

Leslie[®]

SPEAKERS

GENERAL OPERATING
AND MAINTENANCE INSTRUCTIONS
FOR THE LESLIE SPEAKER

MODELS 110 & 112

117 VAC,60HZ

234V,50HZ/250V,50HZ



electro  music

CBS MUSICAL INSTRUMENTS DIV.

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THE LESLIE ORGAN SPEAKER

MODELS 110 and 112

SINGLE CABINET INSTALLATIONS

The LESLIE speaker model 110 may be installed alone to single channel organs with built-in speakers. The organ's amplifier will provide the power to drive the Model 110 speaker.

A LESLIE console connector kit designed to connect the Model 110 to your organ must be installed. In addition to the wide range of console connector kits already available, a universal 7269 kit has also been developed. Unlike the other kits with their separate echo and tremolo controls, the 7269 kit incorporates the functions of both controls into a single control. Here is a description of its switching functions:

MAIN position: Only the organ's internal speaker operates.

ECHO position: Only the Model 110 speaker operates. Model 110 rotor is in the **TREMOLO** mode.

ENSEMBLE position: The organ speaker and the Model 110 speaker operate together. Model 110 rotor is in the **CHORALE** mode.

DUAL CABINET INSTALLATIONS

Multi-channel organs can now re-create the exciting "presence" of a live concert with the LESLIE 110/112 speaker combination. The flute section of the organ output is reproduced by the Model 110 and the complex (or string) voices are channeled to the Model 112 speaker. Most dual cabinet console connector kits contain two tremolo controls. This permits individual control over the cabinet rotors for contrasting or unison tremolo or chorale effects.

The two cabinets are identical except for the shape of the rotor. The Model 110 is tailored to the flute section output of the organ, while the 112 is designed for the complex voices.

SPECIFICATIONS

Cabinet: Selected hardwood veneers in open grain walnut finish.

Dimensions: 26 $\frac{3}{8}$ " high, 23 $\frac{7}{8}$ " wide, 18" deep.

Loudspeaker: Broad-range 12 inch speaker, permanent magnet, 8-ohm impedance.

Amplification: The speaker is driven by the organ amplifier; no supplementary power source is required.

Electrical: Available in 117 VAC, 50/60Hz; 220/240 VAC, 50Hz models.

Weight: 75 pounds net, 93 pounds boxed.

PREPARING THE SPEAKER FOR USE

After unboxing the LESLIE speaker:

1. Remove the lower compartment back cover.
2. Remove the two shipping blocks from large motor mounting bracket.
3. Replace the lower compartment back cover.
4. Remove the shipping skid and place the cabinet so it rests solidly on the floor.
5. Plug the 6-connector cable into the connector chassis in the LESLIE speaker. The connection at the console should then be made according to console connector kit instructions. DO NOT TURN ON THE ORGAN POWER SWITCH UNTIL THE INSTALLATION HAS BEEN COMPLETED.

CONSOLE CONNECTOR INSTALLATION

Once the speaker has been fully prepared for use, as directed above, the remainder of the installation concerns the organ console. The installation procedure will vary with the console connector kit used. Consult the kit's installation instructions.

CONSOLE CONNECTOR CONTROLS

NOTE: Controls used will vary, depending on the console connector kit installed.

ECHO control: Enables the organist to switch between the LESLIE speaker (ECHO position) the organ's internal speaker (MAIN position) or play the speakers together (ENSEMBLE position). In dual cabinet installations, both cabinets are switched.

TREMOLO control: Switches the 110 or 112 rotor from TREMOLO to CHORALE modes for different musical effects.

ECHO/TREMOLO control: A control combining the function of separate echo and tremolo controls into one switch is packed with the 7269 Console Connector Kit. (See page 1 for control functions.)

ORDERING PARTS

Sockets, connectors and standard value components (resistors, condensers) are available through local electronic supply houses. Most of the "hardware" items (bolts, nuts, screws) are also locally available. Non-standard items or components with close tolerances should be obtained through a LESLIE speaker dealer.

To avoid errors, orders should include part numbers, as given in Figures 1, 2, 3, 6 and 7. Including the serial number of the LESLIE speaker for which the parts will be used is also helpful.

MODEL 110/112 CABINET CONNECTOR

117V-012203/220V/240V-019265

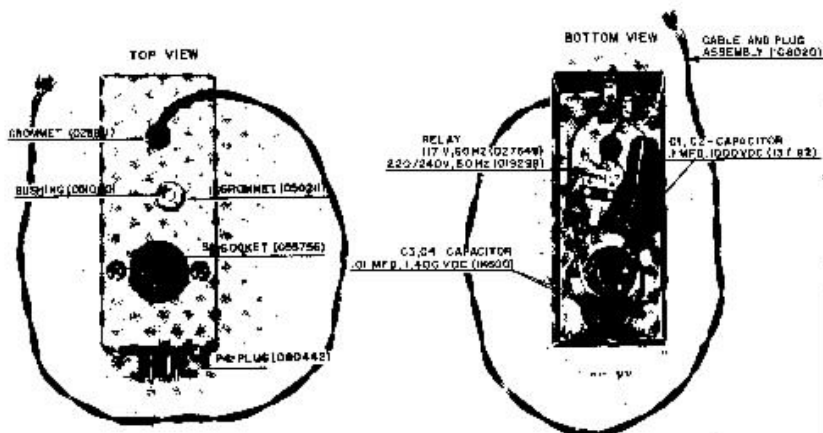
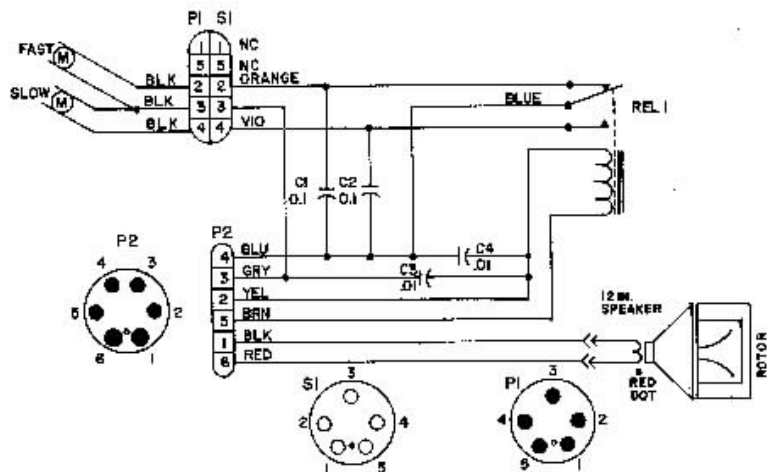


FIG. 1

FIG. 2



SCHEMATIC — MODEL 110/112

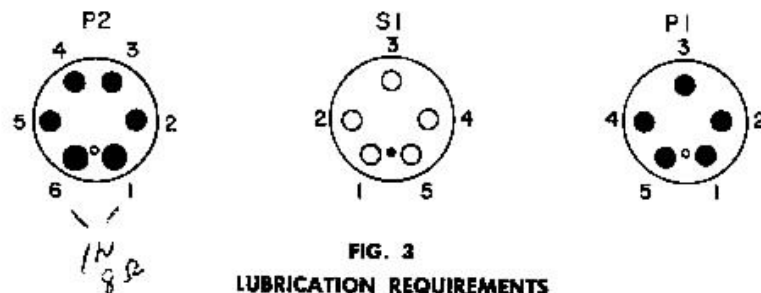


FIG. 3
LUBRICATION REQUIREMENTS

The motors require little lubrication, and usually only at yearly intervals. The requirement is related to the amount of usage, but other factors can be involved; dust and dirt, for example, can absorb the lubricant, leaving the bearings too dry to operate properly. Generally, though, there is a tendency to over-oil.

To determine if oiling is necessary, press a clean, dry screwdriver against the felt pads around the bearing in the rotor assembly and in the large motor. If oil is transferred to the screwdriver, oiling is unnecessary, and even undesirable. Over-oiling is just as detrimental to the speaker's operation as under-oiling.

CAUTION

Disconnect power before proceeding.

MOTOR REMOVAL

Support the motor assembly and remove the two lower wing nuts.

MOTOR OILING (See Fig. 4)

1. Remove small motor assembly and support bracket.
 2. Remove large pulley (A) using 3/32 hex (Allen) wrench.
 3. Remove "U" bracket (B).
 4. Apply oil to locations shown in Fig. 4, avoiding excess which cannot be absorbed.
 5. The motor may now be assembled by reversing the above procedure.
- NOTE: The large pulley should be pushed all the way onto the motor shaft, then lifted about 1/16 inch and tightened in place.
6. The motor assembly should now be adjusted. See "Motor Adjustment".

MOTOR OILING AND ADJUSTMENT

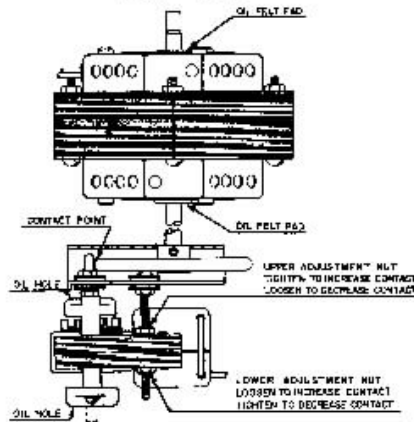


FIG. 4

MOTOR CLEANING

(See Fig. 5)

1. Remove small motor assembly and motor support bracket.
2. Remove large pulley (A) using 3/32 hex (allen) wrench.
3. Remove "U" bracket (B).
4. Remove small pulley and snap ring (H&I).
- NOTE: Do not remove motor assembly mounting bracket (G).
5. Mark position of end bells in relation to laminations to assure proper reassembly of large motor.
6. Remove screws which hold the large motor together and disassemble the motor.
7. Remove the small motor from its mounting bracket (P).
8. Remove the two screws in the small motor and disassemble it, noting carefully the relationship between the laminations and end bells. (Reversing the laminations will cause a reverse rotation of the motor.)
9. Clean all parts in solvent and allow them to dry.
10. The motors may be assembled by reversing the above procedure. See "Oiling" section.

NOTE: When installing the large pulley (A), push it on the shaft all the way, then pull it back 1/16 inch and tighten in place.

NOTE: It may be necessary to readjust the motor assembly for proper operation. See "Motor Adjustment".

TWO-SPEED MOTOR ASSEMBLY

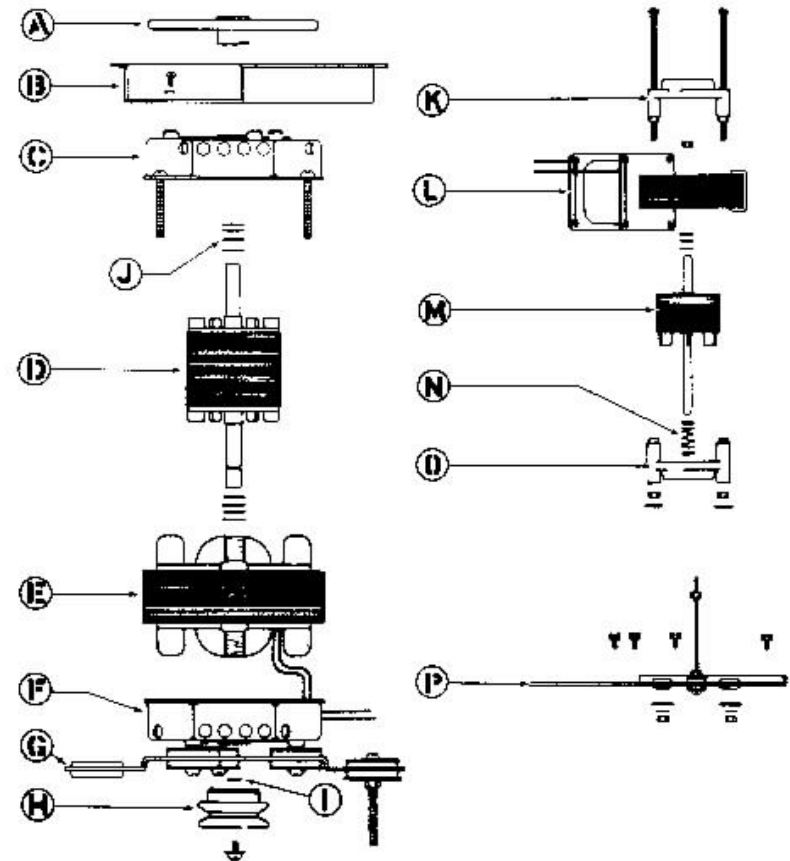


FIG. 5

MOTOR ADJUSTMENT

The small motor drives the rotor at slow speed (Chorale) by means of the rubber-tired drive pulley, which actually causes the large motor to turn at a slow speed. The small motor is spring-loaded so that it will withdraw from contact with the rubber-tired drive pulley whenever the small motor is off. When the small motor is turned on, magnetic attraction moves the armature into operating position, which automatically brings the end of the motor's shaft into contact with the rubber-tired drive pulley. If the end of the small motor's shaft does not properly engage the rubber-tired drive pulley, an adjustment should be made.

1. Adjust the rotor drive belt tension so that the large motor operates the rotor properly, (standing start to full speed in about 5-8 seconds), using the adjusting screws and wing nuts.
2. With the small motor ON, turn the adjusting nuts so that the small motor is completely disengaged with the rubber-tired drive pulley. (See Figure 4).
3. While holding the rotor so that it cannot move, turn the adjusting nuts so that the motor pulley turns under the belt.
NOTE: Avoid excessive pressure on the rubber tire.
4. When the optimum adjustment has been obtained, secure the motor by tightening the nuts against the laminations.
5. Run-test motor; excessive noise may indicate that one or both of the large motor bearings are mis-aligned. In this case, tap the motor laminations with a hammer to seat the bearings.

UPPER ROTOR BEARING OILING

The upper rotor bearing may be oiled without removing the rotor assembly. Simply remove the speaker and apply oil to the felt pad around the bearing - avoid excess which cannot be absorbed by the pad.

LOWER ROTOR BEARING

The lower rotor bearing is a sealed ball bearing and does not require lubrication.

UPPER ROTOR BEARING REPLACEMENT

1. Remove the speaker.
2. Remove the upper rotor support assembly.
3. Remove the "Oilite" (sleeve) bearing from the support assembly.
4. Replace the bearing, and reassemble by reversing the above procedure.

LOWER ROTOR BEARING REPLACEMENT

1. Lay the speaker cabinet on its front.
2. Remove the bearing assembly from under the bottom of the cabinet.
3. Disassemble and reassemble the bearing assembly according to Figures 6 & 7.
4. To reassemble the speaker cabinet, reverse the above procedure.

O-RING REPLACEMENT

A badly worn O-ring on the slow motor drive pulley will impair operation of the rotor at slow speed, and should be replaced. Disassemble the motor as outlined in the "Motor Oiling" section. Replace the O-ring and adjust the motor assembly. See "Motor Adjustment."

DRIVE BELT REPLACEMENT

1. Remove the speaker.
2. Remove the rotor support bracket.
3. Loosen the motor adjusting wing nuts.
4. Remove the old drive belt, and replace it with the new one.
5. Reinstall the rotor support.
6. Install the belt around the motor pulley and adjust tension so that full rotor speed is reached in 5 to 8 seconds.
7. Reinstall the speaker.

SPEAKER REPLACEMENT

Because of the extremely strong magnetic fields in the loud-speaker, it is inadvisable to attempt cone replacements or any other repairs involving disassembly of the speaker. Repairs or replacement of the loudspeaker should be arranged through your LESLIE speaker dealer.

CAUTION

When installing speakers, observe correct polarity by noting the large and small pins and sockets of the speaker connectors.

TREMOLO ROTOR REMOVAL

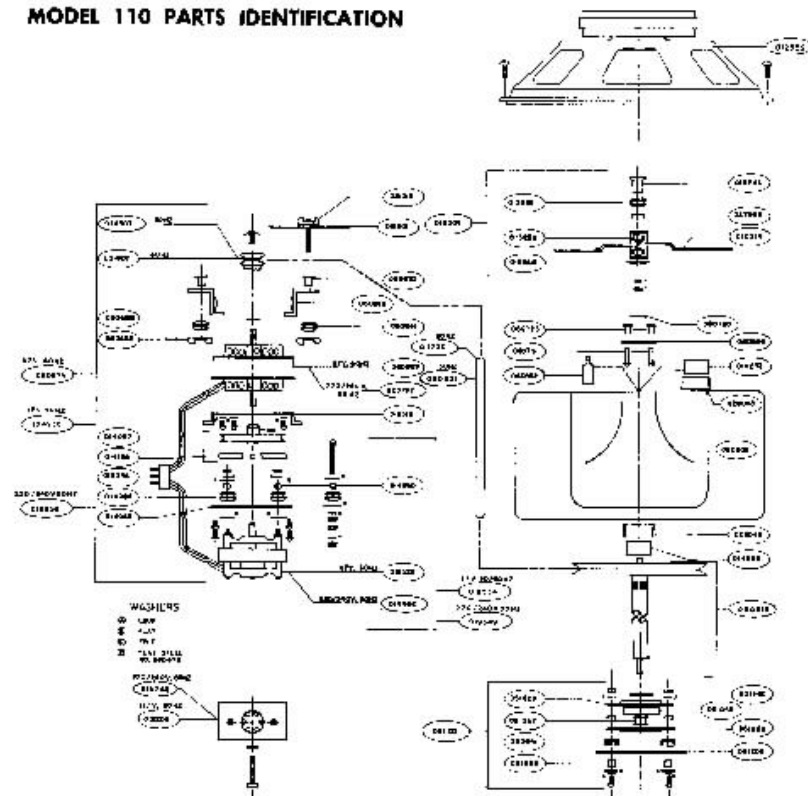
1. Unplug the motor and remove it from the cabinet.
2. Unplug the speaker and remove it from the cabinet.
3. Remove the upper rotor support.
4. Gently pull the pulley/shaft assembly up and out of the rotor.
5. Remove the rotor from the cabinet.
6. To reassemble, reverse the above procedure.

NOTE: When inserting pulley/shaft assembly into the rotor, be certain that the drive pin in the rotor is inserted into the drive link on the rotor pulley. (See Figs. 6 & 7).

MODEL 110 PARTS LIST

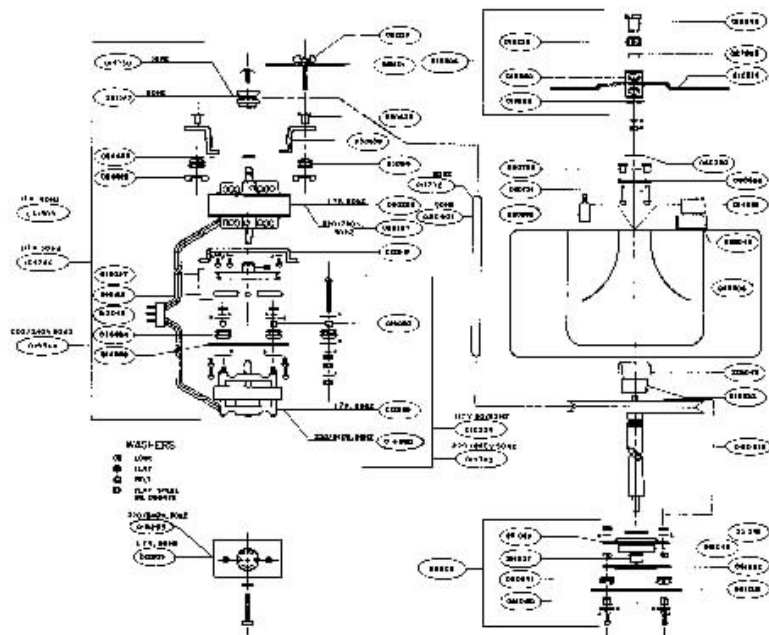
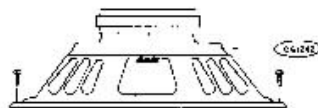
010306	Bearing Assembly, oiled	014084	Grommet, Neoprene
010314	Rotor Support	014159	O-ring, Neoprene
011700	Drive Belt	014223	Grommet
012203	Cabinet Connector, 117V 50/60Hz	014860	Motor, small, 220/240V 50Hz
012518	U-bracket	019265	Cabinet Connector, 220/240V 50Hz
012526	Motor, small, 117V 50/60Hz	019356	Motor Assembly, two-speed, 220/240V 60Hz
012534	Motor Assembly, slow speed, 117V 50/60Hz	024307	Pulley, motor, 50Hz
012559	Speaker, 12-inch, 8-ohm	025197	Motor, D-6, 220/240V 50Hz
013045	Plug, 5-pin	025650	Screw, sheet metal, 10x7/8
013235	Grommet		

MODEL 110 PARTS IDENTIFICATION



013243	Bearing, Oilite	027995	Staple
013250	Felt	028043	Cloth Shim
013268	Nut, push-on	030601	Drive Belt, 50Hz
014027	Rim Drive Wheel Assembly	050625	Wing Nut, 10-24
014050	Bushing	050633	Shoulder Bushing
014068	Small Motor Bracket	050641	Grommet
050658	Z Bracket	051342	Washer, flat, 3/8x3/8x5/64
050666	C Ring	060259	Motor, D-6, 117V 50/60Hz
051020	Retainer, upper rotor bearing	060574	Motor Assembly, 117V 60Hz
051037	Grommet	060582	Drive Pin
051045	Bearing	060590	Drive Link
051052	Retainer, lower rotor bearing	060608	Rotor, foam
051060	Bushing	060616	Shaft and Pulley Assembly
051102	Bearing Assembly, lower rotor	060723	Shoulder Bushing
051128	Bearing Plate	060731	Pin, escutcheon
051201	Bracket, motor adjusting	060780	Washer, felt
051219	Screw and Wing Nut Assembly	104230	Motor Assembly, 2-speed, 117V 50Hz

MODEL 112 PARTS IDENTIFICATION



MODEL 112 PARTS LIST

010306	Bearing Assembly, oiled	014050	Bushing
010314	Support, rotor	014068	Small Motor Bracket
011700	Drive Belt, 60Hz	014084	Grommet, Neoprene
012203	Cabinet Connector, 117V 50/60Hz	014159	O-ring, Neoprene
012518	U-bracket	014233	Grommet
012526	Motor, small, 117V 50/60Hz	014860	Motor, small, 220/240V 50Hz
012534	Motor Assembly, slow speed, 117V 50/60Hz	015750	Pulley, motor, 50Hz
013045	Plug, 5-pin	019265	Cabinet Connector, 220/240V 50Hz
013225	Grommet	019349	Motor Assembly, slow, V-up, 220/240V 50Hz
013243	Bearing, Oilite	019364	Motor Assembly, two-speed, 220/240V 50Hz
013250	Felt	025197	Motor, D-6, 220/240V 50Hz
013268	Nut, push-on		
014027	Rim Drive Wheel Assembly		

GUARANTEE

The speaker is guaranteed against defects in manufacturing or material for a period of one year following its original purchase from a franchised LESLIE speaker dealer, when guarantee card is correctly filled out and returned to Electro Music. Defective parts returned to Electro Music, prepaid, within one year of the date of original sale will be repaired or replaced through the LESLIE speaker dealer. This guarantee excludes belts, speaker cones, and components which may have been damaged due to improper handling or service. Guarantee is void unless installation is made by a franchised LESLIE speaker dealer who is also franchised to sell the brand of instrument with which the LESLIE speaker is used.

025650	Screw, sheet metal, 10x $\frac{3}{8}$	051128	Bearing Plate
027995	Staple	051201	Bracket, motor adjusting
028043	Cloth Shim	051219	Screw and Wing Nut Assembly
030601	Drive Belt, 50Hz	051342	Washer, flat, $\frac{3}{8}$ x $\frac{3}{8}$ x5/64
050625	Wing Nut, 10-24	060269	Motor, D-6, 117V 50/60Hz
050633	Shoulder Bushing	060582	Drive Pin
050641	Grommet	060590	Drive Link
050658	Z Bracket	060616	Shaft and Pulley Assembly
050666	C Ring	060723	Shoulder Bushing
051029	Retainer, upper rotor bearing	060731	Pin, escutcheon
051037	Grommet	060780	Washer, felt
051045	Bearing	061234	Rotor, foam, double-scoop
051052	Retainer, lower rotor bearing	061242	Speaker, 12-inch, 8-ohm
051060	Bushing	061309	Motor Assembly, 2-speed, 117V 60Hz
051102	Bearing Assembly, lower rotor	104240	Motor Assembly, 2-speed, 117V 50Hz