



POWER-BREAK CIRCUIT BREAKERS

600-4000A FRAMES, THREE-POLE, 600 VAC, 250 VDC *

*DC Rating Applies to breakers with MagneTrip™ only

INTRODUCTION

Power-Break circuit breakers control and protect low-voltage (up to 600 volts) power circuits by safely switching loads, and automatically clearing circuits when abnormal conditions occur. Some of the more common conditions are short circuits, sustained overloads, and ground faults.

The proper use, care, and maintenance of these breakers is a prime safety consideration for the protection of personnel, as well as a means of minimizing equipment damage.

RECEIVING AND HANDLING

Each breaker is carefully inspected and packed before shipment. Immediately upon receipt, the circuit breaker should be inspected for any damage sustained in transit. If damage or rough handling is evident, a damage claim should be filed immediately with the carrier and the nearest General Electric Sales Office should be notified.

Proper care should be exercised during unpacking and installation of the breaker to prevent damage from careless or rough handling, or from exposure to moisture or dirt.

LIFTING

CAUTION: Under no circumstances should a breaker be lifted by the operating handle alone.

Table 1 lists the weights of Power-Break circuit breakers for indicated frames and types.

The methods of lifting the circuit breakers are:

- 600-1600A Frames
Lift as shown in Fig. 1.
- 2000-3000A Frames
Secure lifting ropes under handle and back studs for back-connected breakers, or handle and lifting cleats for front-connected breakers (see Fig. 2).
- 4000A Frames
Secure lifting hooks to frame, as shown in Fig. 3.

TABLE 1

POWER-BREAK CIRCUIT BREAKER WEIGHTS

Frame Rating	Type	Weight (Lb)
600A	Manual	50
600A	Electrical	64
1600A	Manual	76
1600A	Electrical	90
2000A	Manual	150
2000A	Electrical	190
2500A	Manual	160
2500A	Electrical	200
3000A	Manual	210
3000A	Electrical	250
4000A	Manual	320
4000A	Electrical	360

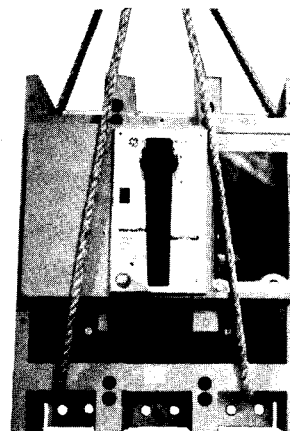


Fig. 1

STORAGE

It is recommended that a breaker be placed in service immediately in its permanent location. However, if it must be stored for an indefinite period it should be carefully protected against condensation, preferably by storage in a warm dry room. Circuit breakers for outdoor equipment should be stored in that equipment only when power is available and heaters are in operation to prevent condensation. The breaker should be

Instructions

stored in a clean location, free from corrosive gases or fumes. Particular care should be taken to protect the equipment from moisture and cement dust, as this combination may have a corrosive effect.

If the breaker is stored for any length of time, it should be inspected periodically to ensure good mechanical condition. Clean and dry the breaker thoroughly before placing in service.

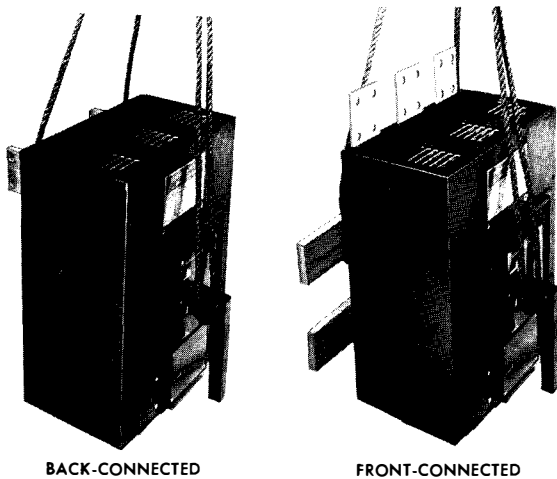


Fig. 2

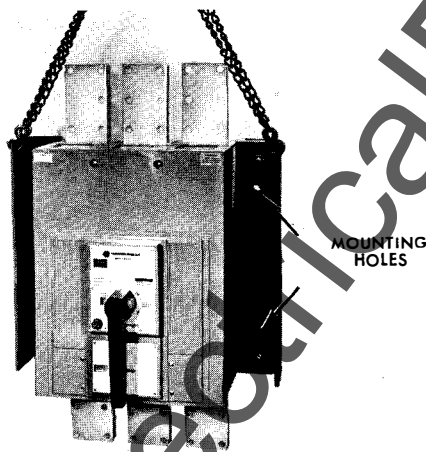


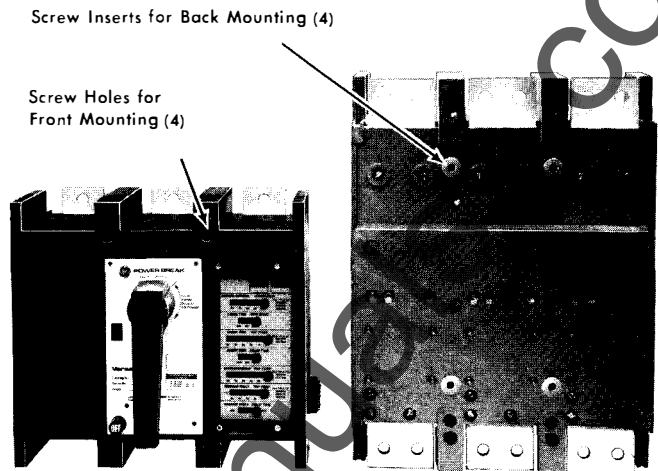
Fig. 3

MOUNTING

600-1600A Breaker Frames

Front mounting — Fig. 4:
Use (4) 1/4-20 screws through front of breaker.

Back mounting — Fig. 5:
Use (4) 1/4-20 by 1/2-inch deep inserts in back of breaker. Mounting screws, either front or back mounted, should be torqued to 50 inch-pounds.



600A Frame Shown
Fig. 4

1600A Frame Shown
Fig. 5

2000-3000A Breaker Frames

Front- or back-mounting screws should be torqued to 250 inch-pounds.

Front-mounting — Fig. 2:
Use (4) 5/8-inch bolts through clearance holes in aluminum mounting straps.

Back-mounting — Fig. 6:
Use (6) 3/8-16 by 5/8-inch deep inserts in back of breaker.

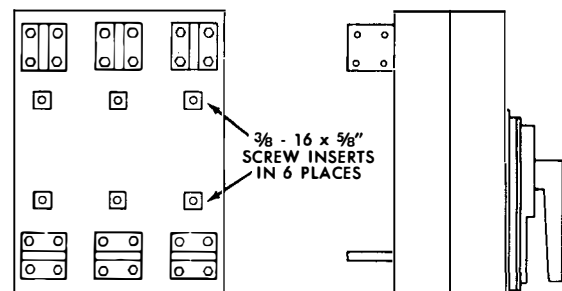
4000A Breaker Frame

Use (4) 5/8-inch bolts through clearance holes as shown in Fig. 3.

Torque to 250 inch-pounds.

ELECTRICAL CONNECTIONS

Terminal Studs (Fig. 6) and Bus



STUBS MAY BE ROTATED 90° (SEE ABOVE)
FOR VERTICAL OR HORIZONTAL POSITIONS

Fig. 6

- Using an industry accepted solvent, remove any foreign material from the line and load strap surfaces and the corresponding surfaces of connecting bus or terminal studs (when supplied). Ensure that the mating surfaces are smooth and free from burrs or nicks.
- Place bus or terminal studs in desired position and align mounting holes.
- Insert and fasten securely all hex-head bolts and washers per Table 2 below.

TABLE 2
BOLT TORQUES

Breaker Frame	Terminal Stud		Bus Connection	
	Bolt Size (DIA)	Torque (In-Lb)	Bolt Size (DIA)	Torque (In-Lb)
600	—	—	(1) 1/2 in.	300
1200-1600	—	—	(2) 1/2 in.	300
2000-3000*	(4) 3/8-16	200	(4) 3/8 in.	200
4000	(6) 1/2-13	300	(4) 1/2 in.	300

*3000A Back-connected Terminal studs are factory brazed to breaker.

Neutral Current Transformers (CT)

All Solid-State breakers containing integral ground-fault protection are supplied with terminals for neutral CT connection when required. When used, the neutral CT is wired as shown in Fig. 7. If not used, **DO NOT** short terminal board points. Leave as supplied from factory.

CAUTION: Observe all polarity markings on CT and breaker.

NOTE: Neutral CT can only be used with solid-state breaker of same ampere rating.

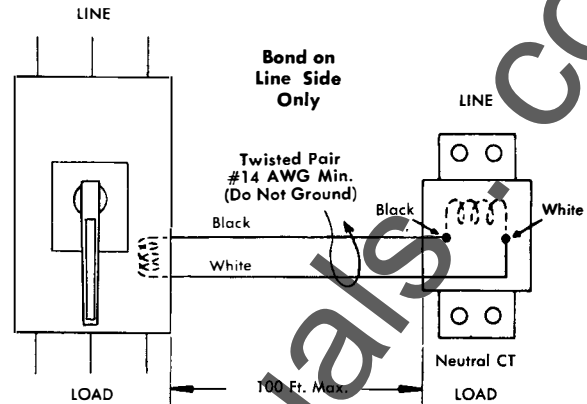


Fig. 7

TRIP SETTINGS Fig. 8 and 8A

Versatrip or Selectrip™

- Remove clear-plastic protective window.
- Change trip settings by removing black thumb-screw, sliding to desired position, replacing and tightening.
- Reinstall plastic window.

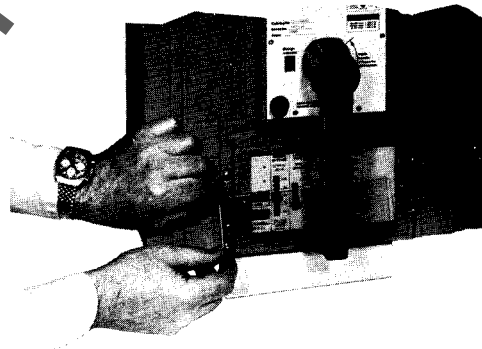


Fig. 8

Magnetrip™

- Remove protective escutcheon plate.
- Change trip setting by rotating plastic buttons with a screwdriver.
- Reinstall escutcheon plate.

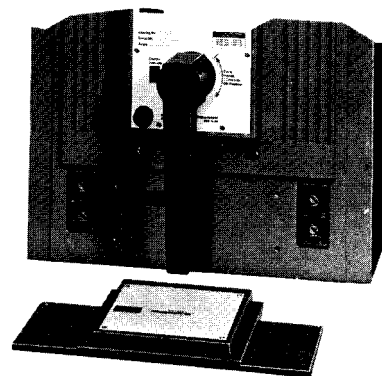


Fig. 8A

MAINTENANCE

WARNING: Before beginning any maintenance work, the breaker must be disconnected from all voltage sources, both power and control, and must be in the off (open) position.

NOTE: UL listing is voided when the circuit breaker is modified in any way. The UL label must be destroyed.

Circuit breakers should be maintained through the implementation of a systematic maintenance program. A periodic inspection routine is recommended. The frequency of inspection should depend on the environmental conditions of each breaker. All circuit breakers should be inspected at least annually. If it is operated frequently, or installed in an area of high humidity, dusty, or dirty atmosphere, the frequency of maintenance inspections should be increased. Under extreme adverse conditions, monthly inspections are recommended.

The maintenance inspection should begin with an overall visual check.

If dirt, grease, or any other foreign material is found on or in the breaker, it should be thoroughly and carefully cleaned. Do not use solvents on insulating material.

A rotating program providing for a periodic withdrawal from service of each breaker in turn for inspection and maintenance, is an excellent means of establishing a high level of service reliability. In such cases, one or more spare circuit breakers and all accessories should be available during the maintenance inspection to replace any breaker that may be removed for repairs.

NOTE: When ordering spare parts, always enclose the complete information from the nameplate, including the circuit breaker's serial number.

LUBRICATION

Moderate lubrication is all that is required for most circuit breakers. Mechanical bearing points and sliding surfaces should be lubricated at the regular inspection periods with a thin film of molybdenum disulfide (Molykote G), or Mobil grease No. 28. It is recommended that kerosene be used to remove hardened grease and dirt from the

latch and bearing surfaces. All excess lubricant should be removed to avoid any accumulation of dirt or dust.

CAUTION: Under no circumstances should lubricant be applied to contact areas.

ACCESSORIES

The control leads of internally mounted accessories exit in pigtail form from the side of the breaker for the 600A through 1600A frames, or from the back of the breaker for the 2000A through 4000A frames. These leads are terminated at the secondary disconnect points for drawout breakers, or at optional terminal blocks when specified for stationary breakers. All leads are color coded as shown in Table 3.

TABLE 3

CIRCUIT BREAKER ACCESSORY
LEAD COLOR CODE

Accessory	Lead Color*			Leads per Accessory
Shunt Trip	Black			2
Under-voltage Release	Blue			2
Auxiliary Switch	White — COMMON Red — OPEN †Brown/White — CLOSED			3 Per Switch
Bell Alarm	Yellow — COMMON Purple — OPEN Brown — CLOSED			3
Blown Fuse Trip (3-Coil Shunt Trip)	Line End	Load End	Phase	6
	Red	†Brown/White	A	
	Blue	White	B	
	Yellow	Black	C	

*Switch contacts are shown with the breaker in an overcurrent tripped position.

†Formerly Green.