MATE–N–LOK* LGH* 9–Position Receptacle Connector Kit 443160–[ ]

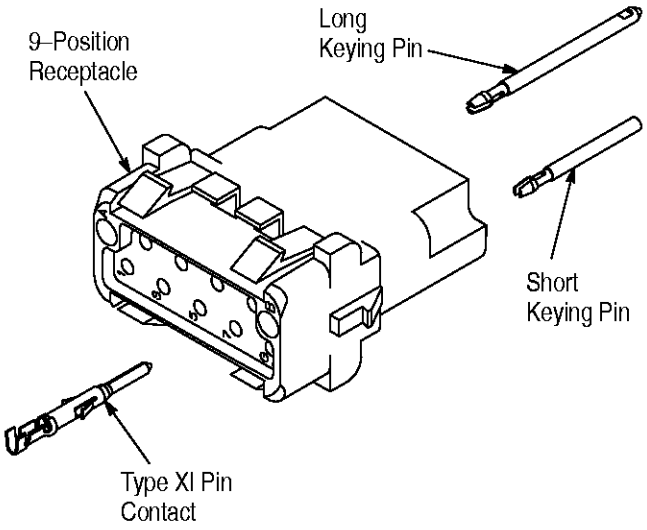


Figure 1

1. INTRODUCTION

AMP* MATE–N–LOK LGH 9–Position Receptacle Connector Kit 443160–[ ] is designed for high voltage wire–to–wire (free–hanging or panel–mounted) applications. The receptacle connector accepts single conductor high voltage wire size 24–20 AWG with a maximum insulation diameter of 2.54 mm [.100 in.].

NOTE *For suitability of other cable sizes and required tooling, contact AMP Product Engineering.*

Read this and all referenced material before assembling the receptacle connector kit.

NOTE *Dimensions on this sheet are in millimeters [followed by inches in brackets]. Figures are not drawn to scale.*

2. DESCRIPTION (Figure 1)

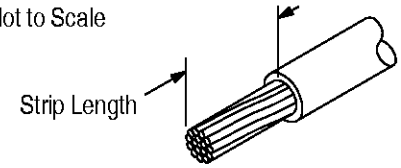
The receptacle connector kit consists of a 9–position receptacle, nine Type XI pin contacts, two short keying pins, and one long keying pin. The receptacle has polarizing contact cavities on the mating face and will accept a plug connector containing socket contacts in identical circuit positions. The keying pins prevent inadvertent mating of similar connectors.

The pin contact is crimped onto the wire using Hand Crimping Tool 90260–1. Detailed instructions on operating the tool are provided in AMP instruction sheet 408–7484.

3. PREPARATION

Determine the number of contact cavities (maximum of eight signal plus the ground) to be loaded in the receptacle. Strip the wire according to the appropriate dimension provided in Figure 2. Be careful not to nick or cut the conductors.

Note: Not to Scale



STRIP LENGTH	
Wire with Insulation Diameter Less Than 1.65 [.065]	Wire with Insulation Diameter Greater Than 1.65 [.065]
4.00±0.38 [.157±.015]	6.70±0.50 [.264±.020]

Figure 2

4. ASSEMBLY

4.1. Crimping the Contact

Obtain appropriate tooling for crimping the contact onto the wire conductor and proceed as follows:

1. Set the tool insulation crimp adjustment lever to the appropriate position according to the instructions packaged with the tool.

NOTE *If crimping wire with an insulation diameter greater than 1.65 [.065], use Position 2.*

2. Place the contact, insulation barrel first, into the front of the appropriate crimping chamber according to the wire size marking on the tool.

3. Align the contact locator slot with the tool locator–insulation stop. When located properly, the contact is recessed from the back of the tool.

4. Holding the contact in position, close the tool handles just enough to hold the contact in place without deforming the wire barrel or insulation barrel.

5. Insert the conductor into the contact wire barrel until the insulation butts against the locator–insulation stop.

NOTE *When crimping wire with an insulation diameter greater than 1.65 [.065], the insulation will butt against the die.*

6. Hold the wire in place and squeeze the tool handles until the ratchet releases.

7. Allow the tool handles to open fully, then remove the crimped contact from the tool.

8. Inspect the crimp—the insulation barrel must be tight enough to hold the insulation firmly without cutting into it. For wire with an insulation diameter greater than 1.65 [.065], make sure that there is a gap of 1.30±0.30 [.051±.012] between the contact insulation barrel and the wire insulation. Refer to Figure 3.

NOTE *See Application Specification 114–10002 for specific inspection requirements for the crimped contacts. For wire with an insulation diameter greater than 1.65 [.065], refer to 114–1110.*

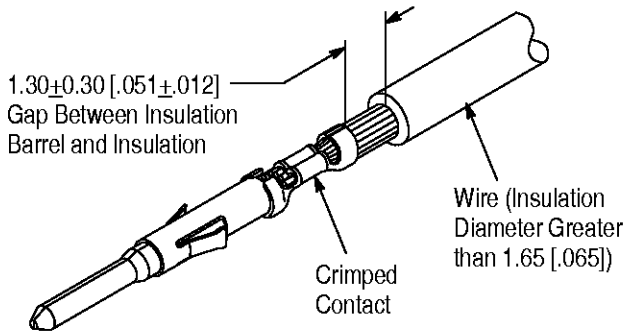


Figure 3

4.2. Potting

The maximum operating voltage that the receptacle can perform can be obtained through potting. If your application does not require increased operating voltage, proceed to Paragraph 4.3.

The potting material must adhere to the wire insulation and to the receptacle housing. We recommend using a silicone rubber compound, such as RTV (room temperature vulcanizing)–511□, or Sylgard 170▩, and silicone or silicone–coated Teflon◇ wire.

NOTE *If recommended materials cannot be used, make sure that the potting material is compatible with the wire insulation.*

CAUTION *Do not use hard potting materials. Hard potting materials prevent contacts from "floating" and cause difficulty when mating the connectors.*

1. Roughen the inner surface of the potting area (at wire end of the receptacle housing) by abrasive blasting. Refer to Figure 4, Detail A. Clean abraded area thoroughly with alcohol, and allow to dry at 66°C [150°F] for 15 minutes.

□ Manufactured by General Electric Company
▩ Manufactured by Dow Corning, Corp.
◇ Trademark of E.I. DuPont de Nemours & Co.

NOTE *If problems arise with properly masking the housing for blasting, contact AMP Product Engineering for assistance.*

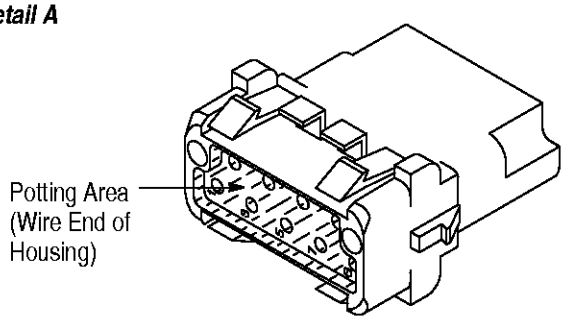
2. Clean the wire insulation (of each crimped contact) thoroughly with alcohol, and allow to dry. See Figure 4, Detail B.

NOTE *If wire other than recommended is used, prepare the insulation according to the recommendations of the manufacturer of the potting material.*

3. Apply an even bead of silicone rubber adhesive, such as RTV–3145▩, around each contact, including the ground contact, just behind the locking lances. Refer to Figure 4, Detail B.

NOTE *If loading less than eight signal contact cavities, prepare a crimped contact (without a wire) with adhesive for each empty signal contact cavity—unused cavities must be sealed.*

Detail A



Detail B

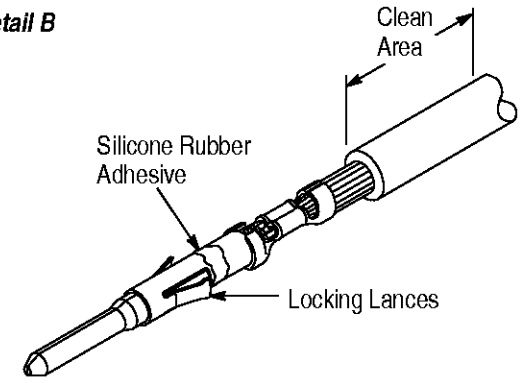


Figure 4

4. Insert prepared contacts into the receptacle according to Paragraph 4.3.

5. Allow adhesive to cure according to the recommendations of the manufacturer.

6. Fill each *individual* contact cavity with appropriate potting compound, taking care to minimize any voids in the compound. Use a vacuum chamber to remove any possible voids,

then fill the remaining potting area with compound until the recessed part of the housing is filled. Avoid producing any visible voids. See Figure 5.

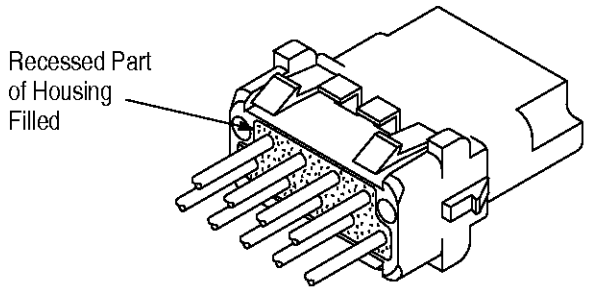


Figure 5

7. Allow the compound to cure according to the recommendations of the manufacturer before applying voltage.

NOTE *Contacts cannot be extracted from the receptacle after potting is applied.*

4.3. Receptacle Connector Loading

NOTE *The receptacle holds a maximum of four contacts in the top row, and four contacts plus the ground contact in the bottom row. If loading less than eight signal contact cavities, refer to Figure 6 for proper loading of the receptacle.*

NUMBER OF CONTACTS	CONTACT CAVITY POSITION	
	BOTTOM ROW	TOP ROW
1	1▪	8▪
2	1	2
3	1, 3	2
4	1, 3	2, 4
5	1, 3, 5	2, 4
6	1, 3, 5	2, 4, 6
7	1, 3, 5, 7	2, 4, 6

▪Load contact cavity Position 1 or Position 8 when using only one contact.

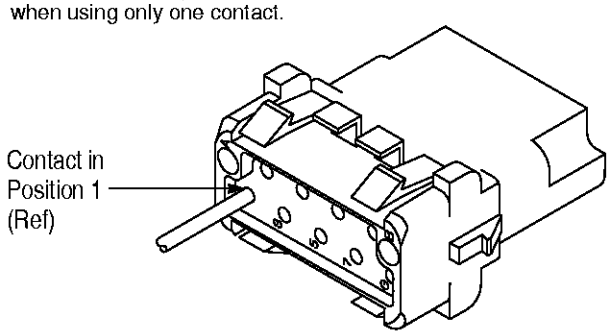


Figure 6

Insert terminated contacts into the appropriate receptacle contact cavities marked "1, 3, 5, 7" (bottom row) and "2, 4, 6, 8" (top row). Insert the ground contact into the contact cavity marked "G." Make sure that the contacts snap into place. Pull back lightly on each contact to make sure that it is seated properly. See Figure 7.

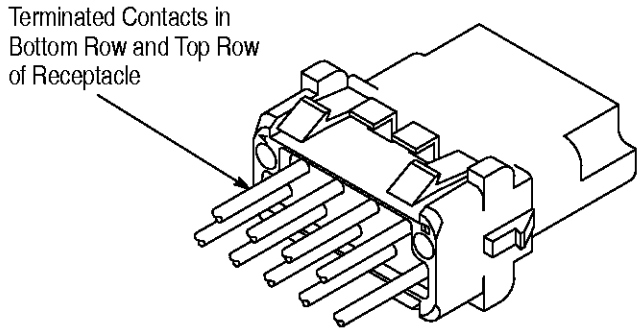


Figure 7

4.4. Keying Pins (Figure 8)

NOTE *Refer to 114–1110 or the customer drawing for the receptacle connector kit for information on recommended keying positions.*

1. Facing the mating end of receptacle, locate the keying cavity (marked "A" or "B") to be keyed.

2. Align split, tapered end of keying pin with keying cavity. Insert pin straight into cavity until it snaps into position.

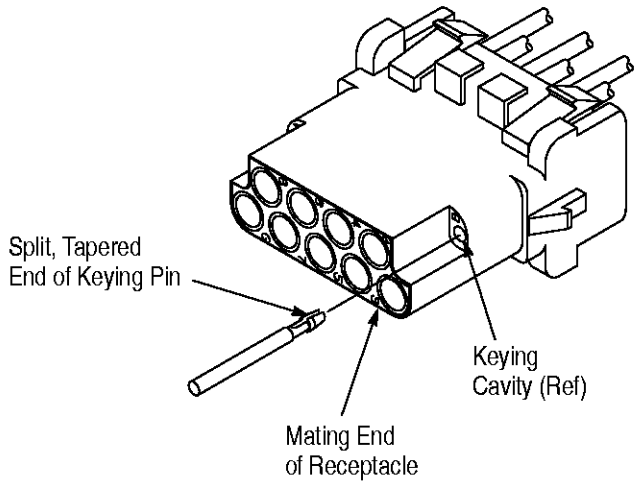


Figure 8

NOTE *If necessary, a drive pin punch (or similar tool) with an end diameter no greater than 1.52 [.060] and a shaft no shorter than 10 [.394] can be used to aid in fully inserting the short keying pins.*

5. PANEL MOUNTING (Figure 9)

1. Make a cutout in the panel using the dimensions provided in Figure 9.

2. Insert the receptacle straight into the cutout until the four panel latches engage. Make sure that the anti–vibration tabs are seated against the surface of the panel (the panel mount tabs will not seated against the panel). When using a panel with maximum thickness, the panel mount tabs will seat (along with the anti–vibration tabs) against the panel.

NOTE *Remove any sharp edges on the side of panel cutout that the connector will be inserted; otherwise, insertion will be difficult.*

3. To remove receptacle from panel, depress the panel latches and push the receptacle through the mating side of the panel.

NOTE *For additional information on panel mounting, refer to 114–1110.*

6. CONTACT AND KEYING PIN EXTRACTION

Contact and keying pins can be removed from the receptacle using Extraction Tool 443352–1. Refer to 408–4368 for specific instructions on using the tool.

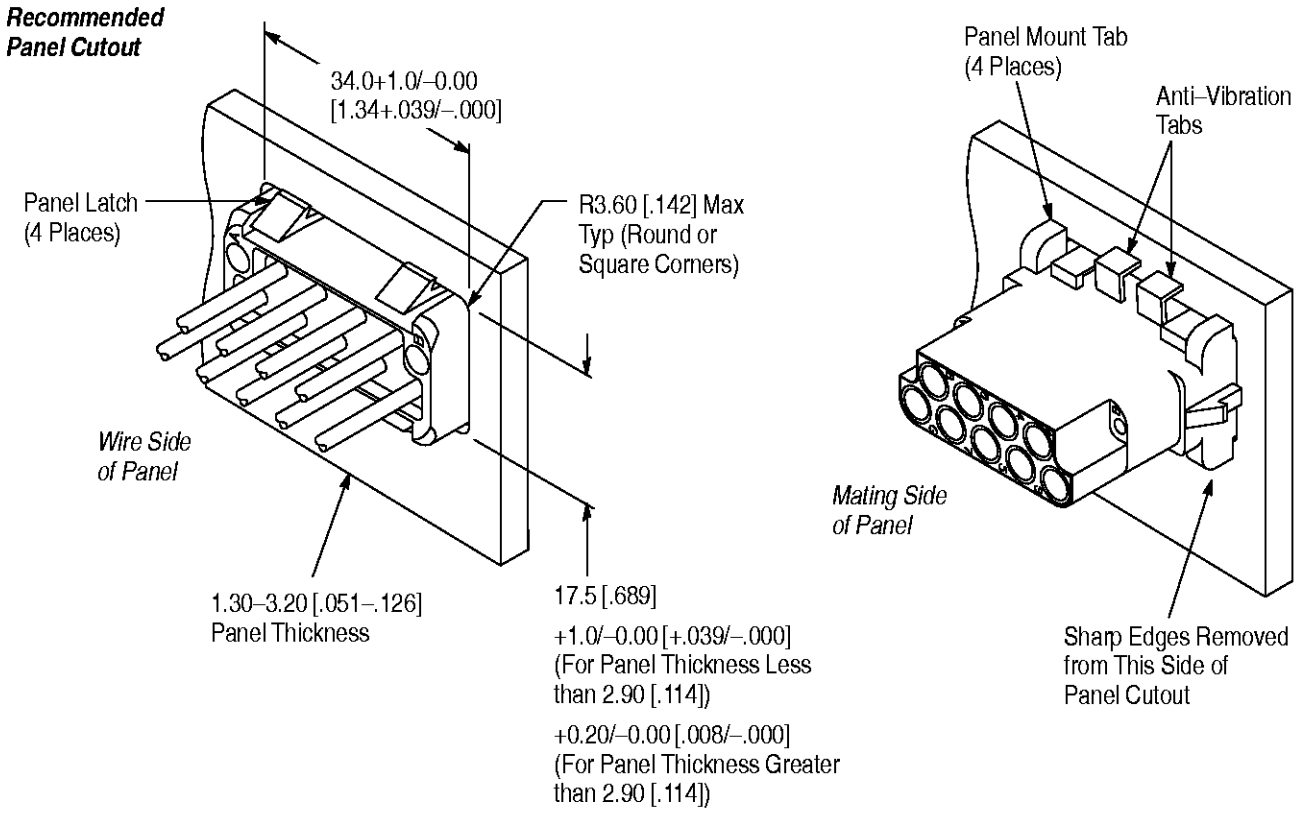


Figure 9