

Technics

by Panasonic

TAPE DECK

RS-676US

OPERATING INSTRUCTIONS



Before operating this unit, please read these instructions completely.

We want to thank you for selecting model RS-676US **Technics by Panasonic** cassette tape deck for your recording and playback enjoyment.

To obtain the maximum benefit of the many features of this deck, please carefully read these operation instructions.

MAIN FEATURES

1. Convenient front panel controls.
2. Feather-touch pushbutton operation
3. Completely precise operation
4. 2 Motor drive system
5. HPF head
6. Automatic chromium dioxide tape selector
7. Special "Memory Playback" system
8. Peak-signal check switch
9. Remote control operation
10. Photoelectric automatic stop system
11. Dolby* noise-reduction circuitry and multiplex filter switch
12. Dolby FM switch

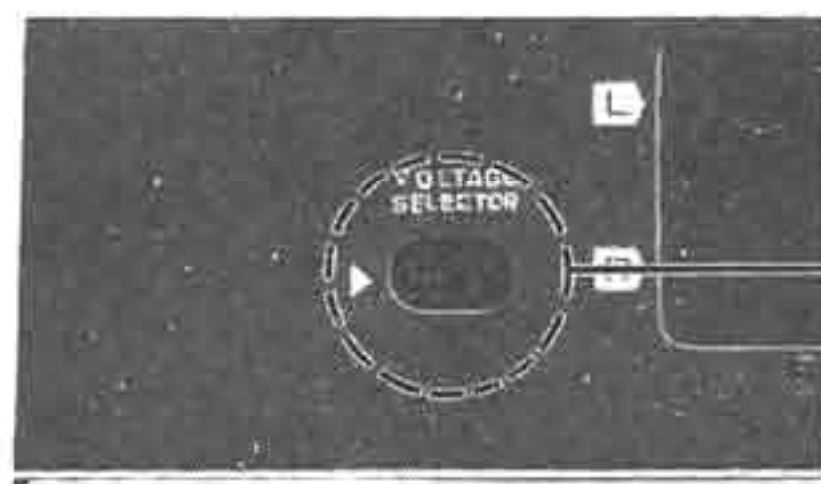
CONTENTS

OPERATION NOTES	1
ABOUT CASSETTE TAPE	2
SELECTION OF CASSETTE TAPE	2
CONTROLS	2
CONNECTIONS	3
PREPARATIONS	3
■ To insert the cassette	3
■ Fast forward	4
■ Rewind	4
PLAYBACK	4
RECORDING	5
■ Pause	5
■ Monitoring	5
■ How to use the peak-signal check button	5
DOLBY RECORDING OF A DOLBY FM BROADCAST	6
■ How to set the Dolby FM de-emphasis switch	7
HOW TO USE THE DOLBY FM SWITCH AND THE NR SWITCH	7
■ Multiplex filter	7
RECORDING NOTES	7
■ Accidental erase prevention	7
■ Round-trip recording	8
■ Erasing	8
■ Remote control	8
■ Memory Playback	8
CHROMIUM DIOXIDE TAPE	9
■ The tape selector	9
■ Automatic chromium dioxide tape selector	9
■ Recommended tape	9
MAINTENANCE	9
TROUBLESHOOTING	10
WARRANTY	10
PRODUCT SERVICE	10
SPECIFICATIONS	10

OPERATION NOTES

1. **Use this unit horizontally**
If, for some reason, this unit must be used at an angle in order to connect to the amplifier or other stereo equipment, be sure the angle does not exceed 10°.
2. **Location**
Avoid hot (above 95°F) or cold (below 40°F) locations, or locations in direct sunshine or where subject to excessive vibration, because the performance of the unit may be adversely affected.
3. **Use a power source frequency of either 50 Hz or 60 Hz.**
Because this unit has a Electronic speed control DC motor, a power frequency of either 50 Hz or 60 Hz may be used.
4. **Power should be within $\pm 5\%$ of the rated voltage.**
Note that the unit's performance will not be uneven, or the unit may be damaged, if the power exceeds $\pm 10\%$ of the rated voltage.
5. **Cleaning of the head assembly**
One of the most important factors in the determination of good tape recorder performance is regular cleaning of the head assembly. Refer to "Maintenance" on page 9 and be sure to always keep the head surfaces clean.

VOLTAGE ADJUSTMENT



LOCAL VOLTAGE	SETTING OF VOLTAGE SELECTOR
100V	90~109V
110V, 115V, 117V, 120V, 125V	110~125V
200V, 210V	200~219V
220V, 225V, 230V, 240V, 250V	220~250V

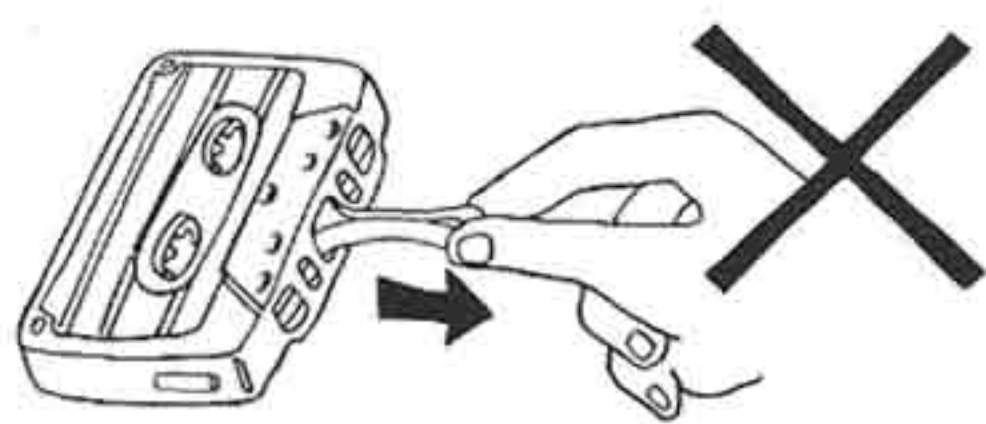
Before plugging model RS-676US into the AC outlet, make sure that the unit is properly set to your local voltage. This unit has been set to operate on the voltage indicated on the CAUTION card attached to the unit. If you use the unit in a different voltage area, readjust it to your local voltage by setting the voltage selector with a small screwdriver.

ABOUT CASSETTE TAPE

Standard type cassette tapes can be used with this unit.

Notes:

1. Never attempt to pull the tape out of the cassette openings.
2. Never try to turn the reels of the cassette tape by hand because to do so may loosen the tape. If the tape is loose in the cassette, the tape may become wound onto the pressure roller and result in breakage or damage. To tighten looseness of the tape, use a pencil as shown in the lower figure at the left.



How to correct tape slack



Use standard cassette



Do not use this type

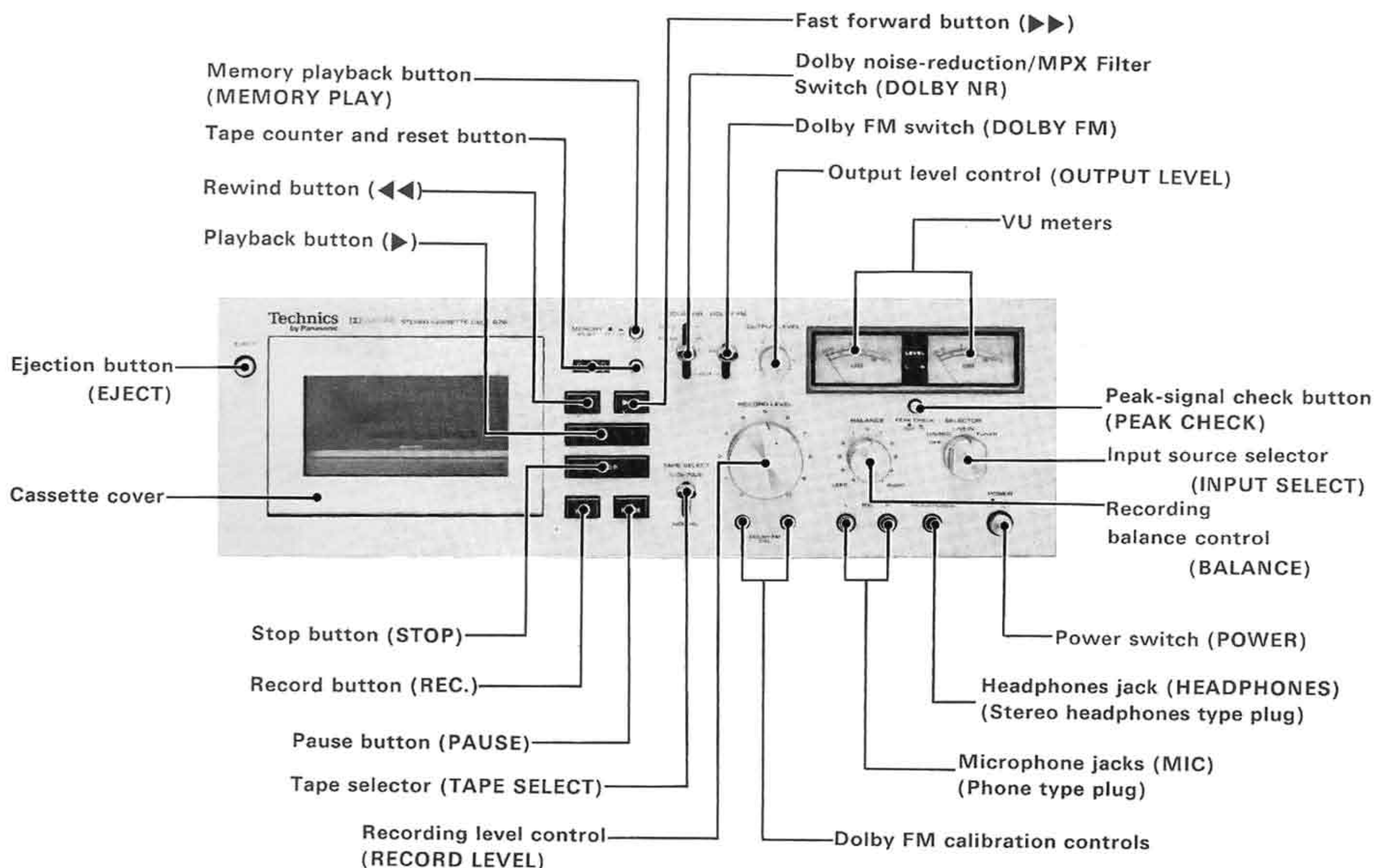
3. Avoid storing this unit in places where the temperature is high and/or where the humidity is high.
4. If the tape is very tightly wound or unevenly wound, Fast forward and then Rewind before use.

SELECTION OF CASSETTE TAPE

A wide selection of cassette tapes is available today. To make tapes longer than 60 minutes, it is necessary to use thinner tape, which is fragile and must be handled with extreme care. Because the likelihood of a cassette failure increases greatly as the playing time is increased, we strongly recommend not using tapes longer than C-90 unless absolutely necessary. Do not use C-120 and C-180 tapes with this unit. If longer than 90 minutes playing time is required, be sure to select a high quality cassette tape capable of reliable performance. 90-minute tapes will provide optimum performance with any unit.

Since dirt on the head or pressure roller can cause tape malfunctions, these parts must be kept clean, as instructed in the MAINTENANCE section.

CONTROLS



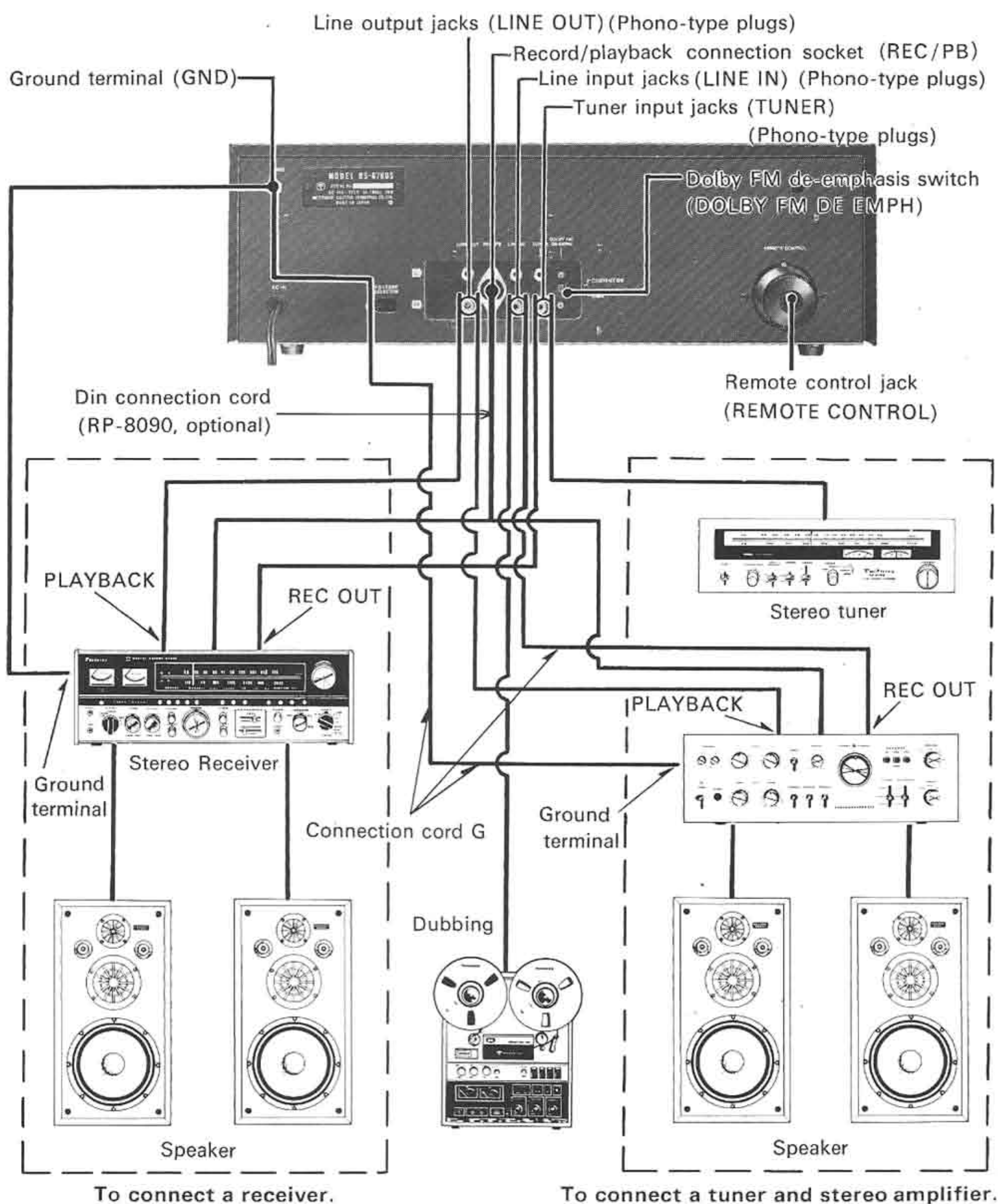
CONNECTIONS



Connection notes:

These connections can be made by referring to the connection diagram and the following instructions:

1. The ground terminal is to be used for making a ground connection if hum is heard when connections are made with other stereo equipment.
2. If a DIN connection cord is used, as described above, monitoring should be performed with headphones.
3. Note that a DIN connection cord cannot be used to connect this unit with another tape recorder because a complete circuit is not made.
4. Do not connect both a DIN connection cord and ordinary connection cords to this unit at the same time because to do so will result in abnormal oscillation from the amplifier, and recording and playback will be impossible.



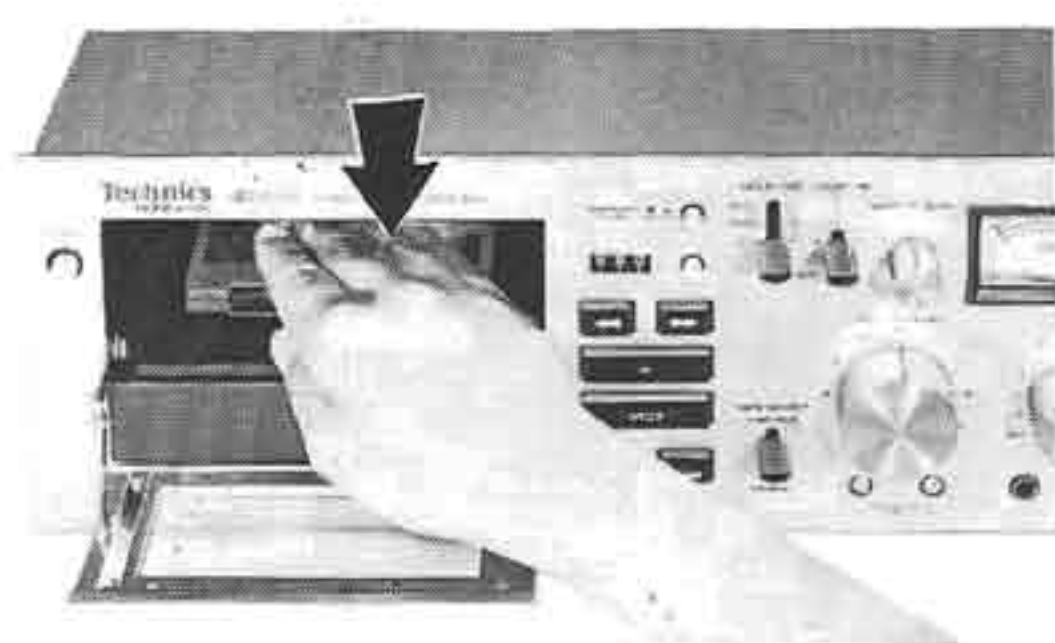
PREPARATIONS

■ To insert the cassette



Hold the cassette with the side (1 or 2, as marked on the cassette) to be played back or recorded facing upward, and holding open end toward you.

④

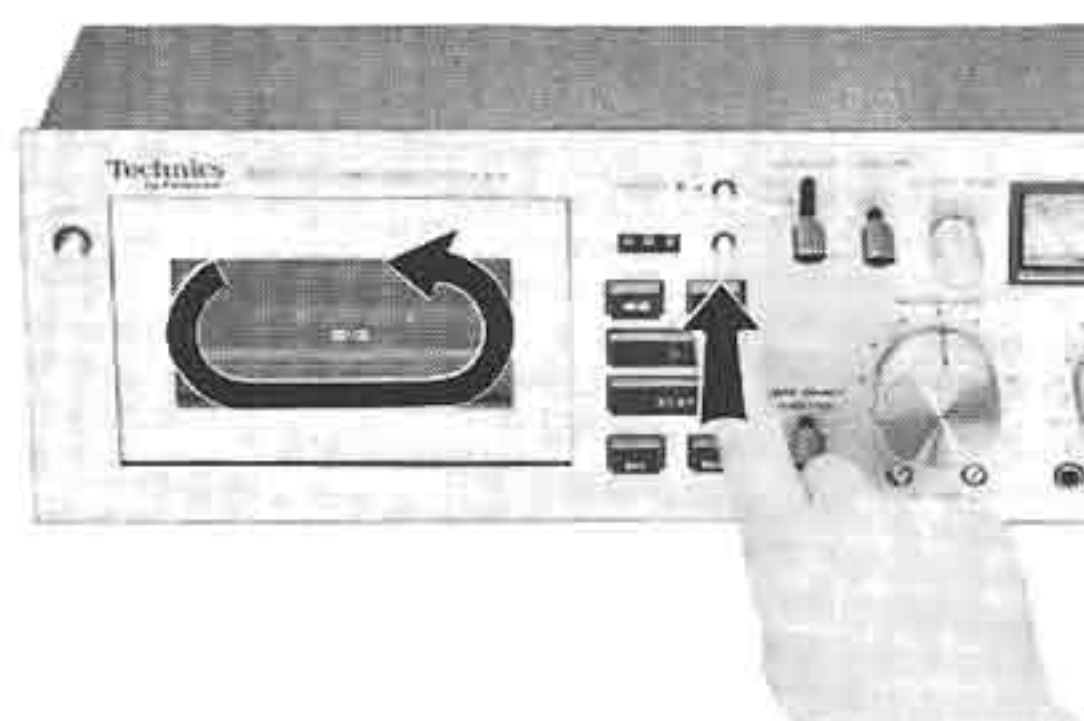


Place the cassette on the cassette holder, pushing the cassette in and down.

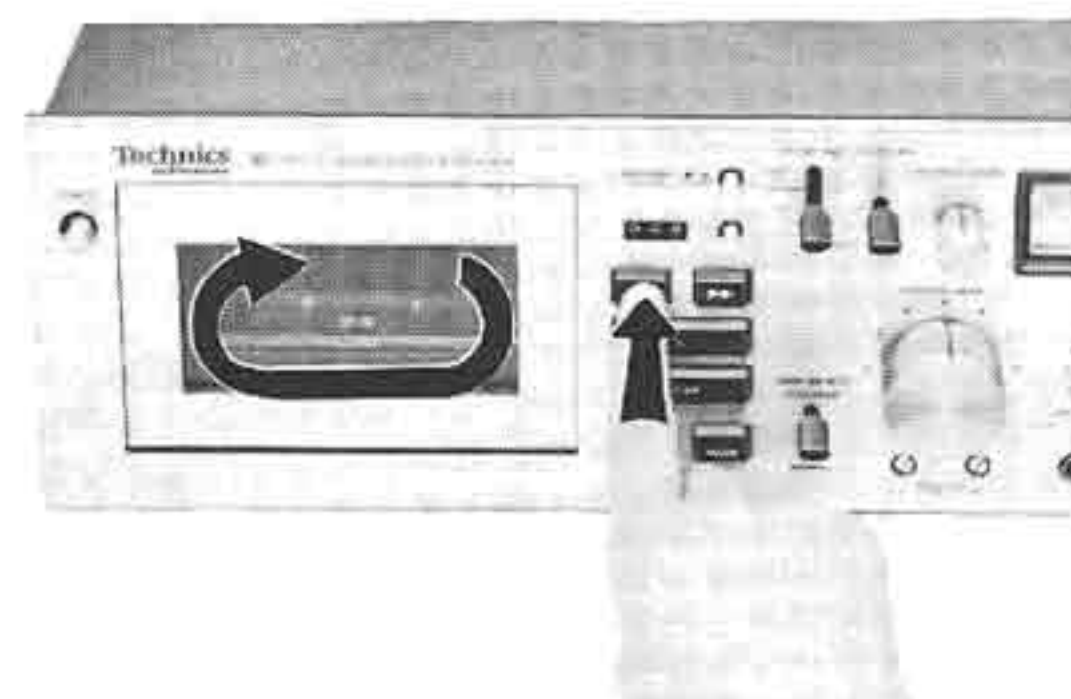
Notes:

1. Note that if the cassette (figure 4), is not inserted correctly, the unit will not operate for recording or playback, or, even though it operates, the automatic stop system will stop the tape movement soon after it starts.
2. When removing the cassette, be sure to push the Stop button before pushing the ejection button.

Fast forward



Rewind



3. If the tape reaches its end during the playback fast forward or rewind operation, the photoelectric automatic stop system operates to stop tape movement automatically. After such automatic stop, however, power is still on. Be sure to turn the power off.
4. To change from fast forward or rewind to playback, first push the Stop button. If the playback button is pushed during the fast forward or rewinding operation, it will not function.

5. If the ejection button is pushed while the tape is moving or in the Pause condition, the cassette cover will open but the tape will not be ejected.
6. Note that, when, the ejection button is pushed, the cassette cover opens slightly and must then be completely opened manually.

PLAYBACK



Playback button (▶)

1. For playback of tape recorded by the Dolby system, set the Dolby switch to the "IN" position.
2. Set the tape selector to the position corresponding to the type of tape used, as shown in the table below.
If chromium dioxide tape cassettes used with this unit have the special sensing holes (see page 9), the circuitry in this unit is automatically changed for optimum use with chromium dioxide tape, and it is not necessary to set the switch.

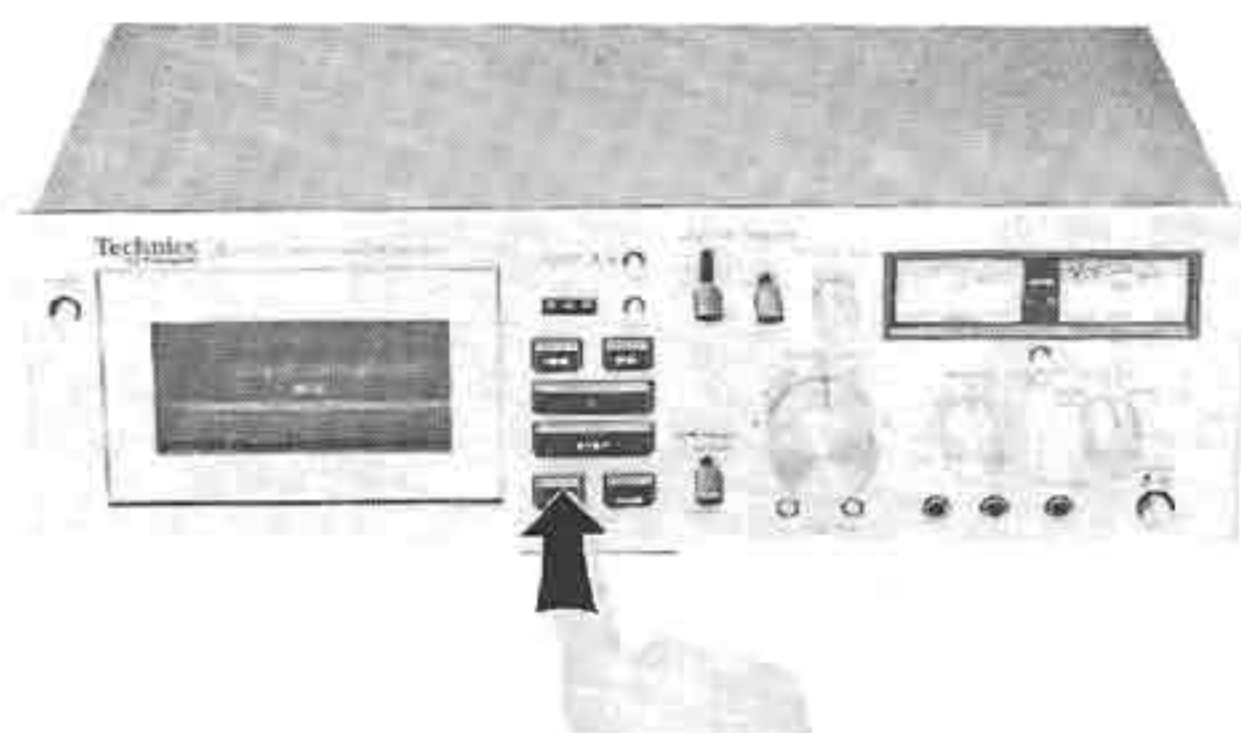
Tape	Switch position
• Chromium dioxide tape	CrO ₂ (70μS)
• Regular tape • Low-noise high-output tape	NORMAL

3. Insert the cassette for playback.
4. When the playback button is pushed, the playback indication lamp (▶) in the playback button will illuminate and the playback will begin.
5. After the playback has started, adjust the volume and the tone quality with the volume and tone controls of the amplifier to which this unit is connected. The output to the amplifier can be adjusted, if necessary, by using the output adjustment control on the front of this unit.

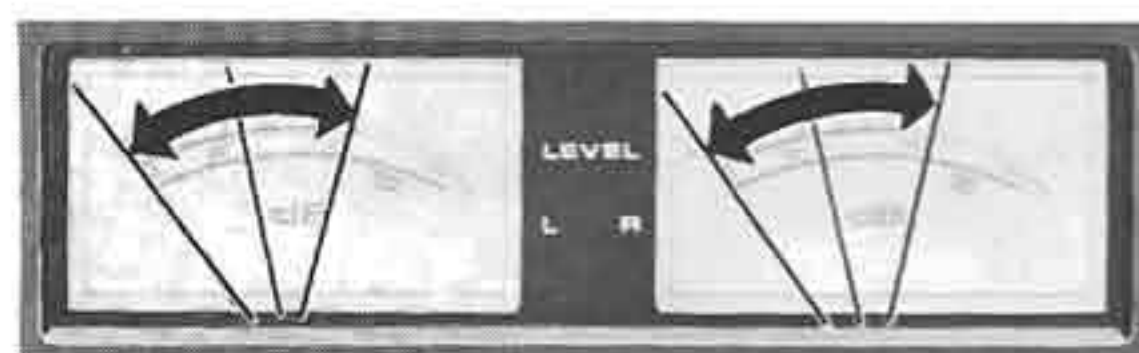
6. This unit has an automatic stop system and, when the tape reaches its end during playback, the tape transport mechanism is released automatically and the operation stops.

Notes:

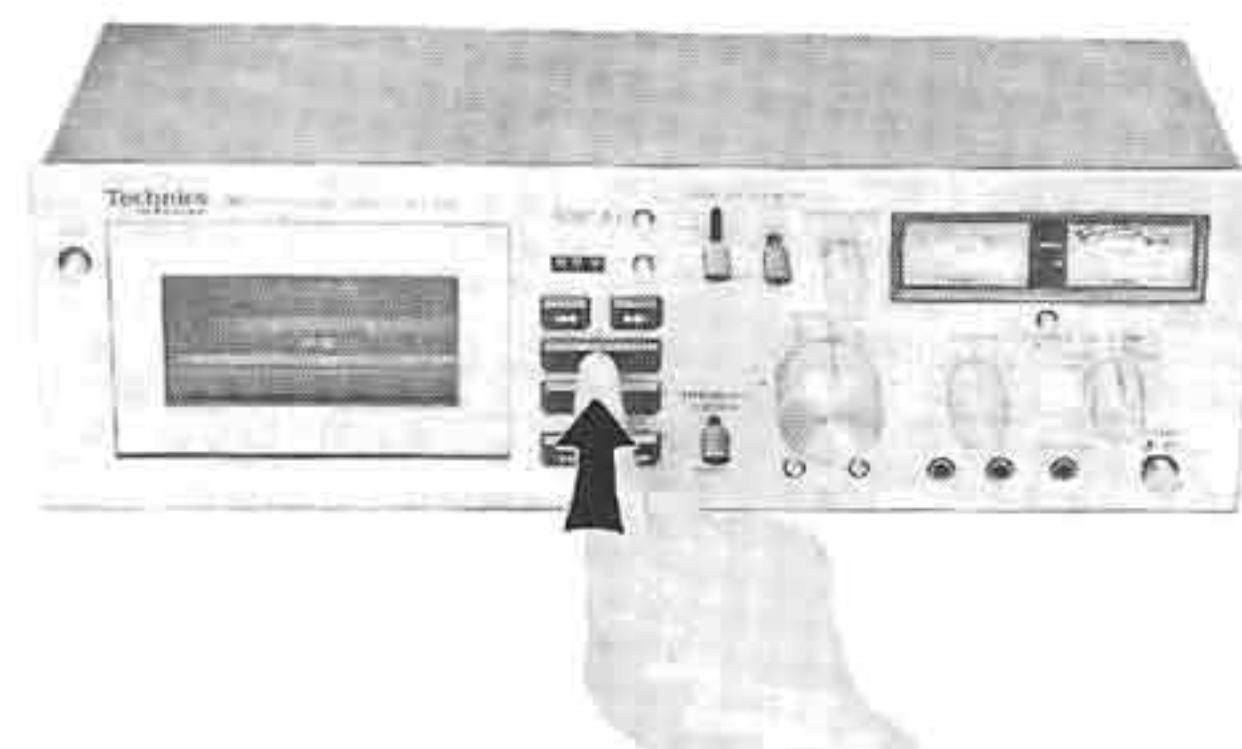
- * If, by mistake, the record button is pushed instead of the playback button, be sure to first push the stop button and then push the playback button. If the record button is pushed and then the playback button is pushed, the unit will be in the recording position and, therefore, any material on the tape will be erased.
- * Note that, the Dolby FM switch must be set to the "OUT" position for tape playback. If it is set to the "IN" position, only the sound from the equipment connected to the tuner input jacks can be heard.



Record button (REC.)



VU meters



Playback button (▶)

1. To make a recording by using the Dolby system, set the Dolby switch to the "IN" position.
2. Set the tape selector to the position corresponding to the type of tape used, as shown in the table below.

If chromium dioxide tape cassettes used with this unit have the special sensing holes (see page 9), the circuitry in this unit is automatically changed for optimum use with chromium dioxide tape, and it is not necessary to set the switch.

Tape	Switch position
• Chromium dioxide tape	CrO ₂ (70μS)
• Regular tape • Low-noise high-output tape	NORMAL

3. When using a record/playback (DIN) connector when connecting microphones to the microphone jacks (MIC) or, set the input selector to the "DIN (MIC)" position. When connecting connection cords to the line input jacks (LINE IN), set the input selector to the "LINE IN" position. When connections are made to the tuner input jacks, set the input selector to the "TUNER" position. When erasing the tape without recording any new sound, set the input selector to the "OFF" position.
4. Insert the cassette on which the recording is to be made.

Note:

Be sure to use a cassette which has erase prevention tabs. If the cassette does not have these tabs, the recording pilot lamp in Rec button will not illuminate even though the record button is pushed and no recording can be made. (Refer to "Accidental erase prevention" on page 7).

5. When the record button is pushed, the recording pilot lamp (●) will illuminate and the unit is in the recording mode.

6. The recording level can be adjusted by sound from the source from which the recording is to be made. Adjust the recording level controls so that the indicators of the level meters fluctuate within the range shown by the arrows. In the illustration of the VU meters above.

7. For a stereo recording, correct the difference, if any, between the left and right levels by using the balance control.

For a monaural recording, turn the balance control completely to the left (or right) side, whichever is used.

When connecting cords to the line input jacks or the tuner input jacks, adjust with the Recording level control and the balance control. When connecting microphones to the microphone jacks, adjust with the microphone level controls.

Note:

If the microphone jacks are not used, set the Mic level controls to the minimum.

8. After this adjustment is completed, push the Playback button. The tape will then begin to move and the recording will start.

Note:

To record, push the record button first and then the playback button. It is not necessary to push both the record button and the playback button at the same time.

9. When the tape reaches its end, the automatic stop system of this unit operates to stop the tape and return the unit to the stop condition. To stop before the end of the tape is reached, push the stop button.

■ Pause

The pause button (PAUSE) can be used to temporarily stop recording or playback. If the switch is pushed to the LOCK position, tape movement stops instantly, the recording or playback indicator is extinguished, and the pause indicator illuminates. To resume recording or playback push the button again to the OFF position.

Note:

If the pause button is pushed to the OFF position while the unit is stopped, the tape will begin moving just as if the PLAY button had been pushed.

■ Monitoring

"Monitoring" means to listen to the sound while it is being recorded by using headphones. This is very convenient to actually aurally confirm that the material is being recorded correctly.

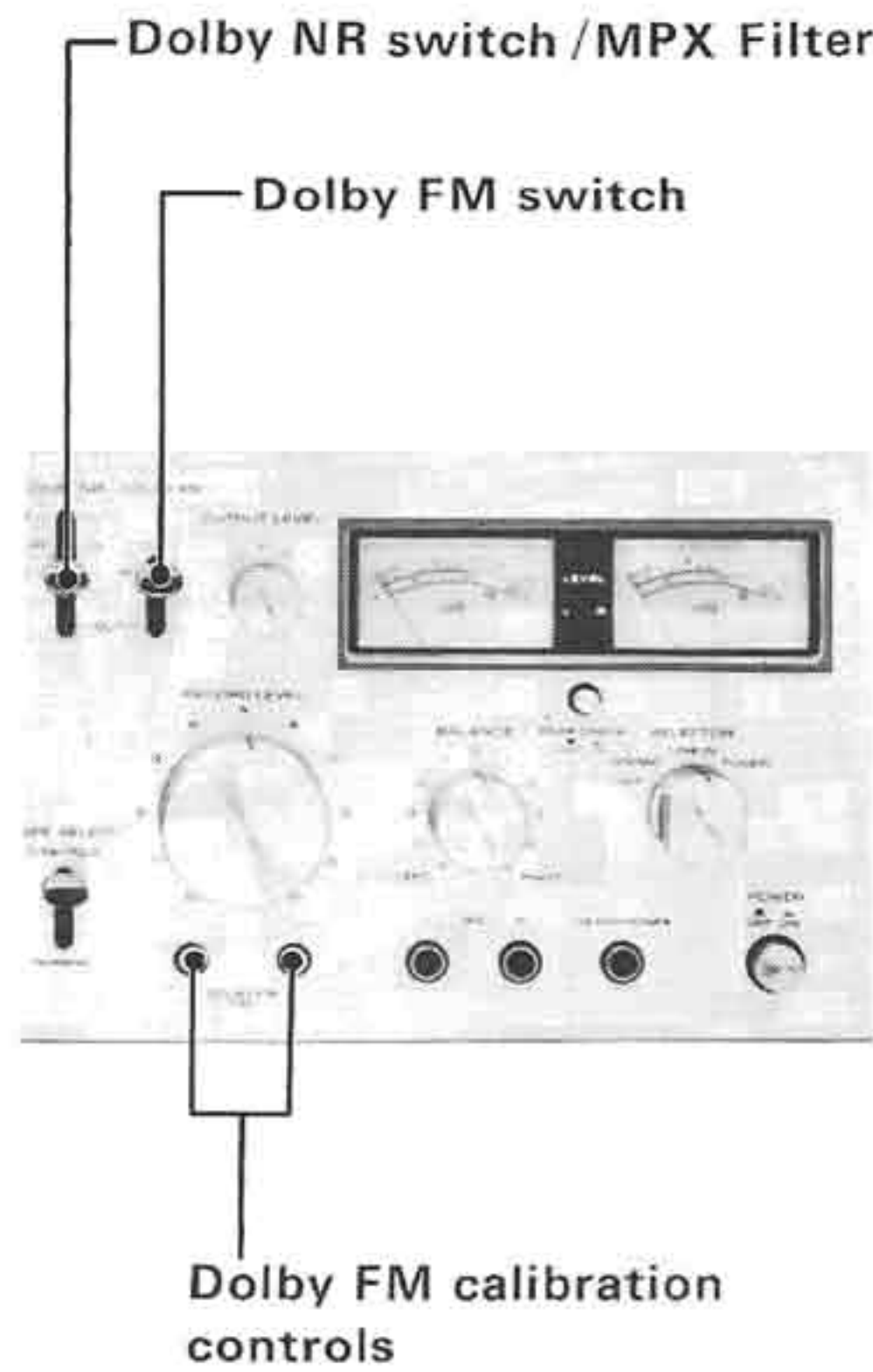
1. Connect stereo headphones (8Ω) to the headphones jack (HEADPHONES).
2. Monitoring is also possible by connecting the stereo amplifier, in the same way as for playback.

■ How to use the peak-signal check button

- Because ordinary level meters have a delayed operation for electrical and mechanical reasons, they cannot indicate the peak values of sudden short bursts of sound, and indicate only the average sound strength. These sudden short bursts of sound, therefore, are actually received at a much larger level than the value indicated by the meter. This unit, however, has a peak-signal check button which, if set to the IN position, indicates the peak value of these sudden sounds.

To use the peak-signal check button, set it to the OUT position, and adjust the level, by using the recording level control, so that the indication needle doesn't exceed the 0 dB indication. Then set the button to the IN position and, if the needle exceeds the +6 dB position, reduce the level so that it does not exceed the maximum position (+6 dB) even when such sudden sharp bursts of sound are received.

DOLBY RECORDING AND PLAYBACK
OF A DOLBY FM BROADCAST



Recording

- 1. Set the Dolby FM switch to the "IN" position.
- 2. Set the Dolby NR switch to the center position.
- 3. Adjust the left and right Dolby FM calibration controls to make individual adjustments of the set level, which is received in the Dolby FM broadcast, so that the indicator needles of the level meters point to the  mark.

Note:

- When the Dolby FM switch is set to the IN position, only the sound source which is connected to the TUNER INPUT terminal will be recorded, regardless of the setting of the input selector.
 - Don't move the Dolby FM calibration controls after they have been once adjusted.
 - The input level may, however, change depending upon the broadcasting station. If so, use the Dolby FM calibration controls to make the necessary adjustment.
- 4. Push the record button in order to place the unit in the recording mode.
 - 5. Push the playback button to begin recording.

Playback

According to the instructions given in the "Playback" section on page 4.

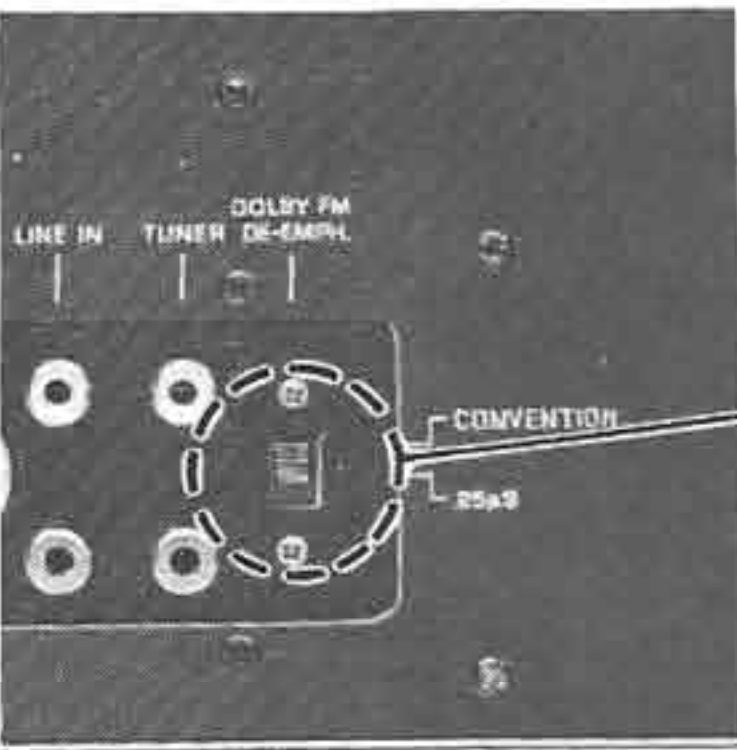
- When using the RS-676US for decoding of Dolby FM broadcasts, follow the instructions given in steps 1 to 3 above.

To use as a decoder

- 1. Set the Dolby FM switch to the "IN" position.
- 2. Set the Dolby NR switch to the center position.
- 3. Set the tape monitor switch of the amplifier (or receiver) to the TAPE position.

How to set the Dolby FM de-emphasis switch

This switch has no effect except when the Dolby FM switch is set to the "OUT" position. Set the Dolby FM de-emphasis switch of this unit, as described below, according to such conditions as the pre-emphasis time constant of the Dolby FM broadcast and the de-emphasis time constant of the tuner to be used.

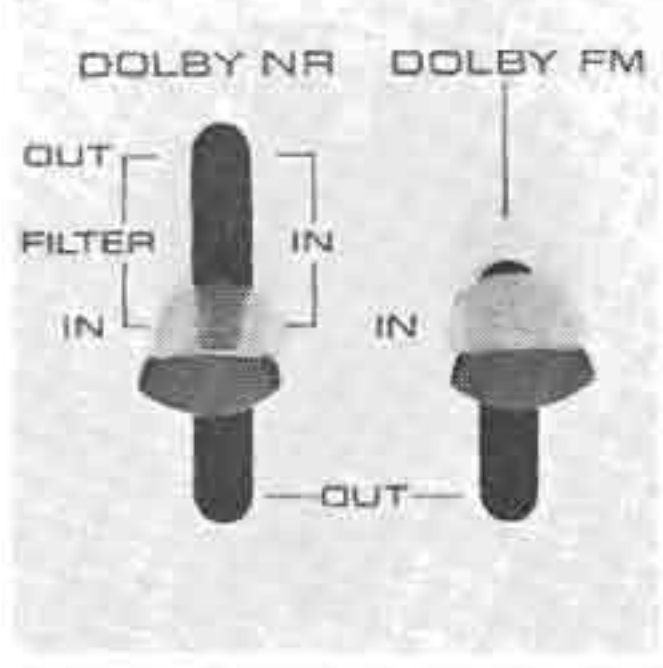
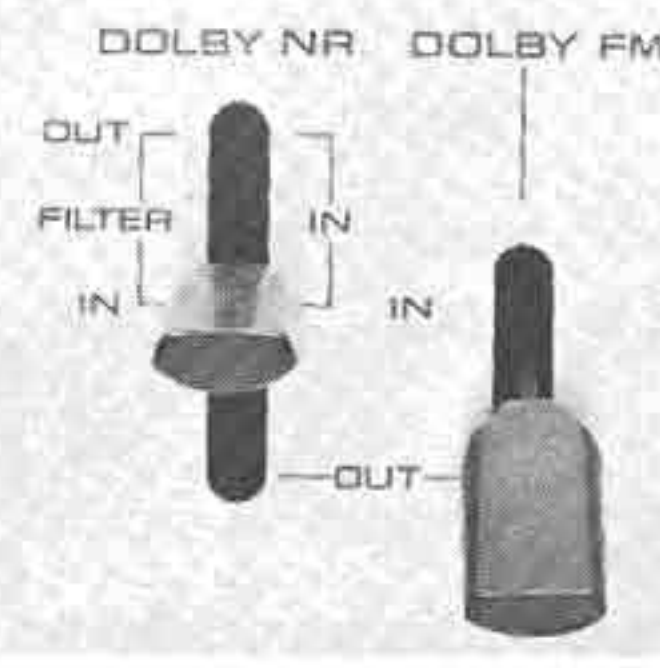
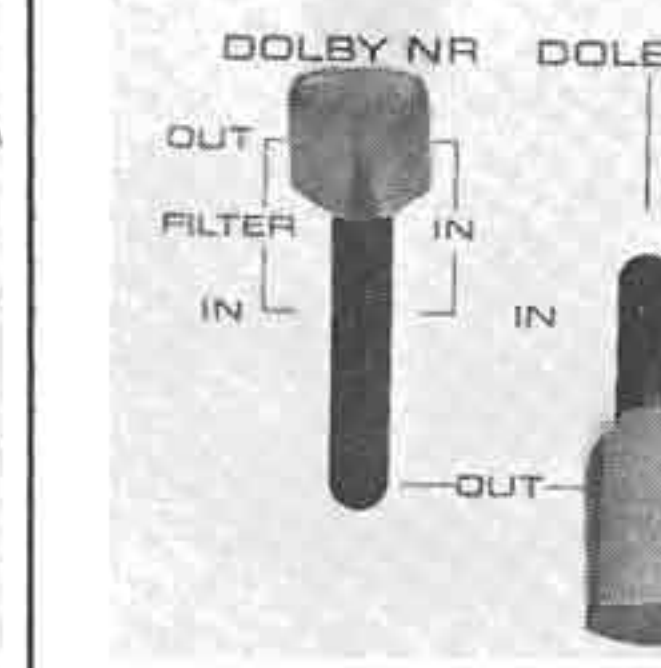
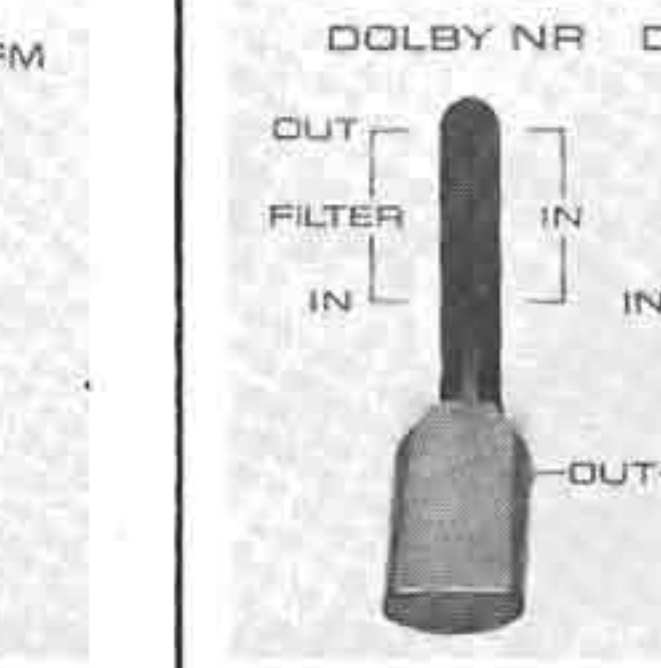


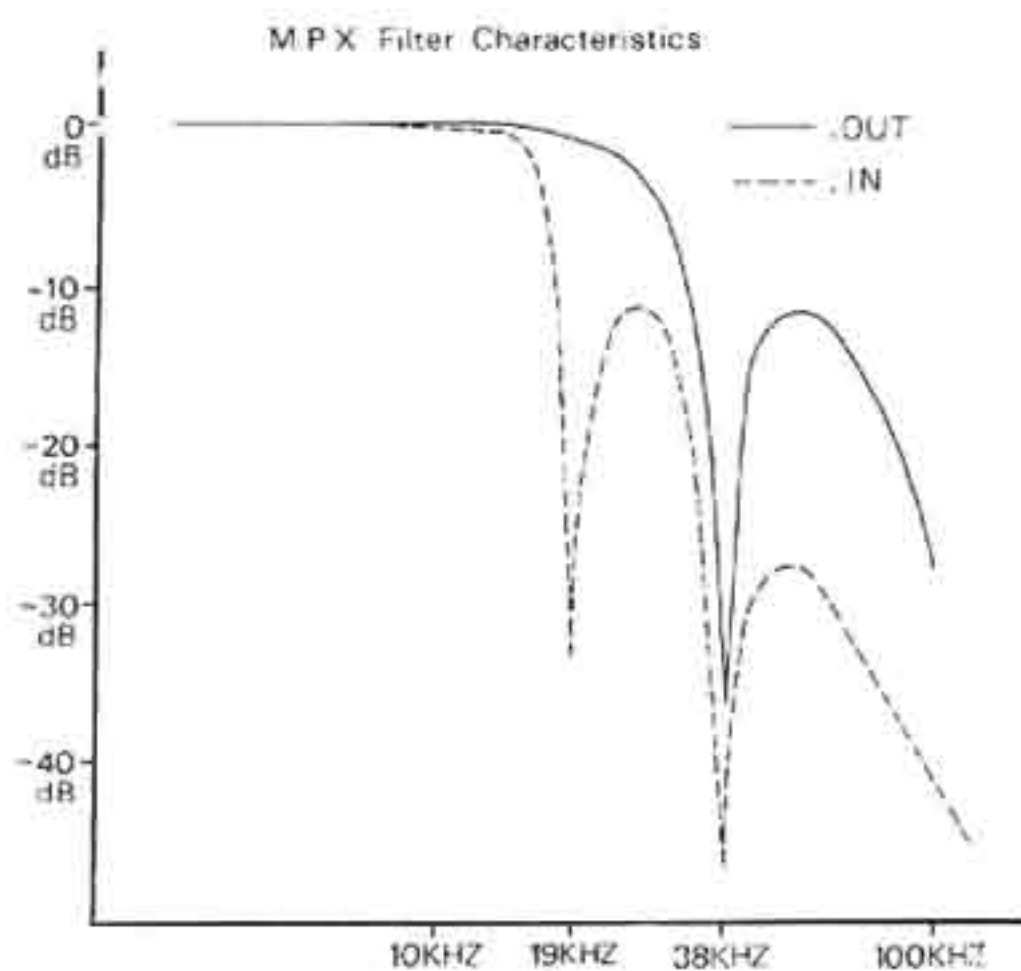
TUNER de-emphasis time constant \ Pre-emphasis time constant of the Dolby FM broadcast	Ordinary tuner CONVENTIONAL (Without de-emphasis time constant selection switch)	Tuner with de-emphasis time constant selection switch	
		CONVENTIONAL position	25µS position
CONVENTIONAL	CONVENTIONAL	CONVENTIONAL	※
25µS	25µS	25µS	CONVENTIONAL

※ If the pre-emphasis time constant of the Dolby FM broadcast is conventional, be sure to set to the CONVENTIONAL position (if the tuner has a de-emphasis time constant selection switch).

 Shown the position of the Dolby FM de-emphasis switch of the deck.

HOW TO USE THE DOLBY FM SWITCH AND THE DOLBY NR SWITCH

	(1)	(2)	(3)	(4)
Switch positions				
Objective	- To make a Dolby recording of a Dolbyized FM broadcast (monitored sound, however, is ordinary sound). - To use this unit as a Dolby decoder.	- To make a Dolby recording of an ordinary (non-Dolbyized) FM broadcast. - To make a Dolby recording of a CD-4 disc.	- To make a Dolby recording of sound sources other than those described in (1) and (2), such as regular stereo discs. - To playback Dolby recorded tape.	For regular (non-Dolbyized) recording and playback.

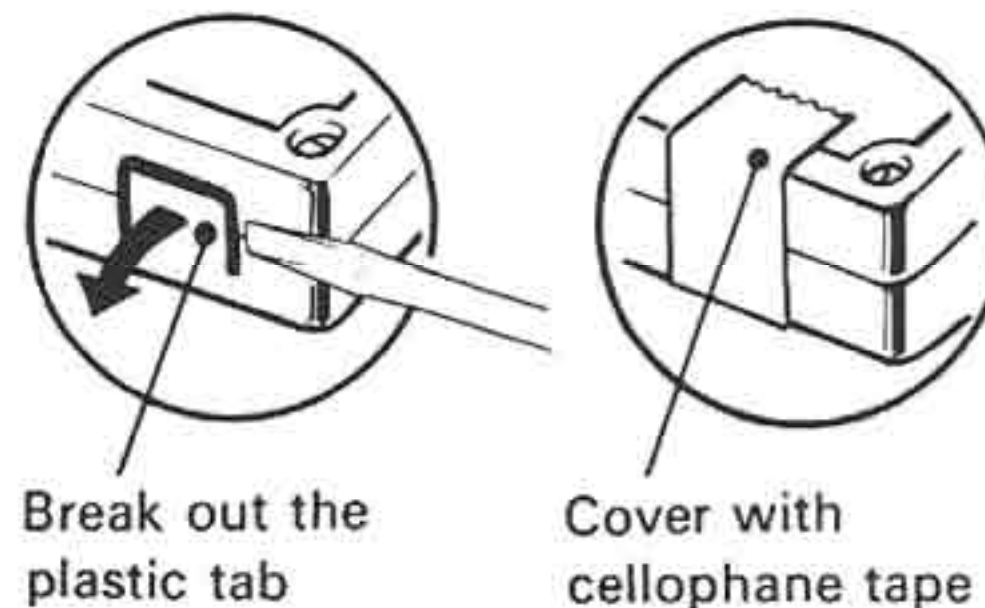
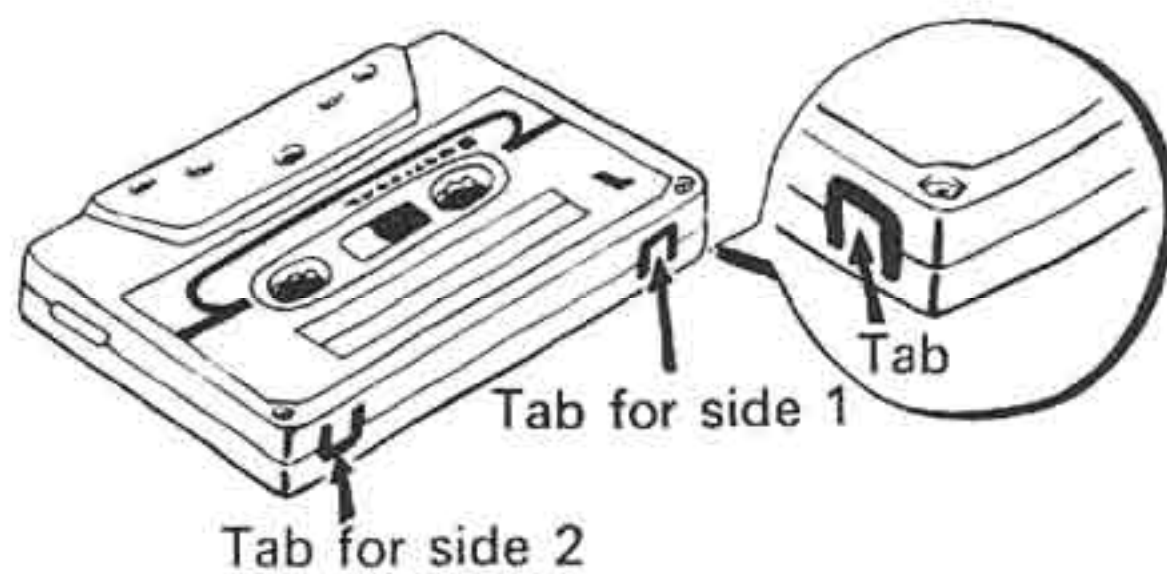


■ Multiplex filter

The multiplex filter is a filter with sharp characteristics, characteristics which are flat up to 15 kHz, and therefore causing no effect on the Dolby level, and which cut the 19 kHz

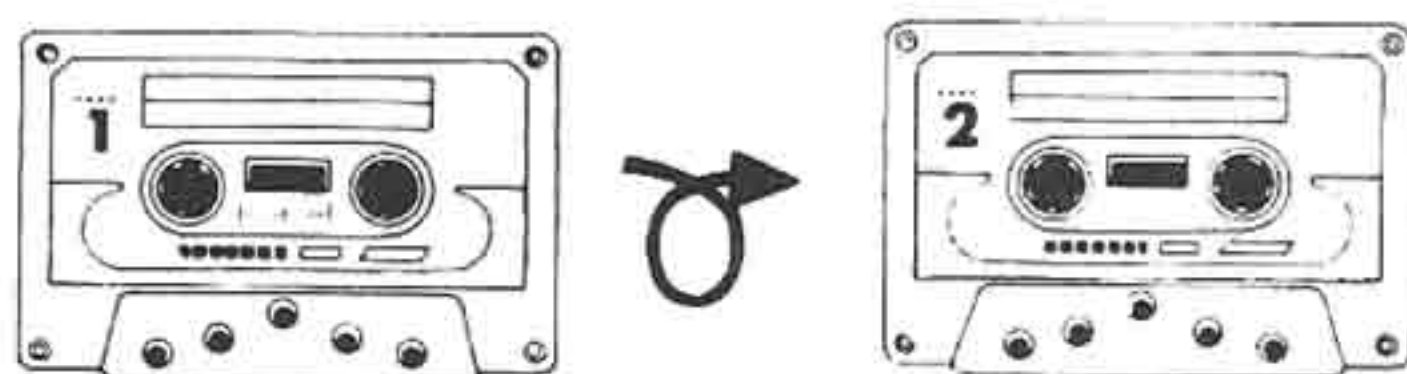
and 38 kHz signals by more than 30 dB so that the Dolby level won't be influenced, during Dolby recording, by the 19 kHz pilot signal leaking from an FM tuner or the carrier signal of CD-4 records.

RECORDING NOTES

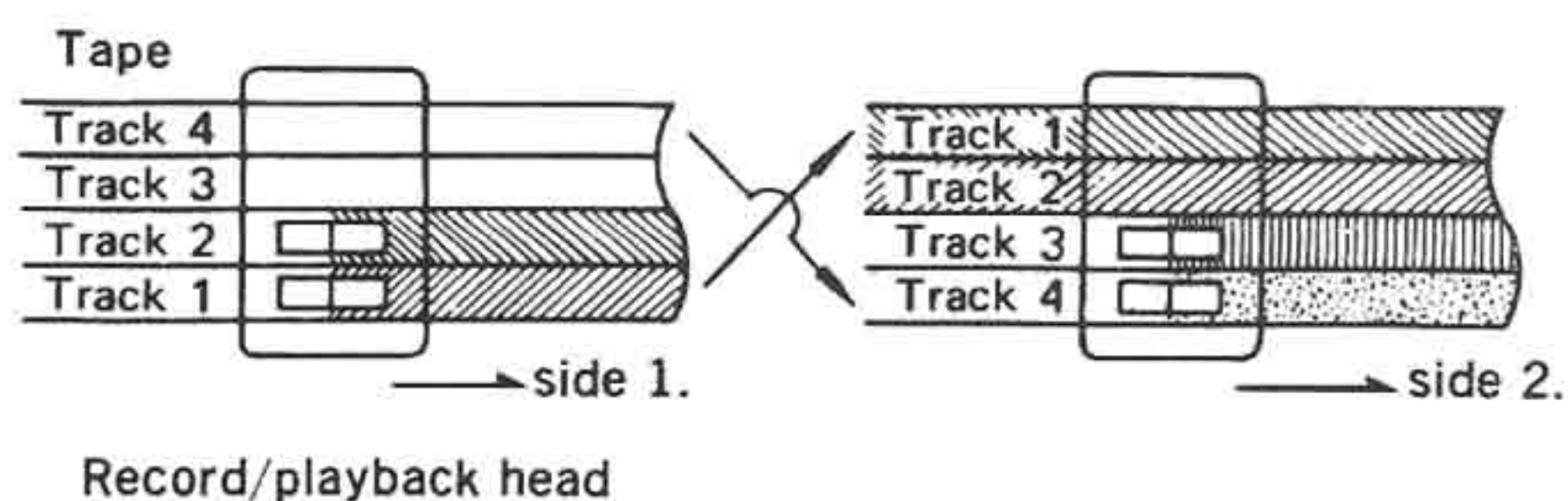


■ Accidental erase prevention

Tape cassettes have special plastic tabs, one each for side one and side two, which, if removed, prevent accidental erasure of recorded material. These tabs can be broken out with a screwdriver or similar tool. If they are broken, note that, for this unit, the recording pilot lamp will not illuminate even if the record button is pushed, thus indicating that a recording cannot be made. If, for any reason, it is later desired to make a recording on a cassette from which the tabs have been broken out, it is possible to do so by simply covering the holes where the tabs were with cellophane tape and recording in the usual way.



Turn over

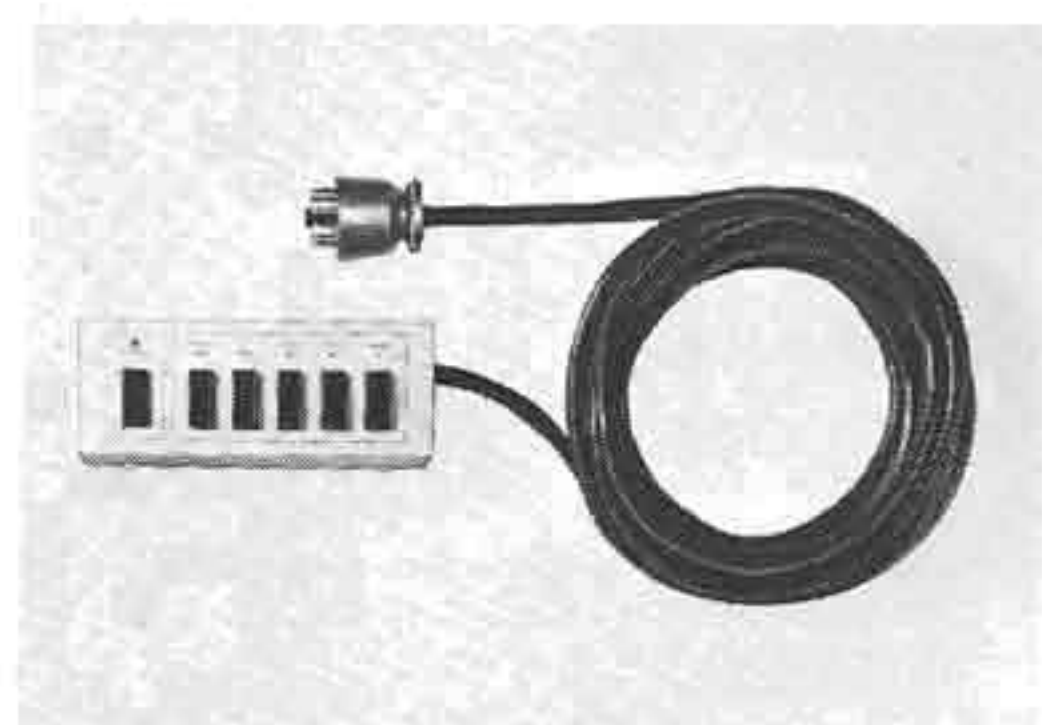


Record/playback head

■ Round-trip recording

This cassette stereo tape deck has a 4-track system so that the lower half of the tape width is recorded. Round-trip recordings can be made in the following way. Tracks 1 and 2 are recorded first, as shown in the figure. When the tape reaches its end, turn it over and re-insert it. Record in the same manner as before. Tracks, 3 and 4, will then be recorded.

* Although this cassette stereo tape deck has a 4-track system, tracks 1 and 2, or tracks 3 and 4, can't be recorded separately.



RP-9275 (Optional)

■ Remote control

If the optional remote control unit (RP-9275) is connected to the remote control jack on the rear of the unit, recording, playback and pause operations can be performed from a distance. Refer to the operation instructions of the remote control unit for additional details. Remote control unit RP-9275 can be performed as far away as 17 feet.

■ Erasing

When a new recording is made, all previous recordings on the tape are automatically erased, and only the new recording remains. To erase a previous recording without making a new one, disconnect all sound sources, such as microphones, set the input selector to the "OFF" position, and operate the unit in the same way as for recording. To erase both sides, follow this procedure for both sides of the tape.

■ "Memory Playback"

The "Memory Playback" system can be used to automatically stop the tape, during rewinding, at any desired place, and to begin playback from that position.

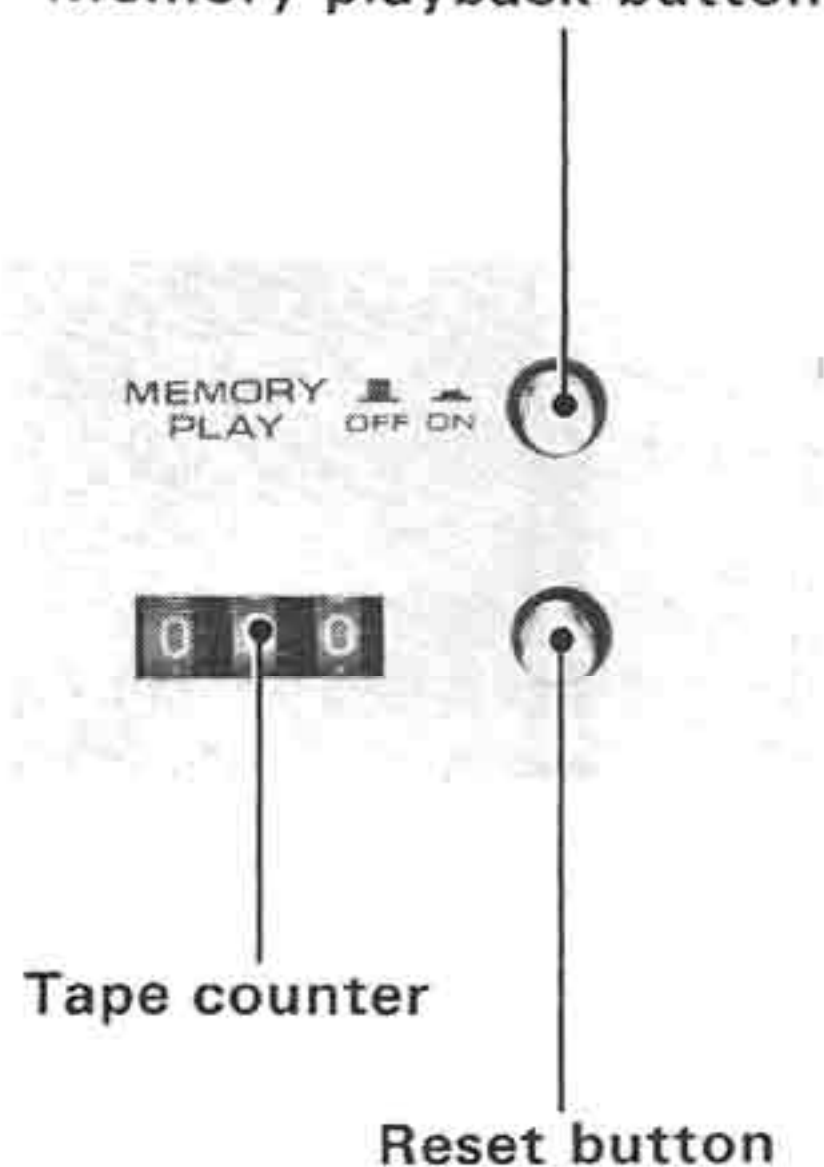
Uses of the "Memory Playback" system

1. To immediately playback from the beginning of any portion which has just been recorded.
2. To playback from the same position repeatedly.

How to perform "Memory Playback"

1. If the reset button of the tape counter is pushed at the desired position (at the position, for example, where you want to begin the playback of the tape after rewinding it) while playing back or recording, the digits of the tape counter are reset to the "000" position.
2. At the same time, the Memory Playback button should be pushed to the ON position.

Memory playback button

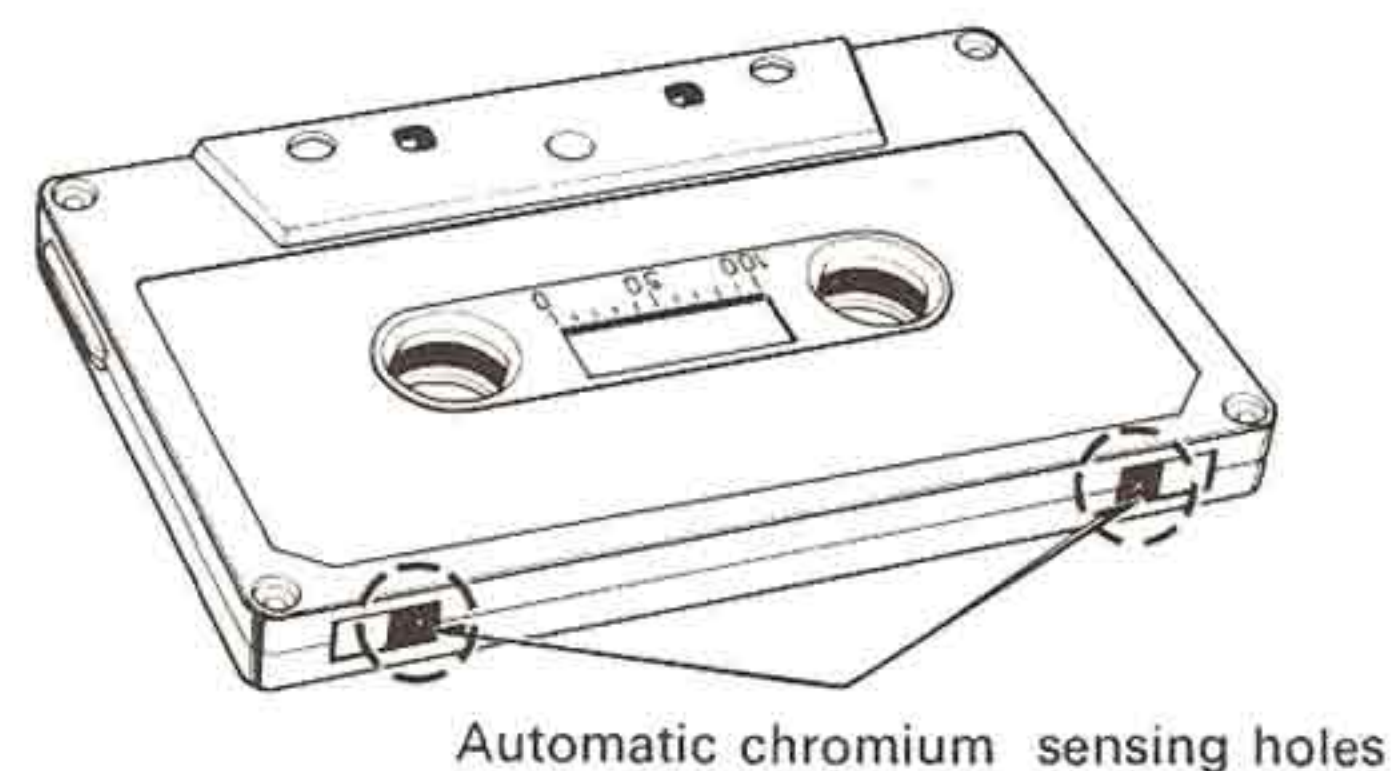
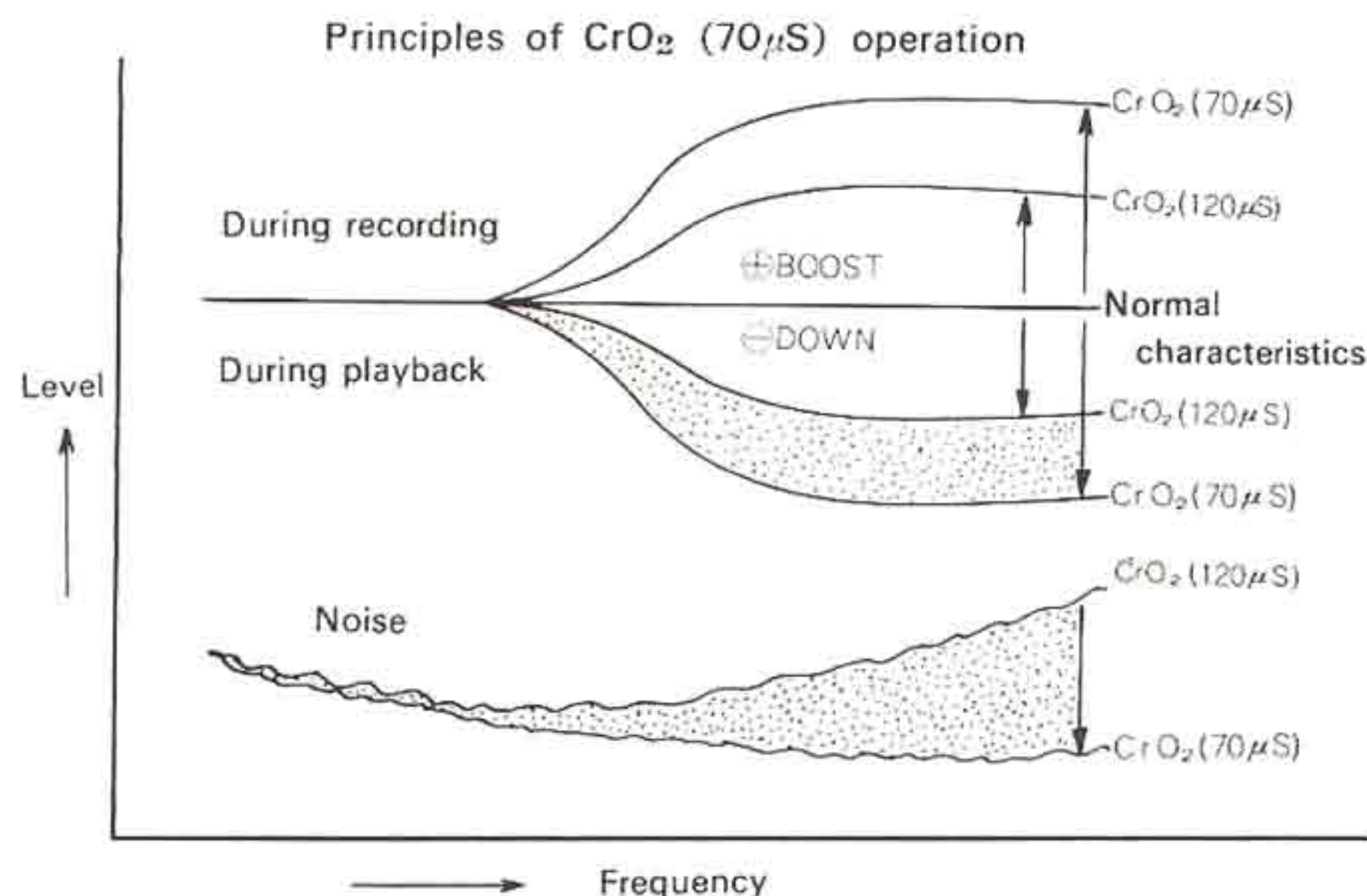


Tape counter

Reset button

3. Then, by simply pushing the rewind button, the tape can be automatically stopped, at a position slightly prior to the "000" position of the tape counter, in order to begin playback.
4. Note that the "Memory Playback" system automatically operates and the tape is immediately played back under the following conditions:
 - If, during rewinding, the memory playback switch is set to the ON position at any number between "900~999" of the tape counter.
 Because the memory playback system is functioning, the tape will not stop for 2 or 3 seconds, even if the stop button is pushed, after the unit resumes playback operation.
5. If the pause button is pushed to set it to the ON position, the tape can be automatically stopped slightly prior to the "000" position of the tape counter, and playback will not begin.

CHROMIUM DIOXIDE TAPE



■ The tape selector

In order to assure the best performance when using chromium dioxide tape:

1. Playback equalization,
2. Record equalization and
3. Record bias

can all be changed at the same time by using the tape selector.

As a result, chromium dioxide tape can be used to obtain clear tone quality, with less noise, and a wide dynamic range. Furthermore, although a time constant of 120μS has previously been used in tape recorders designed

for use with chromium dioxide tape, this unit uses a time constant of 70μS in order to obtain much better performance from chromium dioxide tape.

■ Automatic chromium dioxide tape selector

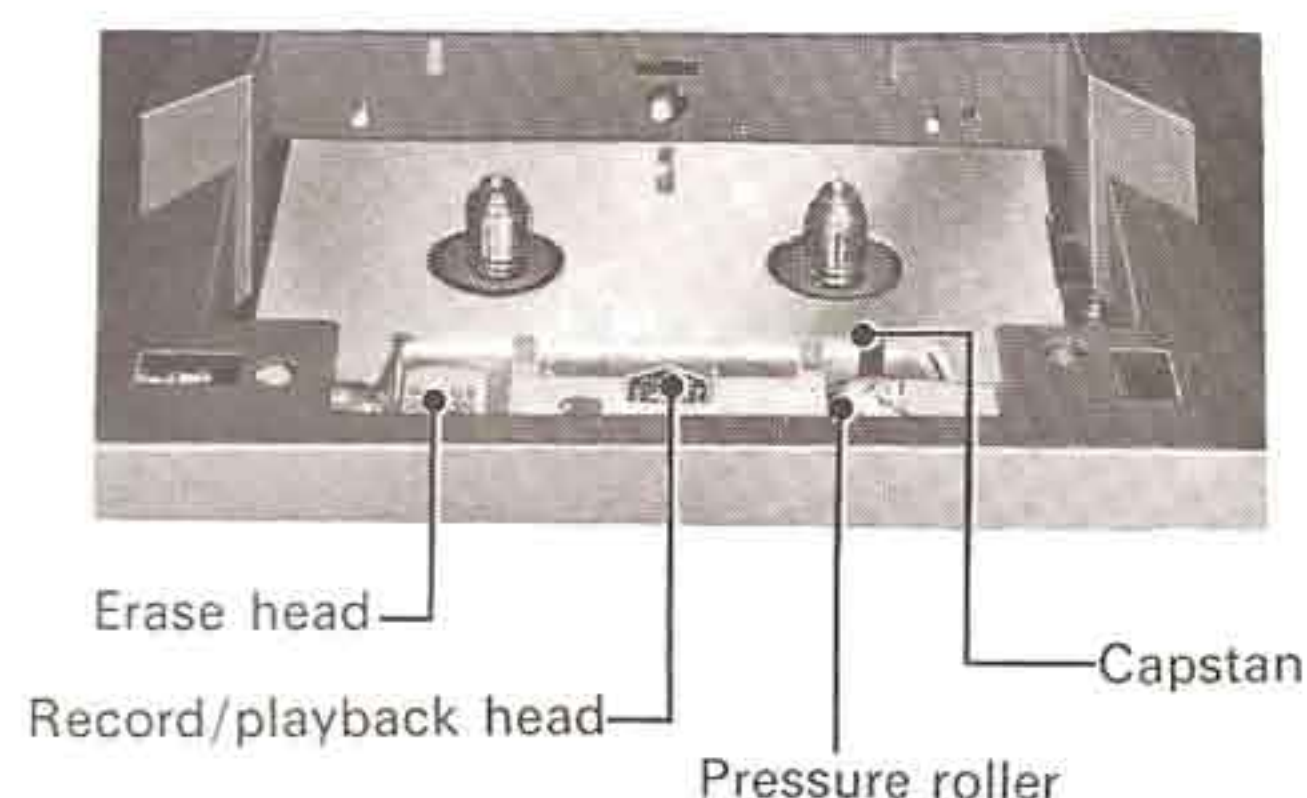
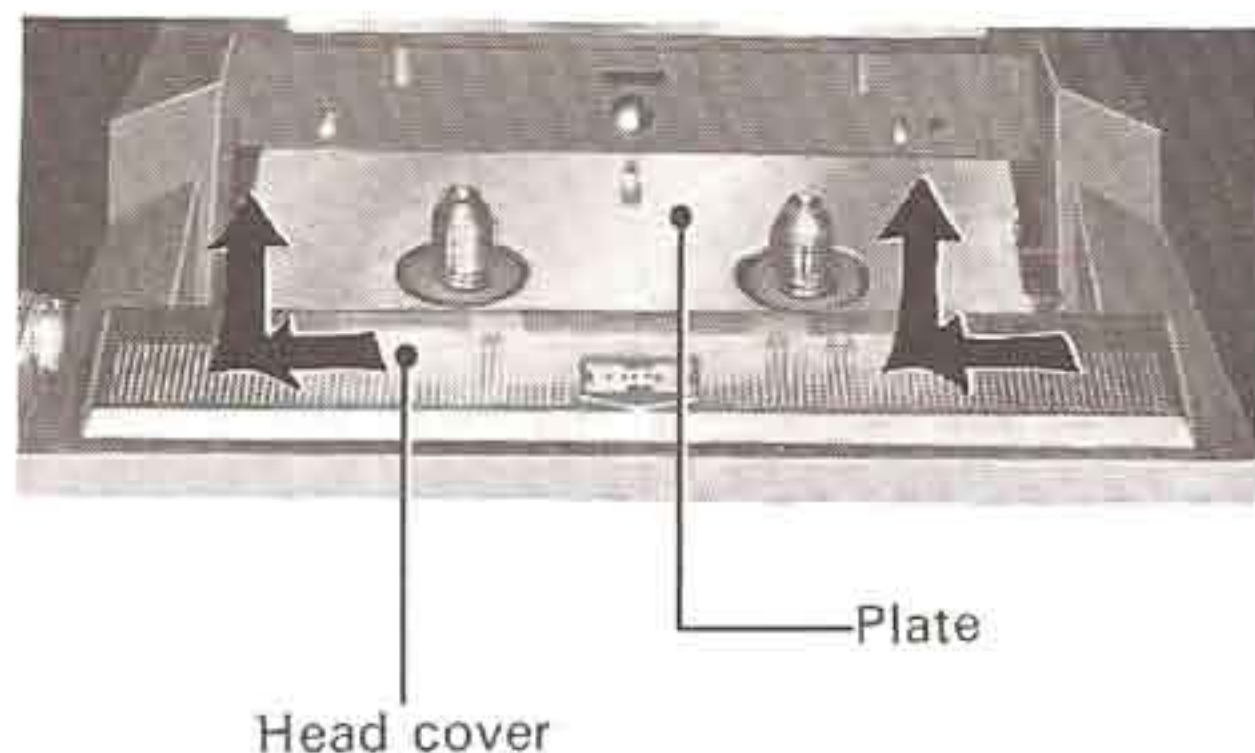
If the chromium dioxide tape cassettes have the special sensing holes (see illustration) which automatically set the tape selector to the CrO₂ (70μS) position.

- Note that, if chromium tape (in a cassette with special sensing holes) which has been recorded on a tape recorder with 120μS characteristics is played back on this unit, the sound will be slightly different from the original.

■ Recommended tape

	NORMAL position	CrO ₂ (70μS) position
BASF	LH	CHROM DIOXID
PHILIPS		CHROMIUM DIOXIDE
SCOTCH	High Density	
TDK	SD	KR
SONY	HF	CHROMI

MAINTENANCE



Because the tape is in constant contact with the head assembly, the capstan and the pressure roller, any foreign material, such as tape residue, which accumulates on these parts adversely affects the sound quality and volume, and results in uneven sound, noise and deterioration of frequency characteristics. It is imperative, therefore, that nothing be on the head surfaces which may impair the excellent sound quality and characteristics of this unit. To assure the finest tone quality, it is recommended that the head assembly surfaces and the pressure roller be cleaned before every use.

1. Push the ejection button to open the cassette cover.

Then push down the plate, as it would be if a cassette were inserted.

2. To make the cleaning of the head much easier, slide the head cover to the left, pull it up and remove it. (To put it back in place, simply press it gently.)
3. Wipe the heads, capstan and pressure roller with a soft cloth or cotton swab. (Note that there is a mirror in the tape slot to facilitate cleaning.) If the surfaces are extremely dirty, apply a slight amount of alcohol to the cloth.

Notes:

1. Do not bring iron or magnetic objects, such as a screwdriver, near the head assembly. If the heads become magnetized, it may produce noise.
2. Clean the head gently, without applying too much pressure.

■ Maintenance of the cabinet

Wipe the cabinet with a soft cloth. Do not attempt to clean the cabinet with chemicals such as benzine or thinner, or use insecticide, because it may damage the finish.

TROUBLESHOOTING

If operation of this unit does not seem normal, check the following points before requesting service. If the trouble cannot in this way be determined and corrected, contact your nearest Authorized Servicer or the dealer from whom it was purchased.

1. After the tape cassette is inserted, the tape does not move when the playback button is pushed.

- Is the power cord correctly connected?
- Is the power switch set to the ON position?
- Is the pause button released?
- Is the cassette inserted completely?
- Is the dummy plug, which should be plugged into the Remote Control jack, connected completely?

2. Although the tape moves, no sound is heard.

- Is the tape blank?
- Are the connections of amplifier and speakers correct?
- Are connection cords from this unit to the amplifier correctly connected?
- Is the volume control of the connected amplifier set to the correct position?
- Is the monitor switch of the connected amplifier set to the correct position?
- Are the Output Level Controls of this unit set to the minimum position?

3. Sound is distorted.

- Is the recording level too high?
- Is the playback output level too high?
- Is the input impedance of the connected amplifier appropriate?

4. The recording indicator does not illuminate when the record button is pushed.

- Has the recording-prevention tab of the cassette been removed?
- Is the cassette inserted completely?
- Is the unit in the playback condition?

5. Playback sound is hoarse or vibrates. Recorded sound is not clear.

- Are the head surfaces dirty?
- Is foreign material adhered to the pressure roller and/or the capstan?

6. The tape doesn't move when the remote control unit is used.

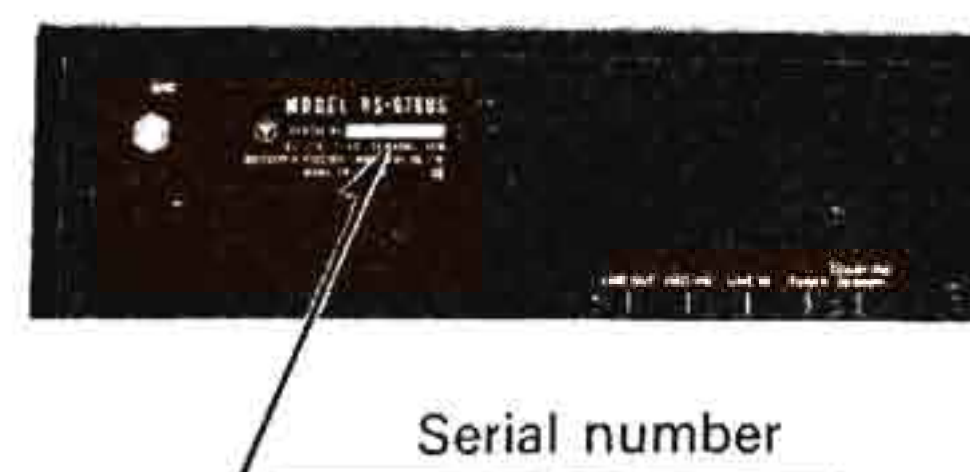
- Is the connection made correctly?
- Is the pause button (of the main unit) set in the pause condition?

WARRANTY

Your "Technics by Panasonic" WARRANTY covers ONE YEAR PARTS, except appearance items, and 90 DAYS' LABOR at an authorized Panasonic Servicer only, subject to the terms of the Warranty. The HPF head of this unit is guaranteed for 10 years. Read your warranty card completely.

Product Service

Should your "Technics by Panasonic" product ever require service, refer to the Directory of Authorized Servicers, or your franchised Panasonic dealer, for guidance. Do not send the unit to the Panasonic head office for repair.



Serial number

SPECIFICATIONS

Track System:	4-track 2-channel stereo recording and playback	Output:	LINE; output level 0.42V (at OVU max.)/load impedance 50k Ω over
Recording System:	AC bias (90 kHz), AC erase	HEADPHONE:	output level 65mV/8 Ω
Tape Speed:	1 $\frac{7}{8}$ ips.	REC/PB Connection:	5P DIN type
Program Time:	1 hour stereo recording with C-60 cassette tape	Motor:	2-motor system 1-Electronic speed control motor for capstan drive 1-DC motor for reel table drive
Wow and Flutter:	0.063% (WRMS), $\pm 0.15\%$ (DIN)	Head:	HPF head for rec/playback $\times 1$ Ferrite head for erase $\times 1$
Frequency Response:	normal tape; 20~16,000 Hz (MPX filter OUT) 25~14,000 Hz (DIN) 30~13,000 Hz (± 3 dB) CrO ₂ tape; 20~18,000 Hz (MPX filter OUT) 25~15,000 Hz (DIN) 30~14,000 Hz (± 3 dB)	Fast Forward and Rewind Time:	Approx. 80 second with C-60 cassette tape
Signal to Noise Ratio:	DOLBY NR out; 52 dB (Signal level=250 PWb/mm) DOLBY NR in; 62 dB at 10 kHz	Power Requirement:	AC: 90~109/110~125/200~219/220~250V, 50/60 Hz IN ASIA: PRE-SET 110~125V IN EUROPE: PRE-SET 220~250V
Harmonic Distortion:	2.0% (OVU at 1,000 Hz)	Dimensions:	Power consumption; 38W 5 $\frac{1}{2}$ " (H) $\times$ 6 $\frac{3}{8}$ " (W) $\times$ 14 $\frac{3}{8}$ " (D)
Input:	MIC; sensitivity 0.3mV/applicable microphone impedance 150 Ω ~20k Ω LINE; sensitivity 60 mV/110k Ω TUNER; sensitivity 100 mV/190k Ω	Weight:	23 $\frac{1}{8}$ lbs.

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