



INSTALLATION, OPERATION & MAINTENANCE DATA FORM NO. K1206 VersaMATE® , 200 AMP SERIES: PIN AND SLEEVE TYPE PLUGS, RECEPTACLES & CONNECTORS

“VP” PLUGS, “VR” RECEPTACLES & “VPR” CABLE CONNECTORS comply with UL requirements and are interchangeable with other competitive devices (*see Chart 1). Enclosure Types 3, 4 & 4X.

All Installations Must Comply With Applicable Local, National Electric Codes and/or Canadian Electrical Code.

APPLICATIONS

- Designed to apply secondary power to both fixed and portable electrical equipment.
- Designed to provide for quick disconnect from the power source.
- Designed for use in locations where weatherproof, oil tight & hosedown watertight enclosures and devices are required.

FEATURES

Octagonal Body Style. The octagonal shape Plug and Cable Connector bodies provide for a firm grip when separating.

Interchangeable. VersaMATE® UL “CLASSIFIED” Devices are interchangeable with competitive devices (* see Chart 1A).

Plug Locking Ring. Neoprene gasketed plugs thread onto receptacle & cable connector with locking ring providing a Type 3, 4 & 4X union.

Type 3, 4 & 4X Rated. Sealing ability for the lift lid on the receptacle and cable connector providing a Type 3, 4 & 4X rating when the lift lid is in the closed and tightened position. Devices are gasketed to provide a weatherproof, oil tight & hosedown watertight seal when mated with devices having the same type rating.

Positive Cable Clamp. Plugs & cable connectors supplied with a neoprene onion skin grommet and clamp guide assembly. Clamp inserts provide a firm fit over a wide range of cable diameters. Captive locking set screw prevents clamp guide assembly from backing out.

Insulators & Terminals. Insulators provide high mechanical and dielectric strength with low “arc tracking”. Designed with “increased safety” type terminals providing secure clamping around conductors. **Funnel chambers** designed to accommodate easy insertion of all conductors at one time. The exposed portion of the conductors will be within the funnels when properly stripped (see Figure 4 and Table A).

Two Grounding Styles. Style 1 plugs, receptacles & cable connectors ground through shell only. Copper grounding jumpers in Style 2 plugs, receptacles & cable connectors ground through shell and extra pole.

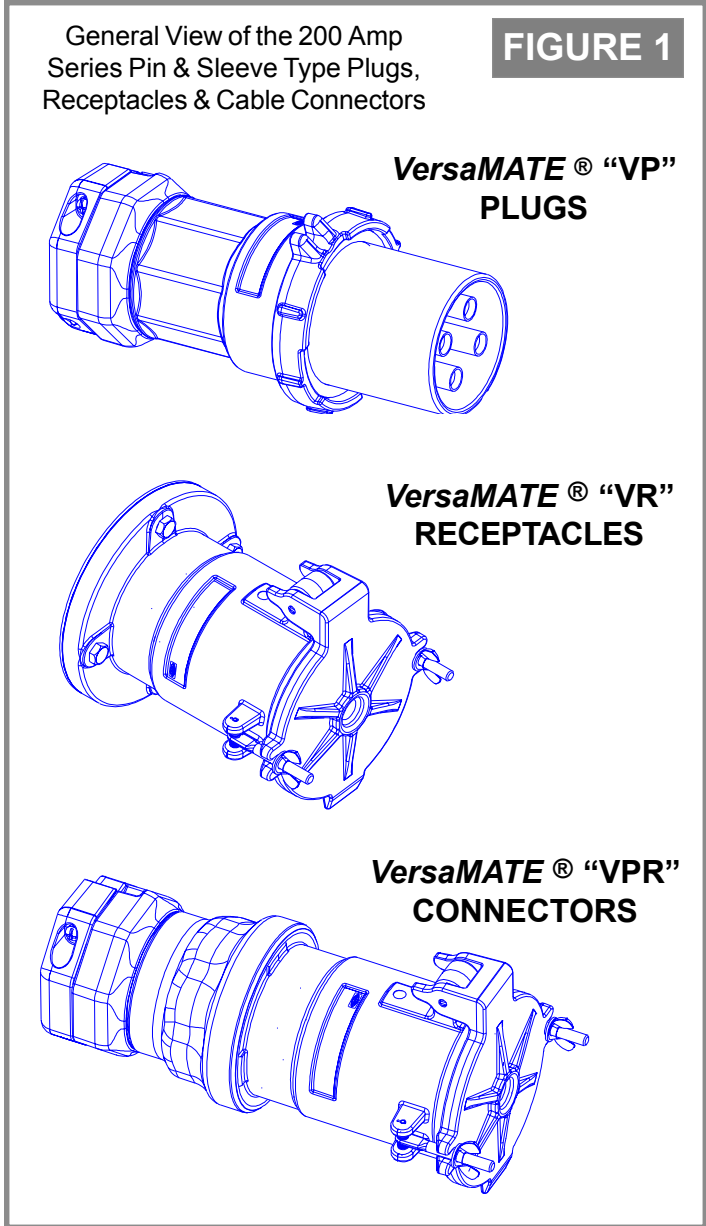
Reverse Service. Receptacle houses a dead **plug interior**. Plug houses a “hot” **receptacle interior**, which has recessed male contacts to eliminate danger of accidental contact. This is a **FACTORY ONLY** option.

Positive Ground. Grounding straps assure maintained ground contact. Longer ground pin in Style 2 receptacle “makes first, breaks last”. Shell grounds first for Style 1.

ELECTRICAL RATING

Maximum Voltages: 600 VAC @ 50-400Hz, 250VDC;
Maximum continuous current: 200 Amperes.

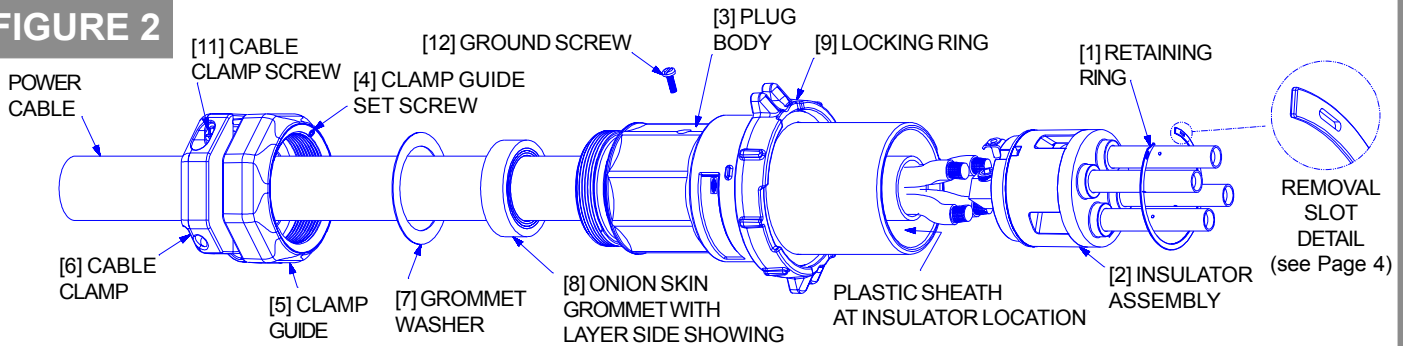
Horsepower: See Catalog Data or contact factory.



Arcing Confined. Contacts are made or broken in insulator chambers. In emergency, plugs can be withdrawn under full rated loads. Positive polarization prevents mismatching plugs. **Positive Contact.** Brass contacts have **integral patented springs** for positive maintained electrical contact.

INSTALLATION INSTRUCTIONS FOR VersaMATE® “VP” PLUGS: 200 AMP SERIES

FIGURE 2



WARNING

Electrical power supply **MUST BE OFF** before and during installation and maintenance. **DISCONNECT** primary power source and **LOCK OUT**. Installation and maintenance procedure must be performed by a trained and competent electrician.

Always verify that the devices' ampere & voltage rating, style & number of poles are suitable in the area of use.

- 1 Disassemble plug as shown in FIGURE 2. Remove ground screw [12] and then retaining ring [1] using flat head screwdriver inserted into removal slot. Withdraw insulator assembly [2] from plug body [3]. **Do not disassemble the insulator assembly.** Loosen clamp guide setscrew [4] and turn clamp guide assembly [5] to remove from plug body.
- 2 Reference TABLE “B” to strip the cable jacket and individual wires. Refer to National Electrical Code Table 400-5 or Canadian Electrical Code Table 12 when selecting the conductor size.
- 3 Slide clamp guide assembly [5], with cable clamps [6] properly assembled (see TABLE “A” to select the proper inserts in the cable clamps), and the grommet washer [7] over the power cable being used. (Remove the smaller diameter flat grommet washer if required to pass over the cable).

- 4 Use the cable gaging strip provided to determine how many “inner layers” of the onion skin grommet [8] are to **REMAIN** or simply remove the “inner layers” until the grommet slips over the power cable. Remove the “inner layers” as needed from the grommet, **one layer at a time**, by pushing through to solid side and tearing off. See FIGURE 3.

- 5 Place the onion skin grommet [8] over the power cable as shown. With locking ring [9] properly installed, slide plug body [3] over the power cable.

- 6 Loosen (do not remove) the terminal screws [10] (see FIGURE 4) in the insulator assembly [2]. Insert conductors into the proper terminals according to the established facility wiring pattern. Tighten terminal screws [10] to 18 to 20 ft.-lbs. torque. Conductors must be fully inserted into the terminals and, if properly stripped (see Table B), the conductor insulation should be well within the funnel of the insulator assembly [2].

- 7 Slide insulator assembly [2] back into the plug body [3] aligning the internal plug body key and insulator key slot. Slide the retaining ring [1] back into the plug body holding groove.

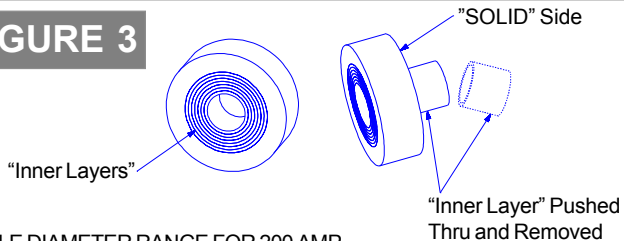
- 8 Replace ground screw [12] and tighten to 24 in.-lbs.

- 9 Slide onion skin grommet [8] down power cable into plug body [3]. Force power cable into plug body to provide a minimum 1/8” strain relief in the wire between clamp and insulator. Place grommet washer [7] in clamp guide assembly [5]. Screw clamp guide onto plug body. Tighten clamp guide set screw [4] to 15 to 20 in.-lbs. of torque.

- 10 Tighten cable clamp screws [11] around power cable to 50 in.-lbs. minimum torque, alternating sides as needed to prevent binding.

- 11 Perform **ELECTRICAL TEST Procedure** printed on PAGE 3 before energizing.

FIGURE 3



CABLE DIAMETER RANGE FOR 200 AMP PLUGS & CABLE CONNECTORS

AMPERES	CABLE DIA. RANGE (IN.)
200	1.00-2.50

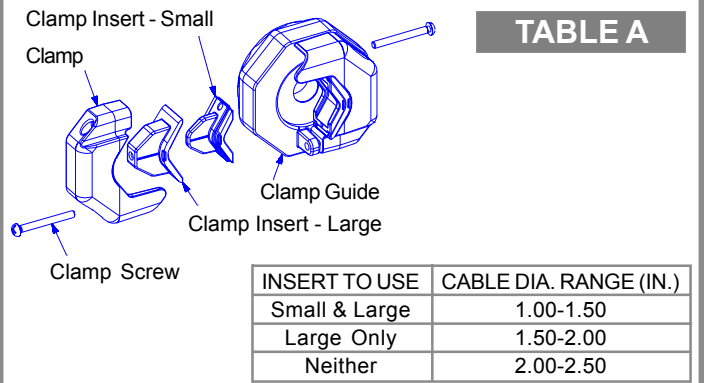
Cable Gaging Strip



CAUTION

Use cable with diameters within the specified range given in FIGURE 3. Failure to do so may result in overstressed wire terminations which could cause the conductors to pull out of the box terminals and cause serious or fatal personal injury and/or equipment damage.

TABLE A



ELECTRICAL TEST BEFORE ENERGIZING

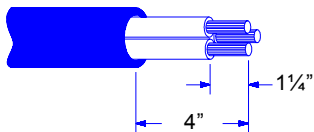
Do not connect to power before conducting the following electrical tests:

- Test continuity of wiring and assembly to verify correct polarity, phasing and grounding connections.
- Measure insulation resistance to be sure the system does not have any short circuits or unwanted grounds.

CAUTION: Use 75°C rated conductors (minimum). DO NOT cut into or damage the individual conductor insulation when removing the outer jacket. DO NOT cut or damage the conductors when stripping the individual wire insulation.

TABLE B

TERMINAL WIRE RANGE AND STRIPPING GUIDE



TERMINAL WIRE SIZE AND ELECTRICAL RATINGS
PLUG AND CABLE CONNECTOR RATINGS

AMPERES	MAX. VOLTAGE	WIRE RANGE
200	600 VAC @ 50-400 Hz, 250 VDC	BUILDING#1-250MCM EXTRA FLEX#1-250MCM

Rated for use with TYPE G & W portable cords or equivalent, with COPPER conductors only, of the sizes listed (75°C rated (minimum)).

WARNING - POLARITY

A wire pattern **MUST** be established so that the same color wire is put into the same identified funnel in all plugs, receptacles & cable connectors in the area of use. Funnels are distinctly identified on the rear of the insulator. In style 2 units only, the funnel with the conductor strap marked with a "G" is for ground conductors. This requirement provides correct polarity for the area of use and reduces possible cause of serious or fatal personal injury and/or equipment damage.

CAUTION

Receptacles connected to circuits having different voltages, 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.

FIGURE 4

NOTE: Style 2 - Includes separate grounding contact with attached ground strap; ground strap is marked with "G".

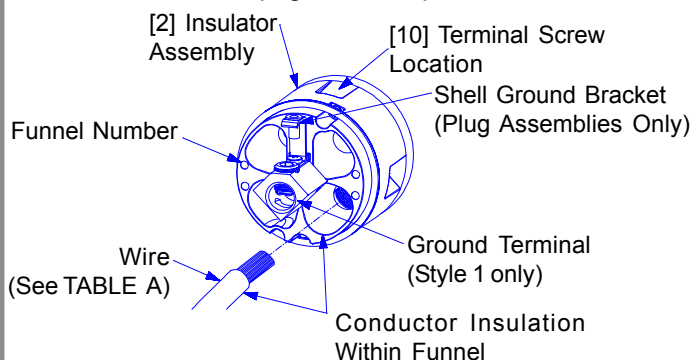
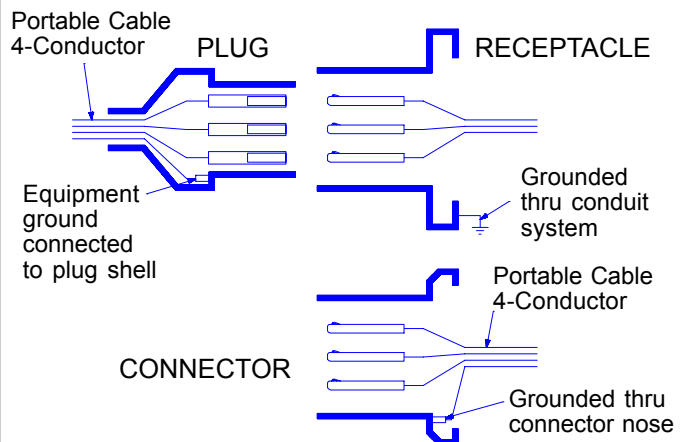


FIGURE 5 GROUNDING STYLES

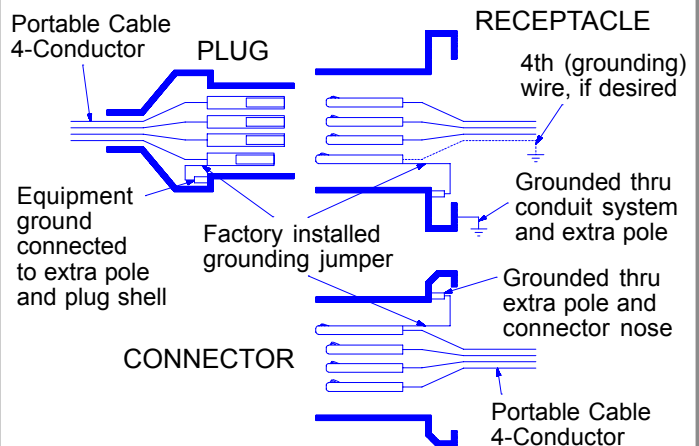
STYLE 1 - Shell Only Grounding



Style 1 Plug - Equipment grounding conductor is wired directly to the ground terminal. A copper alloy jumper connected to the ground terminal is tightened against the plug body by the ground screw to ground the entire assembly. All contacts are "current carrying".

Style 1 Receptacle - Two ground straps engage the grounded plug shroud on plug insertion (plug shroud makes contact with receptacle ground straps before "line" and "load" poles engage). Grounding path is maintained until after current-carrying contacts disengage. All contacts are "current carrying". The receptacle is grounded by virtue of its being an integral part of the conduit system.

STYLE 2 - Shell and Extra Pole Ground

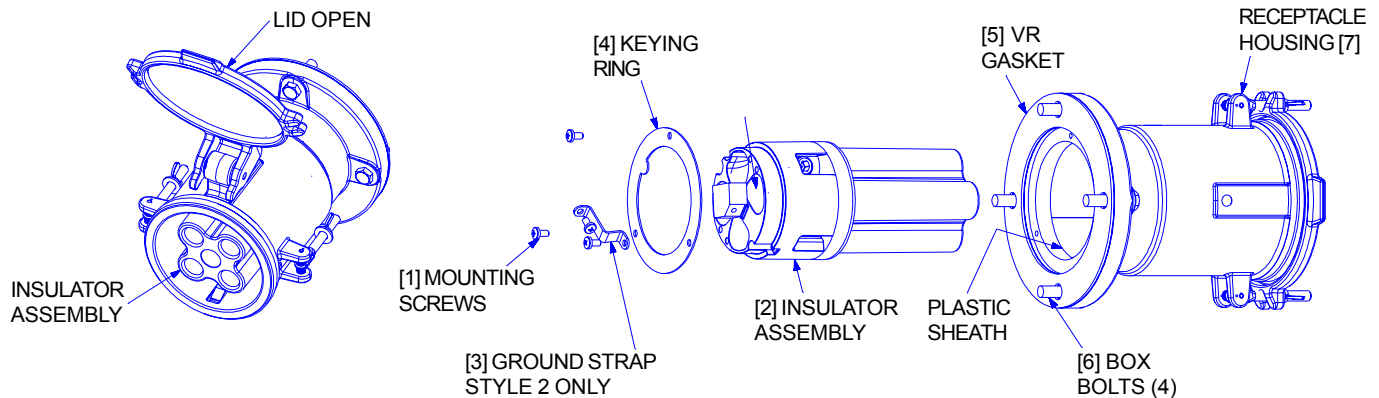


Style 2 Plug - Equipment grounding conductor is wired to the extra grounding pole terminal which provides a parallel ground circuit thru the extra ground pole and plug shroud. As in the Style 1 plug, a ground screw is used to tighten a copper alloy ground jumper against the plug body. This, in turn, grounds the entire plug assembly housing.

Style 2 Receptacle - Two ground straps engage the grounded plug shroud on plug insertion (shell grounding). A copper alloy ground jumper installed on the extra ground pole is screwed on the ground stand-off and grounded to the receptacle body (extra pole grounding). The longer grounding pole "makes first and breaks last".

INSTALLATION INSTRUCTIONS FOR VersaMATE® “VR” RECEPTACLES: 200 AMP SERIES

FIGURE 6 NOTE: 200A RECEPTACLE COMES WITH SPRING LID. CAPABLE OF ACCOMMODATING PLUGS WITH & WITHOUT LOCKING RINGS.



The 200 Amp Spring Lid Receptacles are threaded to accept the locking ring of the 200 Amp “VP” Style Plugs. This forms a Type 3, 4 & 4X fit when plug is in use and prevents plug fallout. When plug is withdrawn, the lid will spring shut. Tighten the wing nuts on the swing bolts down onto the lid to assure a weatherproof, oil tight and hosedown watertight fit.

Note: VersaMATE® 200A receptacles also secure Crouse-Hinds® plugs via their locking ring or Appleton® plugs via wingnut swing bolts.

WARNING

Electrical power supply **MUST BE OFF** before and during installation and maintenance. **DISCONNECT** primary power source and **LOCK OUT**. Installation and maintenance procedure must be performed by a trained and competent electrician.

Always verify that the devices’ ampere & voltage rating, style & number of poles are suitable in the area of use.

- 1 Disassemble receptacle as shown in Figure 6. Remove the mounting screws [1], (Style 2 only - remove ground strap [3] and mounting screw), keying ring [4] and insulator assembly [2]. **Do not disassemble the insulator assembly.**
- 2 Reference TABLE “B” to strip the cable jacket and individual wires. Refer to National Electrical Code Table 400-5 or Canadian Electrical Code Table 12 when selecting the conductor size.
- 3 Slip keying ring [4] over conductors with the “THIS SIDE UP” marking facing conductors. Loosen (do not remove) the terminal screws [10] (see FIGURE 4) in the insulator assembly [2]. Insert conductors into the proper terminals according to the established facility wiring pattern. Tighten terminal screws [10] to 18 to 20 ft.-lbs. torque. Conductors must be fully inserted into the terminals and, if properly stripped (see Table A), the conductor insulation should be well within the funnel of the insulator assembly [2].

- 4 Slide insulator assembly [2] back into the receptacle housing. Place and align the keying ring [4] with the insulator key slot. Align the mounting holes on the keying ring [4] and receptacle housing [7] and replace mounting screws [1], (Style 2 only - add grounds strap [3] and mounting screw).

- 5 Mount receptacle, with “VR” Gasket [5] applied, to previously installed back box using box bolts [6] supplied and torque to a minimum of 8 ft.-lbs.; to a maximum of 14 ft.-lbs. At least one mounting screw must provide electrical continuity between receptacle housing and back box. There must be a tight seal between the receptacle housing and back box to assure a weatherproof, oil tight and hosedown watertight fit. **NOTE:** The included star washers may be used under the bolt heads, as necessary, to assist in achieving ground continuity.

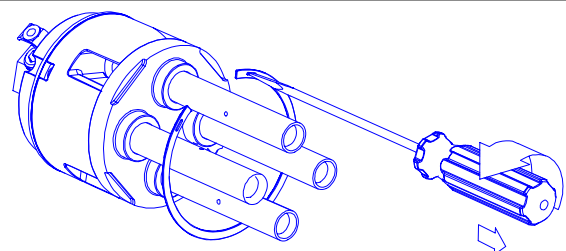
- 6 Perform **ELECTRICAL TEST Procedure** printed below.

ELECTRICAL TEST BEFORE ENERGIZING

Do not connect to power before conducting the following electrical tests:

- Test continuity of wiring and assembly to verify correct polarity, phasing and grounding connections.
- Measure insulation resistance to be sure the system does not have any short circuits or unwanted grounds.

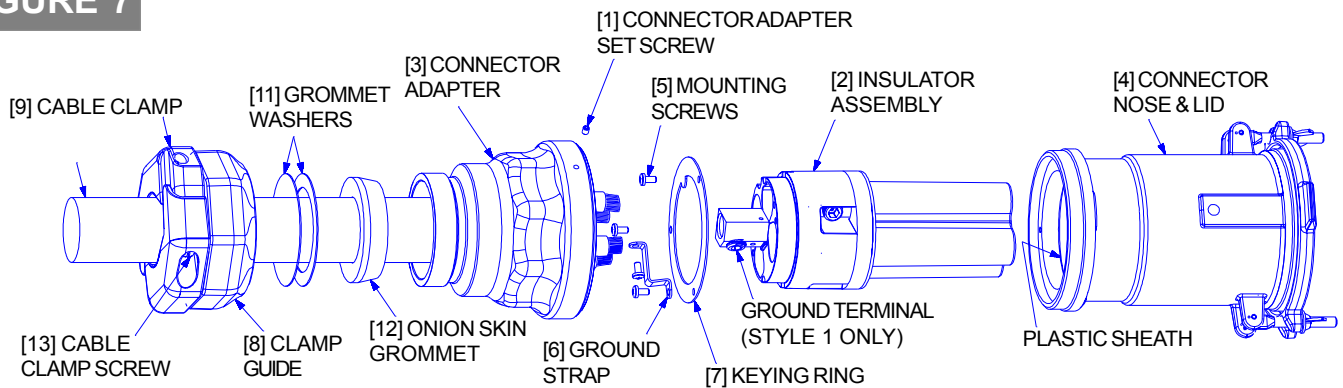
INSULATOR RETAINING RING REMOVAL DETAIL



- 1) Insert straight blade of screwdriver into removal slot. If necessary rotate ring to align slot with one of the insulator recesses between sleeves.
- 2) Twist screwdriver to rotate end of ring out of groove.
- 3) Maintain the twist on the screwdriver and pull upward to remove the ring from the plug housing.

INSTALLATION INSTRUCTIONS FOR VersaMATE® “VPR” CONNECTORS: 200 AMP SERIES

FIGURE 7



The 200 Amp Spring Lid Cable Connectors have the same features as the 200 Amp Spring Lid Receptacles. The Cable Connectors are for use with “VP” 200 Amp Plugs.

WARNING

Electrical power supply **MUST BE OFF** before and during installation and maintenance. **DISCONNECT** primary power source and **LOCK OUT**. Installation and maintenance procedure must be performed by a trained and competent electrician.

Always verify that the devices’ ampere & voltage rating, style & number of poles are suitable in the area of use.

- 1 Disassemble Cable Connector as shown in FIGURE 7. Remove connector adapter set screw [1] and turn connector adapter assembly [3] to remove from connector nose [4]. Remove the mounting screws [5], ground strap [6], keying ring [7] and insulator assembly [2]. **Do not disassemble the insulator assembly.** Loosen clamp guide set screw and turn clamp guide assembly [8] to remove from connector adapter [3].
- 2 Reference TABLE “B” to strip the cable jacket and individual wires. Refer to National Electrical Code Table 400-5 or Canadian Electrical Code Table 12 when selecting the conductor size.
- 3 Slide clamp guide assembly [8], with cable clamps [9] properly assembled (see TABLE “A” to select the proper inserts in the cable clamps), and the grommet washer [11] over the power cable being used. (Select **one** of the two grommet washers with respect to the cable size).
- 4 Use the cable gaging strip provided to determine how many “inner layers” of the onion skin grommet [12] are to **REMAIN** or simply remove the “inner layers” until the grommet slips over the power cable. Remove the “inner layers” as needed from the grommet, **one layer at a time**, by pushing through to solid side and tearing off. See FIGURE 3.
- 5 Place the onion skin grommet [12] over the power cable as shown. Slide connector adapter [3] over the power cable.
- 6 Slip keying ring [7] over conductors with the “THIS SIDE UP” marking facing conductors. Loosen (do not remove) the terminal screws [10] (see FIGURE 4) in the insulator assembly [2]. Insert conductors into the proper terminals according to the established facility wiring pattern. Tighten terminal screws [10] to 18 to 22 ft.-lbs. torque. Conductors must be fully inserted into the terminals and, if properly stripped (see Table A), the conductor insulation should be well within the funnel of the insulator assembly [2].
- 7 Slide insulator assembly [2] back into the connector nose housing [4]. Place and align the keying ring [7] with the insulator key slot. Align the mounting holes on the keying ring [7] and connector nose housing [4] and replace mounting screws [5] & ground strap [6].
- 8 Screw connector adapter onto connector nose [4] & insulator assembly [2]. Replace and tighten connector adapter set screw [1] to 15 to 20 in.-lbs. of torque.
- 9 Slide onion skin grommet [12] down power cable into connector adapter [3]. Force power cable into connector adapter to provide a minimum 1/8” strain relief in the wire between clamp and insulator. Place grommet washer [11] in clamp guide assembly [8]. Screw clamp guide onto connector adapter. Tighten clamp guide set screw to 15 to 20 in.-lbs. of torque.
- 10 Tighten cable clamp screws [13] around power cable to 50 in.-lbs. minimum torque, alternating sides as needed to prevent binding.
- 11 Perform **ELECTRICAL TEST Procedure** printed below.

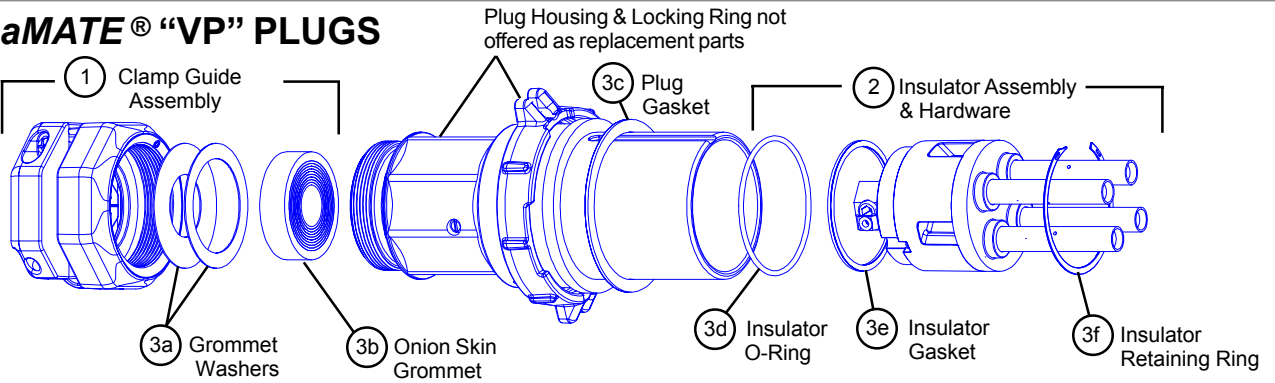
ELECTRICAL TEST BEFORE ENERGIZING

Do not connect to power before conducting the following electrical tests:

- Test continuity of wiring and assembly to verify correct polarity, phasing and grounding connections.
- Measure insulation resistance to be sure the system does not have any short circuits or unwanted grounds.

REPLACEMENT PARTS FOR *VersaMATE*® 200 AMP SERIES “VP” PLUGS, “VR” RECEPTACLES & “VPR” CABLE CONNECTORS

VersaMATE® “VP” PLUGS

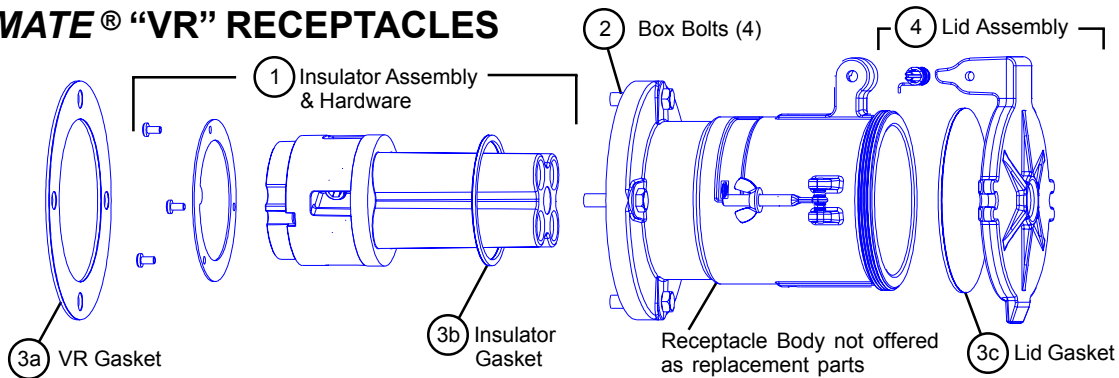


STYLE	DESCRIPTION	ITEM 1	ITEM 2	*ITEM 3
		CLAMP GUIDE ASSEMBLY	INSULATOR ASSEMBLY	GASKETS & WASHER
1	3W, 3P	RVP201	RVP203512	RVPG2033
1	4W, 4P		RVP204513	RVPG2043

* Note: Item 3 gaskets are sold as a kit.

STYLE	DESCRIPTION	ITEM 1	ITEM 2	*ITEM 3
		CLAMP GUIDE ASSEMBLY	INSULATOR ASSEMBLY	GASKETS & WASHER
2	2W, 3P	RVP201	RVP203612	RVPG2033
2	3W, 4P		RVP204612	RVPG2043

VersaMATE® “VR” RECEPTACLES

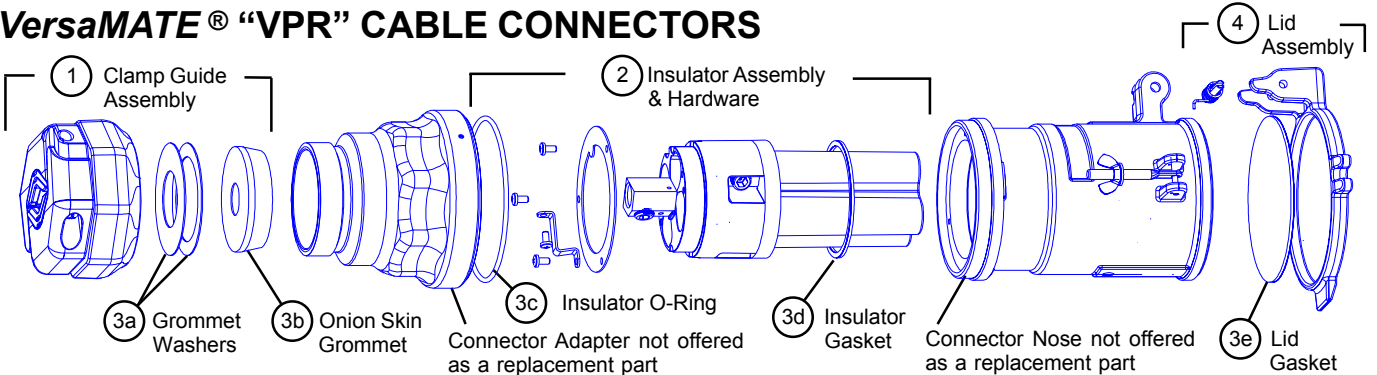


STYLE	DESCRIPTION	ITEM 1	ITEM 2	*ITEM 3	ITEM 4
		INSULATOR ASSEMBLY	BOX BOLTS QTY. (4)	GASKETS	LID ASSEMBLY
1	3W, 3P	RVR20312	RVRB201	RVRG2033	RVRL2034
1	4W, 4P	RVR20412		RVRG2043	RVRL2044

* Note: Item 3 gaskets are sold as a kit.

STYLE	DESCRIPTION	ITEM 1	ITEM 2	*ITEM 3	ITEM 4
		INSULATOR ASSEMBLY	BOX BOLTS QTY. (4)	GASKETS	LID ASSEMBLY
2	2W, 3P	RVR20322	RVRB201	RVRG2033	RVRL2034
2	3W, 4P	RVR20422		RVRG2043	RVRL2044

VersaMATE® “VPR” CABLE CONNECTORS



STYLE	DESCRIPTION	ITEM 1	ITEM 2	*ITEM 3	ITEM 4
		CLAMP GUIDE ASSEMBLY	INSULATOR ASSEMBLY	GASKETS & WASHERS	LID ASSEMBLY
1	3W, 3P	RVP201	RVPR203112	RVPRG2033	RVRL2034
1	4W, 4P		RVPR204113	RVPRG2043	RVRL2044

* Note: Item 3 gaskets are sold as a kit.

STYLE	DESCRIPTION	ITEM 1	ITEM 2	*ITEM 3	ITEM 4
		CLAMP GUIDE ASSEMBLY	INSULATOR ASSEMBLY	GASKETS & WASHERS	LID ASSEMBLY
2	2W, 3P	RVP201	RVPR203212	RVPRG2033	RVRL2034
2	3W, 4P		RVPR204212	RVPRG2043	RVRL2044

CHART 1A - INTERMATEABILITY FOR STANDARD LOCATION PLUGS, RECEPTACLES AND CABLE CONNECTORS: 200 AMP SERIES

KILLARK	2W3P	3W3P	3W4P	4W4P
PLUGS	VP203612	VP203512	VP204612	VP204513
RECEPTACLES	VR20322	VR20312	VR20422	VR20412
CABLE CONNECTORS	VPR203212	VPR203112	VPR204212	VPR204113
CROUSE-HINDS				
PLUGS	AP20365	AP20355	AP20465	AP20455
	AP20367	AP20357	AP20467	AP20457
	AP20368	AP20358	AP20468	AP20458
	AP203610	AP203511	AP204611	AP204511
	AP203611	AP203512	AP204612	AP204512
	AP203612			AP204513
RECEPTACLES	AR2032	AR2031	AR2042	AR2041
	AR20322	AR20312	AR20422	AR20412
CABLE CONNECTORS	APR20325	APR20315	APR20425	APR20415
	APR20327	APR20317	APR20427	APR20417
	APR20328	APR20318	APR20428	APR20418
	APR203210	APR203111	APR204211	APR204111
	APR203211	APR203112	APR204212	APR204112
	APR203212			APR204113
APPLETON				
PLUGS	AP20023CD	AP20033CD	AP20034CD	AP20044CD
	AP20023E	AP20033E	AP20034E	AP20044E
RECEPTACLES	ADR20023	ADR20033	ADR20034	ADR20044
	AR20023	AR20033	AR20034	AR20044
CABLE CONNECTORS	ARC20023CD	ARC20033CD	ARC20034CD	ARC20044CD
	ARC20023E	ARC20033E	ARC20034E	ARC20044E

CHART 1B - INTERMATEABILITY FOR STANDARD LOCATION BACK BOXES: 200 AMP SERIES

KILLARK	VJA200 ADAPTER	VJ58 1-½" HUB VJ68 2" HUB VJ78 2-½" HUB	VJC78 2-½" HUBS
CROUSE-HINDS	AJA1 ADAPTER	AJ58 1-½" HUB AJ68 2" HUB AJ78 2-½" HUB	AJC78 2-½" HUBS
APPLETON	AJA200 ADAPTER	AJA520 1-½" HUB AJA620 2" HUB AJA720 2-½" HUB	AJAC720 2-½" HUBS

Recommendations contained in this document are based on technical information that Killark believes to be reliable. All the information and advice contained in these documents is intended for use by persons having been trained and possessing the requisite skill and know-how and to be used by such persons only at their own discretion and risk. The nature of these instructions is informative only and does not cover all of the details, variations or combinations in which this equipment may be used; its storage, delivery, installation, check-out, safe operation and maintenance. Since the installation, maintenance and use of the product are outside of the direct surveillance and control of Killark, the purchaser and/or user assumes all risk and liability whatsoever in regards to its use and suitability for his or her intended application.

MAINTENANCE

MAINTENANCE

Electrical and mechanical inspection of all components must be performed regularly. It is recommended that inspection be performed a minimum of once a year.

- Inspect all contact wire box terminals for tightness (**Retorque**). Discoloration due to excessive heat is an indicator of possible problems and should be thoroughly investigated and repaired as necessary.
- Check grounding and bonding for correct installation and secure connection (**Retorque**).

- Check gaskets for deterioration and replace if necessary.
- Clean exterior surfaces making sure nameplates remain legible.
- Inspect clamp guide assembly and cable grip tightness to ensure proper cable gripping.
- Torque all screws as described in instructions before reusing device.
- Inspect housing parts and replace those which are broken or excessively worn.
- Check contacts for signs of excessive arcing or burning and replace if necessary.
- Check **receptacle thread** used for plug locking ring for proper lubrication. Apply Killark's "LUB-G" type lubrication or equivalent to thread surfaces as required to prevent galling between the receptacle and locking ring threads.

WARNING

Electrical power supply **MUST BE OFF** before and during installation and maintenance. **DISCONNECT** primary power source and **LOCK OUT**. Installation and maintenance procedure must be performed by a trained and competent electrician.

WARNING

If any parts of the plug, receptacle or cable connector appear to be missing, broken or show signs of damage; **DISCONTINUE USE IMMEDIATELY!**
Do not modify these devices in any way. Replace with the proper replacement part(s) supplied by Killark before continuing service. Failure to do so could cause serious or fatal personal injury and/or equipment damage.

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

ELECTRICAL RATING
 Maximum Voltages: 600 VAC @ 50-400Hz, 250VDC;
 Maximum continuous current: 200 Amperes.
 Horsepower: See Catalog Data or contact factory.

MAINTENANCE MANAGER
 Please record the following information for your records.

Complete Catalog No. _____

Installed By _____

Date of Installation _____

RECOMMENDED YEARLY INSPECTION

Date _____; Performed By _____

Date _____; Performed By _____

Date _____; Performed By _____

Date _____; Performed By _____

RETAIN THIS INSTRUCTION SHEET

HUBBELL INCORPORATED (Delaware)
 2112 Fenton Logistics Park Blvd
 Fenton, Missouri 63026 USA