

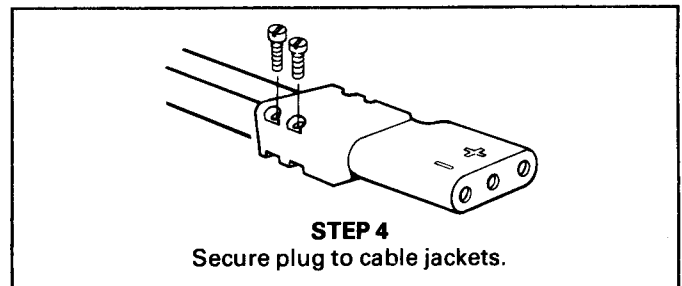
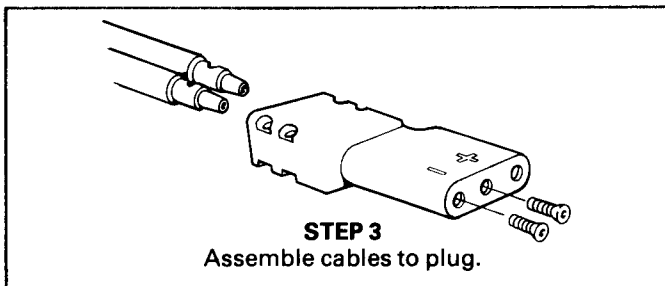
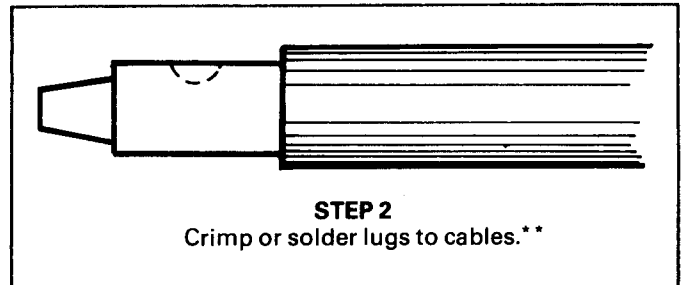
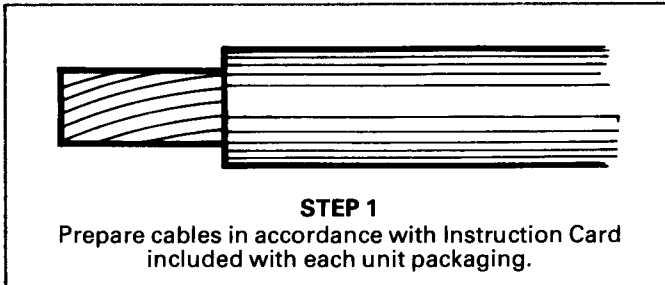
**R67 PORTABLE PLUG**

## Repair Ground Power Cable Assemblies... Or Make New Ones.

A full line of ATTACHABLE™ Plugs, Receptacles and accessories now available from ANDERSON makes it possible for you to have an adequate supply of cable assemblies on hand at all times.

- Reduces inventory cost and space problems.
- Keeps all ground power units operational without prolonged tie-ups waiting for new cable assemblies.
- More positive, longer lasting connections.
- No messy rubber molding or vulcanizing.
- Qualified and approved for use under all appropriate military specifications for both replacement plug and new cable assemblies.

## Assembly Procedure



## Guide to Military Standards for Attachable Cable Assemblies

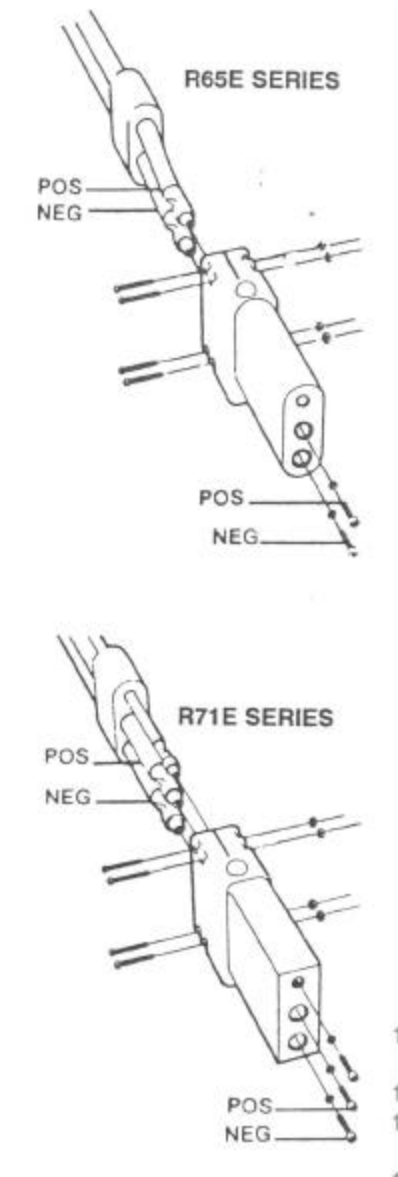
ANDERSON CATALOG NUMBER	MS NUMBER ATTACHABLE PLUG	FOR CABLE ASSEMBLY MS NUMBER	FORMER CABLE ASSEMBLY NUMBER
R65G1B, E	MS25488-25	MS90347-7, -8, -9, -10, -11, -12	MS25488-6, -7, -8, -9, -10, -11
R65G2B, E	MS25488-26	MS90347-13, -14, -15, -16, -17, -18	MS25488-12, -13, -14, -15, -16, -17
R65G3B, E	MS25488-27	MS90347-19, -20, -21, -22, -23, -24	MS25488-18, -19, -20, -21, -22, -23
*R65G7B, E	—	MS24121-1	MS24121-1
R67G4B, E	MS25486-16	MS90328-13, -14, -15, -16, -17, -18	MS25486-4, -5, -6, -7, -8, -9
R67G5B, E	MS25486-30	MS90328-25, -26, -27, -28, -29, -30	MS25486-18, -19, -20, -21, -22, -23
*R67G12B, E	—	MS24208-1	MS24208-1
R67G21B, E	MS25486-17	MS90328-19, -20, -21, -22, -23, -24	MS25486-10, -11, -12, -13, -14, -15
R67G36B, E	MS25486-31	MS90328-31, -32, -33, -34, -35, -36	MS25486-24, -25, -26, -27, -28, -29
R68	—	(Mating Unit for CAT. R65)	(Mating Unit for CAT. R65)
R71G6B, E	MS25487-10	MS25019-20, -30, -40, -60, -80, -100	MS25487-3, -4, -5, -6, -7, -8
R112	—	(Mating Unit for CAT. R67)	(Mating Unit for CAT. R67)

\*2 Heads Required for Cable Assembly.

\*\*Recommended crimp tool is the Anderson Electric VC-7 crimp tool. Consult factory for further information.

# ASSEMBLY INSTRUCTIONS FOR ATTACHABLE CONNECTORS

## SERIES R65 PLUGS (MS25488), AND R71 PLUGS (MS25487)



1. Identify conductor size being used and match with the proper assembly kit. Each kit includes crimp-type barrels for specific conductor size.
2. Strip outer jackets of power conductors 1 3/4" and inner jackets 1 1/4" (Strip off 1 1/4" from 1-piece jackets). Crimp barrels on the wire using an MS25441 hydraulic tool and appropriate MS90485 die. (Anderson Electric Corp. VC7 is an acceptable substitute, make two crimps approximately 1/2" apart and 1/4" from the end of the barrel.)
3. Where a control conductor is used, strip outer jacket of cable 1 3/4" and inner jackets 1/2". Crimp to smaller barrel using an MIL-C-22520/24 hand-crimping tool for 10 AWG or 12AWG cable or an MS25441 hydraulic tool and appropriate MS90495 Die.
4. Cover crimp joints and exposed conductors with heat shrink tubing or glass cloth electrical tape (3M #27 or equivalent)
5. Mount plug in vise just behind the contact area.

**NOTE:** For the following steps we recommend the use of Assembly Tool Kit 111239G2D. The kit contains three threaded pull-rods and a 3/8" drive socket fitted to a 5/32" hex rod permitting the use of a torque wrench (Snap-On Tool #FA-5L).

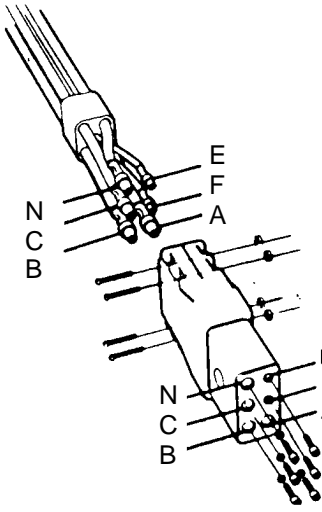
6. Where a control conductor is used, insert threaded pull-rod through the control contact in front of the plug and screw it into the proper barrel. Pull up the barrel until it is seated in socket at rear of the contact. Remove pull-rod, insert a socket head screw without lockwasher, and hand-tighten with the hex-rod.
7. Insert a pull-rod through a power contact in front of the plug and screw it into the barrel of the corresponding conductor. Pull up the barrel until it is seated in socket at rear of the contact. Remove the pull-rod, insert a socket head screw with lockwasher, and hand-tighten with the hex rod.
8. Repeat Step 7 for the remaining power conductors.
9. Using a torque wrench fitted to the 3/8" drive socket/hex rod, insert the hex rod and tighten the screw to 45 inch-pounds. Repeat this operation for the other power contacts. Tighten the control contact screws to 45 inch-pounds using the torque wrench/hex rod.
10. Check proper seating of barrels by striking the plug on the floor several times. Retighten as required. (Follow Step 9).
11. Using water only as a lubricant, press cable through the slits of the rubber cable packing observing placement with respect to the contact location. Force the cable packing into the rear of the plug. If necessary, use a steel bar across the cable packing to seat it into its proper place.
12. Secure the cable packing at rear of the plug with screws and nuts provided; tighten until 5/16" of thread projects beyond each nut.
13. Rubber cement the red catalog-number button into a recess in the plug body.
14. Check all connections for continuity. Make sure that all cables are correctly wired to their respective contacts.
15. Band cables 12" from rear of the plug and every 24" thereafter.

### MAINTENANCE INSTRUCTIONS

Periodically, check the torque on contact screws and clean contacts using a 38-caliber brass wire bore brush and a small amount of neat's foot oil or petroleum jelly, and wipe clean.

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## ASSEMBLY INSTRUCTIONS FOR ATTACHABLE® CONNECTORS SERIES R67 PLUGS (M525486)



1. Identify conductor size being used and match the proper R67 assembly kit. Each kit includes crimp-type barrels for specific conductor sizes.
2. Strip outer jackets of power conductors 1 3/4" and inner jackets 1 1/4" (Strip off 1 1/4" from 1-piece jackets). Crimp barrels on the wire using an MS25441 hydraulic tool and appropriate M590485 die. (Anderson Electric Corp. VC7 is acceptable substitute, make two crimps approx. 1/2" apart and 1/4" from the end of the barrel.)
3. For control conductors, strip outer jackets of two-conductor 12AWG cable 1 3/4" and inner jackets 1/2". Crimp to smaller barrels using an MIL-C-22520/24 handcrimping tool. If control conductors are not used, strip ends of the 12 AWG Jumper (supplied with each plug) 1/2" and crimp barrels as described.
4. For the *Power Conductors* cover crimp joints, exposed conductors, and jackets with *heat-shrink tubing* supplied. Use glass cloth electrical tape 3M #27 or equivalent to cover the crimp joint, exposed conductors and jackets of the control wires (#12AWG).
5. Mount plug in vise just behind the contact area.

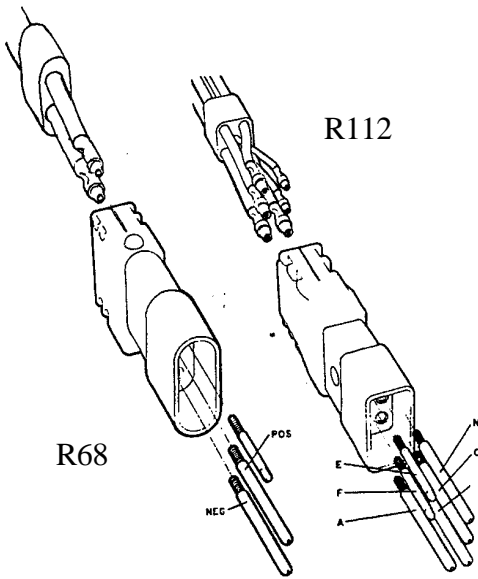
*NOTE: For the following steps we recommend the use of Assembly Tool Kit 111239G2D. The kit contains threaded pull-rods, and a 3/8" drive socket fitted to a 5/32" hex rod permitting the use of a torque wrench. (Snap-On Tool #FA-5L)*

6. Insert threaded pull-rods through the E and F control contacts in front of the plug and screw them into appropriate barrels. Pull up barrels until they are seated in their sockets at rear of contacts. Where no control conductors are used proceed as above using the jumper prepared in Step 3 to jumper the E and F contacts.
7. Remove the pull-rods, insert socket head screws *without lockwashers* (E and F only) and hand tighten.
8. Insert a pull-rod through the A power contact in the front of the plug and screw it into the barrel of the A conductor. Pull up the barrel until it is seated in the socket at rear of the contact. Remove the pull-rod, insert a socket head screw *with lockwasher*, and hand tighten.
9. Repeat Step 8 for the B, C, and N power conductors.
10. Using a torque wrench fitted to the 3/8" drive socket/hex rod, and tighten the screw to 45 inch-pounds. Repeat this operation for the B, C, and N contacts tightening each to *45 inch-pounds*. Tighten the screws for the E and F contacts tightening each to *45 inch-pounds*, using the torque wrench/hex rod.
11. Check the proper seating of the barrels by striking the plug on the floor several times. Retighten as required. (Follow Step 10).
12. Press cables through the slits of the rubber cable packing.
13. Using water only as a lubricant, force the cable packing into the rear of the plug, past the lip. If necessary, use a steel bar across the cable packing to seat it into its proper place.
14. Secure the cable packing at rear of the plug with screws and nuts provided; tighten until cable packing holds cable securely.
15. Rubber cement the red catalog-number button into a recess in the plug body.
16. Check all connections for continuity. Make sure that all cables are correctly wired to their respective contacts.
17. Band cables 12" from rear of the plug and every 24" thereafter.

### MAINTENANCE INSTRUCTIONS

Periodically, check the torque on contact screws and clean contacts using a 38-caliber brass wire bore brush and a small amount of neat's foot oil or petroleum jelly, and wipe clean.

## ASSEMBLY INSTRUCTIONS FOR ATTACHABLE® CONNECTORS SERIES R112 AND R68 PLUGS (MS25486); (M525488)



1. Identify conductor size being used and match the proper R112 and R68 assembly kit. Each kit includes crimp-type barrels for specific conductor sizes.
2. Strip outer jackets of power conductors 1 3/4" and inner jackets 1 1/4" (Strip off 1 1/4" from 1-piece jackets). Crimp barrels on the wire using an MS25441 hydraulic tool and appropriate MS90485 die. (Anderson Electric Corp. VC7 is an acceptable substitute, make two crimps approx. 1/2" apart and 1/4" from the end of the barrel.)
3. For control conductors, strip outer jackets of two-conductor 12AWG cable 1 3/4" and inner jackets 1/2". Crimp to smaller barrels using an MIL-C-22520/24 handcrimping tool. If control conductors are not used, strip ends of the 12 AWG Jumper (supplied with each plug) 1/2" and crimp barrels as described.
4. For the *Power Conductors* cover crimp joints, exposed conductors, and jackets with *heat-shrink tubing* supplied. Use glass cloth electrical tape 3M #27 or equivalent to cover the crimp joint, exposed conductors and jackets of the control wires (#12 AWG).

5. Mount plug in vise just behind the contact area.

NOTE: For the following steps we recommend the use of Assembly Tool Kit 111239G2D. The kit contains threaded pull-rods, and a 3/8" drive socket fitted to a 5/32" hex rod permitting the use of a torque wrench. (Snap-On Tool #FA-5L)

6. Insert threaded pull-rods through the E and F control contacts in front of the plug and screw them into appropriate barrels. Pull up barrels until they are seated in their sockets at rear of contacts. Where no control conductors are used proceed as above using the jumper prepared in Step 3 to jumper the E and F contacts.
7. Remove the pull-rods, insert male control contacts (R68 insert one male contact) and hand tighten.
8. Insert a pull-rod through the A power contact in the front of the plug and screw it into the barrel of the A conductor. Pull up the barrel until it is seated in the socket at rear of the contact. Remove the pull-rod, insert male power contact and hand tighten.
9. Repeat Step 8 for the B, C, and N power conductors.
10. Using a torque wrench fitted to the 3/8" drive socket/hex rod, and tighten all male contacts to 45 inch-pounds. Tighten the aux contacts for the E and F contacts tightening each to 45 *inch-pounds*, using the torque wrench/hex rod.
11. Check the proper seating of the barrels by striking the plug on the floor several times. Retighten as required. (Follow Step 10).
12. Press cables through the slits of the rubber cable packing.
13. Using water only as a lubricant, force the cable packing into the rear of the plug, past the lip. If necessary, use a steel bar across the cable packing to seat it into its proper place.
14. Secure the cable packing at rear of the plug with screws and nuts provided; tighten until cable packing holds cable securely.
15. Rubber cement the red catalog-number button into a recess in the plug body.
16. Check all connections for continuity. Make sure that all cables are correctly wired to their respective contacts.
17. Band cables 12" from rear of the plug and every 24" thereafter.

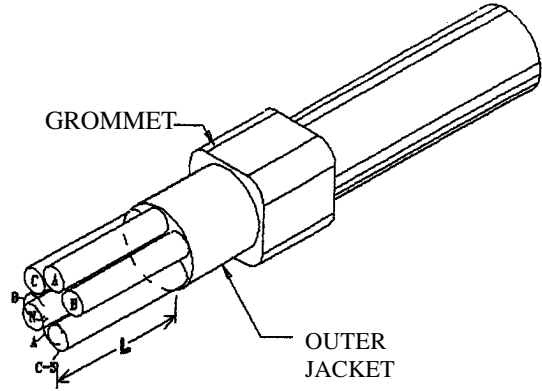
### MAINTENANCE INSTRUCTIONS

Periodically, check the torque on contact screws and clean contacts using a 38-caliber brass wire bore brush and a small amount of neat's foot oil or petroleum jelly, and wipe clean.

# I. ASSEMBLY OF PLUG TO SINGLE JACKET 6x1 CABLE

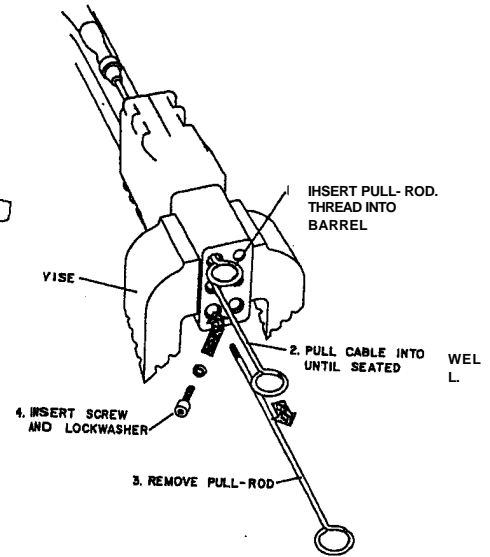
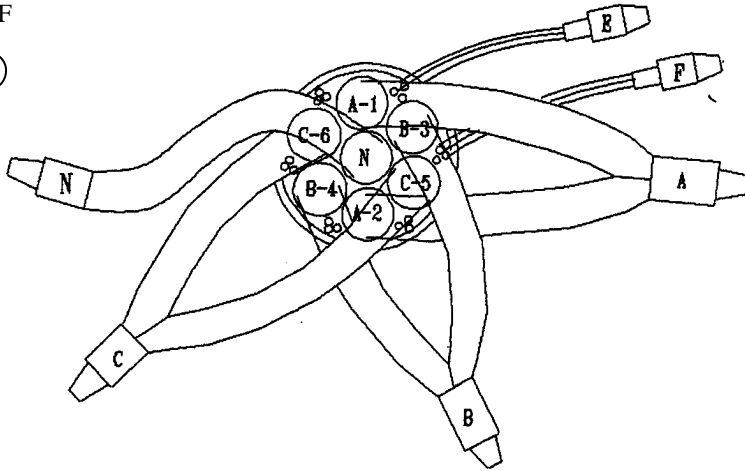
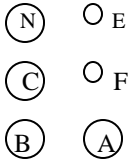
## CABLE PREPARATION:

- 1) SLIDE GROMMETS ONTO CABLE ABOUT 24 INCHES WITH ORIENTATION AS SHOWN STRIP OUTER JACKET BACK 5 1/2 INCHES.
- 2) CUT THE AUXILIARY LEADS TO 5 1/2 INCHES. SELECT THE BUNDLE OF 3 AUX WIRES AS SHOWN IN THE ILLUSTRATION:  
 THE "E" BUNDLE BETWEEN A1 & B3.  
 THE "F" BUNDLE BETWEEN B3 & C5. CUT ALL OTHER AUX WIRE BUNDLES FLUSH WITH OUTER JACKET. STRIP EACH WIRE 1/2 INCH AND CRIMP THE THREE WIRE BUNDLES INTO THE AUX LUGS "E" AND "F" RESPECTIVELY.
- 3) CUT THE SEVEN POWER LEADS TO THE LENGTH (L) AS SPECIFIED BELOW. "L" IS MEASURED FROM THE END OF THE OUTER JACKET.  
 'C-5' CUT LENGTH IS 4.75 INCHES  
 'N' CUT LENGTH IS 5.5 INCHES. STRIP APPROX 3 INCHES TO MAKE PLIABLE COVER STRIPPED AREA WITH GLASS TAPE AND SHRINK TUBE #H6000P31.  
 ALL 5 OTHER LEADS CUT LENGTH IS 4.5 INCHES.
- 4) STRIP INSULATION BACK 1 INCH ON ALL SEVEN POWER LEADS.



**IMPORTANT: CABLES MUST BE CRIMPED IN ORDER, TO PREVENT CROSSOVER DURING ASSEMBLY.**

Final Orientation  
in Head



- (9) PAIR 'A' TERMINAL CABLES AND CRIMP TO LUG
- (10) PAIR 'B' TERMINAL CABLES AND CRIMP TO LUG. B3 IS OVER A2, B4 IS UNDER C5
- (11) CRIMP LUG TO 'N' CABLE.
- (12) PAIR 'C' TERMINAL CABLES AND CRIMP TO LUG. C5 IS OVER B4, C6 IS UNDER N
- (13) ALIGN LOGS ABCN IN APPROXIMATE SAME ORIENTATION AS THEY WILL ASSUME IN HEAD.

CRIMP POWER CONTACT BARRELS ONTO WIRES USING MS25441 HYDRAULIC TOOL AND APPROPRIATE MS90485 DIE. ANDERSON ELECTRIC VC7 IS AN ACCEPTABLE SUBSTITUTE. MAKE TWO CRIMPS APPROX. 1/2" APART AND 1/4" FROM END OF BARREL.

ASSEMBLY INSTRUCTIONS SINGLE JACKET 6X1 CABLE

## ASSEMBLY OF PLUG TO CABLE (CONTINUED)

- (14) FOR THE POWER CONDUCTORS COVER CRIMP JOINTS, EXPOSED CONDUCTORS, AND JACKETS WITH HEAT—SHRINK TUBING SUPPLIED. USE GLASS CLOTH ELECTRICAL TAPE 3M #27 OR EQUIVALENT TO COVER THE CRIMP JOINT, EXPOSED CONDUCTORS AND JACKETS OF THE CONTROL WIRES.
- (15) MOUNT PLUG IN A VISE JUST BEHIND THE CONTACT AREA.

NOTE: FOR THE FOLLOWING STEPS WE RECOMMEND THE USE OF ASSEMBLY TOOL KIT 111239G1. THE KIT CONTAINS 6 THREADED PULL-RODS, AND A 3/8" DRIVE SOCKET FITTED TO A 5/32" HEX ROD PERMITTING THE USE OF A TORQUE WRENCH. (SNAP-ON TOOL #FA-5L) NOT IN KIT.

- (18) INSERT THE SHORTER THREADED PULL—RODS THROUGH THE 'E' & "F" CONTROL CONTACT THROUGH FRONT OF THE PLUG AND SCREW IT INTO THE CRIMPED ON BARRELS.
- (17) INSERT THE LONGER PULL-RODS THROUGH EACH OF THE POWER CONTACTS THROUGH THE FRONT OF THE PLUG AND SCREW IT INTO THE CRIMPED ON BARRELS OF THE CONDUCTORS.
- (18) PULL THE BARRELS TOWARDS THE NOSE AND SEAT "E" AND "F" IN THE SOCKET AT THE REAR OF THE CONTACTS. REMOVE THE E ROD AND INSERT A SOCKET HEAD SCREW WITHOUT LOCKWASHER IN "E" AND HAND TIGHTEN. REPEAT FOR "F" CONTACT.
- (19) NEXT PULL UP THE POWER CONTACTS A, B, C, N UNTIL THE BARRELS ARE SEATED IN THE REAR OF THE CONTACTS. REMOVE THE PULL RODS IN SUCCESSION AND INSERT A SOCKET HEAD SCREW WITH LOCKWASHER AND HAND TIGHTEN.
- (20) USING A TORQUE WRENCH FITTED TO THE 3/8" DRIVE SOCKET /HEX ROD TIGHTEN ALL THE SCREWS TO 45 INCH—POUNDS.
- (21) CHECK FOR THE PROPER SEATING OF THE BARRELS BY STRIKING THE PLUG ONTO THE FLOOR SEVERAL TIMES. RE-TIGHTEN AS REQUIRED. FOLLOW STEP (20).
- (22) SLIDE THE RUBBER GROMMET INTO THE REAR OF THE PLUG.
- (23) USING WATER ONLY AS A LUBRICANT, FORCE THE CABLE PACKING DEEP ENOUGH INTO THE REAR OF THE PLUG IN ORDER TO PASS THE LIP. IF NECESSARY, USE A STEEL BAR ACROSS THE CABLE PACKING TO SEAT IT INTO PLACE.
- (24) SECURE THE CABLE PACKING AT THE REAR OF THE PLUG WITH SCREWS AND NUTS PROVIDED. TIGHTEN UNTIL THE CABLE PACKING HOLDS THE CABLE SECURELY.
- (25) CHECK ALL CONNECTIONS FOR CONTINUITY. MAKE SURE THAT ALL CABLES ARE CORRECTLY WIRED TO THEIR RESPECTIVE CONTACTS. BE SURE THAT ALL AUXILIARY WIRES ARE IDENTIFIED.

## MAINTAINANCE INSTRUCTIONS

PERIODICALLY, CHECK THE TORQUE ON THE CONTACT SCREWS AND CLEAN THE CONTACTS USING A 38-CALIBER BRASS BRUSH AND A SMALL AMOUNT OF NEATS FOOT OIL OR PETROLEUM JELLY, AND WIPE CLEAN.