



CLASS 6815 (Formerly Class 1315) TYPE M MAGNET CONTROLLERS

Series B, 230 Volts DC
TYPE M-20 RATED 8-20 AMPS
TYPE M-10 RATED 4-10 AMPS

Amp Ratings shown above apply to the "cold" current drawn by a magnet when its internal temperature is 68°-77°F. **NOTE:** Do not use controller with a magnet above or below the controller's rated amp range.

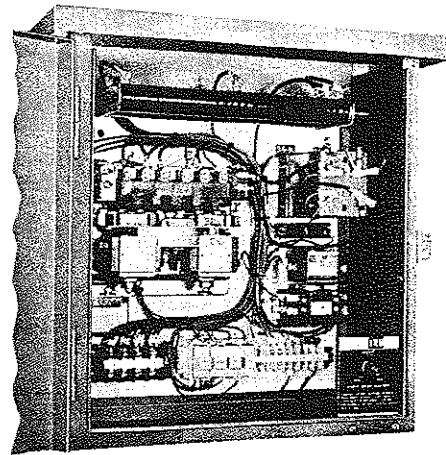
Installation:

- A. Unpack controller carefully. Verify receipt of correct device by checking main nameplate on panel.
- B. Thoroughly inspect equipment for any transit damage. Tighten any electrical connections that might have loosened during shipment.
- C. Bolt controller securely into desired position, allowing at least 1" ventilation clearance below front edge of controller.
- D. Wire all external power and control circuits in accordance with wiring diagram on inside of door.
- E. Before applying power or connecting magnet, manually operate contactors to check for free movement without binding.

WARNING: *Electrical Shock Hazard when enclosure door is open. Contactor arcing is normal for control operation and this arcing may result in emission of hot particles. To avoid injury from emission of hot particles, service personnel should wear safety glasses and stand back and to the side when operating control with enclosure door open.*

Start-Up: (With Magnet Disconnected)

- A. Place pilot device in "DROP" position. Apply voltage to controller. Check voltage, it should be between 230-250V for best performance.
- B. Check polarity with a voltmeter. **NOTE:** Controller will NOT operate if polarity is reversed.
- C. Energize controller, without magnet connected, by placing pilot device in "LIFT" position. Lift contactor L should close freely.
- D. De-energize controller by placing pilot device in "DROP" position. Contactor in step C should re-open. **NOTE:** Drop contactor D and drop relay DR will not operate with magnet disconnected.
- E. Remove power from the controller. Connect the magnet. Apply power to the controller and repeat steps C and D. At step D, with the magnet connected, the following should occur in rapid sequence:
 1. Lift contactor L opens.
 2. Drop relay DR closes.
 3. Drop contactor D closes.
 4. After 1-3 seconds, DR and D re-open.



Class 6815 Type M-20

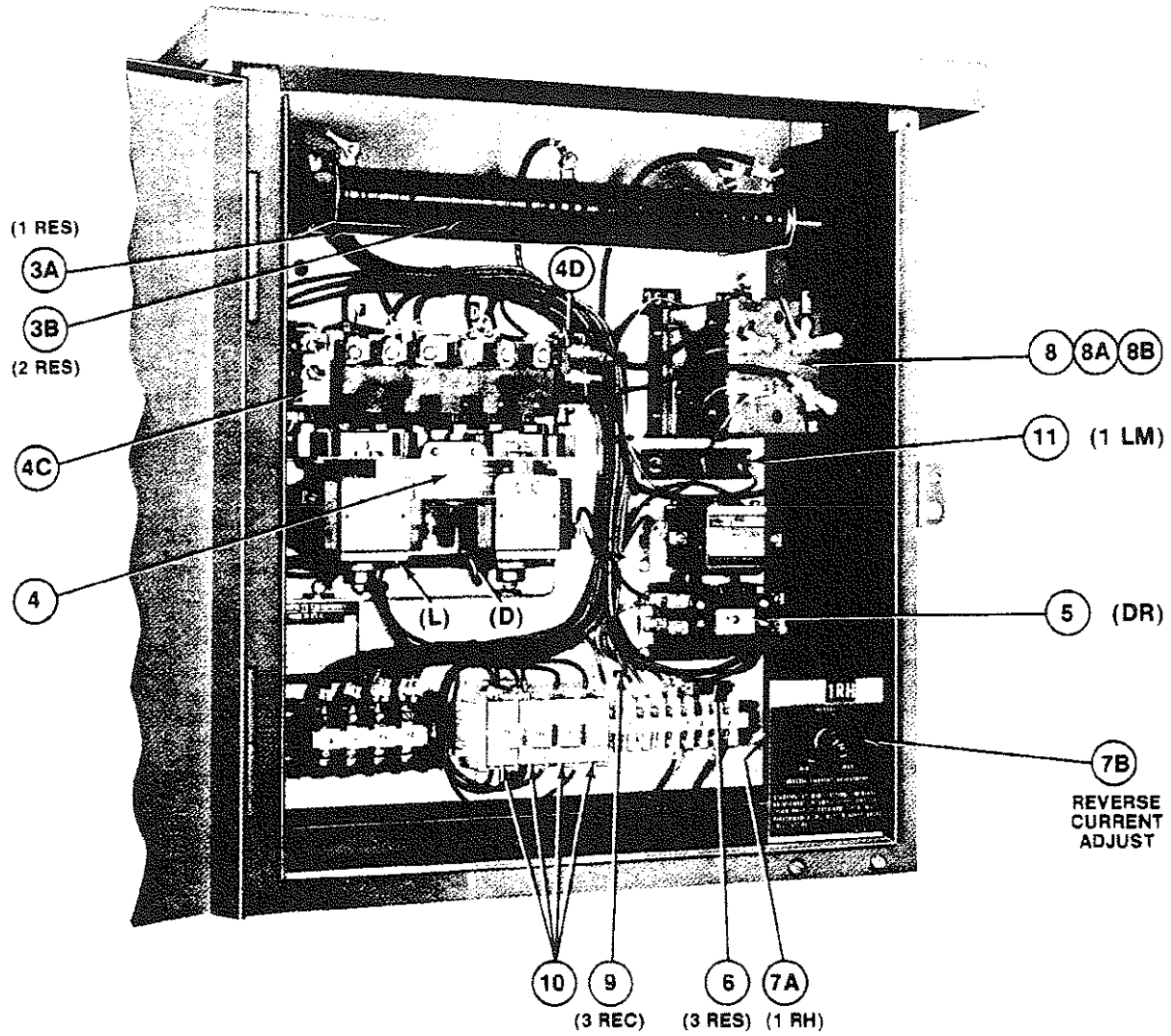
Adjustment For Clean Drop: To adjust the controller for a clean drop without "repicking", a reverse current rheostat and monitor light are provided. To obtain the best setting for a given magnet, start with the knob set near MIN, then make lifts and drops at successively higher settings until the light blinks at the end of the drop cycle (see "Monitor Light Operation" nameplate), or until a clean drop is obtained. Do not set higher than necessary to get a clean drop on all types of loads being handled. Rheostat should be reset if magnet is changed.

Preventive Maintenance and Troubleshooting:

- A. **Contacts** should be inspected on a regular basis for wear and excessive pitting, before a malfunction occurs. **Contacts and contact springs should be replaced as a set.** This set is available in a kit (see Item 4A on page 3). It is recommended that this kit be kept on hand.
- B. **Periodic Inspection During Operation** can reveal abnormal conditions. While dropping a load, if excessive arcing occurs when the Lift or Drop contactors open, the system should be shut down to prevent further damage, and the following items checked:
 1. Contacts on L and D contactors.
 2. Electrical continuity of all fuses, resistors and the reverse current rheostat.
 3. Electrical continuity of all electrical interlocks.
 4. Shorts and grounds in the system, including the generator, cable, reel and magnet. Because ohmmeters may not detect grounds, a 500V or 1000V Megger should be used.



TYPE M-10 & M-20 SERIES B MAGNET CONTROLLERS
COMPONENT LOCATION



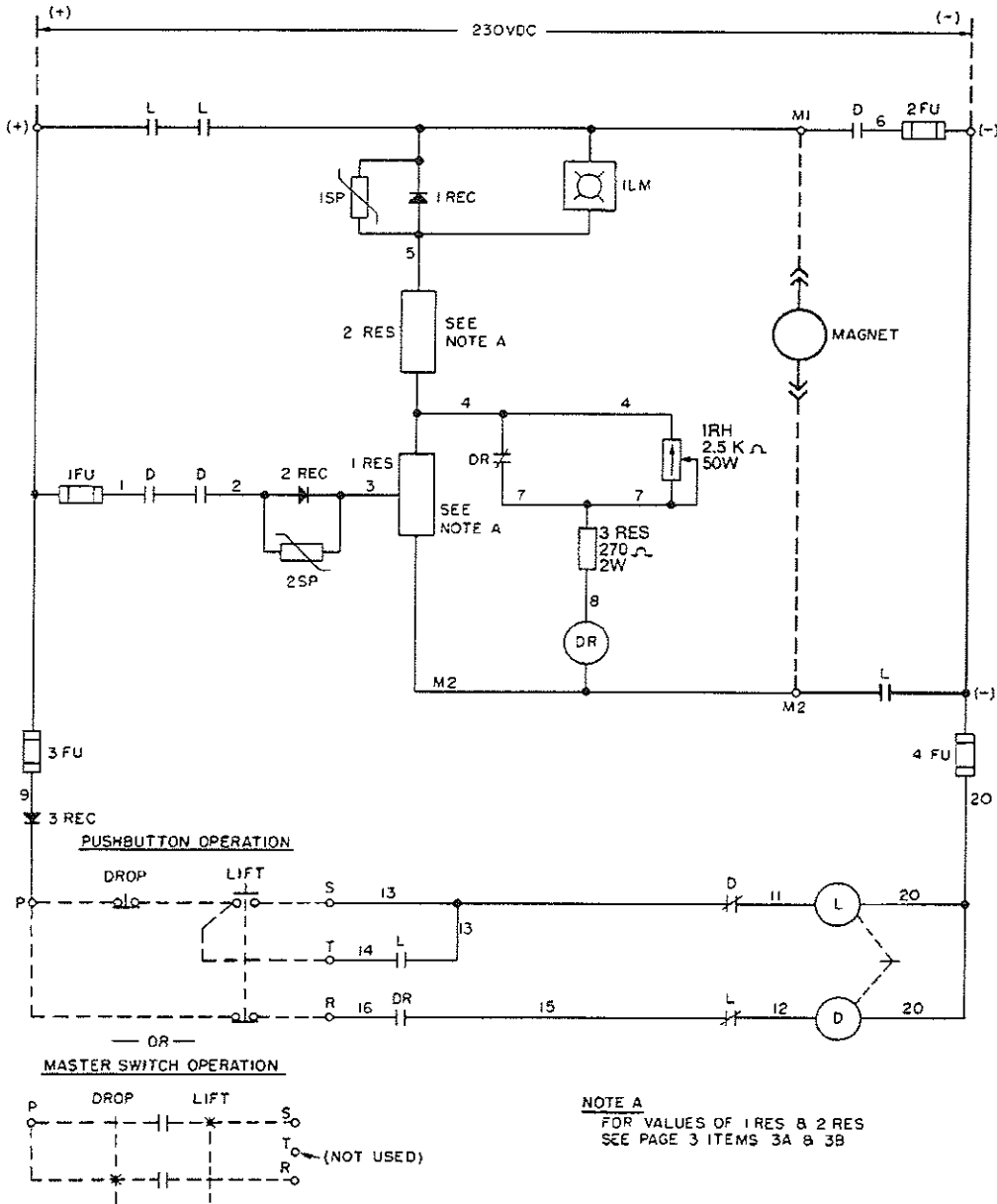


**TYPE M-10 & M-20 SERIES B MAGNET CONTROLLERS
PARTS INFORMATION**

SYMBOL ON Wiring Diagram	ITEM NO. From Pg. 2	DESCRIPTION <i>NOTE: Idented items listed directly under a device are component parts of that device</i>	TOTAL QTY. in Controller	ORDER PARTS BY NUMBERS SHOWN BELOW (Part Number or Class & Type Number)	
				(For Type M-10)	(For Type M-20)
	1	Assembled Control Panel (Does not include Item 2 or 2A) includes Items 3A through 11.	1	Class 8815 Type MP-10	Class 8815 Type MP-20
	2	Enclosure only, with door	1	50911-035-51	50911-035-51
	2A	Door only	1	50911-065-52	50911-065-52
1RES	3A	Discharge Resistor, Center-tapped (mounted behind Item 3B)	1	26160-44451 50 ohm 200 watt	26160-44431 30 ohm 200 watt
2RES	3B	Discharge Resistor (mounted in front of Item 3A)	1	26160-44460 60 ohm 200 watt	26160-44430 30 ohm 200 watt
L & D	4	Lift & Drop contactors (DC reversing contactor)	1	Class 8965 Type JDO-11 with 230 V coil (See Service Bul. 210AS for components not listed below.)	
	4A	Replacement contacts & springs	1	Class 9998 Type JA-2 Kit (contains 6 movable contacts, 12 stationary contacts, and 6 contact springs)	
	4B	Operating coils	2	31018-400-70	
L	4C	Elec. Interlock, 1-N.O. & 1-N.C. (left-hand)	1	2798-S44-G6	
D	4D	Elec. Interlock, 1-N.O. & 1-N.C. (right-hand)	1	2798-S44-G5	
DR	5	Drop Relay	1	Class 7004 Type DO22-S5 with 48V DC coil (See Service Bul. 209AS for components)	
3RES	6	Control Resistor, 270 ohm, 2 watt	1	26108-12720	
1RH	7A	Rheostat, 2500 ohm, 50 watt (Reverse Current Adjustment)	1	26198-34325	
	7B	Pointer Knob (for Item 7A)	1	29203-04002	
1REC, 1SP, 2REC, 2SP	8	Heat Sink Assembly, complete. (Includes 2-Item 8A diodes, 2-Item 8B surge suppressors, 2-heat sink plates & 2-mtg. brackets)	1	50911-010-54	
1REC, 2REC	8A	Diodes (for power circuit)	2	27906-33850	
1SP, 2SP	8B	Surge Suppressors	2	27920-93200	
3REC	9	Diode (for control circuit)	1	27906-11602	
1FU, 2FU, 3FU, 4FU	10	Fuses	4	(For Type M-10) 25419 - 10091 (Bussmann KTK-3 or equal)	(For Type M-20) 25419 - 10111 (Bussmann KTK-5 or equal)
1LM	11	Monitor Light Module	1	50910-017-51	



**STANDARD TYPE M-10 & M-20 SERIES B MAGNET CONTROLLERS
ELEMENTARY DIAGRAM (See Page 5 for Connection Diagram)
NOTE: CONTROLLER WILL ONLY OPERATE WHEN USING INDICATED POLARITY.**





**STANDARD TYPE M-10 & M-20 SERIES B CONTROLLERS
CONNECTION DIAGRAM (See Page 4 for Elementary Diagram)
NOTE: CONTROLLER WILL ONLY OPERATE WHEN USING INDICATED POLARITY.**

