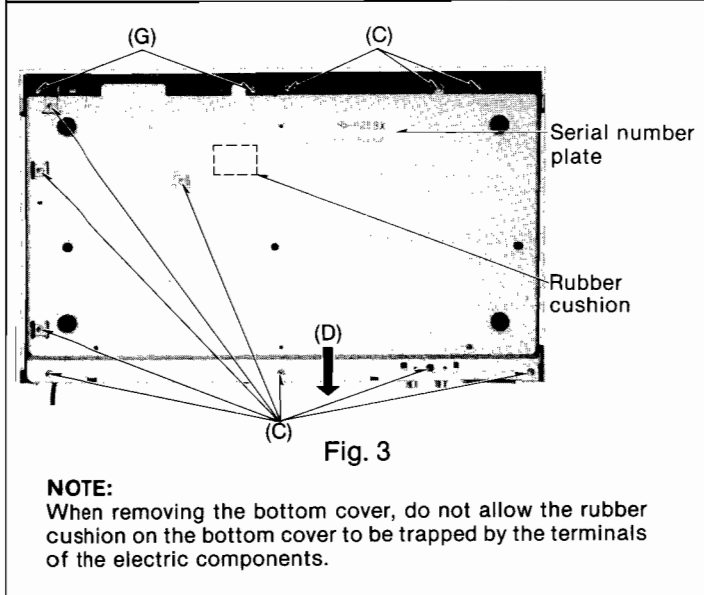
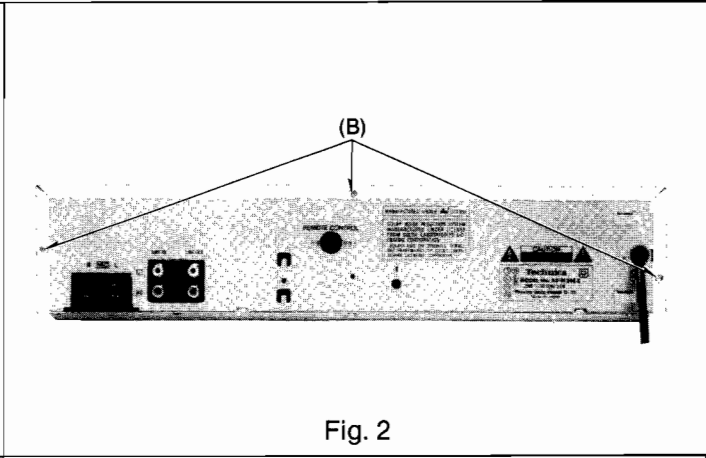
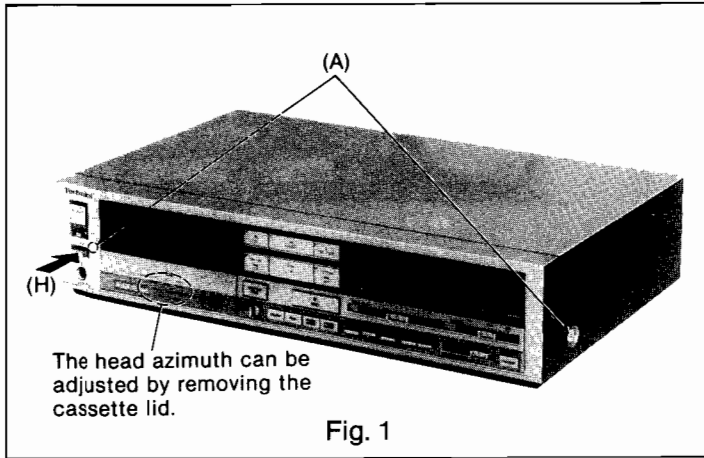
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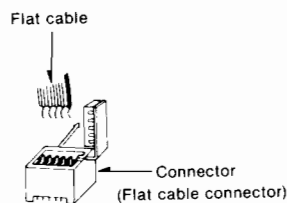
LOCATION OF CONTROLS AND COMPONENTS



DISASSEMBLY INSTRUCTIONS

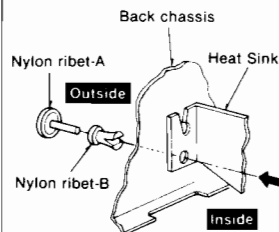


(F) How to remove flat cable



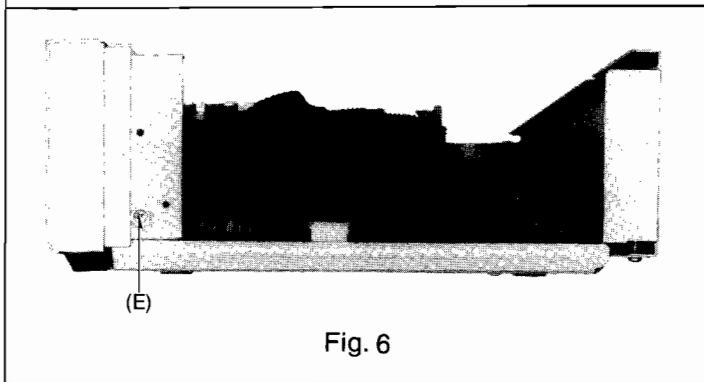
Open the lid of connector in the direction of the arrow as shown left, and extract the flat cable to disconnect.

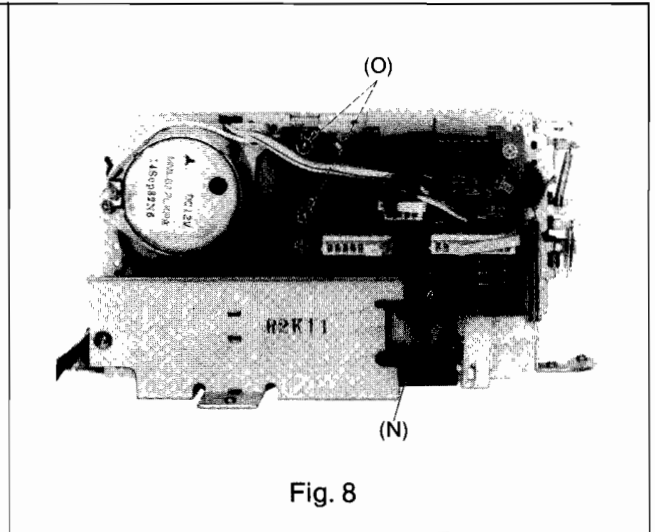
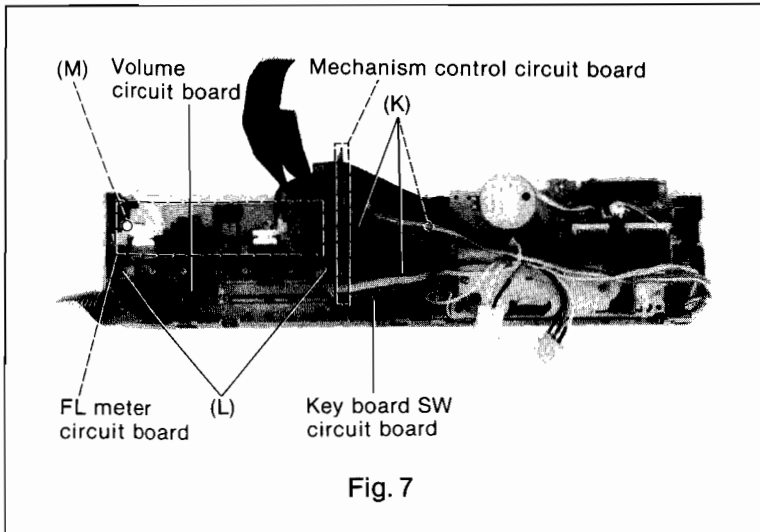
(J) (P) How to remove nylon rivet



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 left, and extract the rivet to the outside. Next remove nylon rivet-B from the outside. Consequently, the heat sink can be removed from the back chassis.

Fig. 4





Ref. No.	Procedure	To remove —.	Remove —.	Shown in fig. —.
1	1	Case cover	<ul style="list-style-type: none"> • 2 ornament screws(A) • 3 screws(B) 	1 2
2	2	Bottom cover assembly	<ul style="list-style-type: none"> • 11 screws(C) • Slide the bottom cover assembly in the direction of arrow (D) and remove it. 	3
3	1 → 2 → 3	Front panel assembly and Mechanism unit	<ul style="list-style-type: none"> • 2 screws(E) • How to remove flat cable(F) 	5, 6 4
4	1 → 2 → 3 → 4	Mechanism unit	<ul style="list-style-type: none"> • 4 screws(G) • Push the EJECT button to open the cassette holder(H) 	3, 4 1
5	1 → 2 → 3 → 5	Main circuit board	<ul style="list-style-type: none"> • 1 screw(I) • How to remove nylon rivet(J) 	4 4
6	1 → 2 → 3 → 6	Key board SW and Mechanism control circuit board	<ul style="list-style-type: none"> • 3 screws(K) 	7
7	1 → 2 → 3 → 7	Volume circuit board	<ul style="list-style-type: none"> • 2 screws(L) 	7
8	1 → 2 → 3 → 8	FL Meter and FL Meter circuit board	<ul style="list-style-type: none"> • 1 screw(M) 	7
9	1 → 2 → 3 → 9	Mechanism circuit board	<ul style="list-style-type: none"> • 1 screw(N) • Unsolder the soldered portion of the reel motor terminal (O) 	8 8
10	1 → 10	Muting control circuit board	<ul style="list-style-type: none"> • 1 screw(I) • How to remove nylon rivet(P) • Remove the locking support from the board while pushing its tip in the direction of arrow. 	4 4 4

*** Serial No. Indication.**

The serial number plate of this product is attached to the bottom cover (shown in Fig. 3).

DISASSEMBLY NOTES

When the bottom cover is removed for repair, measurement, or adjustment, the grounds of the mechanism chassis, back chassis, and side panel must be disconnected.

Otherwise, the auto tape selector will not operate normally and noise will be generated. To prevent these problems, use a cord to connect the mechanism chassis and the ground of the main circuit board.

OPERATING PRECAUTIONS

When the recorder is turned off during playback or music selection, the head base plate will not return. This prevents the cassette holder from opening. To open the cassette holder, turn on the recorder again (the head base plate will return) and press the EJECT button.

MEASUREMENT AND ADJUSTMENT METHODS

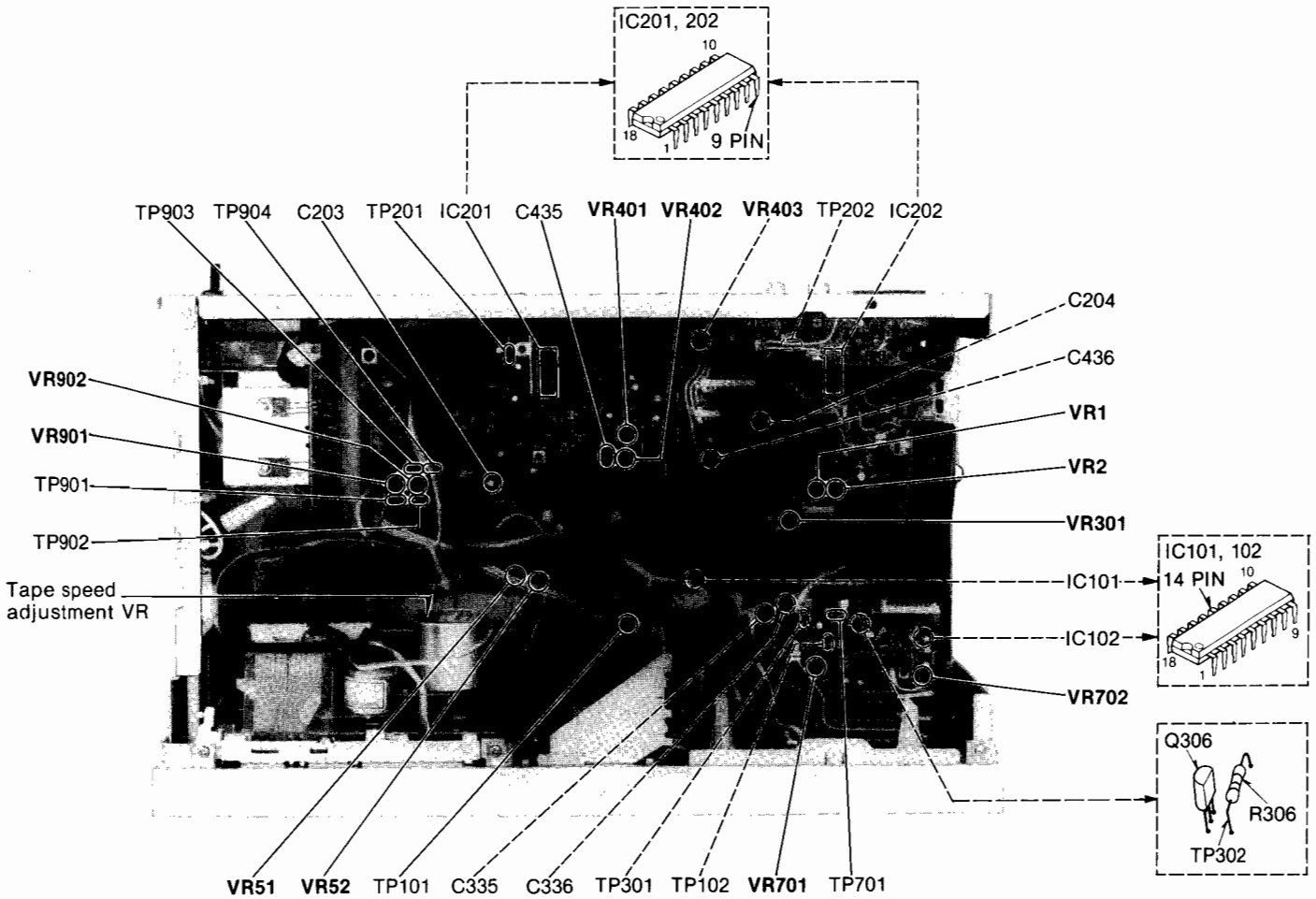


Fig. 1

- 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 $20 \pm 5^\circ\text{C}$ ($68 \pm 9^\circ\text{F}$)
 - Monitor selector: Tape
 - Input level controls: Maximum
 - Output level control: Maximum
 - Dolby NR selector: OUT
 - Bias fine adjust: Center
 - Balance control: Center

<p>A Erase head height adjustment</p>	<p>Condition:</p> <ul style="list-style-type: none"> • Playback mode 	<p>Equipment:</p> <ul style="list-style-type: none"> • Test tape (tape path viewer) ...QZZCRD
<p>Caution:</p> <ol style="list-style-type: none"> 1. Remove screws (A) and (B) to replace the erase head. (Do not remove nut (C) since it is provided for erase head height, adjustment). 2. After erase head replacement, check by playing test tape (QZZCRD) to see that the tape travels properly. 3. For any tape travel performance problem, follow the procedure below for adjustment. 		
<p>Adjustment</p> <ol style="list-style-type: none"> 1. Adjust nut (C) shown in fig. 2 so that the tape may not get curled or malformed by tape guide of the erase head. 		
<p>Head Height Adjustment using the Head Adjustment Jig (QZZ0207)</p> <p>The head adjustment jig (QZZ0207) enables accurate, speedy head height adjustment in the following manner.</p> <ol style="list-style-type: none"> a. Install the plate on the mechanism. b. Set the mechanism in the PLAY mode. c. Place the check bar on the plate. d. Pass the check bar through the tape guides. e. Adjust the nut (C) to prevent the check bar from contacting the tape guides. f. Operate the tape path viewer (QZZCRD) to make sure that the tape is not in contact with the tape guide (i.e. the tape is not twisted). 		

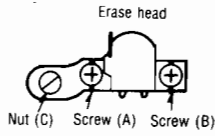


Fig. 2

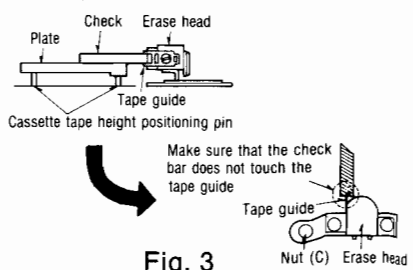


Fig. 3

B Record/playback head adjustment

- Condition:
- Playback mode
 - Normal tape mode
 - Output level control...MAX

- Equipment:
- VTVM
 - Oscilloscope
 - Test tape (azimuth)...QZZCFM

L-CH/R-CH output balance adjustment

1. Make connections as shown in fig. 4.

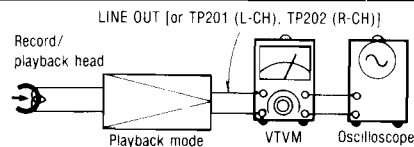


Fig. 4

2. Playback the 8kHz signal from the test tape (QZZCFM). Adjust screw (D) in fig. 5 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 (D) shown in fig. 5 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. 5 and 6.)

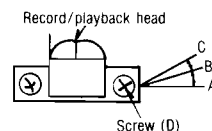


Fig. 5

L-CH/R-CH phase adjustment

4. Make connections as shown in fig. 7.
5. Playback the 8kHz signal from the test tape (QZZCFM). Adjust screw (D) shown in fig. 5 so that pointers of the two VTVMs swing to maximum and a lissajous waveform as illustrated in fig. 8 is obtained on the oscilloscope.

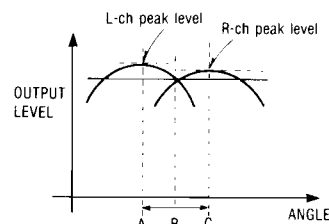


Fig. 6

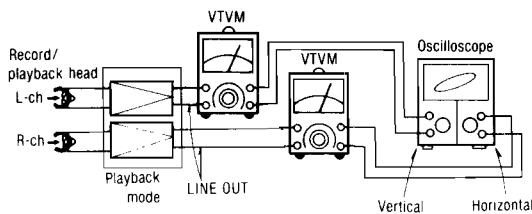


Fig. 7

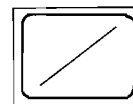


Fig. 8

C Tape speed

- Condition:
- Playback mode
 - Output level control...MAX

- Equipment:
- Digital frequency counter
 - Test tape...QZZCWAT

Tape speed accuracy

1. Test equipment connection is shown in fig. 9.
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:

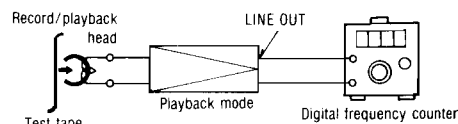


Fig. 9

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

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.
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%

④ Playback frequency response

- Condition:
- Playback mode
 - Normal tape mode
 - Output level control...MAX

- Equipment:
- VTVM
 - Oscilloscope
 - Test tape...QZZCFM

1. Test equipment connection is shown in fig. 4.
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 test point [TP201 (L-CH), TP202 (R-CH)].
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. 10).

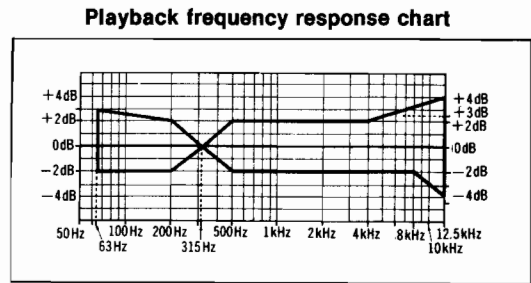


Fig. 10

⑤ Playback gain

- Condition:
- Playback mode
 - Normal tape mode
 - Output level control...MAX

- Equipment:
- VTVM
 - Oscilloscope
 - Test tape...QZZCFM

1. Test equipment connection is shown in fig. 4.
2. Playback standard recording level portion on test tape (QZZCFM 315 Hz) and, using VTVM, measure the output level at test points [TP201 (L-CH), TP202 (R-CH)].
3. Make measurements for both channels.

Standard value: 0.28V [0.4±0.05V: 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.

⑥ Erase current

- Condition:
- Record mode
 - Metal tape mode
 - Bias fine adjustment VR ...Center

- Equipment:
- VTVM
 - Oscilloscope

1. Test equipment connection is shown in fig. 11.
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:

$$\text{Erase current (A)} = \frac{\text{Voltage across resistor R903}}{1 (\Omega)}$$

Standard value: 95 + 10 mA (Metal) - 15

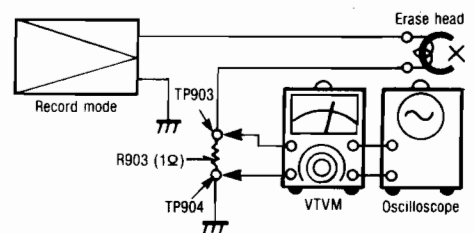


Fig. 11

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

Adjustment

1. Short points (A) and (B) on the main circuit board. Refer to the circuit board diagram on page 22.
2. Measure the erase current.
3. If the erase current is less than 80mA, open the point (B).
4. If the erase current is more than 105mA, open the points (A).

⑥ Overall frequency response

- Condition:**
- Record/playback mode
 - Normal tape mode
 - CrO₂ tape mode
 - Metal tape mode
 - Input level controls...MAX
 - Output level control...MAX
 - Bias fine adjustment VR ...Center
 - Balance control...Center

- Equipment:**
- VTVM
 - ATT
 - AF oscillator
 - Oscilloscope
 - Resistor (600Ω)

- Test tape (reference blank tape)
 - ...QZZCRA for Normal
 - ...QZZCRX for CrO₂
 - ...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. 13.
2. Place UNIT into normal tape mode and insert the normal reference blank test tape (QZZCRA).
3. Supply a 1 kHz 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, 12.5kHz and 14kHz 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. 12). (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;

Overall frequency response chart (Normal)

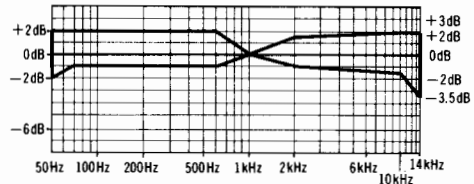


Fig. 12

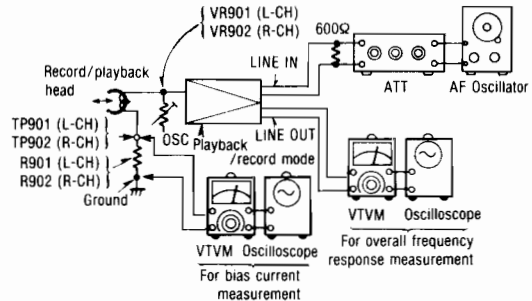


Fig. 13

Adjustment (A):

When the curve exceeds the overall specified frequency response chart (fig. 12) as shown in fig. 14.

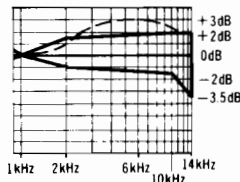


Fig. 14

- 1) Increase bias current by turning VR901 (L-CH) and VR902 (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. 12).
- 3) If the curve still exceeds the specifications (fig. 12), increase bias current further and repeat steps 5 and 6.

Adjustment (B):

When the curve falls below the overall specified frequency response chart (fig. 12) as shown in fig. 15.

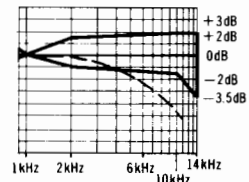


Fig. 15

- 1) Reduce bias current by turning VR901 (L-CH) and VR902 (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. 12).
- 3) If the curve still falls below the charted specifications (fig. 12), reduce bias current further and repeat steps 5 and 6.

7. Place UNIT into CrO₂ tape mode.
8. Change test tape to CrO₂ reference blank test tape (QZZCRX), and record 1kHz, 50Hz, 100Hz, 200Hz, 500Hz, 4kHz, 8kHz, 10kHz, 12.5kHz, 14kHz and 16kHz signals. Then, playback the signals and check if the curve is within the limits shown in the overall frequency response chart for CrO₂ tapes (fig. 16).
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, 14kHz and 16kHz 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. 16).
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 (TP901 for L-CH, TP902 for R-CH) and calculate bias current by following formula:

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

around 500μA (Normal position)
Standard value: around 710μA (CrO₂ position)
around 1200μA (Metal position)

Overall frequency response chart (CrO₂, Metal)

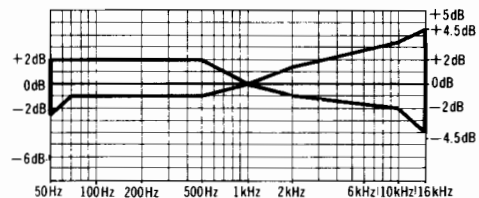


Fig. 16

Overall gain

- | | |
|-------------------------------------|------------------------|
| Condition: | Equipment: |
| • Record/playback mode | • VTVM • AF oscillator |
| • Normal tape mode | • ATT • Oscilloscope |
| • Input level controls...MAX | • Resistor (600Ω) |
| • Output level control...MAX | • Test tape |
| • Bias fine adjustment VR ...Center | (reference blank tape) |
| • Standard input level; | ...QZZCRA for Normal |
| MIC-72±3dB | |
| LINE IN-24±3dB | |

1. Test equipment connection is shown in fig. 17.
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 test points [TP201 (L-CH), TP202 (R-CH)] becomes 0.28V [0.4V±1dB at test LINE OUT jack].
6. Playback recorded tape, and make sure that the output level at test points [TP101 (L-CH), TP102 (R-CH)] becomes 0.28V [0.4V±1dB at test LINE OUT jack].
7. If measured value is not 0.28V, adjust it by using VR51 (L-CH) or VR52 (R-CH).
8. Repeat from step (2).

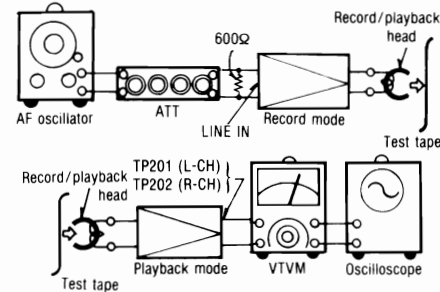


Fig. 17

Fluorescent meter

- | | |
|------------------------------|-----------------|
| Condition: | Equipment: |
| • Record mode | • VTVM |
| • Input level controls...MAX | • ATT |
| • Output level control...MAX | • AF oscillator |

Check for FL meter

To check the accuracy of the FL meter, measure the output level at test point [TP101 (L-CH), TP102 (R-CH)].

1. Make connections as shown (See fig. 18).
2. Connect a wire between TP701 and ground terminal (See fig. 19).
3. In the recording pause mode, apply 1kHz (-24dB) to LINE IN.
4. Adjust ATT so that output level at test point [TP101 (L-CH), TP102 (R-CH)] is 0.28V.

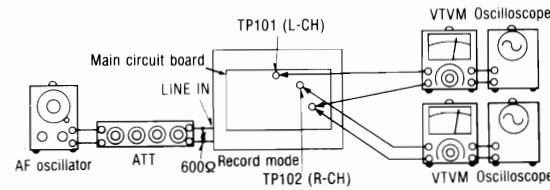


Fig. 18

Checking FL meter 0dB segment display ON/OFF

Change the output level at test point [TP101 (L-CH), TP102 (R-CH)] from 0.28V -1dB (≈250mV) to 0.28V +1dB (≈310mV) 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.

Adjustment for FL meter

1. Make connections as shown (See fig. 18).
2. Connect a wire between TP701 and ground terminal (See fig. 19).
3. In the recording pause mode, apply 1kHz (-24dB) to LINE IN.
4. Adjust ATT so that output level at test point [TP101 (L-CH), TP102 (R-CH)] is 0.28V.

-40dB adjustment

5. Adjust ATT so that the level adjusted at step 4 is reduced by 40dB.
6. At this time, check that -40dB indicator is dimmed (intermediate brightness between full brightness and light-out: See fig. 20).
7. If the indicator is not lighted halfway as described in step 6, adjust VR702.

0dB adjustment

8. Restore the condition of step 4 (set output level to 0.28V at test point [TP101 (L-CH), TP102 (R-CH)]).
9. At this time, check that 0dB indicator is dimmed (intermediate brightness between full brightness and light-out: See fig. 21).
10. If improper, adjust VR701.
11. Repeat adjustments at steps 4, 5, 6, 7, 8, 9 and 10 two or three times.
12. Disconnect the wire between TP701 and ground terminal, which had been connected at step 2.

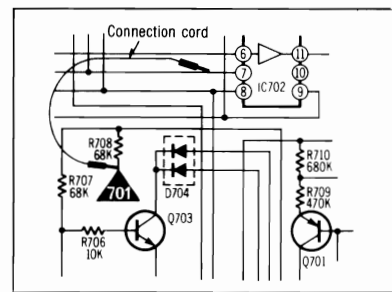


Fig. 19

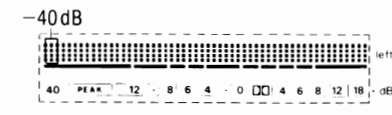


Fig. 20

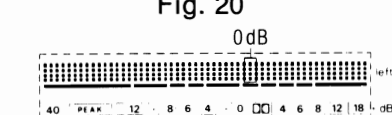


Fig. 21

Dolby NR circuit

- | | |
|--------------------------------|----------------------------|
| Condition: | Equipment: |
| • Record mode/playback mode | • VTVM • AF oscillator |
| • Dolby NR switch...IN/OUT | • ATT • Oscilloscope |
| • Dolby NR select switch...B/C | • Resistor (600Ω) |
| • Input level controls...MAX | • Balance control...Center |
| • Output level controls...MAX | |

Record side

1. Check of the Dolby-B type encoder characteristics
 1. Make connections as shown in fig. 22.
 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 TP101 (L-CH) and TP102 (R-CH) is 12.3mV.
 5. The output level at pin 9 should be 0dB.
 6. Set the NR select switch to B, and make sure that the output signal level at pin 9 of IC101 (L-CH) and IC102 (R-CH) is +6dB±1.5dB.
 7. Set the NR select switch to OUT, and adjust the frequency to 5kHz. The output signal level at pin 9 should be 0dB.
 8. Set the NR select switch to B and make sure that the output signal level at pin 9 of IC101 (L-CH) and IC102 (R-CH) is +8dB±1.5dB.
- 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 9 of IC101 (L-CH) and IC102 (R-CH) is +11.4dB±1dB.
 11. Set the NR select switch to OUT and adjust the frequency to 5kHz. The output signal at pin 9 should be 0dB.
 12. Set the NR select switch to C and make sure that the output signal level at pin 9 of IC101 (L-CH) and IC102 (R-CH) is +8.4dB±1.5dB.

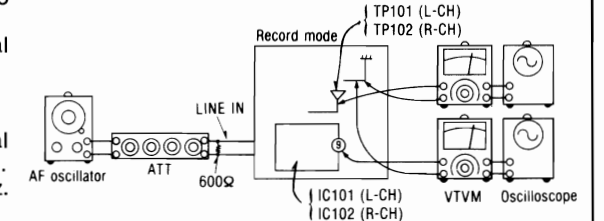


Fig. 22

Playback side

- Check of the Dolby-B type decoder characteristics
 1. Make connections as shown in fig. 23.
 2. Set the unit to the playback mode. (NR select switch is OUT.)
 3. Apply a 1kHz signal to the minus terminals of the C203 (L-CH) and C204 (R-CH).
 4. Adjust the ATT so that the output level at pin 14 of IC201 (L-CH) and IC202 (R-CH) is 12.3mV.
 5. The output level at TP201 (L-CH) and TP202 (R-CH) should be 0dB.
 6. Set the NR select switch to B, and make sure that the output signal level at TP201 (L-CH) and TP202 (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 TP201 (L-CH) and TP202 (R-CH) should be 0dB.
 8. Set the NR select switch to B and make sure that the output signal level at TP201 (L-CH) and TP202 (R-CH) is -10dB±2.5dB.
- Check to Dolby-C type decoder characteristics
 9. Repeat steps 1-5 above.
 10. Set the NR select switch to C and make sure that the output signal level at TP201 (L-CH) and TP202 (R-CH) is -19dB±2.5dB.
 11. Set the NR select switch to OUT and adjust the frequency to 5kHz. The output signal at TP201 (L-CH) and TP202 (R-CH) should be 0dB.
 12. Set the NR select switch to C and make sure that the output signal level at TP201 (L-CH) and TP202 (R-CH) is -16dB±2.5dB.

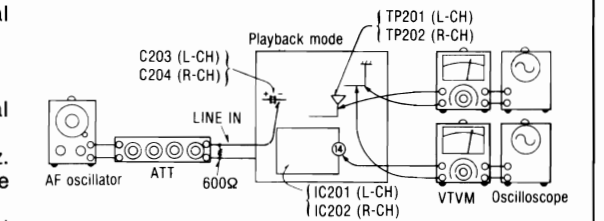


Fig. 23

Attack recovery time adjustment (dbx circuit)

- | | |
|---|-----------------|
| Condition: | Equipment: |
| • Record mode | • VTVM |
| • Input level control...MAX | • ATT |
| • Noise reduction selector ...dbx tape/dbx disc | • AF oscillator |
| • Balance control...Center | • DC voltmeter |
| • Output level control...MAX | |
| • Bias fine adjustment VR ...Center | |

Record side

1. Make the connections as shown in fig. 24 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 C335 (L-CH) and C336 (R-CH) is 300mV.
3. Read voltage on DC voltmeter.

Reference value: 15±0.5mV

4. If measured value is not within reference, adjust VR301 (shown in Fig. 1).

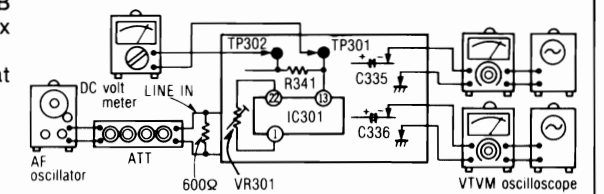


Fig. 24

Playback side

1. Make the connections as shown in fig. 25.
2. Set the unit to the playback mode.
3. Read voltage on DC voltmeter.
4. If measured value is not within reference, adjust VR301 (shown in Fig. 1).

Overall gain (dbx circuit)

Note:

- Before adjustment:
1. Test equipment connection is shown in fig. 26.
 2. Insert the normal reference blank tape (QZZCRA).
 3. Set the unit to the record mode.
 4. Place the test tape in the unit.
 5. Supply a 1kHz signal to the LINE IN.
 6. Adjust the ATT so that the output level at TP201 (L-CH) and TP202 (R-CH) is 0.28V [0.4V±1dB at test LINE OUT jack].
 7. Set the unit to the playback mode.
 8. Playback the recorded tape.
 9. If measured value is not 0.28V, adjust it by using VR51 (L-CH) or VR52 (R-CH).
 10. Repeat from step (2).

MIC

The term product Refer to

Ⓢ Dolby NR circuit

Condition:

- Record mode/playback mode
- Dolby NR switch...IN/OUT
- Dolby NR select switch...B/C
- Input level controls...MAX
- Output 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. 22.
 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 TP101 (L-CH) and TP102 (R-CH) is 12.3mV.
 5. The output level at pin 9 should be 0dB.
 6. Set the NR select switch to B, and make sure that the output signal level at pin 9 of IC101 (L-CH) and IC102 (R-CH) is +6dB±1.5dB.
 7. Set the NR select switch to OUT, and adjust the frequency to 5kHz. The output signal level at pin 9 should be 0dB.
 8. Set the NR select switch to B and make sure that the output signal level at pin 9 of IC101 (L-CH) and IC102 (R-CH) is +8dB±1.5dB.
- 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 9 of IC101 (L-CH) and IC102 (R-CH) is +11.4dB±1dB.
 11. Set the NR select switch to OUT and adjust the frequency to 5kHz. The output signal at pin 9 should be 0dB.
 12. Set the NR select switch to C and make sure that the output signal level at pin 9 of IC101 (L-CH) and IC102 (R-CH) is +8.4dB±1.5dB.

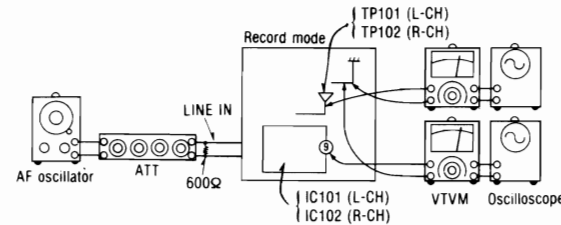


Fig. 22

Playback side

• Check of the Dolby-B type decoder characteristics

1. Make connections as shown in fig. 23.
 2. Set the unit to the playback mode. (NR select switch is OUT.)
 3. Apply a 1kHz signal to the minus terminals of the C203 (L-CH) and C204 (R-CH).
 4. Adjust the ATT so that the output level at pin 14 of IC201 (L-CH) and IC202 (R-CH) is 12.3mV.
 5. The output level at TP201 (L-CH) and TP202 (R-CH) should be 0dB.
 6. Set the NR select switch to B, and make sure that the output signal level at TP201 (L-CH) and TP202 (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 TP201 (L-CH) and TP202 (R-CH) should be 0dB.
 8. Set the NR select switch to B and make sure that the output signal level at TP201 (L-CH) and TP202 (R-CH) is -10dB±2.5dB.
- Check to Dolby-C type decoder characteristics
9. Repeat steps 1-5 above.
 10. Set the NR select switch to C and make sure that the output signal level at TP201 (L-CH) and TP202 (R-CH) is -19dB±2.5dB.
 11. Set the NR select switch to OUT and adjust the frequency to 5kHz. The output signal at TP201 (L-CH) and TP202 (R-CH) should be 0dB.
 12. Set the NR select switch to C and make sure that the output signal level at TP201 (L-CH) and TP202 (R-CH) is -16dB±2.5dB.

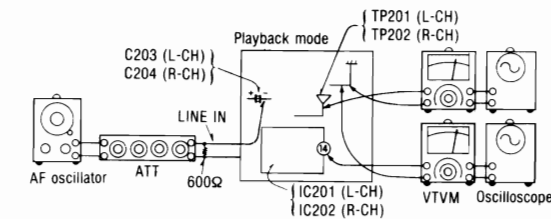


Fig. 23

Ⓚ Attack recovery time adjustment (dbx circuit)

Condition:

- Record mode
- Input level control...MAX
- Noise reduction selector ...dbx tape/dbx disc
- Balance control...Center
- Output level control...MAX
- Bias fine adjustment VR ...Center

Equipment:

- VTVM
- ATT
- AF oscillator
- DC voltmeter

Record side

1. Make the connections as shown in fig. 24 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 C335 (L-CH) and C336 (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 VR301 (shown in Fig. 1).

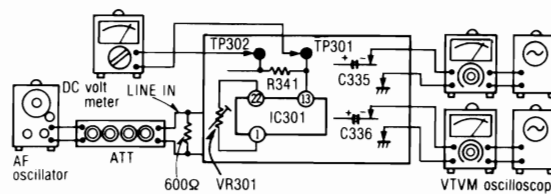


Fig. 24

Playback side

1. Make the connections as shown in fig. 25 and apply 1kHz -27dB signal from LINE IN, and set the noise reduction selector to dbx disc position.
2. Set the unit to record mode, adjust ATT so that the signal level at C435 (L-CH) and C436 (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 VR403 (shown in Fig. 1).

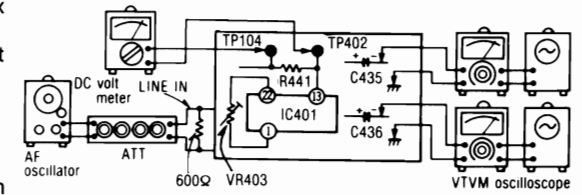


Fig. 25

Ⓛ Overall gain (dbx circuit)

Condition:

- Record/playback mode
- Normal tape mode
- Noise reduction selector ...dbx tape
- Input level controls...MAX
- Output level control...MAX
- Bias fine adjustment VR ...Center
- Standard input level; MIC-72±3dB LINE IN-24±3dB

Equipment:

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

Note:

Before adjustment, make sure that the overall gain (Ⓛ) in the NR OUT mode complies within the specifications.

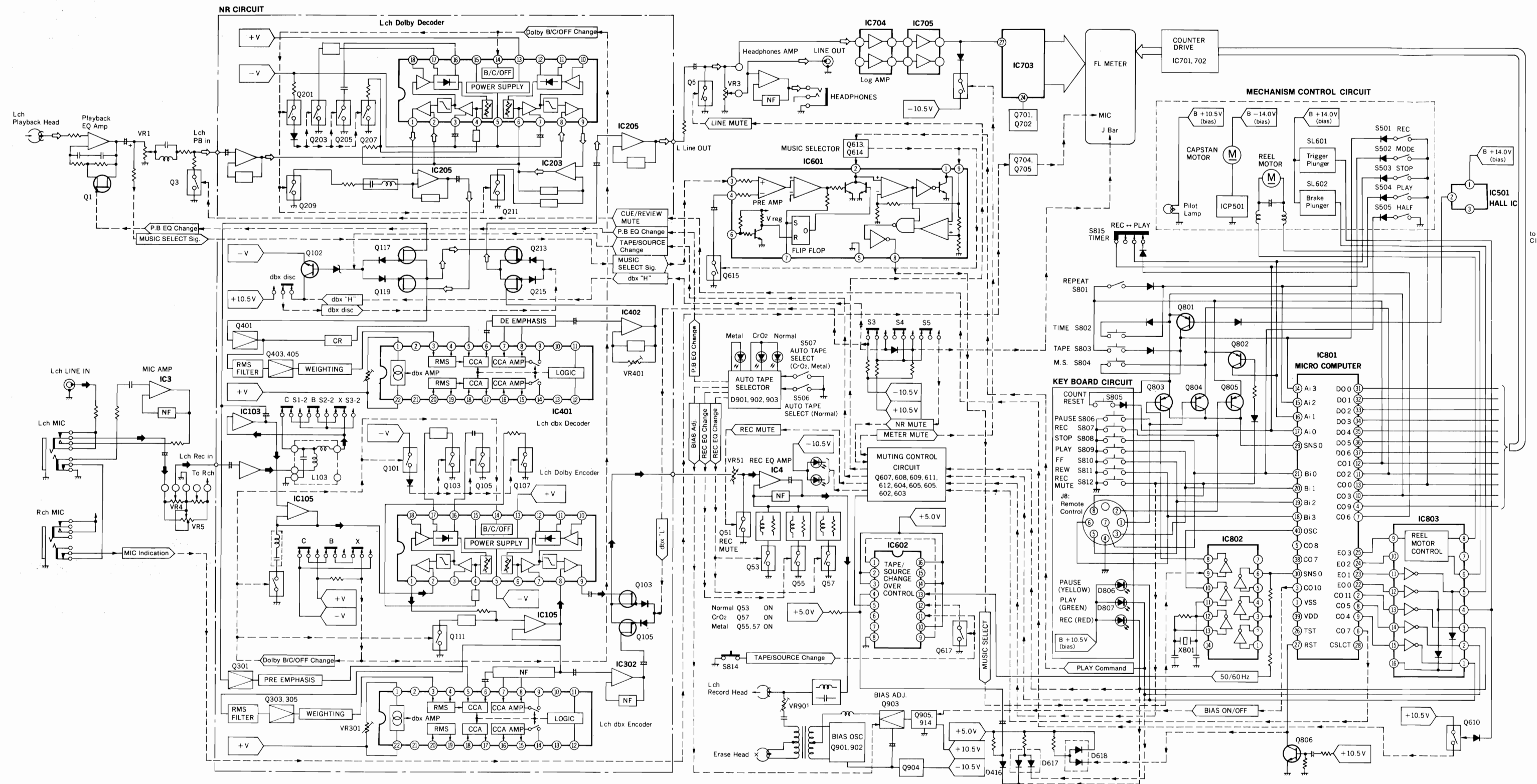
1. Test equipment connection is shown in fig. 17.
2. Insert the normal reference blank tape (QZZCRA).
3. Set the NR switch in the dbx tape mode and the monitor switch in the source mode.
4. Place UNIT into record mode.
5. Supply a 1kHz signal through ATT (-24dB) from AF oscillator, to LINE IN.
6. Adjust ATT until monitor level at test points [TP101 (L-CH), TP102 (R-CH)] becomes 0.28V [0.4V±1dB at test LINE OUT jack].
7. Set the monitor switch in the tape mode.
8. Playback recorded tape, and make sure that the output level at test points [TP201 (L-CH), TP202 (R-CH)] becomes 0.28V [0.4V±1dB at test LINE OUT jack].
9. If measured value is not 0.28V, adjust it by using VR401 (L-CH) or VR402 (R-CH).
10. Repeat from step (2).

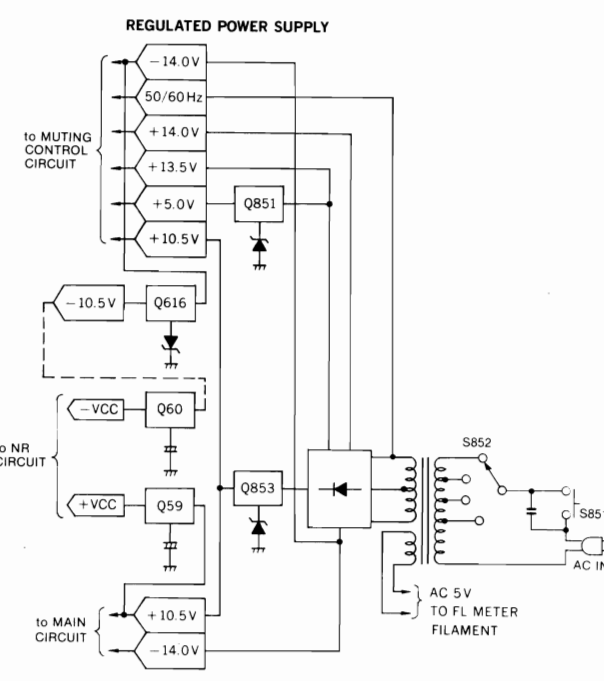
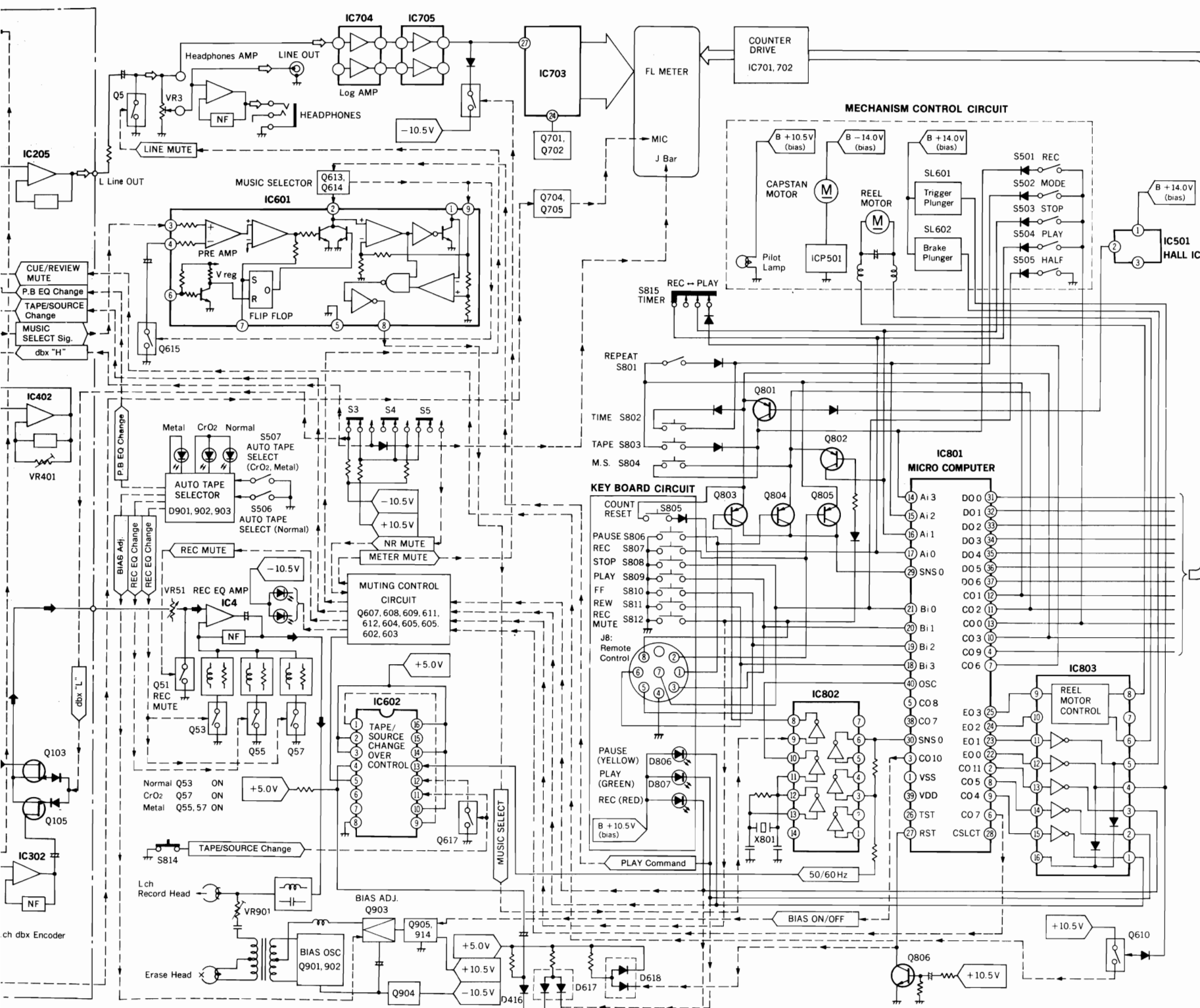
MICROCOMPUTER TERMINAL FUNCTIONS AND WAVEFORMS

The terminal functions and waveforms of the microcomputer (IC801; MN1405RMB) used in this product are identical to those of RS-M245X.

Refer to the RS-M245X Service Manual.

BLOCK DIAGRAM (L-CH ONLY)

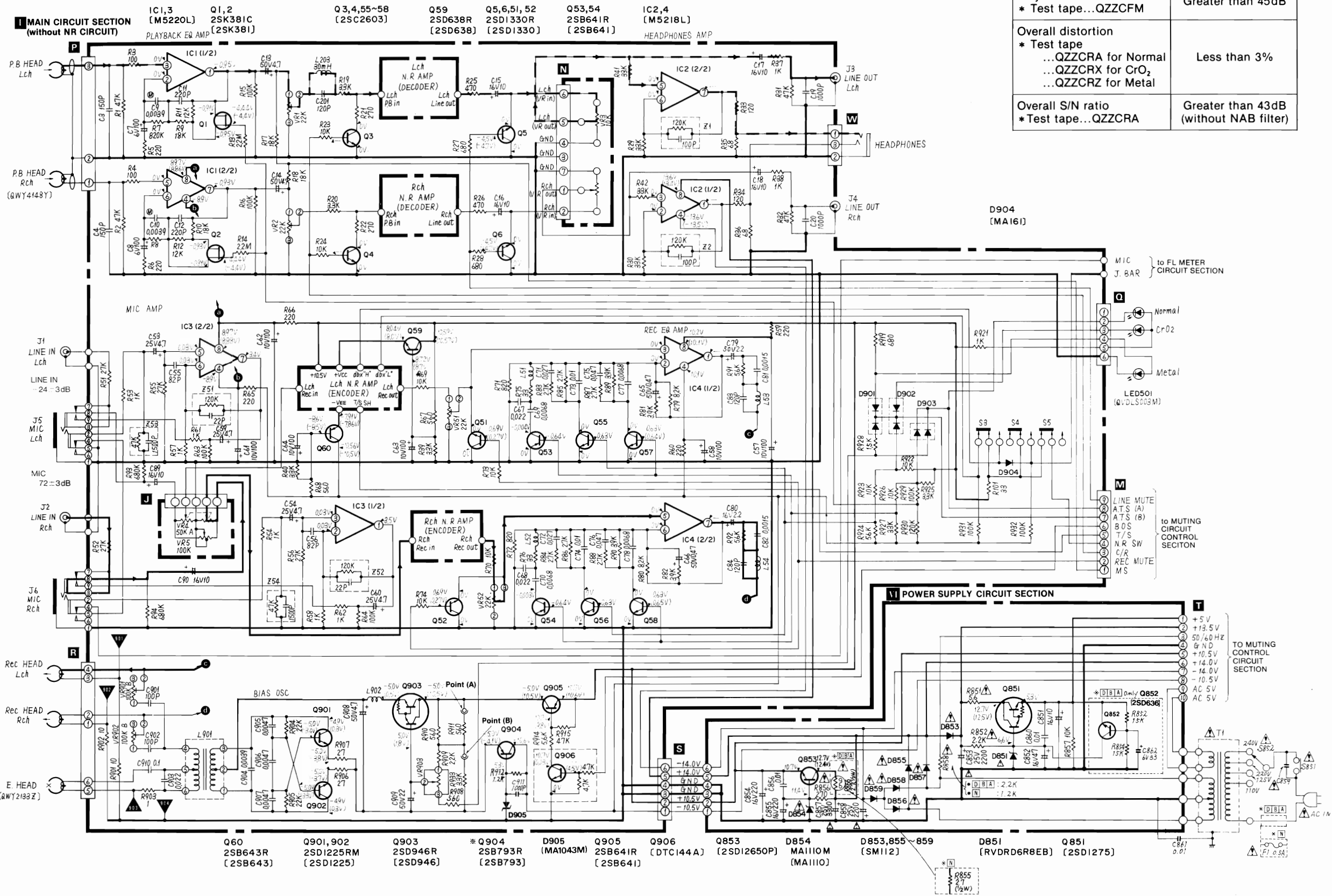




- NOTES:**
- S1-1—S1-4 ...Dolby-C IN/OUT switch (shown in OUT position).
 - S2-1—S2-4 ...Dolby-B IN/OUT switch (shown in OUT position).
 - S3-1—S3-6 ...dbx tape IN/OUT switch (shown in OUT position).
 - S4-1, S4-2 ...dbx disc IN/OUT switch (shown in OUT position).
 - S5NR muting switch (shown in OFF position).
 - S814Monitor tape/source select switch.
 - S851Power ON/OFF switch (shown in OFF position).
 - S852AC power voltage select switch (shown in 240V position).
 - VR1, 2Playback gain adjustment VR.
 - VR3Output level controls.
 - VR4Input level controls.
 - VR5Channel balance control.
 - VR51, 52Overall gain adjustment VR.
 - VR301, 403 ...Attack recovery time adjustment VR.
 - VR401, 402 ...dbx overall gain adjustment VR.
 - VR901, 902 ...Bias current adjustment VR.
 - VR903Bias fine adjustment control.
 - Points (A), (B)... Erase current adjustment points.
 - Resistance are in ohms (Ω), 1/4 watt unless specified otherwise. 1K = 1,000(Ω), 1M = 1,000k(Ω).
 - Capacity are in micro-farads (μ F) unless specified otherwise.
 - 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 markVoltage values at OUT (NR select switch) mode.
 - ()Voltage values at record mode.
 - TapeVoltage values at tape monitor mode.
 - STOPVoltage values at stop mode.
 - NR/Dolby C ...Voltage values at Dolby-C mode.
 - NORVoltage values at Normal tape mode.
 - MetVoltage values at Metal tape mode.
 - For measurement use VTVM.
 - (\blacktriangleright) indicates B+ (bias).
 - (\blacktriangleleft) indicates B- (bias).
 - (\blacktriangleright) indicates the flow of the playback signal. (NR out).
 - (\blacktriangleleft) 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
1S2473T77 ← Production parts number
[MA161] ← Supply parts numbers
 - The supply parts number is described alone in the replacement parts list.

- 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
 - S504: PLAY SWITCH
 - S505: HALF SWITCH
 - S506: AUTO TAPE SELECT SWITCH (Normal)
 - S507: AUTO TAPE SELECT SWITCH (Metal, CrO₂)
 - S801: MUSIC REPEAT SWITCH
 - S802: TIME COUNTER SWITCH
 - S803: TAPE COUNTER SWITCH
 - S804: MUSIC SELECT COUNTER SWITCH
 - S805: COUNTER RESET COUNTER SWITCH
 - S806: PAUSE SWITCH
 - S807: RECORD SWITCH
 - S808: STOP SWITCH
 - S809: PLAY SWITCH
 - S810: FF SWITCH
 - S811: REWIND SWITCH
 - S812: REC MUTE SWITCH
 - S813: TIMER SWITCH
 - S814: MONITOR SWITCH
 - S851: POWER ON/OFF SWITCH
 - S852: AC POWER VOLTAGE SELECT SWITCH.
 - (\blacktriangleright) this arrow indicates the flow of the recording signal. (NR OUT/TAPE MONITOR).
 - (\blacktriangleleft) this arrow indicates the flow of the playback signal. (NR OUT/TAPE MONITOR).
 - (\blackrightarrow) this arrow indicates the flow of the control signal.

SCHEMATIC DIAGRAM (for Main/Power Supply/Muting Control Circuit Section)



SPECIFICATIONS

- * Output level control...MAX
- * Input level control ...MAX
- * Balance controlCenter

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 3%
Overall S/N ratio * Test tape...QZZCRA	Greater than 43dB (without NAB filter)

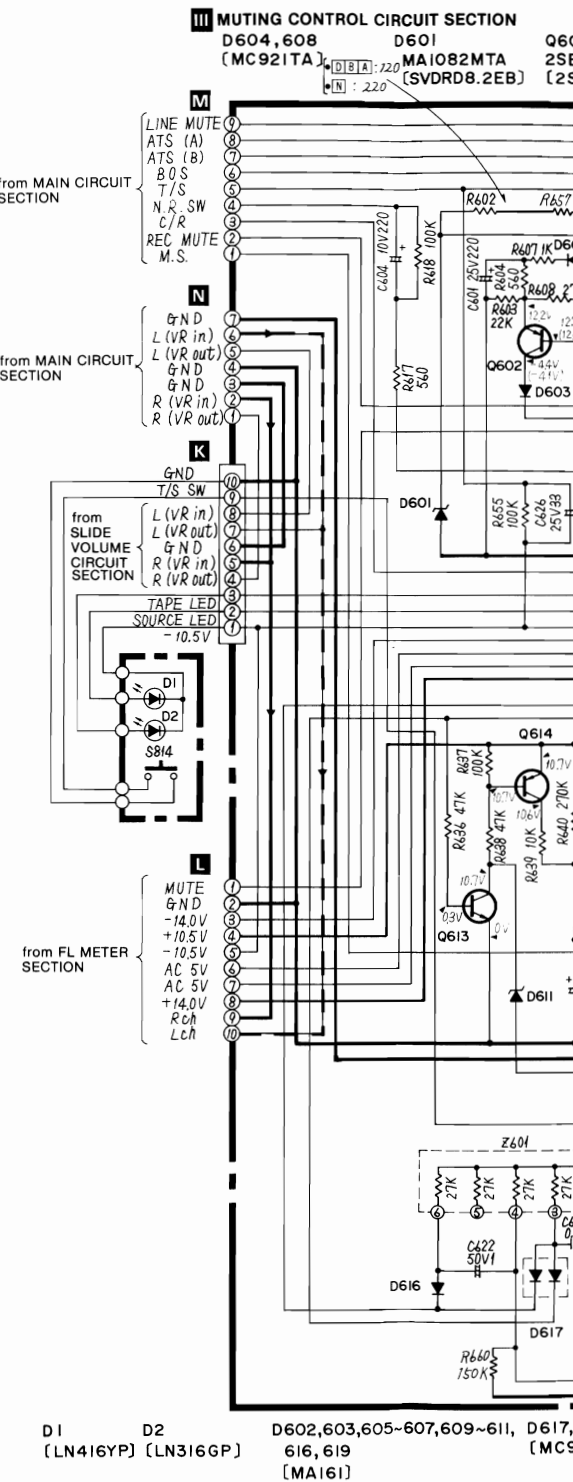
NOTES:

□ For all European areas except United Kingdom.

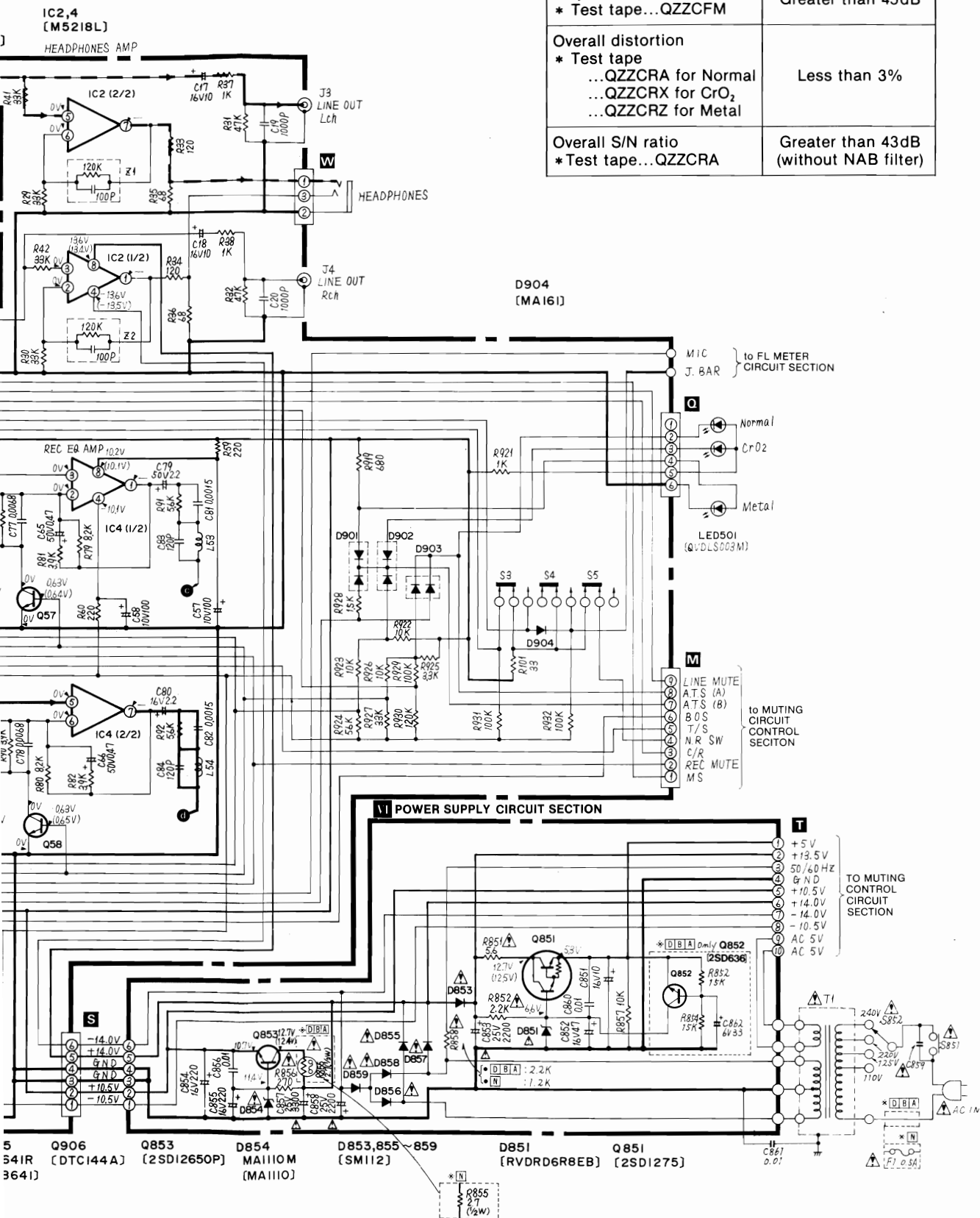
⊠ For United Kingdom.

Ⓝ For Asia, Latin America, Middle East and Africa areas.

ⓐ For Australia.



Control Circuit Section)



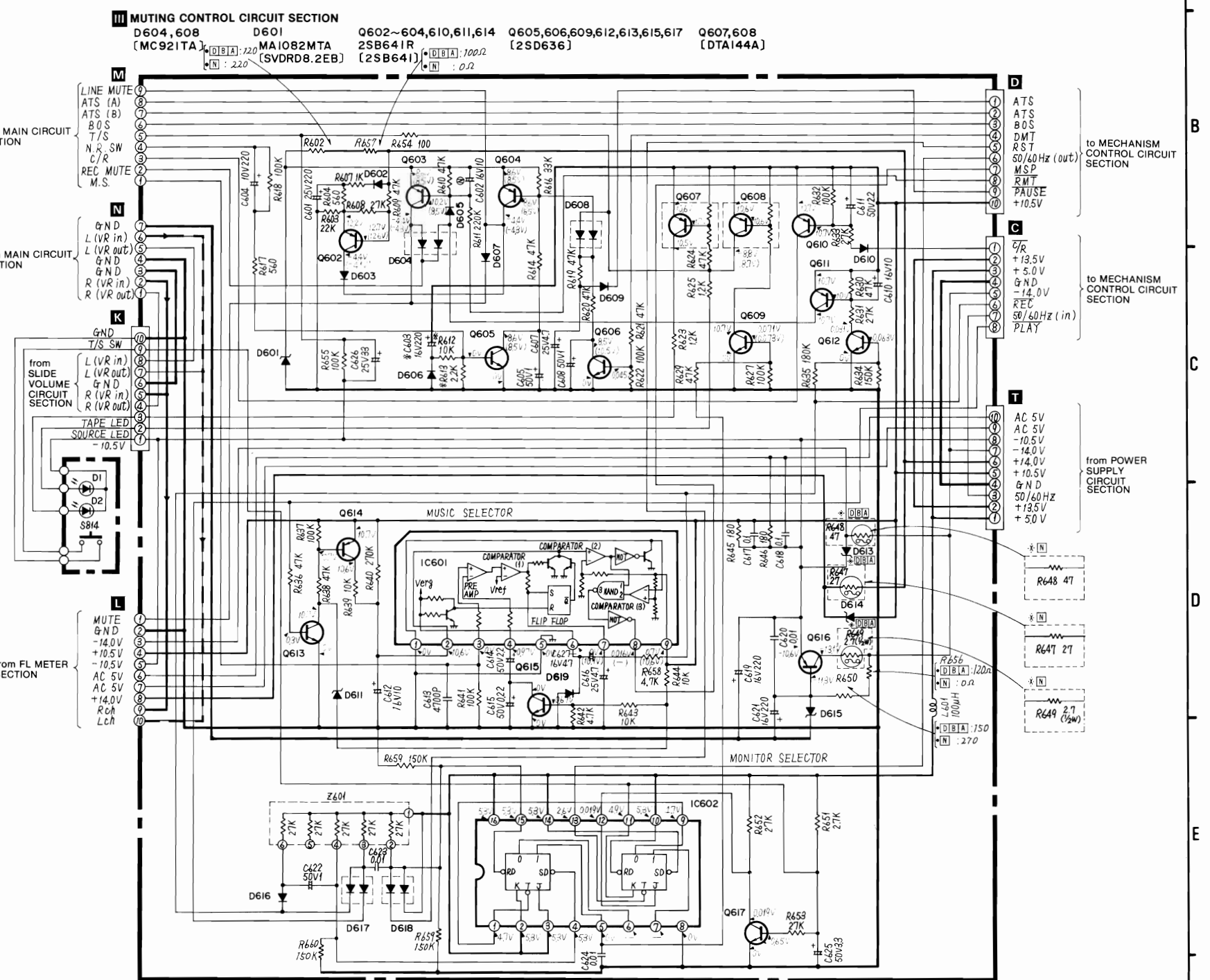
SPECIFICATIONS

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 3%
Overall S/N ratio * Test tape...QZZCRA	Greater than 43dB (without NAB filter)

- * Output level control...MAX
- * Input level control ...MAX
- * Balance controlCenter

NOTES:

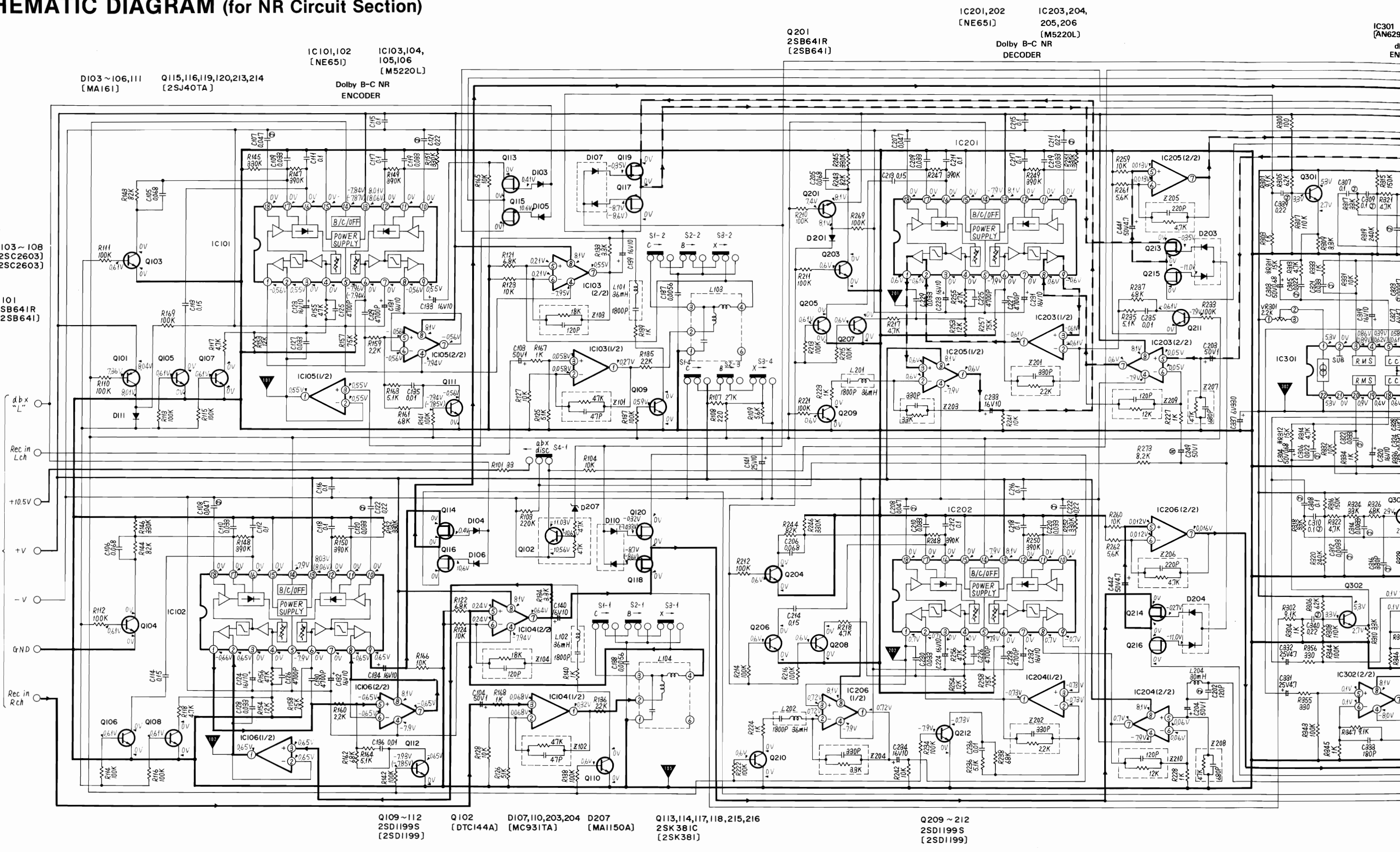
- For all European areas except United Kingdom.
- ⓑ For United Kingdom.
- Ⓝ For Asia, Latin America, Middle East and Africa areas.
- Ⓐ For Australia.



- D1 [LN416YP] [LN316GP]
- D2 [LN316GP]
- D602,603,605-607,609-611, 616, 619 [MA161]
- D617, 618 [MC911TA]
- IC601 [BA336]
- D619 QVD1S2473T [MA161]
- IC602 [M74LS112AP]
- Q616 2SB941PQ [2SB941]
- D614 MA1043M [MA1043M]
- D613 [MA1033]
- D615 MA1110T [MA1110]

SCHEMATIC DIAGRAM (for NR Circuit Section)

A
B
C
D
E
F



D103~106,111 [2SC2603] Q115,116,119,120,213,214 [2SJ40TA]

IC101,102 [NE651] IC103,104,105,106 [M5220L] Dolby B-C NR ENCODER

Q103~108 [2SC2603]

Q101 [2SB641R] [2SB641]

Q201 [2SB641R] [2SB641]

IC201,202 [NE651] IC203,204,205,206 [M5220L] Dolby B-C NR DECODER

IC301 [AN6291] db ENC

Q109~112 [2SD1199S] [2SD1199]

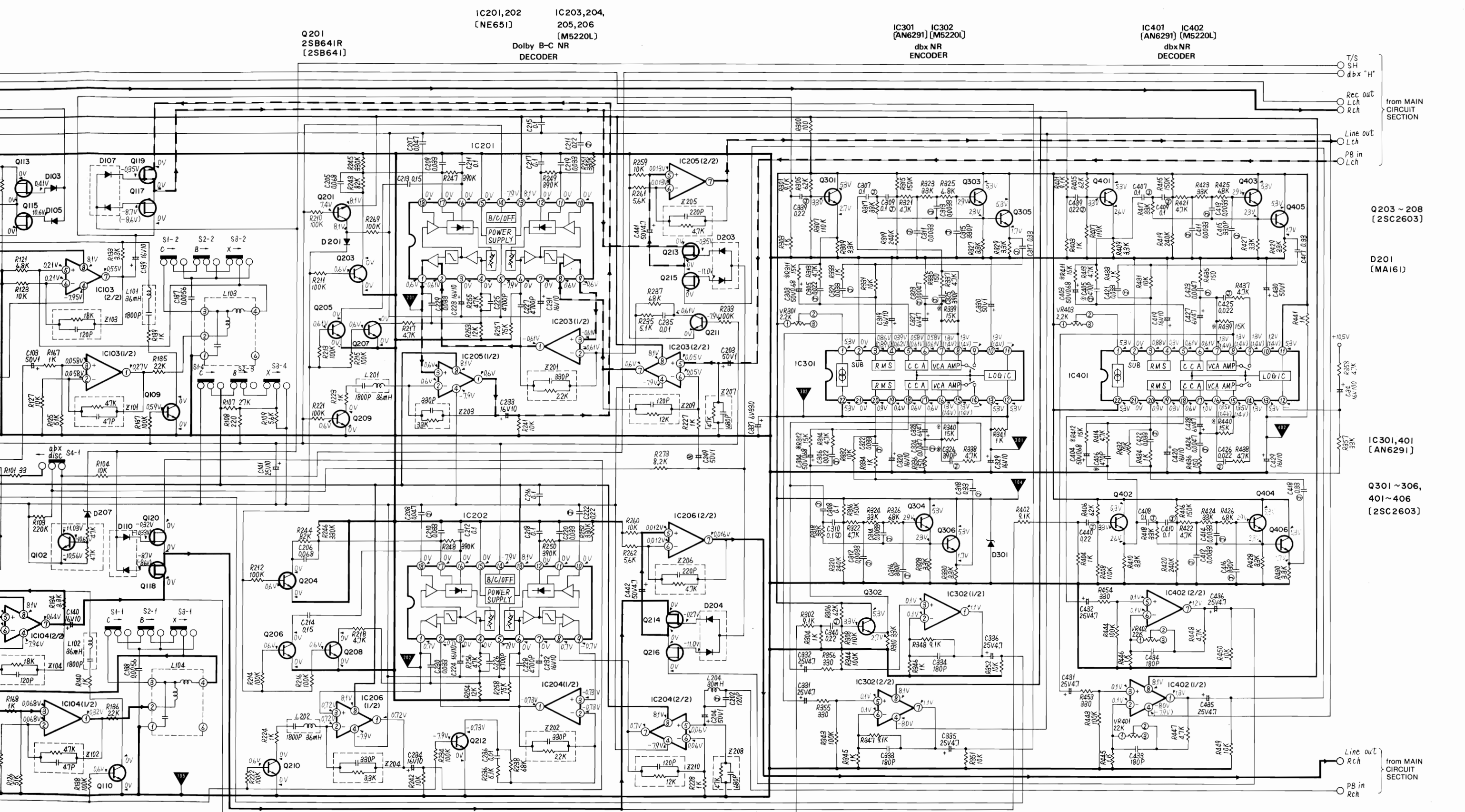
Q102 [DTC144A]

D107,110,203,204 [MC931TA]

D207 [MA1150A]

Q113,114,117,118,215,216 [2SK381C] [2SK381]

Q209~212 [2SD1199S] [2SD1199]



Q201
2SB641R
[2SB641]

IC201,202
[NE651]
Dolby B-C NR
DECODER

IC301 IC302
[AN6291] [M5220L]
dbx NR
ENCODER

IC401 IC402
[AN6291] [M5220L]
dbx NR
DECODER

T/S
SH
dbx "H"
Rec out
Lch
Rch
Line out
Lch
PB in
Lch
Rch

Q203 ~ 208
[2SC2603]

D201
[MA161]

IC301,401
[AN6291]

Q301 ~ 306,
401 ~ 406
[2SC2603]

D107,110,203,204 D207
A) [MC931TA] [MA1150A]

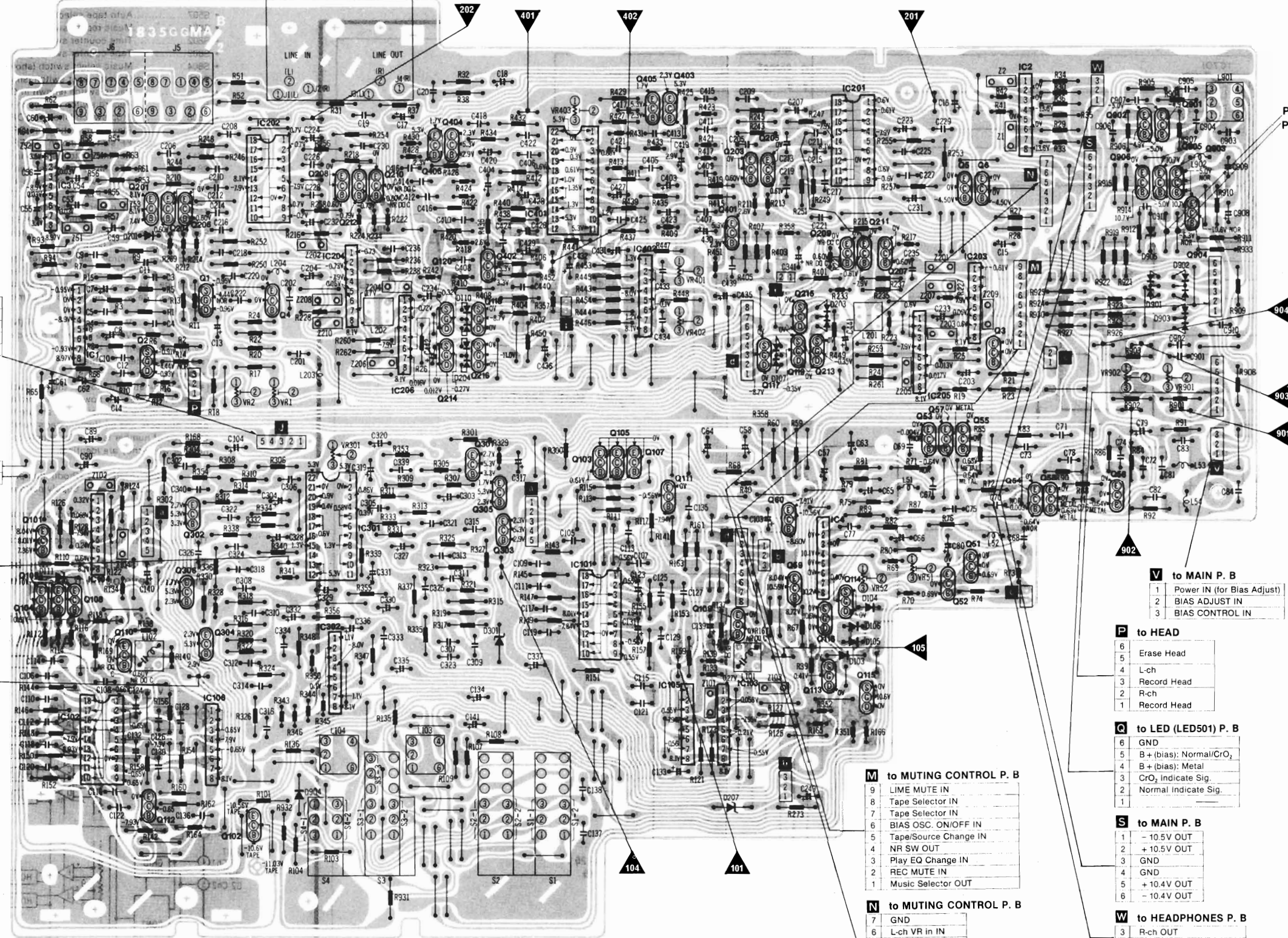
Q113,114,117,118,215,216
2SK381C
[2SK381]

Q209 ~ 212
2SD1199S
[2SD1199]

D301
[MA1051MTA]

CIRCUIT BOARDS (for Main/Power Supply Circuit Boards)

MAIN CIRCUIT BOARD



- J to SLIDE VOLUME P. B**
- 1 R-ch (REC Signal) OUT
 - 2 R-ch (REC Signal) IN
 - 3
 - 4 L-ch (REC Signal) IN
 - 5 L-ch (REC Signal) OUT

- O from FL METER P. B**
- 3 MIC Indicate Command Out
 - 1 J BAR Indicate Command Out

- M to MUTING CONTROL P. B**
- 9 LIME MUTE IN
 - 8 Tape Selector IN
 - 7 Tape Selector IN
 - 6 BIAS OSC. ON/OFF IN
 - 5 Tape/Source Change IN
 - 4 NR SW OUT
 - 3 Play EQ Change IN
 - 2 REC MUTE IN
 - 1 Music Selector OUT

- N to MUTING CONTROL P. B**
- 7 GND
 - 6 L-ch VR in IN
 - 5 L-ch VR out OUT
 - 4 GND
 - 3 GND
 - 2 R-ch VR in IN
 - 1 R-ch VR out OUT

- V to MAIN P. B**
- 1 Power IN (for Bias Adjust)
 - 2 BIAS ADJUST IN
 - 3 BIAS CONTROL IN

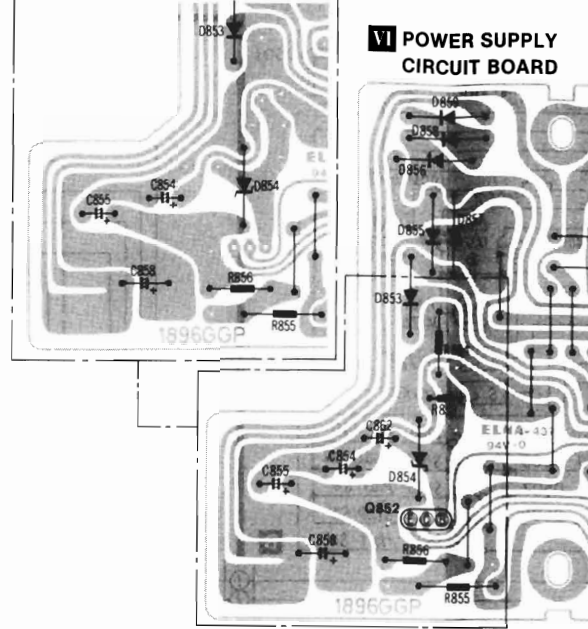
- P to HEAD**
- 6 Erase Head
 - 5
 - 4 L-ch
 - 3 Record Head
 - 2 R-ch
 - 1 Record Head

- Q to LED (LED501) P. B**
- 6 GND
 - 5 B+ (bias): Normal/CrO₂
 - 4 B+ (bias): Metal
 - 3 CrO₂ Indicate Sig.
 - 2 Normal Indicate Sig.
 - 1

- S to MAIN P. B**
- 1 -10.5V OUT
 - 2 +10.5V OUT
 - 3 GND
 - 4 GND
 - 5 +10.4V OUT
 - 6 -10.4V OUT

- W to HEADPHONES P. B**
- 3 R-ch OUT
 - 2 GND
 - 1 L-ch OUT

* For Asia, Latin America, Middle East and Africa areas.



* For all European areas and Australia.

TERMINATIONS & CONNECTORS

IC101, 102, 201, 202	Q903	D301
IC301, 401	Q3, 55-58, 103-108, 202-208, 301-306, 402-406	L53, 54, 203, 204, 902
IC1-4, 103-106, 203-206, 302, 402	D107, 110, 203, 204, 901-903	L101, 102, 201, 202
Q1, 2, 113-120, 213-216	D103-106, 111, 201, 904	L901
Q5, 6, 51-54, 59, 101, 102, 109-112, 201, 209-212, 901, 902, 904-906	D207	L103, 104

NOTES:

- 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.

ELECTRICAL PARTS LIST

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.

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

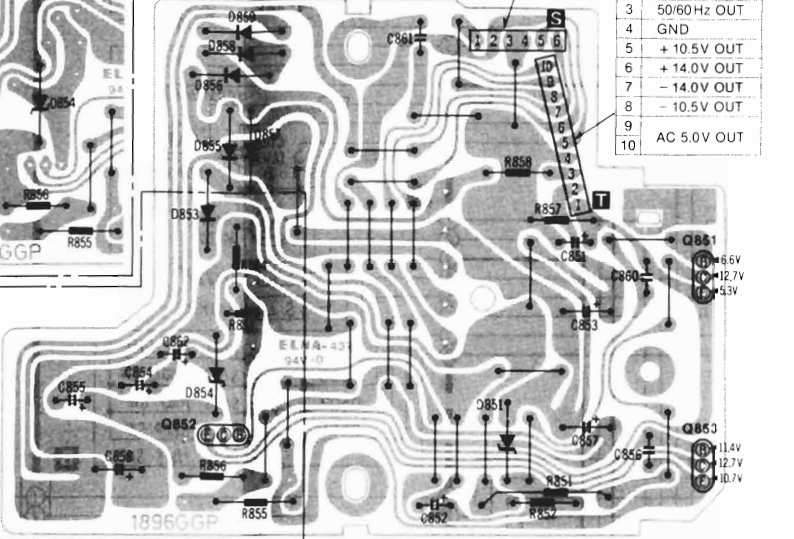
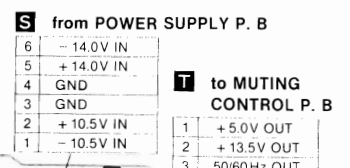
- ECBA Ceramic
- ECG Ceramic
- ECK Ceramic
- ECC Ceramic
- ECFO Ceramic
- ECQM Polyester film
- ECQE Polyester film
- ECQF Polypropylene

ECEC Electrolytic

- ECECN Non polar electrolytic
- ECQS Polystyrene
- ECSD Tantalum
- QCS Tantalum

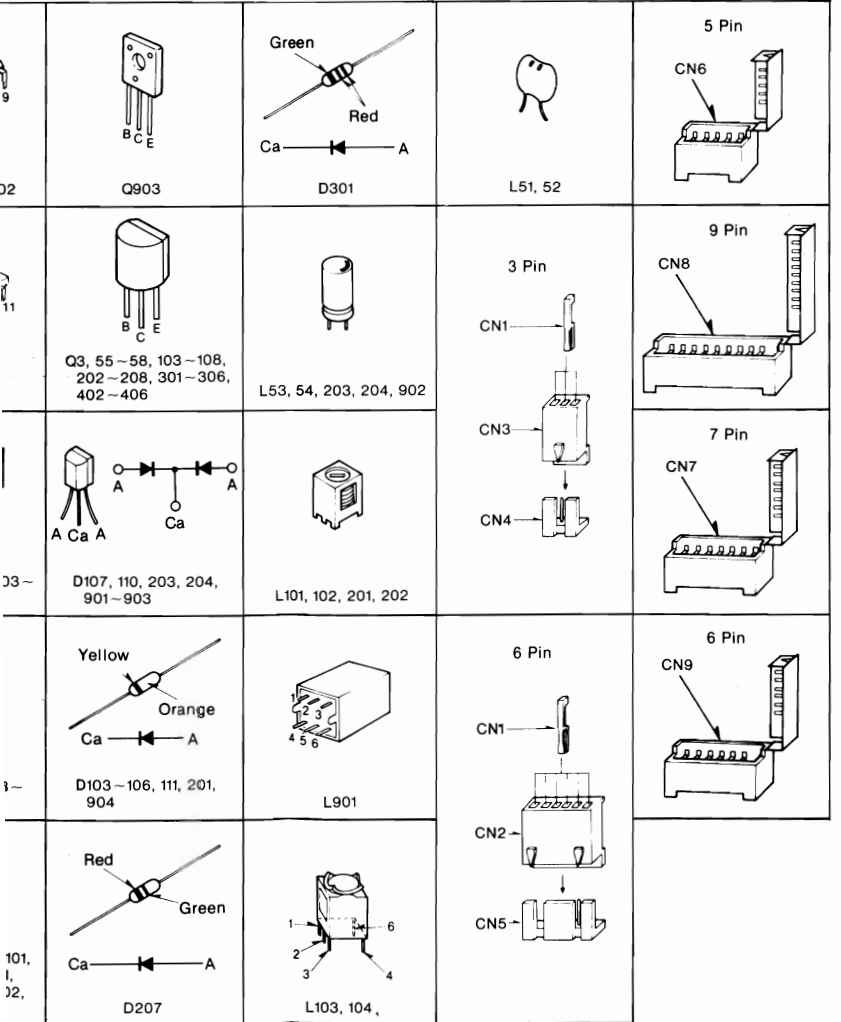
in America,
and Africa areas.

POWER SUPPLY CIRCUIT BOARD



* For all European areas and Australia.

IONS & CONNECTORS



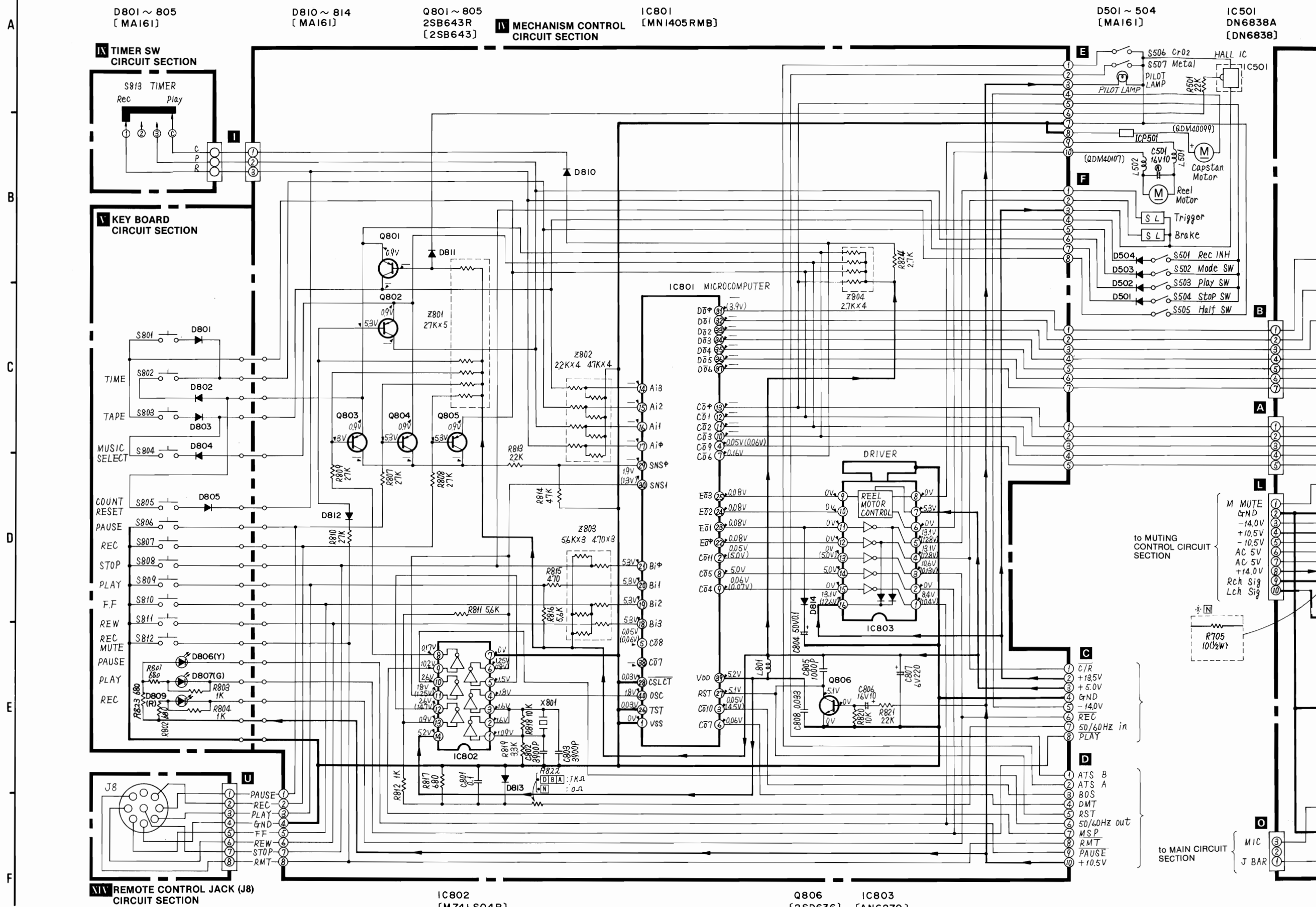
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RESISTORS															
R 1, 2	ERD25TJ473	R 227, 228	ERD25FJ102	R 603	ERD25TJ223	R 705	ERD25FJ103	R 903	ERD25FJ1R0	C 127, 128	ECQM1H333JZ	C 613	ECQM1H472JZ	Q 101	2SB641
R 3, 4	ERD25FJ101	R 233, 234	ERD25FJ104	R 604	ERD25FJ561	[DBA] ERQ12HJ100	ERD25TJ683	R 904, 905	ERD25TJ223	C 129, 130	ECQM1H472JZ	C 614	ECEA50Z2R2	Q 102	DTC144A
R 5, 6	ERD25FJ221	R 235, 236	ERD25FJ512	R 607	ERD25FJ102	[For all European areas and Australia.]	R 706	R 906, 907	ERD25FJ270	C 131, 132, 133, 134	ECEA1HS100	C 615	ECEA50ZFR22	D 605, 606, 607 MA161	
R 7, 8	ERD25TJ824	R 237, 238	ERD25TJ683	R 608	ERD25TJ273	[N] ERD25FJ100	R 707, 708	R 908	ERD25FJ671	C 139, 140, 141	ECEA1HS100	C 616	ECEA1ES4R7	D 608 MC921TA	
R 9, 10	ERD25TJ183	R 241, 242	ERD25FJ103	R 609, 610	ERD25TJ473	[For Asia, Latin America, Middle East and Africa areas.]	R 709	R 909	ERD25FJ222	C 135, 136	ECQM1H103JZ	C 617, 618	ECQV05104JZ	Q 103, 104, 105, 106, 107, 108 2SC2603E	
R 11, 12	ERD25TJ123	R 243, 244	ERD25TJ823	R 611	ERD25TJ224	[N] ERD25FJ100	R 710	R 910, 911	ERD25FJ561	C 137, 138	ECQM1H562JZ	C 619	ECEA1CS221	Q 109, 110, 111, 112 2SD1199	
R 13, 14	ERD25TJ225	R 245, 246	ERD25TJ334	R 612	ERD25FJ103	[For Asia, Latin America, Middle East and Africa areas.]	R 711	R 912	ERD25FJ122	C 139, 140, 141	ECEA1HS100	C 620	ECFDD103KYV	Q 113, 114 2SK381	
R 15, 16	ERD25TJ104	R 247, 248, 249, 250	ERD25TJ394	R 613	ERD25FJ222	[N] ERD25FJ100	R 712	R 914	ERD25FJ562	C 201, 202	ECQM1H121JZ	C 621	ECEA1CS221	Q 115, 116 2SJ40	
R 17, 18	ERD25TJ183	R 251, 252	ERD25TJ334	R 614	ERD25TJ473	[For Asia, Latin America, Middle East and Africa areas.]	R 713	R 915	ERD25TJ473	C 203, 204	ECEA50Z1	C 622	ECEA1HN010	Q 117, 118 2SK381	
R 19, 20	ERD25FJ332	R 253, 254	ERD25TJ123	R 616	ERD25TJ333	[N] ERD25FJ100	R 714	R 919	ERD25FJ681	C 205, 206	ECQM1H683JZ	C 623, 624	ECKD1H103ZF	Q 119, 120 2SJ40	
R 21, 22	ERD25FJ271	R 255, 256	ERD25TJ473	R 617	ERD25FJ561	[For Asia, Latin America, Middle East and Africa areas.]	R 715	R 921	ERD25FJ102	C 207, 208	ECQM1H473JZ	C 625	ECEA50Z3R3	Q 201 2SB641	
R 23, 24	ERD25FJ103	R 257, 258	ERD25TJ753	R 618	ERD25TJ104	[N] ERD25FJ100	R 716	R 922, 923	ERD25FJ103	C 209, 210	ECQM1H333JZ	C 626	ECEA1V5330	Q 203, 204, 205, 206, 207, 208 2SC2603E	
R 25, 26	ERD25FJ471	R 259, 260	ERD25FJ103	R 619, 620, 621	ERD25FJ222	[For Asia, Latin America, Middle East and Africa areas.]	R 717	R 924	ERD25TJ563	C 211, 212	ECQV05104JZ	C 627	ECEA1CN470	Q 209, 210, 211, 212 2SD1199	
R 27, 28	ERD25FJ681	R 261, 262	ERD25FJ562	R 622	ERD25TJ473	[N] ERD25FJ100	R 718	R 925	ERD25FJ332	C 213, 214	ECQV05154JZ	C 702	ECEA1ES101	Q 213, 214 2SD1199	
R 29, 30	ERD25TJ333	R 269	ERD25TJ104	R 623	ERD25FJ122	[For Asia, Latin America, Middle East and Africa areas.]	R 719	R 926	ERD25FJ103	C 215, 216, 217, 218	ECEA1HS100	C 703	ECEA1HS100	Q 215, 216 2SK381	
R 31, 32	ERD25TJ473	R 273	ERD25FJ822	R 624	ERD25TJ473	[N] ERD25FJ100	R 715	R 927	ERD25TJ333	C 219, 220	ECQM1H333JZ	C 704	ECFDD473KXY	Q 301 2SC2603E	
R 33, 34	ERD25FJ121	R 300	ERD25FJ102	R 625	ERD25FJ122	[For Asia, Latin America, Middle East and Africa areas.]	R 716	R 928	ERD25FJ152	C 221, 222	ECQV05224JZ	C 705, 706	ECEA50ZR47	Q 302 2SC2603E	
R 35, 36	ERD25FJ680	R 301, 302	ERD25FJ912	R 627	ERD25TJ104	[N] ERD25FJ100	R 717, 718	R 929	ERD25TJ104	C 223, 224	ECEA1HS100	C 707, 708	ECEA1HS100	Q 401, 402, 403, 404, 405, 406 2SC2603E	
R 37, 38	ERD25FJ102	R 303, 304	ERD25FJ102	R 629, 630	ERD25TJ473	[For Asia, Latin America, Middle East and Africa areas.]	R 719, 720	R 930	ERD25TJ124	C 225, 226, 227, 228	ECQM1H472JZ	C 801	ECQV05104JZ	Q 602, 603, 604 2SB641	
R 39, 40	ERD25FJ332	R 305, 306	ERD25TJ623	R 631	ERD25TJ273	[N] ERD25FJ100	R 721, 722	R 931, 932	ERD25TJ104	C 229, 230	ECQM1H333JZ	C 802, 803	ECKD1H392KB	Q 605, 606 2SD636	
R 41, 42	ERD25TJ333	R 307, 308	ERD25TJ114	R 632	ERD25TJ104	[For Asia, Latin America, Middle East and Africa areas.]	R 723, 724	R 933	ERD25FJ332	C 231, 232	ECQM1H333JZ	C 805	ECKD1H102KB	Q 607, 608 DTA144A	
R 51, 52	ERD25FJ273	R 309, 310	ERD25FJ332	R 633	ERD25TJ753	[N] ERD25FJ100	R 725, 726	R 933	ERD25FJ332	C 232, 233	ECQM1H472JZ	C 806	ECEA1HS100	Q 609 2SD636	
R 53, 54	ERD25FJ102	R 311, 312	ERD25TJ153	R 634	ERD25TJ514	[For Asia, Latin America, Middle East and Africa areas.]	R 727, 728, 729, 730	R 933	ERD25FJ332	C 235, 236	ECQM1H103JZ	C 807	ECEA1AS221	Q 610, 611 2SB641	
R 55, 56	ERD25FJ273	R 313, 314	ERD25FJ472	R 635	ERD25TJ184	[N] ERD25FJ100	R 731, 732	R 933	ERD25FJ332	C 249	ECEA1HN010	C 808	ECKD1H333ZF	Q 612, 613 2SD636	
R 57, 58	ERD25TJ102	R 315, 316	ERD25TJ154	R 636	ERD25TJ473	[For Asia, Latin America, Middle East and Africa areas.]	R 733, 734	R 933	ERD25FJ332	C 303, 304	ECEA50MR68R	C 852	ECEA1AS470	Q 701, 702 2SB641	
R 59, 60	ERD25FJ221	R 317, 318	ERD25TJ333	R 637	ERD25TJ104	[N] ERD25FJ100	R 735	R 933	ERD25FJ332	C 305, 306	ECQM1H223JZ	C 853	ECEA1CS222	Q 702, 703, 704 2SD636	
R 61, 62	ERD25FJ102	R 319, 320	ERD25TJ244	R 638	ERD25TJ473	[For Asia, Latin America, Middle East and Africa areas.]	R 736, 737	R 933	ERD25FJ332	C 307, 308, 309, 310	ECQV05104JZ	C 854, 855	ECEA1CS221	Q 705 2SB641	
R 63, 64	ERD25TJ104	R 321, 322	ERD25FJ472	R 639	ERD25FJ103	[N] ERD25FJ100	R 738	R 933	ERD25FJ332	C 311, 312, 313, 314	ECQM1H332JZ	C 856	ECKD1H103ZF	Q 706 2SB641	
R 65, 66	ERD25FJ221	R 323, 324	ERD25TJ333	R 640	ERD25TJ274	[For Asia, Latin America, Middle East and Africa areas.]	R 739	R 933	ERD25FJ332	C 315, 316	ECDD1H331JZ	C 857	ECEA1ES322	Q 707 2SB641	
R 67, 68	ERD25FJ561	R 325, 326	ERD25FJ682	R 641	ERD25TJ104	[N] ERD25FJ100	R 740	R 933	ERD25FJ332	C 317, 318	ECQV05334JZ	C 858	ECEA1CS222	Q 708 2SB641	
R 69, 70	ERD25FJ103	R 327, 328, 329, 330	ERD25FJ682	R 642	ERD25FJ472	[For Asia, Latin America, Middle East and Africa areas.]	R 741	R 933	ERD25FJ332	C 319, 320	ECEA16Z10	C 859	ECEA1CS222	Q 709 2SB641	
R 71, 72	ERD25FJ821	R 331, 332	ERD25FJ333	R 643, 644	ERD25FJ103	[N] ERD25FJ100	R 742	R 933	ERD25FJ332	C 321, 322	ECQM1H333JZ	C 860	ECKD1H103ZF	Q 710 2SB641	
R 73, 74	ERD25FJ103	R 333, 334	ERD25FJ102	R 645, 646	ERD25FJ181	[For all European areas and Australia.]	R 801	R 933	ERD25FJ332	C 323, 324	ECQM1H472JZ	C 861	ECKD1H103ZF	Q 711 2SB641	
R 75, 76	ERD25FJ330	R 335, 336	ERD25FJ151	R 647	ERD25TJ181	[N] ERD25FJ100	R 802	R 933	ERD25FJ332	C 325, 326	ECDD1H391JZ	C 862	ECEA1CS330	Q 712 2SB641	
R 79, 80	ERD25FJ822	R 337, 338	ERD25FJ472	[DBA] ERQ14AJ270	[For all European areas and Australia.]	[N] ERD25FJ100	R 803, 804	R 933	ERD25FJ332	C 327, 328	ECEA1AS470	C 863	ECEA1CS330	Q 713 2SB641	
R 81, 82	ERD25FJ392	R 339, 340	ERD25TJ153	[DBA] ERQ14AJ270	[For all European areas and Australia.]	[N] ERD25FJ100	R 807, 808, 809, 810	R 933	ERD25FJ332	C 329	ECEA1HS100	C 864	ECEA1CS330	Q 714 2SB641	
R 83, 84, 85, 86, 87, 88	ERD25FJ272	R 341	ERD25FJ102	[For Asia, Latin America, Middle East and Africa areas.]	[N] ERD25FJ100	[For Asia, Latin America, Middle East and Africa areas.]	R 811	R 933	ERD25FJ332	C 329	ECEA1HS100	C 865	ECEA1CS330	Q 715 2SB641	
R 89, 90	ERD25FJ392	R 343, 344	ERD25TJ104	[N] ERD25FJ100	[For Asia, Latin America, Middle East and Africa areas.]	[N] ERD25FJ100	R 812	R 933	ERD25FJ332	C 329	ECEA1HS100	C 866	ECEA1CS330	Q 716 2SB641	
R 91, 92	ERD25FJ562	R 345, 346	ERD25FJ102	[For Asia, Latin America, Middle East and Africa areas.]	[N] ERD25FJ100	[N] ERD25FJ100	R 813	R 933	ERD25FJ332	C 329	ECEA1HS100	C 867	ECEA1CS330	Q 717 2SB641	
R 93, 94	ERD25TJ684	R 347, 348	ERD25FJ912	[DBA] ERQ14AJ470	[For all European areas and Australia.]	[N] ERD25FJ100	R 814	R 933	ERD25FJ332	C 329	ECEA1HS100	C 868	ECEA1CS330	Q 718 2SB641	
R 101	ERD25FJ330	R 351, 352	ERD25FJ103	[DBA] ERQ14AJ470	[For all European areas and Australia.]	[N] ERD25FJ100	R 815	R 933	ERD25FJ332	C 329	ECEA1HS100	C 869	ECEA1CS330	Q 719 2SB641	
R 103	ERD25TJ224	R 353, 356	ERD25FJ331	[For Asia, Latin America, Middle East and Africa areas.]	[N] ERD25FJ100	[N] ERD25FJ100	R 816	R 933	ERD25FJ332	C 329	ECEA1HS100	C 870	ECEA1CS330	Q 720 2SB641	
R 104	ERD25FJ103	R 357	ERD25TJ333	[DBA] ERQ14AJ470	[For all European areas and Australia.]	[N] ERD25FJ100	R 817	R 933	ERD25FJ332	C 329	ECEA1HS100	C 871	ECEA1CS330	Q 721 2SB641	
R 107	ERD25FJ273	R 358	ERD25FJ472	[For Asia, Latin America, Middle East and Africa areas.]	[N] ERD25FJ100	[N] ERD25FJ100	R 818	R 933	ERD25FJ332	C 329	ECEA1HS100	C 872	ECEA1CS330	Q 722 2SB641	
R 108	ERD25FJ221	R 401, 402	ERD25FJ912	[DBA] ERQ12HJ270	[For all European areas and Australia.]	[N] ERD25FJ100	R 819	R 933	ERD25FJ332	C 329	ECEA1HS100	C 873	ECEA1CS330	Q 723 2SB641	
R 109	ERD25FJ562	R 403, 404	ERD25FJ102	[For Asia, Latin America, Middle East and Africa areas.]	[N] ERD25FJ100	[N] ERD25FJ100	R 820	R 933	ERD25FJ332	C 329	ECEA1HS100	C 874	ECEA1CS330	Q 724 2SB641	
R 110, 111, 112, 113, 114, 115, 116	ERD25TJ104	R 405, 406	ERD25TJ623	[DBA] ERQ12HJ270	[For all European areas and Australia.]	[N] ERD25FJ100	R 821	R 933	ERD25FJ332	C 329	ECEA1HS100	C 875	ECEA1CS330	Q 725 2SB641	
R 117, 118	ERD25FJ472	R 407, 408	ERD25TJ114	[For Asia, Latin America, Middle East and Africa areas.]	[N] ERD25FJ100	[N] ERD25FJ100	R 822	R 933	ERD25FJ332	C 329	ECEA1HS100	C 876	ECEA1CS330	Q 726 2SB641	
R 121, 122	ERD25FJ682	R 409, 410	ERD25FJ332	[DBA] ERQ12HJ270	[For all European areas and Australia.]	[N] ERD25FJ100	R 823	R 933	ERD25FJ332	C 329	ECEA1HS100	C 877	ECEA1CS330	Q 727 2SB641	
R 123, 124	ERD25FJ103	R 411, 412	ERD25TJ153	[For Asia, Latin America, Middle											

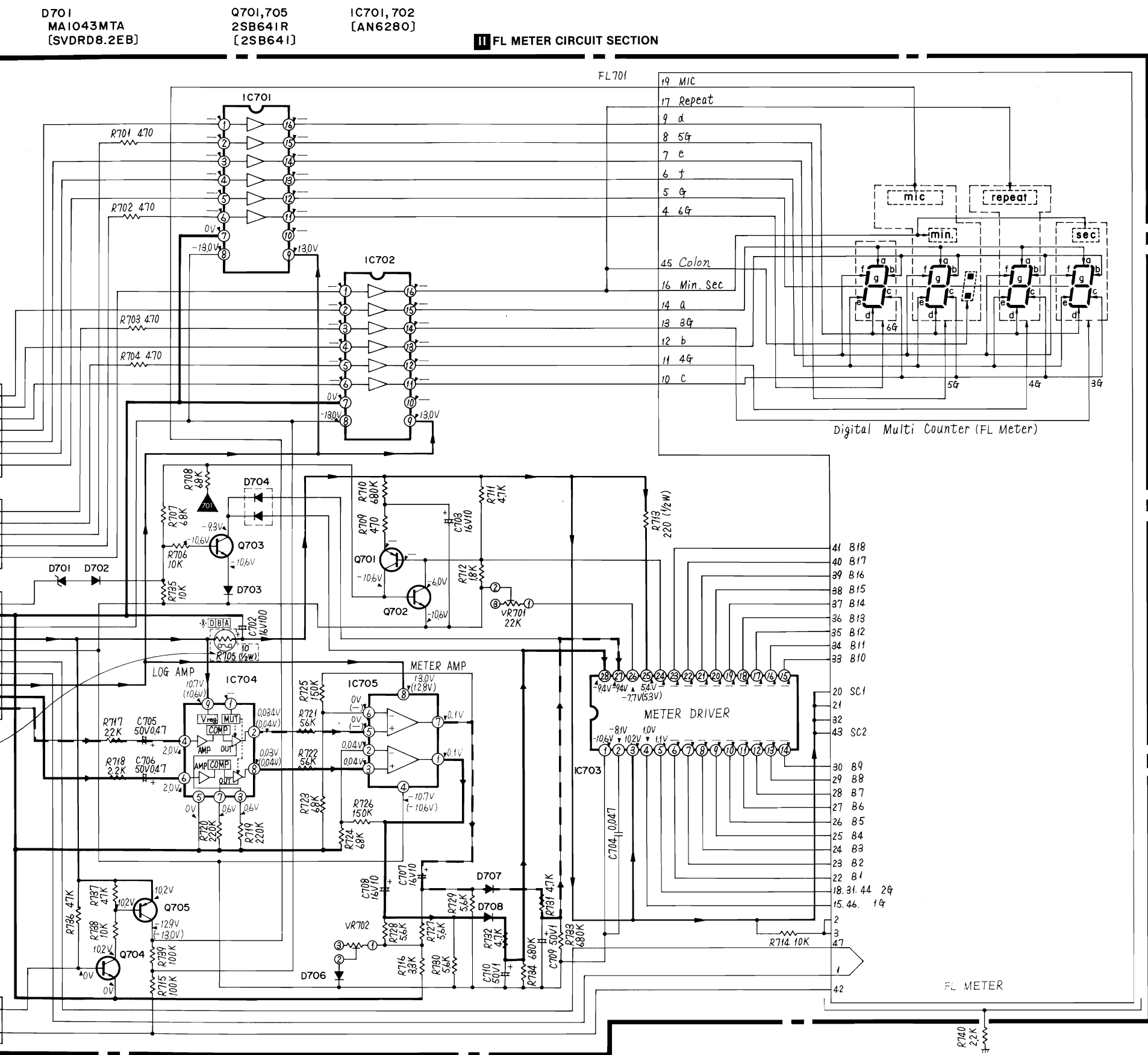
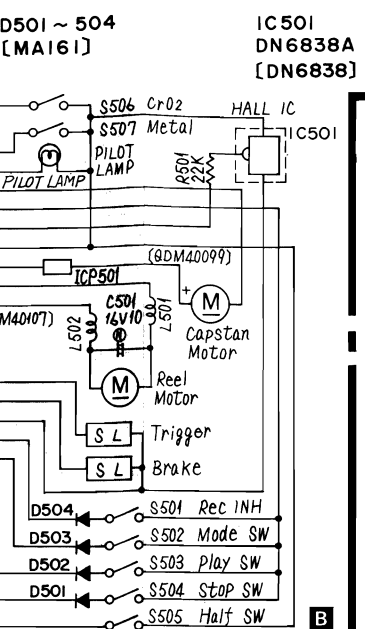
REPLACEMENT PARTS LIST

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.

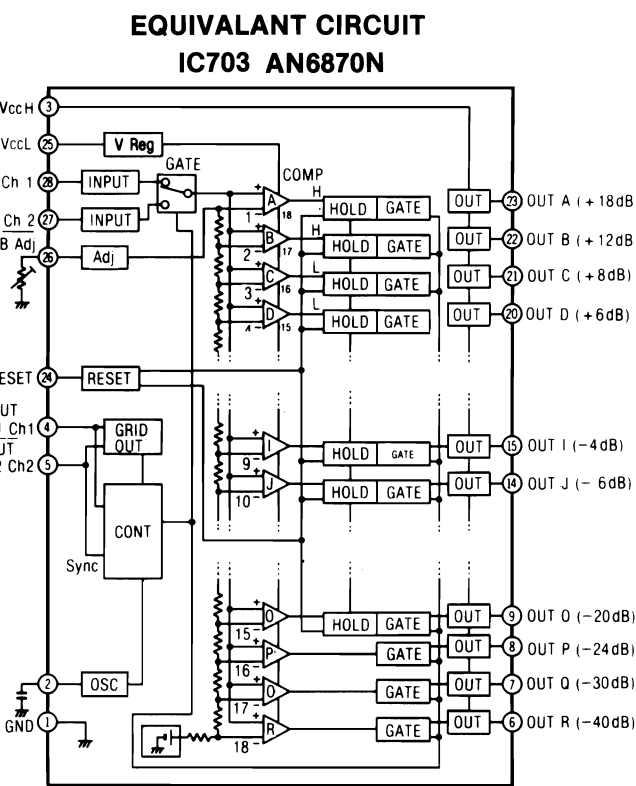
Ref. No.	Part No.	Part Name & Description
COILS		
L 51, 52	QLQX2722D	Peaking Coil
L 53, 54	QLQX0343KWA	Bias Trap Coil
L 101, 102	ELM7Q306A	Skewing Network
L 103, 104	ELM10Q201F	M.P.X. Coil
L 201, 202	ELM7Q306A	Skewing Network
L 203, 204	QLQX0343KWA	Bias Trap Coil
L 501, 502	QLQZ1014D	Choke Coil
L 601	ELEH101KA	Choke Coil
L 801	ELEH101KA	Choke Coil
L 901	QLB0204	Bias Oscillation Coil
L 902	QLQX0332KWA	Peaking Coil
FUSE		
F 1	[N] Δ XBA2E05NR5	Fuse (0.5A) [For Asia, Latin America, Middle East and Africa areas.]
SWITCHES		
S 1, 2, 3, 4, 5	QSWX505	Push Switch (NR Selector)
S 501	QSB0289	Leaf Switch (REC Inhibit)
S 502	QSB0287	Leaf Switch (Mode)
S 503	QSB0288	Leaf Switch (Stop)
S 504	QSB0287	Leaf Switch (Play)
S 505	QSB0288	Leaf Switch (Eject)
S 506	QSB0290	Leaf Switch
S 507	QSB0289	Leaf Switch (for CrO ₂ Tape)
S 801, 802, 803, 804	QSW1130	Push Switch (Repeat/Time Counter/Tape)
S 805	SSG13	Push Switch (Counter Reset)
S 806	QSW1126	Push Switch with D806 (Pause)
S 807	QSW1124	Push Switch with D809 (REC)
S 808	SSG13	Push Switch (Stop)
S 809	QSW1125	Push Switch with D807
S 810	SSG13	Push Switch (F.F)
S 811, 812	SSG13	Push Switch (Rewind/REC Mute)
S 813	QSS1306	Slide Switch (Timer Start)
S 814	QSW1130	Push Switch (Monitor Tape/Source)
S 851 Δ	QSW1127	Push Switch (Power ON/OFF)
S 852 Δ	QSR1407	Rotary Switch (AC Power Voltage Selector)
JACKS		
J 1, 2, 3, 4	QEJ5030C	Jack Board (LINE IN/OUT)
J 5, 6	QJA0453	Jack (Microphone Jack)
J 7	QJA0267H	Headphones Jack
J 8	QJS1955H	Remote Control Socket
CONNECTORS		
CN 1	QJT1054	Contact
CN 2	QJS1922TN	6 Pin Socket
CN 3	QJS1921TN	3 Pin Socket
CN 4	QJP1921TN	3 Pin Plug
CN 5	QJP1922TN	6 Pin Plug
CN 6	QJS1961S	Jumper Socket (5 Pin)
CN 7	QJS1962S	Jumper Socket (7 Pin)
CN 8	QJS1968S	Jumper Socket (9 Pin)
CN 9	QJS1993S	Jumper Socket (6 Pin)
CN 10	QJS1983S	Jumper Socket (8 Pin)
CN 11	QJS1989S	Jumper Socket (10 Pin)
CN 12	QJS1996T	Jumper Socket (14 Pin)
CN 13	QJS1967S	Jumper Socket (4 Pin)
CN 14	QJT1090	Check Pin
CN 15	QJS1989S	Jumper Socket (10 Pin)

SCHMATIC DIAGRAM (for Mechanism Control/FL Meter Circuit Section)





- NOTES:
- 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 CrO₂ tape).
 - S507.....Auto tape select switch (for Metal tape).
 - S801.....Music repeat switch (shown in OFF position).
 - S802.....Time counter switch (shown in OFF position).
 - S803.....Tape counter switch (shown in OFF position).
 - S804.....Music select switch (shown in OFF position).
 - S805.....Counter reset switch (shown in OFF position).
 - S806.....Pause switch (shown in OFF position).
 - S807.....Record switch (shown in OFF position).
 - S808.....Stop switch (shown in OFF position).
 - S809.....Play switch (shown in OFF position).
 - S810.....FF switch (shown in OFF position).
 - S811.....Rewind switch (shown in OFF position).
 - S812.....REC Mute switch (shown in OFF position).
 - S813.....Timer switch (shown in 1 position).
(1...T. REC, 2...OFF, 3...T. PLAY).
 - VR701.....FL meter adjustment VR (-40dB indication).
 - VR702.....FL meter adjustment VR (0dB indication).
- Resistance are in ohms (Ω), 1/4 watt unless specified otherwise.
1K = 1,000 (Ω), 1M = 1,000k (Ω).
- Capacity are in micro-farads (μF) unless specified otherwise.
- 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.
- 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 number
- The supply parts number is described alone in the replacement parts list.



CIRCUIT BOARDS (for FL Meter/Mechanism Control/Muting Control/Key Board Circuit Boards)

NOTES:
 This product is available in two different types of Muting Control Circuit Boards and Key Board Circuit Boards. For repair and servicing, follow the instructions according to the type used.
 • Type-1...RS-M253X sets with marking "B" on the circuit board (shown in Fig. 1).
 • Type-2...RS-M253X sets with marking "C" on the circuit board (shown in Fig. 2).

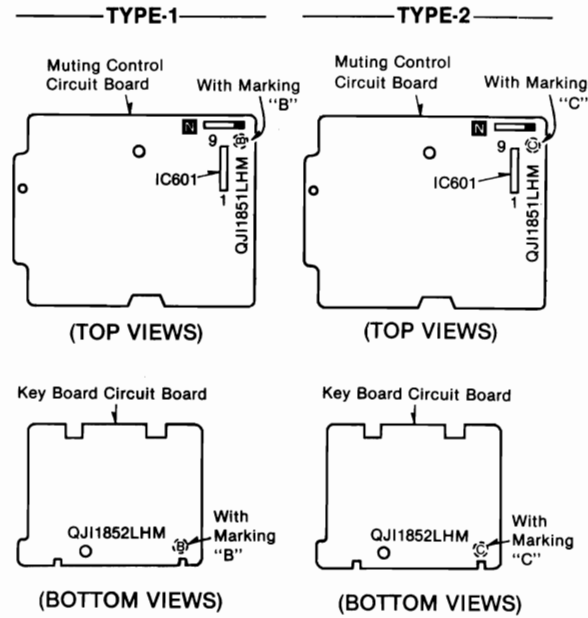


Fig. 1 Fig. 2

C to MECHANISM CONTROL P. B

1	Play EQ Change IN
2	+13.5V OUT
3	+5.0V OUT
4	GND
5	-14.0V OUT
6	REC COMMAND IN
7	50/60Hz
8	PLAY COMMAND IN

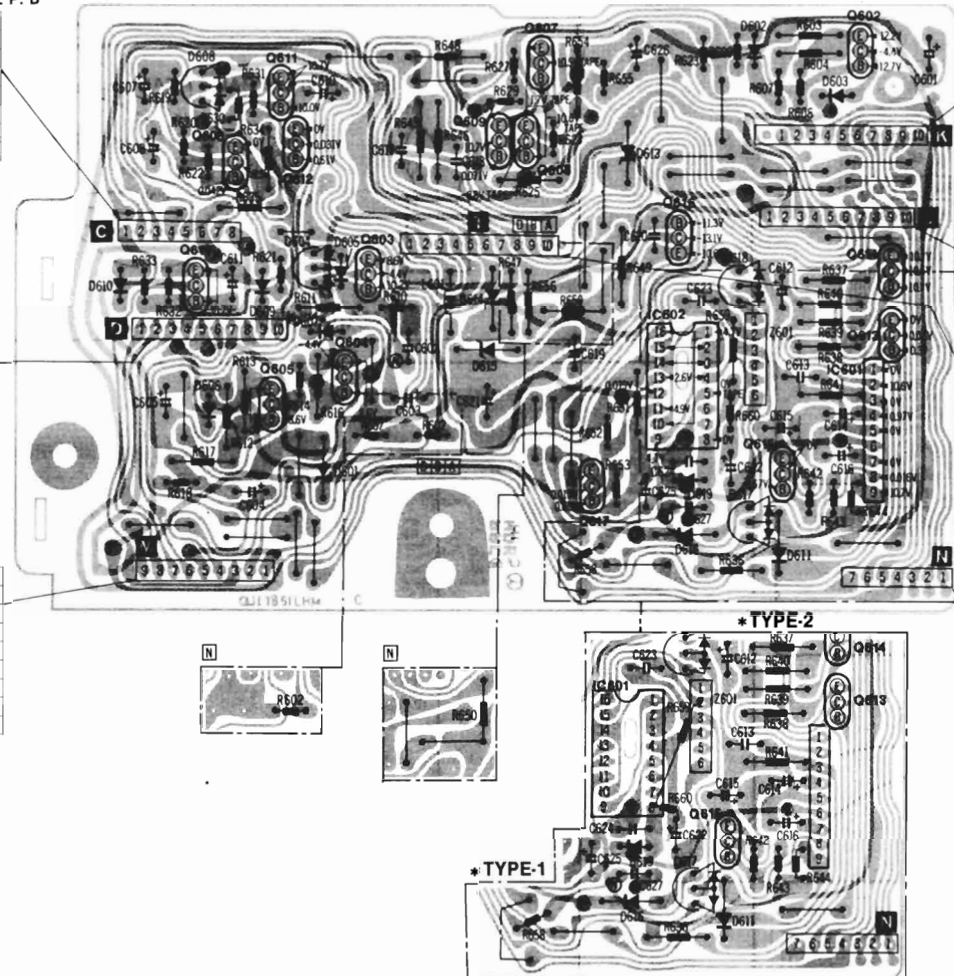
D from MECHANISM CONTROL P. B

1	Tape Selector IN
2	Tape Selector IN
3	BIAS OSC. ON/OFF IN
4	MUTE IN
5	RESET IN
6	50/60Hz IN
7	Music Selector OUT
8	REC MUTE IN
9	PAUSE IN
10	+10.5V OUT

M from MAIN P. B

1	Music selector IN
2	REC MUTE OUT
3	Play EQ Change Sig. OUT
4	NR SW IN
5	Tape/Source Change Sig. OUT
6	BIAS OSC. ON/OFF OUT
7	Tape Selector OUT
8	Tape Selector OUT
9	LINE MUTE OUT

III MUTING CONTROL CIRCUIT BOARD



K to SLIDE VOLUME P. B

1	-10.5V OUT
2	SOURCE LED OUT
3	TAPE LED OUT
4	R-ch VR out OUT
5	R-ch VR in OUT
6	GND
7	L-ch VR in OUT
8	L-ch VR out OUT
9	Tape/Source Change Sig.
10	GND

L to FL METER P. B

1	METER MUTE OUT
2	GND
3	-14.0V OUT
4	+10.5V OUT
5	-10.5V OUT
6	AC 5.0V OUT
7	+14.0V OUT
8	R-ch SIGNAL OUT
9	L-ch SIGNAL OUT
10	GND

T from POWER SUPPLY P. B

1	+5.0V IN
2	+13.5V IN
3	50/60Hz IN
4	GND
5	+10.5V IN
6	+14.0V IN
7	-14.0V IN
8	-10.5V IN
9	AC 5.0V IN
10	GND

N from MAIN P. B

1	R-ch VR out IN
2	R-ch VR in OUT
3	GND
4	GND
5	L-ch VR out IN
6	L-ch VR in OUT
7	GND

C from MUTING CONTROL P. B

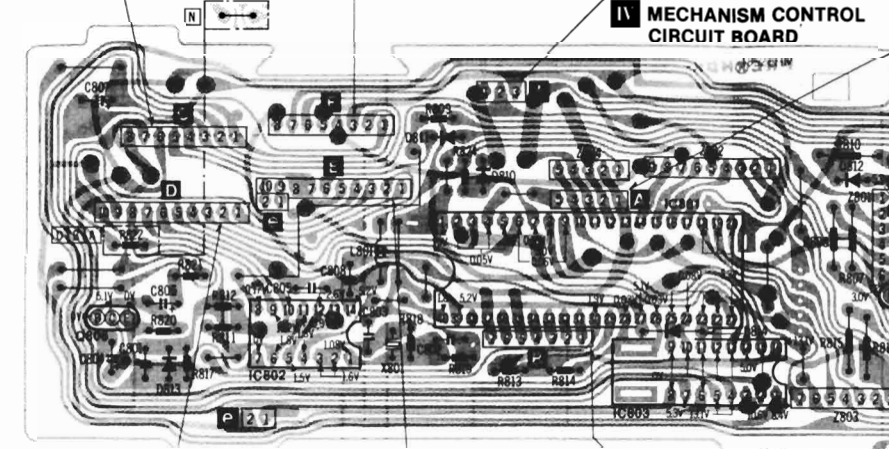
1	Play EQ Change Sig. OUT
2	+13.5V IN
3	+5.0V IN
4	GND
5	-14.0V IN
6	REC Command OUT
7	50/60Hz IN
8	PLAY Command IN

F from MUTING CONTROL P. B

1	Trigger Plunger Control Sig. OUT
2	Brake Plunger Control Sig. OUT
3	B+ OUT (for Plunger/Hall IC)
4	Rec INH IN
5	Mode IN
6	Play IN
7	Stop IN
8	Half IN

I to TIMER SW P. B

1	Schan Sig. OUT
2	Timer Play Command IN
3	Timer REC IN



D from MUTING CONTROL P. B

1	Tape Selector OUT
2	Tape Selector OUT
3	BIAS OSC. ON/OFF OUT
4	MUTE OUT
5	RESET OUT
6	50/60Hz OUT
7	Music Selector IN
8	REC MUTE OUT
9	PAUSE IN
10	+10.5V IN

E to MECHANISM P. B

1	Tape Selector IN
2	Tape Selector IN
3	B+ OUT
4	MOTOR OUT
5	Switching Schan OUT (Mecha mode)
6	Rotary Detection IN
7	GND
8	GND
9	Reel Motor Control Sig. OUT
10	GND

B from FL METER P. B

1	Digital Counter OUT
2	
3	
4	
5	
6	
7	

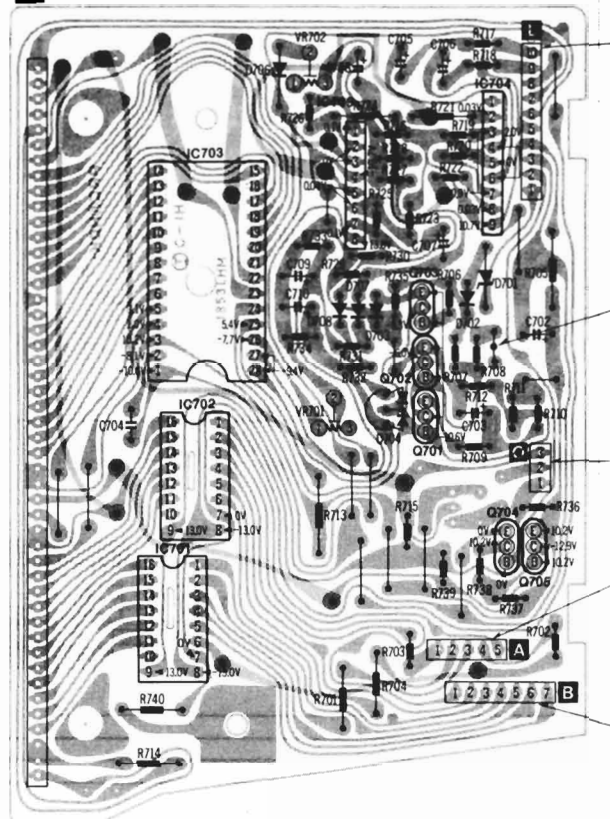
NOTES:
 • The circuit shown in [shaded] on the conductor side indicates printed circuit on the back side of the printed circuit board.
 • The circuit shown in [unshaded] on the conductor indicates printed circuit on the front side of the circuit board, which is put the components.
 • The symbols (●) shown in the circuit board indicate connection points between conductors on the front side and back side of the 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:

- For all European areas except United Kingdom.
- For United Kingdom.
- For Asia, Latin America, Middle East and Africa areas.
- For Australia.

II FL METER CIRCUIT BOARD



L from MUTING CONTROL P. B

10	L-ch SIGNAL IN
9	R-ch SIGNAL IN
8	+14.0V IN
7	
6	AC 5.0V IN
5	-10.5V IN
4	+10.5V IN
3	-14.0V IN
2	GND
1	METER MUTE IN

O from MAIN P. B

3	MAIN Indicate Command IN
1	J BAR Indicate Command IN

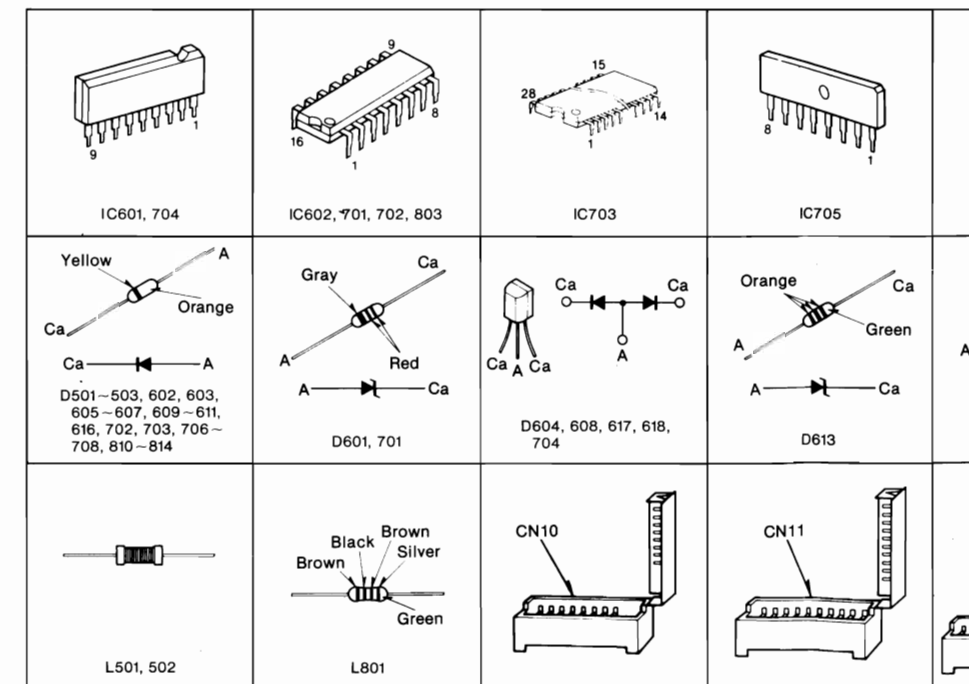
A from MECHANISM CONTROL P. B

1	Digital Counter In
2	
3	
4	
5	min/sec/repeat Indication Command IN

B from MECHANISM CONTROL P. B

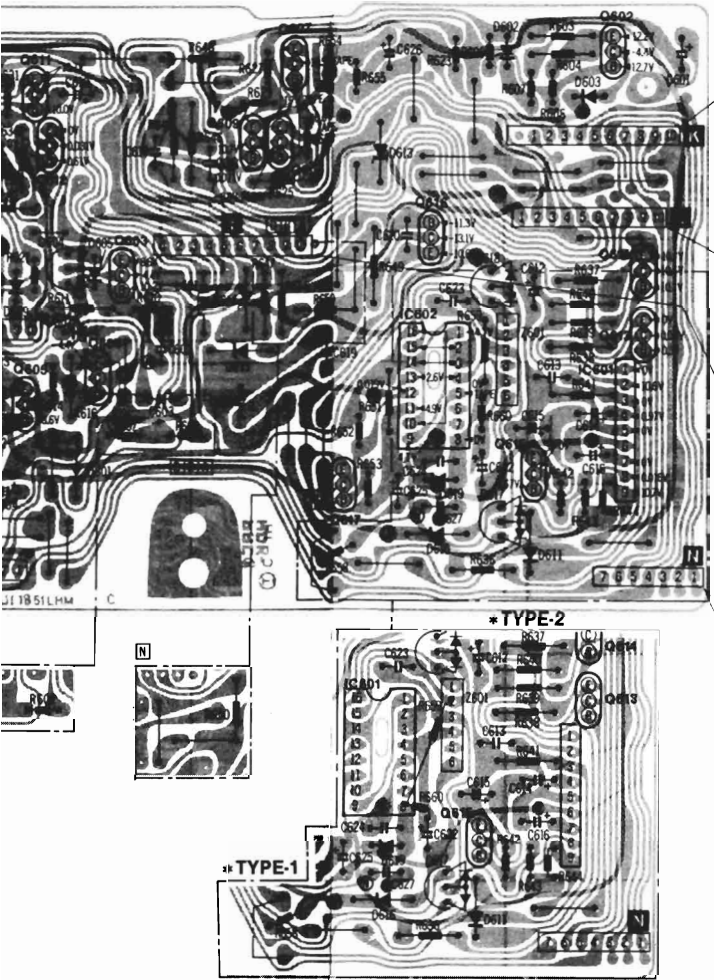
1	Digital Counter In
2	
3	
4	
5	
6	
7	

TERMINATIONS & CONNECTORS



FL Meter/Mechanism Control/Muting Control/Key Board Circuit Boards

CONTROL CIRCUIT BOARD



- K to SLIDE VOLUME P. B**
- 1 -10.5V OUT
- 2 SOURCE LED OUT
- 3 TAPE LED OUT
- 4 R-ch VR out OUT
- 5 R-ch VR in OUT
- 6 GND
- 7 L-ch VR in OUT
- 8 L-ch VR out OUT
- 9 Tape/Source Change Sig.
- 10 GND

- L to FL METER P. B**
- 1 METER MUTE OUT
- 2 GND
- 3 -14.0V OUT
- 4 +10.5V OUT
- 5 -10.5V OUT
- 6 AC 5.0V OUT
- 7 +14.0V OUT
- 8 R-ch SIGNAL OUT
- 9 L-ch SIGNAL OUT
- 10 GND

- M from POWER SUPPLY P. B**
- 1 +5.0V IN
- 2 +13.5V IN
- 3 50/60Hz IN
- 4 GND
- 5 +10.5V IN
- 6 +14.0V IN
- 7 -14.0V IN
- 8 -10.5V IN
- 9 AC 5.0V IN
- 10 GND

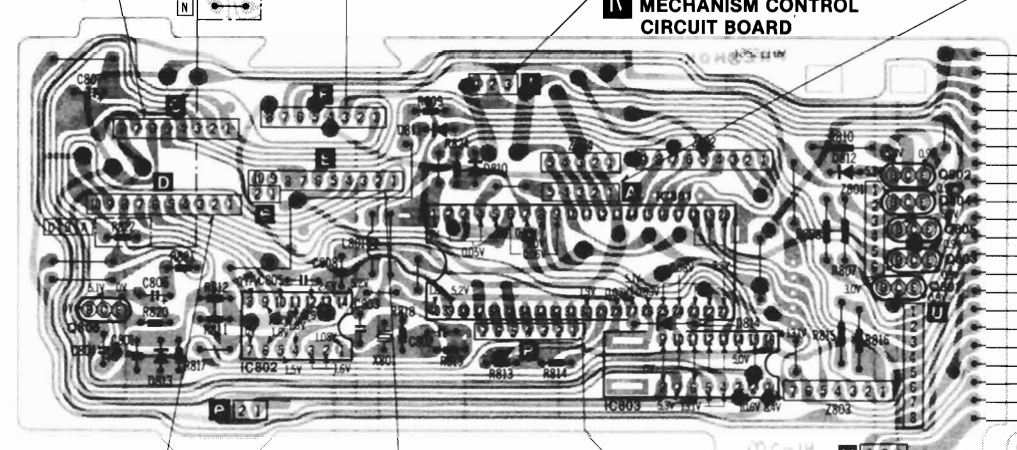
- N from MAIN P. B**
- 1 R-ch VR out IN
- 2 R-ch VR in OUT
- 3 GND
- 4 GND
- 5 L-ch VR out IN
- 6 L-ch VR in OUT
- 7 GND

- C from MUTING CONTROL P. B**
- 1 Play EQ Change Sig. OUT
- 2 +13.5V IN
- 3 +5.0V IN
- 4 GND
- 5 -14.0V IN
- 6 REC Command OUT
- 7 50/60Hz IN
- 8 PLAY Command IN

- F from MUTING CONTROL P. B**
- 1 Trigger Plunger Control Sig. OUT
- 2 Brake Plunger Control Sig. OUT
- 3 B+ OUT (for Plunger/Hall IC)
- 4 Rec INH IN
- 5 Mode IN
- 6 Play IN
- 7 Stop IN
- 8 Half IN

- A to FL METER P. B**
- 1 Digital Counter OUT
- 2
- 3
- 4
- 5 min/sec/repeat Indication Command OUT

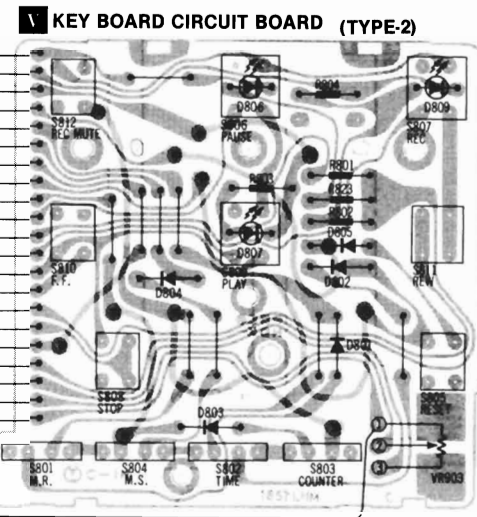
- I to TIMER SW P. B**
- 1 Schan Sig. OUT
- 2 Timer Play Command IN
- 3 Timer REC IN



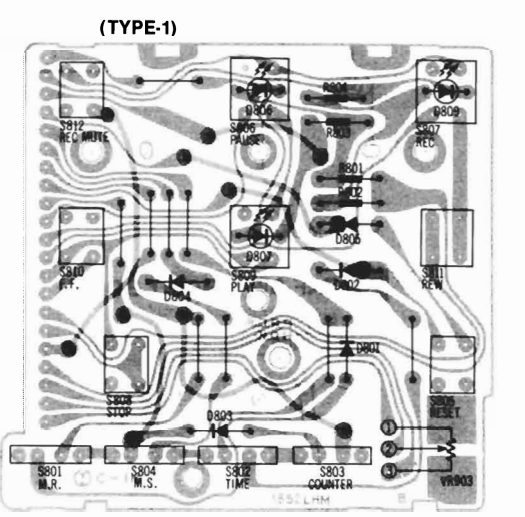
- D from MUTING CONTROL P. B**
- 1 Tape Selector OUT
- 2 Tape Selector OUT
- 3 BIAS OSC. ON/OFF OUT
- 4 MUTE OUT
- 5 RESET OUT
- 6 50/60Hz OUT
- 7 Music Selector IN
- 8 REC MUTE OUT
- 9 PAUSE
- 10 +10.5V IN

- E to MECHANISM P. B**
- 1 Tape Selector IN
- 2 Tape Selector IN
- 3 B+ OUT
- 4 MOTOR OUT
- 5 Switching Schan OUT (Mecha mode)
- 6 Rotary Detection IN
- 7 GND
- 8 GND
- 9 Reel Motor Control Sig. OUT
- 10

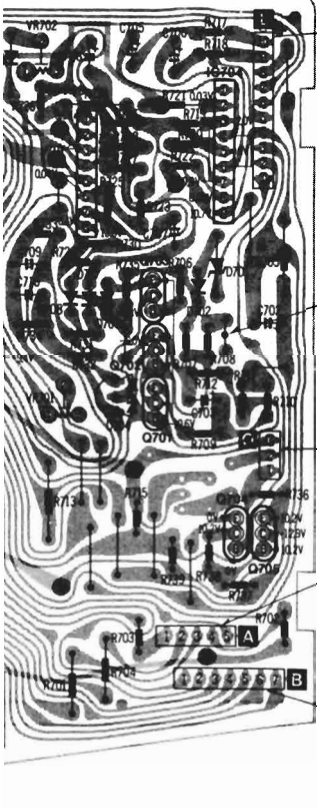
- E from FL METER P. B**
- 1 Digital Counter OUT
- 2
- 3
- 4
- 5
- 6
- 7



- V to MECHANISM CONTROL P. B**
- 3 BIAS ADJUST OUT
- 2 BIAS ADJUST IN
- 1 Power IN (for Bias Adjust)



BOARD



- L from MUTING CONTROL P. B**
- 10 L-ch SIGNAL IN
- 9 R-ch SIGNAL IN
- 8 +14.0V IN
- 7 AC 5.0V IN
- 6 -10.5V IN
- 5 +10.5V IN
- 4 -14.0V IN
- 3 GND
- 2 METER MUTE IN
- 1

- O from MAIN P. B**
- 3 MAIN Indicate Command IN
- 1 J BAR Indicate Command IN

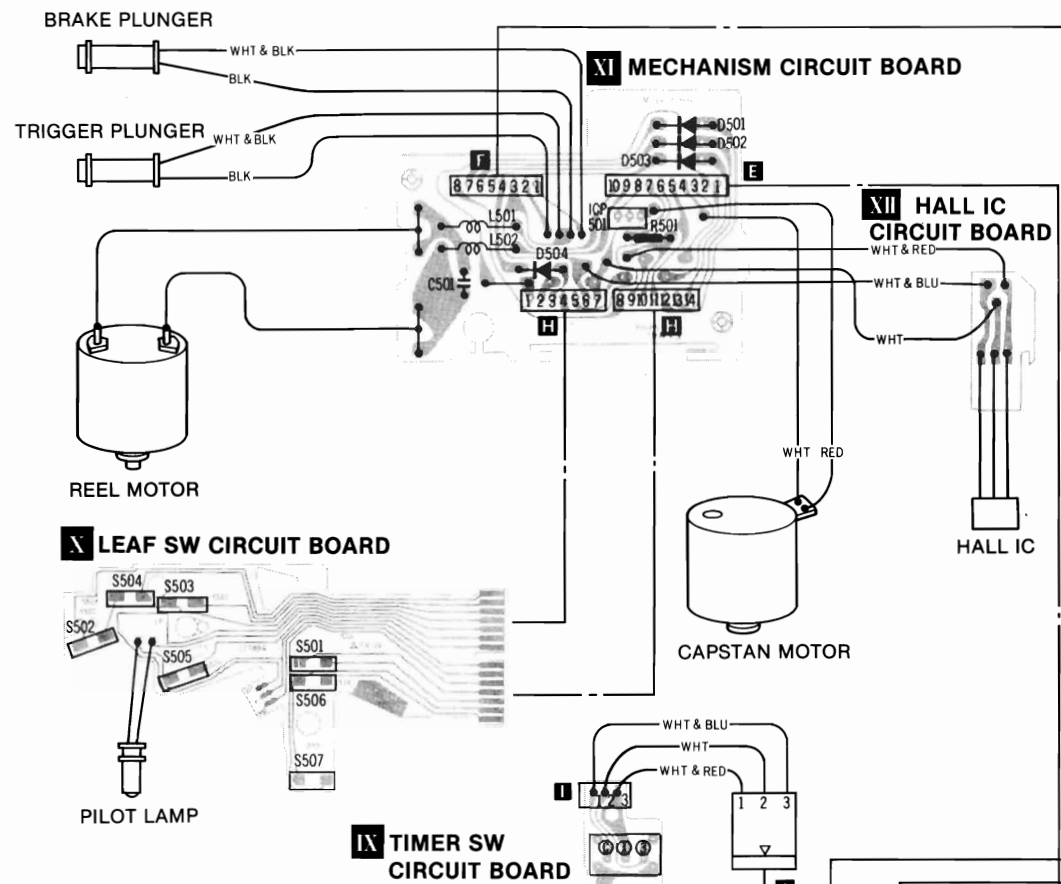
- A from MECHANISM CONTROL P. B**
- 1 Digital Counter In
- 2
- 3
- 4 min/sec/repeat Indication Command IN
- 5

- B from MECHANISM CONTROL P. B**
- 1 Digital Counter In
- 2
- 3
- 4
- 5
- 6
- 7

TERMINATIONS & CONNECTORS

IC601, 704	IC602, 701, 702, 803	IC703	IC705	IC801	IC802	Q602-606, 609-615, 617, 701-705, 801-806	Q607, 608	Q851, 853
D601, 701	D604, 608, 617, 618, 704	D613	D614	D615	D851, 854	D853, 855-859	ICP501	ICP501
L501, 502	L801	CN10	CN11	CN12	CN13	CN14	CN15	CN16

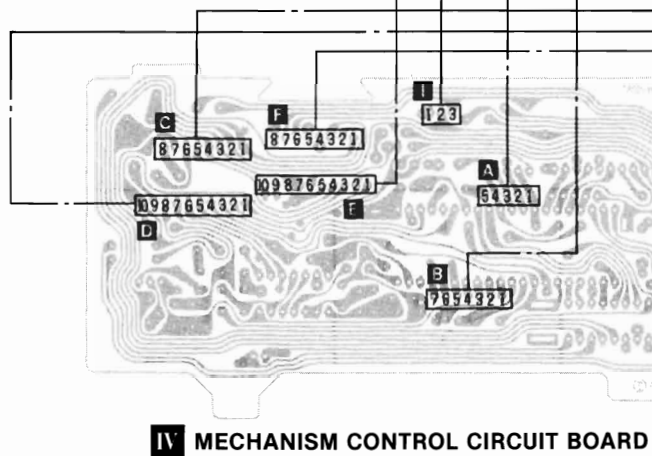
WIRING CONNECTION DIAGRAM



- NOTES:**
- BLKBlack
 - BLUBlue
 - BRNBrown
 - GRYGray
 - GRNGreen
 - L. BLULight Blue
 - NIL.....No Color Mark
 - ORGOrange
 - PNKPink
 - REDRed
 - SLDShield Wire
 - VLTViolet
 - WHTWhite
 - YELYellow

II FL METER CIRCUIT BOARD

III MUTING CONTROL CIRCUIT SECTION

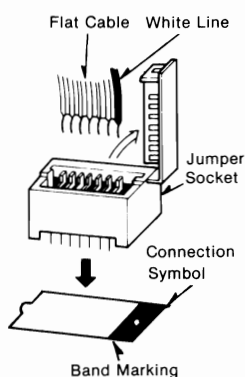


V KEY BOARD CIRCUIT SECTION

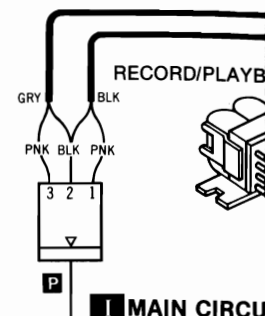
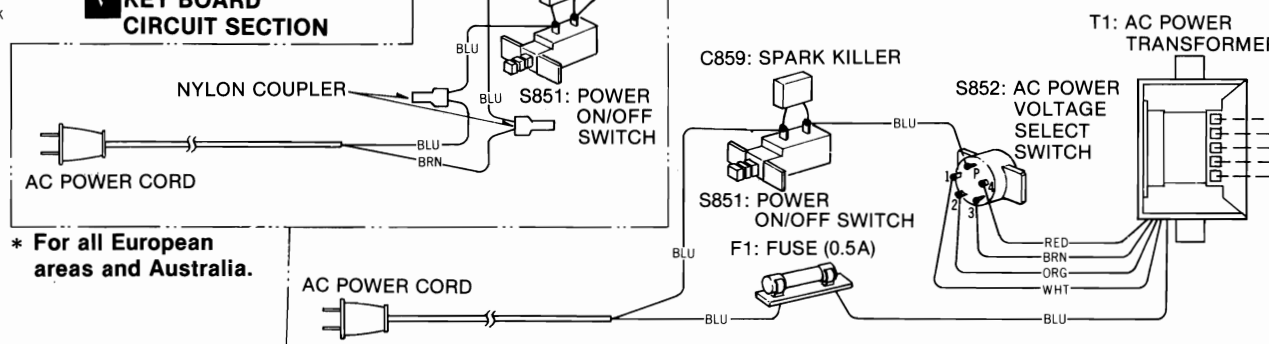
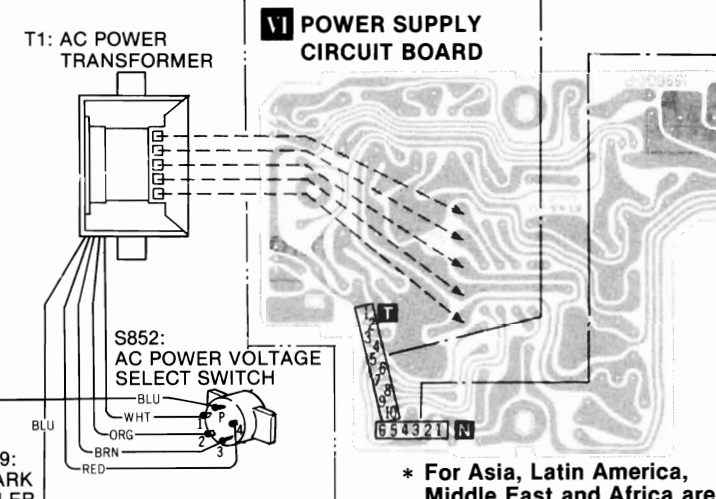
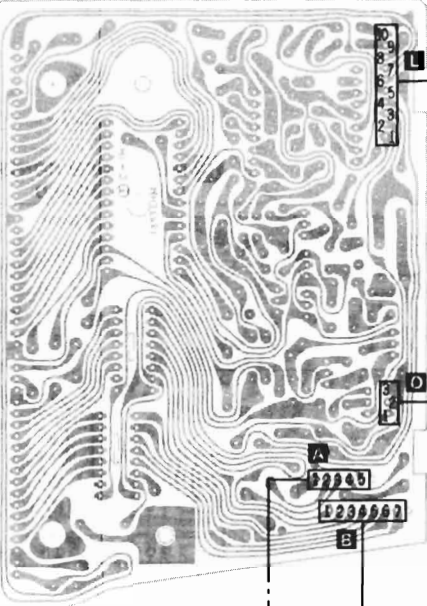
VI POWER SUPPLY CIRCUIT BOARD

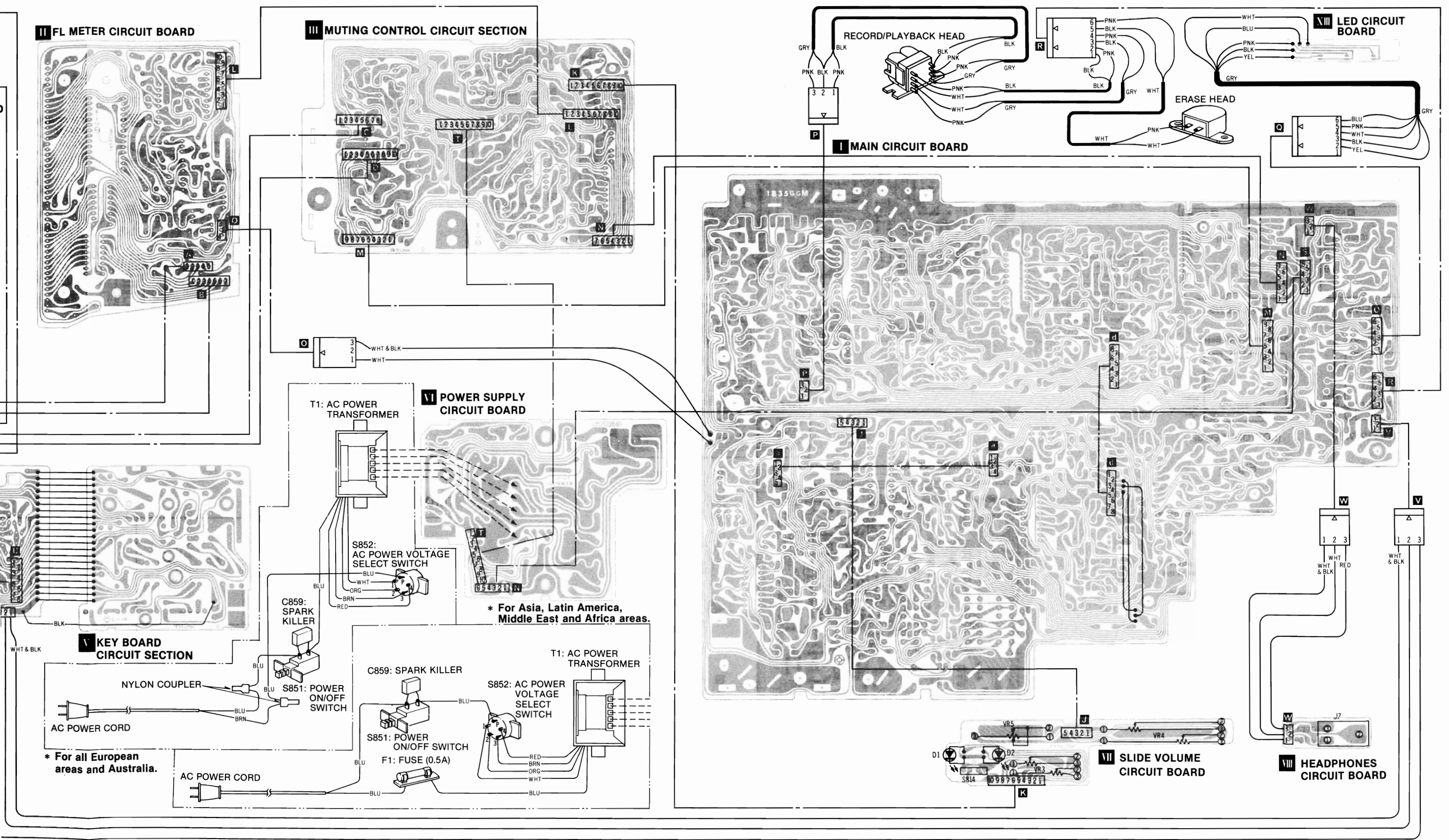
CONNECTION OF A FLAT CABLE

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.)



XVI REMOTE CONTROL CIRCUIT BOARD

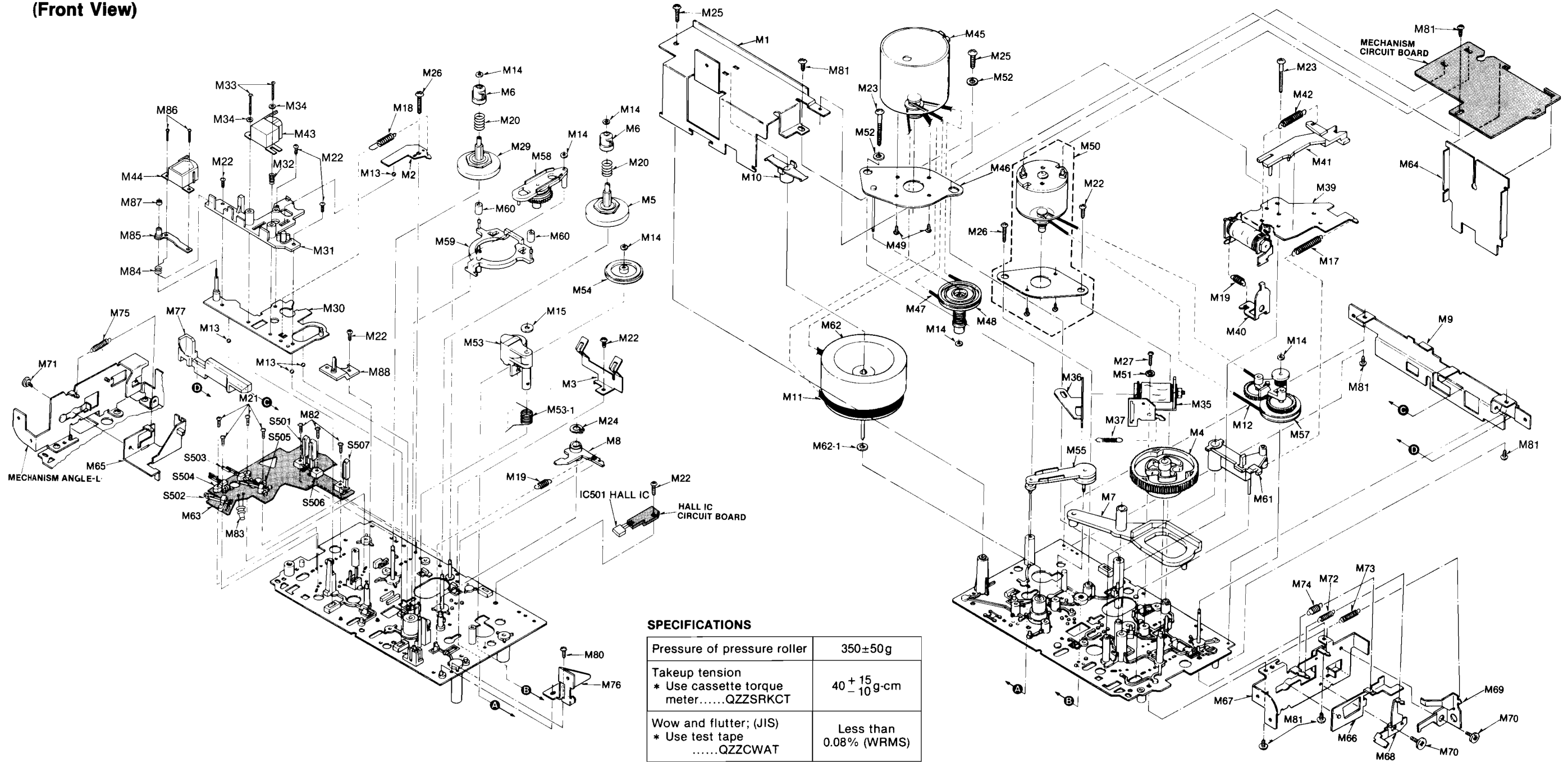




MECHANICAL PARTS LOCATION

(Front View)

(Rear View)



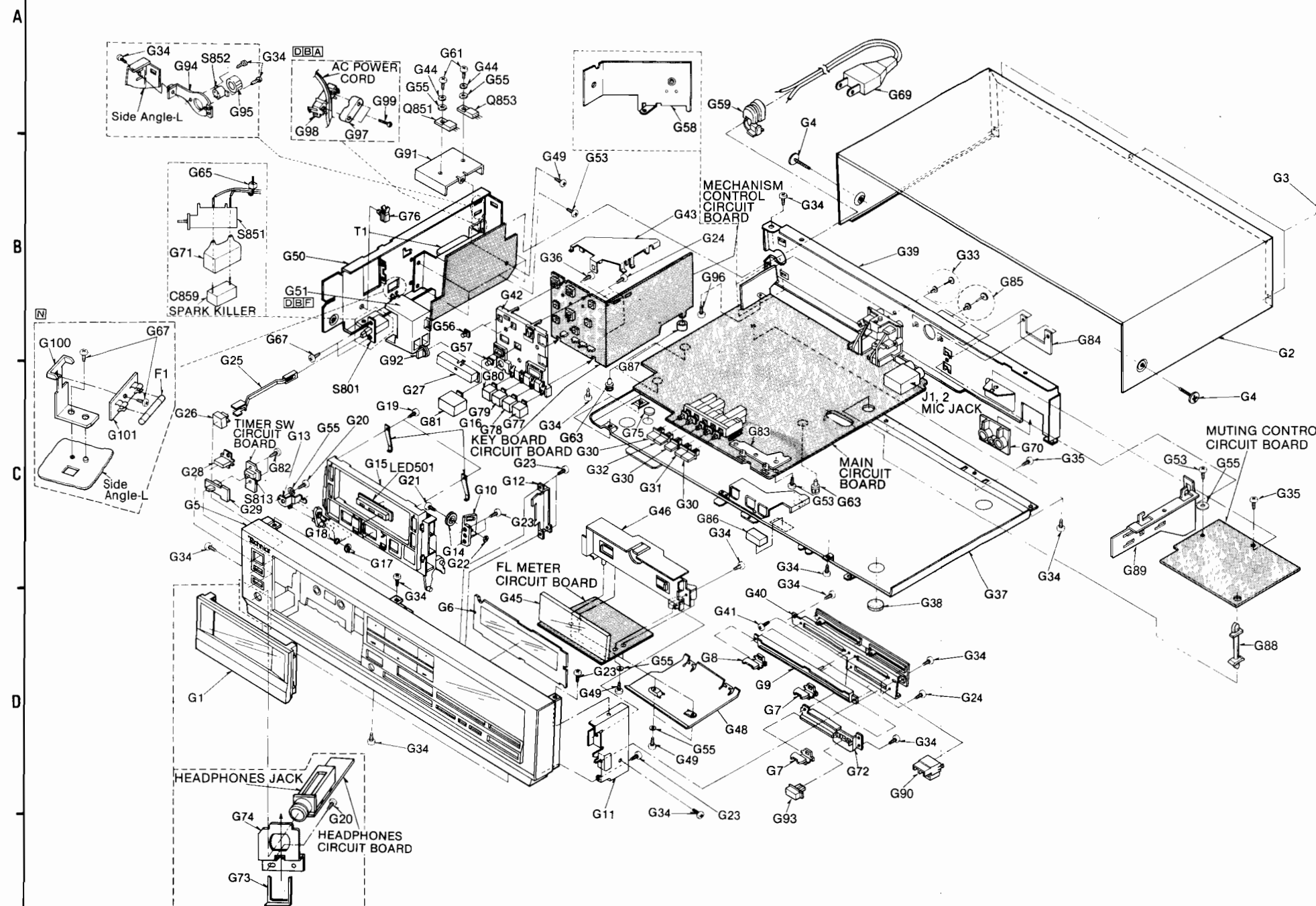
SPECIFICATIONS

Pressure of pressure roller	350±50 g
Takeup tension * Use cassette torque meter.....QZZSRKCT	40 + 15 - 10 g-cm
Wow and flutter; (JIS) * Use test tapeQZZCWAT	Less than 0.08% (WRMS)

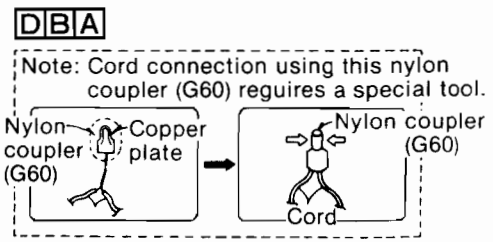
REPLACEMENT PARTS LIST

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
MECHANICAL PARTS														
M 1	QMA4528	Flywheel Retainer	M 14	QBW2008	Snap Washer	M 31	QMZ1303	Spacer	M 46	QXA1328	Motor Retainer Assembly	M 60	QBG1132	Brake Rubber
M 2	QBP1894	Head Base Plate Spring	M 15	QBW2046	Snap Washer	M 32	QBC1103	Spring (for R/P Head)	M 47	QDB0332	Takeup Belt	M 61	QXL1411	Lock Lever Assembly
M 3	QBP1979	Cassette Pressure Spring	M 17	QBT1725	Lock Lever Spring	M 33	XSN2 + 14	Screw @2x14	M 48	QXP0621	Takeup Pulley Assembly	M 62	QXF0219	Flywheel Assembly
M 4	QXG1059	Main Gear Assembly	M 18	QBT1927	Head Base Plate Spring	M 34	XWG2	Washer 2φ	M 49	XSN26 + 3	Screw @2.6x3	M 62-1	QBW2099	Poly Washer
M 5	QXD0147	Takeup Reel Table	M 19	QBT1920	Idler Spring	M 35	QXA1232	Brake Plunger Assembly	M 50	QXU0334	Reel Motor Assembly	M 63	QJi1776RR	Leaf Switch P.C.B.
M 6	QMB1336	Reel Table Hub	M 20	QBC1373	Reel Table Spring	M 36	QML3865	Plunger Lever	M 51	XWG26	Washer 2.6φ	M 64	QTW1315	Insulating Plate
M 7	QML3655	Cam Follower	M 21	XTN2 + 6B	Tapping Screw @2x6	M 37	QBT1955	Plunger Spring	M 52	XWG3	Washer 3φ	M 65	QXL1600	Lock Lever-C Assembly
M 8	QML3660	Idler Select Lever	M 22	XTN26 + 6B	Tapping Screw @2.6x6	M 39	QXA1076	Trigger Plunger Assembly	M 53	QXL1550	Pressure Roller Assembly	M 66	QXL1601	Lock Lever-B Assembly
M 9	QMA4543	Mechanism Upper Angle	M 23	XTN3 + 24B	Tapping Screw @3x24	M 40	QML3651	Trigger Plunger Lever	M 53-1	QBN1771	Pressure Roller Spring	M 67	QMA4623	Mechanism Angle-L
M 10	QMZ1293	Flywheel Thrust Retainer	M 24	XUB4FT	Stop Ring 4φ	M 41	QML3653	Control Lever	M 54	QXi0113	Takeup Idler Assembly	M 68	QML3976	Eject Lever
M 11	QDB0333	Flywheel Belt	M 25	XTN3 + 10B	Tapping Screw @3x10	M 42	QBT1278	Record Lock Lever Spring	M 55	QXL1603	Idler Lever Assembly	M 69	QML3978	Mechanism Lever-A
M 12	QDB0287	Changing Belt	M 26	XTN26 + 12B	Tapping Screw @2.6x12	M 43	QWY4148Z	Record/Playback Head	M 56	XTN3 + 6B	Tapping Screw @3x6	M 70	QHQ1161	Step Screw
M 13	QDK1012	Steel Ball 2.5φ	M 27	XTN26 + 8B	Tapping Screw @2.6x8	M 44	QWY2133Z	Erase Head	M 57	QXL1408	Swing Gear Assembly	M 71	QHQ1168	Step Screw
			M 29	QDR1164	Supply Reel Table	M 45	QXU0322	Capstan Motor Assembly	M 58	QXL1604	Fast Wind Gear Assembly	M 72	QBT2001	Eject Lever Spring
			M 30	QXK2765	Head Base Plate				M 59	QML3659	Brake Lever	M 88	QXH0434	Pad Cradle Assembly
												M 73	QBT1998	Lock Lever-A Spring
												M 74	QBT1999	Lock Lever-B Spring
												M 75	QBT2000	Lock Lever-C Spring
												M 76	QMA4554	Mechanism Angle-R
												M 77	QML3972	Auto Tape Select Lever
												M 80	XTN26 + 8B	Tapping Screw @2.6x8
												M 81	XTN3 + 6B	Tapping Screw @3x6
												M 82	XTN2 + 8B	Tapping Screw @2x8
												M 83	XAMQ50S12	Pilot Lamp
												M 84	QBN1981	Spring (for Erase Head)
												M 85	QXH0437	Erase Head Base Plate Assembly
												M 86	XSN2 + 4	Screw @2x4
												M 87	QNQ1094	Nut
												M 88	QXH0434	Pad Cradle Assembly

CABINET PARTS LOCATION



- NOTES:**
- [D]For all European areas except United Kingdom.
 - [B]For United Kingdom.
 - [N]For Asia, Latin America, Middle East and Africa areas.
 - [A]For Australia.



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
CABINET PARTS		
G 1	QYF0641 "Silver Type" QYF0641K "Black Type"	Cassette Lid Assembly

Ref. No.	Part No.	Part Name & Description	Ref. No.	Part No.	Part Name & Description
G 2	QGC1239 "Silver Type" QGC1239 "Black Type"	Case Cover	G 60	[DBA] Δ QJT1079	Nylon Coupler [For all European areas and Australia.]
G 3	XTB3 + 8BFN "Silver Type" XTB3 + 8BFZ "Black Type"	Tapping Screw $\phi 3 \times 8$	G 61	XSN3 + 8S	Screw $\phi 3 \times 8$
G 4	QH01349 "Silver Type" QH01349K "Black Type"	Ornament Screw	G 63	QKJ0608	Spacer (for P.C.B.)
G 5	QYP1189 "Silver Type" QYP1189K "Black Type"	Front Panel Assembly	G 65	QTD1315	Nylon Binder
G 6	QGL1181 "Silver Type" QGL1181K "Black Type"	FL Meter Cover	G 67	XTN3 + 6B	Tapping Screw $\phi 3 \times 6$
G 7	QYT0657 "Silver Type" QYT0658 "Black Type"	Slide Knob-A Assembly	G 69	[D] Δ SJA88	AC Power Cord [For all European areas except United Kingdom.]
G 8	QYG0208 "Silver Type" QYG0208K "Black Type"	Slide Guide-A	[B] Δ OFC1205M	AC Power Cord [For United Kingdom.]	
G 9	QYJ0596	Damper Gear Holding Angle	[N] Δ RJA522B-K	AC Power Cord [For Asia, Latin America, Middle East and Africa areas.]	
G 10	QMA4636 QMA4610 QMA4552 QDG1254 QMH2098 "Silver Type" QMH2098K "Black Type"	Side Angle-R Meter Holding Angle Cassette Holder Angle-L Damper Gear Cassette Holder	[A] Δ QFC1208M	AC Power Cord [For Australia.]	
G 11	QBP1946 XUB04FT	Cassette Pressure Spring Stop Ring	G 70	QKG3355	MIC Cover
G 12	QBN1961	Holder Spring	G 71	QTW1195	Spark Killer Cover
G 13	XTN26 + 5BFZ	Screw $\phi 2.6 \times 5$	G 72	QGG0218	Slide Guide-B
G 14	XTN3 + 8B	Tapping Screw $\phi 3 \times 8$	G 73	QGG0218K "Black Type"	Slide Guide-B
G 15	XSN26 + 10 XNG26E	Screw $\phi 2.6 \times 10$ Nut 2.6 ϕ	G 74	QMA4624	Headphones Holding Plate
G 16	XTB3 + 10BFN	Tapping Screw $\phi 3 \times 10$	G 75	QMA4614	Headphones Angle
G 17	XTN26 + 8B	Tapping Screw $\phi 2.6 \times 8$	G 76	QTW1336	Insulator Sheet
G 18	QMR2059	Power Rod	G 77	QKJ0648	Cord Clamper
G 19	QGO2142	Push Button (Power ON/OFF)	G 78	QGO2211	Push Button (Repeat)
G 20	QGO2140	Push Button (STOP)	G 79	QGO2214	Push Button (Music Select)
G 21	QGO2141	Push Button (for Eject)	G 80	QGO2213	Push Button (Time Counter)
G 22	QGT1642	Timer Switch Knob	G 81	QGO2212	Push Button (Tape Counter)
G 23	QGO2145	Push Button-A	G 82	QGO2210	Push Button (Counter Reset)
G 24	QGO2146	Push Button-B	G 83	XTN26 + 6B	Tapping Screw $\phi 2.6 \times 6$
G 25	QGO2147	Push Button-C	G 84	QMA4613	P.B Holding Angle (A)
G 26	QKJ0609	Nylon Rivet	G 85	QMA4645	Remote Control Angle
G 27	XTB3 + 8BFN	Tapping Screw $\phi 3 \times 8$	G 86	QKJ0661	Nylon Rivet
G 28	XTB3 + 12BFZ	Tapping Screw $\phi 3 \times 12$	G 87	QBM1333	Rubber Cushion
G 29	QGC1240	Bottom Cover	G 88	QBM1332	Cap
G 30	QKA1086	Case Foot	G 89	QKJ0637	Locking Support
G 31	[D] QMK2054	Back Chassis [For all European areas except United Kingdom.]	G 90	QMA4615	P.B Holding Angle (B)
G 32	[BA] QMK2055	Back Chassis [For United Kingdom and Australia.]	G 91	QKJ0633	LED Holding
G 33	[N] QMK2056	Back Chassis [For Asia, Latin America, Middle East and Africa areas.]	G 92	QTH1179	Heat Sink
G 34	QMA4611	Volume Angle	G 93	QGT1643	Bias Adjustment Knob
G 35	XSN2 + 3	Screw $\phi 2 \times 3$	G 94	QGO2215	Push Button (Monitor)
G 36	QMK2036	Operation Chassis	G 95	QMA4603	Switch Angle (for S852)
G 37	QMA4558	P.C.B Angle	G 96	QTW0026	Switch Cover (for S852)
G 38	XWA3B	Washer 3 ϕ	G 97	XSN + 6BVD	Screw $\phi 3 \times 6$
G 39	QSI0606F	FL Meter	G 98	[DBA] QTD1164	Cord Clamper-A [For all European areas and Australia.]
G 40	QKJ0632	Meter Holder	G 99	[DBA] QTD1322	Cord Clamper-B [For all European areas and Australia.]
G 41	QTS1602	FL Meter Shield Plate	G 100	[DBA] XTN3 + 24B	Tapping Screw $\phi 3 \times 24$ [For all European areas and Australia.]
G 42	XTN3 + 10B	Tapping Screw $\phi 3 \times 10$	G 101	[N] QMA3418	Fuse Angle [For Asia, Latin America, Middle East and Africa areas.]
G 43	QMA4635	Side Angle-L	G 101	[N] Δ QTF1032	Fuse Holder [For Asia, Latin America, Middle East and Africa areas.]
G 44	[DBA] QKJ0598	Switch Cover (for S851) [For all European areas and Australia.]	ACCESSORIES		
G 45	XTN3 + 6B	Tapping Screw $\phi 3 \times 6$	A 1	QEB0125	Connection Cord
G 46	XWG26	Washer 2.6 ϕ	A 2	XZB24X34A04	Poly Bag (for A3)
G 47	XWG3	Washer 3 ϕ	A 3	QQT3475	Instruction Book
G 48	QKJ0634	LED Cover-A	A 4 [N] Δ QJP0603S	AC Plug Adaptor [For Asia, Latin America, Middle East and Africa areas.]	
G 49	QKJ0635	LED Cover-B	PACKINGS		
G 50	QTH1178	Heat Sink	P 1	[DBA] QPN4455	Inner Carton [For all European areas and Australia.]
G 51	[DBA] QBJ1425	Cord Bushing [For all European areas and Australia.]		[N] QPN4458	Inner Carton [For Asia, Latin America, Middle East and Africa areas.]
G 52	[N] QTD1129	Cord Bushing [For Asia, Latin America, Middle East and Africa areas.]	P 2	QPA0701	Cushion-R
G 53	XTN3 + 6B	Tapping Screw $\phi 3 \times 6$	P 3	QPA0702	Cushion-L
G 54	XWG26	Washer 2.6 ϕ	P 4	QPS0434	Pad
G 55	XWG3	Washer 3 ϕ	P 5	QPA0712	Spacer
G 56	QKJ0634	LED Cover-A	P 6	XZB40X60A02	Poly Bag (for UNIT)
G 57	QKJ0635	LED Cover-B	P 7	QPC0072	Poly Sheet (for AC Power Cord)

Service Manual

Cassette Deck

RS-M253X

(Silver Face)
(Black Face)

Supplement-1

dbx* /Dolby B-C 2 Motor 3 Head
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.
- A** ...For Australia.

RS-M250 MECHANISM SERIES

Please use this manual together with the service manual for model No. RS-M253X (Original) order No. ARD83040230C8-19.

PARTS COMPARISON TABLE:

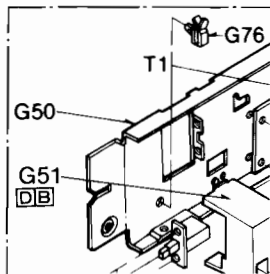
Please revise the original parts list in the Service Manual (RS-M253X) to conform to the changes shown herein.

If new part numbers are shown, be sure to use them when ordering parts.

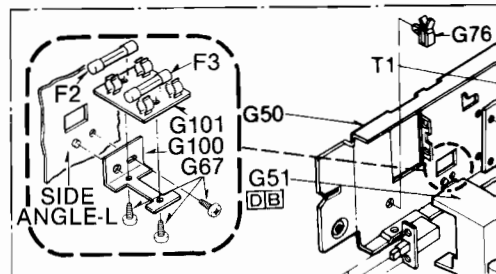
• Important safety notice
Components identified by Δ mark have special characteristics important for safety.
When replacing any of these components, use only manufacturer's specified parts.

Ref. No.	Part Name & Description	Part Numbers		Remarks
		Former Type	New Type	
IC104, 105, 106, 130, 203, 204 205, 206, 302	Integrated Circuits	M5220L	M5218L	
F2, 3 Δ	Fuse	—	XBAQ100027 (T1A)	Added
G2	Case Cover "Silver Type"	QGC1239	QGC1245	
G2 D B	Case Cover "Black Type"	QGC1239 ↓ Correction QGC1239K	QGC1245K	
* For all European areas.				
G100	Fuse Angle	—	QMA4729	Added
G101 Δ	Fuse Holder	—	QFF1020	Added

CABINET PARTS LOCATION (ADDITION)



Former Type



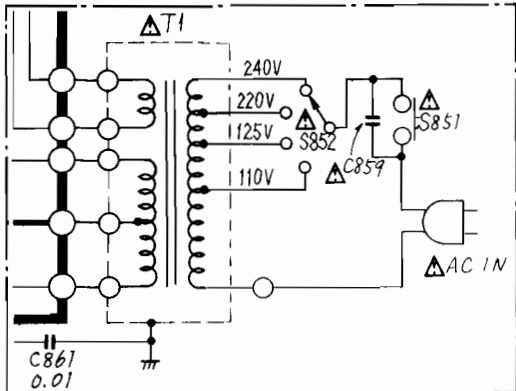
New Type

* The term dbx is a registered trademark of dbx Inc.
** 'Dolby' and the double-D symbol are trademarks of Dolby Laboratories Licensing Corporation.

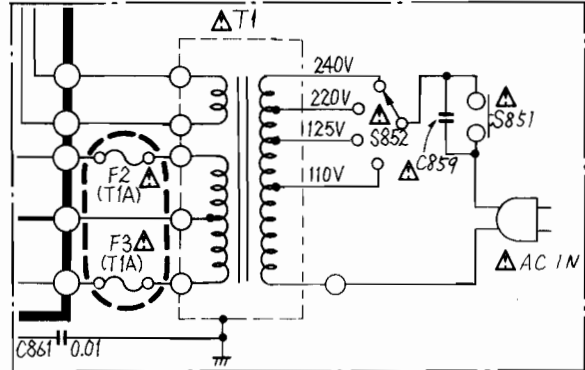
Technics

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

SCHEMATIC DIAGRAM (Power Supply Circuit Section) (ADDITION)



Former Type

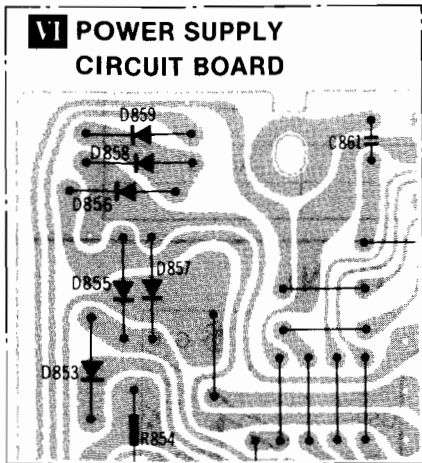


New Type

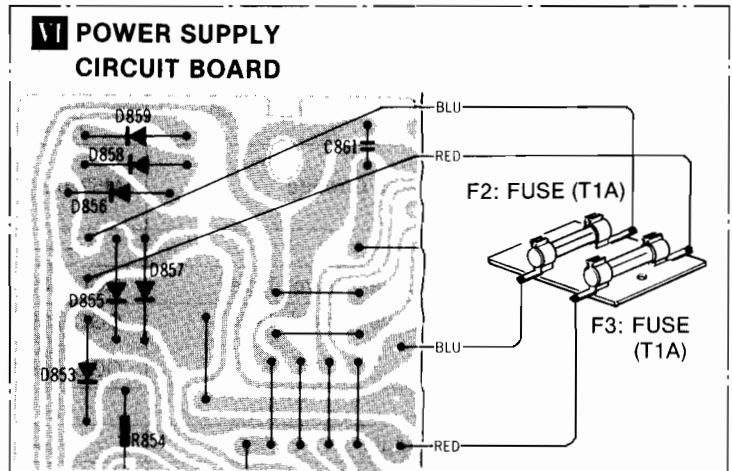
CIRCUIT BOARDS AND WIRING CONNECTION DIAGRAM

- NOTES:** Former Type.....This product with serial numbers to RH303950.
 New TypeThis product with serial number RH303951 and after.
 •The serial number plate of this product is attached to the bottom cover.

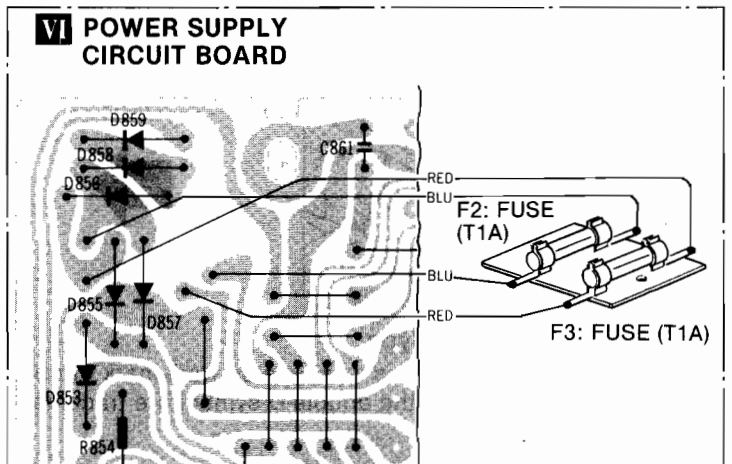
(ADDITION)



Former Type



New Type



New Type

MESSUNGEN UND EINSTELL METHODEN

RS-M253X DEUTSCH

Verwenden Sie bitte diese Broschüre Zusammen mit der Service-Anleitung für das Modell Nr. RS-M253X.

Anm.: Wenn nicht anders vorgeschrieben, Drehschalter und Steuereinrichtungen auf die folgenden Positionen stellen.

- Für saubere Köpfe sorgen.
- Für saubere Tonwelle und Andruckrolle sorgen.
- Auf normale Raumtemperatur achten: $20 \pm 5^\circ\text{C}$ ($68 \pm 9^\circ\text{F}$)
- Monitorschalter: Band-Position
- Eingangsregler: MAX
- Ausgangsregler: MAX
- Dolby-Schalter: AUS
- Vormagnetisierungsfeineinstellung: Mitte
- Balanceregler: Mitte

A Einstellung der Löschkopfhöhe

Bedingung:
• Wiedergabe

Meßgerät:
• Testband (Bandlaufweg-Betrachtungsvorrichtung mit Spiegel)...QZZCRD

Vorsicht:

1. Die Schrauben (A) und (B) lösen und den Löschkopf ersetzen.
(Die Mutter (C) dient zur Einstellung der Löschkopfhöhe und darf nicht gelöst werden.)
2. Nachdem der Löschkopf ausgewechselt wurde, das Testband QZZCRD abspielen.
3. Sollten irgendwelche Probleme beim Bandtransport auftreten, ist auf unten beschriebene Weise die Einstellung vorzunehmen.

Einstellung:

1. Die Mutter (C) (siehe Fig. 2) so justieren, daß das Band sich nicht verwickelt oder von der Bandführung des Löschkopfes verzogen wird.

Kopfhöheneinstellung mit der Kopfeinstellungsvorrichtung (QZZ0207)

Die Kopfeinstellungsvorrichtung (QZZ0207) ermöglicht schnelles und genaues Einstellen der Kopfhöhe, wie im Folgenden beschrieben:

- a. Die Grundplatte auf den Mechanismus aufsetzen.
- b. Auf Wiedergabe (Play) schalten.
- c. Prüfstab auf die Grundplatte setzen.
- d. Den Prüfungsstab durch die Bandführungen führen.
- e. Den Nut so justieren, dass der Prüfstab die Bandführungen nicht berührt.
- f. Mit dem Testband (QZZCRD) überprüfen, ob das Band die Bandführungen nicht berührt.
(z.B.: Das Band darf nicht verdreht werden).

B Justierung des Aufnahme/ Wiedergabekopfes

Bedingung:
• Wiedergabe
• Betriebsart: Normalband
• Ausgangsregler: MAX

Meßgerät:
• Röhrenvoltmeter
• Oszillograph
• Testband (azimuth)...QZZCFM

Ausgangsbalance-Justierung für linken und rechten Kanal

1. Den Meßaufbau zeigt Fig. 4.
2. 8kHz-Signal des Testbandes (QZZCFM) wiedergeben.
Schraube (D) in Fig. 5 auf maximalen Ausgangspegel des linken und rechten Kanals abgleichen.
Sind die Ausgangspegel des linken und rechten Kanals nicht gleichzeitig maximal, wie folgt justieren:
3. Durch Drehen der in Fig. 5 gezeigten Schraube (D) die Winkel A und C (Punkte, wo Spitzenausgangspegel für den linken und rechten Kanal erreicht werden) ermitteln. Anschließend den Winkel B zwischen dem Winkel A und C ermitteln, d.h. den Punkt, wo die Ausgangspegel des linken und rechten Kanals ausbalanciert (ausgeglichen) sind. (Siehe Fig. 5 und 6.)

Phasenjustierung für linken und rechten Kanal

4. Den Meßaufbau zeigt Fig. 7.
5. 8kHz-Signal des Testbandes (QZZCFM) wiedergeben.
Schraube (D), wie in Fig. 5 gezeigt, so einstellen, daß Zeiger von zwei Röhrenvoltmeter auf Maximum ausschlagen und am Oszillographen eine Wellenform wie in Fig. 8 erreicht wird.

Ⓒ Bandgeschwindigkeit

- Bedingung:
- Wiedergabe
 - Ausgangsregler: MAX

- Meßgerät:
- Elektronischer Digitalzähler
 - Testband...QZZCWAT

Genauigkeit der Bandgeschwindigkeit

1. Den Meßaufbau zeigt Fig. 9.
2. Testband (QZZCWAT 3000 Hz) wiedergeben und Ausgangssignal dem Zähler zuführen.
3. Frequenz messen.
4. Beträgt die auf dem Testband aufgezeichnete Frequenz 3000 Hz, so ergibt sich die Genauigkeit nach folgender Formel:

$$\text{Genauigkeit der Bandgeschwindigkeit} = \frac{f - 3000}{3000} \times 100(\%)$$

worin f die gemessene Frequenz ist.

5. Die Messung soll im mittleren Teil des Bandes erfolgen.

NORMALWERT: ±1,5%

6. Falls der Meßwert nicht im vorgeschriebenen Bereich liegt, bitte mit Bandgeschwindigkeitsregler VR wie in Abb. 1 gezeigt einstellen.

Anmerkung: Bitte bei dieser Einheit zum Justieren der Bandgeschwindigkeit keinen Metallschraubenzieher benutzen.

Schwankung der Bandgeschwindigkeit:

Messung, wie oben beschrieben für Anfang, mittleren Teil und Ende des Testbandes wiederholen und Schwankung wie folgt bestimmen:

$$\text{Schwankung} = \frac{f_1 - f_2}{3000} \times 100(\%)$$

f₁ = Maximalwert

f₂ = Minimalwert

NORMALWERT: 1,0%

Ⓓ Frequenzgang bei Wiedergabe

- Bedingung:
- Wiedergabe
 - Betriebsart: Normalband
 - Ausgangsregler: MAX

- Meßgerät:
- Röhrenvoltmeter
 - Oszillograph
 - Testband...QZZCFM

1. Den Meßaufbau zeigt Fig. 4.
2. Gerät auf Wiedergabe schalten. Frequenzgang-Testband QZZCFM wiedergeben.
3. Ausgangsspannung bei 315 Hz, 12,5 kHz, 8 kHz, 1 kHz, 250 Hz, 125 Hz und 63 Hz messen und jede Ausgangsspannung mit der Standardfrequenz 315 Hz am Testpunkt [TP201 (L-CH), TP202 (R-CH)] vergleichen.
4. Messungen an beiden Kanälen durchführen.
5. Prüfen, ob die gemessenen Werte innerhalb des in der Frequenzgang-Übersicht aufgeführten Bereichs liegen. (Siehe Fig. 10.)

Ⓔ Wiedergabe-Verstärkung

- Bedingung:
- Wiedergabe
 - Betriebsart: Normalband
 - Ausgangsregler: MAX

- Meßgerät:
- Röhrenvoltmeter
 - Oszillograph
 - Testband...QZZCFM

1. Den Meßaufbau zeigt Fig. 4.
2. Standard-Frequenz (QZZCFM 315 Hz) vom Testband wiedergeben und Ausgangsspannung messen. [TP201 (L-CH), TP202 (R-CH)].
3. Messung an beiden Kanälen durchführen.

NORMALWERT: 0,28 V [0,4 ± 0,05 V: at LINE OUT Jack]

Einstellung:

1. Abweichungen können durch Abgleich von VR1 (linker Kanal) und VR2 (rechter Kanal) korrigiert werden. (S. Fig. 1.)
2. Nach erfolgtem Abgleich ist der Frequenzgang bei Wiedergabe erneut zu kontrollieren.

Ⓕ Löschstrom

- Bedingung:
- Aufnahme
 - Betriebsart: Metallband
 - Vormagnetisierungs-Feineinstellregler: Mittelstellung

- Meßgerät:
- Röhrenvoltmeter
 - Oszillograph

1. Den Meßaufbau zeigt Fig. 11.
2. Die Aufnahme- und Pausentaste drücken.
3. Den Bandwahlschalter auf Metallband-Position stellen.
4. Löschstrom nach folgender Formel ermitteln:

$$\text{Löschstrom (A)} = \frac{\text{Die Spannung über beide Enden von R903}}{1 \text{ (Ohm)}}$$