

| WIRE | | | UNIVERSAL MATE-N-LOK CONTACTS | | | | HAND TOOLING (Instruction Sheet) |
|------------|--------------------------|--------------|-------------------------------|------------|------------|-------------------------------------|----------------------------------|
| SIZE (AWG) | INSULATION DIAMETER | STRIP LENGTH | LOOSE PIECE | | STRIP | | |
| | | | PIN | SOCKET | PIN | SOCKET | |
| 30 to 26 | 0.81-1.45 [.032-.057] | 4.75 [.187] | 770672-[] | 770673-[] | 350924-[] | 350925-[] | 58439-[] (408-9591) |
| 24 to 18 | 1.02-2.54 [.040-.100] | | 350690-[] | 350689-[]● | 350561-[] | 350570-[]● | 90300-2 (408-9479) |
| | | | 350690-[] | 640347-[] | 350561-[] | 350851-[] | |
| | | | 350706-[]■ | — | 350699-[]■ | — | |
| 20 to 14 | 1.52-3.30 [.060-.130] | | 350547-[] | 350550-[] | 350218-[] | 350536-[] | 90296-2 (408-9476) |
| | | | 350705-[]■ | — | 350687-[]■ | — | |
| | 3.30-5.08 [.130 to .200] | | 350669-[]† | — | 350654-[]† | — | 90298-2■ (408-9477) |
| | | | 350552-[] | 350551-[] | 350538-[] | 350537-[] | 90299-2■ (408-9478) |
| 18 to 14 | 3.30-5.08 [.130 to .200] | | 350707-[]■ | — | 350700-[]■ | — | 90299-2■ (408-9478) |
| 12 to 10 | 5.08 [.200] Max. | | 350918-[] | 350919-[] | 350873-[] | 350874-[] | 90299-2■ (408-9478) |
| | | 640309-[] | 640310-[] | 350922-[] | 350923-[] | 69710-1■ (408-2095) w/ Die 58380-[] | |

- Stock thickness 0.25 [.010]; all others 0.30 [.012].
- Split pin contact.
- Hand Tool 90298-2 for wire size 20-18 AWG. Hand Tool 90299-2 for wire size 16-14. Hand Tool 69710-1 uses Die Set 58380-1 for 12 AWG and 58380-2 for 10 AWG.
- † Grounding pin.

Figure 1

1. INTRODUCTION

This instruction sheet covers the use of the AMP* MATE-N-LOK contact and housing selection charts.

Read these instructions thoroughly to be sure the selected contacts are compatible with the specified housings, and the selected wire and application tooling are compatible with the contacts.

The MATE-N-LOK contacts and housings are divided into four categories: Universal, Commercial,

Automotive, and .140. The contacts must be installed into their appropriate housings and not switched between various categories.

NOTE

All dimensions in this document are in millimeters [with inches in brackets]. Illustrations are not drawn to scale.

Reasons for reissue of this document are provided in Section 7, REVISION SUMMARY.

2. CONTACT DESCRIPTION

2.1. Universal Contacts (Figure 1)

Pin and socket contacts are available in five different wire ranges, covering wire sizes from 30 to 10 AWG, with an insulation diameter range of 0.81 – 5.08 [.032 – .200].

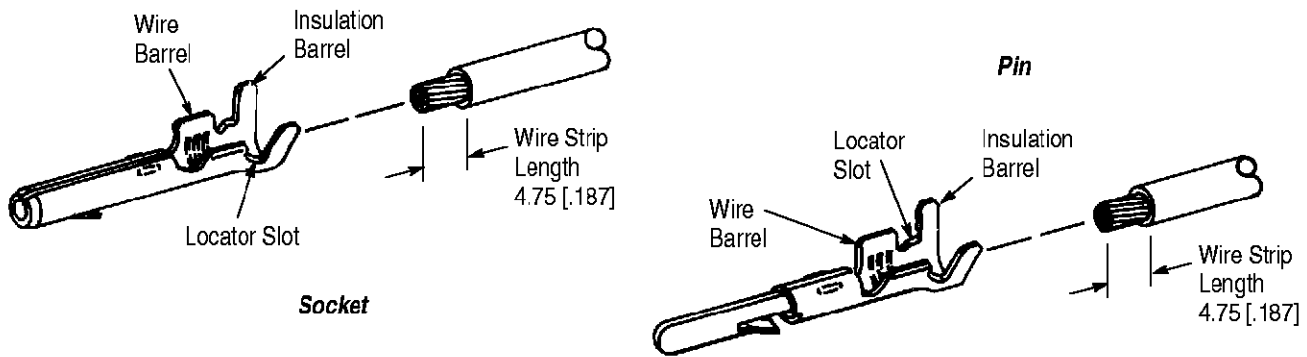
Loose-piece contacts are designed for hand tool or pneumatic tool applications. Strip contacts are terminated using miniature quick-change applicators in the AMP-O-ELECTRIC* Machine, AMPOMATOR* Automatic Lead-Making Machine, and the Standard and Mini-Single End Lead Machine (SELM and Mini-SELM). Consult your local Tyco representative

for assistance in selecting the machine and applicator that will best suit your needs.

2.2. Commercial Contacts (Figure 2)

Pin and socket commercial contacts are available in loose-piece or strip form. Loose-piece contacts are designed for hand tool or pneumatic tool applications.

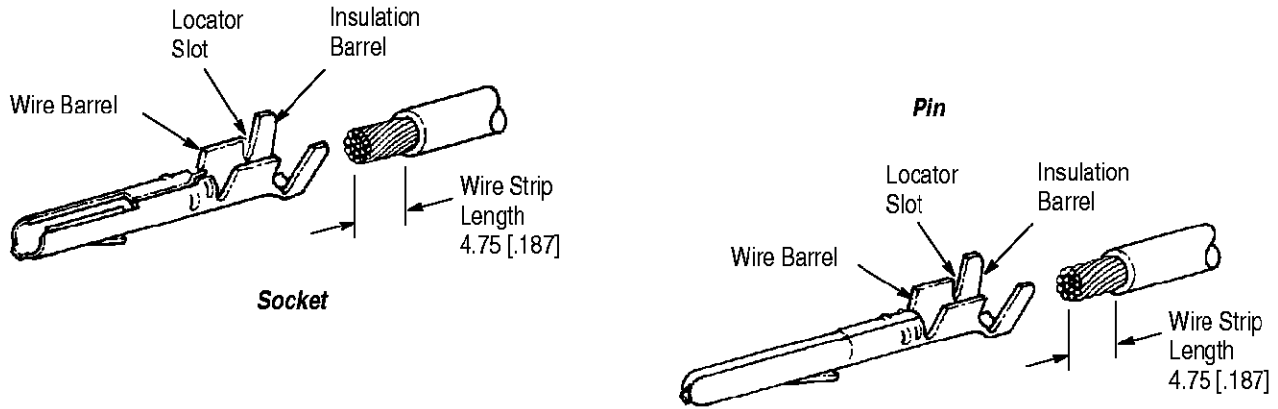
Strip contacts are terminated using miniature quick-change applicators in the AMP-O-ELECTRIC Machine, AMPOMATOR Automatic Lead-Making Machine, and the Standard and Mini-Single End Lead Machine (SELM and Mini-SELM). Commercial contacts are available for terminating wire from 30 to 14 AWG.



| WIRE | | COMMERCIAL MATE-N-LOK CONTACTS | | | | HAND TOOLING (Instruction Sheet) |
|------------------------------|--|--------------------------------|------------|------------|------------|----------------------------------|
| SIZE (AWG) | INSULATION DIAMETER | LOOSE PIECE | | STRIP | | |
| | | PIN | SOCKET | PIN | SOCKET | |
| 30 to 22 | 1.91 [.075] (Max.) | 61174-[-] | 61173-[-] | — | — | — |
| 30 to 22 | 1.91 [.075] (Max.) | 61174-[-] | 61173-[-] | 350079-[-] | 350078-[-] | 90066-7 (408-6610) |
| 24 to 20 | 1.09-1.91 [.043-.075] | 60618-[-] | 60617-[-] | — | — | 90123-5 (408-7332) |
| | 1.09-1.91 [.043-.075] | 60618-[-] | 60617-[-] | 61116-[-] | 61314-[-] | |
| | 1.52-2.54 [.060-.100] | 60618-[-] | 60617-[-] | — | — | 90123-2 (408-7332) |
| | | — | 61473-[-] | — | 61115-[-] | |
| 20 to 14 | 2.54-3.30 [.100 to .130] | 60620-[-] | 60619-[-] | — | — | 90124-2 (408-7332) |
| | | 60620-[-] | 60619-[-] | 61118-[-] | 61117-[-] | |
| 18 | 1.52-2.54 [.060-.100] | 60618-[-] | 60617-[-] | — | — | 90123-2 (408-7332) |
| | | 60618-[-] | 60617-[-] | 61116-[-] | 61314-[-] | |
| | | — | 61473-[-] | — | 61115-[-] | |
| (1) 18 and (1) 16, or (2) 18 | †2.92 [.115] (Max.) and 3.30 [.130] (Max.) | 350639-[-] | 350638-[-] | 350558-[-] | 350557-[-] | 90124-2 (408-7332) |

- Lanceless contact. Not used in MATE-N-LOK housings.
- End-feed contacts – available only to customers currently having end-feed terminating machines.
- † 2.92 [.115] Max. each for applicator terminations. 3.30 [.130] Max. combined for hand tool terminations.

Figure 2



| WIRE | | AUTOMOTIVE MATE-N-LOK CONTACTS | |
|------------|-----------------------|--------------------------------|--------------|
| SIZE (AWG) | INSULATION DIAMETER | STRIP | |
| | | PIN | SOCKET |
| 22 to 18 | 2.16-2.67 [.085-.105] | — 61296-[] | 60951-1 — |
| 20 to 14 | 3.18 [.125] (Max.) | 61086-[]● | 61085-[]● |
| 16 to 14 | 2.67-3.18 [.105-.125] | — 61270-[] | 60949-1 — |

- Requires mini-appliator for crimping.

Figure 3

2.3. Automotive Contacts (Figure 3)

Automotive MATE-N-LOK contacts are designed for hand tool or pneumatic tool applications. The contacts are available for terminating wire from 22 to 10 AWG.

2.4. .140 MATE-N-LOK Contacts (Figure 4)

Pin and socket .140 contacts feature a stabilizing barrel and are available in loose piece and strip form. The contacts are available for terminating wire from 20 to 10 AWG.

Strip contacts are crimped by miniature quick-change applicators in the AMP-O-LECTRIC Machine, AMPOMATOR Automatic Lead-Making Machine, and the Standard and Mini-Single End Lead Machine (SELM and Mini-SELM). Loose-piece contacts are crimped with AMP hand tools.

3. HOUSINGS (Figures 5, 6, 7, and 8)

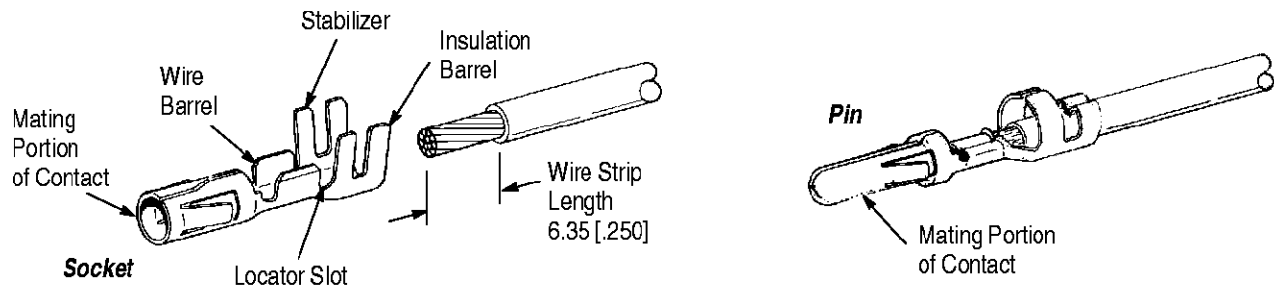
Determine the housing type to be assembled. Refer to the listings of compatible contacts and select the desired contact type and recommended size.

Commercial – Housings have a temperature rating of -55°C to +105°C [-65°F to 221°F] and a maximum voltage/current rating of 250 Vac at 15 amperes per contact.

Universal – Housings have a temperature rating of -55°C to +105°C [-65°F to 221°F] and a maximum voltage/current rating of 600 Vac at 15 amperes per contact. Pin and socket contacts can be used in either plug or cap housings.

Automotive – Housings have a maximum temperature rating of 105°C [221°F] and a maximum current rating of 15 amperes per contact.

.140 – Housings have a temperature rating of -55°C to +105°C [-65°F to 221°F] and a maximum voltage/current rating of 250 Vac at 17 amperes per contact.



| WIRE | | .140 MATE-N-LOK CONTACTS | | | | HAND TOOLING (Instruction Sheet) |
|------------|-----------------------|--------------------------|-----------|-----------|-----------|--|
| SIZE (AWG) | INSULATION DIAMETER | LOOSE PIECE | | STRIP | | |
| | | PIN | SOCKET | PIN | SOCKET | |
| 20 to 14 | 2.54-4.57 [.100-.180] | 350389-[] | 350388-[] | 61627-[] | 61626-[] | 90247-1 (408-7434) |
| 14 to 10 | | 350391-[] | 350390-[] | 350201-[] | 350200-[] | 69710-1 (408-2095) w/ Die 58373-[] or 58374-[] |

Figure 4

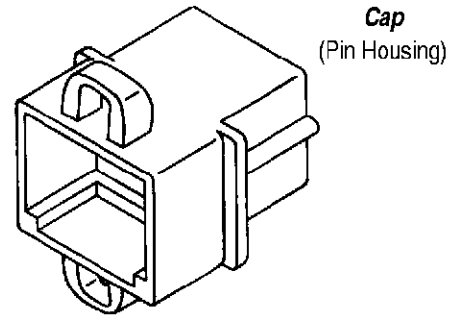
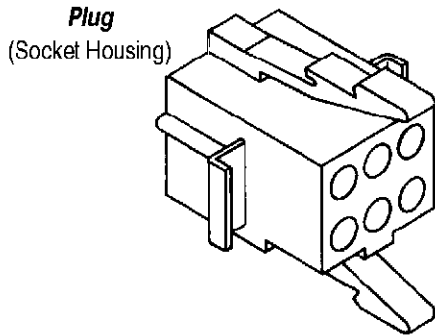


UNIVERSAL MATE-N-LOK HOUSINGS

| NUMBER OF CIRCUITS | CAP | PLUG | HOUSING COLOR● | NUMBER OF CIRCUITS | CAP | PLUG | HOUSING COLOR● |
|--------------------|-----------|-----------|----------------|--------------------|-----------|-----------|----------------|
| 1 | 770421-1 | 350867-[] | NAT | 8 | — | 640586-[] | NAT |
| | 350866-[] | 350865-[] | WHT | | — | 640582-[] | WHT |
| 2 | 480699-[] | 480698-[] | NAT | 9 | 480707-[] | 480706-[] | NAT |
| | 350778-[] | 350777-[] | WHT | | 350782-[] | 350720-[] | WHT |
| 3 | 480701-[] | 480700-[] | NAT | 12 | 480709-[] | 480708-[] | NAT |
| | 350767-[] | 350766-[] | WHT | | 350783-[] | 350735-[] | WHT |
| 4 | 480703-[] | 480702-[] | NAT | 15 | 480711-[] | 480710-[] | NAT |
| | 350780-[] | 350779-[] | WHT | | 350784-[] | 350736-[] | WHT |
| 5 | 480764-[] | 480763-[] | NAT | | | | |
| | 350810-[] | 350809-[] | WHT | | | | |
| 6 | 480705-[] | 480704-[] | NAT | | | | |
| | 350781-[] | 350715-[] | WHT | | | | |
| | — | 640585-[] | NAT | | | | |
| | — | 640581-[] | WHT | | | | |

- Natural colored housings (indicated as NAT on this sheet) are 94V-2 nylon material. White colored housings (indicated as WHT on this sheet) are flame-retardant 94V-0 nylon material.

Figure 5

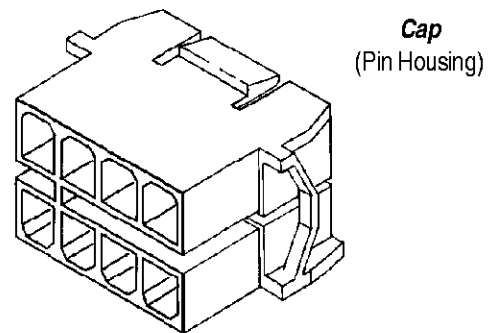
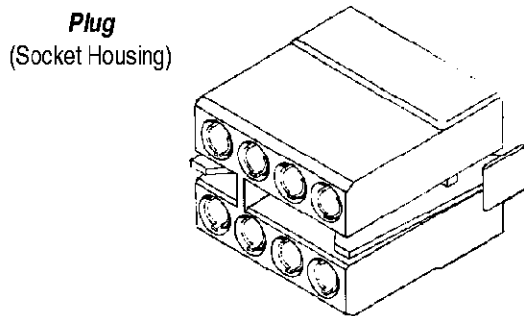


COMMERCIAL MATE-N-LOK HOUSINGS

| NUMBER OF CIRCUITS | CAP | PLUG | NUMBER OF CIRCUITS | CAP | PLUG |
|--------------------|-------------|-------------|--------------------|-------------|-------------|
| 1 | 480350-[] | 480349-[] | 8 | 480284-[] | 480283-[]† |
| 1 | 480351-[] | 480349-[] | 8 | 480345-[] | 480283-[]† |
| 2 | 480319-[]† | 480318-[]† | 9 | 480277-[]† | 480274-[]† |
| 3 | 480305-[]† | 480303-[]† | 10 | 480286-[] | 480285-[]† |
| 3 | 480305-[]† | 480304-[]† | 10 | 480339-[] | 480285-[]† |
| 4 | 480426-[]† | 480424-[]† | 12 | 480278-[]† | 480275-[]† |
| 4 | 480426-[]† | 480425-[]† | 12 | 480288-[] | 480287-[]† |
| 6 | 480271-[] | 480270-[]† | 15 | 480324-[]† | 480323-[]† |
| 6 | 480276-[]† | 480273-[]† | 16 | 480439-[] | 480438-[]† |
| 6 | 480340-[] | 480270-[]† | | | |
| 6 | — | 480270-[]† | | | |

† Housing accepts double wire applications where individual insulation diameters do not exceed 2.92 [.115].

Figure 6

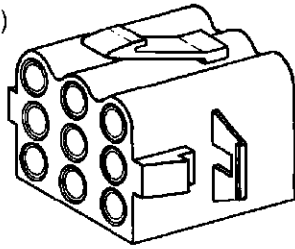


AUTOMOTIVE MATE-N-LOK HOUSINGS

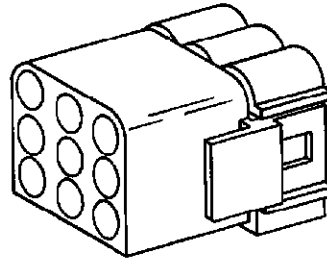
| NUMBER OF CIRCUITS | CAP | PLUG | NUMBER OF CIRCUITS | CAP | PLUG |
|--------------------|------------|------------|--------------------|------------|------------|
| 1 | 480357-[] | 480361-[] | 8 | 480373-[] | 480374-[] |
| 2 | 480359-[] | 480360-[] | 10 | 480450-[] | 480516-[] |
| 3 | 480361-[] | 480362-[] | | | |

Figure 7

Plug
(Socket Housing)



Cap
(Pin Housing)



.140 MATE-N-LOK HOUSINGS

| NUMBER OF CIRCUITS | CAP | PLUG | NUMBER OF CIRCUITS | CAP | PLUG |
|--------------------|-------------|------------|--------------------|------------|------------|
| 2 | 350345-[] | 350344-[] | 9 | 480586-[] | 480585-[] |
| 3 | 350347-[] | 350346-[] | 9 | 480673-[] | 480672-[] |
| 4 | 480512-[]● | 480510-[] | | | |

- Cap 480512-[] mates with 8-circuit Plug 480511.

Figure 8

4. CONTACT SELECTIONS

Contact selections are made from the tables in Figures 1 through 4:

- Universal Contacts – Figure 1
- Commercial Contacts – Figure 2
- Automotive Contacts – Figure 3
- .140 Contacts – Figure 4

Select the contacts as follows:

1. Determine the appropriate wire size to be used with the contact according to column 1. Make certain the wire insulation diameter is within the range specified in column 2.
2. Columns 3, 4, 5, and 6 indicate appropriate loose-piece and strip form pin and socket contacts for the selected wire size. Check that these base part numbers correspond with those on package or reel.
3. Column 7 indicates the appropriate hand tooling to be used to crimp the loose-piece contacts.

5. CONTACT INSERTION

AMP Insertion Tool 91002 is recommended for inserting Commercial and Automotive MATE-N-LOK contacts, and AMP Insertion Tool 455830-1 is recommended for inserting Universal MATE-N-LOK contacts. No insertion tool is recommended for the AMP .140 MATE-N-LOK contacts because the contacts handle larger wire sizes.

To insert a contact, place the tweezer-shaped tool over the wire, with the tool insertion tips behind the

contact insulation barrel. Insert the contact into the housing cavity until the contact locking lance is fully seated.

6. CONTACT EXTRACTION

AMP Extraction Tool 305183 and 465644 are designed for extracting commercial MATE-N-LOK contacts from their housings.

AMP Extraction Tool 453300 is recommended for extracting contacts from .140 housings while AMP Extraction Tool 305183 is designed to remove contacts from Automotive MATE-N-LOK housings. In Universal MATE-N-LOK housings, use AMP Extraction Tool 458994 for removing contacts.

7. REVISION SUMMARY

Since the previous release of this sheet, the following changes were made:

Per EC 0990-0982-00

- Updated part numbers in Figures 1, 2, and 5
- Changed housing color from red to white
- Updated Section 5, removing reference to Insertion Tool 455830-1
- Changed Section 6, Extraction Tool from 458994 to 318851
- Updated document to corporate requirements
- Added metric dimensioning
- Removed obsolete part numbers and replaced with active part numbers if applicable