AR-2 MECHANISM SERIES

Specifications

Deck system: 4 track, 2 channel
Track system:
Recording system: AC bias
Bias frequency: 100 kHz
Erasing system: AC erase
Heads:
Deck 1 (Playback head);
Deck 2 (Recording/Playback head);
(Recording head);
Motors:
Deck 1, 2 Capacitor drive;
Tape speed: 4.8 cm/sec.
Wow and flutter: 0.16 % (WRMS)
Fast forward and rewind times: Approx. 110 seconds with C-80 cassette tape
Frequency response (Dolby NR off):
TYPE I (NORMAL): 20 Hz–16 kHz (DIN)
TYPE II (HIGH): 20 Hz–16 kHz (DIN)
TYPE IV (METAL): 20 Hz–16 kHz (DIN)

Stereo cassette deck
Permalloy head
DC servo motor

S/N (Signal level = max recording level, TYPE II type tape):
NR off: 56 dB (A weighted)
Dolby B NR on: 66 dB (A weighted)
Input sensitivity and impedance:
REC (IN): 400 mV/23 kΩ
Output voltage and impedance:
PLAY (OUT): 280 mV/360 Ω
Dimensions (W×H×D):
294×118.5×281 mm
Weight: 2.1 kg

Notes:
Specifications are subject to change without notice.
Weight and dimensions are approximate.
*1: Dolby noise reduction manufactured under license from Dolby Laboratories Licensing Corporation.
"Dolby" and the double-D symbol are trade marks of Dolby Laboratories Licensing Corporation.
*2: Made in Singapore.

WARNING
This service information is designed for experienced repair technicians only and is not designed for use by the general public. It does not contain warnings or cautions to advise non-technical individuals of potential dangers in attempting to service a product. Products powered by electricity should be serviced or repaired only by experienced professional technicians. Any attempt to service or repair the product or products dealt with in this service information by anyone else could result in serious injury or death.
NOTE:
Refer to the service manual for Model No. SA-EH750 (ORDER No. AD9903063C2) for information on 'Accessories', 'Connections', 'Installation', 'Operations' and 'Packaging'.

■ Location of Controls

- Deck 1 cassette holder open button (OPEN)
- Deck 1 cassette holder
- Fast forward/rewind buttons (◄◄, ►►)
- Deck 2 cassette holder
- Deck 2 cassette holder open button (OPEN)
- Counter reset, display buttons (COUNTER, RESET, DISPLAY)
- Deck 1/2 deck select button (DECK 1/2)
- Playback buttons and indicators (◄, ►)
  The color of the indicators depends on the operation taking place.
  If stopped, fast forwarding or rewinding: orange
  If playing or recording: green
  While carrying out TPS or recording is on standby: flashes green
- Stop button (■)
- Dolby noise reduction button (DOLBY NR)
- Reverse mode select button (REV MODE)
- Tape edit button (TAPE EDIT)
- Record pause button (REC PAUSE)
Operation Checks and Component Replacement Procedures

**NOTE**
1. This section describes procedures for checking the operation of the major printed circuit boards and replacing the main components.

2. For reassembly after operation checks or replacement, reverse the respective procedures. Special reassembly procedures are described only when required.

3. Select item from the following index when checks or replacement are required.

**Contents**
- Checking Procedures for each P.C.B. ........................................... Page.

- Main Component Replacement Procedures
  1. Replacement for the motor ass' y, capstan belt and winding belt. ........................................... 5–7.
  2. Replacement for the components parts on the mechanism P.C.B. ........................................... 7.
  3. Replacement for the pinch roller ass' y and head block. ........................................... 7.
  4. Replacement for the cassette lid ass' y. ........................................... 8.
  5. Replacement for the cassette holder. ........................................... 8.

**Checking Procedures for each P.C.B.**

1. Checking for the main P.C.B.

- Step 1: Remove the main P.C.B.

- Step 2: Check the main P.C.B. as shown above.

2. Checking for the operation P.C.B.

- Follow the **Step 1** - **Step 3** of the item 1 in checking procedure for each P.C.B. on page 3.

- Step 1: Release the 4 claws, and then remove the front panel ass' y.

- Step 2: Remove the GND P.C.B.

- Step 3: (Bottom side)
Step 6: Press the eject rod in the direction of arrow, and then open the cassette panel ass'y.

Step 7: Release the claw, and then remove the mechanism unit.

Step 8: Remove the cassette lid ass'y in the direction of arrow.

Step 9: Release the 2 claws, and then remove the deck mecha frame.

Step 10: Notice the operations of the P.C.B.

Step 11: Remove the deck mecha frame in the direction of arrow.

Step 12: Remove the operation P.C.B.

Step 13: Install the GND P.C.B. to the bottom chassis, and then tighten screw (a).

Step 14: Connect the flat cable to the connector (CN901).

• Check the operation P.C.B. as shown below.
Main Component Replacement Procedures

1. Replacement for the motor ass'y, capstan belt and winding belt
   - Follow the Step 1 ~ Step 3 of the item 1 in checking procedure for each P.C.B. on page 3.
   - Follow the Step 1 ~ Step 4 of the item 2 in checking procedure for each P.C.B. on pages 3 and 4.

   **NOTE**
   When removing the main P.C.B., remove it with holding the mechanism P.C.B.

   **Step 1**
   Unsolder the motor terminals.

   **Step 2**
   Release the claw, and then remove the main P.C.B.

   **Step 3**
   Handle the connector with care so that the shape of terminals different from others.

   ★ The illustration below shows DECK2 mechanism. For DECK1 mechanism, perform the same procedure as DECK2.

   **Step 4**
   Remove the P.C.B. support.

   **Step 5**
   Release the 2 claws, and then remove the head connector.

   **Step 6**
   Remove the sub chassis.

   **Step 7**
   Capstan belt [RDV0034]

   **Step 8**
   Motor ass'y [REM0070]

   **Step 9**
   Remove the flywheel R.

   **Step 10**
   Release the claw, and then remove the winding lever and spring.
Installation of the belt

**Step 1**
The boss and marking should be positioned horizontally.

**Step 2**
Put the winding belt on the pulley temporarily.

**Step 3**
Install the flywheel F.

**Step 4**
Put the winding belt on the flywheel F.

**Step 5**
Install the winding lever and spring while pressing the winding arm in the direction of arrow. (The winding lever must be inserted completely and latched with claws.)

**NOTE**
The winding lever should be positioned as shown right.

**Step 7**
Put the capstan belt temporarily as shown below.

(Side view)

**Step 8**
Install the sub chassis to the mechanism, and then tighten screws.

**Step 9**
\(a \times 3\)
2. Replacement for the components parts on the mechanism P.C.B.

- Follow the Step 1 ~ Step 3 of the item 1 in checking procedure for each P.C.B. on page 3.
- Follow the Step 1 ~ Step 5 of the item 2 in checking procedure for each P.C.B. on pages 3 and 4.
- Follow the Step 1 ~ Step 4 of the item 1 in main component replacement procedures on page 5.

※ The mechanism as shown below is for DECK2. For the one of DECK1, perform the same procedures.

3. Replacement for the pinch roller ass'y and head block

- Follow the Step 1 ~ Step 3 of the item 1 in checking procedure for each P.C.B. on page 3.
- Follow the Step 1 ~ Step 5 of the item 2 in checking procedure for each P.C.B. on pages 3 and 4.
- Follow the Step 1 ~ Step 5 of the item 1 in main component replacement procedures on page 5.

※ The mechanism as shown below is for DECK2. For the one of DECK1, perform the same procedures.

Step 1
Release the 2 claws, and then remove the pinch roller (R), (F).

Step 2
Head block
[DECK1:RED0038]
[DECK2:RED0037]

Step 3
Release the 3 claws, and then remove the mechanism P.C.B.
4. Replacement for the cassette lid ass'ý
- Follow the Step 1 ~ Step 3 of the item 1 in checking procedure for each P.C.B. on page 3.

Step 1
Press the eject rod in the direction of arrow, and then open the cassette lid ass'ý.

Step 2
Remove the cassette lid ass'ý in the direction of arrow.

5. Replacement for the cassette holder
- Follow the Step 1 ~ Step 3 of the item 1 in checking procedure for each P.C.B. on page 3.
- Follow the Step 1 ~ Step 9 of the item 2 in checking procedure for each P.C.B. on pages 3 and 4.

- Release the lug of cassette holder in the direction of arrow.

■ Open spring installation
Service Mode Function of Cassette Mechanism
This unit is equipped with a service mode function of cassette mechanism. Use this function during maintenance to check faults of the items below.

- **Cassette tapes to be prepared**
  Metal tape: Recorded music tape with only one erase-prevention tab intact (use middle portion of tape).
  Normal tape: Recorded music tape with both erase-prevention tabs intact
  CrO₂ tape: (use middle portion of tape)

- **Selecting Service Mode**
  1. Turn on the power to the unit.
  2. Check that no tape is inserted in the cassette deck. (Service mode cannot be selected with a tape inserted in the cassette deck.)
     Press the DOLBY NR button for about 2 seconds, and keep pressing it, also press the STOP button for about 2 seconds. (Refer to Fig. 1.)
  3. The LED indicator for Direction flashes, the service mode has been activated.

- **Deck 1 Mechanism Check**
  - Use the Deck 1/2 select button to change the flashing Deck 2 indicator to Deck 1. (No change required if Deck 1 indicator already flashing)
  - Press the PLAY button. (After TPS operation and check, the tape stops.)
  - Open the Deck 1 cassette holder. (OPEN button)
  - Insert a CrO₂ tape into the Deck 1 and close the cassette holder.
  - Press the TPS button. (Tape fast forwards for about 2 seconds then stops.)
  - Close the Deck 1 cassette holder.
  - Press the REC/PAUSE button. (No record operation.)

Press the STOP button. A mechanism error code is displayed. (Refer to Table 1.) Each time the STOP button is pressed, the fault items are displayed in sequence.
## Table 1

<table>
<thead>
<tr>
<th>FL display</th>
<th>Symptom</th>
<th>Cause</th>
</tr>
</thead>
<tbody>
<tr>
<td>H01</td>
<td>Cassette deck does not operate correctly.</td>
<td>Faulty cassette mechanism mode detection switch (Deck 1: S951, Deck 2: S971) and plunger. (Check and replace)</td>
</tr>
<tr>
<td>H02</td>
<td>Unit does not record, or the unit goes into recording mode even when the erase-prevention tabs have been removed from the cassette.</td>
<td>Faulty erase-prevention tab detection switch (S974, S975) or short-circuit. (Check and replace)</td>
</tr>
<tr>
<td>H03</td>
<td>Tape does not play, even when the tape deck play button is pressed. The motor operates when the tape deck play button is pressed, even when no cassette is loaded in the deck.</td>
<td>Faulty tape detection switch (Deck 1: S952, Deck 2: S972) or short-circuit. (Check and replace)</td>
</tr>
<tr>
<td>H06</td>
<td>Cassette deck does not detect CrO2 tape.</td>
<td>Faulty CrO2 tape detect switch (S973) (Check and replace)</td>
</tr>
<tr>
<td>H07</td>
<td>Cassette deck does not detect Metal tape.</td>
<td>Faulty Metal tape detect switch (S976) (Check and replace)</td>
</tr>
<tr>
<td>F01</td>
<td>When the tape PLAY button is pressed, tape advances only slightly and then stops.</td>
<td>Reel pulse error. (Faulty Hall IC) (Check and replace)</td>
</tr>
<tr>
<td>F02</td>
<td>TPS (tape program search) does not work.</td>
<td>Faulty TPS signal detection or faulty plunger control. (Check and replace mechanism control IC)</td>
</tr>
</tbody>
</table>

### Deck 2 Mechanism Check

1. **Use the Deck 1/2 select button to change the flashing Deck 1 indicator to Deck 2.**

2. **Press the TPS ➤ button. (Tape fast forwards for about 2 seconds then stops.)**

3. **Open the Deck 2 cassette holder. (OPEN button) ▲ OPEN**

4. **Open the Deck 2 cassette holder and turn over the metal tape (intact erase-prevention tab on the left side). (OPEN button) ▲ OPEN**

5. **Press the REC/PAUSE button. (No record operation.) REC PAUSE**

6. **Press the PLAY button. (After TPS operation and check, the tape stop.)**

7. **Close the Deck 2 cassette holder.**

8. **Insert a metal tape into the Deck 2 with an intact erase-prevention tab on the right side.**

9. **Close the Deck 2 cassette holder.**

10. **Press the TPS button. (Tape rewinds for about 2 seconds then stops.)**

11. **Open the Deck 2 cassette holder and replace the CrO2 tape with a normal tape. (OPEN button) ▲ OPEN**

12. **Press the STOP button. A mechanism error code is displayed. (Refer to Table 1.)**

   *Each time the STOP button is pressed, the fault items are displayed in sequence.*

### Exiting Self-Check Mode

1. Press the STOP button for more than 5 seconds. (Diagnostic contents stored in memory for both Deck 1 and 2 are erased.)
2. Remove the cassette tape from the cassette holder.
3. Turn off the unit.
This schematic diagram may be modified at any time with the development of new technology.

Notes:
- S900 : Stop switch (■)
- S901 : DECK 2 cassette holder open switch (△OPEN)
- S903 : Tape edit switch (TAPE EDIT)
- S904 : Record pause switch (REC PAUSE)
- S905 : Dolby noise reduction switch (DOLBY NR)
- S906 : Fast forward switch (■△)
- S907 : Forward side playback switch (■)
- S909 : Reverse side playback switch (△)
- S910 : Rewind switch (△■)
- S911 : Reverse mode select switch (REV MODE)
- S912 : DECK 1/DECK 2 select switch (DECK 1/2)
- S913 : Counter display switch (COUNTER DISPLAY)
- S914 : Counter reset switch (COUNTER RESET)
- S915 : DECK 1 cassette holder open switch (△OPEN)
- S921 : DECK 1 mode detect switch
- S952 : DECK 1 half detect switch
- S953 : DECK 1 CrO2 tape detect switch
- S971 : DECK 2 mode detect switch
- S972 : DECK 2 half detect switch
- S973 : DECK 2 CrO2 tape detect switch
- S974 : DECK 2 reverse side record prevention tab detect switch
- S975 : DECK 2 forward side record prevention tab detect switch
- S976 : DECK 2 METAL tape detect switch
- VR101 : DECK 1 Playback gain adjustment VR (R-ch)
- VR102 : DECK 2 Playback gain adjustment VR (L-ch)
- VR103 : DECK 2 Playback gain adjustment VR (R-ch)
- VR104 : DECK 1 Playback gain adjustment VR (L-ch)
- VR801 : DECK 1 tape speed adjustment VR (normal)
- VR803 : DECK 2 tape speed adjustment VR (normal)

Indicated voltage values are the standard values for the unit measured by the DC electronic circuit tester (high-impedance) with the chassis taken as standard. Therefore, there may exist some errors in the voltage values, depending on the internal impedance of the DC circuit tester.

No mark : Playback ( ) : Recording

Important safety notice:
Components identified by ▲ mark have special characteristics important for safety.
Furthermore, special parts which have purposes of fire-retardant (resistors), high-quality sound (capacitors), low-noise (resistors), etc. are used. When replacing any of components, be sure to use only manufacturer's specified parts shown in the parts list.

Caution!
IC and LSI are sensitive to static electricity.
Secondary trouble can be prevented by taking care during repair.
Cover the parts boxes made of plastics with aluminum foil.
Ground the soldering iron.
Put a conductive mat on the work table.
Do not touch the legs of IC or LSI with the fingers directly.

Voltage and signal line
- Positive voltage line
- Playback signal Line
- Recording signal Line
Wiring Connection Diagram

MAIN P.C.B.

MECHANISM P.C.B. (DECK 2)

MECHANISM P.C.B. (DECK 1)

OPERATION P.C.B.

EARTH TERMINAL P.C.B.

Type Illustration of IC's, Transistors and Diodes

<table>
<thead>
<tr>
<th>IC/Component</th>
<th>Equivalent Parts</th>
</tr>
</thead>
<tbody>
<tr>
<td>CXA1552M-T4</td>
<td>16PIN MC14066F 14PIN</td>
</tr>
<tr>
<td>M39503LM400F 42PIN</td>
<td></td>
</tr>
<tr>
<td>BA7755AF</td>
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</tr>
<tr>
<td>CXA1998BQT6</td>
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</tr>
<tr>
<td>ON2180RLC1</td>
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</tr>
<tr>
<td>2SD1460RSTA</td>
<td></td>
</tr>
<tr>
<td>2SD621ARSTA</td>
<td></td>
</tr>
<tr>
<td>2SD592ARSTA</td>
<td></td>
</tr>
<tr>
<td>2SD1819ARTX</td>
<td></td>
</tr>
<tr>
<td>2SD2438STXRA</td>
<td></td>
</tr>
<tr>
<td>DTA143EU1106</td>
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</tr>
<tr>
<td>DTC114EU1106</td>
<td></td>
</tr>
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<td>DTC143EU1106</td>
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<tr>
<td>2SC940AQAQSTA</td>
<td></td>
</tr>
<tr>
<td>2SD2144STA</td>
<td></td>
</tr>
<tr>
<td>2SJ164QTA</td>
<td></td>
</tr>
<tr>
<td>2SJ164RTA</td>
<td></td>
</tr>
<tr>
<td>MA165TA</td>
<td></td>
</tr>
<tr>
<td>MA4051MTA</td>
<td></td>
</tr>
<tr>
<td>MA4056MTA</td>
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</tr>
<tr>
<td>SML79455C</td>
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<tr>
<td>MA110TX</td>
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</tr>
</tbody>
</table>

- 19 -
### Terminal Function of IC's

**IC701 (M38503M2400F) : Micro Computer**

<table>
<thead>
<tr>
<th>Pin No.</th>
<th>Terminal Name</th>
<th>I/O</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Vcc</td>
<td>I</td>
<td>Power supply terminal</td>
</tr>
<tr>
<td>2</td>
<td>VREF</td>
<td>I</td>
<td>Reference voltage input</td>
</tr>
<tr>
<td>3</td>
<td>AVss</td>
<td>–</td>
<td>GND terminal</td>
</tr>
<tr>
<td>4</td>
<td>LMT</td>
<td>O</td>
<td>Mutting control signal output (Not used, open)</td>
</tr>
<tr>
<td>5</td>
<td>PL1</td>
<td>O</td>
<td>DECK 1 solenoid control signal output</td>
</tr>
<tr>
<td>6</td>
<td>M1</td>
<td>O</td>
<td>DECK 1 motor drive signal output</td>
</tr>
<tr>
<td>7</td>
<td>HALT</td>
<td>I</td>
<td>Power failure detect signal input</td>
</tr>
<tr>
<td>8</td>
<td>REQ</td>
<td>I</td>
<td>Serial communication request signal input</td>
</tr>
<tr>
<td>9</td>
<td>CS</td>
<td>I</td>
<td>Serial communication complete signal input</td>
</tr>
<tr>
<td>10</td>
<td>CLK</td>
<td>O</td>
<td>Serial communication clock signal output</td>
</tr>
<tr>
<td>11</td>
<td>DATA OUT</td>
<td>O</td>
<td>Serial communication data signal output</td>
</tr>
<tr>
<td>12</td>
<td>DATA IN</td>
<td>O</td>
<td>Serial communication data signal input</td>
</tr>
<tr>
<td>13</td>
<td>METAL 2</td>
<td>I</td>
<td>DECK 2 tape detect switch signal (METAL) input</td>
</tr>
<tr>
<td>14</td>
<td>CrOe 2</td>
<td>I</td>
<td>DECK 2 tape detect switch signal (CrOe) input</td>
</tr>
<tr>
<td>15</td>
<td>Vss</td>
<td>–</td>
<td>GND terminal</td>
</tr>
<tr>
<td>16</td>
<td>FWD LED</td>
<td>O</td>
<td>LED drive control signal (FWD) output</td>
</tr>
<tr>
<td>17</td>
<td>REV LED</td>
<td>O</td>
<td>LED drive control signal (REV) output</td>
</tr>
<tr>
<td>18</td>
<td>RESET</td>
<td>I</td>
<td>Reset signal input</td>
</tr>
<tr>
<td>19</td>
<td>XIN</td>
<td>I</td>
<td>Clock signal input (8 MHz)</td>
</tr>
<tr>
<td>20</td>
<td>XOUT</td>
<td>O</td>
<td>Clock signal output (8 MHz)</td>
</tr>
<tr>
<td>21</td>
<td>Vss</td>
<td>–</td>
<td>GND terminal</td>
</tr>
<tr>
<td>22</td>
<td>CrOe 1</td>
<td>I</td>
<td>DECK1 tape detect switch signal input (CrOe)</td>
</tr>
<tr>
<td>23</td>
<td>MODE</td>
<td>I</td>
<td>DECK1 mechanism switch signal input (MODE)</td>
</tr>
<tr>
<td>24</td>
<td>HALF1</td>
<td>I</td>
<td>DECK 1 mechanism switch signal input (Half)</td>
</tr>
<tr>
<td>25</td>
<td>TPS</td>
<td>I</td>
<td>TPS signal input</td>
</tr>
<tr>
<td>26</td>
<td>A DATA</td>
<td>O</td>
<td>Serial data signal output for IC101</td>
</tr>
<tr>
<td>27</td>
<td>A CLK</td>
<td>O</td>
<td>Serial clock signal output for IC 101</td>
</tr>
<tr>
<td>28</td>
<td>A LATCH</td>
<td>O</td>
<td>Serial latch signal output for IC 101</td>
</tr>
<tr>
<td>29</td>
<td>PL2</td>
<td>O</td>
<td>DECK 2 solenoid control signal output</td>
</tr>
<tr>
<td>30</td>
<td>M2</td>
<td>O</td>
<td>DECK 2 motor drive signal output</td>
</tr>
<tr>
<td>31</td>
<td>ENC/DEC</td>
<td>O</td>
<td>DOLBY NR record/playback mode select signal output</td>
</tr>
<tr>
<td>32</td>
<td>DOLBY ON/OFF</td>
<td>O</td>
<td>DOLBY NR ON/OFF control signal output</td>
</tr>
<tr>
<td>33</td>
<td>ECS</td>
<td>–</td>
<td>EEPROM chip select signal output (Not used, open)</td>
</tr>
<tr>
<td>34-36</td>
<td>NC</td>
<td>–</td>
<td>Not used, open</td>
</tr>
<tr>
<td>37</td>
<td>LED CNT</td>
<td>O</td>
<td>LED color control signal output</td>
</tr>
<tr>
<td>38</td>
<td>PHOTO2 T</td>
<td>I</td>
<td>DECK 2 real pulse detect signal input</td>
</tr>
<tr>
<td>39</td>
<td>AD SW</td>
<td>I</td>
<td>DECK 2 mechanism switch signal input (Half, Mode, F REC INH., R REC INH.)</td>
</tr>
<tr>
<td>40</td>
<td>PHOTO1 T</td>
<td>I</td>
<td>DECK 1 real pulse detect signal input</td>
</tr>
<tr>
<td>41</td>
<td>KEY2</td>
<td>I</td>
<td>Operation key signal input 2</td>
</tr>
<tr>
<td>42</td>
<td>KEY1</td>
<td>I</td>
<td>Operation key signal input 1</td>
</tr>
</tbody>
</table>
Measurements and Adjustments

- This unit RS-EH750 is designed to operate on power supplied from system connected.

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

Measuring instrument
- DC Power Supply
- AF Oscillator

Adjustment Points and Test Points

![Diagram of adjustment points and test points](image)

Measurement Condition
- Head azimuth adjustment (8 kHz, -20 dB): QZZCFM
- Tape speed adjustment (3 kHz, -10 dB): QZZCOWAT
- Playback gain adjustment (315 Hz, 0 dB): QZZCFM
- Recording/playback frequency response adjustment:
  - QZZCRA (Normal blank tape)
  - QZZCRX (CrO2 blank tape)
  - QZZCRZ (Metal blank tape)

Fig. 1
HEAD AZIMUTH ADJUSTMENT (DECK 1/2)
1. Connect the measuring instrument as shown in Fig. 2.
2. Replace azimuth screws for both forward and reverse direction after removing the screw-locking bond left on the head base.
3. Fine adjustment of azimuth can not be performed with remaining the bond on the head base.
(Supply part No. of azimuth adjusting screw: RHD17015)
4. Playback the azimuth adjustment portion (8 kHz, -20 dB) of test tape (QZCCFM). Adjust the azimuth adjusting screw until the outputs of the L/R-ch are maximized. (Refer to Fig. 3.)
5. Make sure that the difference in the peak level between the left and right channels does not exceed 0.5 dB.
6. Perform the same adjustment in reverse playback mode.

Check of the level difference forward and reverse directions
5. Playback the playback gain adjustment portion (315 Hz. 0 dB) of test tape (QZCCFM). Check if level deviation between forward and reverse direction is within 1.5 dB.
6. After the adjustment, apply screwlock to the azimuth adjusting screw.

TAPE SPEED ADJUSTMENT (DECK 1/2)
Note: When connecting the unit to other system components for testing, short the section between the test points TP609 and TP604 and turn on the entire system. (The unit is set to the TEST mode, and either the DECK1 or DECK2 indicators will blink.)

Normal speed (Standard value: 3000 ± 45 Hz)
1. Playback the middle portion of the test tape (QZCCWAT).
2. Adjust Deck 1 = VR801 and Deck 2 = VR803 for the output value shown below. (Refer to Fig. 1.)

Adjustment target: 3000 ± 15 Hz (NORMAL speed)
Standard value: 3000 ± 45 Hz (NORMAL speed)

Note: When connecting the unit to other system components, disconnect the short between the test points TP609 and TP604

PLAYBACK GAIN ADJUSTMENT (DECK1/2)
1. Find the start of the 315 Hz/0 dB section of the test tape (QZCCFM), insert the tape into Deck1 and 2, and play it back (FWD)
3. Adjust Deck 2 : VR102 (L-ch) VR103 (R-ch) and Deck 1 : VR104 (L-ch) VR101 (R-ch) so that the output is within the standard value. (Refer to Fig. 1.)

Standard value : 265 mV ~ 300 mV

Note: The test tape is not required when confirming the erase current.

ERASE CURRENT CONFIRMATION (DECK2)
1. Insert the blank tape into Deck2, and press the REC PAUSE button.
3. Check if the output at this time between the erase current confirmation point TP301 and TP302 (the output on both edges of R313) is within the standard value. (Refer to Fig. 6.)

Standard value
Normal tape : 85 ± 25 mA (85 ± 25 mV)
CrO2 tape : 150 ± 25 mA (150 ± 25 mV)
Metal tape : 185 ± 25 mA (185 ± 25 mV)

Note: The test tape is not required when confirming the erase current.
Playback frequency response check (DECK 1/2)
Playback the 315 Hz/-20 dB and 12.5 kHz to 63 Hz/-20 dB sections of the test tape (QZZCFM) and then, using the 315 Hz/-20 dB playback output as a reference (0 dB), confirm that the playback frequency response is within the range shown in Fig. 8.

Recording/playback frequency response and gain check (DECK 2)

Normal tape check
1. Insert a Normal-type blank tape (QZZCRA) into Deck 2.
2. Record signals at 50 Hz, 100 Hz, 200 Hz, 500 Hz, 1 kHz, 2 kHz, 10 kHz and 12.5 kHz (28 mV).
3. Set the playback frequency of the recorded signals at 1 kHz as the reference response (0 dB).
4. Playback the recorded signals to confirm that the output is within the range of the overall frequency response shown in Fig. 10.

CrO2/Metal tape check
5. Repeat steps 2 to 4 for each tape and confirm that the output for each is within the range of the overall frequency response shown in Fig. 11.

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