



Tri-Break® Fused Circuit Breaker

Installation and Maintenance Instructions

Description

Tri-Break molded-case circuit breakers combine the overload and moderate short-circuit protecting action of a circuit breaker with the high-level fault current-limiting ability of current-limiting fuses. The fuse-type current limiter does not interrupt overloads and moderate fault currents (which the breaker interrupts), but is designed specifically to coordinate with the breaker to interrupt high-level faults.

The fuse-type current limiter has a spring-loaded plunger that pops up when the fuse blows and trips the breaker. This eliminates single-phasing, which could occur if fuses alone were used.

The current-limiting housing cover, shown in Figure 1, is interlocked so that the circuit breaker cannot be closed when the cover is removed. Also, if the circuit breaker is closed, removing the cover causes the breaker to trip. Interlocks also prevent the breaker from closing if a current limiter is either missing or has blown.

Tri-Break fused circuit breakers are shipped complete with noninterchangeable trip units and current limiters installed. Check with the factory if it is necessary to replace the trip unit. Different current limiters are available for each frame size, as listed in Table 1.

Installation Instructions

Tri-Break fused circuit breakers may be mounted with their poles either horizontal or vertical. Use the following procedure for installation.

CAUTION: Tri-Break fused circuit breakers should not be reverse fed, as this would keep the current limiters and their contacts energized even when the circuit breaker contacts are open. Fuse-type current limiter and current limiter cover interlocks provide maximum personal safety when the device is properly installed.

ATTENTION: Les disjoncteurs à fusibles Tri-Break ne doivent pas être alimentés de façon inversée car ceci garderait les limiteurs de courant et leurs contacts sous tension. Les limiteurs de courant de genre fusible et les mécanismes de verrouillage du couvercle du limiteur de courant procurent une sécurité du personnel maximale lorsque le dispositif est installé correctement.

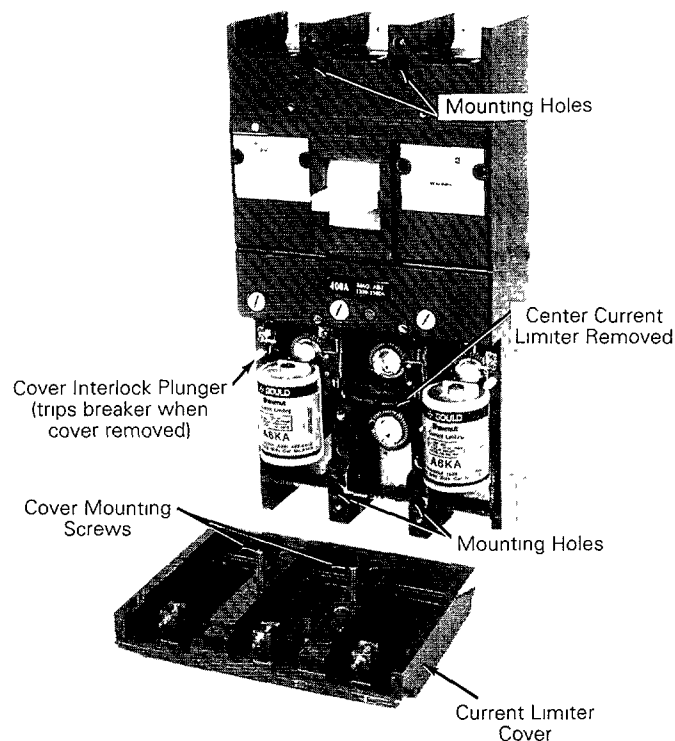
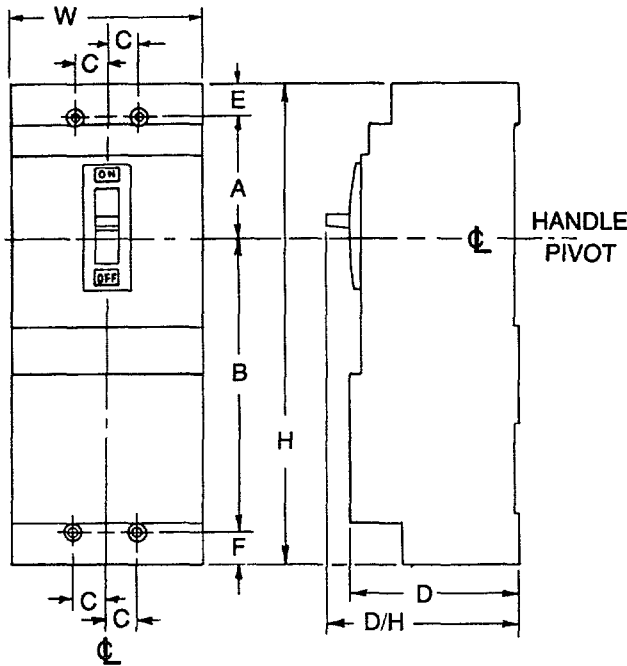


Figure 1 Tri-Break fused circuit breaker.

1. If necessary, remove the current limiter cover to expose the mounting holes. Figure 2 contains the outline and mounting dimensions for the various frame sizes. The mounting surface and holes should be prepared carefully to eliminate any possible twist or strain on the breaker.
2. Ensure that the current limiters are fully seated in their connectors. The TB8 frame breakers use bolt-on limiters; torque the limiter screws to 40 in-lb. The fuse-type current limiters are thermal devices; loose connections can cause overheating and nuisance tripping.
3. Tighten all lug mounting screws and wire-clamping screws to the torque specifications indicated in Figure 3 for the various frame sizes.
4. Tri-Break fused circuit breakers are usually applied in high-capacity systems; ensure that the bus is adequately braced and the load wiring is tightly laced and served.



Model	W	H	D	D/H max	A	B	C	E	F
TB1	4 1/8	10 5/16	3 5/8	4 9/64	2 41/64	6 17/64	1 1/16	2 3/32	1 1/16
TB4	8 1/4	16 1/8	4 1/2	5 3/8	3 15/16	9 13/16	1 3/8	1 3/16	1 3/16
TB6 & TB8	8 1/4	21 7/8	5 7/8	7 1/16	8 9/16	12 1/16	1 3/8	5/8	5/8

Figure 2 Outline of breaker with dimensions

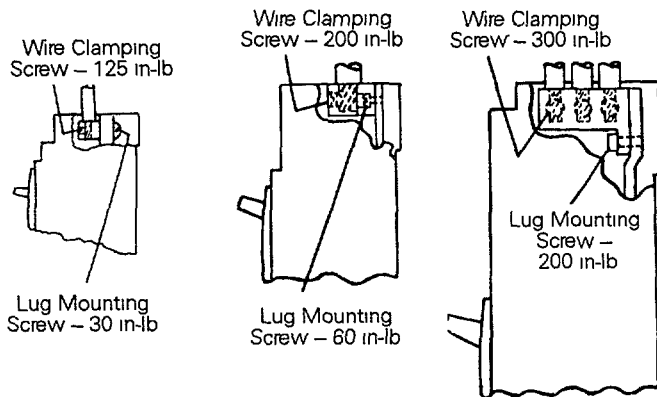


Figure 3 Torque specifications for lug-mounting and wire-clamping screws on the various frame sizes

- Standard Tri-Break breakers are listed in Table 1. The complete fused circuit breaker is ordered and shipped with the proper current limiters for the application. If the limiters are removed, ensure that they are replaced in the same device.

Breaker Frame	Current Limiter Catalog Numbers	
	General Electric	Gould Shawmut
TB1 15-45 A	TB4E05	A6FG
TB1 50-100 A	TB7E09	A6FH
TB4 400 A	TB10F14	A6KA
TB6 600 A	TB10BJ14	A6MC
TB8 800 A	TB15K22	A6MH

Table 1. Catalog numbers of current limiters available for each breaker frame size.

Maintenance and Trouble-Shooting

- Nuisance tripping—no overload exists.

Probable Cause	Remedy
High ambient temperature.	Derate the breaker or reduce the ambient temperature.
Dirty terminal connections	Remove the terminals and clean with an industry-recognized contact cleaner.
Loose electrical connections.	Tighten the lugs and cable connections as per Figure 3

- Overload tripping characteristics.

- The breaker will be hot because of the overload current.
- The breaker will not reset for several minutes until the thermal element cools.
- The fuse-type current limiters may be hot, but not blown.

- Moderate-fault short circuit tripping characteristics.

- The circuit breaker can be reset immediately, since the tripping was caused by an instantaneous magnetic trip.
- The fuse-type current limiters may be hot, but not blown.

- High-level short circuit tripping characteristics.

- The circuit breaker cannot be closed because the "pop-up" plunger of the fuse-type current limiter, shown in Figure 4, actuated the trip.

- Current limiter replacement.

- Remove the current limiter cover and replace the blown limiters. Blown fuse-type current limiters can be identified by the "pop-up" plunger, as shown in Figure 4.

CAUTION: Tri-Break fused circuit breakers are ordered and shipped with the proper fuse-type current limiters required for the specific application. The limiters should be replaced only with units with the same catalog number.

ATTENTION: Les disjoncteurs à fusibles Tri-Break sont commandés et livrés avec les limiteurs de courant de genre fusible adéquats, requis pour une application spécifique. Les limiteurs ne devraient être remplacés que par des unités ayant le même numéro de catalogue.

Accessories

Factory-mounted accessories are available with Tri-Break fused circuit breakers.

Standard externally mounted accessories, such as motor-operated mechanisms and integral handles, can be mounted in the field.

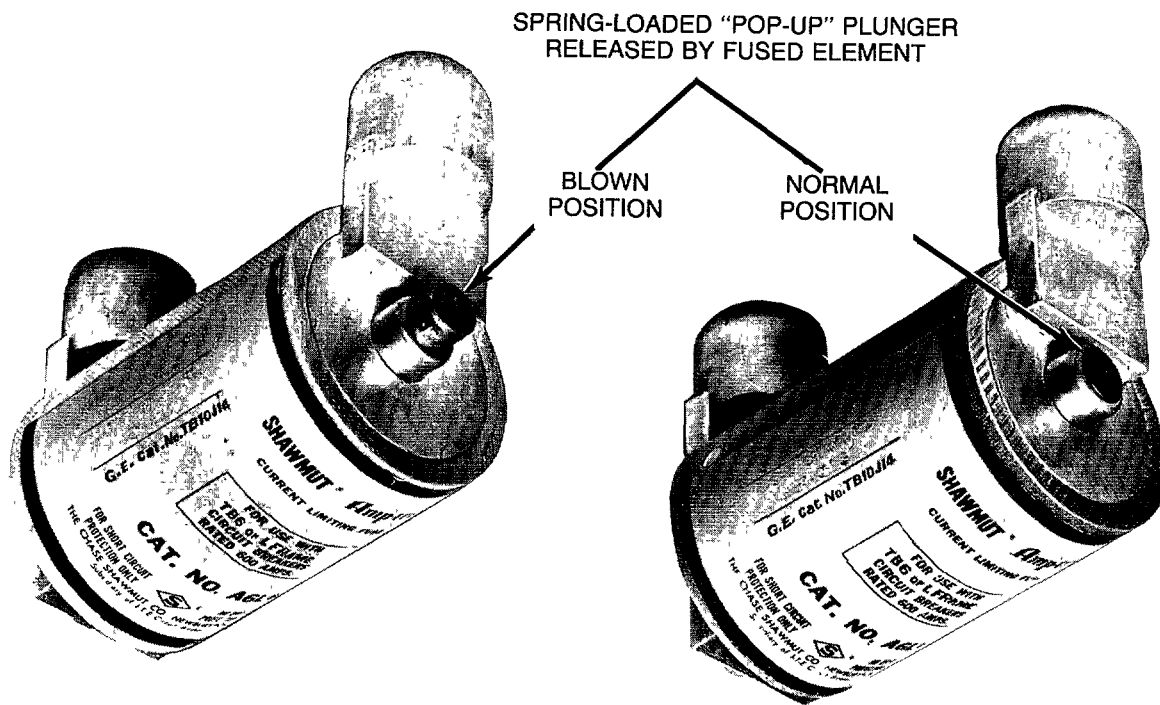


Figure 4 Fuse-type current limiters in the blown and normal positions

These instructions do not cover all details or variations in equipment nor do they provide for every possible contingency that may be met in connection with installation, operation, or maintenance. Should further information be desired or should particular problems arise that are not covered sufficiently for the purchaser's purposes, the matter should be referred to the GE Company.



GE Electrical Distribution & Control