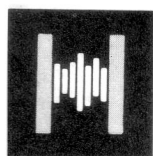


INSTALLATION INSTRUCTIONS

RHYTHM II KIT FOR T, L, & M SERIES



HAMMOND ORGAN

1740 N. 25th Avenue • Melrose Park, Ill. 60160

INTRODUCTION

This manual contains instructions for installing the Rhythm II accessory kit on the following organs:

T-Series

L-100, L-100A, L-100-1

M-100, M-100A.

For clarity and convenience, instructions for each series are printed in a separate section: I, T-Series; II, L Models; III, M-100 & M-100A.

The Kit is designated as Model A-2. Parts required for installation on any of the above listed organs are included in the kit. Carefully follow instructions for the particular organ at hand. Consult Contents of Kit list on page ii for information concerning applicability of specific parts.

WARNING

Complete installation of this kit requires wiring to primary power source. Connections described herein are to be made by qualified service men only.

CONTENTS OF KIT

QTY	PART NO.	DESCRIPTION	USED ON					
			ALL	L-100-1	L-100 L-100A	L-100 Early	M-100	T
1	127-000028	Power Supply, 120V 60 ~	X					
		or						
1	127-000029	Power Supply, 120V 50/60 ~	X					
		or						
1	127-000030	Power Supply, 220V 50/60 ~	X					
		or						
1	101-000203	Power Supply, 120V 60 ~	X					
1	063-042080	Voice Generator Assembly	X					
1	125-000045	Control Assembly	X					
1	035-042081	Mounting Rail	X					
1	010-042054	Shield (power supply)	X					
1	010-042082	Shield (voice generator)	X					
1	011-042083	Wire & Plug Assembly	X					
9	884-050734	Screw, #6	X					
3	884-050933	Screw	X					
1	999-000065	Washer	X					
3	013-042242	Clip	X					
3	013-031744	Plastic Tie	X					
1	006-033265	Terminal Strip			X	X	X	X
1	254-000032-07	22 Ga. S.C. Wire (Black) 16"			X	X		
1	200-010318	Shielded Lead			X	X	X	X
1	425-010582	Capacitor, disk, .0022 uf						X
1	600-020971	Resistor, 100K						X
1	425-010412	Capacitor, disk, 470 pf			X	X	X	
2	007-023410	Pin, connector				X		
1	600-021211	Resistor, 1 meg.			X	X	X	
1	254-060008-04	22 Ga. S.C. Wire (Blue) 4"				X		
3	999-000815	Washer						X
1	042-035141	Adhesive Backed Felt	X					
1	011-033223	Ground Lead Assembly						X
1	011-042617	Ground Lead Assembly						X
1	425-010622	Capacitor, disk, .0033 uf					X	
1	H0-449	Installation Instructions	X					

SECTION I

INSTALLATION INSTRUCTIONS, T-SERIES

NOTE

Check contents of kit before starting installation. Be sure all required parts are at hand.

- 1-1. GENERAL.**— This section contains instructions for installing the Rhythm II accessory on any T-Series organ.
- 1-2. PREPARATION OF ORGAN.**— Disconnect organ from power source. Remove and set aside organ parts listed below.
- a. Back cover
 - b. Console top and music rack
 - c. Control panel cover
 - d. AC post cover on Tone Wheel Generator Assembly

NOTE

The following instructions are for right-hand installation of the Rhythm II Control. The control may be mounted at the left of the organ at the owner's option on any T-Series model, except T-300, which requires the control assembly to be on the right side.

- 1-3. INSTALLATION OF SWITCH ASSEMBLY.**— Proceed according to the following.
- a. Remove decorative bracket from underside of rail at right end.

NOTE

To remove bracket from later model organs, re-

move two screws from underside. On early organs the bracket must be chiseled off carefully.

- b. Remove screw from front right end of lower manual terminal strip cover.
- c. Install mounting rail, 035-042081, open end toward front of organ as shown in Figure 1-1. Before fastening rail, place control unit on floor under rail. Drape control cable from right to left, (multi-pin connector toward left) over top of rail, then fasten rail into place with three screws, 884-050933, driven into pilot holes provided. Place adhesive felt 042-035141 over head of right side mounting screw.

NOTE

On older organs not equipped with pilot holes, use rail as a template and pierce holes with an awl or other suitable tool.

- d. Reinsert screw removed at step 1-3b., above, through slotted hole in rear lip of rail, placing a washer, 999-000065, between lip of rail and terminal strip cover.
- e. Back out the two small screws at either end of the mounting rail far enough to permit insertion of switch assembly, 125-000045, into rails. Slide the switch

SWITCH
ASSEMBLY

MOUNTING
RAIL

CONTROL
CABLE

CLIPS
013-042242

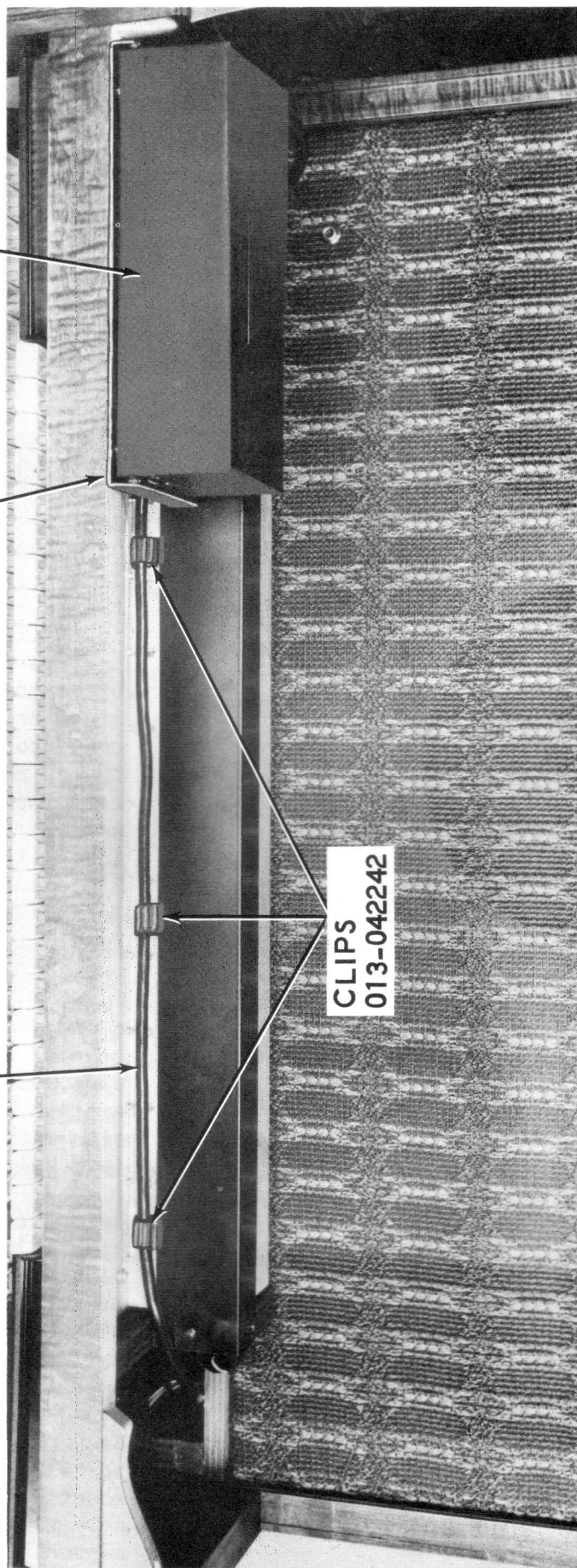


FIGURE 1-1.
TYPICAL MOUNTING RAIL AND CONTROL INSTALLATION

assembly into rails and re-tighten screws.

- f. Pull control cable to the left, allowing sufficient slack to permit the switch assembly to move freely in and out on its track.
- g. Feed connector end of control cable through large opening at left of lower manual.
- h. Install three adhesive-backed clips, 013-042242, at approximate locations shown in Figure 1-1.

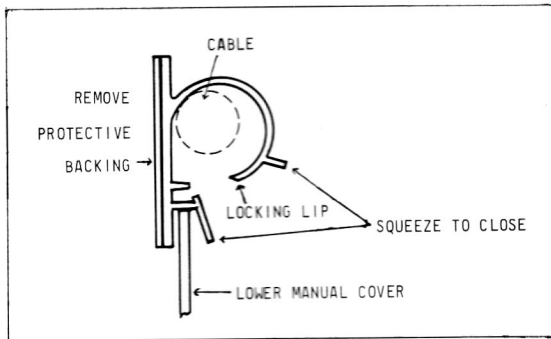


FIGURE 1-2.
INSTALLATION OF CLIPS

To install clips (See Figure 1-2):

1. Remove protective backing to expose adhesive.
2. Install as shown in Figure 1-2.
3. Adhesive backing will anchor clip.
4. Insert cable into clip. Pull clip open sufficiently to clear cable if necessary.
5. Compress clip until locking lip engages.

1 - 4. INSTALLATION OF POWER SUPPLY. -

The Power Supply is to be installed in the position indicated in Figure 1-3.

NOTE

Reference to right or left, in steps 1-4 and 1-5 is as viewed from rear of organ.

Proceed according to the following:

- a. Remove tube of oil from left end wall. Remove cable ties holding tube. Relocate ties and tube as shown in Figure 1-3.
- b. Place power supply shield, 010-042054, over pilot holes in left end wall. Place power supply, 127-000028 (-30), over shield in a position such that receptacle on power supply is at lower end. Fasten power supply and shield into place with three screws, 884-0507934 leaving top rear screw off temporarily.

NOTE

On older organs, without pilot holes, place power supply shield against end wall about 12-inches up from bottom of organ and 6 inches from rear of organ. Use shield as a template to pierce holes.

1 - 5. INSTALLATION OF VOICE GENERATOR. -

Proceed according to the following:

- a. Place voice generator shield, 010-042082, over pilot holes on upper shelf of organ. Position as shown in Figure 1-3.

NOTE

On older organs without pilot holes, use shield as a template to pierce holes.

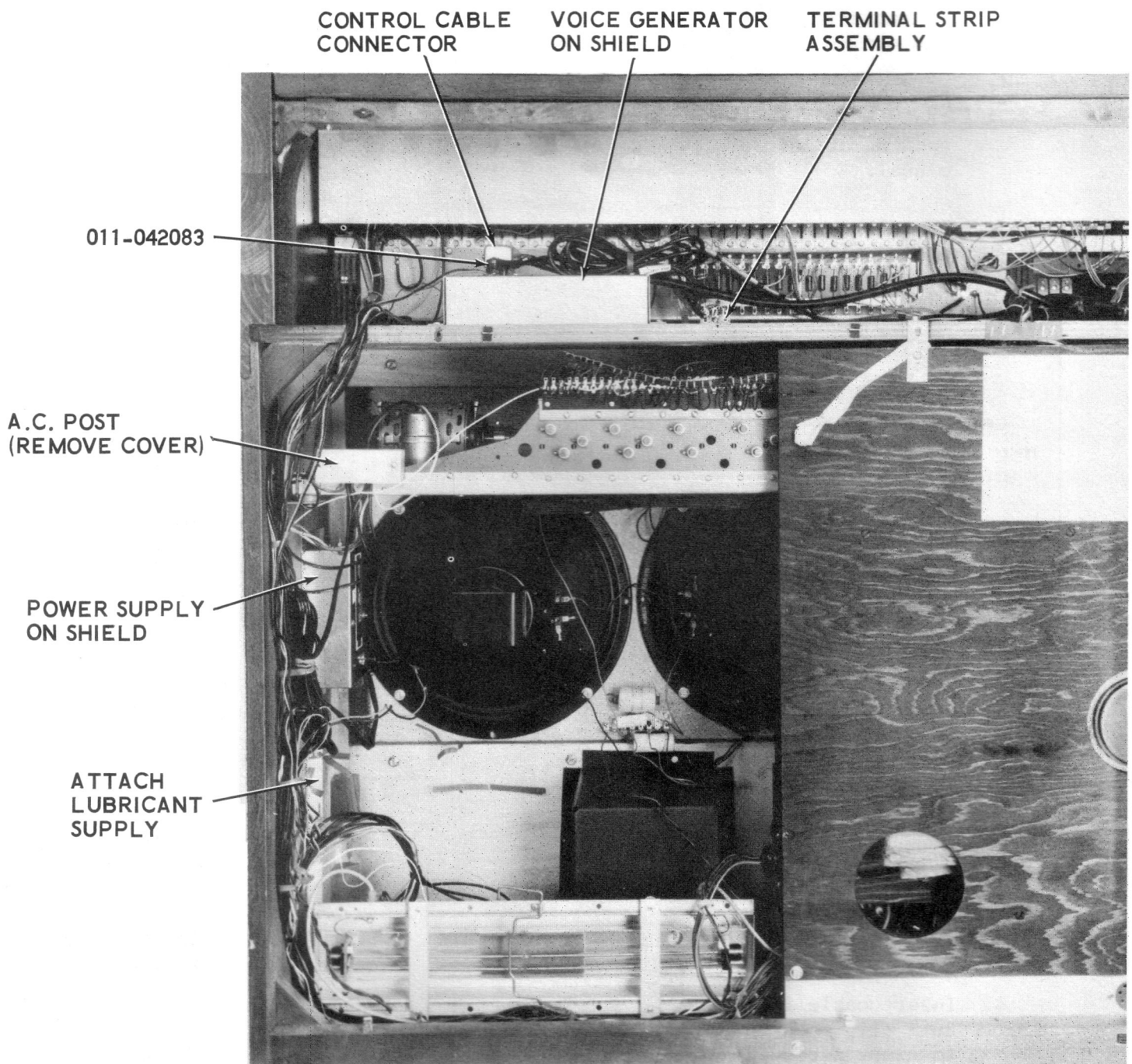


FIGURE 1-3
PLACEMENT OF CIRCUIT ASSEMBLIES IN T SERIES ORGAN

Place voice generator over shield and fasten generator and shield to shelf with two screws, 884-050734, leaving two rear screws off temporarily. Connector on generator should be toward left of organ.

- 1-6. TERMINAL STRIP ASSEMBLY.**— Assemble terminal strip assembly as shown in Figure 1-4, using .0022 uf capacitor and 100K resistor. Fasten terminal strip assembly to shelf about two inches to the right of voice generator, as shown in Figure 1-3. Use one screw, 884-050734.

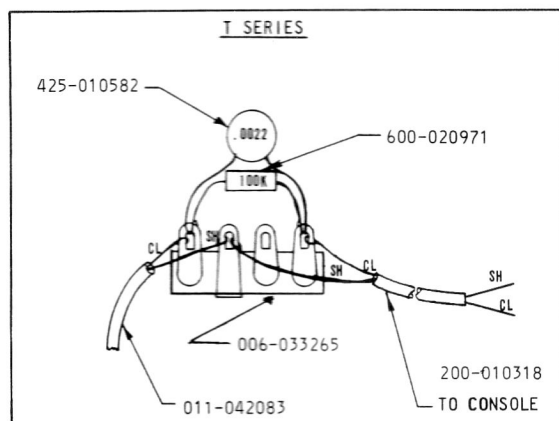


FIGURE 1-4.
TERMINAL STRIP ASSEMBLY FOR
T-SERIES

- 1-7. INTERCONNECTIONS.**— Proceed according to the following:

- a. Mate large connector on end of control cable to receptacle on voice generator.
- b. Fasten cable to voice generator by means of plastic cable tie mounted on generator.
- c. Insert phone plug of wire and plug assembly, 011-042083, into phone jack on voice generator assembly.

- d. Solder free ends of wire and plug assembly, 011-042083, to terminal strip assembly, as shown in Figure 1-4.
- e. Solder free ends of coaxial cable 200-010318, to terminal strip assembly, as shown in Figure 1-4 and tablet, as shown in Figure 1-5.

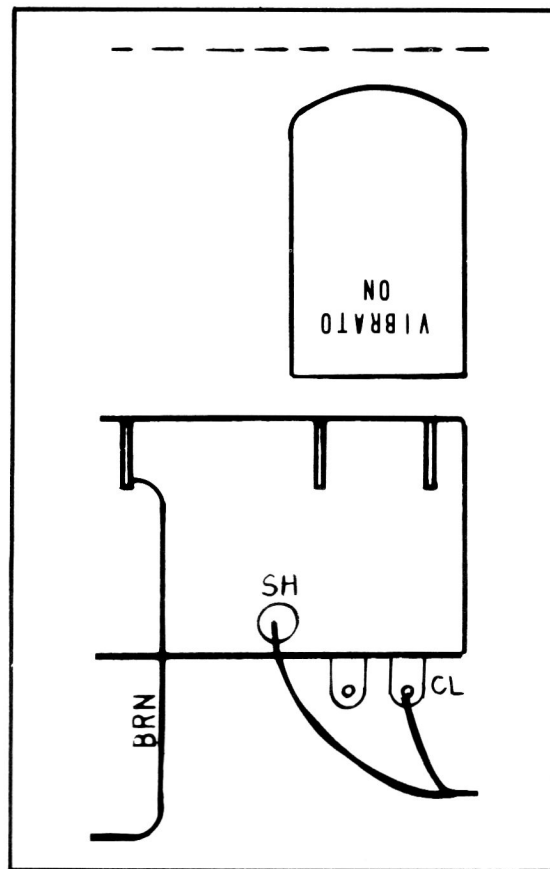


FIGURE 1-5.
WIRING TO VIBRATO ON TABLET
IN T-SERIES

- f. Mate plug at end of red and black pair from voice generator to receptacle on Rhythm II power supply, 127-000028 (-30).
- g. Pull apart bared ends of power supply line cord about two to three inches. From underneath, insert each of the bared ends

through one of the grommets on the AC post. Solder one end to terminal marked "GY", the other end to terminal marked "YEL".

- h. Fasten one end of ground lead assembly, 011-033223, to right rear of voice generator assembly with washer 999-000815 under head of mounting screw, 884-050734. Route other end of 011-033223 to ground lug on frequency generator and motor assembly, 112-000005, and solder. Be sure grounding connections are secure. Check with ohmmeter leads on housings.
- i. Fasten one end of ground lead assembly, 011-042617, to left rear of voice generator assembly with washer 999-000815 under head of mounting screw 884-050734. Fasten other end of 011-042617 to top rear

mounting screw of Rhythm II Power Supply assembly, 127-000028 (-30) or 101-000203, using washer 999-000815 under head of mounting screw 884-050734. Check for secure grounding connections with ohmmeter leads on power supply and voice generator covers.

- j. Tie all newly installed cabling neatly to existing cabling using cable ties, 013-031744.
- k. Connect organ to power source and check operation of Rhythm II. If foregoing instructions have been carefully followed, unit should operate properly.
- 1. Disconnect organ from power source and reinstall all parts set aside at step 1-2. This completes installation.

SECTION II INSTALLATION INSTRUCTIONS, L-100 SERIES

NOTE

Check contents of kit before starting installation. Be sure all required parts are at hand.

- 2-1. GENERAL.** - This section contains instructions for installing the Rhythm II accessory on any L-100 organ.

- 2-2. PREPARATION OF ORGAN.** - Disconnect organ from power source. Remove and set aside back cover of organ.

NOTE

The following instructions are for right-hand installation of the Rhythm II Control. The control may be mounted at the left of the organ at the owner's option.

- 2-3. INSTALLATION OF SWITCH ASSEMBLY.** - Proceed according to the following:

- a. Remove decorative wood block from underside of rail at right end.

NOTE

The wood block is fastened by means of glue and two nails driven from the underside. Take care not to mar finish of front rail or console leg.

- b. Remove screw from front right end of lower manual

terminal strip cover.

- c. Install mounting rail, 035-042081, open end toward front of organ as shown in Figure 1-1. Before fastening rail, place control unit on floor under rail. Drape control cable from right to left (multi-pin connector toward left) over top of rail, then fasten rail into place with three screws, 884-050933, driven into pilot holes provided. Place adhesive felt 042-035141 over head of right side mounting screw.

NOTE

On older organs not equipped with pilot holes, use rail as a template and pierce holes with an awl or other suitable tool.

- d. Reinsert screw removed at step b., above, through slotted hole in rear lip of rail, placing a washer, 999-000065, between lip of rail and terminal strip cover.
- e. Back out the two small screws at either end of the mounting rail far enough to permit insertion of switch assembly, 125-000045, into rails. Slide the switch assembly into rails and retighten screws.
- f. Pull control cable to left to take up slack.

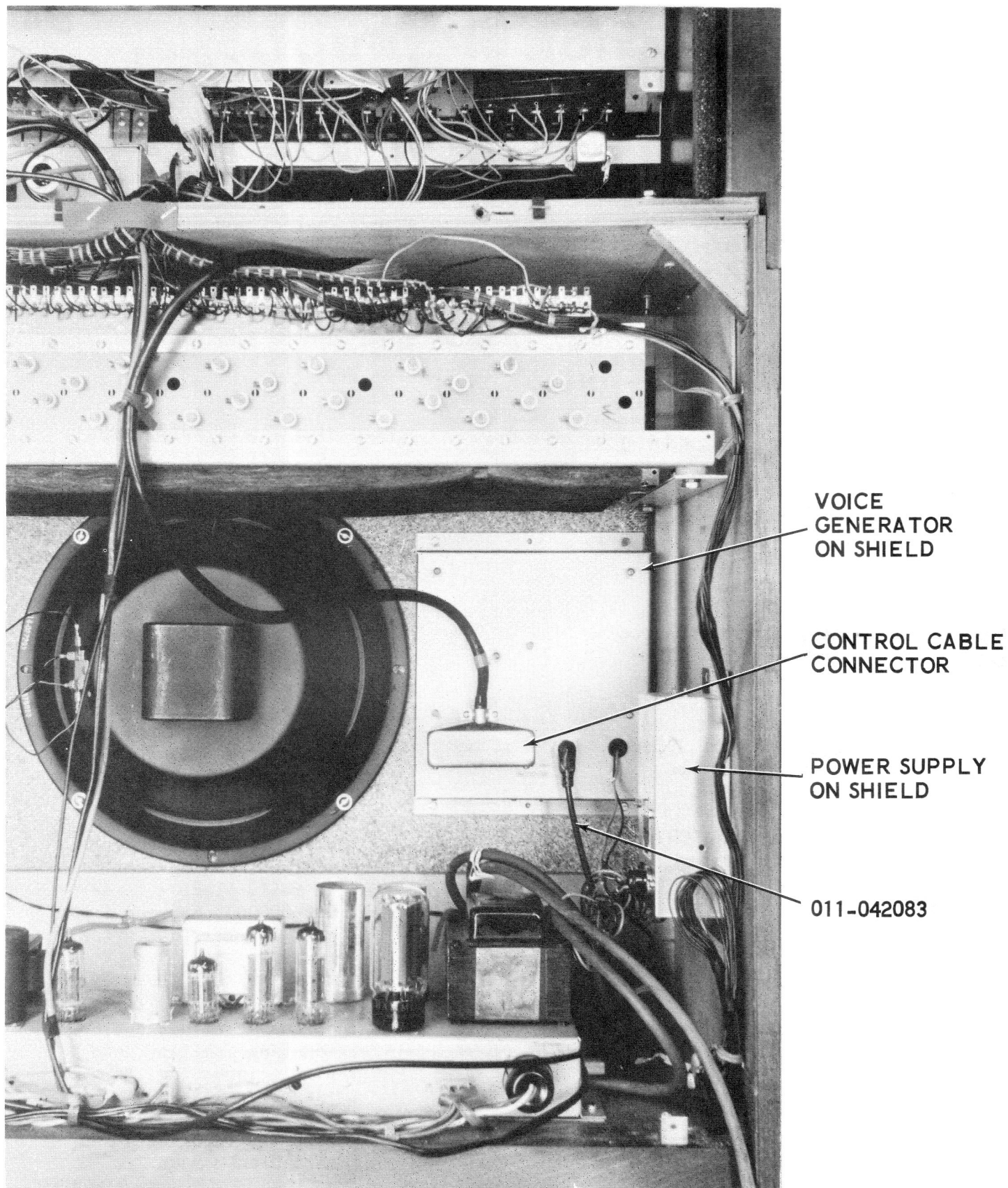


FIGURE 2-1.
POWER SUPPLY & VOICE GENERATOR INSTALLATION IN L-100 SERIES ORGANS

NOTE

Allow sufficient slack to permit the switch assembly to move freely in and out on its track.

- g. Feed connector end of control cable around left end of lower manual to top shelf at rear of organ.
- h. Insert connector, pins upward, through the large hole above the tone generator. Move the connector carefully toward the rear of the organ until it clears the tone generator. Then pull cable to take up slack.
- i. Install three adhesive-backed clips, 013-042242, at approximate locations shown in Figure 1-1.

To install clips (See Figure 1-2):

- 1. Remove protective backing to expose adhesive.
- 2. Install as shown in Figure 1-2.
- 3. Adhesive backing will anchor clip.
- 4. Insert cable into clip. Pull clip open sufficiently to clear cable if necessary.
- 5. Compress clip until locking lip engages.
- 6. If necessary, clip may be un-locked with the aid of a screwdriver.

2 - 4. INSTALLATION OF POWER SUPPLY. -

The Power Supply is to be installed in the position indicated in Figure 2-1.

NOTE

Reference to right or left, in steps 2-4, and 2-5 is as viewed from rear of organ.

Proceed according to the following:

- a. Place power supply shield, 010-042054, over pilot holes in right end wall. Place power supply, 127-000028 (-30), over shield in a position such that receptacle on power supply is at lower end. Fasten power supply and shield into place with four screws, 884-050734.

NOTE

On older organs, without pilot holes, place power supply shield against end wall about $4\frac{1}{2}$ inches up from bottom of organ and 3 inches from rear of organ. Use shield as a template to pierce holes.

2 - 5. INSTALLATION OF VOICE GENERATOR. -

Proceed according to the following:

- a. Place voice generator shield, 010-042082, over pilot holes immediately to right of main speakers. Position as shown in Figure 2-1.

NOTE

On older organs without pilot holes, use shield as a template to pierce holes.

Place voice generator over shield and fasten generator and shield to front of organ with four screws, 884-050734. Connector on voice generator should be toward bottom of organ.

- 2-6. ASSEMBLY OF TERMINAL STRIP (NOT REQUIRED FOR L-100-1).**— Assemble terminal strip as shown in Figure 2-2, using 470 pf capacitors, 425-010412, and 1 meg. resistor 600-021211.

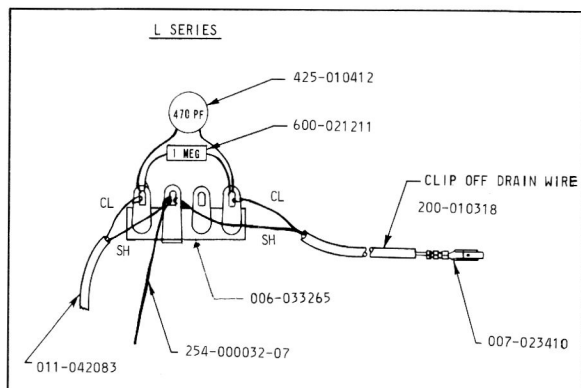


FIGURE 2-2.
TERMINAL STRIP ASSEMBLY FOR
L-100 & L-100A

- 2-7. INSTALLATION OF TERMINAL STRIP ASSEMBLY (DOES NOT APPLY TO L-100-1).**— Attach terminal strip assembly to upper shelf near center of preamplifier chassis, approximately two inches from rear of shelf. Fasten with one screw, 884-050734.

- 2-8. INTERCONNECTIONS.**— Depending on age and model, one of three different sets of interconnections is used. Refer to subparagraphs A, B, and C, below.

A. For L-100 organs Serial No. 87045 and up, proceed according to the following:

1. Mate large connector on end of control cable to receptacle on voice generator.
2. Fasten cable to voice generator by means of plastic cable tie mounted on generator.
3. Insert phone plug of wire and plug assembly, 011-042083, into phone jack on voice generator.
4. Solder free ends of wire to terminal strip assembly as shown in Figure 2-2.

5. Connect 22 ga. black wire, 254-000032-07 from terminal strip assembly, to any convenient ground lug on the organ.
6. Assemble connector pin 007-023410, to one end of shielded lead, 200-010318, as shown in Figure 2-2. Solder other end of shielded lead to terminal strip as shown in Figure 2-2. Connect pin into the six-pin plug located toward the right (rear view) of the organ preamplifier chassis. Correct position is the vacant one between gray and green wires.
7. Mate plug at end of red and black pair from voice generator to receptacle on Rhythm II power supply, 127-000028 (-30).
8. Pull apart bared ends of power supply line cord about two to three inches. From underneath, insert each of the bare ends through one of the grommets on the AC post. Solder one end to terminal marked "GY", the other end to terminal marked "YEL".
9. Tie all newly installed cabling neatly to existing cabling using cable ties, 013-031744.
10. Connect organ to power source and check operation of Rhythm II. If foregoing instructions have been carefully followed, unit should operate properly.
11. Reattach back cover of organ. This completes installation.

B. For L-100 organs BELOW Serial No. 87045, proceed according to the following:

1. Mate large connector on end of control cable to receptacle on voice generator.
2. Fasten cable to voice generator by means of plastic cable tie mounted on generator.
3. Insert phone plug of wire and plug assembly, 011-042083, into phone jack on voice generator assembly. Solder free ends of wire to terminal strip assembly as shown in Figure 2-2.
4. Connect 22 ga. black wire 254-000032-07 from terminal strip assembly to any convenient ground lug on organ. See Figure 2-2.
5. Remove all connectors mated to organ's percussion amplifier.
6. Remove four slotted screws which attach amplifier to manual chassis and lift amplifier from organ.
7. Remove seven slotted screws from preamplifier chassis and slip off preamplifier cover.
8. Solder bare end of 4" length of blue wire, 254-006008-04 to pin 2 of the socket for V1 (12AX7). Attach connector pin, 007-023410 to other end of wire and insert pin into position on the six-pin connector inside the amplifier chassis. Correct position is the vacant one between the gray and violet wires.
9. Reassemble cover to preamplifier; reattach amplifier to organ; reattach external connectors to amplifier from which removed.
10. Assemble connector pin 007-023410, to one end of shielded lead, 200-010318, as shown in Figure 2-2. Solder other end of shielded lead to terminal strip as shown in Figure 2-2. Connect pin into the six-pin plug located toward the right (rear view) of the organ preamplifier chassis. Correct position is the vacant one between gray and green wires.
11. Mate plug at end of red and black pair from voice generator to receptacle on Rhythm II power supply, 127-000028 (-30).
12. Pull apart bared ends of power supply line cord about two to three inches. From underneath, insert each of the bare ends through one of the grommets on the AC post. Solder one end to terminal marked "GY", the other end to terminal marked "YEL".
13. Tie all newly installed cabling neatly to existing cabling using cable ties, 013-031744.
14. Connect organ to power source and check operation of Rhythm II. If foregoing instructions have been carefully followed, unit should operate properly.
15. Reattach back cover of organ. This completes installation.

NOTE

The pin can be inserted in only one orientation.

C. For L-100-1 organs proceed according to the following:

1. Mate large connector on end of control cable to receptacle on voice generator.
2. Fasten cable to voice generator by means of plastic cable tie mounted on generator.
3. Insert phone plug of wire and plug assembly, 011-042083, into phone jack on voice generator assembly.
4. Route wire to Pedal Control Board mounted on left (rear view) end wall of organ. Connect center conductor to bottom lug on right side of Pedal Control Board. Connect shield to 3-lug terminal strip mounted on end wall next to Pedal Control Board. See Figure 2-3.
5. Mate plug at end of red and black pair from voice generator to receptacle on Rhythm II power supply, 127-000028 (-30).
6. Pull apart bared ends of power supply line cord about two to three inches. From underneath, insert each of the bare ends through one of the grommets on the AC post. Solder one end to terminal marked "GY", the other end to terminal marked "YEL".
7. Tie all newly installed cabling neatly to existing cabling using cable ties, 013-031744.
8. Connect organ to power source and check operation of Rhythm II. If foregoing instructions have been carefully followed, unit should operate properly.

9. Reattach back cover of organ. This completes installation.

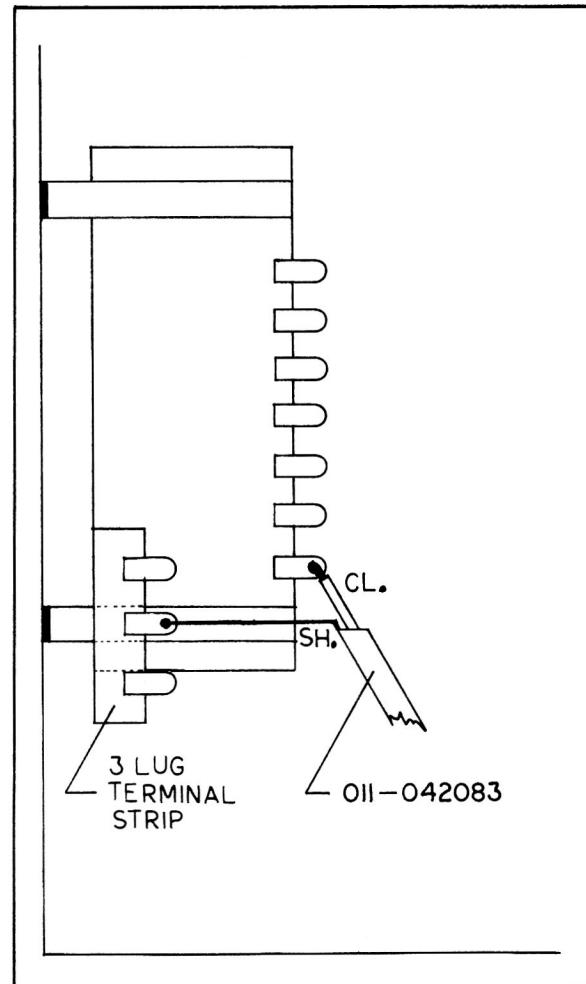


FIGURE 2-3.
CONNECTIONS TO PEDAL CONTROL
BOARD & GROUND

SECTION III INSTALLATION INSTRUCTIONS, M-100 & M-100A

NOTE

Check contents of kit before starting installation. Be sure all required parts are at hand.

3-1. GENERAL. - This section contains instructions for installing the Rhythm II accessory on M-100 and M-100A organs.

3-2. PREPARATION OF ORGAN. - Disconnect organ from power source.

- a. Remove and set aside back cover.
- b. Remove and set aside generator cover.
- c. Remove terminal strip metal cover on amplifier.

NOTE

The following instructions are for right-hand installation of the Rhythm II Control. The control may be mounted at the left of the organ at the owner's option.

3-3. INSTALLATION OF SWITCH ASSEMBLY. - Proceed according to the following:

- a. Remove decorative wood block from underside of front rail at right end. (See Figure 1-1).

NOTE

The block is fastened by means of glue and two nails driven from the underside. Take

care not to mar finish of front rail or console leg. Stain exposed wood as required.

- b. Remove and set aside screw at right end of lower manual cover.
- c. Install mounting rail, 035-042081, open end toward front of organ as shown in Figure 1-1. Before fastening rail, place control unit on floor under rail. Drape control cable from right to left (multi-pin connector toward left) over top of rail, then fasten rail into place with three screws, 884-050933, driven into pilot holes provided. Place adhesive felt 042-035141 over head of right side mounting screw.

NOTE

On older organs not equipped with pilot holes, measure 1-3/8" to left of right leg and 5/8" toward rear from front of rail for location of first hole. Use mounting rail as a template for remaining two screw locations. Pierce pilot holes with an awl or other suitable tool.

Do not tighten mounting screws until instructed in step 3-3. f, below.

- d. Reinsert screw removed in step b. above, through slotted hole at rear of rail, placing a washer, 999-000065, between lip of rail and terminal strip cover.

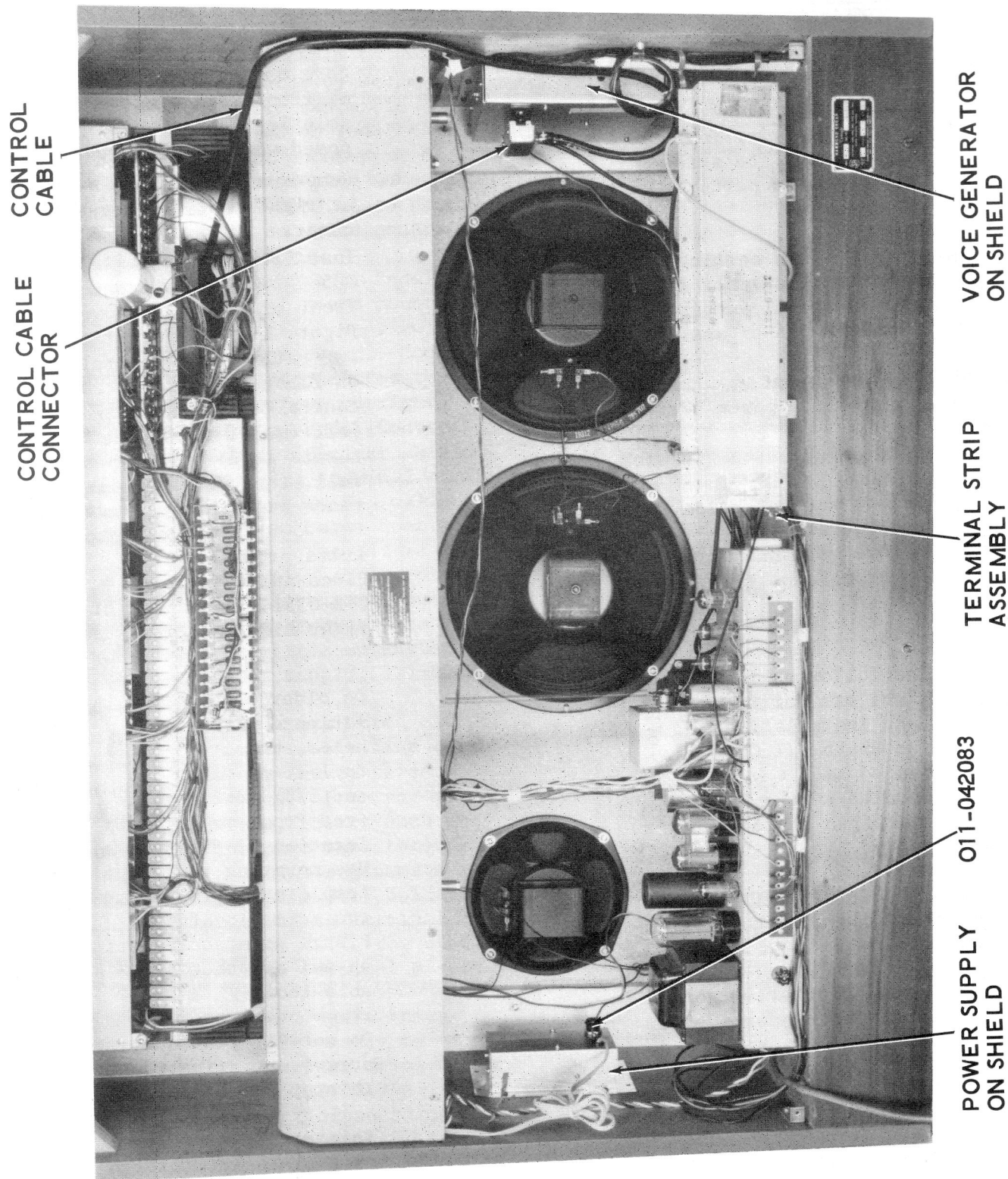


FIGURE 3-1.
POWER SUPPLY VOICE GENERATOR & TERMINAL STRIP INSTALLATION ON M-100

- e. Back out the two small screws at either end of the mounting rail far enough to permit insertion of switch assembly, 125-000045 into rails. Slide switch assembly into rails and retighten screws.
- f. Pull control cable to left to take up slack, then tighten the three rail mounting screws.

NOTE

Allow sufficient slack in control cable to allow switch assembly to move freely in and out on its track.

- g. Feed connector end of control cable through opening under left end block (to left of lower manual) to rear of organ.
- h. Install three adhesive-backed clips, 013-042242 at approximate locations shown in Figure 1-1.

To install clips (see Figure 1-2):

1. Remove protective backing to expose adhesive.
2. Install as shown in Figure 1-2.
3. Adhesive backing will anchor clip.
4. Insert cable into clip. Pull clip open sufficiently to clear cable if necessary.
5. Compress clip until locking lip engages.

3-4. INSTALLATION OF POWER SUPPLY. -

The power supply is to be installed in the position indicated in Figure 3-1, on left panel (rear view) of organ.

Proceed according to the following:

- a. Place power supply shield, 010-042054 on panel, and use as a template to pierce 4 pilot holes, if none exist.
- b. Place power supply, 127-000028 (-30) over shield and fasten both to panel with four screws, 884-050734.

3-5. INSTALLATION OF VOICE GENERATOR. -

Observe position of voice generator, 063-042080, as shown in Figure 3-1.

The generator is fastened to the right panel over shield, 010-042082 in a manner similar to that used for installing the power supply (Paragraph 3-4).

3-6. ASSEMBLY OF TERMINAL STRIP. -

Assemble terminal strip as shown in Figure 3-2, using .0033 uf capacitor, 425-010622, 470 pf capacitor, 425-010412, and 1 meg resistor, 600-021211.

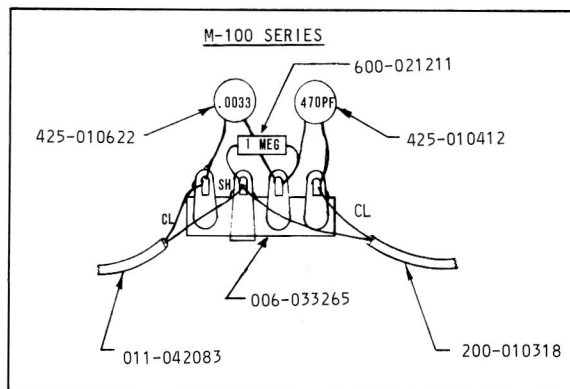


FIGURE 3-2.
TERMINAL STRIP ASSEMBLY FOR
M-100

3-7. INSTALLATION OF TERMINAL STRIP ASSEMBLY. -

Install terminal strip assembly on bottom shelf of organ as shown in Figure 3-1, using the screw which holds the plastic cable clamp located to the right (rear view) of the amplifier chassis.

NOTE

The screw will now hold both the terminal strip and the cable clamp.

3-8. INTERCONNECTIONS.- Proceed according to the following:

- a. Insert phone plug of wire and plug assembly, 011-042083, into phone jack on voice generator assembly.
- e. Route AC power wires from Rhythm II power supply through hole provided in left rear (rear view) of generator shelf, and solder to terminal strip of generator as shown in Figure 3-4.
- f. Route the red and black pair of wires from voice generator along existing cabling on bottom shelf of organ, and insert the plug into its mating jack on the Rhythm II power supply.

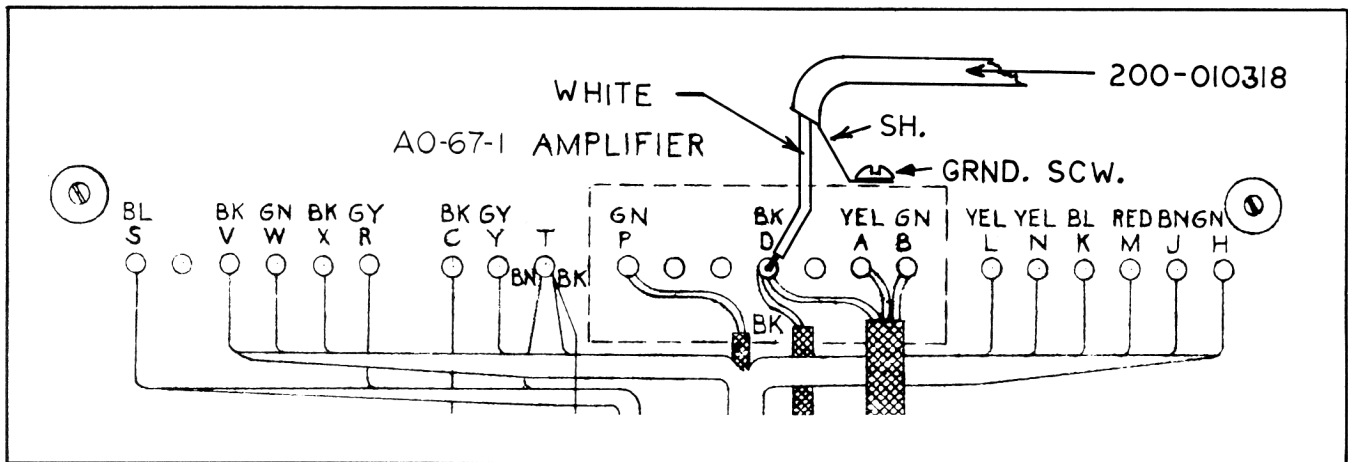


FIGURE 3-3.
COAXIAL CONNECTIONS TO M-100 AMPLIFIER

- b. Solder free ends of wire and plug assembly to terminal strip assembly as shown in Figure 3-2.
- c. Solder shield and conductor of shielded lead, 200-010318 to terminal strip assembly as shown in Figure 3-2.
- d. Solder other ends of 200-010318 to amplifier terminals as shown in Figure 3-3.

NOTE

Route inner conductor through small hole on plate located directly above amplifier terminal strip. Ground shield to screw on plate. Some early models do not have hole. Drill 3/16" hole if necessary.

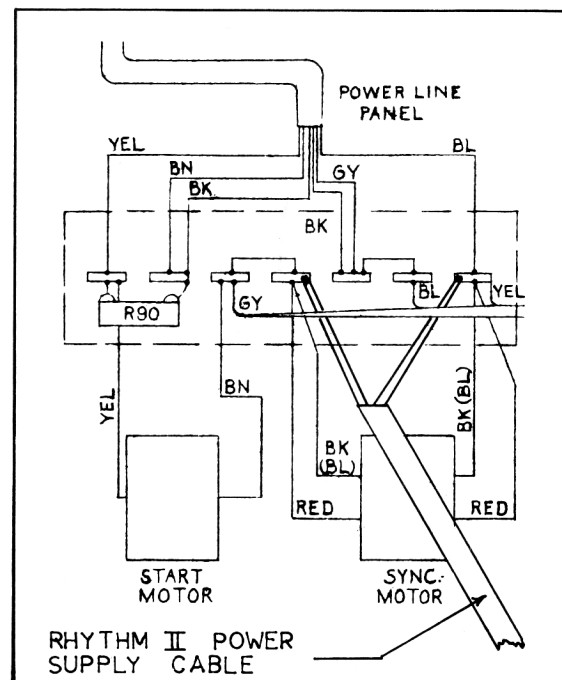


FIGURE 3-4.
POWER CONNECTIONS TO
M-100 GENERATOR

- g. Cut away a section 1/2" x 5" from the lower right side (rear view) of the fibre-board generator cover, as shown in Figure 3-5. Reattach generator cover.

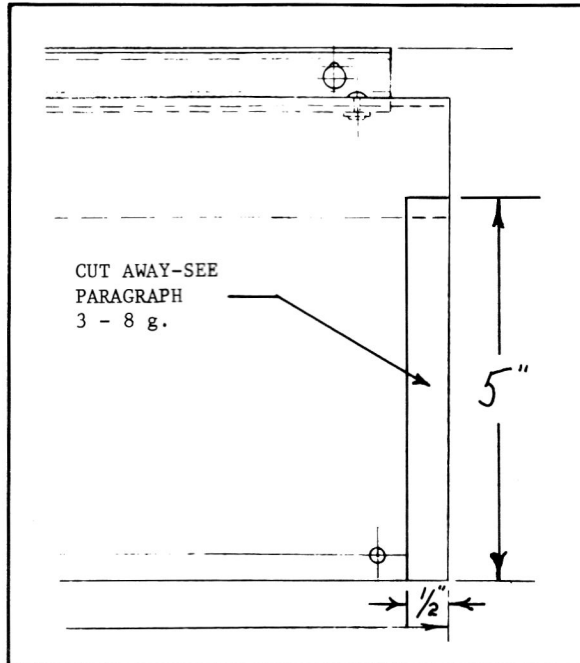


FIGURE 3-5.
CUTAWAY TO ACCOMMODATE CON-
TROL CABLE IN M-100

- b. Reinstall terminal strip cover removed in step 3-2. c.
- c. Connect organ to power source and check operation of Rhythm II. If foregoing instructions have been carefully followed, unit should operate properly.
- d. Reattach back cover of organ, making certain that control cable is in place in cutaway (Paragraph 3-8. g. and h.). The back cover will hold the control cable in place. This completes installation.

- h. Route control cable with 16-pin plug attached, along the right panel (rear view) and down the cutaway made in the preceding step to the voice generator assembly. See Figure 3-1. Mate the 16-pin plug to the socket on the voice generator.
- i. Fasten control cable to voice generator by means of plastic cable tie mounted on generator.

3 - 9. COMPLETION OF INSTALLATION. -

Proceed according to the following:

- a. Dress all leads and tie new cables to existing cables with plastic ties, 013-031744, provided.

