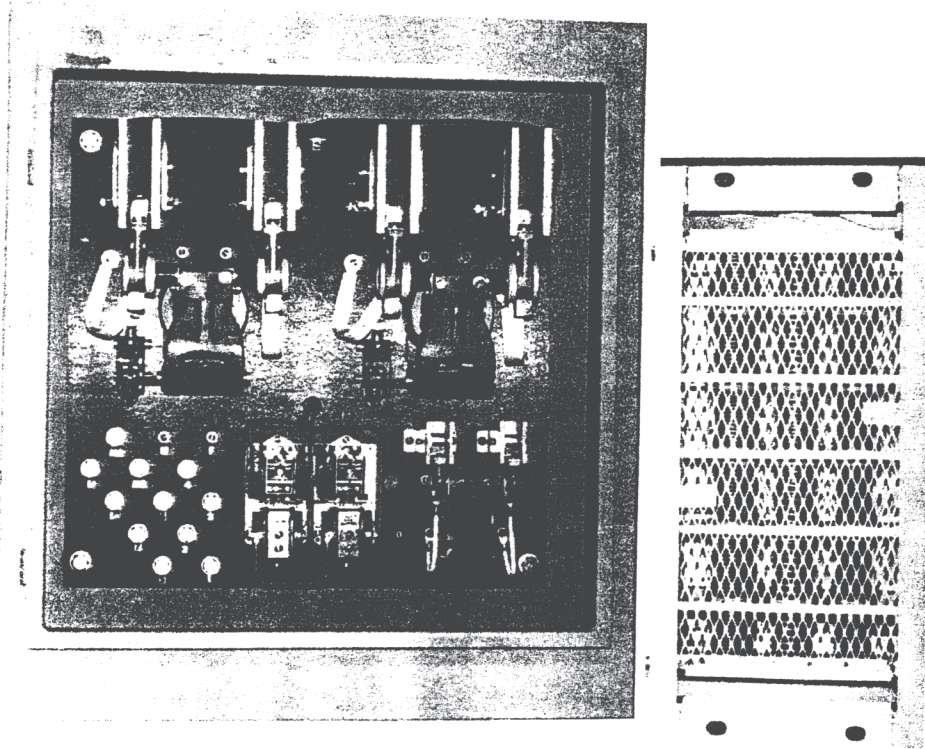


OHIO MODEL RD-3A AUTOMATIC DROP MAGNET CONTROLLER

INSTALLATION, MAINTENANCE, AND PARTS BULLETIN
OPERATING RANGE 100-200 AMPS (COLD MAGNET CURRENT)



DESCRIPTION

The RD-3A Automatic Drop Controller is used to quickly discharge and automatically send a timed reverse current through the magnet coil. This produces a fast, clean drop of the magnet load with one movement of the master switch or push button.

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.

Route electrical wires through bottom or lower left side of the enclosure and connect securely to the terminals.

The resistor bank must be mounted separately, and less than 10 feet from the controller.

Provide a cover for the resistor bank to protect it from the weather and dirt.

Allow enough room around the controller and resistor bank for air circulation.

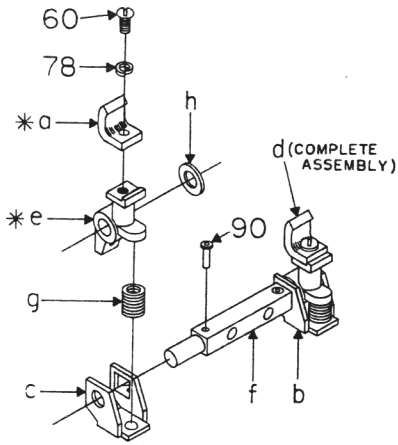
All electrical circuits must be free from grounds and shorts.

The timers are preset at the factory for magnets rated above 150 amperes. (150 - 200 amps, TR1 1.25 sec., TR2 3.5 sec.)

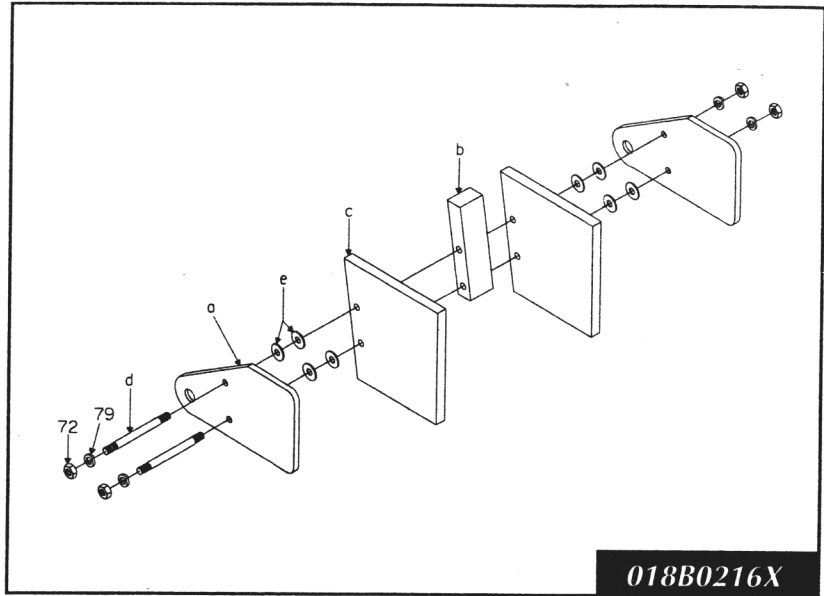
For magnets rated below 150 amperes reset the timers to the following specifications. (100 - 150 amps, TR1 .75 sec., TR2 2.0 sec.)

Make additional minor timing adjustments to TR2 for optimum drop characteristics to suit the material being handled.

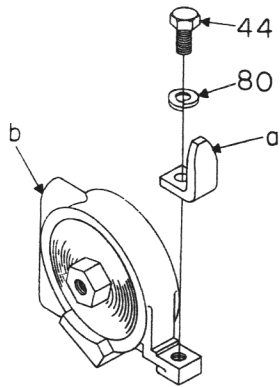
RD-3A Subassemblies



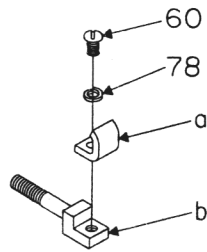
018A5074X



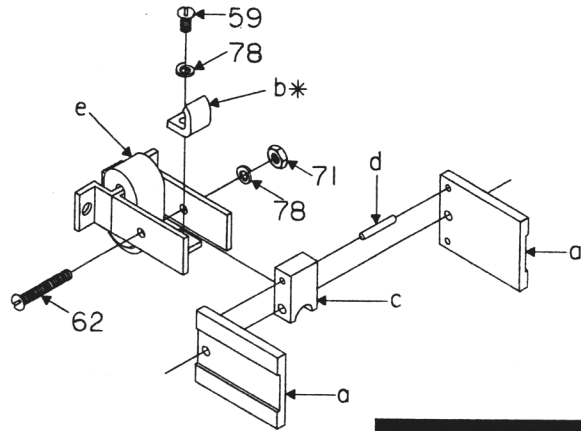
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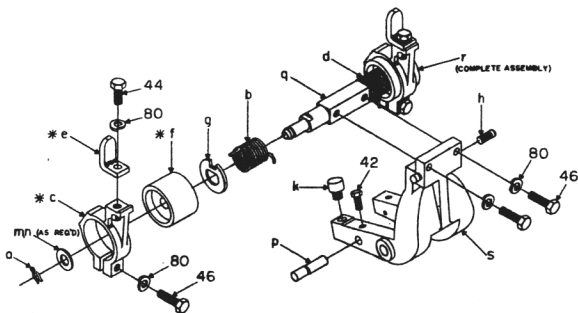
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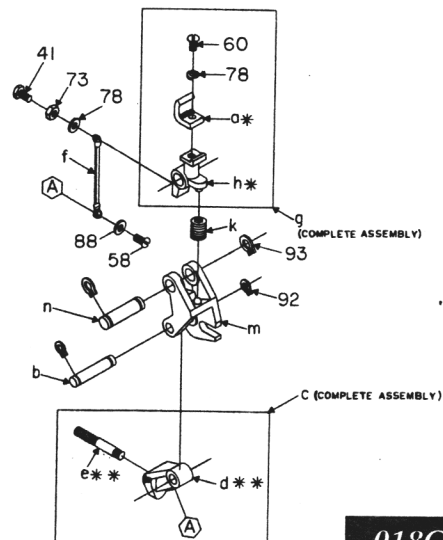
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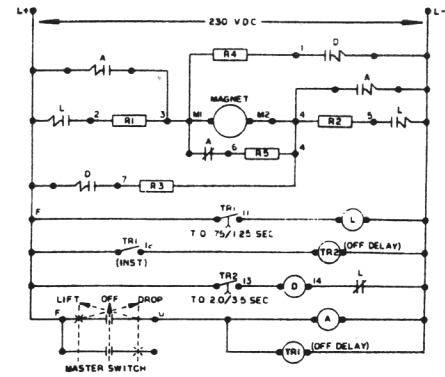
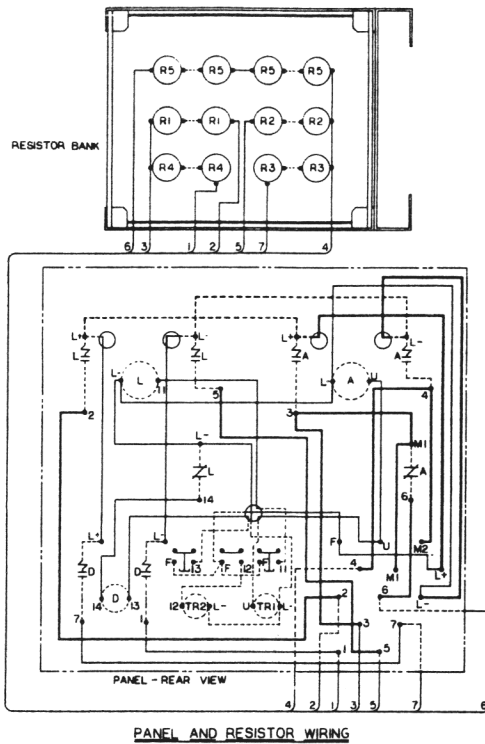


018C3090X

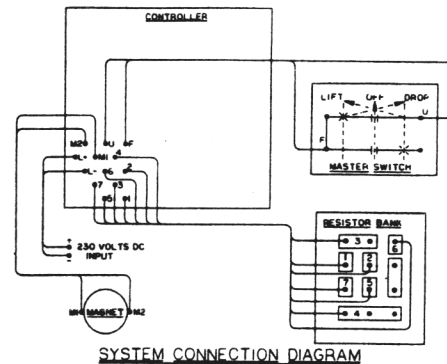


018C2966A

RD-3A Wiring Diagram



SCHEMATIC DIAGRAM



SYSTEM CONNECTION DIAGRAM

TABLE OF EQUIPMENT

SYMBOL	DESCRIPTION	FUNCTION
A	150 Amp contactor	Line Contactor
L	150 Amp Contactor	Reduce Power
D	25 Amp Contactor	Energy Discharge
TR1	Adj. Timing Relay	Reduce Power
TR2	Adj. Timing Relay	Drop Timing
R1	.5Ω Resistors	Reduce Power Resis.
R2	.5Ω Resistors	Reduce Power Resis.
R3	3.1Ω Resistors	Reverse Resis.
R4	3.1Ω Resistors	Reverse Resis.
R5	2.3Ω Resistors	Discharge Resis.

STEP BY STEP CONTROLLER OPERATION

1. When a lift signal is given by closing the contacts between terminals "F" and "U", the "A" coil is energized.
2. This closes the "A" contacts and energizes the "TR1" coil, which immediately closes its contacts to energize "L" coil and close "L" contacts.
3. This supplies full power to the magnet.
4. When the "F" to "U" contact is broken, the "A" coil is de-energized.
5. This opens the "A" contacts and sends the current through resistors "R1" and "R2" to drop the magnet current to about 1/2.
6. The normally closed "A" contact sets up the discharge circuit through resistor "R5".
7. The "TR1" coil is de-energized, timing out at .75 to 1.25 seconds.
8. The "L" coil will de-energize, opening the contacts to remove power from the magnet.
9. The normally closed "L" contact energizes the "D" coil to close the drop contacts "D", setting up the reverse current.
10. An instantaneous contact opens from the "TR1" coil, de-energizing the "TR2" coil, (which times open at 2.0 to 3.5 seconds), to de-energize the "D" coil and open the reverse current contacts "D".
11. "TR2" time should be set to drop the load cleanly.

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 (#25a and #30e), just touching. Adjust by loosening screw (#42) on part (#30s) and rotating operating pin (#30p). Or, by adjusting screw (#41) on part (#27h).

Check gap (3/4" opening) between main contacts (#25a and #30e). Adjust by loosening screw (#46) on part (#30c) 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.

Timers should move freely. If not, replace them.

EMERGENCY SPARE PARTS KIT. #ESP-018M6100D

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.



Ohio Magnetics Inc. Division of Peerless - Winsmith

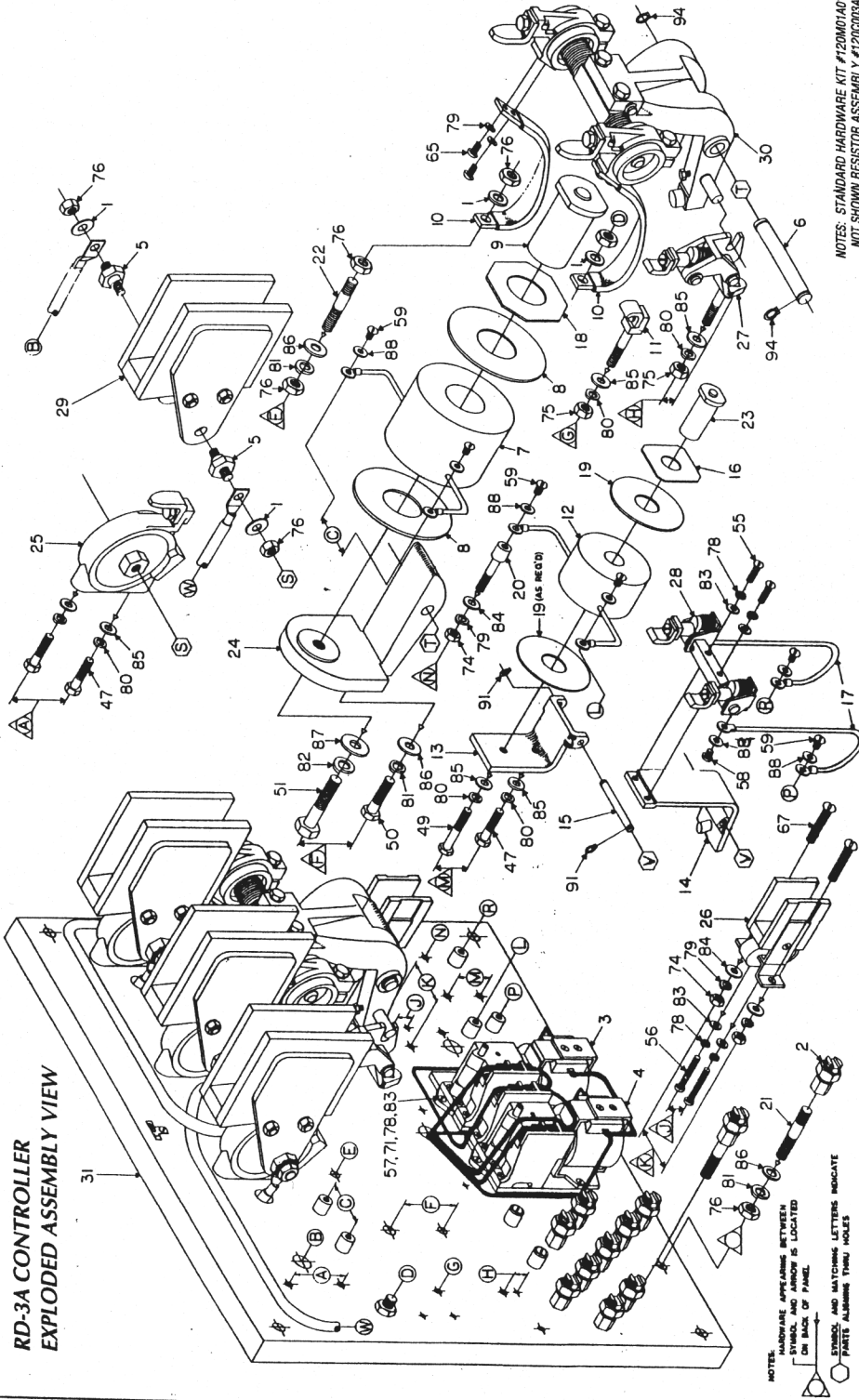
5400 Dunham Road, Maple Heights, Ohio 44137

TWX - 810- 422-2984 FAX - 216-662 - 2911

216 - 662 - 8484

OHIO MODEL RD-3A AUTOMATIC DROP MAGNET CONTROLLER

RD-3A CONTROLLER EXPLODED ASSEMBLY VIEW



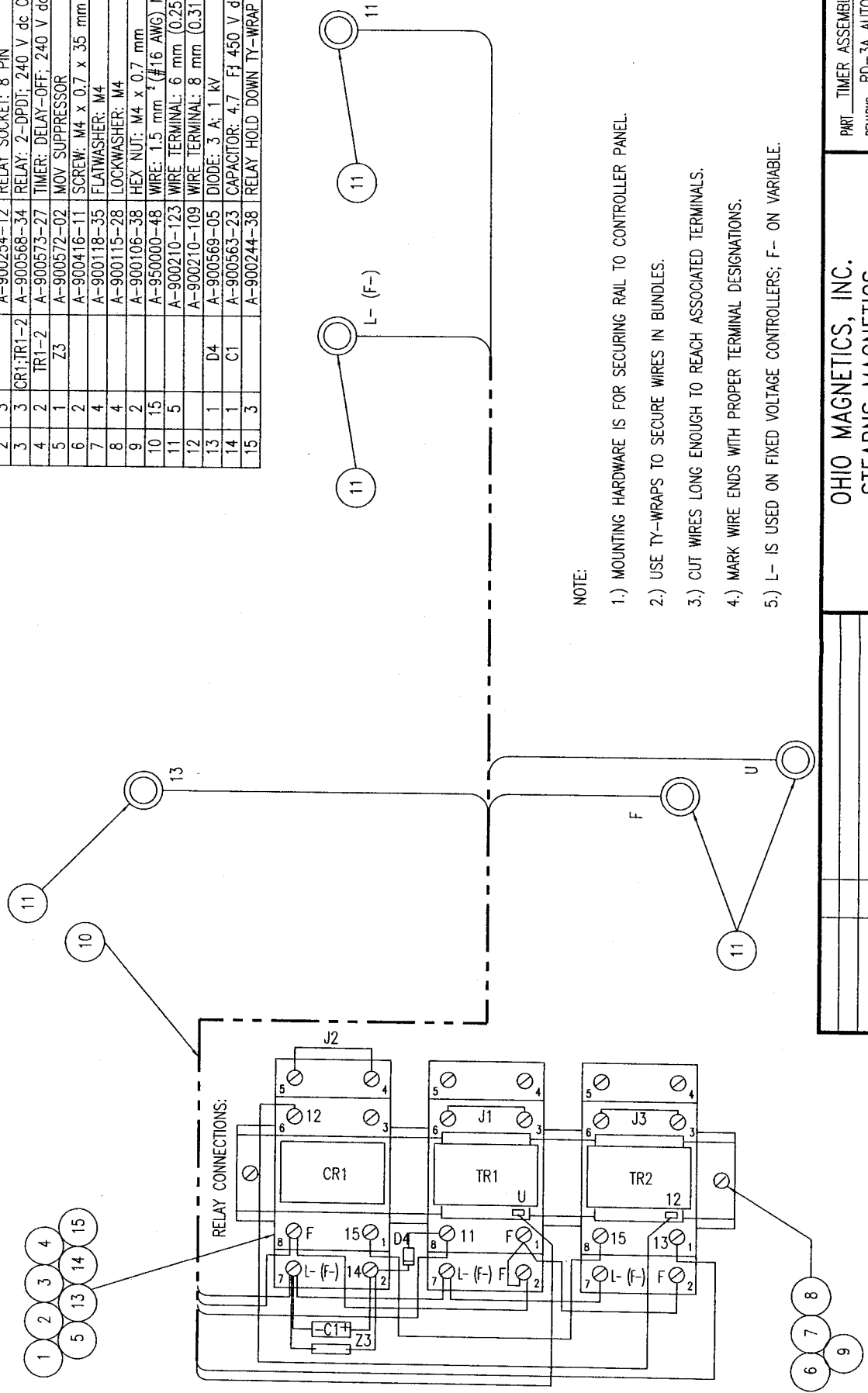
NOTES: STANDARD HARDWARE KIT #120M01401
 NOT SHOWN RESISTOR ASSEMBLY #120C02847

HARDWARE SPECIFICATIONS LIST

ITEM	PART NUMBER	REQ'D	DESCRIPTION	MAT'L	ITEM	PART NUMBER	REQ'D	DESCRIPTION	MAT'L	ITEM	PART NUMBER	REQ'D	DESCRIPTION	MAT'L
42	A-90023-16	2	SCR RH STD #10-32N x 3/8"	BRASS	80	A-90015-06	30	5/16" SPLIT LOCKWASHER	STEEL	81	A-90015-07	30	3/8" SPLIT LOCKWASHER	STEEL
44	A-90004-24	6	SCR RH HD #10-32N x 3/8"	BRASS	82	A-90015-07	17	3/8" SPLIT LOCKWASHER	STEEL	83	A-90015-08	17	1/2" FLATWASHER	STEEL
46	A-90007-02	8	SCR RH HD 5/16-18N x 3/4"	STEEL	84	A-90015-09	12	1/4" FLATWASHER	STEEL	85	A-90018-05	14	1/4" FLATWASHER	STEEL
47	A-90007-06	9	SCR RH HD 5/16-18N x 1 1/2"	STEEL	86	A-90018-05	17	3/8" FLATWASHER	STEEL	87	A-90018-09	2	1/2" FLATWASHER	STEEL
49	A-90007-08	1	SCR RH HD 5/16-18N x 1 1/2"	STEEL	88	A-90018-09	17	3/8" FLATWASHER	STEEL	89	A-90018-10	2	1/2" FLATWASHER	STEEL
50	A-90007-09	2	SCR RH HD 5/16-18N x 1 1/2"	STEEL	90	A-90021-02	2	EXT. RET. RING - 1/4" SHAFT	STEEL	91	A-90021-02	2	EXT. RET. RING - 1/4" SHAFT	STEEL
51	A-90007-09	2	SCR RH HD 5/16-18N x 1 1/2"	STEEL	92	A-90021-02	2	EXT. RET. RING - 1/4" SHAFT	STEEL	93	A-90021-04	2	EXT. RET. RING - 3/8" SHAFT	STEEL
55	A-90002-07	2	SCR RH STD #10-32N x 7/8"	STEEL	94	A-90021-04	2	EXT. RET. RING - 3/8" SHAFT	STEEL	95	A-90021-04	2	EXT. RET. RING - 3/8" SHAFT	STEEL
57	A-90002-11	6	SCR RH STD #10-32N x 1 1/4"	STEEL										
58	A-90002-13	4	SCR RH STD #10-32N x 3/8"	BRASS										
59	A-90023-14	12	SCR RH STD #10-32N x 3/8"	STEEL										
60	A-90023-15	6	SCR RH STD #10-32N x 1/2"	BRASS	81	A-90015-06	30	5/16" SPLIT LOCKWASHER	STEEL	82	A-90015-07	30	3/8" SPLIT LOCKWASHER	STEEL
65	A-90023-17	4	SCR RH STD 1/4-20N x 1 1/2"	BRASS	83	A-90015-08	17	1/2" FLATWASHER	STEEL	84	A-90015-09	12	1/4" FLATWASHER	STEEL
67	A-90023-22	4	SCR RH STD 1/4-20N x 1 3/4"	BRASS	85	A-90018-05	14	1/4" FLATWASHER	STEEL	86	A-90018-05	17	3/8" FLATWASHER	STEEL
70	A-90010-03	8	NUT RH #10-32N	STEEL	87	A-90018-09	2	1/2" FLATWASHER	STEEL	88	A-90018-09	17	3/8" FLATWASHER	STEEL
71	A-90010-05	16	NUT RH #10-32N	BRASS	89	A-90018-10	2	1/2" FLATWASHER	STEEL	90	A-90021-02	2	EXT. RET. RING - 1/4" SHAFT	STEEL
72	A-90010-05	16	NUT RH #10-32N	BRASS	91	A-90021-02	2	EXT. RET. RING - 1/4" SHAFT	STEEL	92	A-90021-02	2	EXT. RET. RING - 1/4" SHAFT	STEEL
73	A-90010-05	16	NUT RH #10-32N	BRASS	93	A-90021-04	2	EXT. RET. RING - 3/8" SHAFT	STEEL	94	A-90021-04	2	EXT. RET. RING - 3/8" SHAFT	STEEL
74	A-90010-11	26	NUT RH #10-32N	BRASS	95	A-90021-04	2	EXT. RET. RING - 3/8" SHAFT	STEEL					
75	A-90010-11	26	NUT RH #10-32N	BRASS										
76	A-90010-12	4	NUT RH #10-32N	BRASS										
78	A-90011-03	22	1/4" SPLIT LOCKWASHER	STEEL										
79	A-90011-03	22	1/4" SPLIT LOCKWASHER	STEEL										

ITEM	PART NUMBER	REQ.	DESCRIPTION
1	A-90011B-21	12	3/8" FTWASH.
2	CBL. CONCT.#2 - #8	11	
3	A-900215-02	1	TIMING RELAY - 240 V.D.C.
4	A-900267-06	1	BLOWOUT BOLT - 240 V.D.C.
5	018A0123X	8	BLOWOUT BOLT - W/STUD
6	018A0140C	2	ARM PIN - 1/2" DIA
7	018A0151F	2	MAIN COIL - 230 VOLTS
8	018A0152X	4	INSULATING WASHER
9	018A0154A	2	CORE ASSY.
10	018A0317D	4	SHUNT & INSULATOR ASSY.
11	018A1480X	2	STATIONARY CONTACT ASSY.
11a	018A1443X	2	CONTACT
11b	018A1443X	2	CONTACT BRACKET
12	018A1500D	2	OPERATING COIL - 230 VOLTS
13	018A2615X	1	SWITCH FRAME
14	018A2615X	1	SWITCH ARM ASSY.
15	018A2632A	1	ARM PIN - 1/4" DIA
16	018A2637X	2	SPRING WASHER
17	018A2720X	2	SHUNT ASSY.
18	018A2866X	2	CLAMP WASHER
19	018A2977X	6	SEPARATOR WASHER
20	018A3010X	10	TERMINAL STD.
21	018A3878A	11	TERMINAL STD - 2 1/2" L.G.
22	018A3878X	4	TERMINAL STD - 2 3/4" L.G.
23	018A6209A	1	REVERSE CORE ASSY.
24	01880217A	4	MAIN FRAME
25	018A0125X	4	BLOWOUT COIL ASSY.
25a	01887011A	4	BLOWOUT HOUSING COIL ASSY.
26	018A1478X	4	BLOWOUT COIL ASSY. - REVERSE
26a	018A0803X	4	ARC SHIELD SIDE
26b	018A1443X	2	CONTACT TIP
26c	018A1503X	2	ARC SHIELD SPACER
26d	018A1523X	2	DOWEL
26e	018B2727X	2	BLOWOUT COIL ASSY.
27	018B2966A	2	AUXILIARY COIL ASSY.
27a	018A1443X	2	AUXILIARY ARM ASSY.
27b	018A1444A	2	ARM PIN
27c	018A1482A	2	AUXILIARY BASE
27d	018A1482X	2	AUXILIARY ARM ASSY.
27e	018A1484X	2	STUD - 2 3/16"
27f	018A1487A	2	SHUNT
27g	018A2614A	2	CONTACT ARM ASSY.
27h	018A2614X	2	CONTACT ARM
27k	018A2670X	2	SPRING
27m	018A2898X	2	AUXILIARY ARM
27n	018A2945A	2	ARM PIN
28	018B5074X	1	SWITCH ARM ASSY.
28a	018A1443X	2	CONTACT TIP
28b	018A2604A	1	CONTACT BRACKET
28c	018A2605A	1	CONTACT BRACKET
28d	018A2614A	2	CONTACT ARM ASSY.
28e	018A2614X	2	CONTACT ARM
28f	018A2618X	1	REVERSE ARM SHAF
28g	018A2625X	2	CONTACT SPRING
28h	018C0216X	2	SPACER WASHER
28i	018C0216X	2	ARC SHIELD ASSY.
29a	018A0120X	4	BLOWOUT EAR
29b	018A0126X	4	SPACER
29c	018A0130X	8	BLOWOUT SHIELD
29d	018A0136X	8	WASHER
29e	018D3590X	32	STD - 3 1/8"
30	A-9021145	2	MAIN ARM ASSY.
30a	018A0114X	2	MAIN PIN CLUT
30b	018A0118X	2	CONTACT ARM
30c	018A0121X	2	SPRING RICH
30d	018A0125X	2	CONTACT TIP
30e	018A0128X	4	ARM INSULATION
30f	018A0129X	4	STOP WASHER
30g	018A0135X	4	SPRING PIN
30h	018A0138X	2	STOP
30i	018A0310A	4	RETAINING WASHER
30m	018A0310X	4	OPERATING PIN
30n	018A1476X	2	ARM SHAF
30o	018B0131X	2	CONTACT ARM ASSY.
30p	018B0219X	2	CONTACT ARM ASSY.
30q	018C2992X	2	MAIN ARM
31	018D5511C	1	PANEL

No.	QTY	SYMBOL	PART NUMBER	DESCRIPTION
1	200		A-900235-03	35 mm DIN MOUNTING RAIL
2	3		A-900254-12	RELAY SOCKET: 8 PIN
3	3	CR1; TR1-2	A-900568-34	RELAY: 2-DPDT; 240 V dc COIL
4	2	TR1-2	A-900573-27	TIMER: DELAY-OFF; 240 V dc
5	1	Z3	A-900572-02	MOV SUPPRESSOR
6	2		A-900416-11	SCREW: M4 x 0.7 x 35 mm
7	4		A-900118-35	FLATWASHER: M4
8	4		A-900115-28	LOCKWASHER: M4
9	2		A-900106-38	HEX NUT: M4 x 0.7 mm
10	15		A-950000-48	WIRE: 1.5 mm ϕ (#16 AWG) NEOPRENE BLACK
11	5		A-900210-123	WIRE TERMINAL: 6 mm (0.25 in) STUD
12			A-900210-109	WIRE TERMINAL: 8 mm (0.31 in) STUD
13	1	D4	A-900569-05	DIODE: 3 A; 1 kV
14	1	C1	A-900563-23	CAPACITOR: 4.7 F; 450 V dc
15	3		A-900244-38	RELAY HOLD DOWN TY-WRAP



NOTE:

- 1.) MOUNTING HARDWARE IS FOR SECURING RAIL TO CONTROLLER PANEL.
- 2.) USE TY-WRAPS TO SECURE WIRES IN BUNDLES.
- 3.) CUT WIRES LONG ENOUGH TO REACH ASSOCIATED TERMINALS.
- 4.) MARK WIRE ENDS WITH PROPER TERMINAL DESIGNATIONS.
- 5.) L- IS USED ON FIXED VOLTAGE CONTROLLERS; F- ON VARIABLE.

OHIO MAGNETICS, INC.
STEARNS MAGNETICS

SUBSIDIARY OF PEERLESS WINSMITH, INC.
MAPLE HEIGHTS, OHIO

PART: TIMER ASSEMBLY KIT
 REMARKS: RD-3A AUTOMATIC CONTROLLER
 DRAWN BY: JPS DATE: 09 FEB 1996
 CHECKED BY: SCALE:
 PART NO. 120B010A02