Technics

Tape Deck

RS-B50

OPERATING INSTRUCTIONS

Also available in black.

Before operating this set, please read these instructions completely.
Dear Stereo Fan

We want to thank you for selecting this product and to welcome you to the growing family of satisfied Technics product owners around the world. We feel certain you will get maximum enjoyment from this new addition to your home. Please read these operating instructions carefully, and be sure to keep them handy for convenient reference.

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FOR UNITED KINGDOM

Important
THE WIRES IN THIS MAINS LEAD ARE COLOURED IN ACCORDANCE WITH THE FOLLOWING CODE.
BLUE: NEUTRAL
BROWN: LIVE
As the colours of the wires in the mains lead of this unit may not correspond with the coloured markings identifying the terminals in your plug, proceed as follows. The wire which is coloured BLUE must be connected to the terminal which is marked with the letter N or coloured BLACK.
The wire which is coloured BROWN must be connected to the terminal which is marked with the letter L or coloured RED.

This apparatus was produced to BS 8000: 1977

FOR AUSTRALIA

For your safety
To ensure safe operation the three-pin plug supplied must be inserted only into a standard three-pin power point which is effectively earthed through the normal household wiring. Extension cords used with the unit must be three-core and be correctly wired to provide connection to earth. Wrongly wired extension cords are a major cause of fatalities. The fact that the unit operates satisfactorily does not imply that the power point is earthed and that the installation is completely safe. For your safety, if in any doubt about the effective earthing of the power point, consult a qualified electrician.

FOR SAFE USE OF THIS UNIT

- Use a standard electrical AC wall outlet
  1. Use from an AC power source of high voltage, such as for air conditioners, is very dangerous.
     Be extremely careful not to make a connection to the electrical outlet for a large air conditioner or central-heating unit which uses high voltage, because there is the possibility of fire.
    2. A DC power source cannot be used.
       Be sure to check the power source carefully, especially on a ship or other place where DC is used.
- Connection and removal of the power cord plug
  1. Wet hands are dangerous.
     A dangerous electric shock may result if the plug is touched by wet hands.
    2. Don’t pull the power cord.
       Always grasp the plug; never pull the cord itself.
- Never attempt to repair or reconstruct this unit
  A serious electric shock might occur if this unit is repaired, disassembled or reconstructed by unauthorized persons, or if the internal parts are accidently touched.
- For families with children
  Never permit children to put anything, especially metal, inside this unit. A serious electric shock or malfunction could occur if articles such as coins, needles, screwdrivers, etc. are inserted through the ventilation holes, etc. of this unit.
- Turn off after use
  If the unit is left for a long time with the power on, this will not only shorten its useful operation life, but may also cause other unexpected trouble.
- If water is spilled on the unit
  Be extremely careful if water is spilled on the unit, because a fire or serious electric shock might occur. Immediately disconnect the power cord plug, and consult with your dealer.
- Place the unit where it will be well ventilated, and away from direct sunlight
- Keep the unit away from stoves, etc.
  Heat can damage the external surfaces as well as internal circuits and components.
- Avoid spray-type insecticides
  Insecticides might cause cracks or “cloudiness” in the cabinet and plastic parts of this unit. The gas used in such sprays might, moreover, be ignited suddenly.
- Never use alcohol or paint thinner
  These and similar chemicals should never be used, because they may damage the finish.
- If trouble occurs
  If, during operation, the sound is interrupted or indicators no longer illuminate, or if abnormal odor or smoke is detected, immediately disconnect the power cord plug, and contact your dealer or an Authorized Service Center.
BEFORE USING THIS UNIT

Use a minus (−) screwdriver to set the voltage selector (on the rear panel) to the voltage setting for the area in which the unit will be used. Note that this unit will be seriously damaged if this setting is not made correctly. (There is no voltage selector for some countries; the correct voltage is already set.)

CONNECTIONS

Amplifier

TAPE
RECV  PLAY  OUT  BACK
Household AC outlet

Remote control

LINE IN  LINEOUT

This unit

Remote control unit (RP-9645, optional)

Location of this unit and stereo amplifier
If this unit is placed on top or next to the stereo amplifier, a “hum” noise may be heard during tape playback. Refer to the information below in order to avoid this:
• If the stereo amplifier and this unit are placed one above the other, leave as much space as possible between them, and place them where there is the least amount of hum.
• If the stereo amplifier and this unit are placed one beside the other, try reversing their positions, and place them where there is the least amount of hum.

Note:
If this unit is placed on or near the tuner, hum or noise may occur during AM reception.

Remote Control
The unit incorporates an IC-based electronic control operation system and so it can be operated remotely using the Remote Control Unit (RP-9645).

Using an audio timer
(See the operating instruction of the timer.)

AC outlet

• The configuration of the AC power plug may differ according to area.

TECHNICAL SPECIFICATIONS

| Deck system | Stereo cassette deck |
| Track system | 4-track, 2-channel |
| Heads | REC/PLAY/AX (Amorphous) head |
| Erasing | Double-gap ferrite head |
| Motors | Capstan drive (Electronically controlled DC motor) |
| | Reel table drive (DC motor) |
| | Mechanical drive (DC motor) |
| Recording system | AC bias |
| Bias frequency | 80 kHz |
| Erasing system | AC bias |
| Tape speed | 4.8 cm/sec. |
| Frequency response | Metal |
| | 20 Hz–20,000 Hz |
| | 30 Hz–19,000 Hz (DIN) |
| | 40 Hz–18,000 Hz ±3 dB |
| | CrO₂ |
| | 20 Hz–19,000 Hz |
| | 30 Hz–18,000 Hz (DIN) |
| | 40 Hz–17,000 Hz ±3 dB |
| Normal | 20 Hz–18,000 Hz |
| | 30 Hz–17,000 Hz (DIN) |
| | 40 Hz–16,000 Hz ±3 dB |
| Dynamic Range (with dbx in) | 110 dB (1 kHz) |
| S/N (signal level = max. recording level, CrO₂ type tape) | dbx in |
| | 92 dB (A weighted) |
| Dolby C NR in | 76 dB (CCIR) |
| Dolby B NR in | 68 dB (CCIR) |
| NR out | 58 dB (A weighted) |
| Wow and flutter | 0.045% (WRMS) ±0.14% (DIN) |
| Max. Input Level improvement (with dbx in) | 10 dB (1 kHz) |
| Fast Forward and Rewind Time | Approx. 85 seconds with C-60 cassette tape |
| Input sensitivity and impedance | MIC |
| | 0.25 mV/400–10 kΩ |
| LINE | 70 mV/47 kΩ |
| Output voltage and impedance | LINE |
| | 400 mV/2.2 kΩ |
| HEADPHONES | 80 mV/8 kΩ |
| Power consumption | 15 W |
| Power supply | AC 50 Hz/60 Hz |
| | 220 V, for Europe except United Kingdom, |
| | 110 V/125 V/220 V/240 V, preset power voltage 240 V |
| Dimensions (W×H×D) | 430×98×273 mm |
| Weight | 4.5 kg |

MAINTENANCE OF EXTERNAL SURFACES

To clean, use a soft dry cloth.
If the surfaces are extremely dirty, use a soft cloth, dipped into a soap and water solution or a weak detergent solution.
Wiring the cloth well before wiping the unit.
Wipe once again with a soft dry cloth.
Never use alcohol, paint thinner, benzine, nor a chemically treated cloth to clean this unit.
Such chemicals may damage the finish of your unit.
FRONT PANEL CONTROLS AND THEIR FUNCTIONS

1. Power switch [power (on-off)]
2. Eject button [eject (▲)]
3. Cassette Holder
4. Rewind/Review button [rew/play (◄)]
5. Record button and indicator [rec]
   Press before making a recording.
   (The unit will then be in the recording stand-by condition, and the record and pause indicators will illuminate.)
   In this condition, make the adjustment of the input level. To start the recording, press the play button.
6. Record muting button [rec mute (Ø)]
   A non-recorded (no sound is recorded) portion can be made by pressing this button during recording.
   (See page 7.)
7. Fast Forward/Cue button [ff/cue (►)]
8. Pause button and indicator [pause (■)]
   Press this button to temporarily stop the tape during recording or playback.
   (At the same time, the pause indicator will illuminate.)
9. Play button and indicator [play (►)]
   Press to begin recording or playback, or to release the pause mode.
   (At the same time, the playback indicator will illuminate.)
10. Stop button [stop (■)]
11. Tape indicators [Auto Tape Select (Normal-CrO₂, Metal)]
12. FL (fluorescent level) Meters
   These meters indicate the input level (during recording) and the recorded level of the tape (during playback).
13. Tape counter and reset button
    [tape counter-reset]
    When this button is pressed, the indication of the tape counter will change to "000". The indication changes as the tape moves.
    It is convenient during playback if a notation of the tape counter reading is made when a new recording is made.
14. Timer start switch [timer (rec-off-play)]
    For selection of timer recording or timer playback.
    • rec...
      To start a recording at the time to which the timer is set.
    • off...
      When the timer is not to be used.
    • play...
      To start tape playback at the time to which the timer is set.
15. Balance control [balance (left-center-right)]
    Before making a recording, adjust the recording level balance of the left channel and right channel.
    (This adjustment has no effect during playback.)
16. Noise reduction select switch
    [Noise Reduction (Dolby NR-C B-out-dbX-tape-disc)]
    • dbx tape ... Used for dbx NR recording and replaying dbx NR recorded tapes.
    • dbx disc ... Used for playing dbx NR encoded discs on a turntable and for recording such discs.
    • Dolby NR B ... When recording with the type B Dolby Noise Reduction system and for playing back such tapes.
    • Dolby NR C ... When recording with the type C Dolby Noise Reduction system and for playing back such tapes.
    • out ... For ordinary recording and playback.
Headphones jack [phones]

To listen to the recording as it is being made, simply connect stereo headphones (8Ω–600Ω) to the Headphones jack. You may also listen to the program being recorded if your receiver or amplifier is equipped with a tape-monitor switch. In the same way as for playback, an amplifier can also be used for monitoring.

Microphones jack [mic (L-R)]

When a microphone is connected to the Microphone jack, recording can be made through the microphone. Recording can be made from other sound sources (from LINE IN jacks) if the microphone is disconnected from the Microphone jack.

When 2 microphones are used in order to record in stereophonic sound, be sure both of them have the same performance and specification standards.

Auto tape selector function

This system automatically determines which type of tape is being used, and sets the bias and equalization accordingly.

Tape type detection holes

<table>
<thead>
<tr>
<th>Type of tape</th>
<th>Tape indicator lighting</th>
<th>Equalization</th>
<th>Bias</th>
</tr>
</thead>
<tbody>
<tr>
<td>Normal tape</td>
<td>Normal</td>
<td>120 μS</td>
<td>Low</td>
</tr>
<tr>
<td>CrO₂ tape (with holes A)</td>
<td>CrO₂</td>
<td>70 μS</td>
<td>High</td>
</tr>
<tr>
<td>Metal tape (with holes A and B)</td>
<td>Metal</td>
<td>70 μS</td>
<td>Metal</td>
</tr>
</tbody>
</table>

Do not use tape such as described below in this unit.

- Metal tape without B holes
  Recordings will be very distorted. (There is no playback problem however.)

- Fe-Cr tape
  The high range will be emphasized and a flat frequency response characteristic cannot be obtained.

ABOUT CASSETTE TAPES

Notes

1. If possible, avoid using 120-minute tape. Because this tape is very thin, it might stretch during use, become tangled with rotating parts in this unit, and/or tape movement might not be stable.

2. Tape looseness

  If the tape is loose in the cassette, it may result in scratches on the tape or even tape breakage.

  ![Image of pencil to correct tape looseness]

3. If tape is not wound evenly, or is wound too tightly. Fast forward and then rewind the tape on time.

4. Do not pull the tape out from the cassette; don’t touch the tape.

  When not using a cassette, be sure to store it in its case.

Accidental-erase-prevention tabs

Each tape cassette has two (for sides 1 and 2) tabs which, when broken out prevent recording on the tape.

![Image of tab for side 1 and side 2]

To re-record on the tape

- Break out the tab.
  (A recording can’t be made.)

- Use a screwdriver or similar tool.

- Cover the hole with cellophane tape.

Avoid these places...

- Where the temperature is high (35°C or higher) or where the humidity is high (80% or higher).
- Where there is a strong magnetic field (near a speaker, on top of a TV, etc.).
- In direct sunlight.
**PLAYBACK**

1. Press to "on" (Play). 
2. Insert the cassette. Be sure the edge of the cassette where the tape can be seen faces down. 
3. Select the noise-reduction system. (See page 8.) 
4. Press. (The play indicator will illuminate and playback will begin.) 
5. Adjust the volume level, etc. Use controls on the amplifier connected to this unit. 
6. Press to stop the tape temporarily. (The pause indicator will illuminate.) 
7. Press to stop.

Be absolutely sure to set to "off" before switching on the power.

**To use tape as a wake-up alarm**
1. Playback the tape to be used and adjust the volume level and tone as desired.
2. Stop the tape at the place where you want playback to begin.
3. Set the timer to the desired time. 
   *Switch off the power of other equipment connected to this unit (amplifier, tuner, tape deck, etc.)*
4. Set to the "play" position.

**To make unattended recordings**
1. Tune (on the tuner) to the broadcast station which will broadcast the program to be recorded. 
2. Follow steps 1 to 7 of "Recording" on page 7. 
   *Tune to the broadcast and make the adjustment of the recording level. (See page 7.) Then press the stop button.* 
3. Set the timer to the desired time. 
   *Switch off the power of other equipment connected to this unit (amplifier, tuner, tape deck, etc.)* 
4. Set to the "rec" position. 

After setting the timer Check to be sure that the power switch is at the "on" position.

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RECORDING

1. Press to "on" ( ).

2. Insert the cassette.
   Be sure the edge of the cassette where the tape can be seen faces down.

3. Press.
   (The pause indicator will stop illumination, the playback indicator will illuminate, and the recording will begin.)

4. Press.
   (The record and pause indicators will illuminate; the unit is now in the recording stand-by mode.)

Be absolutely sure to set to "off" before switching on the power.

5. Adjust the recording level balance of the left channel and right channel.

6. Begin the sound source to be recorded.

7. Make the adjustment of the recording level.
   (See page 7.)

3. Select the noise-reduction system.
   (See page 8.)

Note:
When only one microphone is connected at the left or right, the line input at the connected side is cut off. When recording with one microphone, the line inputs at both sides are cut off once the Balance control is slid to the side (left or right) at which the microphone has been connected.

Adjustment of the recording level
The numbers which you should use as a guide for the adjustment of the tape level will differ depending upon the type of tape used as well as the position of the noise-reduction switch.

<table>
<thead>
<tr>
<th>Noise Reduction (NR)</th>
<th>Normal Tape CrO₂ Tape</th>
<th>Metal Tape</th>
</tr>
</thead>
<tbody>
<tr>
<td>dbx</td>
<td>+6 dB</td>
<td>+8 dB</td>
</tr>
<tr>
<td></td>
<td>(+8)</td>
<td>(+12)</td>
</tr>
<tr>
<td>Dolby NR B · C NR out</td>
<td>+4 dB</td>
<td>+6 dB</td>
</tr>
<tr>
<td></td>
<td>(+6)</td>
<td>(+6)</td>
</tr>
</tbody>
</table>

- The level meter may light momentarily as far as the level indicated in parentheses ( ) without causing any complications in the setting.

Erasing recorded sounds
When a recording is made, any sounds previously recorded on that portion of the tape are erased, and only the new recording remains. To erase recorded sounds without making a new recording, proceed as follows.

1. Press the "out" button.

2. Set to the minimum (0) position


Recording Muting
The Recording-Muting feature is convenient to prevent recording such unwanted material as commercial messages when recording FM radio broadcasts, or the "click" noise heard when the stylus descends to the disc surface.

How to make blank (no sound recorded) spaces
Immediately after one program has been recorded, keep the Record-Muting Button depressed for about 5 seconds. After these 5 seconds have elapsed, depress the Pause Button.
Noise-reduction systems are designed to reduce the annoying characteristic "hiss" noise during playback, by recording on the tape by the noise-reduction system. This unit is equipped with 3 types of noise-reduction systems (the dbx noise-reduction system and the Dolby B and C-type noise-reduction system). Use whichever type is most appropriate to your other equipment, the recording sound source, tape used, etc.

### Dolby B-type noise-reduction system

The recording is made by increasing the high-frequency components which are low level, and then, during playback, only those components increased during recording are played back at a lower level.

The result is that the noise-reduction effect is maintained in the high-frequency range, tape noise is reduced, and the dynamic range is expanded.

### Dolby C-type noise-reduction system

The Dolby C-type noise-reduction system reduces noise in the mid-frequency range as well, and has a greater noise-reduction effect than the B-type system.

In addition, the Dolby C-type system includes a built-in saturation-prevention network. By passing signals through this circuit, there is an improvement (of approximately 3.5 dB of the tape saturation characteristic (MOL) at 10 kHz), thus reducing high-frequency distortion.

### dbx noise-reduction system

During recording, the input signal is compressed (encoded) to one-half. Then, when the tape is played back, the compressed signals are expanded (decoded), thus returning to the original signal for playback.

With this system, large signals are decoded as large signals and small signals are decoded as small signals throughout the entire frequency spectrum, with the result that there is a significant improvement of the dynamic range and, moreover, tape hiss is remarkably reduced.

**Notes:**
- Be sure to use the same noise-reduction system for playback as was used for recording, because the hiss noise can only be reduced by the combination of recording/playback with the same type of system.
- It is recommended to make a notation (on the cassette label) of the type of noise-reduction system which was used for recording.
- If a tape which was recorded through the dbx noise-reduction system is played back without using the dbx system, the sound will be ragged and distorted.

In order to get the best results of the features of a noise-reduction system, the recording sound source should have a good S/N ratio.

Note that noises (such as scratches on a phono disc) which are included in the sound source cannot be reduced by noise-reduction system.

"disc" position for "dbx encoded discs"

This unit comes with a "dbx disc" position on the Noise Reduction Select Switch for playing "dbx encoded discs".

**Playing "dbx encoded discs"**

Operate in the following sequence:

1. Set the input selector on the stereo amplifier to the "tape" position and the record selector to the "phono" position. If the amplifier is capable of tape monitor selection, set the tape monitor switch to the "tape" position and the input selector to the "phono" position.
2. Set the unit to the stop mode and then set the Noise Reduction Select Switch to the "dbx disc" position.
3. Disconnect the microphone if one has been connected to the unit.
4. Start operating the turntable.
5. Adjust the unit's Input Level Controls so that the Flourescent Level Meter illumination indicates around "0 dB".
6. Adjust the volume using the control on the stereo amplifier.

* Some dbx-encoded open-reel tapes are sold in audio shops. When playing back these tapes, it is possible to connect the open-reel deck and use the tapes with the same operation as for records.
* Do not set the Noise Reduction Select Switch to the "dbx disc" position during tape playback since the sound will then no longer be heard.

**Recording "dbx encoded discs" onto tape**

1. Set the Noise Reduction Select Switch to the "dbx disc" position.
2. Adjust the recording level, following the "Recording level setting" instructions.
3. Start the recording.

- The sound of the disc is recorded on the tape still in encoded (compressed) form. The decoded (expanded) sound can, however, be monitored (through both the speakers connected to the amplifier and headphones connected to the unit). When playing back a tape which has been recorded in this way, set the Noise Reduction Select Switch to the "dbx tape" position.
- Unlike ordinary records, "dbx encoded discs" have their sound dbx encoded (compressed) when it is cut into the sound grooves. This means that for replay, the sound must be returned to its original form through a decoder (expander). As a result, the noise level is reduced and the dynamic range is increased for a higher record play quality.

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* Dolby noise reduction system manufactured under license from Dolby Laboratories Licensing Corporation.
* 'Dolby' and the double-D symbol are trademarks of Dolby Laboratories Licensing Corporation.
* The term dbx is a registered trademark of dbx Inc.
**HEAD CARE**

- Maintenance of the head section

The head assembly, capstans and pinch rollers should be cleaned after about each 10 hours of use in order to maintain good sound quality.

1. Cleaning with a cotton swab

2. Cleaning with a head-cleaning tape cassette (optional)
   1) Insert the cassette into the tape holder.
   2) Switch on the power supply in accordance with the procedure for tape operation described, and then press the play button. The surface of the heads will be cleaned in a few seconds.

- Head demagnetization

The head assembly should be demagnetized after about each 50 hours of use in order to maintain good sound quality. If the heads become magnetized, use a head demagnetizer (option).

The head assembly becomes magnetized, causing noise in recordings and unwanted erasure of valuable recordings, if a magnetized screwdriver or other metal tools come near the head assembly, and when the heads have been used for a long period of time.

**Note:**
When demagnetizing the head assembly, be sure to first push the power switch to release it outward (●-●) to the "off" position.

**AC cord replacement**
Requires a special tool at a service station.

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**TROUBLESHOOTING GUIDE**

Before requesting service for this unit, check this table to determine if the problem can be solved as described below. If the problem still persists after making these checks, or if there are symptoms of malfunction not described in this table, it is recommended that you consult the store where this unit was purchased or your local Service Center (see list included) for further information and assistance.

<table>
<thead>
<tr>
<th>Problem</th>
<th>Probable cause</th>
<th>Remedy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tape moves but no sound is heard.</td>
<td>The volume control of the stereo amplifier is set to its minimum position.</td>
<td>Adjust the volume control to the desired level.</td>
</tr>
<tr>
<td></td>
<td>The input selector of the stereo amplifier is not set to the &quot;tape&quot; position.</td>
<td>Set to the &quot;tape&quot; position.</td>
</tr>
<tr>
<td>Distorted sound</td>
<td>The recording level is too high.</td>
<td>Re-turning to the section &quot;Adjustment of the recording level&quot; on page 7, make recordings at the most suitable recording level.</td>
</tr>
<tr>
<td>Strange tone quality or ragged sound</td>
<td>The noise-reduction switch is not set to the correct position.</td>
<td>Set the switch to the position corresponding to the setting used for recording.</td>
</tr>
<tr>
<td>No recording when the record button is pressed.</td>
<td>The accidental-erase-prevention tab(s) of the cassette have been broken out.</td>
<td>Cover the tab hole(s) with cellophane tape.</td>
</tr>
<tr>
<td>Playback sound is unclear or wavering; clear recordings can't be made.</td>
<td>The heads are dirty.</td>
<td>Clean the heads as described in the section &quot;HEAD CARE&quot; on page 9.</td>
</tr>
<tr>
<td>The cassette cannot be ejected.</td>
<td>The unit is in the recording, playback or pause mode.</td>
<td>Press the stop button to stop the tape.</td>
</tr>
<tr>
<td></td>
<td>The power was cut off during recording or playback.</td>
<td>Switch on the power.</td>
</tr>
</tbody>
</table>

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