



# VARIABLE DEPTH FLANGE OPERATED MECHANISMS

## For Circuit Breakers . 100 Amp. Frame Size

Catalog Number 1494V-M20

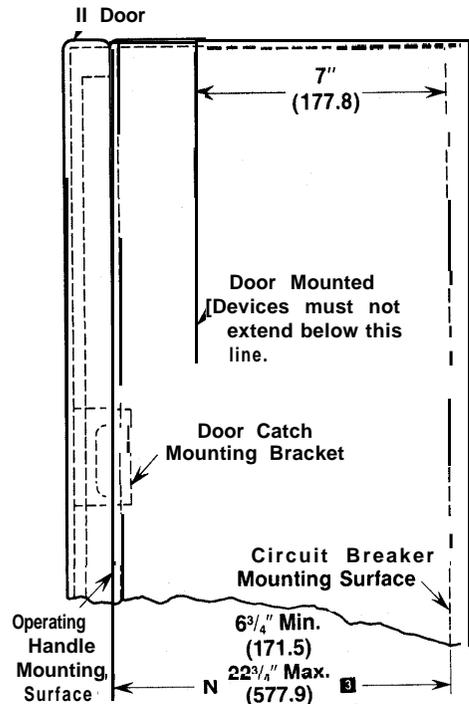
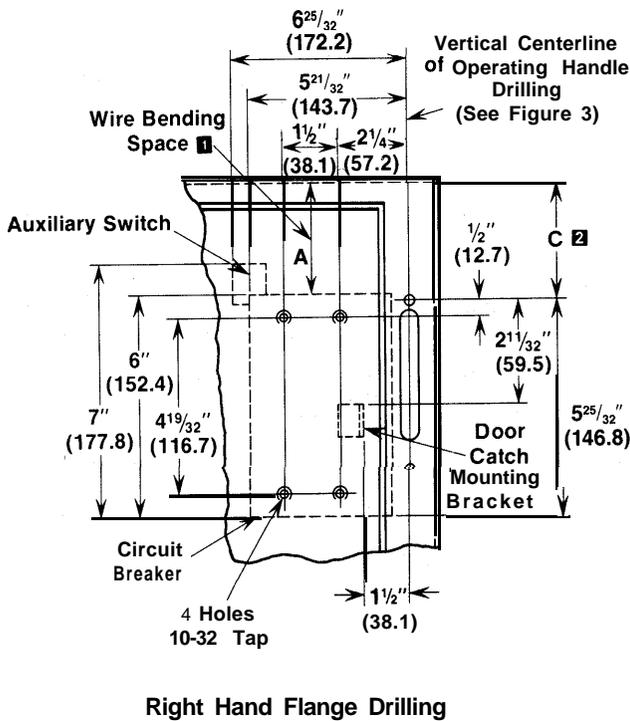


FIGURE 1  
Enclosure Construction

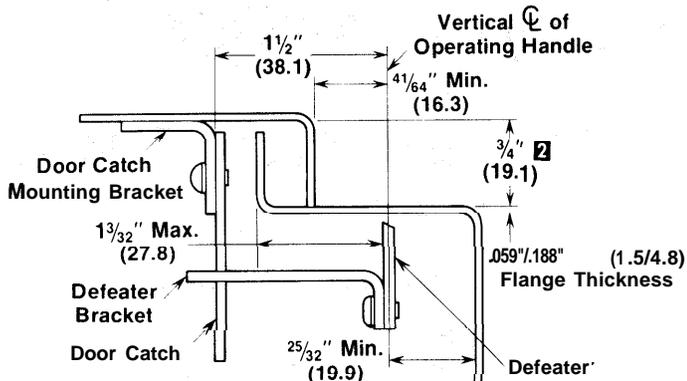
DIMENSION CHART			
Dimensions In Inches (Dimensions In Millimeters)			
Frame Size	Maximum Current Rating (Ampere)	A 1	C R
GOULD (ITE) E, EF EH	150	6 (152.4)	6 <sup>7</sup> / <sub>32</sub> (157.9)

- ❑ Wire bending space given is based on motor horsepower rated applications using 75°C insulated wire per 1984 N.E.C. Table 430-10(b).
- ❑ Minimum "C" dimension is 3<sup>1</sup>/<sub>2</sub>" (88.9) for applications where less than 6" (152.4) wire bending space is required.
- ❑ When the large hardware kits, Catalog Number 1494V-L3 or 1494V-LL3 are used, follow the kit instruction sheet for the minimum "N" dimension. The minimum "N" dimension when used with the remote or dual operating mechanisms is 7<sup>1</sup>/<sub>2</sub>" (190.5).

**Note:** Dimensions shown in parentheses are in millimeters.

40050-700-01(D)

Flange Details



2 Use 1 1/8" (28.6) for large enclosure door hardware.

FIGURE 2

Flange Drilling

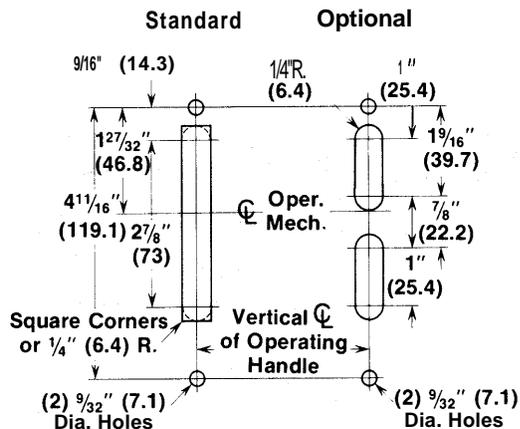


FIGURE 3

## Instructions

- NOTES:**
- The circuit breaker is not supplied with the kit.
  - All drawings in this instruction sheet are for a right hand installation. The left hand flange installation layout is a mirror image of the right hand flange installation layout.
- Determine the enclosure dimensions required for your application to verify that the enclosure is at least as large as the required minimum values and the flange design is as shown in Figure 2.
  - Check the thickness of the flange, 3/16" (4.8) or greater will require an alternate mounting kit (Catalog Number 1494-H3).
  - Channel installations may require a channel support kit (Catalog Number 1494V-H4) if flexing of the channel or the mounting plate prevent meeting the requirements in Step Number 11.
  - Refer to Figure 1 on Page 1 and the value for "A" in the Dimension Chart for the recommended wire bending space.

Values specified for "C" will provide "A" as shown; however, any change for "A" will cause an identical change in "C".

- Provide the flange drilling as required in Figures 2 and 3. The spring bracket provided with the operating handle (Catalog Number 1494V-H1 or W1) can be used as a template.
- Determine the location of the circuit breaker mounting holes on the enclosure mounting plate. Drill and tap as shown in Figure 1 on Page 1.
- Locate and mount the door catch mounting bracket as shown in Figure 1 on Page 1 and Figure 2 unless a door hardware kit (Catalog Numbers: 1494V-L1, LL1, L2, L3 or LL3) is used. Then use the door catch bracket or catch supplied with the door hardware kit.

**Note:** The bracket is provided with projections for welding; however, holes can be drilled in the bracket using the projections as centers. After proper location, use the bracket as a template and drill corresponding holes in the enclosure door. Fasten the bracket with hardware supplied by the user.

## Instructions for Installing Circuit Breaker and Short Operating Handle

- The bail mechanisms are assembled for right hand operation. To convert the bail mechanisms to left hand operation, remove the retaining ring and drive bar from the bail and assemble as shown in Figure 4.
- Cut the connecting rod, Figure 5, to the correct length using the formula  $S = N - 2^{15/16}$  (74.6). See Figure 1 for how to determine the "N" dimension for your application.
- Mount the operating handle (Catalog Number 1494V-H1 or W1), gasket and spring bracket, Figure 6, using the 1/4-20 x 5/8" hex head screw assemblies.
 

**NOTE:** The gasket must be installed in the handle housing groove as shown.
- Place the circuit breaker toggle in the "OFF" position.
- To assemble the bail mechanism to the circuit breaker, place the barrier on the two support bracket bushings as shown in Figure 6. Position the bail mechanism on the breaker so that the bail support bushings seat in the circuit breaker mounting holes, the toggle lever is under the toggle actuator, and the auxiliary switch mounting ears are on the line terminal end as shown in Figure 6. Insert the long mounting screws into the circuit breaker mounting holes.
- Position the circuit breaker assembly on the mounting plate so the four mounting screws are perpendicular to the mounting surface and aligned with the four tapped holes. Secure the breaker in position by tightening the mounting screws.
- Make sure the toggle actuator is in the center of its adjustment range and tightly secured with the two screws.

**Note:** Dimensions shown in parentheses are in millimeters.

## Instructions for Installing Circuit Breaker and Short Operating Handle

8. Turn the connecting rod 10 full turns into the drive bar, Figure 6.
9. Press the defearer, Figure 6, down and lift the operating handle slightly as you insert the nose and then the ear of the connecting link through slots A and B respectively in the connecting rod, Figure 5.
10. Attach the handle return spring, Figure 6, as shown.
11. Adjust the connecting rod to the shortest  $\frac{1}{2}$  turn that will permit the operating handle to rest against the handle stops, Figure 6, in the "OFF" position. This **MUST** be done to ensure that the operating handle engages the defearer.
 

**NOTE:** It may be easier to remove the handle return spring each time an adjustment is made.
12. Move the operating handle from the "OFF" to "ON" and then from "ON" to "OFF" to ensure proper mechanical and electrical operation. The operating handle should also rest against the handle stops in the "ON" position.
13. Insert the hitch pin, Figure 5, in the hole of the ear on the connecting link, Figure 6.
14. Assemble the defearer bracket as shown in Figure 2 for right hand operation using the two #6-32 x  $\frac{5}{16}$ " pan head screw assemblies. Mount the defearer bracket on the opposite side of the defearer for left hand operation.
15. Fasten the door catch as shown in Figures 2 and 6, to the door catch mounting bracket with two lock washers and #10-32 x  $\frac{1}{4}$ " screws provided.
16. Door catch adjustment (for enclosures not using door hardware kits).
  - a. Close the door. If the operating handle cannot be moved to the "ON" position, move the door catch downward forcing it to depress the defearer bracket more.
  - b. Try to open the door with the operating handle in the "ON" position. The door catch must engage the defearer bracket and prevent the door from opening until the defearer screw, Figure 6, is turned. Readjust the door catch if required.

### Circuit Breaker Removal or Installation

The procedure to follow when removing or installing a circuit breaker once the initial installation has been completed is the same for left or right hand operation.

#### 1. Removal

- a. Disconnect the wires.
- b. Remove the operating handle return spring and the hitch pin.
- c. Separate the connecting rod from the connecting link of the operating handle.
- d. Remove the circuit breaker assembly.

#### 2. Installation

- a. Secure the circuit breaker assembly to the mounting surface making sure the circuit breaker toggle is under the toggle actuator of the bail mechanism.
- b. Join the connecting rod and operating handle connecting link together.
- c. Replace the hitch pin and the operating handle return spring.
- d. Check for proper mechanical and electrical operation. (Refer to Steps Number 11 and 12.)
- e. Connect the wires.

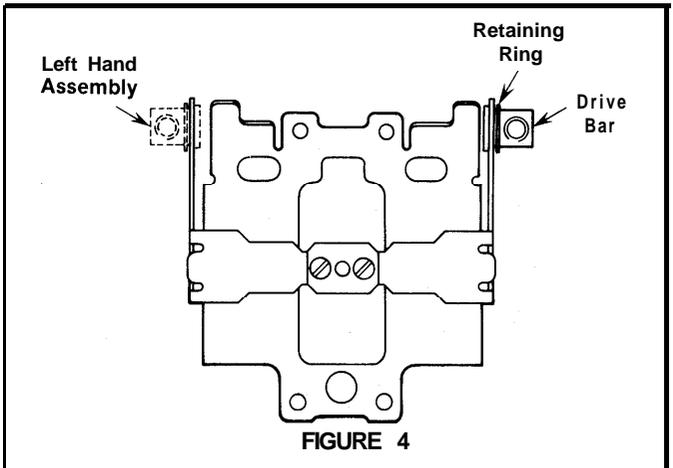
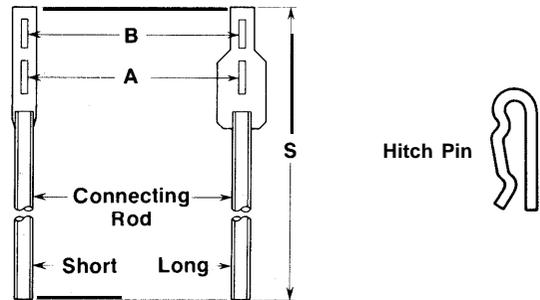


FIGURE 4



Rod	Catalog Number	"N" RANGE	
		(Gould)	ITE
Short	1494V-RA1	6 $\frac{3}{4}$ " to 9 $\frac{1}{8}$ " (171.5) to (231.8)	
Long	1494V-RA2	9 $\frac{1}{8}$ " to 22 $\frac{3}{4}$ " (231.8) to (577.9)	

FIGURE 5

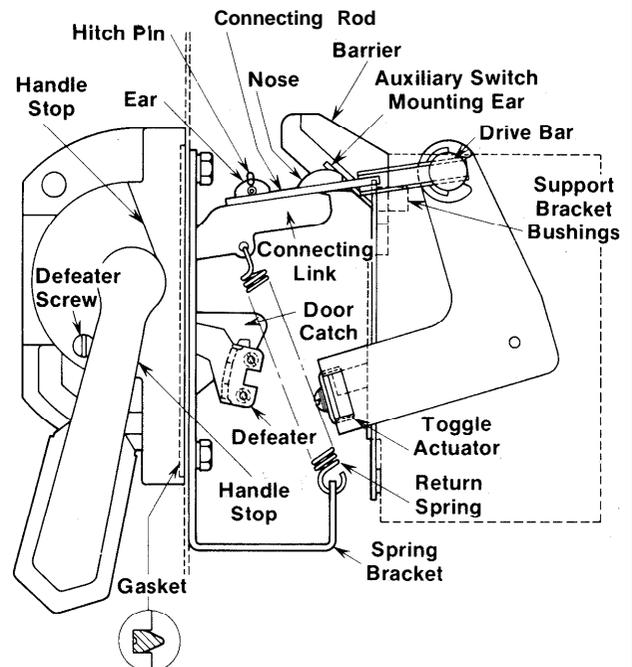


FIGURE 6

**Note:** Dimensions shown in parentheses are in millimeters.



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