

30 Amp, 4-Pole 3 Wire Extension Cord Plug
Installation & Maintenance Information



SAVE THESE INSTRUCTIONS FOR FUTURE REFERENCE

WARNING

1. Electrical power supply must be OFF before and during installation and maintenance. Installation and maintenance procedure must be performed by a trained and competent electrician.

2. Receptacles connected to circuits having different voltages, frequencies, or types of current (AC or DC) on the same premises shall be of such design that the attachment plugs used on these circuits are not interchangeable.

WARNING

A wire pattern MUST be used so that the same color wire is put into the same numbered contact opening in all plugs and receptacles in the system. This requirement provides correct polarity for the system and eliminates possibilities for equipment damage and / or personal injuries.

WARNING

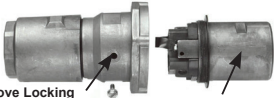
To avoid shock or electrocution, plugs must only be inserted into receptacles rated of the same amperage, voltages, frequencies, or types of current (AC or DC).

Note: The following instructions are in brief - see page 2 of this instruction sheet for detailed instructions.

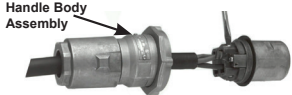
1. Prepare conductors



2. Remove plug sleeve / insulator assembly.



3. Insert cable through handle body assembly - make terminations in insulator.

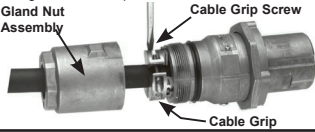


4. Thread plug sleeve into handle body. Thread locking screw in post to lock sleeve in place.



5. Unthread gland nut assembly from handle body.

- tighten screws on cable grip
- rethread gland nut to torque in Table 5.



WARNING

- Before energizing this system, verify polarity correctness with a continuity check. Correct polarity MUST be ascertained before using the equipment.
- Check insulation resistance to be sure system does not have any short circuits or unwanted grounds.

APPLICATION

plugs and receptacles are designed for the distribution of secondary electrical power and to provide for quick disconnect from the power source.

WARNING

Electrical power must be OFF before and during installation and maintenance. Installation and maintenance procedure must be performed by a trained and competent electrician.

CABLE PREPARATION

NOTE: Plugs are intended for use with

LARSON ELECTRONICS, LLC

UL Listed and CSA Certified flexible cord or cables rated for Extra Hard Usage, per the National Electrical Code®, and Canadian Electric Code.

TABLE 1

Assembly Amperage	Wire Size (AWG)	Bushing Cable Range	Cable Jacket Cut Back (in.)	Wire Strip Length
30	10, 8	.390-.600 .600-1.20	1-3/4	1/2
60	8, 6, 4	.500-.750 .750-1.45	2-1/4	Strip gauge on insulator
100	4, 2	.875-1.00 1.00-1.70	2-3/4	Strip gauge on insulator

- Refer to Table 1 for proper wire sizes and bushing ranges.
- Remove outer cable jacket to dimension value in Table 1.

CAUTION

When removing the outer cord jacket, DO NOT cut into or damage the insulation on the individual conductors. DO NOT damage the conductor when removing the insulation.

- Strip each individual wire to the proper dimensions in Table 1 to expose the conductors.
- Set prepared cable aside until ready for use.
- Remove locking screw with nylon washer from handle body and set aside.
- Unscrew plug sleeve / insulator assembly from handle body.
- Unscrew gland nut/bushing assembly from handle body.
- Slide stripped end of cable through gland nut, bushing, cord grips and handle body.

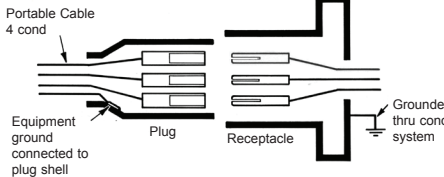
WIRING

WARNING

A wire pattern MUST be used so that the same color wire is put into the same numbered contact opening in all plugs and receptacles in the system. This requirement provides correct polarity for the system and eliminates possibilities for equipment damage and / or personal injuries.

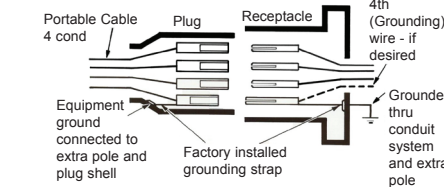
Grounding Styles

Style 1:



Style 1 units ground the portable device and the plug via the grounding conductor and the plug shell to the receptacle housing. The receptacle is grounded by virtue of its being and integral part of the conduit system.

Style 2:



Style 2 units with a metallic housing have an extra (grounding) contact which forms a parallel circuit with the circuit formed by the plug sleeve and receptacle detent spring.

Pressure Terminals

- See Table 1 for proper wire sizes.
- Unscrew contact set screws on insulator enough to permit insertion of conductors into contacts.
- Contacts are designated by a corresponding number on the backside of the insulator.
- Insert stripped wire ends into contact termination well. The ground contact is not numbered on the insulator assembly. (Style 2 assemblies have ground contacts with straps.)

TABLE 2

Assembly Amperage	Required Contact Screw Torque (in.-lbs.)
30	30-60
60	40-80
100	50-100

- Securely fasten wires in proper contacts. Refer to Table 2 for recommended torque values.
- For Style 2 units, be sure the grounding contact strap is securely fastened to the housing.

NOTE: DO NOT solder pressure connection contacts. If soldering contacts are desired, crimp contact should be used (see "Crimp Terminals" below). Soldering is permitted on all circuits except grounding (per National Electric Code, Article 250, section 250-113 and the Canadian Electrical Code, Section 10-902(2)).

Crimp Terminals

- Remove the contacts by inserting a flat blade screwdriver into the contact recess and depressing the contact retaining clip. Note orientation of retaining clip with respect to contact (see picture to right).
- Repeat first step for all other contacts except grounding contact. Pressure contact MUST be used for grounding (reference National Electric Code, Article 250, section 250-133 and the Canadian Electrical Code, Section 10-906(2)).
- Remove contact retaining clips from contacts and set aside.
- Insert wire fully into wire well of contact. Use appropriate crimp contact reducer (provided) if necessary. Refer to Table 3 below for correct reducer part number.

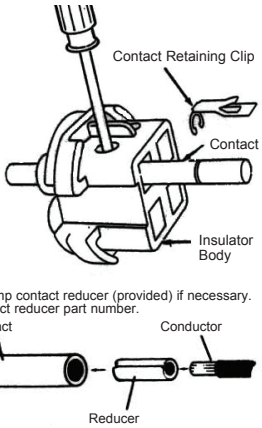


TABLE 3

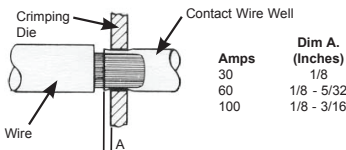
Crimp Chart for all Plugs and Cord Connectors 30, 60, and 100 Amp

NOTE: Use ONLY flexible cord or cables described in the Cable Preparation section of this Instruction Sheet.

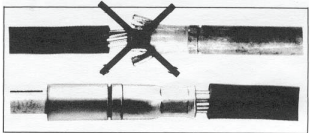
Rating (Amp)	Wire Size (AWG)	Nominal Wire Diameter	Reducer Required	Thomas and Betts Co. Crimp Dies*
			OD ID	Code No. Crimp No.
30	#10	.116	.180 .137	21 11732
	#8	.167	None	21 11732
60	#8	.167	.270 .190	29 11734
	#6	.210	.250 .216	29 11734
	#4	.266	None	29 11734
100	#4	.266	.375 .312	42 11737
	#2	.336	.375 .343	42 11737
	#1	.378	None	42 11737

*Use in Thomas & Betts Crimp Tools, Catalog #13642 (Head) #13604 (Pump)
** Use conductor classes G,H,I&M only.

Using proper crimping die and tool as shown in Table 3, crimp the contact wire well as shown in figure below.



- Inspect the crimp connection. The contact should securely grip the conductor without any cracks or tears in the wire well (see below).



- Repeat above procedure for all other crimp contacts in the plug.
- Replace contact retaining clips and install contacts into insulator body following the system wiring pattern. Retaining clip will snap as its seats into contact recess. Connect grounding conductor to terminal on housing (Style 1) or grounding contact (Style 2) and tighten pressure connector screw to specifications in Table 2.
- For Style 2 units, be sure the grounding contact strap is securely fastened to the housing.

Solder Terminals

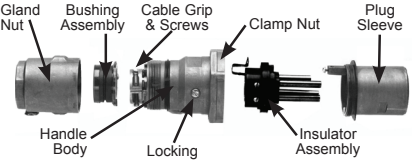
CAUTION

DO NOT solder pressure connection type contacts. Use only crimp type contacts for soldering.

- Reliable solder connections require the use of proper soldering techniques.
- Remove insulation from conductor as shown in Table 1 and wire brush contact wire well.
- Hold contact securely with wire well in upright position. DO NOT allow contact to be damaged or crushed by a vise, channel locks, etc. Heat and pre-tin the wire using a 60-40 rosin core solder. DO NOT fill well with solder.

- NOTE:** A high heat source is required for good soldering. Use a high current resistance type soldering gun. A torch may be used only if the surrounding conductor insulation is adequately protected.
- Insert conductor into wire well as far as possible while applying heat to the well. Add solder by melting on conductor until well fills and a smooth concave surface of solder forms between the wire and well lip.
- Remove heat but continue to hold the conductor and contact rigid and upright until solder solidifies. A good solder connection is indicated by a bright shiny solder surface.
- Following the system wiring pattern, reinstall the contact retaining clip onto each contact, then push each contact through the rear of the insulator until retaining clip snaps into position in the contact recess. Insert the green or grounding conductor into the terminal on plug sleeve (Style 1), or grounding contact wire well (Style 2), and securely tighten the pressure connector screw to specifications in Table 2.
- For Style 2 units, be sure the grounding contact strap is securely fastened to the housing.

RE-ASSEMBLE PLUG ASSEMBLY



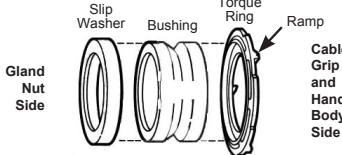
- Seat insulator assembly in plug sleeve. Thread plug sleeve / insulator assembly into handle body. Insulating liner in handle body will align with plug sleeve posts while threads engage. Thread handle body onto sleeve / insulator assembly completely. Back handle body off to align threaded hole on post of sleeve with locking screw hole on the handle body.
- Insert and tighten locking screw with nylon washer to secure sleeve / insulator assembly to handle body.
- Unscrew gland nut to expose cord-grip assembly. (Gland nut ratchet may snap several times while loosening.)
- Tighten the three screws evenly on the cable grip assembly to clamp handle body assembly to cable. Refer to Table 4 for proper screw-torque values.

TABLE 4

Assembly Amperage	Cord Grip Screw Torque (in.-lbs.)
30	20
60	25
100	30

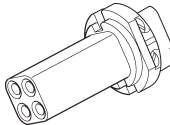
- Torque ring, bushing, and slip washer are automatically positioned for installation as gland nut is retreaded onto the handle body assembly.

NOTE: Bushing must be securely nested in the recess of the slip washer and the torque ring. The torque ring is designed to lock the gland nut into position and prevent loosening of the gland nut. Bushing assembly must be installed with ramp side of torque ring resting on the cable grip for locking action to function. If locking feature is not desired use extra slip washer (optional) in place of torque ring and discard torque ring. See picture below.

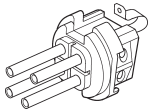


⚠ NOTICE

Without torque ring, gland nut may loosen over time and seal between bushing and cable jacket may be diminished. The sure-seal™ cable bushing assembly requires the use of the torque ring for best long-term environmental seal.



Receptacle Interior

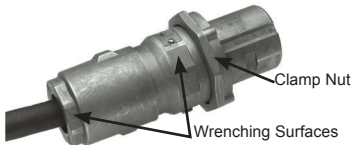


Plug Interior

- Hand tighten gland nut onto handle body until snug. Wrench tighten to the proper torque value on Table 5. (Gland nut ratchet will snap several times while tightening.) Wrenching surfaces are provided on the handle body and gland nut.

TABLE 5

Assembly Amperage	Required Contact Screw Torque (in.-lbs.)
30	30-60
60	40-80
100	50-100



⚠ WARNING

Before energizing this system, verify polarity correctness with a continuity check. Correct polarity MUST be ascertained before using the equipment.

Check insulation resistance to be sure system does not have any short circuits or unwanted grounds.

1. Install back box on conduit and securely fasten in desired position, using lag bolts or machine screws.

NOTE: Refer to Table 6 for proper wire size for all receptacles and motor plugs.

2. Prepare cable, refer to application portions for Cable Preparation section on page 2.
3. Place rubber mounting gasket over prepared cable first.
4. Refer to Wiring Section on page 2 for proper termination of wire.
5. Fasten receptacle to back box with gasket properly positioned, using four (4) screws provided. If dust cover is used, put end of chain under one screw. When spring door is used, install on receptacle, turning down until door touches receptacle. Continue until hinge is in desired position and door gasket seats fully on receptacle housing. Tighten set screw.

MAINTENANCE

Electrical and mechanical inspection of all components must be performed on a regularly scheduled basis, determined by the environment and frequency of use. It is recommended that inspection be performed a minimum of once a year.

⚠ WARNING

If any parts of the plug or receptacle appear to be missing, broken, or show signs of damage, DISCONTINUE USE IMMEDIATELY. Replace with the proper replacement part(s) before continuing service.

⚠ WARNING

Electrical power supply must be OFF before and during installation and maintenance. Installation and maintenance procedure must be performed by a trained and competent electrician.

- Inspect all contact wire terminals for tightness. Discoloration due to excessive heat is an indicator of a possible problem and should be thoroughly investigated and repaired as necessary.
- Clean exterior surfaces making sure nameplates remain legible.
- Check tightness of all screws before using.
- Inspect housing and replace those which are broken.
- Check contacts for signs of excessive burning or arcing and replace if necessary.

In addition to these required maintenance procedures, we recommend an Electrical Preventative Maintenance Program as described in the National Fire Protection Association Bulletin NFPA No. 70B.

⚠ WARNING

To avoid electrical shock or electrocution, plugs (with exposed contacts) must not be used as the power source, as the user may come in contact with energized contacts or other components while attaching locks or hasps in the lockout/tagout hole provision.