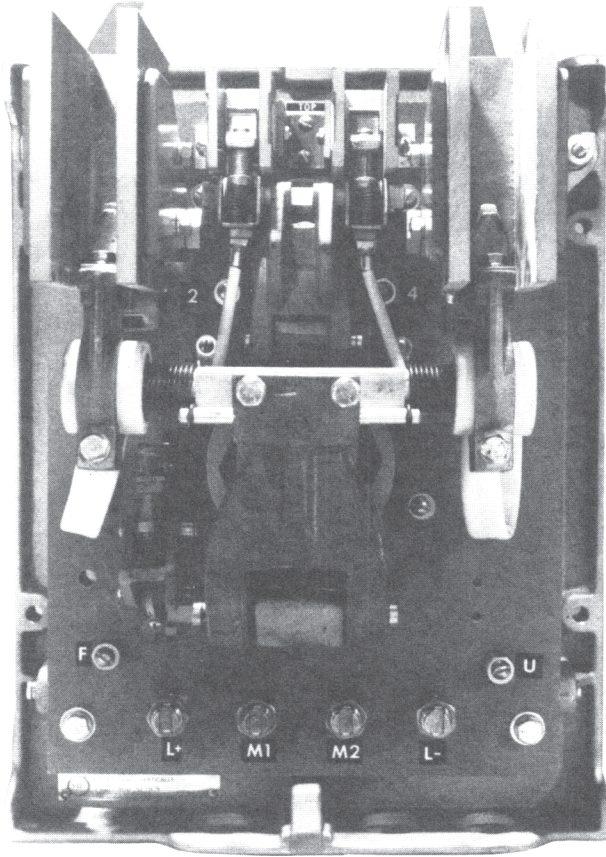


OHIO MODEL RD-1A AUTO/MANUAL DROP MAGNET CONTROLLER

INSTALLATION, MAINTENANCE, AND PARTS BULLETIN
OPERATING RANGE 51-100 AMPS (COLD MAGNET CURRENT)



DESCRIPTION

The RD-1A Controller is a heavy duty magnet controller used for magnets from 100 amps down to 51 amps cold current. The RD-1A controller uses many parts interchangeable with both higher and lower range controllers for lower inventory costs.

Automatic Drop

There is no reverse current adjustment. The amount of reverse current is automatically adjusted for a fast, clean drop of scrap material with one movement of the master switch or push button.

Manual Drop

Allows for partial dropping of the load by controlling the amount of reverse current to the magnet. A drop position on the master switch or a push button that is spring returned to off, gives the operator complete control of the drop cycle.

INSTALLATION PROCEDURES

Mount the controller to a solid surface with the mounting bars provided.

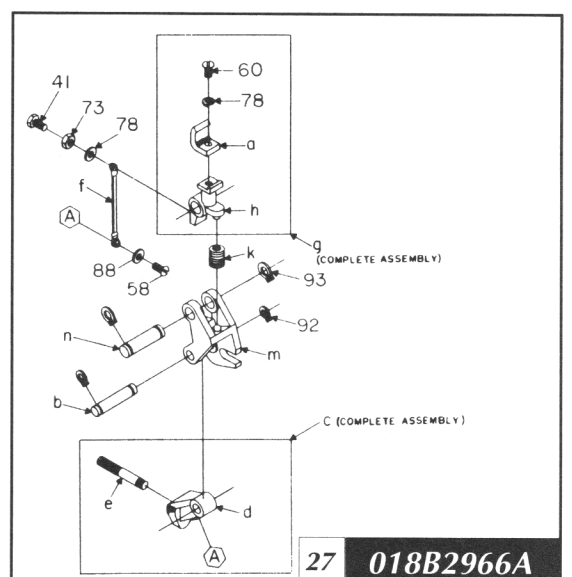
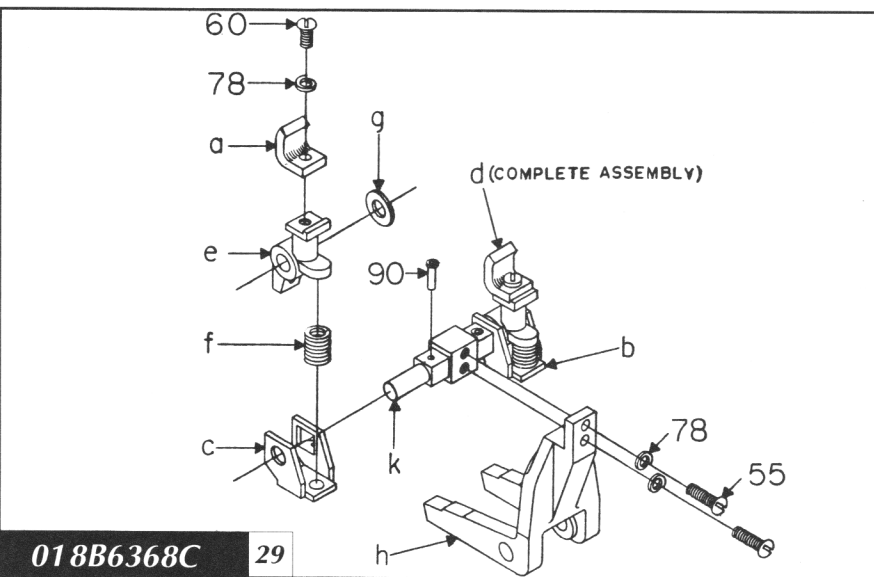
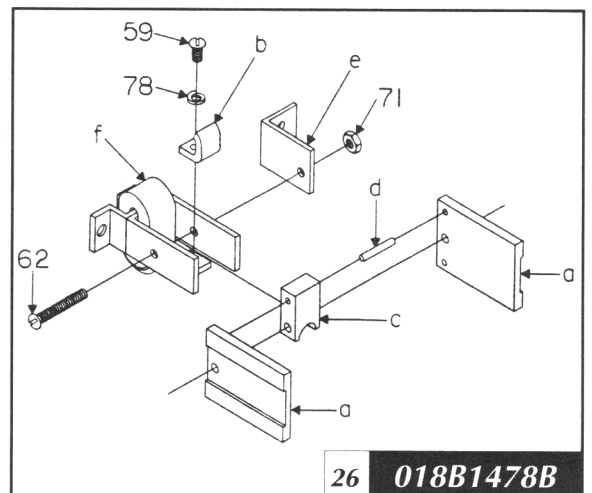
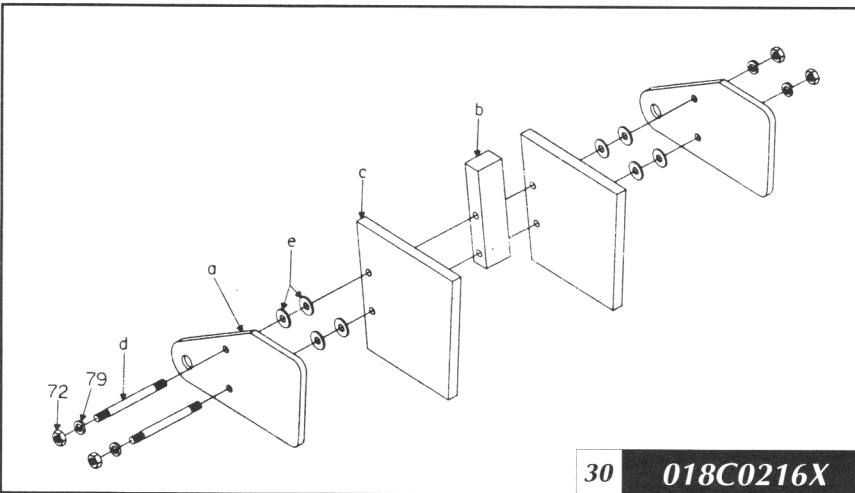
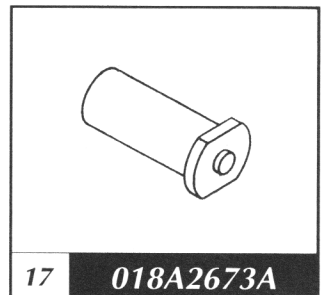
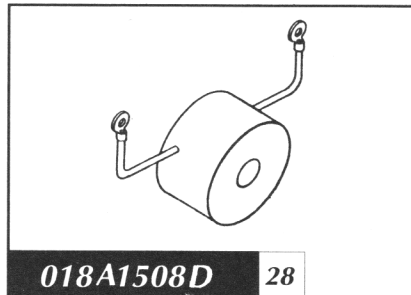
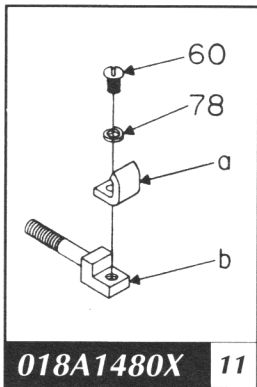
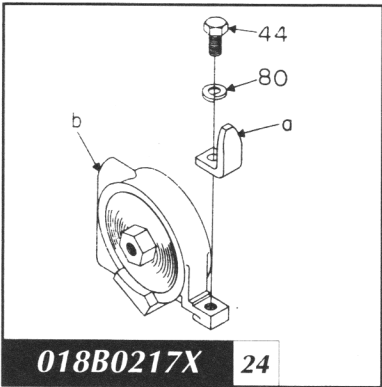
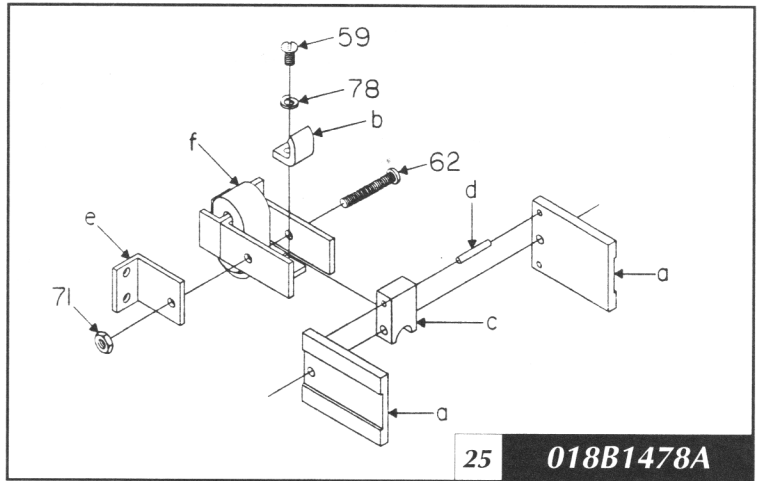
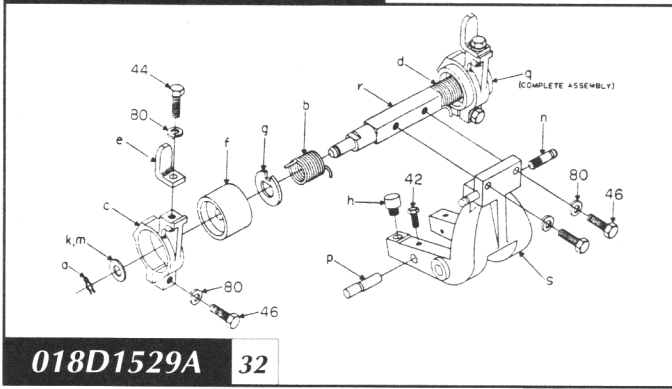
The controller must be mounted vertically with the "TOP" up to operate properly.

Mount the controller away from sources of heat and direct exhaust of engines.

Allow enough room around the controller for air circulation. Route electrical wires through bottom of the enclosure and connect securely to the terminals.

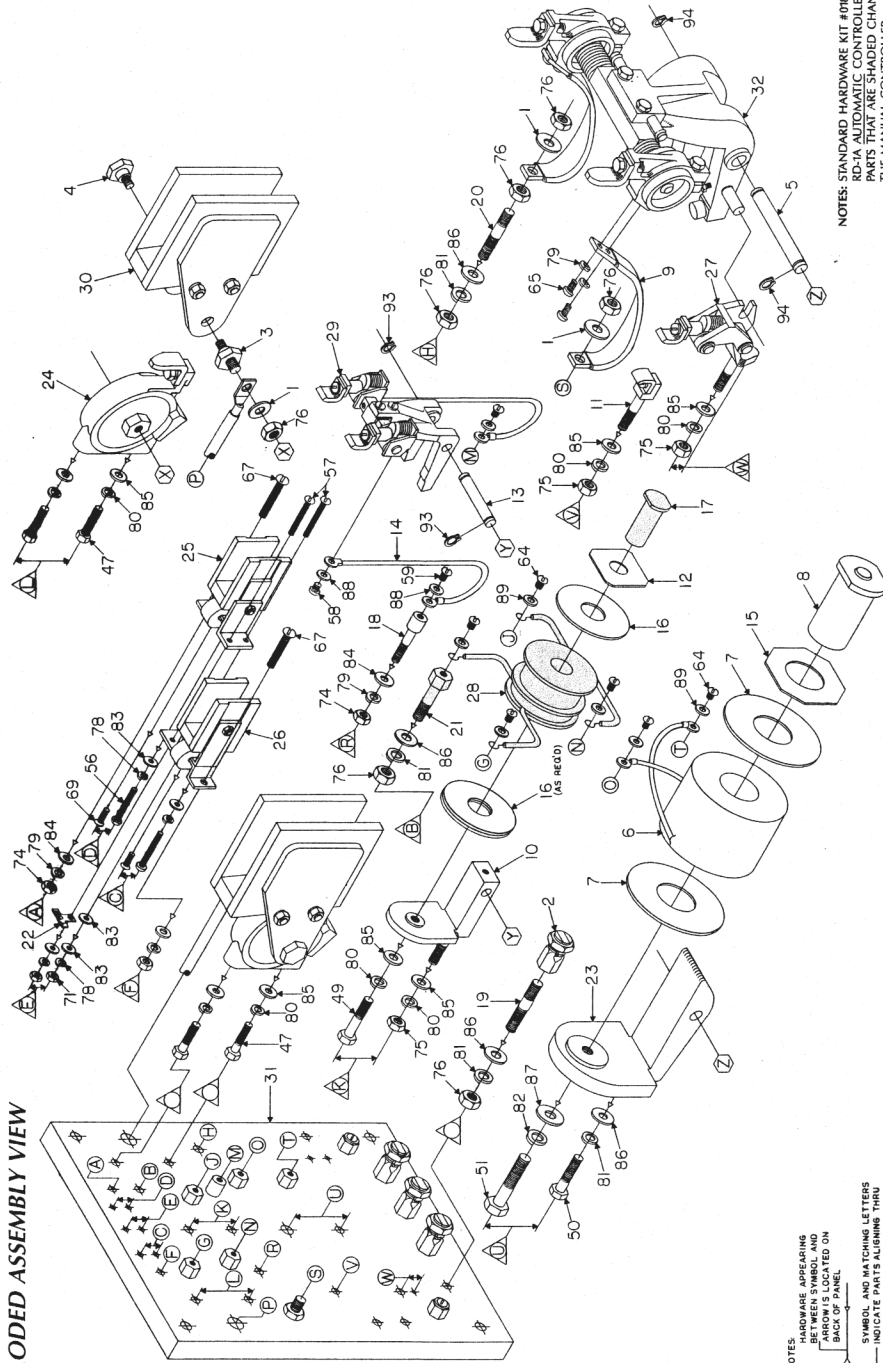
All electrical circuits must be free from grounds and shorts. Remove shipping material from the arc shields before operating the controller.

RD-1A Subassemblies



OHIO MODEL RD-1A AUTO/MANUAL DROP MAGNET CONTROLLER

RD-1A CONTROLLER EXPLODED ASSEMBLY VIEW



NOTES:
 1. HARDWARE APPEARING BETWEEN SYMBOL AND ARROW IS LOCATED ON BACK PANEL.
 2. SYMBOL AND MATCHING LETTERS INDICATE PARTS ALIGNING THRU HOLES.

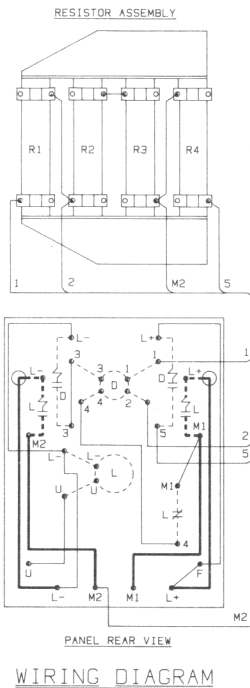
NOTES: STANDARD HARDWARE KIT #08M7000A RD-1A AUTOMATIC CONTROLLER SHOWN. PARTS THAT ARE SHADDED CHANGE ON THE MANUAL CONTROLLER.

HARDWARE SPECIFICATIONS LIST

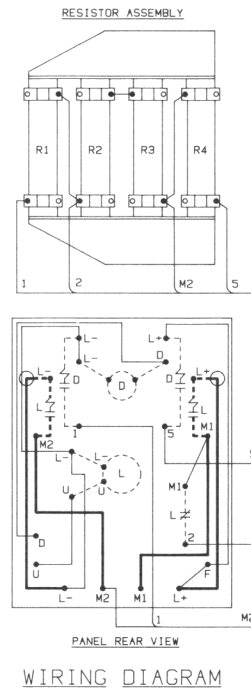
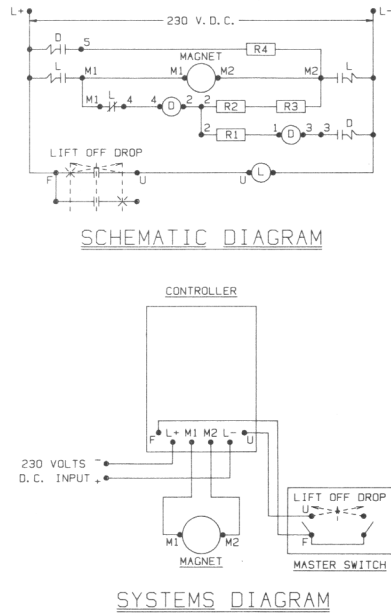
ITEM	PART NUMBER	REQ'D	DESCRIPTION	MAT'L
41	A-90004-16	1	SCR RH SLD #10-32 #10-32NF X .50"	BRASS
42	A-90006-04	1	SCR RH HD 1/4-20NC X .75"	STEEL
44	A-90007-02	4	SCR RH HD 5/16-18NC X 1 1/4"	STEEL
45	A-90007-05	4	SCR RH HD 5/16-18NC X 1 1/4"	STEEL
46	A-90007-08	4	SCR RH HD 5/16-18NC X 1 1/4"	STEEL
49	A-90008-08	1	SCR RH HD 3/8-16NC X 2"	STEEL
50	A-90008-08	1	SCR RH HD 3/8-16NC X 1 3/4"	STEEL
51	A-90010-09	1	SCR RH HD 1/2-13NC X 2 1/2"	STEEL
52	A-90010-09	1	SCR RH HD 1/2-13NC X 2 1/2"	STEEL
55	A-90023-09	2	SCR RH SLD #10-32NF X 1 1/4"	STEEL
56	A-90023-11	2	SCR RH SLD #10-32NF X 1 1/4"	STEEL
57	A-90023-11	3	SCR RH SLD #10-32NF X 5/16"	BRASS
58	A-90023-11	3	SCR RH SLD #10-32NF X 5/16"	BRASS
59	A-90023-15	4	SCR RH SLD #10-32NF X 1/2"	BRASS
60	A-90023-15	4	SCR RH SLD #10-32NF X 1/2"	BRASS
62	A-90023-25	2	SCR RH SLD #10-32NF X 1 3/4"	BRASS
64	A-90025-16	6	SCR RH SLD 1/4-20 NC X 3/8"	BRASS
65	A-90025-17	4	SCR RH SLD 1/4-20 NC X 1/2"	BRASS
66	A-90025-22	2	SCR RH SLD 1/4-20 NC X 1 3/4"	BRASS
67	A-90025-22	2	SCR RH SLD 1/4-20 NC X 1 3/4"	BRASS
69	A-90026-03	4	NUT HK #10-32NF	STEEL
71	A-90026-03	4	NUT HK #10-32NF	STEEL
72	A-90010-05	6	NUT HK 1/4-20NC	BRASS
73	A-90010-05	6	NUT HK 1/4-20NC	BRASS
74	A-90010-05	6	NUT HK #10-32NF	BRASS
75	A-90010-05	6	NUT HK #10-32NF	BRASS
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80	A-90010-05	6	NUT HK #10-32NF	BRASS
81	A-90010-05	6	NUT HK #10-32NF	BRASS
82	A-90011-09	1	1/2" SPLIT LOCKWASHER	STEEL
83	A-90011-09	1	3/8" SPLIT LOCKWASHER	STEEL
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228	A-90011-09	1	1/2" SPLIT LOCKWASHER	STEEL
229	A-90011-09	1	3/8" SPLIT LOCKWASHER	STEEL
230	A-90011-09	1	1/2" SPLIT LOCKWASHER	STEEL
231	A-90011-09	1	3/8" SPLIT LOCKWASHER	STEEL
232	A-90011-09	1	1/2" SPLIT LOCKWASHER	STEEL
233	A-90011-09	1	3/8" SPLIT LOCKWASHER	STEEL

ITEM	PART NUMBER	REQ.	DESCRIPTION
1	A-900118-21	4	3/8" FLATWASHER
2	A-900215-02	4	CABLE CONNECTOR (#2 - #8)
3	18A0124X	2	BLOWOUT BLT. - W/STUD
4	18A0124X	2	BLOWOUT BLT.
5	18A0140C	2	ARM PIN - 1/2" DIA.
6	18A0151F	2	MAIN COIL 230 VOLTS
7	18A0151F	2	INSULATING WASHER
8	18A0151F	2	ONE ASSY.
9	18A0151F	2	SWITCH ASSY.
10	18A1442A	2	REVERSE FRAME ASSY
11	18A1443X	1	STATIONARY CONTACT ASSY.
11a	18A1486X	1	AUX. CONTACT BRACKET
11b	18A2637X	1	SPRING WASHER
12	18A2641A	1	ARM PIN
13	18A2641A	1	ARM PIN
14	18A2641A	1	ARM PIN
15	18A2641A	1	ARM PIN
16	18A2977X	3	CLAMP WASHER
17	18A3000X	0/1	SEPARATOR WASHER
18	18A2673A	1/0	REVERSE SWITCH CORE
19	18A3010X	2	TERMINAL STUD
20	18A3878A	4	TERMINAL STUD - 2 1/2"
21	18A3878A	4	TERMINAL STUD - 2 3/4"
22	18A6375A	7/8	"TOP" DESIGNATION PLT.
23	18B0116X	1	MAIN FRAME
24	18B0217X	2	BLOWOUT COIL ASSEMBLY
24a	18A0125X	2	CONTACT TIP
24b	18B7011B	2	BLOWOUT HOUSING COIL ASSY.
25	18B1478A	2	BLOWOUT COIL ASSY. RIGHT
25a	18A0803X	2	ARC SHIELD SIDE
25b	18A0803X	2	ARC SHIELD SIDE
25c	18A1503X	1	ARC SHIELD SPACER
25d	18A1523X	1	DOWEL
25e	18A6361A	1	INSULATING SUPPORT
25f	18B2727A	1	BLOWOUT COIL ASSY. RIGHT
26	18A0803X	2	BLOWOUT COIL ASSY. LEFT
26a	18B1478B	2	BLOWOUT COIL ASSY. LEFT
26b	18A1433X	1	

RD-1A Wiring Diagram



RD-1A AUTOMATIC



RD-1A MANUAL

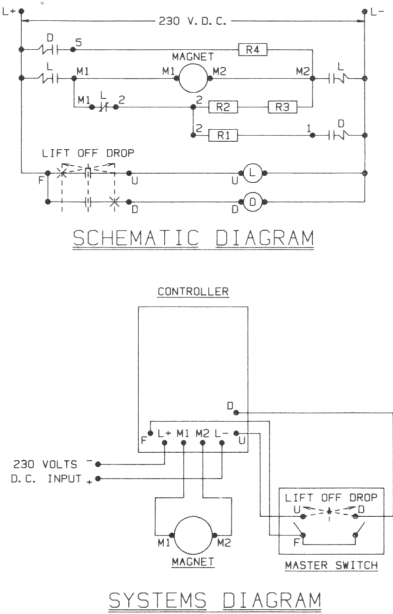


TABLE OF EQUIPMENT

SYMBOL	DESCRIPTION	FUNCTION
D	Reverse Contact	Drop
L	Main Contact	Lift
R1 - R4	15 Ω Resistors	Drop resistors
R2 - R3	15 Ω Resistors	Discharge Resistor

STEP BY STEP CONTROLLER OPERATION

AUTOMATIC CONTROLLER

1. When a lift signal is given by closing the contacts between terminals "F" and "U", the "L" coil is energized.
2. This closes the "L" contacts which supplies full power to the magnet.
3. When a drop signal is given the "F" to "U" contact is broken and the "L" coil is de-energized.
4. This opens the "L" contacts and at the same time closes the, "normally closed L" contact located to the lower left of the lift contactor.
5. A discharge circuit is set up through resistors "R2" and the "R3", and the "4", "2" winding of the "D" coil, (energizing the coil).
6. This causes the energy in the magnet to be dissipated to the "R2" and "R3" resistors, and the "D" contacts to close.
7. Reverse voltage is then applied to the magnet through the "R1" and "R4" resistors.
8. When the proper amount of reverse current to the magnet is measured by the "4", "2" winding of the "D" coil, it cancels the affect of the "1", "3" winding of the "D" coil and the "D" contacts open.
9. This stops the flow of reverse current through the magnet.

MANUAL CONTROLLER

1. When a lift signal is given by closing the contacts between terminals "F" and "U", the "L" coil is energized.
2. This closes the "L" contacts which supplies full power to the magnet
3. When a drop signal is given the "F" to "U" contact is broken and the "L" coil is de-energized.
4. This opens the "L" contacts and at the same time closes the, "normally closed L" contact located to the lower left of the lift contact.
5. A discharge circuit is set up through resistors "R2" and "R3".
6. Energy in the magnet is dissipated to the "R2" and "R3" resistor.
7. Moving the master switch to the drop position or pushing the drop button, closes the contact between terminals "F" and "D", energizing the "D" coil.
8. This closes the the "D" contacts and provides reverse voltage to the magnet, through resistors "R1" and "R4".
9. To stop the build up of reverse current, release the master switch control and it will return to the off position, or release the drop push button.
10. This breaks the contact between the "F" and "D" terminals, de-energizes the "D" coil, opening the "D" contacts, and stops the flow of reverse current through the magnet.

MAINTENANCE AND TROUBLE SHOOTING

Check all contact tips for excess wear or burning. Replace if needed.

Check arc shields for burnt areas. Replace any that are badly burned.

Check for burned or damaged insulation on shunts or wires. Replace if found.

Check for carbon tracking on the base panel and insulating parts. If found, remove by filing or scraping. If carbon can not be removed, replace the part.

Check gap (from just touching to a .030 inch gap), for normally closed contacts (#11a and #27a), with main contacts (#24a and #32e), just touching. Adjust by loosening screw (#42) on part (#32s) and rotating operating pin (#32p). Or, by adjusting screw (#41) on part (#27h).

Check gap (3/4" opening) between main contacts (#24a and #32e). Adjust by loosening screw (#46) on part (#32c) and turning the assembly.

All pin connections should move easily, and contact springs should provide force when contacts are closed. If springs do not provide contact force, replace them.

EMERGENCY SPARE PARTS KITS

Automatic...#ESP-018M7003A

Manual#ESP-018M7003B

Contains the parts most likely to fail due to a system problem or a high voltage spike. It is recommended that one of these kits be kept on hand to avoid unnecessary down time.



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