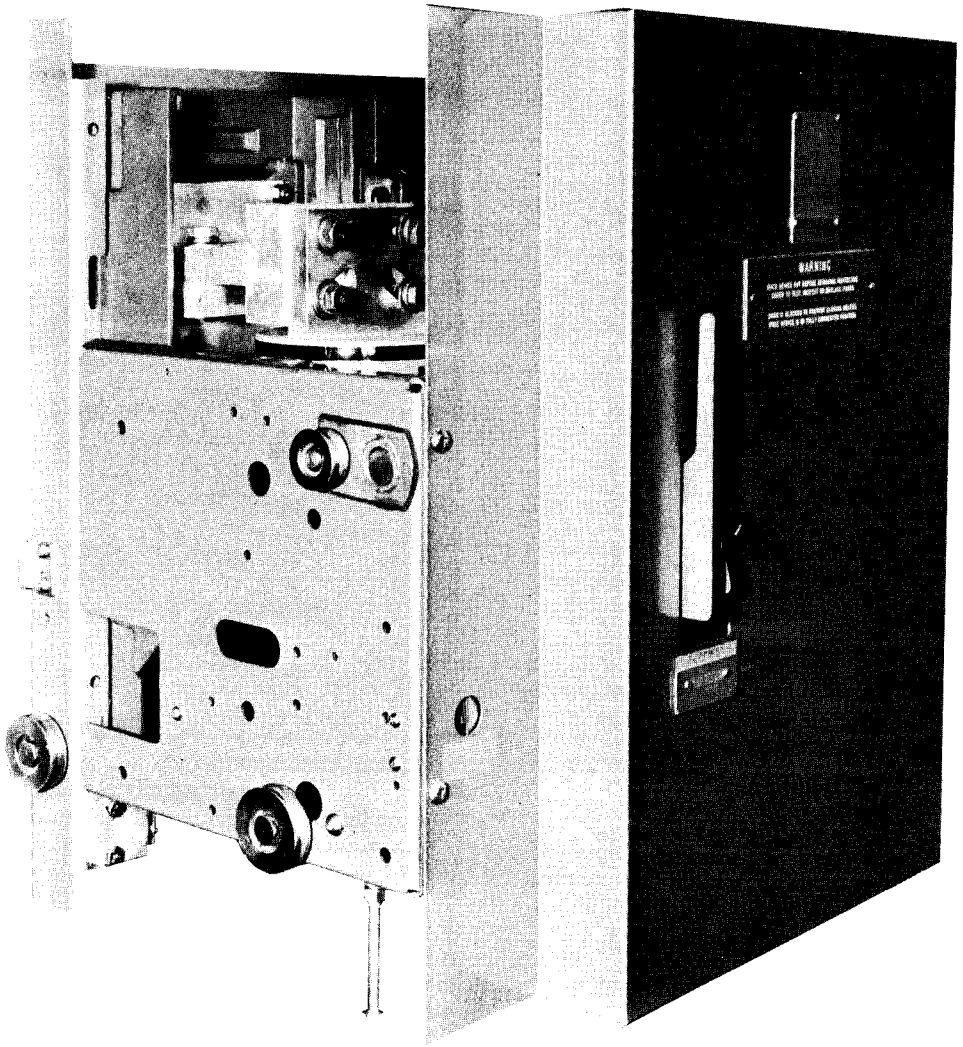
IB-9.2.7-2
ISSUE B

FUSED LOW-VOLTAGE POWER CIRCUIT BREAKERS

INSTRUCTIONS

OPERATION & MAINTENANCE SUPPLEMENT

DRAWOUT CURRENT-LIMITING FUSE DEVICE



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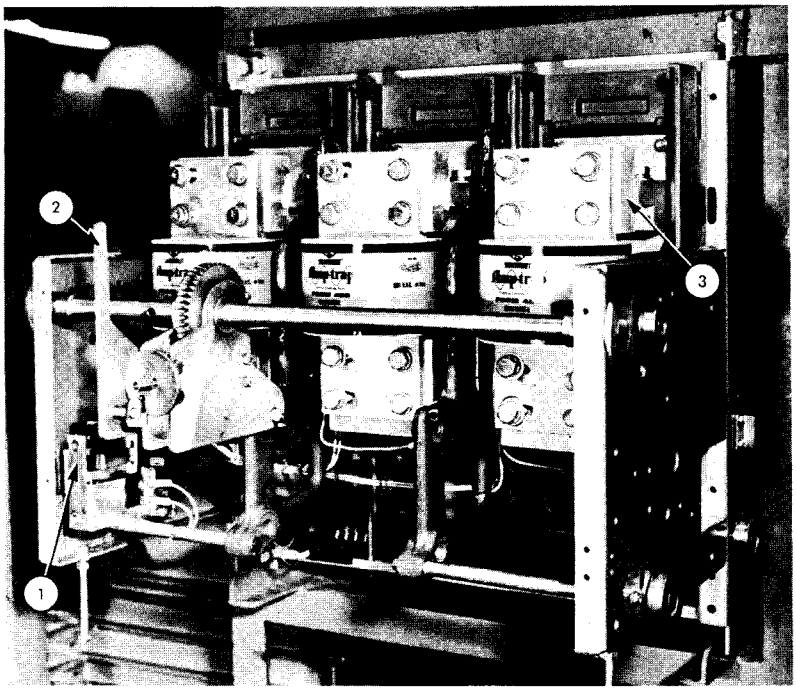

Fig. 1

OPERATION AND MAINTENANCE SUPPLEMENT FOR DRAWOUT CURRENT-LIMITING FUSE DEVICE

INTRODUCTION

Drawout current-limiting fuse devices are available in nominal continuous current ratings of 3000 and 4000 amperes respectively. They incorporate a current-limiting fuse for each phase and an anti-single-phasing device. Whenever a fault occurs to open any of the fuses, the anti-single-phase device switch closes to energize the shunt trip of the circuit breaker associated with the drawout fuse device. Each unit will accept a range of fuses to allow a fuse suitable for the proper coordination with the associated circuit breaker or breakers.

The drawout fuse devices are constructed on the same basic frame, use the same basic withdrawal racking mechanism and the same main separable contacts as the K-3000 and K-4000 circuit breakers of corresponding current ratings. The fuse device and associated circuit breakers are not interchangeable in the switchboard compartments because a blocking feature prevents this. Read these instructions thoroughly before installing or doing any work on the drawout fuse device.

Refer to the K-3000/K-4000 circuit breaker instruction bulletin IB-9.1.7-4 for receiving, storage, handling and installation.

CURRENT-LIMITING FUSES

The current-limiting fuses normally mounted on the drawout fuse device are the Chase-Shawmut class L type with the continuous current rating dependent on the coordination between the fuses, the direct-acting trip devices of the circuit breaker associated with the drawout fuse device and other protected equipment. The maximum continuous current rating of installed fuses is limited to the maximum 6000 Ampere rating available.

When a fuse or more than one fuse has blown, it is recommended that all three fuses be replaced regardless of apparent condition because the time-current characteristic of an unblown fuse could be affected and thus system coordination would be affected.

Replacement fuses MUST be the current-limiting type and are to be the Chase-Shawmut Type, Catalog AB4Y, Type 55, of the same continuous current rating as previously installed so that coordination is not affected. Any other type fuse will not necessarily provide proper coordination and protection.

ANTI-SINGLE-PHASE DEVICE (See Figs. 1 and 2)

The anti-single-phase device supplied on drawout fuse devices provides automatic opening of the circuit breaker, associated with the fuse drawout device, to prevent single-phasing of protected equipment when one or more fuses open.

The device consists of three voltage coils with one coil wired in parallel with each fuse. The coils operate on the voltage produced by the fuse during interruption. This causes the anti-single-phase device switch to energize the circuit breaker shunt trip which opens the circuit breaker.

When the anti-single-phase device operates, an indicator (1, Fig. 1) will extend through the front of the barrier providing indication that at least one fuse has opened. This is visible only with the door open. If the associated circuit breaker automatic trip indicator is extended but the anti-single-phase device indicator of the drawout fuse device is not extended, then the circuit breaker opened from direct-acting trip device operation because of a small overload which did not affect the fuses.

If the anti-single-phase device indicator is extended, the associated circuit breaker cannot be reclosed because the shunt trip device will be re-energized. If the indicator is inadvertently reset and the circuit breaker reclosed before the fuses are replaced, the circuit breaker will safely open again, when there is load current, but this practice is not recommended.

After the fuses have been replaced and the fault removed, the anti-single-phase device indicator should be reset by pushing the indicator in (1. Fig. 1). The associated circuit breaker may then be closed after key interlock interchange, and service resumed.

The design of the anti-single-phase device is such that no maintenance or adjustment is necessary on this device for its normal operating life.

INTERLOCKS

The door of the compartment, housing the drawout fuse device, must be interlocked with the circuit breaker by use of a Type D Kirk Interlock. This insures that the associated circuit breaker must be in the open position before the door of the fuse drawout unit can be opened and the circuit breaker cannot be closed until the drawout fuse device compartment door is closed.

Door interlock (2, Fig. 1) prevents closing the compartment door if the drawout fuse assembly is not in the connected position.

FOR SAFETY

The compartment door of the drawout fuse device is interlocked with the associated circuit breaker such that the circuit breaker must be open before the

drawout fuse device compartment door can be opened; however, the fuses and terminals will still be energized if the drawout fuse device: is connected on the line side of the circuit breaker; or when connected on the load side, there is a back feed situation. For this reason, the instructions on the front barrier of the device should be followed; and it should be withdrawn before beginning any work.

FUSE REPLACEMENT

To check or replace fuses, the fuse device should be withdrawn from its compartment to the limit of its stop. If fuses are to be replaced, the front barrier is removed by removing four $\frac{1}{4}$-20 screws. Fuses are removed by removing eight bolts at each fuse. The "T" block (3, Fig. 1) must also be removed on the larger fuses. When installing fuses, the bolts should be tightened to 85 ft/lbs. The front barrier must be installed for safety. All of the above work can be done with the fuse device in the withdrawn position or at a workbench.

NOTE - Do not remove any of the anti-single-phase device wires.

INSTALLATION

Follow the same instructions for the drawout fuse device as for K-3000 and K-4000 circuit breakers (IB-9.1.7-4); however, note that the door interlock (2, Fig. 1) must be held out by hand while racking past the disconnect and test positions.

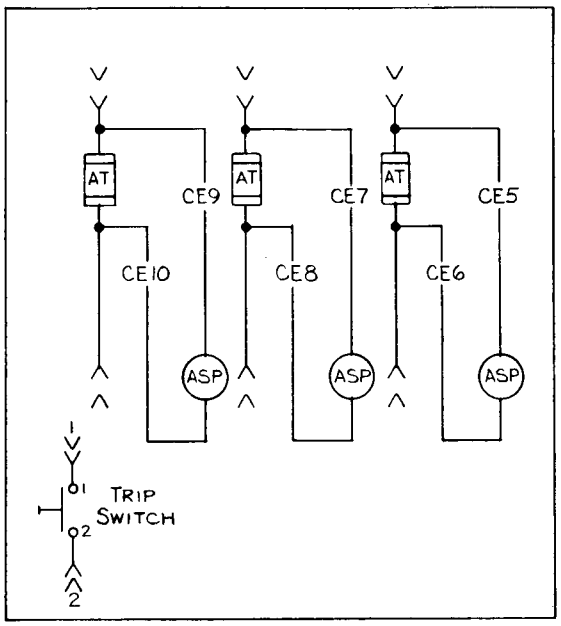

Fig. 2

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- LEGEND -

AT - AMP TRAP* (CURRENT-LIMITING FUSE)

ASP - ANTI-SINGLE PHASING COIL. WHEN AMP TRAP IS BLOWN, ANTI-SINGLE PHASING COIL TRIPS CIRCUIT BREAKER BY CLOSING CONTACTS OF "TRIP SWITCH". "TRIP SWITCH" CONTACTS MUST BE WIRED TO CIRCUIT BREAKER TRIP CIRCUIT.

* Amp-trap—Registered Trademark, The Chase-Shawmut Company.