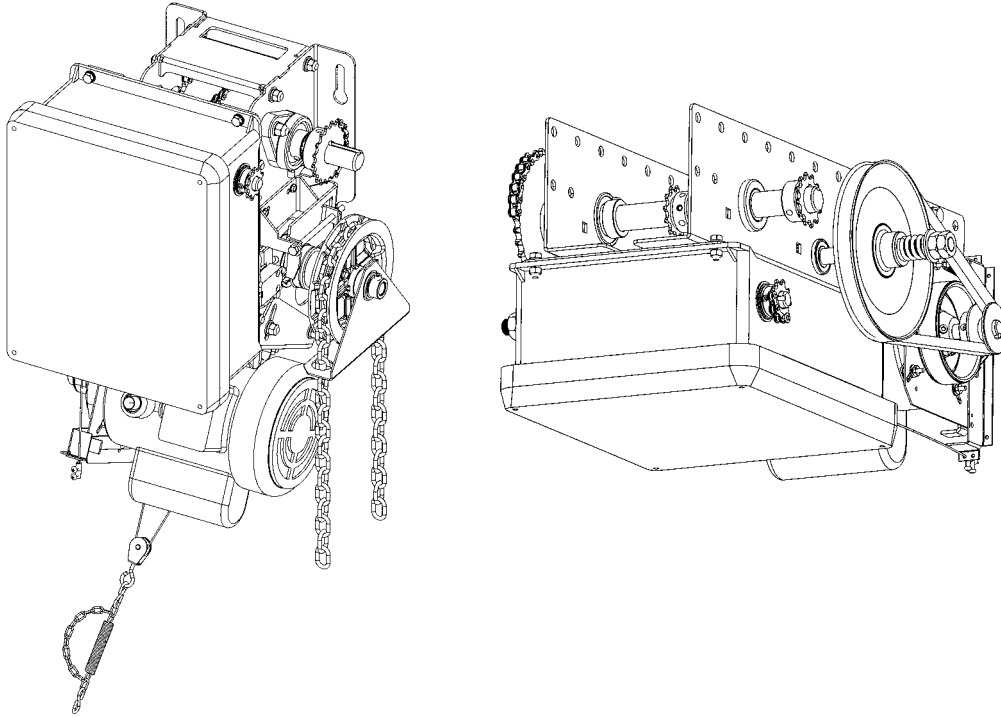


# Addendum – Environmental Applications

This addendum is to be used in conjunction with the Installation & Instruction Manual.



OPH / OPJ / OSH / OTH / OTBH / OSL  
with Nema 4/12 - Nema 4X Control Enclosures

## **Electrical Control (BOARD 070E/M)**

READ AND FOLLOW ALL INSTRUCTIONS.  
SAVE THESE INSTRUCTIONS.  
GIVE TO END-USER.

Serial # \_\_\_\_\_

Model # \_\_\_\_\_

Wiring Diagram # \_\_\_\_\_

Project #/Name \_\_\_\_\_

Door #/Name \_\_\_\_\_



For technical support, please call 1-800-361-2260 or visit [www.manaras.com](http://www.manaras.com) for more information

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## **Installation Instructions**

# **IMPORTANT INSTALLATION INSTRUCTIONS**

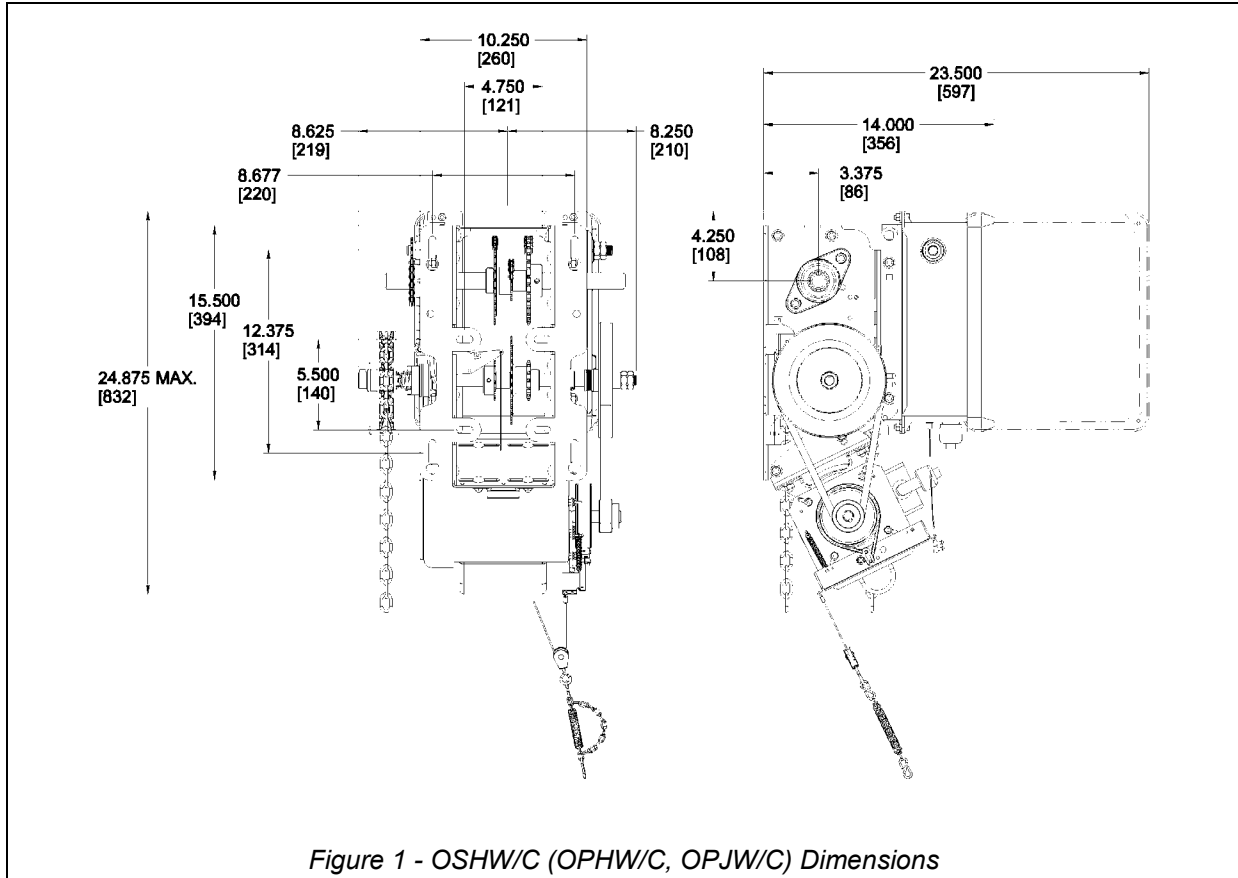
### **WARNING**

## **TO REDUCE THE RISK OF SEVERE INJURY OR DEATH TO PERSONS:**

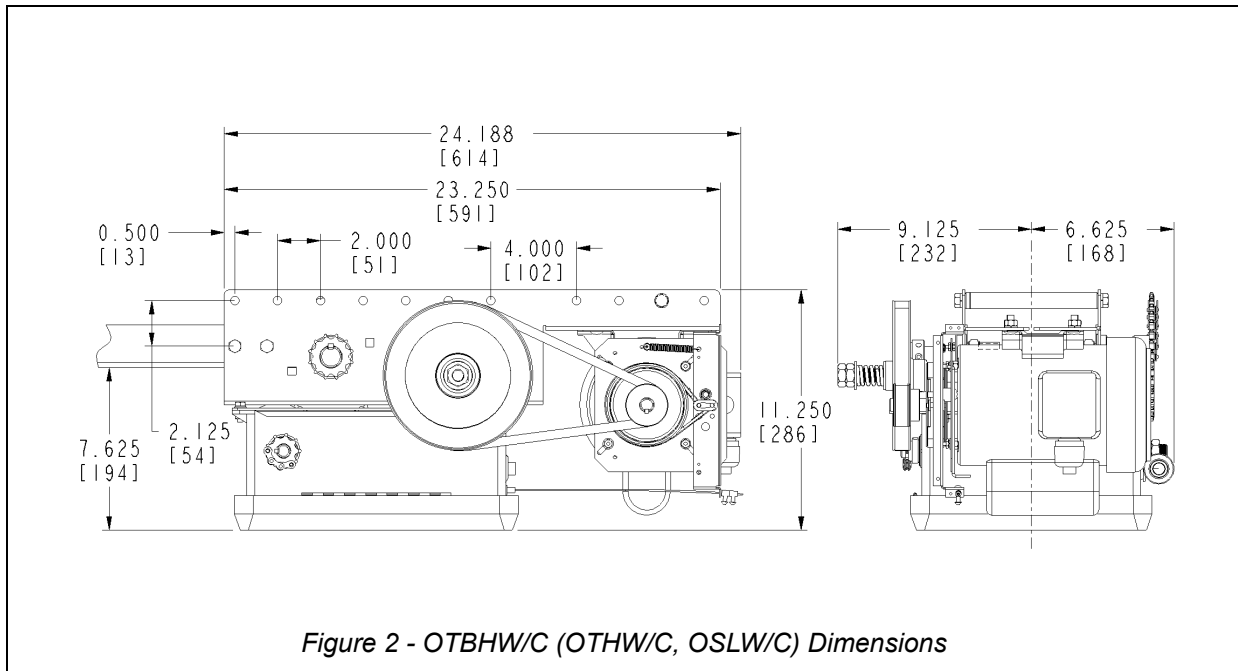
1. READ AND FOLLOW ALL INSTALLATION INSTRUCTIONS.
2. Install only on a properly operating and balanced door. A door that is operating improperly could cause severe injury. Have qualified service personnel make repairs to cables, spring assemblies and other hardware before installing the operator.
3. Remove all pull ropes and remove, or make inoperative, all locks (unless mechanically and/or electrically interlocked to the power unit) that are connected to the door before installing the operator.
4. Installation of this door operator must be done by a qualified installer.
5. Verify that the operator is correct for type, size of door and frequency of use per the operator specifications.
6. Install the door operator at least 8 feet (2,4 m) or more above the floor if the operator has exposed moving parts.
7. Do not connect the door operator to the source of power until instructed to do so.
8. Locate the control station: (a) within sight of the door, (b) at a minimum height of 5 feet (1,5 m) so small children cannot reach it, and (c) away from all moving parts of the door.
9. Install the Entrapment Warning Placard next to the control station in a prominent location.
10. For products having a manual release, instruct the end user on the operation of the manual release.
11. If you have any questions about the safety of the door operating system, do not install the operator, contact Manaras-Opera at 1-800-361-2260.

# 1 Dimensions

## 1.1 Dimensions OPH, OPJ, OSH with NEMA 4/12 & 4X Control Enclosures



## 1.2 Dimensions OTH, OTBH, OSL with NEMA 4/12 & 4X Control Enclosures



## 2 Electrical Wiring

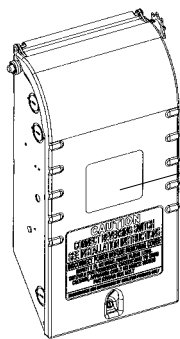
### WARNING

To reduce risk of SEVERE INJURY or DEATH to persons:

- All electrical wiring should be done by a qualified professional and in accordance to local electrical codes.
- Always shut OFF the main power before performing any electrical intervention.
- Use proper wire gauge for incoming power line and for accessory connections.
- Install operator main circuit breaker next to operator for easy access for power shut-off.
- Use separate knockouts on operator control box for accessories and main power cables.
- Always separate low and high voltage wires.
- Operator should be properly grounded to the building ground and to the main power supply ground lug.
- Always use suitable and appropriate rating circuit breakers for operator protection.
- Compare available power supply voltage to voltage on operator name plate prior to electrical connection. Failure to connect appropriate power supply voltage may cause serious damage to the operator.

### NOTICE

- THE OPERATOR MUST BE ADEQUATELY PROTECTED AGAINST OVERCURRENT AND SHORT-CIRCUIT.
- PLEASE REFER TO LOCAL ELECTRICAL CODE.
- PLEASE REFER TO NATIONAL ELECTRIC CODE (NFPA 70) ARTICLE 430 SECTION IV (430.51 / 430.52 / 430.53).
- PLEASE REFER TO CANADIAN ELECTRIC CODE (CSA 22.1) SECTIONS 28-200 / 28-206.



<b>Manaras</b>		TOLL FREE #		<b>Opera</b>	
TEL: 1-800-361-2260		FAX: 1-888-626-0606		WWW.MANARAS.COM	
MODEL		SER.#			
HP		VOLTS		PH	
				AMPS	
				<b>FLA</b>	
CONTROL CIRCUIT		60 Hertz		FT.LB/ SEC	
DATE MFG.					
		Fabriqué au Canada		Made in Canada	
<b>CAUTION</b> DISCONNECT ELECTRIC POWER BEFORE ADJUSTING DOOR OR OPERATOR <b>ATTENTION</b> COUPEZ LE COURANT ELECTRIQUE AVANT DE METTRE AU POINT LA PORTE OU L'OPERATEUR					

FLA = Full Load Amp

#### Guideline to determine the branch-circuit rating of the protective device [A]:

Time Delay Fuse:  $1,75 \times \text{FLA}$

Non-Time Delay Fuse:  $3,0 \times \text{FLA}$

A fuse that does not exceed the next higher standard ampere rating shall be permitted.

Example: If **FLA = 3,8A**

- Time Delay Fuse:  $1,75 \times 3,8\text{A} = 6,65\text{A} \rightarrow$  Standard fuse to use: 10A
- Non-Time Delay Fuse:  $3,0 \times 3,8\text{A} = 11,4\text{A} \rightarrow$  Standard fuse to use: 15A

## NOTICE

- The installer **MUST** test for proper connection and functionality of the operator and its accessories before leaving the job site.
- The installer should also perform a demonstration for the end-user.
- Use materials as per NEMA guidelines and always follow manufacturers instructions for conduit preparation.

### 2.1 Control Enclosure Conduits and Fittings

Compared to NEMA1 enclosures, the NEMA 4/12 and NEMA 4X enclosures are not supplied with pre-drilled fitting entry holes to attach fittings for incoming power and other different accessories. All appropriate holes and cuttings should be performed by the installer.

Always use liquid-tight and flexible non-metallic conduits and fittings. Use appropriate cutting tools or jigs to cut the entry holes. While inserting the conduit to the fitting, ensure that the gland is properly compressed and that the conduit jacket is not cut or ripped anywhere, in order to avoid liquid from leaking-in.

### 2.2 Low Voltage (Controls) and High Voltage (Power) Connections

1. Route the power line wires either from the right or from the left of the control box, as shown in Figure 3.
2. Route all low voltage control wires, as shown in Figure 3. **KEEP LOW VOLTAGE WIRES SEPARATE FROM LINE VOLTAGE WIRES.**
3. **USE COPPER CONDUCTORS ONLY.**

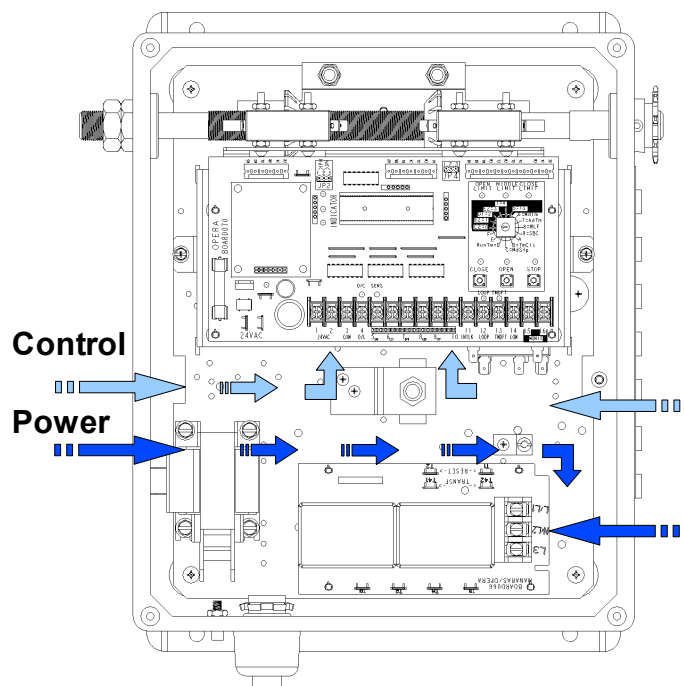


Figure 3 - Low Voltage (Controls) and High Voltage (Power) Connections

## 2.3 Radio Receiver Connection

# NOTICE

- The radio receiver should be located in a remote or protected area to avoid damage caused by liquid immersion.

### 2.3.1 External Single-Button Radio Control Receiver

In NEMA 4/12 and NEMA 4X applications, a terminal strip is not provided on the outside of the control box.

If a 3-pin radio control receiver is being used, appropriate terminals are provided on the electronic control board in order to connect the radio receiver. Please refer to Figure 4 for wiring instructions.

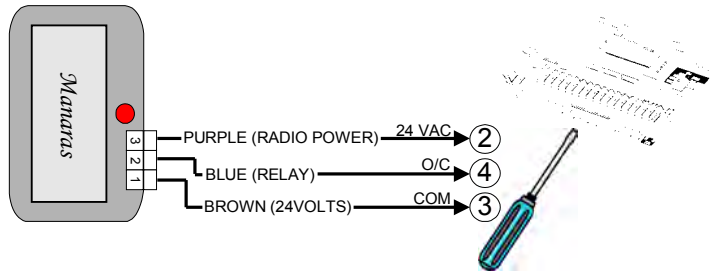


Figure 4 - RADIO 014 or RADIO 015

### 3 Electrical Drawings

#### 3.1 1 Phase Operator with BOARD 070E/M

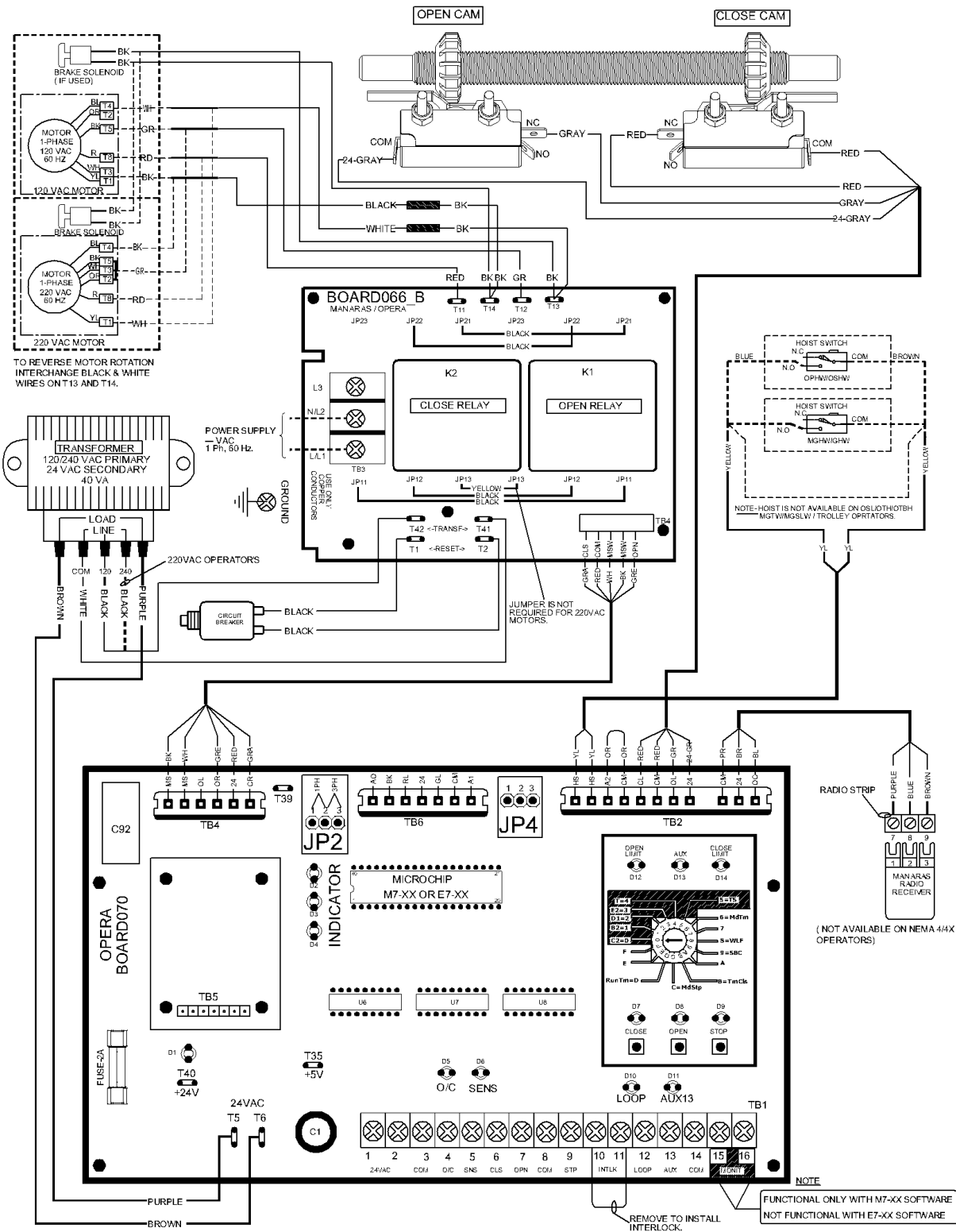


Figure 5 - MECB11-70-N40



### 3.2 3 Phase Operator with BOARD 070E/M

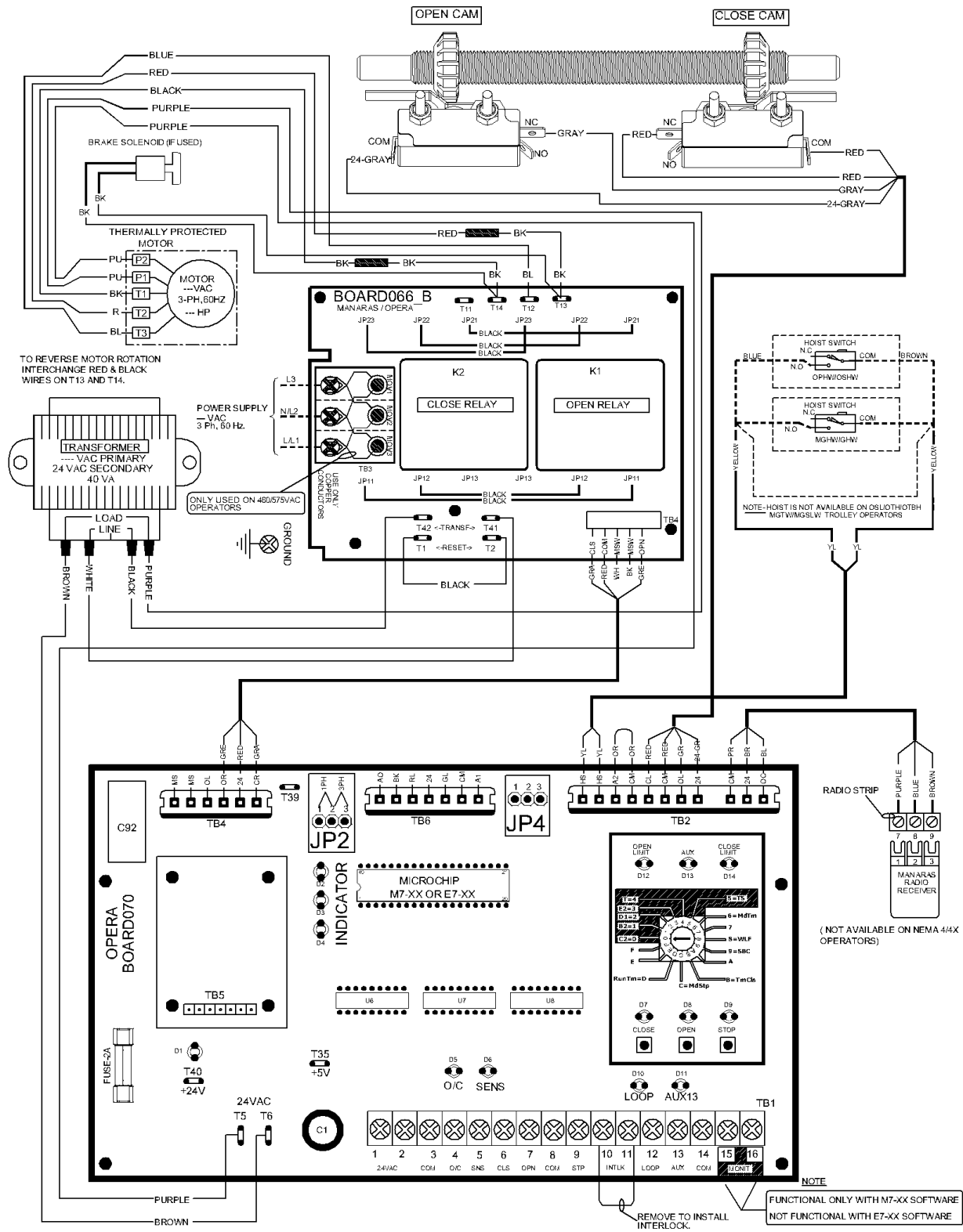


Figure 6 - MECB33-70-N40

## 4 Mechanical Exploded Views and Replacement Components

### 4.1 Opera Nema 4/12 & 4X Brake

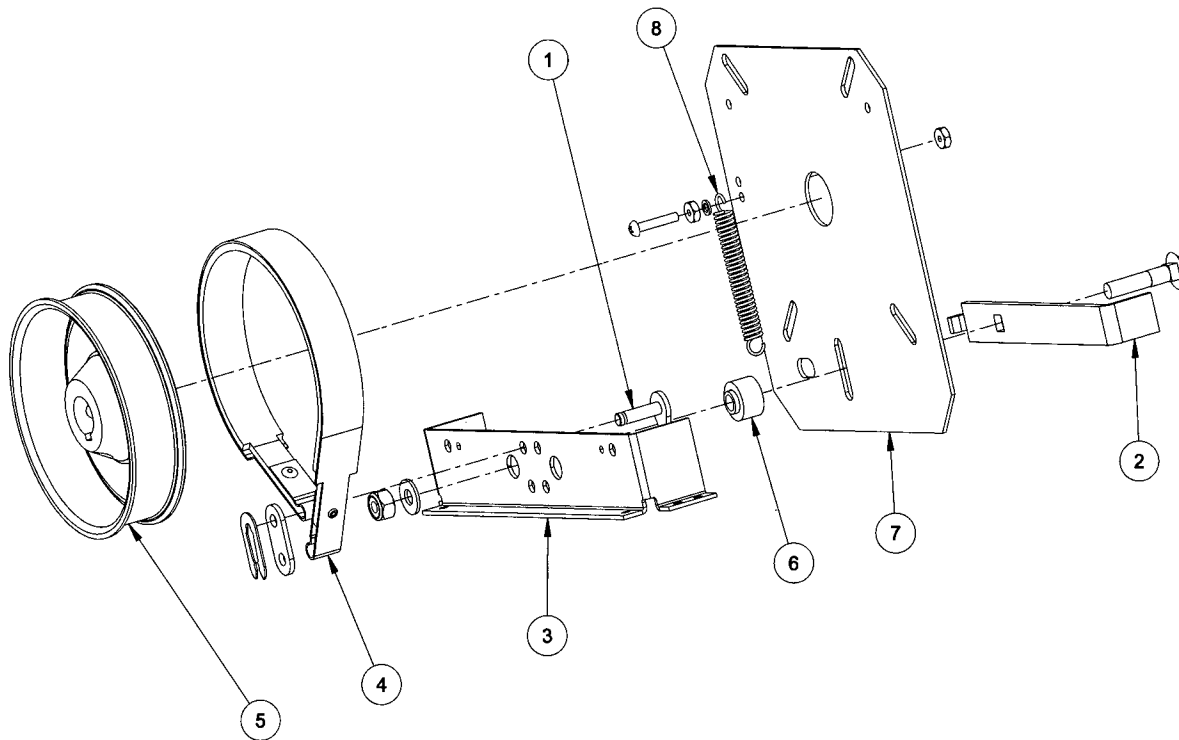


Figure 7 - Opera Nema 4/12 & 4X Brake Mechanical Exploded View

Table 1 - Opera Nema 4/12 & 4X Brake Replacement Components

No	Qty	Description	Manaras-Opera Part #	No	Qty	Description	Manaras-Opera Part #
1	1	#50 CONNECTING LINK 50-1	LINK011	7	1	BRAKE DRUM	DRUM005
2	1	ADJUSTMENT BRAKE LEVER	LEVER064	8	1	BRAKE LEVER PIVOT	BUSHING053
3	1	BRAKE LEVER NEMA 4X, 4/12	LEVER084	9	1	BRAKE PLATE N-4 NEW SYSTEM	PLATE075
6	1	BRAKE BAND ASSEMBLY HEAVY DUTY	BRAKEPART019		1	TROLLEY ARM DISCONNec SPRING	SPRING026

## 4.2 Nema 4/12 & 4X Control Enclosure with BOARD 070E/M

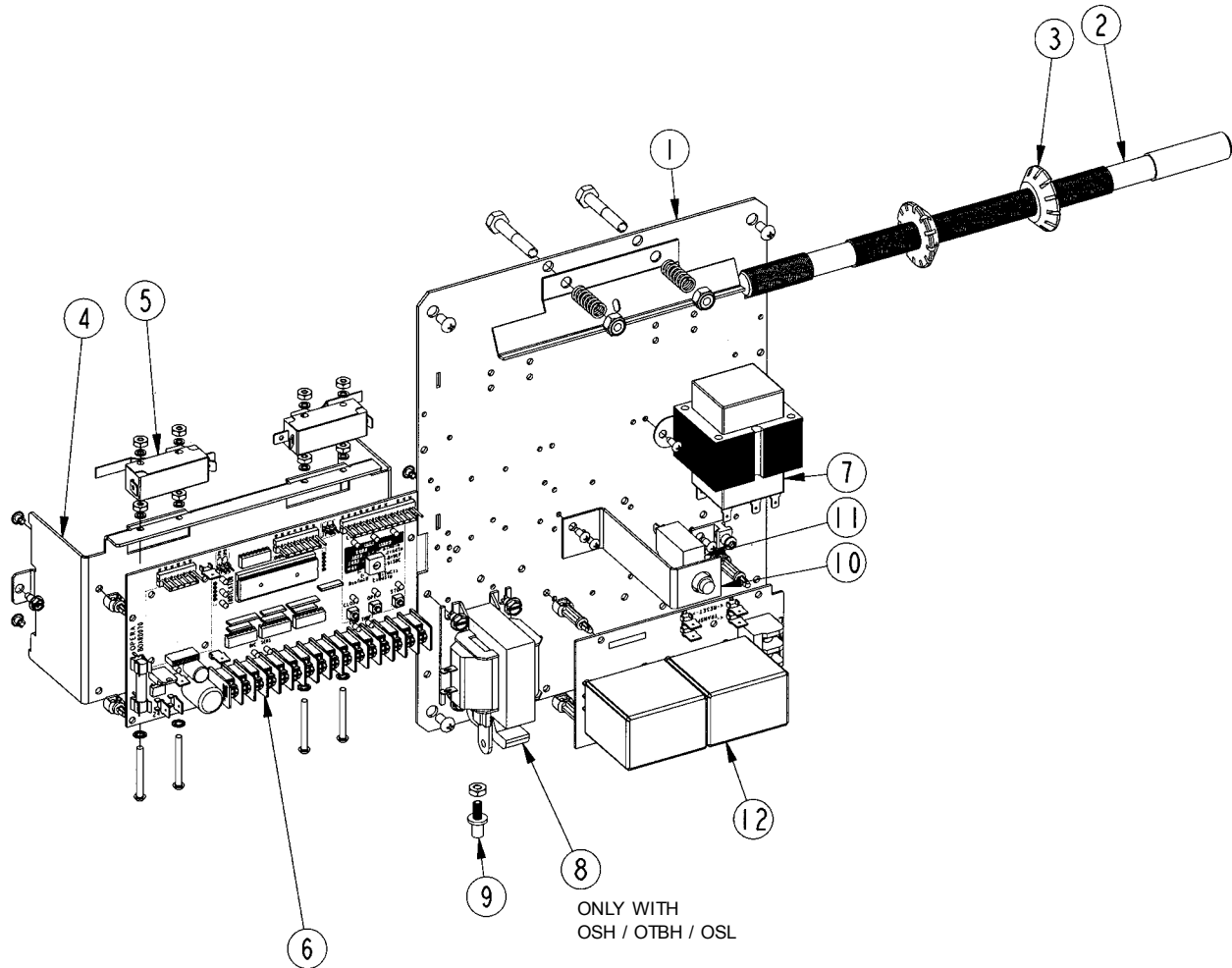


Figure 8 - Nema 4/12 & 4X Control Enclosure with BOARD 070E/M

Table 2 - Control Enclosure Replacement Components (PANEL078)

No	Qty	Description	Manaras-Opera Part #
1	1	PLATE IN CBOX WP/CP	PLATE079
2	1	LIMIT SHAFT 5/8-24 X12.5	SHAFT064
3	2	LIMIT CAM 5/8-24UNEF	CAM004
4	1	BOARD SUPPORT PLATE FOR W/C PROOF	BRACKET235
5	2	SINGLE LIMIT SWITCH - LEVER 46 DEG	LIMIT023
6	1	STD ELECT. CONTR. BOARD	BOARD070E/M
7	1	TRANSFO TO 24V	SEE Table 3 or SEE Table 4
8	1	SOLENOID	SEE Table 3 or SEE Table 4
9	1	PASSE CABLE CBOX WATERPROOF HD	GUIDE013
10	1	TOGGLE SWITCH AND RESET SUPPORT BRACKET	BRACKET097
11	1	RESET	SEE Table 3 or SEE Table 4
12	1	STD ELECT. POWER BOARD 2 RELAYS	BOARD066

### 4.3 Replacement Motors, Transformers, Solenoids and Resets

#### 4.3.1 OPH, OPJ, OSH, OTH, OTBH, OSL with NEMA 4/12 Control Enclosure

Table 3 - Opera Nema 4/12 Replacement Motors, Transformers, Solenoids and Resets According to Voltage/Phase and HP

V-PH	HP	Transfo.	Solenoid	Description	Manaras-Opera Part #
120V - 1PH	1/2HP	TRANSF143	SOLENOID001	MOTOR 1/2HP - 120V/230V - 1PH	MOTOR257
				1PH - 8 AMPS RESET	RESET005
	3/4HP			MOTOR 3/4HP - 120V/230V - 1PH	MOTOR258
				1PH - 13 AMPS RESET	RESET010
	1HP			MOTOR 1HP - 120V/230V - 1PH	MOTOR259
				1PH - 16 AMPS RESET	RESET013
230V - 1PH	1/2HP	TRANSF143	SOLENOID002	MOTOR 1/2HP - 120V/230V - 1PH	MOTOR257
				1PH - 4 AMPS RESET	RESET001
	3/4HP			MOTOR 3/4HP - 120V/230V - 1PH	MOTOR258
				1PH - 7 AMPS RESET	RESET004
	1HP			MOTOR 1HP - 120V/230V - 1PH	MOTOR259
				1PH - 8 AMPS RESET	RESET005
208V - 3PH	1/2HP	TRANSF037	SOLENOID003	MOTOR 1/2HP - 208V/460V - 3PH	MOTOR277
	3/4HP			MOTOR 3/4HP - 208V/460V - 3PH	MOTOR279
	1HP			MOTOR 1HP - 208V/460V - 3PH	MOTOR281
460V - 3PH	1/2HP	TRANSF088	SOLENOID003	MOTOR 1/2HP - 208V/460V - 3PH	MOTOR277
	3/4HP			MOTOR 3/4HP - 208V/460V - 3PH	MOTOR279
	1HP			MOTOR 1HP - 208V/460V - 3PH	MOTOR281
575V - 3PH	1/2HP	TRANSF142	SOLENOID004	MOTOR 1/2HP - 575V - 3PH	MOTOR278
	3/4HP			MOTOR 3/4HP - 575V - 3PH	MOTOR280
	1HP			MOTOR 1HP - 575V - 3PH	MOTOR282

### 4.3.2 OPH, OPJ, OSH, OTH, OTBH, OSL with NEMA 4X Control Enclosure

Table 4 - Opera Nema 4X Replacement Motors, Transformers, Solenoids and Resets  
According to Voltage/Phase and HP

V-PH	HP	Transfo.	Solenoid	Description	Manaras-Opera Part #
120V - 1PH	1/2HP	TRANSF143	SOLENOID001	MOTOR 1/2HP - 120V/230V - 1PH	MOTOR377
				1PH - 10 AMPS RESET	RESET007
	3/4HP			MOTOR 3/4HP - 120V/230V - 1PH	MOTOR148
				1PH - 13 AMPS RESET	RESET010
	1HP			MOTOR 1HP - 120V/230V - 1PH	MOTOR172
				1PH - 15 AMPS RESET	RESET012
230V - 1PH	1/2HP	TRANSF143	SOLENOID002	MOTOR 1/2HP - 120V/230V - 1PH	MOTOR377
				1PH - 6 AMPS RESET	RESET003
	3/4HP			MOTOR 3/4HP - 120V/230V - 1PH	MOTOR148
				1PH - 7 AMPS RESET	RESET004
	1HP			MOTOR 1HP - 120V/230V - 1PH	MOTOR172
				1PH - 8 AMPS RESET	RESET005
208V - 3PH	1/2HP	TRANSF037	SOLENOID002	MOTOR 1/2HP - 208V/460V - 3PH	MOTOR320
	3/4HP			MOTOR 3/4HP - 208V/460V - 3PH	MOTOR322
	1HP			MOTOR 1HP - 208V/460V - 3PH	MOTOR323
460V - 3PH	1/2HP	TRANSF088	SOLENOID003	MOTOR 1/2HP - 208V/460V - 3PH	MOTOR320
	3/4HP			MOTOR 3/4HP - 208V/460V - 3PH	MOTOR322
	1HP			MOTOR 1HP - 208V/460V - 3PH	MOTOR323
575V - 3PH	1/2HP	TRANSF142	SOLENOID004	MOTOR 1/2HP - 575V - 3PH	MOTOR330
	3/4HP			MOTOR 3/4HP - 575V - 3PH	MOTOR331
	1HP			MOTOR 1HP - 575V - 3PH	MOTOR332

# Notes



## **Warranty**

Manaras-Opera warrants its operators to be free from defects in material and workmanship under normal and proper use for a period of two years from date of invoice. Mechanical, electrical and electronic accessories are warranted for one year from date of invoice. Wearing parts such as clutch pads, v-belts, and brake bands are excluded from warranty.

Manaras-Opera's only obligation shall be to repair or replace defective equipment which does not conform to the warranty. Manaras-Opera shall not be liable for any injury, loss or damage, direct or consequential, arising out of the inability to use the equipment. Before using, Buyer and/or the ultimate User shall determine the suitability of the product for its intended use, and User assumes all risks and liability in connection therewith. The foregoing may not be changed except by an Agreement signed by an authorized representative of Manaras-Opera.

The articles that are replaced pursuant to the terms of this warranty shall be retained by Manaras-Opera, and the User is responsible for any freight costs relating to repair or replacement.

The foregoing warranty is exclusive and in lieu of all other warranties of quality, whether written, oral or implied (including any other warranty of merchantability or fitness for purpose).

The following are exclusions from warranty:

- If usage, product modification, adaptation or installation are not in accordance with our installation and operating instructions.
- If the product has been opened, dismantled or returned with clear evidence of abuse or other damage.
- If our written specifications are not properly applied by the Buyer when selecting the equipment.
- If our written instructions for installation and wiring of the electrical connections have not been followed.
- If our equipment has been used to perform functions other than the functions it was designed to handle.
- If Manaras-Opera equipment is used with electrical accessories (switches, relays, etc.) that have not been previously approved in writing by the Manaras-Opera Engineering Department.
- If electrical accessories and other components have been used in disregard of the basic wiring diagram for which they were designed.

All costs related to installation and re-installation of the Manaras-Opera equipment covered by this warranty are not the responsibility of Manaras-Opera. Manaras-Opera will not be responsible for any consequential damages following installation procedures performed by the Buyer or End-user. If the Buyer resells any Manaras-Opera products to another Buyer or End-user, it shall include all of the terms and provisions of this warranty in such resale. Manaras-Opera's responsibility to any such Third Party shall be no greater than Manaras-Opera's responsibility under the warranty to the original Buyer.

### **Returns**

No returns will be accepted without prior written authorization by Manaras-Opera. All returns must be accompanied by a Return Authorization Number issued by Manaras-Opera, and all unauthorized returns will be refused. The return shipment is to be freight prepaid by the Buyer, and under no circumstances shall the Buyer deduct the value of the returned merchandise from any remittance due. A restocking fee of 15% of Manaras-Opera sale price will be charged.



# Commercial Door OPERATOR



Manaras-Opera is extending their well-known OPERA brand name across its entire line of Commercial Door OPERATORS. Over the years, the OPERA brand name has become synonymous with innovation and reliability. The high quality products you have come to expect from us will now be backed by the OPERA brand name.

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Commercial Door OPERATORS,  
just think OPERA.**

Call us for more information  
**1-800-361-2260**

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