

TYPE F MAGNETIC CONTACTOR, FRAME NO. 1000 F-2

INSTRUCTIONS

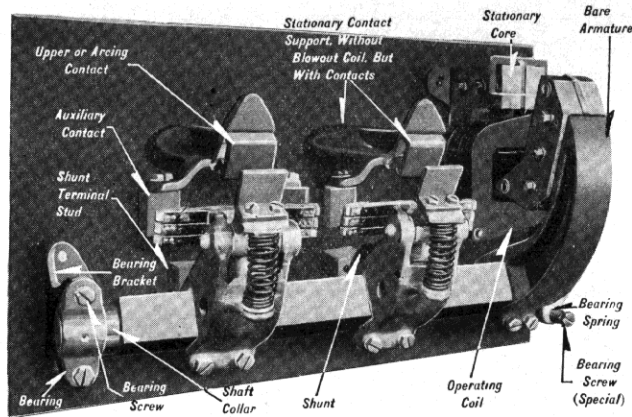


FIG. 1—TYPE F CONTACTOR, FRAME NO. 1000-F2

DESCRIPTION

The type F-2 is a two-pole alternating-current contactor, and can be supplied either with or without magnetic blowout. The contactor is designed for mounting on slate or ebony asbestos panel up to two inches thick.

Rating:

The contactor is designed for 750 amperes 8 hour rating, 1000 amperes one hour rating, 3000 amperes peak load and 4500 amperes arc rupturing capacity. Insulation is for 600 volts maximum. For d-c. on contacts 2000 amperes is peak load; arc rupturing capacity is 4000 amperes.

Operating Coil:

The operating coil is designed for continuous service, and will successfully operate the contactor at from 85 to 110% of rated voltage.

Armature Lever:

The armature lever is made from malleable iron and the frame is cast iron. All parts subject to corrosion, except the magnet face, are treated to prevent oxidation.

Arc Shields:

The arc shield is moulded from a very durable heat resisting compound and is securely fastened to the iron pole pieces of the blowout coil. The arc shield is hinged so that it may be easily raised by hand to make inspection and renewal of the contact tips.

Contact Tips:

Renewable contact tips are made from hard drawn copper of sufficient cross section to insure long contact life. They are designed to open with a rolling action so that the burn occurs only at the extreme tip of the contact, and does not affect the current carrying surfaces. The contactor has been designed so that a slight wiping action is given to the tips on opening and closing. This action in-

sure a clean low resistance contact area. A steel compression spring gives a positive and sufficient contact pressure up to the maximum life of the contact and produces a quick opening on the tips.

Shunts:

The current carrying shunt is made from a flexible braided copper cable which gives complete freedom to the moving armature, and has ample capacity to withstand the maximum current for which the contactor is rated.

MAINTENANCE

Bearings:

The bearings of the armature shaft require no lubrication. Oil quickly collects dust and, unless the parts are frequently cleaned, will make the contactor sluggish in opening, thus causing the arc to hang on longer.

Arc Shields:

The arc shields should always be down so that the arc is broken within the field of the blowout coil, otherwise the shield will not give satisfactory results. The arc shield should always be renewed before the moulded material is burned away sufficiently to expose the steel pole pieces.

Operating Coil:

The operating coil may be removed by disconnecting the terminal leads and removing the screws, in the front of the coil, which holds it in place.

Contact Tips and Spring Pressure:

Use no oil or other lubricant on the copper contacts. The contacts normally wear to give the best contact surfaces without any attention. The roughened appearance of the contacts is no indication that good contact is not being obtained. The contacts should be replaced when the maximum usefulness has been reached in order that the contact pressure will not fall below the minimum value for which it is designed. The contact pressure for this unit, measured

at the heel of the contact tip should be 40 pounds. To measure the spring pressure, close the contactor mechanically, place a thin piece of paper between the tips, then measure the pounds pull necessary to separate the tips by means of a hook spring balance attached to the head of the screw which holds the moving contact tips in place. Read the pounds pull required at the instant the paper can be moved. In case the contact pressure is below the minimum value, after the tips have been replaced, additional insulating washers should be added under the spring. Low spring pressure should be guarded against, to avoid excess heating up of the contacts. Excess heating increases the resistance, which may cause arcing and welding the tips together.

Magnet Noise:

The magnet on the a-c. contactor may hum. Should it become excessive, check to see if any of the following conditions exist.

1. The pole face of the magnet may be corroded, which will not permit the magnet to seal properly.
2. The armature lever may be distorted through rough usage, which will not allow the floating armature to find a square seat. Check this, by placing a sheet of paper between the two pole faces and close the magnet electrically, which will leave an impression on the high points. Full contact is not actually necessary but should be over a large portion.
3. The voltage may be below the minimum rating of the operating coil.
4. The shading coil on the magnet may be broken.
5. The spring pressure may be too high.

Contact Gap:

The contact gap on this contactor should be approximately $1\frac{1}{2}$ inches, when the magnet is in the full open position, measured at the heel of the contact tips when they are new. A greater gap may prevent the magnet from picking up on the minimum voltage for which the operating coil has been designed.

Failure to Close:

A magnet may fail to close for any of the following reasons.

1. The lead wire to the operating coil may be disconnected.
2. The operating coil may be open circuited.
3. There may be mechanical friction.
4. The voltage may be below normal.

Failure to Open:

Failures may be caused by mechanical interference or friction, the contact tips may be welded together, residual magnetism may be holding magnet due to low spring pressure.

*To be filed as an Instruction Leaflet and as Renewal Parts Data; for Renewal Parts Data, see reverse side of this sheet.

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RENEWAL PARTS DATA

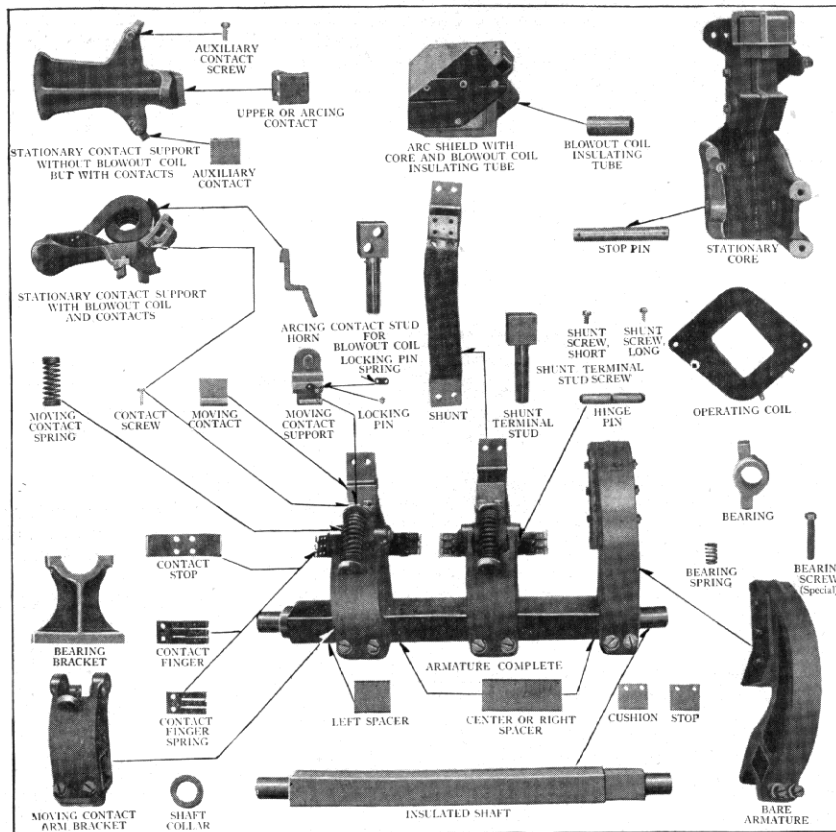


FIG. 2—RENEWAL PARTS FOR TYPE F CONTACTOR, FRAME No. 1000-F-2

This is a list of the Renewal Parts and the quantities of each that we recommend should be stocked by the user of this apparatus to minimize service interruptions caused by breakdowns. The parts recommended are those most subject to wear in normal operation, or to damage or breakage due to possible abnormal conditions.

This list of Renewal Parts is given only as a guide. When continuous operation is a primary consideration, additional insurance against shutdowns is desirable. Under such conditions more renewal parts should be carried, considering the severity of the service and the time required to secure replacements.

ORDERING INSTRUCTIONS

Name the part and give its style number. Give the complete name plate reading. State whether shipment is desired by express, freight or by parcel post. Send all orders or correspondence to nearest, Sales Office of the Company. Small orders should be combined so as to amount to a value of at least \$1.00 net. Where the total of the sale is less than this, the material will be invoiced at \$1.00.

OPERATING COIL DATA

Volts	Cycles	Style Number
110	60	421161
220	60	418597
440	60	418598
550	60	461916
110	25	421162
220	25	402803
440	25	418599
550	25	418600

RECOMMENDED STOCK OF RENEWAL PARTS

Style Number of Contactor { With Blowout..... Without Blowout.....				472 427 472 428	Style Number of Contactor { With Blowout..... Without Blowout.....				472 427 472 428
For Contactors in use up to and including....				1 5	For Contactors in use up to and including....				1 5
NAME OF PART	No. PER CONTACTOR	RECOMMENDED FOR STOCK	STYLE NO. OF PART		NAME OF PART	No. PER CONTACTOR	RECOMMENDED FOR STOCK	STYLE NO. OF PART	
Armature Complete.....	1	0	0	474 400	*Contact Screw.....	4	2	4	780 768
Bare Armature.....	1	0	0	767 499	*Auxiliary Contact (Style Number includes one pair Contacts).....	2	1	2	301 017
Stop.....	1	0	0	246 120	*Auxiliary Contact Screw.....	8	2	4	780 762
Cushion.....	3	0	0	246 121	*Stationary Contact Support without Blowout Coil but with Contacts.....	2	0	1	461 912
Insulated Shaft.....	1	0	0	196 838	*Upper or Arcing Contacts... Contact Screw.....	2 4	2 4	4	301 020
Shaft Collar.....	1	0	0	191 106	*Contact Screw.....	4	2	4	780 768
Center or Right Spacer.....	2	0	0	246 127	*Auxiliary Contact (Style No includes one pair Contacts).....	2	1	2	301 017
Left Spacer.....	1	0	0	246 126	*Auxiliary Contact Screw.....	8	2	4	780 762
Moving Contact Arm Bracket	2	0	0	420 934	*Arc Shield with Core and Blowout Coil Insulating Tube... Blowout Coil Insulating Tube	2 2	0 1	1	301 021
Moving Contact Support.....	2	0	1	470 629	*Contact Stud for Blowout Coil.. Shunt Terminal Stud.....	2 2	0 0	0	220 496
Locking Pin.....	2	0	0	190 148	†Shunt Terminal Stud Screw....	4	1	2	780 767
Locking Pin Spring.....	2	0	1	187 519	Bearing.....	2	0	1	202 046
Shunt.....	2	1	2	301 019	Bearing Screw (Special).....	2	1	2	244 801
Shunt Screw—Long.....	4	2	4	780 767	Bearing Spring.....	2	1	2	219 804
Shunt Screw—Short.....	4	2	4	780 760	Bearing Bracket.....	1	0	0	202 047
Contact Finger.....	4	2	4	191 092	Stationary Core.....	1	0	0	401 932
†Contact Finger Screw.....	8	2	4	401 227	†Shading Coil.....	1	0	0	420 658
Contact Finger Spring.....	4	1	2	191,094	Stop Pin.....	1	0	0	420 816
Contact Stop.....	2	0	0	301,018	Operating Coil.....	1	1	1	†
Moving Contact.....	2	2	4	293 590					
Contact Screw.....	4	2	4	780 768					
Moving Contact Spring.....	2	0	1	181 199					
Hinge Pin.....	2	0	0	187 321					
*Stationary Contact Support with Blowout Coil & Contacts.....	2	0	1	474 343					
*Arcing Horn.....	2	0	1	420 936					
*Upper or Arcing Contact...	2	2	4	301 020					

Parts indented are included in the part under which they are indented. †Not listed on illustration.

*Used only on Contactor with Blowout. * Used only on Contactor without Blowout. ‡When ordering specify identification number stamped on coil. See above table for Style No. of commonly used coils.

*To be filed as an Instruction Leaflet and as Renewal Parts Data; for Instructions see reverse side of this sheet.

Westinghouse Electric & Manufacturing Company
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