

Operating Instructions

Miracord 770 H

ELAC

AUTOMATIC TURNTABLE
AND RECORD CHANGER



INTRODUCTION

Please read this Instruction Book carefully. It will insure many hours of fine performance from your Studio Series Automatic Turntable and Record Changer.

Should further information be required, it is suggested that you call on your local MIRACORD dealer, or write to BENJAMIN ELECTRONIC SOUND CORP., 40 Smith Street, Farmingdale, N.Y. 11735

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1. Installing your MIRACORD 770 H

1.1

You may support your MIRACORD on a standard base or mounting board designed for this purpose or make your own support in a cabinet or drawer. If you use the standard base or mounting board, the record changer can be easily mounted by slowly lowering the chassis and inserting the springs (in their sound and shock absorbing rubber supports) in the four holes provided. If you make a special support, follow the instructions on the enclosed template (17 452 9281), which gives you the exact size of the cutout necessary as well as the dimensions of the mounting holes.

After placing the mechanism in its support, make sure the record changer is free to move on its springs in all directions. Check the push-button operation to see that no parts bind on the wood board or base and that the lead wires are not drawn so tightly as to restrict the movement of the changer.

If it is necessary to transport or ship your MIRACORD after it has been installed, secure it to the base or mounting board by means of two round head wood screws through the two holes at the front and rear of the chassis plate which are exposed when the turntable is removed. Fibre washers should be used under the head of the screw so that the chassis plate is not marred. Fasten the arm by means of the arm lock (Fig. 2-13). **The heavy cast turntable should always be packed separately and should never be shipped on the mechanism. Disconnect the unit from the AC line before doing any work on the chassis!**

1.2 Putting on the Turntable

To take the heavy turntable out of the package make use of the large finger grip holes and avoid holding it by the plastic stroboscope ring. Before putting on the turntable,

move lever 24 with its associated spring (Fig. 1) sideways since it may be close to the cone bearing on which the turntable will be mounted. In order to enable the turntable to be easily placed upon the cone seat (Fig. 1-23) it is recommended to rotate the changer by hand until the neutral position is reached. If one of the start buttons is depressed, the cone seat (Fig. 1-23) can be turned clockwise by hand until the turntable brake (Fig. 1-25) moves outwards. Make sure that the turntable is not placed inadvertently on the idler wheel (Fig. 1-22). To do this, lock the tone arm to its support and move the movable idler wheel inwards before putting on the turntable. Place the turntable on the cone of the turntable shaft. Do this carefully and gently, since otherwise the ball bearing might be damaged. Finally, put on the rubber mat making sure that the center hole is firmly pressed around the center raised portion of the heavy turntable. Center the metal cover plate (Fig. 2-5) on the rubber mat.

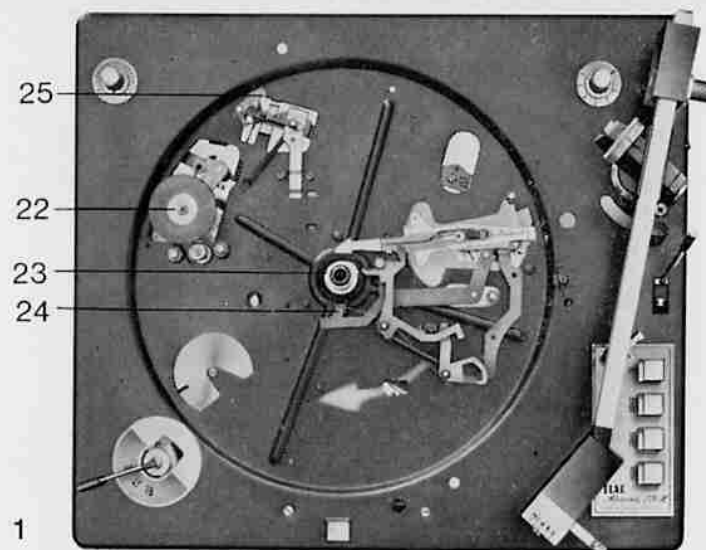


Fig. 1

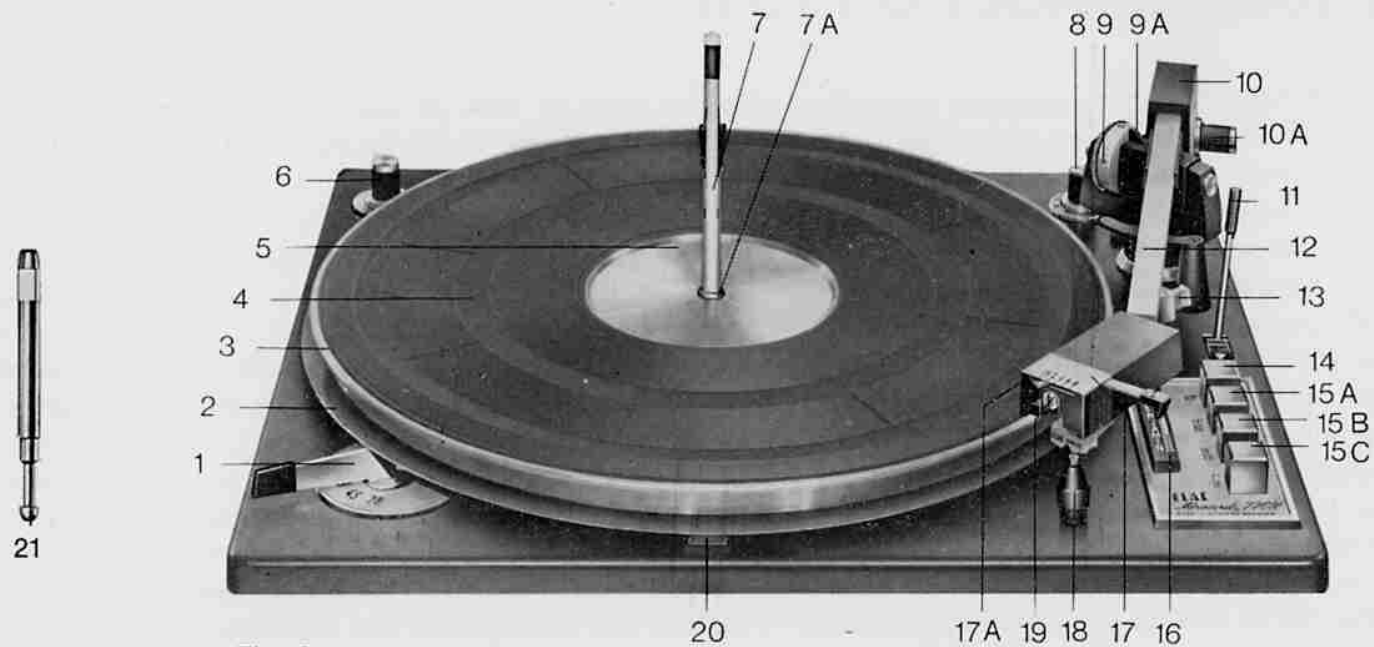


Fig. 2

DESIGN AND OPERATING FEATURES

- | | | | |
|--------|-----------------------------------|------------|---|
| 1 | Speed Change Lever | 11 | Cueing Lever |
| 2 | Stroboscope Ring | 12 | Tone Arm |
| 3 | Turntable | 13 | Arm Lock (red indicator showing "locked position", green "unlocked position") |
| 4 | Mat | 14 | Stop Button |
| 5 | Center Plate | 15 A, B, C | 12", 10" and 7" Buttons |
| 6 | Variable Speed Control Knob | 16 | Stylus Timer |
| 7 | "Magic Wand" Spindle | 17 | Cartridge Retainer CR-70 |
| 7 A | Hollow Center | 17 A | True Track Lever and Scale |
| 8 | Anti-Skating Control | 18 | Stylus Position Gauge with Stylus Brush |
| 9 | Tracking Force Adjustment Dial | 19 | Stylus Position Adjustment Screw |
| 9 A | Balance Hairline Indicator | 20 | Stroboscope Window |
| 10 | Counterbalance | 21 | Single-Play Spindle |
| 5 10 A | Counterbalance Vernier Adjustment | | |

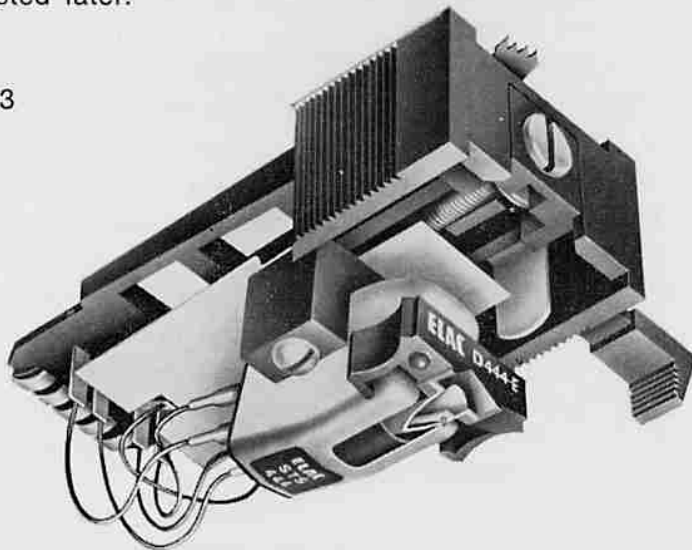
1.3 Installing your Cartridge

1.3.1

The cartridge insert (Fig. 3) contains a slide with two threaded holes for mounting the cartridge. Some cartridges have their own bracket or holder which may be mounted directly to the holes in the slide. If no special bracket is provided the cartridge may be mounted directly to the slide. The holes in the slide are designed to take any cartridge with standard mounting dimensions.

When fitting cartridges, care should be taken to ensure that the distance from the diamond tip to the mounting plane in the cartridge insert is $\frac{3}{4}$ ". (If ELAC cartridges are used, no spacers will be necessary to obtain this dimension.) The final position of the stylus (forward or backward) will be adjusted later.

Fig. 3



Cartridge insert with ELAC STS 444-E cartridge installed.

6 The cartridge is optional equipment.

1.3.2.

The respective ground wires for each channel are connected to the terminals marked "0" adjacent to the R and L terminals.

The cartridge insert has four wires and requires no separate or fifth wire connected to ground. You can connect the wires for either mono or stereo reproduction. For stereo reproduction the R (right) channel should be connected to the R (right) pin on your cartridge and similarly the L (left channel) should be connected. For mono reproduction the two channels of a stereo cartridge may be connected in parallel or in series. Be sure to bend the flexible litz wires to an upright bight to avoid reaction onto the True Track mechanism.

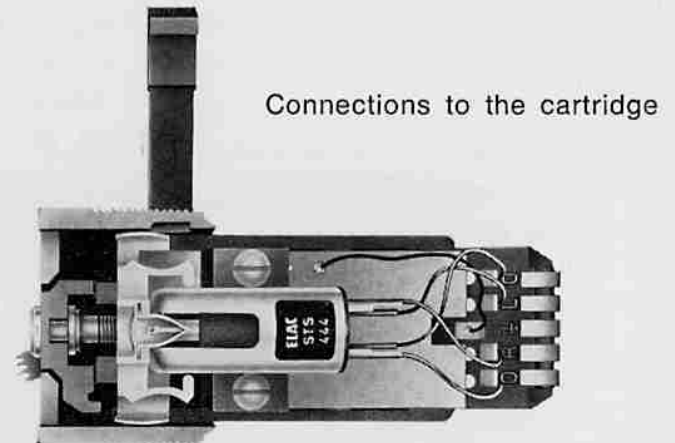


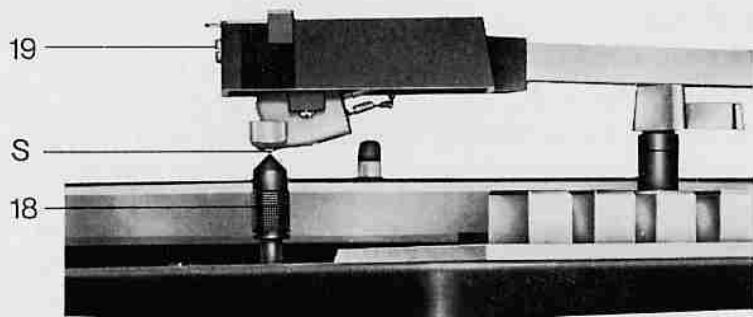
Fig. 4

1.3.3

After connecting the cartridge to the wire leads in the cartridge insert, it may be inserted in the tone arm. This is simply done by engaging the protruding catch on the tone arm in the groove of the insert and pushing the insert to the rear as far as it will go. During this procedure be sure to hold the cartridge insert in a horizontal position.

1.3.4. Lateral adjustment of the cartridge

There is an optimum position of the stylus with respect to the tone arm for every mechanism. If the optimum position is not used, tracking error will increase considerably. The MIRACORD 770 H is provided with a gauge which enables you to adjust the position of the cartridge after it has been installed and set it in the optimum position. This is done by means of the adjusting screw in the front of the cartridge insert (Fig. 5-19) and the gauge located on the chassis plate under the cartridge insert (Fig. 5-18). Turning the screw clockwise will move the entire cartridge forward — counter-clockwise turns will move it backward. Set the position by lifting the gauge up to the stylus S itself (Fig. 5). If the stylus does not line up with the tip of the gauge, turn the adjusting screw until it is exactly in position. (For further description and explanation of this feature see Par. 3.4).



View from right side

Fig. 5

1.4 Installing the Counterbalance and Balancing the Arm

1.4.1

The counterbalance (Fig. 6-10) is installed by sliding it on to the rear of the tone arm as far as it will go. Then move

it further by using the vernier adjusting knob 10 A (Fig. 6). The adjusting knob on the counterbalance should be on the right side and should be used to move the counterbalance forward and backward for either fine or coarse adjustments. The ratio of knob turns relative to movement of the counterbalance is designed to provide extremely accurate and precise adjustment of the arm balance.

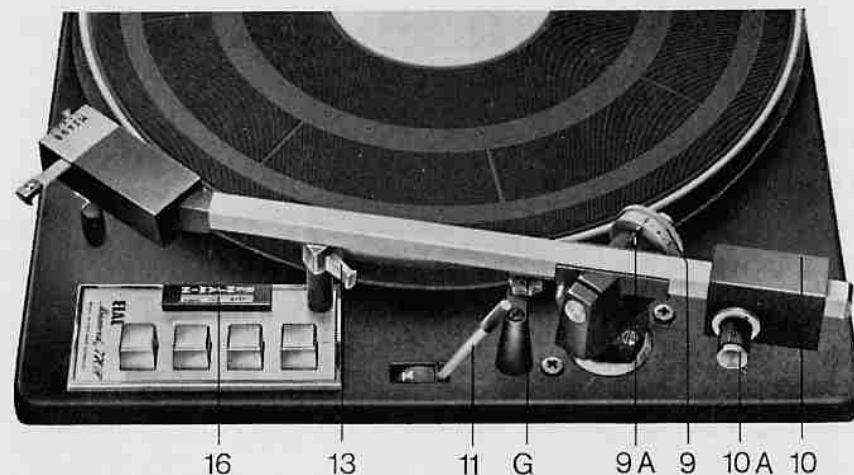


Fig. 6

1.4.2 Arm Lock

The arm may be locked in position for transport or to prevent accidental damage. A positive locking device is provided with clear indication of locking (red) and the unlocked (green) positions (Fig. 6-13). If by chance an operating button is depressed while the arm is locked, a unique mechanism prevents damage to the mechanism while the changer automatically recycles and stops.

1.4.3

Balancing the arm should be done in a position over the turntable taking care not to damage the diamond tip.

After the cartridge has been installed and finally positioned, and the counterbalance has been inserted as above, you are ready to balance the arm. This is done with the stylus force adjustment dial (Fig. 7-9) set at zero. The hairline marking on the arm bearing (Fig. 7-9A) must now be lined up with the zero mark. Move the counterbalance backward or forward by means of the adjusting knob until the tone arm is in perfect balance.

1.5 Setting Tracking Force

This force, which is the pressure the stylus exerts on the record, is easily set on your MIRACORD 770 H by means of a direct reading dial (Fig. 7-9). It can be set for a minimum of $\frac{1}{2}$ gram to 6 grams. Select the gram pressure recommended by the cartridge manufacturer. Then set the tracking force desired by turning the dial to the proper reading opposite the hairline on the bearing (Fig. 7-9A). (The literature supplied with your cartridge will give the recommended force.)

1.6 Anti-Skating Mechanism

Your MIRACORD 770 H incorporates a device (Fig. 7-8) to counteract the side force exerted on the stylus as it moves toward the center of the record. While this force is extremely small, it can cause the needle to "skate" toward the center of the record at very low stylus forces, or introduce a very slight distortion due to unequal stylus pressure on the walls of the record groove.

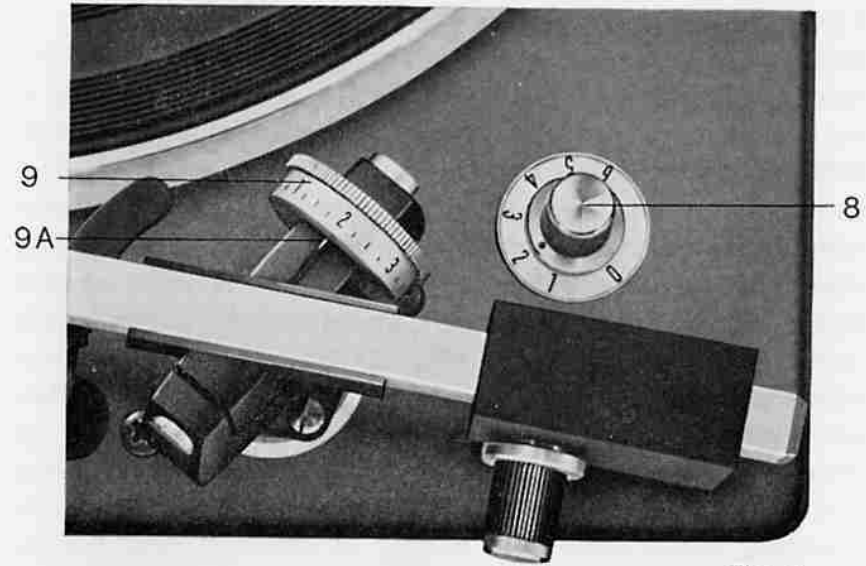


Fig. 7

1.6.1

Fig. 8 shows the operation of the anti-skating mechanism. The skating force exerted on the stylus is balanced by a counteracting force A. The value of the counteracting force can be varied by tightening a rotary spring with the aid of knob 8 and is transferred via a lever H to the roll B on the tone arm shaft.

1.6.2

As revealed by thorough tests the force exerted on the stylus toward the center depends on the value of the stylus force. The anti-skating mechanism is designed in such a way that the skating force is compensated if the anti-skating knob (Fig. 8-8) is adjusted to the exact setting of the stylus force. For example: With 2 g stylus force set red point on knob 8 to position 2.

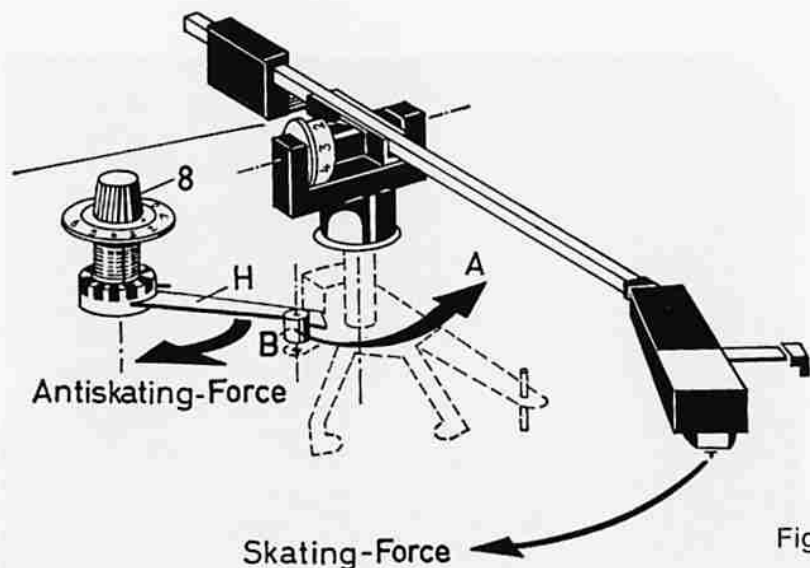


Fig. 8

1.6.3

After determining the proper setting of the anti-skating dial, adjust knob (Fig. 7-8) to this setting. The anti-skating mechanism will automatically compensate for the force acting on the stylus toward the center and insure optimum sound reproduction.

1.7 Audio Connections

A dual audio lead is packed with your MIRACORD 770 H. It contains plugs at each end — one pair plugs into the sockets under the chassis (Fig. 9-27) and the other ends are plugged into the phono input sockets of your amplifier or receiver. Observe polarity by using the same color plug for both the left channel of the changer (L) and the left channel of the amplifier, and similarly for the right channel (R). If more than one set of input sockets are provided, consult your amplifier instruction book for the proper pair to use.

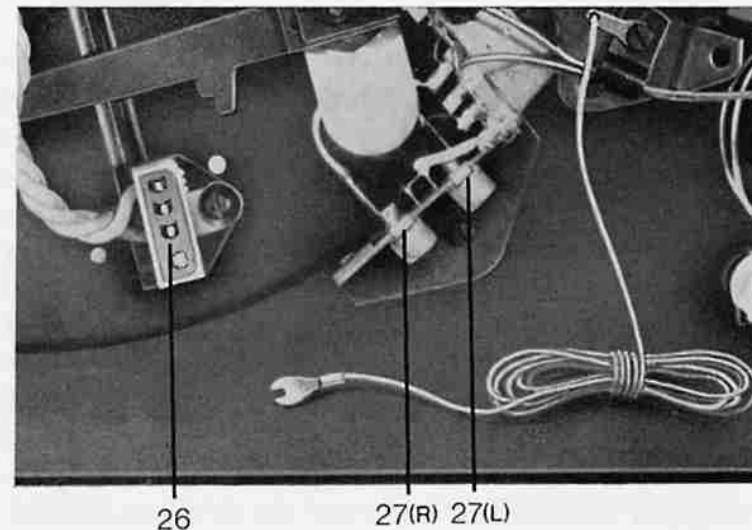


Fig. 9

1.8 Ground Connection

In order to prevent hum in the system the single grounding wire should be connected to the chassis of the amplifier or receiver.

1.9 Line Cord

Your A.C. line cord is provided with a special quick disconnect socket. It will only connect one way. Insert the flat white plug on the end of the line cord in the matching socket under the record changer chassis (Fig. 9-26). Your MIRACORD is now ready for operating and the other end of the line cord may be plugged into the A.C. outlet.

The unit is wired for 110—125 V AC 60 Hz.

CAUTION:

The heavy outer rotor of the hysteresis motor is secured for shipment by 2 plastic wedges. Be sure to remove these wedges before plugging the unit into the power socket.

2. Operating your MIRACORD 770 H

2.1

Although there are four different modes of operating your MIRACORD, depressing a single button is all that is necessary most of the time. These four modes are described in detail below, but before playing a record set the speed as described below, and release the arm by switching the arm lock to the green position.

Your MIRACORD 770 H is designed to operate at three speeds: 78, 45 and $33\frac{1}{3}$ RPM. The desired turntable speed is set by means of the speed changer lever at the extreme left (Fig. 2-1). This speed is continuously variable $\pm 3\%$ by means of the fine control knob (Fig. 10-6). The precise nominal speed is obtained, when the figure corresponding to the speed setting appears to stand still in the window (Fig. 11-20). If the figures drift to the left, the speed is too high, if they drift to the right, the speed is too low. Rotating the knob clockwise (+) increases the speed, rotating it counterclockwise (—) decreases it.

Precise adjustment is not necessary, see Par. 3.2. The window (Fig. 11-20) is continuously illuminated while the unit is in operation. If the neon lamp fails to glow, its operating point must be readjusted in accordance with the instructions in 5.2 (Fig. 19). When the exact turntable speed of $33\frac{1}{3}$ RPM has been set, the 78 RPM speed will automatically be correct.

2.2 Mode 1: Record Changer Operation

Use long "Magic Wand" Spindle (7) and insert the pointed end in the hollow center (7A) of the turntable (Fig. 12). Automatic play is possible for either 7", 10" or 12" records. Up to 10 records of the same size can be played in sequence. For automatic play of 7" records with a large center hole, use accessory automatic spindle SA-383 (Fig. 19). To start

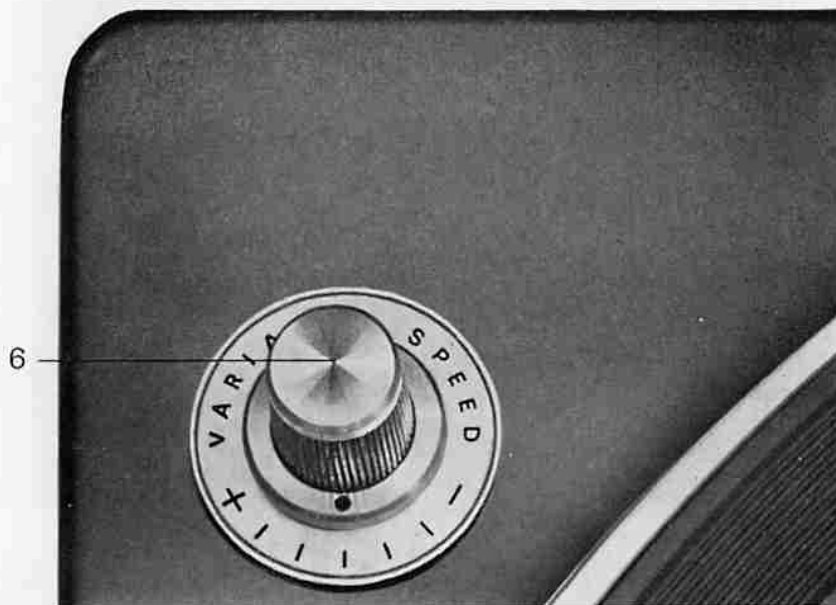


Fig. 10

Fig. 11

fast ← deviation → slow



20

2

Fig. 12



the record changer, lightly depress the button (Fig. 13-15) corresponding to the diameter of the records being played (i. e. for 12" records use the button marked 12). After the button is pushed, the turntable will start turning, the first record will drop, and the arm will lift and lower the stylus gently onto the lead-in groove of the record. At the conclusion of the first record the arm will lift and return to the rest, the next record will drop, and the cycle will be repeated. At the conclusion of the last record in the stack, the arm will lift and return to the rest and the mechanism will shut off, while a brake (Fig. 1-27) is applied to stop the turntable.

Note: To play a stack of records automatically, you must start with two or more records. To continue automatic operation when adding further records during the play be sure that at least one record is still on the "Magic Wand" Spindle. If a new record is placed on the empty spindle supports, the mechanism will drop this record but will not play it. It will be necessary to depress the appropriate button again to play this record.

2.2.1

To remove the records after the last record has dropped and has been played, remove the "Magic Wand" Spindle from the shaft by lifting it up vertically and then remove the stack of records. This prevents undue wear on the center of the records.

2.3 Mode 2. Automatic Single Record Operation

Use short spindle (Fig. 2-21) (inserted point down). An individual record can be played automatically (without handling the arm) by using the small spindle and placing the record on the

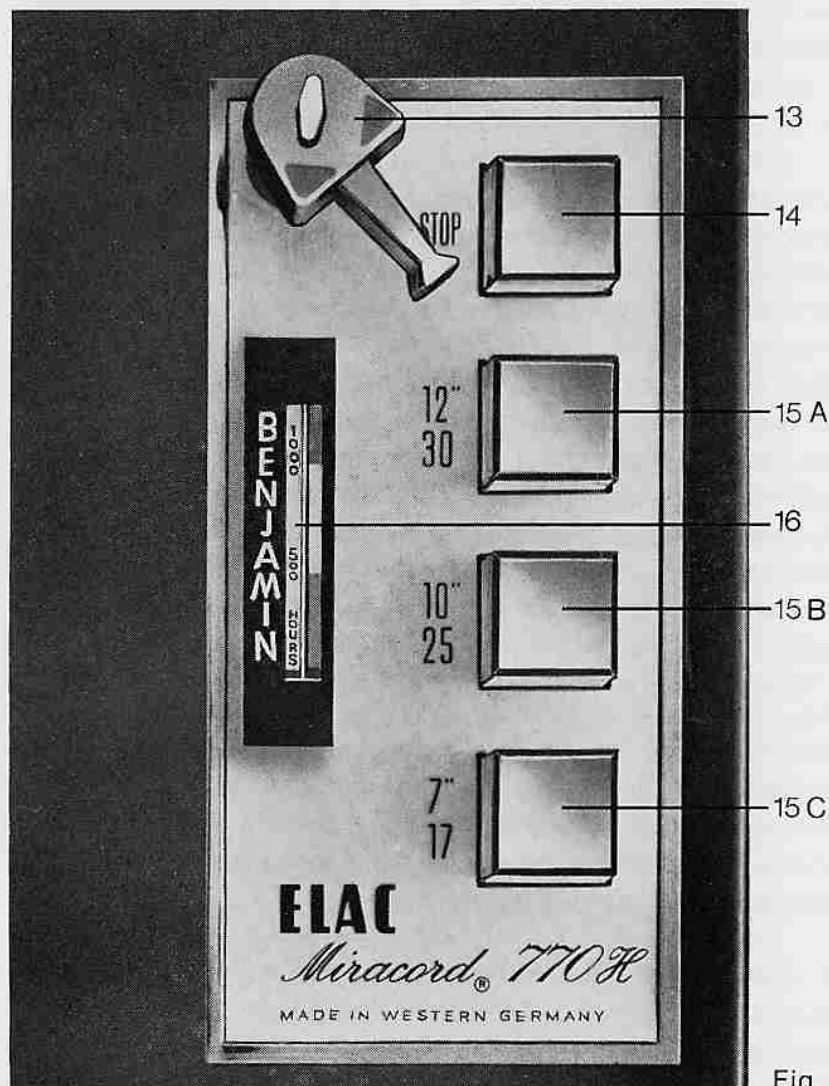


Fig. 13

turntable, then lightly depress the button corresponding to the size of the record. The turntable will start rotating, the arm will lift, and the stylus will be gently lowered by the cueing mechanism onto the lead-in groove of the record. At the conclusion of the record the arm will lift and return to the arm rest. The mechanism will shut off and the brake will be actuated.

2.4 Mode 3: Manual Operation — Single Record

Use short spindle (point down). Manual operation of the MIRACORD 770 H is a very simple operation. Place the record on the short spindle as in 2.3 above, then lift the arm by means of the finger-grip and place it on the desired groove of the record (preferably with use of the cueing device, see Par. 3.2). As soon as the arm is lifted the turntable will start rotating and the unit is ready to play. At the end of the record the arm will lift and return to rest and the mechanism will shut off, and the brake will be actuated.

Note: As in all modes of operation, the arm may be lifted off the record at any time and returned to the rest or placed on another groove of the record without disturbing the mechanism.

2.5 Mode 4: Automatic Repeat Mode — Single Record

Use short spindle (**inserted point up**). A record of any size can be played over and over again by inserting the short spindle with the point up. The mechanism must be started by depressing the button corresponding to the size of the record being played. At the conclusion of the record the arm will lift and return to the start of the record and replay it. This will continue until the „Stop“ button is depressed or the arm is lifted off the record manually and returned to the rest.

3. Special Features of the MIRACORD 770 H

3.1 Fine Speed Control

Although the MIRACORD 770 H is equipped with a hysteresis motor, the speed of which is tied precisely to the line frequency, facility is also provided to continuously vary the nominal turntable speeds at $33\frac{1}{3}$, 45 and 78 RPM by $\pm 3\%$. With the aid of the stroboscope ring fitted to the turntable and the neon lamp underneath the window, the turntable speed can be adjusted to the precise desired value. The correct nominal speed is obtained when the figure "33" or "45" of the stroboscope ring appears to stand still in the window.

But because of the very sensitive indication of speed deviation provided by the unique digital stroboscope, the user may tend to assign more significance to the motion of the numbers than is the case.

When the number is stationary, the speed is exactly set. The migration of the number to the left or right indicates deviation from the exact speed. The faster the migration, the greater the deviation. By observing the time taken for one number to fully replace the preceding number, and by using the curve (Fig. 14), it is possible to precisely determine the speed deviation.

For example, if the number migrates in 3 seconds, by examination of the curve you see that this corresponds to about 0.06% (6/100 of one percent) frequency deviation. This value means 1/100 of a half tone and is far less than even a trained ear can discern.

3.2 Cueing Device (Lever Fig. 2-11)

Frequently it is desired to play a specific band of a record. This can be very simply accomplished with the Cueing Device (Fig. 6-11). This mechanism consists of a platform which

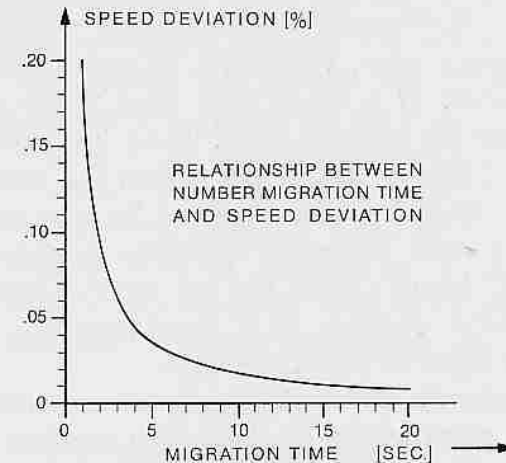


Fig. 14

supports the tone arm and stylus a short distance above the record when the Cueing Lever is moved forward (▼). When the arm is moved by hand to the desired position so that the stylus is directly over the band to be played, moving the lever back will lower the stylus very slowly and gently onto the record (▼). The arm can be lifted off the arm rest either by depressing the appropriate button (Par. 2.3) or by hand (Par. 2.4). The lever can be moved forward at any time, and will lift the stylus off the record and hold it at that point until moved by hand or by moving the lever back again. Do not move the cueing lever forward when the arm is locked.

The lowering time of the cueing device can be varied by different height adjustment of the tone arm. The height is set at the works with an ELAC cartridge. The distance between the record surface and diamond tip when the tone arm is lifted is $\frac{3}{16}$ ". When using other cartridges, a readjustment may become necessary. Clockwise turns of screw G (Fig. 6) will lower the tone arm, counter-clockwise turns raise it.

3.3 Stylus Timer

The Model 770 H is supplied to you with a unique "stylus use" timer which automatically records and indicates the total hours of stylus wear. Recording of stylus use is indicated by the location of a small dark spot which moves up the time scale as the stylus is used. When the indication reaches the region of 500 to 1000 hours (within the orange area) it is desirable to have the stylus checked by your dealer for signs of excessive wear. When the indication reaches the region of 1000 to 1250 hours (within the red area), which is the maximum indication possible, it is imperative that the stylus be checked for signs of excessive wear.

Caution: Under no circumstance should the timer be operated beyond the point where the indication reaches the full scale bar. If this point is exceeded damage may occur to the timer element.

When the indication has reached the full scale value corresponding to the small bar, the timer should be removed by grasping the ends and carefully prying it up. (Fig. 15)

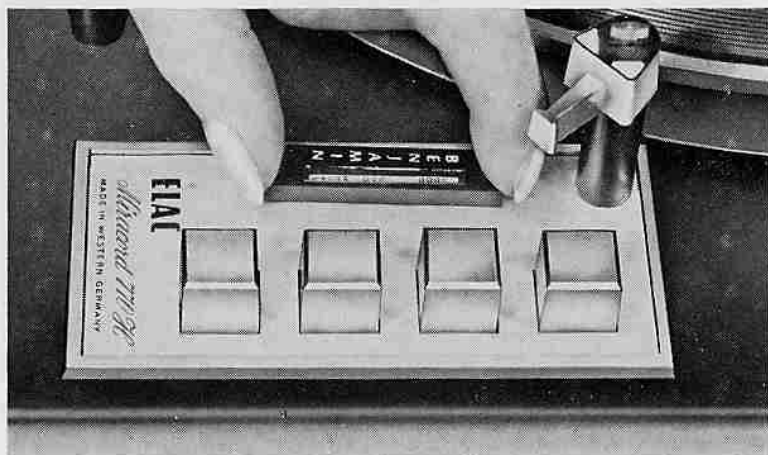


Fig. 15

If your dealer, after checking the stylus, advises that the wear is not excessive and that you can continue to use the stylus, it is recommended that you check its condition every 500 hours. Return the timer for replacement so that a correct indication of the additional time the stylus is used is available. The timer may be returned to the factory in the shipping container provided, using the pre-addressed label. Enclose \$ 1.00 with the timer to cover the cost of handling and shipping a replacement unit. Please fill out the return label and affix the proper amount of postage to the outside of the mailer. A replacement timer will be sent to you immediately. If the timer is damaged, a new unit is available at a cost of \$ 10.00.

3.4 Stylus Position Adjustment

A very slight difference in the position of the stylus with respect to the tone arm bearing can result in a large increase in the error introduced in tracking. This is due to the fact that the arm is in a different position with respect to the record at the beginning of the record and at the end of the record. There is an optimum position which is determined by the geometry of the mechanism, depending on the length of the tone arm, the distance from the center of the record, etc. This optimum position has been carefully calculated for your MIRACORD 770 H. A gauge (Fig. 5-18) has been provided locating the exact point the stylus should be at for this optimum setting. To provide a means of moving the cartridge and stylus back and forth, a special mechanism has been built into the cartridge insert. The adjusting screw (Fig. 5-19) moves the cartridge forward and backward laterally along the arm. When the stylus is positioned directly above the gauge, it is in its optimum position.

3.5 True Track Cartridge Retainer CR-70

In order to minimize vertical tracking error when playing a stack of records adjust the lever position (Fig. 2-17 A) before playing to the number of records on the stack. For one record in the manual mode, set the lever to M.

3.6 Stop Button (Fig. 13-14)

You will notice a fourth button on the chassis directly above the three operating buttons which are marked with the record size. This button is marked "Stop" and is used to interrupt the playing of a record or stack of records at any time. When depressing during play, it will lift the arm off the record and return it to the arm rest and shut off the mechanism. To resume play, you can depress the stop button again, and the record already on the turntable will be replayed. To drop the next record, it is necessary to depress the appropriate operating button.

3.7 The "Magic Wand" Spindle

This type of spindle was originally introduced by MIRACORD in 1952 and has now been adopted by other record changer manufacturers. The original MIRACORD spindle, trade-marked as the "Magic Wand" has been continually improved and your Fig. 2-7 spindle in the 770 H is the latest and most advanced version of this unique mechanism. It supports your records in three places and provides for the most gentle dropping action ever devised for a record changer.

Revolving single play spindle (Fig. 2-21)

In order to eliminate any possible friction on the center hole of the record, the single play spindle supplied with the unit is designed with a revolving bushing. This section of the spindle is able to move with the record.

3.8 Freely Supported Chassis Suspension

The chassis rests on four soft cone shaped springs with plastic cups (Fig. 16) which have the important function of preventing acoustic feedback between the loudspeakers and the cartridge. The springs are packed with foam rubber in order to cancel oscillations caused by vibrations. The copper-plated spring, seated close to the push-buttons underneath the chassis is weaker than the three others so that the chassis rests in horizontal position. When shipping the unit, the installed chassis must be secured by additional screws to prevent it from moving sideways. Further details are to be found in the enclosed mounting board template.

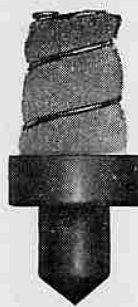


Fig. 16

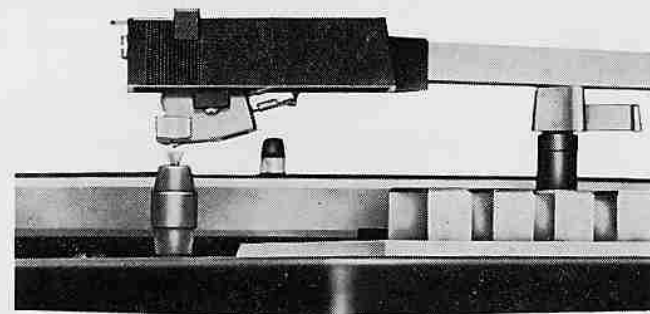


Fig. 17

3.9 Stylus Brush (Fig. 17)

The brush supplied as a standard accessory is used for the automatic removal of dust from the stylus. After the fitting and adjustment of the stylus as described in Section 1.3.4, the brush is placed on the setting gauge (Fig. 2-18) and the latter is drawn out of the chassis plate just far enough to permit the stylus tip to be lowered into the soft bristles when the arm comes to rest. Note that if the brush is set too high, damage to the stylus may result.

4. Maintenance

4.1

Your Studio Series MIRACORD is designed by the factory to require practically no lubrication during its life. Neither the motor nor turntable bearings should be lubricated, since they are provided with proper long life lubricants at the factory. Under extraordinary conditions where your units has been subjected to extremes of dust and dryness, it is suggested that you have your local MIRACORD dealer service the unit. Great care should be used any time the turntable is lifted off the mechanism and the idler wheel (Fig. 1-22) is exposed, to prevent oil or grease from reaching the rubber rim or inside rim of the turntable. If the idler wheel is noisy for any reason, a small drop of light machine oil may be carefully placed on the idler wheel bearing. Be sure to wipe off any excess oil from the rim with alcohol.

4.2

The needle of the pickup cartridge must always be free of dust. Diamond styli can be used for about 1000 hours of playing. However, despite their hardness, they abrade gradually. Worn needles impair sound reproduction and damage record grooves. The needle should be replaced in due time. A defective needle should be replaced immediately.

4.3 Stylus Brush

The stylus brush should be cleaned periodically. To remove the brush for this purpose, raise tone arm with the aid of the cueing device and swing it towards the center.

5. Service

Should your MIRACORD 770 H require servicing, it is suggested that you call on your local MIRACORD dealer or ask him for the address of the nearest MIRACORD Service Station. If shipping the unit is required it is important to use

the original carton with the corresponding inserts to avoid shipping damage. The following hints are applicable for minor repairs:

SYMPTOM	CAUSE	REMEDY
Turntable does not start, when 7", 10" or 12" button is depressed.	1. No voltage at motor. 2. Line switch defective. 3. Motor defective.	See that unit is plugged into live AC outlet. Replace line switch. Replace motor.

SYMPTOM	CAUSE	REMEDY
Arm skips across record.	Defective stylus.	Replace stylus.
Distorted sound.	1. Defective stylus. 2. Improper setting of stylus force.	Replace stylus. Consult manufacturer's recommendation for correct stylus force and adjust unit to this value. See Par. 1.5.
Uneven speed.	1. Oil or grease on idler tire. 2. Defective idler tire.	Clean turntable rim and idler tire with alcohol. Replace idler wheel.
No sound from speaker.	1. Defective cartridge. 2. Defective output leads. 3. Improper connection to amplifier or preamplifier.	Replace cartridge. Replace output leads. Check input leads to amplifier or preamp making sure that proper electrical connection is achieved.
Stylus sticks in groove.	1. Cartridge mounted incorrectly. 2. Cueing device improperly set.	Check Par. 1.3, page 6. Adjust the screw Fig. 6—G.
Next record drops but does not play.	Additional records placed on unloaded spindle.	Add records with at least one record on the spindle. See par. 2.2.

5.1 Stylus Landing Position on Lead-in Groove of Record

This adjustment has already been made at the factory with the ELAC cartridge. If you have installed a different type of cartridge, a readjustment may be necessary. Connect the unit to A.C. power source (see Par. 1.9), set the desired speed of the turntable with the speed change lever (Fig. 2-1) and place

a 7", 10" or 12" record on the turntable. Release the arm lock (Fig. 6-13) by switching to the green position. Start the record changer by depressing the corresponding start button (7", 10" or 12"). The turntable will start to rotate, the tone arm will lift off its support and swing inwards and lower itself into the starting groove of the record.

If necessary, correct the landing point of the stylus by turning slotted screw (Fig. 18-28) on the tone arm socket. Turning screw clockwise moves the landing point outward, counter-clockwise - inward.



Fig. 18

5.2 Operating Point Adjustment of Stroboscope Lamp

When the record player has been in operation for a long period, it may be necessary to readjust the operating point of the stroboscope lamp as follows: First the tone arm is locked to its support (Fig. 2-13) and the speed set to 33 rpm. By actuating one of the three start buttons (Fig. 2-15) the unit is set in motion, following which the entire chassis is raised at the front by about 1/2". The setting screw (Fig. 19-29) is now turned clockwise with a small screwdriver until the window (Fig. 2-20) is just brightly illuminated by the neon lamp.

18 lamp.

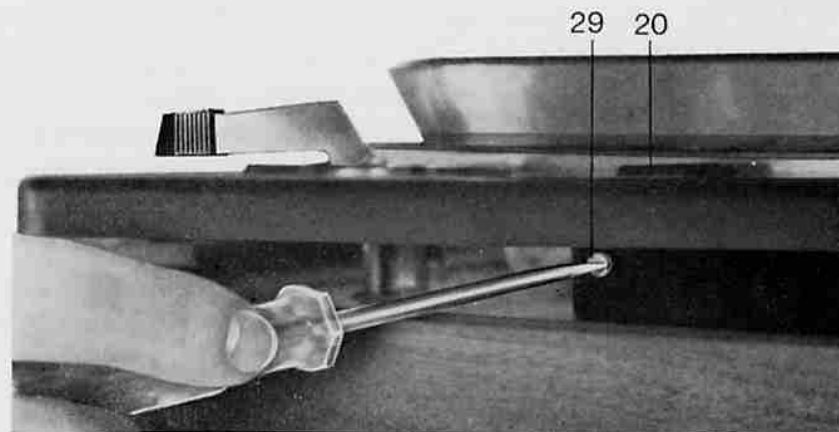


Fig. 19

5.3 For instructions on use with other than 110 volts, 60 Hz contact the Customer Service Department.

5.4 Replacement Parts

	Part-No.
Supporting Spring Assembly (3)	17 452 4069
Support Spring Assembly (1)	17 452 4070
Automatic Spindle SA-73	SA 73
Manual Spindle	17 504 8001
Idler Wheel complete	17 452 4056
Turntable Mat	17 452 5041
Output Leads	08-5018
A.C. Line Cord	08-1005
Counterbalance	12 216 4029
Motor Mount (Rubber)	17 416 5121
Cartridge Insert Tas 4 (empty)	CR-70
Stylus Timer	53-9008

6. Accessories

6.1 Record Spindle for Records with 1½" Center Hole

Automatic Spindle SA-383 is available as optional equipment and can be used to automatically drop, one at a time, a stack of up to 10 single or EP records with large hole.

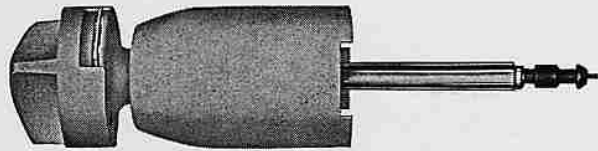


Fig. 20

SA-383

6.2 Magnetic Stereo Cartridges

It is recommended that the fine Magnetic Stereo Cartridges made by ELAC be used with your Studio Series Record Changer.

ELAC STS 344-17

COMPATIBLE MONO/STEREO with extra diamond stylus for twice the performance life (.7 mil diamond).

ELAC STS 344-E — Cartridge with elliptical needle.

ELAC STS 444-12 (Fig. 21) STEREO PROFESSIONAL
The top-rated 444 is a professional moving magnet cartridge for stereophonic records only. A .5 mil diamond stylus and featherweight high compliance tracking gives this Stereotwin an unmatched performance profile for the audiophile who demands maximum performance every time.

STS 444-E — Cartridge with elliptical needle.

SPECIFICATION

	ELAC STS 444-12	ELAC STS 444-E
Color of cartridge	Chrome	
Stylus	ELAC D 444-12	ELAC D 444-E
Color of needle	black	
Radius of Diamond	.5 mil	.25/.8 mil (biradial)
Frequency Range	20 . . . 24 000 Hz	
Stylus Force	.75 . . . 1.5 gms	
Sensitivity on each Channel at 1 000 Hz	10 mV / 10 cm/sec	
Sensitivity Difference on both Channels at 1 000 Hz	< 1.5 db	
Channel Separation at 1 000 Hz	26 db	
at 10 000 Hz	17 db	
Inductance per Channel	500 mh	
Recommended Terminal Impedance	47 kohm	
Trackability* at 100 Hz	> 3.8 cm/s at .75 g	
Static Compliance	33 · 10 ⁻⁶ cm/dyne	
Vertical Tracking Angle	15°	

Fig. 21



* Trackability means that with the indicated stylus force and frequency velocities exceeding 3.8 cm/s correspondent to 60 μm can still be tracked accurately. However, such high amplitudes are not existing with stereo records,

6.3 Base and Power Control Adapter



Fig. 22

MIRACORD 770 H on Base WB 700
with SSA-1 Power Control Adapter



Fig. 23

SSA-1 Solid State Power Control Adapter

7. Warranty

The rear cover of the Instruction Book also contains the card for your 1 year warranty for your MIRACORD Automatic Turntable and Record Changer. This card must be mailed within 15 days of purchase by the original owner.

Unpacking Instructions

In unpacking, please note the following:

In the top part of this carton you will find a styro-foam pack containing the following:

- Item 1. Instruction Book with mounting template and warranty card
- Item 2. Rubber mat
- Item 3. Turntable with stroboscope ring
- Item 4. Cartridge Insert with mounting Hardware
- Item 5. Envelope with automatic record spindle and single-play record spindle
- Item 6. Screw driver to mount the cartridge
- Item 7. Cover plate for turntable center
- Item 8. Bag with 45 RPM record adapter, clip and screws to hold and two wood screws with washers for holding down changer to base when shipping unit
- Item 9. Counterbalance
- Item 10. Bag with Stylus brush

Check to make sure that all these parts are included in the foam packing and then remove this portion. The changer can now be removed from the carton. Underneath the changer you will find the plug-in line cord and the plug-in audio-cable.

Caution!

Withdraw the cardboard (# 12) on the top of the hysteresis motor and the two red plastic wedges (# 13) underneath the motor.

To protect the stroboscope ring underneath the heavy cast turntable do not touch it but carry the turntable only by using the holes B.

