RS-M85 MECHANISM SERIES

Specifications

Track system: 4-track 2-channel stereo recording and playback
Tape speed: 4.8 cm/s
Wow and flutter: 0.035% (WRMS), ±0.10% (DIN)
Frequency response: Metal tape; 20 - 20,000 Hz
30 - 18,000 Hz (DIN)
30 - 17,000 Hz ± 3 dB
Vinyl tape; 40 - 13,000 Hz ± 3 dB
CrO₂/Fe-Cr tape; 20 - 18,000 Hz
30 - 18,000 Hz (DIN)
30 - 16,000 Hz ± 3 dB
Normal tape; 20 - 18,000 Hz
30 - 16,000 Hz (DIN)
30 - 14,000 Hz ± 3 dB

Signal-to-noise ratio: Dolby NR in, 68 dB (above 5 kHz)
Dolby NR out, 58 dB (signal level = max. recording level, Fe-Cr/CrO₂ type tape)

Fast forward and rewind time: Approx. 80 seconds with C-60 cassette tape

Inputs:
MIC; sensitivity 0.25 mV, applicable microphone impedance 400Ω - 10kΩ
LINE; sensitivity 60 mV, input impedance 47kΩ

Outputs:
LINE; output level 650 mV, load impedance 22kΩ over
HEADPHONE; output level 75 mV, load impedance 8Ω

Bias frequency: 85 kHz

Motors: 2-motor system
Capstan; FG servo control direct-drive motor
Reel table; 1-DC coreless motor

Heads: 2-head system
1-SX (Sendust Extra) head for record/playback
1-Sendust/tinere double-gap head for erase

Power requirements: AC: 110/125/220/240V, 50-60Hz
Preset power voltage: 240V for United Kingdom and Australia
220V for Europe

Power consumption: 24 W
Dimensions: 29.7 cm(W) × 9.7 cm(H) × 22.9 cm(D)
Weight: 5.5 kg

Specifications are subject to change without notice.
* 'Dolby' and the double-D symbol are trademarks of Dolby Laboratories.

Matsushita Electric Trading Co., Ltd.
P.O. Box 288, Central Osaka, Japan
LOCATION OF CONTROLS
AND COMPONENTS

1 Eject button (eject)
2 Power switch (power)
3 Timer start switch (timer rec)
4 Headphones jack (phones)
5 Cassette holder
6 Microphone indication lamp (mic)
7 Dolby noise-reduction indication lamp (Dolby NR)
8 FL (fluorescent level) meters
9 Dolby noise-reduction switch (Dolby NR)
10 Tape selectors (tape select-normal/Fe-Cr/CrO₂/Metal)
11 Tape counter and Reset button (counter)
12 Record button/Record-muting button with LED (rec mute)
13 Rewind button (rew ▶ ◀)
14 Stop button (stop ■)
15 Play button with LED (play ▶)
16 Fast forward button (ff ▶ ▶)
17 Pause button with LED (pause II)
18 Input level controls (input level)
19 Input selector (INPUT SELECTOR MIC/LINE)
20 Line output jacks (LINE OUT)
21 Microphone jacks (MIC)
22 Line input jacks (LINE IN)
23 Voltage selector (VOLTAGE SELECTOR)
DISASSEMBLY INSTRUCTIONS

Fig. 2

Fig. 3

Fig. 4

Fig. 5

Fig. 6

Fig. 7

Fig. 8

<table>
<thead>
<tr>
<th>Procedure</th>
<th>To remove</th>
<th>Remove</th>
<th>Shown in fig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Case cover</td>
<td>4 screws</td>
<td>A</td>
</tr>
<tr>
<td>1</td>
<td></td>
<td></td>
<td>2</td>
</tr>
<tr>
<td>2</td>
<td>Bottom cover</td>
<td>4 screws</td>
<td>B</td>
</tr>
<tr>
<td>2</td>
<td></td>
<td></td>
<td>2</td>
</tr>
<tr>
<td>3</td>
<td>Front panel</td>
<td>Control knob</td>
<td>C</td>
</tr>
<tr>
<td>3</td>
<td></td>
<td>6 red screws</td>
<td>D</td>
</tr>
<tr>
<td>3</td>
<td></td>
<td></td>
<td>4, 5</td>
</tr>
<tr>
<td>3</td>
<td>Back cover</td>
<td>8 screws</td>
<td>E</td>
</tr>
<tr>
<td>3</td>
<td></td>
<td>2 cassette lid holders</td>
<td>F</td>
</tr>
<tr>
<td>6</td>
<td>Cassette lid</td>
<td>Meter cover</td>
<td>G</td>
</tr>
<tr>
<td>6</td>
<td></td>
<td>3 meter holders</td>
<td>H</td>
</tr>
<tr>
<td>6</td>
<td>FL level meter</td>
<td>5 red screws</td>
<td>I</td>
</tr>
<tr>
<td>6</td>
<td></td>
<td>Counter belt</td>
<td>J</td>
</tr>
<tr>
<td></td>
<td>Mechanism</td>
<td></td>
<td>4, 8</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>8</td>
</tr>
</tbody>
</table>
MAIN CONTROL CIRCUIT OPERATION

Rewind mode

- Supply reel table rotates
- Brakes move away from both reel tables.

Fast forward mode

- Take-up reel table rotates.
- Brakes move away from both reel tables.
Playback mode

- Brakes move away from both reel tables.
- Pressure roller contacts capstan.
- Take-up reel table rotates.
- The bias oscillation circuit operates upon depression of the RECORD and PLAYBACK button.
- Head contacts tape.
- During the charging of C403, LINE OUT and level meter are grounded to prevent switching noise.
- Playback indicator illuminates.
- Playback condition is maintained even if record button is pressed during playback.
Record mode

- During the changing of C403, LINE OUT and level meter are grounded to prevent switching noise.

- The record plunger is attracted and the RECORD/PLAYBACK changeover switch (S1) is placed in RECORD position.

With the PLAYBACK button pressed, the output of terminal 13 changes from H to L.

- During recording, the record indicator lamp lights up and during the recording, the multivibrator operates and the record indicator lamp flashes.

- During the recording, the record indicator lamp lights up.

- During record muting, multivibrator operates and the record indicator lamp flashes.

- During record muting, Q7, Q8 are turned on, shorting recording signals to ground.

Pause mode

- The bias oscillation circuit operates upon depression of the RECORD and PLAYBACK button.

- Head contacts tape.

- Pause indicator illuminates.

Fig. 12

Fig. 13
Timer recording/playback

- Timer record switch is set to "ON" position.
- Power is turned on by timer.

**Fig. 14**

Full automatic stop

- During tape movement magnet interlocked with take-up reel table rotates, and magnetic poles change (N-S-N-S) when it comes close to IC401.

**Fig. 15**
CIRCUIT BOARDS AND
ADJUSTMENT PARTS LOCATION

VR6
VR7
VR8
VR1
L3
VR2
L4
VR11
VR12
TP4
GROUND TP3
PGND
VR5
VR9
VR10

CAPSTAN MOTOR CIRCUIT BOARD

INPUT VOLUME CIRCUIT BOARD

MAIN CONTROL CIRCUIT BOARD

Fig. 16
MEASUREMENT AND ADJUSTMENT METHODS

NOTE: Set lever switches and controls in the following positions, unless otherwise specified.
- Make sure heads are clean.
- Make sure capstan and pressure roller are clean.
- Judgable room temperature: 20±5°C (68±9°F)
- Dolby NR switch: OUT
- Tape selector: Normal
- Input selector: Line in
- Input level control: Maximum

<table>
<thead>
<tr>
<th>ITEM</th>
<th>MEASUREMENT &amp; ADJUSTMENT</th>
</tr>
</thead>
</table>
| 1. Takeup tension | 1. Mount cassette torque meter on UNIT.  
2. Place UNIT into playback mode and read takeup torque.  
3. Measure several times and determine the mean value.  
4. If measured value is not in standard, adjust VR401. |
| Condition:  
- Playback mode  
Equipment:  
- Cassette torque meter  
  (QZZSRKCT) | Standard value: 35±5gr-cm |
| 2. Head azimuth adjustment | 1. Test equipment connection is shown in fig. 17.  
2. Playback azimuth tape (QZZOFM 8kHz).  
3. Adjust record/playback head angle adjustment screw (B) in fig. 18 so that output level at LINE OUT becomes maximum.  
4. Measure both channels, and adjust levels for equal output.  
5. After adjustment lock head adjustment screw with lacquer.  
Erase head adjustment  
1. Test equipment connection is the same above but use the tape path viewer (QZZORD) instead of test tape (QZZOFM).  
2. Playback this tape.  
3. Adjust screw (C) shown in fig. 19 so that the tape may not get curled or malformed by tape guide of the erase head.  
4. After adjustment, lock head adjust screw with lacquer. |
| Condition:  
- Playback mode  
Equipment:  
- VTVM  
- Oscilloscope  
- Test tape azimuth  
  1. QZZCFM  
  2. QZZCMO  
- Tape path viewer  
  1. QZZCMO  
  2. QZZCRO | |
| 3. Tape speed | 1. Test equipment connection is shown in fig. 20.  
2. Playback test tape (QZZCWAT 3,000 Hz), and supply playback signal to frequency counter.  
3. Measure this frequency.  
4. On the basis of 3,000 Hz, determine value by following formula:  
  \[
  \text{Tape speed accuracy} = \frac{f - 3,000}{3,000} \times 100 \text{ (\%)}
  \]
  where, \( f \) = measured value  
5. Take measurement at middle section of tape  
6. If measured value is not within standard, adjust VR601. |
| Condition:  
- Playback mode  
Equipment:  
- Digital electronic counter  
- Test tape  
  1. QZZCWAT | Standard value: ±0.5% |
| Tape speed fluctuation | Tape speed fluctuation  
Make measurements in same manner as above (beginning, middle and end of tape), and determine the difference between maximum and minimum values and calculate as follows:  
  \[
  \text{Tape speed fluctuation} = \frac{f_1 - f_2}{3,000} \times 100 \text{ (\%)}
  \]
  where, \( f_1 \) = maximum value, \( f_2 \) = minimum value  
6. If measured value is not within standard, adjust VR601. |
| 4. Tape speed | Standard value: Less than 0.3% |

Fig. 17  
Test Tape Playback mode VTVM Oscilloscope  
Fig. 18  
Record/playback head  
Erase head  
Fig. 19  
Record/playback head  
Fig. 20  
Test Tape Playback mode Digital electric counter
<table>
<thead>
<tr>
<th>ITEM</th>
<th>MEASUREMENT &amp; ADJUSTMENT</th>
</tr>
</thead>
</table>
| **Playback frequency response** | 1. Test equipment connection is as same as 'Head azimuth adjustment' but use the test tape (QZCZF) instead of head azimuth tape (See fig. 17).  
2. Place UNIT into playback mode.  
3. Playback the frequency response test tape (QZCZF).  
4. Measure output level at 12.5 kHz, 8 kHz, 4 kHz, 1 kHz, 250 Hz, 125 Hz and 63 Hz and compare each output level with the standard frequency 315 Hz at LINE OUT.  
5. Make measurement for both channels.  
6. Make sure that the measured value is within the range specified in the frequency response chart. |
| **Playback gain** | 1. Test equipment connection is shown in fig. 17.  
2. Playback standard recording level portion on test tape (QZCZF 315Hz), and using VTMV measure the output level at LINE OUT jack.  
3. Make measurement for both channels.  
4. Standard value: 0.65 ± 0.10 V |
| **Bias leak** | 1. Test equipment connection is shown in fig. 22 (See AMP circuit board on page 10).  
2. Place UNIT into record mode.  
3. Adjust trap coils L3 (L-CH), L4 (R-CH), so that measured value becomes minimum (See fig. 16).  
4. Make adjustment for both channels. |
| **Erase current** | 1. Test equipment connection is shown in fig. 23.  
2. Place UNIT into record mode and measure voltage at test point 2.  
3. Determine erase current with the following formula:  
   Erase current (A) = Voltage across both ends of R274 / 1(Ω)  
4. Standard value: 95 ± 5 mA (Tape selector ...Metal)  
5. If measured value is not within standard, adjust VR8. |
| **Bias current** | A. Adjustment for metal position  
1. Test equipment connection is shown in fig. 24.  
2. Place the test tape (QZCZRZ) in the cassette holder.  
3. Press the record and pause buttons.  
4. Set the tape selector to metal position.  
5. Supply 1 kHz signal from AF oscillator, through ATT to LINE IN.  
6. Adjust ATT so that input level is −20 dB below standard recording level.  
7. At this time, LINE OUT level indicates 0.065 V.  
8. Record 1 kHz and 15 kHz signals.  
9. Playback and express in dB the difference between output levels of 15 kHz and 1 kHz.  
10. Make sure output level of 15 kHz is not within −1 ± 3 dB compared with output level of 1 kHz.  
11. If measured value is not within −1 ± 3 dB, adjust VR9 (L-CH only). |
<table>
<thead>
<tr>
<th>ITEM</th>
<th>MEASUREMENT &amp; ADJUSTMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>B. Adjustment for normal position</strong></td>
<td></td>
</tr>
<tr>
<td>12.</td>
<td>Set the tape selector to normal position (test tape QZ2CRA).</td>
</tr>
<tr>
<td>13.</td>
<td>Change test tape to normal tape (QZ2CRA).</td>
</tr>
<tr>
<td>14.</td>
<td>Press the record and playback buttons.</td>
</tr>
<tr>
<td>15.</td>
<td>Record 1 kHz and 13 kHz signals.</td>
</tr>
<tr>
<td>16.</td>
<td>Playback and express in dB the difference between output levels of 13 kHz and 1 kHz.</td>
</tr>
<tr>
<td>17.</td>
<td>Make sure output level of 13 kHz is not within 0±3 dB compared with output level of 1 kHz.</td>
</tr>
<tr>
<td>18.</td>
<td>If measured value is not within 0±3 dB, adjust VR5 (L-CH), VR10 (R-CH).</td>
</tr>
<tr>
<td><strong>C. Adjustment for Fe-Cr and CrO₂ positions</strong></td>
<td></td>
</tr>
<tr>
<td>19.</td>
<td>Set the tape selector to Fe-Cr position.</td>
</tr>
<tr>
<td>20.</td>
<td>Change test tape to Fe-Cr tape (QZ2CRRY).</td>
</tr>
<tr>
<td>21.</td>
<td>Press the record and playback buttons.</td>
</tr>
<tr>
<td>22.</td>
<td>Record 1 kHz and 14 kHz signals.</td>
</tr>
<tr>
<td>23.</td>
<td>Playback and express in dB the difference between output levels of 14 kHz and 1 kHz.</td>
</tr>
<tr>
<td>24.</td>
<td>Make sure output level of 14 kHz is not within 0±3 dB compared with output level of 1 kHz.</td>
</tr>
<tr>
<td>25.</td>
<td>If measured value is not within 0±3 dB, adjust VR6.</td>
</tr>
<tr>
<td>26.</td>
<td>Set the tape selector to CrO₂ position.</td>
</tr>
<tr>
<td>27.</td>
<td>Change test tape to CrO₂ tape (QZ2CRRX).</td>
</tr>
<tr>
<td>28.</td>
<td>Make the same measurements described in steps 21 to 24 above.</td>
</tr>
<tr>
<td>29.</td>
<td>If measured value is not within 0±3 dB, adjust VR7.</td>
</tr>
</tbody>
</table>

**Measurement**

1. Test equipment connection is shown in fig. 25,
2. Place UNIT into record mode.
3. Read voltage on VTVM and calculate bias current by following formula:
   \[ \text{Bias current (A)} = \frac{\text{Value read on VTVM (V)}}{10 (Ω)} \]
   **Standard value:** around 560μA (Metal position), around 300μA (Normal position), around 320μA (Fe-Cr position), around 415μA (CrO₂ position)

**1. Overall gain**

**Condition:**
- Record/playback mode
- Input level control... MAX
- Standard input level:
  - MIC... -72±3 dB
  - LINE IN... -24±3 dB

**Equipment:**
- VTVM
- ATT
- Oscilloscope
- Test tape (reference blank tape)
  - QZ2CRA for Normal
  - QZ2CRRX for CrO₂
  - QZ2CRRY for Fe-Cr
  - QZ2CRRZ for Metal

1. Test equipment connection is shown in fig. 26
2. Place UNIT into record mode.
3. Supply 1 kHz signal (−24 dB) from AF oscillator, through ATT to LINE IN.
4. Adjust ATT until monitor level at LINE OUT becomes 0.65 V.
5. Using test tape, make recording.
6. Playback recorded tape and measure the output level at LINE OUT on VTVM.

   **Standard value:** 0.65±0.10 V

7. If measured value is not within standard, adjust the following VR:
   VR1 (L-CH), VR2 (R-CH)

**Fig. 26**

**2. Fluorescent meter**

**Condition:**
- Record mode
- Input level control... MAX
- Tape selectors... Normal position

**Equipment:**
- VTVM
- AF oscillator
- ATT

1. Test equipment connection is shown in fig. 27
2. Supply 1 kHz signal (−24 dB) to the LINE IN jack, then press the record button.
3. Adjust the ATT so that the output level at LINE OUT jack becomes 0.65 V (± standard input level).
4. Adjustment at "0 dB":
   - Adjust VR501 (L-CH) and VR502 (R-CH) so that the Fluorescent meters show an illuminated indication up to "0 dB" when the input signal level is 0.9 dB higher than the standard input level.

**Fig. 27**
<table>
<thead>
<tr>
<th>ITEM</th>
<th>MEASUREMENT &amp; ADJUSTMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>B.</td>
<td>Then confirm that the fluorescent meters show an illuminated indication up to +1 dB when the input signal level is 1 dB higher than the standard input level.</td>
</tr>
<tr>
<td>5.</td>
<td>Adjustment at −20 dB.</td>
</tr>
<tr>
<td>A.</td>
<td>Adjust VR503 (L.CH) and VR504 (R.CH) so that the fluorescent meters show an illuminated indication up to −20 dB when the input signal level is 15.1 dB lower than the standard input level.</td>
</tr>
<tr>
<td>B.</td>
<td>Then confirm that the fluorescent meters show an illuminated indication up to −15 dB when the input signal level is 15 dB lower than the standard input level.</td>
</tr>
<tr>
<td>6.</td>
<td>Repeat twice between steps 2 and 5 above.</td>
</tr>
</tbody>
</table>

### Overall frequency response

**Condition:**
- Record/playback mode
- Input level control MAX

**Equipment:**
- VTVM
- AF oscillator
- ATT
- Test tape (reference blank tape)
  - QZCR for Normal
  - QZCRC for CrO₂
  - QZCR for Fe-Cr
  - QZCRZ for Metal

**Note:**
Before measuring and adjusting, make sure of the playback frequency response (For the method of adjustment, please refer to the playback frequency response):
1. Test equipment connection is shown in fig. 26.
2. Load reference blank test tape and place UNIT into record mode.
3. Supply 1 kHz signal from AF oscillator through ATT to LINE IN.
4. Adjust ATT so that input level is −20 dB below standard recording level (standard recording level = 0 VU).
5. At this time, LINE OUT level indicates 0.065 V.
6. Record each frequency 30 Hz, 70 Hz, 200 Hz, 1 kHz, 4 kHz, 8 kHz, 10 kHz, 12 kHz, and 13 kHz (14 kHz for CrO₂ and Fe-Cr, 15 kHz for Metal).
7. Playback and express in dB the difference between playback output level of each frequency based on playback output level of 1 kHz.
8. Make sure that the measured value is within the range specified in the overall frequency response chart.

**Adjustment**
1. When the frequency response between the middle and high frequency range becomes higher than the standard value, as shown by the solid line in fig. 32, increase refer to bias current adjustment.
2. When it becomes lower, as shown by dotted line, refer to bias current adjustment.

**Note:**
1. For adjustment when the bias current is lower than the standard value use the procedure indicated in adjustment, because reducing the bias current beyond this point may worsen the distortion factor.
2. For the method of bias current measurement, refer to “Bias current adjustment” on page 9.

---

![Overall frequency response chart (Normal)](image)

**Fig. 29**

![Overall frequency response chart (Fe-Cr, CrO₂)](image)

**Fig. 30**

![Overall frequency response chart (Metal)](image)

**Fig. 31**

![Bias current adjustment](image)

**Fig. 32**
PARTS COMPARISON TABLE:
Please revise the original parts list in the Service Manual to conform to the changes shown herein. If new parts number are shown, be sure to use them when ordering parts.

<table>
<thead>
<tr>
<th>Ref. No.</th>
<th>Parts Name &amp; Description</th>
<th>Former Type</th>
<th>New Type</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>M28</td>
<td>Shield Plate</td>
<td>QTS1451</td>
<td>QTS1491</td>
<td></td>
</tr>
<tr>
<td>VR13, 14</td>
<td>Variable Resistor</td>
<td>EWMXAF22A54</td>
<td>EWJSEAF22A54</td>
<td></td>
</tr>
<tr>
<td>E31</td>
<td>Shield Plate (for T1)</td>
<td>QTS1488</td>
<td>QTS1503</td>
<td></td>
</tr>
<tr>
<td>E54</td>
<td>Spark Killer</td>
<td>QCR008T</td>
<td>QTW1118</td>
<td>Added</td>
</tr>
<tr>
<td>E55</td>
<td>Spark Killer Cover</td>
<td></td>
<td></td>
<td>Added</td>
</tr>
</tbody>
</table>

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.

ELECTRICAL PARTS LOCATION (ADDITION)

WIRING CONNECTION DIAGRAM

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

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

Matsushita Electric Trading Co., Ltd.
PO Box 288, Central Osaka Japan
(ARD, H.M) Printed in Japan
<table>
<thead>
<tr>
<th>ITEM</th>
<th>MEASUREMENT &amp; ADJUSTMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Dolby NR circuit</td>
</tr>
<tr>
<td></td>
<td>Condition</td>
</tr>
<tr>
<td></td>
<td>Record mode</td>
</tr>
<tr>
<td></td>
<td>Input level control -- MAX</td>
</tr>
<tr>
<td></td>
<td>Equipment:</td>
</tr>
<tr>
<td></td>
<td>AFT</td>
</tr>
<tr>
<td></td>
<td>Oscilloscope</td>
</tr>
<tr>
<td>2.</td>
<td>Record plunger position adjustment</td>
</tr>
<tr>
<td></td>
<td>Loosen screws (D) shown in fig. 33.</td>
</tr>
<tr>
<td></td>
<td>Push the plunger all the way into the solenoid as shown in fig. 33.</td>
</tr>
<tr>
<td></td>
<td>Move plunger angle (E), so that the record playback select switch (G1) is completely shifted in the direction of arrow (H) as shown in fig. 33.</td>
</tr>
<tr>
<td></td>
<td>After adjustment, lock screws (D) with lacquer.</td>
</tr>
</tbody>
</table>

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**CABINET PARTS**

<table>
<thead>
<tr>
<th>Ref. No.</th>
<th>Part No.</th>
<th>Part Name &amp; Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>G1</td>
<td>SDY988</td>
<td>Front Panel Assembly</td>
</tr>
<tr>
<td>G1.1</td>
<td>SDY993</td>
<td>&quot;Name Type&quot;</td>
</tr>
<tr>
<td>G1.2</td>
<td>SDY995</td>
<td>&quot;Name Type&quot;</td>
</tr>
<tr>
<td>G1.3</td>
<td>SDY996</td>
<td>&quot;Name Type&quot;</td>
</tr>
<tr>
<td>G1.4</td>
<td>SDY997</td>
<td>&quot;Name Type&quot;</td>
</tr>
<tr>
<td>G1.5</td>
<td>SDY998</td>
<td>&quot;Name Type&quot;</td>
</tr>
<tr>
<td>G1.6</td>
<td>SDY999</td>
<td>&quot;Name Type&quot;</td>
</tr>
<tr>
<td>G1.7</td>
<td>SDY940</td>
<td>&quot;Name Type&quot;</td>
</tr>
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<td>SDY941</td>
<td>&quot;Name Type&quot;</td>
</tr>
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<td>&quot;Name Type&quot;</td>
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<td>SDY943</td>
<td>&quot;Name Type&quot;</td>
</tr>
<tr>
<td>G1.11</td>
<td>SDY944</td>
<td>&quot;Name Type&quot;</td>
</tr>
<tr>
<td>G1.12</td>
<td>SDY945</td>
<td>&quot;Name Type&quot;</td>
</tr>
<tr>
<td>G1.13</td>
<td>SDY946</td>
<td>&quot;Name Type&quot;</td>
</tr>
<tr>
<td>G1.14</td>
<td>SDY947</td>
<td>&quot;Name Type&quot;</td>
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</table>

---

**PACKINGS**

- A1: ODYN801<br>
- A2: ODYN802

---

**REFERENCES**

- K1: OPJ8308
- K2: OPJ8309
- K3: OPJ8310
- K4: OPJ8311
- K5: OPJ8312

---

**SPECIFICATIONS**

- A1: ODYN801<br>
- A2: ODYN802
CIRCUIT BOARD
MAIN AMP CIRCUIT BOARD
Q2122
2SC2021
B 2.4V
E 0.7V
Q29.19
2SC2021
B 2.6V
Q34.26
2SD661
E 4.5V
Q2122
2SC2021
B 3.6V
E 4.1V
Q11.13.15
2SC2021
B 0.7V
E 0V
Q39.39
2SC1846
B 0.7V
E 0V
Q27.26
2SC1833
B 0V
E 0V
Q12.14.16.20
2SC2021
B 0V
E 0V
Q31.34
2SC2021
B 1.6V
E 0.5V
Q36.26
2SC2021
B 1.9V
E 0.5V
Q12
2SB745
B 3.6V
C 3.6V
Q37
2SC1846
B 1.6V
E 0.5V
Q36
2SC2021
B 1.9V
E 0.5V
NOTE:
The circuit shown in red on the conductor is a 4-B and circuit.
Values indicated in red are DC voltages between the chassis and electrical parts.
The voltage enclosed ( ) indicates are measured during record mode.

JACK CIRCUIT BOARD
Q29.30
2SC2021
B 2.6V
C 3.6V
E 4.1V
Q25.26
2SD592
C 0V
Q23.24
2SC1327
B 0V
C 0V
E 0V
NOTE: A indicates that only parts are listed.
NOTE: The manufacturer may be used for safety.
**IC (AN6251) equivalent circuitry**

![IC AN6251 Circuit Diagram]

**IC (AN6251) Equivalent Circuit**

---

**Relationship of each operation mode with input/output**

<table>
<thead>
<tr>
<th>Operation mode</th>
<th>Input terminal</th>
<th>Output terminal</th>
</tr>
</thead>
<tbody>
<tr>
<td>REW</td>
<td>REW IN</td>
<td>H</td>
</tr>
<tr>
<td>FF</td>
<td>FF IN</td>
<td>H</td>
</tr>
<tr>
<td>PLAY</td>
<td>FWD IN</td>
<td>H</td>
</tr>
<tr>
<td>PAUSE</td>
<td>PAS IN</td>
<td>H</td>
</tr>
<tr>
<td>REC</td>
<td>REC IN</td>
<td>H</td>
</tr>
<tr>
<td>STOP</td>
<td>STOP IN</td>
<td>H</td>
</tr>
</tbody>
</table>

- Doesn't become "L" immediately even if playback button pushed; becoming "\(\sim\)" after a slight delay.

---

**NOTE:**
- S401: Rewind button switch.
- S402: Fast forward button switch.
- S403: Playback button switch.
- S404: Pause button switch.
- S405: Record button switch.
- S406: Stop button switch.
- S407: Timer switch.
- S408: Cassette detection switch.
- S409: Erase safety switch.
- S410: Power ON/OFF switch.
- VR501: VR502: FL meter adjustment VR (for "0dB").
- VR503, VR504: FL meter adjustment VR (for "-20dB").
- Resistance is in ohms (Ω), 1/4 watt unless specified otherwise.
- K: 1,000Ω.
- Capacity is in microfarads (µF) unless specified otherwise.
- P: Power hand.
- All voltage values shown in circuitry are under no signal condition and record mode with volume control at minimum position.
  - For measurement, use VTVM.
  - \(\Delta\) indicates that only parts specified by the manufacturer be used for safety.

---

© For All European areas.

© For Australia.

The voltage values (\(\circlearrowright\)) show for United Kingdom.
**FL METER CIRCUIT BOARD**

**CONTROL KEY SWITCH CIRCUIT BOARD**

**LED CIRCUIT BOARD**

**HALL IC CIRCUIT BOARD**

---

**SCHEMATIC DIAGRAM**

**CAPSTAN MOTOR SECTION**

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**NOTE:**
- The circuit shown in red on the conductor is +B (50Vb) circuit.
- Values indicated in [ ] are DC voltage between the chassis and electrical parts.

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**CAPSTAN MOTOR CIRCUIT BOARD**