TEAC®

A-3300S

Stereo Tape Deck

You have made a sound investment in a high quality, superbly designed Stereo Tape Deck, created and assembled with pride by the craftsmen of TEAC Corporation. With a minimum of care and attention, your new TEAC 3300S will provide you with many years of recording pleasure. It was designed for your convenience and contains the latest technological improvements for enhancing the art of tape recording and listening.
We know that you are eager to begin using your new deck. Before you start, however, we would encourage you to carefully read this Instruction Manual.
We feel that the time devoted to this manual by you will be returned in increased enjoyment of your new TEAC 3300S

NOTE: Although some of the photographs in this Manual show models "3300S" without the "A" letter prefix, all specifications, features and text instructions are applicable to your A-3300S.

OPERATIONAL LIMITATIONS

The TEAC 3300S is very well constructed, and adaptable to a wide range of conditions. It is still an electronic device with limits to be considered. To prolong the life of your new deck, consider the following factors when you install and operate.

Mounting position
This deck may be used in either the upright or horizontal positions. The upright position is preferred from the point of more efficient ventilation.

Locations of constant high temperatures
Do not operate this unit near heating appliances or on top of an amplifier where amplifier heat would contribute to a rise in temperature. Do not place the unit where it will be exposed to direct summer sunlight. Temperature extremes will not only cause degradation of sound quality, but will also shorten the useful operating life of the unit. Avoid temperatures higher than 100°F.

Locations of extreme low temperature
In low temperature locations, lubricants will harden and satisfactory operation cannot be expected. Operation will be sluggish and an overload may be placed on the drive motors. Avoid temperatures lower than 40°F.

Locations of high humidity
High humidity locations will shorten equipment life from corrosion and possible fungus growth on printed circuit boards.

Dusty environments
Your TEAC deck is a precision machine and as such should be protected from dust. Operation in a dusty atmosphere will result in excessive bearing and tape head wear. Your tapes should also be kept dust-free.

Fluctuation of the supply voltage
Should you be in an area where line voltage fluctuation is severe, the use of a voltage controller may be advisable.

* Photographs and/or illustrations may differ slightly from the appearance of your deck when production design improvements are incorporated.

CONTENTS

The TEAC 3300S is an extremely versatile tape deck, designed for the beginner through simplicity of design, yet built to the high technical requirements demanded by the semi-professionals and experienced audio enthusiasts. This manual, therefore, has been written in two sections. The forward section is rather brief and designed to familiarize you with the location of the features and controls, followed by a very brief, simplified, Basic Operations chapter. This first portion may not be sufficient for those without extensive recording knowledge and experience. The remainder of this manual expands the basic information to lead the novice into the exciting world of audio recording.

There have been dozens of books and thousands of magazine articles written about stereophonic audio equipment and techniques. It would be impossible to include all this published material in the space available to this Instruction Manual. Every installation, every combination of components, and every situation has its own problems, with specific solutions required. Therefore, we recommend that if you are unable to achieve the results you want with your stereo system, talk with your dealer. If he is unable to solve your problem or give you a solution, perhaps he can refer you to a good book or guide you to some of the excellent magazine articles available. Your city library probably has many excellent publications to aid you to truly enjoy the wonderful world of sound recording.

SERVICE

Should your tape deck need repair, contact the dealer where it was purchased or the nearest TEAC Authorized Service Center. They can also secure parts and accessories for you.

Your new TEAC 3300S Tape Deck has been manufactured under the strictest quality control procedures. Each unit has been thoroughly checked at the factory. Should any damage have been incurred during transit or should you have any doubts as to its performance, contact your dealer as soon as possible.

Our investigation has shown that approximately 40% of the calls for service immediately after purchases resulted from improper operation of the equipment. Therefore it is important that you thoroughly read and understand this manual before placing the unit in operation. Failure to properly clean your deck will result in degradation of performance. Careful observation of the cleaning and servicing hints contained in this manual will contribute to a lengthened, trouble-free unit life. Please consult the trouble shooting chart before seeking service as most common problems are thoroughly covered by this chart.

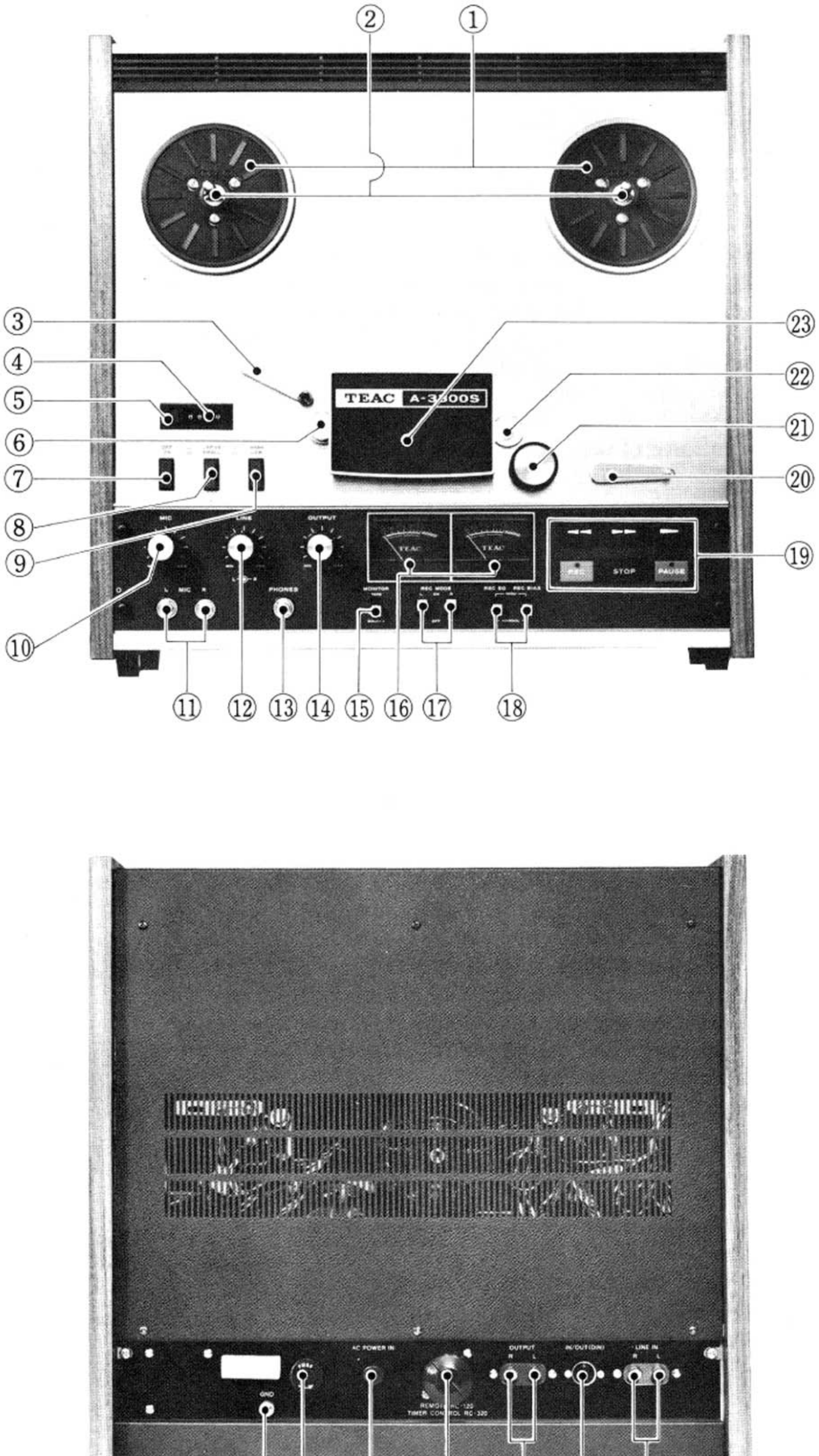
WARRANTY

1. Warranty period is described in the enclosed warranty card, read the card for complete details.
2. For repairs after expiration of the warranty period, a service charge will be made in addition to the price of repair parts.
3. Although the unit may still be under the Warranty period, you may be charged for repairs made necessary by misuse or damage incurred as a result of improper operation.

Keep the original packing!

You may need the original carton to protect the tape deck for moving or storage. If this unit is returned for servicing, you will be responsible for shipping damage if it was improperly packed.

Location of the Features and Controls



① **Reel Turntable**
Provides a platform for the tape reels. (See pg. 9.)

② **Quik-Lok Reel Holders**
Firmly hold tape reels to the turntables. (See pg. 9.)

③ **Tape Tension Arm**
Acts as a mechanical filter with the Tape Guide Post ⑥ to maintain proper tape tension.

④ **Index Counter**
Indicates relative location of selections on the tape.

⑤ **Index Counter Reset button**
Restores the Counter to "0000"

⑥ **Tape Guide Post**

⑦ **POWER switch**
Depress to apply electrical power, Meter lamps will illuminate. Push again for OFF.

⑧ **Reel Size Selector Switch**
Automatically adjusts motor torque and holdback tension for the size reel used.

⑨ **SPEED Selector switch**
Controls tape speed. See pg. 10.

⑩ **MIC Input Level controls**
Regulate the recording levels from microphones or the DIN Socket. See pg. 12.

⑪ **MIC (L & R) Input jacks**
Accept the plugs from high fidelity microphones with an output impedance of from 150 to 10,000 ohms.

⑫ **LINE Input Level controls**
Regulate the recording levels from the LINE IN jacks.

⑬ **PHONE Output jack**
Connection for an 8 ohm stereo headphones plug.

⑭ **OUTPUT Level controls**
Adjust the Playback and Monitoring volume levels.

⑮ **MONITOR switch**
Selects which sound will be heard and displayed on the Level Meters, either SOURCE (input) or TAPE. (Pg. 11)

⑯ **Level Meters**
Display the relative recording or playback signal strength.

⑰ **REC MODE switches, L and R**
Select which channels (Left and/or Right) will be recorded (ON) or not recorded (OFF).

⑱ **REC EQ and REC BIAS switches**
Select the proper Record Equalization and Record Bias for optimum performance with low noise/high output (HIGH) or conventional tapes (NORMAL). See pg. 10.

⑲ **Control Center**
Contains 6 buttons for total control of tape transport motion and Record activation. See pg. 6.

⑳ **Shut-Off Arm**
Removes electrical power from the transport section if the tape breaks or ends. Also provides tape guidance.

㉑ **Pinch Roller**
Applies proper pressure for tape to be driven by the capstan. Engages only during Recording and Playback.

㉒ **Capstan Shaft**
Drives the tape at a constant speed in the Play or Record modes. Rotates continuously until electrical power is removed from transport by Shut-Off Arm or POWER switch.

㉓ **Head Housing**
Protects the tape heads from dust and damage.

㉔ **GND Terminal Post**
Provides grounding connection to other components or to earth ground if necessary to reduce hum.

㉕ **FUSE Receptacle & Voltage Selector**
Remove this cover to replace the fuse if necessary. Disconnect the AC (mains) Power Cord before attempting fuse replacement. Replace with identical fuse.

㉖ **AC POWER IN**
Connect to the AC (mains) wall outlet. Deck is factory set to voltage indicated on the rear panel. Do not connect this cord unless appropriate power is available.

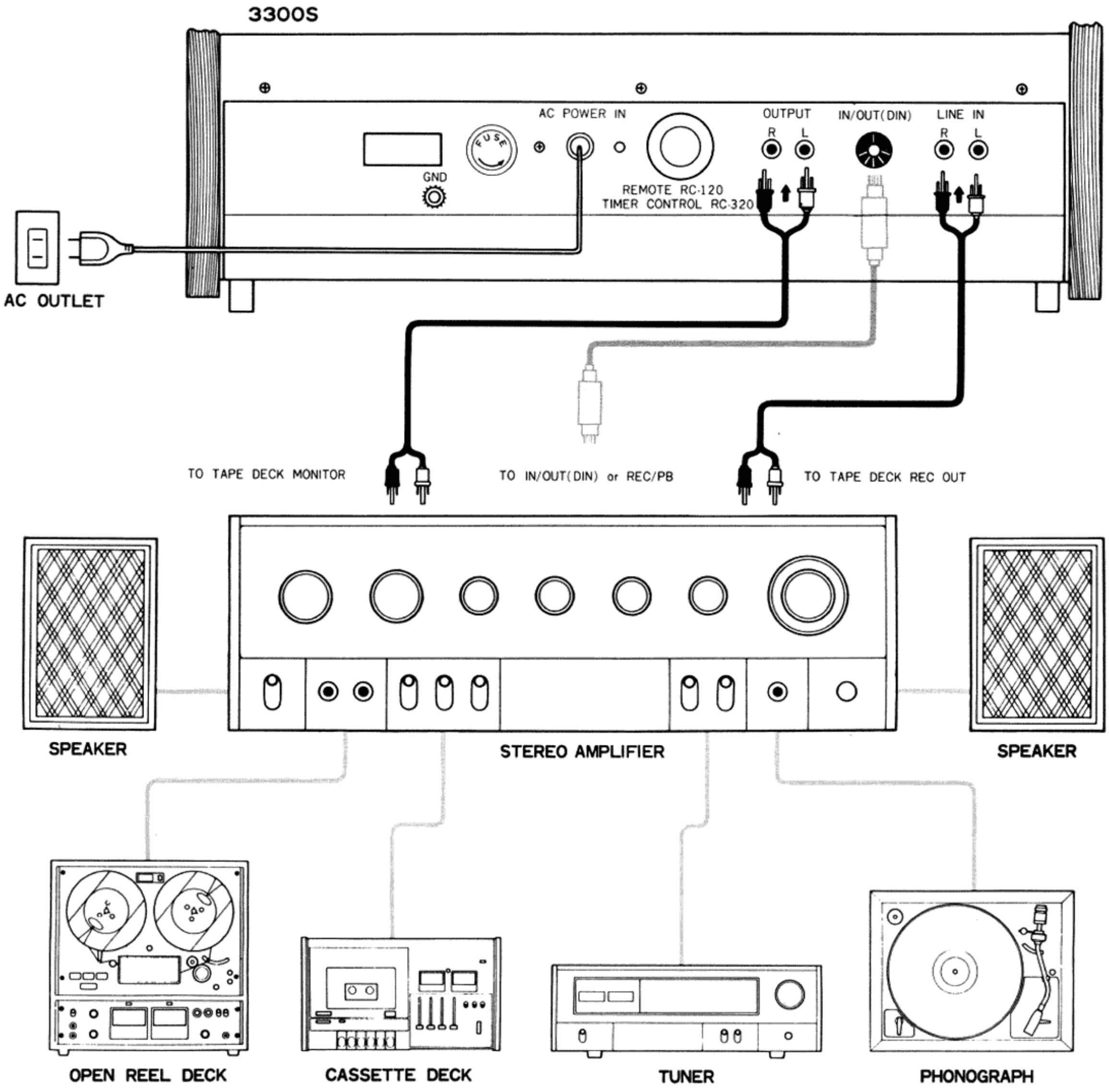
㉗ **REMOTE/TIMER CONTROL Dummy Plug**
When removed, a jack is provided for optional accessories. Plug must be installed for proper operation. See pg. 22.

㉘ **OUTPUT R/L Jacks**
Provide pin cord connections to an amplifier for listening. Use cables as provided in the Accessory Packet.

㉙ **IN/OUT (DIN) Socket**
Accepts a standard DIN Cable for inputs and outputs.

㉚ **LINE IN R/L Jacks**
Right and Left channel inputs are connected to these jacks for recording. Use cables provided in Accessory Packet.

Connections



OUTPUT and LINE IN Pincord jacks

These are to be connected to the appropriate jacks on the Stereo Amplifier or Integrated Receiver/Amplifier. Connect the tape deck's OUTPUT controls to the amplifier's jacks designated "tape monitor" or "tape deck" input. The "aux" jacks may also be used.

The LINE IN jacks are to be connected to the amplifier's output or line out jacks that are designated as recording outputs. Never connect any speaker outputs to these LINE IN jacks. The excessive power from the amplifier would severely damage your tape deck.

IN/OUT(DIN) DIN Cord Connections

An optional cord with DIN connectors may be used for interconnecting the deck with a stereo amplifier using a single connecting cable. However, when using the DIN cord inputs, the recording levels are established by the MIC Level Controls. This prevents satisfactory mixing of microphone and line inputs.

If use of a DIN cord restricts your operation or if the sound quality is poor or distorted, remove the DIN cord and use the pin-jack cords provided in the accessory packet.

CAUTION: Never connect both a DIN cord and the pin cords to the deck. One or the other is sufficient. Audio problems are often encountered when both types of inputs are used.

REMOTE RC-120/TIMER CONTROL RC-320 Connections and Plug.

Tape deck operations can be controlled remotely or at a preset time using TEAC accessories connected to this jack. The Dummy Plug must be removed to provide access to the socket. See pg. 22 for further information.

The Dummy Plug must be installed when those accessories are not connected to insure proper operation of the transport.

Basic Operation of the TEAC 3300S

Transport Controls

The TEAC 3300S incorporates the famous TEAC Three-Motor Tape Transport, and complete electrical control of all operation. Special delay circuitry is incorporated to prevent acceleration "GROWL" when motion is begun or changed from one direction to the other. All mechanical control is directed by the buttons in the control center.

The procedures given below are basic and apply to both the Recording and Playback modes.

1. Make all appropriate connections between the deck and other components. Connect the deck to an AC outlet. (See pg. 5.)
2. Prepare all other components for operation.
3. Set the following switches to the correct positions: Tape SPEED REEL, MONITOR, EQ, BIAS, MODE L/R.
4. Thread the tape. (Refer to pg. 9.)
5. Depress the POWER Switch to ON.
6. Make preliminary MIC, LINE, and OUTPUT Level Control adjustments
7. Operate the Transport Controls according to the chart to the right.

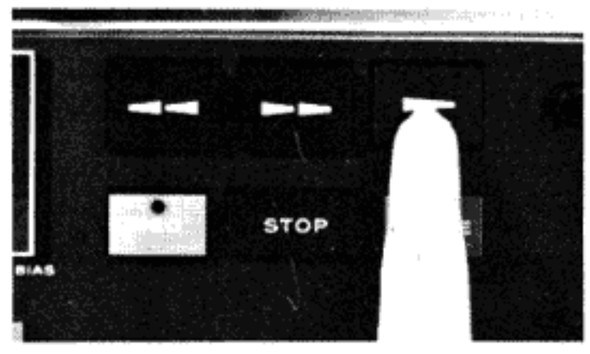
Listed below are some special notes on the Transport Control Button operation.

NOTE A: For Record operation, if the REC button is depressed first, hold it in while depressing the ► button. Depress the REC button and the ► button together during Forward Play to go directly into Record operation, if one or both RECORD MODE Switches are ON.

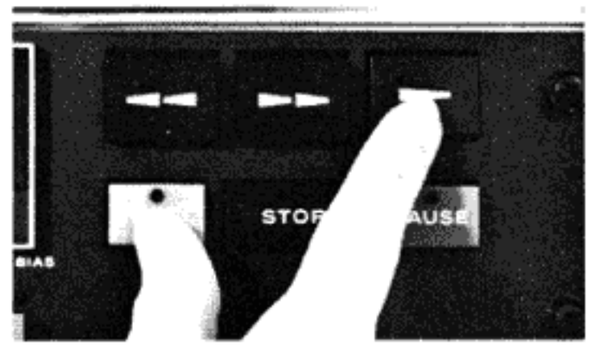
NOTE B: To prevent accidental erasure of a pre-recorded tape, leave the RECORD MODE L & R Switches OFF during Playback operation.

NOTE C: To restore Record operation from the RECORD/PAUSE condition, depress the ► button.

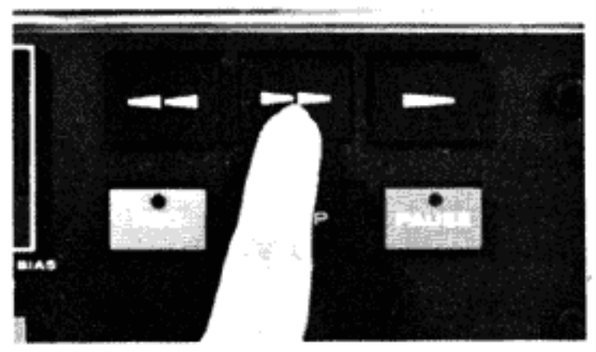
Forward Playback
(Tape moves from left to right)



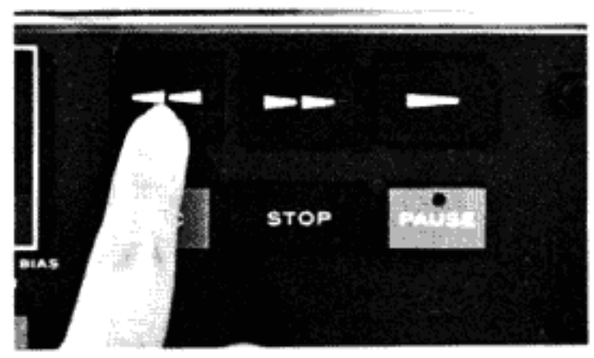
Record
(Tape is recorded, MODE Switch must be ON)



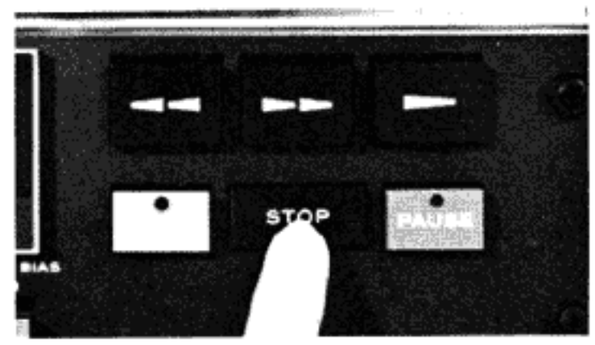
Fast Forward
(Tape winds rapidly onto right reel)



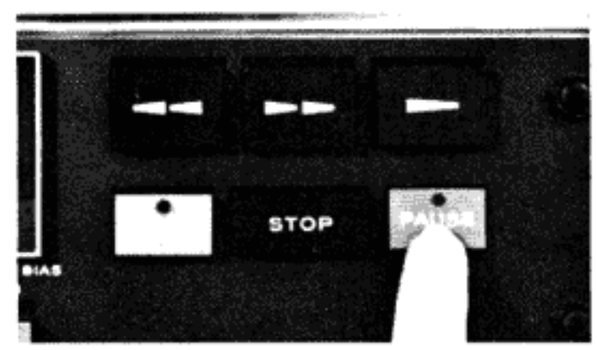
Fast Rewind
(Tape winds rapidly onto left reel)



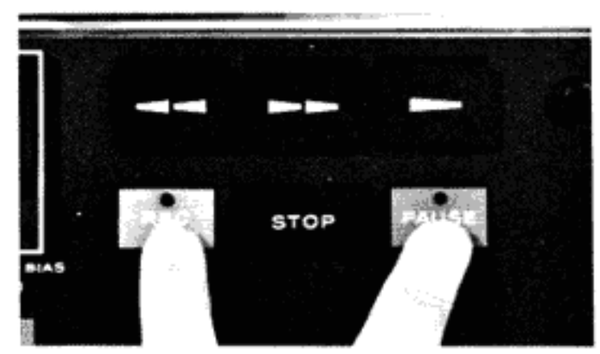
STOP
(Tape motion ceases, mode released)



PAUSE
(Stops tape motion; when recording retains mode and light illuminates; during Playback acts as STOP Button.)

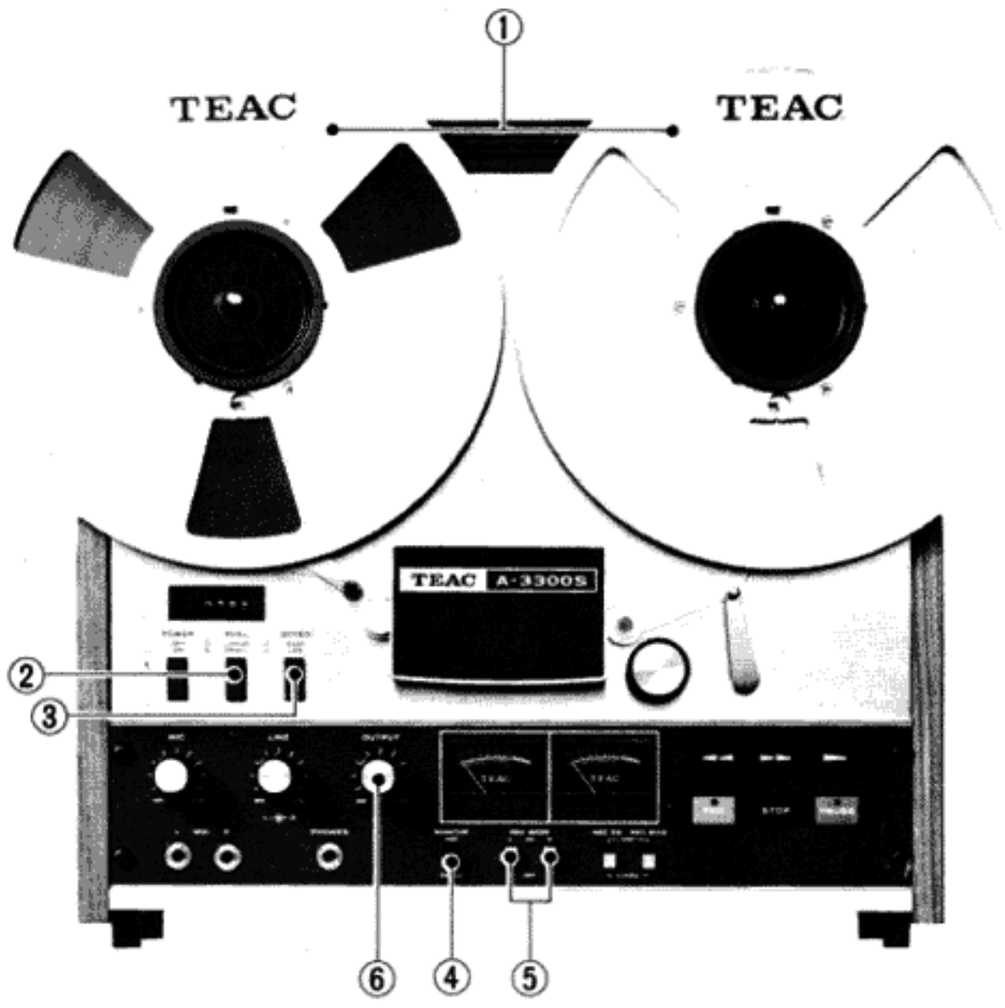


RECORD-PAUSE
(Establishes Record mode without starting tape movement, RECORD MODE Switch(es) must be ON, both lights illuminate.)



Stereo Playback Procedures

The following steps are preliminary to Stereo Playback. It is recommended that the LINE and MIC Controls be set to MIN to prevent any spurious signals from interfering with playback.

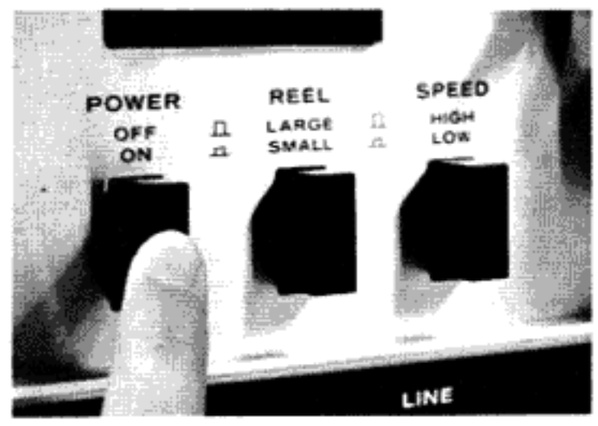


1. Thread the tape.
2. Set the REEL Size Selector switch to match the Reel size.
3. Set the tape SPEED Selector Switch to match the speed used during recording. (See pg 10.)
4. Set the MONITOR Switch to the TAPE position.
5. Set the RECORD MODE Switches (L & R) OFF to prevent accidental erasure of the tape.
6. Adjust the OUTPUT Level Controls to approximately the 12 o'clock position (½ clockwise from MIN).
7. Verify the correct connections between all components.
8. Prepare the stereo amplifier or integrated receiver for tape playback according to its instruction manual.

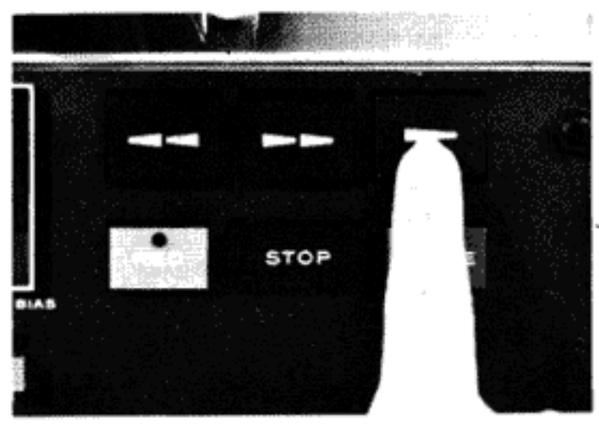
NOTE: The BIAS and Equalization (EQ) Switches have no effect during playback.

OPERATION

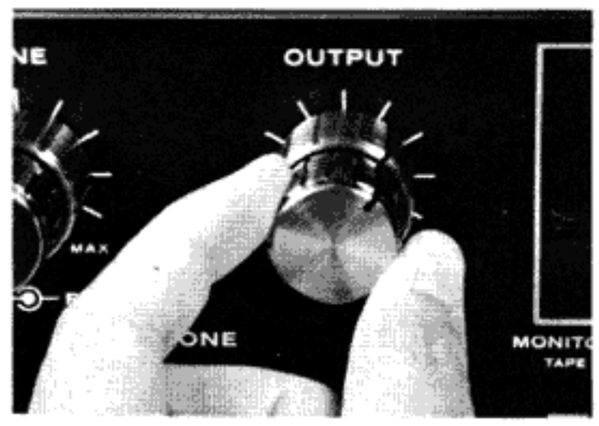
1. Apply AC power to the deck and other components.



2. Rotate the right-side reel to remove the slack (looseness) from the tape and to raise the Shut-Off Arm.
3. Depress the ► Button for Forward Play.



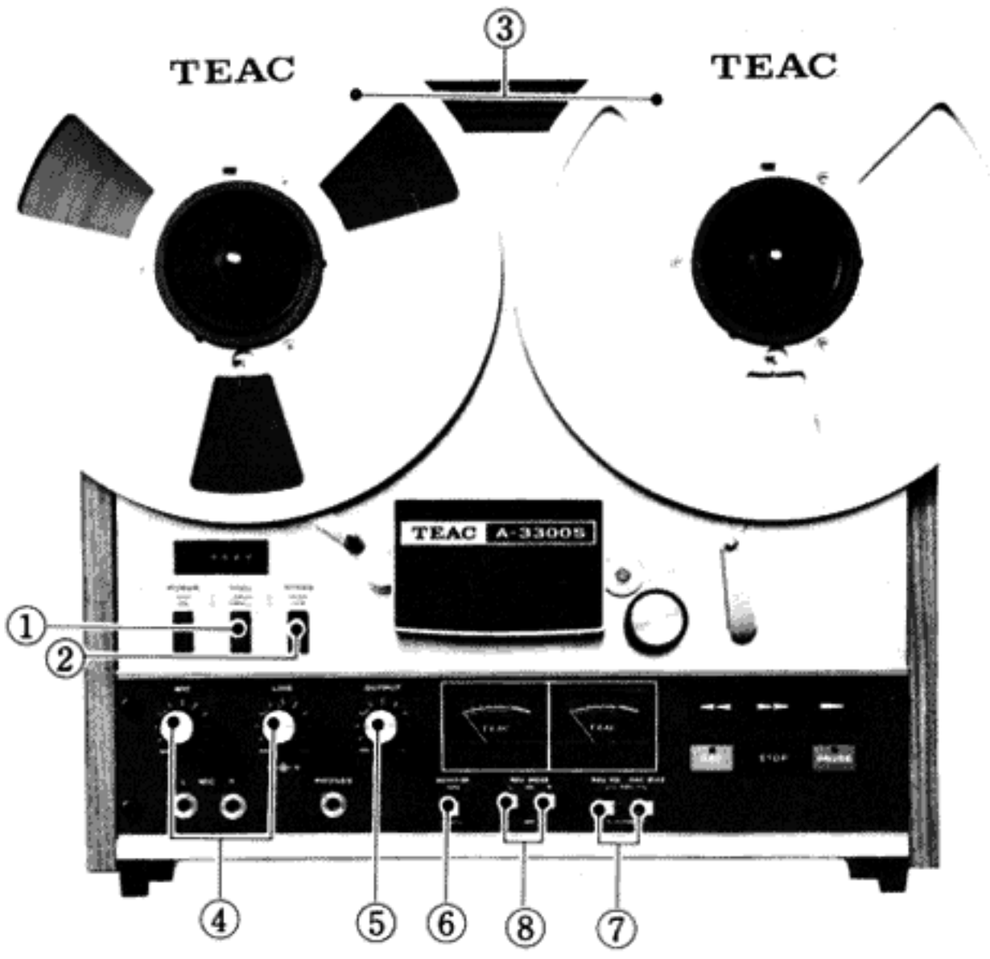
4. Adjust the OUTPUT Level Controls so that the loudest passages do not exceed 0 VU, although they should almost reach a 0 VU indication.



5. Control the listening level by the Volume controls on your stereo amplifier.
6. After making all audio adjustments on the stereo amplifier (tone, balance, filter, etc.), you may rewind ◄◄ the tape to "0000" and listen from the beginning.
7. When Side 1 is completed (all tape on the right-side reel), switch the reels by turning over the full reel and putting it onto the left reel turntable. Repeat steps 2 and 3 above to begin Playback of the remaining program.

Stereo Recording Procedures

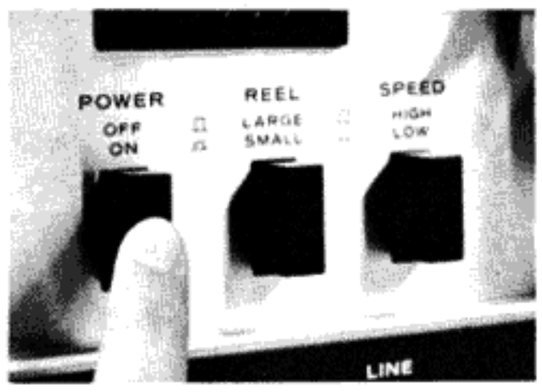
Preliminary Setting

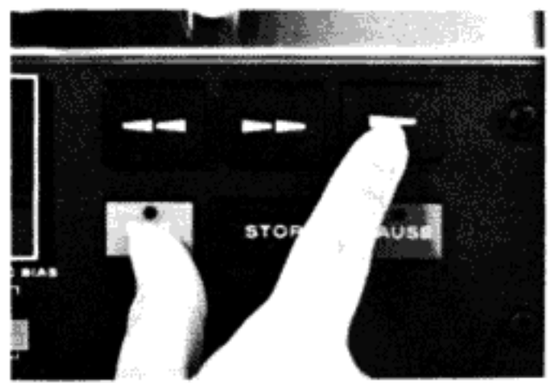


1. Set the REEL Size Selector switch to match the Reel size.
2. Set the SPEED Selector Switch to the desired tape speed. (See pg. 10.)
3. Thread a blank tape on the deck. (Refer to pg. 9 .)
4. Place MIC and LINE Input Level Controls to MIN.
5. Set the OUTPUT Level Controls to approximately the 2 o'clock position.
6. Set the MONITOR Switch to SOURCE.
7 Set the RECORD-EQ Switch and BIAS Switch according to the type of tape used. (Refer to pg. 10.)
8. Set the RECORD-MODE, L & R Switches to ON.
9. Verify the proper connections between the recording source and the tape deck's INPUTS.
10. Prepare the Tuner, Amplifier or other source as instructed in its instruction manual.

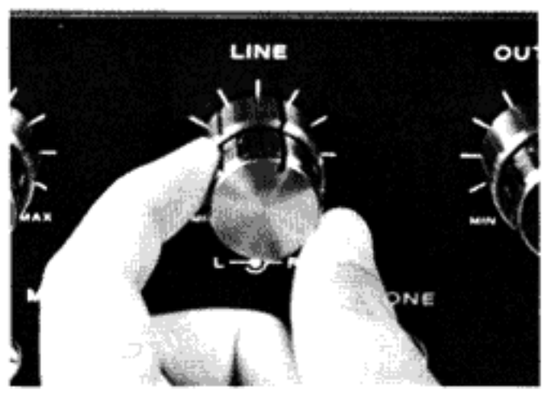
OPERATION

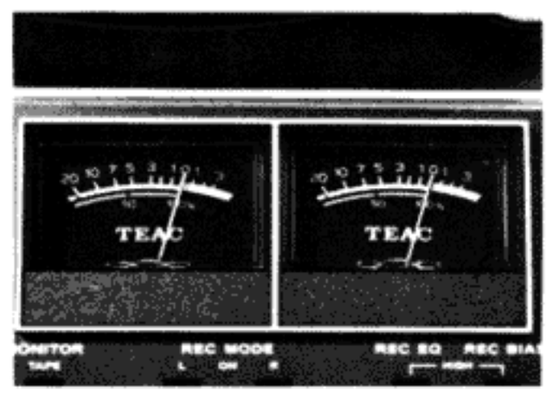
1. Apply AC Power to the deck and other components. (POWER Switch ON)
2. Depress the REC and ► Buttons.



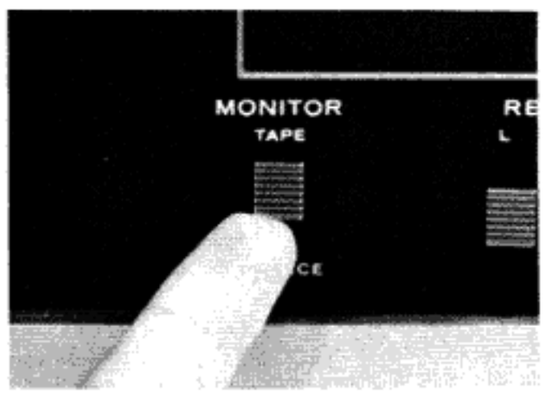


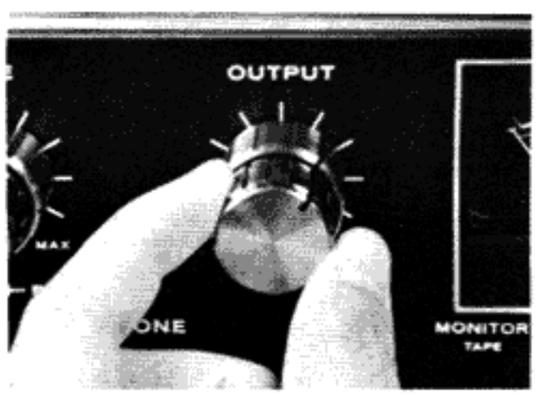
3. Begin recording from your source, i.e., start the phonograph record, tune in the radio station, talk into the microphones, etc. (See Note below).
4. Adjust the MIC or LINE Controls (depending upon the source) for the desired recording level, generally not exceeding 0 VU. (See pg. 12 for Level Settings.)





5. Change the MONITOR Switch to TAPE, and adjust the OUTPUT Level Control so that the VU Meters indicate the same relative level when switching back and forth between TAPE and SOURCE Monitor.



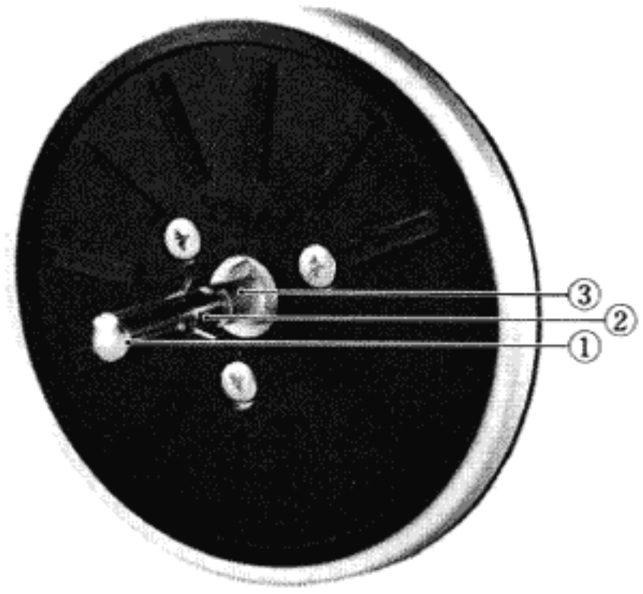


6. Depress the STOP Button. Rewind the tape to the beginning.
7. Depress the REC and PAUSE Buttons.
8. Start the source again. Begin recording by depressing the ► button.
9. Place MONITOR Switch to the TAPE position.
This "off the tape" monitoring shows you the actual quality of the recording. Any problems with the tape or tape deck will also be revealed.

NOTE: When recording, it is desirable to make an initial, test recording from the source to establish recording level settings. Once you have properly set the MIC and or LINE Input Level Controls, you should not change them during the actual recording. If the recording level becomes too high while recording, the Input Level should be corrected and the recording begun again.

Explanation of the Controls and Features

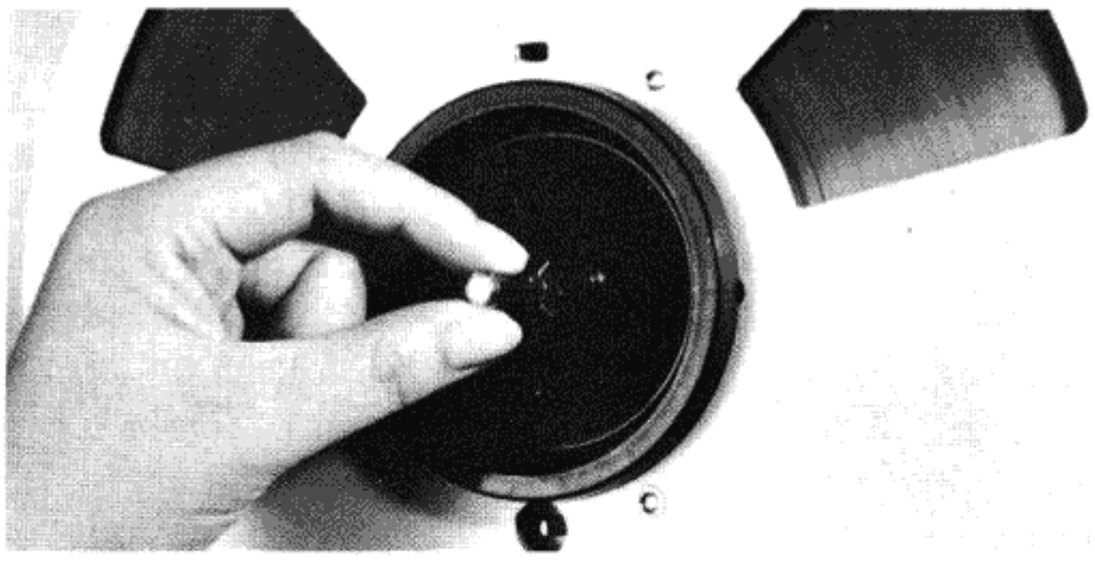
Quik-Lok Reel Holders



a. Loosen the reel shaft tip fully CCW (counter-clockwise).
b. Align the outer 3 index tabs (Ref. 2) and the inner 3 index tabs (Ref. 3). This is done by turning the upper tab section (Ref. 2) slightly CCW to place the tabs in a straight line between the two sections.
c. Using both hands, grasp a reel and place its center hole partially over the reel shaft tip (Ref. 1). Then gently rotate the reel CCW while sliding the reel fully onto the turntable. When the outer 3 index tabs (Ref. 2) are fully visible above the reel, you may proceed to step (d).
d. Carefully rotate the outer tab section (Ref. 2) clockwise until it stops (approximately 60 degrees or 1/6 of a revolution). Then turn the reel shaft tip clockwise approximately 3 revolutions so it is finger-tip tight. Check that the outer index tabs are still in the clockwise position, about mid-way between the corresponding slots on the reel.
e. Repeat the steps above in the same sequence for the other reel.
f. Remove the reel by performing Steps (a) and (b), then lift off the reel.

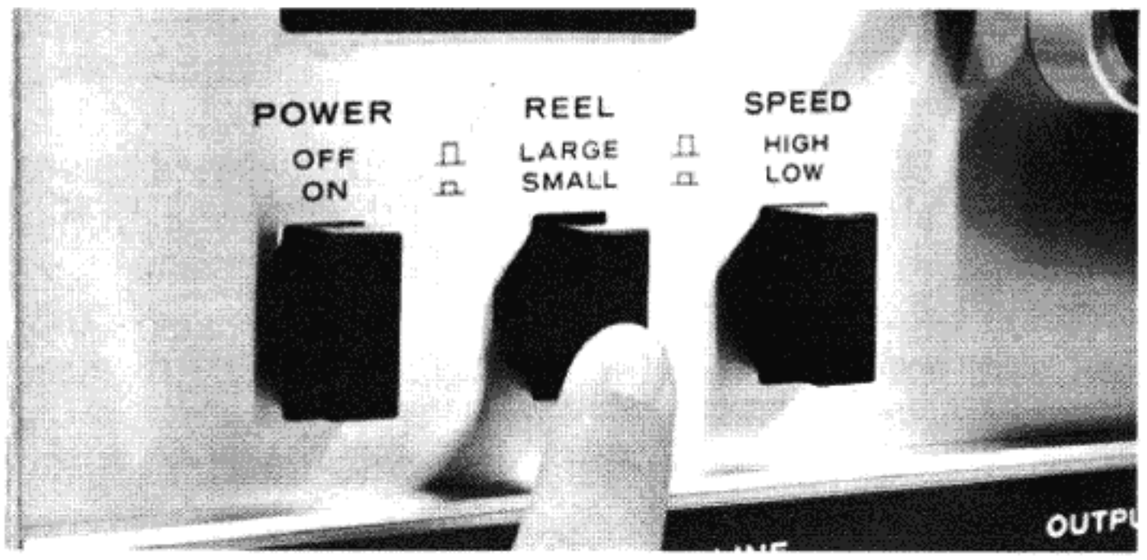
Threading the Tape

a. Place the full reel of tape onto the left reel table. Secure the reel holder. Place an empty take-up reel on the right reel table. Secure the reel holder.
NOTE: The tape must leave the full reel on the left side.
b. Carefully unreel (pull out) approximately 30 inches (75 cm) of tape from the supply reel. Thread this tape in the following manner: Over the left Tension Arm, under the Guide Post, under and through the Head Housing, between the Pinch Roller and Capstan, under the right Shut-Off Arm, then onto the take up reel.
c. Secure the end of the tape to the take-up reel by holding the end of the tape in the slot while rotating the reel several turns counter-clockwise (CCW).
d. Continue rotating the take-up reel until the tape is no longer loose. Correct tension will raise the Shut-Off Arm from the 3 o'clock position to the 10 o'clock position.



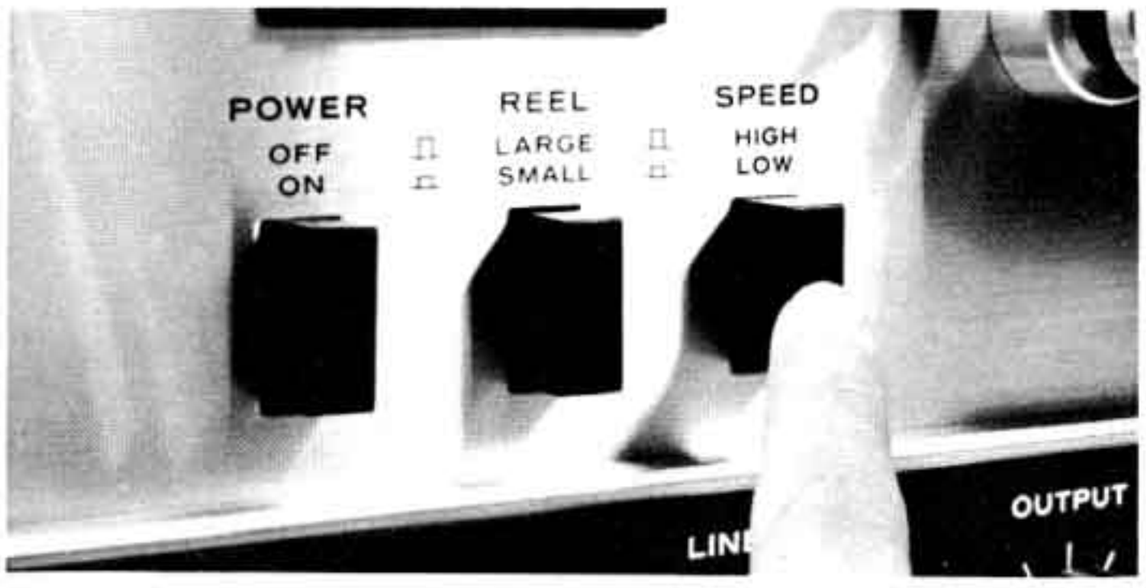
If large-center (NAB 10-1/2″) metal reels are to be used, insert the plastic Reel Adapters into the center of the metal reels before placing them on the reel tables. Also place the Reel Height Adapter sheets on to the Reel Tables. These inserts and sheets are included with the Standard Accessories packet accompanying your deck.
Always use a reel of the same type and size on the right, take-up reel table. Both reels should be of the same hub diameter, material and outside diameter to assure proper braking and tension.

REEL Size Selector Switch



The REEL Size selector switch must be set to the proper position corresponding with the size of the reel: LARGE for 10-1/2″ reels, SMALL for 7″ reels. This switch prepares the transport for the proper back tension, take-up torque and braking which differ between the reel sizes.
Improper REEL Size selection will result in excess tape tension and possibly tape breakage for 7″ reels. With 10-1/2″ reels, SMALL size selection will cause recording dropouts. With either error, the tape-to-head pressure will be incorrect.

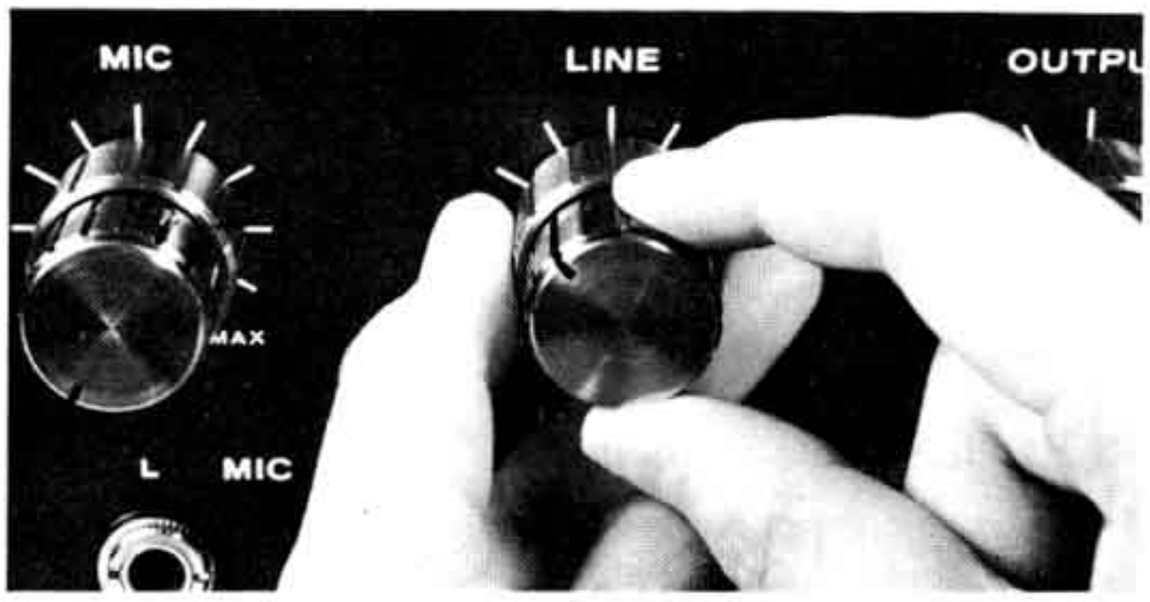
Tape SPEED Selector Switch



Control of the tape speed is provided for the two common recording speeds: 7-1/2 ips (15 ips – 2T) and 3-3/4 ips (7-1/2 ips – 2T). The slower speed will give you twice the time from a reel of tape as the faster, but with a very slight decrease in performance as indicated in the specifications.

The SPEED Selector provides the slower speed when depressed to the (▭) position. A second push releases it back to the higher speed (▭).

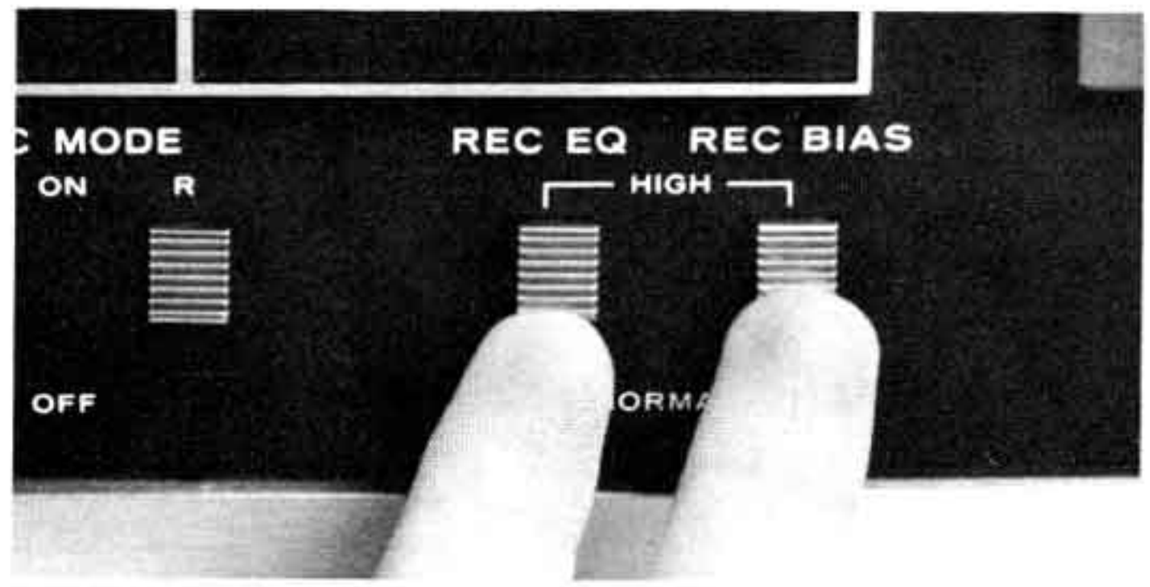
Friction-coupled Control Knobs



The MIC, LINE and OUTPUT Level Controls are designed with both channels on the same shaft. This pairing permits simultaneous and parallel adjustment of both channels. By grasping either knob (Left or Right channel), you have control over both channels, for these knobs are held together by friction.

To change only one of the channels on a control, grasp the inner (Left channel) knob with one hand and the outer (Right channel) knob with the other hand. Hold one knob stationary while you rotate the other.

RECORD BIAS and EQ Switches



Tape recording technology was recently challenged by the improved tapes developed by recording tape manufacturers. These tapes offered improved performance from tape decks; but this better performance was only possible by changing the internal electronic characteristics of the tape deck The TEAC 3300S has special circuitry for these new low noise/high output tapes as well as conventional circuitry for the regular tapes. The proper circuitry is selected by the RECORD – BIAS and EQ Switches.

Tape	BIAS	EQ	Result	Cause
Standard	NORMAL	NORMAL	Recommended Natural Sound	
	HIGH	NORMAL	Hi-Freq-Loss	Over Biased
	NORMAL	HIGH	Hi-Freq-Loss	Improper EQ
Low Noise	HIGH	HIGH	Recommended Natural Sound	
	NORMAL	HIGH	Metallic Sound High Boost	Under Biased
	HIGH	NORMAL	Depends on tape	See Chart on page 15

BIAS Switching

The HIGH position is preferred for most of the low noise/high output types of tapes. These tapes sell under a variety of different names, but can be recognized as an improved or advanced type of tape. The NORMAL position is ideal for conventional kinds of tape, which still give excellent recording results with the TEAC 3300S

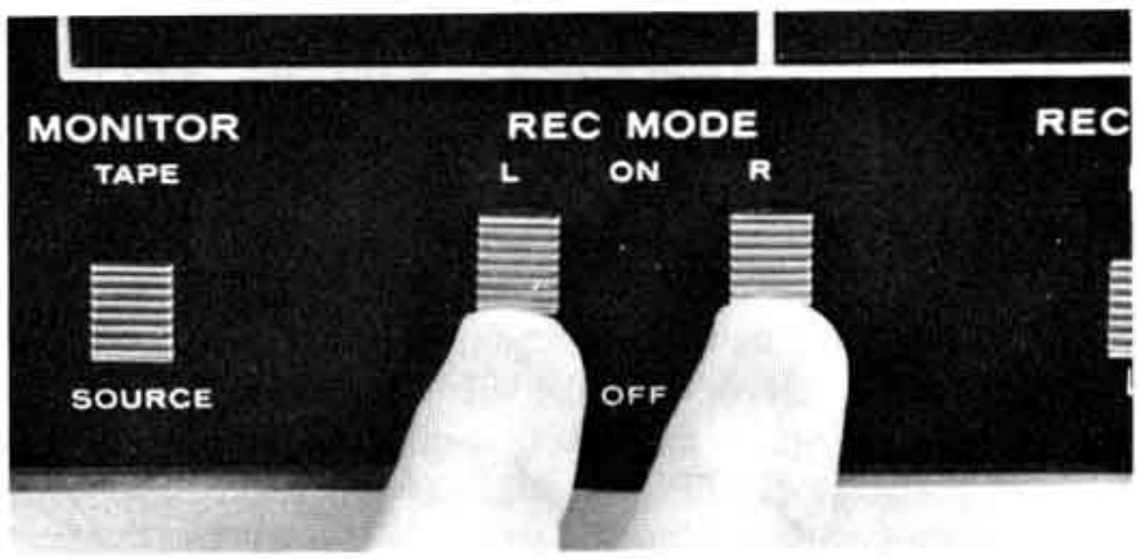
Some of the newer kinds of tape are designed for use with the lower, NORMAL Bias levels. If you are in doubt as to which level to use, experience, or your dealer can tell you which to use.

EQ Switching

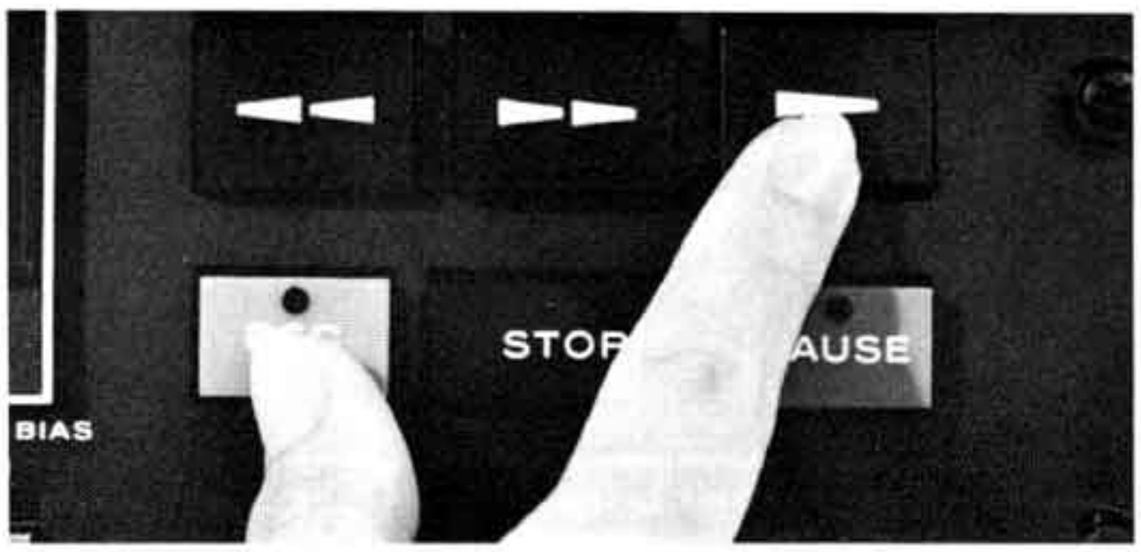
The EQ Switch controls equalization for recording. Like the BIAS Switch, this has no effect during Playback operation. Generally, you should place this switch in HIGH if the BIAS Switch is in HIGH. These switches are set to match the type of tape, HIGH for low noise/high output, NORMAL for conventional tape. You may, through experimentation, find a particular brand which gives better results using HIGH Bias and NORMAL Equalization.

Some examples of these exceptions are given in the chart on page 15.

RECORD MODE Switches

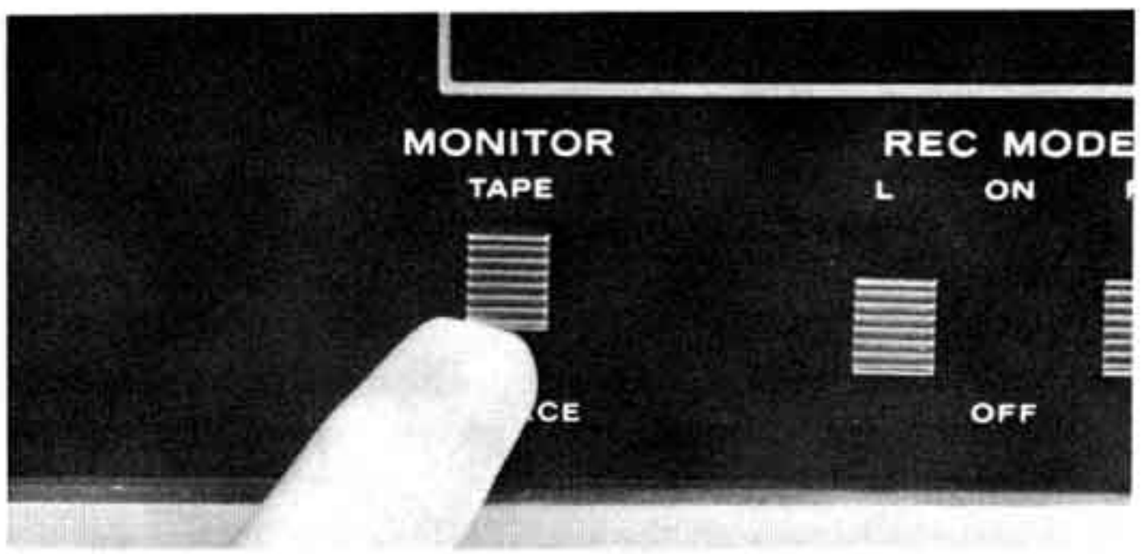


The MODE Switches select which channels will be recorded. Both must be ON for stereo recording. For monophonic recording, select the desired channel, Left or Right. These MODE Switches should both be OFF during Playback. While recording will not begin unless the REC Control button is properly depressed, it is possible to accidentally start recording during playback if these Switches are ON and the REC button is depressed with the ► button.



You may go directly from Forward Playback to Record operation. Without depressing the STOP button, while the tape is moving, hold in the REC button and depress the► Play button. The red Record Indicator Lamp will illuminate. This is called a "running splice" or "Punch-In" record.

Instant "off-the-tape" Monitoring

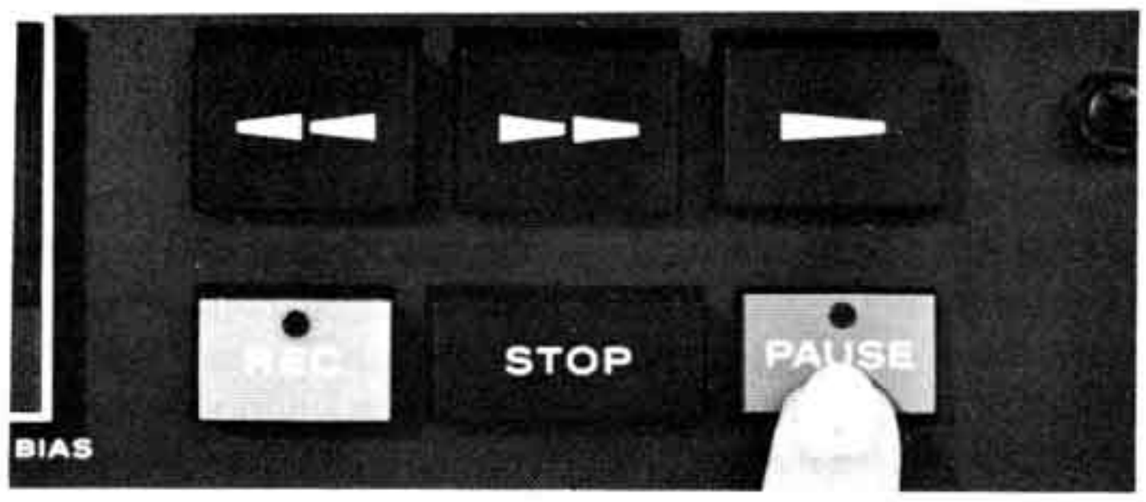


True tape monitoring is possible with TEAC three-head decks, because a forward playback head is installed adjacent to the separate recording head. Thus you can monitor (check by hearing) the recorded signal about 0.2 second after recording (7-1/2ips) without interrupting the record function. (Most cassette recorders use the same head for both recording and playback, making off-the-tape monitor impossible.)

Tape monitoring is important while recording to verify the quality of your recording. While source monitor will tell you exactly what is going into the recorder, only tape monitoring will tell you just exactly what you have recorded. It will detect any blank spots on the tape; detect wow or flutter in the deck (if maintenance is required); warn you if the heads have become dirty or magnetized; advise you if the heads are out of alignment; and generally confirm for you that you are making a high quality recording.

Always set the MONITOR Switch to SOURCE when you make the initial recording level settings with the MIC or LINE input level controls. The VU Meters will then display the Input signal, and they will be controlled by the Input controls. Once the level has been set, select the TAPE Monitor position and adjust the OUTPUT Level Controls to obtain the same reading. Alternate between the SOURCE and TAPE position to compare the quality of the sound through headphones or your stereo speakers.

PAUSE Control button operation



Recording is greatly simplified by using the PAUSE button rather than the STOP button when you wish to temporarily halt the tape transport. The PAUSE mode is engaged by depressing the PAUSE button while recording to keep the deck's recording circuits engaged. Recording is instantly restored by merely pushing the ► Play button.

Use the PAUSE button

1. to eliminate commercials when recording from the radio;
2. to eliminate interruptions in the recording during live recording or those caused by changing phonograph discs;
3. for keeping switch noises or needle clicks out of the recording;
4. anytime you wish to momentarily stop recording.

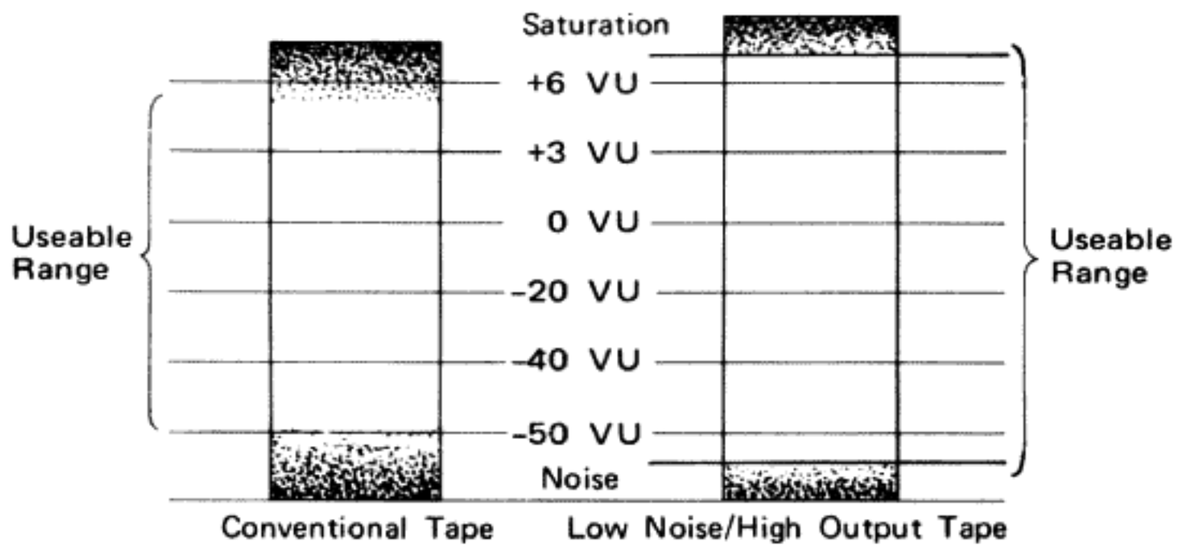
If the STOP button is used rather than the PAUSE button, you must depress both the REC and the ► Play buttons to resume recording. This increases the possibility of forgetting to depress the REC button which would result in a blank section on the tape.

The RECORD-PAUSE Mode is very convenient for setting the Recording Level, for you can set the MIC and/or LINE Input Controls to the desired VU Meter reading without actually recording onto the tape. This eliminates having to rewind the tape after setting the recording levels as instructed in the BASIC RECORDING PROCEDURES Section.

During tape playback, the PAUSE button functions only to stop the transport in the same manner as the STOP button.

Level Setting

Correct level setting of the MIC and LINE Input Controls will assure full frequency response, maximum dynamic range, minimum amount of tape noise and the least possible distortion in your recorded tape. This is based upon the nature of magnetic recording tape which has a useable recording range as shown in the chart below.



When the input level (an audio signal of a specified voltage) is very low or weak, it must compete with the hiss and noise always present at the same low level on the tape. Stronger input levels are recorded above this tape noise and tend to cover or "mask" it so you hear only the desired sound during playback. If the input level is too high, it enters the region shown at the top of the chart, which represents the limits of the tape. The result it known as "saturation distortion", and is heard as a garbled or harsh sound. The dynamic range available is found between this distortion at the high end and the noise at the low end. As the chart also shows, there is a difference between recording tape. The tape on the left is representative of conventional or normal recording tape. To the right is the improved kind of low noise/high output tape.

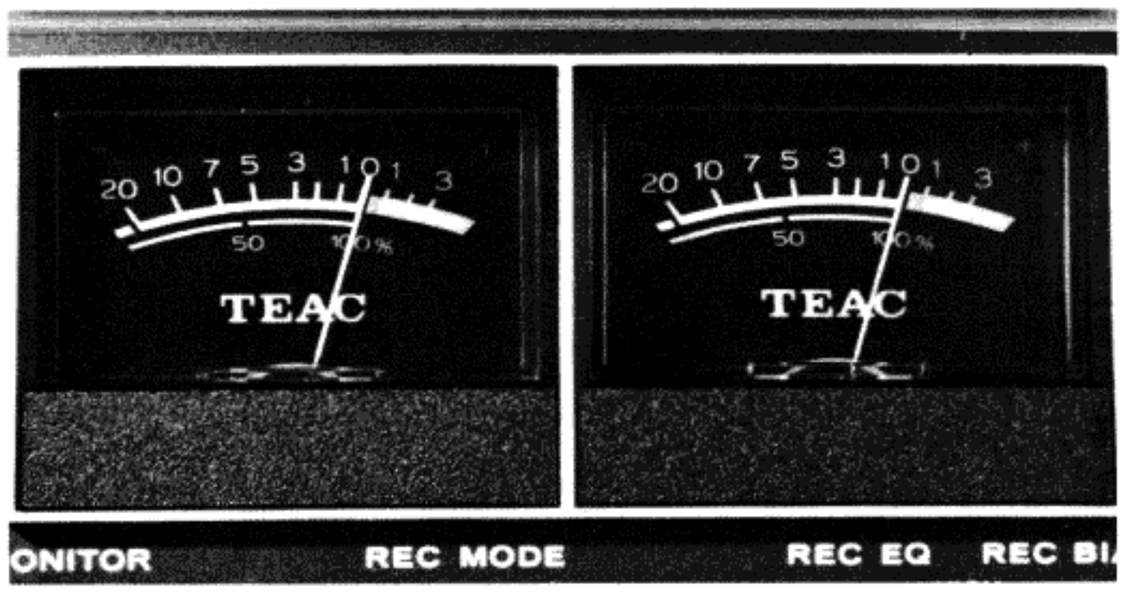
Input Level Controls (MIC and LINE) are used to match the strength of the input signal to the requirements of the tape. If the input signal is a little too strong, these controls must be adjusted to reduce it to prevent distortion. If the signal is a little too weak, the controls must be set to increase the preamplification for raising the signal above the tape's noise level. Of these two limits, the distortion caused by high level inputs is used as a reference for setting the controls. Generally speaking, the shaded area at the upper (right side) of the VU meters' scale indicates that distortion levels are being approached. This area begins at 0 VU. During quiet portions, the meters indicate almost no signal. As the ideal is to record all these different parts of the program without distortion of the loud parts or losing the purity on the quieter parts, the recording level must consider both limits.

Setting the Recording Level

a. Begin recording with the MIC and LINE Input Level Controls at the 9 o'clock position or below. If the input is only from microphones, keep the LINE Controls fully to MIN. If only LINE Inputs are used, keep the MIC control fully to MIN. Use SOURCE Monitor.
b. Gradually raise the level by turning the controls clockwise while observing the Meters. (Friction coupling moves both channels' controls simultaneously.)
c. Stop raising the level when either channel indicates slightly over 0 VU on the loudest passages.
d. If there is more than 1 or 2 VU difference between channels, hold the knob for the high-reading channel stationary, and increase the low-reading channel to the same level. Balance the channels to the same peak reference levels.
e. Generally speaking, you should not re-set the level unless the Meters indicate too low or too high as follows:

    1. After changing records or sources.
    2. During a selection, if the meter goes excessively into the red area, the level should be reset and the recording should be restarted using the new level setting.
    3. While monitoring off the tape during recording, the level should be raised if soft, quieter passages are covered by tape hiss.

f. If you must reduce or change the level while recording, move the controls slowly and gradually to prevent sudden changes in the recording. These changes would be heard as an annoying jump or drop during playback.



Setting the Playback Level

The OUTPUT Level Control regulates the audio level to your stereo amplifier and also the listening level to your headphone, allowing you to monitor the level and quality of the sound fed to the amplifier. When listening through an amplifier, it is best to have the tape deck's output approximately the same as the original recording level.

a. Set the MONITOR Switch to TAPE.
b. Set the OUTPUT Level Control to approximately the 2 o'clock position.
c. Begin Playback by depressing the ► Button.
d. Adjust the OUTPUT Level Control so that the loudest passages on the tape indicate approximately 0 VU.
e. Make all listening volume adjustments (for loud speaker output) by changing the stereo amplifier's volume controls.
f. Further changes to the OUTPUT Level Control are not needed unless the VU Meter pointers greatly exceed OVU.

Special Playback Information

Playback of Dolby-encoded Tapes

To enjoy the benefits of the Dolby* Noise Reduction System, both recording and playback levels must be matched. Therefore, "Dolby-encoded", "Dolby processed", or "Dolbyized" tapes must be played back through a properly calibrated Dolby Noise Reduction unit, available from TEAC and other companies.

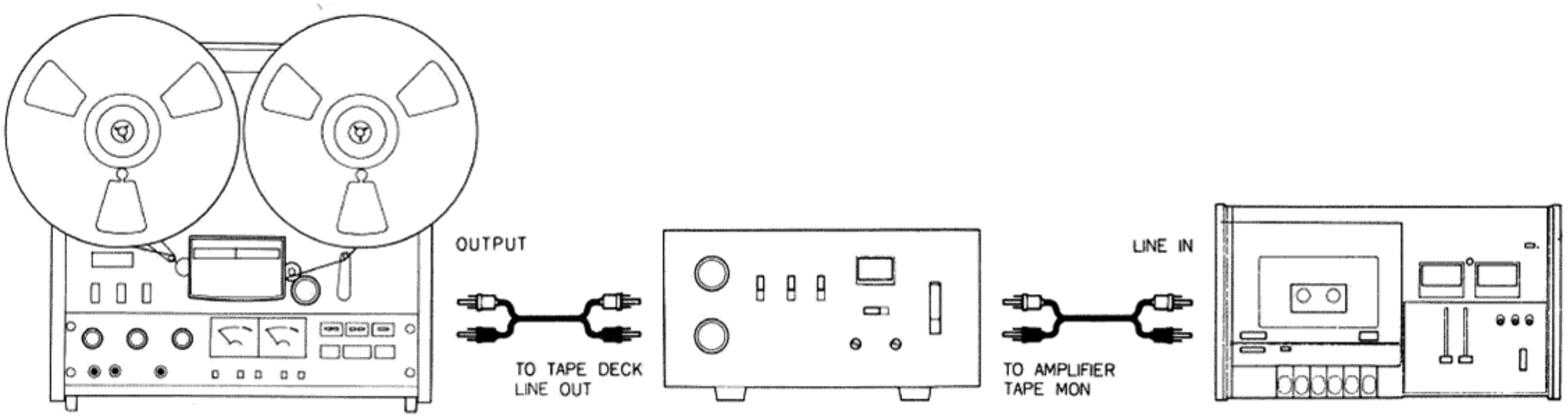
1. The Dolby NR System is not a filter and will not eliminate noise present in the original source, such as scratches or clicks.
2. Improvements in recording tape itself (such as low noise/high output tape) have significantly reduced the inherent tape noise level. Although the Dolby NR System is still contributing to an improved signal to noise ratio when using these tapes, the advantage of the system may not be so readily apparent.

Making Copies from the TEAC 3300S

Dubbing or duplicating your tapes for others to enjoy is one of the pleasures of tape recording. Perhaps the major limitation is the build-up of tape noise which accompanies successive generations of tape copies. Here are some guidelines for avoiding noise build-up and other problems.

1. Use the highest recording levels possible without exceeding the saturation point of 0 VU. Set the playback level first so that it does not exceed the reference. Then set the recording level using source monitor to exactly the same VU readings. NOTE: See #3 below for cassette recording.
2. Dolby Noise Reduction processing will almost completely prevent subsequent tape hiss build-up, provided that the original recording was Dolby encoded. Before copying Dolby-processed tape, use the Dolby Level Calibration Tape to set the playback output level on the 3300S. Then replay the Calibration tape on the 3300S to set the Input Level on the recording deck to 0 VU. Once calibrated, do not change the setting of the OUTPUT Level Control on the 3300S or the Input Level Controls on the other deck. Do not use a Dolby NR Unit between the two decks. If one is connected, keep its DOLBY NR switch to the OUT position. Note the exception in #3, below.
3. Open-reel Dolbyized tapes are sometimes recorded at a higher signal level than cassettes. If a direct copy is attempted, the cassette tape is liable to sound distorted because of high level saturation. When making Dolbyized copies onto a cassette from the 3300S, this fact prevents accurate Dolby Level calibration between the decks. It is recommended, therefore, that you use a separate Dolby NR Unit between the decks, place its Dolby NR switch IN, and select the playback mode. Have the built-in Dolby system on the cassette deck re-process the program while recording.

Open reel to cassette copying



TEAC 3300S | **Dolby Noise Reduction Unit (TEAC AN-60)** | **Cassette Deck**

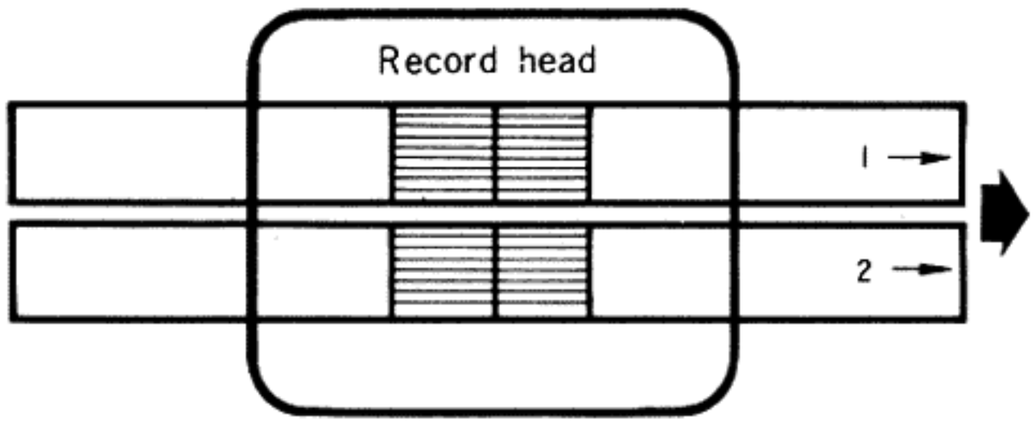
*"DOLBY" and the Double D symbol " DD " are trademarks of Dolby Laboratories, Inc.

General Recording Information

Tracks, Channels, and Compatibility

Sound recordings are made in a strip on the magnetic surface of a recording tape. This magnetized strip is called the "Track". The full tape width divided by two is called a "2" track recording, and the full tape width divided into quarters is called a "4" track recording.

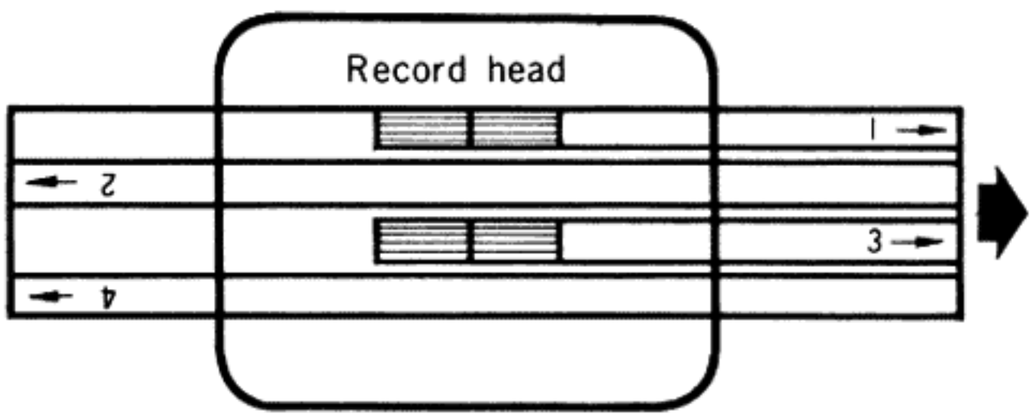
"2" track recording



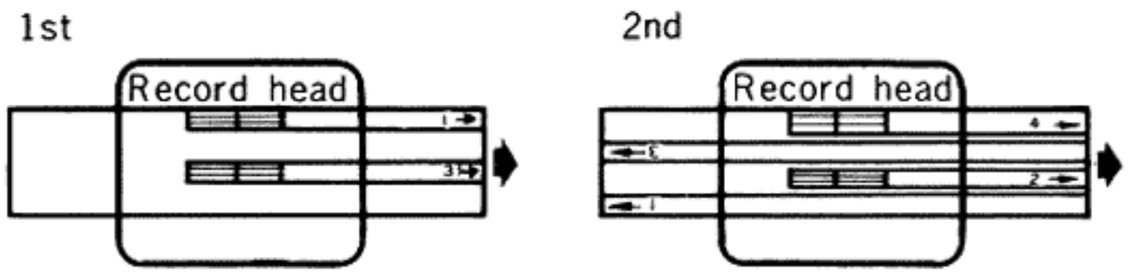
2 Track recording (Stereophonic)

2-track recording is mainly employed in radio stations and professional recording studios for stereo recording. In this case both tracks are recorded simultaneously and in the same direction. 2-track recording in the home is usually done one track at a time and is played back monophonically.

"4" track recording (Stereophonic)

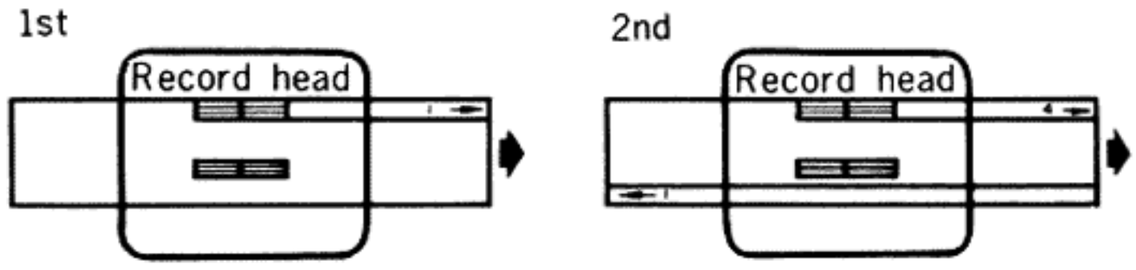


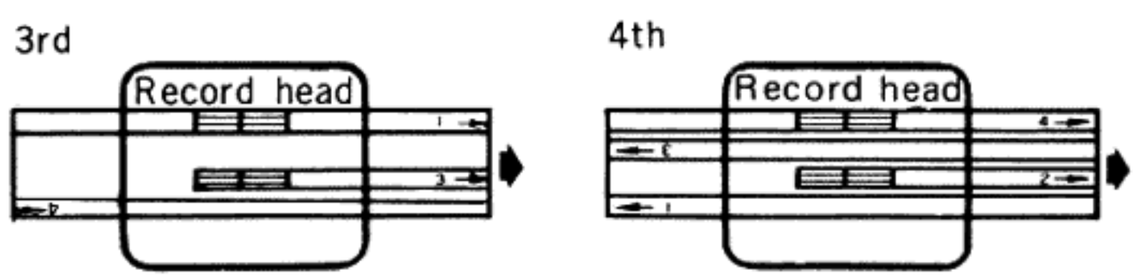
4 Track recording (Stereophonic)



In this mode two tracks are recorded simultaneously. On the first pass of the tape, tracks # 1 and # 3 are recorded. The left and right reels are then interchanged and tracks #2 and #4 are recorded. The left channel sound will be on tracks #1 and #4 and the right channel sound will be on tracks #2 and #3. Four track recording in stereo is the most widely used recording method today.

"4" track recording (Monophonic)





4 Track recording (Monophonic)

In this mode, each of the four tracks is recorded individually. At the end of the tape the reels are interchanged between left and right and the next track is recorded. The order in which the tracks are recorded is #1, #4, #3 and lastly #2.

Note: With tape threaded on the machine the tracks are numbered 1 through 4, from the top to the bottom, viewed from the base side of the tape.

Four track monophonic recording gives maximum playback time, but without the benefits of stereo reproduction.

				4 Track only	
Playback Sequence		1st	2nd	3rd	4th
Track used	4 Track	1	4	3	2
	2 Track	1	2		
Level control knob		inner L	inner L	outer R	outer R
Level meter pointer		left	left	right	right

Playback compatibility

A four track stereo tape deck can playback both 4 track and 2 track tapes and from the point of compatibility has the widest possible range of utilization. When playing a 2 track stereo tape on a 4 track recorder, track #1 will be completely covered by the head. Track #2 will be slightly off alignment but stereo can still be enjoyed by compensating for the slight loss of track #2 volume with the volume or balance controls. On the other hand a four track tape cannot be played back on a two track (Monophonic) recorder as both tracks #1 and #2 will be reproduced together resulting in mixed unintelligible sound.

RECOMMENDED SELECTIONS OF THE EQ & BIAS SWITCH POSITIONS FOR SUGGESTED TYPES OF TAPE

	* 1-mil- tapes 2/4 - Track / Switch	REC EQ SW position		REC BIAS SW position	
		"NORMAL"	"HIGH"	"NORMAL"	"HIGH"
"Low-Noise" type	FUJI FILM FB-151 FUJI FILM FG-150 MAXELL UD-35 SONY SLH-Series TDK SD-150 BASF LP-35LH MEMOREX 1800		●		●
"Low-Noise" type	SCOTCH 207 AGFA-GEVAERT PE-36	●			●
Conventional type	SCOTCH 150 or its equivalent	●		●	

● Marks show the optimum setting of equalization and bias selected.
Empty boxes settings, see page 10.

* 1-mil base (35μ-thick) tape is recommended for 2/4-track models.

	** 1 - ½ mil Tapes 2T only / Switch	REC EQ SW position		REC BIAS SW position	
		"NORMAL"	"HIGH"	"NORMAL"	"HIGH"
"Low-Noise" type	MAXELL UD-50 SONY SLH-11-740B BASF SPR-50LH SCOTCH 208 MEMOREX 1200		●		●
"Low-Noise" type	SCOTCH 206 BASF LGR-30 AGFA-GEVAERT PER-525	●			●
Conventional type	SCOTCH 111 or its equivalent	●		●	

** 1-1/2 mil base (50μ-thick) tape is suggested exclusively for use with 2-track decks, and is not recommended for 4-track decks.

The Tape

The length of tape (and subsequently its recording time) is based upon the size of the tape reel, its hub size, and the thickness of the tape's base material. The use of 1 mil base tape is recommended for 4 track stereo high-fidelity recording. Polyester base tape is preferred for use in humid or extremely dry areas.

Two recording speeds are provided on your deck, 3-3/4 and 7-1/2 inches per second. Generally, the 7-1/2 ips recording speed offers slightly better performance. TEAC decks, however, record with excellent quality at the slower 3-3/4 ips speed giving you maximum tape economy.

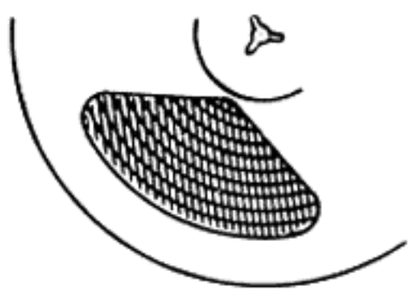
7" reel Recording time		
		7½ ips 3¾ ips
1½ mil	1200 ft	30 min. 60 min.
1 mil	1800 ft	45 min. 90 min.
½ mil	2400 ft	60 min. 120 min.

Time is shown for one direction play of the tape; Double for stereo; times 4 with mono.

Selecting the tape and reel

For recording, new tape is not necessarily needed. If the tape is of good quality the erase head will erase the previous recording as the new recording is made. However, avoid using tapes whose coating is worn, peeled off or stretched.

Good quality tape properly wound



Tape condition can be judged by appearance when wound on the reel and viewed from the side.

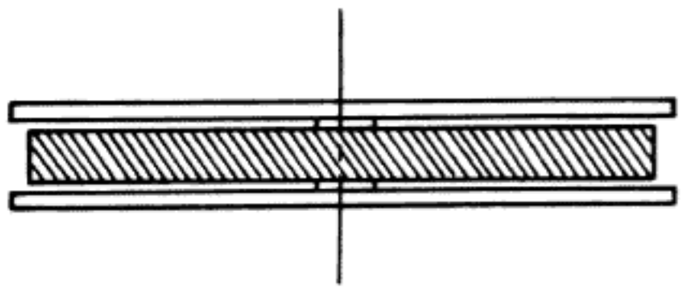
1) Is it neatly wound? 2) Are there steps or irregularities in the winding? 3) Is the color of the base uniform as seen from the side. 4) Is the tape edge smooth?

Fungus indicates old tape stored for a length of time under high humidity. Sections where the splicing tape has been applied are especially prone to support fungus growth.

Creases extending from the center positively indicate uneven stretching. This is caused by differences in temperature and humidity as well as "stop and start" winding with some layers wound at the Fast Speed and others at the play speed.

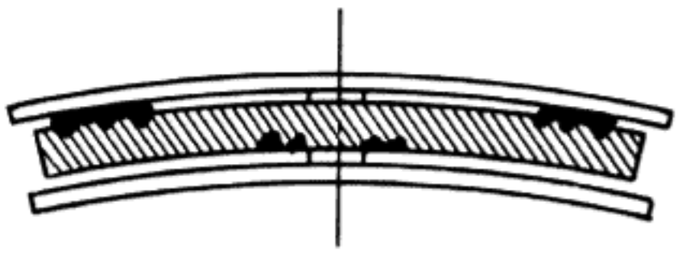
If the color of the winding is different throughout the reel it is an indication that two different types of tape have been spliced in. In some cases, the color may differ according to production lot even for the same type tape, or between opposite sides of the wound tape.

Normal condition reel

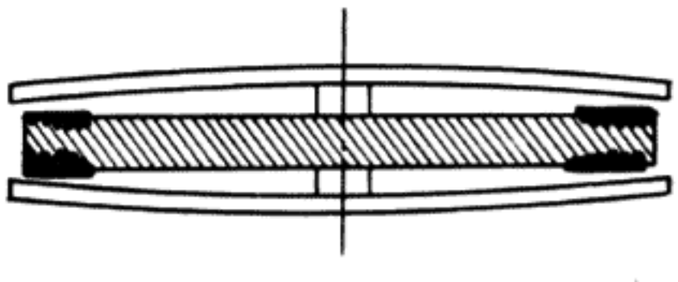


The use of a good quality reel is an important point in preventing damage to the tape edge or uneven stretching. Always use reels of the same diameter.

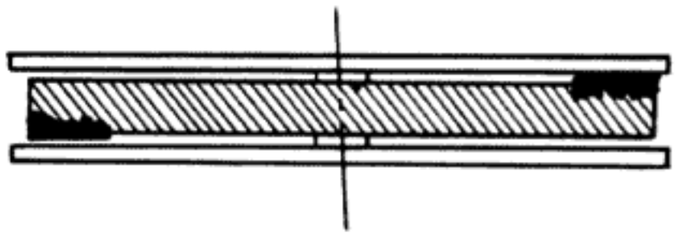
Reels which damage tape



Reels warped in the shape of a bowl will bend the tape, resulting in the so-called uneven stretching, and are sometimes encountered even with new reels.

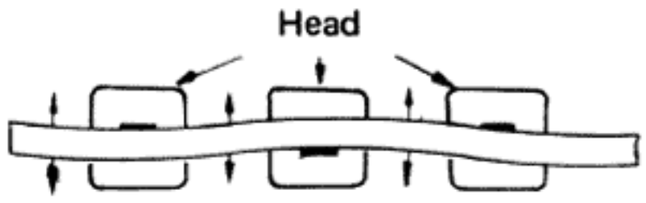


The reel may be warped in a Yo-Yo shape due to tight winding. This will not occur in reels made of hard plastic or whose hub is perfectly fitted.

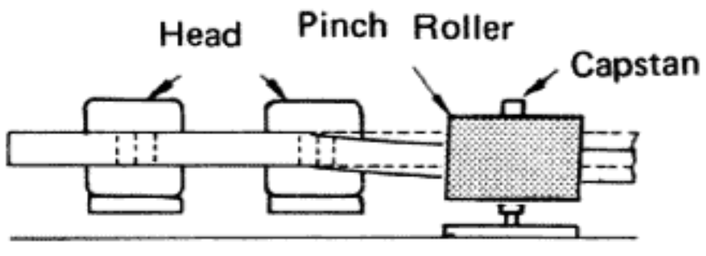


If the hub is not truly perpendicular to the flange, the wound tape will be pressed against the flange resulting in a seaweed form of tape.

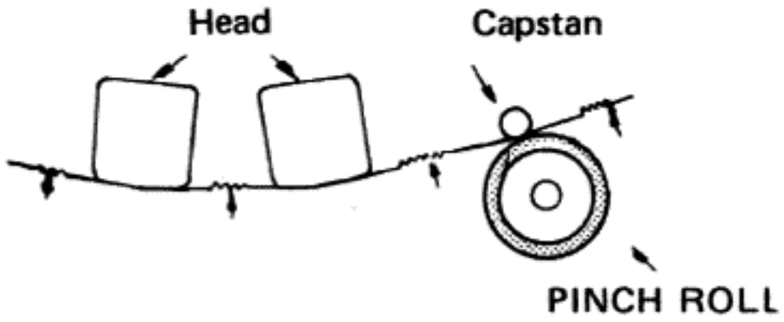
Judging tape condition by how it travels



Tapes which snake up and down between the guides and over the heads will inevitably lead to level fluctuation and azimuth misalignment.

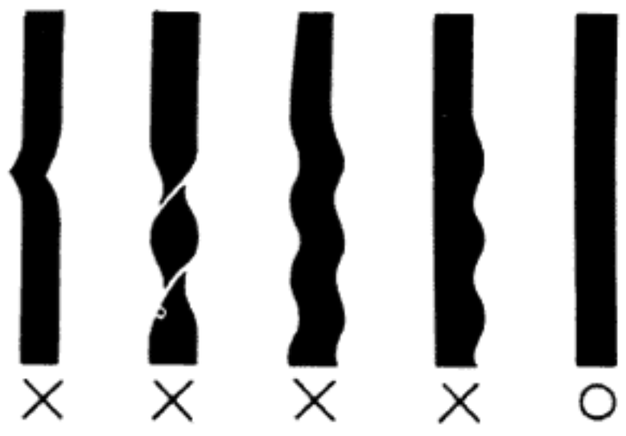


Unevenly stretched tape which travels either higher or lower than the true path of the tape will in extreme cases drift off the pinch roller.



Snaky motion of unevenly stretched tape indicated by arrows.

Hang down a length of tape to check straightness



Tape Storage and Handling

Magnetic tape recordings are superior to phonograph discs because, with proper care, they can be kept and replayed for many, many years without degradation. During playback, the biggest danger to the recording is a magnetized or dirty point on the deck, such as a head or capstan. Care for the recording and the tape must be continued even after playing it by following these guides:

1. Protect the tape from dust

Keep it in the plastic bag and the original carton.

2. Protect the tape from heat

Do not place it on top of audio components. Store it in a cool room but also avoid freezing temperatures. Keep it out of direct sunlight.

3. Protect the tape from stress

Tremendous pressure is built-up on the inner windings of tape. This pressure is acceptable unless you apply additional stress by bending or squeezing the sides of the reels. This problem is increased if the windings are irregular. Frequent starts and stops will cause uneven winding pressure and the tape will be unevenly wound from side to side within the reel. Slight pressure on the sides will then break or crack the edge of the tape. Therefore, always prepare your tapes for longterm storage by re-winding them using the playback operating speed. The FAST speed applies somewhat more tension to the tape.

4. Protect the tape from strong magnetic fields

Just as a Bulk Eraser will remove the recorded material, so will a permanent magnet or the voice coil of a speaker destroy your favorite recording.

5. Protect the tape from humidity

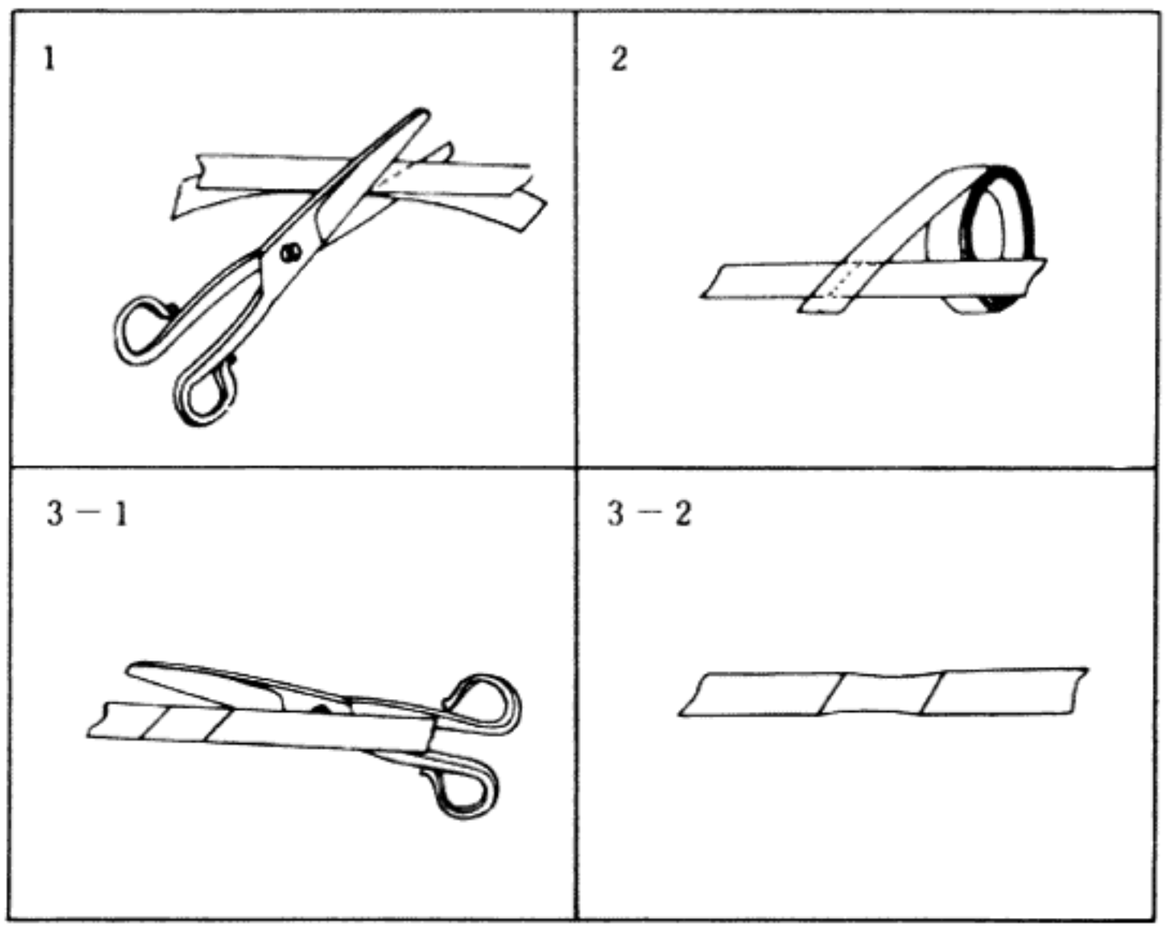
Fungus growths will cause irreparable damage to the tape if stored in damp places. Keep the tape in the original plastic bag, but insure that it is dry before storing.

Editing and Splicing Tape

Editing tape is a fascinating way to make creative recordings by eliminating and joining different segments of a recording into one pleasing tape. Long, silent or boring segments can be removed by proper editing. In fact, as editing is a creative exercise, there is only your imagination and the length of tape to limit the possibilities. Of course, broken tape can also be easily mended by splicing, one of the steps required in editing.
The first step is to precisely locate the section of tape to be removed. This can be done by manually cueing the tape.

1. Remove the cap from the Pinch Roller.
2. Remove the Pinch Roller.
3. Hold the right take-up reel with your hand while you depress the ► Play button.
4. Move the tape back and forth by manipulating the reels until the precise point for editing is positioned at the Forward Play tape head.
5. Mark the spot on the tape. Repeat this procedure for the end of the selection to be edited.

Next, use an Editing Block or a pair of scissors (demagnetized) to cut the tape at the places marked.
Finally, the splicing is to be done. A Tape Splicer is preferred, but a pair of scissors that have been demagnetized will be satisfactory. Before you proceed, have some commercially available Splicing Tape available. Never use Cellophane (Scotch Brand) tape, for that adhesive will spread and contaminate your heads.



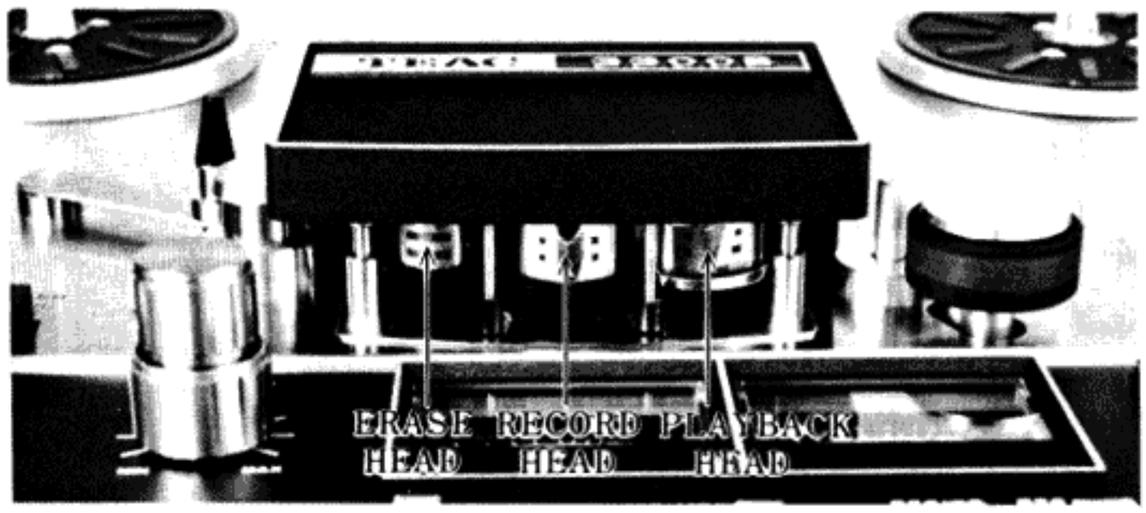
1. Overlap the ends to be spliced by approximately 1/2 inch and align them carefully.
2. Cut through the center of the overlapped area at a 45 to 60 degree angle.
3. Butt the slanted ends of the cut tape together. Use a straightedge or ruler to assure a perfectly straight alignment.
4. Apply splicing tape to the shiny base side of the tape as shown in diagram #2. Note that splicing tape goes perpendicular to the recording tape.
5. Place the spliced connection on a hard surface and rub the splicing tape briskly with your fingernail or other hard smooth object. This is to assure a firm adherence to the splicing tape.
6. Trim off the excess splicing tape as shown in Fig. 3-1 and 3-2. Note how to cut slightly into the recording tape to insure complete removal of the excess.

IMPORTANT (4-Track only)

Editing will destroy or seriously "cut" any material recorded on the other side of the tape (tracks 2 & 4). If editing is anticipated, record only on one side of the tape. After editing, material can then be copied onto both sides of another tape.
When attaching blank "leader" tape onto your tapes, follow the same procedures given here for splicing.

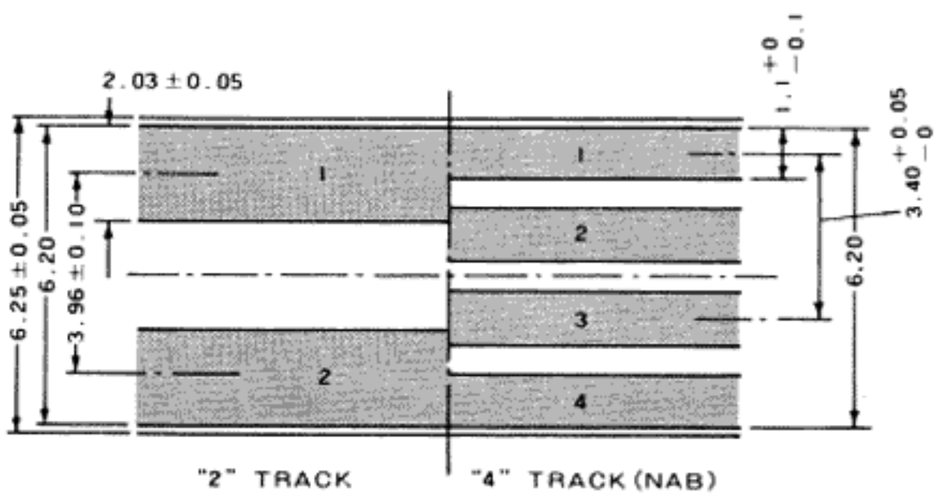
Erasing Recorded Tape

One of the advantages of magnetic tape over phonograph records is that it can be recorded over and over again. This raises the question of how is the previous recording removed. Here are three different ways to erase earlier recorded material.



Simultaneous erasing and recording

As the picture shows, there is an Erase head located to the left of the Record head in your deck. Its function is to purge the two tracks of all previous recording by means of a strong alternating magnetic field immediately before the tape reaches the Record Head. This is done automatically whenever you record.



Erasing on the deck (4-Track version)

You may erase the entire tape two tracks at a time without recording by rotating the MIC and LINE Level Controls fully counterclockwise. Start the deck in the Stereo Record Mode and tracks 1 and 3 will be erased. At the end of the tape, interchange the reels and repeat the procedure to erase tracks 4 and 2.

"2" Track erasing

Both tracks are erased as in 4-Track (above). Disregard interchanging the reels.

Bulk Erasure

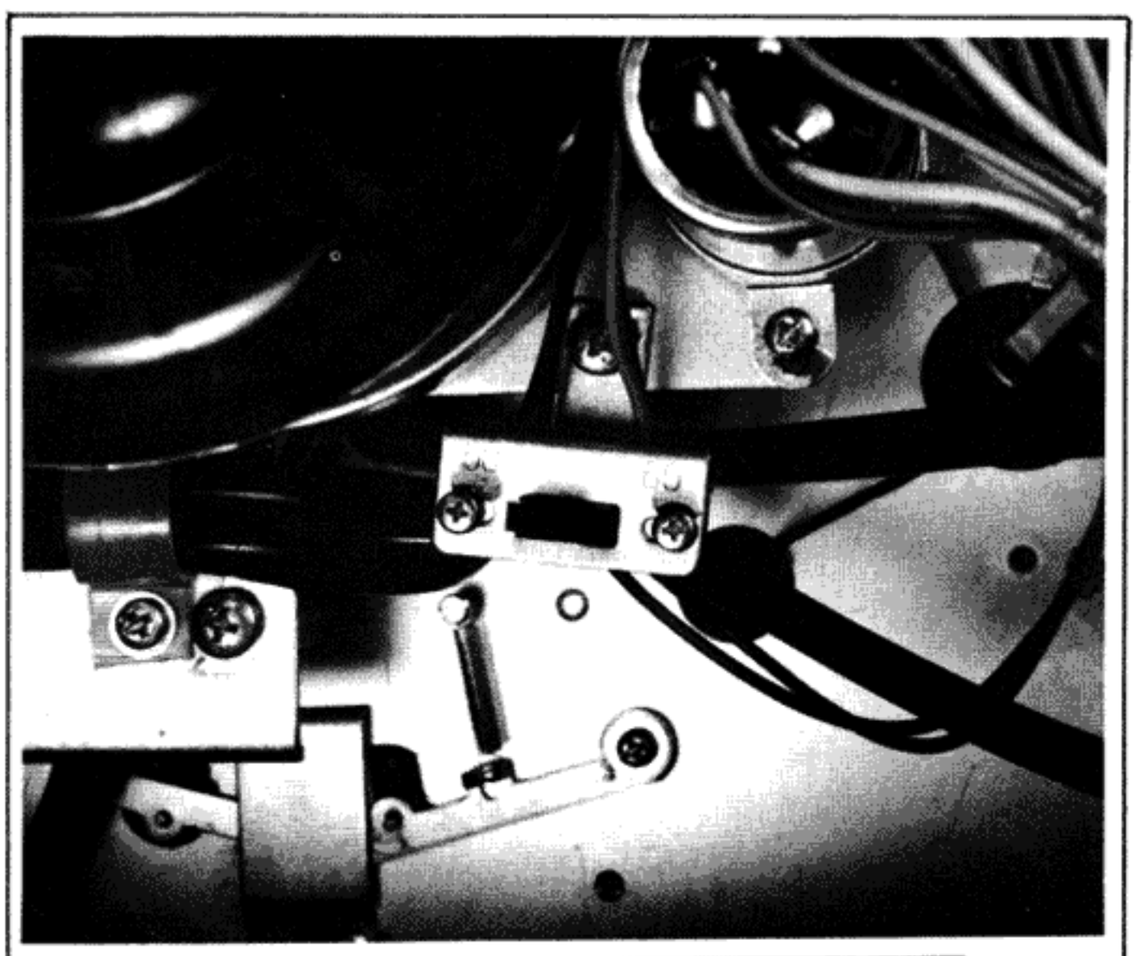
TEAC's Model E-2 bulk Tape Eraser (or its equivalent) will quickly erase the entire tape in a few seconds. For complete directions on how to use, consult the instruction supplied with the Bulk Eraser.

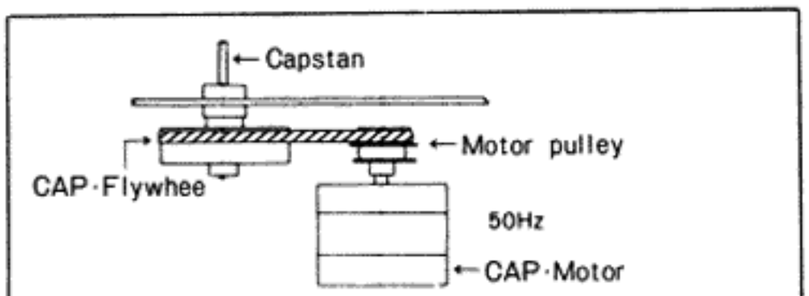
Changing the Power Line Setting

The equipment is normally adjusted to operate on an electric power source of the voltage and frequency specified on the reel tag and packing carton.
NOTE: Disconnected power cord first.

Frequency conversion

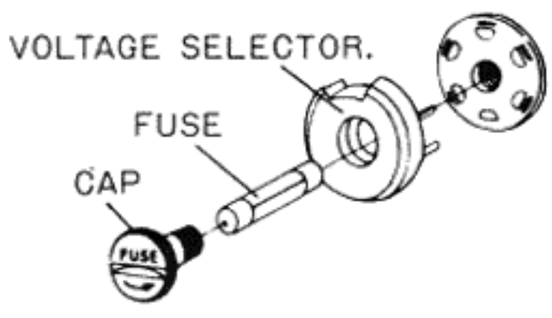
1. Remove the right side panel (wood, 4 screws), then the rear/top metal panel (6 screws).
2. Re-throw in the power frequency selector switch (slide-type) located adjacent to the capstan motor, to the desired side (50 or 60 Hz to match your area).
3. Rotate the center (capstan) motor CLOCKWISE with your right hand while repositioning the belt onto the correct drive pulley. Observe the pulley and belt through the opening in the side panel. Using the first finger of your left hand, reposition the belt onto the proper pulley as indicated in the Motor Pulley illustration. Continue to rotate the motor approximately 10 revolutions to verify belt placement before replacing the side and rear covers.





Voltage conversion

The deck may be set for 100, 117, 220 or 240 volts. To change the voltage unscrew the fuse in the center of the voltage selector plug. Pull out the plug and reinsert it so the desired voltage shows in the cutout. Reinstall the fuse.



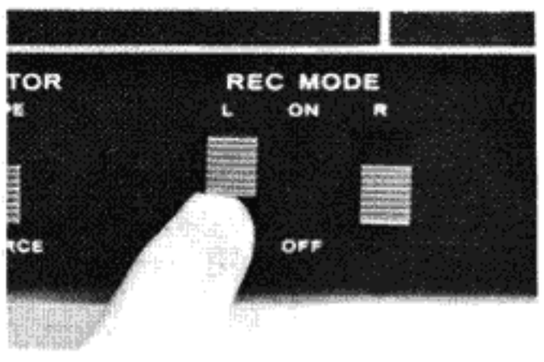
Special Recording Information and Procedures

Monophonic Recording

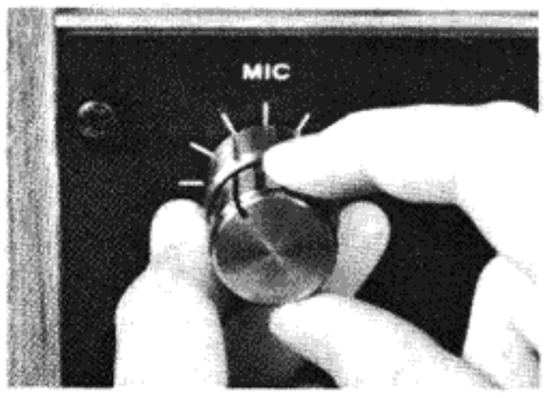
Monophonic recording is performed one track at a time, using only the Left or Right channel as explained below. The only advantage of monophonic recording is the increased time available on the tape, which is doubled. If the source is monophonic or if recording only one person speaking, you will enjoy this monophonic recording capability of the TEAC 3300S.

Follow the Basic Recording Procedures (see pg. 8) with these differences.

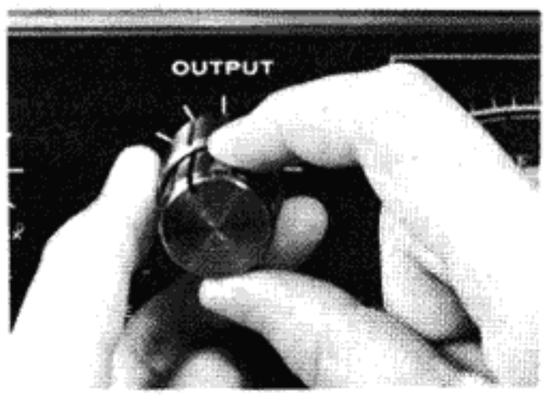
1. Connect the source to the Left Channel LINE IN jack or L MIC.
2. Place the RECORD – MODE Switch L to the ON and R to the OFF position.

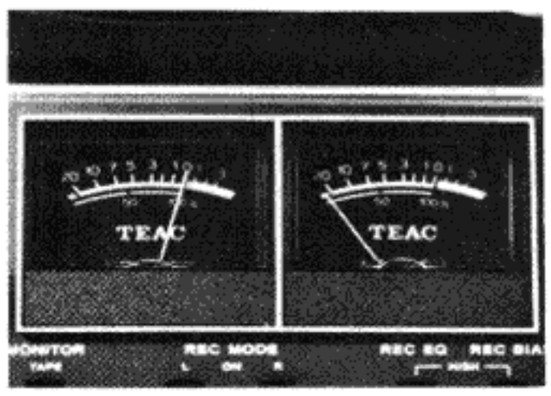


3. Rotate the Right channel control knobs for the MIC, LINE, and OUTPUT Level Controls to the MIN position (fully CCW).



4. When you begin recording, only the Left channel will be recorded first (Track 1). At the conclusion of Side 1 on the tape, interchange the reels. Follow the same procedures to record the Left channels, this time on Track 4.





5. At the conclusion of Track 4, interchange the reels again. Now you will be changing to the Right Channel.
6. Change the Input from the Left to the Right Channel LINE IN or MIC.
7. Place the LEFT (L) Channel RECORD – MODE Switch OFF, the Right (R) Channel switch ON.
8. Retard the Left Channel Controls for MIC, LINE and OUTPUT to MIN. Raise the Right Channel Controls to the Preliminary Level.
9. Record Track 2, then interchange the reels to record Track 3.

NOTE: When adjusting these friction-coupled controls, you must hold one of the knobs stationary while rotating the other. Tape monitoring (MONITOR Switch – TAPE) especially requires that the non-recording channel be kept to MIN on the OUTPUT control.

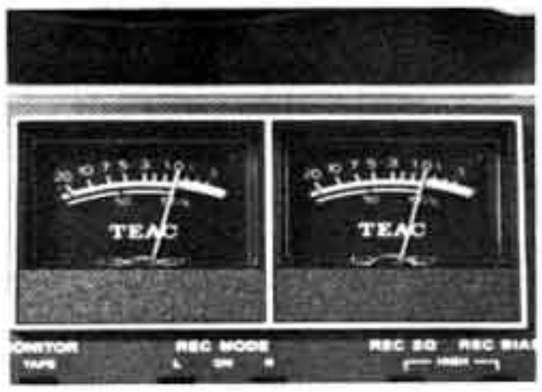
				4 Track only	
Recording Sequence		1st	2nd	3rd	4th
Track	4 Track	1	4	3	2
	2 Track	1	2		
MIC or LINE IN jack		LEFT	LEFT	RIGHT	RIGHT
VU Meter		LEFT	LEFT	RIGHT	RIGHT
MIC or LINE Level Control		Inner L	Inner L	Outer R	Outer R
RECORD MODE Switch		L	L	R	R
OUTPUT Level Control		Inner L	Inner L	Outer R	Outer R
Headphone		LEFT	LEFT	RIGHT	RIGHT

Recording With Microphones

Live Recording

High Quality recordings begin with high quality microphones. The TEAC 3300S will perform excellent live recordings from any high quality microphones (such as TEAC's MC-201) with impedances from 600 to 10,000 ohms. Low impedance microphones of 150–600 ohms will also work satisfactorily.

1. Connect the microphones to the L and R MIC Input Jacks on the front of the panel.
2. Use headphones for monitoring to prevent feed-back from developing whistles or squeals in the recording.
3. Select SOURCE – MONITOR.
4. Reduce the LINE Level Control to MIN.
5. Adjust the MIC Level Control for the proper recording level on the VU Meters.



6. Other recording procedures are the same as Basic Recording Procedures on pg. 8.
7. Use the PAUSE Control during interruptions in the recording.

NOTE: Experimentation, experience and extensive study will be required before you can duplicate the accomplishments of a professional studio recording. Microphone selection, placement of the microphones, and the room acoustics must all be considered in addition to recording levels and special techniques.

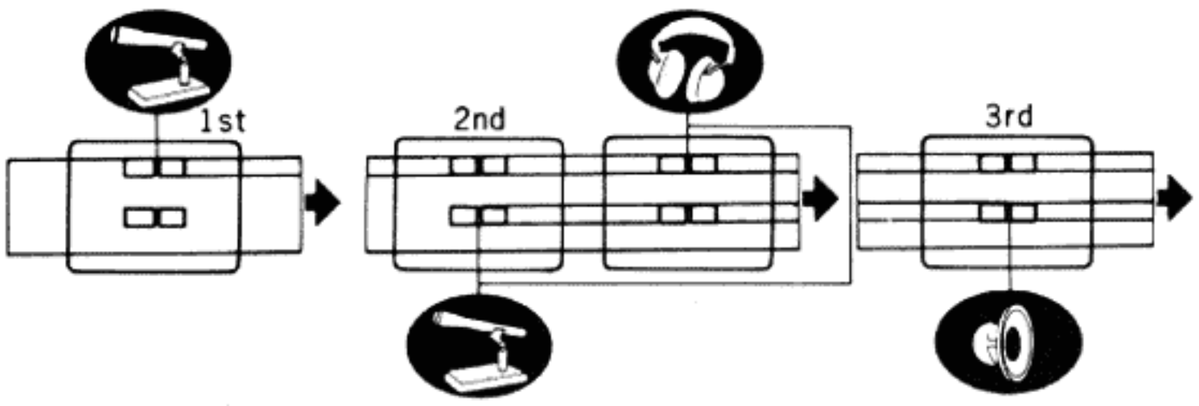
MIC/LINE Mixing

You may add your commentary to a musical recording, add music background to a live recording, and perform many other interesting recordings by combining the procedures for Live Recording with Microphones and the standard recording procedures for Line Inputs. Connect the microphones to the L MIC R Jacks on the front of the deck. Consider these following points while recording.

1. The use of headphones is recommended to prevent feedback squeals and whistles.
2. Use the SOURCE Monitor selection to simplify synchronization of the MIC and LINE Inputs.
3. Adjust the MIC and the LINE Level Controls to balance the relative levels between the separate inputs while keeping the total input level within the limitations indicated by the VU Meters.
4. If the Line Input is Dolby-encoded, please note that the MIC Input will not be Dolbyized, thus it will sound unnatural during playback.

Sound On Sound Recording (for the experienced recordist)

The technique of recording sound on sound is basically a method for mixing the monophonic recording from one track with a subsequent recording (generally live) on the second track (also monophonic). This procedure can be repeated from one track into the other until the noise level (tape hiss) from successive recordings has added together to an undesirable level, probably after five or six recordings.



1. Make a monophonic recording on the Left channel (track 1).
2. Rewind the tape to the beginning of the recording.
3. Connect an audio cable from the Left channel OUTPUT jack to the Right channel LINE IN jack.
4. Insert a headphone plug into the PHONES jack and a microphone into the MIC R (right) jack.
5. Place the RECORD – MODE L (left) switch OFF and the R (right)switch ON.
6. Engage the Record/Pause mode by depressing the REC and PAUSE control buttons.
7. Reduce the Left LINE Level Controls and the Left MIC Level Control. Make a preliminary level setting with the Right MIC Level control, using SOURCE Monitor.
8. Switch to TAPE-MONITOR, release the RECORD/PAUSE Mode by pushing the ► button.
9. Listen only to the Left earpiece on the headphones.
10. While monitoring the Left channel with headphones, make a mixed recording by adjusting the MIC-R and LINE-R Level controls. Observe the VU Meter (Right) but note that the reading will be slightly delayed because of the distance the tape must travel from the Record head to the Playback head.

Sound-on-sound recording step chart

	1st	2nd	3rd
MIC IN or LINE IN jack	L	R	L
MIC or LINE Level Control	L	R	L
MONITOR SELECT Switch	SOURCE and TAPE	TAPE	TAPE
VU Meter	L	R	L
REC. MODE SELECT Switch	Left	Right	Left
OUTPUT	L	L	R
Headphone	Left	Left	Right

NOTE 1.
For succeeding recordings, simply reverse the channels each time, and use the alternate controls and switches.

NOTE 2.
If the LINE control does not provide sufficient adjustment you might re-adjust the OUTPUT control to prevent saturation or to raise it to a satisfactory level for recording.

NOTE 3.
If the mixed recording on track 3 is unsatisfactory, you may record it again, for the original material still remains on track 1.

NOTE 4.
TEAC's optional accessory AX-10 Sound-on-Sound and Stereo Echo Unit may be helpful to you.

ECHO Recording

The echo repetition cycle is strictly limited by the spacing between the Record head and the Playback (monitor) head, and by the tape speed. The higher tape speed gives the quicker echo. Echo persistence (the number of repetitions) depends upon the strength of recording. Persistence can be increased by increasing the OUTPUT Level setting. Avoid oversetting the Level for saturation will begin when the echo becomes too strong. Set the MONITOR switch to TAPE. Follow the directions supplied with the TEAC AX-10 Sound-on-Sound and Stereo Echo Unit (optional accessory).

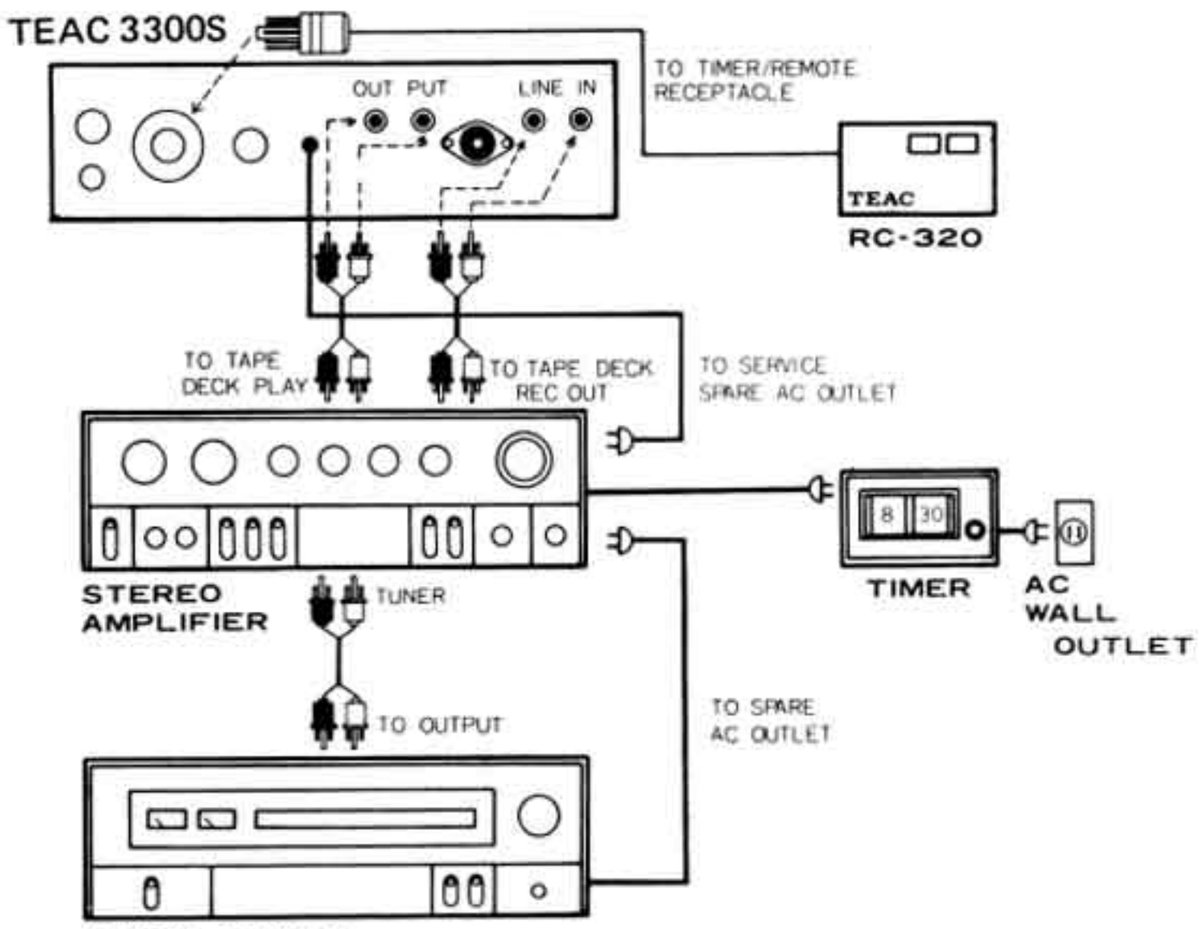
Recording with the Dolby Noise Reduction System.

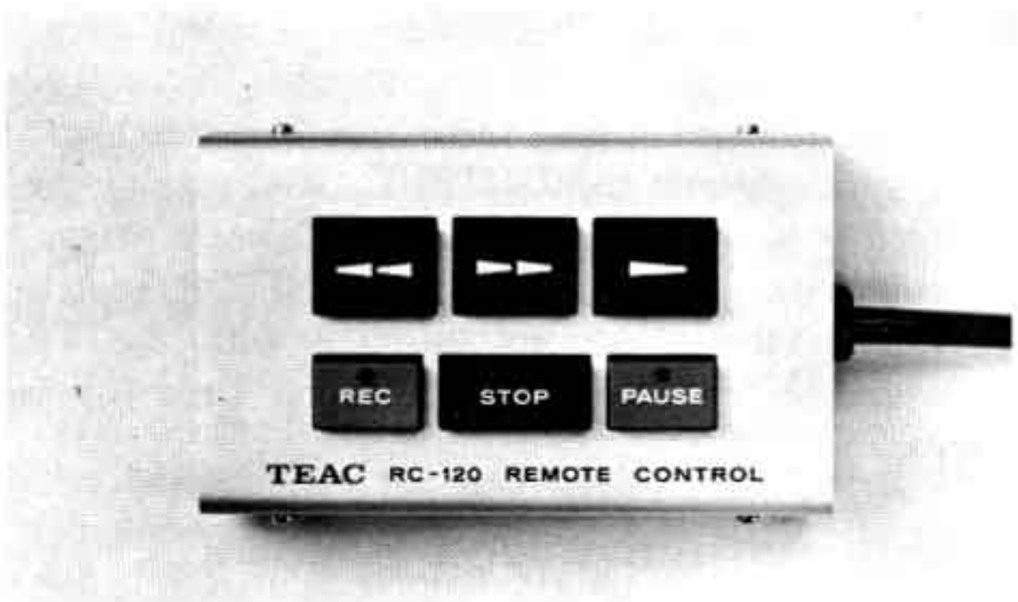
Dolby Laboratories Inc. have developed an effective Noise Reduction System which reduces tape noise and hiss by as much as 10 dB. This System is available from TEAC Corp. in its models AN-60, AN-80, AN-180, AN-300 and others.

When using a Dolby Noise Reduction unit with the TEAC 3300S, note these following points:

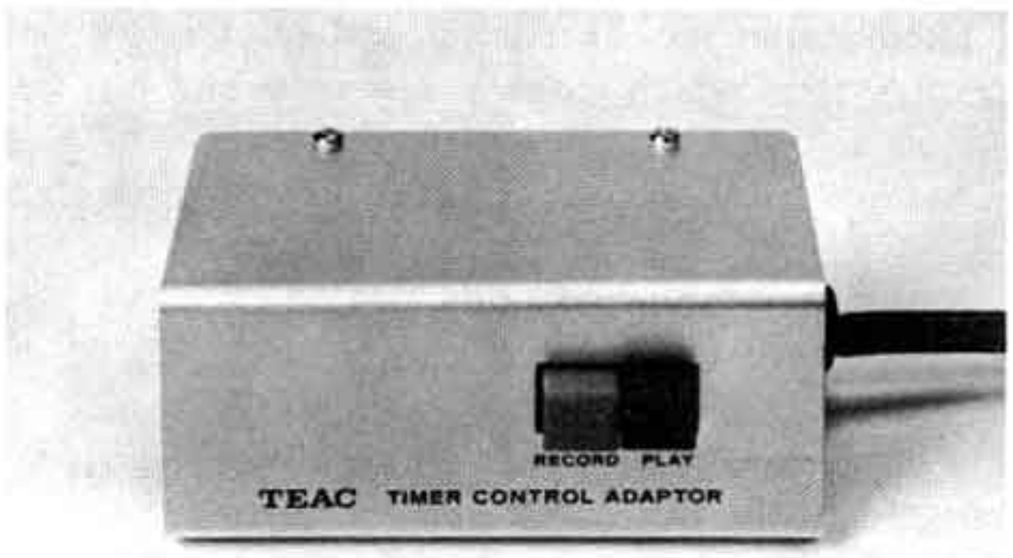
1. Connect the Dolby NR unit directly to the 3300S. All audio cables from the amplifier or other sources are then connected to the Dolby NR unit.
2. Unless specifically stated otherwise in the Dolby NR unit's Instruction Manual, all the instructions in this Manual are still applicable. The type of tape used in the recording will determine the BIAS and EQ Switch position.

CONNECTION:
TIMER CONTROLLED RECORDING





RC-120 REMOTE CONTROL UNIT



RC-320 TIMER CONTROL ADAPTOR

Timer Controlled Recording

TEAC's optional accessory RC-320 Timer Control Adaptor will work with almost any electrical-switching clock timer to start recording on the TEAC 3300S at a preset time. Remove the Dummy Plug from the rear of the deck to connect the RC-320. Follow the instructions supplied with the RC-320. Remember to make all the preparations for recording and set the recording level before setting the clock timer. You might also want to reduce the speaker volume level on your amplifier. This accessory may be left connected while using normal procedures with the 3300S provided that both buttons on the RC-320 are disengaged (up).

Remote Controlled Recording Playback

TEAC's optional accessory RC-120 Remote Control Adaptor gives you total control over the 3300S transport controls from up to 15 feet away. Even recording and PAUSE can be engaged from the comfort of your easy chair. Remove the Dummy plug on the rear of the deck to install the RC-120 plug. Follow the instructions supplied with the Adaptor. This accessory may be left connected while you use the controls on the 3300S.

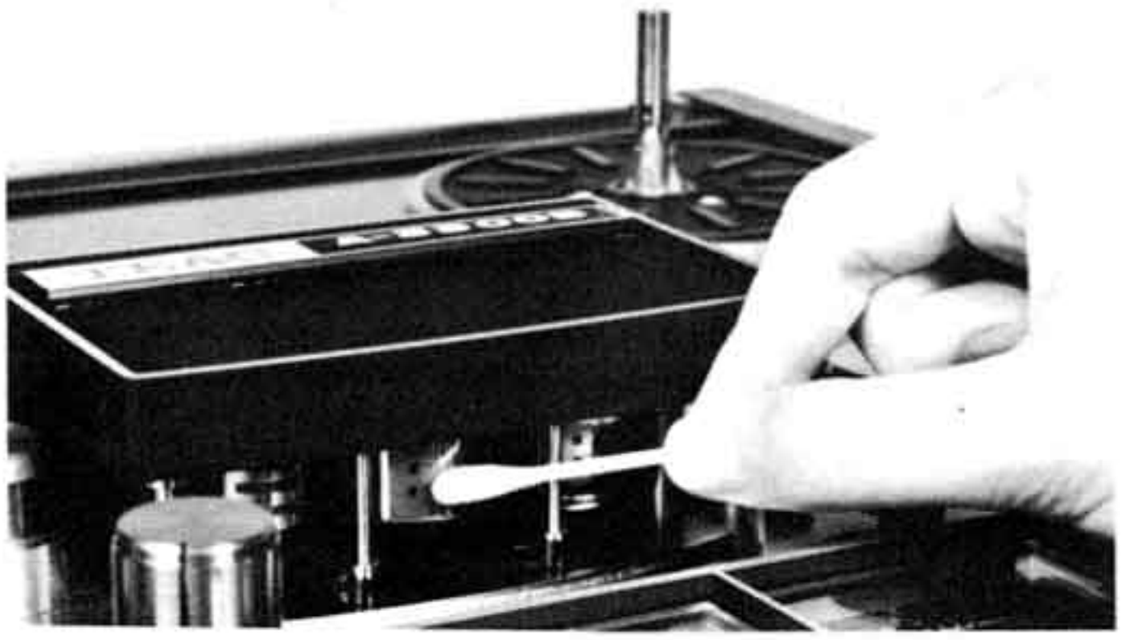
Recording Directly from a Source

Although the connections shown in page 5 of this manual show only connections to an amplifier, you need not limit yourself to that source for recording. In fact, almost any standard audio component may be connected from its output to the LINE IN jacks of the 3300S with the following exceptions.

1. Never connect the Speaker output of any amplifier to the deck.
2. Turntable and phonograph outputs need special amplification and equalization from an amplifier before they can be recorded.
3. DIN cords are designed only for connection between the deck and a stereo amplifier.
4. Electrical pickups for musical instruments, electric guitars and electronic organs are generally unacceptable. Check with your dealer or the units instruction manual before attempting to record directly from these sources.

Owner's care of the TEAC 3300S

Cleaning of the heads.



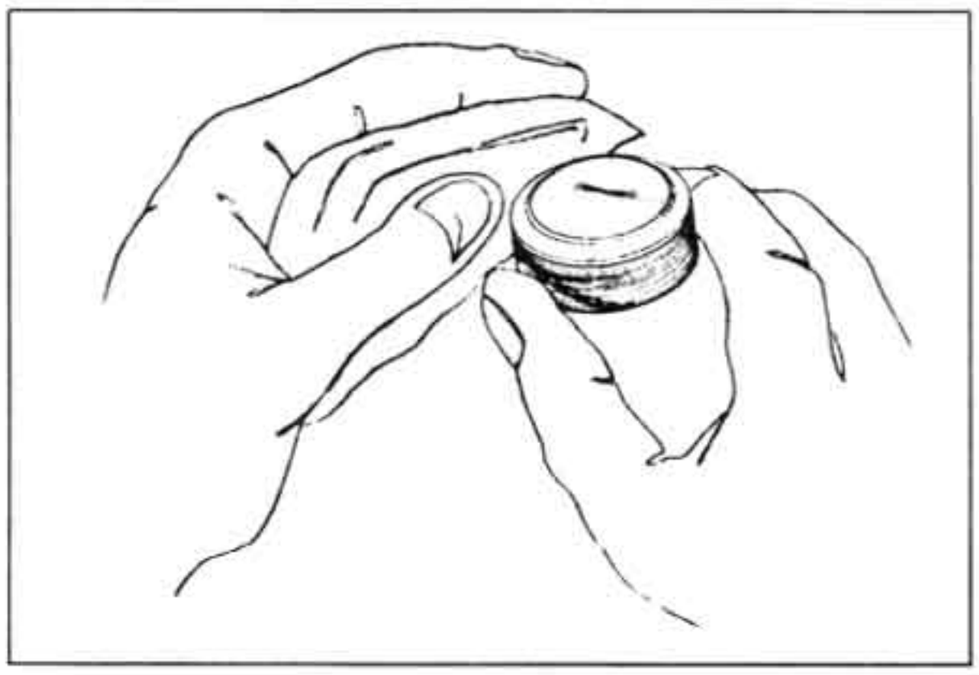
The single most important point in tape deck maintenance is frequent and proper cleaning of the heads. The heads should always be cleaned before making important recordings and at least once for every 8 hours of use (record or playback). Dirty heads will cause a reduction in high frequency response, irregular head wear, drop out and in extreme cases may cause the deck not to record at all. The small amount of time and effort required will be more than compensated for by the higher quality of recording and reproduction available if these procedures are followed.

Commonly used cleaning fluids are chlorothane, absolute (anhydrous) alcohol and TEAC Head Cleaner (Fluid "A" in the TZ-261 kit).
Chlorothane is non-flammable and has excellent cleaning properties. Alcohol is harmless but is combustible and its cleaning properties are lower. TEAC Head Cleaning Fluid is non-toxic, non-combustible and has excellent cleaning properties and its use is recommended.

Using a stiff cotton swab or a piece of gauze dipped in cleaning fluid, rub the entire head surface, being cautious not to scratch it. Repeat the process on each head until all discoloration and tape oxides are removed. Clean all metal parts over which the tape passes, such as capstan shaft, tape guides, tape lifters etc.

The cotton swabs should have a rigid shaft, a satisfactory job cannot be accomplished with the slender flexible types often seen.

Cleaning of the pinch roller



After prolonged use the pinch roller will accumulate a film of oxide. Use only Fluid "B" from the TEAC TZ-261 kit as it is especially formulated for cleaning rubber surfaces. Do not use chlorothane as it will cause deterioration of the rubber roller.

NOTE: The newer tape formulations leave a gray or white residue which is difficult to detect. Regular cleaning schedules should be established rather than relying on observation.

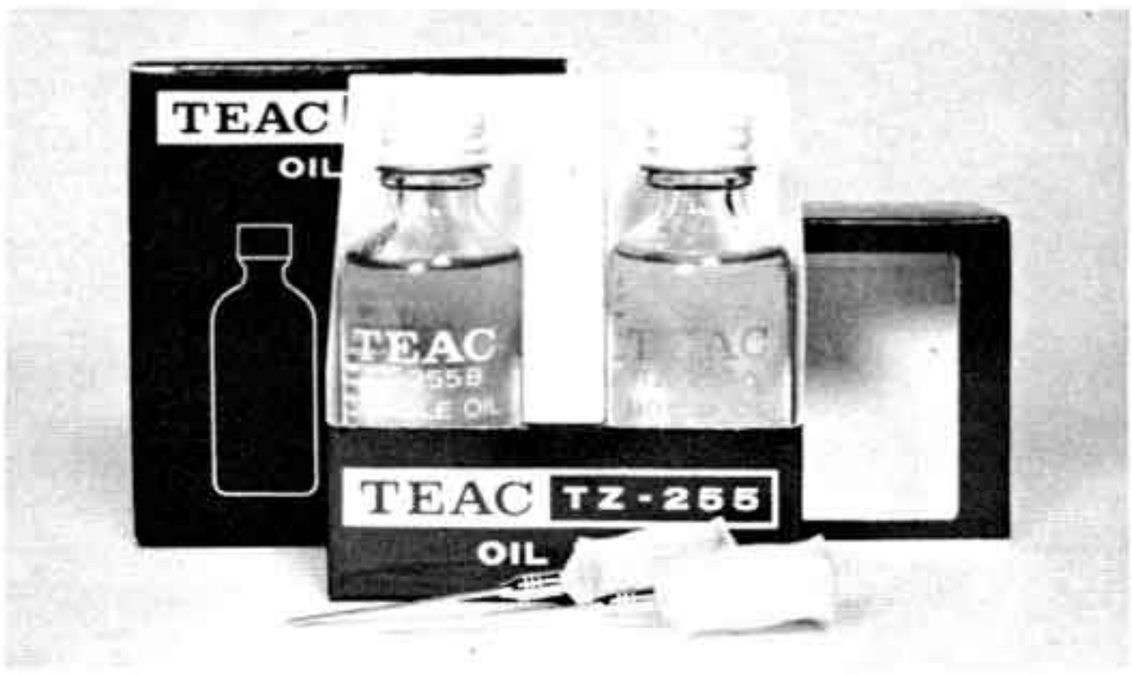
Cleaning of the cabinet

Ordinary furniture cleaner and polish can be used to maintain the attractive finish.

Cleaning the faceplate

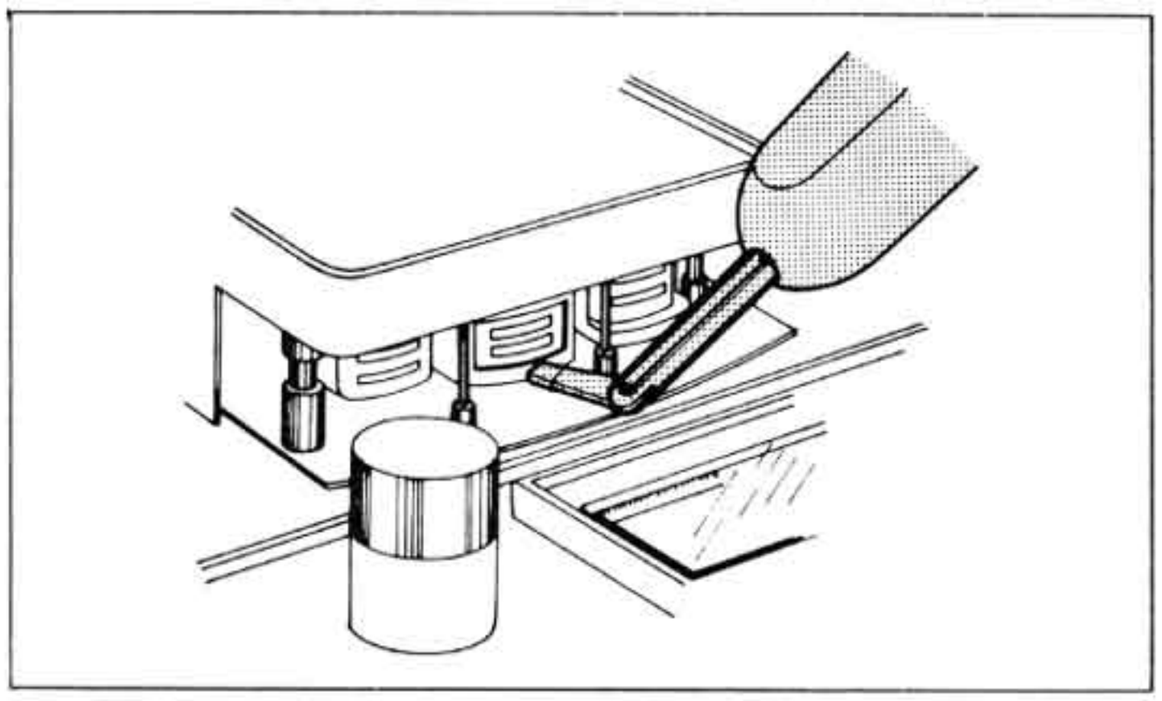
A soft cloth and mild cleaning fluids (non-abrasive) can be used to restore the luster of the faceplate. An oil-damped cloth will also give good results, but take care not to get oil on the tape path components such as the pinch roller, capstan, etc.

TZ-261 HEAD AND RUBBER CLEANER



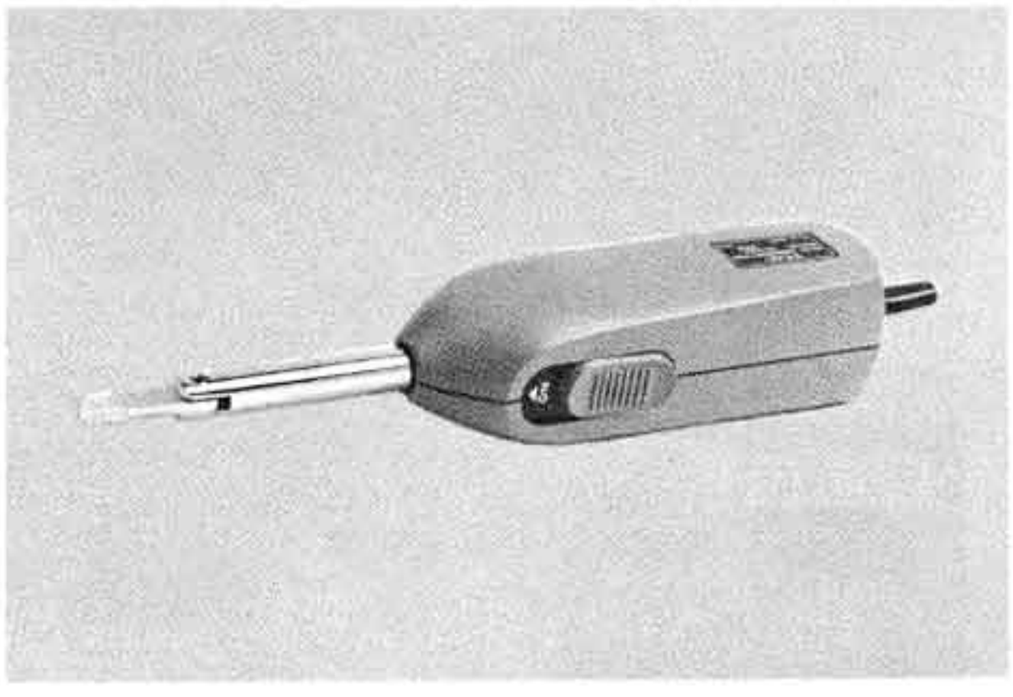
TZ-255 OIL KIT

Demagnetizing



During long periods of use, the heads will become slightly magnetized. As a result, the high frequency will decrease, noise will develop, or in extreme cases the high regions will drop out or introduce noise into your valued pre-recorded tapes. To keep your recorder operating at optimum efficiency the heads should be demagnetized at least once for every 50 hours of use, with a TEAC Model E-3 Head Demagnetizer, using the procedures outlined below:

1. Turn off power to the tape deck.
2. Attach the plastic protectors on the pole tips of the Demagnetizer.
3. Plug the Demagnetizer cord into an AC outlet.
4. Depress the Demagnetizer power button, bring the tip close to the head and slowly move it up and down 4 or 5 times.
5. Slowly draw it away from the head.
6. The same demagnetizing procedure is followed on each head, capstan shaft, and the guide posts.
7. After finishing the above procedure turn off power to the Demagnetizer ONLY after it has been drawn at least 12 inches away from the heads.

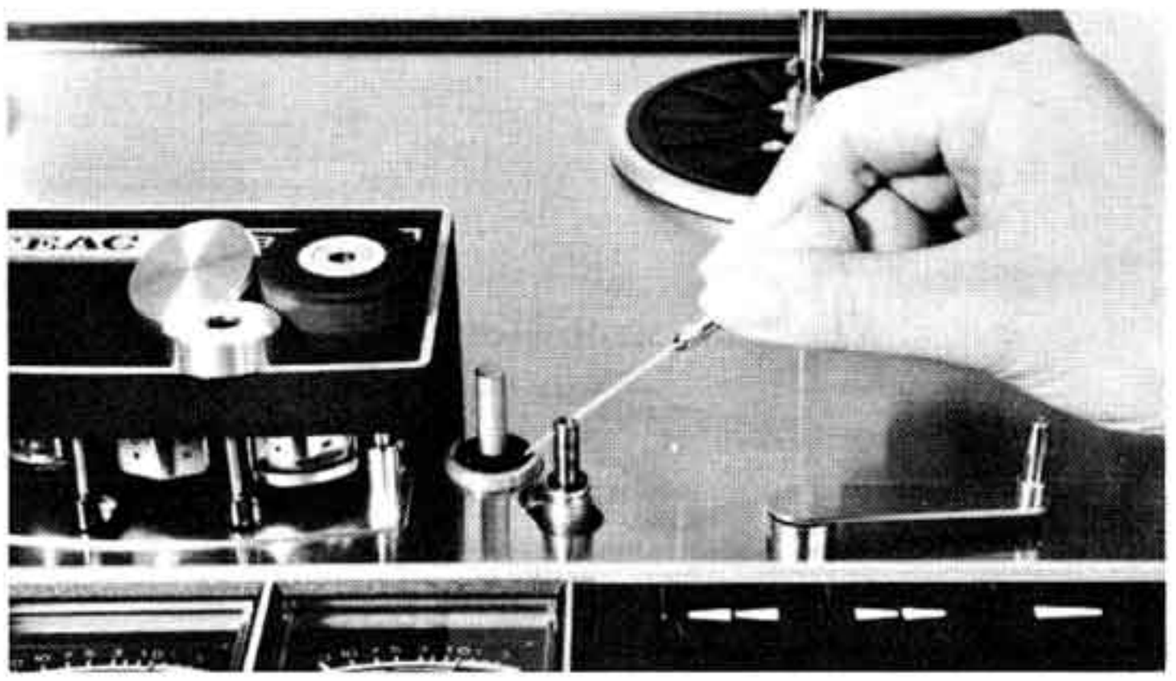


MODEL E-3 HEAD DEMAGNETIZER

Lubrication Procedures

1. Remove the rear panel.
2. Use TEAC TZ-255 oil or equivalent.
3. Lubricate points listed below at every 1,000 hours of operation or once a year if equipment is infrequently used.

CAPSTAN SHAFT: Remove the dust cover by turning it counterclockwise with fingers, apply approximately 2 drops of oil to the oil-chamber felt.



PINCH ROLLER SHAFT: Unscrew the cap with fingers, apply one drop of oil to the shaft bearing.

MOTORS: Each motor (capstan motor, 2 reel motors) has two oil tubes attached. Apply approximately 1 cc of oil to each motor tube. If oil "backs up" into the oiling tubes, or is not accepted by the motor, do not force it into the motor.

CAUTION: Do not apply excessive quantities of oil, over lubrication can be a source of difficulty. Do not apply oil to any rubber parts. Should oil be spilled onto rubber parts, remove immediately with TEAC rubber cleaning fluid.

Lubrication should be accomplished immediately after use while equipment is still warm.
After applying lubricant, leave tape deck in horizontal position for 1–2 hours until oil is thoroughly absorbed.

Possible Troubles and How to Cure Them

Problem	Cause	Corrective action
Tape Transport		
Completely inoperative, VU Meter lamps not illuminated	1. Power cord loose, not connected	1. Connect power cord
	2. Fuse blown	2. Replace fuse; 2nd time, see service center
Capstan does not rotate (VU Meter lamps illuminate)	Auto-shutoff arm not upright	Correct the arm position
Pinch roller will not engage	Dummy Plug not inserted in the Remote Control socket	Insert Dummy plug
Index Counter not operating	Counter reset not cleared	Depress reset button several times
Pinch roller dragging (cannot be spun freely by hand)	Needs lubrication	Remove pinch roller cover, apply 1 or 2 drops of oil, check by hand again
Tape squeal noise	1. Tape rubbing reel	1. Insert Reel Height Adjustment Sheet or replace reel.
	2. Pinch roller dry or tape needs lubrication (silicone)	2. Use Tape Lubricating Cloth to apply silicone lubrication to the entire tape or replace the tape.
Playback Operation		
No sound	1. Disconnected audio cord	1. Check and secure connections on the deck and stereo amplifier sys.
	2. MONITOR Switch mis-positioned	2. Place MONITOR Switch to TAPE
	3. OUTPUT Level too low	3. Increase OUTPUT Level Control
Poor sound quality	1. Dirty tape heads	1. Clean heads
	2. Decayed or defective tape	2. Replace tape
Unstable sound (wow, flutter, pitch changes)	1. Improper pinch roller pressure	1. Clean with Rubber Cleaning Fluid or replace pinch roller
	2. Dirty tape path	2. Clean entire tape path with head cleaner
	3. Tape rubbing against the reel	3. Insert Reel Height Adjustment Sheet
Recording Operation		
Does not record, cannot hear audio at SOURCE MONITOR position	1. Input cable loose or disconnected	1. Check cord at deck and at stereo amplifier
	2. Input level too low	2. Increase Input Level Controls
Does not record, cannot hear audio at TAPE MONITOR position	1. Dirty tape heads	1. Clean heads
	2. OUTPUT Level too low	2. Increase OUTPUT Level setting
Sound quality is low, dull, too much tape hiss, etc.	1. Dirty tape heads	1. Clean heads
	2. Decayed or defective tape	2. Replace tape
	3. Insufficient input level	3. Increase MIC or LINE Input Levels
	4. Heads or tape path magnetized	4. Demagnetize tape path
Distorted or garbled sound	1. Overmodulation from excessive input level	1. Reduce the Input Level settings
	2. Decayed or defective tape	2. Replace the tape

Specifications and Optional Accessories

Model	A–3300S	A–3300S - 2T
Heads	Three, 4 track 2 channel, stereo or mono erase, record and playback	Three, 2 track 2 channel, stereo or mono erase, record and playback
Reel Size	10 ½" and 7"	
Tape Speed	7 ½ ips and 3 ¾ ips (±0.5%)	15 ips and 7 ½ ips (±0.5%)
Motors	1 dual speed hysteresis synchronous capstan motor 2 eddy current induction reel motors	
Wow and Flutter	0.06% at 7 ½ ips 0.09% at 3 ¾ ips	0.04% at 15 ips 0.06% at 7 ½ ips
Frequency Response	30~28,000 Hz (±3dB, 40~24,000 Hz) at 7 ½ ips 30~20,000 Hz (±d3B, 40~16,000 Hz) at 3 ¾ ips	25~28,000 Hz (±3dB, 30~26,000 Hz) at 15 ips 25~28,000 Hz (±3dB, 30~24,000 Hz) at 7 ½ ips
Signal to Noise Ratio	58 dB	60 dB
Harmonic Distortion	1% at 1,000 Hz normal operating level	
Crosstalk	60 dB at 1,000 Hz	————
Stereo Channel Separation	50 dB at 1,000 Hz	
Fast Winding Time	140 seconds for 1,800 feet	
Inputs	Line: 0.1V, 100,000 ohms or more Microphone: 0.25 mV/-72 dB (600 ~ 10,000 ohms)	
Outputs	Line : 0.3V for load impedance of 10,000 ohms or more Headphones: 8 ohms	
Power Requirements	100/117/220/240 V AC, 50/60 Hz, 145 W	
Dimensions	17-5/16"(H) X 17-5/16"(W) X 8-5/16"(D) (440(H) X 440(W) X 210(D)mm)	
Weight	44 lbs, (20 Kg) net	
Standard Accessories	Empty reel (10 1/2"), Reel adaptors, Input-output connection cord, Oil, Fuse, Cleaning stick, Silicone cloth, Rubber feet, AC power cord, Splicing tape, Reel height adjusting sheet	

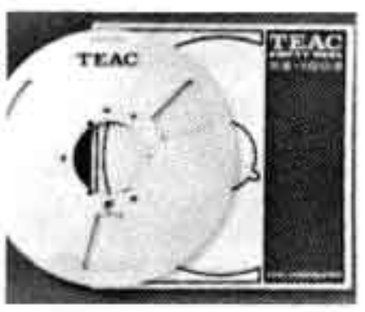
* Specifications were determined using low noise tape.
* Feature and specifications subject to change without notice.

◀ **MC-201**
Electret Condenser Microphone

HP-103 ▶
Dynamic Headphones

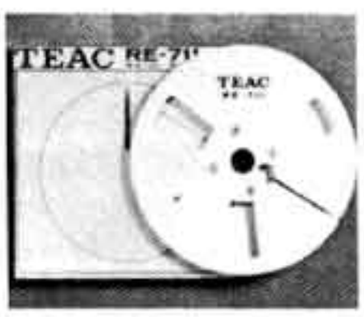
◀ **RE-701**
7 inch Reel (large hub)

RE-1002 ▶
10-1/2 inch Metal Reel



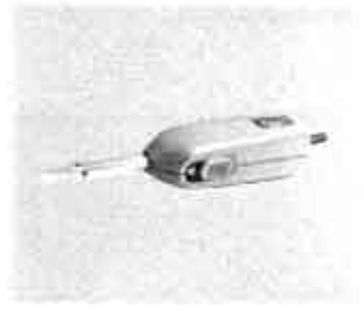
◀ **TZ-261**
Head and Rubber Cleaner

TZ-255 ▶
Oil Kit



◀ **RE-711**
7 inch Metal Reel (small hub)

RC-120 ▶
Remote Control Unit



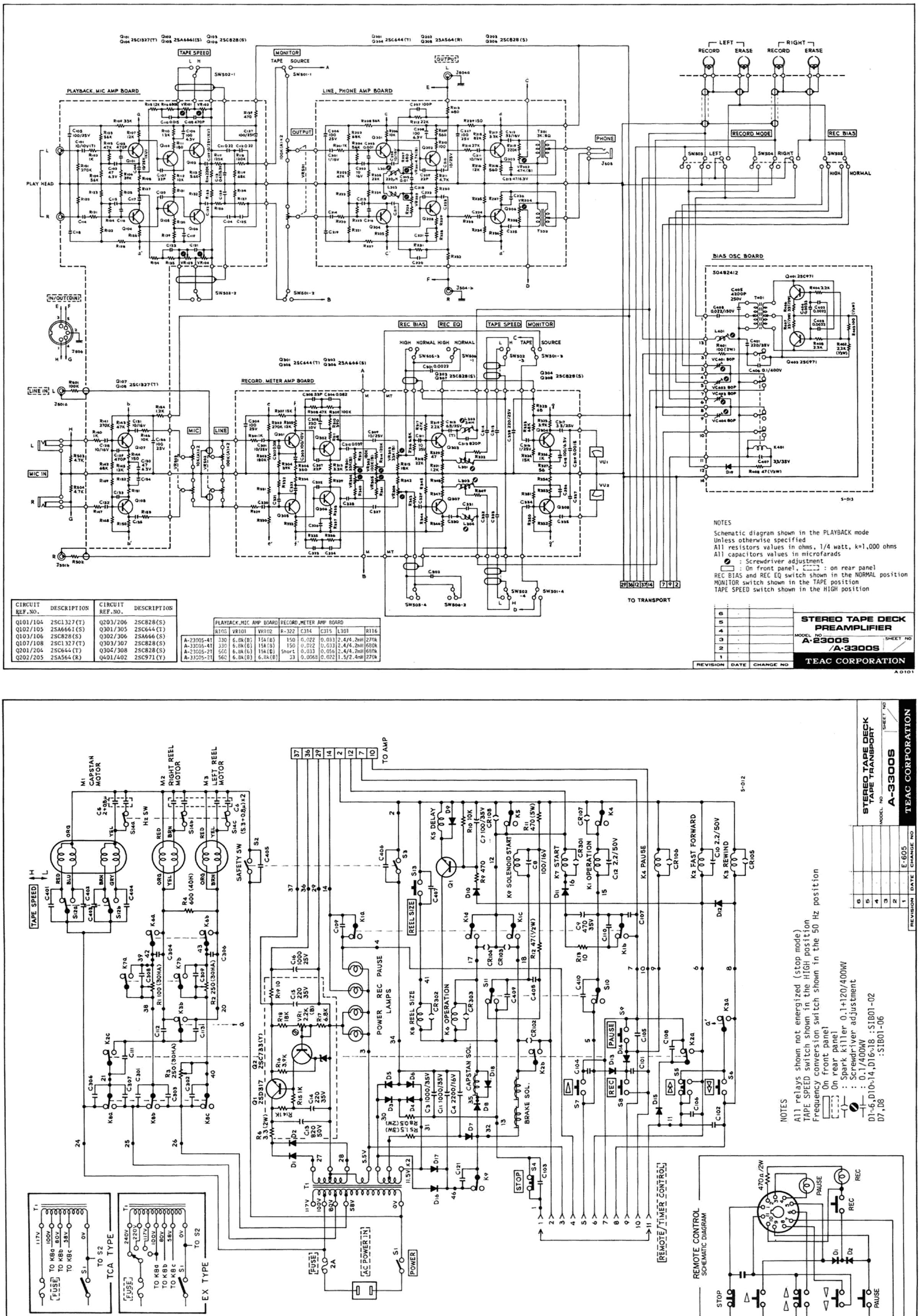
◀ **E-3**
Head Demagnetizer

E-2 ▶
Bulk Eraser

◀ **RC-320**
Timer Control Adaptor

AX-10 ▶
Sound-On-Sound & Echo Unit

Schematic Diagram



CIRCUIT REF.NO.	DESCRIPTION	CIRCUIT REF.NO.	DESCRIPTION
Q101/104	2SC1327(T)	Q203/206	2SC828(S)
Q102/105	2SA666I(S)	Q301/305	2SC644(T)
Q103/106	2SC828(S)	Q302/306	2SA666(S)
Q107/108	2SC1327(T)	Q303/307	2SC828(S)
Q201/204	2SC644(T)	Q304/308	2SC828(S)
Q202/205	2SA564(R)	Q401/402	2SC971(Y)

	PLAYBACK,MIC AMP BOARD			RECORD,METER AMP BOARD				
	R105	VR101	VR102	R-322	C314	C315	L301	R116
A-2300S-4T	330	6.8k(B)	15k(B)	150	0.022	0.033	2.4/4.2mH	270k
A-3300S-4T	330	6.8k(B)	15k(B)	150	0.022	0.033	2.4/4.2mH	680k
A-2300S-2T	560	6.8k(B)	15k(B)	Short	0.033	0.056	2.4/4.2mH	680k
A-3300S-2T	560	6.8k(B)	6.8k(B)	33	0.0068	0.022	1.5/2.4mH	270k

NOTES

Schematic diagram shown in the PLAYBACK mode
Unless otherwise specified
All resistors values in ohms, 1/4 watt, k=1,000 ohms
All capacitors values in microfarads
⌀ : Screwdriver adjustment
▭ : On front panel, ▭▭ : on rear panel
REC BIAS and REC EQ switch shown in the NORMAL position
MONITOR switch shown in the TAPE position
TAPE SPEED switch shown in the HIGH position

REVISION	DATE	CHANGE NO
6		
5		
4		
3		
2		
1		

STEREO TAPE DECK PREAMPLIFIER
MODEL NO A-2300S /A-3300S
SHEET NO
TEAC CORPORATION

NOTES

All relays shown not energized (stop mode)
TAPE SPEED switch shown in the HIGH position
Frequency conversion switch shown in the 50 Hz position
▭ On front panel
▭▭ On rear panel
: Spark killer 0.1+120/400WV
: Screwdriver adjustment
: 0.1/400WV
D1~6,D10~14,D16~18 :SIB01-02
D7,D8 :SIB01-06

REVISION	DATE	CHANGE NO
6		
5		
4		
3		
2		
1	E-605	

STEREO TAPE DECK TAPE TRANSPORT
MODEL NO A-3300S
SHEET NO
TEAC CORPORATION

TEAC

The leader. Always has been.

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PRINTED IN JAPAN 1274H1-D-2161D