



festival

4

MUSIC SYSTEM

AM·FM STEREO  
CONTROL CENTER  
AUTO TUNING  
WITH CASSETTE  
RECORDER

WITH FESTIVAL  
SPEAKER SYSTEMS

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# Warranty and Service Policy

## POLICY

We warrant each unit to be free from defects in material and workmanship under normal use and service, and in accordance with the conditions set forth below. Should a defect occur within the period specified, and provided that the unit is returned to either HARMAN-KARDON or an authorized HARMAN-KARDON warranty station, transportation prepaid, and which our examination shall disclose to our satisfaction to be defective, we will:

a) For a period of two (2) years from date of purchase either replace or repair and install any defective parts of the stereo control center free of charge *with the exception of the automatic record changer and its associated parts, and the cassette recorder and its associated parts.*

b) For a period of ninety (90) days from date of purchase replace or repair and install any defective parts of the automatic record changer and the cassette recorder free of charge.

c) For a period of one (1) year from date of purchase either replace or repair and install any defective parts of the speakers free of charge.  
d) After the first year, until five (5) years from date of purchase either replace or repair any defective parts of the speakers charging only for labor.

## REGISTRATION

To obtain service under the terms of this policy, it is necessary to return the enclosed warranty card for "factory validation" within ten (10) days from the date of purchase.

This card will be assigned a "warranty registration number" and returned to you. If service is required within the warranty period, it is mandatory that the validated card or the warranty registration number be presented or your warranty will not be honored.

## EXCEPTIONS

This warranty does not include any obligation as to

- a) repair or replacement of the enclosure due to damage incurred after initial delivery;
- b) replacement of the stylus due to normal wear or usage;
- c) normal consumer adjustments of tracking force, tone arm height or dropping position of the automatic record changer;
- d) Repair or replacement of the speaker cabinet or grill cloth.
- e) transportation charges to and from the factory or an authorized warranty station.

This warranty is not applicable to any instrument which shall have been repaired or altered in any way so as, in our judgment, to affect its stability or reliability or has been subject to neglect, misuse, abuse, negligence, or accident; or which has had the serial number altered, effaced or removed.

Neither shall this warranty apply to any instrument which has been connected other than in accordance with instructions furnished by us.

## SERVICE

HARMAN-KARDON has a special customer service division to answer all questions pertinent to the installation and operation of your unit. Please feel free to write to us at any time and we shall endeavor to offer prompt and complete advice.

If your problem cannot be resolved through our combined efforts, we may wish to refer you to a local authorized repair agency or we may prefer to authorize the return of your unit to the factory. In the event it must be returned, an authorization form and proper packing instructions will be forwarded to you. This authorization form, together with the warranty registration number, **MUST BE RETURNED** with your unit. **UNDER NO CIRCUMSTANCES SHOULD YOUR UNIT BE SHIPPED TO THE FACTORY WITHOUT PRIOR AUTHORIZATION.**

This warranty is in lieu of all other warranties, expressed or implied, and of all other obligations or liabilities on our part, and we neither assume nor authorize any representative or other person to assume for us any other liability in connection with the sale of this instrument.

# Congratulations.

You are now the owner of the most advanced and versatile stereo music system ever designed for home use. It combines superb styling with a performance level never before achieved in a single stereo unit.

Some time ago, Harman-Kardon, set for itself the task of developing an all-in-one music system which would vie with individual components in performance, yet provide ease and convenience of installation and operation. You now can enjoy the results of this effort—the Festival Music System.

The Festival control center is equipped with a stereo preamplifier designed for low noise and high gain, a powerful wide-band stereo amplifier, an AM/FM stereo tuner for crystal-clear reception, unique electro-mechanical automatic tuning, and a cassette tape recorder which records in mono or stereo from records, radio, microphones, tape recorders and plays back in mono or stereo as well.

Because cool-operating transistors are used throughout, your Festival may be placed virtually anywhere . . . guided only by decor considerations . . . without the need for special installation precautions.

The all new Harman-Kardon Festival speaker systems are artfully engineered to dramatically fulfill the extraordinary promise of the Festival control center. The moment your set is switched on, these speaker systems will fill your room with the magnificent sound characteristic of the original performance. They are designed to add no character of their own. All you hear is the superlative definition of the original instruments. Your speakers have an exceptionally smooth frequency response with low bass distortion, making the low frequency output of the speaker usable over its full range. The high compliance woofers have multi-layer voice coils enabling them to handle huge amounts of power. The bass response is truly superb, vibrating with a rich resonance that can actually be felt — as though you were at a live performance. The high compliance, wide dispersion tweeters are in their own critically designed acoustic chambers. Wide dispersion provides the extraordinary opportunity to place the speakers where they look best in your room while retaining full stereo pleasure.

Finally, we know you are eager to install and use your Festival. But, we earnestly urge that you read the pages that follow. The few minutes it will take to familiarize yourself with the precision electronic instrument that is the Festival, will ensure many years of deep and uninterrupted pleasure.

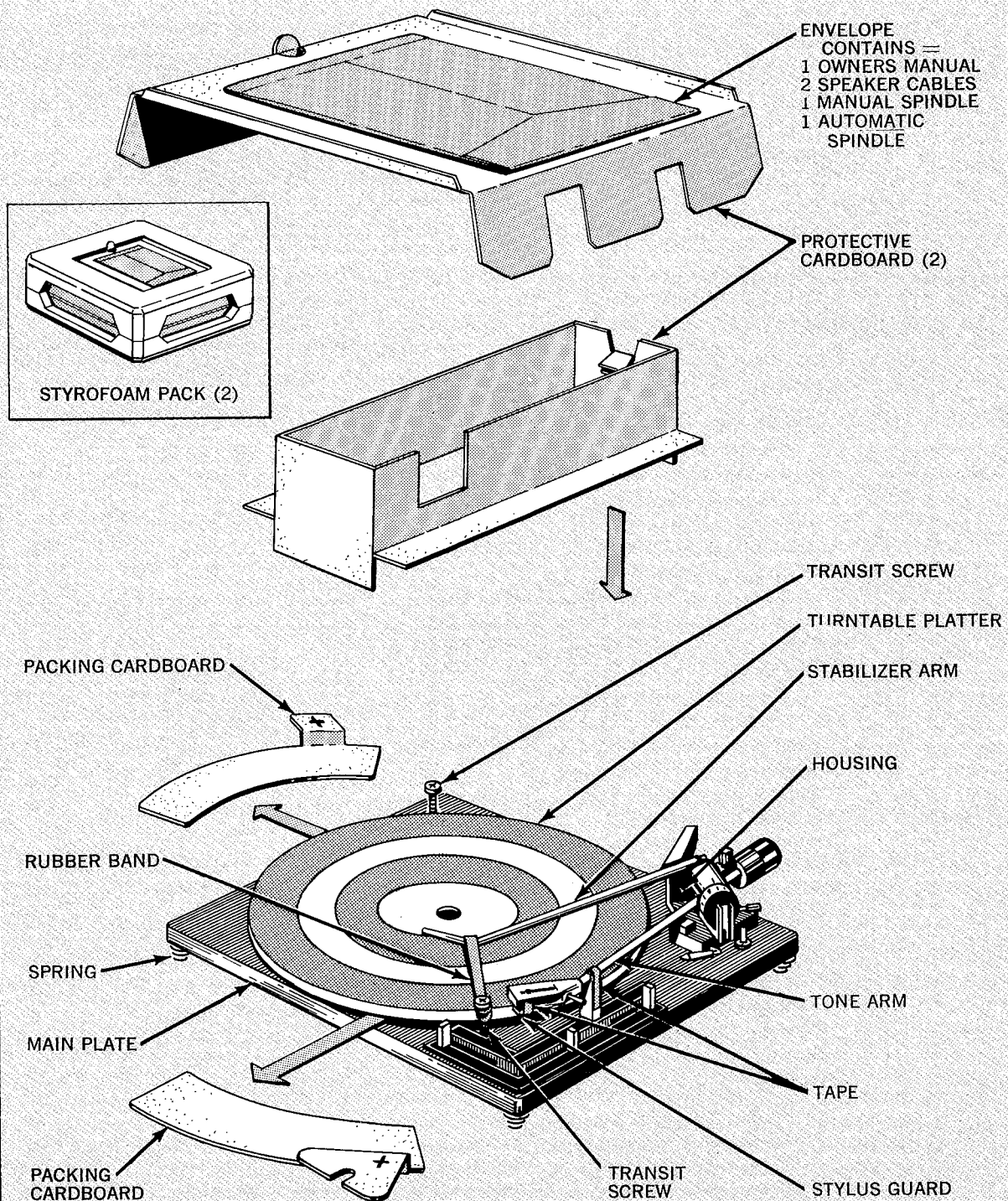
# Installation

## PREPARATION FOR USE OF RECORD CHANGER

1. Carefully remove the rubber band securing the stabilizer arm to the transit screw.
2. Turn both transit screws clockwise until they are all the way down against the main plate and the turntable is floating freely on its springs.
3. Remove the large piece of protective cardboard which straddles the turntable platter.
4. Remove the two pieces of semi-circular cardboard located underneath the edge of the turntable platter.
5. Unlock the stabilizer arm by pressing down at the top rear near the housing and rotate the front free end toward the center of the turntable.
6. Remove the piece of tape holding the tone arm to the tone arm rest.
7. Remove the piece of tape holding the stylus guard to the cartridge.
8. Remove the stylus guard.

## RECORD CHANGER ADJUSTMENTS

The record changer has been accurately pre-adjusted at the factory. No adjustment should be necessary for quite some time. If it becomes evident that adjustment is necessary, complete instructions will be found in the SERVICE AND MAINTENANCE section of this manual.



## INSTALLATION

Your FESTIVAL 4 Music System may be placed at any convenient location within your room.

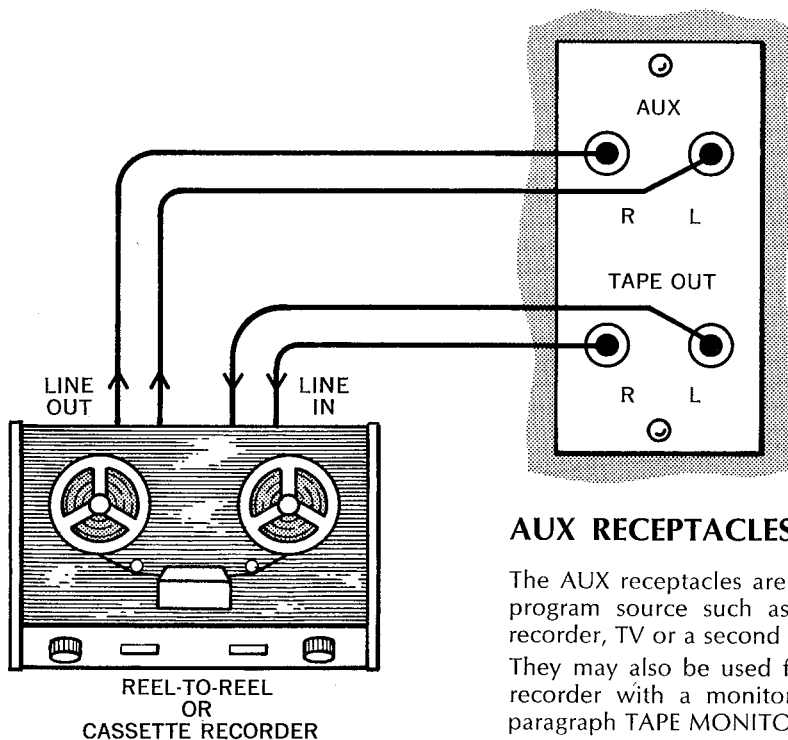
The output transistors of your FESTIVAL 4 are operated conservatively for maximum frequency response, low heat dissipation and long life. It is therefore not essential to observe special precautions when installing the Music System. Merely allow two or three inches behind the control center when installing into a closet or bookshelf.

## POWER CONNECTIONS

Connect the AC line cord into any outlet furnishing 117 volts, 60 hertz AC current. The voltage may vary between 105 and 125 volts. An auxiliary AC convenience outlet is provided on the rear panel of your control center. Any accessory equipment (TV set, Reel to Reel tape recorder, etc.) may be connected to this receptacle and will be controlled by the power switch on the front panel of your system.

## OVERLOAD PROTECTION CIRCUIT

In the event of a speaker short circuit or a very low impedance load, the protective circuit in your Music System will interrupt operation and prevent possible damage to the unit. In such event, it is no longer necessary to insert replacement fuses since the resetting circuit breakers will automatically resume operation when the overload condition has been eliminated. Continue activation of this circuit breaker indicates an abnormal condition and should be investigated. **Do not continue to operate under these conditions.**



## HUM AND NOISE

In any high fidelity installation, hum may be caused by interconnecting associated equipment (TV set, etc.) to your music system. If hum is experienced, disconnect everything but the speakers from the system. If hum persists, reverse the AC power plug. Then, plug in remaining associated equipment, one at a time. If hum should occur following connection, reverse the power plug for the particular unit involved.

**CAUTION:** Hum may also be induced by defective connecting cables or by running these cables too close to a strong AC field, such as power lines, transformers, or other electrical equipment.

## FUSES

Your FESTIVAL 4 uses one fuse to protect its circuits. The fuse labeled FUSE 3A-3AG is used to protect the entire system. In the event of fuse failure replace **ONLY** with the same type used. Replacing with a fuse of a higher rating will not protect the instrument and may result in severe damage.

## AUX RECEPTACLES

The AUX receptacles are provided for use with any other high level program source such as Reel-to-Reel tape recorder, cassette tape recorder, TV or a second stereo tuner.

They may also be used for tape monitoring if you have an external recorder with a monitoring feature. For complete details see the paragraph TAPE MONITOR switch.

## TAPE OUTPUT RECEPTACLES

In addition to the convenience of being able to record on your built in cassette recorder, provision is made to permit you to record on any external reel-to-reel or cassette recorder, any program material connected to your FESTIVAL 4 Music System. The signals appearing at the TAPE OUTPUT receptacles are unaffected by any of the front panel controls with the exception of the function switch. Connect two shielded cables from the left and right line input of your external tape recorder to the L and R TAPE OUT receptacles on the rear of your compact system.

## CONNECTING A SECOND STEREO OR MONO RECORDER

The tape output jacks provided on the rear of your Music System permits you to record any program from Aux, Phono, Tape, FM or AM on your external tape recorder.

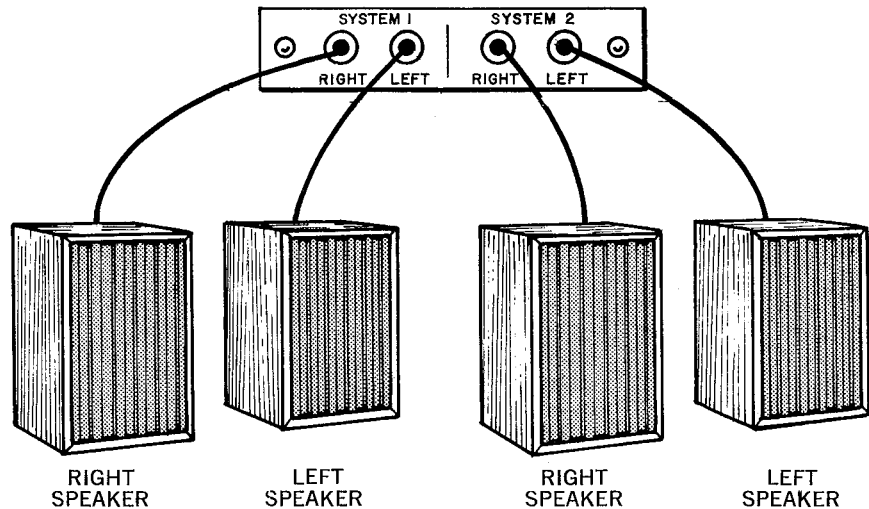
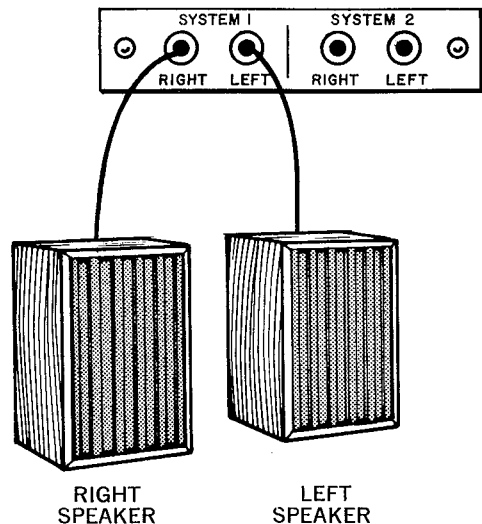
If you wish to convert any of your existing reel tape recordings, to a cassette cartridge, simply connect the output of your reel to reel recorder into the AUX inputs of the control center and follow the record procedure as outlined.

# Speaker connections

You may connect either two speakers (one system) or four speakers (two systems) to the rear of your FESTIVAL 4 Music System.

For your convenience we have provided RCA plug-type connectors for quick, trouble-free speaker connections. To connect your speakers, simply plug them into the Speaker System 1 receptacles.

Two speaker cables are supplied with your system with a phono plug connector at each end for this simple plug-in connection to your unit. (Please refer to the diagrams supplied in this instruction manual which indicate the exact location of these speaker connection receptacles.)



## CONNECTING THE SPEAKERS FOR STEREO OPERATION (1 SYSTEM)

The cables supplied may be easily dressed around the molding for an inconspicuous and neat installation. Do not drive the staples or tacks through the center of the wire for this may short out the two sections and will decrease the overall volume or short out the speakers entirely.

1. Plug one end of the speaker cable into the receptacle on the rear of your left speaker (this is the speaker on the left as you face the speakers.)
2. Plug the other end of the speaker cable into the LEFT speaker receptacle on the rear of the system.
3. Similarly connect the other speaker cable to your right speaker.

4. Attach the other end of the speaker cable to the receptacle marked RIGHT on the rear of the system.
5. Your music system is now connected for 1 system stereo operation and is operative when the speaker system 1 switch is in the "ON" position.

## CONNECTING THE SPEAKERS FOR STEREO OPERATION (2 SYSTEMS)

1. Connect all 4 speakers for your two system operation as shown in the diagram.
2. You may now select either system 1, system 1 and 2, or system 2 by the use of the speaker selector switches located on the front panel of your FESTIVAL 4.



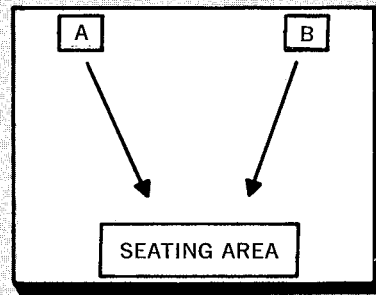
## SPEAKER PHASING

When more than one speaker is used in a music reproducing system, the speakers must be connected in a manner which will allow them to work together. Both left and right speakers must operate in perfect unison, moving back and forth together. If the speakers are moving in opposite directions, the result will be diminished bass response and decreased realism of sound. When this occurs, the speakers are said to be out of phase.

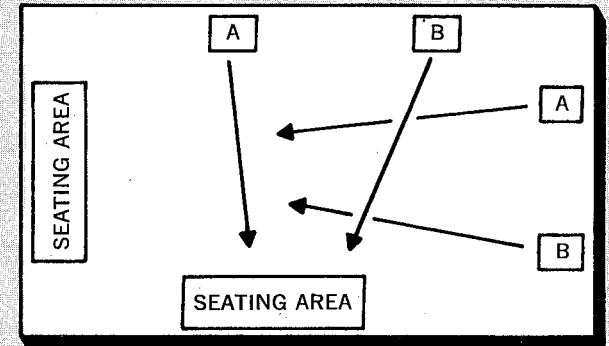
The use of plug in receptacles on both your Music System and your speakers insure that your system will always be in phase.

If you connect a second pair of speakers to your system which use screw terminals instead of plug in connections, you may check if they are properly phased. If correction is required it is quite simple.

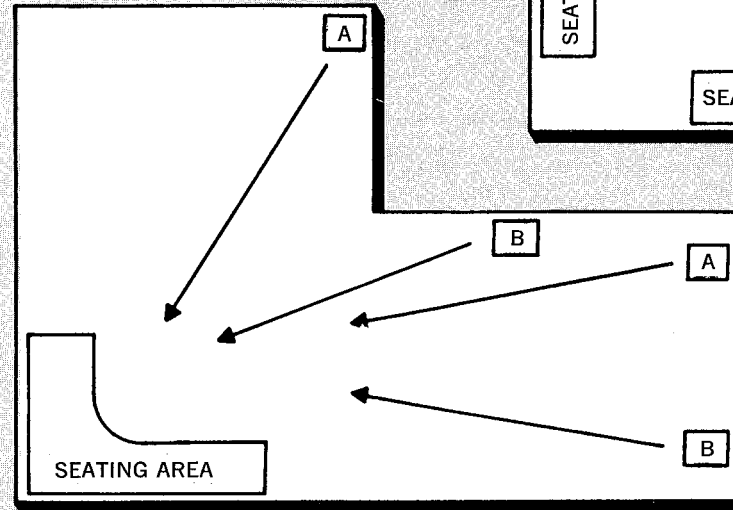
1. Place the FUNCTION switch in the MONO FM position.
2. Select an FM broadcast which has a single speaking or singing voice, or a solo instrument.
3. The voice or instrument should appear to be coming from an area directly between the two speakers. If the speakers are out of phase, the sound will appear to be coming from the two individual speakers.
4. If you determine that the speakers are out of phase, simply disconnect the leads from only one of the speakers and reverse them. The system will then be in phase.



ROOM 1



ROOM 3



ROOM 2

## SPEAKER PLACEMENT

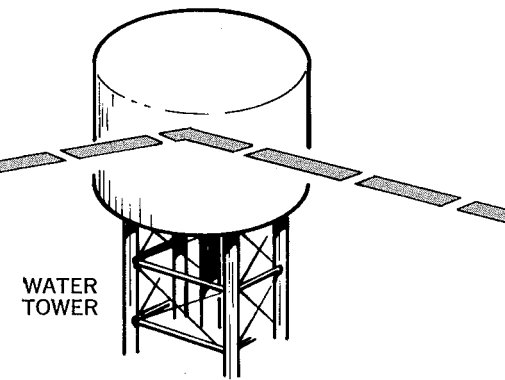
In order to achieve the best stereo performance, proper speaker positioning is important. The room diagrams will give you some idea of where the speakers should be placed with relation to the main seating area. The speakers should be off the floor 3 or 4 feet if possible and approximately 9 feet

apart. Since all rooms are different in size or shape a little experimenting with placement will be worthwhile. You will notice that rooms 2 and 3 have alternate suggested positions. As a general guide you should be seated opposite the speakers for maximum spaciousness and concert hall effect. There should never be the impression of two separated sound sources,

neither should the speakers be so close to each other that you never experience the depth and separation of stereo. If you should require further help in solving a specific unusual room problem please write and include a simple drawing of your room layout and it's dimensions and we will advise you of the best location for your speakers.



# Antenna (FM and AM)



## CONNECTING THE FM ANTENNA

Due to the exceptionally high sensitivity of your system the 48" wire supplied is sufficient for all but the most difficult locations. The balanced antenna input is designed to accept a 300  $\Omega$  antenna, indoor or outdoor type. When using the antenna supplied connect one end of the 48" wire to either of the FM antenna terminals. Horizontal placement of the antenna will yield optimum reception. The antenna may be tacked to the back of the molding behind the equipment or to the shelf you use.

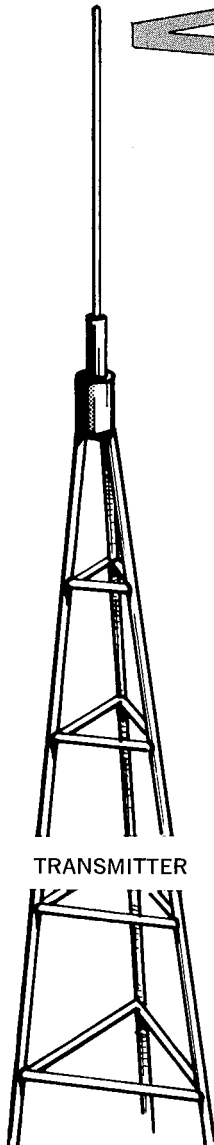
As FM signals are in the same broadcast frequency range as TV signals, they are affected by the same external conditions. Just as TV reception is improved, you can improve your FM reception with an external antenna.

When using an external antenna connect both leads of the antenna wire to the two FM antenna terminal posts on the rear of your Music System.

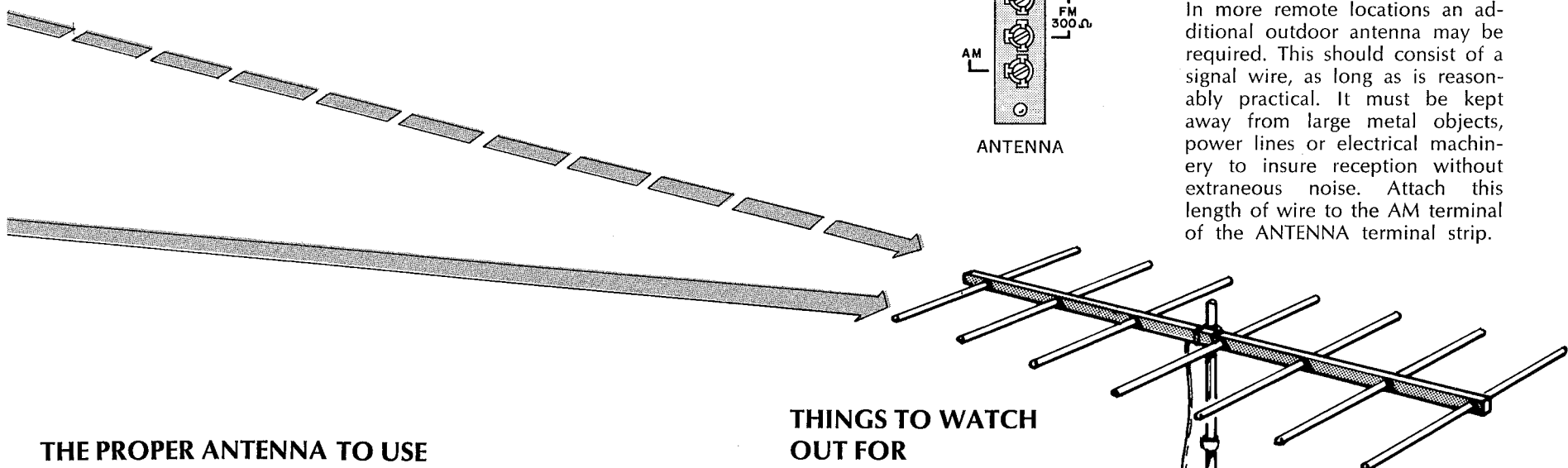
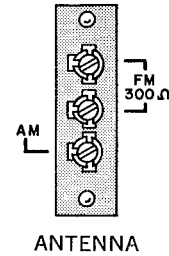
If installed properly, an outside antenna will reject unwanted signals, local noise, multipath interference, and will provide greater signal strength than any elementary type. Increased signal strength usually results in the reception of additional stations with amazing clarity.

### A GOOD FM ANTENNA INSTALLATION CALLS FOR:

1. The proper antenna for any given location. The further you are located from the FM transmitter, the more gain the antenna must offer.
2. The antenna should have uniform signal level across the entire frequency range it covers.
3. Antenna placement is extremely important for maximum signal reception.
4. The installation must be rigid without damage to the roof, chimney, wall or other property.
5. Careful routing of the lead-in line to avoid pick up of local interference. A poorly routed lead-in line (which touches metal portions of the house, etc.) will reduce signal strength by a significant margin.



The AM loopstick antenna built internally within your FESTIVAL 4 comprises all the antenna usually required for normal signal areas. In more remote locations an additional outdoor antenna may be required. This should consist of a signal wire, as long as is reasonably practical. It must be kept away from large metal objects, power lines or electrical machinery to insure reception without extraneous noise. Attach this length of wire to the AM terminal of the ANTENNA terminal strip.



## THE PROPER ANTENNA TO USE

If you live in a metropolitan area, or if you wish to receive signals from many directions, an ordinary crossed dipole, conical or three element in-line antenna could serve adequately. The three or four element in-line (uni-directional) type is the most satisfactory of the group, but due to its high directivity, it becomes necessary to include an antenna rotator to change the direction of the antenna for best reception.

For near-fringe and fringe reception, a six-to-eight-element log-periodic or Yagi is recommended. Both types are excellent and offer superior front-to-back ratio (ratio

of forward pickup to that at the rear), greater gain and rejection of noise. Both types are highly directional and require a rotator. Far fringe reception requires an antenna with eight or ten elements. This type antenna is usually quite heavy and requires extra support and bracing, when installed.

Remember, FM stereo reception requires greater gain than standard monophonic FM. It is, therefore, advisable to always purchase the antenna which can "pull in" a station with the greatest gain and lowest possible noise.

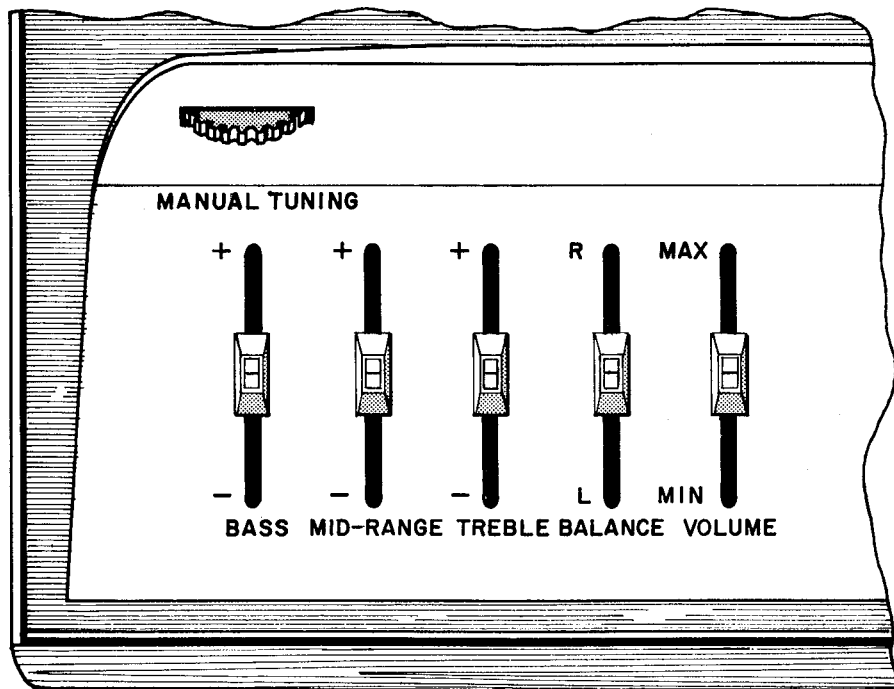
## THINGS TO WATCH OUT FOR

Are there high-rise buildings in your area? Water towers? Gas tanks? Mountains? They can all cause serious reception problems by reflecting FM signals which, when received, will result in audible distortion. This form of distortion is known as multipath interference (more than one signal reaching your receiver a split second apart), which is quite similar to "ghosts" on your TV set.

Multipath interference can be reduced or eliminated by purchasing a highly directional antenna with a rotator. Proper orientation of the antenna may tune out multipath completely, or alternate it below audibility.

HOUSE ANTENNA

# Operation



## CONTROL DESCRIPTION

Every control on your FESTIVAL 4 Music System has been designed to perform a specific useful function. In designing five of these controls, volume, balance, and three audio equalizers, we have departed from the conventional rotary type controls and have now provided a new professional type of slide control for ease of operation. In order to utilize the capability of these controls we suggest you read the following descriptions so you may have a better understanding of their use.

## TONE CONTROLS

Your FESTIVAL 4 uses three individual tone controls as compared to two on conventional hi-fidelity equipment. In addition to the normal bass and treble controls we have incorporated a mid-range control which offers wide latitude of adjustment over the entire mid-range of frequencies. You may now add greater depth and dimension to the low, mid-range or high frequencies or mask excessive harshness in a recording that is excessively bright.

The normal operating position of the three tone controls would be in the center or "flat" position. The controls provide a range of adjustment of  $\pm 12$  dB at 50 Hz, 1K Hz and 10K Hz.

## BALANCE CONTROL

The nature of stereo reproduction is such that it requires two iden-

tical channels to attain the highest degree of faithfulness and spatial distribution. Any variation in the efficiency of one channel as compared to the other will disturb this relationship. Since there may be slight differences between the two speakers, the tape heads, etc., your Music System includes a control to balance one channel against the other. Sufficient range is covered by this control to permit rebalancing of the overall system even in cases where major unbalance exists. This control may be set anywhere within its range to attain system balance. It does not necessarily have to be set in the exact center position.

When the BALANCE control is properly set, the apparent sound source will lie in a broad area between the two speakers. When the BALANCE control is raised the sound will move to the right and when the control is lowered, the sound will move to the left.

## VOLUME CONTROL

The VOLUME control adjusts the signal level of any program material connected to your music system. It is a two section control which simultaneously adjusts both channels, and its close tracking specifications insure that the relative volume level of each channel will be identical.

As you raise the control the volume level will increase, as you lower the control the volume level will decrease.

## TAPE MONITOR SWITCH

As explained previously the AUX Receptacles may be used to monitor tapes from an external tape recorder.

If your tape recorder is of the professional type and has a third head for "monitoring", it is possible to compare the recording with the original while it is being made. Simply push the TAPE MONITOR switch in the IN position to listen to the recording after it has been made and back to the OUT position to listen to the program material you are recording.

## LOUDNESS/CONTOUR SWITCH

One of the limitations of human hearing is its tendency to lose sensitivity to the very low pitched sounds as the program sound level is reduced. It is this characteristic (known as the Fletcher-Munson effect) which causes one to play music programs at high listening levels in order to experience the full rich tone available from fine modern recordings.

The CONTOUR switch compensates for this effect; thereby eliminating high listening levels as a requisite for full enjoyment of reproduced music. For warm, full-bodied reproduction at low listening levels, push the CONTOUR switch IN. At high listening levels, the contour switch has no effect.

## SPEAKER SYSTEM 1/ SYSTEM 2 SWITCHES

Two independent speaker selector switches have been provided with your FESTIVAL 4 Music System to permit the selection of stereo speakers in one or two rooms independently or simultaneously.

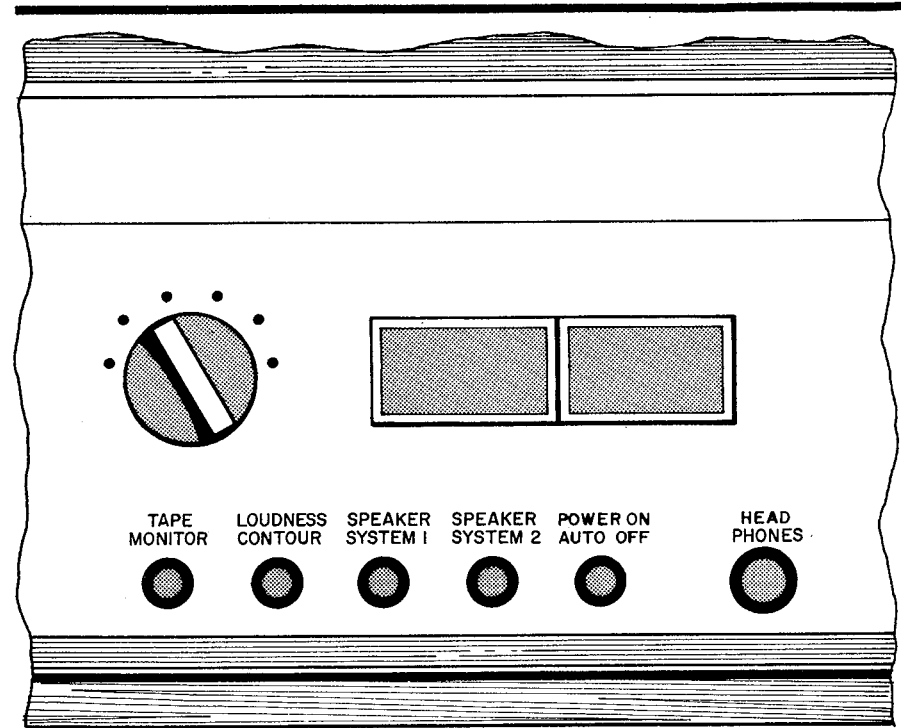
When connecting 2 speakers to the System 1 speaker terminals, the speaker system 1 selector switch must be in the "ON" position.

When connecting 4 speakers to the System 1 & 2 speaker terminals, both speaker system 1 & 2 selector switches must be in the "ON" position for all 4 speakers to operate.

Should you desire to listen to stereo-headphones alone, either or both speaker systems, may be turned off at your discretion.

## POWER ON/AUTO OFF SWITCH

Your FESTIVAL 4 is equipped with a unique feature which shuts off the system after the last record has played. To accomplish this, place the power switch, located on the front panel of your music system, to the "AUTO-OFF" position. The Automatic shutoff feature is operative in the Phono position and in either the Manual or Automatic Mode. To defeat this feature or to operate your music system using any other function, push the power switch in the Power "ON" position.



## STEREO HEADPHONE RECEPTACLE

The stereo headphone receptacle located on the front panel will accept any headphone with any

impedance rating. The headphone receptacle is "ON" at all times. If you wish to listen to the headphones alone, simply place both speaker selector switches to the "OFF" position.

## FUNCTION SWITCH

The FUNCTION switch has six positions and is used to select the desired type of program source.

1. **AUX:** Selects any high level program source, connected to the AUX input receptacles on the rear of your Music System.
2. **PHONO:** Selects your record player for stereophonic operation and includes RIAA equalization.
3. **TAPE:** Selects the tape Cassette recorder for playback.
4. **AUTO FM:** This is the normal listening position for all monophonic or stereophonic FM broadcasts. In this position the stereo indicator and automatic switching circuit built into your FESTIVAL 4 Music System are operative. For further details see the paragraph on "SELECTING MONOPHONIC OR STEREO FM BROADCASTS".
5. **MONO FM:** Selects the FM section of your system. In this position you can listen to stereo phonic broadcasts monophonically while monophonic broadcasts will appear unchanged.
6. **AM:** Selects the AM section of your Music System for AM reception.

## RIAA EQUALIZATION

In order to assure good reproduction of the wide range of frequencies in music and to make necessary adjustments for the limitations of the recording technique, record manufacturers have found it necessary to modify the actual frequency response of the music while it is being recorded. Thus, to avoid overcutting and consequent distortion, a measured and deliberate reduction is effected in low frequency response by selecting a "turnover frequency" and by recording attenuated response below that point. To assure optimum signal to noise ratio at the high frequency and when the record is played at home, the highs are deliberately exaggerated during the recording process. A measured and deliberate boost is effected above a certain frequency. This combination of deliberate exaggeration at the low and high ends of the frequency range can be expressed in a "recording curve". When the record is played a mirror image of that curve should be available so that the ideal "flat" response may be achieved. This recording curve has been incorporated in the PHONO position of the function switch.

## FUNCTION INDICATOR LIGHTS

Your FESTIVAL 4 Music System is equipped with a bank of indicator lights which visually indicate the position of the function switch as you select your program source.

## STEREO INDICATOR

A stereo indicator is located adjacent to the function lights and operates in conjunction with the AUTO FM position of the function switch.

As you tune from station to station with the manual tuning control, the stereo indicator will show if you are tuned to a stereo program. If the indicator is off, the program you are listening to is being broadcast monophonically.

As you tune from station to station with the automatic tuning control, the stereo indicator will *not* indicate as you pass over a stereo station, but only if the station you STOP at is being broadcast stereophonically.

## MANUAL TUNING

Your FESTIVAL 4 also incorporates a manual tuning control for the selection of any desired stations in the AM or FM broadcast band. When using the manual tuning system, the muting circuit is inoperative and all audible interstation noise will be heard.

## AUTOMATIC STATION SELECTOR

Your FESTIVAL 4 Music System incorporates an automatic motorized tuning system for ease of operation in the selection of AM or FM stations. Located on the center of the front panel is an automatic station selector bar. When you push the right side of the tuning bar, the AM and FM dial scale will rotate to the right. When you push the left side of the tuning bar the AM and FM dial scale will rotate to the left. When you release the tuning bar the tuner will search for the nearest station in the direction it was moving and then stop and "lock in" on that station.

At this time the "ON" station indicator will be illuminated and if the particular station happens to be transmitting in stereo, the STEREO beacon will also be illuminated.

If, as you search for a station you should reach the end of the tuning range, your automatic tuning system will automatically reverse and continue moving in the opposite direction. Again, when you release the tuning bar, the tuner will search out the nearest station in the direction it was moving. During the entire operation of your automatic tuning system your FESTIVAL 4 incorporates a "muting" circuit which eliminates all audible signals while tuning from station to station.

## DIAL SCALE

Your FESTIVAL 4 utilizes a rotary dial scale to provide sharp illumination of AM and FM stations.

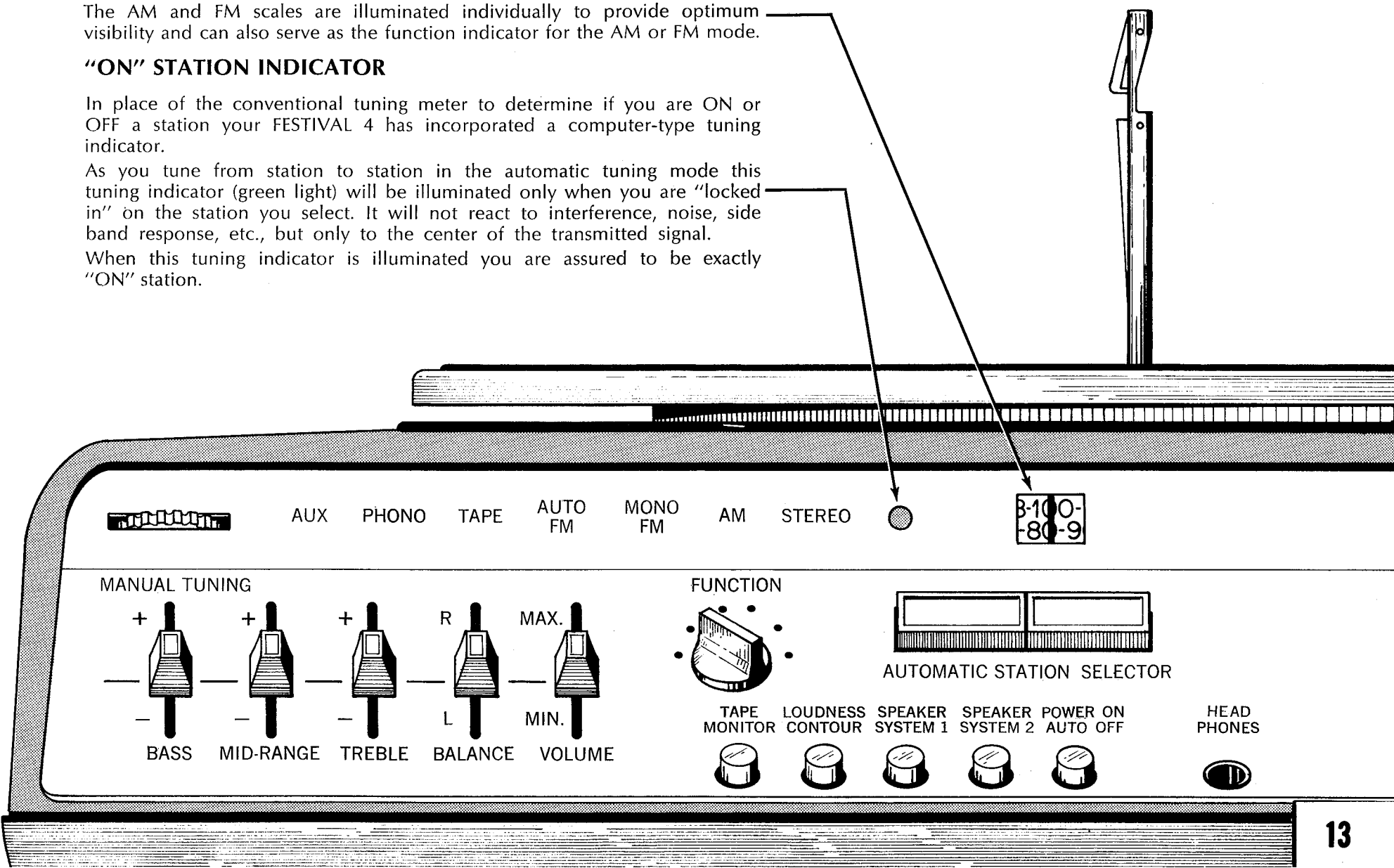
The AM and FM scales are illuminated individually to provide optimum visibility and can also serve as the function indicator for the AM or FM mode.

## "ON" STATION INDICATOR

In place of the conventional tuning meter to determine if you are ON or OFF a station your FESTIVAL 4 has incorporated a computer-type tuning indicator.

As you tune from station to station in the automatic tuning mode this tuning indicator (green light) will be illuminated only when you are "locked in" on the station you select. It will not react to interference, noise, side band response, etc., but only to the center of the transmitted signal.

When this tuning indicator is illuminated you are assured to be exactly "ON" station.



# Selecting monophonic or FM stereo broadcasts

## SELECTING MONOPHONIC OR FM STEREO BROADCASTS

Under normal use for all FM broadcasts, the function Selector Switch should be placed in the AUTO FM position.

Your system is equipped with a stereo sensing circuit which can automatically determine if your unit is receiving monophonic or stereophonic broadcasts, and then automatically adjust the mode of operation.

If the station is transmitting stereo, your system will automatically switch in the multiplex section and you will hear the broadcast in full stereo. Should the station conclude broadcasting in stereo, your system will automatically switch back to monophonic reception.

Should you receive a weak signal whose quality has been degraded by noise or poor signal conditions, and you wish to listen to this stereo broadcast, monophonically, place the function selector switch in the MONO FM position.

## ADDITIONAL STATIONS (AM and FM)

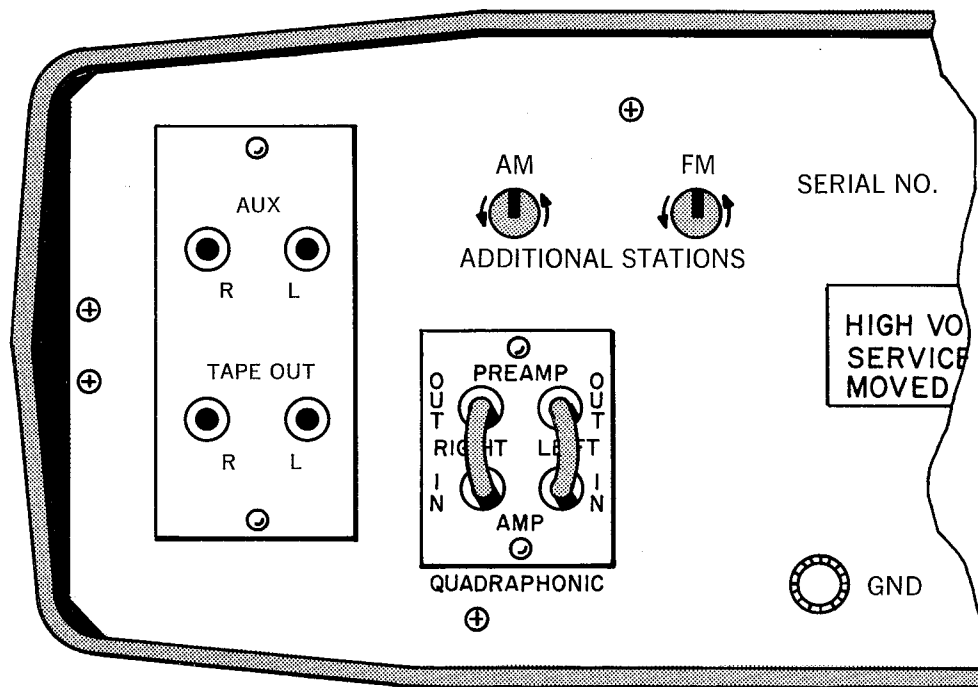
Located on the rear panel of your FESTIVAL 4 Music System are two level set controls marked AM and FM which have been preset at the factory. The purpose of these controls is to adjust the "acceptability level" of your automatic tuning system. If the signal strength of the incoming program is above this pre-set level it will be accepted by your automatic tuning system. If the signal strength of the incoming program is below this preset level it will be rejected by your automatic tuning system and will be passed over as automatic tuner goes thru the search process.

If you wish to increase the number of stations accepted by your system, either AM or FM, even though it might be with decreased performance, simply rotate the appropriate level control in a counter-clockwise direction.

## QUADRAPHONIC RECEPTACLES

These receptacles are intended for use with any accessory equipment designed to be installed between a preamplifier and power amplifier. This includes such equipment as electronic audio equalizers, reverberation units, and a new quadraphonic processor offered by Harman-Kardon. In order to make use of this facility, simply disconnect the two patch cords connected to these receptacles and follow the instructions supplied with the accessory equipment.

NOTE: When no accessory equipment is being used, the two patch cords **MUST** be installed in order to use your Music System.





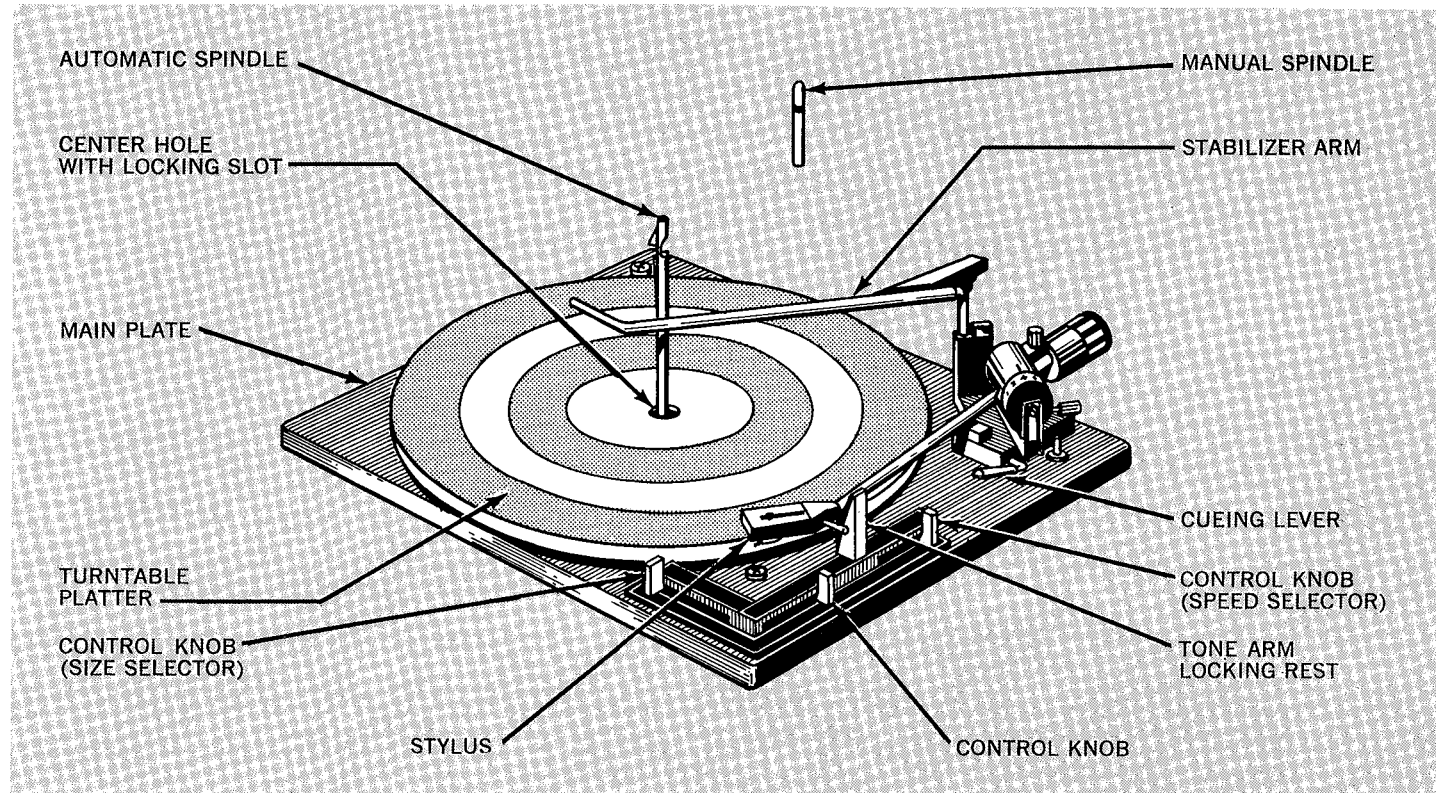
## AUTOMATIC PLAY

1. Insert the automatic spindle fully into the center hole by rotating the spindle until the side projection is engaged in the locking slot.
2. Lift the stabilizer arm and swing it to the right.
3. Stack up to six records on the spindle, holding the records with the left hand while positioning the stabilizer arm over the records.
4. Set the control knobs for the correct record size and speed.
5. Make sure the cueing lever is in the down position.
6. Slide the control knob from the OFF position to the REJ position, holding it there momentarily until the turntable starts to revolve.
7. After the last record has finished playing, the tone arm will return to its locking rest and the changer will shut off automatically.

## MANUAL PLAY

1. Lift the stabilizer arm and swing it to the right.
2. Insert the short manual spindle.
3. Place a single record on the turntable.
4. Return the stabilizer arm to the center of the turntable.
5. Slide the control knob from the OFF position to the Man/ON position.
6. Using the cueing lever, raise the tone arm and position the stylus over the desired point on the record.
7. Lower the cueing lever gently until the stylus enters the assigned groove.

# Record changer

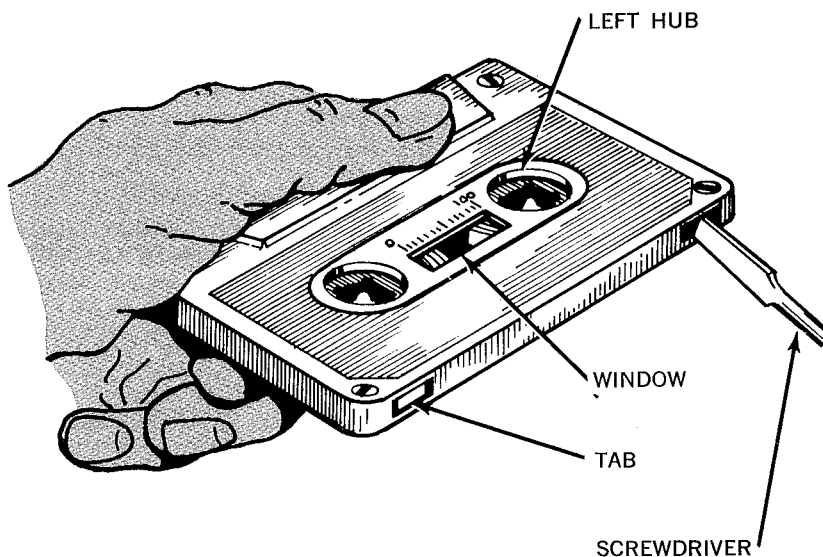


8. When the record has finished playing, the tone arm will return to its locking rest and the changer will shut off automatically.
9. If you wish to have the record repeat continuously, omit step 4.

# The cassette

Cassette is the French word for cartridge. It is a self-contained reel-to-reel tape housed in a plastic enclosure for ease of operation and storage. At the present time the program material recorded on almost any record album is also available on a pre-recorded cassette.

There are, in addition to prerecorded tape cassettes, blank tapes with which to make your own recording. Most blank cassettes have either 60, 90, or 120 minutes of total playing time. At this writing it has been our experience that only high quality, name-brand tape of 60 or 90 minute length (C-60 or C-90) are reliable. Thus far 120 minute cassettes of many brands have proved to give poorer fidelity and less mechanical reliability than the 60 and 90 minute lengths. For these reasons we recommend that you **DO NOT USE ANY TAPE CASSETTES OTHER THAN HIGH QUALITY, NAME-BRAND TAPES OF 60 OR 90 MINUTE LENGTH!**



## CASSETTE STORAGE

The plastic storage container in which the cassette is purchased is dust-proof and will provide ample protection for the cassette. Store the cassette at room temperature, away from any source of heat, and away from any magnetic fields (e.g., speaker magnets, transformers, or electric motors).

## CASSETTE INDEX

Directly below the window, in the center of each Cassette, there is a tape index with markings from 0 to 100. When winding or re-winding to a predetermined point on the tape, use this index as a guide.

## ACCIDENTAL ERASURE PROTECTION

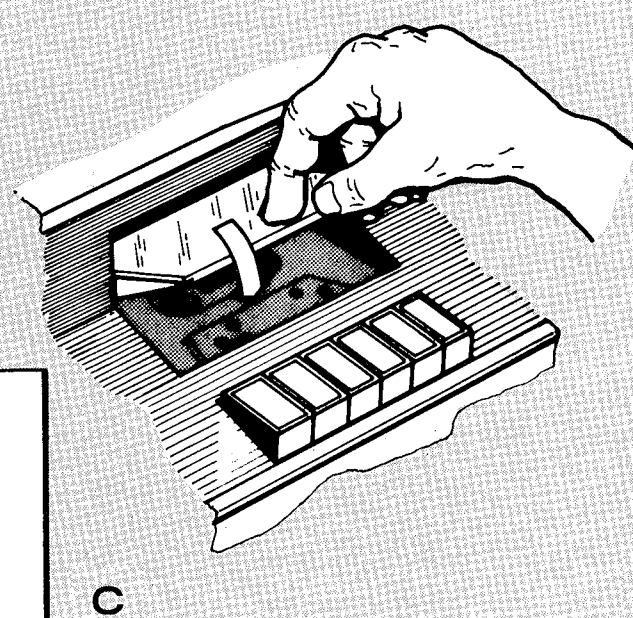
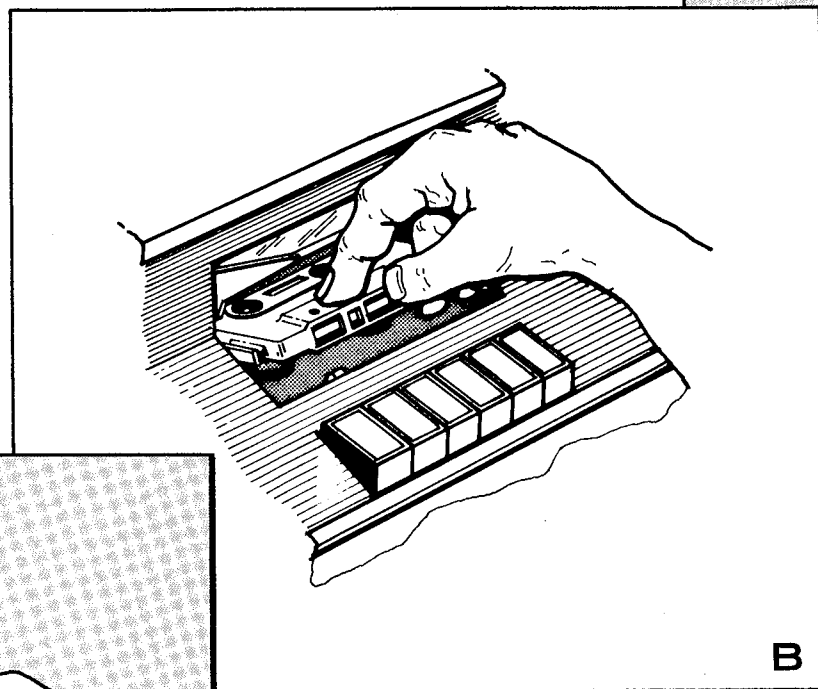
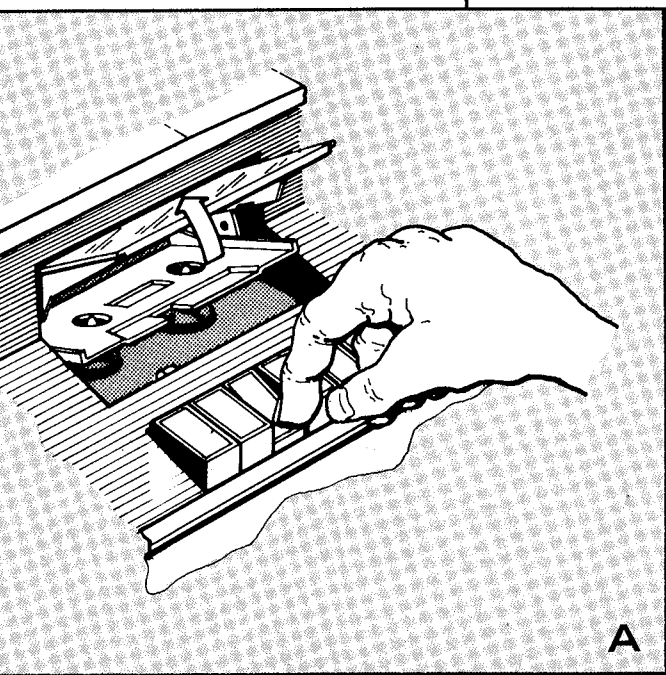
The cassette is provided with a recording safety feature which protects your pre-recorded cassette, or one you may have just recorded, against accidental erasure.

The safety feature employed consists of two removable tabs, one for each side of the tape, appearing in the rear of the cassette housing. These tabs will have been removed on any prerecorded tapes you may have purchased and evidence of their removal will be the two, small square indentations appearing on either side of the rear of the plastic housing.

Once you have made your own recording on a blank cassette, and you wish to protect against accidental erasure, it will be necessary for you to remove one or both of these tabs to protect either or both sides of your recorded cassette against accidental erasure, as follows:

1. If both sides have been recorded, merely insert a fine screwdriver in the opening around each tab and gently pry the tab off. Be sure the tab falls free from the cassette.
2. If one side only has been recorded, place the cassette on a table as removed from the recorder, with the side just recorded facing up and the exposed tape area facing you. The correct tab to be removed will be in the lefthand corner of the cassette.

NOTE: If at some future date you wish to make a recording over a previously protected tape, simply place a piece of adhesive tape over the tab opening. This will permit you to make a new recording. Removal of the adhesive tape following the recording will again insure against accidental erasure.



## CASSETTE INSERTION AND REMOVAL

To load a tape cassette into the recorder, depress the STOP/CASSETTE EJECT button all the way down. This will open the trap door and raise the loading platform to the correct loading height. Remove the cassette from its container and position it so that the front (exposed tape area) is facing you and the full hub of tape, as viewed through the cassette window, is on your left. Deposit the cassette as far back on the loading platform as possible and push the trap door down until it clicks shut.

To remove the cassette from the recorder depress the STOP/CASSETTE EJECT button all the way down and remove the cassette from the loading platform.

## RECORD BUTTON

This button is used to activate the record mechanism and must be depressed simultaneously with the PLAY/RECORD button in order to start the tape in motion when recording.

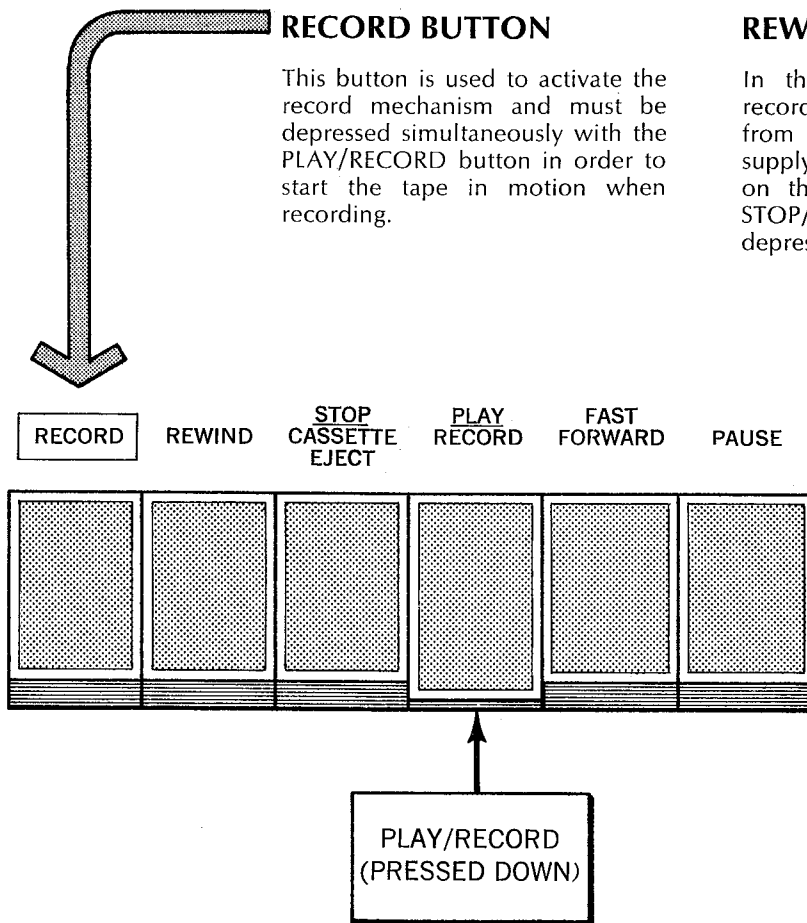
## REWIND BUTTON

In this mode of operation the recorder will rapidly wind tape from the take-up reel onto the supply reel until all the tape is on the supply reel or until the STOP/CASSETTE EJECT button is depressed.

## STOP/CASSETTE EJECT BUTTON

This button serves a dual function. It is used to stop tape motion and to eject the cassette. When the button is depressed half way it will stop the motion of the tape and return all other buttons, with the exception of the PAUSE button, to their unused positions. **IMPORTANT!** When changing from function to function using the REWIND, PLAY/RECORD, or FAST FORWARD buttons, it is **IMPERATIVE** that you first depress the STOP button in order to avoid serious damage to the recorder mechanism.

When the button is fully depressed, the cassette will be lifted out of the recorder mechanism by the loading platform and presented to the operator for removal. The same button is also used to open the trap door when preparing to insert a cassette.



## PLAY/RECORD BUTTON

This button is used to record when depressed in conjunction with the RECORD button and to play a previously recorded tape when depressed by itself.

## FAST FORWARD BUTTON

This button performs a function identical to that of the REWIND button with the exception that the tape moves from the supply reel to the take-up reel.

## PAUSE BUTTON

This button is used in conjunction with the PLAY/RECORD button. When depressed, the PAUSE button will interrupt the motion of the tape while playing or recording without affecting the position of the PLAY/RECORD button.

## RECORD LEVEL METER

The "RECORD LEVEL METER" is used to visually monitor the recording level of the program material. This meter *must* be used in conjunction with the "RECORD LEVEL CONTROL" to maintain a proper level when making recordings. For further information regarding the use of the level meter, refer to the paragraph entitled "RECORDING PROCEDURE"

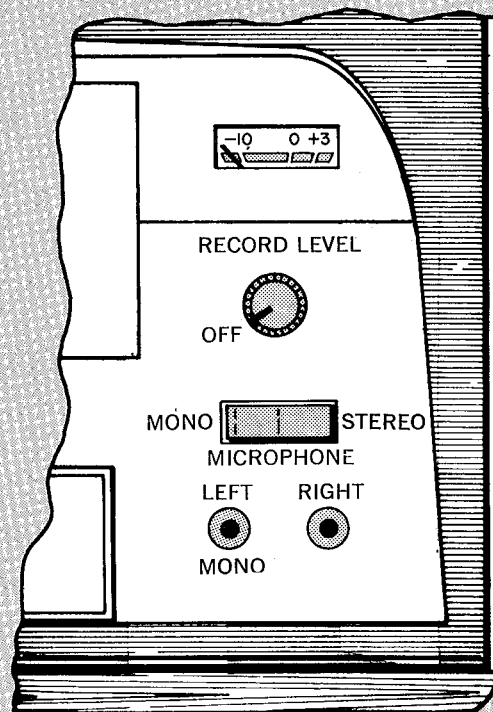
## RECORD LEVEL CONTROL

The "RECORD LEVEL" control is used to adjust the incoming signal information to the proper recording level as is indicated by the "VU METER". To increase the recording level, rotate the control in a **CLOCKWISE** direction.

For convenience, a separate power "ON-OFF" switch has been incorporated as an integral part of the "RECORD LEVEL" control. To turn the power on, rotate the control in a clockwise direction until a "click" is heard.

To turn the power off, merely rotate the control in a full counterclockwise direction.

NOTE: When the cassette recorder is not in use, it is strongly recommended that the power switch on the recorder be placed in the "OFF" position.



## STEREO-MONO SWITCH

This switch must be placed in the **STEREO** position when making a stereophonic recording. When placed in the **MONO** position while recording, the switch will allow the inputs to either or both channels to be recorded simultaneously on both tape tracks. The result will be a monaural recording of all inputs to the Cassette Recorder. The **STEREO-MONO** switch has no effect during playback.

## MICROPHONE INPUT RECEPTACLE

There are two (2) microphone input receptacles to permit making either stereophonic or monophonic recordings.

To record stereophonically, use both the "MONO-LEFT" and the "RIGHT" microphone input receptacles. Place the "MONO-STEREO" rocker switch in the "STEREO" position.

When recording monophonically, place one microphone in the "MONO-LEFT" microphone input receptacle and place the MONO-STEREO switch in the "MONO" position. For additional information on recording, see the paragraph "RECORDING PROCEDURE".

# Using the cassette tape

## RECORDING PROCEDURE

1. Turn the power switch of your FESTIVAL 4 Music System "ON".
2. Place the function selector switch in the mode appropriate to the material you wish to record. (Example: AUX, PHONO, AUTO FM, MONO FM, AM).
3. Carefully check the cassette you plan to use for recording to be certain that the tabs provided on the rear to protect against accidental erasure are present or that you have placed a piece of adhesive tape in their place in instances where you plan to record over a pre-recorded tape.
4. Depress the STOP/CASSETTE EJECT button to allow the trap door of the recorder to open.
5. Turn the power for the recorder "ON" by rotating the record level control in a clockwise direction until a click is heard. Set the control at minimum.
6. Select the appropriate position of the STEREO-MONO switch.
7. Insert the cassette into the recorder and close the trap door.
8. With either the fast forward or rewind buttons locate the point on the tape at which you wish to begin the recording.
9. Depress the PAUSE button. This will keep the tape in the proper position while the other controls are being set to record.
10. Simultaneously depress the RECORD and PLAY/RECORD buttons. If the RECORD button fails to depress easily, refer to step 3 again.
11. Rotate the level control in a clockwise direction until the meter pointer deflects toward the red zone. Increase the setting of the level control until the loudest passages of the program source deflect the VU meter pointer from the black area to the boundary of the red area. If you find the VU meter pointer well into the red area, the recording level is set too high and your recording will be distorted.
12. When the controls are properly set and the program material is ready for recording, depress the PAUSE button once again.
13. Your cassette is now in the process of recording. Keep a close watch on the level meter during recording and make any necessary adjustments to insure the highest possible quality of recording.
14. If you wish to interrupt the recording process to avoid unwanted program material, the PAUSE button may be used without upsetting the other controls.
15. When the recording is complete depress the STOP button to stop the recording process.
16. To remove the Cassette, depress the "STOP/CASSETTE EJECT" button ALL the way down.
17. If you want to record on the other side of your Cassette, turn it over and repeat the Record Procedure.

## PLAYBACK PROCEDURE

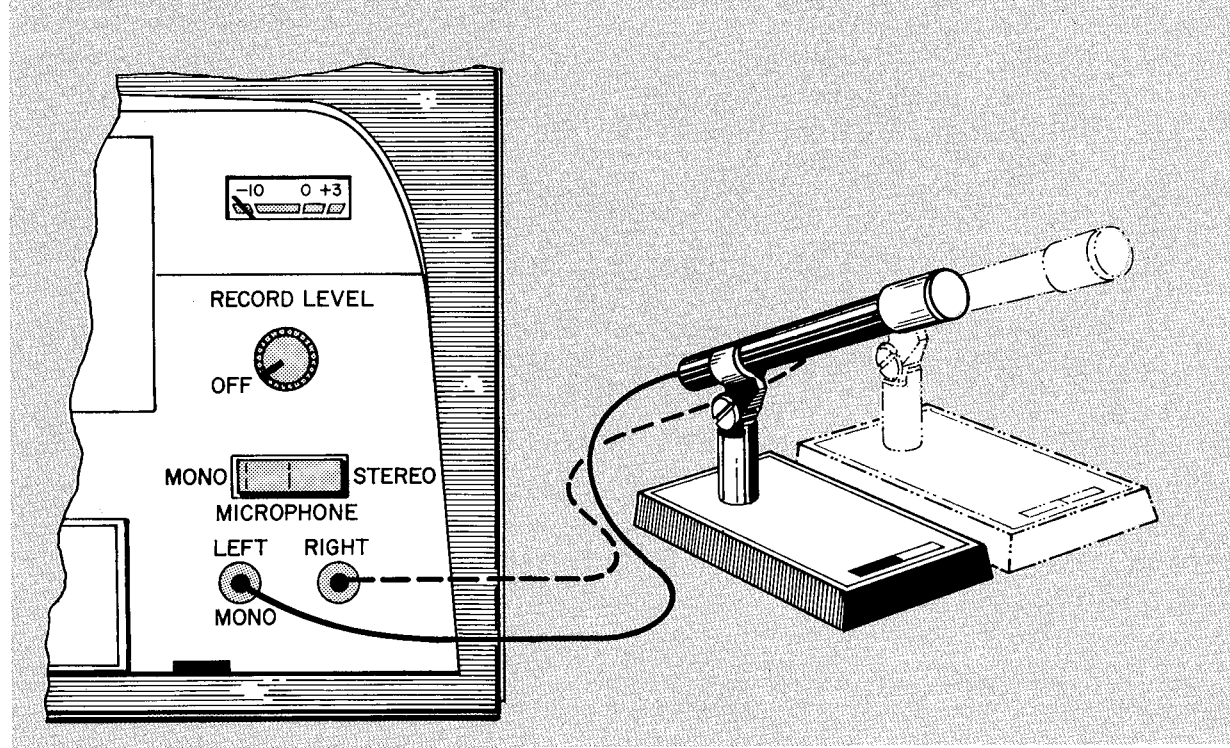
The procedure outlined below should be followed to insure proper operation of your Cassette Recorder.

1. Turn the power switch of your Music System "ON".
2. Turn the power "ON" for the Cassette Recorder, using the Record Level Control. NOTE: In the playback mode the level control does not serve any other function other than switching the power "ON" and "OFF".
3. Place the system function selector switch in the "TAPE" position.
4. Depress the "STOP/CASSETTE EJECT" button. The trap door of the Cassette Recorder will spring open.
5. Place a prerecorded Cassette into the recorder and close the trap door. Make certain the tape is fully wound on the left side of the Cassette, using the rewind function if necessary.
6. Depress the "PLAY/RECORD" button to start the tape moving in a forward direction for playback.
7. Adjust the system "VOLUME CONTROL" to the desired listening level.
8. If you wish to stop the playback of the tape for a brief period of time without resetting the controls, (e.g., to answer the telephone or the doorbell), merely depress the PAUSE button. Depress the PAUSE button again, to resume normal operation.
9. To stop the recorder, depress the "STOP/CASSETTE EJECT" button halfway-down. To remove the Cassette from the recorder, depress this button all the way down.

## HOW TO RECORD WITH MICROPHONES

A HARMAN-KARDON microphone may be purchased as an added accessory for use with your music system, but if you prefer using another microphone for recording purposes, it MUST BE A LOW IMPEDANCE TYPE (BETWEEN 500 and 1000 OHMS).

1. Place the function selector switch of your Music System to AUX.
2. Set the VOLUME CONTROL to minimum.
3. If you plan to make a monophonic recording, insert one microphone into the MONO LEFT input receptacle.
4. If you plan to make a stereophonic recording, insert one microphone into each of the microphone input receptacles.
5. Refer now to the RECORDING PROCEDURE and follow steps #3 through #10.
6. As you record, your voice could vary in amplitude and direction and it may be necessary for you to carefully monitor the proper record level prior to making a recording. To accomplish this, follow step #11 of the RECORD PROCEDURE.
7. When the controls are properly set and you are ready to record with the microphones, depress the PAUSE button and begin recording.



## ERASING TAPES

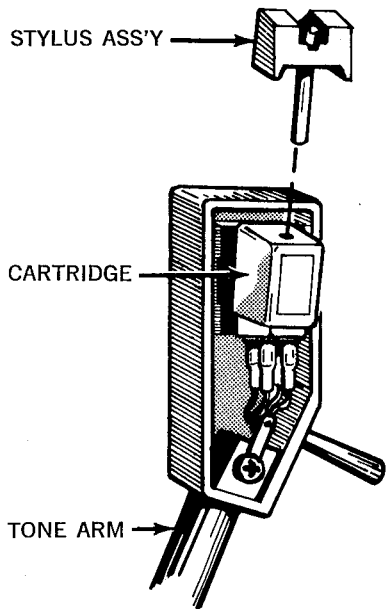
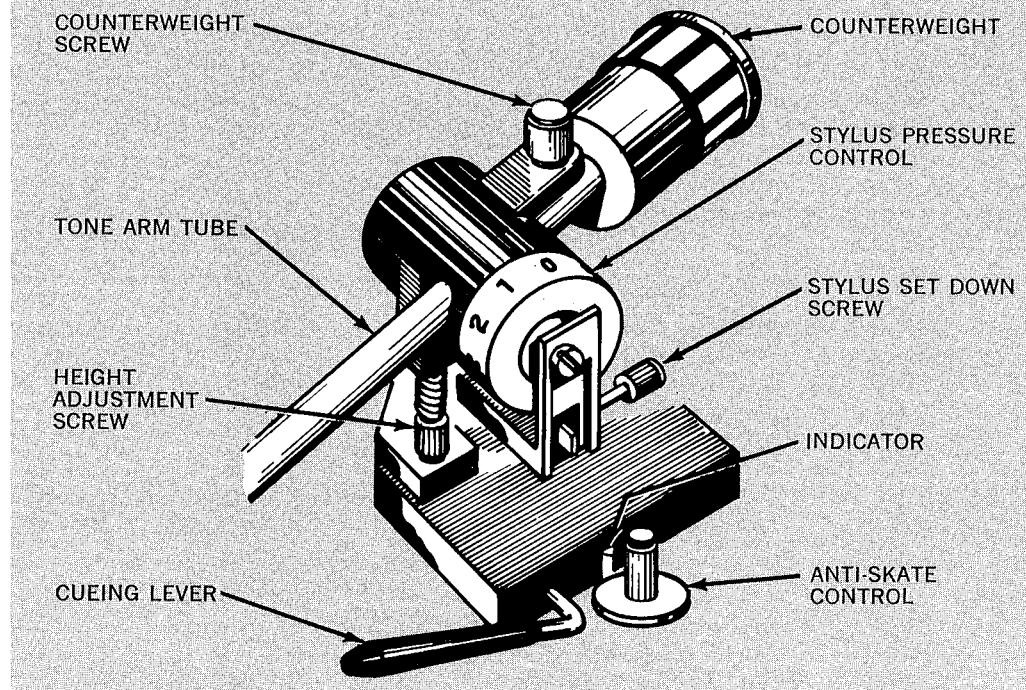
While in the process of making a recording, any previously recorded information on the tape will automatically be erased. It follows, therefore, that no procedure is required to erase a tape prior to re-use.

In the event you want to eliminate a portion of a tape or even the entire tape, the following procedure should be followed:

1. Place the FUNCTION SELECTOR switch to the "AUX" position.
2. Rotate the "RECORD LEVEL" control to its minimum position (full counterclockwise).
3. Depress both the "RECORD" and the "PLAY/RECORD" buttons simultaneously. This will cause the tape to pass across the erase head and any material previously recorded will be erased from it.



# Service and maintenance



## STYLUS REPLACEMENT

1. Raise the tone arm as far as it will go without resistance.
2. Grasp the stylus assembly as shown in the illustration and pull forward, away from the cartridge.

## LUBRICATION

Do not attempt to lubricate the mechanism. Factory lubrication is normally sufficient for quite some time. However, in order to keep the unit in top operating condition, we suggest you have it inspected once a year by a qualified service technician.

## RECORD CHANGER ADJUSTMENTS

### TONE ARM BALANCE

1. Rotate the stylus pressure control dial to 0.
2. Release the counterweight screw and slide the counterweight to the approximate point where the tone arm floats in a horizontal position. Re-tighten the counterweight screw.
3. The fine adjustment for tone arm balance will be achieved by rotating the counterweight until the tone arm is in the exact horizontal position.

### STYLUS PRESSURE

When the tone arm is properly balanced, set the stylus pressure control dial to 3 grams.

### ANTI-SKATE

The anti-skate control dial should always be set for the same value as the stylus pressure. Set the dial so the indicator points to the area between the 2 and 4 markings.

### TONE ARM HEIGHT

The tone arm should be adjusted so that the tone arm tube clears the top of the locking rest by  $\frac{1}{8}$ " before setting into the rest. Turn the height adjustment screw clockwise to lower the tone arm and counterclockwise to raise it.

### STYLUS SETDOWN

With a single 12" record on the turntable, turn the stylus setdown screw until the stylus enters the record grooves  $\frac{1}{8}$ " from the edge of the record.

## CLEANING

In any tape recorder as the tape passes over the tape heads, capstan, pressure roller, and tape guides, small particles of tape oxide are deposited on these parts. After a period of time the tape oxide and other dust particles build up to the point where they become detrimental to the operation and fidelity of the recorder. For this reason it is important that you clean the parts mentioned above with a "Q" tip slightly dampened with isopropyl alcohol (common household rubbing alcohol) after every ten hours of use or less.

**CAUTION:** This is the **ONLY** way to clean the cassette in your music system. **DO NOT** use any other types of alcohol, cleaning fluids, tools, or tape head cleaning cassette. They may seriously damage the heads or the associated drive mechanisms.

## DEMAGNETIZING

The tape heads, capstan, and tape guides build up a residual magnetic field due to the magnetic field in the tape that passes over them. When the level of magnetism reaches a certain point it will adversely affect your tapes. A demagnetizer may be purchased at a moderate cost from any electronic parts dealer. Follow the instruction supplied with the demagnetizer very carefully! It is advisable to demagnetize each time you have finished cleaning the recorder.

## LUBRICATION

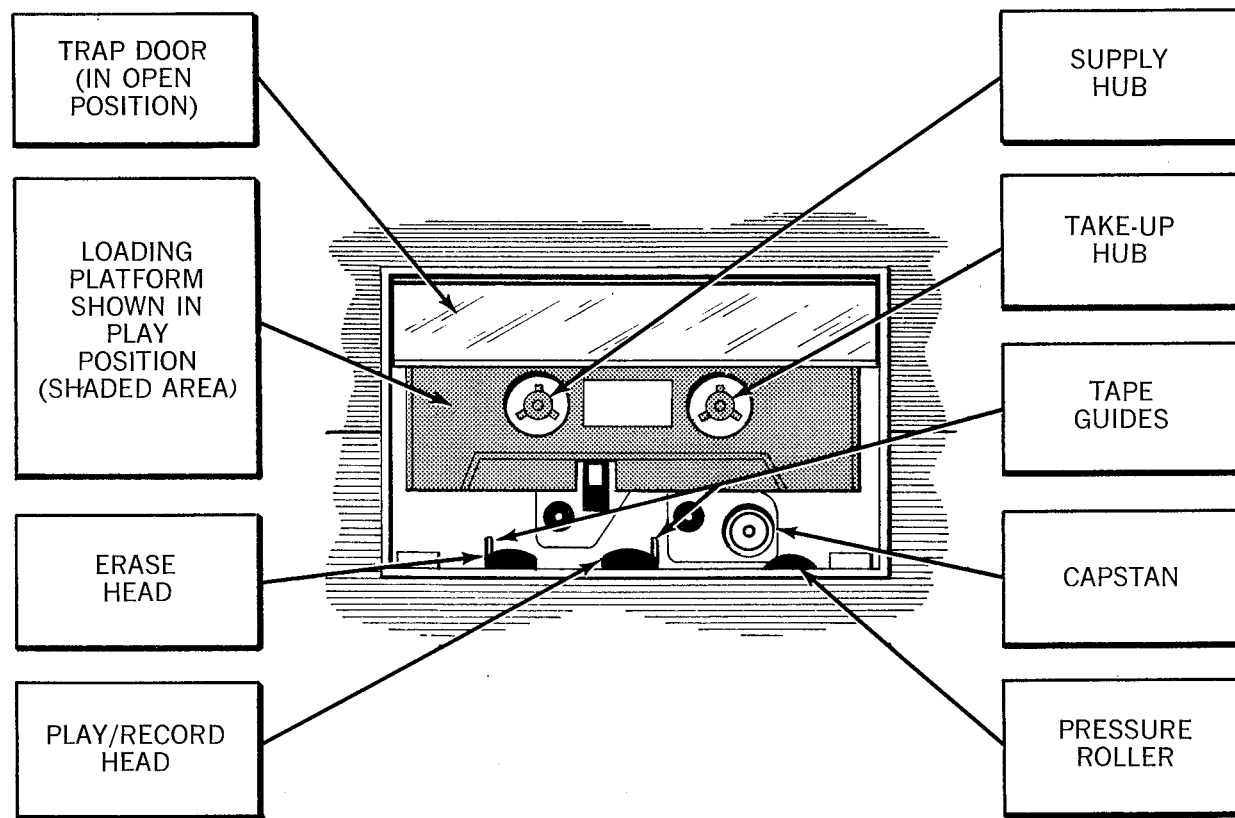
The cassette mechanism has been fully lubricated at the factory. No other lubrication should be necessary for some time. If lubrication should become necessary at some future date, be sure to have this done by a qualified technician only.

## MAINTENANCE

If it is necessary to clean the dial glass, the metal insert on the escutcheon or the control knobs it is recommended that you use a very mild detergent and water solution applied with a soft cloth or cotton swab. **NEVER** use a

strong abrasive cleaner or scouring powder as this could damage the finish of these parts.

The five variable slide controls have been manufactured with a special silicone lubricant for smooth and easy operation. These controls should **NEVER** be cleaned with any commercial cleaner or solvent.



# Replacement parts list

## DESCRIPTION

## PART NO.

Automatic Spindle .....	A107043
Manual Spindle .....	A106174
50 Hz Pulley .....	A106719
Cartridge w/stylus .....	01225346
Stylus .....	01225347
Record changer w/cartridge & stylus ...	01026471
Knob, (Automatic Station Selector) .....	63226549
Knob, Insert .....	63026684
Knob, Pushbutton .....	63226688
Knob, Slide Control .....	63226540
Knob, Insert Slide Control .....	63026690
Knob, Function Switch .....	63226681
Front Panel, Upper .....	61626464
Front Panel, Lower .....	63026600
Knob, Record Level .....	63226658
Owners Manual .....	90726949
Technical Manual .....	90726950

