



M AINTENANCE I NSTRUCTION

AC MAGNETIC CONTACTOR 8080572, 8127019 AND 8138370

DESCRIPTION

The AC magnetic contactor, Fig. 1, is a three-pole switch actuated by an electro-magnetic coil which receives DC current from the control circuit supply. When the coil of the contactor is energized the main contacts close simultaneously to supply AC power for operation of the cooling system fan motor.

Contactor assembly #8080572 used on Model F2 and earlier F3 locomotives consists of a clapper type armature, three normally open main contacts and one normally open and one normally closed interlock. The coil of this contactor consists of two windings, one winding for actuating the pickup and the other winding for holding the main contacts in closed position after pickup. The two thermal overload relays originally included with this contactor assembly are no longer used on Basic Locomotives.

The thermal relay (TOR) may be removed from the AC contactor, and the contactor rewired according to Fig. 2; or the thermal relays may be left in place and by-passed by rewiring according to Fig. 3. When replacing early AC contactor #8080572 with present type contactor #8138370, wire according to Fig. 4.

Contactor assembly #8127019 without thermal overload relays replaced contactor #8080572 as tests and field experience have proved that the alternator is capable of withstanding single phasing overloads thereby eliminating the need for the thermal overload relays. This contactor assembly is of the same design and construction as the #8080572 contactor except that there are no thermal relays.

Contactor #8127019 is no longer used and can be readily replaced by present production contactor #8138370 since the mounting is identical and the wiring to the contactor is the same. This new contactor

has a single winding coil that actuates and holds the contactor in "closed" position.

The new contactor #8138370 consists of a plunger type armature with three normally open main contacts and one normally open interlock. The movable contacts are assembled to a plunger rod and cross bar assembly and are actuated from a single plunger shaft. The normally open interlock is used only where the thermostat switch assembly is applied.

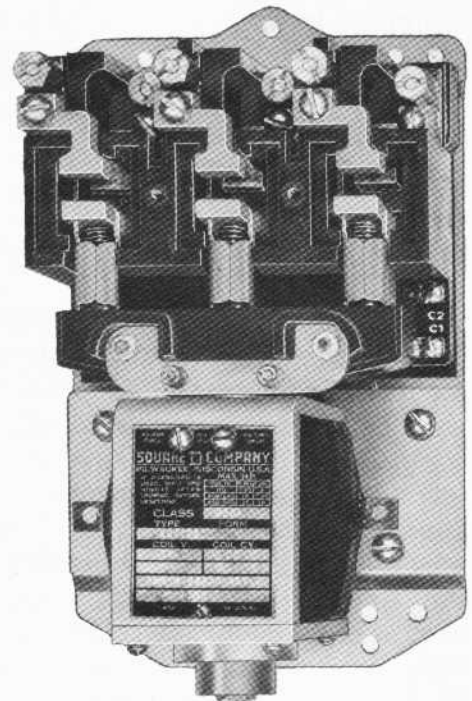
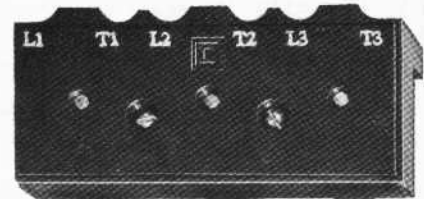


Fig. 1 - AC Magnetic Contactor

* THIS BULLETIN SUPERSEDES ALL ISSUES OF M. I. 590.

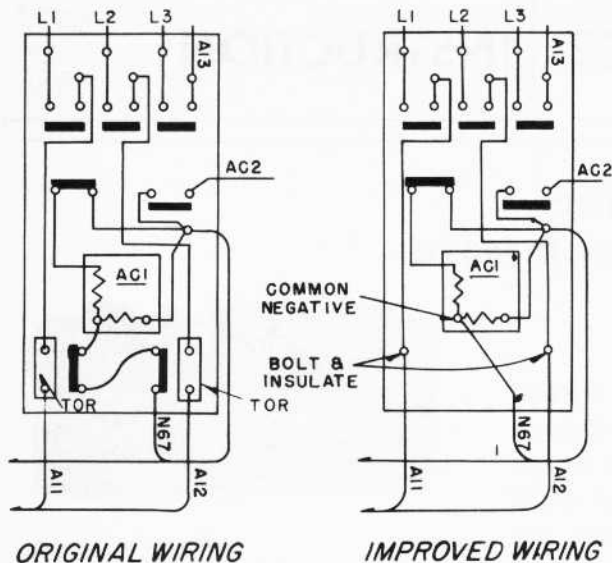


Fig. 2 - Rewiring AC Contactor
When TOR Is Removed

MAINTENANCE

Inspection

Inspect and clean the contactors at periods specified in the Scheduled Maintenance Program. Accumulation of dust should be removed with a soft brush.

A three-phase motor (such as the cooling fan motor) which is operating on single-phase because of some defect in the line or in the stator winding may overheat considerably. The fault sometimes occurs from (1) defective contacts, (2) binding of moving parts in contactor or (3) in the line leads from the alternator to the contactor and from the contactor to the fan motor.

Inspect all moving parts for wear and binding.

Inspect contacts to see that they are not burned, thus making a poor contact.

Check finger springs on movable main contacts for weak and broken springs or sticking of springs in the spring pilot.

Inspect terminals and terminal nuts to see that they have not worked loose. Use terminal nut part #8155413. This

nut is 3/4" long and will permit use of either a screwdriver or socket. Difficulty was experienced in tightening terminal connections with old 9/16" terminal nuts.

To inspect contacts on assemblies #8080572 and 8127019 loosen screws and remove arc chamber cover. Next swing yoke bar assembly outward. The movable contact finger may be removed from the finger guide by tilting the contact edge-wise against the finger spring. The stationary contacts of each pole may be removed by withdrawing the screw at front and rear of the contact block.

To inspect the contacts on assembly #8138370, remove screws holding arc chamber cover assembly and remove cover assembly.

Main Contacts And Interlocks

The silver alloy contacts applied to these contactors may become blackened through normal operation but this will not impair their efficiency. Silver oxide is a good electrical conductor and no attempt to remove it need be made.

The use of abrasives to clean silver alloy contacts should absolutely be avoided. Abrasive particles can become imbedded in the contacts and prevent them from making. If any contact cleaning is necessary, use a clean lintless cloth. If beads form of sufficient size to hamper dimensional adjustment of contacts, they may be removed with a small clean mill file.

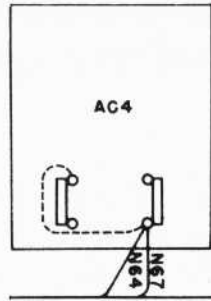
When the contact adjustment can no longer be maintained or when very little contact material remains, replace the entire contact assembly.

Auxiliary Contacts (Interlocks) (#8080572 And 8127019)

When replacing these contacts, or at inspection of the contactor, it is important that the normally open contact makes before the normally closed contact opens, otherwise, the contactor will chatter.

To Remove Magnet Coil (#8080572 And #8127019)

1. Remove screws to the arc chamber cover and remove cover.
2. Swing yoke bar assembly outward and disconnect control wires from the terminal.
3. Remove the magnet support pin by lifting the hinge clips holding it in place.
4. Remove the magnet coil frame by lifting forward.
5. To free the magnet coil from the frame remove the hex nut and the screw to release coil from the holder.
6. Install new coil and reassemble to the contactor in the reverse order of disassembly.



Optional Wiring

Fig. 3 - TOR Is Not Removed

NOTE: The markings "front" on magnet frame and armature should correspond when reassembling. Tag all wires from contactor to identify.

To Remove Magnet Coil (#8138370)

1. Remove four screws holding magnet bottom plate to magnet frame.

NOTE: Do not remove plunger from the plunger rod (unless plunger or rod must also be replaced) as this will disturb the air gap setting.

2. After removing bottom plate, remove coil from inside of magnet frame.
3. When installing coil locate pin on top of coil into hole in top of magnet frame.

MAINTENANCE DATA

Assembly Numbers 8080572 And 8127019

Coil (Double wound)

Pickup (Both coils in parallel) - - - - 2.7 amps.

Hold-in (On one coil after pickup) - - - -.2 amps.

Assembly Number 8138370

Contacts

Contact gap (new) - - - - 11/32"

Follow up - - - - 5/32"

Coil (Single Wound)

Resistance - - - 200 ohms at 20° C.

Operation

Working voltage - - - - 74 volts D.C.

Pickup - - - - 50 volts max.

Dropout - - - - 4-28 volts

Magnet Air Gap - - - - 1/2"

High Potential Test

Coil to ground 600 V., R.M.S., 60 cycles

Coil to contacts 600 V., R.M.S., 60 cycles

Contacts to ground 600 V., R.M.S., 60 cycles

FOR STUDS T1, T2, & T3
FOR STUDS L1, L2, & L3

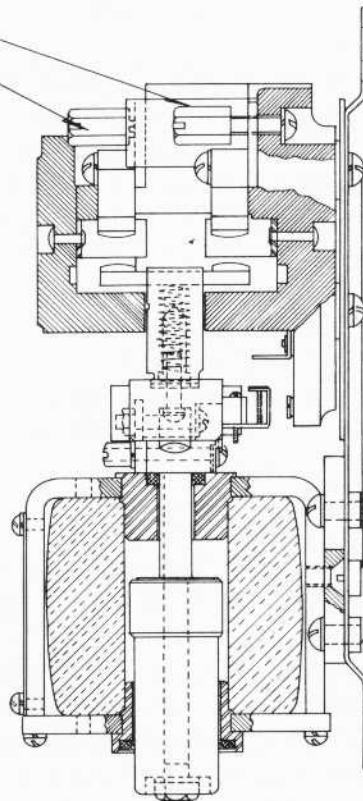
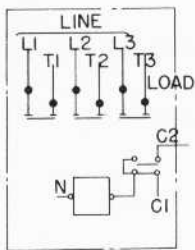


Fig. 4 - Cross Section View Of AC Contactor