



marantz®

**Model 5020
Stereo
Cassette Deck**

MARANTZ CO., INC. 20525 NORDHOFF STREET, CHATSWORTH, CALIFORNIA 91311
A WHOLLY-OWNED SUBSIDIARY OF SUPERSCOPE INC., CHATSWORTH, CALIFORNIA 91311

ENGLISH TEXT

FOREWORD

To obtain maximum performance and enjoyment from the Model 5020 Stereo Cassette Deck, please study these instructions carefully. Do not plug in or connect this cassette deck until you have read and complied with this handbook of instructions.

This is a universal handbook designed to provide instructions in English, French, and German for all Marantz products sold worldwide.

Your Marantz product has been specially prepared to comply with the household power and safety requirements that exist in your locale. Please check the alphabetical suffix following the serial number of your Marantz product. Refer to the following table to note the differences that exist between your unit and the unit pictured and described in this manual.

- A — Operating Voltage: 240 V AC.
- C — Operating Voltage: 120 V AC. Unit cannot be converted to operate on other voltages.
- E — Operating Voltage: 220 V AC.
- N — Operating Voltage: 220 V AC. There are no AC convenience outlets on the rear panel. The AC power cord is detachable. A ground post is provided for connection to a bonified earth ground.
- P — Operating Voltage: 120 V AC.

Should it become necessary to convert this unit to a different operating voltage, please note that a proper fuse must be substituted for the one currently in the unit.

FOR WARRANTY INFORMATION, CONTACT YOUR LOCAL MARANTZ DISTRIBUTOR.

AFTER UNPACKING

It is advisable to retain all original packing material to prevent damage should you wish to transport or ship the Model 5020 (refer to page 14 for repacking and shipping instructions). Be careful that you do not inadvertently throw away or lose the parts packed with the unit.

Please inspect your Stereo Cassette Deck carefully for any signs of shipping damage. Our very strict quality control and professional pride ensure that each Model 5020 left the factory in perfect condition. If the unit is damaged or fails to operate, immediately notify your dealer. If the unit was shipped to you directly, notify the transportation company without delay. Only you, the consignee, may institute a claim against the carrier for shipping damage. Save the carton and all packing material as evidence of damage for their inspection. If necessary, contact your dealer or, as a last resort, your Marantz importing agent, who will fully cooperate under such circumstances.

QUICK REFERENCE INDEX

Figure 1 shows the location of the main controls and switches on the Model 5020. Listed by each feature is the number of the page where a description about the feature appears.

Before proceeding with connecting your new tape deck, take a few moments to acquaint yourself with some of the features and terminology you encounter in this book.

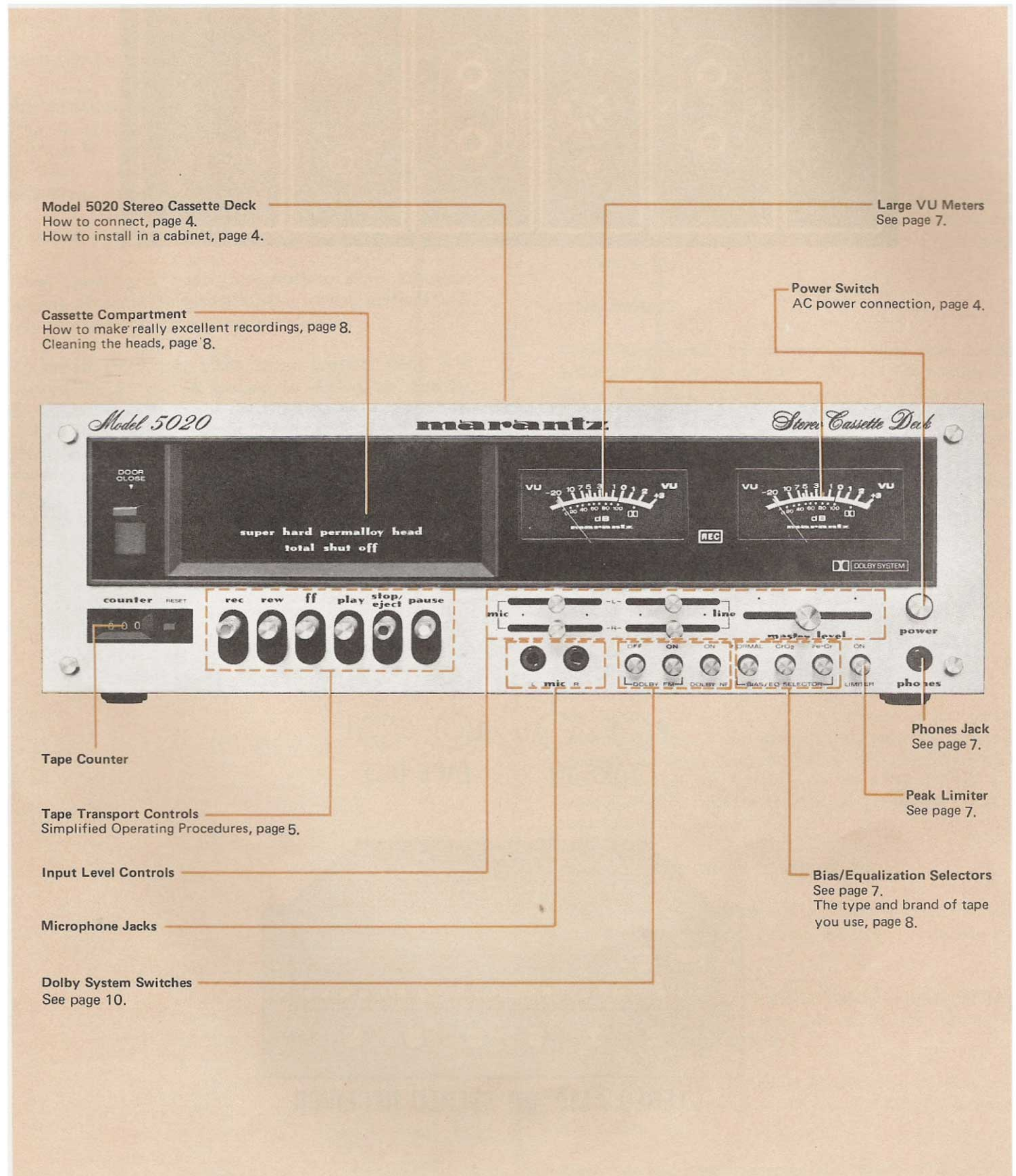


Figure 1 Main Controls and Switches

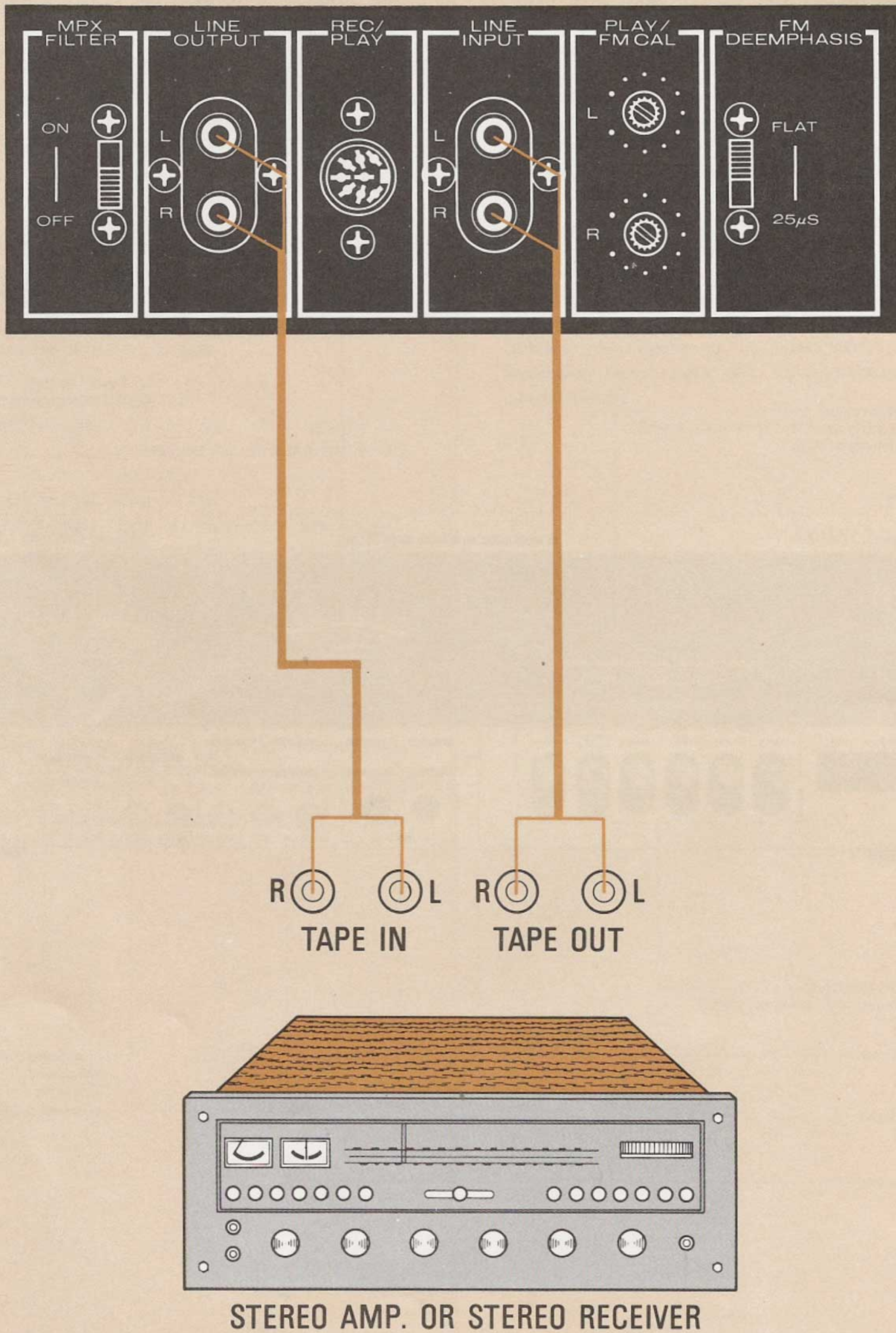


Figure 2. Rear Panel Connection Diagram

PREPARATION FOR USE

MECHANICAL INSTALLATION

The Model 5020 Stereo Cassette Deck can be installed in two basic ways: In a beautiful walnut veneer cabinet for placement on a table or shelf, or mounted in your own cabinetry or custom installation.

MARANTZ WALNUT CABINET

An attractive walnut veneer cabinet, Model WC-15T, may be obtained from your Marantz dealer. The case provides for proper ventilation, and can be placed on furniture, or on a bookshelf. Complete instructions for installation are provided with the WC-15T.

CUSTOM INSTALLATION

When planning a custom installation, allow adequate spacing between the Model 5020, cabinet surfaces, and other components for adequate ventilation.

To install the Model 5020 Stereo Cassette Deck in a custom cabinet, cut an opening 16—7/8 inches wide by 5—1/8 inches high. Since the front panel of the Model 5020 is larger than the cutout, it will neatly hide the edges of the cut. Remove the plastic feet from the bottom of the unit and slide it through the opening. To support the weight of the Model 5020, adequate bracing across the rear of the cabinet must be located to provide contact with the rear of the unit.

CONNECTING THE MODEL 5020

REAR PANEL SIGNAL CONNECTIONS

Figure 2 shows the location of the input and output jacks on the rear panel. These jacks are for “permanent” connections. Front panel jacks and their use will be discussed later.

All connections to the rear panel should be made with the power to the entire system turned off. The rear panel signal connections should be made with shielded audio cables. To avoid confusion, connect one cable at a time between the 5020 and the other components of your system. This is the safest way to avoid cross-connecting channels or confusing signal source outputs with inputs. When connecting audio cables insert the connectors completely into the jacks. Loose connections may cause hum and noise.

LINE INPUTS

These jacks accept signals from any line level source. They are also the inputs for the DOLBY FM circuitry in the Model 5020. Therefore, these jacks should be connected to the set of tape output jacks on your receiver, which will supply signals from FM and other audio sources. If you own an audio system comprised of separate components, connect the **LINE INPUT** jacks of the Model 5020 to the tape output jacks of your preamplifier.

LINE OUTPUTS

Connect the **LINE OUTPUT** to the tape monitor input jacks of your receiver.

DIN JACK

The **REC/PLAY** jack is a DIN-type recorder jack which permits the use of European 5-wire recorder cables to connect a similarly equipped component. The **REC/PLAY** jack duplicates the function of the **LINE INPUT** and **LINE OUTPUT** jacks and may be connected to your preamplifier or receiver.

AC POWER SOURCE CONNECTION

- With the **POWER** switch set to the OFF (out) position, plug the AC line cord into an AC outlet providing the proper voltage.

CAUTION: DO NOT PLUG THE MODEL 5020 INTO A DC OUTLET, AS SERIOUS DAMAGE WILL OCCUR.

If your receiver has a switched AC outlet on its rear panel, you may find it convenient to plug the Model 5020 into that outlet.

Now that you have connected your Model 5020 to your receiver and external tape recorder, you are doubtlessly eager to try it out. So, the following section will outline a

simplified operating procedure to follow so you can begin recording and listening to your new Stereo Cassette Deck immediately. After becoming familiar with the Stereo Cassette Deck, you may then take advantage of its many features and operating versatility.

OPERATING INSTRUCTIONS

First, set the controls and switches on the Model 5020 as follows:

POWER Switch	OFF (out)
TAPE TRANSPORT Controls	STOPPED
DOLBY NR Switch	OFF (out)
DOLBY FM-OFF Switch	(in)
DOLBY FM-ON Switch	(out)
BIAS/EQ SELECTOR Switches	Depress button that matches kind of tape used.
LIMITER	OFF (out)
All LEVEL Controls	Minimum (to left)

After setting the controls and switches, record on a blank cassette as follows:

1. Depress the **POWER** switch. The meters will illuminate, indicating the unit's power is on. If they don't, check to make sure the power cord is plugged in. Turn on the source equipment (receiver, turntable, etc.).
2. Before inserting the cassette, take up the slack of the tape to prevent it from becoming entangled around the capstan. Twist the cassette hub inside the cassette with your fingernail or with a pencil. (See Figure 4.)
3. Depress the **STOP/EJECT** button and raise the cassette holder.

NOTE: The **STOP/EJECT** button serves a dual purpose. To stop the tape in any mode, depress the button slightly. To eject the cassette, release the **STOP/EJECT** button, then press it again firmly.

4. Insert the cassette with the desired side for recording up. Close the lid.

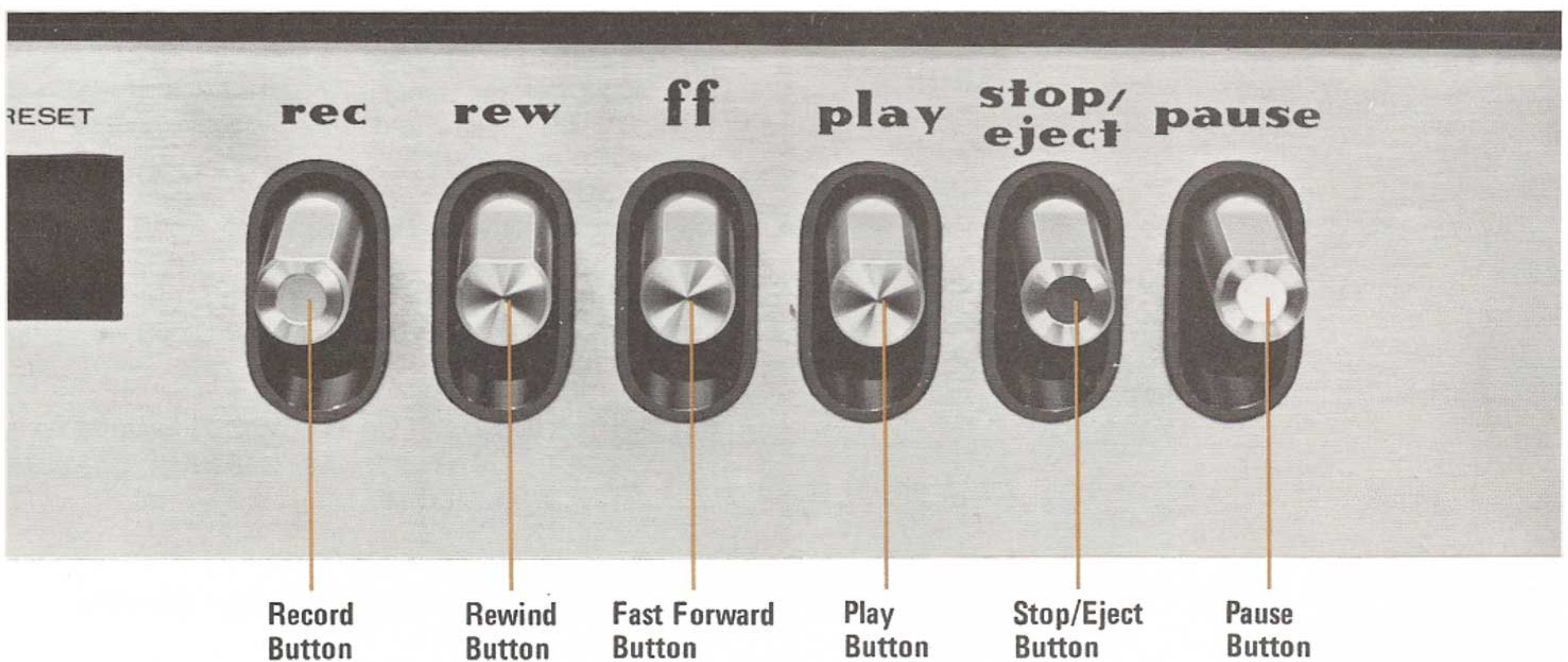


Figure 3. Tape Transport Controls

NOTE: The cassette can only be inserted if the cassette holder is up.

5. Play the audio signal source (phono, tuner, etc.) with the tape monitor switch on the receiver in the "source" position.
6. Press the **RESET** button on the tape **COUNTER** to reference the beginning of the recording.
7. Place the Model 5020 in the record mode: Depress the record (**REC**) and **PLAY** buttons simultaneously. The **REC** light between the VU meters will illuminate.

CAUTION: DO NOT ATTEMPT TO MANUALLY LIFT THE PUSHBUTTONS WHEN THEY ARE IN THE DEPRESSED POSITION. THE PUSHBUTTONS ARE MECHANICALLY LOCKED INTO POSITION AND CAN BE RELEASED ONLY BY DEPRESSING THE STOP/EJECT PUSHBUTTON. THE PAUSE PUSHBUTTON CAN ONLY BE RELEASED BY PRESSING IT A SECOND TIME.

NOTE: The smoothest way to engage the record mode is to depress the **REC** button first. Then, while holding it down, depress the **PLAY** button.

8. Slide the **MASTER LEVEL** Control to its maximum setting (to the right). All other controls should be set at minimum.
9. Gradually increase the left and right **LINE** level controls while watching the VU meters. Adjust the level controls so that the loudest passages of the program deflect the pointers of the meters as fully as possible without travelling into the red area of the meter dial. If the meter pointer is allowed to deflect fully to the right during recording, audible distortion will occur. (See "PROPER RECORDING LEVELS", page 8.)
10. Set the tape monitor switch on the receiver to the "tape" position.
11. When finished recording, reduce the **MASTER LEVEL** control to minimum and press the **STOP/EJECT** button.
12. Rewind the tape by depressing the rewind (**REW**) button. Stop the tape when the **COUNTER** registers zero.
13. Play back the tape by pressing the **PLAY** button. The Model 5020 is now playing back the tape you just recorded.

The following sections will explain the front panel features and some methods of adding more sophistication to your recording technique.

FRONT PANEL FEATURES

VU METERS

Two large VU meters in the Model 5020 monitor the relative recording and playback level of each channel.

All meters are "time sensitive" devices. In other words, it takes a short amount of time for the meter to respond to a quickly applied signal. Even though the meter needle and other moving parts are very lightweight, they still have some inertia and are relatively sluggish when compared to the instantaneous nature of audio peaks. The meters, then, indicate an average value reading with which to monitor the average level and balance of the two channels.

INPUT LEVEL CONTROLS

On the front panel are four independent slide-type input level controls and a stereo **MASTER LEVEL** control. The **MIC** controls receive their inputs from the left and right **MIC** jacks on the front panel. The **LINE** controls receive their signals from the rear panel **LINE INPUT** jacks. The four input controls, or "sliders", combine their audio signals in a stereo mix in the proportions chosen by you, the recordist. They assign the audio inputs to the left and right stereo outputs of the mixer as indicated by the letters **L** and **R** beside each slider slot.

NOTE: When microphones are selected for recording, do not monitor through speakers, as this will cause howling (acoustic feedback) which could damage your audio equipment. Use headphones for monitoring.

MASTER LEVEL CONTROL

The **MASTER LEVEL** slider adjusts the total stereo output level. Its purpose is to control the audio level of the entire mixture of the four input channels without changing the input slider positions and without affecting their proportionate audio levels. If, for instance, the four input levels are mixed in the exact proportions you want, but the VU meters register too high a reading, reduce the **MASTER LEVEL** accordingly.

The **MASTER LEVEL** slider can be used to "fade out" or "fade in". For example, when making a cassette recording of a phonograph record, you may wish to fade out the music gradually just before the end of the tape is reached. This way, you will avoid the abrupt cut-off of sound that occurs during playback when the cassette runs out of tape. Likewise, the music could be "faded in" at the beginning of the cassette.

PEAK LIMITER

The peak **LIMITER**, when in use, automatically reduces the record level during sudden volume surges. By preventing the peak recording level from exceeding 0 VU, the peak **LIMITER** minimizes distortion.

The **LIMITER** is not the same as an A. L. C. (Automatic

Level Control) circuit. It is designed rather as a safeguard against high input signals that you had not anticipated when you adjusted the record levels initially. The **LIMITER** is also advantageous when recording sources such as radio programs or live music whose peak volume levels are sometimes unpredictable.

If the recording levels were set much too high and the **LIMITER** were activated, it would tend to "compress" the dynamic range of the music. In other words, not only the peaks, but all loud passages would be reduced in volume. Therefore, the recording levels should be set before the **LIMITER** is turned on.

PHONES JACK

This jack accepts headphones utilizing a standard three conductor phone plug. It is internally connected to the output circuitry to provide adequate sound level with popular low impedance stereo headphones. Two or more sets of headphones may be used with the aid of "Y" connectors (available at your dealer). However, output level will drop as additional headphones are added.

BIAS/EQ SELECTOR PUSHSWITCHES

These pushswitches select the proper bias and equalization to suit the three most common types of cassette tape:

NORMAL — for normal Ferric Oxide tape

CrO₂ — for Chromium Dioxide tape

Fe-Cr — for Ferri-Chrome tape

See "The Type and Brand of Tape You Use", Page 8.

DOLBY FM AND DOLBY NR PUSHSWITCHES

These switches control the Dolby Noise Reduction circuitry in the Model 5020. Their operation is explained in the "DOLBY SYSTEM" section, Page 10.

TOTAL SHUT OFF

The **TOTAL SHUT OFF** feature will automatically disengage the tape transport when the end of the tape is reached in any transport mode (play, rewind, etc.). The **TOTAL SHUT OFF** feature will also activate if the tape should jam.

MAKING OPTIMUM CASSETTE RECORDINGS

The Model 5020 Stereo Cassette Deck, augmented by its built-in Dolby Noise Reduction System, is capable of making really excellent recordings. But the quality of recording can also be negatively influenced by some other very important factors. Inferior tape, poorly maintained heads, and improperly set recording levels can spoil your recordings. So that you can realize the full potential of your investment in the Model 5020, the following section will explain a few techniques of skillful recording.

THE TYPE AND BRAND OF TAPE YOU USE

In cassette recording, the type and brand of cassette you use has the greatest influence on the quality of your recordings. Therefore, buy the best cassettes you can. Your Marantz dealer will assist you in selecting a nationally recognized name brand of low-noise, clean-running tape. For best results, use a 60 or 90 minute cassette.

Chromium Dioxide (CrO_2) and Ferri-Chrome (Fe-Cr) tapes provide better fidelity than normal tape. When using these kinds of tapes, depress the appropriate **BIAS/EQ SELECTOR** pushswitch on the 5020 to provide the correct bias and equalization to suit the characteristics of the tape.

PROPER RECORDING LEVELS

One of the beauties of music is its dynamic range, in other words, the contrast of very soft to very loud passages. To capture this contrast on tape requires that the recording levels be set so that the loudest passages you intend to record don't saturate the tape and cause distortion. Yet, the recording levels shouldn't be set too low, because the soft passages would simply disappear in the residual noise. The proper technique is to anticipate the loudest section of the music you want to record and set the recording levels using the VU meters as a guide before any recording actually takes place.

If, for example, you are recording from a phonograph record, you should at the outset find the loudest section of the record. To set the recording levels on the 5020, insert the cassette, depress the **PAUSE** button and then place the Model 5020 in the record mode. This technique allows the recording level to be checked and adjusted without actually recording anything on the tape. Once the levels are set for the loudest portion of the music, leave them where they are. Start the phonograph record over at the beginning and release the **PAUSE** button to commence recording.

If, after setting the recording levels with the above method, the record begins with a soft musical passage, you might suspect from the meter readings that you set the levels too low. Don't give in to the temptation to change them. Bear in mind that the meter readings, when placed in proper perspective with actual relative loudness levels, will fall into the following areas:

1. Broadcast human voice: from -10 dB to -5 dB
2. Loud music (fortissimo): approx. $+1$ dB
3. Soft music (pianissimo): approx. -15 dB
4. Average music level: from -10 dB to -5 dB

NOTE: Most cassette manufacturers splice a few inches of clear leader tape to the beginning and end of the magnetic recording tape. The leader tape cannot be recorded, and it usually takes about six seconds to pass by the heads when the tape is played from the beginning.

When taking up the slack in the cassette before inserting it for recording, advance the tape so that the spliced area of the tape is ready to pass the recording head (see Figure 4). By knowing exactly where the recordable tape begins, you can assure that the beginning of the program will be recorded.

CLEAN AND DEMAGNETIZED HEADS

The RECORD/PLAYBACK and ERASE heads are the most important parts of the stereo cassette deck. As the tape rubs against the heads during record and playback, brown oxide deposits from the tape accumulate on the heads, guides, and pinch roller. Even the best cassette tapes will shed some particles of oxide. The accumulation of this oxide will cause loss of high frequency response, loss of sound volume, intermittent sound dropout and unsatisfactory results when recording or erasing tape. If your Model 5020 exhibits any of the preceding symptoms, immediately clean the heads. If the oxide is

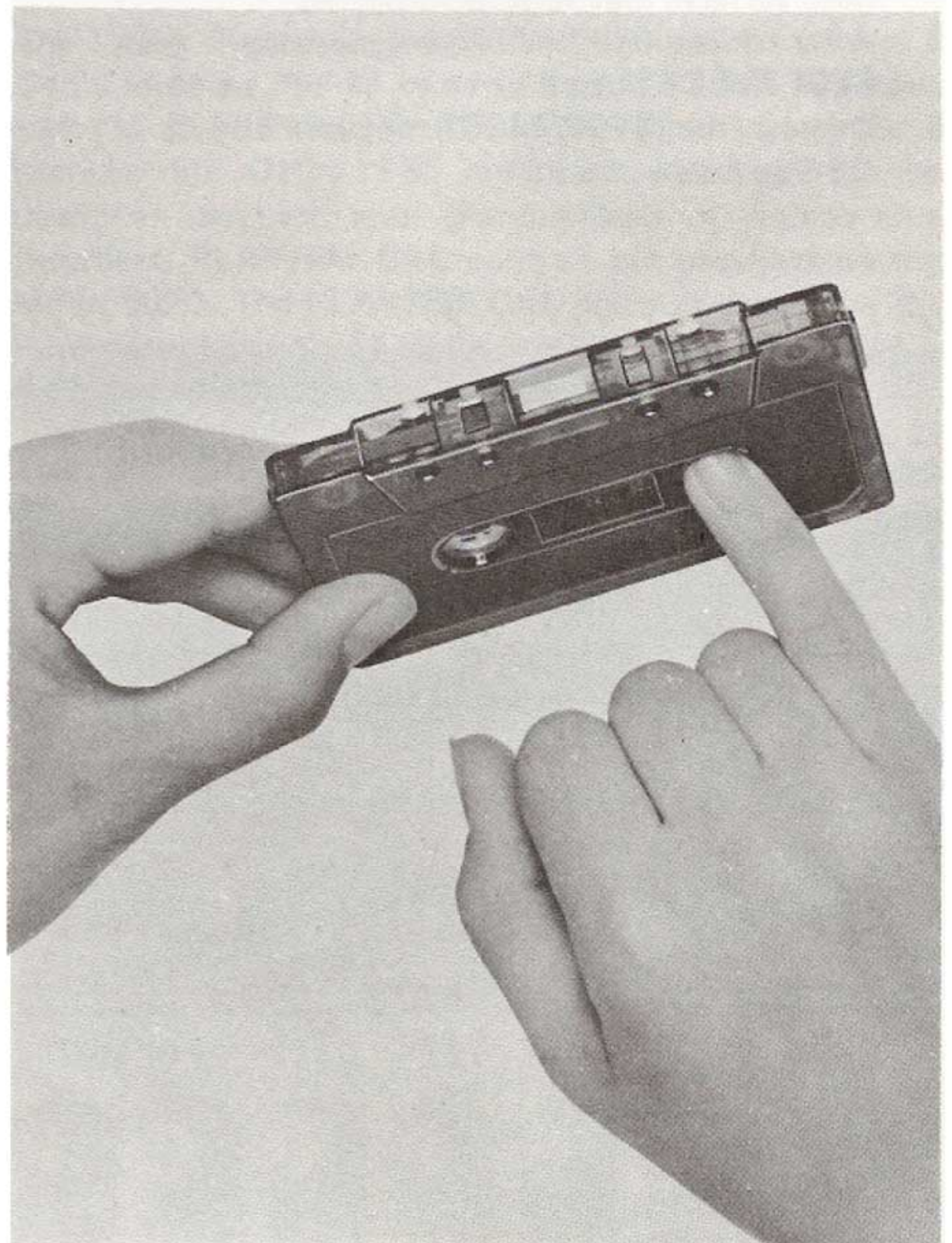


Figure 4. Cassette Preparation

allowed to build up, it may cause the heads to wear out prematurely, causing permanent damage. Therefore, the heads must be kept clean.

Now, a word about routine preventative maintenance:

Don't put off cleaning the heads simply because the deck is performing well. The experienced audiophile gives the tape path a thorough cleaning at the beginning of every usage as a matter of habit. This is an excellent practice for assuring cleanliness and the best possible recording conditions, and it only requires a minute to do.

To clean the tape path, use cotton swabs and denatured alcohol (available at any pharmacy). Please note that common "rubbing alcohol" should not be used because it has a high water content. Use "DENATURED" alcohol.

Dip the cotton swab in the alcohol and clean the tape heads, capstan, guides, pinch roller — everywhere the tape touches — until no more oxide can be picked up on a fresh cotton swab.

To gain access to the heads for cleaning and demagnetization,

1. Turn off the power.
2. Depress the **STOP/EJECT** button and remove the cassette.
3. Inside the cassette compartment, push back the black release lever in the right rear corner, using a cotton swab, pencil, or a screwdriver (See figure 5). Then, depress the cassette holder by hand.
4. Push the **PLAY** button. The heads and pinch roller will protrude into the cassette compartment. The head surfaces may now be inspected.
5. After cleaning and demagnetizing, press the **STOP/EJECT** button.
6. Depress the **STOP/EJECT** button fully to lift the cassette holder.

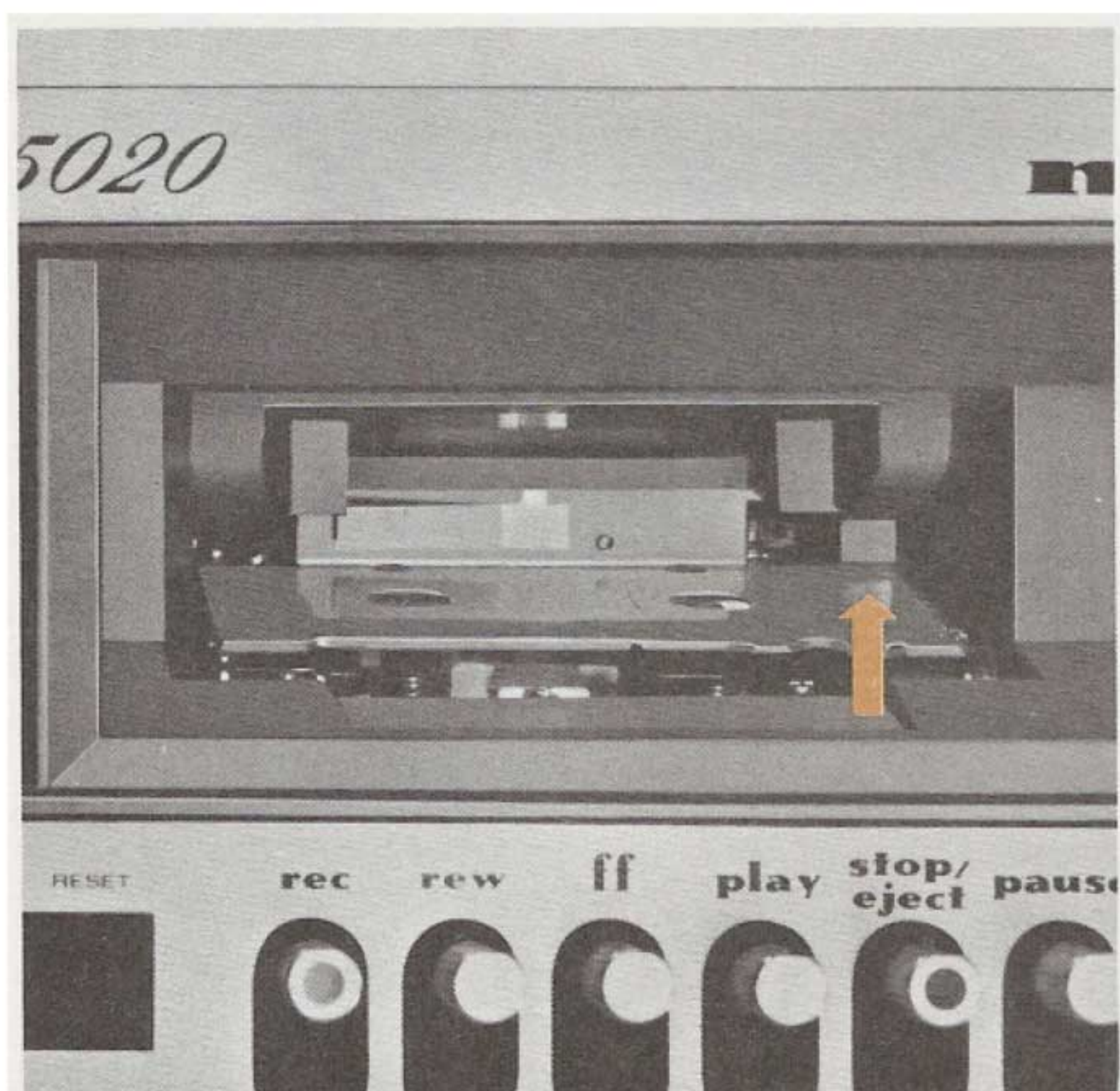


Figure 5. Release Lever

Obviously, the heads and pinch roller of the Model 5020 are more difficult to inspect, clean, and demagnetize than those of a toploading cassette machine, because access to the rear-facing heads must be made through the front-facing opening. Therefore, you may find it more convenient to obtain a few special tools to aid inspection and cleaning.

On your trip to the pharmacy to buy alcohol and cotton swabs, also buy an inspection mirror (the kind the dentists use) and an inexpensive hemostat. The mirror can be used for inspecting the head surfaces and the rubber pinch roller.

The pinch roller in the cassette mechanism provides a simple, visual indication of when to clean the heads. If you can see a stripe of brown oxide around the perimeter of the pinch roller, it is time to clean the entire tape path.

The hemostat can be used to hold the cotton swab while cleaning. If the swab is made of wood, you may wish to break it in half to provide more room.

Tape heads and guides also become magnetized after a period of use. When this occurs they cause excessive noise and can even partially erase the tape. The tape heads and guides should be demagnetized periodically (about every nine hours of playing time) with a demagnetizer.

The demagnetizer should be of the same design as those used with 8-track tape cartridge players — that is, the type with a long, slender demagnetizing element bent at an angle near the end.

Instructions are enclosed with the demagnetizer.

CAUTION: BEFORE USING THE DEMAGNETIZER, TURN OFF THE POWER TO THE MODEL 5020.

DOLBY SYSTEM

BASIC DOLBY PROCESS

The Dolby system increases the level of low volume mid- and high- frequency signals during recording and reduces the level of these signals by an identical amount during playback. As a result, the playback signal is identical to the original source signal, but the level of background noise generated by the tape recorder is greatly reduced. A Dolbyized FM broadcast is subjected to the first phase of the noise reduction process before being transmitted. When these signals pass through the Dolby playback circuitry, the mid- and high-frequency noise is greatly reduced.

The Dolby Noise Reduction System in the Model 5020 can be used for recording, or for playing back Dolbyized cassettes.

The following section will explain how to operate the Dolby Noise Reduction System in the 5020 to process cassettes, FM broadcasts, and external sources.

CASSETTES

The Dolby Noise Reduction circuit in the Model 5020 is designed for maximum convenience when recording or playing back a cassette. The calibration levels have been internally preset at the factory, so the only adjustment to make is that for recording level.

The procedure for Dolby recording and playback is identical to that for non-Dolby except that the **DOLBY NR ON** pushswitch is depressed after the recording levels are set.

DOLBY FM BROADCASTS

Dolbyized FM broadcasts contain Dolbyized audio information to which a special pre-emphasis is applied for the purpose of improving the noise reduction process. The pre-emphasis time constant (25 μ S) is different from that used with non-Dolbyized broadcasts. To properly recover the original program material, a complementary time constant at the receiver is required. A 25 microsecond FM de-emphasis circuit is built into all new Marantz receivers and stereo FM tuners and should be activated when recording or listening to Dolby FM broadcasts through your Model 5020. If your present tuner does not have such a circuit, set the **FM DEEMPHASIS** switch on the rear panel of the Model 5020 to 25 μ S to activate the corrective network.

NOTE: If you are using the de-emphasis circuit built into the tuner, leave the **FM DEEMPHASIS** switch on the Model 5020 at "FLAT". Do not use both de-emphasis circuits simultaneously.

To listen to a Dolbyized FM broadcast, proceed as follows:

1. The tuner or receiver should be connected to the **LINE INPUT** jacks.

2. Apply the proper de-emphasis as outlined above.
3. Depress the **DOLBY NR ON** pushswitch.
4. Depress the **DOLBY FM-ON** pushswitch.
5. The Dolby FM calibration levels have been pre-adjusted at the factory and should not normally need to be readjusted when used with the Marantz tuners and receivers equipped with "DOLBY FM" pushswitches. However, when used with receivers or tuners not so equipped, FM calibration will be required. For this purpose, **PLAY/FM CAL** controls are provided on the rear panel. The controls should be adjusted so that the Dolby reference tone transmitted by the FM station at the beginning of a Dolby broadcast coincides with the Dolby level mark on the VU meters. Once the levels are set, they do not need to be readjusted unless a different tuner or receiver is connected.

The decoded Dolby FM program can be monitored through the amplifier system. If you are recording a cassette at the same time, the cassette will be Dolby encoded to obtain the maximum effect from the noise reduction process.

NOTE: When the **DOLBY FM-ON** pushswitch is depressed, the record input level controls (the sliders) are bypassed. The recording level is determined by the **PLAY/FM CAL** controls. When the controls are set properly using the broadcast reference tone, the levels will be correct for Dolby recording.

EXTERNAL TAPE RECORDER

The Dolby System in the Model 5020 can be used as a Dolby decoder for an external tape deck not equipped with its own Dolby circuits in the same manner as a decoder for Dolby FM broadcasts. Because of the dissimilar playback level characteristics of various tape recorders, **PLAY/FM CAL** controls are provided on the Model 5020. The **PLAY/FM CAL** controls determine the input sensitivity of the Dolby circuit when playing back a Dolbyized program from the external unit.

The external tape recorder should be connected directly to the rear panel **LINE INPUT**. The outputs of the Model 5020 remain connected to the tape monitoring facilities on the preamplifier or receiver.

It is necessary to adjust the output level controls of the external tape deck and the rear panel **PLAY/FM CAL** controls on the Model 5020 when using the Dolby System. The following section will outline calibration, recording and playback procedures.

CALIBRATION

If you haven't already done so, obtain a reel-to-reel Dolby System Calibration Tape from your Marantz dealer. The calibration tape is also available in cassette format, if your external recorder is another cassette deck. The tape is prerecorded with a 400 Hz tone at the specified Dolby level and is used for setting the output levels of your external tape deck and the **PLAY/FM CAL** levels on your

Model 5020. Use and store the calibration tape carefully to avoid accidental erasure. For example, do not store the calibration tape on top of your power amplifier, because the magnetic fields produced by the transformer in the amplifier could partially erase the tape. (The same holds true for any cassette tape.)

When you have obtained a calibration tape, proceed as follows:

1. Set the tape monitor switch on your receiver to "TAPE".
2. Depress the **DOLBY NR ON** pushswitch.
3. Depress the **DOLBY FM-ON** pushswitch.
4. If you are using the 25 μ sec de-emphasis circuit in the Model 5020, switch it to **FLAT**.
5. Load the Dolby Calibration Tape on your external recorder and play it.
6. Set the monitor switch(es) on the external recorder to "TAPE" and adjust the output level controls so that the VU meters on the external recorder register "0".
7. With the tape still playing, adjust the **PLAY/FM CAL** controls on the rear panel of the Model 5020 so that its VU meters register **D0**.
8. When the levels are set, rewind and remove the calibration tape.

NOTE: The Model 5020 may be left in the stop position when using the Dolby circuits to decode an external source.

The decoded program from the external tape recorder can be monitored through the amplifier system.

To make a cassette copy of the program, insert a cassette and record in the same manner as a Dolby FM broadcast. Again, the cassette you record will be Dolby-encoded to obtain the maximum effect from the noise reduction process, and no adjustment of the input level controls is necessary.

If you have purchased a Dolby calibration cassette, you may play the cassette on your Marantz deck to confirm the playback reference level. The meters should register within 1 dB of the **D0** mark.

NOTE: Remember that it will be necessary to readjust the "PLAY/FM CAL" controls when returning to FM Dolby operation.

MULTIPLEX FILTER

The rear panel **MPX FILTER** switch activates a high filter which is specially designed to block the high frequency multiplex pilot and subcarrier signals which are present in stereo FM broadcasts. Although these pilot and subcarrier signals are outside the human hearing range, they can inhibit the action of the noise reduction circuit when making Dolby encoded recordings of standard FM stereo broadcasts.

Normally, it is the job of the tuner or receiver to filter out these undesired signals. Most high quality tuner sections already provide sufficient (40 dB) pilot and subcarrier

rejection. In fact, with all Marantz tuners and receivers, use of the **MPX FILTER** is unnecessary. However, to ensure correct operation of the noise reduction circuitry when used with other brands of tuners that may not have sufficient pilot and subcarrier rejection, the **MPX FILTER** is provided.

If you are using a non-Marantz tuner, and if the Dolby circuit seems to have no effect when recording from FM stereo, then activate the **MPX FILTER**. The filter will then block the high frequency interference and allow the Dolby circuitry to operate as designed.

TECHNICAL SPECIFICATIONS

Signal to Noise Ratio	
DOLBY NR OFF	
with Fe-Cr or CrO ₂ tape	50 dB
with standard tape	48 dB
DOLBY NR ON improves S/N ratio by	8 dB
Total Harmonic Distortion	3%
Frequency Response	
with Fe-Cr tape	40 Hz to 16 kHz±3 dB
with CrO ₂ tape	40 Hz to 14 kHz±3 dB
with standard tape	40 Hz to 12.5 kHz±3 dB
Wow and Flutter	0.08% W.R.M.S. (NAB)
Input Impedance	
Mic	8 kΩ
Line	120 kΩ
Line Output Level	900 mV
Line Output Impedance	4 kΩ
Headphones Output Impedance	8 Ω

GENERAL

Power Requirements	220 V ~, 50 Hz
	(This unit can be converted by a qualified technician to operate on 110, 120, 240V ~, 50/60 Hz.)
Power Consumption	25 W
Dimensions:	
Width	17-3/8"
Height	5-3/8"
Depth	11-1/2"
Weight:	
Model 5020 Only	17 lbs. 10 oz.
Packed for Shipment	23 lbs. 11 oz.

MAINTENANCE

CLEANING

The satin gold anodized finish of the aluminum front panel and the smoked plexiglas window will last indefinitely with proper care and cleaning. **NEVER** use scouring pads, steel wool, scouring powders, or harsh chemical agents, such as lye solution. These will mar the finish. Clean with a soft, lint-free cloth or cotton swab slightly dampened with a mild solution of detergent and water.

IN CASE OF DIFFICULTY

If your set is not operating properly, check the following points:

1. Tape not running.
 - Improper connection of power cord.
 - **POWER** switch in OFF position.
 - Defective cassette.
2. Record button will not go down.
 - No cassette inserted.
 - No erasure prevention tab on cassette.
3. Tape runs but no sound.
 - Tape not recorded.
 - Improper or incorrect connection of amplifier or speaker.
 - Volume control of amplifier is in MIN position.
 - Amplifier select switch not in TAPE position.
4. Level meter is dead during recording (no recording).
 - **DOLBY FM-ON** switch is depressed.
5. Distortion in sound.
 - Record level is too high.
6. Wow in sound.
 - Tape head is dirty.
 - Pinch-roller (capstan) is dirty.
 - Defective tape (warped or stretched tape).
 - Tape is not wound neatly or it is wound too tight.
 - Defective cassette with excessive tape drag.
7. Excessive noise.
 - Tape head requires demagnetization.
 - Defective tape.
8. Hum in sound.
 - Improper connection of shielded cable.
 - AC magnetic field from power transformer of external equipment is in close proximity to tape head.

REPAIRS

Only the most competent and qualified service technicians should be allowed to service the Model 5020. The Marantz Company and its factory-trained warranty station personnel have the knowledge and special equipment needed for repair and calibration of this precision instrument.

In the event of difficulty, refer to the list of Authorized Marantz Service Stations packed with the Model 5020 or write directly to the location listed below for the name and address of the Marantz authorized service station nearest your home or business. Please include the model and serial number of your unit together with a full description of what you feel is abnormal in its behavior.

Marantz Company, Inc.
National Service Dept.
P.O. Box 577
Chatsworth, CA 91311
U.S.A.

Superscope Canada, Ltd.
3710 Nashua Drive
Mississauga, Ontario
Canada L4V1M5

Superscope GmbH
Max Planckstrasse 22
D-6079 Sprendlingen
West Deutschland

Superscope Europe, S.A.
Boîte Postale 4
430 avenue Louise
1050 Bruxelles (Belgique)

Marantz France
Rue Louis Armand 9
F-ASNIERES 92600
France

Marantz Audio LTD
203, London Road
STAINES-Middlesex (U.K.)

Marantz Belgium
17, Avenue Van Overbeke
8-1080 Brussels
Belgium

REPACKING FOR SHIPMENT

Should it become necessary to repack your Model 5020 for shipment to the factory, to an authorized service station, or elsewhere, please observe the following precautions:

- a. Do not ship the unit installed in its accessory walnut cabinet; remove the unit from the cabinet before packing.
- b. Pack the unit carefully, using the original material as shown in Figure 6.

PLEASE NOTE that if you have discarded, lost, or damaged the packing material, new packing material may be obtained by writing to the **Marantz Technical Services Department**. The carton, its fillers, and packing instructions will be returned to you at a nominal charge.

- c. Ship via a reputable carrier (**do not use Parcel Post**) and obtain a shipping receipt from the carrier.
- d. Insure the unit for its full value.
- e. Be sure to include your return address on the shipping label.

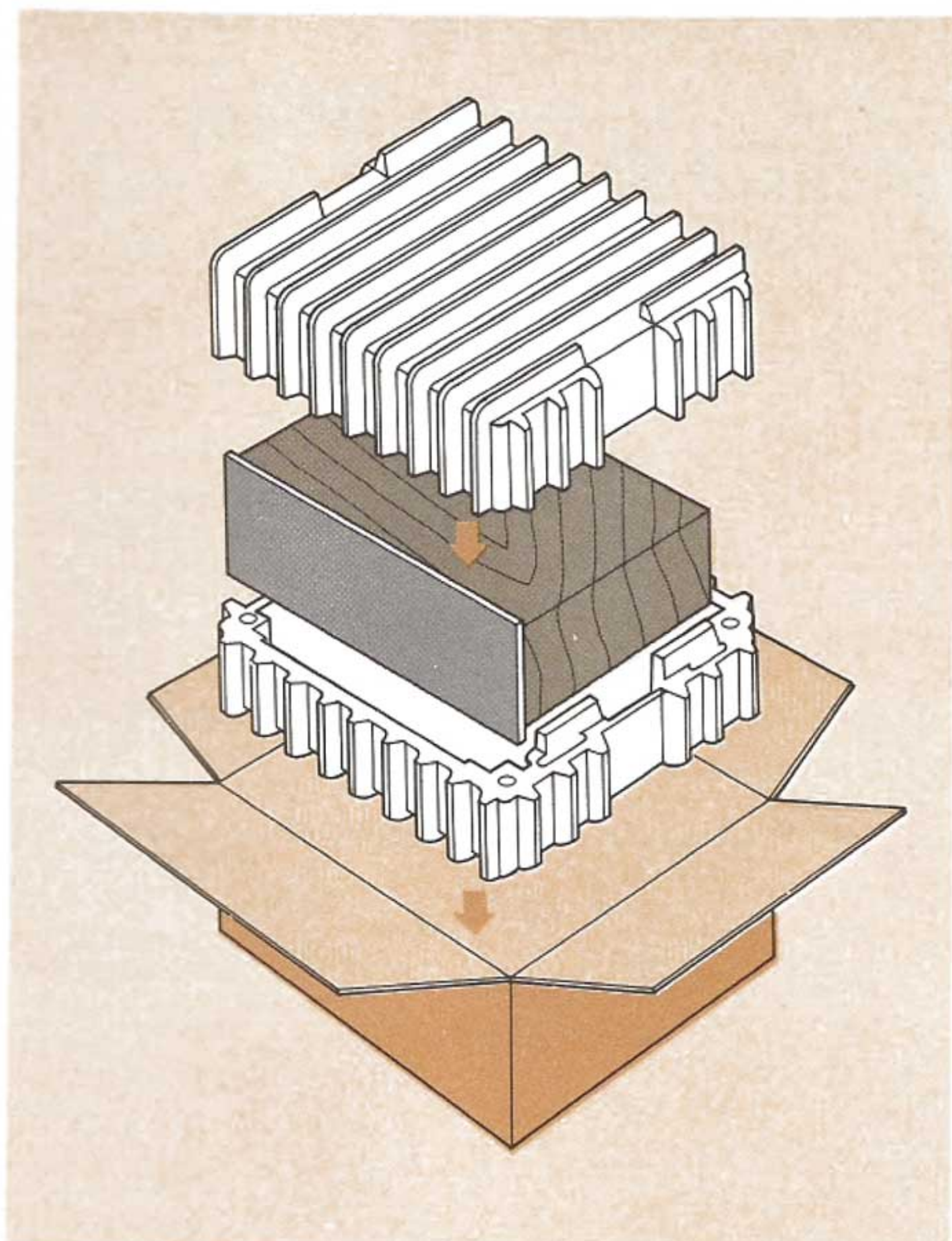


Figure 6. Packing Instructions