



ACOUSTICAL SYSTEM

"Pipe Voice of the Electric Organ"

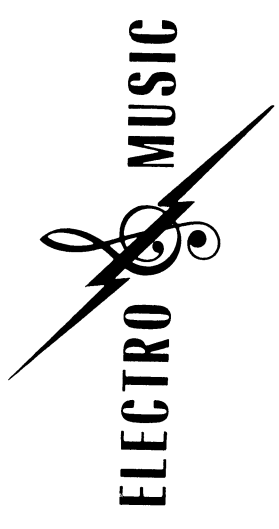
MODEL 100GK

OWNER'S MANUAL

INSTRUCTIONS, SERVICE INFORMATION

AND

PARTS LIST



PASADENA

CALIFORNIA

CONTENTS

Amplifier, 100GK	3, 7, 8
Amplifier Removal	9
Bearing, Lower, Replacement	16
Bearing, Upper, Replacement	16
Belt Replacement	15
Belt Tension Adjustment	6, 16
Bias and Terminal Strip Board Removal	11
Broadcasting and Recording	6
Care and Use of 100GK Speaker	6
Connecting Cables	4, 5
Etched Circuit Boards	8
Etched Cinrcuit Board Replacement	10
Extra Length Connecting Cables	5
Fuse	9
General Description and Specifications	3
Installation	4, 5
Isomonic	2
Loudspeakers	3, 12
Motor Maintenance	14
Motor Removal	14
Multiple Cabinet Installation	4, 5
Non-Organ Use of 100GK	6
Oiling	6
Parts Identification	13
Parts List	19
Parts Replacement	8
Phasing, 15-inch Speaker	4
Relay, Extra Speaker Adapter	4
Rotary Contact	15, 18
Schematic, 100GK Amplifier, General	7
Schematic, One Channel	7
Schematic, Speaker Connector Bracket	12
Service Hints	18
Servicing and Technical Information	8-18
Shipping	6
Speaker Removal, 15"	14
Speaker Removal, 6x9", Rotary	17
Speaker Removal, 6x9", Stationary	15
Transformer Replacement	11
Tremolo Rotor Removal	16
Tubes	9
Voltage, Line	9
Voltage Readings	10
Volume Control Adjustments	3, 5

GENERAL DESCRIPTION AND SPECIFICATIONS

Cabinet: Selected hardwood veneers with quality lacquer finish to match consoles.

Dimensions: 28" wide, 20" deep, 41" high.

Speakers: Cabinet contains 5 individual loudspeakers, engineered to exact specifications. Pedal speaker is heavy-duty 15 inch unit, others are broad-range 6x9. Each speaker handles a separate part of the organ's signal output:

1. Pedal
2. Main Section, Channel "C"
3. Main Section, Channel "C#"
4. Tibia with Tremolo (Rotor)
5. Tibia without Tremolo

Amplifier: The single chassis contains four separate amplification channels with aggregate total power of 65 watts to drive the five loudspeakers. (A single Tibia amplification channel suffices since its output is channeled either to the rotor or to a stationary speaker.) Circuitry created specifically for organ speaker application results in high operating efficiency and low power consumption. Silicon rectifier circuits reduce heat and improve amplifier stability. Unique etched circuit board for each channel results in compactness, easy removability for service. Plug-in type condensers, protective fusing help durability, serviceability in this advanced design.

Power Supply: 117 volts, 60 cycles, maximum power consumption 250 watts.

Controls: Four separate volume controls, one located on each etched circuit board, enable independent regulation of each channel. Factory-adjusted to maximum operating levels.

Installation: Plug-in connections make installation quite simple. 30-foot cable connecting speaker cabinet with console furnished as standard equipment. Cable is of special design, assuring proper speaker operation, and should be obtained from Electro Music.

Weight: Net 145 pounds. Boxed for shipment, approximately 165 pounds.

Guarantee: One year from date of purchase, covering defective workmanship and materials.

INTRODUCTION

The Leslie ISOMONIC is more than a mere organ speaker concept; rather, it is a total sound-integrating system, with unique special circuitry both in the organ console and in the compatible Leslie speaker unit. Need for the ISOMONIC is underscored by the unsatisfactory performance of most basic single-channel systems; beats and upper harmonic interference are literally inevitable in those cases where all frequencies are channeled through the same amplifier, and the same speaker or speakers.

The ISOMONIC system divides the keyboard chromatically into two channels, so that notes adjacent to each other are not in the same channel. The net effect of this separation is to prevent musical intervals of the fourth and the fifth from mixing in the amplifier or in the speaker, permitting them to mix only acoustically, thus following the pattern of the orchestra, the choir, and the pipe organ. So it will be seen that the ISOMONIC principle guarantees a musical result that is not otherwise possible.

The ISOMONIC channeling is applied only to the organ's MAIN section, since the complex tones produced there are rich in harmonics and thus must be separated in order to avoid beats and interference. The two channels for the complex tones are logically and conveniently designated as "C" and "C#".

The TIBIA tone, being pure fundamental, needs only a single sound channel since it is devoid of the upper harmonics that produce the previously mentioned beats and interference. The output from the TIBIA channel may be routed (by means of the Tibia Tremolo control tab) through the tremolo rotor, or through the stationary speaker if tremolo is not desired.

PEDAL tones, derived from the MAIN section of the organ, are assigned a separate amplifier channel, and a separate speaker within the tone cabinet, thereby avoiding many intermodulation distortion problems.

INSTALLATION

At Model 100GK Cabinet

1. Remove lower compartment back and take out shipping blocks holding motor, rotor, and amplifier.
2. Remove cable kit from upper compartment and attach the 30-foot cable to the 9-pole plug on the 100GK Amplifier chassis.
3. Place the cabinet so it rests firmly on the floor. If floor is uneven use snug fitting wedges to keep cabinet from "rocking".

At Console

Remove the back cover of the console to gain access to the speaker connection facilities located at lower left. Connect 9-pole plug on the 30-foot cable to either of the two 9-contact sockets in the console. Replace the back, feeding cable through the slot which has been provided. Installation is now complete.

Multiple Cabinet Installation

Use of a second Leslie cabinet enhances the overall musical result, adding fullness and a still more pipe-like sound. Installation procedure is identical to that used for the first speaker cabinet. Placement of the two speakers 15 to 20 feet apart provides an interesting musical effect; however, it is also satisfactory to space the two units closer together.

NOTE: If, in the case of speaker cabinets placed *close together*, the power of the lowest pedal notes is apparently less than would be the case with just a single cabinet, the 15-inch speakers are probably out of phase. This condition can be corrected by reversing the green and black wires in the plug on the 15-inch speaker in one of the cabinets. Phasing is seldom a problem where speakers are spaced apart.

The console provides output sockets and AC power for only two speaker cabinets. Where more than two speakers are to be used it will be necessary to use a No. 100-70 Extra Speaker Adapter (power relay) for each additional cabinet. This provides an output socket with an independent source of AC power, controlled by the console on-off switch thru a relay.

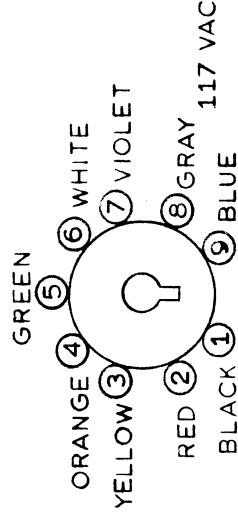
1. Remove the lower back from one of the two cabinets which are connected directly to the console. Detach the connecting cable from the amplifier.
2. Connect the No. 100-70 Extra Speaker Adapter to the amplifier by means of the socket on the adapter's short extension cable.
3. Connect the 9-contact socket on the console cable to the 9-pole plug on the adapter.
4. Connect the cable for the speaker which is being added to the remaining socket on the adapter.

5. Plug the line cord into a convenient 117-volt AC outlet.

NOTE: The chassis of the No. 100-70 Extra Speaker Adapter may be permitted to rest on the floor behind the cabinet, in those cases where only a temporary installation is being made. For more permanence, however, it is suggested that the adapter chassis be fastened either to the back of the cabinet, or to the bottom shelf of the cabinet. In the latter case the chassis must be positioned near the back of the shelf so as to fully clear the rotor.

Extra Length Connecting Cables

Two or more of the standard 30-foot cable assemblies may be used in series for long console-to-speaker runs. Or, custom length cables may be made up by obtaining the required quantity of bulk cable together with the necessary connectors, as specified in the parts list. In attaching the cable to the connectors the color coding should be followed exactly, with special care being given to the handling of all connections involving AC. (See sketch)



Connector Color Coding

Volume Control Adjustment

Although the four volume controls in the amplifier are factory-adjusted to maximum levels for normal use, individual tastes or acoustic conditions may necessitate further adjustments. Controls are located on the etched circuit boards, are clearly marked, and accessible. Levels of the Tibia and Pedal channels may be adjusted independently. However, it is extremely important that the two Main channels ("C" and "C#") be set at the same loudness level; if one of these channels is adjusted the other should be brought into balance with it.

Belt Tension Adjustment

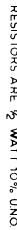
Oiling

Shipping

Broadcasting and Recording with the Leslie

Non-Organ Use of the Leslie Speaker

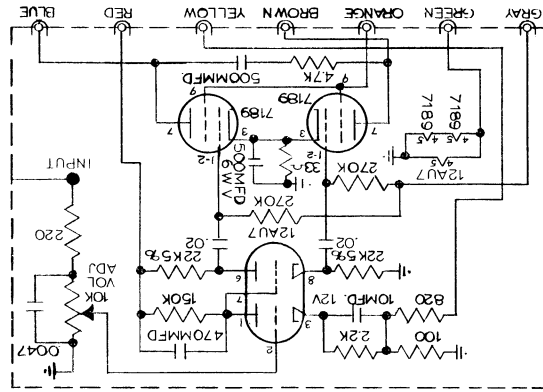
The Leslie Speaker is a product of superb quality, designed solely and expressly for use with electric organs. It does not function satisfactorily in other applications. The unique musical characteristic of the speaker is the result of electrical and acoustical properties totally different from those found in "High Fidelity" sound equipment. This specialized concept upon which the Leslie Speaker is based restricts its recommended usage to the electric organ.



Above: General amplifier schematic showing:

2. Location of bias and terminal strip board adjacent to circuit boards.

Detail of one of the four identical etched circuit boards, part No. 100-13.



Right:

SERVICING AND TECHNICAL INFORMATION

ELECTRICAL COMPONENTS

(Refer to page 7 for schematic)

Caution: If rotor is spinning while lower back is removed, be very careful of damage or personal injury.

Replacement Parts for Servicing

Replacement transformers, loud speakers, and etched circuit boards should be obtained from the Electro Music factory. Standard type parts such as fuses, sockets, resistors and condensers, can be obtained from radio parts supply stores. The detailed parts list in manual will give full parts replacement information.

100GK AMPLIFIER

Amplifier Operation

This amplifier is carefully engineered for long trouble-free operation. Maintenance is greatly facilitated by the quick removable mountings, plug-in condensers, attached circuit diagram, protective fusing and easily removed circuit boards.

The power supply contains three silicon rectifier circuits—compact assemblies which generate no heat and contribute materially to amplifier stability. A 100-volt full wave rectifier circuit combined with a 300-volt full wave bridge rectifier provides a 400-volt plate and a 300-volt screen supply for the 7189 power output tubes, as well as a 240-volt supply for the 12AU7 drivers. The third silicon rectifier circuit is the 12-volt bias supply, on the bias terminal strip board.

A new feature of the 100GK Amplifier is the four identical etched circuit boards. Each circuit board consists of an insulating panel with copper conducting lines on one side and all of the amplifier components, including the volume control and tube sockets, on the other. One board is used for each channel (Pedal, C, C# and Tibia) and is connected to its individual output transformer and to the power supply by means of connecting clips. Each amplifier channel receives its input (from the organ) through the nine pin plug on the front of the chassis by means of a wire soldered to the etched side of the circuit board.

A 12-volt DC relay, controlled from the console, switches the Tibia channel output between the tremolo and non-tremolo speakers. (See section on loudspeakers.)

A non-fused AC power outlet socket is provided on the chassis front for the tremolo rotor motor.

Due to the type of circuitry involved the power consumption of the amplifier varies from 170 watts with no signal, to 220 watts with full signal on all channels.

Line Voltage Variations

Line voltage that is lower than 100 volts, or higher than 130 volts will adversely affect the operation of the amplifier. While the low condition will merely result in poor performance, the high voltage condition will cause overheating and possible component damage. Some sort of voltage-regulating device should be used in those instances where the condition cannot otherwise be eliminated.

Line voltage at the electrical outlet may be in the proper range, and yet read lower at the amplifier. A drop here may be due to faulty contacts on the cable.

Fuse Replacement

A 3 amp slo-blo fuse is used to protect the power supply against most short circuits. Before replacing a blown fuse, determine the cause of fuse failure. Do not use a fuse of higher current rating than marked on the equipment.

Tubes

Tubes are probably the most common source of amplifier difficulties. Checking in a tube tester does not always show all of the possible tube faults. The surest method is substitution with a new set to eliminate these units as a source of trouble. To avoid possible difficulties and provide reliable operation, it is generally recommended that tubes which have had a thousand hours of service be replaced.

New tubes are not always perfect and can cause hum plus other troubles. If troubles comes up at tube replacement time, the new tubes should be carefully checked or substituted.

Amplifier Removal

Amplifier is removed from cabinet by taking out screw that holds the front end of the amplifier to the bottom of the cabinet. Remove the 30-foot cable and motor plugs from the front of the amplifier. Partially withdraw amplifier and remove the two speaker plugs on the left side. The amplifier may now be completely withdrawn. When pushing the amplifier back into place, align the back end of the chassis in approximate position so that the amplifier hold-down clamp will engage the amplifier.

Voltage Readings

In cases where the amplifier malfunctions or is inoperative, and where such a condition cannot be corrected by tube or electrolytic condenser replacement, measure the various voltages and compare them with the voltages shown on the circuit diagram. The voltages shown were measured with a 20,000 ohms per volt multi-meter; differences in meter resistance and line voltage variations, as well as parts tolerances, should be kept in mind. If an abnormally high or low voltage is noted, it usually indicates a defective part in the associated circuit.

Etched Circuit Board Replacement

If the source of the trouble is isolated to a part on an etched circuit board, the part may be carefully replaced using a pencil-tip soldering iron. Much time and customer expense can be saved, however, by replacing the whole circuit board with a new one rather than trying to trouble shoot and repair the defective one.

The etched circuit board is easily removed as follows:

1. Remove the tubes from etched circuit board and turn entire amplifier upside down.
2. Remove the seven wire connectors from the end of the etched circuit board.
3. Using a pencil soldering iron, unsolder and remove the input lead from the etched circuit board. (This is the lead which comes from the 9-contact plug to a point on the etched circuit board near the screwdriver-adjustable volume control.)
4. Remove the four nuts, lockwashers, and flat washers holding the etched circuit board in place; the board may now be removed from the amplifier.
5. After checking for the proper alignment of the mounting screws with the mounting holes in the circuit board (if it is a new unit) the board is replaced, then the flat washers, lockwashers, and the nuts to secure it in position.
6. Attach and re-solder the input lead to the new board.
7. Attach the seven wire connectors to the end of the etched circuit boards as follows:
 - gray wire to "bias" terminal
 - green wire to "grn" terminal
 - orange wire to "screen" terminal
 - brown output transformer lead to "brown" terminal
 - yellow wire to "feedback" terminal
 - red wire to "B+" terminal
 - blue output transformer lead to "blue" terminal

8. The tubes may now be replaced and amplifier checked for proper operation.
9. Adjust the volume control with a screwdriver to balance the channel with the others.

Bias and Terminal Strip Board Removal

1. Remove the four etched circuit boards (see section Removal of Etched Circuit Boards page 10).
2. Unsolder the following wires:
 - 1) two red and one orange, from the high voltage section
 - 2) green 12-volt filament, from board
 - 3) four red output transformer wires, from board
 - 4) four green output transformer wires, from board
3. Loosen nut on fuse holder and slide holder through hole until nut on bias board is accessible.
4. Remove both mounting nuts on the bias board and withdraw from the amplifier chassis.

Transformer Replacement

If output or power transformer is replaced, the wire colors must be noted and the new transformer wired with the same color identification. Replacement transformers should be obtained from Electro Music and they will be provided with correct lead lengths and connectors where necessary.

Transformer replacement necessitates removal of the etched circuit boards (see above), partial withdrawal of the fuse holder, and the removal of either or both of the mounting bolts for the bias and terminal strip board. The degree to which such disassembly is required will depend upon the location in the chassis of the transformer which is being replaced. Reassembly should follow in careful reverse order those same steps which were used in disassembly. In remounting the bias and terminal strip board it is particularly important to replace the spacer bushings which hold the board away from the chassis.

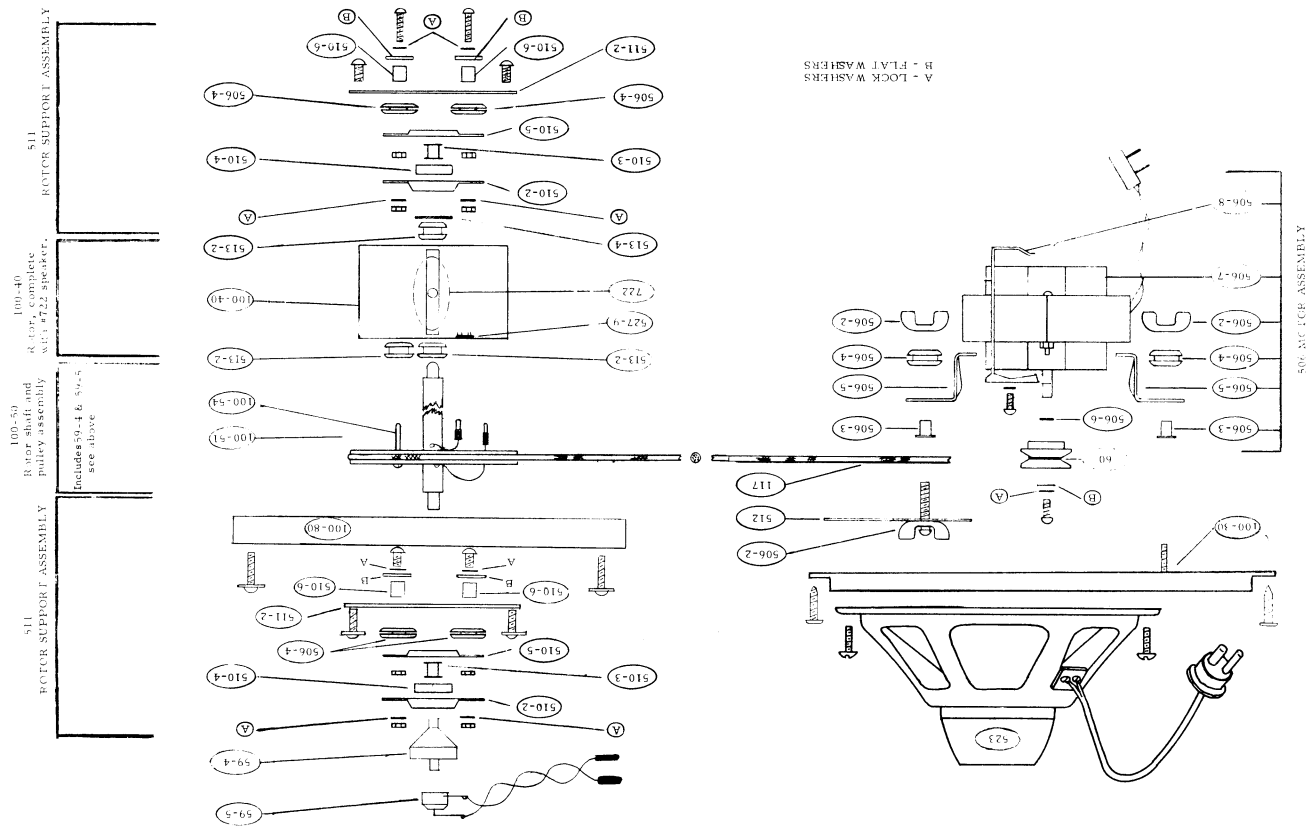
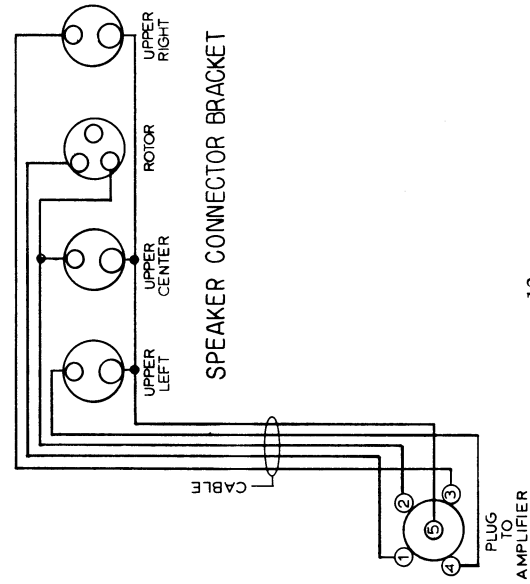
LOUDSPEAKERS

A 15" speaker is mounted in a matched bass reflex enclosure and is connected directly to the amplifier, by a speaker lead and two pole plug. It is important to have the cabinet back in place and securely fastened for this speaker to operate properly; it provides output for the pedal tones of the console.

Three 6x9 stationary speakers are mounted in the upper compartment on the front panel louvers. They are connected by speaker leads and pin plugs to the speaker connector bracket mounted on the front panel of the center compartment. The two upper side speakers provide output for the two Main channels. The upper center speaker provides output for the Tibia channel when the Tibia Tremolo tab is in the "off" position.

A fourth 6x9 speaker is mounted in the rotor assembly and is connected through the rotary contact to the speaker connector bracket. It provides output for the Tibia channel when the Tibia Tremolo tab is in the "on" position.

The five-conductor cable from the speaker connector bracket is plugged into the five-contact socket on the side of the amplifier chassis.



MECHANICAL COMPONENTS

(Refer to page 13 for parts identification)

Motor Removal

After removing lower compartment back, remove the motor power plug from the amplifier socket and remove the two wing nuts that hold motor to the shelf. The motor will drop down for removal. When replacing motor, first position the belt on the motor pulley, then lift into place on the mounting screws. The wing nut nearest the back of the cabinet controls belt tension, and must be adjusted whenever the motor is replaced. (See paragraph on Belt Tension Adjustment, page 16).

Motor Maintenance

The motor, after several years of typical service, or a reasonably long period in commercial use, might accumulate lint and dust. This accumulation interferes with proper ventilation and oiling. Time invested in cleaning the motor is well repaid by longer life.

The motor may be cleaned as follows:

1. Remove the pulley, pulley support ring, and oil tube assembly.
2. Note or mark the position of the bottom end cover with respect to the laminations, to insure correct reassembly of motor.
3. Remove the four screws holding end covers and disassemble motor.
4. Clean all parts with solvent and allow to dry.
5. Thoroughly oil the two felt bearing pads located inside end covers.
6. Reassemble motor.

After reassembly, if there is some noise during motor operation, it is probably due to temporary bearing unseating. A light tap with a fairly heavy tool on the laminations side will shake the assembly into proper position.

The mounting brackets used with the motor should measure 5 $\frac{7}{8}$ " between centers of mounting holes. If the brackets are bent they should be straightened to obtain this dimension.

15" Speaker Removal

1. Remove center and lower compartment back. Disconnect speaker plug and cord assembly from amplifier and wrap around back of speaker. (Speaker plug can be reached by removing amplifier hold-down screw and partially removing amplifier from cabinet.)
2. Remove screws in rim of speaker and lift out. *Note:* It is inadvisable to attempt cone replacement or repairs involving disassembly of the speaker. Electro Music will either repair a faulty unit or will supply a replacement.

Stationary 6x9 Speaker Removal

1. Remove center compartment back and disconnect speaker plug and cord assembly from speaker connector bracket located on front panel inside center compartment.
2. Remove cork from underside of upper shelf and pull speaker cord through.
3. Remove the four nuts from the 6x9 speaker mounting screws and pull speaker straight back. Speaker must then be turned with magnet down to remove from compartment.

Note: To avoid cone damage, replace speaker very carefully on the mounting screws.

Two-Circuit Rotary Contact, Removal and Replacement

1. Remove center compartment back and remove fibre cap assembly from the top of the rotary contact by holding contact body and pulling cap straight up.
2. Remove rotary contact from rotor shaft; pull and twist back and forth to loosen.
3. Replace rotary contact on shaft by pushing down carefully to prevent damage to contact pin in center of shaft.
4. Replace fibre cap assembly on rotary contact by pushing down carefully to prevent damage to pin in center of cap.

Belt Replacement

For average service, the belt will last for several years. In the event of any excessive belt wear, the pulley and mountings should be examined for rough surfaces or misalignment that might cause the wear.

A frayed or worn belt can cause noise by striking the lower shelf and should be replaced as follows:

1. Remove center and lower compartment back panels.
2. Remove rotary contact assembly from rotor shaft; pull and twist back and forth to loosen.
3. Remove four black screws from upper bearing mounting block and lift block up and off rotor shaft. (There are two guide pins in block to insure proper centering of rotor.)
4. Loosen motor support wing nut nearest cabinet back, remove old belt from motor pulley and pull it up and off the rotor pulley.
5. Place new belt over rotor shaft. Feed belt under speaker, position on motor pulley and hold in place. Slip belt on rotor pulley and push motor left to prevent belt from slipping off pulleys.
6. Replace the upper bearing mounting block over shaft end, aligning the guide pins with their proper holes. Fasten down with the four black screws.

7. Replace rotary contact on shaft by pushing down carefully to prevent damage to contact pin in center of shaft.
8. Adjust belt tension (see below) and tighten wing nut on motor support bracket.

Belt Tension Adjustment

After removing lower compartment back, adjust belt tension by first loosening motor support wing nut nearest the cabinet back and pulling motor assembly to the left until the belt is stretched. Release the assembly and belt will assume its proper tension. Tighten the wing nut at this motor position. Do not attempt to stretch the belt tight and fasten in that position with the wing nut; noise and hard starting will result.

Rotor, Lower Bearing Replacement

1. Lay cabinet on floor face down so that bottom is fully accessible.
2. Remove the screws at both ends of the lower bearing support assembly; entire bearing assembly can now be pulled from the shaft. Be sure to hold rotor assembly in its normal position to relieve weight on bearing and to facilitate easier reassembly.
3. Remove upper half of bearing clamp. (Large Hole) Ball bearing can now be lifted out and replaced.
4. Reassemble the new bearing and bearing clamp.
5. In replacing bearing support assembly on rotor shaft, make certain the flat washer is included between the rotor and bearing grommets with smooth side of washer against the shaft shoulder.

Rotor, Upper Bearing Replacement

1. Remove center compartment back panel.
2. Remove rotary contact assembly from rotor shaft; pull and twist back and forth to loosen.
3. Remove upper half of bearing clamp. (Large Hole) Ball bearing can now be lifted out and replaced.
4. Reassemble the new bearing and bearing clamp.
5. Replace rotary contact on shaft by pushing down carefully to prevent damage to contact pin in center of shaft.

Tremolo Rotor Removal

1. Remove 15" speaker, rotary contact assembly and upper bearing mounting block using previous instructions.
2. Remove belt from pulley and unplug rotor shaft leads from rotor socket.

3. Grasp rotor pulley and pull straight up for several inches to clear rotor drive pin; continue twisting and turning with pulling action until shaft is free from rotor. Rotor can now be slid out of cabinet. (Be sure to save flat metal washer found between the bearing and rotor grommets.)

4. When reassembling, be sure that rotor shaft enters "solid" end of drum. Rotor drive pin must fit into grommeted drive hole, and flat metal washer must be included between the rotor and lower bearing grommet, with smooth side of washer against the shaft shoulder. (When replacing rotor shaft, a little oil or vasoline may be used as a lubricant; grommets are made of neoprene and will not be damaged.)

5. Replace rotary contact on shaft by pushing down carefully to prevent damage to contact pin in center of shaft.

6x9 Rotor Speaker Removal

After removing rotor (see above) proceed as follows:

1. Turn rotor and shaft assembly upside down, exposing speaker access opening in bottom of rotor drum.
2. Unplug the two pins from the rotor assembly.
3. Take out the four mounting screws; speaker can now be removed from rotor drum.

NOTE: When replacing with a new speaker, be sure magnet structure is identical so as not to disturb balance.

SERVICE HINTS

Tibia Tones Absent

Push down a Tibia tab, play a note, and move Tibia Tremolo switch on and off. If there is sound with Tibia Tremolo on but not off, check the center speaker in the upper compartment. Check sockets and plugs at amplifier and speaker connector bracket. If there is sound with Tremolo off but not on, check the 6x9 rotor speaker. Check the rotary contact for short or open circuit. Also check the sockets and plugs at amplifier, speaker connector bracket, rotary contact, and rotor. If there is no Tibia sound either with or without Tremolo, check the 30-foot cable connector, amplifier, and amplifier sockets and plugs.

Alternate Notes Missing on MAIN Section

Check inoperative side speaker in the upper compartment. Check the sockets and plugs at amplifier and speaker connector bracket. Check channel involved.

No Pedal Tones

Check the 15" speaker. Check the sockets and plugs at amplifier and speaker connector bracket. Check pedal amplifier.

To Check Two-Circuit Rotary Contact

1. While holding the two-circuit rotary contact in an upright position spin the top center section with the fingers three or four times.
2. Using an ohm meter, check to make sure there is complete continuity between top and bottom center contacts. Complete continuity should also be found between top and bottom outside contacts. (Meter should read less than one ohm.)
3. Check to make sure there is *no* continuity between center and outside contacts. If continuity is found, and the repetition of step Number 1 still does not clear the contact, re-seat the mercury, using the same technique of centrifugal force as is used to reduce a fever thermometer. Hold the unit with the fingertips, with the funnel-shaped end pointing away from the palm of the hand. Then apply centrifugal force by combining a smooth downward swing of the arm with a final wrist-snap motion. If this does not clear the contact it is probably defective and should be replaced.

Weak or "Off-color" Notes

Weak or off-color notes (usually in the pedal) may occur as the result of so-called "standing waves" in a room. Due to the wave length of low pitch notes they are reflected from the walls and ceiling in such a way as to cause a given note to sound loud at some parts of the room and soft at others. This is a natural phenomenon of sound and is unrelated to the nature of the sound source. The fact that a given note may apparently either "cancel out" or sound disproportionately loud can be rather annoying. In most cases, the situation can be helped by moving either the organ console or the speaker a few feet, so that the specific "standing wave" pattern is altered.

PARTS LIST

MODEL 100GK LESLIE ORGAN SPEAKER

IMPORTANT: When ordering parts, Model and Serial Number of Leslie Speaker must be furnished to insure correct parts being supplied. Complete assemblies are designated as such and are listed ahead of the individual parts and sub-assemblies of which they are comprised. (Example: Part No. 100-50 is the Shaft and Pulley Assembly, complete; Part No. 100-51 is the Shaft and Pulley only.) Standard parts such as resistors, condensers, sockets, and tubes are not included in the list since they are available locally through electronics supply companies. Simple mechanical parts (screws, nuts, washers) are listed only to the extent that they are unique items which might not be locally available.

ELECTRICAL EQUIPMENT

Part Number	
523	Speaker, 15-inch PM
722	Speaker, 6x9-inch PM (4 used; 1 in rotor assembly, 3 in upper compartment.)
	Note: Replacement cones not available. Factory installed only.
100GK	FOUR-CHANNEL AMPLIFIER
100-11	Power Transformer
100-12	Output Transformer (4 used)
100-13	Etched Circuit Board, Amplifier Channel (4 used)
100-14	Bias and Terminal Strip Board
525-5	Chassis Mounting Strip (2 used)
525-6	Bushing, Shoulder, Neoprene, for Mounting Strip (4 used)
525-7	Bushing, Metal, for Mounting Strip (4 used)
525-16	Fuse Holder
25-5	Silicon Diode, Power Supply, 400 piv (6 used)
100-15	Silicon Diode, Bias Supply
100-16	Relay
100-17	Socket, Speaker, 5-contact
730-3	Socket, Speaker, 2-contact
525-13	Socket, Motor Outlet
525-21	Socket, Filter Condenser
100-18	Filter Condenser, Plug-in, 30-30-30-10 Mfd, 350 Volt
100-19	Filter Condenser, 30-30 Mfd, 150 Volt (2 used)
100-110	Filter Condenser Plug-in 100-100 Mfd, 350 Volt
100-20	Bracket Assembly, Speaker Connector

ROTOR AND ASSOCIATED COMPONENTS

100-40	Rotor Assembly, complete with 722 Speaker
513-2	Grommets, Rubber, for Rotor (3 used)
527-9	Socket, 4-contact
513-4	Metal Washer
100-50	Shaft and Pulley Assembly, Complete
100-51	Shaft and Pulley
100-54	Drive Pin, for Pulley
59-4	Rotary Speaker Contact
59-5	Fibre Cap, for Rotary Speaker Contact
506	Motor Assembly, less Pulley
506-2	Wing Nut (2 used)
506-3	Bushing, Shoulder, Metal (2 used)
506-4	Grommet, Neoprene, Motor Mounting (2 used)
506-5	Bracket, Motor Mounting (2 used)
506-6	Ring, Wire, Pulley Support
506-7	Motor only
60	Pulley, Motor
100-30	Rail Assembly, Motor Mounting
511	Rotor Support Assembly (2 used)
510-2	Bearing Clamp, Large Hole
510-3	Grommet, Neoprene, for Bearing
510-4	Ball Bearing
510-5	Bearing Clamp, Small Hole
511-2	Mounting Plate, Rotor Support
506-4	Grommet, Neoprene, for Mounting Plate (2 used)
510-6	Bushing, Metal, for Grommet (2 used)
100-80	Mounting Block, Upper Bearing
117	Belt, Rotor

ACCESSORIES

100-60	30-Foot Nine-Conductor Cable, with nine-contact plug and socket attached. Use as Console to Speaker cable, Speaker to Speaker cable, or as Speaker extension cable.
100-61	Nine-Conductor Bulk Cable only, Specify any length
100-62	Nine-Pole Plug and Cap, for 100-61
100-63	Nine-Pole Receptacle and Cap for 100-61
530	Lubricating Oil, 1 ounce bottle
100-70	Power Relay, Extra Speaker Adapter

MISCELLANEOUS SCREWS AND NUTS

Thread & Length	Quantity and Where Used
10-24 x $\frac{7}{8}$ " Sems with lockwasher	(1) Fasten amplifier to cabinet. (1) In slot of adjustable motor mount—used with #506-2 wing nut. (1) Rear motor mount. (2) Fasten upper bearing assembly.
10-24 x $1\frac{1}{2}$ " Sems with washer	(10) Fasten backs to cabinet.
8-32 x $\frac{3}{8}$ " Sems with washer	(4) Fasten bearing mount to shelf. (1) Fasten pulley to motor.
8-32 x $\frac{7}{8}$ " Sems with lockwasher & flat washer	(4) Fasten bearing clamps to mounting plates.
#6 special washer	(16) Used under nuts fastening circuit boards in amplifier.