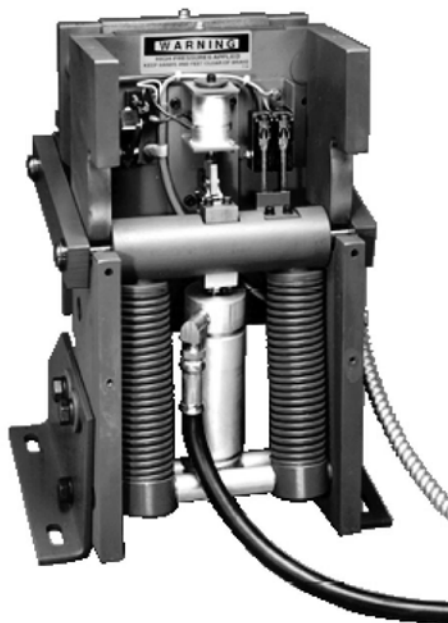




VERTICAL EXPRESS

“Rope Gripper™”

Hollister-Whitney



8000AC1 (HW #620)
8000AC2 (HW #622)
8000AC3 (HW #624)
8000AC4 (HW #625)
8000AC5 (HW #626)
8000AC6 (HW #622)
8000AC7 (HW #622)



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Safety Precautions

IMPORTANT!

Read this page before any work is performed on elevator equipment. The procedures contained in this manual are intended for the use of qualified elevator personnel. In the interest of your personal safety and the safety of others, do not attempt any procedure that you are not qualified to perform.

All procedures must be accomplished in accordance with the applicable rules in the latest edition of the National Electrical Code, the latest edition of ASME A17.1, and any governing local codes.

Terms in This Manual



CAUTION statements identify conditions that may result in damage to the equipment or other property if improper procedures are followed.



WARNING statements identify conditions that may result in personal injury if improper procedures are followed.

General Safety



Before applying power to the controller, check that all factory wire connections are tight on relays, contactors, fuse blocks, resistors, and terminals on cards and DIN rail terminals. Connections loosened during shipment may cause damage or intermittent operation.

Other specific warnings and cautions are found where applicable and do not appear in this summary. See the *Elevator Industry Field Employees' Safety Handbook* for electrical equipment safety information on installation and service.

Electrical Safety

All wiring must be in accordance with the National Electrical Code and be consistent with all state and local codes.

Use the Proper Fuse

To avoid fire hazards, use only a fuse of the correct type, voltage, and current rating. See the job specific drawings sheet (Power Supplies) for fusing information.

Electric shocks can cause personal injury or loss of life. Circuit breakers, switches, and fuses may not disconnect all power to the equipment. Always refer to the wiring diagrams. Whether the AC supply is grounded or not, high voltage will be present at many points.

Printed Circuit Cards

Printed circuit boards may be damaged if removed or installed in the circuit while applying power. Before installation and/or removing printed circuit boards, secure all power.

Always store and ship printed circuit cards in separate static bags.

Electrical Safety*(continued)***Mainline Disconnect**

Unless otherwise directed, always Turn OFF, Lock, and Tag out the mainline disconnect to remove power from elevator equipment. Before proceeding, confirm that the equipment is de-energized with a volt meter. Refer to the *Vertical Express Employees' Safety and Accident Prevention Program Manual* for the required procedure.

Test Equipment Safety

Always refer to manufacturers' instruction book for proper test equipment operation and adjustments.

Megger or buzzer-type continuity testers can damage electronic components. Connection of devices such as voltmeters on certain low level analog circuits may degrade electronic system performance. Always use a voltmeter with a minimum impedance of 1M Ohm/Volt. A digital voltmeter is recommended.

When Power Is On

To avoid personal injury, do not touch exposed electrical connections or components while power is ON.

Mechanical Safety

See the *Elevator Industry Field Employees' Safety Handbook* for mechanical equipment safety information on installation and service.

Static Protection Guidelines

IMPORTANT!

Read this page before working with electronic circuit boards.

Elevator control systems use a number of electronic cards to control various functions of the elevator. These cards have components that are extremely sensitive to static electricity and are susceptible to damage by static discharge.

Immediate and long-term operation of an electronic-based system depends upon the proper handling and shipping of its cards. For this reason, the factory bases warranty decisions on the guidelines below.

Handling

- Cards shipped from the factory in separate static bags must remain in the bags until time for installation.
- Anti-static protection devices, such as wrist straps with ground wire, are required when handling circuit boards.
- Cards must not be placed on any surface without adequate static protection.
- Only handle circuit cards by their edges, and only after discharging personal static electricity to a grounding source. DO NOT touch the components or traces on the circuit card.
- Extra care must be taken when handling individual, discrete components such as EPROMS (which do not have circuit card traces and components for suppression).

Shipping

- Complete the included board discrepancy sheet.
- Any card returned to the factory must be packaged in a static bag designed for the card.
- Any card returned to the factory must be packaged in a shipping carton designed for the card.
- “Peanuts” and styrofoam are unacceptable packing materials.

Note: Refer to the Vertical Express Replacement Parts Catalog to order extra static bags and shipping cartons for each card.

Failure to adhere to the above guidelines will VOID the card warranty!

Arrival of Equipment


Receiving

Upon arrival of the equipment, inspect it for damage. Promptly report all visible damage to the carrier. All shipping damage claims must be filed with the carrier.

Storing

During storage in a warehouse or on the elevator job site, precautions should be taken to protect the equipment from dust, dirt, moisture, and temperature extremes.

Revision Change Bars



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Overview

The rope gripper is a device used to grab elevator suspension ropes to stop the elevator in the event of a mechanical or electrical failure. It doesn't damage the ropes or cause any undue stress to the machine or traction sheave. The rope gripper is mechanically activated and hydraulically reset.

The rope gripper consists of two components. See Figure 1.

1. Pump Unit - Compresses the springs and opens the movable shoe on the brake unit to accommodate the elevator ropes and put the rope gripper into the ready or running position.
2. Brake Unit - Device that actually clamps the elevator ropes to stop elevator movement. A solenoid assembly is used to hold the movable shoe in the ready position, and applies the movable shoe when a fault signal is received from the elevator controller.

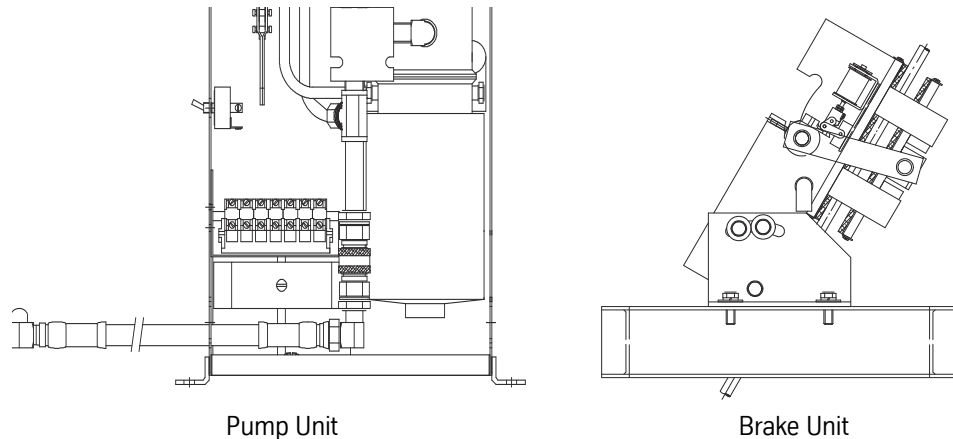


Figure 1 - Rope Gripper Components

Hollister-Whitney recommends the following rope gripper operations:

1. Activate the rope gripper:
 - When an overspeed occurs.
 - When the car leaves the floor (door zone) with the doors open (hoistway door unlocked and the car gate switch opened).
 - Always when there is a loss of power.
2. Do not activate the rope gripper:
 - If the doors happen to open when the car is between floors.
3. Reset the rope gripper:
 - If the car is in the door zone when power is returned.
 - If the car is between floors when power returns.
 - If changing from Inspection to Automatic Operation - when the car gate switch or door interlock makes contact.

Specifications

Model numbers: 8000AC1 and 8000AC2 (620 and 622)

- Pumping units can be mounted on either side of rope gripper.
- Four (4) 1/2" bolts are required to mount rope gripper, and four (4) 1/4" - N.C. bolts to mount the pumping unit.

Model numbers: 8000AC3, 8000AC4, and 8000AC5 (624, 625, and 626)

- Model number 626 has one more spring and cylinder than model numbers 624 and 625.
- Pumping units can be mounted on either side of the rope gripper.
- Four (4) 5/8" bolts are required to mount the rope gripper, and four (4) 1/4" - 20 N.C. bolts to mount the pumping unit.

Specifications

(continued)

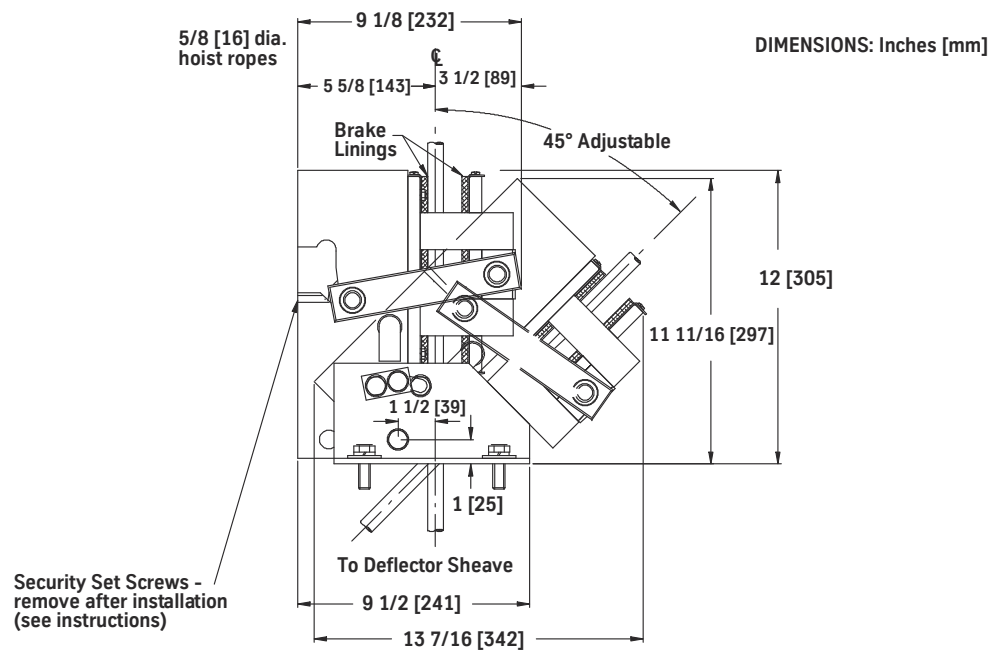
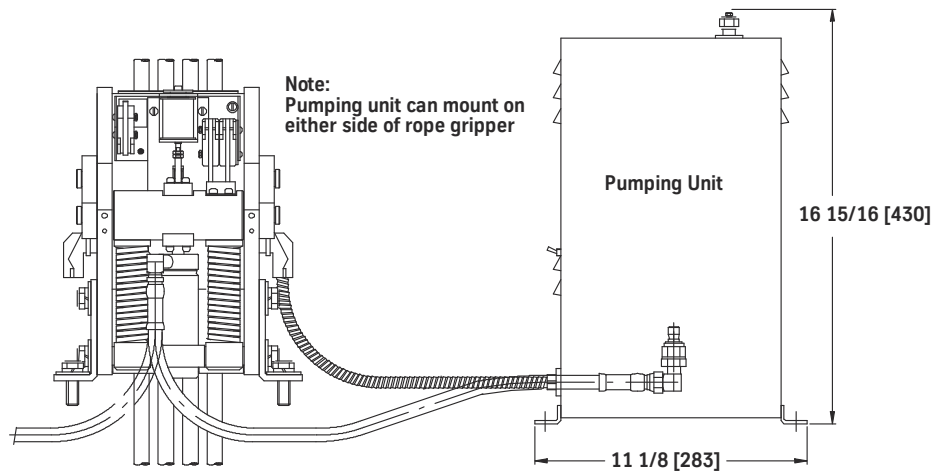
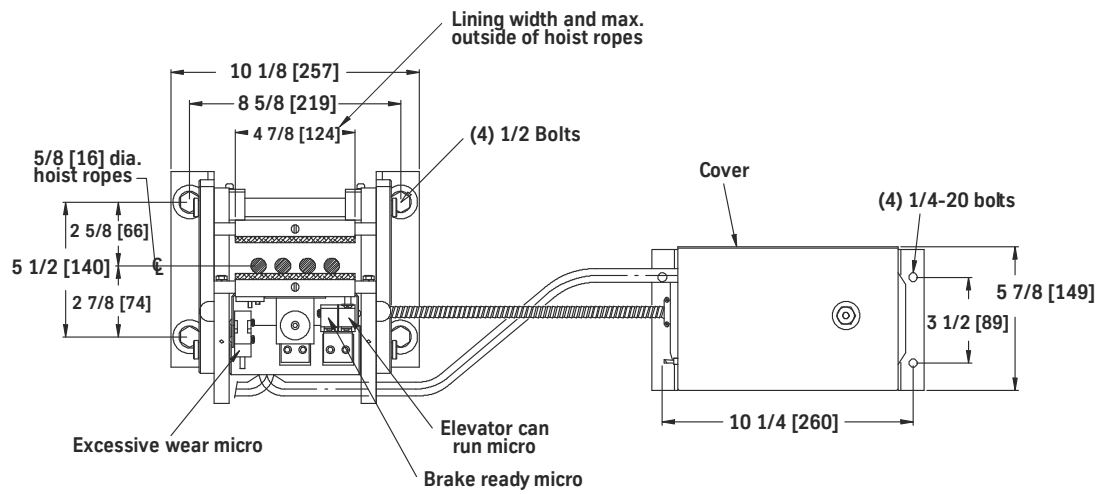
Rope Gripper and Pumping Unit Specifications

			ROPE GRIPPER MODEL NUMBER						
			8000AC1 (620)	8000AC2 (622)	8000AC3 (624)	8000AC4 (625)	8000AC5 (626)	8000AC6 (622) See Note 1	8000AC7 (622) See Note 2
MAXIMUM OUT TO CABLES:			4-7/8" (124 mm)	6" (152 mm)	10" (254 mm)	11-1/2" (292 mm)	10" (254 mm)	6" (152 mm)	6" (152 mm)
POWER SUPPLY:			6A, 120V ac, 1 PH, 60Hz.						
CONTACT RATINGS:			6A, 250V ac, 0.15A, 250V dc						
1:1 ROPING	MAXIMUM RATINGS	RATED SPEED:	350 fpm (1.78 m/s)	600 fpm (3.05 m/s)	1,200 fpm (6.10 m/s)			600 fpm (3.05 m/s)	
		ROPE GRIPPER TRIPPING SPEED:	402 fpm (2.04 m/s)	690 fpm (3.51 m/s)	1,368 fpm (6.95 m/s)			690 fpm (3.51 m/s)	
		CAR RATED LOAD: (with 40 to 50% Counterweights)	2,500 lbs (1,134 kg)	5,000 lbs (2,268 kg)			10,000 lbs (4,536 kg)	5,000 lbs (2,268 kg)	
		CAR, CAR LOAD, COUNTERWEIGHT, HOIST & COMPENSATION ROPE MASS	11,500 lbs (5,216 kg)	18,600 lbs (8,437 kg)			38,000 lbs (17,236 kg)	18,600 lbs (8,437 kg)	
		DOOR ZONE:	10 inches (254mm)±						
	MIN.	CAR RATED LOAD:	600 lbs (272 kg)	1,500 lbs (680 kg)			2,500 lbs (1,134 kg)		
		CAR & COUNTERWEIGHT MASS:	2,280 lbs (1,034 kg)	6,000 lbs (2,722 kg)			8,000 lbs (3,629 kg)		
2:1 ROPING	MAXIMUM RATINGS	RATED SPEED:	250 fpm (1.27 m/s)	400 fpm (2.03 m/s)	800 fpm (4.06 m/s)			400 fpm (2.03 m/s)	
		ROPE GRIPPER TRIPPING SPEED:	303 fpm (1.54 m/s)	459 fpm (2.33 m/s)	921 fpm (4.68 m/s)			459 fpm (2.33 m/s)	
		CAR RATED LOAD: (with 40 to 50% Counterweights)	5,000 lbs (2,268 kg)	10,000 lbs (4,536 kg)			20,000 lbs (9,072 kg)	10,000 lbs (4,536 kg)	
		CAR, CAR LOAD, COUNTERWEIGHT, HOIST & COMPENSATION ROPE MASS	18,600 lbs (8,437 kg)	38,000 lbs (17,236 kg)			76,000 lbs (34,472 kg)	38,000 lbs (17,236 kg)	
		DOOR ZONE:	10 inches (254mm)±						
	MIN.	CAR RATED LOAD:	1,500 lbs (680 kg)	2,500 lbs (1,134 kg)			5,000 lbs (2,268 kg)	2,500 lbs (1,134 kg)	
		CAR & COUNTERWEIGHT MASS:	6,000 lbs (2,722 kg)	8,000 lbs (3,629 kg)			16,000 lbs (7,258 kg)	8,000 lbs (3,629 kg)	
		SHIPPING WEIGHT:	100 lbs (45 kg)	180 lbs (82 kg)	300 lbs (136 kg)		335 lbs (152 kg)	180 lbs (82 kg)	

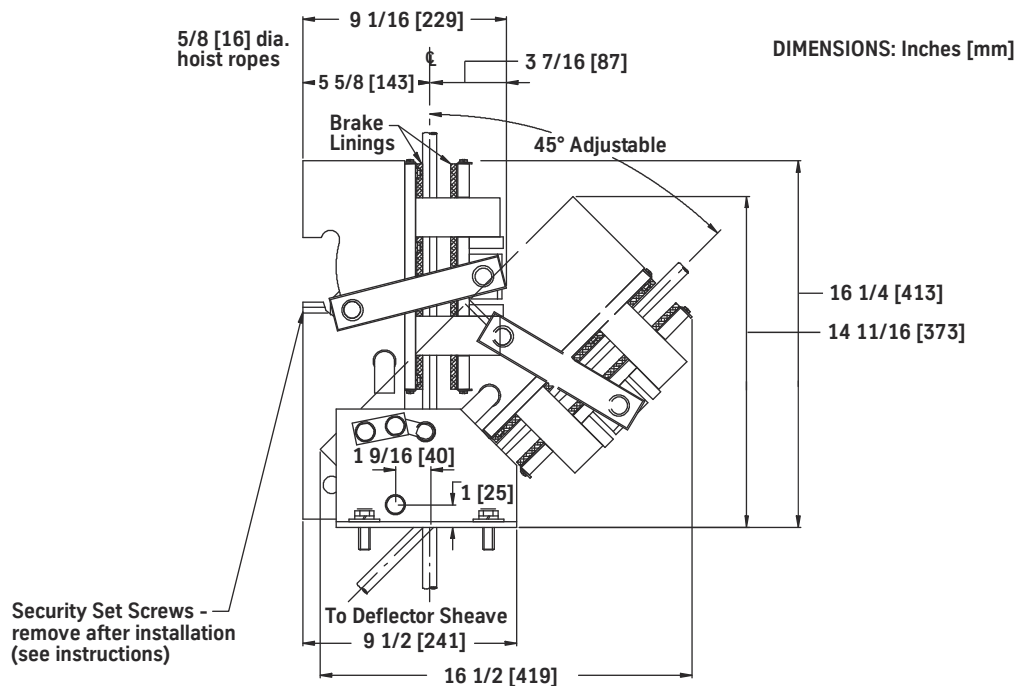
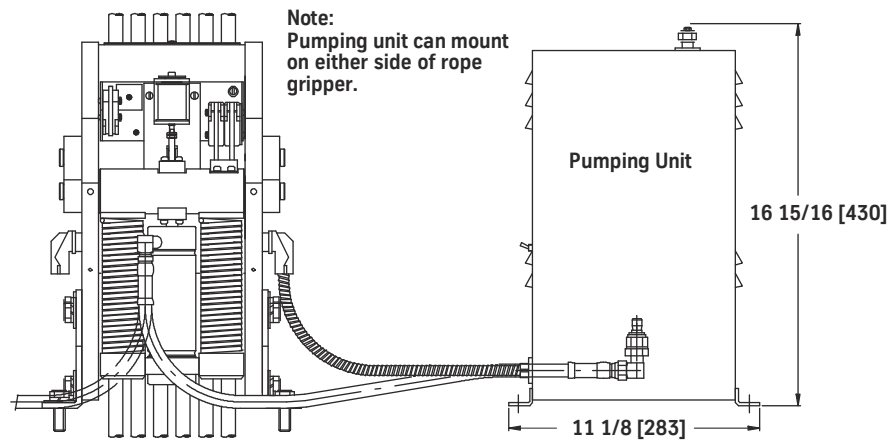
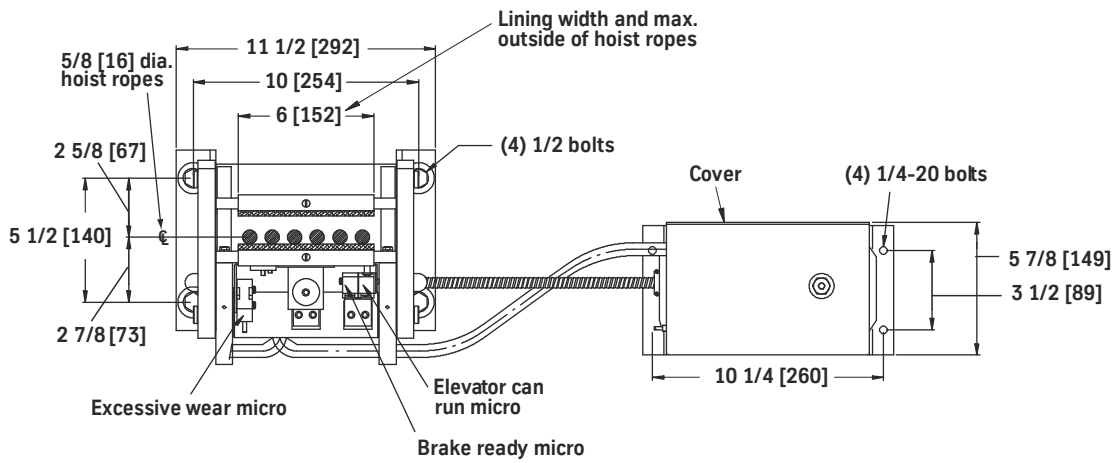
Notes:

- 8000AC6 requires setup for 10mm diameter hoist ropes.
- 8000AC7 requires setup for 8mm diameter hoist ropes.

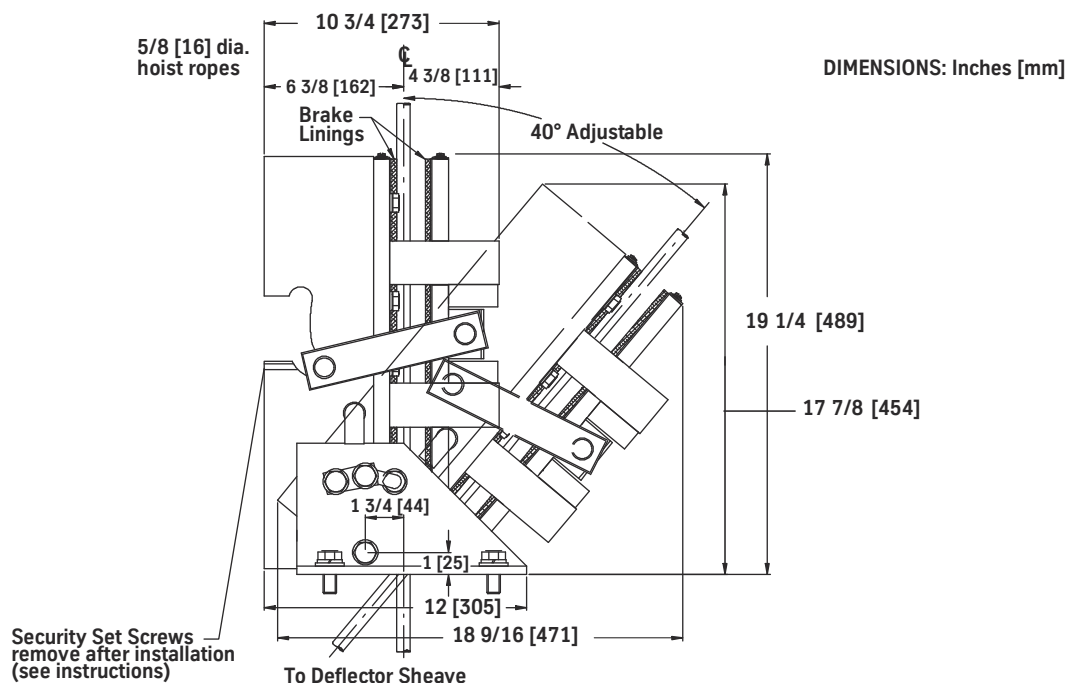
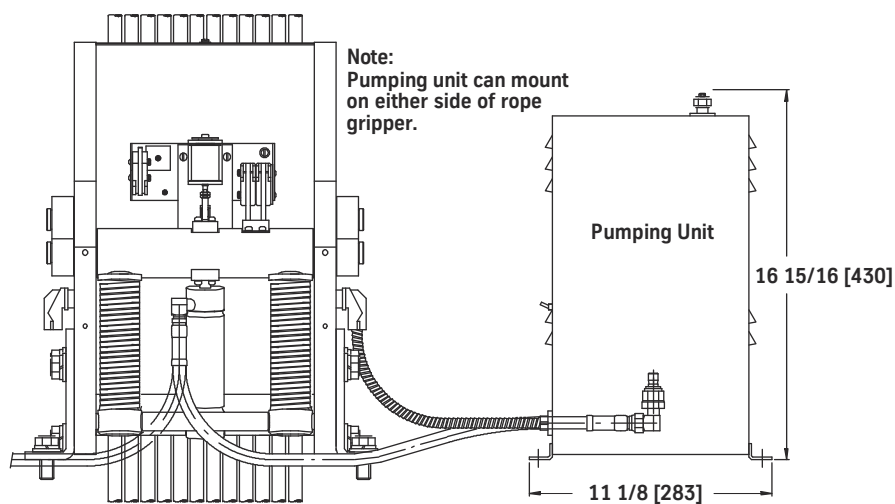
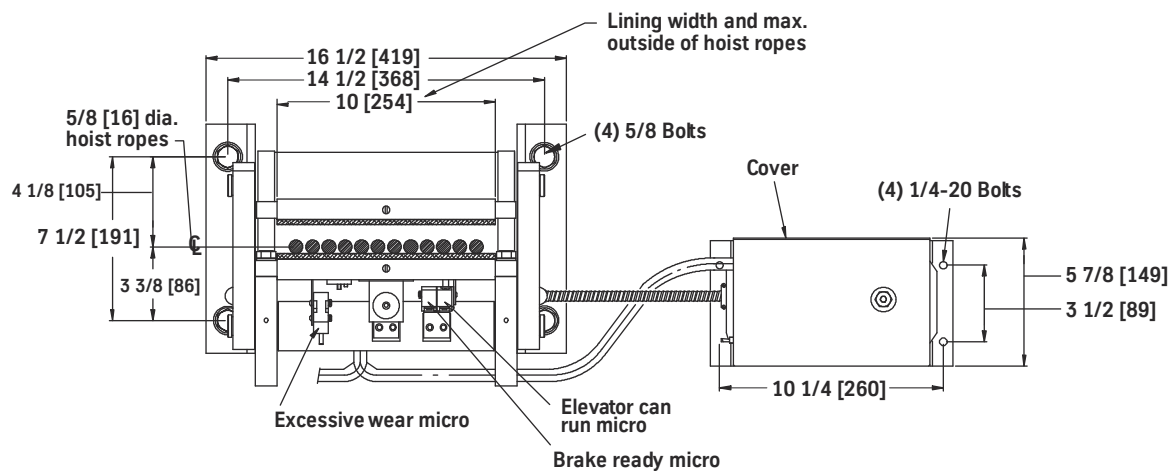
Dimensions 8000AC1 (620)



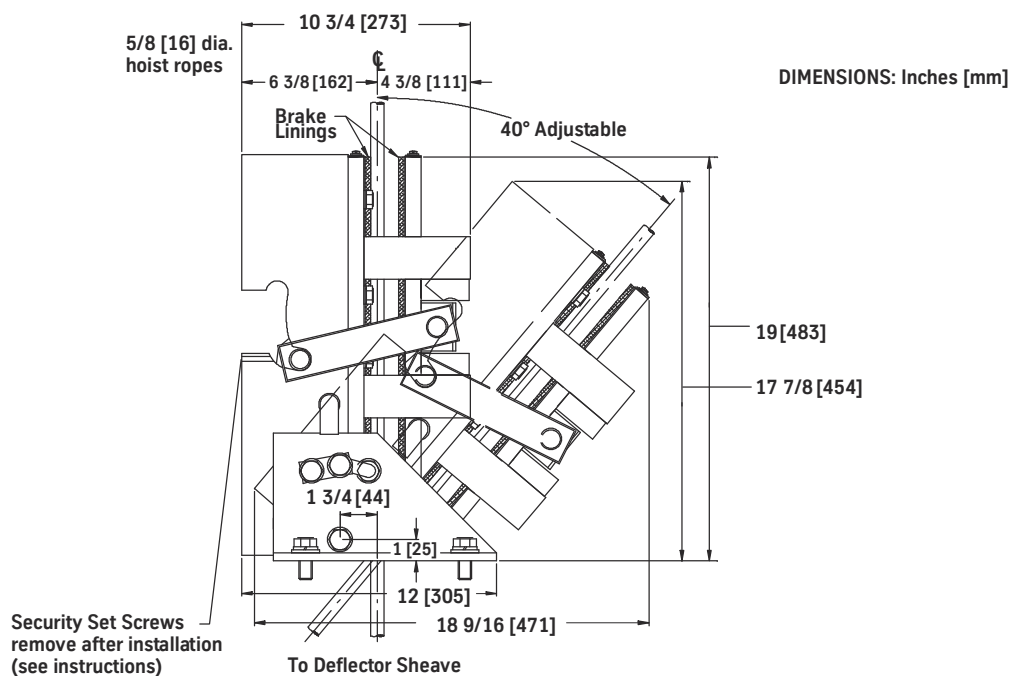
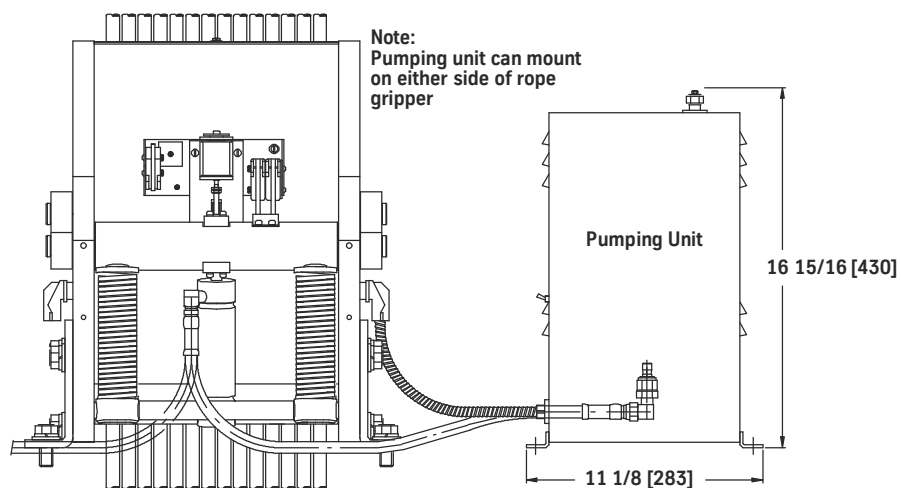
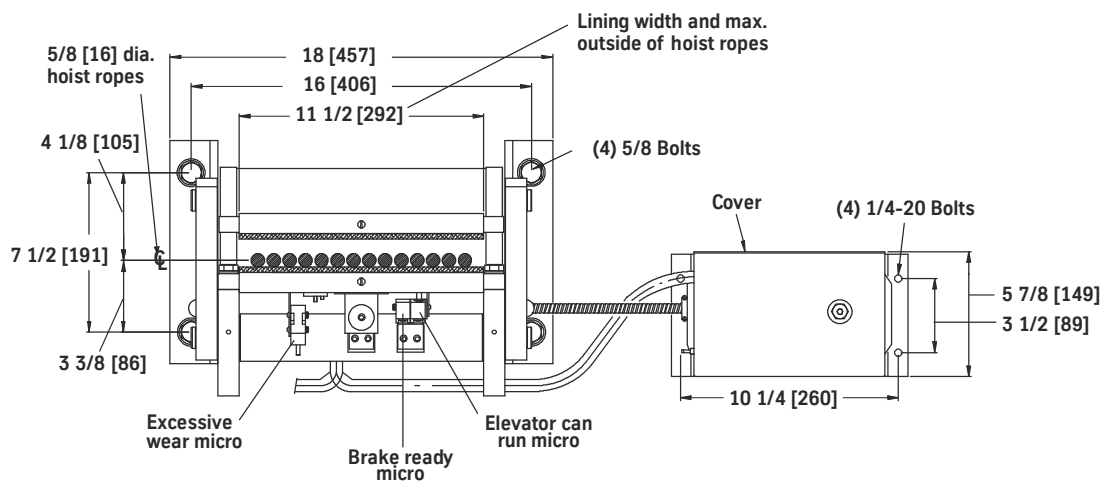
Dimensions 8000AC2 (622)



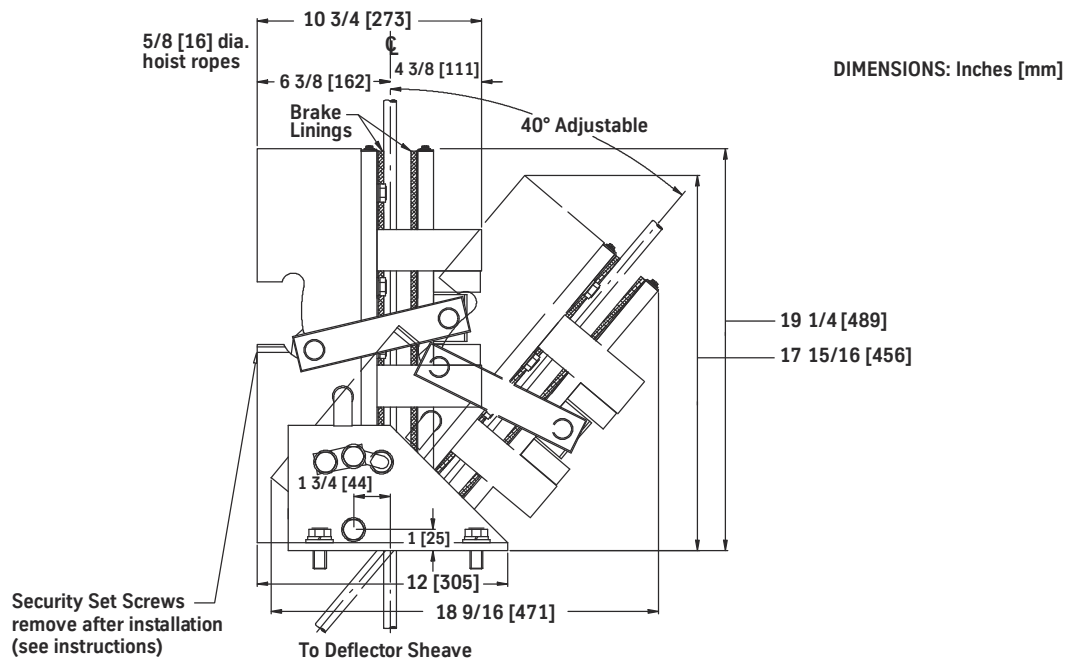
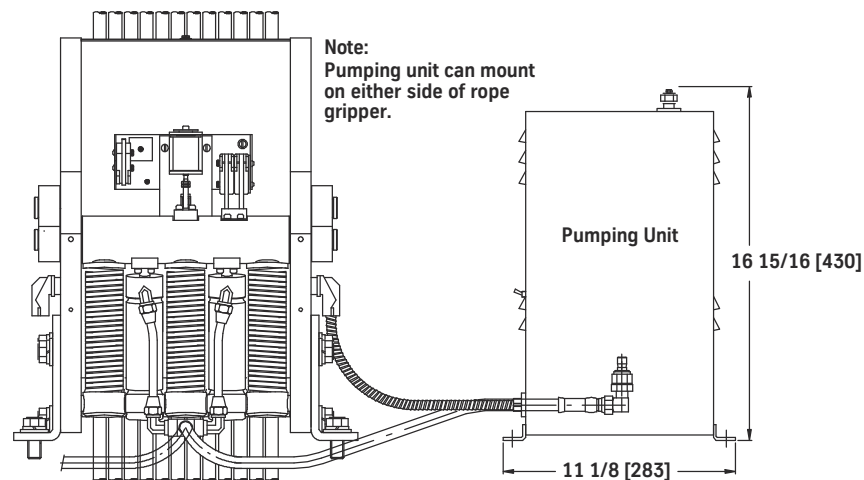
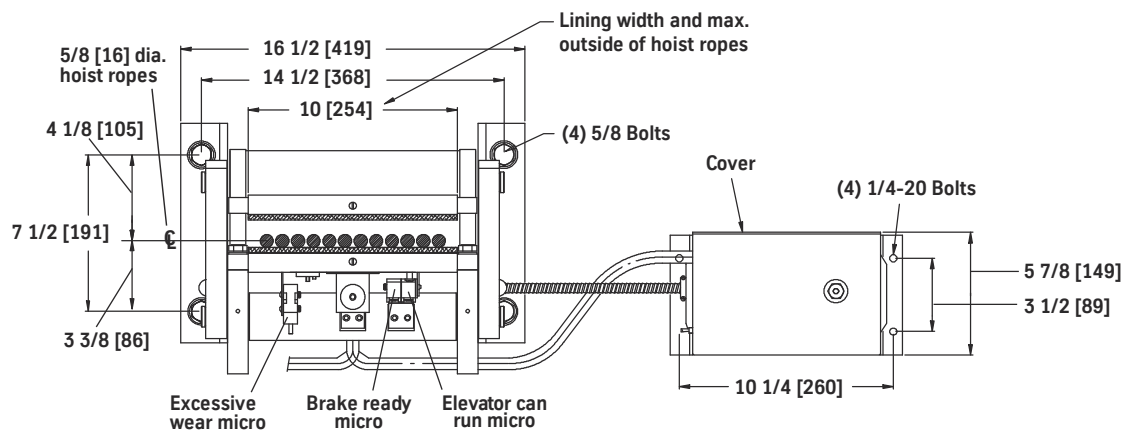
Dimensions 8000AC3 (624)



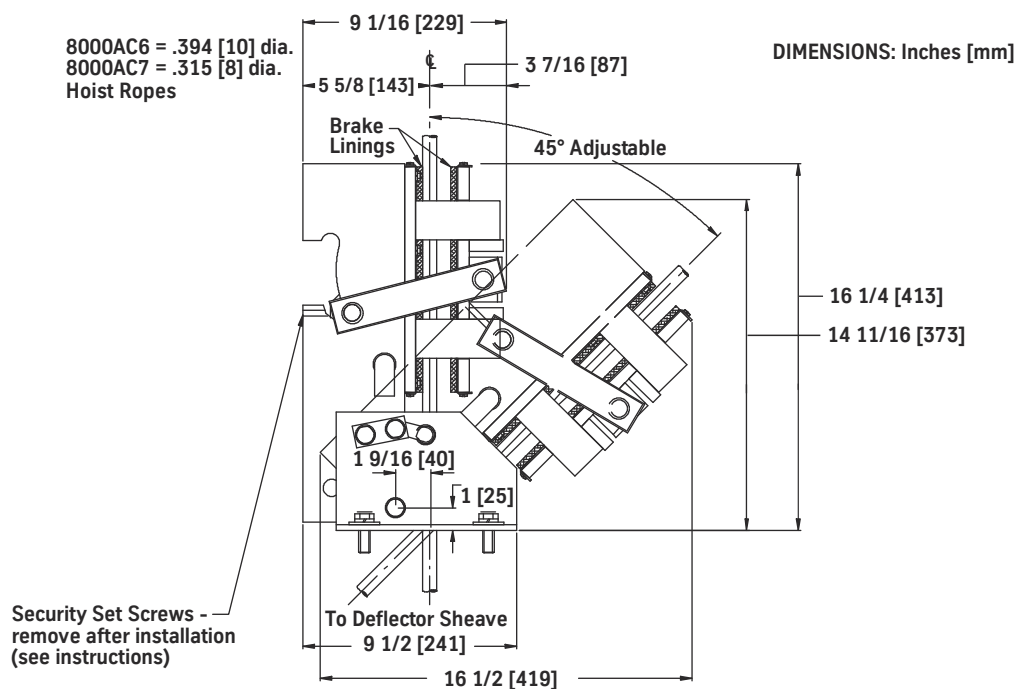
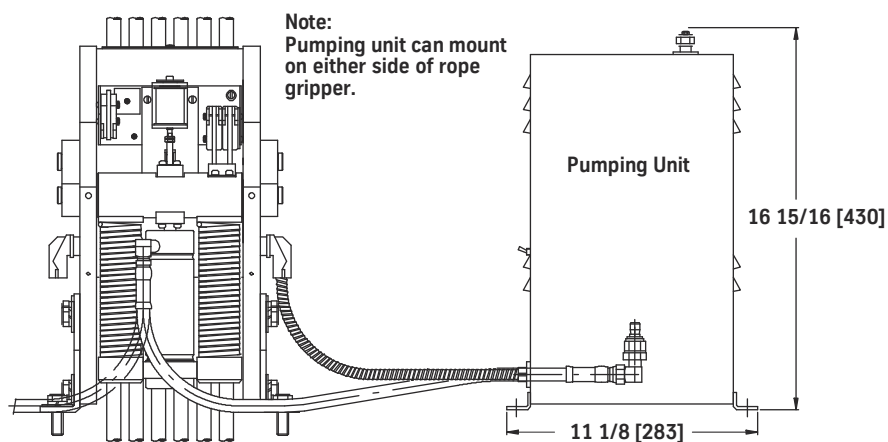
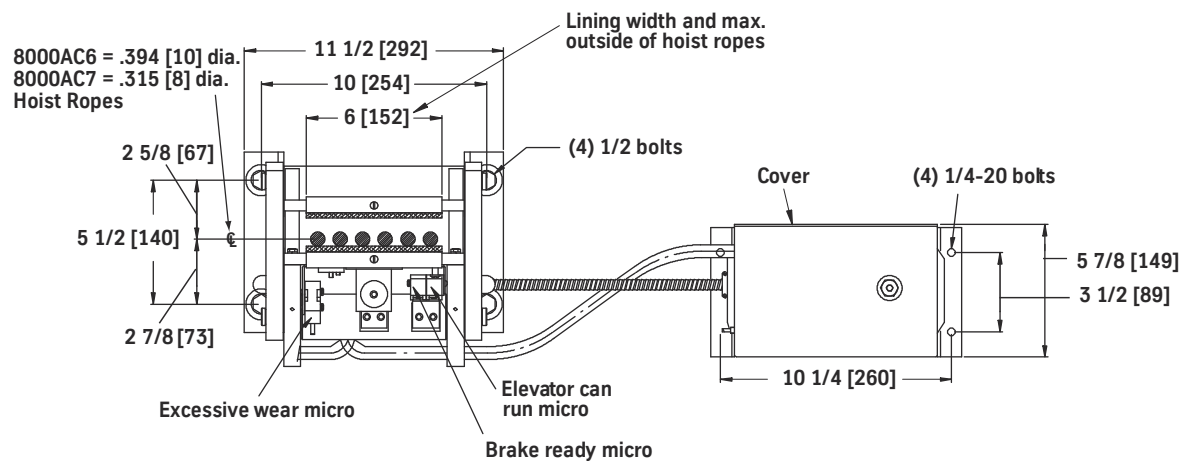
Dimensions 8000AC4 (625)



Dimensions 8000AC5 (626)



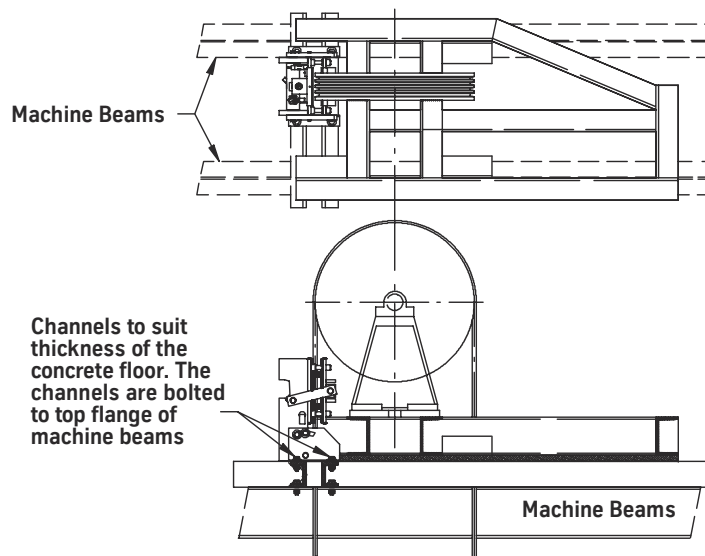
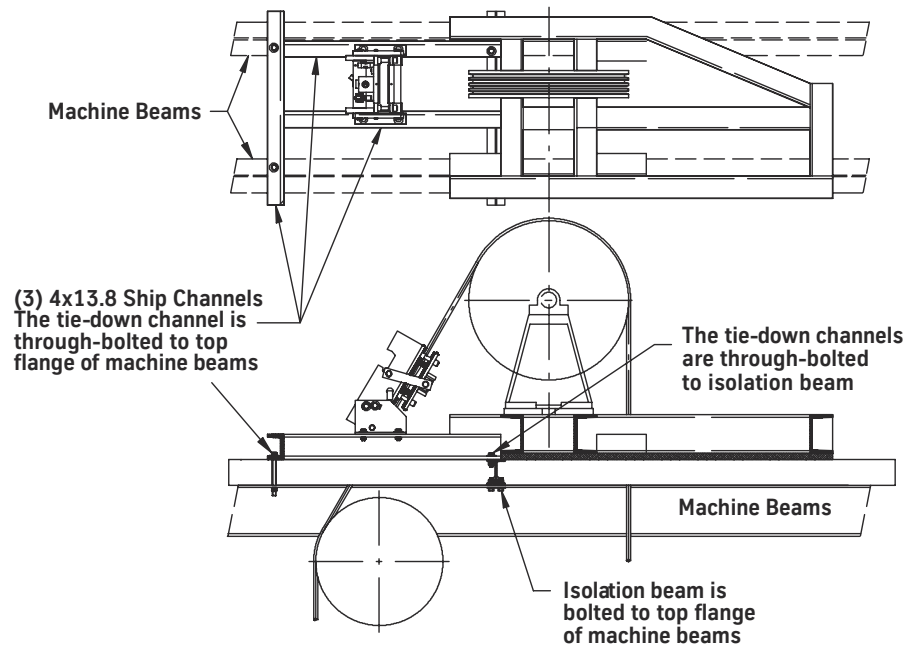
Dimensions 8000AC6/AC7 (622)



Hollister-Whitney Installation

Typical Rope Gripper Mounting Arrangements

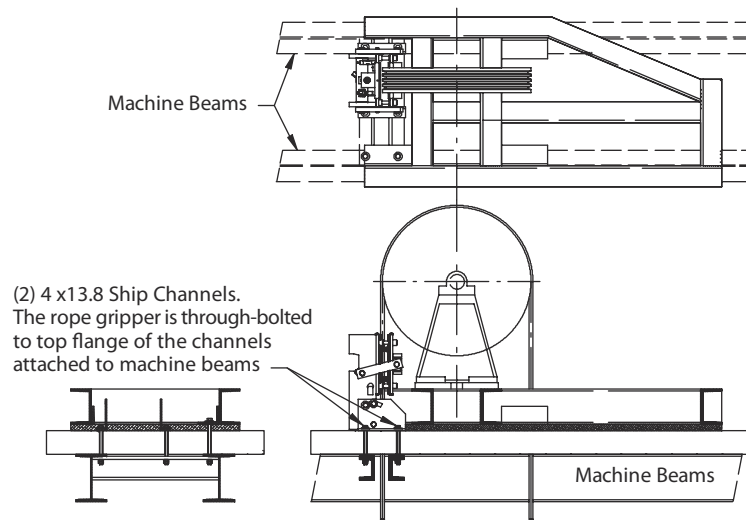
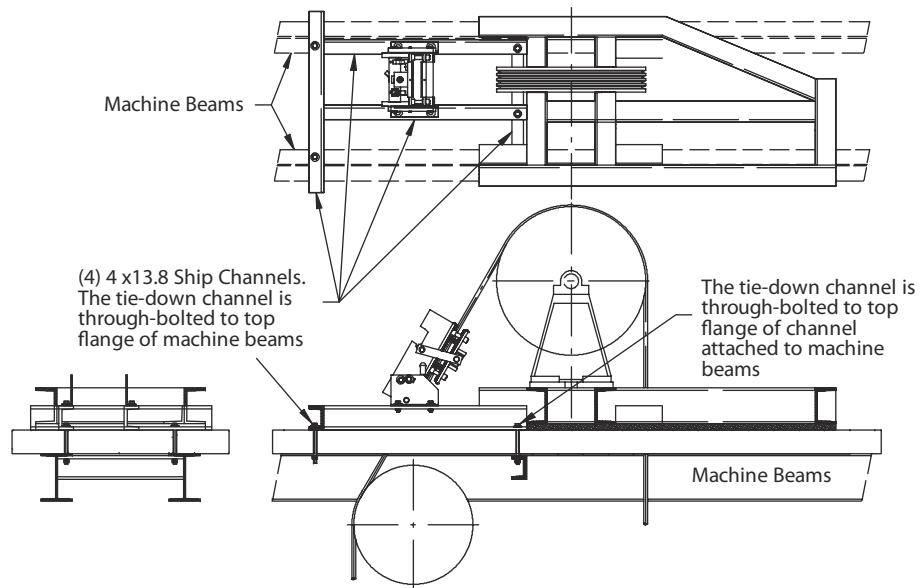
New Installation of Overhead Machines



Typical Rope Gripper Mounting Arrangements

(continued)

Existing Installation of Overhead Machines



Installation

(continued)

When adding a rope gripper to an existing installation, it may not be possible to mount the gripper in the machine room. It is acceptable to mount the gripper horizontal or even upside down, so long as proper consideration is given to future gripper maintenance and pumping unit location.

Notes:

- The pumping unit must be mounted right side up.
 - The hydraulic hose standard length is 27 inches, and hose lengths of up to 8 feet maximum are available.
1. Be sure the security set screws are touching and holding the rotating shaft in the loaded position. See Figure 1.

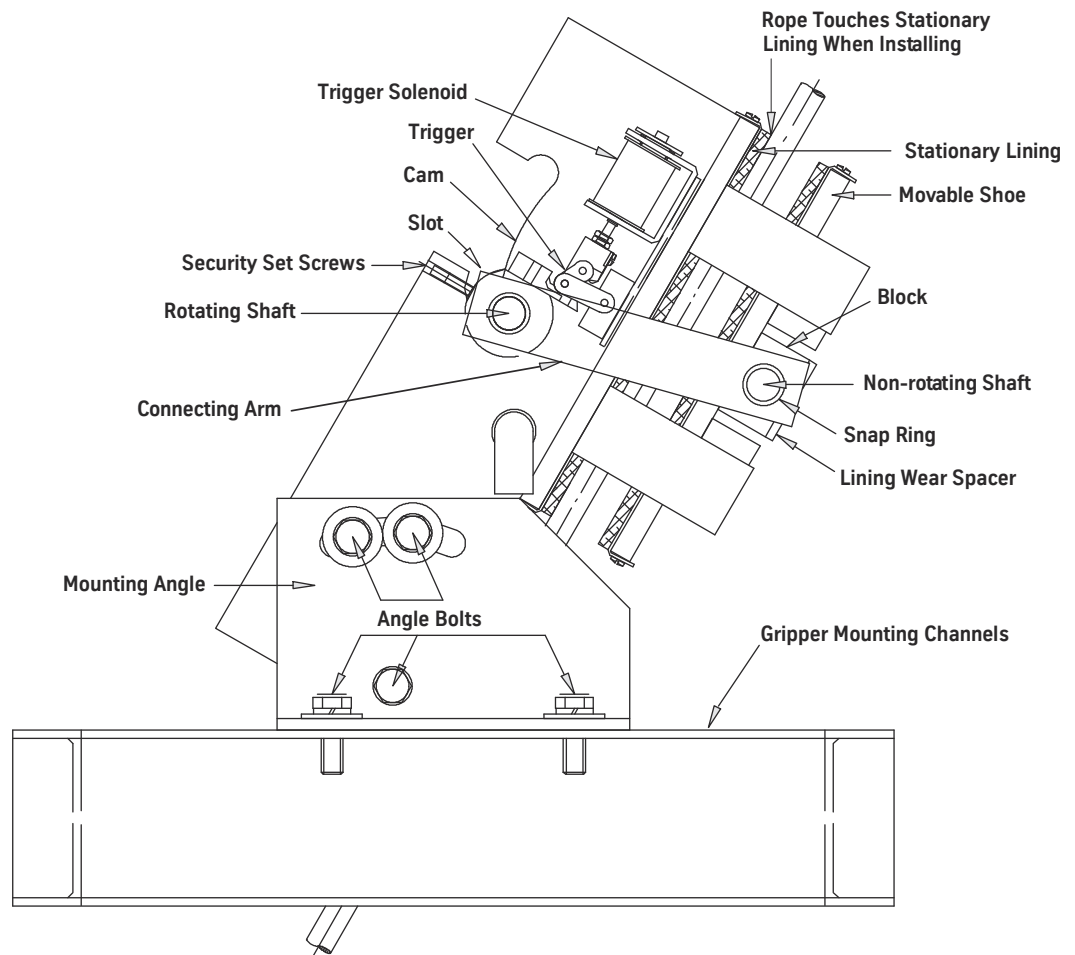


Figure 1 - Rope Gripper Detailed Illustration

2. Remove the four snap rings to remove both connecting arms.
3. Remove the movable shoe assembly.

Installation

(continued)

4. Use the appropriate bolt size to mount rope gripper to the mounting channels through the mounting angles:

Model Numbers: 8000AC1 and 8000AC2 (620 and 622)

- 1/2" UNC (Grade 5) @ 74 ft-lbs.

Model Numbers: 8000AC3 and 8000AC4, 8000AC5 (624, 625, and 626)

- 5/8" UNC (Grade 5) @ 143 ft-lbs.

5. Align the rope gripper so that the stationary shoe lining barely touches the ropes from top-to-bottom and from side-to-side.



CAUTION

Slight misalignment may cause uneven and excessive lining wear.

6. Securely fasten the rope gripper angle bolts (5 bolts per side). Make sure they are torqued correctly:

Model Numbers: 8000AC1 and 8000AC2 (620 and 622)

- 74 ft-lbs. (approximate)

Model Numbers: 8000AC3 and 8000AC4, 8000AC5 (624, 625, and 626)

- 143 ft-lbs. (approximate)

7. Double check the rope alignment and ensure that the ropes evenly touch the stationary shoe lining.
8. Reinstall the movable shoe assembly.
9. Reinstall the connecting arms with the chamfered corners facing inside, and then secure the four snap rings.
10. Find the best location for the pumping unit. The unit can face forward or backward and can be placed on either side of the rope gripper.



CAUTION

The shipping cap on the pump unit must be removed and the dipstick installed, otherwise the pumping unit may be damaged (the dipstick is shipped strapped to the inside of the pumping unit).

11. Route the male hydraulic fitting through the knockout hole on the side of the pumping unit.
12. Inside the pumping unit, while lifting the ring on the female fitting, push the male quick-connect fitting into the female fitting.
13. Release the ring to secure the fittings together.

Notes:

- Wiring on the rope gripper can be changed to the opposite side of the assembly by removing the 90° box connector and pulling the wire through rope gripper and out the opposite side.
- Wiring from the rope gripper to the pump unit is color coded:

White = RG2	Orange = RG5
Black = RG3	Blue = RG6
Red = RG4	Green = Ground

Installation

(continued)

14. Connect terminals RG1, RG2, RG5, and RG7 to the elevator control. Check the control diagram for proper connections. See Figure 2.

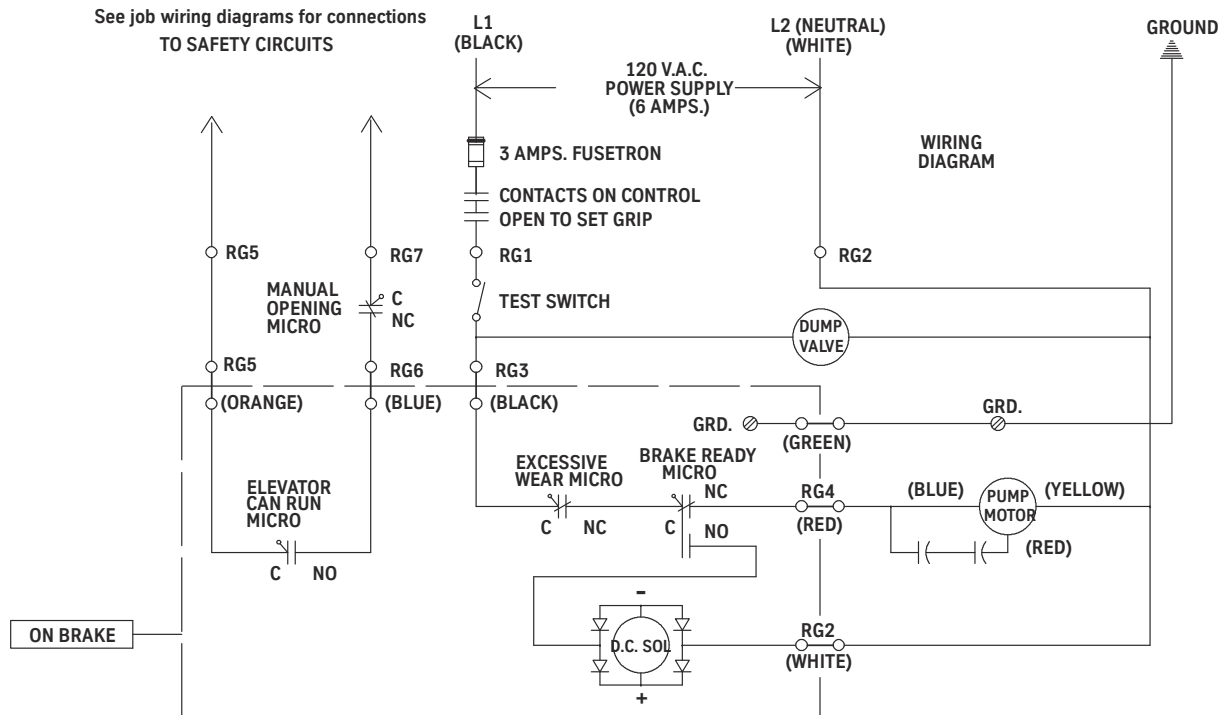


Figure 2 - Controller Wiring Diagram

15. When wiring and hydraulic connections are complete, make sure the valve stem (dump valve) in the pumping unit is set to AUTOMATIC. See the appropriate model number in Figure 10.
16. Turn the pumping unit test switch ON.
17. The solenoid latch on the rope gripper should energize and push down the trigger onto the latch. If it does not, check the control wiring.
18. When the rope gripper energizes, loosen the security set screws. If the arms move backward, use the hand pump or jump terminals 3 to 4 to temporarily operate the electric pump.
19. Remove the security set screws and store the set screws in the bottom of the pump unit.



Security set screws must be completely removed or damage may result when activating the rope gripper.

Installation*(continued)***Pumping Unit for Models 8000AC1, 8000AC2, 8000AC3, and 8000AC4 (620, 622, 624, 625)**

How to Set Valve Stem to MANUAL:
With test switch OFF, twist and
pull up while pumping hand pump.

How to Set Valve Stem to AUTOMATIC:
Push and turn, and then turn test
switch ON.

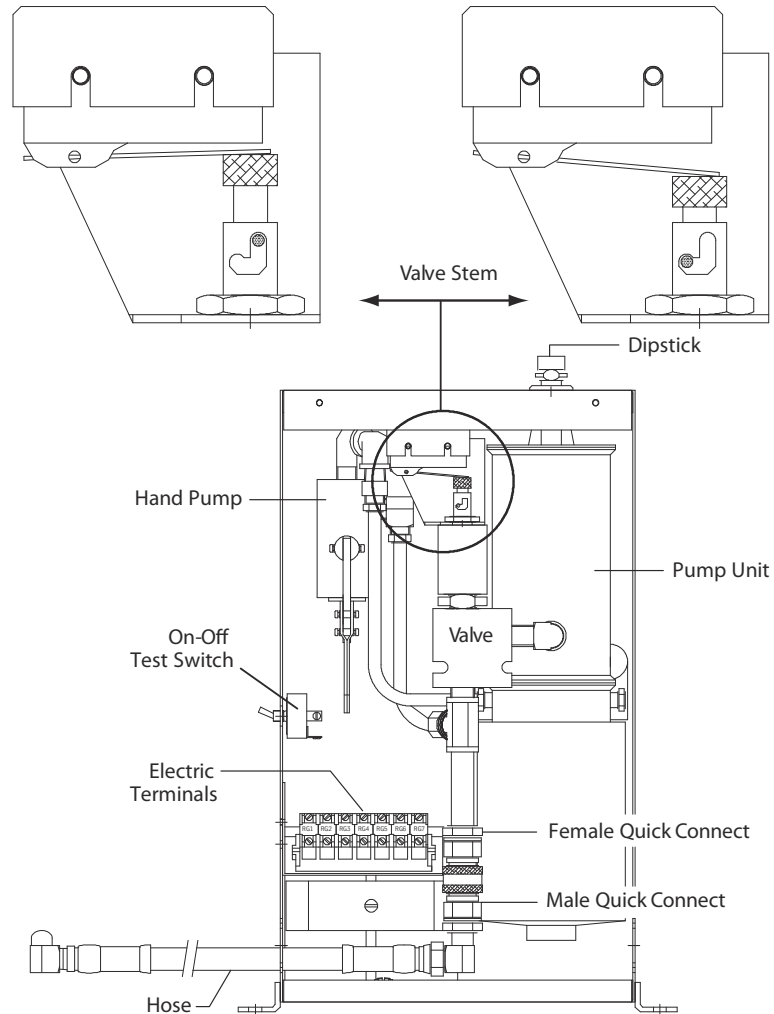
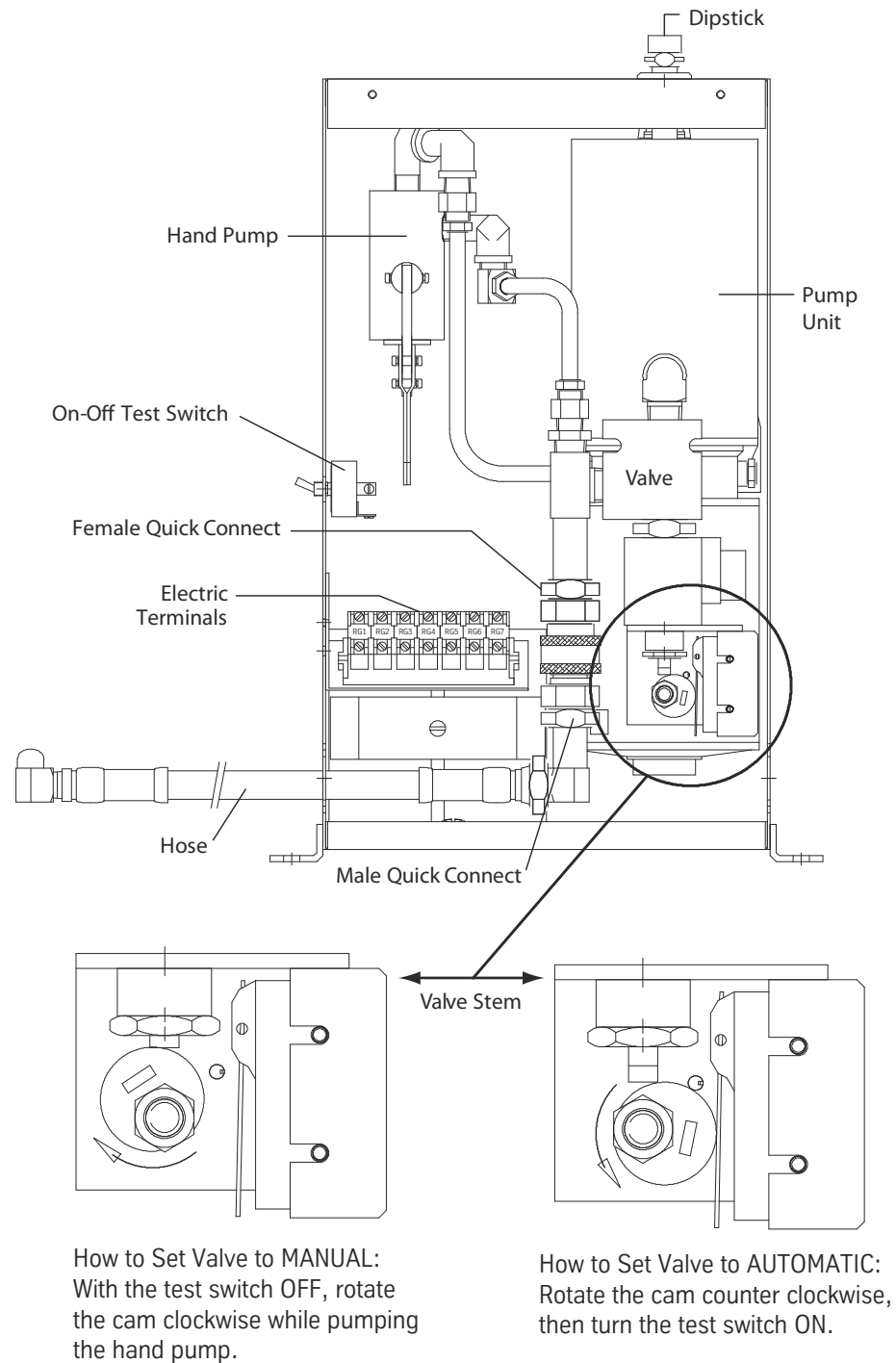


Figure 3 - Pumping Unit for 8000AC1, 8000AC2, 8000AC3, 8000AC4 (620, 622, 624, 625)

Installation

(continued)

Pumping Unit for Model 8000AC5 (626)



To rotate the cam, insert a screwdriver into the cam slot.

Figure 4 - Pumping Unit for Model 8000AC5 (626)

Preliminary Testing of the Rope Gripper

1. Make sure the pumping unit valve stem is in AUTOMATIC, and turn the test switch ON.

Note: The rope gripper should be in the ready LOADED position—not clamping the ropes.

2. Turn the test switch to OFF. This action will activate the rope gripper and clamp the ropes.



Be sure when clamping the ropes that the microswitch contacts on the rope gripper stop or prevent power from being applied to the motor and machine brake.

3. Turn the valve stem (located in the pumping unit) to the MANUAL position. This action will open the manual microswitch contact and prevent the elevator from running.
4. Use the hand pump to return the rope gripper to the ready LOADED position.
5. Turn the valve stem back to AUTOMATIC and the manual microswitch contact will close, allowing the elevator to run.
6. Turn the test switch ON.

Rope Gripper Lining Wear-in

1. Make sure the pumping unit valve stem is in AUTOMATIC, and turn the test switch ON.
2. Run the car at inspection speed from top to bottom, and wipe down the ropes to remove any dirt and/or excess oil and grease. After cleaning the ropes in this manner, return the car to the top floor.
3. Jump terminals RG5 to RG6 and run the empty car DOWN in slow speed. When the car is up to speed, turn the test switch OFF.

The rope gripper will clamp the ropes with light pressure, and the ropes will begin to wear grooves in the linings. As the linings wear-in, the rotating shaft will move up the cam slot and around the corners of the cam, and the connecting arms will move up the side wall. See Figure 5 on page 23.

Notes:

- Model numbers 624, 625, and 626 have two (2) corners. These grippers are not worn-in until the rotating shaft goes past the second corner.
- It may take several car runs to complete the lining wear-in.
- For model numbers 620, 622, 624, and 625: Once the rotating shaft has turned the corner, stop the car and remove the jumper from RG5 to RG6.
- For model number 626: If the lining wear-in is not completed after the grooves in the linings have reached approximately 1/16" deep, move the spacer shims from between the shaft support blocks and the moveable shoe, to the back of the support block (this will allow the rotating shaft to completely turn the corner and move up the cam). See Figure 5 on page 23.

Lining Replacement

As the linings wear, the rotating shaft will move towards the end of the cam. Near the end, the excessive wear microswitch contact will open and the rope gripper will not automatically reload.

- If the grooves in the linings have worn to approximately 3/16" or greater, continue to Install New Linings on page 25, and install as soon as possible.
- If lining wear is not excessive (less than 3/16"), continue to Adding Spacer Shims on page 24.

Rope Gripper Lining Wear-in (continued)

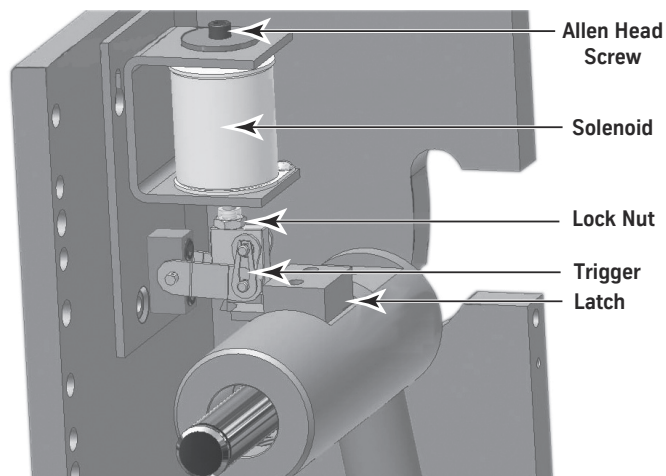
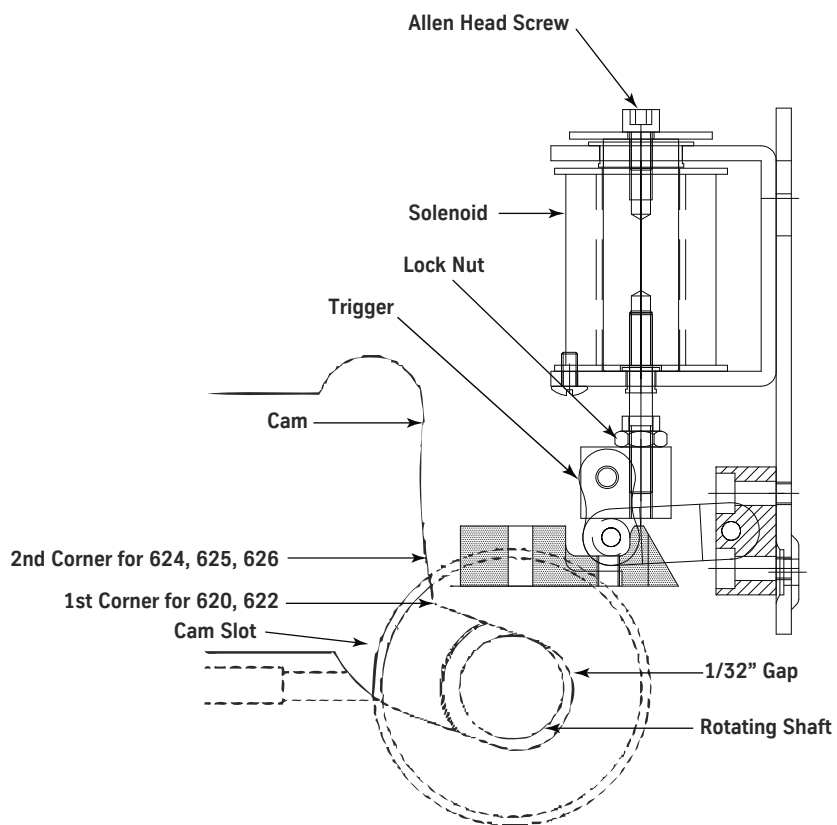


Figure 5 - Lining Wear-in

Adding Spacer Shims



WARNING

Before changing spacers, first install the security set screws to prevent unintended rope gripper activation.

If lining wear is not excessive (less than 3/16"), spacer shims can be added between the shaft support blocks and the moveable shoe. See Figure 6.

1. Remove the bolts that hold the blocks to the moveable shoe.
2. Place the lining wear spacer shims under the blocks and then reinstall and tighten the bolts.

Note: The addition of shims will move the rotating shaft toward the bottom end of the cam.

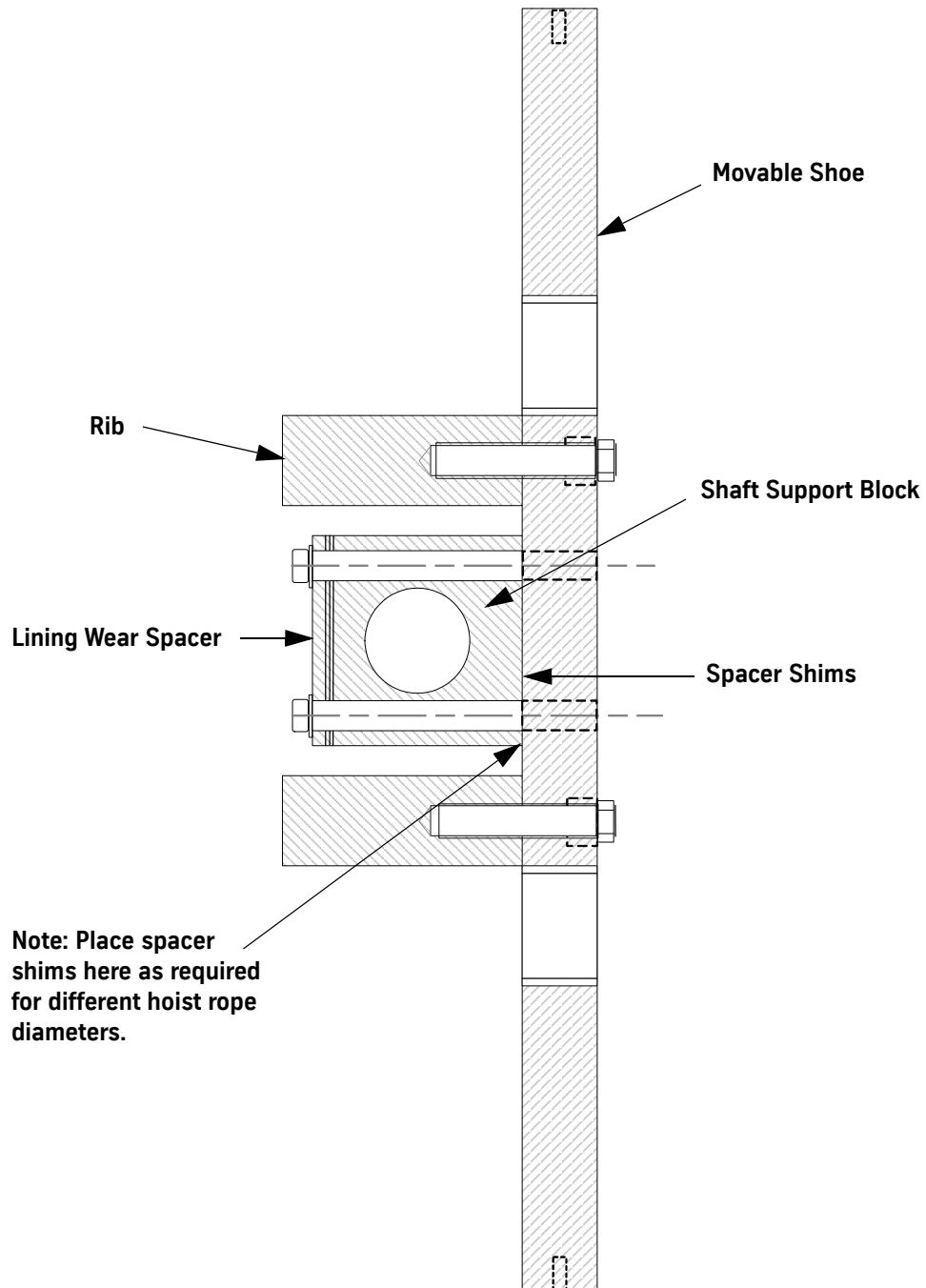


Figure 6 - Spacer Shims

Install New Linings

1. Use manual operation to reload the rope gripper.
2. Once in the LOADED position, install security set screws so that they touch the rotating shaft.
3. Remove the four (4) snap rings, and then remove both connecting arms.
4. Remove the moveable shoe assembly.
5. Remove the two (2) screws from each lining assembly, and then remove the linings.

Notes:

- See Table 1 for initial spacer and shim set-up.
- To allow access to the stationary shoe, loosen the mounting bolts in order to tip the rope gripper.

After Completion of Inspection/Replacement Procedures

1. Turn the valve stem to AUTOMATIC and the pumping unit ON.
2. Carefully remove the security set screws. Use a hand pump, if necessary, so that rotating shaft does not move when removing the security set screws.
3. Check to ensure that the arms have reached or gone past the wear-in line marked on the side wall. The rotating shaft will at least turn the corner at the bottom of the cam and move up at least 1/2".

The rope gripper is now ready for operation.

Rope Size		Rope Gripper Model Number			
		620 or 622		624, 625, or 626	
mm	in.	Top	Bottom	Top	Bottom
		Lining Wear Spacer	Spacer Shims	Lining Wear Spacer	Spacer Shims
9	3/8	1/8	$1/32 + 2 \times 1/8$	$1/32 + 1/8$	$1/16 + 2 \times 1/8$
10	3/8		$1/32 + 2 \times 1/8$		$1/16 + 2 \times 1/8$
11	7/16		$1/32 + 1/16 + 1/8$		$2 \times 1/16 + 1/8$
12	1/2		$1/32 + 1/8$		$1/16 + 1/8$
13	1/2		$1/32 + 1/8$		
14	9/16		$1/32 + 1/16$	$1/32 + 1/16 + 1/8$	1/8
15	5/8		1/32	$1/32 + 1/8$	1/16
16	5/8		1/32		1/16
17	11/16		$1/32 + \text{SPL Block}^*$		$1/16 + \text{SPL Block}^*$
18	11/16		$1/32 + \text{SPL Block}^*$		
19	3/4		N/A	$1/32 + 1/16 + 1/8$	SPL Block*
20	3/4		N/A		

*SPL Block is 1/16 thinner.

Table 1 - Initial Spacer and Shim Set-up

Test Procedures

For Compliance with Canadian CAN/CSA B44 and ASME A17.1-2000 Safety Code for Elevators

Power Interruption Test

- Run the car in slow speed, and turn the toggle switch on the side of the pump unit to OFF. This action will activate the rope gripper causing it to clamp the ropes and stop the car.
- When the rope gripper is activated, the ELEVATOR CAN RUN microswitch will open and signal the controls to interrupt power to the driving motor and machine brake.

Ascending Car Overspeed Test

- Begin with an empty car, and while keeping the machine brake open, overspeed the car in the UP direction. The governor overspeed switch will activate the rope gripper. The rope gripper will stop the car before the counterweight strikes the buffer or, at least, reduce the car speed to the speed for which the buffer is designed.
- If it is impractical to overspeed the car, run the car UP empty at high speed with the machine brake held open, and manually trip the governor overspeed switch. The rope gripper will cause the car to slow down and stop. The governor can then be tested to make sure the governor switch opens at the correct overspeed setting.

Uncontrolled Low Speed Test



Do not allow anyone to enter the elevator during this test.

- With the car level at any floor and the door open, open the machine brake.

Note: With an empty car the elevator moves UP, with a full load the elevator moves DOWN. The rope gripper should apply and stop the car within 48 inches.

- If the car doesn't move when the machine brake is opened, turn the brake drum or disc to start the car.

Controller Circuits

The controller circuits activate the rope gripper by opening contacts RG1, RG2, DZ1, and DZ2. See Figure 7 on page 28 for this section.

The governor overspeed switch as well as the function blocks (GRC1, GRC2, DZC1, and DZC2, respectively) control the relay coils RG1, RG2, DZ1 and DZ2.

If the circuits do not make contact when required, the elevator must be prevented from running.

GRC1 Circuit

RG1 Energized

- When the car is not in the door zone when the mainline power turns ON.
- If the car leaves the door zone, rope gripper activation is prevented.
- When switching from Inspection to Normal Operation.
- When resetting the governor overspeed switch.
- During a time interval.
- During a door closure signal.
- When the car gate or door interlock makes contact.
- If both the car and hoistway doors are opened between floors.

RG1 De-energized

- Anytime the car is in the door zone when both the car gate contact and door interlock contact are opened.
- Should the car now leave the door zone (unintended motion), power to the rope gripper is removed and the rope gripper is activated.

GRC2 Circuit

Redundant circuits required by the 2000 A17.1 and B44 Codes.

Use separate logic for the timing function, door locks, gate switch, and door zone.

- DZC1 logic may be used for circuits of RG1.
- DZC2 logic may be used for circuits of RG2.

DZC1 Circuit

- Energized in the first door zone, and de-energized outside of the first door zone.
- Maximum door zone = 10 inches.

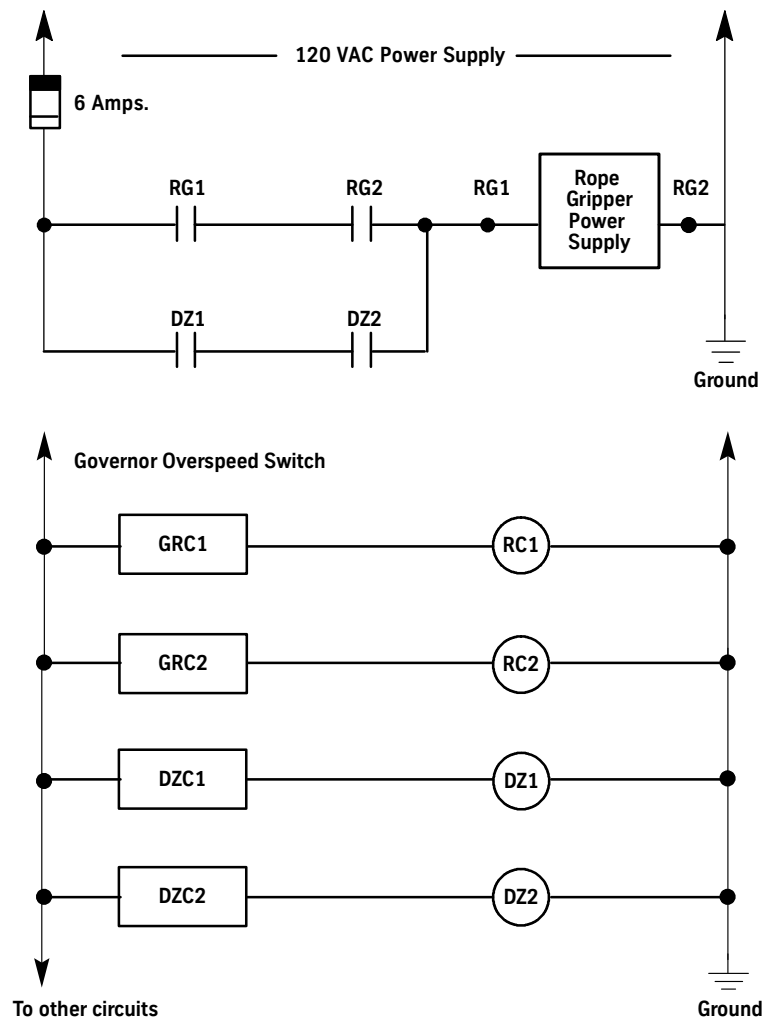
DZC2 Circuit

The circuits function the same as DZ1, and a second door zone signal is used.

Note: If other types of relays are used, circuits must prove that contacts from RG1, RG2, DZ1, and DZ2 are functioning properly; when failures are detected, the elevator is prevented from running.

Controller Circuits

(continued)



Use this diagram if force guided relays are used for RG1, RG2, DZ1, and DZ2.

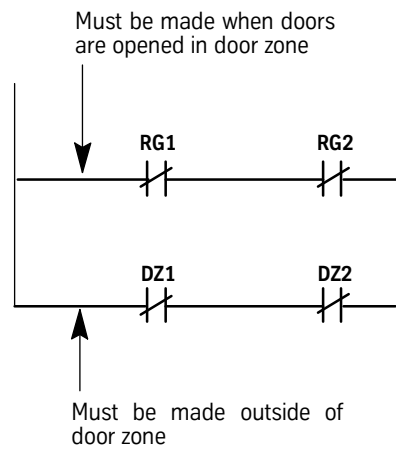


Figure 7 - Controller Circuits

Circuit Testing

Perform the following tests in both UP and DOWN directions while the car is running in slow speed.

Test 1 - Pump Test Switch

1. Turn the pump test switch OFF.
2. Verify that the rope gripper,
 - Grabs the ropes.
 - Stops the car.
 - Opens the control safety circuits disconnecting power to the motor and machine brake.

Test 2: Door Lock Circuit

1. With the car outside of the door zone, open the door or open the door lock circuit.
2. Verify that the rope gripper,
 - Grabs the ropes.
 - Stops the car.
 - Opens the control safety circuits disconnecting power to the motor and machine brake.

Note: The control circuits may require a manual reset before the rope gripper reloads.

Test 3: Governor Overspeed Switch

1. Manually open the governor overspeed switch.
2. Verify that the rope gripper,
 - Grabs the ropes.
 - Stops the car.
 - Opens the control safety circuits disconnecting power to the motor and machine brake.

The rope gripper is now ready for operation.

Hollister-Whitney Rope Gripper Operation

Normal Operation

- Power to the rope gripper is constantly maintained.
- When in the door zone, DZ1 and DZ2 provide power to the rope gripper; when the doors close, RG1 and RG2 energize.
- As the car leaves the floor, DZ1 and DZ2 de-energize and power to the rope gripper is maintained through RG1 and RG2.
- When approaching a new floor, DZ1 and DZ2 again energize and when the doors open, RG1 and RG2 de-energize.

Overspeed

- When overspeed is detected, the governor overspeed switch opens.
- An additional overspeed can be detected by an encoder or tachometer that detects the speed of the elevator.
- When detected, relays RG1, RG2, DZ1 and DZ2 de-energize and this removes power from the rope gripper, clamping the ropes and stopping the car.

Overspeed Reset

- Overspeed reset is achieved by resetting the governor overspeed switch and, possibly, the elevator control circuits.
- Refer to and follow the controller manufacturer's instructions for rope gripper reset.



The code requires that the rope gripper be manually reset if triggered by a fault. Before the car is placed back into service, a qualified technician must inspect for and correct any malfunction. A dangerous situation can be produced if a rope gripper is manually reset without first correcting the cause of the fault. (eg: If there has been a brake failure that has not been corrected, when the rope gripper is reset, it is very likely that the car will fall either up or down).

Hollister-Whitney Rope Gripper Operation

(continued)

Unintended Motion

- When at the floor with the doors open, relays RG1 and RG2 are de-energized and relays DZ1 and DZ2 are energized.
- If the car leaves the floor, DZ1 and DZ2 de-energize, removing power from the rope gripper, clamping the ropes and stopping the car.

Unintended Motion Reset

- Unintended motion reset is accomplished through elevator control circuits. Refer to and follow the control manufacturer's instructions for rope gripper reset.



The code requires that the rope gripper be manually reset if triggered by a fault. Before the car is placed back into service, a qualified technician must inspect for and correct any malfunction. A dangerous situation can be produced if a rope gripper is manually reset without first correcting the cause of the fault. (eg: If there has been a brake failure that has not been corrected, when the rope gripper is reset, it is very likely that the car will fall either up or down).

Manual Opening

- During a power failure, the rope gripper activates.
 - When power is restored, the rope gripper will automatically reload and put the elevator back into service.
 - If the car is to be moved during a power outage, a manual pump is provided to open the rope gripper.
1. Turn the valve stem in the pumping unit to MANUAL operation. See Figure 8 on page 32.
 2. Use the hand pump to move the rope gripper towards the loaded position, releasing the ropes.

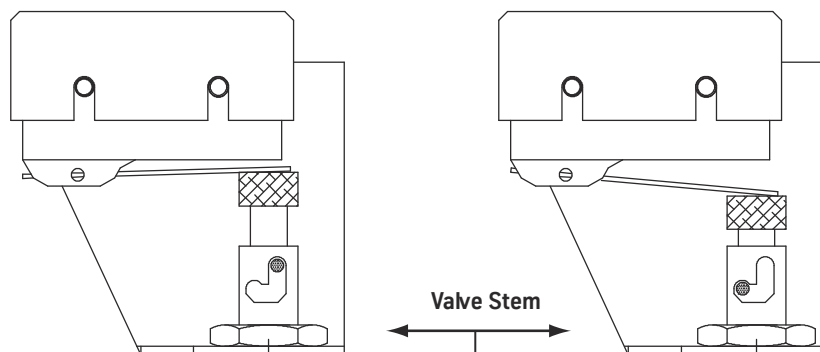
Note: When power is restored, if the hydraulic valve is left in the manually closed position, a microswitch contact will prevent the elevator from running.

Manual Opening

(continued)

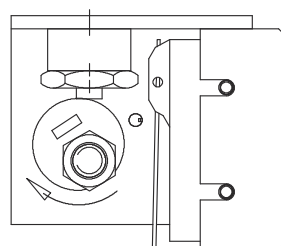
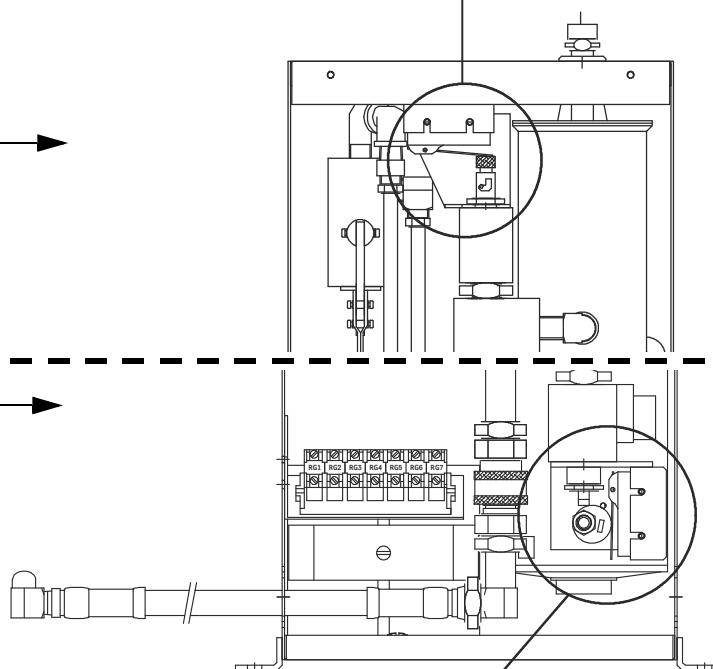
How to Set Valve Stem to MANUAL:
With test switch OFF, twist and pull up while pumping hand pump.

How to Set Valve Stem to AUTOMATIC:
Push and turn, and then turn test switch ON.

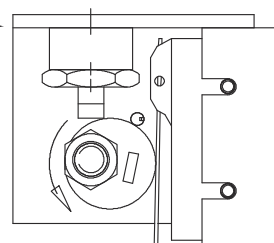


Models
8000AC1
8000AC2
8000AC3
8000AC4
(620, 622, 624, 625)

Model
8000AC5
626



How to Set Valve to MANUAL:
With the test switch OFF, rotate the cam clockwise while pumping the hand pump.



How to Set Valve to AUTOMATIC:
Rotate the cam counter clockwise, then turn the test switch ON.
To rotate the cam, insert a screwdriver into the cam slot.

Figure 8 - Valve Stem for Pumping Units

Hollister-Whitney Rope Gripper Troubleshooting Guide



Whenever working on the rope gripper, keep hands clear. Forces created can crush fingers.

Symptom: The electric pump functions, but the rope gripper will not pump OPEN.

Problem: Blown fuses at the controller.

Possible Solution:

1. Check the hydraulic oil level. If low, apply a thin layer of a general purpose grease lubricant to the cam surface, the trigger and latch mechanism, and the four (4) movable shoe guides.

Note: If the pump runs too long at low fluid levels, the fuse will blow, and in some cases, the motor capacitors will fail.

2. Verify that a 3 amp Fusetron fuse is installed. See Figure 2 on page 19.

Notes:

- If the fuse is not correct, contact Vertical Express Technical Support.
- If the fuse is correct, continue to Check Pump Unit Amp Draw.

3. Check the resistance of the dump valve coil. The resistance should be approximately 3.5 mega ohms. If an OPEN reading is obtained, replace the dump valve coil.

4. If the fluid level, dump valve coil, and amp draw are correct, place the dump valve in the MANUAL position and run the pump.

Note: If the rope gripper opens with the pump running and the valve in the MANUAL position, replace the dump valve.

Check Pump Unit Amp Draw

1. Make sure that the security set screws are installed or that the rope gripper is clamped to the ropes.
2. Switch the pump unit OFF.
3. Disconnect the power supply from the controller at RG1 and RG2.
4. Disconnect the wire leads from the rope gripper.
5. Get an extension cord, and remove the female end of the cord.
6. Bare the wire ends of the cord and connect cord L1 to RG1, and cord L2 to RG2.
7. Plug the extension cord into a 120 VAC wall outlet.
8. Put a clamp-on amp meter around cord L1, and switch the pump unit ON. The pump motor should run.
9. After the initial high spike, the amp draw will lower and level out to no more than 6.5 amps.

Note: The level will indicate that there is no problem with your pump unit. If your amp draw is more than this value, contact Vertical Express Technical Support.

Troubleshooting Guide

(continued)

Symptom: The pump unit cycles ON and OFF (cycle time is 15 - 60 seconds).

Problem: The brake-ready microswitch is out of adjustment.

Possible Solution: Perform the Microswitch Adjustment Procedure on page 35.

Microswitch Process Overview

1. The rope gripper is hydraulically pumped OPEN to the ready or LOADED position, and thereafter held electromechanically.
2. When the rope gripper rotating shaft reaches the LOADED position, the brake-ready microswitch contact will OPEN, turning off the pump.
3. The pump should run just long enough to get the latch hook past the trigger, yet not so long as to push the rotating shaft into the back of the cam slot, and then shut off.
4. The hydraulic pressure will slowly bleed off until the trigger and latch are resting together and engaged. See Figure 9 on page 34.
5. The brake-ready microswitch needs to be adjusted for the following:
 - To allow proper engagement of the trigger and latch.
 - To prevent the rotating shaft from bottoming out in the cam slot.
 - To allow clearance of approximately 1/32" between the rotating shaft and the bottom of the cam slot when the trigger and latch are engaged.

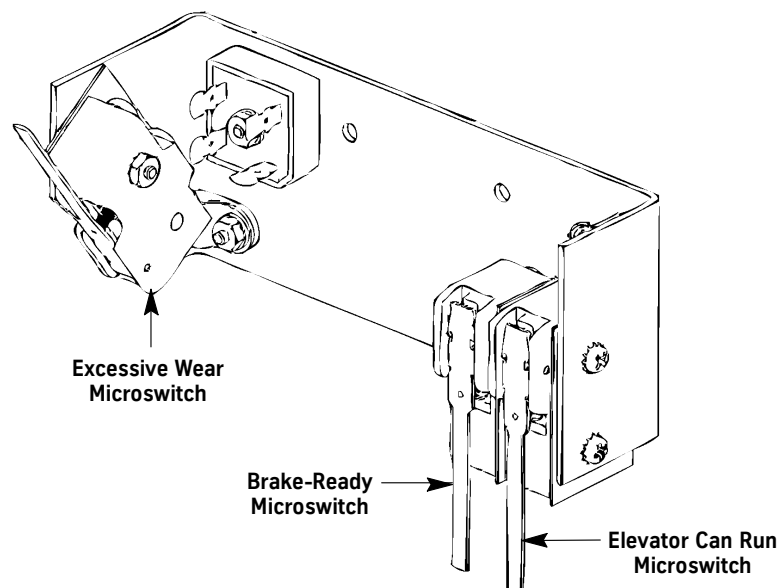


Figure 9 - Brake-ready Microswitch and Trigger Mechanism

Microswitch Adjustment Procedure

1. Turn the pumping unit OFF, which will activate the rope gripper and clamp the ropes. Note the position of the large washer and allen screw on top of the latch coil.

2. Switch the pumping unit ON, which will return rope gripper to the ready position.

Note: While returning to the ready position, watch the large washer at the top of the latch coil. The washer and allen screw should rise with the passing of the latch under the trigger, then lower and return to its original position.

- If it does return to its original position, continue to Step 3.
- If it does not return to its original position,
 - a. The pump is not running long enough, which indicates that the microswitch is out of adjustment, or
 - b. The latch is slightly out of adjustment causing the trigger to bind on one edge of the latch.

Note: When the trigger and latch engage, there is run-by room between the sides of the latch and the trigger, and the latch is centered on the trigger.

- c. Repeat Steps 1 and 2 to verify that the latch is centered.
 - If the latch is centered, continue to Step 3.
 - If the latch is not centered,
 - a. Turn the pumping unit OFF, which will activate the rope gripper and clamp the ropes.
 - b. Slightly loosen the screws holding the latch, and making sure the latch remains square, tap the latch into a more centered location.
 - c. Tighten the screws, and repeat Steps 1 and 2.

3. Re-install the security screws so that they just touch the rotating shaft. At this point, the coil should be activated.

4. Verify that the large washer and allen screw are seated properly; Try to raise the washer and allen screw with thumbnail pressure.

Note: If the washer can move, check all power to and across the coil. If there is a problem with the power or coil, repair it now and then move on to Step 8.

5. Remove one, or both, of the connecting arms from the rope gripper.

6. Check the clearance between the rotating shaft and the cam slot (approximately 1/32"), and reinstall the connecting arm(s).

Note: If the clearance approaches zero, contact Vertical Express Technical Support.

Microswitch Adjustment Procedure

(continued)

7. To make the pump run longer, adjust the screw outwards in one-quarter (1/4) turn increments. See Figure 10.

Note: There are two screws in the actuating angle. Facing the unit, the left screw adjusts the brake-ready microswitch.



After each adjustment, check the clearance between the rotating shaft and cam slot.

8. Check the microswitch adjustment - Remove the security screws and retest the rope gripper.

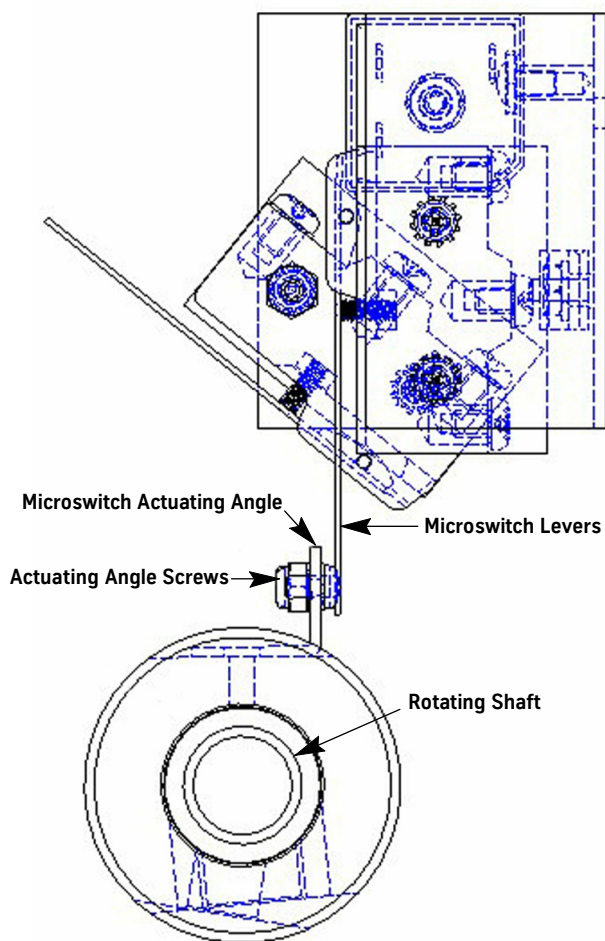


Figure 10 - Actuating Angle

Hydraulic Cylinder Troubleshooting

Recommended Tools

- 7" long, 5/32" ball nose allen wrench or driver
- Normal mechanic tools (e.g. wrenches, screw drivers, allen wrenches).

Overview:

Leaking or ruptured hydraulic cylinders are caused by the rope gripper not latching properly due to:

- An out of adjustment microswitch which prompts disengagement of the trigger and latch,
- A malfunctioning latch coil,
- A latch misalignment, or
- Repeated cycling, which causes fluid loss and unnecessary wear on the cylinder/pump unit.

Problem:

Leaking Cylinder

Possible Solution:

1. Pump the rope gripper into the READY OR LOADED position, and install the security screws to hold the rope gripper shoes open.
2. Remove the four (4) snap rings, both connecting arms, and the movable shoe.
3. Turn the pumping unit OFF, and place the valve stem in the MANUAL position.
4. Use the hand pump to pump the cylinder down and relieve pressure on the security screws. Remove the security screws.
5. Return the valve stem to the AUTOMATIC position. The rotating shaft will go entirely up the cam.
6. With the rotating shaft at the top of the cam, remove the hydraulic hose from the cylinder.
7. Remove three (3) angle bolts from both sides of the mounting angle.

Note: The mounting angles stay attached to the floor.

8. Place the rope gripper on a suitable work surface. Hold the cylinder, locate the shaft, and remove the shaft from the rope gripper.
9. Locate the block holding the cylinder stem to the rotating shaft tube. Use a long 5/32" ball nose allen wrench, remove four (4) 10-32 screws from the block, and remove the block from the cylinder.
10. Put the block on a new cylinder. Re-install the cylinder by installing the shaft first, and then the block and screws.
11. Install the hose on the cylinder.
12. Restore the rope gripper to the mounting angles.
13. With the valve stem at the MANUAL position, loosen the hose at the cylinder to bleed the air out of the system.
14. Pump the hand pump until oil comes out of the hose at the cylinder and no air is evident, then re-attach the hose.
15. Turn the pumping unit ON. Hand pump the cylinder down until the pump motor takes over the pumping.
16. With the rotating shaft down and the trigger latched, install the security set screws.
17. Re-assemble the moveable shoe, the arms, and the snap rings to the rope gripper.
18. When assembly is complete, remove the security set screws, turn the valve to AUTOMATIC, and place the rope gripper back into operation.

Problem: The cylinder will not pump down or hold pressure.

- Possible Solution:**
1. Make sure the rope gripper is gripping the ropes, the pumping unit is OFF, and the machine brake is set.
 2. Remove five (5) angle bolts from both mounting angles, and set the mounting angles aside.
 3. Locate the shaft holding the cylinder, and remove the shaft from the rope gripper.
 4. With the valve stem in the MANUAL position, locate the block holding the cylinder stem to the rotating shaft tube.
 5. Use a long 5/32" ball nose allen wrench and remove four (4) 10-32 screws from the block. Remove the block from the cylinder.
 6. Put the block on a new cylinder. Re-install the cylinder by installing the shaft first, and then the block and screws.
 7. Install the hose on the cylinder.
 8. Restore the rope gripper to the mounting angles.
 9. With the valve stem at the MANUAL position, loosen the hose at the cylinder to bleed the air out of the system.
 10. Pump the hand pump until oil comes out of the hose at the cylinder and no air is evident, then re-attach the hose.
 11. Return the valve stem to AUTOMATIC, and turn the pumping unit ON. The rope gripper will return to the LOADED or OPEN position.

- Symptoms:**
- The hand pump does not function.
 - The rope gripper will not pump OPEN.

Problem: Air Lock

- Possible Solution:**
1. Disconnect the hydraulic hose from the rope gripper at the quick-connect coupling.
 2. Put the dump valve in the MANUAL position, and lower the hand pump handle.
 3. Electrically run the pumping unit. The hand pump handle should rise.

Notes:

- This procedure should prime the hand pump and force fluid into the system, allowing proper use of the hand pump.
- This procedure may need to be repeated a few times to effectively remove the air from the system.

Problem: Air in the line.

Possible Solution: Bleed the air: Loosen the hose at the cylinder, then use the hand pump until no air is evident.

Symptom: The rope gripper pumps partially down, and the pump continues to run.

Problem: Fluid Level Low

Possible Solution: Apply a thin layer of a general purpose grease lubricant to the cam surface, the trigger and latch mechanism, and the four (4) movable shoe guides.

Vertical Express Operation of the Hollister-Whitney Rope Gripper

- The rope gripper trip switch contacts (GTS, GTSX, and RGD) on the elevator controller must open with up overspeed or with the doors opened outside of the door zone. For manual reset, see suggested circuits.
- When the rope gripper is in the loaded position and not in the manual opening mode, these contacts are closed, indicating to the elevator control system that the elevator can run.
- The controls must be built to conform to all local and federal codes.
- For Canada, the circuits should conform with CAN/CSA B-44, Clause 3.12.9 (c) and (d).

Command	Definition
Loaded	Rope gripper is in ready position.
	Rope gripper shoes are open (not grabbing the ropes).
	Power supply to the rope gripper is present. The rope gripper trip switch contacts GTS, GTSX, and RGD on the elevator controller are closed.
	Electric trigger solenoid is energized from the power supply and holds the rope gripper in the loaded position.
	Micro switch contact on the rope gripper is closed indicating to the elevator controller that the elevator can run.
Activation	Power supply to the rope gripper is disconnected when contacts GTS, GTSX, or RGD on the elevator controller are open.
	Electric trigger solenoid de-energizes and releases the rope gripper.
	Micro switch contact on the rope gripper opens, signaling the elevator controller to disconnect and/or prevent power on the motor and brake circuits.
	Rope gripper shoes close, grabbing the ropes and stopping the car.
Automatic Reloading	Contacts GTS, GTSX, and RGD on the elevator controller close, indicating all conditions are normal and the rope gripper returns from the activated to the loaded position.
	The power supply is established and the hydraulic pump turns on, forcing oil into the cylinder, thereby compressing the springs and moving the shoe towards the loaded position.
	When reaching the loaded position a contact opens, disconnecting the hydraulic pump.
	The electric solenoid is energized and holds the rope gripper when in the loaded position.
	Upon reaching the loaded position a micro switch closes allowing the elevator to run.
Manual Opening	During a power failure the rope gripper will activate. When power is restored, it will automatically reload and put the elevator back into service. If the car is to be moved during a power outage, a manual pump is provided to open the rope gripper.
	A hydraulic valve must be manually closed, and then the hand pump will move the rope gripper towards the loaded position releasing the ropes. If the hydraulic valve is left in the manually closed position, when power is restored, a microswitch contact will prevent the elevator from running.

Vertical Express Controller Circuits

- The Vertical Express Controller Circuits activate the rope gripper and stop the car.
- The controls must be built to conform to all local and federal codes.
- For Canada, the circuits should conform with CAN/CSA B-44, Clause 3.12.9 (c) and (d).

Note: The CAN/CSA B-44 Code requires activation of the rope gripper in the ascending overspeed direction. For added safety, the circuits shown operate in both directions.

- The grounding of one line of the control circuits and rope gripper supply (with the protective devices and contacts wired in the other line) will prevent a ground from rendering a protective device ineffective. See Figure 11.
- GTS and GTSX are wired in parallel with their contacts, which are wired in series with the rope gripper power supply. The failure of either relay will not prevent the rope gripper from activating.

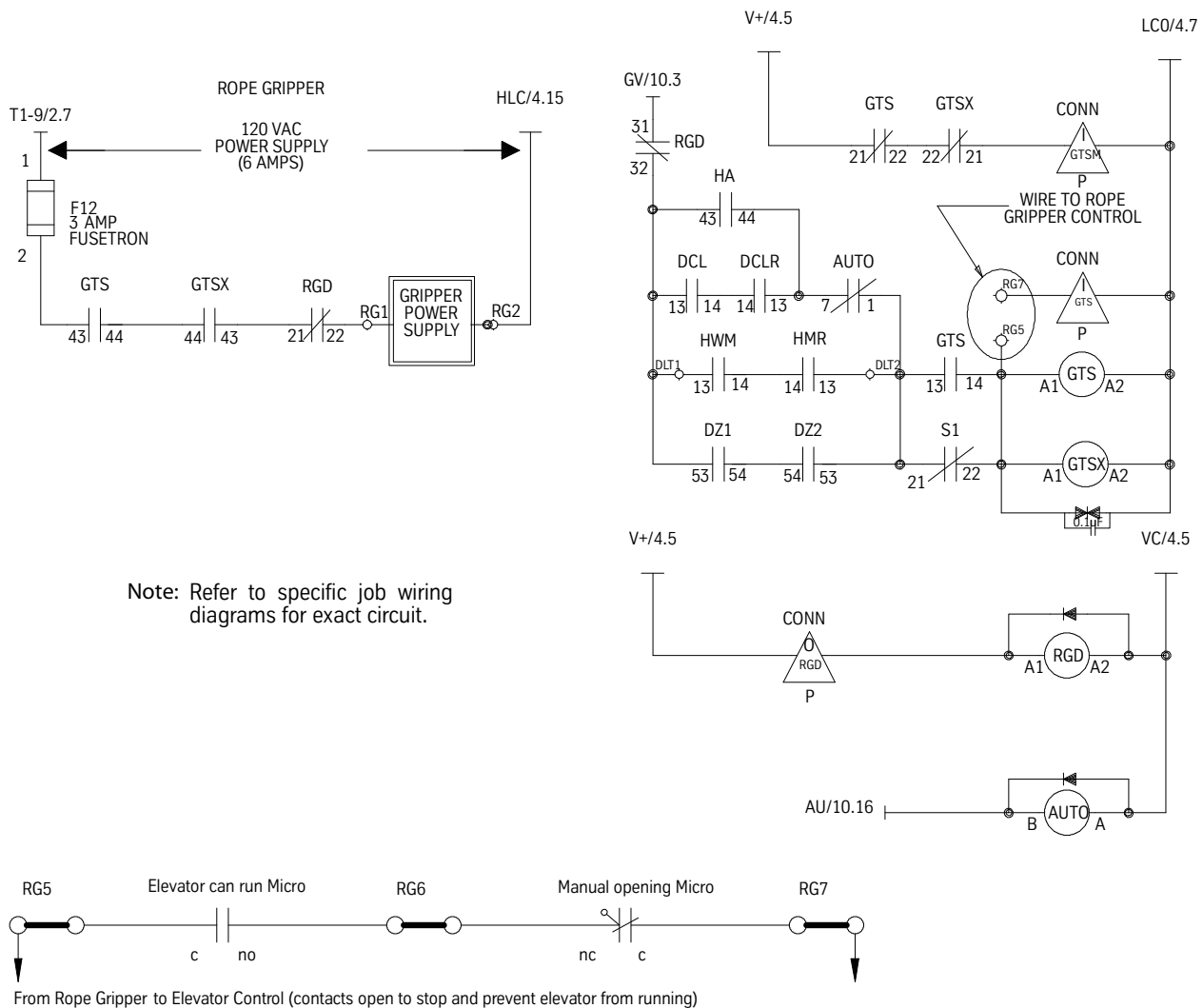


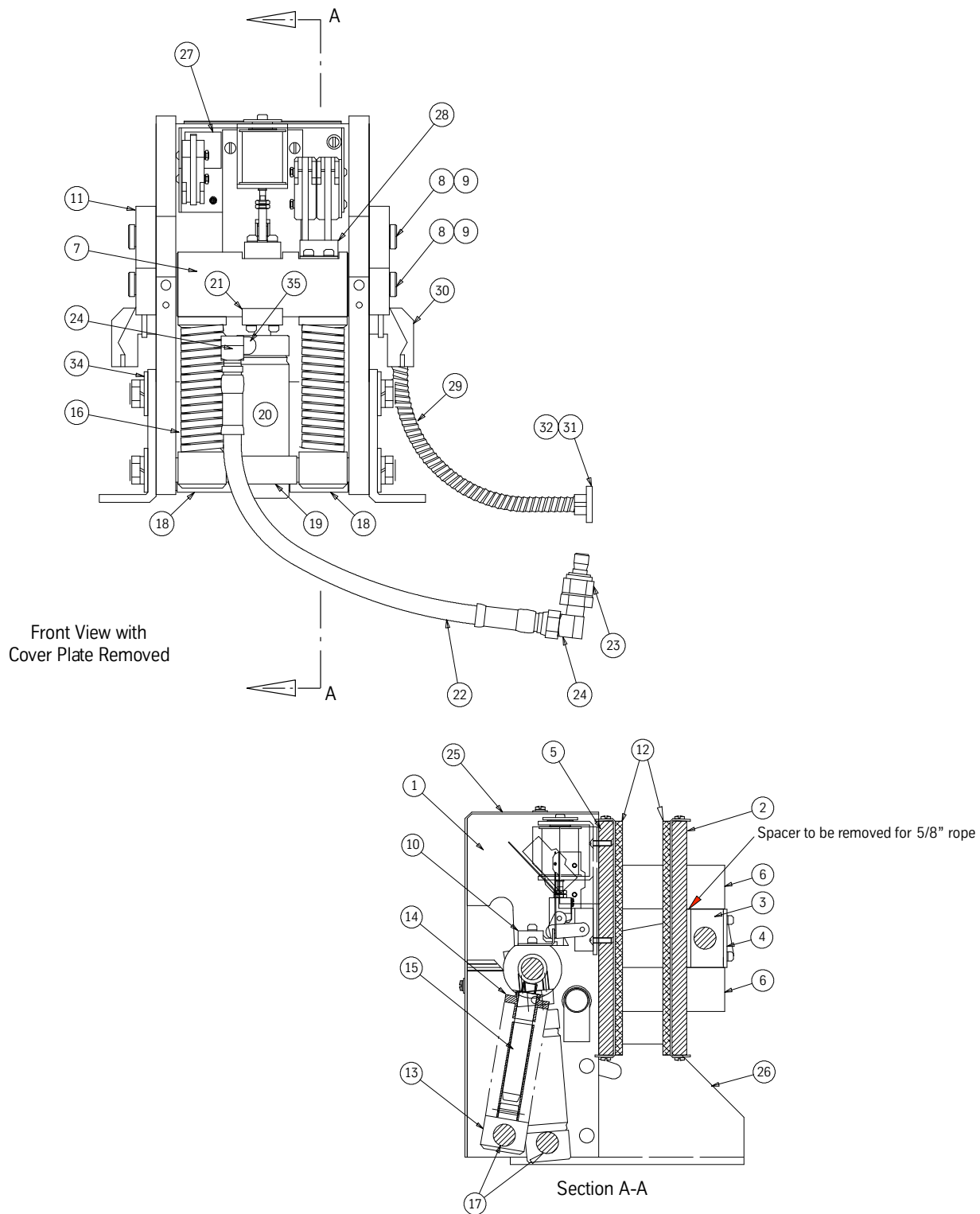
Figure 11 - Typical Vertical Express Controller Circuit for Hollister-Whitney Rope Gripper

Vertical Express Controller Circuits*(continued)*

Symbol	Circuit Name	Definition
DLT	Door Lock Relay Timed Contact	This relay closes when door lock contacts are made.
		This relay opens a slight time interval after door locks open (approx. 1/4 sec.). The time interval is to prevent the rope gripper from activating if a door lock is briefly clipped.
		To conform with CAN/CSA B-44, Clause 3.12.9 (c) and (d).
		If this relay fails to de-energize when the door is open, the elevator must be prevented from restarting.
DZ	Door Zone Relay Contact	This relay closes when the elevator is in the zone where doors can open.
		This relay opens when the car leaves the zone.
		Maximum with G.A.L. door equipment is 9" above or below the floor level.
		For elevators with static control, the inner landing zone can be used which will activate the rope gripper if the car moves beyond 3" with the doors opened.
		To conform with CAN/CSA B-44, Clause 3.12.9 (c) and (d).
		This relay should be monitored so that if it fails to operate in the intended manner, the elevator must be prevented from restarting.
PF	Power Relay Contact	This relay opens approximately 30 seconds after power is established to allow GTS to become self-holding.
		This relay is de-energized while on Inspection Operation and should energize approximately 30 seconds after Inspection to Automatic Operation is established.
		This relay will allow an automatic reset and avoid a nuisance manual reset when a mechanic is exiting the car top after placing the car top station on Automatic Operation.
GTS & GTSX	Rope Gripper Trip Switch and Auxiliary Relays	Both relays are energized for Normal Operation and de-energized to activate the rope gripper.
		GTS should be a push button or manually reset relay so that when the rope gripper is activated by overspeed or by the car leaving the door zone with the doors opened, the rope gripper will grab the ropes and prevent the car from running until personnel can inspect and manually reset this relay.
RGD Relay Contact	Rope Gripper Dropped	The rope gripper has failed.

Replacement Parts

8000AC1 / HW 620

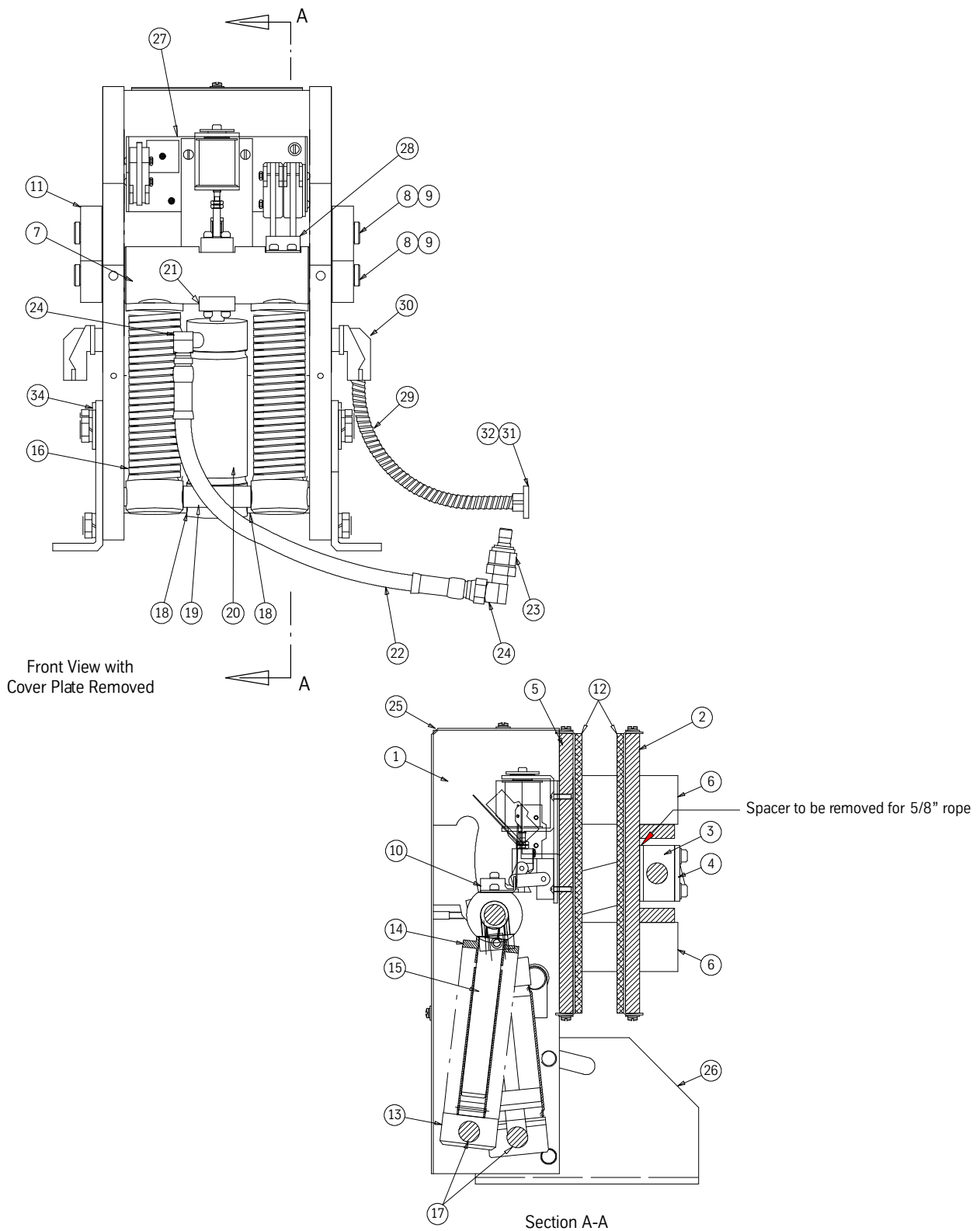


8000AC1 / HW 620*(continued)*

NO.	PART NO.	QTY.	DESCRIPTION
1	620-001	2	WALL - SIDE
2	620-004	1	SHOE - MOVABLE
3	601-007	2	BLOCK - SHAFT SUPPORT
4	601-008	2	SPACER - LINING WEAR
5	620-003	1	STATIONARY SHOE ASSEMBLY
6	620-096	4	GUIDE - MOVABLE SHOE
7	620-015	1	TUBING ASSEMBLY
8	620-018	2	SHAFT - ROTATING & NON-ROTATING
9	90-033	4	SNAP RING - TRUARC #X5133-74
10	601-078	1	LATCH
11	601-020	2	CONNECTING ARM ASSEMBLY
12	601-022	2	LINING ASSEMBLY
13	601-025	2	SPRING LOWER SUPPORT ASSEMBLY
14	601-027	2	UPPER SUPPORT - SPRING
15	601-029	2	GUIDE - SPRING UPPER SUPPORT
16	601-030	2	SPRING
17	620-031	2	SHAFT
18	620-032	2	TUBING - SPACER (1 13/16" LG.)
19	620-033	1	TUBING - SPACER (2 5/16" LG.)
20	601-035	1	CYLINDER - HYDRAULIC
21	622-036	1	HYDRAULIC CYLINDER PIVOT BRACKET ASSEMBLY
22	600-037	1	HOSE
23	600-038	1	COUPLING - QUICK DISCONNECT
24	600-039	2	STREET ELBOW - 90° STREET ELBOW - 90" LG.
25	620-040	1	COVER
26	601-041	2	ANGLE - MOUNTING
27	620-050	1	MICROSWITCH - SOLENOID LOCKING UNIT ASSY.
	620-050-1	1	MICROSWITCH - SOLENOID LOCKING UNIT ASSY. WITH 9'-2" LEADS
28	600-051	1	ACTUATING ANGLE
29	600-081	1	CONDUIT - FLEXIBLE
30	600-082	1	BOX CONNECTOR - 90° BOX CONNECTOR - 90 ANGLE (3/8")
31	600-083	1	CONNECTOR - FLEXIBLE (3/8")
32	600-084	1	BUSHING
33	622-100	1	PUMPING UNIT
34	601-095	2	WASHER - DOUBLE BOLT
35	601-039	1	STREET ELBOW - 90° STREET ELBOW - 90/8"

Individual parts for the Rope Gripper assemblies may be purchased from Hollister-Whitney at (217) 222-0466.

8000AC2 / HW 622

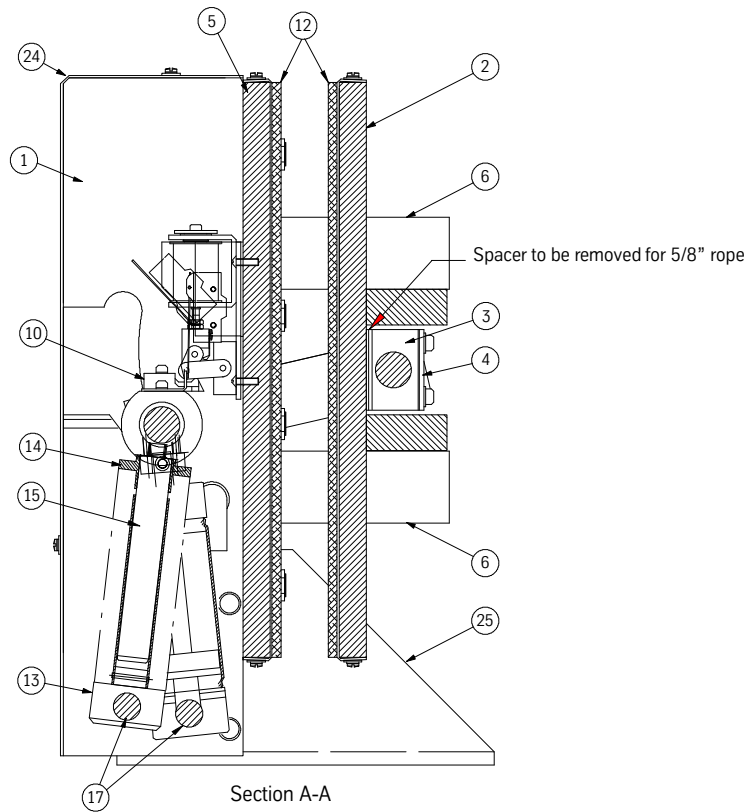
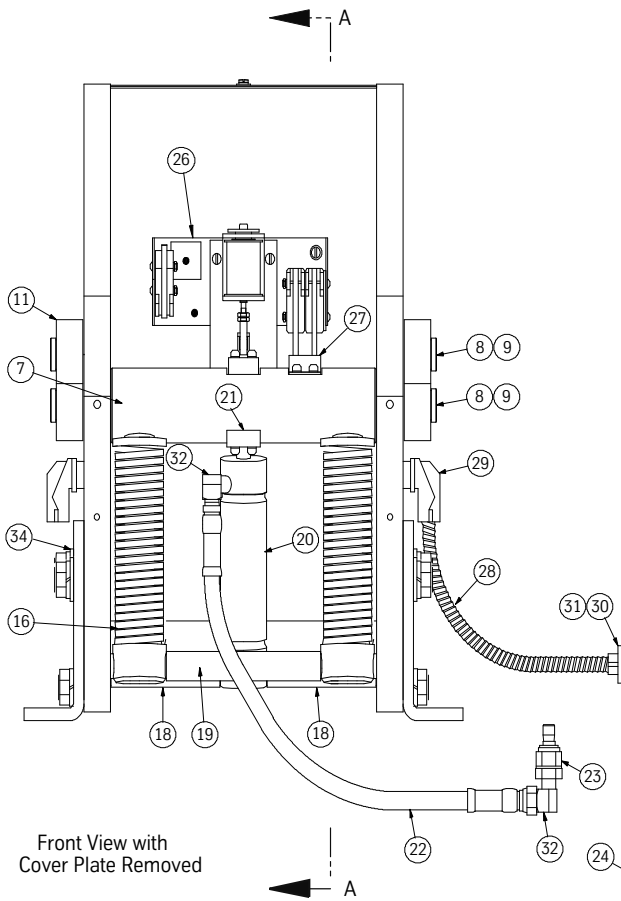


8000AC2 / HW 622*(continued)*

NO.	PART NO.	QTY.	DESCRIPTION
1	622-001	2	WALL - SIDE
2	622-002	1	MOVABLE SHOE ASSEMBLY
3	600-007	2	BLOCK - SHAFT SUPPORT
4	600-008	2	SPACER - LINING WEAR
5	622-003	1	STATIONARY SHOE ASSEMBLY
6	622-096	4	GUIDE - MOVABLE SHOE
7	622-015	1	TUBING ASSEMBLY
8	622-018	2	SHAFT - ROTATING & NON-ROTATING
9	90-33	4	SNAP RING - TRUARC #X5133-74
10	601-078	1	LATCH
11	600-020	2	CONNECTING ARM ASSEMBLY
12	600-022	2	LINING ASSEMBLY
13	600-025	2	SPRING LOWER SUPPORT ASSEMBLY
14	600-027	2	UPPER SUPPORT - SPRING
15	600-029	2	GUIDE - SPRING UPPER SUPPORT
16	600-030	2	SPRING
17	622-031	2	SHAFT
18	601-032	2	TUBING - SPACER (2 1/8" LG.)
19	622-033	1	TUBING - SPACER (2 3/8" LG.)
20	600-035	1	CYLINDER - HYDRAULIC
21	622-036	1	HYDRAULIC CYLINDER PIVOT BRACKET ASSEMBLY
22	600-037	1	HOSE
23	600-038	1	COUPLING - QUICK DISCONNECT
24	600-039	2	STREET ELBOW - 90° STREET ELBOW - 90° LG.
25	622-040	1	COVER
26	600-041	2	ANGLE - MOUNTING
27	622-050	1	MICROSWITCH - SOLENOID LOCKING UNIT ASSY.
	622-050-1	1	MICROSWITCH - SOLENOID LOCKING UNIT ASSY. WITH 9'-2" LEADS
28	600-051	1	ACTUATING ANGLE
29	600-081	1	CONDUIT - FLEXIBLE
30	600-082	1	BOX CONNECTOR - 90° BOX CONNECTOR - 90° ANGLE (3/8")
31	600-083	1	CONNECTOR - FLEXIBLE (3/8")
32	600-084	1	BUSHING
33	622-100	1	PUMPING UNIT
34	600-095	2	WASHER - DOUBLE BOLT

Individual parts for the Rope Gripper assemblies may be purchased from Hollister-Whitney at (217) 222-0466.

8000AC3 / HW 624

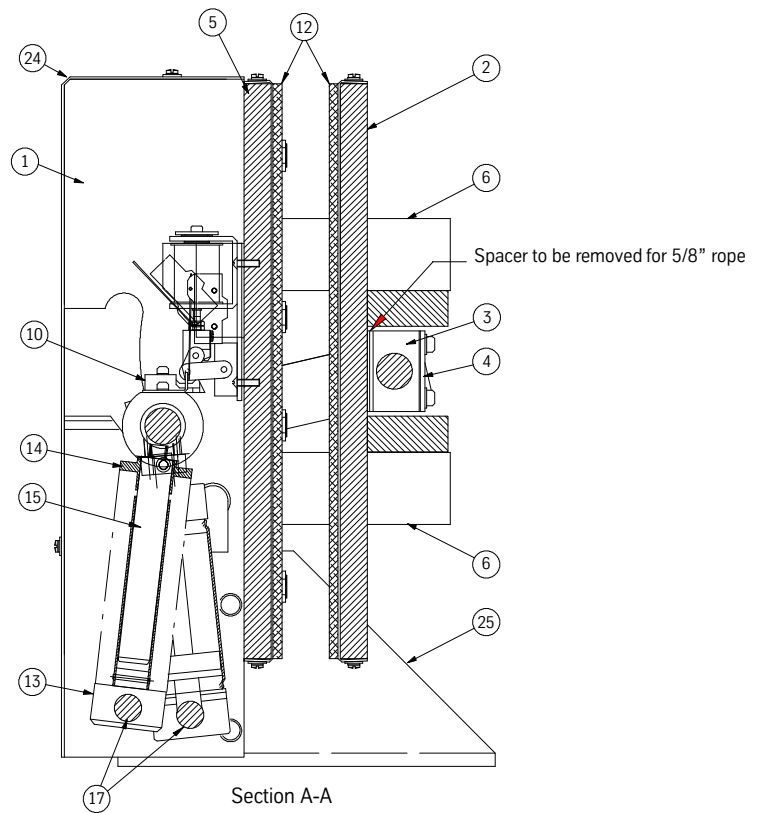
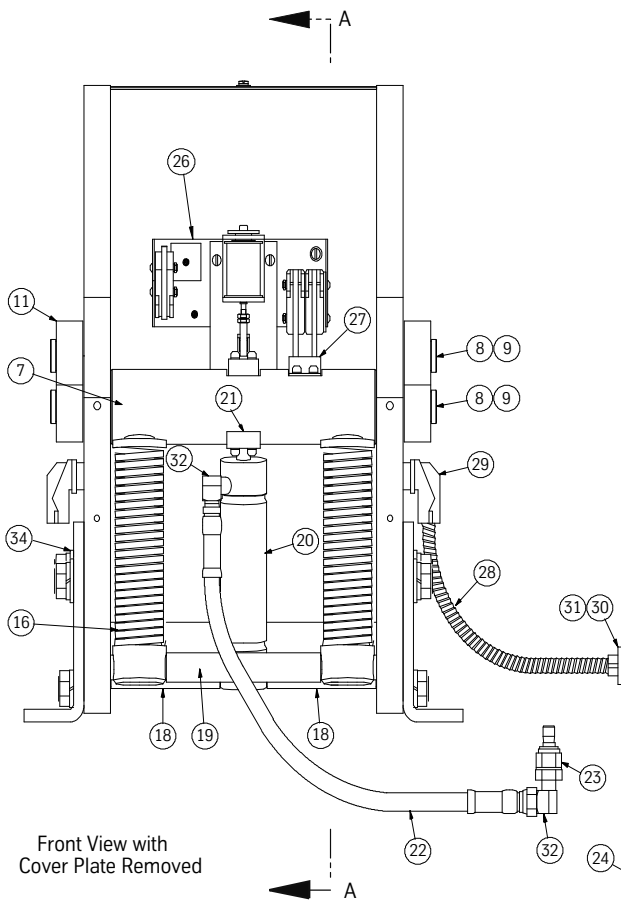


8000AC3 / HW 624*(continued)*

NO.	PART NO.	QTY.	DESCRIPTION
1	624-001	2	WALL - SIDE
2	626-002	1	MOVABLE SHOE ASSEMBLY
3	610-007	2	BLOCK - SHAFT SUPPORT
4	610-008	2	SPACER - LINING WEAR
5	624-003	1	STATIONARY SHOE ASSEMBLY
6	626-096	4	GUIDE - MOVABLE SHOE
7	624-015	1	TUBING ASSEMBLY
8	626-018	2	SHAFT - ROTATING & NON-ROTATING
9	610-085	4	SNAP RING - TRUARC #X5133-74
10	601-078	1	LATCH
11	610-020	2	CONNECTING ARM ASSEMBLY
12	610-022	2	LINING ASSEMBLY
13	600-025	2	SPRING LOWER SUPPORT ASSEMBLY
14	600-027	2	UPPER SUPPORT - SPRING
15	600-029	2	GUIDE - SPRING UPPER SUPPORT
16	600-030	2	SPRING
17	626-031	2	SHAFT
18	624-032	2	TUBING - SPACER (3 7/8" LG.)
19	624-033	1	TUBING - SPACER (5 7/8" LG.)
20	600-035	1	CYLINDER - HYDRAULIC
21	622-036	1	HYDRAULIC CYLINDER PIVOT BRACKET ASSEMBLY
22	600-037	1	HOSE
23	600-038	1	COUPLING - QUICK DISCONNECT
24	626-040	2	STREET ELBOW - 90° STREET ELBOW - 90° LG.
25	610-041	1	COVER
26	622-050	2	ANGLE - MOUNTING
27	622-050-1	1	MICROSWITCH - SOLENOID LOCKING UNIT ASSY.
	600-051	1	MICROSWITCH - SOLENOID LOCKING UNIT ASSY. WITH 9'-2" LEADS
28	600-081	1	ACTUATING ANGLE
29	600-082	1	CONDUIT - FLEXIBLE
30	600-083	1	BOX CONNECTOR - 90° BOX CONNECTOR - 90° ANGLE (3/8")
31	600-084	1	CONNECTOR - FLEXIBLE (3/8")
32	600-039	1	BUSHING
33	622-100	1	PUMPING UNIT
34	610-095	2	WASHER - DOUBLE BOLT

Individual parts for the Rope Gripper assemblies may be purchased from Hollister-Whitney at (217) 222-0466.

8000AC4 / HW 625

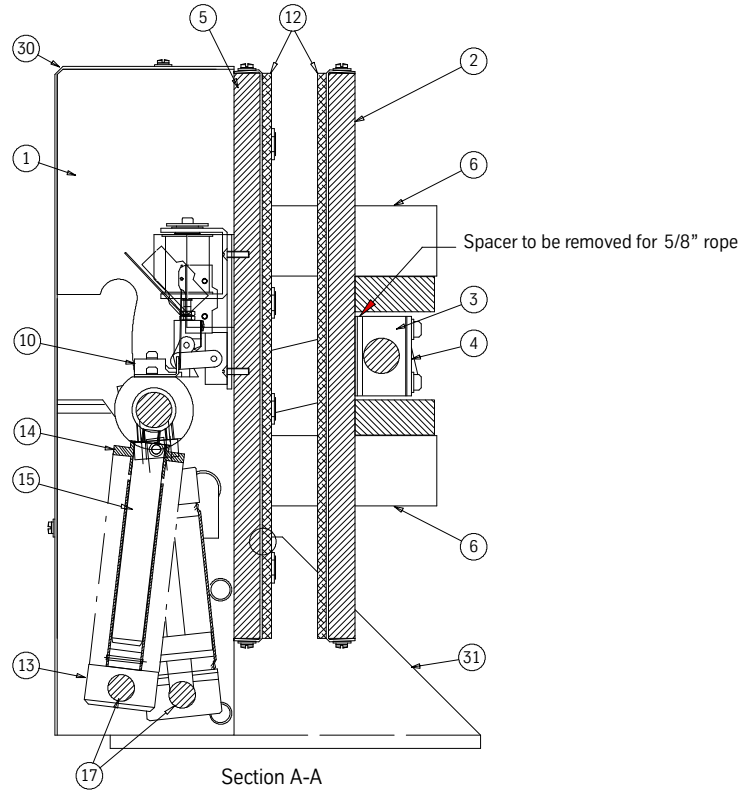
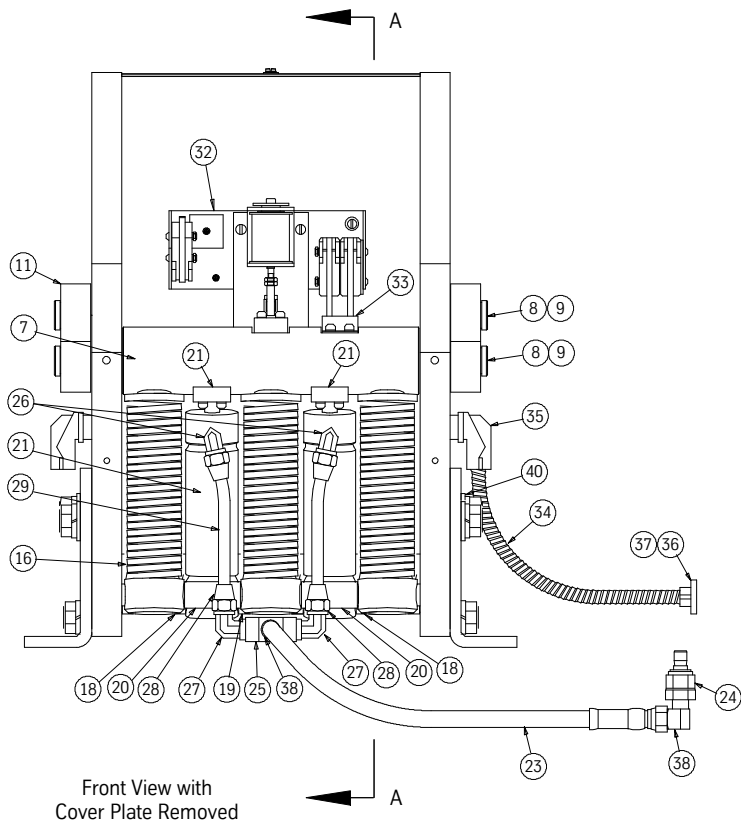


8000AC4 / HW 625*(continued)*

NO.	PART NO.	QTY.	DESCRIPTION
1	624-001	2	WALL - SIDE
2	625-002	1	MOVABLE SHOE ASSEMBLY
3	610-007	2	BLOCK - SHAFT SUPPORT
4	610-008	2	SPACER - LINING WEAR
5	625-003	1	STATIONARY SHOE ASSEMBLY
6	626-096	4	GUIDE - MOVABLE SHOE
7	625-015	1	TUBING ASSEMBLY
8	610-018	2	SHAFT - ROTATING & NON-ROTATING
9	610-085	4	SNAP RING - TRUARC #X5133-74
10	601-078	1	LATCH
11	610-020	2	CONNECTING ARM ASSEMBLY
12	625-022	2	LINING ASSEMBLY
13	600-025	2	SPRING LOWER SUPPORT ASSEMBLY
14	600-027	2	UPPER SUPPORT - SPRING
15	600-029	2	GUIDE - SPRING UPPER SUPPORT
16	600-030	2	SPRING
17	610-031	2	SHAFT
18	605-032	2	TUBING - SPACER (3 7/8" LG.)
19	605-033	1	TUBING - SPACER (7 1/4" LG.)
20	600-035	1	CYLINDER - HYDRAULIC
21	622-036	1	HYDRAULIC CYLINDER PIVOT BRACKET ASSEMBLY
22	600-037	1	HOSE
23	600-038	1	COUPLING - QUICK DISCONNECT
24	625-040	2	STREET ELBOW - 90° STREET ELBOW - 90° LG.
25	610-041	1	COVER
26	622-050	2	ANGLE - MOUNTING
27	622-050-1	1	MICROSWITCH - SOLENOID LOCKING UNIT ASSY.
	600-051	1	MICROSWITCH - SOLENOID LOCKING UNIT ASSY. WITH 9'-2" LEADS
28	600-081	1	ACTUATING ANGLE
29	600-082	1	CONDUIT - FLEXIBLE
30	600-083	1	BOX CONNECTOR - 90° BOX CONNECTOR - 90° ANGLE (3/8")
31	600-084	1	CONNECTOR - FLEXIBLE (3/8")
32	600-039	1	BUSHING
33	622-100	1	PUMPING UNIT
34	610-095	2	WASHER - DOUBLE BOLT

Individual parts for the Rope Gripper assemblies may be purchased from Hollister-Whitney at (217) 222-0466.

8000AC5 / HW 626



8000AC5 / HW 626*(continued)*

NO.	PART NO.	QTY.	DESCRIPTION
1	626-001	2	WALL - SIDE
2	626-002	1	MOVABLE SHOE ASSEMBLY
3	610-007	2	BLOCK - SHAFT SUPPORT
4	610-008	2	SPACER - LINING WEAR
5	626-003	1	STATIONARY SHOE ASSEMBLY
6	626-096	4	GUIDE - MOVABLE SHOE
7	626-015	1	TUBING ASSEMBLY
8	626-018	2	SHAFT - ROTATING & NON-ROTATING
9	610-085	4	SNAP RING - TRUARC #X5133-74
10	601-078	1	LATCH
11	610-020	2	CONNECTING ARM ASSEMBLY
12	610-022	2	LINING ASSEMBLY
13	600-025	2	SPRING LOWER SUPPORT ASSEMBLY
14	600-027	2	UPPER SUPPORT - SPRING
15	600-029	2	GUIDE - SPRING UPPER SUPPORT
16	600-030	2	SPRING
17	626-031	2	SHAFT
18	601-032	2	TUBING - SPACER (2 1/8" LG.)
19	626-033	1	TUBING - SPACER (2 3/16" LG.)
20	626-032	1	TUBING - SPACER (1 7/8" LG.)
21	610-035	1	CYLINDER - HYDRAULIC
22	622-036	1	HYDRAULIC CYLINDER PIVOT BRACKET ASSEMBLY
23	610-037	1	HOSE
24	610-038	2	COUPLING - QUICK DISCONNECT
25	610-086	1	TEE - (3/8")
26	610-087	2	ELBOW - 90°ELBOW - 90 (3/8" TUBE O.D. x 1/4" PIPE)
27	610-088	1	ELBOW - 90°ELBOW - 90 (3/8" TUBE O.D. x 3/8" PIPE)
28	610-089	1	NUT - SHORT (3/8" TUBE O.D.)
29	610-090	2	TUBING - (3/8")
30	626-040	1	COVER
31	610-041	1	ANGLE - MOUNTING
32	622-050	1	MICROSWITCH - SOLENOID LOCKING UNIT ASSY.
	622-050-1	1	MICROSWITCH - SOLENOID LOCKING UNIT ASSY. WITH 9'-2" LEADS
33	600-051	1	ACTUATING ANGLE
34	600-081	2	CONDUIT - FLEXIBLE
35	600-082	1	BOX CONNECTOR - 90° BOX CONNECTOR - 90 ANGLE (3/8")
36	600-083	1	CONNECTOR - FLEXIBLE (3/8")
37	600-084	1	BUSHING
38	622-100	1	PUMPING UNIT
39	610-095	2	WASHER - DOUBLE BOLT

Individual parts for the Rope Gripper assemblies may be purchased from Hollister-Whitney at (217) 222-0466.

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Vertical Express

P.O. Box 2019 Memphis, TN 38101 Tel: (866) 448-3789 (toll-free) Fax: (901) 261-1807 www.verticalxpress.com

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