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INSTALLATION INSTRUCTIONS
ML-1500 SERIES ELECTROMAGNETIC LOCK

The ML-1500 Series ElectroMagnetic Lock is mounted to the underside of the header, on the stop side of the door.

The armature is mounted to the door. A hardware kit is provided to compensate for misalignment and wear of the door, by allowing the armature to pivot on its center point.

1. Inspect the frame header to determine if an angle bracket or filler plate is required. See Figure 1 for Regular mounting. Alternative mounting on page 3.

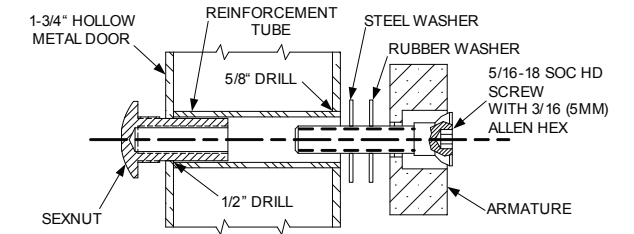
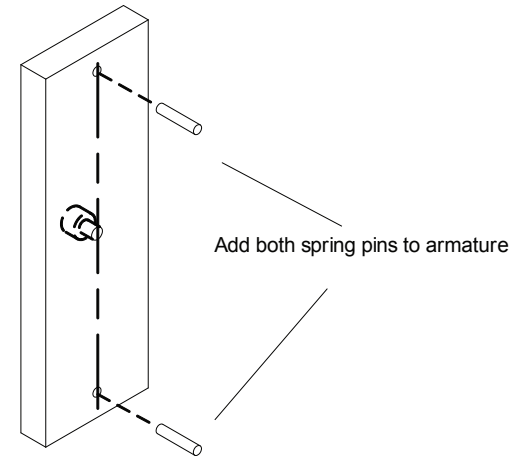
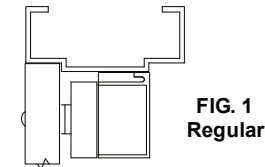
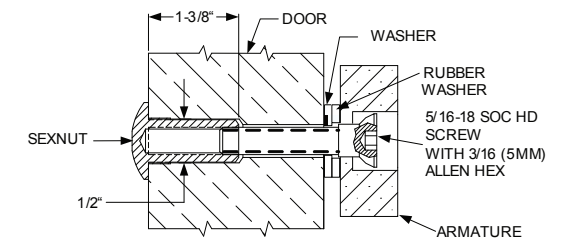


FIG. 2A HOLLOW METAL DOOR
From Sexnut side of door drill exactly 1/2" hole thru one metal thickness only. From Armature side of door drill 5/8" hole to insert reinforcement tube. Press in sexnut and reinforcement tube all the way and mount armature to door using hardware provided per Figure 2B.

2. Fold template as indicated by dotted line. For single doors, locate template against the door and header on the lock jamb side of the frame.
3. Mark and drill holes as indicated by template. For armature plate hole preparation, see Figure 2A, 2B, 2C.
- 3A. Add both spring pins to armature plate. See page 4.
4. Mount armature to door. To determine proper hardware (provided), see Figure 2A, 2B, 2C.
5. Install mounting plate to header with the interlock detail away from the door side of the stop, with #10 Flt Hd. Screws provided.
6. Holding the magnet housing at each end, engage the entire length of the interlock detail, by pushing towards the door. (If necessary, tap with a soft hammer to ensure proper alignment and engagement).



Drill 3/8" hole thru door. From sexnut side of door drill exactly 1/2" hole, 1-3/8" deep. Mount armature to door with hardware provided per Figure 2A.

7. Remove front plate to access electronics. See page 2 for wiring.
8. Test operation. When all is operating properly, tighten all screws. Install anti-tamper plugs over socket head screw using a soft hammer to avoid damage to the housing.

Electromagnet and armature should be handled carefully. Any damage to the surface such as paint, burrs, dirt and rust may hinder bonding of surface and reduce holding power.

SHOULD THE SURFACE PLATING BE DAMAGED

Do not touch the lock face with your hands.

Using a soft, clean, dry cloth or abrasive cloth (i.e., Scotch-Brite), clean lock face. Do not use sand paper.

A rust inhibitor such as M1, manufactured by Starret, or LPS3, manufactured by LPS Laboratories (available at most hardware stores) can then be applied. Apply a coat of inhibitor to armature face also.

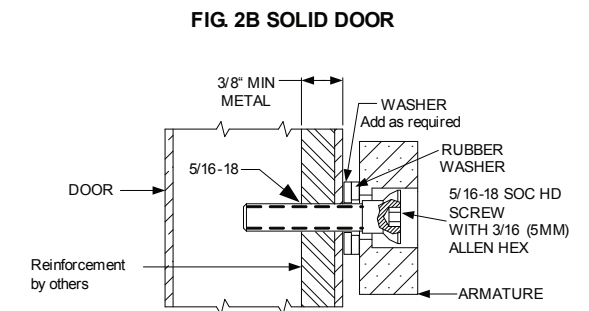


FIG. 2C REINFORCED DOOR
Drill and tap for 5/16-18 machine screw. Mount armature to door with hardware provided per Figure 2A.

ML-1500 Series Connections

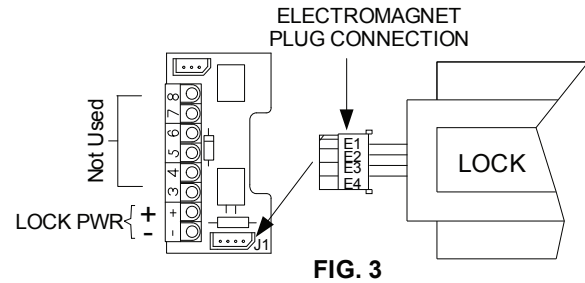


FIG. 3

AVAILABLE OPTIONS

RT TIME DELAY (1-30 sec)

***NOTE:** For a proper coil resistance reading turn off the DC voltage. Use an ohmmeter and measure the resistance between the pins of the plug connector positions E-E2 and E3-E4

ELECTRICAL SPECIFICATIONS

Voltage kickback protection standard

SERIES	ML-1500
INPUT VOLTAGE (VDC)	24
POWER CONSUMPTION (mA)	350
COIL RESISTANCE (OHMS)	35* (PER COIL)
HOLDING FORCE (LBS)	1650

ELECTRICAL INSTALLATION

1. Use jacketed cable for all wire runs. Refer to the AWG wire gauge chart for proper lock power wire size (18 AWG gauge minimum).
2. All wires **must** be color coded.
3. Use properly fused power source only. See Electrical Specifications.
4. Make all ElectroMagnetic Lock terminal connections according to Figure 3.

AWG WIRE CHART

To determine the correct wire gauge to use on "one circuit" the following information is required:

1. The quantity, voltage, and current draw of all lock(s) to be used.
2. The distance in feet from the power supply to the furthest lock.

Add together the current draw (amps) of all locks on the same circuit. Cross reference the total amps with the distance between the power source and the furthest lock to determine the wire gauge required. All wiring must be installed in accordance with all state and local codes.

DISTANCE IN FEET FROM POWER SOURCE TO FARTHEST LOCKING DEVICE

	AMPS	25	50	75	100	150	200	250	300	400	500	1000
Minimum Wire Gauge for 24 Volts DC	0.25	18	18	18	18	18	18	18	18	16	16	16
	0.50	18	18	18	18	18	16	16	14	14	12	
	0.75	18	18	18	18	16	14	14	12	12		
	1.00	18	18	16	16	14	14	12	12			
	1.50	18	18	16	14	14	12					
	2.00	18	16	14	14	12						
	2.50	18	16	14	12							

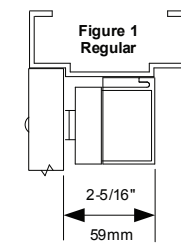
IMPORTANT NOTES

INDOOR USE ONLY

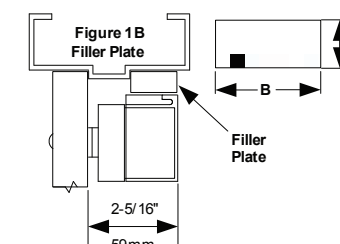
Do not run power wires and signal wires in the same cable or conduit.

TROUBLE SHOOTING

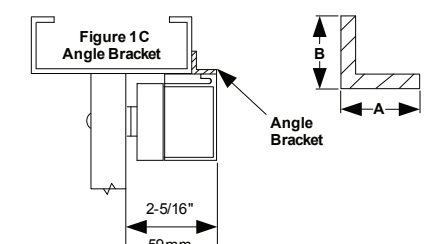
Problem	Cause	Solution
ElectroMagnetic lock releases slowly. (residual magnetism)	Control switch wired on DC side of power source	Control switch must be wired on DC side of power supply
Poor holding force.	Armature installed rigidly.	Armature must pivot loosely from its center mounting point to permit full armature contact.
	Low voltage	Check for proper voltage at the ElectroMagnetic lock input. If low, determine if the correct wire gauge is being used to prevent excessive voltage drop.
No holding force	No power	Check power supply load capacity. It must meet or exceed the combined current rating of all locks on the circuit.
Door does not lock.	Input polarity reversed.	ElectroMagnetic locks require DC input voltage.
	Open circuit in ElectroMagnetic Lock coil.	Check coil continuity with OHM meter. If reading is high or open, replace the magnet coil. See Fig. 3 and the Resistance Specifications.
	Magnet coil short.	Coil shorts or incorrect wiring will blow fuses. Measure the coil for correct resistance. See Fig. 3 and the Resistance Specifications.



P/N 103916



FILLER PLATES: For extension of the stop to provide a proper mounting surface on the underside of the header. See Figure 1B.



P/N 103917

ANGLE BRACKETS: Used as extension on shallow door frames to provide adequate mounting surface. See Figure 1C.

FOR ML-1500 SERIES MODELS

PART #	SIZE	A	B
103916	5/8" x 1-1/4" x 11"	16	279

FOR ML-1500 SERIES MODELS

PART #	SIZE	A	B
103917	2" x 1-1/2" x 11" LG	51	279

Available kits:

- Armature hardware kit P/N 103918-1
- ElectroMagnetic lock hardware kit P/N 103918-2