



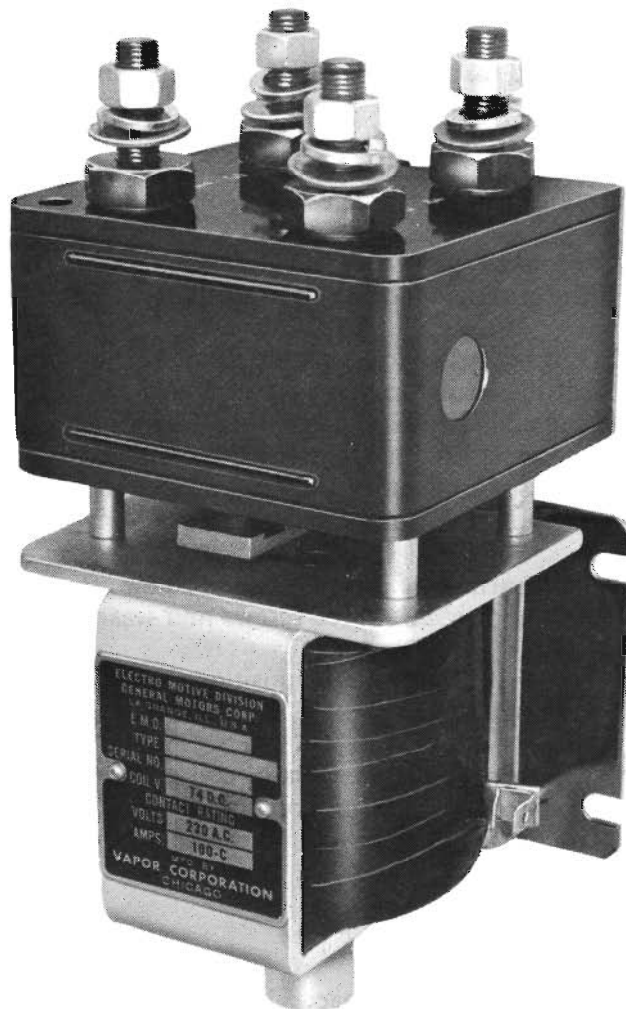
Electro-Motive Division
Of General Motors
La Grange, Illinois 60525

Maintenance Instruction

A.C. COOLING FAN, GENERATOR, AND BATTERY FIELD AUXILIARY CONTACTORS

DESCRIPTION

The two-pole, heavy-duty contactors, Fig. 1, are of the same basic construction, and are used in a variety of applications. Therefore, they may be equipped with or without auxiliary interlocks.



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Fig. 1 – A.C. Cooling Fan Contactor

Two sets of double-break, normally open main contacts are connected in series. These main contacts have top mounted, stud-type terminals equipped with self-locking nuts for permanently tight connections. Two sets of auxiliary contacts are mounted below the coil and frame assembly, if applicable. (Not shown.)

The coil assembly and auxiliary contacts are equipped with dual tab, quick disconnect terminals. Both main and auxiliary contacts (if provided) are protected with dust covers. A barrier plate protects the main contacts from excessive arcing.

OPERATION

The contacts operate off of a 74 V DC control current. The movable main contacts and auxiliary interlocks are connected to a metallic plunger that moves in a vertical path through the center of the operating coil. When the coil is energized, this plunger is attracted upward; the main contacts close, and the auxiliary interlocks change position according to the design of the different model contactors.

When the operating coil is de-energized, the return spring forces the plunger downward, opening the main contacts and returning the auxiliary interlocks to their normal positions.

MAINTENANCE

The dust free enclosure and use of silver alloy contacts result in minimum maintenance required to keep the contactors in serviceable condition. The silver alloy main contacts will operate satisfactorily even though blackened, pitted, or eroded. Contact surfaces should not be cleaned, dressed, or filed, to ensure against the possibility of abrasive particles becoming imbedded in the contact surface causing poor electrical contact and decreased contact life.

*This bulletin is revised and supersedes previous issues of this number.

The plunger override compensates for allowable contact wear, eliminating the need for contact adjustment due to wear.

The bearing surfaces are designed to operate without lubrication. Do NOT oil or grease at any time.

WARNING: It is important that service personnel be familiar with electrical equipment maintenance procedures and the possible hazards involved. Observance of all safety precautions is required.

DISASSEMBLY (FIG. 2)

1. Remove the four screws and lockwashers (1) from the back cover plate (2), and remove plate.
2. Loosen the three countersunk screws (3) on the upper base assembly (4) and lift off assembly and loosened screws as a unit.
3. Check the stationary contact post assemblies (5).
4. Lift out barrier plate (6), and remove relay cover (7).
5. Using a 3/8" wrench, remove the two flexible locknuts (8), washers (9), and contact plate assemblies (10).
6. Remove the four countersunk screws and washers (11) from the lower base assembly (12), and lift off assembly.
7. Remove the two screws and lockwashers (13) securing the contact operator bar (14) holding the return spring (15) and contact springs (16).
8. Remove operator spacer bar (19) by removing one flat head screw. Separate from coil frame assembly (20).
9. Remove two screws and washers (17) from back plate (18) and remove back plate.
10. Remove the four screws and lockwashers from the coil and frame assembly (20). Remove frame assembly.
11. Remove three screws and lockwashers (21) from the bottom of the coil frame assembly (22). Remove armature plunger cap (23) containing spring (24).
12. Remove armature plunger (25) by turning slightly and pulling up.

13. Slide magnet coil (26) and spring washer (27) from frame assembly.

NOTE: If contactor incorporates the auxiliary interlock feature, it is necessary to remove screws and lockwashers securing interlock to contact mounting block. (Not shown). Replace as required.

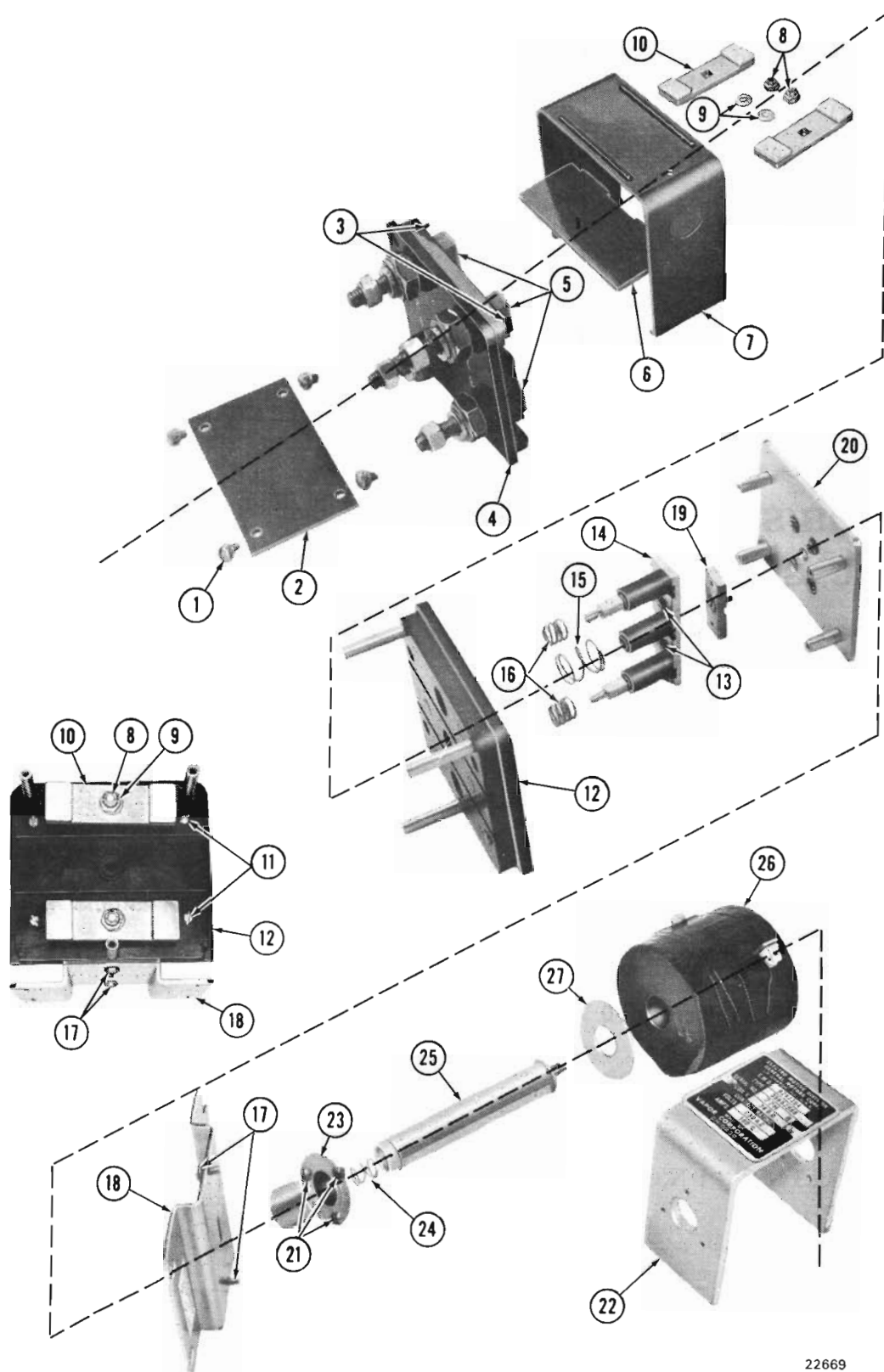
INSPECTION

1. Remove dust and dirt with a brush or compressed air.
2. Check molded parts for breaks and cracks.
3. Check for damaged and loose terminals. Coil terminals may be burnished with a piece of fine sandpaper. Do NOT use emery cloth or file.
4. Check coil for damaged insulation.
5. Check for free movement of all moving parts.

REASSEMBLY

Substitute new parts where needed during reassembly.

1. Replace magnet coil (26) and spring washer (27). Ensure that concave side of washer faces the coil.
2. It is necessary to invert the frame (22) when inserting armature plunger (25) through frame and coil (22 & 26). Make sure the spring (24) in the armature plunger cap (23) is centered in the recessed portion of the armature plunger over the orifice. Firmly compress spring (24) into cap.
3. Align armature cap (23) to coil frame assembly (22) and replace three screws and washers.
4. Return to right-side-up position with identification plate facing you.
5. Ensure rounded corners of coil and frame are oriented to face of contactor. Install frame assembly (20) using flathead screws and lockwashers.
6. Reinstall back plate (18).
7. Install operator spacer bar (19) to coil and frame assembly (20).
8. Assemble the contact operator bar (14) to the operator spacer bar (19). Return both contact springs (16) and the return spring (15) to original positions.



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|---------------------------------------|------------------------------------|----------------------------|
| 1. Screws And Lockwashers | 10. Contact Plate Assemblies | 19. Operator Spacer Bar |
| 2. Back Cover Plate | 11. Countersunk Screws And Washers | 20. Frame Assembly |
| 3. Countersunk Screws | 12. Lower Base Assembly | 21. Screws And Lockwashers |
| 4. Upper Base Assembly | 13. Screws And Lockwashers | 22. Coil Frame Assembly |
| 5. Stationary Contact Post Assemblies | 14. Contact Operator Bar | 23. Armature Plunger Cap |
| 6. Barrier Plate | 15. Return Spring | 24. Plunger Spring |
| 7. Relay Cover | 16. Contact Springs | 25. Armature Plunger |
| 8. Flexible Locknuts | 17. Screws And Washers | 26. Magnet Coil |
| 9. Washers | 18. Back Plate | 27. Spring Washer |

Fig. 2 – Contactor Exploded View

- 9. Ensure rounded corners of lower base assembly (12) are properly oriented to face of contactor. Securely tighten the four washers and counter-sunk screws (11).
- 10. Reinstall the contact plate assemblies (10) using washers (9) and locknuts (8).

NOTE: Turning down the locknuts (8) results in compression of the contact and return springs. To ensure proper compression, turn down locknuts approximately 13-16 mm (1/2"-5/8"). If compression is inadequate, the back cover plate will be improperly aligned at final operation.

- 11. Position relay cover (7) and barrier plate (6).
- 12. Install upper base assembly (4).
- 13. Replace back cover plate (2).

OPERATIONAL TEST

Using a variable DC voltage supply, verify contactor pickup and dropout voltage levels are as specified in Service Data.

HI-POT TEST

Perform hi-pot test as indicated in Service Data.

SERVICE DATA

CONTACTOR(S)

8247364 (AC, GFA)

Contacts: 2 N.O., 100 Amperes, 230 VAC

Gap	3.97 mm (5/32") min.
Compression	1.99 mm (5/64")

Coil: 264 Ohms \pm 7% at 20° C (68° F)

Operation: Working	74 VDC
Max. Pickup	48 VDC
Dropout	5-28 VDC

8302169 (BFA)

Contacts: 2 N.O., 100 Amperes, 230 VAC

Gap	3.97 mm (5/32") min.
Compression	1.99 mm (5/64")

Aux. Interlocks: 3 N.O. - 1 N.C., 10 Amperes

Gap	2.78 mm (7/64") min.
Compression	0.79 mm (1/32")

Coil: 267 Ohms \pm 10% at 20° C (68° F)

Operation: Working	74 VDC
Max. Pickup	48 VDC
Dropout	5-28 VDC

8330937 (BFA, GF)

Contacts: 2 N.O., 100 Amperes, 230 VAC

Gap 3.97 mm (5/32") min.

Compression 1.99 mm (5/64")

Aux. Interlocks: 2 N.O. - 2 N.C., 10 Amperes

Gap 2.78 mm (7/64") min.

Compression 0.79 mm (1/32")

Coil: 267 Ohms \pm 10% at 20° C (68° F)

Operation: Working 74 VDC

Max. Pickup 48 VDC

Dropout 5-28 VDC

8332661 (BFA, GF)

Contacts: 2 N.O., 100 Amperes, 230 VAC

Gap 3.97 mm (5/32") min.

Compression 1.99 mm (5/64")

Aux. Interlocks: 1 N.O. - 3 N.C., 10 Amperes

Gap 2.78 mm (7/64") min.

Compression 0.79 mm (1/32")

Coil: 264 Ohms \pm 7% at 20° C (68° F)

Operation: Working 74 VDC

Max. Pickup 48 VDC

Dropout 5-28 VDC

EQUIPMENT REQUIRED

Hi-Pot Tester – Variable DC Voltage Supply

DC Voltmeter

Test Lamps

HI-POT (60 Hz - 1 Minute)

8247364:	Magnet Coil to Ground	600 V RMS
	Magnet Coil to Main Contacts	600 V RMS
	Main Contacts to Ground	600 V RMS
	Contacts to Contacts	600 V RMS
8302169:	Magnet Coil to Ground	600 V RMS
	Magnet Coil to Main Contacts	600 V RMS
	Main Contacts to Ground	600 V RMS
	Interlock to Interlock	2400 V RMS
8330937:	Magnet Coil to Ground	600 V RMS
	Magnet Coil to Main Contacts	600 V RMS
	Main Contacts to Ground	600 V RMS
	Contacts to Contacts	600 V RMS
	Interlock to Interlock	2400 V RMS
8332661:	Magnet Coil to Ground	600 V RMS
	Magnet Coil to Contacts	600 V RMS
	Main Contacts to Ground	600 V RMS
	Contacts to Contacts	600 V RMS
	Interlock to Interlock	2400 V RMS