EBBR Explosionproof Bolted Construction Interlocked Receptacle

SAVE THESE INSTRUCTIONS FOR FUTURE REFERENCE

IF1224

Installation & Maintenance Information

APPLICATION

EBBR interlocked receptacles with circuit breakers are used as a service outlet for portable equipment. The interlocked receptacles with circuit breakers are mechanically interlocked to provide line disconnect means and short circuit protection. The receptacle contacts cannot be made or broken under load. The circuit breaker cannot be closed until the plug is fully inserted and the plug cannot be withdrawn until the breaker is open.

EBBR receptacles are suitable for use in Class I,Groups B, C, D; Class II, Groups F, G and Class III hazardous (classified) locations as defined by the National Electrical Code.

CAUTION

To reduce the risk of ignition of hazardous atmospheres, do not use in Class II, Group F locations that contain electrically conductive dusts.

EBBR receptacles are available in 30, 60, and 100 ampere, 3 wire 4 pole (style 2) configurations.

EBBR receptacles should be installed, inspected, and serviced only by qualified, competent personnel.

ENCLOSURE INSTALLATION

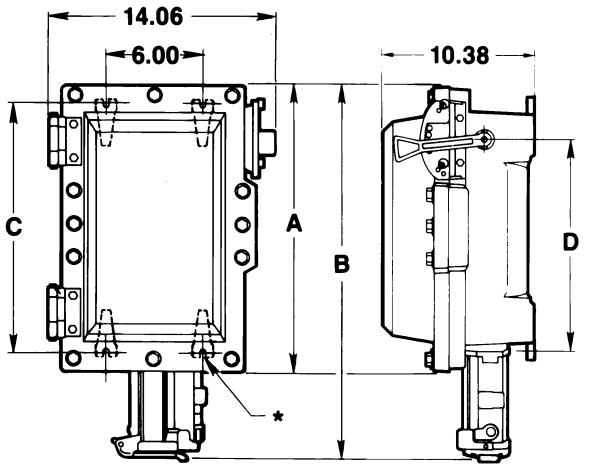
WARNING

Before installing an EBBR interlocked receptacle, a wiring pattern must be established for your system. Locations having different voltages, frequencies, or types of current (AC or DC) **MUST NOT** have interchangeable attachment plugs as stated in Paragraph 210-7F of the National Electrical Code.

WARNING

The electrical power must be **OFF** before and during installation and maintenance.

1. It is **not necessary** nor recommended to remove the cover during enclosure installation. If it becomes necessary, see Removing and Reinstalling Cover on page 2 of this IF.



*** USE 1/2" DIAMETER BOLTS**

Figure 1

RECPT AMP	EBBRA				EBBRB			
	A	B	C	D	A	B	C	D
30	19.00	22.65	17.25	14.50	26.50	30.16	24.75	22.00
60	19.00	23.75	17.25	14.50	26.50	31.25	24.75	22.00
100	19.00	24.50	17.25	14.50	26.50	32.00	24.75	22.00

2. Select a mounting location that will provide suitable strength and rigidity for supporting the enclosure, all contained wiring and control devices. Be sure to provide adequate space below receptacle for insertion and removal of plug. See Figure 1 for mounting dimensions.
3. Install two (2) 1/2" diameter mounting bolts in the lower positions on mounting surface.
4. Install detachable mounting feet while enclosure is on the floor or work bench.
   - Insert four (4) wedge shaped mounting feet into dovetail slots in enclosure body.
   - Tap each foot with hammer to securely tighten into slot. See Figure 2.

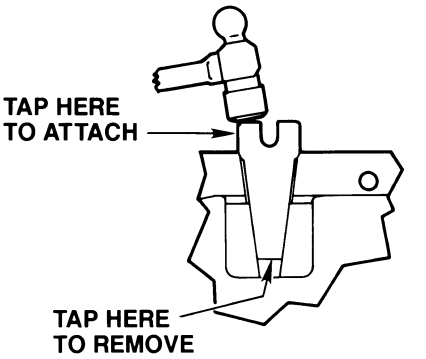


Figure 2

5. Position enclosure on surface with mounting feet on the lower two (2) mounting bolts. **Continue to support the enclosure in position.** Install the top two (2) bolts. Tighten all four (4) mounting bolts securely in place.
6. Connect enclosure into conduit system. Install conduit sealing fittings as required by NEC and any other local codes. Use Crouse-Hinds® RE series explosionproof reducers for conduit sizes smaller than tapped openings in enclosure.

CAUTION

- Hazardous location information specifying class and group is marked on the nameplate of each enclosure.
- No conduit openings are to be added in the field.
- All unused conduit openings must be plugged with Crouse-Hinds PLG series explosionproof plugs. Plugs must be a minimum of 1/8 inch thick and engage a minimum of five (5) full threads.
- In Class I, Division 1, Group B locations, conduit sealing fittings MUST be installed in each attached conduit run (within eighteen inches of the enclosure) to comply with the latest edition of the National Electrical Code Section 501-5 and/or 502-5 plus any other applicable code.

REMOVING AND REINSTALLING COVER

Covers and bodies are matched and inspected as a pair at the factory. If more than one enclosure is being installed, take care not to mix covers and bodies. Replace the cover on the body as shipped from the factory. If necessary, mark covers and bodies before disassembling to keep them properly matched.

Cover removal is not necessary for installation but may be accomplished as follows:

1. Place the enclosure on a flat horizontal surface. Loosen all cover bolts until each bolt is fully retracted into the cover by the stainless steel spring under the bolt head.
2. Remove the two (2) 5/16-18 bolts that attach each hinge to the cover. Do **NOT** remove the two (2) 5/16-18 bolts that attach hinge to body. Grasp the cover under opposite edges and carefully lift from body.

CAUTION

Do not use cover bolts as a means to lift the enclosure. Excessive force on the fully retracted cover bolts may damage the bolt/spring assembly.

TO REPLACE COVER

1. Make sure cover and body ground joint surfaces are clean and not scratched. Orient cover so hinge side of cover will align with hinge on body.
2. Lift cover to approximate position, and line up bolt holes of cover with body. **Avoid** sliding cover ground joint surface over ground joint surface of body. Cover/body bolt holes must match up.
3. Hand start the corner bolts. Fully tighten all cover bolts (torque to 40-45 ft. lbs.) and then reinstall the two (2) 5/16-18 hinge bolts (torque to 8 ft. lbs.) in the cover. Follow procedures in Opening and Closing Cover sections once hinges are reinstalled.

OPENING COVER

EBBR interlocked receptacles are furnished with captivated triple lead bolts, that utilize a spring to aid and indicate full retraction of the bolts into the cover when opening and closing. Make sure all cover bolts are fully retracted into the cover before attempting to open or close the cover.

When bolts are disengaged from the body flange threads, the bolts will withdraw and be held in this position by the spring and washer under the bolt heads. (See Figure 3)

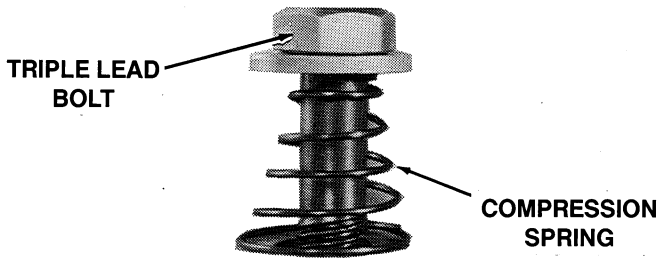


Figure 3

After all bolts are fully disengaged, firmly grasp the bottom and right side of the cover and swing cover open. Use care to prevent damage to the ground joint surface. Avoid striking cover, or devices in cover, on neighboring enclosures or structures.

CAUTION

Hammers or prying tools must not be allowed to damage the flat ground joint surfaces. Do not handle cover roughly, or, if removed, place on surfaces that might damage or scratch the flat ground joint surfaces.

GROUNDING AND BONDING

Grounding and bonding of the conduit and equipment is required by the National Electrical Code. Receptacles and attachment plugs must be the type providing for connection to the grounding conductor.

WARNING

EBBR interlocked receptacles, must be securely attached into a permanently grounded system in accordance with Article 501-16, 502-16 of the National Electrical Code.

Determine the type of distribution system to be used that will comply with NEC requirements and ensure grounding continuity.

All conductive materials that enclose the electrical conductors or attached equipment or forming part of such equipment must be grounded. A permanent conducting connection must be made between all such equipment and the earth.

INSTALLATION OF INTERNAL COMPONENTS

If enclosure only (without circuit breaker) is supplied, the internal operating mechanism (bail assembly) for the circuit breaker must be removed prior to circuit breaker installation. (See Figure 4)

NOTE: Removal of the interior equipment mounting panel is not necessary for circuit breaker installation. The mounting panel may be removed to make installation of the circuit breaker easier. Before removing mounting panel, follow step #1 of Circuit Breaker Installation for removing the linkage between operating mechanisms and the enclosure.

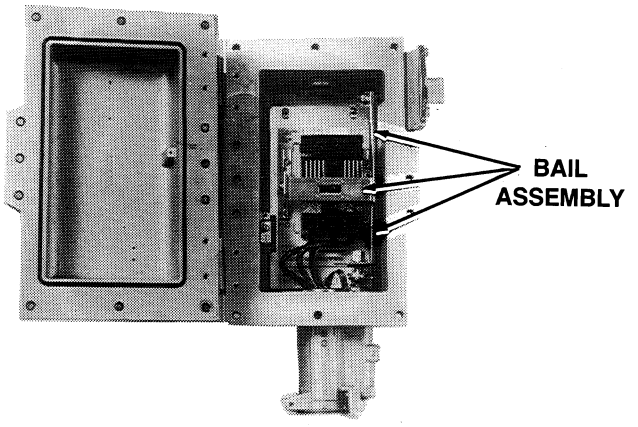


Figure 4

CIRCUIT BREAKER INSTALLATION

Consult instructions from circuit breaker manufacturer before beginning installation.

The mounting plate and operating mechanism will accommodate General Electric, Square D, and Westinghouse circuit breakers.

NOTE: To install circuit breaker, bail assembly must be loosened, but not removed.

1. To loosen bail assembly, unfasten stop nut (see figure 5) (from shoulder screw) that joins the connecting arms together. Slide the longer connecting arm off the shoulder screw. [Do not remove hex nut that secures the shorter connecting arm to the threaded shaft.]
2. Loosen but do not remove the top two (2) 1/4-20 round head screws, which secure the bail brackets to the mounting plate. (See Figure 5)
3. Unthread the bottom two (2) 1/4-20 round head screws from the equipment mounting panel.

   NOTE: The bottom two (2) screws are held captive in the bail brackets. Do not attempt to remove them.

   Move the bail assembly towards the receptacle until the bracket slots are clear of the top two (2) screws.
4. Install circuit breaker with line side towards the top of the enclosure by lifting bail assembly and sliding the circuit breaker underneath the bail assembly. LINE/LOAD sides are indicated on the mounting plate template.

   To facilitate circuit breaker installation, select the correct manufacturers mounting holes (those that agree with breaker being installed) on equipment panel, and punch template holes, before positioning circuit breaker on equipment panel. Secure breaker to equipment panel with screws provided from circuit breaker manufacturer.

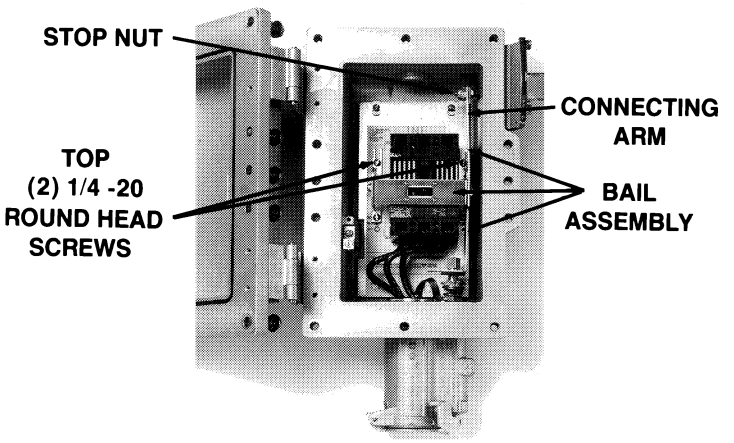


Figure 5

5. After circuit breaker is installed, reattach the connecting arms with shoulder screw and stop nut removed in Step 1. Check printed label on the longer connecting arm for hole alignment with the particular breaker manufacturer being used. (See Figure 5)
6. Reposition bail assembly over toggle arm of circuit breaker. At the same time slide bail brackets under the top two (2) 1/4-20 screws in the mounting plate.
7. Align bail assembly mounting holes (bottom two (2) 1/4-20 screws) over the holes in the equipment panel labeled for the manufacturer's circuit breaker you are installing.
8. Securely fasten all four (4) 1/4-20 screws on the bail assembly.
9. Visually inspect for proper alignment and actuate mechanism for correct operation. If necessary (to prevent over/under toggle travel and allow resetting of tripped breaker) adjust the circuit breaker stops as follows: (See Figure 6)

   - Locate adjustable stop buttons in the appropriate holes for the specific breaker manufacturer to be used as charted below. (See Figure 6)

MANUFACTURER	HOLE CALLOUTS	
	100 AFCB	150 AFCB
Westinghouse	A, D	A, D
General Electric	A, E	A, E
Square D	B, E	—

   - Move breaker handle to the extreme "OFF" (Reset) position and adjust stop button so that it just touches the handle.
   - Manually trip the breaker and check to see that toggle travel will allow resetting.
   - Move breaker handle to the "ON" position and adjust stop button so that it just touches the handle.
   - Move breaker handle "ON" then "OFF" checking operation.

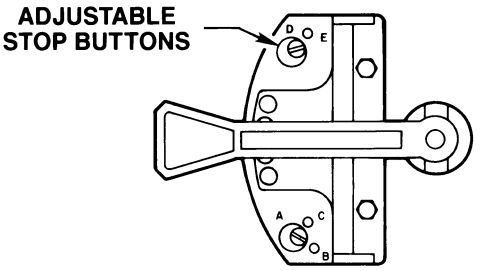


Figure 6

WIRING CONNECTIONS

1. Establish a wiring pattern for your system.

WARNING

Before installing an EBBR interlocked receptacle, a wiring pattern must be established for your system. Locations having different voltages, frequencies, or types of current (AC or DC) **MUST NOT** have interchangeable attachment plugs as stated in Paragraph 210-7F of the National Electrical Code.

2. **Before** pulling any wires into enclosure, reinstall equipment panel (if previously removed). Connect receptacle leads to load side of breaker (if shipped without breaker).

3. Connect grounding conductor to lug provided. Pull all phase conductors into enclosure and make connections as shown in breaker manufacturer's instructions. All electrical connections should be tightened to torque values specified in manufacturers literature and comply with the National Electrical Code and any local codes.

4. Test wiring for correct phase relationships with continuity checks and also for unwanted grounds with an insulation resistance check.

CLOSING COVER

CAUTION

Clean both ground joint surfaces of body and cover before closing. Dirt or foreign material must not accumulate on flat ground joint surfaces. Surfaces must seat fully against each other to provide a proper explosionproof joint.

CAUTION

Before closing cover, be certain all bolts are retracted fully into the cover flange and do not project beyond the ground surface. This is important to prevent damage to the ground joint surface by the bolts as the cover is being closed. (See Figure 7). When closing cover be sure wiring is not pinched between body and cover flanges.

When cover is closed, push cover bolts into body and start thread engagement. Start all threads by hand before wrenching any bolts tight. Torque to 40-45 ft. lbs. Use ONLY bolts supplied with the enclosure. These are special threaded bolts (marked EBM-1) and substitutes for them will impair the explosionproof safety of the enclosure.

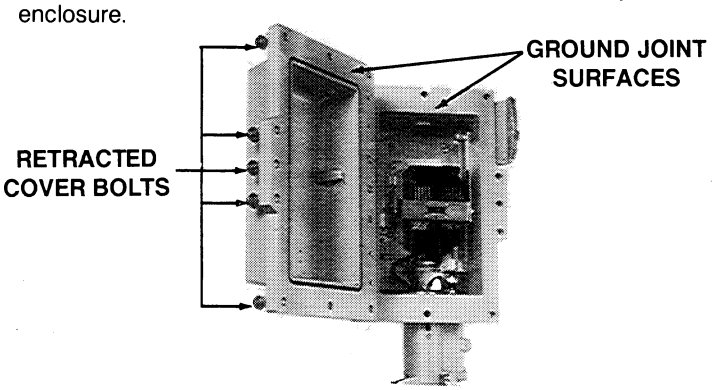


Figure 7

SEALS

Pour sealing compound into sealing fittings in accordance with the instructions supplied with each of the approved fittings and sealing compound.

MAINTENANCE

WARNING

Always disconnect primary power source before opening enclosure for inspection or service.

1. Frequent inspection should be made. A schedule for maintenance checks should be determined by the environment and frequency of use. It is recommended that it should be at least once a year.
2. Perform visual, electrical and mechanical checks on all components on a regular basis.
   - Visually check for undue heating evidenced by discoloration of wires or other components, damaged or worn parts, or leakage evidenced by water or corrosion in the interior.
   - Electrically check to make sure that all connections are clean and tight and that contacts in the components make or break as required.
   - Mechanically check that all parts are properly assembled, and operating mechanisms move freely.

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.

3. Make sure all cover bolts are fully retracted into cover before closing cover on body. Close cover and start cover bolt threads by hand. Torque all cover bolts securely to 40-45 ft. lbs.

CAUTION

Carefully clean both ground joint surfaces of body and cover before closing. Dirt or foreign material must not accumulate on flat ground joint surfaces. Surfaces must seat fully against each other to provide a proper explosionproof seal.

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.

COOPER
Crouse-Hinds
Quality from
Cooper Industries

Cooper Industries Inc., Crouse-Hinds Division
PO Box 4999
Syracuse, New York 13221 • U.S.A.

IF1224
Revision 1
Revised 5/97
Supercedes 11/90