Installation & Instruction Manual

Opera-MH

Opera-MJ

Note: Read this manual carefully before installing the operator and place this installation manual in an accessible place near the operator. For future reference record:

Model # _____

Date _____

Wiring Diagram # _____

Model # _____

Project No. _____

Project Name _____

Door No. # _____

Manaras Opera

IMPORTANT SAFETY INSTRUCTIONS

WARNING

TO REDUCE THE RISK OF SEVERE INJURY OR DEATH, READ AND FOLLOW ALL INSTRUCTIONS

1. Never allow children to operate or play with or near door.
2. Check to see that the operator is correct for the type, size of door and frequency of use per the operator specifications.
3. If the door system is near a residential area, or pedestrian traffic is expected near the door system, additional equipment such as electric reversing edges, photocells, or similar devices must be installed as part of the system to prevent entrapment.
4. Reversing devices appropriate to the application must be installed as part of the system.
5. Outdoor or easily accessible controls must be of the security type to prevent unauthorized use of the system.
6. Place controls far enough from the door so that a user cannot touch the door when operating the controls.
7. Controls should be placed so the user has full view of the door when operating.
8. Always keep moving door in sight and away from people or vehicles until it is completely opened or closed. NO ONE SHOULD CROSS THE PATH OF THE MOVING DOOR.
9. If a person is trapped under the door, push the "OPEN" control button.
10. Do not overtighten a clutch to compensate for a damaged door.
11. Test door and service monthly. After adjusting the limit travel, retest the door opener. Failure to adjust the door may cause death or injury.
12. KEEP DOORS PROPERLY BALANCED. See door owner's manual. An improperly balanced door could cause severe injury. Have a qualified service person make repairs to cables, spring assemblies and other hardware.
13. If possible, use the emergency release only when the door is closed. Use caution when using this release with the door open. Weak or broken springs may cause the door to fall rapidly, causing injury or death.
14. You are responsible for assuring that the owner of the door system understands its basic operation and safety. In particular, be sure the owner/end-user understands the location and operation of the manual disconnect.
15. Point out to the owner/end-user of the door system that children or pets should not be allowed to play on or near the door or any part of the system, and that the safety instructions supplied with this operator are the responsibility of the owner/end-user.
16. Leave the installation and maintenance manual for this operator as well as any additional information supplied with this operator or other components of the door system with the owner/end-user.
17. If you have any question about the safety of the door operating system, do not install the operator, contact us.

WARNING

DO NOT CONNECT POWER SUPPLY WHILE INSTALLING, SERVICING OR ADJUSTING THE ELECTRIC OPERATOR

WARNING

NOT APPLICABLE FOR RESIDENTIAL USE. ONLY FOR INDUSTRIAL AND COMMERCIAL APPLICATIONS

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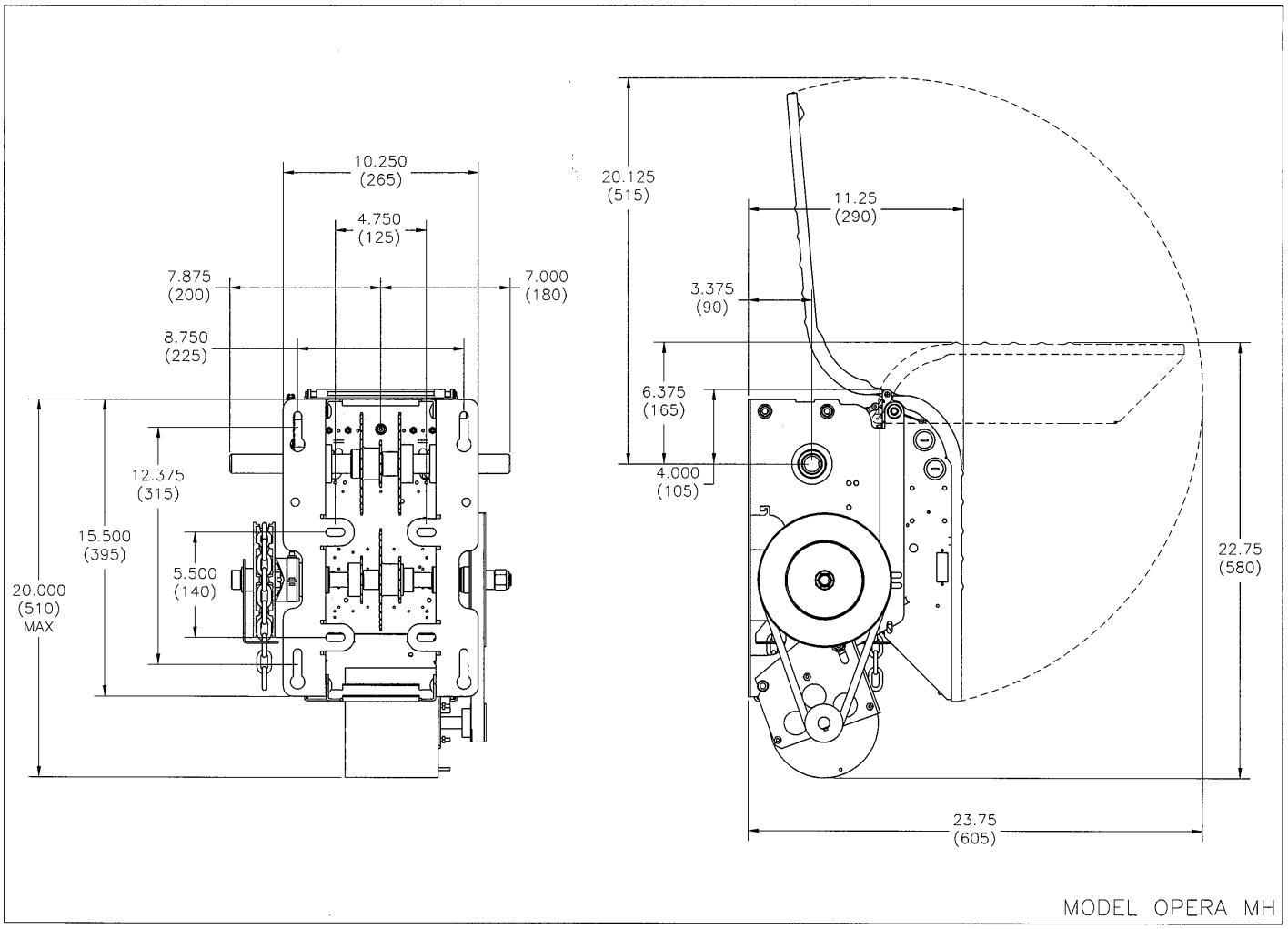
SPECIFICATIONS

GENERAL

SUPPLY VOLTAGE……..	115 VAC single phase
CONTROL VOLTAGE…….	24VAC class 2 transformer, 2 amp fuse type ACG
MOTOR…….	Intermittent duty ½ Horsepower
OPERATOR OUTPUT SPEED……	39 RPM
NET WEIGHT (Operator only)……	71 Lbs (33 Kg) for Opera-MH and 61lbs (28 Kg) for Opera-MJ
STANDARD WIRING TYPE……	C2-momentary contact to open and stop and constant pressure to close

DIMENSIONS
(Opera-MH)

In compliance with **UL325**



IMPORTANT: UPON COMPLETION OF OPERATOR INSTALLATION THIS MANUAL MUST BE GIVEN TO THE END-USER.

1. PRODUCT APPLICATION

The model OPERA medium duty jackshaft operator is designed for use on commercial or industrial doors of all types provided that the door has a shaft as basic driving element (sectional doors with high lift, vertical lift, small rolling doors and grilles). All OPERA door operators are designed and constructed in accordance with UL325 Standard, and certified by CSA Laboratories.

2. DELIVERY OF OPERATOR

Upon delivery of your medium duty jackshaft operator OPERA, inspect the unit immediately for shipping damage. Verify that you have received all the hardware parts mentioned in TABLE 1 and shown in *Figure 1*. Other items may be present, such as radio controls or other types of optional equipment, if ordered. If any item is missing or if there is evidence of damage, call the transport company first.

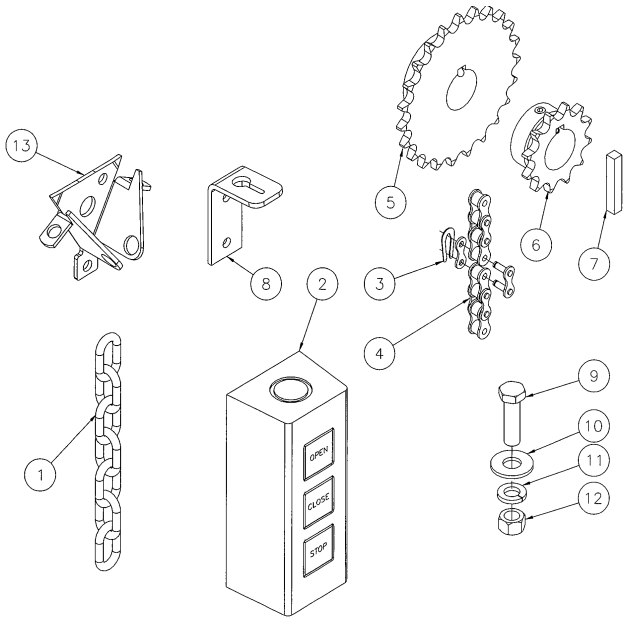
* Check to make sure that the available power supply to be connected to the operator is of the same voltage, frequency, phase and amperage as indicated on the nameplate of the operator.

3. HARDWARE

TABLE 1 STANDARD PARTS LIST FOR OPERA JACKSHAFT OPERATOR

PART #	QTY	DESCRIPTION
1	1	Pocket wheel hand chain (2X door shaft less 4 ft. (1.2m)) for Opera-MH or disconnect chain (14') for Opera-MJ
2	1	3-button open/close/stop push-button station
3	1	#41 connecting link
4	1	#41 roller chain x 4'(1.2m) or x 5' when sprocket is 42 teeth or more.
5	1	** Sprocket 41B___ x ∅__" c/w set screws for door shaft
6	1	Sprocket 41B12 x ∅1,0 " c/w set screws for OPERA™ output shaft
7	1	Square shaft key 1/4" x 1-1/2" L for OPERA™ output shaft
8	1	Chain keeper for Opera-MJ only
9	4	3/8" x 1-1/4" bolts
10	4	3/8" washers
11	4	3/8" lock washers
12	4	3/8" nuts
13	1	Chain keeper for Opera-MH only

** See SPECIFICATIONS, DOOR SPEED AND AVAILABLE DOOR ADJUSTMENT



WARNING

TO PREVENT ENTRAPMENT, DO NOT START DOOR DOWN UNLESS DOORWAY IS CLEAR

AVERTISSEMENT

POUR ÉVITER TOUT COINCEMENT, NE PAS ABAISSER LA PORTE TANT QUE L'EMBRASURE N'EST PAS LIBRE.

Ensure that the Warning tag supplied with the operator is properly fixed on the door and it is visible while the door is moving

Figure 1 Hardware and Warning Tag

4. INSTALLATION

All medium duty OPERA jackshaft operators are tested and adjusted at the factory. When installing your unit, please note that the cams are resting in the center of the cam-shaft.

The OPERA operator has a dual output shaft and may be mounted on either the left or right hand side of a sectional door (see Figure 2 and Figure 3). Place sprocket on either the right or the left end of the output shaft according to the desired handing.

The Opera-MH comes with a chain hoist located on the right of the operator. If handing requires the chain hoist to be on the left (rolling doors, left operator hood mounting for ex.), it must be requested at the time of ordering. Do not attempt to change handing of the chain yourself.

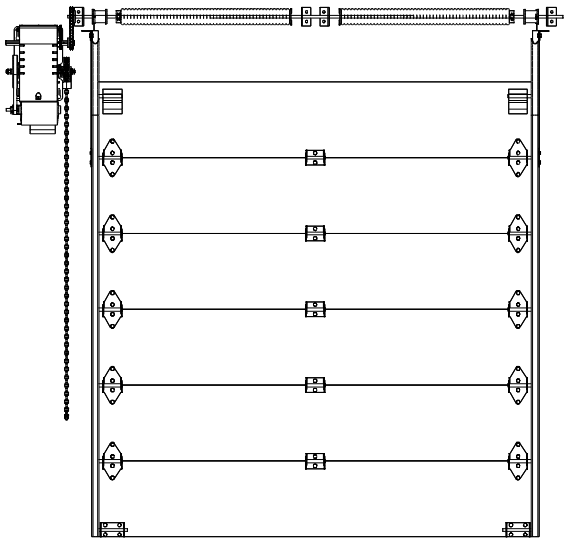


Figure 2 Left side

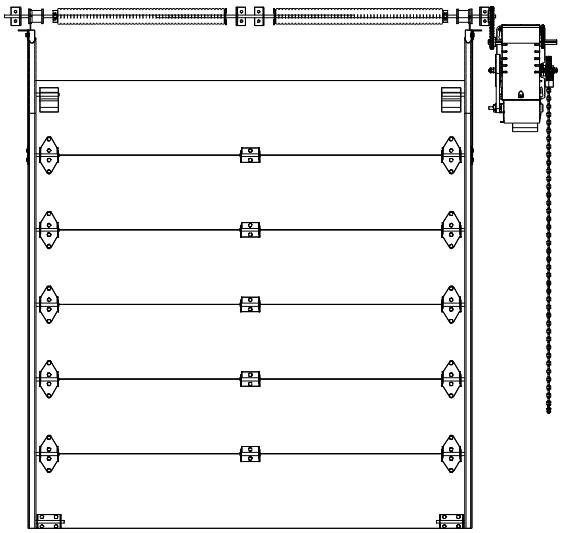


Figure 3 Right side

4.1 IMPORTANT INSTALLATION INSTRUCTIONS

WARNING

TO REDUCE THE RISK OF SEVERE INJURY OR DEATH, READ AND FOLLOW ALL INSTALLATION INSTRUCTIONS.

1. Installation of this door operator must be done by a qualified installer.
2. Insure that the door is properly installed and works freely in both directions. Do not install the operator until all door problems have been corrected. If necessary, oil all moving parts (chains, rollers, guides, etc.).
3. Remove all old accessories (locks, bolts, etc.) before installing door operator.
4. Do not connect the operator to a source of power until instructed to do so.
5. Locate control push-button station within sight of the door, at a minimum height of 5 ft. (1.5 m) so small children cannot reach it, and away from all moving parts of the door.

4.2 INSTALLATION OF OPERA OPERATOR

IMPORTANT NOTE: THIS OPERATOR MUST BE INSTALLED A MINIMUM OF 8 FT. (2.4 m) ABOVE FLOOR.

The OPERA has two sets of mounting holes: outside the frame for wall mounting and inside the frame for hood mounting.

To open the control box cover, loosen the screw at the base of the cover. If the cover cannot be fully opened, the retaining arm may be used to hold the cover in other positions (Figure 4).

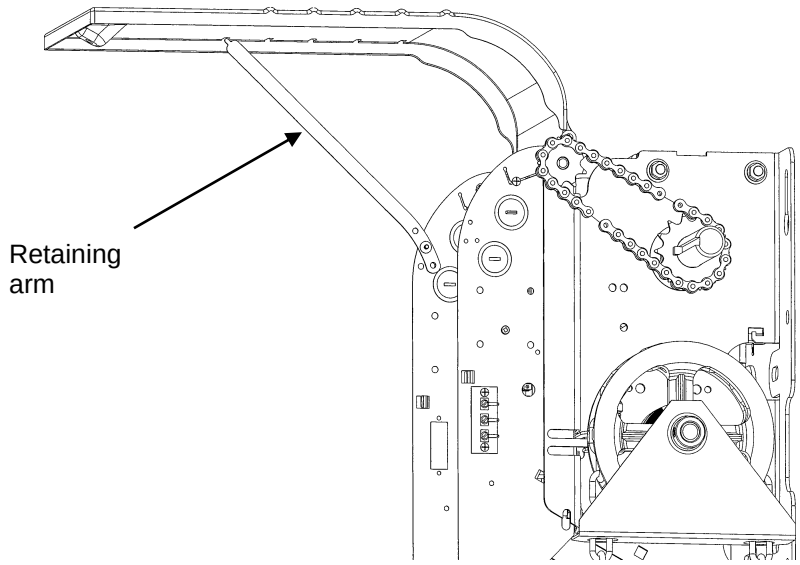


Figure 4 Control box cover opening

After installation, verify that there is no obstacle in the way when opening the control box cover. If so, it is possible to remove the cover by unscrewing it from the box before putting the operator on the wall or hood (see Figure 5).

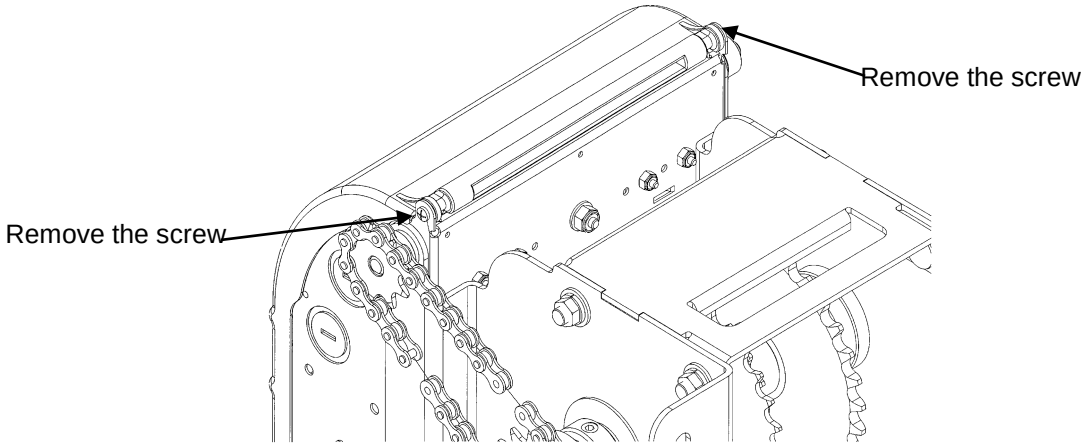


Figure 5 Unscrewing the cover from the control box

Locate the four mounting holes. The optimum distance between the door shaft and operator drive shaft is between 12" and 15". Mount the OPERA unit by fastening it to the wall, bench or hood with 3/8" or 1/2" thru-bolts or if the wall is of such construction so as to prohibit use of thru-bolts, lag bolts and shields of sufficient size may be used. Do not tighten.

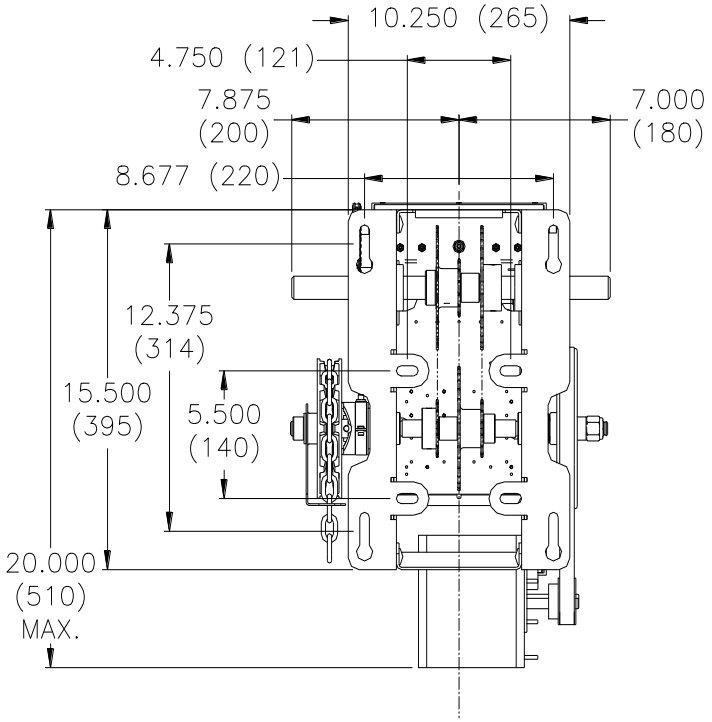


Figure 6 Mounting dimensions for wall or hood

CAUTION

MAKE CERTAIN THAT OPERATOR IS PERFECTLY ALIGNED WITH DOOR SHAFT OTHERWISE DAMAGE CAN OCCUR

1. Place the driven sprocket on the door shaft loosely and align it with the drive sprocket of the operator.

   NOTE: If a chain spreader has been ordered along with your operator, see Figure 7 and Figure 8 below for installation.

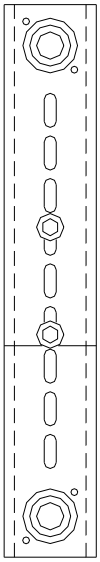


Figure 7 Chain spreader

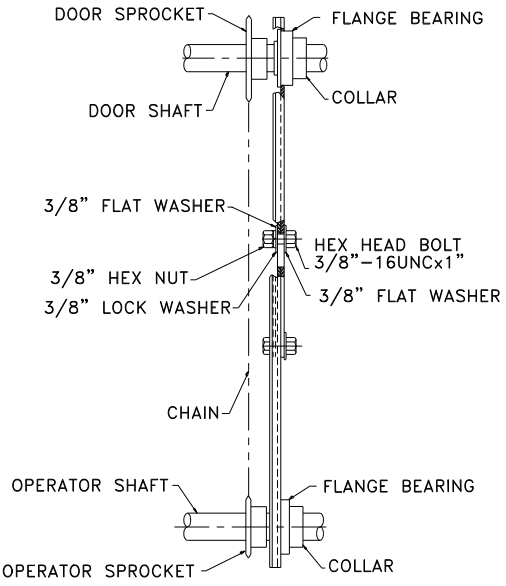


Figure 8 Chain spreader mounted on door and operator shafts

2. Lock the drive and driven sprockets in place by inserting the keys and tightening their respective set screws.
3. Connect the sprockets with the drive chain, shorten to a suitable length and join together with the chain link provided in the hardware bag. To shorten the chain, punch out the pin that will leave an inside link nearest to the desired length. Connect the chain around the sprockets using the chain link (Figure 9).

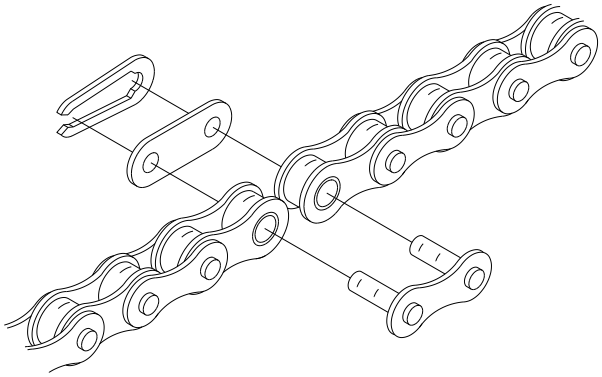


Figure 9 Chain link

4. Slide the operator to tighten the drive chain and then firmly tighten the mounting bolts. Check the tension on the chain and the set screws on the sprockets (there should be no more than 1/4" slack when chain is depressed between sprockets
5. Opera-MH: run hand chain through the pocket wheel and through the chain guide outside the frame (Figure 10A), allow both ends to hang down toward the ground and cut hand chain, if necessary, so that both ends are approximately 2 feet (0.6 m) from floor. Connect both ends of hand chain.
6. Opera-MJ: link the disconnect chain at the key ring or hook located at the extremity of the disconnect pull cable (Figure 10B) Place the Opera-MJ chain keeper so that, when pulled and engaged, the disconnect chain keeps the machine ''disconnected'' and in the manual position.

CAUTION

BEFORE PULLING HAND CHAIN THROUGH POCKET WHEEL OR LIFTING THE DOOR DIRECTLY BY HAND, PULL CAM PLATE AND SPIN CAM NUTS TO CENTER OF LIMIT SHAFT SO AS TO BE SURE THE CAMS ARE NOT BEING MECHANICALLY DRIVEN THROUGH THEIR NORMAL LIMIT SWITCH END POSITIONS.

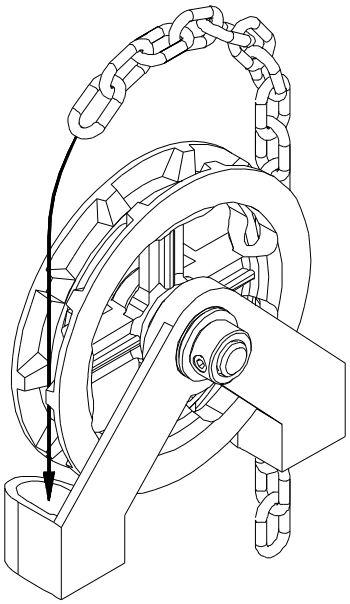


Figure 10 A. Installing hand chain on Opera-MH

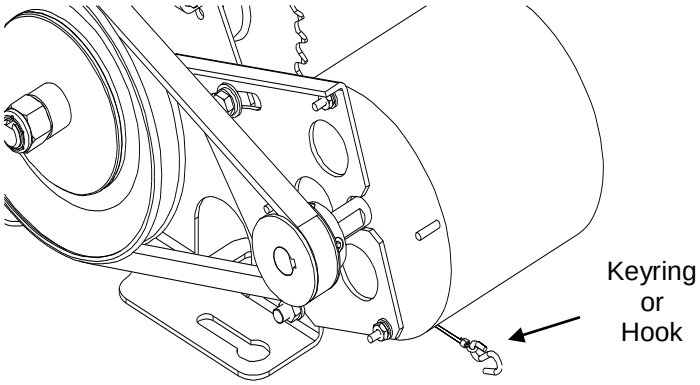


Figure 10 B. Installing disconnect chain on Opera-MJ

4.3 LIMIT SWITCHES

WARNING

TO AVOID THE DANGER OF POSSIBLE DAMAGE TO THE DOOR AND OPERATOR, TRAVELLING CAMS MUST BE ADJUSTED TO THEIR APPROXIMATE POSITIONS BEFORE MANUALLY OPERATING THE DOOR OR BEFORE APPLYING POWER TO THE OPERATOR.

There are 4 limit switches. Two are used as end of travel, one is for radio-control or one-button operation and one is for reversing devices. These switches are activated by the rotary cams travelling on a threaded shaft (Figure 11).

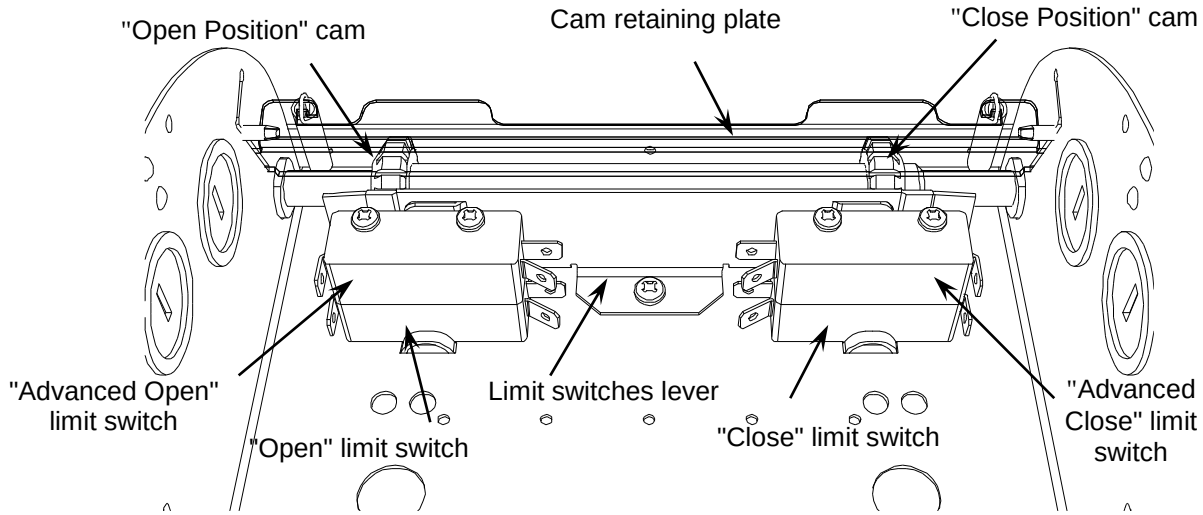


Figure 11 Limit switches

ADJUSTMENT OF LIMIT SWITCHES

WARNING

NEVER PLACE HANDS OR TOOLS INSIDE OPERATOR OR NEAR DRIVE MECHANISM UNLESS POWER IS OFF.

1. Open the cover of the electrical enclosure.
2. Manually raise the door to a nearly opened position (see section 4.9)
3. Pull the travelling cam retaining bracket on the *Open Position cam* side and rotate the *Open Position* cam (Figure 12).

   Note: Turning the cam towards the center of the shaft increases door travel.
   Turning the cam towards the switch decreases door travel.
4. Manually rotate the *Open Position* cam until the lever activates the *Open* limit switch sufficiently so as to hear the switch click.
5. Release and engage the retaining bracket. Make sure that the bracket engages in the slots **of both limit cams** after each adjustment.
6. Manually lower the door to a nearly closed position and repeat steps 3 through 5 with the *Close Position* cam.
7. Upon completion of all wiring connections (section 4.5 and 4.6, repeat steps 2 through 6 using the "Stop" button for adjustments of limit switches to their final, exact positions.

ADJUSTMENT OF LIMIT SWITCHES

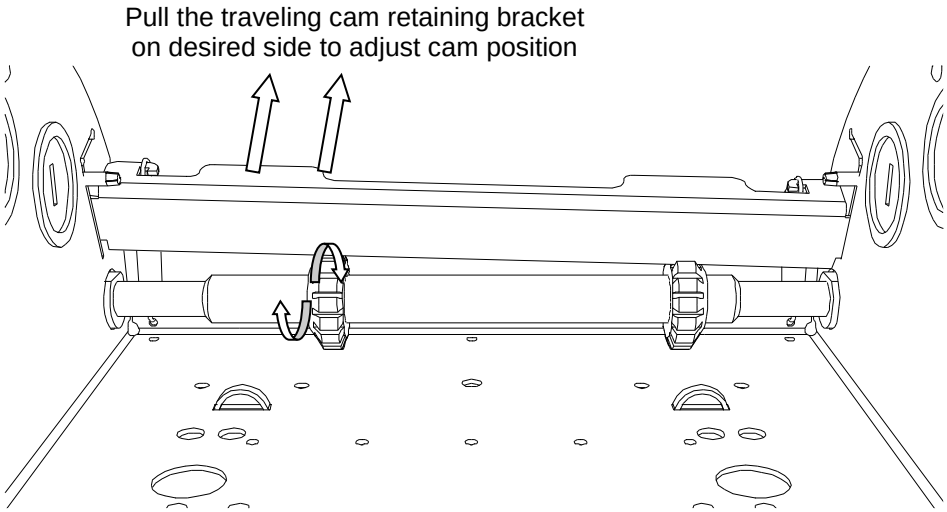


Figure 12 Adjusting the limit cams

4.4 MINIMUM SUGGESTED WIRE SIZE FOR CONTROL CIRCUIT

The control circuit operates at 24 VAC. Due to the resistance in the wire used to carry the control circuit voltage, it is important to use the appropriate wire size with respect to the distance between the operator and the push-button station.

Below is a chart (TABLE 2) indicating the minimum recommended wire size with respect to the total distance between the operator and the push-button station. DO NOT exceed the maximum distance. If there are several push-button stations in series you must ADD all these distances before selecting the appropriate wire gauge for your operator.

If the wire gauge is not suitable for the distance, problems in operation will be encountered such as chattering relays and contactor, premature wear of the contacts and possible tripping of the motor's thermal protection.

If a greater distance is required, a long distance interface module is suggested (consult factory).

When large gauge wire is used, a separate junction box will be needed for operator power connection (not supplied).

All power wiring to the operator should be installed by a qualified electrician and may vary with respect to conduit size and type as specified in the National Electrical Code, Article 430, allowing 5% voltage drop. Power must also be connected in accordance with local codes.

TABLE 2 WIRE SIZE vs. DISTANCE

24 VAC CONTROL WIRING	
Minimum suggested Wire gauge (AWG)	**Maximum distance between operator and all Push-button stations** feet (meters)
22	50 (15)
20	100 (30)
18	150 (45)
16	250 (75)
14	350 (105)
12	450 (135)

4.5 WIRING OF THE OPERA OPERATOR

Do NOT connect any accessory controls until the limit switch adjustments have been completed and the operator is functioning properly.

Refer to the electrical diagrams on pages 24, the wiring specifications in TABLE 2 and the terminal input connections of Figure 19.

WARNING

EXERCISE CAUTION WHEN OPERATING MACHINE. THE DRIVE CHAIN AND LIMIT CHAIN, WHEN EXPOSED AND TURNING, COULD CAUSE SEVERE INJURY.

NOTE: Wiring diagrams are found inside the control box cover. If the diagram is faded or damaged, call the factory for a replacement. DO NOT INSTALL ANY WIRING OR ATTEMPT TO RUN THIS OPERATOR WITHOUT CONSULTING THE WIRING DIAGRAM.

Main Power Supply

Power to the operator is of the permanent connection type. Connect according to local electrical code. Ground the unit using the ground lug inside the control box.

IMPORTANT: Be aware of the dimension of the power supply cables pipe (BX for ex.) It must not limit the controlbox movement to access the mechanical reduction parts. It is recommended **to add 7 or 8 inches**

For single-phase operators, connect the power supply to terminals L (line) and N (neutral) on the main terminal strip.

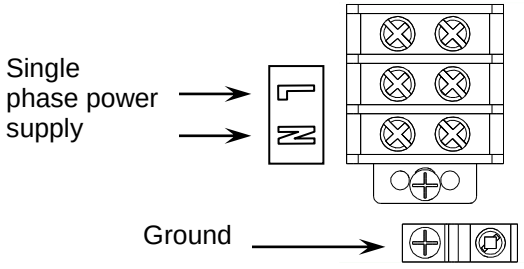


Figure 13 Power supply connection

WARNING

GROUND THE UNIT CORRECTLY USING THE COPPER GROUND LUG LOCATED INSIDE THE OPERATOR CONTROL BOX.

Note: All other connections on the terminal strip (1 to 9) are low voltage class II 24 VAC.

1. External interlock between terminals 1 and 2. A jumper is factory installed between these two terminals. If an external interlock is used (such as interlocking between two doors), remove the jumper between 1 and 2 and wire the interlock between these two terminals.

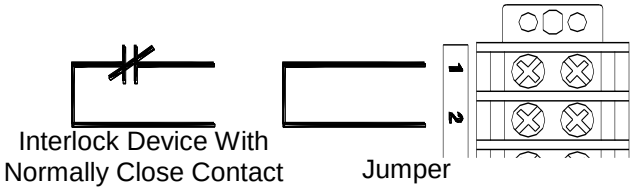


Figure 14 External interlock

2. A 3 button push-button station (open/close/stop) can be wired to terminals 2, 3, 4 and 5. Two push-button stations can be wired to these same terminals by following the wiring diagrams on pages 24.

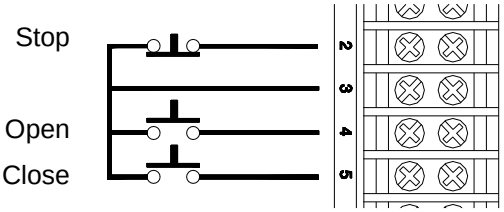
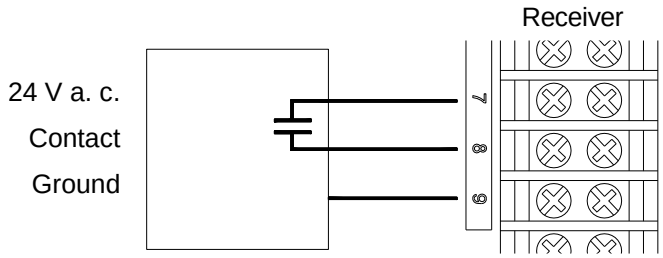


Figure 15 Three button push-button station

3. Three terminals are provided for the wiring of a radio-control receiver. Terminal #9 is Ground, #7 is 24 VAC (common) and #8 is the relay contact provided by the radio-control receiver to activate the door to open or close. Furthermore, terminals 7, 8 and 9 are doubly available on the terminal strip inside and on a separate small terminal strip located on the side of the unit. This terminal makes it convenient to wire-up a standard single button radio receiver on the side of the unit. When the transmitter is activated, the door will open to the fully open position. From the fully open position, the door will close. If transmitter is activated while closing, the door will reverse to the fully open position.

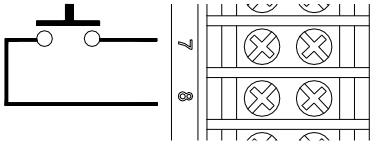
NOTE: It may be required to reverse connections to 7 and 9 for other types or radio receivers (Allstar, Linear, Pulsar ...).



<u>NOTE:</u> (select B2)
Radio Control = B2 wiring
Momentary contact to open, close and stop with a 3 buttons station.

Figure 16 Radio-control

4. A single button open/close door device can be wired to terminals 7 and 8 to behave in the same way as the radio control receiver.



<u>NOTE:</u> (select B2)
Open/Close = Radio Control
Momentary contact to open and close with single button station.

Figure 17 Single button device

NOTE: If several control devices are to be used, connect one and check for proper operation before connecting the next device.

5. A reversing edge can be wired up to terminals 3 and 6 (see also section 4.6). These terminals can also be used for any other reversing devices such as loop detectors and photocells.

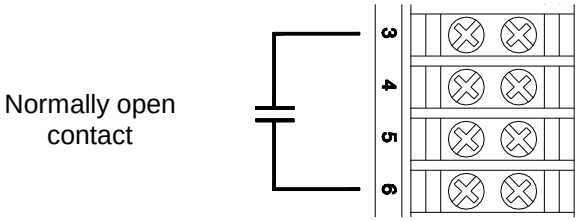


Figure 18 Reversing edge or other device

IMPORTANT: Upon completion of all wiring connections, readjust limits as mentioned in section 4.3 using "Open", "Close" and "Stop" buttons.

5. B2 AND C2 WIRING

For Safety reasons Manaras has decided to propose its standard operators with C2 wiring.

B2 can be set very easily by moving wires. This operation can be performed by the installer as shown below or by Manaras when requested on the order.

WARNING

MOTORIZED DOORS CAN CAUSE SERIOUS INJURIES OR DEATH. MANARAS STRONGLY RECOMMENDS THE USE OF ENTRAPMENT PROTECTION SYSTEMS, ESPECIALLY IN THE CASES OF MOMENTARY CONTACT TO CLOSE AS IN B2 WIRING OR TIMER TO CLOSE.

Wiring types description

C2 wiring : momentary contact to open and stop, constant pressure to close with 3 push button station. Activation of safety device will reverse the door during closing. Auxiliary devices to function as an open/control, and to reverse the door during closing.

B2 wiring : momentary contact to open, close and stop with 3 push button station. Activation of safety device will reverse the door during closing. Auxiliary devices to function as an open/close control, and to reverse the door during closing.

How to change the wiring type :

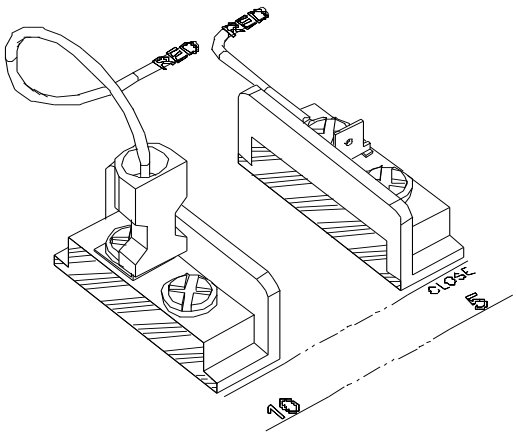
- **C2 ⟹ B2 (B2 wiring = Radio Control)**

REMOVE THE SINGLE RED WIRE WITH RAPID CONNECTOR FROM TERMINAL #10 AND TRANSFER IT TO TERMINAL #5.

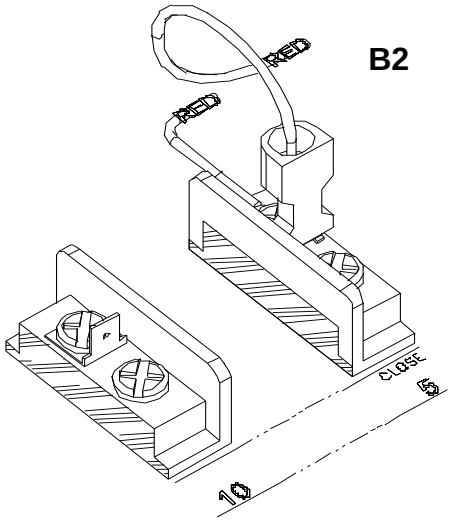
- **B2 ⟹ C2**

REMOVE THE SINGLE RED WIRE WITH RAPID CONNECTOR FROM TERMINAL #5 AND TRANSFER IT TO TERMINAL#10.

C2



B2



5.1. OPTIONAL CONTROL ACCESSORIES

- **Radio Controls:** Consists of a radio receiver unit and remote transmitters. These controls consist of an RF signal being emitted on a "pulse" basis to a mated receiver tuned to the same "pulse" rate. Once the receiver accepts the code, a relay is activated closing a set of contacts.

- **Photo-electric units:** Can be used as opening and reversing devices. An infra red light is emitted from the control to a reflector and back. If, during closing travel of the door, the light beam is broken, the door will reverse to the fully open position.

- **Digital Keypad:** Consists of a control head which is pedestal mounted. Similar to a telephone touch pad it allows the selective coding of a four number series. Once the programmed series of numbers is received in their set order, a relay closes and completes a circuit.

- **Card Reader:** A magnetic-mechanical device which accepts sealed and coded cards. The cards trigger magnets to raise in the cartridge head, releasing a lock mechanism which allows a deeper insertion of the card. The card then contacts a switch that closes the circuit.

- **Key Switch:** Momentary contact will open door. Can be wall or post mounted for interior or exterior use.

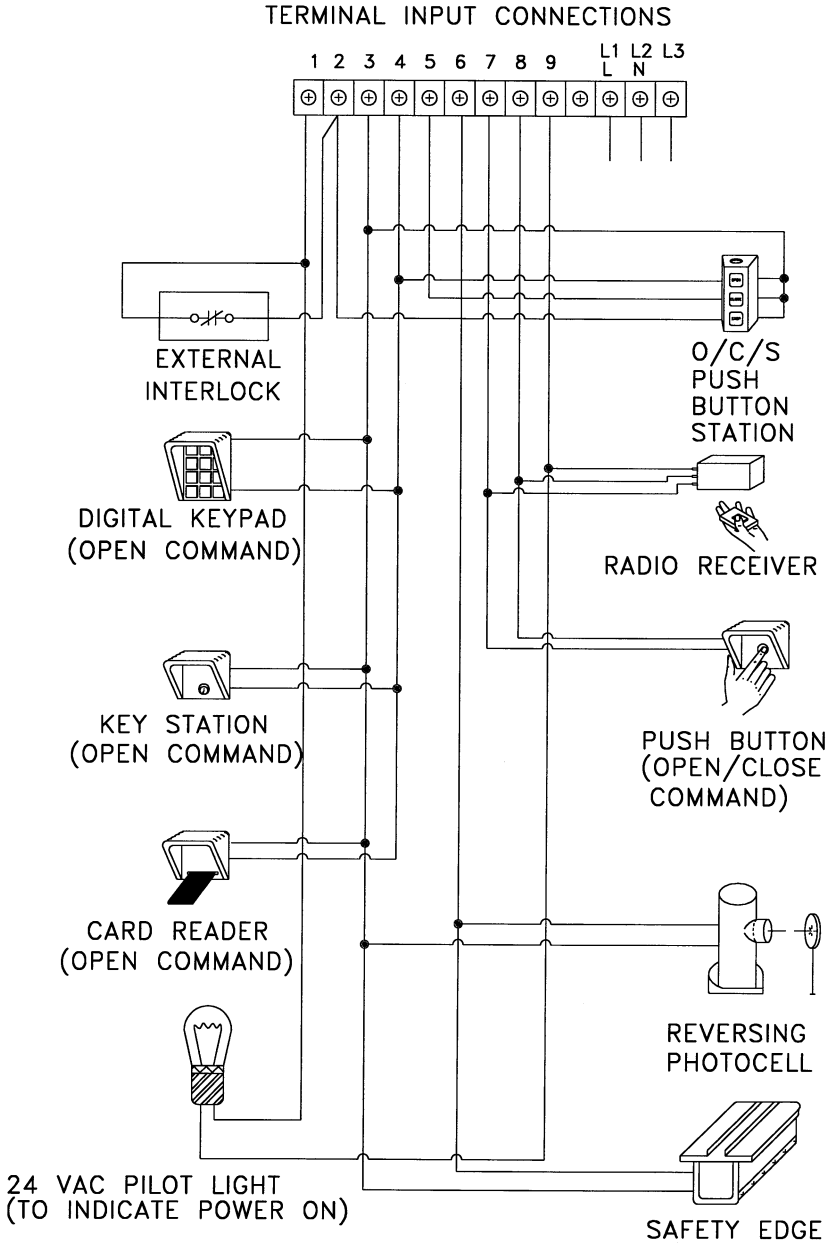


Figure 19 Terminal Input Connections

5.2. CONNECTION OF A REVERSING EDGE DEVICE

IMPORTANT NOTE: If the door is controlled by any device other than a constant pressure push-button station, a reversing edge must be connected.

CAUTION

Connect reversing device appropriate to installation.

Connection and installation of a reversing edge device is provided with the edge (see also Figure 20). Any such device that uses a normally open contact may be connected to terminals 3 and 6 on the low voltage terminal block (Figure 18). When the door comes in contact with an object during downward travel, the circuit will cause the motor to reverse the door to the fully open position. In addition, there is a cut-off limit switch (*advanced close* limit switch) that will de-activate the reversing edge during the last few inches of the door's downward travel.

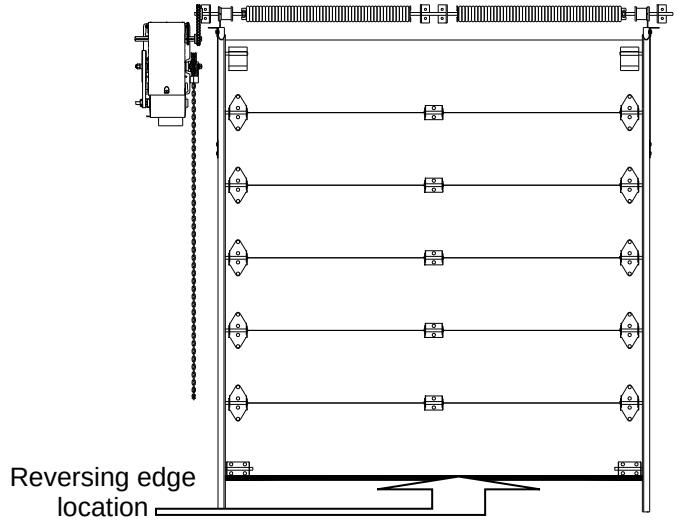


Figure 20 Reversing Edge

5.3. CLUTCH ADJUSTMENT

1. Adjustment of clutch is done by rotating the nut located at the end of the input shaft where the pulley 7" is located (Figure 21).
2. Rotate the nut counter-clockwise until there is insufficient tension to permit clutch to drive door.
3. Rotate the nut clockwise gradually until there is just enough tension on clutch to permit operator to move door smoothly, but to allow clutch to slip if door is obstructed.
4. When clutch is properly adjusted it should be possible to stop door by hand during travel.

WARNING

THE FRICTION CLUTCH IS DESIGNED TO PROTECT VEHICLES AND DOOR HARDWARE AGAINST DAMAGE. IT IS NOT INTENDED TO PROTECT PEOPLE. ALL DOORS SERVING PERSONNEL ARE TO BE FITTED WITH AN APPROPRIATE REVERSING DEVICE OR REVERSING EDGE TO PREVENT INJURY OR DEATH.

We strongly recommend the use of an automatic reversing device. Several types are available as accessories. Consult your dealer for a recommendation

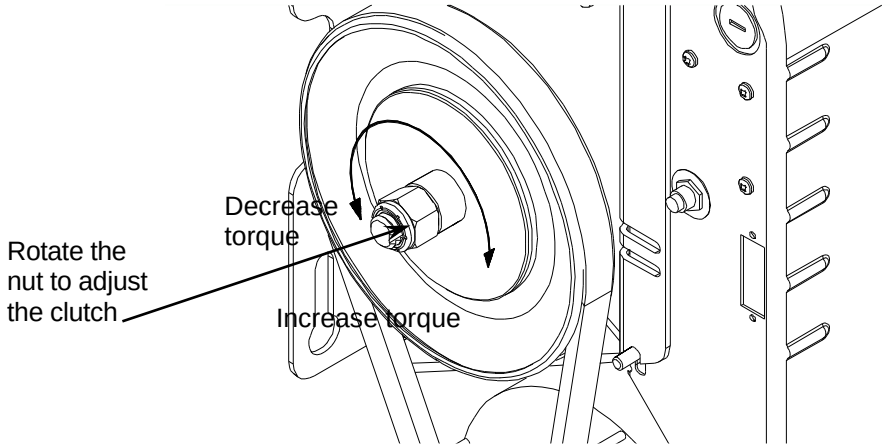


Figure 21 Clutch adjustment

5.4. ADJUSTMENT AND MANUAL OPERATION OF OPERA-MH OPERATOR

The Opera-MH operator is equipped with an automatic emergency chain hoist disconnect mechanism to operate the door manually, no floor disconnect is required.
In one simple step

- Control circuit interrupted.
- Coupling and hoist engaged.
- Manual operations.

are successively completed by pulling the hand chain in the desired direction:

1. Simply pull on the hand chain in the desired direction. The first foot pulled will engage the hoist mechanism and open the electrical circuit.
2. Continue the traction movement to move the door. If it doesn't run in the desired direction, repeat actions 1 and 2 by pulling the chain in the other direction (See Figure 22).
3. The automatic hoist engagement system is adjusted in the factory. It may require adjustment in the field. Adjustment is necessary if no door movement occurs after two fetes of pulled hand chain. Turn the adjusting nut clockwise (see figure 23) by ¼ turn until the hoist engages after pulling one foot of chain. If the nut is too tight, the manual torque on the chain will be too heavy.
4. Return to the standard electrical operation.

IMPORTANT: To return to electrical operation merely pull slightly on the opposite direction of the chain

WARNING

DO NOT ATTEMPT TO DISENGAGE THE OPERATOR WHILE OPERATOR IS RUNNING. DO NOT ATTEMPT TO MANUALLY FORCE A MALFUNCTIONING DOOR TO OPEN OR CLOSE. THIS IS AN EMERGENCY DEVICE AND IS NOT DESIGNED TO OPERATE A DOOR WITH SERIOUS MECHANICAL PROBLEMS.

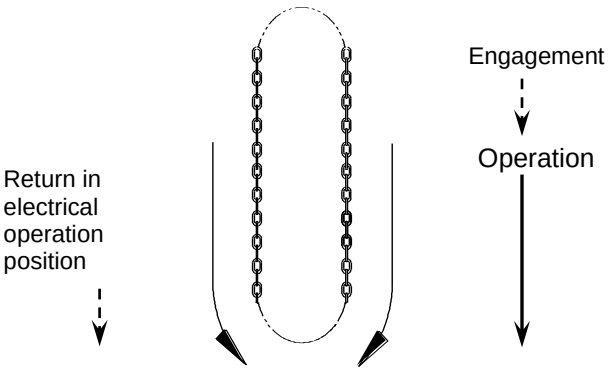


Figure 22 Operating chain to open and close door

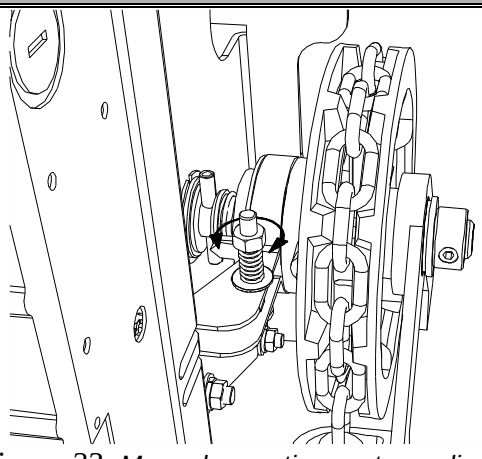


Figure 23 Manual operation system adjustment

5.5. MANUAL OPERATION OF OPERA-MJ

1- Pull on the disconnect chain until feel a resistance.
2- Engage the chain in the chain keeper. The door is disconnected from the electrical motor and ready to be manually operated.
3- Just make free the disconnect chain from the chain keeper to ‘’reconnect’’ the operator and return the standard electrical operation.

5.6. OPERATOR START-UP AND TESTING GUIDE

This guide is a procedure you can follow to test every feature of your door operator.

If a 3 button push-button station is wired to the operator, disconnect it and then place a normally-closed contact between terminals 2 and 3 to simulate a "Stop" push-button (use a spare limit switch or any such device). Interrupting the power between these terminals will stop the operator.

Using a small wire jumper, momentarily jump (short-circuit) the following terminals:

A. Momentarily jump terminals 3 and 4.
The door will open instantly. Allow it open completely.

B. Momentarily jump terminals 3 and 5.
The door will close instantly. Allow it close completely.

C. Momentarily jump terminals 7 and 8.
The door will open instantly. Allow it to open completely.

D. Momentarily jump terminals 7 and 8.
The door will close instantly. While closing, go to step E.

E. Momentarily jump terminals 7 and 8 again.
The door will reverse to open. Allow it to open completely.

F. Momentarily jump terminals 7 and 8.
The door will close. While closing, go to step G.

G. Momentarily jump terminals 3 and 6.
The door will reverse to open. Allow it to open completely.

H. Momentarily jump terminals 7 and 8 again.
The door will close. Allow it to close completely.

I. Momentarily jump terminals 3 and 6.
The door should remain still.

This procedure can be repeated using the radio-control terminal strip located on the outside of the control box by using terminals "24VAC" and "CONTACT" instead of terminals 7 and 8.

6. TROUBLE-SHOOTING GUIDE

All operators are thoroughly tested and adjusted before shipping. In most cases, it is after installation and hook-up to external devices that a problem will arise.

If after connecting external devices to the operator, you encounter problems, the trouble often lies in the external devices or in the wiring leading to the external devices. Verify all external wiring making certain that there are no wires pinched anywhere shorting to ground and that there are no voltages being sent into the control circuit. The operator functions ONLY with dry contacts: all voltages necessary for proper functioning are generated by the operator transformer.

The following trouble-shooting guide (TABLE 3) will help you identify the source of the problem given a particular symptom.

TABLE 3 TROUBLE-SHOOTING GUIDE

SYMPTOM	PROBABLE CAUSE	SUGGESTED ACTION
Door will not respond to "open" or "close" push-buttons.	Machine is in disconnect position (Opera–MJ).	Make free the disconnect chain from opera –MJ chain keeper.
	Chain hoist is engaged which activated the disconnect switch (Opera-MH)	Pull on chain slightly in each direction in order to disengage the chain hoist and return the operator to electrical operation. Check switch otherwise
	Motor has overheated and the internal thermostat has tripped.	Allow the operator to cool for 20 minutes before using it again. Is the door unbalanced? Has the door been operated more than 16 cycles/hour?
	Circuit breaker tripped (if used).	Reset circuit breaker.
	Fuse is blown.	Replace fuse. If control circuit fuse keeps blowing: Disconnect all external devices. Leave power terminals connected. (Remove power to power terminals). Run the operator artificially by using jumpers and shorting out the appropriate terminals as indicated in the trouble-shooting technique. Then reconnect the various external devices one by one until you find the one causing the short to ground. **OR:** If you have an ohm-meter, use it to check all incoming wires for continuity to ground. The meter should read infinity in all instances. If there is conduction between any control circuit wire and ground, this indicates a leak to ground and this is why the control circuit fuse blows when power is applied. In some cases, the trouble is intermittent: i.e. the fuse only blows at certain times. This problem is more difficult to detect, but again: disconnect all wires going to external devices, and run the operator: if the fuse does not blow, this indicates that the trouble resides outside the operator.
	Transformer defective.	Replace.
	Defective "stop" push-button.	Replace.
	Loose connection in one of the push-buttons.	Verify, tighten or replace
	Defective "open" or "close" push-button.	Replace.
	Disconnect lever is "disengaged" position.	Pull lever to "engaged" position.
Door will not respond to "open" command, but will respond to "close" command.	Defective "open" push-button	Replace
	Defective “open” limit switch.	Replace
	Loose wire on "open" push-button, "open" limit switch or coil of open relay.	Verify, tighten or replace.
Door will not respond to "close" command. but will respond to "open" command.	Defective "close" push-button.	Replace.
	Defective “close” limit switch	Adjust
	Loose wire on close push-button, close limit switch or coil of close relay.	Verify, tighten or replace.
Door closes by itself and operator does not shut-off at the end of closing travel.	"close" relay is defective.	Verify and replace.
	“close” limit switch defective	Verify and replace.
Door opens by itself and operator does not shut-off at the end of opening travel.	"open" relay is defective.	Verify and replace.

SYMPTOM	PROBABLE CAUSE	SUGGESTED ACTION
Sensing edge does not reverse door.	Pneumatic hose broken, electrical wiring not connected.	Contact a qualified installer.
Reversing devices connected between terminals 3 and 6 will reverse the door, but will also open it instead of being de-activated when the door is closed.	When the door is almost fully closed, the "advanced close" limit switch must be activated: this disables the reversing devices from further acting on the reversing relay.	The "advanced closed" limit switch needs to be adjusted just slightly ahead of the end of travel "closed" limit switch.
When door closes it reverses to fully open.	“advanced close” limit switch is not sufficiently advanced. Reversing edge is not disabled causing door to reverse.	The "advanced close" limit switch needs to be adjusted just slightly ahead of the end of travel "closed" limit switch.
Radio-control does not function or hesitates for 10 seconds before working.	It is normal for a radio receiver to take up to 10 seconds to "warm-up" before being fully operational. Therefore, when applying power for the first time, the radio-control will take 10 seconds before becoming fully operational.	Check protocol code pins of the transmitter and receiver: they must be the same. Press on the transmitter and listen to the receiver: you should hear a faint click. The transmitter battery may be dead or your receiver may need servicing. To test for radio-control function, short out momentarily terminals 7 and 8 on the terminal strip. Operator should function normally. Have the radio-control verified: the mini-relay inside the receiver may be defective.
Motor hums, starts when spun.	Capacitor defective.	Replace
Motor fails to shut off at fully closed or opened positions.	Defective limit switch.	Operate limit switch manually while door is moving and operate switch.
	Limit cams are not adjusted.	Verify and adjust.
	Limit drive chain broken.	Replace.
	Loose sprocket on limit shaft.	Tighten set screw.
	Limit screw does not rotate.	Verify and replace accordingly.
Motor turns but door does not move.	Sprocket key is missing.	Replace
	Drive chain is broken.	Replace
	Clutch is slipping.	Adjust clutch tension.
Motor hums or does not run.	Door locked or jammed.	Verify manual operation of door.
Limit switches do not hold their setting.	Limit cam retainer not engaging slots in limit cams	Be sure retainer is in slots of BOTH cams.
	Limit cams are binding on screw threads which allows them to jump position on retainer.	Lubricate screw threads. Limit cams should turn freely.
Radio-control opens and reverses the door, but when the door is fully opened, will close the door a little and bounce back to the open position again. Door cannot be closed except by the "close" push-button.	The "advanced open" limit switch is insufficiently advanced from the full "open" limit switch. The contact of the radio-control receiver is maintained for 1.5 seconds when a command is issued by the radio transmitter. Therefore, when the door is fully opened, and a pulse is sent from the transmitter, the receiver maintains the contact closed for 1.5 seconds. If the door has closed and the "advanced open" limit switch has returned to it's normal state, the reversing relay will be activated, and the door bounces back to the open position.	Adjust the "advanced open" limit switch.

7. SCHEDULED MAINTENANCE

Maintenance and supervision should be performed by qualified persons only.
Inspection and service should be performed anytime a malfunction is observed or suspected.

WARNING

WHEN SERVICING - ALWAYS DISCONNECT OPERATOR FROM POWER SUPPLY

7.1 MECHANICAL

The door area should always be kept clear of dirt, rocks or any other substance to insure proper operation.

EVERY 3 MONTHS	- Check and adjust the clutch, if necessary.
EVERY 6 MONTHS	- Lubricate all moving parts, Bushing are oil impregnated and are lubricated for life. - Verify that all mechanical parts function properly. - Inspect the V-belt and adjust or replace if necessary. - Manually operate the door. If the door does not open or close freely, correct the cause of the malfunction.
ONCE A YEAR	- Inspect all bolts and screws and tighten if necessary. - Check for any excessive slack in chains and adjust or replace them if necessary. The limit switches may have to be reset after a chain adjustment. - Inspect the door for wear and damage. - Run the operator a few cycles: Make sure that the door rollers are rolling smoothly on the track. Listen to the motor: The motor should hum quietly and smoothly. Verify that the limit operates quietly and smoothly: investigate any unusual noise. - Verify that the mooring bolts are holding the unit securely. - Inspect the unit for evidence of corrosion.

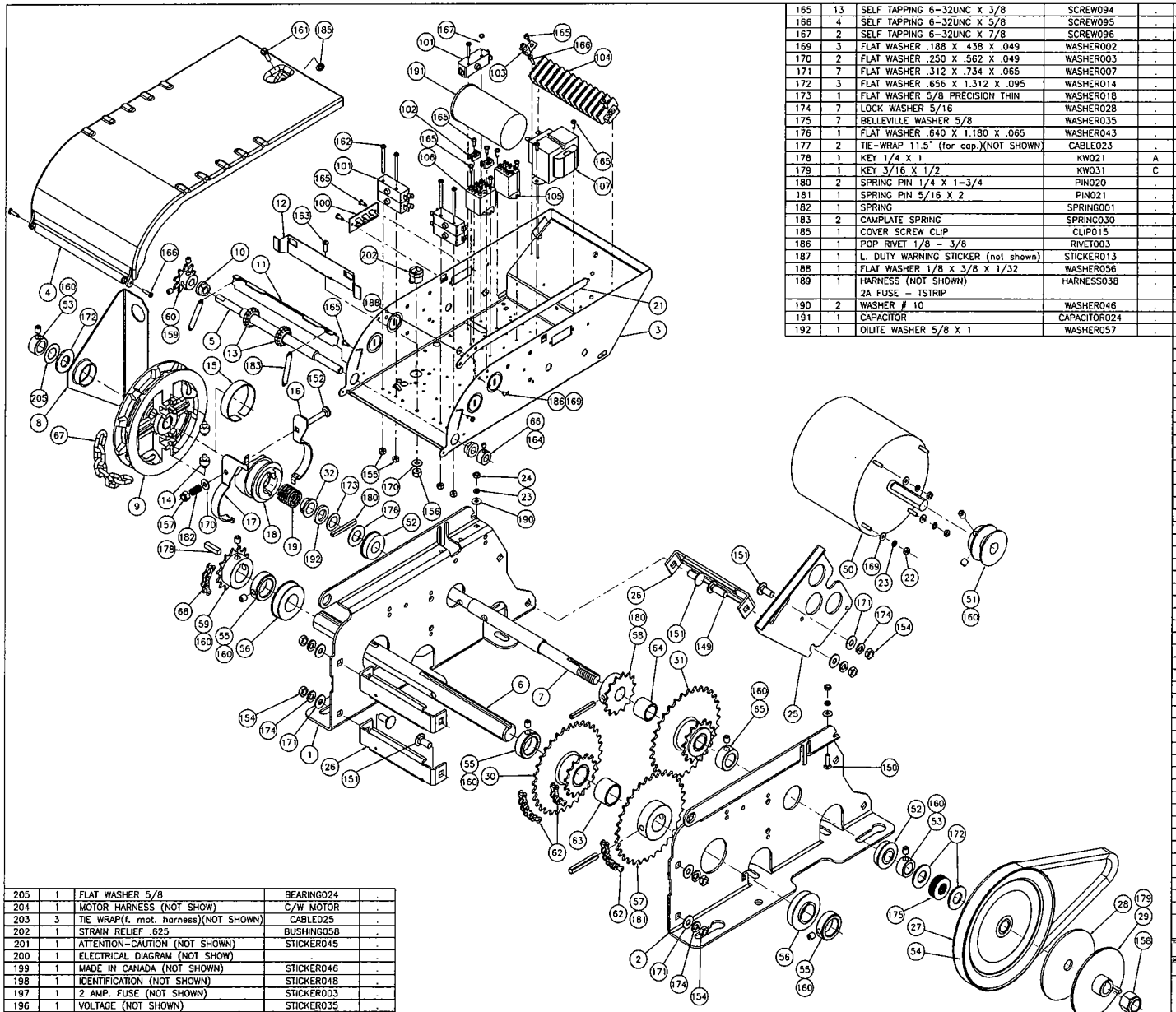
7.2 ELECTRICAL

WARNING

BEFORE OPENING THE CONTROL BOX COVER, DISCONNECT OPERATOR FROM POWER SUPPLY

- Inspect the unit for evidence of corrosion.
- Inspect the wiring compartment and remove any dirt from the control units.
- Check all the grounding wires and terminations for corrosion. Be particularly careful to check the ground wires.
- Check the terminal strip to insure that all the screws are tight.
- Verify that the safety edge or other safety device installed on the operator are fully operational.
- Check the voltage at the input terminals while the operator is running. The voltage must not drop more than 10% momentarily. If the voltage drop is too deep when running, the relays may chatter, the contact points will wear prematurely and may eventually weld. Check the power terminations for corrosion.
- Check the current consumption of the unit with an amp-meter. The value of current should be consistent with the name-plate specifications. Investigate any anomaly.

8. Opera-MH exploded



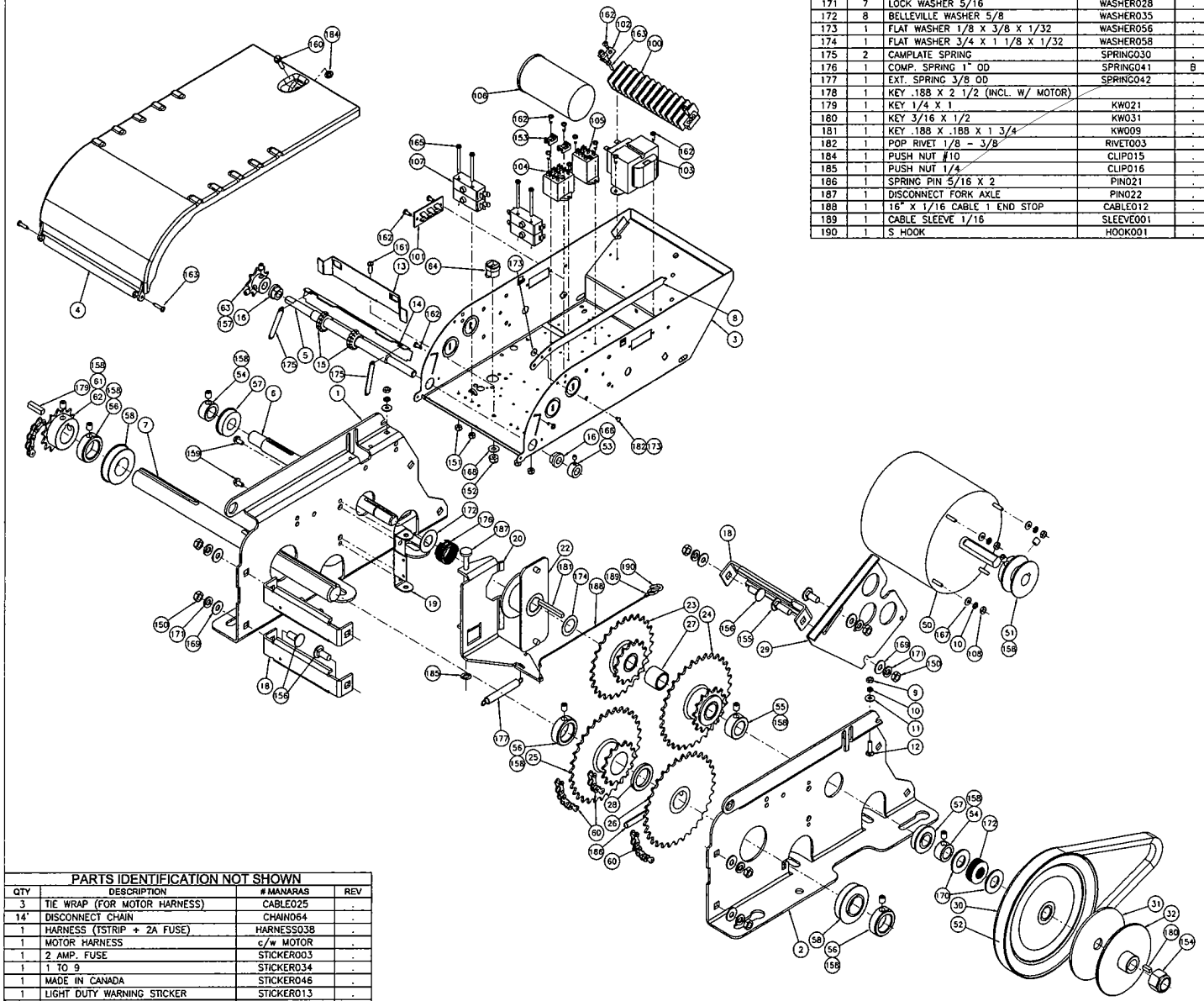
#	QTY	DESCRIPTION	# MANARAS	REV
1	1	RIGHT HAND SIDE FRAME	FRAME037	J
2	1	LEFT HAND SIDE FRAME	FRAME038	J
3	1	CONTROL BOX	CBOX025	AB
4	1	COVER	COVER047	E
5	1	LIMIT SHAFT	SHAFT103	E
6	1	OUTPUT SHAFT	SHAFT102	E
7	1	INPUT SHAFT	SHAFT104	F
8	1	CHAIN GUIDE	GUIDE014	.
9	1	HAND CHAIN PULLEY	POCKETWHEEL005	.
10	2	LIMIT SHAFT BUSHING	BUSHING055	.
11	1	CAMPLATE	CAMPLATE015	D
12	1	LIMIT SWITCH LEVER	LEVER070	F
13	2	LIMIT CAM	CAM011	B
14	2	ROLLER	CAM012	.
15	1	FRICTION BAND	SHOE011	.
16	1	SIMPLE SHOE	SHOE009	E
17	1	SWITCH SHOE	SHOE010	D
18	1	CAM DISCONNECT	CAM010	E
19	1	DISCONNECT SPRING	SPRING040	B
21	1	COVER ARM	ARM025	C
22	3	HEX NUT 8-32 UNC	NUT003	.
23	5	LOCK WASHER # 10	WASHER025	.
24	2	HEX NUT 10-32 UNF	NUT004	.
25	1	MOTOR PLATE	PLATE080	A
26	3	FRAME SPACER	SPACER012	B
27	1	DRIVEN PULLEY 5L X 7"	PULLEY020	C
28	1	FRICTION DISC	CLUTCHPAD001	B
29	1	TORQUE LIMITER PLATE	CLUTCHPLATE006	A
30	1	DOUBLE SPROCKET	SPR410B14A32X1	B
31	1	DOUBLE SPROCKET	SPR0003	.
32	1	DISCONNECT SPRING BUSHING	BUSHING056	B
50	1	MOTOR	MOTOR260	.
51	1	MOTOR PULLEY 5L X 2"	PULLEY014	.
52	2	FLANGED BREARING 5/8	BEARING005	.
53	2	COLLAR 5/8	COLLAR004	.
54	1	V-BELT 5L 300	V-BELT5L300	.
55	3	COLLAR 1"	COLLAR007	.
56	2	FLANGED BEARING 1"	BEARING007	.
57	1	32 TOOTH 410 SPROCKET	SPR410B32X1	.
58	1	14 TOOTH 410 SPROCKET	SPR410B14X.75	.
59	1	14 TOOTH 410 SPROCKET	SPR410B14X1	.
60	1	9 TOOTH 410 SPROCKET	SPR410B9X.375	.
62	3	CHAIN 410 48P (WITH CHAIN LINK)	CHAIN058	.
63	1	SPACER	SPACER009	A
64	1	SPACER	SPACER008	A
65	1	COLLAR 3/4	COLLAR005	.
66	1	COLLAR 3/8	COLLAR002	.
67	.	HAND CHAIN (WITH HARDWARE)	CHAIN002	.
68	1	CHAIN 410 32P (WITH CHAIN LINK)	CHAIN006	.
100	1	RADIO CONTROL TERMINAL STRIP	TSTRIP005	.
101	5	LIMIT SWITCH	LIMIT015	.
102	2	TIE-WRAP ANCHORS	SUPPORT003	.
103	1	GROUND LUG	CONNECTOR039	.
104	1	TERMINAL STRIP	TSTRIP001	.
105	1	RELAY 24V DPDT	RELAY024	.
106	1	3 POLES RELAY 24V	RELAY039	.
107	1	TRANSFO 120-24 40VA	TRANSF005	.
149	1	CARRIAGE BOLT 5/16-18 X 1	BOLT098	.
150	2	CARRIAGE BOLT 10-24 UNC X 3/4	BOLT056	.
151	6	CARRIAGE BOLT 5/16-18UNC X 3/4	BOLT093	.
152	1	CARRIAGE BOLT	BOLT094	.
154	7	HEX NUT 5/16-18UNC	NUT007	.
155	4	NYLON LOCK NUT 6-32UNC	NUT018	.
156	1	NYLON LOCK NUT 10-32UNF	NUT019	.
157	1	NYLON LOCK NUT 1/4-20UNC	NUT020	.
158	1	NYLON LOCK NUT 5/8-18UNF	NUT024	.
159	2	SET SCREW 1/4-20UNC X 5/16	SCREW001	.
160	10	SET SCREW 5/16-18UNC X 5/16	SCREW003	.
161	1	SELF TAPPING 10-24UNC X 3/4	SCREW023	.
162	4	ROUND HD SCREW 6-32UNC X 1 5/8	SCREW097	.
163	1	PHILLIPS SCREW 10-32UNF X 1/2	SCREW054	.
164	1	SET SCREW 10-32UNF X 3/16	SCREW098	.
165	13	SELF TAPPING 6-32UNC X 3/8	SCREW094	.
166	4	SELF TAPPING 6-32UNC X 5/8	SCREW095	.
167	2	SELF TAPPING 6-32UNC X 7/8	SCREW096	.
169	3	FLAT WASHER .188 X .438 X .049	WASHER002	.
170	2	FLAT WASHER .250 X .562 X .049	WASHER003	.
171	7	FLAT WASHER .312 X .734 X .065	WASHER007	.
172	3	FLAT WASHER .656 X 1.312 X .095	WASHER014	.
173	1	FLAT WASHER 5/8 PRECISION THIN	WASHER018	.
174	7	LOCK WASHER 5/16	WASHER028	.
175	7	BELLEVILLE WASHER 5/8	WASHER035	.
176	1	FLAT WASHER .640 X 1.180 X .065	WASHER043	.
177	2	TIE-WRAP 11.5" (for cap.)(NOT SHOWN)	CABLE023	.
178	1	KEY 1/4 X 1	KW021	A
179	1	KEY 3/16 X 1/2	KW031	C
180	2	SPRING PIN 1/4 X 1-3/4	PIN020	.
181	1	SPRING PIN 5/16 X 2	PIN021	.
182	1	SPRING	SPRING001	.
183	2	CAMPLATE SPRING	SPRING030	.
185	1	COVER SCREW CLIP	CLIP015	.
186	1	POP RIVET 1/8 - 3/8	RIVET003	.
187	1	L. DUTY WARNING STICKER (not shown)	STICKER013	.
188	1	FLAT WASHER 1/8 X 3/8 X 1/32	WASHER056	.
189	1	HARNESS (NOT SHOWN) 2A FUSE - TSTRIP	HARNESS038	.
190	2	WASHER # 10	WASHER046	.
191	1	CAPACITOR	CAPACITOR024	.
192	1	OILITE WASHER 5/8 X 1	WASHER057	.
205	1	FLAT WASHER 5/8	BEARING024	.
204	1	MOTOR HARNESS (NOT SHOW)	C/W MOTOR	.
203	3	TIE WRAP(f. mot. harness)(NOT SHOWN)	CABLE025	.
202	1	STRAIN RELIEF .625	BUSHING058	.
201	1	ATTENTION-CAUTION (NOT SHOWN)	STICKER045	.
200	1	ELECTRICAL DIAGRAM (NOT SHOW)	.	.
199	1	MADE IN CANADA (NOT SHOWN)	STICKER046	.
198	1	IDENTIFICATION (NOT SHOWN)	STICKER048	.
197	1	2 AMP. FUSE (NOT SHOWN)	STICKER003	.
196	1	VOLTAGE (NOT SHOWN)	STICKER035	.
195	1	1 TO 9 (NOT SHOWN)	STICKER034	.
194	1	BLK18AWG 5.75 .250-.250 (not shown)	JUMPER020	.

TITLE: OPERA-MH

DRAWN BY:	DATE:	DOC No:	REV	DATE:
CHRISTOPHE WALRAVENS	2002.05.03	OPERA-MH-X	-	2004.03.09

MANARAS AUTO DOORS INC.
136 ONEIDA DRIVE
POINTE-CLAIRE, QC H9R 1A8
TEL.: 514.426.1332
FAX: 514.426.1171

8.1. Opera-MJ exploded



170	2	FLAT WASHER .656 X 1.312 X .095	WASHER014	.
171	7	LOCK WASHER 5/16	WASHER028	.
172	8	BELLEVILLE WASHER 5/8	WASHER035	.
173	1	FLAT WASHER 1/8 X 3/8 X 1/32	WASHER056	.
174	1	FLAT WASHER 3/4 X 1 1/8 X 1/32	WASHER058	.
175	2	CAMPLATE SPRING	SPRING030	.
176	1	COMP. SPRING 1" OD	SPRING041	B
177	1	EXT. SPRING 3/8 OD	SPRING042	.
178	1	KEY .188 X 2 1/2 (INCL. W/ MOTOR)		.
179	1	KEY 1/4 X 1	KW021	.
180	1	KEY 3/16 X 1/2	KW031	.
181	1	KEY .188 X .188 X 1 3/4	KW009	.
182	1	POP RIVET 1/8 - 3/8	RIVET003	.
184	1	PUSH NUT #10	CLIP015	.
185	1	PUSH NUT 1/4	CLIP016	.
186	1	SPRING PIN 5/16 X 2	PIN021	.
187	1	DISCONNECT FORK AXLE	PIN022	.
188	1	16" X 1/16 CABLE 1 END STOP	CABLE012	.
189	1	CABLE SLEEVE 1/16	SLEEVE001	.
190	1	S HOOK	HOOK001	.

PARTS IDENTIFICATION

#	QTY	DESCRIPTION	# MANARAS	REV
1	1	RIGHT HAND SIDE FRAME	FRAME037	J
2	1	LEFT HAND SIDE FRAME	FRAME038	J
3	1	CONTROL BOX	CBOX025	AB
4	1	COVER	COVER047	E
5	1	LIMIT SHAFT	SHAFT103	E
6	1	INPUT SHAFT	SHAFT107	A
7	1	OUTPUT SHAFT	SHAFT102	E
8	1	COVER ARM	ARM025	C
9	2	HEX NUT 10-32 UNF	NUT004	
10	5	LOCK WASHER #10	WASHER025	
11	2	WASHER #10	WASHER046	
12	2	CARRIAGE BOLT 10-24UNC X 3/4	BOLT 056	
13	1	LIMIT SWITCH LEVER	LEVER070	F
14	1	CAMPLATE	CAMPLATE015	D
15	2	LIMIT CAM	CAM011	B
16	2	LIMIT SHAFT BUSHING	BUSHING055	.
18	3	FRAME SPACER	SPACER012	B
19	1	DISC. SWITCH SUPPORT	BRACKET192	.
20	1	DISCONNECT FORK	FORK001	D
22	1	COUPLING 3/4 2 PINS 1/4	COUPLING014	A
23	1	DOUBLE SPROCKET	SPR410B14A28X3/4	A
24	1	DOUBLE SPROCKET	SPR0003	A
25	1	DOUBLE SPROCKET	SPR410B14A32X1	B
26	1	32 TOOTH 410 SPROCKET	SPR410B32X1	.
27	1	SPACER 3/4	SPACER008	A
28	1	SPACER	SPACER013	.
29	1	MOTOR PLATE	PLATE080	A
30	1	PULLEY	PULLEY020	C
31	1	FRICTION DISC	CLUTCHPAD001	B
32	1	TORQUE LIMITER PLATE	CLUTCHPLATE006	A
50	1	MOTOR	MOTOR260	.
51	1	MOTOR PULLEY 5L X 2	PULLEY014	.
52	1	V-BELT 5L 300	V-BELT5L300	.
53	1	COLLAR 3/8	COLLAR002	.
54	2	COLLAR 5/8	COLLAR004	.
55	1	COLLAR 3/4	COLLAR005	.
56	3	COLLAR 1"	COLLAR007	.
57	2	FLANGED BEARING 5/8	BEARING005	.
58	2	FLANGED BEARING 1"	BEARING007	.
60	3	CHAIN 410 48P (WITH CHAIN LINK)	CHAIN058	.
61	1	CHAIN 410 32P (WITH CHAIN LINK)	CHAIN006	.
62	1	14 TOOTH 410 SPROCKET	410B14X1	.
63	1	9 TOOTH 410 SPROCKET	SPR410B9X.375	.
64	1	CABLE STRAIN RELIEF	BUSHING058	.
100	1	TERMINAL STRIP	TSTRIP001	.
101	1	RADIO CONTROL TERMINAL STRIP	TSTRIP005	.
102	1	GROUND LUG	CONNECTOR039	.
103	1	TRANSFO 120-24 40VA	TRANSF005	.
104	1	3 POLES RELAY 24V	RELAY039	.
105	1	RELAY 24V DPDT	RELAY024	.
106	1	CAPACITOR	CAPACITOR024	.
107	4	LIMIT SWITCHES	LIMIT015	.
108	3	HEX NUT 8-32 UNC	NUT003	.
150	7	HEX NUT 5/16-18UNC	NUT007	.
151	4	NYLON LOCK NUT 6-32UNC	NUT018	.
152	1	NYLON LOCK NUT 10-32UNF	NUT019	.
153	2	TIE-WRAP ANCHOR	SUPPORT003	.
154	1	NYLON LOCK NUT 5/8-18UNF	NUT024	.
155	1	CARRIAGE BOLT 5/16-18UNC X 1	BOLT098	.
156	6	CARRIAGE BOLT 5/16-18UNC X 3/4	BOLT093	.
157	2	SET SCREW 1/4-20UNC X 5/16	SCREW001	.
158	9	SET SCREW 5/16-18UNC X 5/16	SCREW003	.
159	2	SELF TAPPING 10-24UNC X 3/8	SCREW022	.
160	1	SELF TAPPING 10-24UNC X 3/4	SCREW023	.
161	1	PHILLIPS SCREW 10-32UNF X 1/2	SCREW054	.
162	13	SELF TAPPING 6-32UNC X 3/8	SCREW094	.
163	4	SELF TAPPING 6-32UNC X 5/8	SCREW095	.
165	4	ROUND HD SCREW 6-32UNC X 1 5/8	SCREW097	.
166	1	SET SCREW 10-32UNF X 3/16	SCREW098	.
167	3	FLAT WASHER .188 X .438 X .049	WASHER002	.
168	1	FLAT WASHER .250 X .562 X .049	WASHER003	.
169	7	FLAT WASHER .312 X .734 X .065	WASHER007	.

PARTS IDENTIFICATION NOT SHOWN

QTY	DESCRIPTION	# MANARAS	REV
3	TIE WRAP (FOR MOTOR HARNESS)	CABLE025	.
14'	DISCONNECT CHAIN	CHAIN064	.
1	HARNESS (TSTRIP + 2A FUSE)	HARNESS038	.
1	MOTOR HARNESS	c/w MOTOR	.
1	2 AMP. FUSE	STICKER003	.
1	1 TO 9	STICKER034	.
1	MADE IN CANADA	STICKER046	.
1	LIGHT DUTY WARNING STICKER	STICKER013	.
1	ELECTRICAL DIAGRAM		.
1	ATTENTION-CAUTION	STICKER045	.
1	IDENTIFICATION	STICKER048	.
2	TIE WRAP 50LBS 11.5" (FOR CAP.)	CABLE023	.

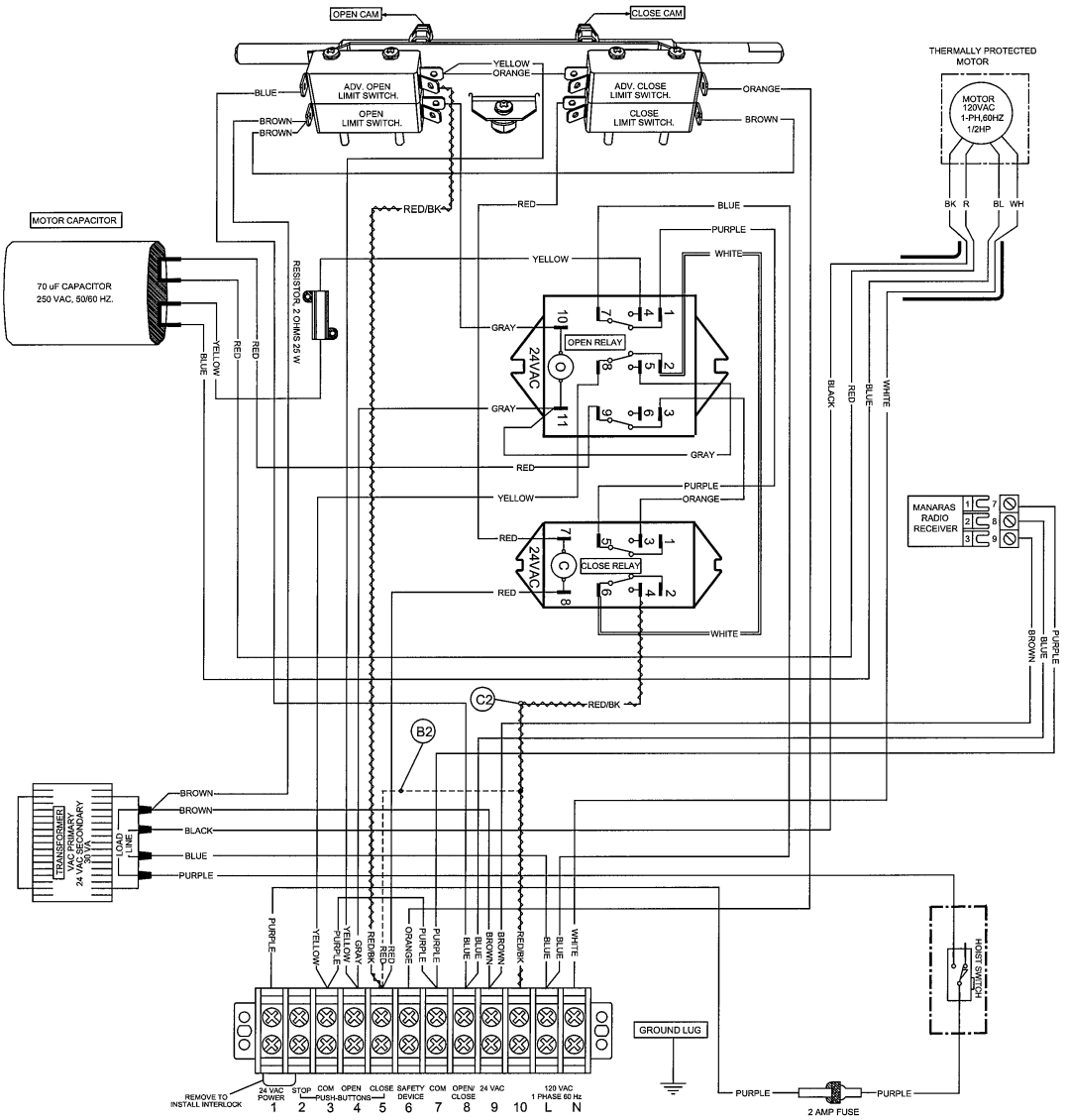
OPERA-MJ

drawn by:	date:	dwg file:	rev.	date:
CHRISTIAN CLAUDEL	2002.05.10	OPERA-J-MD-X	-	2004.03.09

MANARAS AUTO DOORS INC.
136 ONEIDA DRIVE
POINTE-CLAIRE, QC H9R 1A8
TEL.: 514.426.1332
FAX: 514.426.1171

8.3. Opera-MH/MJ wiring diagram

DRAWING-OPERA11MD-W



EXTERNAL WIRING

LINE POWER	POWER 24 VAC	EXTERNAL INTERLOCK	SAFETY REVERSE	OPEN/CLOSE COMMAND	3-POSITION KEY SW. W/SPRING RETURN TO CENTRE	SINGLE PUSH-BUTTON STATION	TWO PUSH-BUTTON STATION	RADIO RECEIVER
L N	1 9	1 2	3 6	7 8	5 4 3	5 4 3 2	5 4 3 2	7 8 9
POWER SUPPLY 115 VAC 1 Ph, 60 Hz.	24 VAC POWER AVAILABLE 10VA MAX.	REMOVE TO INSTALL INTERLOCK	CONTACT FOR SAFETY DEVICE	CONTACT FOR OPEN/ CLOSE DOOR DEVICE.	OPEN CLOSE COM COM	OPEN CLOSE STOP	OPEN CLOSE STOP OPEN CLOSE STOP	PURPLE BLUE BROWN POWER GROUND NO
					KEY-SWITCH	CAUTION: PLACE A JUMPER BETWEEN TERMINAL #2 AND #3, IF STOP BUTTON IS NOT USED.		

ATTENTION- USE 18AWG OR HIGHER FOR WIRING ALL EXTERNAL CONNECTIONS.

ON SITE MODIFICATIONS

WARNING

MOTORISED DOORS CAN CAUSE SERIOUS INJURIES OR DEATH. MANARAS STRONGLY RECOMMENDS THE USE OF ENTRAPMENT PROTECTION SYSTEMS, ESPECIALLY IN THE CASES OF MOMENTARY CONTACT TO CLOSE AS IN B2 WIRING.

NOTE- (C2) / (B2)

C2 ⇨ B2 REMOVE THE RED WIRE WITH RAPID CONNECTOR FROM TERMINAL #10, AND TRANSFER IT TO TERMINAL #5.

B2 ⇨ C2 REMOVE THE RED WIRE WITH RADID CONNECTOR FROM TERMINAL #5, AND TRANSFER IT TO TERMINAL #10.

TITLE: WIRING DIAGRAM- MEDIUM DUTY,120 VAC 1-PH

DRAWN BY:	DATE:	CAD FILE:	REV	DATE:
BP	27.FEB.2002	OPERAMD-W	F	05.JULY.2007

MANARAS/OPERA 9140-0720 QUEBEC INC.
136 ONEIDA DRIVE
POINTE-CLAIRE, QC H9R 1A8
TEL- 1-800-361-2260
FAX: 1-888-626-0606

WARRANTY

Manaras 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' only obligation shall be to repair or replace defective equipment which does not conform to the warranty. Manaras 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.

The articles that are replaced pursuant to the terms of this warranty shall be retained by Manaras, 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 equipment is used with electrical accessories (switches, relays, etc.) that have not been previously approved in writing by the Manaras 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 reinstallation of the Manaras equipment covered by this warranty are not the responsibility of Manaras. Manaras will not be responsible for any consequential damages during the following installation procedures. If the Buyer resells any Manaras products to another Buyer or End-user, it shall include all of the terms and provisions of this warranty in such resale. Manaras' responsibility to any such Third Party shall be no greater than Manaras' responsibility under the warranty to the original Buyer.

Returns

No returns will be accepted without prior written authorization by Manaras. All returns must be accompanied by a Return Authorization Number issued by Manaras, 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 sale price will be charged.

NOTES

NOTES

Commercial Door OPERAtor

Manaras is extending their well-known OPERA brand name across its entire line of commercial OPERAtor products. 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. We will continue to meet your individual needs while striving to balance quality, performance and experience with a personalized touch. When you think Manaras just think OPERA.

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

"Easy to install. Easy to use. Year after year."

www.manaras.com