

# Service Manual

Cassette Deck



Double Cassette Deck  
Featuring 2 Dubbing Speed

## RS-B11W

(Silver Face)  
(Black Face)



### RS-B10 MECHANISM SERIES

#### Specifications

|                               |                                                                                                                                                                                                                                                 |  |
|-------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
| Track system:                 | Tape deck 1; 4-track 2-channel stereo playback<br>Tape deck 2; 4-track 2-channel stereo recording and playback                                                                                                                                  |  |
| Tape speed:                   | 4.8cm/s                                                                                                                                                                                                                                         |  |
| Wow and flutter:              | 0.07% (WRMS), $\pm 0.14\%$ (DIN)                                                                                                                                                                                                                |  |
| Frequency response:           | Metal tape; 20—16,000 Hz<br>30—15,000 Hz (DIN)<br>40—14,000 Hz $\pm 3$ dB<br>CrO <sub>2</sub> tape; 20—17,000 Hz<br>30—16,000 Hz (DIN)<br>40—15,000 Hz $\pm 3$ dB<br>Normal tape; 20—18,000 Hz<br>30—17,000 Hz (DIN)<br>40—16,000 Hz $\pm 3$ dB |  |
| Signal-to-noise ratio:        | Dolby <sup>®</sup> B NR in; 67dB (CCIR)<br>NR out; 57dB<br>(Signal level = max. input level, A weighted, CrO <sub>2</sub> type tape)                                                                                                            |  |
| Fast forward and rewind time: | Approx. 110 seconds with C-60 cassette tape                                                                                                                                                                                                     |  |
| Inputs:                       | MIC; sensitivity 1.0mV, applicable microphones impedance 400 $\Omega$ —10k $\Omega$<br>LINE; sensitivity 60mV, input impedance 47k $\Omega$ or more                                                                                             |  |
| Outputs:                      | LINE; output level 400mV, output impedance 1.5k $\Omega$ or less<br>HEADPHONES; output level 80mV (8 $\Omega$ ) applicable headphone impedance 8 $\Omega$ —600 $\Omega$                                                                         |  |
| Bias frequency:               | 105kHz                                                                                                                                                                                                                                          |  |
| Heads:                        | Tape deck 1;<br>1-MX head for playback<br>1-dummy head for erasure<br>Tape deck 2;<br>1-MX head for record/playback<br>1-double-gap ferrite head for erasure                                                                                    |  |
| Motor:                        | Electrical governor motor                                                                                                                                                                                                                       |  |
| Power requirements:           | <b>D</b> ...AC; 220V, 50-60Hz<br><b>A</b> ...AC; 240V, 50-60Hz<br><b>B N F J</b> ...AC; 110/125/220/240V, 50-60Hz<br><b>F</b> ...Pre-set power voltage 125V<br><b>J</b> ...Pre-set power voltage 220V                                           |  |
| Power consumption:            | 12W                                                                                                                                                                                                                                             |  |
| Dimensions:                   | 43cm(W)×10.8cm(H)×23.2cm(D)                                                                                                                                                                                                                     |  |
| Weight:                       | 4kg                                                                                                                                                                                                                                             |  |

This is the Service Manual for the following areas.

- 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.
- F** ...For Asian PX.
- J** ...For European PX.

Design and specifications are subject to change without notice.

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

## Technics

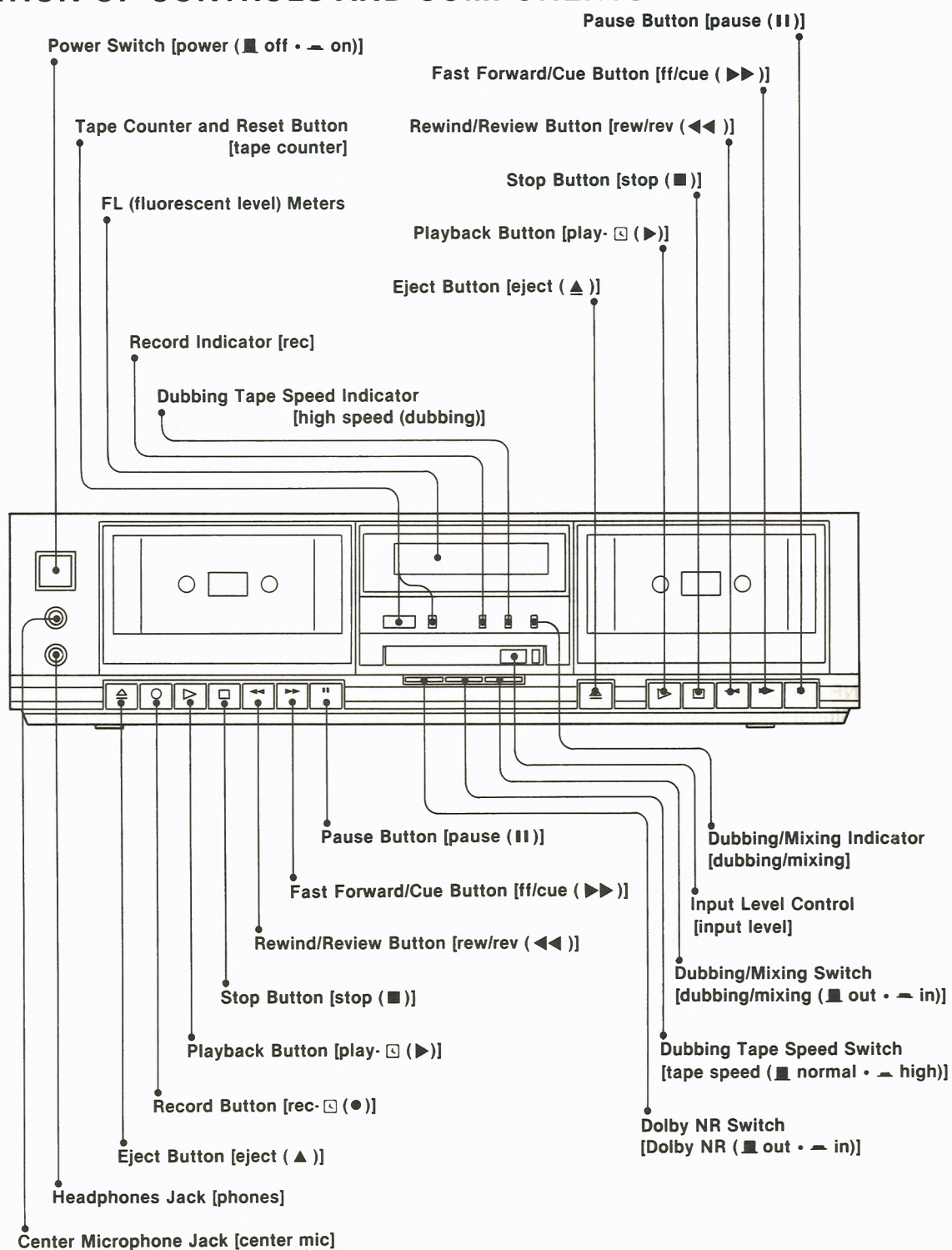
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Matsushita Electric Trading Co., Ltd.  
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## ■ LOCATION OF CONTROLS AND COMPONENTS





# ■ DISASSEMBLY INSTRUCTIONS

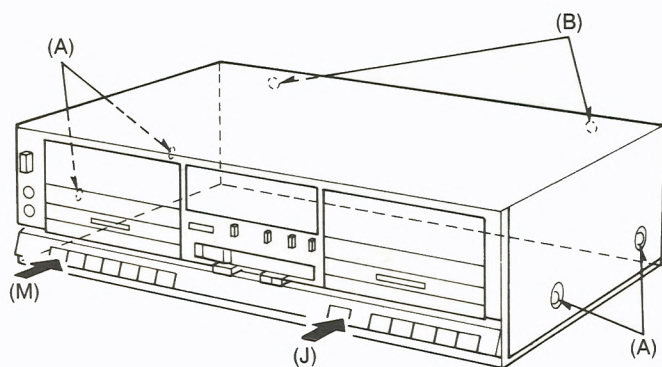


Fig. 1

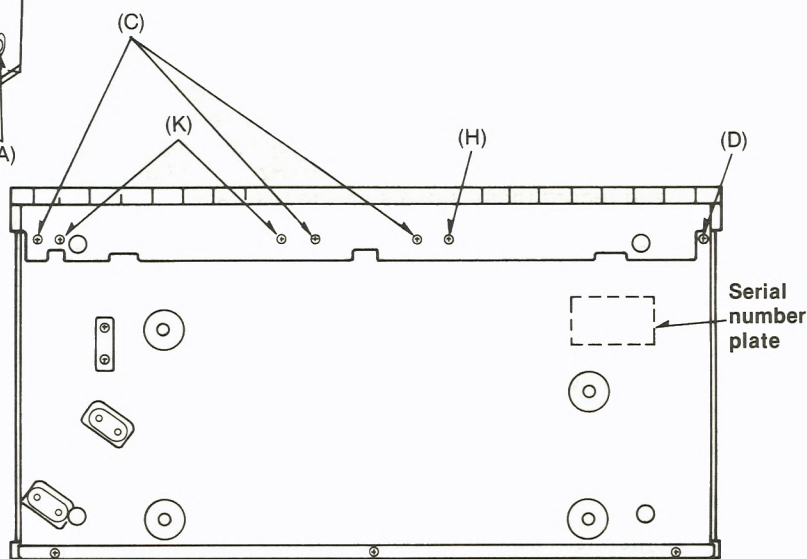


Fig. 2

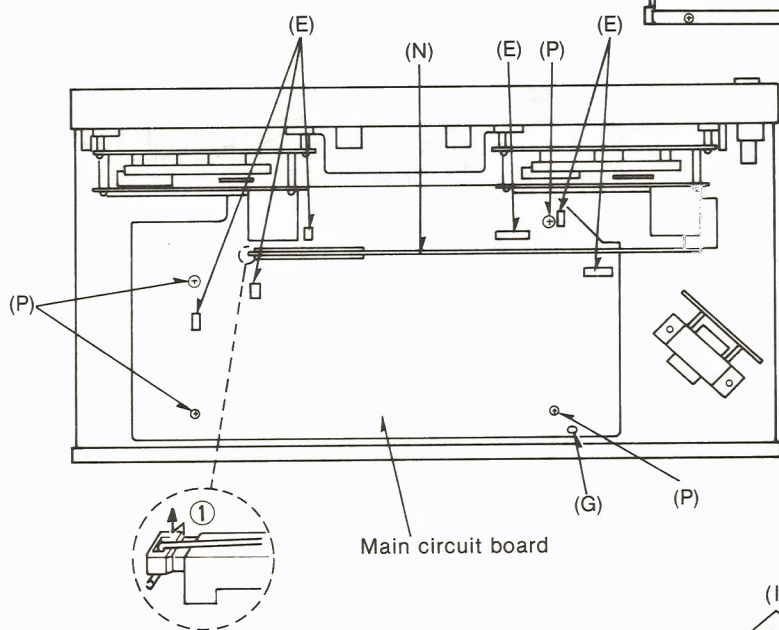


Fig. 3

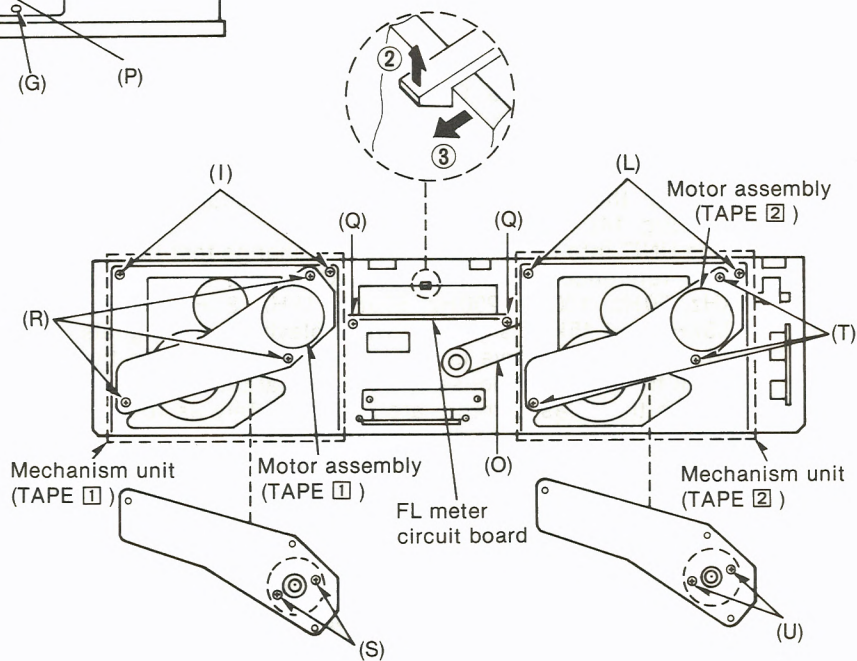


Fig. 4

| Ref. No. | Procedure | To remove —.                            | Remove —.                                                                                                                                                                                                                                                                                                                                                                      | Shown in fig. —.                |
|----------|-----------|-----------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------|
| 1        | 1         | Case cover                              | <ul style="list-style-type: none"> <li>• 4 screws .....(A)</li> <li>• 2 screws .....(B)</li> </ul>                                                                                                                                                                                                                                                                             | 1<br>1                          |
| 2        | 1 → 2     | Front panel assembly and mechanism unit | <ul style="list-style-type: none"> <li>• 3 screws .....(C)</li> <li>• 1 screw .....(D)</li> <li>• Pull out the connectors<br/>A B C D E F .....(E)</li> <li>• Pull out the contact.....(G)</li> </ul>                                                                                                                                                                          | 2<br>2<br>3<br>3                |
| 3        | 1 → 3     | Mechanism unit (TAPE ① )                | <ul style="list-style-type: none"> <li>• 1 screw .....(D)</li> <li>• 1 screw .....(H)</li> <li>• 2 screws .....(I)</li> <li>• Push the eject button .....(J)</li> <li>• Pull out the connectors A E.....(E)</li> </ul>                                                                                                                                                         | 2<br>2<br>4<br>1<br>3           |
| 4        | 1 → 4     | Mechanism unit (TAPE ② )                | <ul style="list-style-type: none"> <li>• 2 screws .....(K)</li> <li>• 2 screws .....(L)</li> <li>• Push the eject button .....(M)</li> <li>• Pull out the connectors B C D F .....(E)</li> <li>• Pull out the contact.....(G)</li> <li>• Remove the record/playback changing wire in the direction of arrow ① . .....(N)</li> <li>• Remove the counter belt.....(O)</li> </ul> | 2<br>4<br>1<br>3<br>3<br>3<br>4 |
| 5        | 1 → 2 → 5 | Main circuit board                      | <ul style="list-style-type: none"> <li>• 4 screws .....(P)</li> <li>• Remove the record/playback changing wire in the direction of arrow ① . .....(N)</li> </ul>                                                                                                                                                                                                               | 3<br>3                          |
| 6        | 1 → 6     | FL meter circuit board                  | <ul style="list-style-type: none"> <li>• 2 screws .....(Q)</li> <li>• Raise the clamber in the direction of arrow ② and remove the FL meter circuit board in the direction of arrow ③ .</li> </ul>                                                                                                                                                                             | 4<br>4                          |
| 7        | 1 → 3 → 7 | Motor assembly (TAPE ① )                | <ul style="list-style-type: none"> <li>• 3 screws .....(R)</li> <li>• 2 screws .....(S)</li> </ul>                                                                                                                                                                                                                                                                             | 4<br>4                          |
| 8        | 1 → 4 → 8 | Motor assembly (TAPE ② )                | <ul style="list-style-type: none"> <li>• 3 screws .....(T)</li> <li>• 2 screws .....(U)</li> </ul>                                                                                                                                                                                                                                                                             | 4<br>4                          |

**\* Serial No. Indication.**

The serial number plate of this product is attached to the bottom cover (shown in Fig. 2.)



## MEASUREMENT AND ADJUSTMENT METHODS

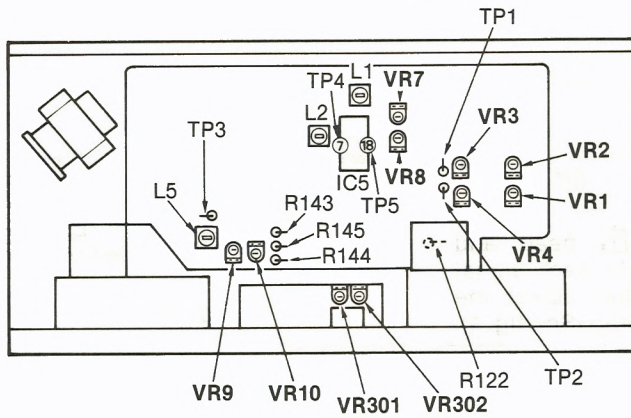
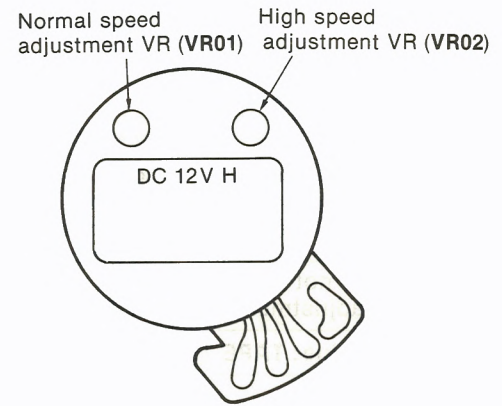


Fig. 1



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

- Make sure heads are clean
- Make sure capstan and pressure roller are clean
- Judgeable room temperature  $20 \pm 5^\circ\text{C}$  ( $68 \pm 9^\circ\text{F}$ )
- Input level controls: Maximum
- Dolby NR switch: OUT
- Dubbing/Mixing switch: OFF
- Dubbing tape speed switch: Normal

### A Head azimuth adjustment (TAPE 1, TAPE 2)

Condition:

- Playback mode
- Normal tape mode

Equipment:

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

### L-CH/R-CH output balance adjustment

1. Make connections as shown in fig. 2.

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

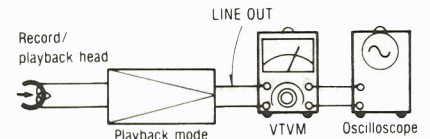


Fig. 2

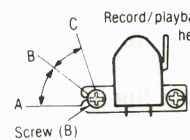


Fig. 3

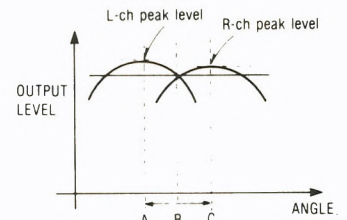


Fig. 4

### L-CH/R-CH phase adjustment

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

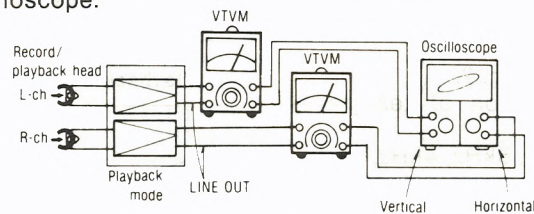


Fig. 5

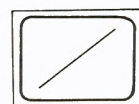


Fig. 6



### Ⓑ Tape speed (TAPE ①, TAPE ②)

Condition:  
 • Playback mode  
 • Dubbing tape speed switch  
 ...Normal/high

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

#### Normal speed adjustment

##### TAPE ①

1. Make connections as shown in fig. 7.
2. Set the dubbing speed switch to Normal.
3. Play the test tape (QZZCWAT) with the TAPE ① head, and measure the playback signal frequency. If the playback signal frequency does not conform to the standard value, adjust the normal speed adjustment VR01 for the TAPE ① head (See fig. 1).

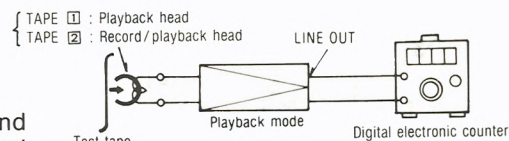


Fig. 7

**Standard value: TAPE ① (Playback deck: Normal speed) 3010±45Hz**

##### TAPE ②

4. Play the test tape (QZZCWAT) with the TAPE ② head, and measure the playback signal frequency, then adjust the normal speed adjustment VR01 for the TAPE ② head so that the playback signal frequency is 15Hz lower than the output signal frequency after adjustment of TAPE ①.

#### High speed adjustment

##### Note:

Perform high speed adjustment about 10 seconds after the start of motor rotation.

1. Make connections as shown in fig. 7.
2. Set the dubbing/mixing switch to off, and set the dubbing speed switch to high. Ground the resistor (R122).
3. Play the test tape (QZZCWAT) with the TAPE ① and measure the playback signal frequency. If the playback signal frequency does not conform to the standard value, adjust the high speed adjustment VR02 for the TAPE ① head (See fig. 1).

**Standard value: TAPE ① (Playback deck: Normal speed) 6020±90Hz**

4. Play the test tape (QZZCWAT) with the TAPE ② head, and measure the playback signal frequency, and then adjust the high speed adjustment VR02 for the TAPE ② head so that the playback signal frequency is 30Hz lower than the output signal frequency after adjustment of TAPE ①.
5. After high speed adjustment, remove the ground the resistor (R122).

#### Tape speed fluctuation

##### TAPE ①, TAPE ②

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:

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

$$\text{Tape speed fluctuation (High speed)} = \frac{f_1 - f_2}{6,000} \times 100(\%) \quad f_1 = \text{maximum value}, f_2 = \text{minimum}$$

**Standard value: Less than 0.15%**

##### Note:

Please use non metal type screwdriver then you adjust tape speed on this unit.

### Ⓒ Playback frequency response (TAPE ①, TAPE ②)

Condition:  
 • Playback mode  
 • Normal tape mode

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

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

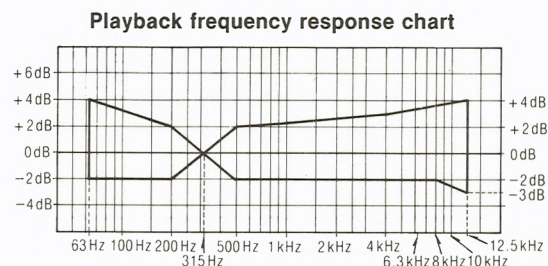
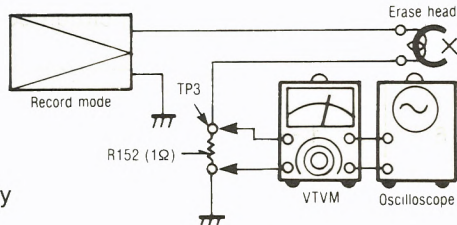
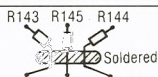
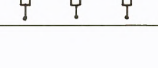
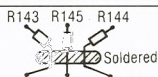
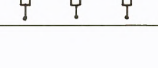
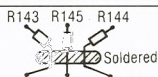
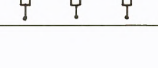


Fig. 8



|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |       |                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                             |                                                                                       |      |      |                 |               |       |       |       |      |                                                                                       |       |       |      |        |                                                                                       |      |       |       |        |                                                                                       |      |      |      |        |                                                                                       |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|------|------|-----------------|---------------|-------|-------|-------|------|---------------------------------------------------------------------------------------|-------|-------|------|--------|---------------------------------------------------------------------------------------|------|-------|-------|--------|---------------------------------------------------------------------------------------|------|------|------|--------|---------------------------------------------------------------------------------------|
| <div>Ⓓ Playback gain<br/>(TAPE 1 , TAPE 2 )</div>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |       | <div>Condition:<ul style="list-style-type: none"><li>• Playback mode</li><li>• Normal tape mode</li></ul></div>                                                                                                           | <div>Equipment:<ul style="list-style-type: none"><li>• VTVM</li><li>• Oscilloscope</li><li>• Test tape...QZZCFM</li></ul></div>                                                                                                                                                                                                             |                                                                                       |      |      |                 |               |       |       |       |      |                                                                                       |       |       |      |        |                                                                                       |      |       |       |        |                                                                                       |      |      |      |        |                                                                                       |
| <div>1. Test equipment connection is shown in fig. 2.</div> <div>2. Playback standard recording level portion on test tape (QZZCFM 315Hz) and, using VTVM, measure the output level at test points [TP4 (L-CH), TP5 (R-CH)].</div> <div>3. Make measurements for both channels.</div> <div><div>Standard value: 0.42V [0.4V: at LINE OUT jack]</div></div> <div>Adjustment</div> <div>1. If the measured value is not within the standard, adjust TAPE 1 VR1 (L-CH) or VR2 (R-CH), Tape 2 VR3 (L-CH) or VR4 (R-CH) (See fig. 1).</div> <div>2. After adjustment, check “Playback frequency response” again.</div>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |       |                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                             |                                                                                       |      |      |                 |               |       |       |       |      |                                                                                       |       |       |      |        |                                                                                       |      |       |       |        |                                                                                       |      |      |      |        |                                                                                       |
| <div>Ⓔ Erase current<br/>(TAPE 2 )</div>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |       | <div>Condition:<ul style="list-style-type: none"><li>• Record mode</li><li>• Metal tape mode</li></ul></div>                                                                                                              | <div>Equipment:<ul style="list-style-type: none"><li>• VTVM</li><li>• Oscilloscope</li></ul></div>                                                                                                                                                                                                                                          |                                                                                       |      |      |                 |               |       |       |       |      |                                                                                       |       |       |      |        |                                                                                       |      |       |       |        |                                                                                       |      |      |      |        |                                                                                       |
| <div>1. Test equipment connection is shown in fig. 9.</div> <div>2. Place UNIT into metal tape mode.</div> <div>3. Press the record and pause buttons.</div> <div>4. Read voltage on VTVM and calculate erase current by following formula:</div> <div><div>Erase current (A) = <math>\frac{\text{Voltage across resistor R152}}{1 (\Omega)}</math></div><div><div>Standard value: 160 + 10<br/>- 20 mA (Metal)</div></div></div> <div><div>5. If the measured value is not within the standard value adjust it by following the adjustment instructions.</div><div>Adjustment</div><div>1. Short-circuit the registers R143, R144, R145.<br/>(Refer to table 1)</div><div>2. Measure the erasing current.</div><div>3. If the measured value is not within the standard value, open or short-circuit the registers R143, R144, R145 according to table 1.</div></div> <div><div></div><div>Fig. 9</div></div> <div><table><tr><td>R143</td><td>R145</td><td>R144</td><td>Change in value</td><td>Illustrations</td></tr><tr><td>Short</td><td>Short</td><td>Short</td><td>±0mA</td><td></td></tr><tr><td>Short</td><td>Short</td><td>Open</td><td>+ 4 mA</td><td></td></tr><tr><td>Open</td><td>Short</td><td>Short</td><td>+ 10mA</td><td></td></tr><tr><td>Open</td><td>Open</td><td>Open</td><td>+ 20mA</td><td></td></tr></table><div>Table. 1</div></div> |       |                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                             | R143                                                                                  | R145 | R144 | Change in value | Illustrations | Short | Short | Short | ±0mA |  | Short | Short | Open | + 4 mA |  | Open | Short | Short | + 10mA |  | Open | Open | Open | + 20mA |  |
| R143                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | R145  | R144                                                                                                                                                                                                                      | Change in value                                                                                                                                                                                                                                                                                                                             | Illustrations                                                                         |      |      |                 |               |       |       |       |      |                                                                                       |       |       |      |        |                                                                                       |      |       |       |        |                                                                                       |      |      |      |        |                                                                                       |
| Short                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Short | Short                                                                                                                                                                                                                     | ±0mA                                                                                                                                                                                                                                                                                                                                        |  |      |      |                 |               |       |       |       |      |                                                                                       |       |       |      |        |                                                                                       |      |       |       |        |                                                                                       |      |      |      |        |                                                                                       |
| Short                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Short | Open                                                                                                                                                                                                                      | + 4 mA                                                                                                                                                                                                                                                                                                                                      |  |      |      |                 |               |       |       |       |      |                                                                                       |       |       |      |        |                                                                                       |      |       |       |        |                                                                                       |      |      |      |        |                                                                                       |
| Open                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Short | Short                                                                                                                                                                                                                     | + 10mA                                                                                                                                                                                                                                                                                                                                      |  |      |      |                 |               |       |       |       |      |                                                                                       |       |       |      |        |                                                                                       |      |       |       |        |                                                                                       |      |      |      |        |                                                                                       |
| Open                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Open  | Open                                                                                                                                                                                                                      | + 20mA                                                                                                                                                                                                                                                                                                                                      |  |      |      |                 |               |       |       |       |      |                                                                                       |       |       |      |        |                                                                                       |      |       |       |        |                                                                                       |      |      |      |        |                                                                                       |
| <div>Ⓕ Overall frequency response<br/>(TAPE 2 )</div>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |       | <div>Condition:<ul style="list-style-type: none"><li>• Record/playback mode</li><li>• Normal tape mode</li><li>• CrO<sub>2</sub> tape mode</li><li>• Metal tape mode</li><li>• Input level controls...MAX</li></ul></div> | <div>Equipment:<ul style="list-style-type: none"><li>• VTVM</li><li>• ATT</li><li>• AF oscillator</li><li>• Oscilloscope</li><li>• Resistor (600Ω)</li></ul><ul style="list-style-type: none"><li>• Test tape<br/>(reference blank tape)<br/>...QZZCRA for Normal<br/>...QZZCRX for CrO<sub>2</sub><br/>...QZZCRZ for Metal</li></ul></div> |                                                                                       |      |      |                 |               |       |       |       |      |                                                                                       |       |       |      |        |                                                                                       |      |       |       |        |                                                                                       |      |      |      |        |                                                                                       |



### 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. 11.
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 1 kHz, 50 Hz, 100 Hz, 200 Hz, 500 Hz, 4 kHz, 8 kHz, 10 kHz and 12.5 kHz 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. 10). (If the curve is within the charted specifications, proceed to steps 7, 8 and 9.)  
If the curve is not within the charted specifications, adjust as follows;

Overall frequency response chart (Normal)

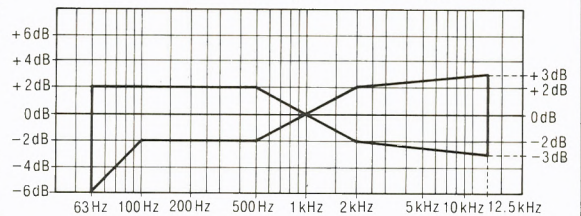


Fig. 10

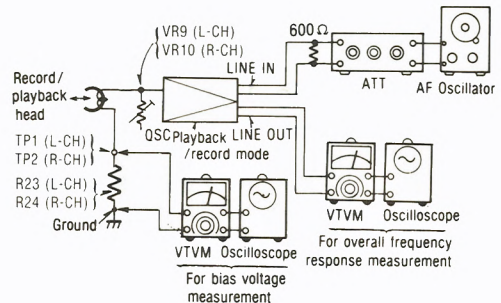


Fig. 11

### Adjustment (A):

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

- 1) Increase bias current by turning VR9 (L-CH) and VR10 (R-CH). (See fig. 1.)
- 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. 10.)
- 3) If the curve still exceeds the specifications (fig. 10), increase bias current further and repeat steps 5 and 6.

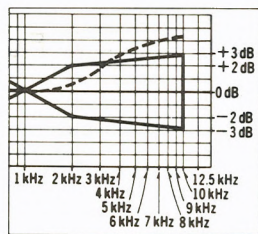


Fig. 12

### Adjustment (B):

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

- 1) Reduce bias current by turning VR9 (L-CH) and VR10 (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. 10.)
- 3) If the curve still falls below the charted specifications (fig. 10), reduce bias current further and repeat steps 5 and 6.

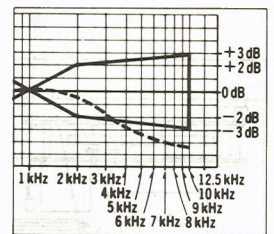


Fig. 13

7. Place UNIT into CrO<sub>2</sub> tape mode.
8. Change test tape to CrO<sub>2</sub> reference blank test tape (QZZCRX), and record 1kHz, 50Hz, 100Hz, 200Hz, 500Hz, 4kHz, 8kHz, 10kHz and 15kHz signals. Then, playback the signals and check if the curve is within the limits shown in the overall frequency response chart for CrO<sub>2</sub> tapes (fig. 14).
9. Place UNIT into metal tape mode and change test tape to metal reference blank test tape (QZZCRZ), and record 1kHz, 50Hz, 100Hz, 200Hz, 500Hz, 4kHz, 8kHz, 10kHz, 12.5kHz and 15kHz signals. Then, playback the signals and check if the curve is within the limits shown in the overall frequency response chart for metal tapes (fig. 14).
10. Confirm that bias currents are approximately as follows when the UNIT is set at different tape mode.

- Read voltage on VTVM between ground and test point (TP1 for L-CH, TP2 for R-CH) and calculate bias current by following formula:

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

around 400μA (Normal position)  
Standard value: around 500μA (CrO<sub>2</sub> position)  
around 800μA (Metal position)

Overall frequency response chart (CrO<sub>2</sub>, Metal)

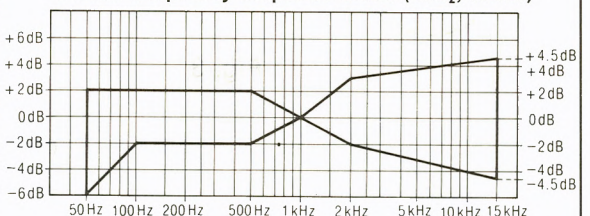


Fig. 14



⑥ Overall gain  
(TAPE ② )

Condition:  
 • Record/playback mode  
 • Normal tape mode  
 • Input level controls...MAX  
 • Standard input level;  
 MIC .....-60±4dB  
 LINE IN.....-24±4dB

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

1. Test equipment connection is shown in fig. 15.
2. Insert the normal reference blank tape (QZZCRA).
3. Place UNIT into record mode.
4. Supply a 1 kHz signal through ATT (-24dB) from AF oscillator, to LINE IN.
5. Adjust ATT until monitor level at test points [TP4 (L-CH), TP5 (R-CH)] becomes 0.42V [0.4V at test LINE OUT jack].
6. Playback recorded tape, and make sure that the output level at test points [TP4 (L-CH), TP5 (R-CH)] becomes 0.42V [0.4V at test LINE OUT jack].
7. If measured value is not 0.42V, adjust it by using VR7 (L-CH) or VR8 (R-CH).
8. Repeat from step (2).

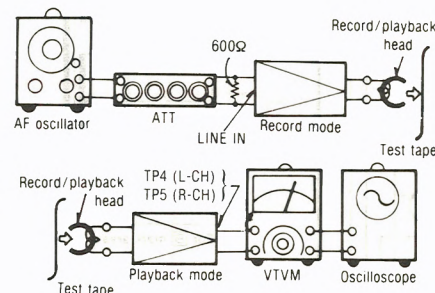


Fig. 15

⑦ Fluorescent meter  
(TAPE ② )

Condition:  
 • Record mode  
 • Input level controls...MAX

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

1. Make connections as shown in fig. 16.
2. In the recording pause mode, apply 1 kHz (-24dB) to LINE IN.
3. Adjust ATT so that output level at LINE OUT is 0.4V.
4. At this time, check that 0dB indicator is lighted halfway (intermediate brightness between full brightness and light-out: See fig. 17).
5. If the indicator is not lighted halfway as described in step 4, adjust VR301 (L-CH), VR302 (R-CH).
6. Repeat adjustments and checks at steps 3, 4 and 5 two or three times.

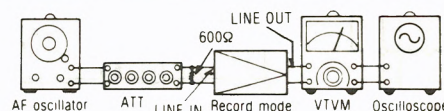


Fig. 16

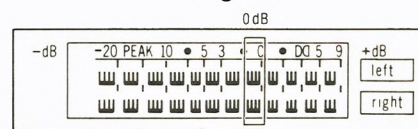


Fig. 17

⑧ Dolby NR circuit  
(TAPE ② )

Condition:  
 • Record mode  
 • Input level controls...MAX

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

1. Test equipment connection is shown in fig. 18.
2. Place UNIT into record mode, set the Dolby NR switch to OUT position and supply a 5kHz signal to LINE IN to obtain 17.5mV at TP4 (L-CH), TP5 (R-CH).
3. Confirm that the values at test points TP4, TP5 with Dolby NR switch in the IN position are 8 (±2.5)dB greater than the values at the OUT position of the Dolby NR switch.

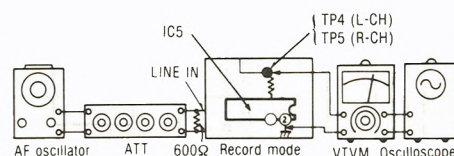
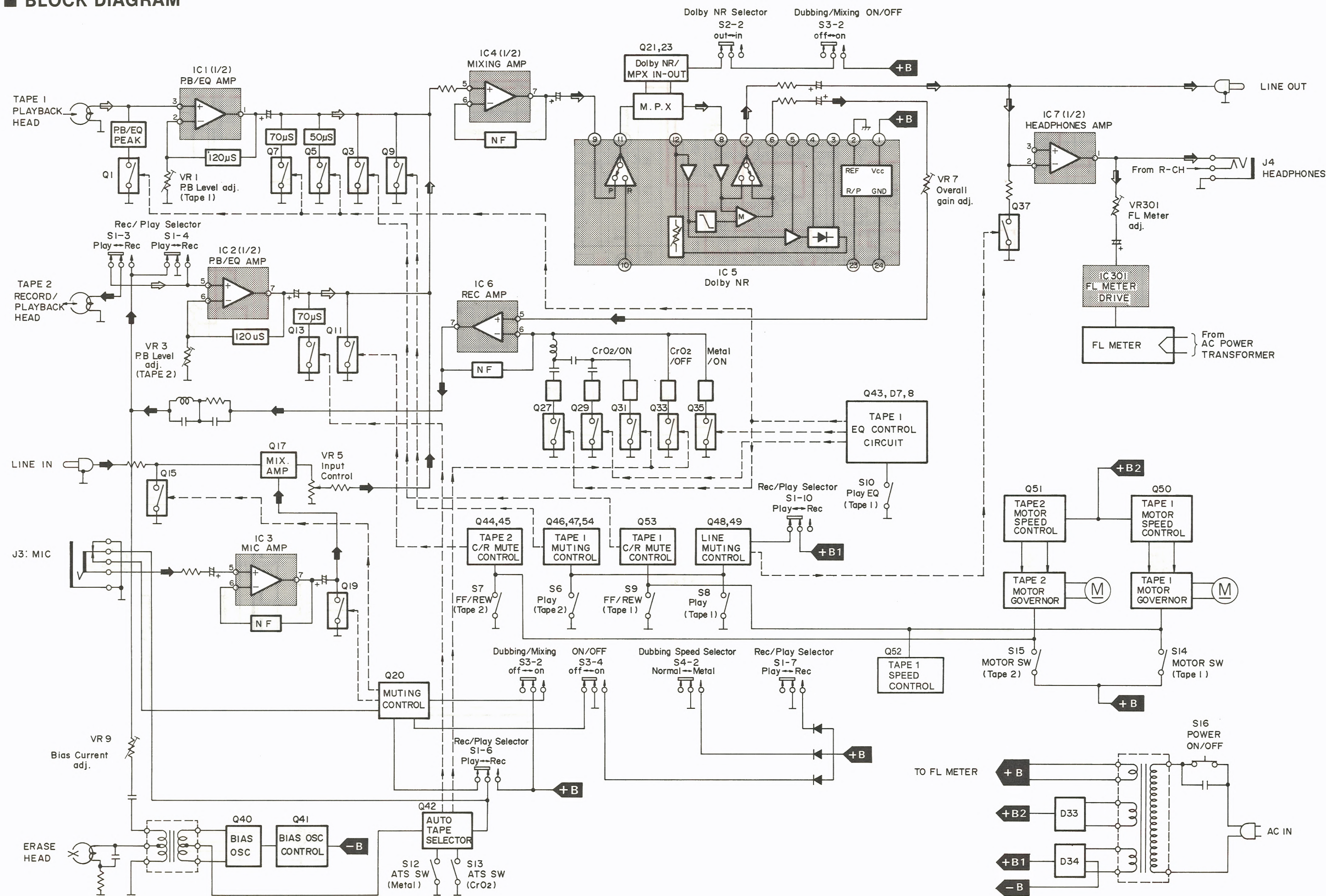


Fig. 18



## ■ BLOCK DIAGRAM





# ELECTRICAL PARTS LIST

## NOTES: RESISTORS

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

## CAPACITORS

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

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

## REPLACEMENT PARTS LIST

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

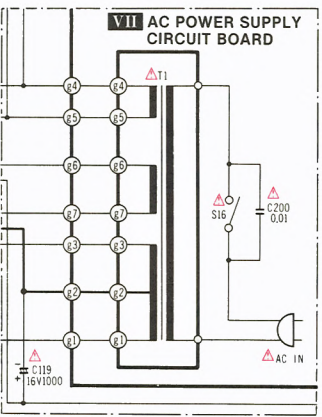
## Areas

\*[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.  
 \*[F] For Asian PX.  
 \*[J] For European PX.

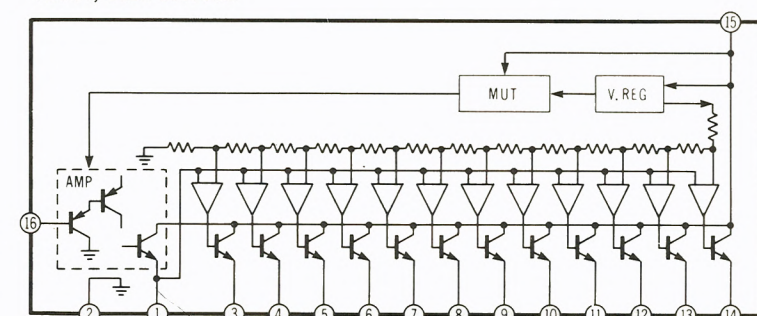
| Ref. No.         | Part No.                | Ref. No.                            | Part No.   | Ref. No.                  | Part No.            | Ref. No.      | Part No.         | Ref. No.            | Part No. |
|------------------|-------------------------|-------------------------------------|------------|---------------------------|---------------------|---------------|------------------|---------------------|----------|
| RESISTORS        |                         |                                     |            |                           |                     |               |                  |                     |          |
| R 1, 2           | ERD25TJ274              | R 106                               | ERD25TJ104 | R 183, 184, 185, 186, 187 | C 73, 74            | ECQM1H472KV   | Q 31, 32         | 2SA1115EF           |          |
| R 3, 4           | ERD25FJ101              | R 107                               | ERD25FJ103 | ERD25FJ103                | C 75, 76            | ECQM1H682JZ   | Q 33, 34, 35, 36 | 2SC2603E            |          |
| R 5, 6           | ERD25TJ684              | R 108                               | ERD25TJ223 | R 189, 190                | C 77, 78            | ECQV05223JZ   |                  | 2SD1468E            |          |
| R 7, 8           | ERD25TJ243              | R 109, 110                          | ERD25FJ103 | R 191                     | C 79, 80            | ECEA1HU010    | Q 37, 38         |                     |          |
| R 9, 10          | ERD25TJ563              | R 111                               | ERD25FJ472 | R 192                     | C 81, 82            | ECKD1H152KB   |                  |                     |          |
| R 11, 12         | ERD25FJ472              | R 112, 113                          | ERD25FJ103 | R 193                     | C 83, 84            | ECKD1H561KB   | Q 40, 41         |                     |          |
| R 13, 14         | ERD25FJ820              | R 114                               | ERD25FJ472 |                           |                     |               | [D][B]           | 2SD471K             |          |
| R 15, 16         | ERD25FJ562              | R 115                               | ERD25FJ152 | R 195, 196                | C 85, 86            | ECCD1H820J    | Q 40, 41         |                     |          |
| R 17, 18         | ERD25FJ272              | R 116                               | ERD25TJ105 | △ ERD25FJ681              | C 87, 88            | ECCD1H470KC   | [N][A][F][J]     | 2SD1125M            |          |
| R 19, 20         | ERD25FJ822              |                                     |            |                           | C 89, 90            | ECKD1H223ZF   |                  |                     |          |
| R 21, 22         | ERD25TJ393              | R 117, 118                          | ERD25FJ272 | R 197, 198                | C 91, 92            | ECEA1AU331    | Q 42             | 2SA952K             |          |
| R 23, 24         | ERD25TJ105              | R 119                               | ERD25FJ563 | [D][B] △ ERDS1TJ181       | C 93                | ECEA1CU100    | Q 43             | DTA144F             |          |
| R 25, 26         | ERD25TJ274              | R 121                               | ERD25FJ472 | R 197, 198                | C 94                | ECQV05104JB   | Q 44             | 2SA1115EF           |          |
| R 27, 28         | ERD25FJ101              | R 122                               | ERD25FJ103 | [N][A][F][J]              | C 95                | ECEA1CU100    | Q 45             | 2SC2603E            |          |
| R 29, 30         | ERD25TJ124              | R 123                               | ERD25FJ102 | △ ERD25FJ181              | C 96                | ECEA1EU4R7    | Q 46             | 2SA1115EF           |          |
| R 31, 32         | ERD25FJ432              | R 124, 125                          | ERD25FJ103 |                           | C 99, 100           | ECCD1H101J    | Q 47, 48         | 2SC2603E            |          |
| R 33, 34         | ERD25TJ563              | R 126, 127                          | ERD25FJ472 | R 199                     | C 101               | ECQP1822JZ    | Q 49             | 2SA1115EF           |          |
| R 35, 36         | ERD25FJ472              | R 128                               | ERD25FJ102 | R 200                     | C 102               | ECQM1H123KV   | Q 50, 51         | 2SD1450R            |          |
| R 37, 38         | ERD25FJ682              | R 129                               | ERD25FJ103 | R 201                     | C 103               | ECEA1CN100    | Q 52, 53         | DTA114F             |          |
| R 39, 40         | ERD25FJ820              | R 130                               | ERD25FJ472 | R 202                     | C 104               | ECQM1H102KV   | Q 54             | 2SA1115EF           |          |
|                  |                         |                                     |            | R 203, 204, 205           | C 105               | ECEA1CU100    | Q 56             | 2SD1265O            |          |
| R 41, 42         | ERD25TJ473              | R 131, 132, 133, 134, 135, 136, 137 | ERD25FJ103 | ERD25FJ103                | C 106               | ECEA1CU220    | Q 57             | 2SB941Q             |          |
| R 43, 44         | ERD25TJ474              | R 138, 139                          | ERD25FJ332 | R 211, 212                | C 107               | ECEA1EU3R3    | Q 58             | 2SD985K             |          |
| R 45, 46         | ERD25TJ473              | R 140                               | ERD25FJ561 | R 301, 302                | C 108               | ECEA1EU4R7    | Q 59             | 2SC2603E            |          |
| R 47, 48         | ERD25FJ822              | R 141                               | ERD25TJ123 | R 303, 304, 305, 306      | C 109               | ECEA1AU331    | Q 301, 302       | 2SC2603E            |          |
| R 49, 50         | ERD25TJ393              | R 142                               | ERD25TJ563 | ERD25FJ103                | C 110               | ECEA1HU010    |                  |                     |          |
| R 51             | ERD25TJ563              | R 143                               | ERD25FJ103 |                           | C 111               | ECEA1CU100    |                  |                     |          |
| R 52             | ERD25FJ681              | R 144, 145                          | ERD25TJ223 | CAPACITORS                |                     |               |                  | DIODES & RECTIFIERS |          |
| R 53             | ERD25FJ101              | R 146                               | ERD25FJ272 | C 1, 2                    | C 113, 114          | △ ECFDD223KXY | D 1, 2           | 1SS133              |          |
| R 54             | ERD25FJ392              | R 147                               | ERD25FJ222 | C 3, 4                    | C 115, 116          | △ ECEA1CU331  | D 4, 5           | 1SS133              |          |
| R 55             | ERD25FJ272              | R 148                               | ERD25FJ472 | C 1, 2                    | C 117, 118          | △ ECEA1CU102  | D 6              | MC921               |          |
| R 56             | ERD25TJ563              | R 149                               | ERD25FJ272 | C 3, 4                    | △ ECEA1CU222        | C 119         | D 7              | MC911               |          |
| R 57, 58, 59, 60 | ERD25TJ473              | R 150                               | ERD25FJ100 | C 5, 6, 7, 8              | C 120               | ECEA1EU4R7    | D 8, 9, 10, 11   | 1SS133              |          |
| R 61, 62         | ERD25FJ332              | R 151                               | ERD25FJ682 | C 9, 10                   | C 121, 122          | ECEA1HU010    | D 12, 13         | MC911               |          |
| R 63, 64         | ERD25FJ432              | R 152                               | ERD25FJ1R0 | C 11, 12                  | C 123               | ECEA1AU470    | D 14             | 1SS133              |          |
| R 65, 66         | ERD25TJ473              | R 153 [D][B]                        | ERG1SJ100  | C 13, 14                  | C 125               | ECEA1EU4R7    | D 15, 16         | 1S2473              |          |
| R 67, 68         | ERD25FJ392              | R 153 [A]                           | ERD25FJ220 | C 15, 16                  | C 127               | ECCD1H820K    | D 17             | 1SS133              |          |
| R 69, 70         | ERD25TJ274              | [N][F][J]                           | ERD25FJ100 | C 19, 20                  | C 200               | ECQU2A103MF   |                  |                     |          |
| R 71, 72         | ERD25TJ184              | R 154                               | ERD25TJ155 | C 21, 22                  | C 301, 302          | ECEA1HUR22    | D 18             | MC921               |          |
| R 73, 74         | ERD25FJ242              | R 155                               | ERD25TJ393 | C 23, 24                  | C 303, 304          | ECEA1CU330    | D 19, 20         | 1SS133              |          |
| R 75, 76         | ERD25FJ561              | R 156                               | ERD25FJ562 | C 25, 26                  | INTEGRATED CIRCUITS |               |                  |                     |          |
|                  |                         | R 157                               | RED25FJ562 | C 27, 28                  | IC 1, 2             | M5220L        | D 21             | 1S2473              |          |
| R 78             | ERD25FJ152              | R 158                               | ERD25FJ102 | C 29, 30                  | IC 3                | M5219L        | D 22, 23, 24     | 1SS133              |          |
| R 79, 80         | ERD25FJ272              | R 159                               | ERD25TJ273 | C 31, 32, 33              | IC 4                | M5218L        | D 25             | MC921               |          |
| R 81, 82         | ERD25TJ153              | R 160                               | ERD25TJ563 |                           | IC 5                | NE657         | D 26             | 1SS133              |          |
| R 83, 84         | ERD25FJ102              | R 161                               | ERD25FJ152 | C 34                      | IC 6, 7             | M5218L        | D 27, 28         | △ SM112             |          |
| R 85, 86         | ERD25FJ680              | R 162, 163                          | ERD25TJ104 | C 35                      | IC 301, 302         | BA6146        | D 29             | MA1068              |          |
| R 87, 88         | ERD25FJ822              | R 164                               | ERD25TJ563 | C 36                      |                     |               | D 32             | △ MTZ22C            |          |
| R 89, 90         | ERD25FJ222              |                                     |            | C 37, 38                  |                     |               |                  |                     |          |
| R 91, 92         | ERD25FJ392              | R 165                               | ERD25TJ223 | C 39, 40                  |                     |               | D 33, 34         | △ SIVB20            |          |
| R 93, 94         | ERD25TJ123              | R 166, 167                          | ERD25FJ103 | C 41, 42                  |                     |               | D 35, 36, 37     | TLR205              |          |
| R 95, 96         | ERD25TJ393              | R 168                               | ERD25TJ104 |                           |                     |               | D 40             | 1SS133              |          |
|                  |                         | R 169                               | ERD25FJ103 | C 43, 44                  |                     |               | D 41             | MC911               |          |
| R 97, 98         | ERD25FJ121              | R 170                               | ERD25TJ563 | C 45, 46                  |                     |               | D 42, 43         | 1SS133              |          |
| R 99, 100        | ERD25FJ152              | R 171                               | ERD25FJ272 | C 47, 48                  |                     |               | D 44             | △ SM112             |          |
|                  |                         | R 172                               | ERD25FJ103 | C 49, 50                  |                     |               | D 301            | MTZ8R2B             |          |
|                  |                         | R 173                               | ERD25FJ272 | C 51, 52                  |                     |               |                  |                     |          |
| R 101 [D][B]     | ERG12SJ820              | R 174                               | ERD25TJ153 | C 53, 54                  |                     |               |                  |                     |          |
| R 101            | [N][A][F][J] ERDS1TJ820 | R 175                               | ERD25TJ473 | C 55, 56                  |                     |               |                  |                     |          |
|                  |                         |                                     |            | C 57, 58                  |                     |               |                  |                     |          |
| R 102 [D][B]     | ERG12SJ101              | R 176                               | ERD25FJ152 | C 59, 60                  |                     |               |                  |                     |          |
| R 102            | [N][A][F][J] ERDS1TJ101 | R 177                               | ERD25TJ223 | C 61, 62, 63, 64          |                     |               |                  |                     |          |
| R 103, 104, 105  | ERD25TJ105              | R 178                               | ERD25FJ182 |                           |                     |               |                  |                     |          |
|                  |                         | R 179                               | ERD25FJ562 | C 65, 66                  |                     |               |                  |                     |          |
|                  |                         | R 180, 181, 182                     | ERD25FJ122 | C 67, 68                  |                     |               |                  |                     |          |
|                  |                         |                                     |            | C 69, 70                  |                     |               |                  |                     |          |
|                  |                         |                                     |            | C 71, 72                  |                     |               |                  |                     |          |



## ■ SCHEMATIC DIAGRAM



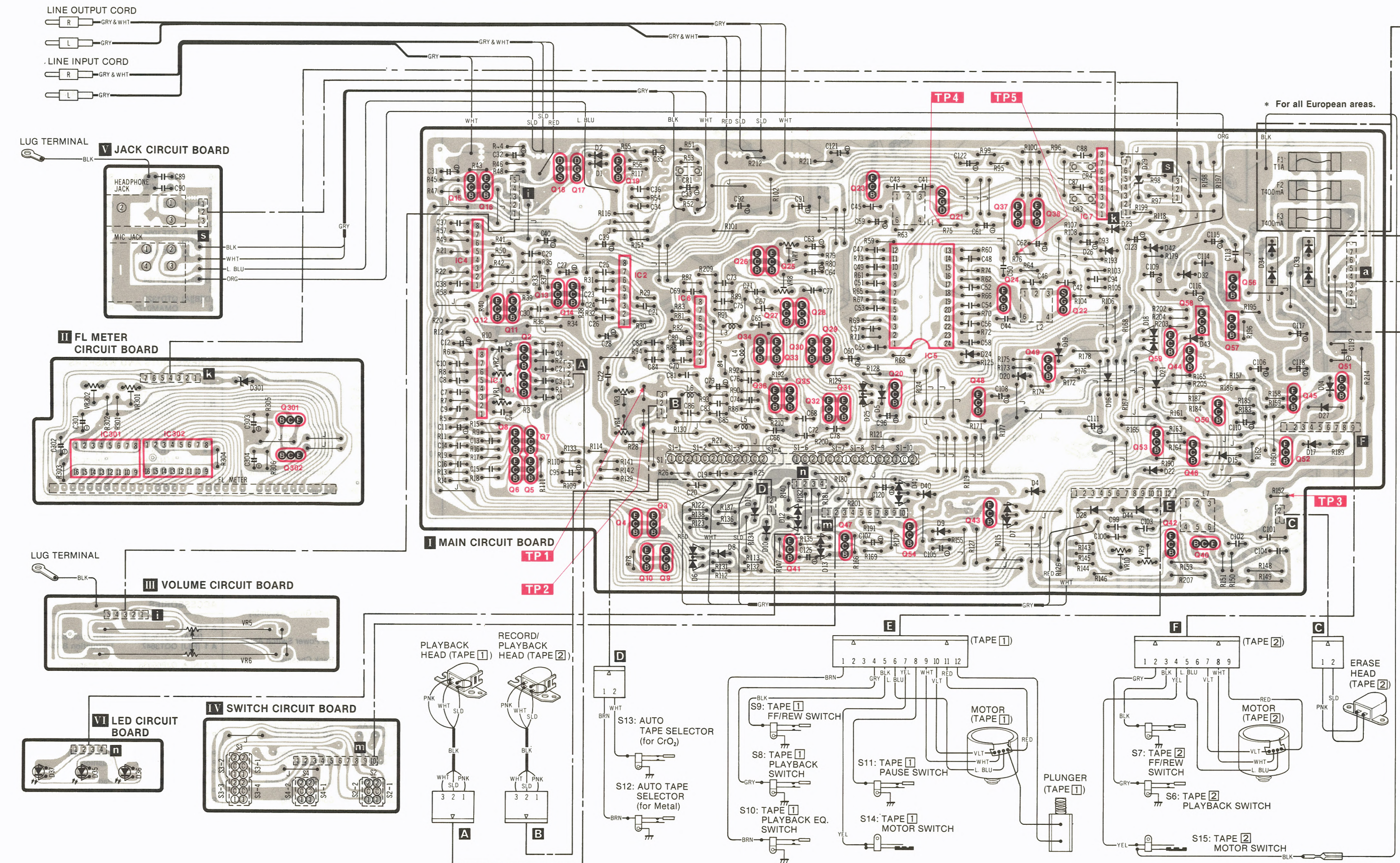
- EQUIVALENT CIRCUIT  
IC301, 302: BA6146



- | SPECIFICATIONS                 |  |  | * Input level control...MAX |
|--------------------------------|--|--|-----------------------------|
| Playback S/N ratio             |  |  | Greater than 45dB           |
| * Test tape...QZZCFM           |  |  |                             |
| Overall distortion             |  |  | Less than 4%                |
| * Test tape                    |  |  |                             |
| ...QZZCRA for Normal           |  |  |                             |
| ...QZZCRX for CrO <sub>2</sub> |  |  |                             |
| ...QZZCRZ for Metal            |  |  |                             |
| Overall S/N ratio              |  |  | Greater than 45dB           |
| * Test tape...QZZCRA           |  |  | (without NAB filter)        |



CIRCUIT BOARDS AND WIRING CONNECTION DIAGRAM









# CABINET PARTS LOCATION

## REPLACEMENT PARTS LIST

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

| Ref. No.      | Part No.                   | Part Name & Description  | Ref. No.                 | Part No.                   | Part Name & Description |
|---------------|----------------------------|--------------------------|--------------------------|----------------------------|-------------------------|
| CABINET PARTS |                            |                          | 23                       | QML4123                    | Record/Playback Lever   |
| 1             | QGRM0037<br>"Silver Type"  | Cassette Lid (A)         | 24                       | QBSM0013                   | Record/Playback Wire    |
| 1             | QGRM0037K<br>"Black Type"  | Cassette Lid (A)         | 25                       | QTD1295                    | Cord Bushing            |
| 2             | QGRM0035<br>"Silver Type"  | Cassette Lid (B)         | 27                       | QBN1961                    | Holder Spring           |
| 2             | QGRM0035K<br>"Black Type"  | Cassette Lid (B)         | 29 [B] Δ                 | QJT1079                    | Nylon Coupler           |
| 3             | QGCM0076<br>"Silver Type"  | Case Cover               | 29 [N][F]                | QJT1096                    | Nylon Coupler           |
| 3             | QGCM0076K<br>"Black Type"  | Case Cover               | [J] Δ                    | QJT1096                    | Nylon Coupler           |
| 4 [B]         | QGS0213                    | Main Name Plate          | 30 [B]                   | QTMW0026                   | Switch Cover            |
| 4 [D]         | QGS0212                    | Main Name Plate          | 31                       | QBMM0021                   | Cushion                 |
| 4 [N]         | QGS0214                    | Main Name Plate          | 32                       | [D][B][A]                  | QTD1315                 |
| 4 [A]         | QGS0215                    | Main Name Plate          |                          |                            | Cord Clamper            |
| 4 [F][J]      | QGS0216                    | Main Name Plate          | 33 [D][B] Δ              | QTF1054                    | Fuse Holder             |
| 5             | QXQM004<br>"Silver Type"   | Cassette Holder Assembly | 33 [N][F]                | [J] Δ                      | QTF1056                 |
| 5             | QXQM004K<br>"Black Type"   | Cassette Holder Assembly | [J] Δ                    | QTF1056                    | Fuse Holder             |
| 6             | QXG1085                    | Damper Gear Assembly     | 34                       | [D][B][A]                  | QTD1164                 |
| 7             | QYKM0024<br>"Silver Type"  | Operation Plate Assembly | 35                       | [D][B][A]                  | QTD1322                 |
| 7             | QYKM0024K<br>"Black Type"  | Operation Plate Assembly | 36                       | QMAM0173                   | Cord Clamper            |
| 7-1           | QGRM0033                   | Meter Window             | 37                       | QMAM0172                   | Record/Playback Angle   |
| 8             | QGCM0075                   | Bottom Cover             | 38                       | [N][F][J]                  | QTD1129                 |
| 9             | QMAM0170                   | Change Lever Angle       | SCREWS, NUTS AND WASHERS |                            |                         |
| 10            | SKL245-4                   | Case Foot                | N 1                      | SNE2095-2<br>"Silver Type" | Ornament Screw          |
| 11            | QGKM00219<br>"Silver Type" | Volume Knob Ornament     | N 1                      | SNE2095-3<br>"Black Type"  | Ornament Screw          |
| 11            | QGKM00219K<br>"Black Type" | Volume Knob Ornament     | N 2                      | XTB3 + 10JFZ               | Tapping Screw ⌀3 × 10   |
| 12            | QDC0174                    | Tape Counter             | N 3                      | XTN3 + 6B                  | Tapping Screw ⌀3 × 6    |
| 13            | QGOM0142                   | Tape Counter Button      | N 4                      | XTB26 + 8B                 | Tapping Screw ⌀2.6 × 8  |
| 14            | QYPM0092<br>"Silver Type"  | Front Panel Assembly     | N 5                      | XTN26 + 6B                 | Tapping Screw ⌀2.6 × 6  |
| 14            | QYPM0092K<br>"Black Type"  | Front Panel Assembly     | N 6                      | XSN3 + 6S                  | Screw ⌀3 × 6            |
| 15            | QYPM0091<br>"Silver Type"  | Slide Guide Assembly     | N 7                      | XWA3B                      | Washer 3ϕ               |
| 15            | QYPM0091K<br>"Black Type"  | Slide Guide Assembly     | N 8                      | XWG3                       | Washer 3ϕ               |
| 16            | QMAM0167                   | AC Power Switch Angle    | N 9                      | XTV3 + 6BFN                | Tapping Screw ⌀3 × 6    |
| 17 [D][A]     | QMKM0027                   | Back Chassis             | N 10                     | XTS3 + 6B                  | Tapping Screw ⌀3 × 6    |
| 17 [B][N]     | [F][J] QMKM0028            | Back Chassis             | N 11                     | XTB3 + 6B                  | Tapping Screw ⌀3 × 6    |
| 18            | QGO2399                    | Power Button             | N 12                     | XTN26 + 8B                 | Tapping Screw ⌀2.6 × 8  |
| 19            | QGOM0143S                  | Push Button              | N 13                     | XTV3 + 8BFN                | Tapping Screw ⌀3 × 8    |
| 20 [D] Δ      | RJA23YAK                   | AC Power Cord            | N 14                     | QMA4624                    | Headphones Plate        |
| 20 [B] Δ      | RJA45YAK                   | AC Power Cord            | N 16                     | XTN3 + 8B                  | Tapping Screw ⌀3 × 8    |
| 20 [N][F]     | [J] Δ RJA52YAK             | AC Power Cord            | N 17                     | [D][B][A] XTV3 + 20B       | Tapping Screw ⌀3 × 20   |
| 20 [A] Δ      | SJAG23                     | AC Power Cord            | ACCESSORIES              |                            |                         |
| 21 Δ          | QFC2135B                   | Line IN/OUT Cord         | A 1 [D][B]               | [N][A] QQT3646             | Instruction Book        |
| 22            | [D][B][A] QBJ1425          | Cord Bushing             | A 1 [F][J]               | QQT3647                    | Instruction Book        |
|               |                            |                          | A 2 [N] Δ                | QJP0603S                   | AC Adaptor              |
|               |                            |                          | PACKINGS                 |                            |                         |
|               |                            |                          | P 1 [D][B]               | [A][F][J] QPNM0220         | Inside Carton           |
|               |                            |                          | P 1 [N]                  | QPNM0227                   | Inside Carton           |
|               |                            |                          | P 2                      | QPAM0066                   | Cushion (R)             |
|               |                            |                          | P 3                      | QPAM0067                   | Cushion (L)             |
|               |                            |                          | P 4 [D][B]               | [A][F][J] QPSM0011         | Pad                     |
|               |                            |                          | P 5                      | XZB40X60A02                | Poly Bag                |
|               |                            |                          | P 6                      | QPC0072                    | Poly Sheet              |

## Areas

\*[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.  
\*[F] For Asian PX.  
\*[J] For European PX.

## NOTES:

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



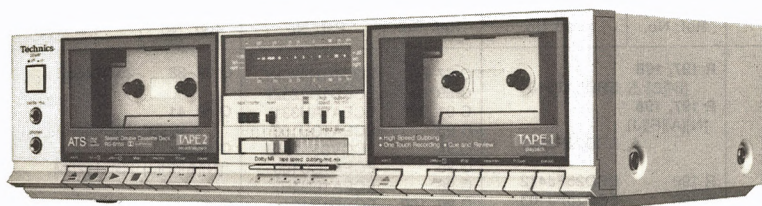
# Service Manual

Cassette Deck

Double Cassette Deck  
Featuring 2 Dubbing Speed

## RS-B11W

**Supplement-1**



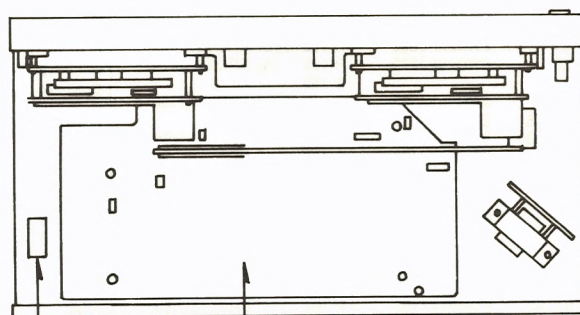
**RS-B10 MECHANISM SERIES**

### Color

(K)...Black Type  
(S)...Silver Type

| Color   | Area                                                        |
|---------|-------------------------------------------------------------|
| (K) (S) | [D]..... All European areas except United Kingdom.          |
| (K) (S) | [B]..... United Kingdom.                                    |
| (K) (S) | [N]..... Asia, Latin America, Middle East and Africa areas. |
| (K) (S) | [A]..... Australia.                                         |
| (K) (S) | [F]..... Asian PX.                                          |
| (K) (S) | [J]..... European PX.                                       |

- Please use this manual together with the service manual for model No. RS-B11W (Original) order No. HAD84052771C9.
- In this set, Dolby NR circuit by module P.C.B. is used to make up for the shortage of Dolby IC (NE657). The set is provided with a caution label on the inside bottom as shown.  
Regarding the electrical parts list, schematic diagram, circuit board and wiring diagram, refer to the data, and for others, refer to the original service manual.



MAIN CIRCUIT BOARD

**SERVICE NOTICE**  
REFER TO SERVICE MANUAL  
"SUPPLEMENT 1" FOR REPAIR OF DOLBY CIRCUIT IN THIS SET. SQX40002

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

# Technics

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



## ■ ELECTRICAL PARTS LIST

NOTES: RESISTORS

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

## CAPACITORS

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

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

## REPLACEMENT PARTS LIST

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

## Areas

\*[D] For all European areas except United Kingdom.      \* [A] For Australia.  
\* [B] For United Kingdom.      \* [F] For Asian PX.  
\* [N] For Asia, Latin America, Middle East and Africa areas.      \* [J] For European PX.

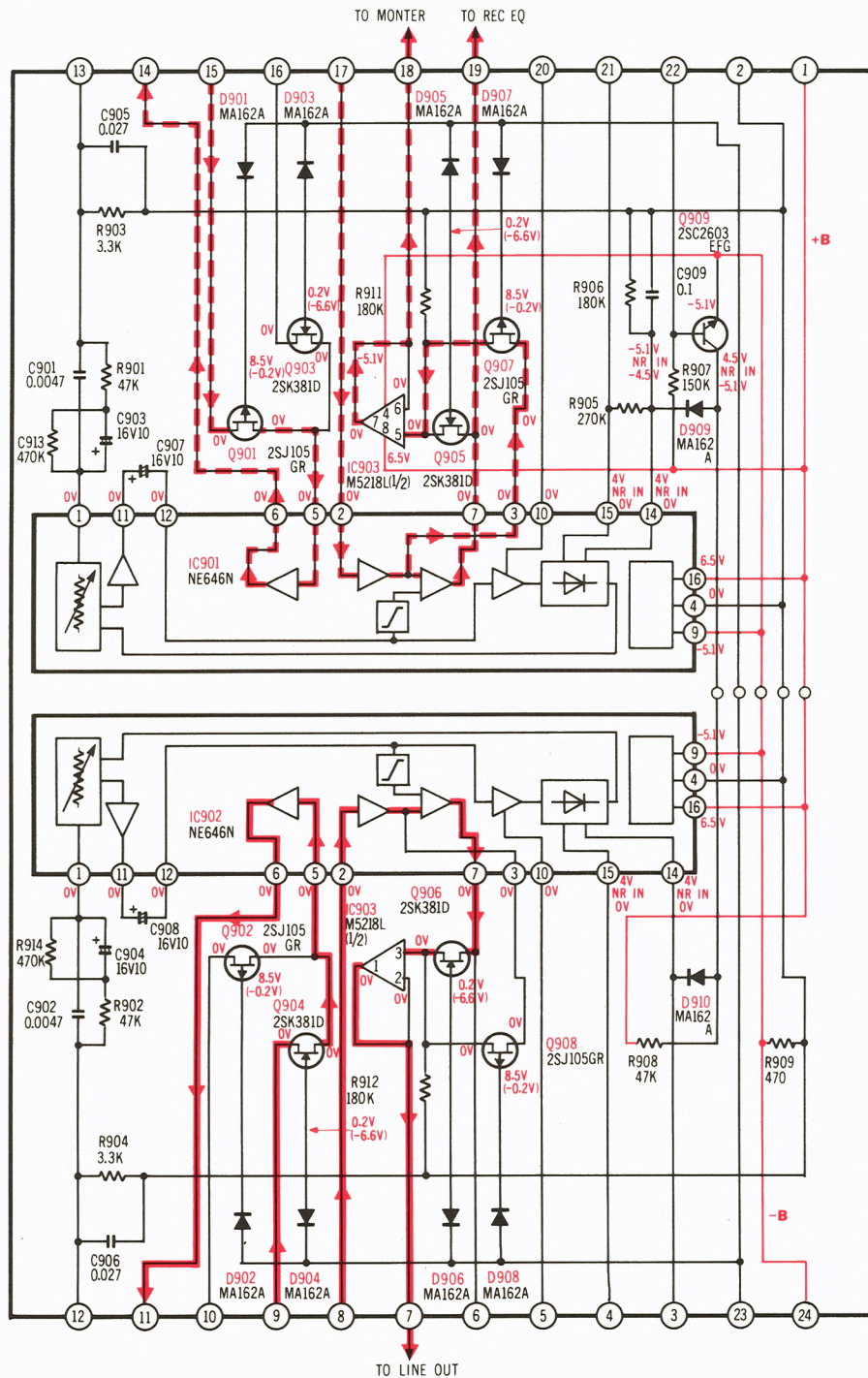
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|-----------------|-------------------------|-------------------------------------|----------------------|----------------------|---------------------------|--------------------------|---------------|----------------------------------------------------|-----------------------|
| RESISTORS       |                         | R 114                               | ERD25FJ472           | R 197, 198           | [D][B] Δ ERDS1TJ181       | C 87, 88                 | ECCD1H470KC   | Q 37, 38                                           | 2SD1468E              |
| R 1, 2          | ERD25TJ274              | R 115                               | ERD25FJ152           | R 197, 198           | [N][A][F][J] Δ ERD25FJ181 | C 89, 90                 | ECKD1H223ZF   | Q 40, 41                                           | [D][B] 2SD471K        |
| R 3, 4          | ERD25FJ101              | R 116                               | ERD25TJ105           |                      |                           | C 91, 92                 | ECEA1AU331    | Q 40, 41                                           | [N][A][F][J] 2SD1125M |
| R 5, 6          | ERD25TJ684              |                                     |                      | R 199                | ERD25FJ472                | C 93                     | ECEA1CU100    | Q 42                                               | 2SA952K               |
| R 7, 8          | ERD25TJ243              | R 117, 118                          | ERD25FJ272           | R 200                | ERD25FJ103                | C 94                     | ECQV05104JB   | Q 43                                               | DTA114F               |
| R 9, 10         | ERD25TJ563              | R 119                               | ERD25FJ563           | R 201                | ERD25FJ101                | C 95                     | ECEA1CU100    | Q 44                                               | 2SA1115EF             |
| R 11, 12        | ERD25FJ472              | R 121                               | ERD25FJ472           | R 202                | ERD25TJ223                | C 96                     | ECEA1EU47     | Q 45                                               | 2SC2603E              |
| R 13, 14        | ERD25FJ820              | R 122                               | ERD25FJ103           | R 203, 204, 205      |                           | C 99, 100                | ECCD1H101J    | Q 46                                               | 2SA1115EF             |
| R 15, 16        | ERD25FJ562              | R 123                               | ERD25FJ102           |                      |                           | C 101                    | ECQP1822JZ    | Q 47, 48                                           | 2SC2603E              |
| R 17, 18        | ERD25FJ272              | R 125                               | ERD25FJ103           | R 211, 212           | ERD25TJ474                | C 102                    | ECQM1H123KV   | Q 49                                               | 2SA1115EF             |
| R 19, 20        | ERD25FJ822              | R 126, 127                          | ERD25FJ472           | R 301, 302           | ERD25FJ392                | C 103                    | ECEA1CN100    | Q 50, 51                                           | 2SD1450R              |
|                 |                         | R 128                               | ERD25FJ102           | R 303, 304, 305, 306 |                           | C 104                    | ECQM1H102KV   | Q 52, 53                                           | DTA114F               |
| R 21, 22        | ERD25TJ393              | R 129                               | ERD25FJ103           |                      |                           | C 105                    | ECEA1CU100    | Q 54                                               | 2SA1115EF             |
| R 23, 24        | ERD25TJ105              | R 130                               | ERD25FJ472           | R 901, 902           | ERD25TJ473                | C 106                    | ECEA1CU220    |                                                    |                       |
| R 25, 26        | ERD25TJ274              | R 131, 132, 133, 134, 135, 136, 137 |                      | R 903, 904           | ERD25FJ332                | C 107                    | ECEA1EU3R3    |                                                    |                       |
| R 27, 28        | ERD25FJ101              | R 138, 139                          | ERD25FJ332           |                      |                           | C 108                    | ECEA1EU47     |                                                    |                       |
| R 29, 30        | ERD25TJ124              | R 140                               | ERD25FJ561           | R 905                | ERD25TJ274                | C 109                    | ECEA1AU331    |                                                    |                       |
| R 31, 32        | ERD25FJ432              | R 141                               | ERD25TJ123           | R 906, 907           | ERD25TJ184                | C 110                    | ECEA1HU010    | Q 56                                               | 2SD1265O              |
| R 33, 34        | ERD25TJ563              | R 142                               | ERD25TJ563           | R 908                | ERD25TJ473                | C 111                    | ECEA1CU100    | Q 57                                               | 2SB941Q               |
| R 35, 36        | ERD25FJ472              | R 143                               | ERD25FJ103           | R 909                | ERD25FJ471                | C 113, 114               | Δ ECFDD223KXY | Q 58                                               | 2SD985K               |
| R 37, 38        | ERD25FJ682              | R 144, 1.5                          | ERD25TJ223           | R 911, 912           | ERD25TJ184                |                          |               | Q 59                                               | 2SC2603E              |
| R 39, 40        | ERD25FJ820              | R 146                               | ERD25FJ272           | R 913, 914           | ERD25TJ474                | C 115, 116               | Δ ECEA1CU331  | Q 301, 302                                         | 2SC2603E              |
|                 |                         | R 147                               | ERD25FJ222           |                      |                           | C 117, 118               | Δ ECEA1CU102  | Q 901, 902                                         | 2SJ105GR              |
| R 41, 42        | ERD25TJ473              | R 148                               | ERD25FJ47            | CAPACITORS           |                           |                          | Δ ECEA1CU222  | Q 903, 904, 905, 906                               | 2SK381D               |
| R 43, 44        | ERD25TJ474              | R 149                               | ERD25FJ272           | C 1, 2               | ECKD1H471KB               | C 119                    | Δ ECEA1CU222  | Q 907, 908                                         | 2SJ105GR              |
| R 45, 46        | ERD25TJ473              | R 150                               | ERD25FJ100           | C 3, 4               | ECKD1H221KB               | C 120                    | ECEA1EU47     | Q 909                                              | 2SC2603EFG            |
| R 47, 48        | ERD25FJ822              | R 151                               | ERD25FJ682           | C 5, 6, 7, 8         | ECCD1H151J                | C 121, 122               | ECEA1HU010    | DIODES & RECTIFIERS                                |                       |
| R 49, 50        | ERD25TJ393              | R 152                               | ERD25FJ1R0           | C 9, 10              | ECQM1H472JV               | C 123                    | ECEA1AU470    | D 1, 2                                             | 1SS133                |
| R 51            | ERD25TJ563              |                                     |                      | C 11, 12             | ECEA1EU47                 | C 125                    | ECEA1EU47     | D 4, 5                                             | 1SS133                |
| R 52            | ERD25FJ681              | R 153 [D][B]                        | ERG1SJ100            | C 13, 14             | ECQV05103JZ               | C 127                    | ECCD1H820K    | D 6                                                | MC921                 |
| R 53            | ERD25FJ101              | R 153 [A]                           | ERD25FJ220           | C 15, 16             | ECQM1H682JZ               | C 200                    | Δ ECQ2A103MF  | D 7                                                | MC911                 |
| R 54            | ERD25FJ392              | R 153                               | [N][F][J] ERD25FJ100 | C 19, 20             | ECKD1H681KB               | C 301, 302               | ECEA1HUR22    | D 8, 9, 10, 11                                     | 1SS133                |
|                 |                         |                                     |                      | C 21, 22             | ECCD1H151J                |                          |               | D 12, 13                                           | MC911                 |
| R 56            | ERD25TJ563              | R 154                               | ERD25TJ155           | C 23, 24             | ECKD1H102KB               |                          |               | D 14                                               | 1SS133                |
| R 57, 58        | ERD25TJ473              | R 155                               | ERD25TJ393           |                      |                           | C 303, 304               | ECEA1CU330    | D 15, 16                                           | 1S2473                |
| R 59, 60        | ERD25FJ181              | R 156                               | ERD25FJ562           | C 25, 26             | ECQM1H273JZ               | C 901, 902               | ECQB1H472JZ   | D 17                                               | 1SS133                |
| R 65, 66        | ERD25TJ473              | R 157                               | RED25FJ562           | C 27, 28             | ECEA1EU47                 | C 903, 904               | ECEA1CU100    | D 18                                               | MC921                 |
| R 67, 68        | ERD25FJ392              | R 158                               | ERD25FJ102           | C 29, 30             | ECQV05103JZ               | C 905, 906               | ECQB1H273JZ   |                                                    |                       |
| R 69            | ERD25TJ274              | R 159                               | ERD25TJ273           | C 31, 32, 33         |                           | C 907, 908               | ECEA1CU100    |                                                    |                       |
| R 71            | ERD25TJ184              | R 160                               | ERD25TJ563           |                      |                           | C 909                    | ECQV1H104JZ   |                                                    |                       |
| R 75, 76        | ERD25FJ561              | R 161                               | ERD25FJ152           | INTEGRATED CIRCUITS  |                           |                          |               |                                                    |                       |
| R 78            | ERD25FJ152              | R 162, 163                          | ERD25TJ104           | C 34                 | ECEA1HU010                | IC 1, 2                  | M5220L        | D 19, 20                                           | 1SS133                |
| R 79, 80        | ERD25FJ272              | R 164                               | ERD25TJ563           | C 35                 | ECKD1H102KB               | IC 3                     | M5219L        | D 21                                               | 1S2473                |
|                 |                         |                                     |                      | C 36                 | ECEA1HU010                | IC 4                     | M5218L        | D 22, 23, 24                                       | 1SS133                |
| R 81, 82        | ERD25TJ153              | R 165                               | ERD25TJ223           | C 37, 38             | ECCD1H100KC               |                          |               | D 25                                               | MC921                 |
| R 83, 84        | ERD25FJ102              | R 166, 167                          | ERD25FJ103           | C 39, 40             | ECEA1HUR33                | IC 6, 7                  | M5218L        | D 26                                               | 1SS133                |
| R 85, 86        | ERD25FJ680              | R 168                               | ERD25TJ104           | C 41, 42             | ECCD1H390J                | IC 301, 302              | BA6146        | D 27, 28                                           | Δ SM112               |
| R 87, 88        | ERD25FJ822              | R 169                               | ERD25FJ103           |                      |                           | IC 901, 902              | NE646         | D 29                                               | MA1068                |
| R 89, 90        | ERD25FJ222              | R 170                               | ERD25TJ563           | C 43, 44             | ECQM1H392KV               | IC 903                   | M5218L        | D 32                                               | Δ MT222C              |
| R 91, 92        | ERD25FJ392              | R 171                               | ERD25FJ272           | C 45, 46             | ECKD1H102KB               |                          |               | D 33, 34                                           | Δ SIVB20              |
| R 93, 94        | ERD25TJ123              | R 172                               | ERD25FJ103           | C 49, 50             | ECCD1H470KC               |                          |               | D 35, 36, 37                                       | TLR205                |
| R 95, 96        | ERD25TJ393              | R 173                               | ERD25FJ272           | C 51, 52             | ECQV05333JZ               | TRANSISTORS              |               |                                                    |                       |
| R 97, 98        | ERD25FJ121              | R 174                               | ERD25TJ153           | C 53, 54             | ECQV05473JZ               | Q 1, 2, 3, 4, 5, 6, 7, 8 |               | D 40                                               | 1SS133                |
| R 99, 100       | ERD25FJ152              | R 175                               | ERD25TJ473           | C 55, 56             | ECQM1H334JZ               | Q 9, 10                  | 2SD1468E      | D 41                                               | MC911                 |
|                 |                         |                                     |                      | C 57                 | ECQV05104JB               | Q 11, 12, 13, 14         |               | D 42, 43                                           | 1SS133                |
| R 101 [D][B]    | ERG12SJ820              | R 176                               | ERD25FJ152           | C 59, 60             | ECEA1CU100                |                          |               | D 44                                               | Δ SM112               |
| R 101           | [N][A][F][J] ERDS1TJ820 | R 177                               | ERD25TJ223           | C 61, 62, 63, 64     |                           | Q 15, 16                 | 2SD1450R      | D 301                                              | MTZ8R2B               |
|                 |                         | R 178                               | ERD25FJ182           |                      |                           | Q 17, 18                 | 2SK381D       | D 901, 902, 903, 904, 905, 906, 907, 908, 909, 910 | MA162A                |
| R 102 [D][B]    | ERG12SJ101              | R 179                               | ERD25FJ562           | C 65, 66             | ECEA1HU010                |                          |               | VARIABLE RESISTORS                                 |                       |
| R 102           | [N][A][F][J] ERDS1TJ101 | R 180, 181, 182                     |                      |                      | ECQM1H392KV               | Q 23, 24                 | 2SA1115EF     | VR 1, 2                                            | QVNB3A00B222          |
|                 |                         |                                     |                      | C 67, 68             | ECQV05183JZ               | Q 25, 26, 27, 28, 29, 30 | 2SC2603E      | VR 3, 4                                            | QVNB3A00B331          |
| R 103, 104, 105 | ERD25TJ105              | R 183, 184, 185, 186, 187           |                      | C 69, 70             | ECKD1H221KB               |                          |               | VR 5, 6                                            | EWAPB6Y10A54          |
| R 106           | ERD25TJ104              |                                     |                      | C 71, 72             | ECQM1H822JV3              |                          |               | VR 7, 8                                            | QVNB3A00B104          |
| R 107           | ERD25FJ103              | R 189, 190                          | ERD25FJ103           | C 73, 74             | ECQM1H472KV               |                          |               | VR 9, 10                                           | QVNB3A00B104          |
| R 108           | ERD25TJ223              | R 191                               | ERD25TJ223           | C 75, 76             | ECQM1H682JZ               |                          |               | VR 301, 302                                        | QVNB3A00B473          |
| R 109, 110      | ERD25FJ103              | R 192                               | ERD25FJ103           | C 77, 78             | ECQV05223JZ               |                          |               |                                                    |                       |
| R 111           | ERD25FJ472              | R 193                               | ERD25FJ272           | C 79, 80             | ECEA1HU010                |                          |               |                                                    |                       |
| R 112, 113      | ERD25FJ103              |                                     |                      | C 81, 82             | ECKD1H152KB               |                          |               |                                                    |                       |
|                 |                         | R 195, 196                          | Δ ERD25FJ681         | C 83, 84             | ECKD1H561KB               |                          |               |                                                    |                       |
|                 |                         |                                     |                      | C 85, 86             | ECCD1H820J                |                          |               |                                                    |                       |



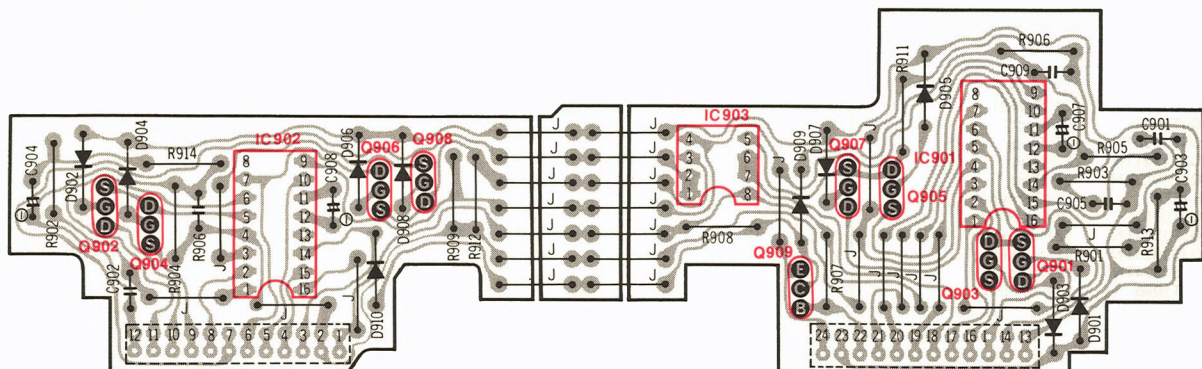
| Ref. No.                                                                                      | Part No.     | Part Name & Description                               |
|-----------------------------------------------------------------------------------------------|--------------|-------------------------------------------------------|
| <b>COILS</b>                                                                                  |              |                                                       |
| L 1, 2                                                                                        | QLM9Z9K      | M.P.X. Coil                                           |
| L 3, 4                                                                                        | QLQX0332KWA  | Peaking Coil                                          |
| L 5, 6                                                                                        | QLQX0343KWA  | Trap Coil                                             |
| L 7                                                                                           | QLB0205K     | Bias Oscillation Coil                                 |
| <b>COMBINATION PARTS</b>                                                                      |              |                                                       |
| CR 1                                                                                          | EXRP102K103W |                                                       |
| CR 3, 4                                                                                       | EXRP220K124  |                                                       |
| <b>FLUORESCENT DISPLAY TUBE</b>                                                               |              |                                                       |
| FL 1                                                                                          | QSiFL012F    | FL Meter                                              |
| <b>TRANSFORMERS</b>                                                                           |              |                                                       |
| T 1 [D]      | QLPD96ELE    | AC Power Transformer                                  |
| T 1 [B]      | QLPD97ELE    | AC Power Transformer                                  |
| T 1 [N][F]                                                                                    |              |                                                       |
| [J]          | QLPN94ELE    | AC Power Transformer                                  |
| T 1 [A]      | QLPA82ELE    | AC Power Transformer                                  |
| <b>FUSES</b>                                                                                  |              |                                                       |
| F 1                                                                                           |              |                                                       |
| [D][B]     | XBAQ0004     | Fuse (T 1 A)                                          |
| F 2, 3                                                                                        |              |                                                       |
| [D][B]     | XBAQ0007     | Fuse (T 400mA)                                        |
| F 4 [N][F]                                                                                    |              |                                                       |
| [J]        | XBA2E03NR5   | Fuse (0.3A)                                           |
| <b>SWITCHES</b>                                                                               |              |                                                       |
| S 1                                                                                           | QSSA209TA    | Slide Switch (Record/ Playback Selector)              |
| S 2, 3, 4                                                                                     | QSWX318A     | Push Switch (Dolby NR/ Dubbing Speed/Dubbing/ Mixing) |
| S 6                                                                                           | QSB0251iU    | Leaf Switch (PLAY)                                    |
| S 7                                                                                           | QSB0314      | Leaf Switch (FF/REW)                                  |
| S 8                                                                                           | QSB0251iU    | Leaf Switch (PLAY)                                    |
| S 9                                                                                           | QSB0314      | Leaf Switch (FF/REW)                                  |
| S 10                                                                                          | QSB0313C     | Leaf Switch (Play EQ/Auto Tape Selector)              |
| S 11                                                                                          | QSB0251iU    | Leaf Switch (Pause)                                   |
| S 12, 13                                                                                      | QSB0313C     | Leaf Switch (Play EQ/Auto Tape Selector)              |
| S 14, 15                                                                                      | QSB0195      | Leaf Switch (Motor)                                   |
| S 16       | QSW1117AT    | Push Switch (Power ON/OFF)                            |
| S 17 [B] QSR1407H                                                                             |              | AC Power Voltage Selector                             |
| [N][F][J]  |              |                                                       |
| <b>JACKS</b>                                                                                  |              |                                                       |
| J 3                                                                                           | QJA0269H     | Microphone Jack                                       |
| J 4                                                                                           | QJA0267H     | Headphones Jack                                       |
| <b>CONNECTORS</b>                                                                             |              |                                                       |
| CN 1                                                                                          | QJS1921TN    | 3P Socket                                             |
| CN 2                                                                                          | QJS1920TN    | 2P Socket                                             |
| CN 3                                                                                          | QJT1054      | Contact                                               |
| CN 4                                                                                          | QJP1920TN    | 2P Plug                                               |
| CN 5                                                                                          | QJP1921TN    | 3P Plug                                               |
| CN 6                                                                                          | QJP1923TN    | 9P Plug                                               |
| CN 7                                                                                          | SJT777       | Pin Terminal                                          |
| CN 8                                                                                          | QJT0053      | Check Pin                                             |
| CN 9                                                                                          | QJP1924TN    | 12P Plug                                              |
| CN 10                                                                                         | QJS1923TN    | 9P Socket                                             |
| CN 11                                                                                         | QJS1924TN    | 12P Socket                                            |
| CN 12                                                                                         | QJT1090      | Check Pin                                             |



## ■ SCHEMATIC DIAGRAM

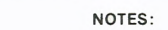


## ■ CIRCUIT BOARD





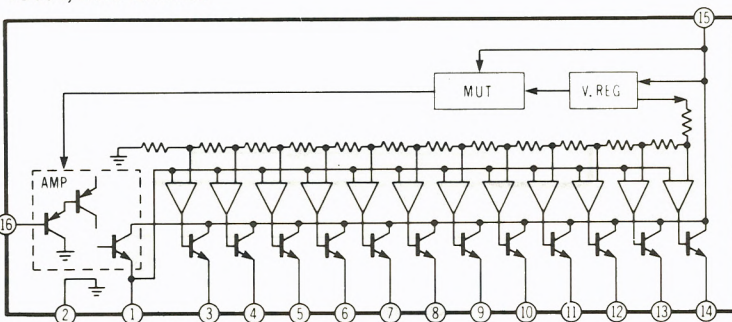
NOTES:



1. S1-1~S1-10: Record/playback switch (shown in **playback** position).  
     ① ...Playback, ② ...Record  
 2. S2-1, S2-2: Dolby NR switch (shown in **OUT** position).  
     ① ...Dolby OUT, ② ...Dolby IN  
 3. S3-1~S3-4: Dubbing/Mixing switch (shown in **OUT** position).  
     ① ...Dubbit/Mixing OUT, ② ...Dubbing/Mixing IN  
 4. S4-1, S4-2: Dubbing speed switch (shown in **normal** position).  
     ① ...Normal, ② ...High  
 5. S6: Tape ② playback switch (shown in **stop** position).  
 6. S7: Tape ② FF/REW switch (shown in **stop** position).  
 7. S8: Tape ① playback switch (shown in **stop** position).  
 8. S9: Tape ① FF/REW switch (shown in **stop** position).  
 9. S10: Tape ① playback E.Q. switch (shown in **70μs** position).  
 10. S12: Auto tape selector (for **Metal** mode).  
 11. S13: Auto tape selector (for **CrO<sub>2</sub>** mode).  
 12. S14: Tape ① motor switch (shown in **OFF** position).  
 13. S15: Tape ② motor switch (shown in **OFF** position).  
 14. S16: Power ON/OFF switch (shown in **OFF** position).  
 15. S17: AC power voltage selector.  
     [For United Kingdom.]  
 16. VR1, 2: Tape ① playback gain adjustment VR.  
 17. VR3, 4: Tape ② playback gain adjustment VR.  
 18. VR5, 6: Tape ② input level control.  
 19. VR7, 8: Tape ② overall gain adjustment VR.  
 20. VR9, 10: Tape ② bias current adjustment VR.  
 21. VR301, 302: FL meter adjustment VR (for 0dB).  
 22. L1, 2: MPX coil.  
 23. L3, 4: Peaking coil.  
 24. L5, 6: Trap coil.  
 25. L7: Bias oscillation coil.  
 26. Resistance are in ohms (Ω), 1/4 watt unless specified otherwise.  
     1 K = 1,000(Ω), 1 M = 1,000(KΩ).  
 27. Capacity are in microfarads (μF) unless specified otherwise.  
 28. All audio voltage values shown in circuitry are under no signal condition and  
     playback mode with volume control at minimum position otherwise  
     specified.  
 ( ) .....Voltage value at record mode.  
 29. For measurement use VTVM.  
 ( → ) indicates the flow of the playback signal.  
 ( → + → ) indicates the flow of the recording signal.  
 ( + B ) indicates B + (bias).  
 ( - B ) indicates B - (bias).  
 30. Important safety notice  
 Components identified by △ mark have special characteristics important for  
 safety.  
 When replacing any of these components, use only manufacturer's specified  
 parts.  
 31. The part No. of transistors, IC and diodes mentioned in the schematic  
     diagram stand for production part No. Recording the part No. with △ mark,  
     the production part No. are different from the replacement part No.  
     Therefore, when placing an order for replacement part, please use the part  
     No. in the replacement part list.  
 • This schematic diagram may be modified at any time with the development of  
 new technology.

### ■ EQUIVALENT CIRCUIT

IC301, 302: BA6146



## SPECIFICATIONS

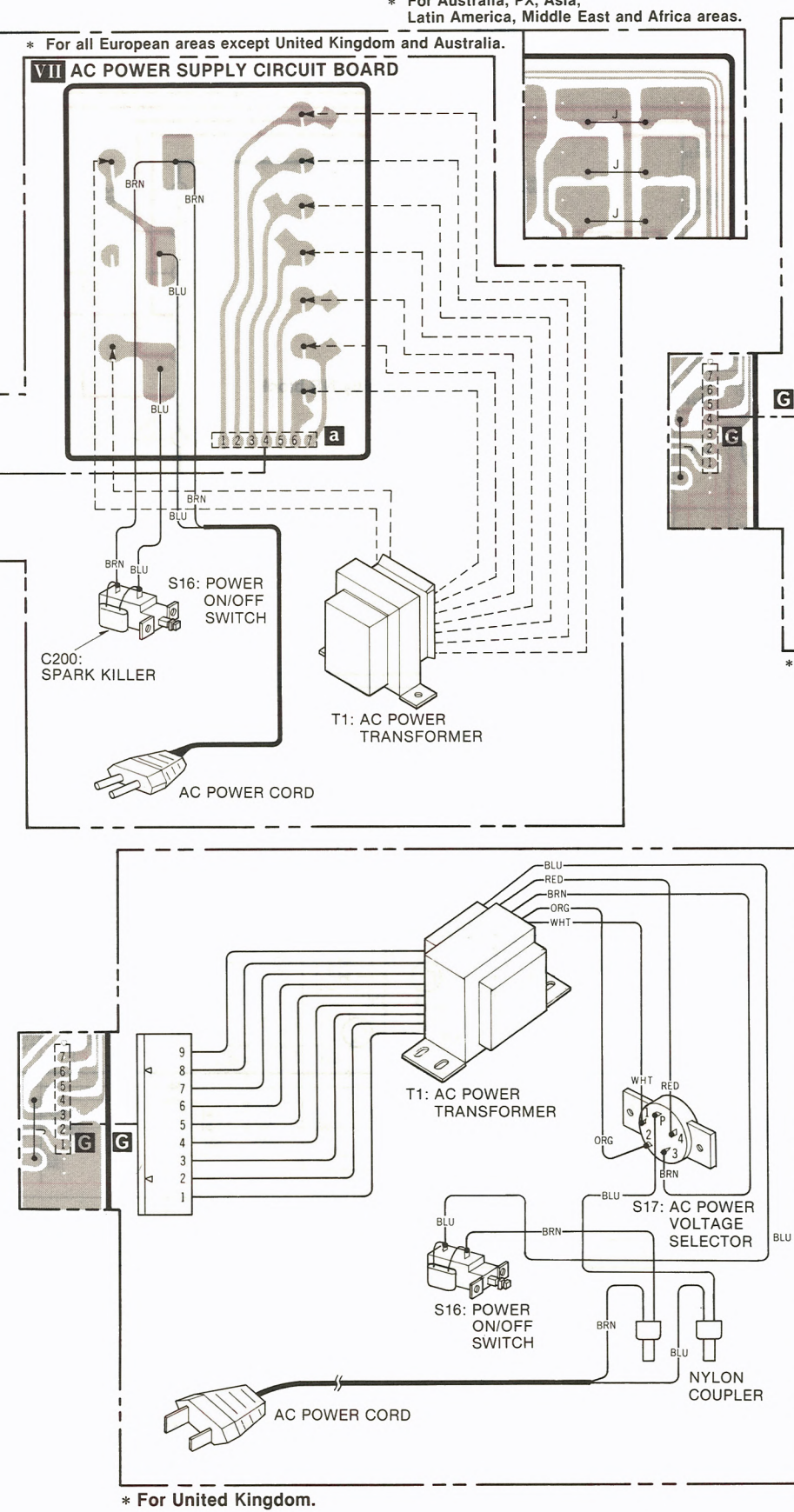
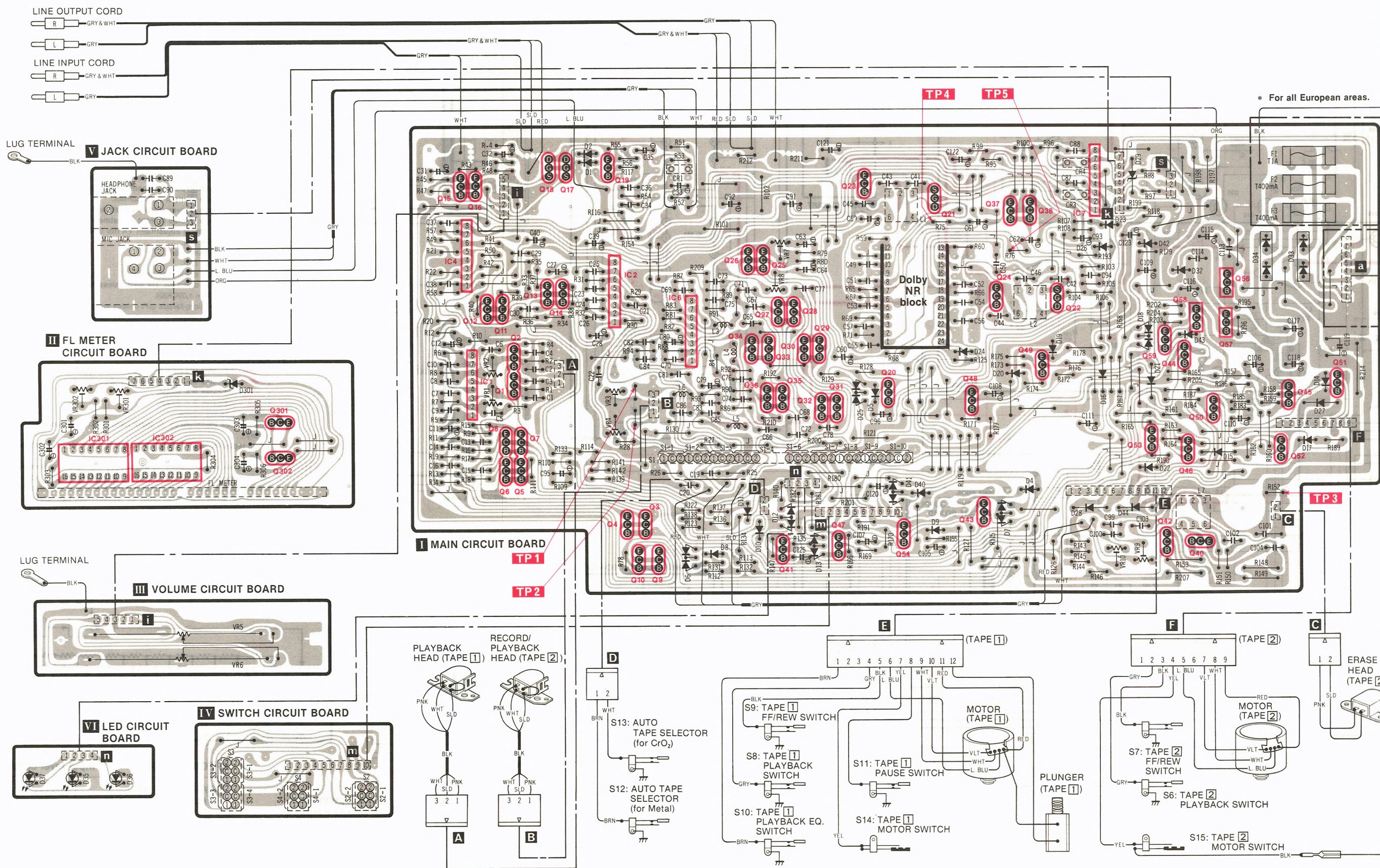
- \* Input level control...MAX

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

— 8 —



# ■ CIRCUIT BOARDS AND WIRING CONNECTION DIAGRAM



**NOTES:**

- The circuit shown in [ ] on the conductor side indicates printed circuit on the back side of the printed circuit board.

**NOTES:**

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

KDSDKB|SB|KN|SNKA|SA|KF|SF|KJ|SJ



# METODOS DE AJUSTE Y MEDIDA

## RS-B11W ESPAÑOL

Sírvase utilizarse junto con manual de servicio para el modelo No. RS-B11W.

**NOTAS:** Colocar los interruptores y controles en las posiciones siguientes a no ser que se especifique lo contrario:

- Asegurarse de que las cabezas estén limpias.
- Asegurarse de que los cabrestantes y los rodillos presores estén limpios.
- Temperatura ambiente aconsejable:  $20\pm 5^{\circ}\text{C}$  ( $68\pm 9^{\circ}\text{F}$ )
- Interruptor NR: OUT
- Interruptor de copia/mezcla: OFF
- Interruptor de velocidad de cinta de regrabación: Normal/Alto
- Controles del nivel de entrada: Máximo

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                  |                                                                                                                                    |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------|
| <b>A Ajuste de azimut de las cabezas (CINTA [1], CINTA [2])</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Condición: <ul style="list-style-type: none"><li>• Modo de reproducción</li><li>• Modo de cinta normal</li></ul> | Equipo: <ul style="list-style-type: none"><li>• VTVM</li><li>• Osciloscopio</li><li>• Cinta de prueba (azimut) ...QZZCFM</li></ul> |
| <b>Ajuste del equilibrio de salida L-CH/R-CH (canal izquierdo/canal derecho)</b> <ol style="list-style-type: none"><li>1. Efectuar las conexiones como muestra la Fig. 2.</li><li>2. Reproducir la señal de 8kHz desde la cinta de prueba (QZZCFM). Ajustar el tornillo (B) en Fig. 3 para obtener niveles L-CH y R-CH de salida máxima. Cuando los niveles de salida de L-CH y R-CH no están al máximo, al mismo tiempo, reajustar de la siguiente forma:</li><li>3. Girar el tornillo mostrado en Fig. 3 para buscar los ángulos A y C (puntos donde los niveles de salida de cresta se obtienen para los canales derecho y izquierdo). Luego, localizar el ángulo B entre los ángulos A y C, por ej., el punto donde los niveles de salida de R-CH y L-CH estén equilibrados. (Consultar Fig. 3 y 4.)</li></ol> <b>Ajuste de fase de L-CH/R-CH</b> <ol style="list-style-type: none"><li>4. Efectuar las conexiones como muestra la Fig. 5.</li><li>5. Reproducir la señal de 8kHz desde la cinta de prueba (QZZCFM). Ajustar el tornillo. (B) de la Fig. 3 de forma que las agujas indicadoras de los dos VTVM giren hacia el máximo y se obtenga una forma de onda como la indicada en la Fig. 6 sobre el osciloscopio.</li></ol>                                                                                                                                                                                                        |                                                                                                                  |                                                                                                                                    |
| <b>B Velocidad de la cinta (CINTA [1], CINTA [2])</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Condición: <ul style="list-style-type: none"><li>• Modo de reproducción</li></ul>                                | Equipo: <ul style="list-style-type: none"><li>• Contador digital electrónico</li><li>• Cinta de prueba...QZZCWAT</li></ul>         |
| <b>Ajuste de velocidad normal</b><br><b>CINTA [1]</b> <ol style="list-style-type: none"><li>1. Hacer conexiones como mostrado en la Fig. 7.</li><li>2. Ajustar el interruptor de velocidad de regrabación a normal.</li><li>3. Tocar la cinta de prueba (QZZCWAT) con la cabeza de CINTA [1] y medir la frecuencia de señal de reproducción. Si la frecuencia de señal de reproducción no se conforma al valor estandar, regular el ajuste de velocidad normal VR para la cabeza de CINTA [1] (Ver la Fig. 1).</li></ol> <div>Valor estandar: CINTA [1] (Platina de reproducción: Velocidad normal) <math>3010\pm 45\text{Hz}</math></div><br><b>CINTA [2]</b> <ol style="list-style-type: none"><li>4. Tocar la cinta de prueba (QZZCWAT) con la cabeza de CINTA [2] y medir la frecuencia de señal de reproducción y, luego, regular el ajuste de velocidad normal VR para la cabeza de CINTA [2] de manera que la frecuencia de señal de reproducción sea 15Hz inferior a la frecuencia de señal de salida de CINTA [1].</li></ol> <b>Ajuste de velocidad alta</b> <p><b>Nota:</b> Efectuar el ajuste de velocidad alta unos 10 segundos después del arranque de rotación de motor.</p> <ol style="list-style-type: none"><li>1. Hacer conexiones como mostrado en la Fig. 7.</li><li>2. Poner el interruptor de regrabación/mezcla en desconectado y el de velocidad de regrabación en alto. Poner a tierra el registro (R122).</li></ol> |                                                                                                                  |                                                                                                                                    |

3. Tocar la cinta de prueba (QZZCWAT) con la CINTA [1] y medir la frecuencia de señal de reproducción. Si la frecuencia de señal de reproducción no se conforma con el valor estandar, regular el ajuste de velocidad alta VR para la cabeza de CINTA [1] (Ver la Fig. 1).

Valor estandar: CINTA [1] (Platina de reproducción: Velocidad normal)  $6020\pm 90\text{Hz}$

4. Tocar la cinta de prueba (QZZCWAT) con la cabeza de CINTA [2] y medir la frecuencia de señal de reproducción y, luego, regular el ajuste de velocidad alta VR para la cabeza de CINTA [2] de manera que la frecuencia de señal de reproducción sea 30Hz inferior a la frecuencia de señal de salida después del ajuste de CINTA [1].
5. Después del ajuste de velocidad alta, remover el poner a tierra el registro (R122).

### Fluctuación de velocidad de cinta

#### CINTA [1], CINTA [2]

Hacer mediciones de la misma manera que arriba (comienzo, medio y final de cinta), y determinar la diferencia entre valores máximos y mínimos y calcular como sigue:

$$\text{Fluctuación de velocidad de cinta (velocidad normal)} = \frac{f_1 - f_2}{3.000} \times 100(\%)$$

$f_1$  = valor máximo,  $f_2$  = valor mínimo

$$\text{Fluctuación de velocidad de cinta (velocidad alta)} = \frac{f_1 - f_2}{6.000} \times 100(\%)$$

$f_1$  = valor máximo,  $f_2$  = valor mínimo

Valor estandar: Menos de 1%

#### Nota:

Por favor, usar destornillador de tipo no metálico al ajustar la velocidad de cinta en esta unidad.

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                  |                                                                                                                          |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------|
| <b>C Respuesta de frecuencia de reproducción (CINTA [1], CINTA [2])</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Condición: <ul style="list-style-type: none"><li>• Modo de reproducción</li><li>• Modo de cinta normal</li></ul> | Equipo: <ul style="list-style-type: none"><li>• VTVM</li><li>• Osciloscopio</li><li>• Cinta de prueba...QZZCFM</li></ul> |
| <ol style="list-style-type: none"><li>1. La conexión del equipo de prueba se muestra en la Fig. 2.</li><li>2. Reproducir la cinta de prueba de respuesta de frecuencia (QZZCFM).</li><li>3. Medir el nivel de salida en 315Hz, 12,5kHz, 8kHz, 4kHz, 1kHz, 250Hz, 125Hz y 63Hz y comparar cada nivel de salida con 315Hz de frecuencia normal, en LINE OUT.</li><li>4. Efectuar las medidas para ambos canales.</li><li>5. Asegurarse de que el valor medido está comprendido dentro de la gama especificada en el gráfico de la respuesta de frecuencia (mostrado en la Fig. 8).</li></ol> |                                                                                                                  |                                                                                                                          |
| <b>D Ganancia de reproducción (CINTA [1], CINTA [2])</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Condición: <ul style="list-style-type: none"><li>• Modo de reproducción</li><li>• Modo de cinta normal</li></ul> | Equipo: <ul style="list-style-type: none"><li>• VTVM</li><li>• Osciloscopio</li><li>• Cinta de prueba...QZZCFM</li></ul> |
| <ol style="list-style-type: none"><li>1. La conexión del equipo de prueba se muestra en la Fig. 2.</li><li>2. Reproducir la parte del nivel de grabación normal en la cinta de prueba (QZZCFM 315Hz) y, usando el VTVM, medir el nivel de salida en los puntos de prueba [TP4 (L-CH), TP5 (R-CH)].</li><li>3. Efectuar las medidas para ambos canales.</li></ol> <div>Valor normal: 0,42V [0,4V: en el enchufe LINE OUT]</div>                                                                                                                                                             |                                                                                                                  |                                                                                                                          |
| <b>Ajuste</b> <ol style="list-style-type: none"><li>1. Si el valor medido no está comprendido dentro del valor normal, ajustar CINTA [1] [VR1 (L-CH), VR2 (R-CH)], CINTA [2] [VR3 (L-CH), VR4 (R-CH)] (Ver la Fig. 1).</li><li>2. Después del ajuste, comprobar de nuevo la “respuesta de frecuencia de reproducción”.</li></ol>                                                                                                                                                                                                                                                           |                                                                                                                  |                                                                                                                          |
| <b>E Corriente de borrado (CINTA [1], CINTA [2])</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Condición: <ul style="list-style-type: none"><li>• Modo de grabación</li><li>• Modo de cinta metal</li></ul>     | Equipo: <ul style="list-style-type: none"><li>• VTVM</li><li>• Osciloscopio</li></ul>                                    |
| <ol style="list-style-type: none"><li>1. La conexión del equipo de prueba se muestra en la Fig. 9.</li><li>2. Poner el aparato en el modo de cinta Metal.</li><li>3. Apretar los botones de pausa y grabación.</li></ol>                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                  |                                                                                                                          |



|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                             |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 4. Tomar la lectura del voltaje en VTVM y calcular la corriente de borrado mediante la fórmula siguiente:<br>Corriente de borrado (A) = $\frac{\text{Voltaje entre terminales de R152}}{1\ (\Omega)}$ <div>Valor normal: 160±<sub>20</sub><sup>10</sup> mA (Modo de cinta...Metal)</div>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                             |
| 5. Si el valor medido no está comprendido dentro del valor normal, ajustar de la forma siguiente:<br><b>Ajuste</b><br>1. Cortocircuitar los registros R143, R144, R145. (Referir a la Tabla 1)<br>2. Medir la corriente de borrado.<br>3. Si el valor medido no cae dentro del régimen nominal, abrir o cortocircuitar los registros R143, R144, R145 de acuerdo con la Tabla 1.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                             |
| <b>Ⓕ Respuesta de frecuencia total (CINTA [2])</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Condición: <ul style="list-style-type: none"><li>• Modo de reproducción/grabación</li><li>• Modo de cinta normal</li><li>• Modo de cinta CrO<sub>2</sub></li><li>• Modo de cinta Metal</li><li>• Control de nivel de entrada ...MAX</li></ul> | Equipo: <ul style="list-style-type: none"><li>• VTVM</li><li>• ATT</li><li>• Oscilador de AF</li><li>• Osciloscopio</li><li>• Resistor (600Ω)</li><li>• Cinta de prueba (cinta en blanco de referencia) ...QZZCRA para Normal ...QZZCRX para CrO<sub>2</sub> ...QZZCRZ para Metal</li></ul> |
| <b>Nota:</b><br>Antes de medir y ajustar la respuesta de frecuencia total, asegurarse de la respuesta de frecuencia de reproducción. (Para el método de medida, sírvase consultar la respuesta de frecuencia de reproducción.) (Se fija el compensador de grabación.)<br>1. Efectuar las conexiones tal como se muestra en la Fig. 11.<br>2. Poner la UNIDAD en el modo de cinta normal y cargar la cinta de prueba (QZZCRA).<br>3. Aplicar una señal de 1kHz desde el oscilador de AF a través de ATT a LINE IN.<br>4. Ajustar el ATT de forma que el nivel de entrada sea de -20dB por debajo del nivel estándar de grabación (nivel estándar de grabación = 0VU).<br>5. Ajustar el oscilador de AF para generar señales de 1kHz, 50Hz, 100Hz, 200Hz, 500Hz, 4kHz, 8kHz, 10kHz y 12,5kHz y grabar, estas señales en la cinta de prueba.<br>6. Reproducir las señales grabadas en el paso 6, y comprobar si la curva de respuesta de frecuencia está dentro de los límites mostrados en el gráfico de respuesta de frecuencia total para las cintas normales (Fig. 10).<br>(Si la curva está dentro de las especificaciones del gráfico, seguir con los pasos 7, 8 y 9).<br>Si la curva no está dentro de las especificaciones del gráfico, ajustar de la forma siguiente:<br><b>Ajuste A:</b><br>Cuando la curva excede las especificaciones del gráfico de respuesta de frecuencia total (Fig. 10) tal como se muestra en la Fig. 12.<br>1) Aumentar la corriente de polarización girando VR9 (L-CH) y, VR10 (R-CH). (Ver la Fig. 1 de la página 4).<br>2) Repetir los pasos 5 y 6 para confirmación (Seguir con los pasos 7, 8 y 9 si la curva está ahora dentro de las especificaciones del gráfico de la Fig. 10).<br>3) Si la curva todavía excede las especificaciones (Fig. 10), aumentar aún más la corriente de polarización y repetir los pasos 5 y 6.<br><b>Ajuste B:</b><br>Cuando la curva está por debajo de las especificaciones del gráfico de respuesta de frecuencia total (Fig. 10) tal como se muestra en la Fig. 13.<br>1) Reducir la corriente de polarización girando VR9 (L-CH) y VR10 (R-CH).<br>2) Repetir los pasos 5 y 6 para confirmación. (Seguir con los pasos 7, 8 y 9 si la curva está ahora dentro de las especificaciones del gráfico de la Fig. 10.)<br>3) Si la curva todavía cas por debajo de las especificaciones del gráfico (Fig. 10), reducir aún más la corriente de polarización y repetir los pasos 5 y 6.<br>7. Poner la UNIDAD en el modo de cinta CrO <sub>2</sub> .<br>8. Cambiar la cinta de prueba a QZZCRX y grabar señales de 1kHz, 50Hz, 100Hz, 200Hz, 500Hz, 4kHz, 8kHz, 10kHz, 12,5kHz y 15kHz. Luego, reproducir las señales y comprobar si la curva está dentro de los límites mostrados en el gráfico de respuesta de frecuencia total para las cintas CrO <sub>2</sub> (Fig. 14).<br>9. Poner la UNIDAD en modo de cinta a Metal y cambiar la cinta de prueba a QZZCRZ, y grabar señales de 1kHz, 50Hz, 100Hz, 200Hz, 500Hz, 4kHz, 8kHz, 10kHz y 12,5kHz. Luego, reproducir las señales y comprobar si la curva está dentro de los límites mostrados en el gráfico de respuesta de frecuencia total para las cintas de Metal (Fig. 14). |                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                             |

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| 10. Asegurarse de que las tensión de polarización sean aproximadamente las que se indican a continuación cuando el aparato esté colocado en un modo de cinta distinto.<br>• Leer la tensión en el VTVM entre tierra y el punto de prueba (TP1 para L-CH y TP2 para R-CH) y calcular la corriente de polarización según la siguiente fórmula:<br>Corriente de polarización (A) = $\frac{\text{Valor leído en el VTVM (V)}}{10\ (\Omega)}$ <div>Unos 400μA (posición Normal)<br/>Valor normal: Unos 500μA (posición CrO<sub>2</sub>)<br/>Unos 800μA (posición Metal)</div>                                                                                                                               |                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                         |
| <b>Ⓖ Ganancia total (CINTA [2])</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Condición: <ul style="list-style-type: none"><li>• Modo de reproducción/grabación</li><li>• Modo de cinta Normal</li><li>• Controles del nivel de entrada ...MAX.</li><li>• Nivel de entrada normal: MIC .....-60 ± 4dB LINE IN.....-24 ± 4dB</li></ul> | Equipo: <ul style="list-style-type: none"><li>• VTVM</li><li>• Oscilador de AF</li><li>• ATT</li><li>• Osciloscopio</li><li>• Resistor (600Ω)</li><li>• Cinta de prueba (cinta en blanco de referencia) ...QZZCRA para Normal</li></ul> |
| 1. La conexión del equipo de prueba se muestra en la Fig. 15.<br>2. Cargar la cinta normal en blanco de referencia (QZZCRA).<br>3. Poner el aparato en el modo grabación.<br>4. Suministrar una señal 1kHz (-24dB) desde el oscilador de AF a través de ATT a LINE IN (ENTRADA DE LINEA).<br>5. Ajustar ATT hasta que el nivel del monitor en los puntos de prueba TP4 (L-CH), TP5 (R-CH) sea de 0,42V (0,4V±2dB en los enchufes de LINE OUT).<br>6. Reproducir la cinta grabada, y asegurarse de que el nivel de salida en los puntos de prueba TP4 (L-CH), TP5 (R-CH) sea de 0,42V.<br>7. Si el valor medido no es de 0,42V, ajustarlo con VR7 (L-CH), VR8 (R-CH).<br>8. Repetir desde el punto (2). |                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                         |
| <b>Ⓗ Medidor de nivel (CINTA [2])</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Condición: <ul style="list-style-type: none"><li>• Modo de grabación</li><li>• Controles del nivel de entrada ...MAX.</li></ul>                                                                                                                         | Equipo: <ul style="list-style-type: none"><li>• VTVM</li><li>• ATT</li><li>• Oscilador de AF</li><li>• Osciloscopio</li><li>• Resistor (600Ω)</li></ul>                                                                                 |
| 1. Efectuar las conexiones tal como se muestra (Ver la Fig. 16).<br>2. En el mode de pausa durante la grabación, aplicar 1kHz (-24dB) a LINE IN.<br>3. Ajustar el ATT de forma que el nivel de salida en LINE OUT sea de 0,4V.<br>4. En este momento, comprobar que el indicador de 0dB esté medio iluminado. (intensidad luminosa intermedia entre intensidad máxima y apagado: Ver la Fig. 17).<br>5. Si el indicador no esta iluminado a medias tal como se ha descrito en el paso 4, ajustar VR301 (L-CH), VR302 (R-CH).<br>6. Repetir ajustes y comprobaciones en pasos 3, 4 y 5 dos o tres veces.                                                                                                |                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                         |
| <b>Ⓛ Circuito Dolby de reducción de ruido (NR) (CINTA [2])</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Condición: <ul style="list-style-type: none"><li>• Modo de grabación</li><li>• Controles del nivel de entrada ...MAX.</li></ul>                                                                                                                         | Equipo: <ul style="list-style-type: none"><li>• VTVM</li><li>• Oscilador de AF</li><li>• ATT</li><li>• Osciloscopio</li><li>• Resistor (600Ω)</li></ul>                                                                                 |
| 1. La conexión del equipo de prueba se muestra en la Fig. 18.<br>2. Colocar la UNIDAD en el modo de grabación. Colocar el interruptor NR en la posición OUT y suministrar una señal de 5kHz a LINE IN para obtener 17,5mV en TP3 (L-CH) y TP4 (R-CH).<br>3. Confirmar que los valores en los puntos de prueba TP3, TP4 con el interruptor Dolby NR en la posición IN sean de 8 (±2,5) dB mayores que los valores en la posición Dolby OUT del interruptor NR.                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                         |



METHODES DES MEASURES ET REGLAGES

RS-B11W FRANCAIS

Ceci est à utiliser conjointement avec le manuel d'entretien du modèle No. RS-B11W.

**REMARQUES:** Placer les interrupteurs et les contrôles dans les positions suivantes, sauf indication contraire.

- Vérifier que les têtes soient propres.
- Vérifier que le cabestan et le galet presseur soient propres.
- Température ambiante admissible: 20±5°C
- Interrupteur de réduction de bruit: OUT
- Interrupteur de surimpression/mixage: OFF
- Commutateur de vitesse de copie de bande à bande: Normal/Elevé.
- Contrôles de niveau d'entrée: Maximum

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| <b>A Réglage de l'azimut de tête (BANDE [1], BANDE [2])</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Condition: <ul style="list-style-type: none"><li>• Mode de lecture</li><li>• Mode de bande normale</li></ul> | Equipement: <ul style="list-style-type: none"><li>• Voltmètre électronique</li><li>• Oscilloscope</li><li>• Bande étalon (azimut) ...QZZCFM</li></ul> |
| <b>Réglage de l'équilibre de la sortie au canal gauche/canal droit</b> <ol style="list-style-type: none"><li>1. Brancher les appareils comme indiqué dans la Fig. 2.</li><li>2. Reproduire le signal de 8kHz de la bande étalon (QZZCFM). Régler la vis (B) dans la Fig. 3 pour obtenir les niveaux de sortie maximum pour les canaux gauche et droit. Lorsque les niveaux de sortie des canaux gauche et droit ne sont pas simultanément à leur maximum, les régler à nouveau de la façon suivante.</li><li>3. Faire tourner la vis indiquée dans la Fig. 3 pour trouver les angles A et C (point où les niveaux de sortie de crête pour les canaux gauche et droit sont obtenus respectivement). Situer alors l'angle B entre les angles A et C, autrement dit, en un point où les niveaux de sortie des canaux gauche et droit atteignent tous deux leur maximum. (Voir les Fig. 3 et 4).</li></ol> <b>Réglage de phase canal gauche/canal droit</b> <ol style="list-style-type: none"><li>4. Brancher les appareils comme indiqué dans la Fig. 5.</li><li>5. Reproduire le signal de 8kHz de la bande étalon (QZZCFM). Régler la vis (B) indiquée dans la Fig. 3 de sorte que les aiguilles des deux voltmètres électroniques oscillent au maximum, et qu'on obtienne sur l'oscilloscope une forme d'onde semblable à celle indiquée dans la Fig. 6.</li></ol>                                                                                                                                                                                                                                                                                                             |                                                                                                              |                                                                                                                                                       |
| <b>B Vitesse de défilement (BANDE [1], BANDE [2])</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Condition: <ul style="list-style-type: none"><li>• Mode de lecture</li></ul>                                 | Equipement: <ul style="list-style-type: none"><li>• Fréquencemètre numérique</li><li>• Bande étalon...QZZCWAT</li></ul>                               |
| <b>Réglage d'une vitesse normale BANDE [1]</b> <ol style="list-style-type: none"><li>1. Effectuer les raccordements comme ils sont montrés à la Fig. 7.</li><li>2. Régler le commutateur de vitesse de copie de bande à bande sur "normal".</li><li>3. Faire jouer la bande d'essai (QZZCWAT) avec la tête de lecture de la BANDE [1], et mesurer la fréquence du signal de lecture. Si la fréquence du signal de lecture n'est pas conforme à la valeur standard, ajuster le régulateur de tension du réglage de vitesse normale pour la tête de lecture de la BANDE [1]. (Voir la Fig. 1).</li></ol> <div>Valeur standard: BANDE [1] (Platine de lecture: Vitesse normale) 3010±45 Hz</div> <b>BANDE [2]</b> <ol style="list-style-type: none"><li>4. Faire jouer la bande d'essai (QZZCWAT) avec la tête de lecture de la BANDE [2] et mesurer la fréquence du signal de lecture. Puis, ajuster le régulateur de tension du réglage de vitesse normale pour la tête de lecture de la BANDE [2] de telle sorte que la fréquence du signal de lecture soit de 15Hz inférieure à la fréquence du signal de sortie après l'ajustement de la BANDE [1].</li></ol> <b>Réglage pour vitesse élevée</b> <p><b>Nota:</b> Effectuer le réglage pour vitesse élevée à peu près 10 secondes après le démarrage de la rotation du moteur.</p> <ol style="list-style-type: none"><li>1. Effectuer les raccordements comme ils sont montrés à la Fig. 7.</li><li>2. Régler le commutateur de copie de bande à bande/mixage sur "off" (hors circuit), et régler le commutateur de vitesse de copie de bande à bande sur "high" (élevé). Relier à la terre les résistances (R122).</li></ol> |                                                                                                              |                                                                                                                                                       |

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| <ol style="list-style-type: none"><li>3. Faire jouer la bande d'essai (QZZCWAT) avec la BANDE [1] et mesurer la fréquence du signal de lecture. Si la fréquence du signal de lecture n'est pas conforme à la valeur standard, ajuster le régulateur de tension du réglage de vitesse élevée pour la tête de lecture de la BANDE [1]. (Voir la Fig. 1)</li></ol> <div>Valeur standard: BANDE [1] (Platine de lecture: Vitesse normale 6020±90 Hz)</div> <ol style="list-style-type: none"><li>4. Faire jouer la bande d'essai (QZZCWAT) avec la tête de lecture de la BANDE [2] et mesurer la fréquence du signal de lecture. Puis, ajuster le régulateur de tension du réglage de vitesse élevée pour la tête de lecture de la BANDE [2] de telle sorte que la fréquence du signal de lecture soit de 30Hz inférieure à la fréquence du signal de sortie après l'ajustement de la BANDE [1].</li><li>5. après le réglage pour vitesse élevée, supprimer le relia à la terre les résistances (R122).</li></ol> <b>Variation de la vitesse de la bande</b> <b>BANDE [1], BANDE [2]</b> <p>Effectuer les mesurages de la même manière que ci-dessus (au début, au milieu et à la fin de la bande), et déterminer la différence entre les valeurs maximum et minimum. Puis, calculer de la manière suivante:</p> $\text{Variation de la vitesse de la bande (Vitesse normale)} = \frac{f_1 - f_2}{3.000} \times 100(\%)$ <p><math>f_1</math> = valeur maximum, <math>f_2</math> = valeur minimum</p> $\text{Variation de la vitesse de la bande (Vitesse élevée)} = \frac{f_1 - f_2}{6.000} \times 100(\%)$ <p><math>f_1</math> = valeur maximum, <math>f_2</math> = valeur minimum</p> <div>Valeur standard: Moins que 1%</div> |                                                                                                                       |                                                                                                                                              |
| <b>Nota:</b> <p>Veuillez utiliser un tournevis de type non métallique lorsque vous réglez la vitesse de bande de cet appareil.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                       |                                                                                                                                              |
| <b>C Réponse en fréquence à la lecture (BANDE [1], BANDE [2])</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Condition: <ul style="list-style-type: none"><li>• Mode de lecture</li><li>• Mode de bande normale</li></ul>          | Equipement: <ul style="list-style-type: none"><li>• Voltmètre électronique</li><li>• Oscilloscope</li><li>• Bande étalon ...QZZCFM</li></ul> |
| <ol style="list-style-type: none"><li>1. Brancher les appareils comme indiqué dans la Fig. 2.</li><li>2. Lire la portion de réponse en fréquence de la bande étalon (QZZCFM).</li><li>3. Mesurer les niveaux de sortie à 315Hz, 12,5kHz, 8kHz, 4kHz, 1kHz, 250Hz, 125Hz, et 63Hz et comparer chaque niveau de sortie avec celui de la fréquence standard de 315Hz sur la borne LINE OUT.</li><li>4. Effectuer les mesures sur les deux canaux.</li><li>5. Vérifier que les valeurs mesurées se situent dans la bande spécifiée de la courbe de réponse en fréquence. (Voir Fig. 8).</li></ol>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                       |                                                                                                                                              |
| <b>D Gain à la lecture (BANDE [1], BANDE [2])</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Condition: <ul style="list-style-type: none"><li>• Mode de lecture</li><li>• Mode de bande normale</li></ul>          | Equipement: <ul style="list-style-type: none"><li>• Voltmètre électronique</li><li>• Oscilloscope</li><li>• Bande étalon...QZZCFM</li></ul>  |
| <ol style="list-style-type: none"><li>1. Brancher les appareils comme indiqué dans la Fig. 2.</li><li>2. Lire la partie "niveau standard d'enregistrement de la bande étalon (QZZCFM 315Hz) et, au moyen du voltmètre électronique, mesurer le niveau de sortie aux points de coupure [TP4 pour le canal gauche, TP5 pour le canal droit].</li><li>3. Effectuer les mesures sur les deux canaux.</li></ol> <div>Valeur standard: 0,42V (0,4V à la borne LINE OUT)</div>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                       |                                                                                                                                              |
| <b>Réglage</b> <ol style="list-style-type: none"><li>1. Si la valeur mesurée ne correspond pas à la valeur standard, régler BANDE [1] VR1 (canal gauche) ou VR2 (canal droit), BANDE [2] VR3 (canal gauche) ou VR4 (canal droit). (Voir Fig. 1).</li><li>2. Après réglage, vérifier à nouveau la "réponse en fréquence à la lecture".</li></ol>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                       |                                                                                                                                              |
| <b>E Courant d'effacement (BANDE [2])</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Condition: <ul style="list-style-type: none"><li>• Mode d'enregistrement</li><li>• Mode de bande métallique</li></ul> | Equipement: <ul style="list-style-type: none"><li>• Voltmètre électronique</li><li>• Oscilloscope</li></ul>                                  |
| <ol style="list-style-type: none"><li>1. Brancher les appareils comme indiqué dans la Fig. 9.</li><li>2. Placer l'UNITE sur le mode de bande métallique.</li><li>3. Appuyer sur les boutons d'enregistrement et de pause.</li></ol>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                       |                                                                                                                                              |



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| <p>4. Lire le voltage sur le voltmètre électronique et calculer le courant d’effacement au moyen de la formule suivante:</p> $\text{Courant d'effacement (A)} = \frac{\text{Voltage à la résistance R152}}{1 (\Omega)}$ <div>Valeur standard: 160 +10-20 mA (bande métallique)</div> <p>5. Si la valeur mesurée ne correspond pas à la valeur standard, régler selon les instructions ci-après.</p> <p><b>Réglage</b></p> <ol style="list-style-type: none"><li>1. Court-circuiter les résistances R143, R144, R145. (Se référer à la Table 1.)</li><li>2. Mesurer le courant d’effacement.</li><li>3. Si la valeur mesurée n’est pas en deçà du régime, mettre hors circuit ou court-circuiter les résistances R143, R144 et R145 selon la Table 1.</li></ol>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                |
| <p>🔊 <b>Réponse de fréquence globale (BANDE [2])</b></p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | <p>Condition:</p> <ul style="list-style-type: none"><li>• Mode enregistrement/lecture</li><li>• Mode de bande normale</li><li>• Mode de bande CrO<sub>2</sub></li><li>• Mode de bande métallique</li><li>• Contrôles de niveau d’entrée...MAX</li></ul>           | <p>Equipement:</p> <ul style="list-style-type: none"><li>• Voltmètre électronique</li><li>• Atténuateur</li><li>• Oscillateur</li><li>• Oscilloscope</li><li>• Résistance (600Ω)</li><li>• Bande étalon vierge ...QZZCRA pour bande normale</li><li>• ...QZZCRX pour bande CrO<sub>2</sub></li><li>• ...QZZCRZ pour bande métallique</li></ul> |
| <p><b>Remarque:</b></p> <p>Avant de mesurer et régler la réponse de fréquence globale vérifier que la réponse en fréquence à la lecture soit correcte (pour la méthode de mesure, se reporter au paragraphe intitulé “Réponse en fréquence à la lecture”). (Le compensateur d’enregistrement est fixe.)</p> <ol style="list-style-type: none"><li>1. Brancher les appareils comme indiqué dans la Fig. 11.</li><li>2. Placer l’UNITE en mode pour bande normale, et introduire la bande étalon vierge normale (QZZCRA).</li><li>3. Appliquer le signal de 1 kHz de l’oscillateur AF à la borne LINE IN, par l’intermédiaire de l’atténuateur.</li><li>4. Régler l’atténuateur de sorte que le niveau d’entrée soit de 20dB en-dessous du niveau d’enregistrement standard (niveau d’enregistrement standard = 0VU).</li><li>5. Régler l’oscillateur AF pour produire des signaux de 50Hz, 100Hz, 200Hz, 500Hz, 1kHz, 4kHz, 8kHz, 10kHz et 12,5kHz et enregistrer ces signaux sur la bande étalon.</li><li>6. Reproduire les signaux enregistrés dans la phase 6, et vérifier si la courbe de réponse de fréquence se trouve dans les limites indiquées par la courbe de réponse de fréquence globale pour bandes normales (Fig. 10).</li></ol> <p>(Si la courbe est comprise dans les spécifications, passer aux phases 7, 8 et 9).<br/>Si la courbe ne correspond pas aux spécifications du tableau, régler comme suit.</p> <p><b>Réglage (A):</b></p> <p>Lorsque la courbe dépasse les spécifications du tableau de réponse de fréquence globale (Fig. 10), comme indiqué dans la Fig. 12.</p> <ol style="list-style-type: none"><li>1) Augmenter le courant de polarisation en tournant VR9 (L-CH) (canal gauche) et VR10 (R-CH) (canal droit). (Voir Fig. 1).</li><li>2) Répéter les phases 5 et 6 pour confirmation. (Passer aux phases 7, 8 et 9 si la courbe est maintenant comprise dans les spécifications du tableau de la Fig. 10).</li><li>3) Si la courbe dépasse encore les spécifications (Fig. 10), augmenter encore le courant de polarisation et répéter les phases 5 et 6.</li></ol> <p><b>Réglage (B):</b></p> <p>Lorsque la courbe tombe audessous des spécifications du tableau de fréquence globale (Fig. 10) comme indiqué dans la Fig. 13.</p> <ol style="list-style-type: none"><li>1) Réduire le courant de polarisation en tournant VR9 (L-CH) (canal gauche) et VR10 (R-CH) (canal droit).</li><li>2) Répéter les phases 5 et 6 pour confirmation. (Passer aux phases 7, 8 et 9 si la courbe est maintenant comprise dans les spécifications du tableau de la Fig. 10).</li><li>3) Si la courbe tombe encore au-dessous des spécifications du tableau (Fig. 10), réduire encore le courant de polarisation et répéter les phases 5 et 6.</li></ol> <ol style="list-style-type: none"><li>7. Placer l’UNITE en mode de bande CrO<sub>2</sub>.</li><li>8. Enlever la bande étalon vierge normale et placer la bande étalon QZZCRX (bande CrO<sub>2</sub>). Enregistrer les signaux de 50Hz, 100Hz, 200Hz, 500Hz, 1kHz, 4kHz, 8kHz, 10kHz, 12,5kHz et 15kHz. Reproduire ensuite ces signaux et vérifier si la courbe est comprise dans les limites indiquées par le tableau de réponse de fréquence globale pour les bandes CrO<sub>2</sub> (Fig. 14).</li><li>9. Placer l’UNITE en mode de bande métallique, changer la bande étalon pour la bande étalon vierge QZZCRZ (bande métallique), et enregistrer les signaux de 50Hz, 100Hz, 200Hz, 500Hz, 1kHz, 4kHz, 8kHz, 10kHz et 12,5kHz. Ensuite, lire les signaux et vérifier si la courbe se trouve entre les limites indiquées dans le tableau de réponse en fréquence globale pour les ruban CrO<sub>2</sub> (Fig. 14.)</li></ol> |                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                |
| <p>10. Confirmer que les voltage de polarisation sont approximativement les suivants lorque le sélecteur de bande est mis sur ses différentes positions.</p> <ul style="list-style-type: none"><li>• Lire le voltage sur le voltmètre électronique entre la terre et le point de coupure (TP1 pour le canal gauche et TP2 pour le canal droit) et calculez le courant de polarisation selon la formule.</li></ul> $\text{Courant de polarisation (A)} = \frac{\text{Tension lue sur voltm. élec. (V)}}{10 (\Omega)}$ <div>Valeur standard: Autour de 400µA (position: Normal)<br/>Autour de 500µA (position: CrO<sub>2</sub>)<br/>Autour de 800µA (position: Metal)</div>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                |
| <p>🔊 <b>Gain global (BANDE [2])</b></p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | <p>Condition:</p> <ul style="list-style-type: none"><li>• Mode d’enregistrement/lecture</li><li>• Mode de bande normale</li><li>• Contrôles de niveau d’entrée ...MAX</li><li>• Niveau d’entrée standard:<br/>MIC .....-60±4dB<br/>LINE IN .....-24±4dB</li></ul> | <p>Equipement:</p> <ul style="list-style-type: none"><li>• Voltmètre électronique</li><li>• Oscillateur AF</li><li>• Atténuateur</li><li>• Oscilloscope</li><li>• Résistance (600Ω)</li><li>• Bande étalon vierge QZZCRA pour bande normale</li></ul>                                                                                          |
| <ol style="list-style-type: none"><li>1. Brancher les appareils comme indiqué dans la Fig. 15.</li><li>2. Introduire la bande étalon vierge (QZZCRA).</li><li>3. Placer l’UNITE en mode d’enregistrement.</li><li>4. Appliquer le signal de 1kHz de l’oscillateur AF à la borne LINE IN, par l’intermédiaire de l’atténuateur (-24dB).</li><li>5. Régler l’atténuateur pour que le niveau de contrôle aux points de coupure [TP4 pour le canal gauche, TP5 pour le canal droit] soit de 0,42V.</li><li>6. Lire la bande ainsi enregistrée et vérifier que le niveau de sortie aux points de coupure [TP4 pour le canal gauche, TP5 pour le canal droit] soit de 0,42V.</li><li>7. Si la valeur mesurée n’est pas de 0,42V, régler au moyen de VR7 (canal gauche) ou VR8 (canal droit).</li><li>8. Recommencer à partir de la phase (2).</li></ol>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                |
| <p>🔊 <b>Vumètre de niveau (BANDE [2])</b></p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | <p>Condition:</p> <ul style="list-style-type: none"><li>• Mode d’enregistrement</li><li>• Contrôles de niveau d’entrée ...MAX</li></ul>                                                                                                                           | <p>Equipement:</p> <ul style="list-style-type: none"><li>• Voltmètre électronique</li><li>• Atténuateur</li><li>• Oscillateur AF</li><li>• Oscilloscope</li><li>• Résistance (600Ω)</li></ul>                                                                                                                                                  |
| <ol style="list-style-type: none"><li>1. Brancher les appareils comme indiqué dans la Fig. 16.</li><li>2. Appliquer un signal de 1kHz (-24dB) à la borne LINE IN, alors que l’untité est en mode de pause d’enregistre-ment.</li><li>3. Régler l’atténuateur de sorte que le niveau de sortie sur la borne LINE OUT soit de 0,4V.</li><li>4. Ace moment, vérifier si l’indicateur de 0dB est éclairé à mi-parcours. (luminosité intermédiaire entre pleine luminosité et extinction: Voir Fig. 17.)</li><li>5. Si la luminosité du segment n’est pas comme celle mentionnée à la phase 4 ci-dessus, régler le VR301 (canal gauche) ou VR302 (canal droit).</li><li>6. Répéter les réglages et vérifier deux ou trois fois aux étapes 3, 4 et 5.</li></ol>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                |
| <p>🔊 <b>Circuit de réduction de bruit Dolby (BANDE [2])</b></p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | <p>Condition:</p> <ul style="list-style-type: none"><li>• Mode d’enregistrement</li><li>• Contrôles de niveau d’entrée ...MAX</li></ul>                                                                                                                           | <p>Equipement:</p> <ul style="list-style-type: none"><li>• Voltmètre électronique</li><li>• Oscillateur AF</li><li>• Atténuateur</li><li>• Oscilloscope</li><li>• Résistance (600Ω)</li></ul>                                                                                                                                                  |
| <ol style="list-style-type: none"><li>1. Brancher les appareils comme indiqué dans la Fig. 18.</li><li>2. Placer l’UNITE sur le mode d’enregistrement et régler l’interrupteur de réduction de bruit Dolby sur la position OUT. Appliquer un signal de 5kHz à la borne LINE IN afin d’obtenir 17,5mV aux points de coupure TP4 (canal gauche) et TP5 (canal droit.)</li><li>3. Vérifier que les valeurs aux points de coupure TP4 et TP5, lorsque l’interrupteur de réduction de bruit Dolby est sur la position IN, sont de 8 (±2,5) dB plus élevées que les valeurs aux mêmes points lorsque l’interrupteur de réduction de bruit DOLBY est sur la position OUT.</li></ol>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                |



MESSUNGEN UND EINSTELL METHODEN

RS-B11W DEUTSCH

Verwenden Sie bitte diese Broschüre Zusammen mit der Service-Anieitung für das Modell Nr. RS-B11W.

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±5°C (68±9°F)
- Dolby-Schalter: AUS
- Überspiel/Mischschalter: AUS
- Bandgeschwindigkeits-Wahlschalter für die Überspielung: Normal/Hoch
- Eingangsregler: MAX

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                           |                                                                                                                                          |
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| <b>Ⓐ Senkrechstellen des Kopfes (BAND [1], BAND [2])</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Bedingung: <ul style="list-style-type: none"><li>• Wiedergabe</li><li>• Betriebsart: Normalband</li></ul> | Meßgerät: <ul style="list-style-type: none"><li>• Röhrenvoltmeter</li><li>• Oszillograph</li><li>• Testband (azimuth)...QZZCFM</li></ul> |
| <b>Ausgangsbalance-Justierung für linken und rechten Kanal</b><br>1. Den Meßaufbau zeigt Fig. 2.<br>2. 8kHz-Signal des Testbandes (QZZCFM) wiedergeben.<br>Schraube (B) in Fig. 3 auf maximalen Ausgangspegel des linken und rechten Kanals abgleichen.<br>Sind die Ausgangspegel des linken und rechten Kanals nicht gleichzeitig maximal, wie folgt justieren:<br>3. Durch Drehen der in Fig. 3 gezeigten Schraube (B) 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. 3 und 4.)<br><b>Phasenjustierung für linken und rechten Kanal</b><br>4. Den Meßaufbau zeigt Fig. 5.<br>5. 8kHz-Signal des Testbandes (QZZCFM) wiedergeben.<br>Schraube (B), wie in Fig. 3 gezeigt, so einstellen, daß Zeiger von zwei Röhrenvoltmeter auf Maximum ausschlagen und am Oszillographen eine Wellenform wie in Fig. 6 erreicht wird.                                                                                                                                                                                                                           |                                                                                                           |                                                                                                                                          |
| <b>Ⓑ Bandgeschwindigkeit (BAND [1], BAND [2])</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Bedingung: <ul style="list-style-type: none"><li>• Wiedergabe</li></ul>                                   | Meßgerät: <ul style="list-style-type: none"><li>• Elektronischer Digitalzähler</li><li>• Testband...QZZCWAT</li></ul>                    |
| <b>Justierung der Normalgeschwindigkeit BAND [1]</b><br>1. Anschlußverbindungen vornehmen, wie in Fig. 7 gezeigt.<br>2. Den Bandgeschwindigkeits-Wahlschalter für die Überspielung auf “Normal” einstellen.<br>3. Testband (QZZCWAT) mit BAND [1]-Kopf wiedergeben und die Wiedergabesignal-Frequenz messen. Falls die Wiedergabesignal-Frequenz nicht mit dem Standardwert übereinstimmt, muß der Normalgeschwindigkeits-Regelwiderstand für den BAND [1]-Kopf justiert werden (Siehe Fig. 2). <div>Standardwert: BAND [1] (Wiedergabedeck: Normalgeschwindigkeit) 3010±45 Hz</div> <b>BAND [2]</b><br>4. Testband (QZZCWAT) mit BAND [2]-Kopf wiedergeben und die Wiedergabesignal-Frequenz messen; dann den Normalgeschwindigkeits-Regelwiderstand für den BAND [2]-Kopf justieren, so daß die Wiedergabesignal-Frequenz 15Hz niedriger als die Ausgangssignal-Frequenz nach Justierung von BAND [1] ist.<br><b>Justierung der Hochgeschwindigkeit</b><br><b>Anmerkung:</b> Die Hochgeschwindigkeits-Justierung ca. 10 Sekunden nach dem Start des Motors durchführen.<br>1. Anschlußverbindungen machen, wie in Fig. 7 gezeigt.<br>2. Den Überspiel-/Misch-Schalter auf “Off” stellen und den Bandgeschwindigkeits-Wahlschalter für die Überspielung auf “High” stellen. Die Register erden (R122). |                                                                                                           |                                                                                                                                          |

3. Testband (QZZCWAT) mit BAND [1] wiedergeben und die Wiedergabesignal-Frequenz messen. Falls die Wiedergabesignal-Frequenz nicht mit dem Standardwert übereinstimmt, Regelwiderstand für Hochgeschwindigkeit für BAND [1]-Kopf justieren (Siehe Fig. 1).

Standardwert: BAND [1] (Wiedergabedeck: Normalgeschwindigkeit) 6020±90 Hz

4. Testband (QZZCWAT) mit BAND [2]-Kopf wiedergeben und die Wiedergabesignal-Frequenz messen; dann den Regelwiderstand für die Hochgeschwindigkeits-Justierung für BAND [2]-Kopf so justieren, daß die Wiedergabesignal-Frequenz 30Hz niedriger ist, als die Ausgangssignal-Frequenz nach Justierung von BAND [1].  
5. Nach Durchführen der Hochgeschwindigkeits-Justierung ist der Kurzschluß zwischen die Register erden (R122).

Bandgeschwindigkeits-Schwankung

BAND [1], BAND [2]

Auf gleiche Weise wie oben Messungen durchführen (Anfang, Mitte, Ende des Bandes), den Unterschied zwischen den Höchst- und Niedrigstwerten ermitteln und auf folgende Weise berechnen:

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

f<sub>1</sub> = Höchstwert; f<sub>2</sub> = Niedrigstwert

Bandgeschwindigkeits-Schwankung (Hochgeschwindigkeit) =  $\frac{f_1 - f_2}{6000} \times 100(\%)$

f<sub>1</sub> = Höchstwert; f<sub>2</sub> = Niedrigstwert

Standardwert: Weniger als 1%

Anmerkung:

Für die Bandgeschwindigkeits-Justierung dieses Gerätes ist ein nichtmetallener Schraubendreher zu verwenden.

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                           |                                                                                                                                |
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| <b>Ⓒ Frequenzgang bei Wiedergabe (BAND [1], BAND [2])</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Bedingung: <ul style="list-style-type: none"><li>• Wiedergabe</li><li>• Betriebsart: Normalband</li></ul> | Meßgerät: <ul style="list-style-type: none"><li>• Röhrenvoltmeter</li><li>• Oszillograph</li><li>• Testband...QZZCFM</li></ul> |
| 1. Den Meßaufbau zeigt Fig. 2.<br>2. Gerät auf Wiedergabe schalten. Frequenzgang-Testband QZZCFM wiedergeben.<br>3. Ausgangsspannung bei 315Hz, 12,5kHz, 8kHz, 1kHz, 250Hz, 125Hz und 63Hz messen und jede Ausgangsspannung mit der Standardfrequenz 315Hz an der LINE OUT vergleichen.<br>4. Messungen an beiden Kanälen durchführen.<br>5. Prüfen, ob die gemessenen Werte innerhalb des in der Frequenzgang-Übersicht aufgeführten Bereichs liegen. (Siehe Fig. 8.)                                                                                        |                                                                                                           |                                                                                                                                |
| <b>Ⓓ Wiedergabe-Verstärkung (BAND [1], BAND [2])</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Bedingung: <ul style="list-style-type: none"><li>• Wiedergabe</li><li>• Betriebsart: Normalband</li></ul> | Meßgerät: <ul style="list-style-type: none"><li>• Röhrenvoltmeter</li><li>• Oszillograph</li><li>• Testband...QZZCFM</li></ul> |
| 1. Den Meßaufbau zeigt Fig. 2.<br>2. Standard-Frequenz (QZZCFM 315Hz) vom Testband wiedergeben und Ausgangsspannung messen. [TP4 (L-CH) TP5 (R-CH)].<br>3. Messung an beiden Kanälen durchflühren. <div>NORMALWERT: 0,42V [0,4V: at LINE OUT Jack]</div> <b>Einstellung:</b><br>1. Abweichungen können durch Abgleich von BAND [1] VR1 (linker Kanal) und VR2 (rechter Kanal), BAND [2] VR3 (linker Kanal) und VR4 (rechter Kanal) korrigiert werden. (S. Fig. 1).<br>2. Nach erfolgtem Abgleich ist der Frequenzgang bei Wiedergabe erneut zu kontrollieren. |                                                                                                           |                                                                                                                                |
| <b>Ⓔ Löschstrom (BAND [2])</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Bedingung: <ul style="list-style-type: none"><li>• Aufnahme</li><li>• Betriebsart: Metallband</li></ul>   | Meßgerät: <ul style="list-style-type: none"><li>• Röhrenvoltmeter</li><li>• Oszillograph</li></ul>                             |
| 1. Den Meßaufbau zeigt Fig. 9.<br>2. Die Aufnahme-und Pausentaste drücken.<br>3. Den Bandwahlschalter auf Metallband-Position stellen.                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                           |                                                                                                                                |



4. Löschstrom nach folgender Formel ermitteln:  
$$\text{Löschstrom (A)} = \frac{\text{Die Spannung über beide Enden von R152}}{1 \text{ (Ohm)}}$$

**NORMALWERT:  $160 \pm 10$  mA (Metal position)**

5. Falls der Meßwert nicht im vorgeschriebenen Bereich liegt, auf folgende Weise einstellen.

**Einstellung:**

1. Die Register R143, R144, R145 kurzschließen. (Siehe Tabelle 1)
2. Den Löschstrom messen.
3. Falls der gemessene Wert nicht innerhalb des vorgeschriebenen Bereichs liegt, die Register R143, R144, R145 gemäß Tab. 1 öffnen oder kurzschließen.

**Ⓕ Gesamtfrequenzgang  
(BAND [2])**

**Bedingung:**

- Aufnahme und Wiedergabe
- Betriebsart "Normalband"
- Betriebsart "CrO<sub>2</sub> Band"
- Betriebsart "Metallband"
- Eingangsregler...MAX

**Meßgerät:**

- Röhrenvoltmeter
- NF-Generator
- Abschwächer
- Oszillograph
- Testband (Leerband)  
...QZZCRA für Normal  
...QZZCRX für CrO<sub>2</sub>  
...QZZCRZ für Metall
- Widerstand (600Ω)

**Anm.:**

Vor Messung und Abgleich des Gesamtfrequenzganges ist sicherzustellen, daß der Frequenzgang bei Wiedergabe korrekt ist (Vgl. entspr. Abschnitt).

**Gesamtfrequenzgang-Justierung durch Aufnahme-Vormagnetisierungsstrom**

(Der Aufnahme-Entzerrer ist fest eingestellt.)

1. Den Meßaufbau zeigt Fig. 11.
2. Gerät auf Betriebsart "Normalband" schalten, und Testband (QZZCRA) einlegen.
3. An LINE IN ein Signal von 1kHz, -24dB zuführen. Das Gerät auf Aufnahme schalten.
4. Den Dämpfungswiderstand feineinstellen, bis die Ausgangsleistung an LINE OUT 0,4V beträgt.  
•Überprüfen, daß der Signalausgangspegel bei einer Ausgangs-Spannung von 0,4V -24±4dB beträgt.
5. Mit dem NF-Oszillator Signale von 50Hz, 100Hz, 200Hz, 500Hz, 1kHz, 4kHz, 8kHz, 10kHz und 12,5kHz zuführen, und diese Signale auf das Testband aufzeichnen.
6. Die in Schritt 5 aufgezeichneten Signale wiedergeben und überprüfen, ob die Frequenzgangkurve innerhalb des Bereichs liegt, der im Frequenzgangdiagramm für normales Band in Fig. 10 gezeigt ist. (Falls die Kurve innerhalb des vorgeschriebenen Bereichs liegt, mit den Schritten 7, 8 und 9 weiterfahren.)  
Falls die Kurve außerhalb des vorgeschriebenen Bereichs liegt, wie folgt justieren.

**Justierung (A):**

Wenn die Kurve den vorgeschriebenen Gesamtfrequenzgangbereich (Fig. 10) überschreitet, wie in Fig. 12 gezeigt.

- 1) Den Vormagnetisierungsstrom durch Abgleichen von VR9 (linker Kanal) und VR10 (rechter Kanal) erhöhen. (S. Fig. 1.)
- 2) Die Schritte 5 und 6 zur Überprüfung wiederholen. (Wenn die Kurve dabei innerhalb des vorgeschriebenen Bereichs liegt (Fig. 10) mit den Schritten 7, 8, und 9 weiterfahren.
- 3) Wenn die Kurve den vorgeschriebenen Bereich (Fig. 10) noch immer überschreitet, den Vormagnetisierungsstrom weiter erhöhen, und die Schritte und wiederholen.

**Justierung (B):**

Wenn die Kurve unter den vorgeschriebenen Bereich für den Gesamtfrequenzgang (Fig. 10) absinkt, wie in Fig. 13 gezeigt:

- 1) Den Vormagnetisierungsstrom durch abgleichen von VR9 (linker Kanal) und VR10 (rechter Kanal) reduzieren.
- 2) Die Schritte 5 und 6 zur Überprüfung wiederholen. (Falls die Kurve dabei innerhalb des vorgeschriebenen Bereichs in Fig. 10 liegt, mit den Schritten 7, 8, und 9 weiterfahren.)
- 3) Falls die Kurve noch immer unter den vorgeschriebenen Bereich (Fig. 10) absinkt, den Vormagnetisierungsstrom weiter reduzieren, und Schritte 5 und 6 wiederholen.
7. Gerät auf Betriebsart "CrO<sub>2</sub> Band" schalten.
8. Testband QZZCRX einlegen, und Signale von 50Hz, 100Hz, 200Hz, 500Hz, 1kHz, 4kHz, 8kHz, 10kHz, 12,5kHz und 15kHz aufzeichnen; Anschliessend die Signale wiedergeben und prüfen, ob die Kurve innerhalb des Bereichs liegt, der im Gesamtfrequenzgang-Diagramm für das CrO<sub>2</sub> Band dargestellt ist. (Fig. 14.)

9. Gerät auf Betriebsart "Metallband" schalten. Testband QZZCRZ einlegen und Signale von 50Hz, 100Hz, 200Hz, 500Hz, 1kHz, 4kHz, 8kHz, 10kHz und 12,5kHz aufnehmen. Anschließend die Signale wiedergeben und prüfen, ob die Kurve innerhalb des Bereichs im Gesamtfrequenzgangdiagramm für Metallband liegt. (Fig. 14.)

10. Überprüfen, daß die Vorspannung ungefähr den folgenden Werten entsprechen, wenn der Bandsortenschalter in die entsprechende Position gestellt ist.

- Spannung zwischen Masse und Testpunkt (TP1 für linken Kanal, TP2 für rechten Kanal) vom Röhrenvoltmeter ablesen und Vormagnetisierungsstrom nach folgender Formel berechnen:

$$\text{Vormagnetisierungsstrom (A)} = \frac{\text{Spannung am Röhrenvoltmeter (V)}}{10 \text{ (}\Omega\text{)}}$$

**Ungefähr 400µA (Normal position)  
Ungefähr 500µA (CrO<sub>2</sub> position)  
Ungefähr 800µA (Metall position)**

**Ⓖ Gesamtverstärkung  
(BAND [2])**

**Bedingung:**

- Aufnahme und Wiedergabe
- Betriebsart: Normalband
- Eingangsregler: MAX
- Standard-Eingangspegel:  
Mikrofon .....-60±4dB  
NF-Eingang .....-24±4dB

**Meßgerät:**

- Röhrenvoltmeter
- NF-Generator
- Abschwächer
- Oszillograph
- Widerstand (600Ω)
- Testband (Leerband)  
...QZZCRA für Normal

1. Den Meßaufbau zeigt Fig. 15.
2. Normales Testleerband (QZZCRA) einlegen.
3. Gerät auf "Aufnahme" schalten.
4. Über den Abschwächer ein 1kHz-Signal (-24dB) vom NF-Generator dem NF-Eingang zuführen.
5. Abschwächer so justieren, daß die Ausgangsspannung an den Testpunkten [TP4 (L-CH) TP5 (R-CH)] 0,42V erreicht.
6. Das aufgenommene Band abspielen und prüfen, ob der Ausgangspegel an den Testpunkten [TP4 (L-CH), TP5 (R-CH)] 0,42V erreicht.
7. Wenn der gemessene Wert nicht 0,42V erreicht, die folgenden VR abgleichen: VR7 (L-CH) oder VR8 (R-CH).
8. Ab Punkt 2 wiederholen.

**Ⓗ Fluoreszenzmeter  
(BAND [2])**

**Bedingung:**

- Aufnahme
- Eingangsregler...MAX

**Meßgerät:**

- Röhrenvoltmeter
- NF-Generator
- Abschwächer
- Oszillograph
- Widerstand (600Ω)

1. Den Meßaufbau zeigt Fig. 16.
2. In Betriebsart "Aufnahme-Pause" 1kHz (-24dB) Signal an den NF-Eingang geben.
3. Abschwächer so abstimmen, daß der Ausgangspegel an LINE OUT 0,4V ist.
4. Zu diesem Zeitpunkt überprüfen, ob die 0dB-Anzeige halbwegs beleuchtet ist. (mittelhell, zwischen ganz hell und erlöscht: Siehe Fig. 17.)
5. Wenn der Anzeiger nicht, wie in Stufe 4 beschrieben, abgeschwächt leuchtet, VR301 (Linker Kanal) und VR302 (Rechter Kanal) abstimmen.
6. Justierungen und Überprüfungen in den Schritten 3, 4 und 5 zwei-bis dreimal wiederholen.

**Ⓛ Dolby-Schaltung  
(BAND [2])**

**Bedingung:**

- Aufnahme
- Eingangsregler...MAX

**Meßgerät:**

- Röhrenvoltmeter
- NF-Generator
- Abschwächer
- Oszillograph
- Widerstand (600Ω)

1. Den Meßaufbau zeigt Fig. 18.
2. Gerät auf "Aufnahme" stellen und Dolby-Schalter ausschalten. Dem NF-Eingang ein 5kHz-Signal zuführen, um an TP4 (Linker Kanal) und TP5 (Rechter Kanal) 17,5mV zu erhalten.
3. Prüfen, ob das Signal bei eingeschaltetem Dolby-Schalter um 8 (±2,5) dB größer ist als bei ausgeschaltetem Dolby-Schalter.

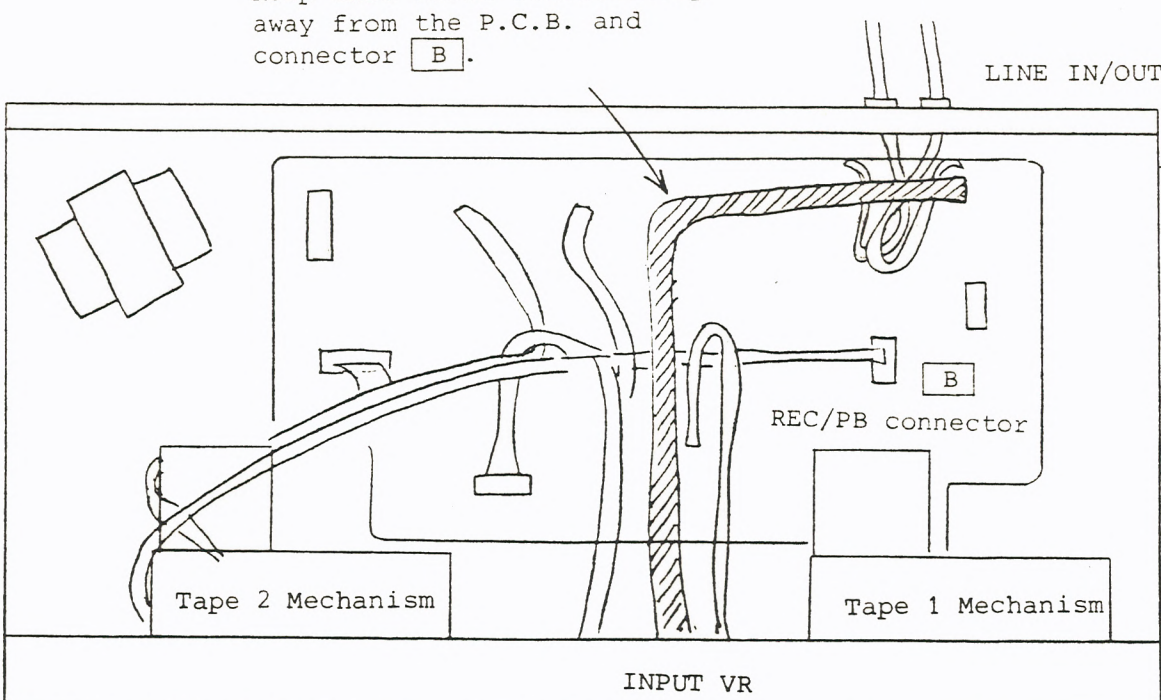


TO ALL  
KDZ AND PSDG-BRANCHES

| No.: 81/85                                                          | Date: 30.4.1985 rg/pr                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|---------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| SUBJECT                                                             | TEXT                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| <p>DOLBY FREQUENCY<br/>CHARACTERISTIC<br/>WORSENING<br/>RS-B11W</p> | <p><u>Symptom</u></p> <p>When recorded and played in metal tape position, the frequency characteristic worsens.<br/>(Lowered 3 - 5 dB in medium frequency range)<br/>..... only with Dolby IN.</p> <p><u>Cause</u></p> <p>Bias leak voltage is applied to the Dolby circuit causing faulty operation of the circuit.</p> <ul style="list-style-type: none"> <li>* Bias leak is significant in metal position because of high bias oscillation voltage.</li> <li>* The above-mentioned symptom appears when bias leak of LINE OUT is about 1.7 mV.</li> </ul> <p><u>Remedy</u></p> <p>Improvement of lead wire arrangement</p> <ul style="list-style-type: none"> <li>* Bias leak increases as the parallel cable from INPUT VR comes close to the rec/playback head connector of main P.C.B.</li> </ul> |



TO ALL  
KDZ AND PSDG-BRANCHES

|                                                                                                                                                                                               |                       |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|
| No.: S1/S5                                                                                                                                                                                    | Date: 30.4.1985 rg/pr |
| SUBJECT                                                                                                                                                                                       | TEXT                  |
| - 2 -                                                                                                                                                                                         |                       |
| <p>Keep this cable sufficiently away from the P.C.B. and connector <b>B</b>.</p>                           |                       |
| <p><u>Repair Method</u></p> <p>As illustrated, change the lead wire arrangement so that the parallel cable from INPUT VR is sufficiently away from the P.C.B.</p> <p>Military SV<br/>Regl</p> |                       |



Nr.: 315

Datum: 25. Februar 1985 WK/MM

1/85

THEMA

TEXT

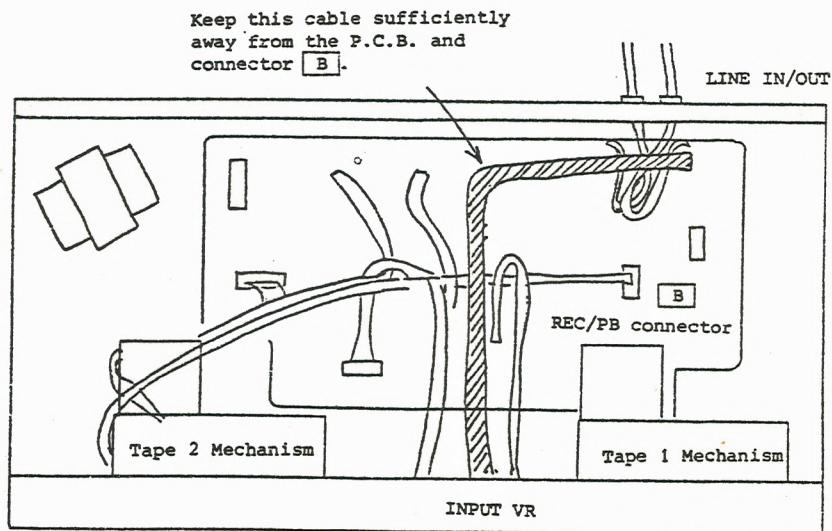
RS-B 11 W

Symptom: Beanstandung des Frequenzganges bei Dolby-Betrieb und Metall-Position. Der Frequenzgang weist einen 3 - 5 dB Abfall im mittleren Bereich auf.

Grund: Bei Metallposition wird die größte Löschozillatoramplitude erzeugt. Diese Oszillatorspannung wirkt auf das Kabel (siehe Skizze), das vom Line in / out Anschluß zum Aufnahmeregler führt. Diese Störfrequenz / Störspannung beeinflusst den Frequenzgang in der oben genannten Betriebsart.

Leitführung zum Aufnahmeregler

Abhilfe: Verlegung des Kabels laut Skizze, möglichst weit weg von der Platine und dem Stecker B



Panasonic Service  
Deutschland GmbH



Nr.: 319

Datum: 25. Februar 1985 WK/MM

5 /85

THEMA

TEXT

RS-B 11 W

Laufgeräusche  
bei 2 x speed

Geräusche:  
-Tape up gear  
-intermediate gear

Einfetten mit  
ET-Nr.  
RZZOLO3

Symptom: Die Laufgeräusche bei doppelter Geschwindigkeit sind gegenüber der Normalgeschwindigkeit zu groß bzw. werden vom Kunden beanstandet.

Grund: Das Fett zwischen den Zahnrädern, siehe Skizze, Position 136 und 129 lt. Service Manual, ist zu gering; daher entstehen Laufgeräusche.

Abhilfe: Einfetten der beiden Zahnräder mit dem Fett

ET-Nr.: RZZOLO3



Panasonic Service  
Deutschland GmbH



TO ALL

KDZ AND PSDG-BRANCHES

| No.: 82/85                                                                    | Date: 30.4.1985 rg/pr                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|-------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| SUBJECT                                                                       | TEXT                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| <p>EXCESSIVE</p> <p>MECHANISM NOISE</p> <p>IN DOUBLE SPEED</p> <p>RS-B11W</p> | <p><u>Symptom</u></p> <p>Too much gear noise is generated from mechanism in double speed dubbing mode.</p> <p><u>Cause</u></p> <p>Tooth bottom contact takes place during engagement with take-up gear (136) due to variation in size of take-up intermediate gear (129).</p> <div data-bbox="482 1131 1401 1303" data-label="Image"> </div> <p><u>Remedy</u></p> <ol style="list-style-type: none"> <li>1. Take-up lever (128) is changed in shape.<br/>(Increase 0.5 mm in thickness)</li> <li>2. Grease applied to take-up gear and intermediate gear is changed. (Froil G 902)</li> </ol> <p>From production dated Sept. 6, 1984)</p> <div data-bbox="588 1848 972 2083" data-label="Image"> </div> |



TO ALL

KDZ AND PSDG-BRANCHES

| No.: S2/S5                                                                    | Date: 30.4.1985 rg/pr                                                                                                                                                                                                                                                                                                                                                                                   |
|-------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| SUBJECT                                                                       | TEXT                                                                                                                                                                                                                                                                                                                                                                                                    |
| <p>EXCESSIVE</p> <p>MECHANISM NOISE</p> <p>IN DOUBLE SPEED</p> <p>RS-B11W</p> | <p>- 2 -</p> <p><u>Repair Method</u></p> <p>1. Set a tube of 0.5 mm thick as illustrated, and apply grease to the gears.</p> <div data-bbox="295 1084 1326 1507"> <p>Tube</p> <p>Intermediate gear</p> <p>Take-up lever</p> <p>Grease (Froil G902)<br/>Quantity ... Rise grain size</p> </div> <p>If you need the improved parts, please contact Hamburg warehouse.</p> <p>Military SVC<br/>B. Regl</p> |