



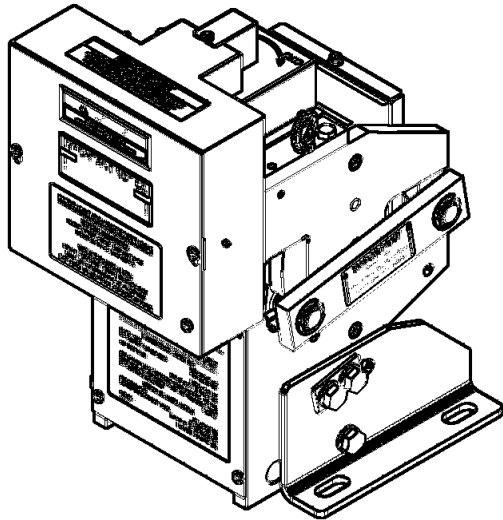
A **VANTAGE** Company

Bulletin #1182 Installation & User Guide Models 620L & 622L Linear Rope Gripper®

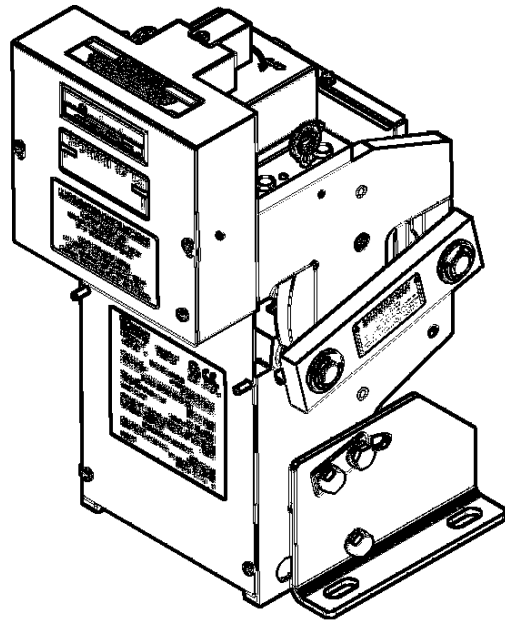
Installation & User Guide

Bulletin #1182

**MODEL 620L
LINEAR ROPE
GRIPPER®**



**MODEL 622L
LINEAR ROPE
GRIPPER®**



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10/3/2022



WARNING

This installation and user guide is intended for qualified and authorized elevator personnel ONLY. For your safety and the safety of others, do not attempt ANY procedure that you are not qualified and authorized to perform. Recommended procedures must be done in accordance with the applicable rules of the latest edition of the National Electrical Code; the latest edition of ASME A17.1; and all governing local codes. Every attempt has been made to ensure that this guide is accurate and up-to-date. Hollister-Whitney Elevator Co. LLC assumes no liability for consequences resulting from any error or omission. Please notify Hollister-Whitney Elevator Co. LLC regarding any difficulties with this guide



WARNING

Keep hands clear of moving parts forces created can crush fingers.

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Section

1

1 User Guide

1.1 Features

The 620L and 622L Rope Gripper® protects against ascending car over-speed and/or unintended car movement. The Rope Gripper® can prevent the car from moving in the event of;

- The car falling up or down accidentally
- The car leaving the floor with the door(s) open
- Ropes slipping traction on traction wheel

The Rope Gripper® provides powerful, steady pressure on the hoist ropes. By using easily replaceable non asbestos linings, the hoist ropes will not be damaged. While the braking engages the hoist ropes with a quick, but powerful grip, the Rope Gripper® will not put excessive stress on the machine or drive sheave when the unit is installed properly.

There is no need for a separate hydraulic or air unit, resulting in a smaller footprint.

The electromagnetic clutch releases on removal of power and is designed to protect internal construction from possible damage.

The electric linear actuator and electromagnetic clutch features allows an automatic reset when power is restored.

The Rope Gripper® is equipped with intelligent self-monitoring functionality and will not complete the safety circuit if any internal fault is detected.

Table 1 - Specifications

				ROPE GRIPPER® MODEL	
				620L	622L
		MAX. OUT TO OUT OF CABLES	inch	5.25	6.5
			mm	133.3	165
		DOOR ZONE	inch	± 3 (6 Total)	
			mm	± 76.2 (152.4 Total)	
		CLOSING TIME	sec.	0.300	
		POWER SUPPLY		1A, 100~240V ac, 1PH, 50/60Hz	2A, 100~240V ac, 1PH, 50/60Hz
		CONTACT RATINGS		5A, 250V ac, 5A, 30V dc	
	1:1 ROPING	RATED SPEED	fpm	350	600
			m/s	1.78	3.05
			m/m	107	183
		ROPE GRIPPER TRIPPING SPEED	fpm	402	690
			m/s	2.04	3.51
			m/m	1231	210
		CAR RATED LOAD	lbs	2560	5000
			kg	1161	2268
		TOTAL SYSTEM LOAD	lbs	12070	18600
			kg	5475	8437
	2:1 ROPING	RATED SPEED	fpm	250	400
			m/s	1.27	2.03
			m/m	76	122
		ROPE GRIPPER TRIPPING SPEED	fpm	303	459
			m/s	1.54	2.33
			m/m	92	140
		CAR RATED LOAD	lbs	5120	10000
			kg	2322	4536
		TOTAL SYSTEM LOAD	lbs	24140	38000
			kg	10950	17237
	4:1 ROPING	RATED SPEED	fpm	87	150
			m/s	0.44	0.76
			m/m	27	46
		ROPE GRIPPER TRIPPING SPEED	fpm	110	189
			m/s	0.56	0.96
			m/m	33	58
		CAR RATED LOAD	lbs	10240	20000
			kg	4644	9072
		TOTAL SYSTEM LOAD	lbs	48280	76000
			kg	21900	34473
	MINIMUM RATINGS	CAR RATED LOAD	lbs	3000	5000
			kg	1361	2268
		CAR & CWT MASS	lbs	12000	16000
			kg	5443	7257

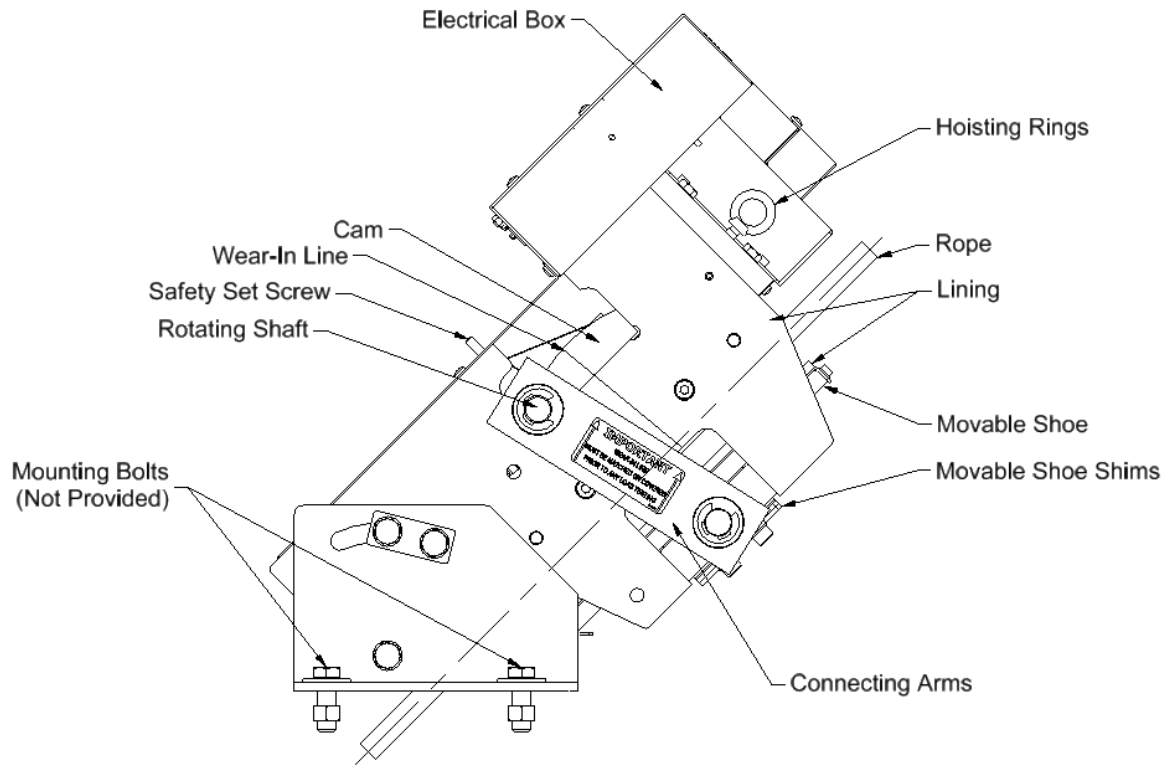


Figure 1 - Key Components

1.1.1 Mounting to Channel Guidelines

When mounting the Rope Gripper® to a channel framework, it must withstand upward and downward forces according to Table 3 and meet applicable codes.

Any mounting channel framework must be sufficiently sized to securely hold the Rope Gripper® and elevator while preventing any sliding. The traction machine must also be prevented from sliding. See Figure 2 - New Installation and Figure 3 - Existing Installation for suggested machine room mounting configurations.



NOTE -

HOLLISTER-WHITNEY ALSO OFFERS MACHINES WITH BUILT-IN FACTORY MOUNTS FOR ROPE GRIPPERS®. PLEASE CONTACT YOUR HOLLISTER-WHITNEY SALES ASSOCIATE FOR MORE DETAILS.

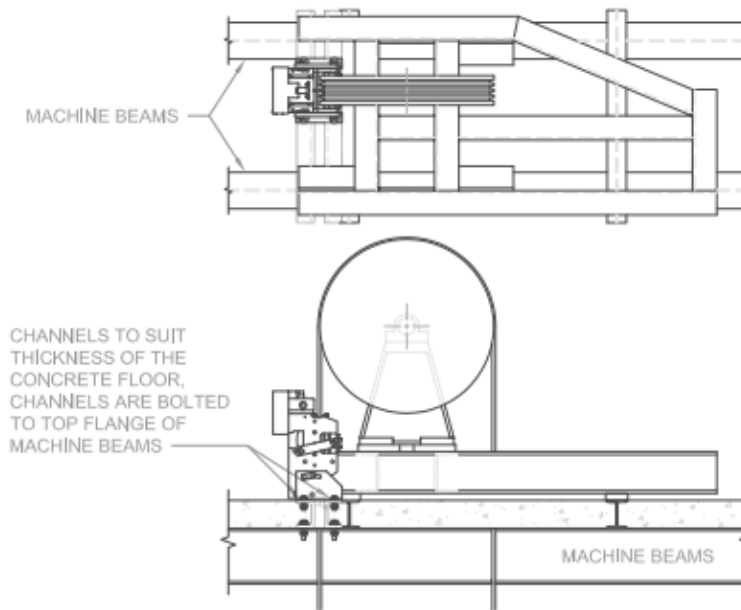
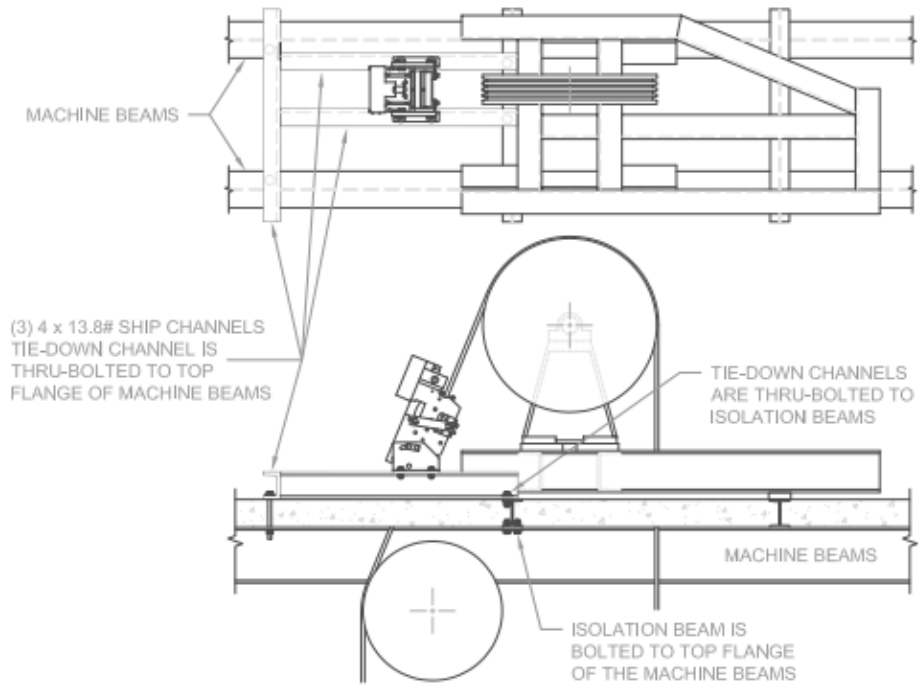


Figure 2 - New Installation

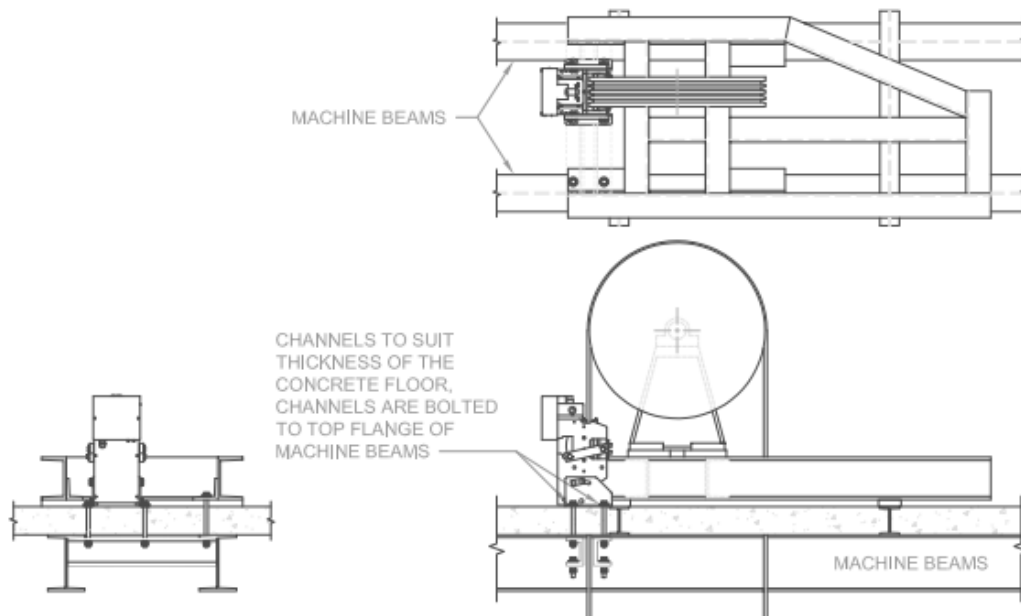
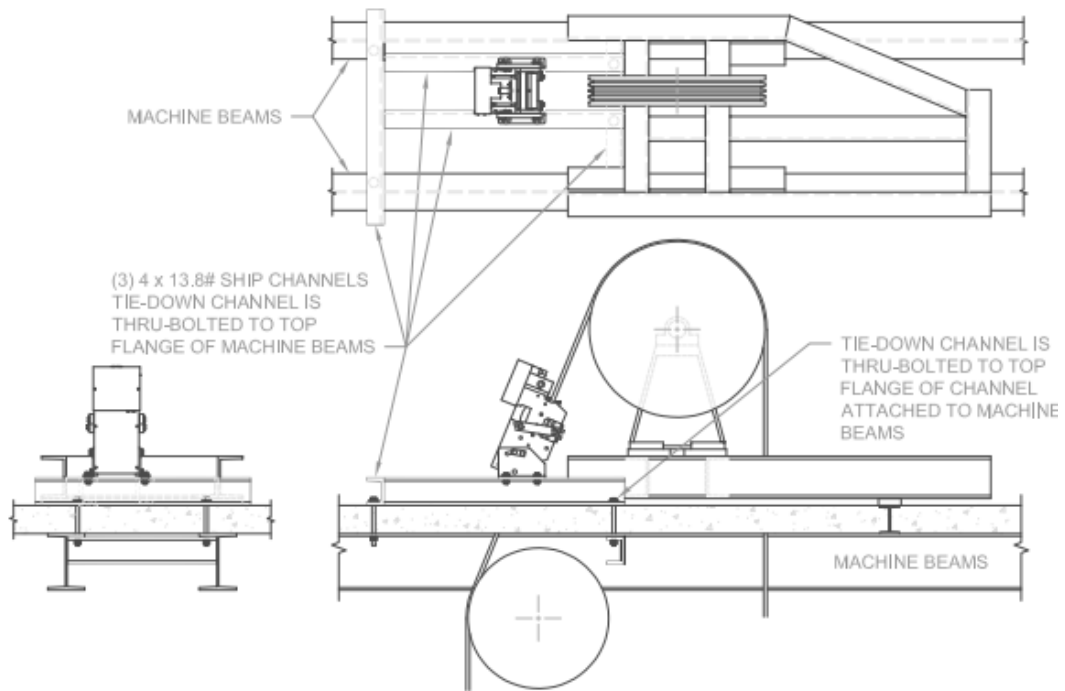


Figure 3 - Existing Installation

1.2 Environmental Considerations

A Hollister-Whitney Rope Gripper® is designed to perform in a tolerant machine space. The machine space working temperature should be held between 35°F & 104°F, (1.7°C & 40°C) and humidity should be held to an average of 90% non-condensing.

1.3 Storage

1.3.1 Short Term Storage

- For short-term storage, place the Rope Gripper® in a warm, dry and clean environment.
- Protect the Rope Gripper® from harsh weather conditions and temperature variations that can lead to condensation.
- Protect the Rope Gripper® from dust, dirt, and moisture.

1.3.2 Long Term Storage

- For long-term storage, place the Rope Gripper® in a sealed, waterproof enclosure with a dehydrating packet that is sized for the enclosure volume and humidity level.
- Follow the same instructions as outlined in Section 1.3.1 - "Short Term Storage".

1.4 Lang Lay Considerations

An Important Notice label is located on the Rope Gripper® Figure 4 – Important Notice – Lang Lay Ropes. If your elevator is equipped with Lang Lay ropes Hollister-Whitney recommends that code compliant rope retention be installed on all wheels in accordance with the latest ASME A17.1/CSA B44 revisions.



Figure 4 – Important Notice – Lang Lay Ropes

Section

2

2 Installation

2.1 Safety

- Wear proper PPE (Personal Protective Equipment).
- Inspect tools to ensure they are in good condition and proper working order.
- Read and understand all instructions prior to proceeding.
- Follow standard elevator industry and governing safety requirements.

2.2 Verification

Verify all components are present and that the Rope Gripper® assembly can be installed. It may be necessary to fully verify the assembly by checking the following:

- Confirm the contract and part numbers match your numbers on your order.
- Compare the received unit to the assembly drawings included in this document.
- Determine if the received assembly is correct by comparing its capabilities to those required for the project.

2.3 Planning

- Determine the rope drop location (matching the existing drop or refer to applicable job layouts) by using plum lines or laser means.
- Confirm that the assembly will have adequate clearance when positioned in line with the required rope drop.
- Prior to the installation of the assembly, plan and prepare for the electrical and/or conduit routing.
- Ensure that electrical routing will not interfere with the operation, maintenance, or removal of the assembly.



NOTE -

ITEMS SUCH AS CONDUIT, FITTINGS, EXTERNAL WIRING, AND MOUNTING HARDWARE ARE NOT PROVIDED.

2.4 Locating the Assembly

- The initial state of the Rope Gripper®, from the factory, is an open (loaded) state. Check and confirm the safety set screws are installed deep enough to hold the rotating shaft in the LOADED (open) position Figure 5.

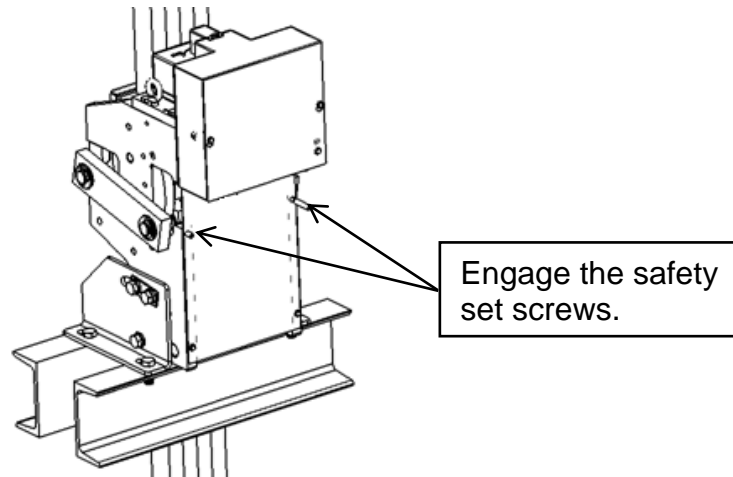


Figure 5 - Safety Set Screw

- Remove the four E-Clips, and both connecting arms. Remove the movable shoe assembly Figure 6.

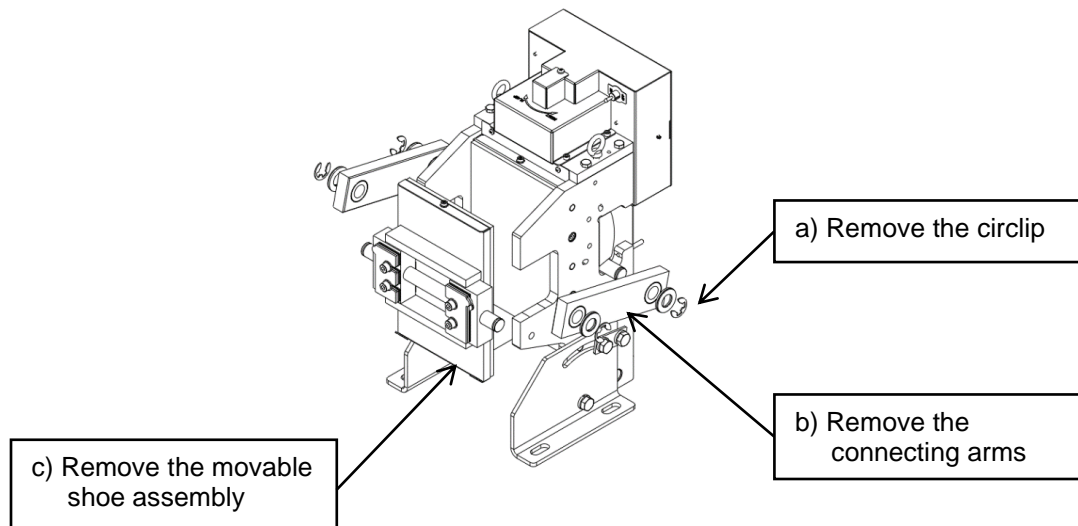


Figure 6 - Removable Shoe

- Check that the shim configuration of the movable plate assembly matches the wire rope specifications. The shim configuration for different wire rope specifications are shown in
- Table 2 – Initial Shim Configurations.

Table 2 – Initial Shim Configurations

620L / 622L

Rope Sizes			Outer Shims	Inner Shims
Nominal (Inch)	MM Range	Decimal Equivalent	Lining Wear Spacer + Excess Spacers on Back of Block	Spacer Shims between Block and Shoe
3/8"	9	0.354	1/8"	1/32 + 2 x 1/16 + 1/8"
	10	0.394		
7/16"	11	0.433	1/16" + 1/8"	1/32 + 1/16 + 1/8"
1/2"	12	0.472	2 x 1/16 + 1/8"	1/32 + 1/8"
	13	0.512		
9/16"	14	0.551	1/16" + 2 x 1/8"	1/32 + 1/16"
5/8"	15	0.591	2 x 1/16 + 2 x 1/8"	1/32"
	16	0.630		



NOTE -

THE ROPE GRIPPER® WAS SHIPPED FROM THE FACTORY SHIMMED FOR 5/8 INCH ROPES.

- Place the assembly on mounting channels as shown in the examples noted in Figure 2 - New Installation, or Figure 3 - Existing Installation.
- Move the Rope Gripper® into position, aligning the unit with the ropes as shown in Figure 7 then mark the mounting holes. If the wire ropes are at an angle, set the Rope Gripper® parallel with the ropes Figure 8 before marking the holes.
- Verify the assembly will not interfere with elevator equipment (machine frame, traction or deflector sheave, machine beams, etc.) or any other obstructions.

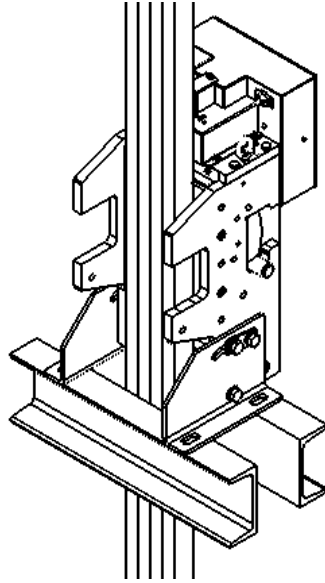


Figure 7 - Vertical Ropes

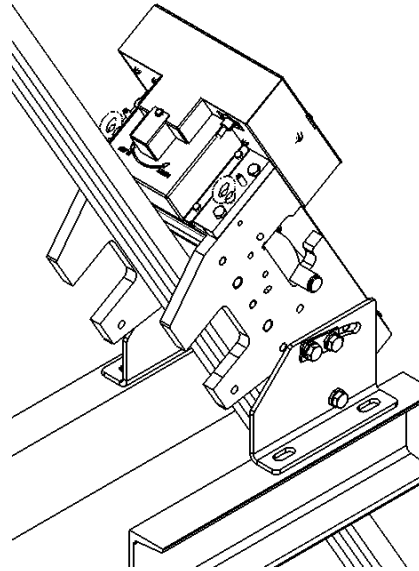


Figure 8 - Angled Ropes

- Use the assembly base to mark the mounting locations for the bolts. A field template (not included) can also be made from cardboard, plywood or Masonite for locating the mounting holes per Figure 9 - Mounting Footprint.
- Remove the assembly or template and drill the required $\frac{39}{64}$ " dia. mounting holes.

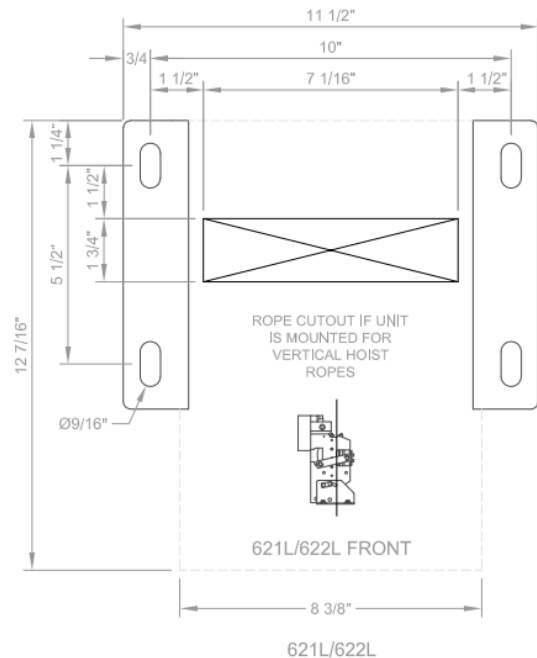
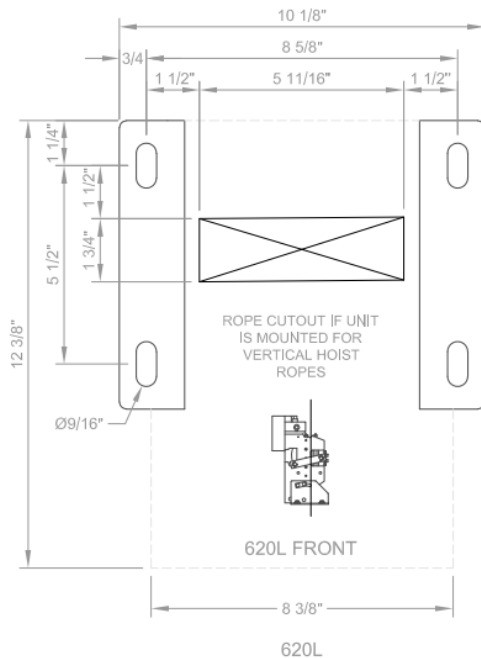


Figure 9 - Mounting Footprints

2.5 Mounting

- Attach Rope Gripper® to mounting channels with the recommended bolts per Table 3. **Do not fully tighten the bolts yet.**

Table 3 - Mounting Specifications

MODEL #	APPROXIMATE UP & DOWN FORCE	GRADE 5 MOUNTING BOLTS (Approximate Torques)	REFERENCE DRAWINGS
620L	2000 lbs.	1/2" UNC @ 74 ft.-lbs.	See Appendix (a)
622L	4000 lbs.	1/2" UNC @ 74 ft.-lbs.	See Appendix (b)

NOTE -

MOUNTING MUST CONFORM TO LOCAL, STATE, AND APPLICABLE CODES.

- Position the Rope Gripper® so that the stationary shoe lining lightly touches all the ropes from top to bottom.

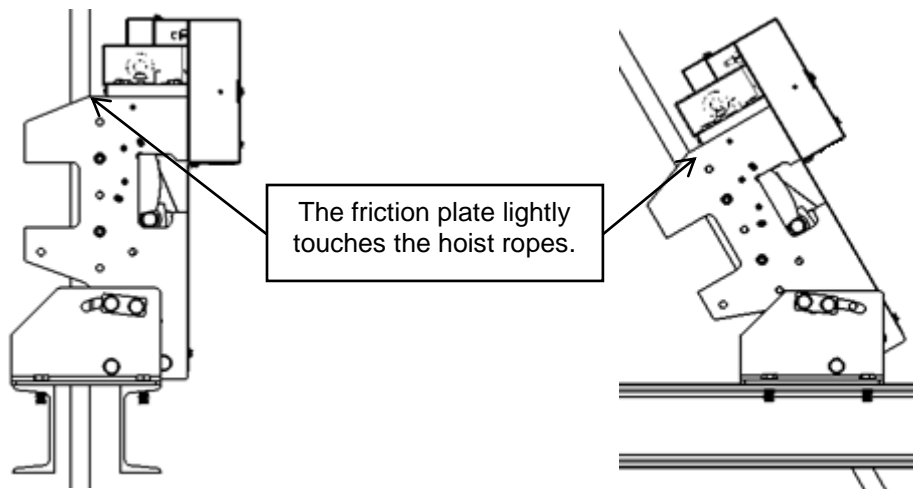


Figure 10 - Stationary Shoe Contact

- Make sure Rope Gripper® is squarely aligned, and centered side to side as much as possible, with the ropes. Misalignment may cause uneven and/or excessive lining wear.

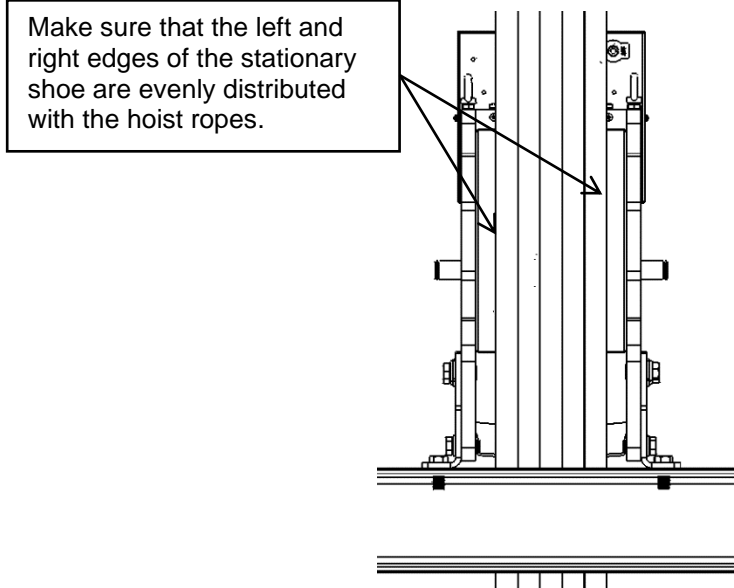


Figure 11 - Rope Distribution

- Securely fasten Rope Gripper® mounting bolts. Make sure they are torqued per Table 3.
- Check rope alignment. Make sure all ropes touch the stationary shoe lining evenly.
- Reinstall the movable shoe assembly. Reinstall the connecting arms with chamfered edges facing the inside of the Rope Gripper® with the wear-in line sticker facing out and secure the four circlips (and washers if applicable).

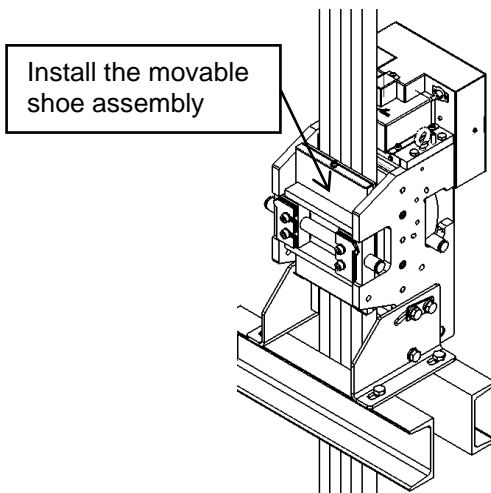


Figure 12- Movable Shoe

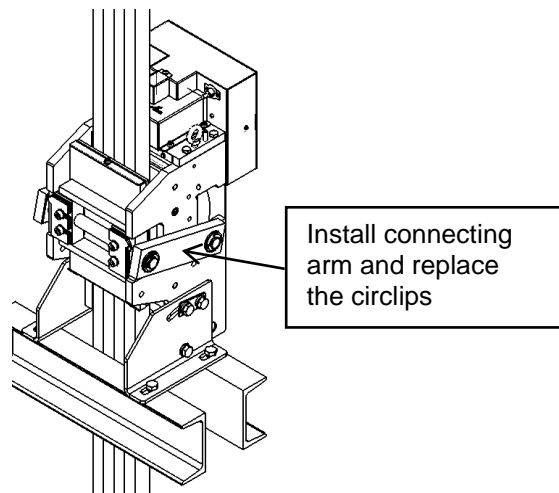


Figure 13 - Connecting Arms

- Connect terminals RG1, RG2, RG5, RG7 and RG11 to elevator control. Check control diagram for proper connection. See Figure 22. Connect the earth ground to the grounding screw located in the electrical enclosure.



NOTE -

RG5 MUST HAVE VOLTAGE PRIOR TO OPENING THE GRIPPER.

*** IMPORTANT-**

It may not be necessary to connect RG11 to elevator control with an additional wire back to the controller. The temporary tag shown below in Figure 14 – REMOVE TAG BEFORE WIRING is initially located over the connections on a new Rope Gripper®. Remove the tag before wiring and review the information. If “RG2” is connected to the COMMON/RETURN or “RG5”, then you can connect “RG11” to “RG9A”. This can be done with a permanent connection inside of the Rope Gripper® electrical enclosure. If “RG2” is not connected to the COMMON/RETURN of “RG5”, then connect “RG11” to the COMMON/RETURN of “RG5”. Typically, this requires an additional wire routed back to the controller. Please consult your controller schematic and with your elevator controller manufacture for more details or if you are unsure if “RG2” is connected to the COMMON/RETURN of “RG11”.



Figure 14 – REMOVE TAG BEFORE WIRING

- Make sure controller safety circuit is active and clear for running. Turn test switch ON. The motor may run momentarily prior to energizing the electromagnetic clutch.
- When the electromagnetic clutch is energized, loosen the two security set screws a turn or two. Confirm that the Rope Gripper® is being held open.
- Remove security set screws. Once removed, store the set screws in the two threaded holes provided in the gearbox base plate.



NOTE -

SECURITY SET SCREWS MUST BE COMPLETELY REMOVED WHEN ROPE GRIPPER® ACTIVATES TO PREVENT THE GRIPPER FROM FAILING TO SET OR CAUSE DAMAGE TO THE UNIT.

- Unit is now ready for the required testing and lining wear-in.

2.6 Testing

- Make sure controller safety circuit is active and clear for running. Turn test switch ON. The Rope Gripper® should be in or go to the ready, open (LOADED) position (NOT clamping the ropes).
- Turn test switch to OFF. This should activate the Rope Gripper®, clamping the ropes. Be sure that while clamping the ropes, the Elevator Can Run switch contacts on the Rope Gripper® stop or prevent power from being applied to the motor and machine brake.

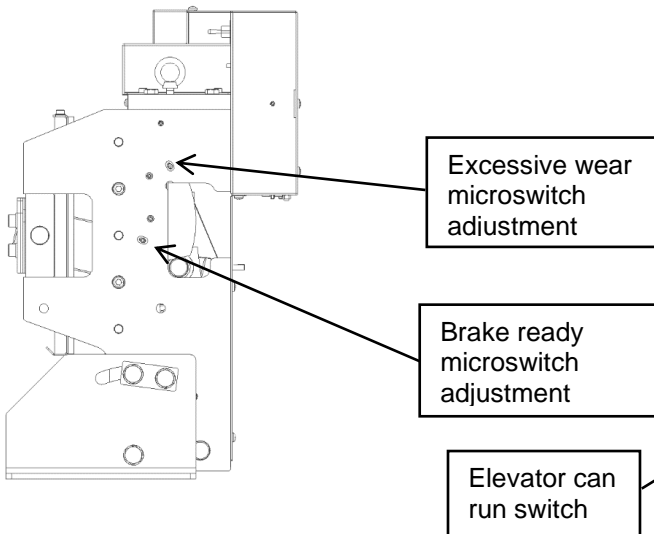


Figure 16 - Connecting Arms

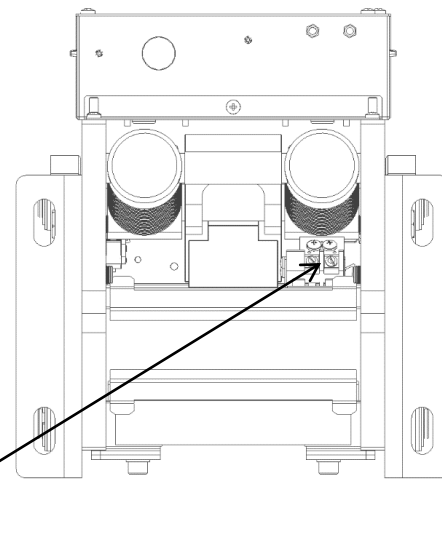


Figure 15 - Connecting Arms

- Turn test switch ON. Rope Gripper® should reload (re-open).

2.7 Lining Wear-In

- The Rope Gripper® will not function properly until the linings have been worn in. A label has been placed on the Rope Gripper® to notify personal of the importance of lining wear in Figure 17 – IMPORTANT – Lining Wear-In.



Figure 17 – IMPORTANT – Lining Wear-In

- A line has been marked on the side wall of the Rope Gripper® to aid in the Wear-In process and a label is located on the Rope Gripper® arms indicating the Rope Gripper® arms must match or cover the wear in line Figure 18 – IMPORTANT – Wear-In Line.



Figure 18 – IMPORTANT – Wear-In Line

NOTE -

AT THIS POINT IN THE PROCEDURE, THIS LINE IS WELL ABOVE THE CONNECTING ARM AND WILL BE MET OR COVERED BY THE CONNECTING ARM DURING THE WEAR-IN PROCESS (SEE FIGURE 1 FOR LOCATIONS OF CONNECTING ARM AND WEAR-IN LINE).

- Make sure test switch is ON.
- Run the car at a slow or inspect speed. Keeping hands clear of all equipment use caution to wipe down the ropes to remove any dirt and/or excess oil and grease from top to bottom.
- Jump terminals RG5 to RG7, preferably at the controller, and run the empty car in slow speed in the direction that the machine will pull the ropes thru the Rope Gripper® (typically DOWN). When the car is up to that speed, turn the test switch OFF. The Rope Gripper® will clamp the ropes with a light pressure and ropes will begin to wear grooves in the linings.

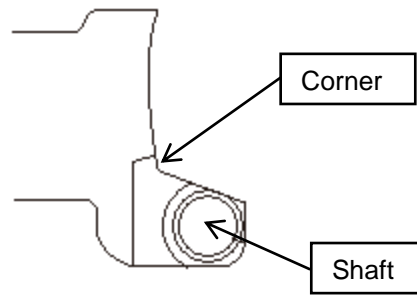


Figure 19 - Connecting Arms

- As the linings wear in, the rotating shaft will move up the cam slot and around the corner of the cam noted above (Figure 19), and the connecting arms (see Figure 1 - Key Components) will move up the side wall and begin to match or line up with the wear-in line marked on the side wall.



NOTE -

IT MAY TAKE SEVERAL CAR RUNS TO COMPLETE LINING WEAR-IN.

- Once the rotating shaft has turned the corner and the wear-in line is matched or covered, stop the car and **REMOVE THE JUMPER FROM RG5 TO RG7.**



CAUTION

FAILURE TO REMOVE THE JUMPER WILL CAUSE UNSAFE CONDITIONS.

If the lining wear-in is not completed after the grooves in the linings have reached approximately 1/16" (1.5 mm) deep, spacer shims (Figure 20) can be moved from between the shaft support blocks and moveable shoe to the outside of the support block to allow the rotating shaft to just turn the corner and move up the cam to near the wear-in line. Refer to Table 2 – Initial Shim Configurations for recommended initial spacer and shim set-up



NOTE -

THE ROPE GRIPPER® WAS SHIPPED FROM THE FACTORY SHIMMED FOR 5/8 INCH ROPES.

CAUTION

BEFORE CHANGING SPACERS, INSTALL SECURITY SET SCREWS TO PREVENT UNINTENDED ROPE GRIPPER® ACTIVATION, WHICH COULD LEAD TO SEVERE PERSONAL INJURY AND/OR DAMAGE TO THE UNIT.

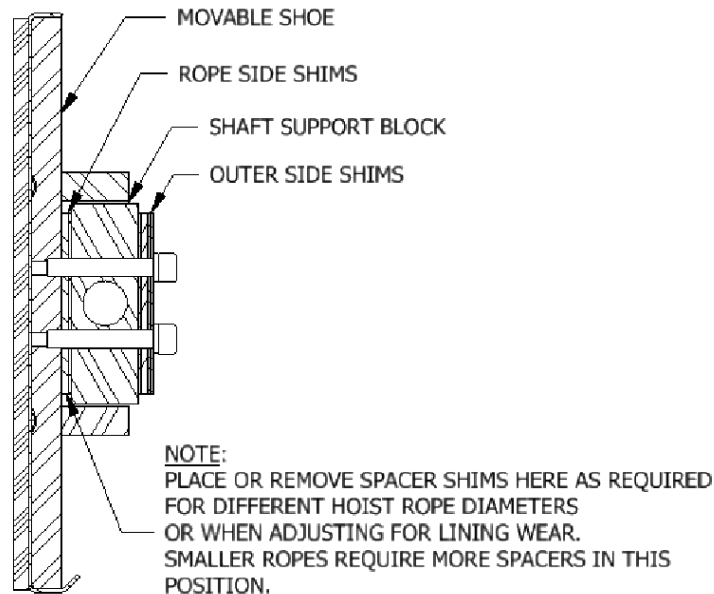


Figure 20 - Shim Locations

Section

3

3 Service

3.1 Safety

- Wear proper PPE (Personal Protective Equipment).
- Inspect tools to ensure they are in good condition and proper working order.
- Read and understand all instructions prior to servicing.
- Follow standard elevator industry and governing safety requirements.

3.2 Lining Replacement

The linings will wear, especially after multiple high-speed stops. When clamping, the rotating shaft will move towards the upper end of the cam as the linings wear. Near the end of the cam, the excessive wear micro switch Figure 16 will open and the Rope Gripper® will not automatically reopen (reload).

In this case you must inspect the linings, and decide whether the spacer shims should be adjusted, or the linings should be replaced. This will depend on whether the grooves in the linings are more or less than 3/16" (4.75mm) deep. To inspect linings for wear, first reopen the Rope Gripper® using Method 1 or 2 below.

1. Turn test switch off. On PC Board, move jumper J1 to J2. Turn test switch on; Rope Gripper® will reload electrically. Once in the open position, install the security set screws so they touch the rotating shaft. Return jumper on J2 to J1. Or;
2. **Turn test switch off.** Refer to section 4.7 Manual Opening. Only open as far as is necessary to install security set screws. Opening Rope Gripper® further will damage Rope Gripper®. Once in the open position, install the security set screws so they touch the rotating shaft and remove any wrenches.

* IMPORTANT-

Use wrenches to open Rope Gripper® only as far as is necessary to install security set screws. Opening Rope Gripper® further could damage Rope Gripper®. Once in the

open position, install the security set screws so they touch the rotating shaft and remove any wrenches.

CAUTION

BEFORE CHANGING SHOES OR SPACERS, INSTALL SECURITY SET SCREWS TO PREVENT UNINTENDED ROPE GRIPPER® ACTIVATION, LEADING TO SEVERE PERSONAL INJURY AND/OR DAMAGE TO THE UNIT.

3.2.1 Excessive Lining Wear

If lining wear is excessive, greater than 3/16" (4.75 mm), linings should be replaced. Remove both connecting arms by removing 4 circlips (and washer if applicable). Remove moveable shoe assembly. Remove screw from top of each lining assembly and remove linings by unhooking them at the bottoms. It may be necessary to loosen the mounting bolts to tip Rope Gripper® to allow access to the stationary shoe. Refer to Table 2 – Initial Shim Configurations for initial spacer and shim set-up to use with new linings. When linings have been replaced, follow the Installation procedure and the Lining Wear-In procedure.

3.2.2 Non-Excessive Lining Wear

If lining wear is not excessive, less than 3/16" (4.75 mm), spacer shims (Figure 20) can be moved from the back side of the shaft support blocks to between the shaft support blocks and moveable shoe. Loosen the bolts that hold the blocks to the movable shoe, move a 1/8" spacer shim from the outer side to the rope side under the blocks and tighten bolts. Addition of shims between the block and the shoe will move the shoe closer to the ropes and lower the position of the rotating shaft toward the bottom end of the cam when clamping.

When replacements are complete, turn the test switch ON and carefully remove the security set screws, being sure the electromagnetic clutch holds. Follow the procedures described earlier to ensure that the rotating shaft will be around the corner at the bottom of the cam (and connecting arm position matches or covers the wear-in line marked on the side wall) when gripping the ropes.

IMPORTANT-

After replacing the linings or after adjusting the spacer shims it is important to test the Rope Gripper® to ensure the Rope Gripper® is functioning properly and the rotating shaft is around the corner.

3.3 Lubrication Instructions

It is important to maintain a thin layer of general-purpose grease on the cam and guides. A lubrication instructions label is also continually located on the Rope Griper® Figure 21 – Lubrication Instructions.

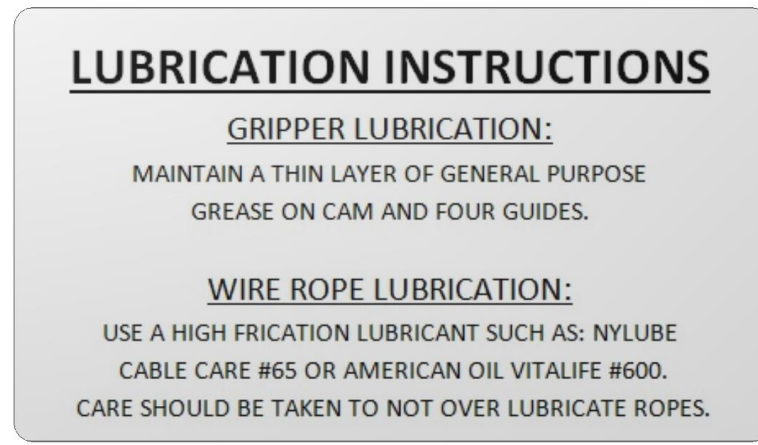


Figure 21 – Lubrication Instructions

3.4 Testing All Circuits

The following three tests should be made while the car is running in slow speed in both the up and down directions. During each test the Rope Griper® should:

- A. Grab the ropes
 - B. Stop the car
 - C. Open the control safety circuits disconnecting power to the motor and machine brake
- 1) Turn the Rope Griper® test switch OFF. Observe A, B, and C above.
 - 2) With the car in the door zone, open the door or open the door lock circuit, then open the door zone circuit, and observe A, B, and C above.



NOTE -

THE CONTROLLER'S SAFETY CIRCUITS SHOULD REQUIRE A MANUAL RESET BEFORE THE ROPE GRIPPER® REOPENS.

- 3) Manually open the governor over-speed switch and observe A, B, and C above.



NOTE -

THE GOVERNOR WILL REQUIRE A MANUAL RESET AFTER THIS TEST. THE CONTROLLER'S SAFETY CIRCUITS SHOULD THEN REQUIRE A MANUAL RESET BEFORE THE ROPE GRIPPER® REOPENS.

3.5 Suggested Controller Circuits



NOTE -

THE FOLLOWING DESCRIBES CIRCUITS TO MEET CODE REQUIREMENTS AND PREVENT NUISANCE SHUTDOWNS. THE CONTROLS CIRCUIT CAN ALSO BE CONFIGURED SO THAT THE ROPE GRIPPER® ALSO RESPONDS TO OTHER ERRORS.

Both the B44 and A17.1-2000 Codes and more recent codes require new circuitry for activation of the Rope Gripper®. It is the controller manufacturer's responsibility to provide proper circuitry that meets all applicable codes and laws for operating this device.

The function of the Rope Gripper® when applied is to clamp the ropes and stop the car. We recommend that the Rope Gripper® is activated when an over-speed occurs or when the car leaves the floor (door zone) with the doors open (hoist way door unlocked and/or the car gate switch open). If the doors happen to be open while the car is between floors, the Rope Gripper® need not be activated.

It is suggested that a manual reset of the Rope Gripper® require a minimum of 30 seconds of constant pressure activation, to allow the mechanic resetting the Rope Gripper® to quickly react to an unsafe condition. In other words, it is recommended that the reset control act as a constant pressure switch for the first ten seconds, before latching in the run condition after ten seconds.

It is suggested that if the elevator controller has a monitor function for the machine brake, that the Rope Gripper® be activated immediately on sensing a stuck brake condition, rather than waiting for unintended motion to occur.

The suggested circuits shown in Figure 22 and Figure 23 activate the Rope Gripper® by opening contacts RG1, RG2, DZ1, and DZ2. Relay coils RG1, RG2, DZ1 and DZ2 are controlled by the governor over-speed switch (GOS) and function blocks GRC1, GRC2, DZC1, and DZC2, respectively.

3.5.1 GRC1 Description

If the car is not in the door zone when main line power turns “ON”, or when switching from “Inspection” to “Normal Operation”, or when resetting the governor over-speed switch; allow a time interval, signal the door closure, and when the car gate or door interlock contact makes, energize RG1.

Anytime the car is in the door zone (“Inspection” or “Normal Operation”), RG1 is de-energized 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. In the door zone, when the car gate contact or door interlock contact is made, energize RG1. If the car should leave the door zone with RG1 energized, then Rope Gripper® activation is prevented. RG1 should remain energized even if both the car and hoist way doors are opened while between floors. When the car is in the door zone again, RG1 should function as above.

3.5.2 GRC2 Description

Redundant circuits are required by the 2000 A17.1 and B44 Codes. Circuits for RG2 function identical to RG1 except separate logic for the timing function, door locks, gate switch and door zone should be used. DZC1 logic could be used for circuits of RG1 and DZC2 for circuits of RG2. (See NOTE in Figure 24)

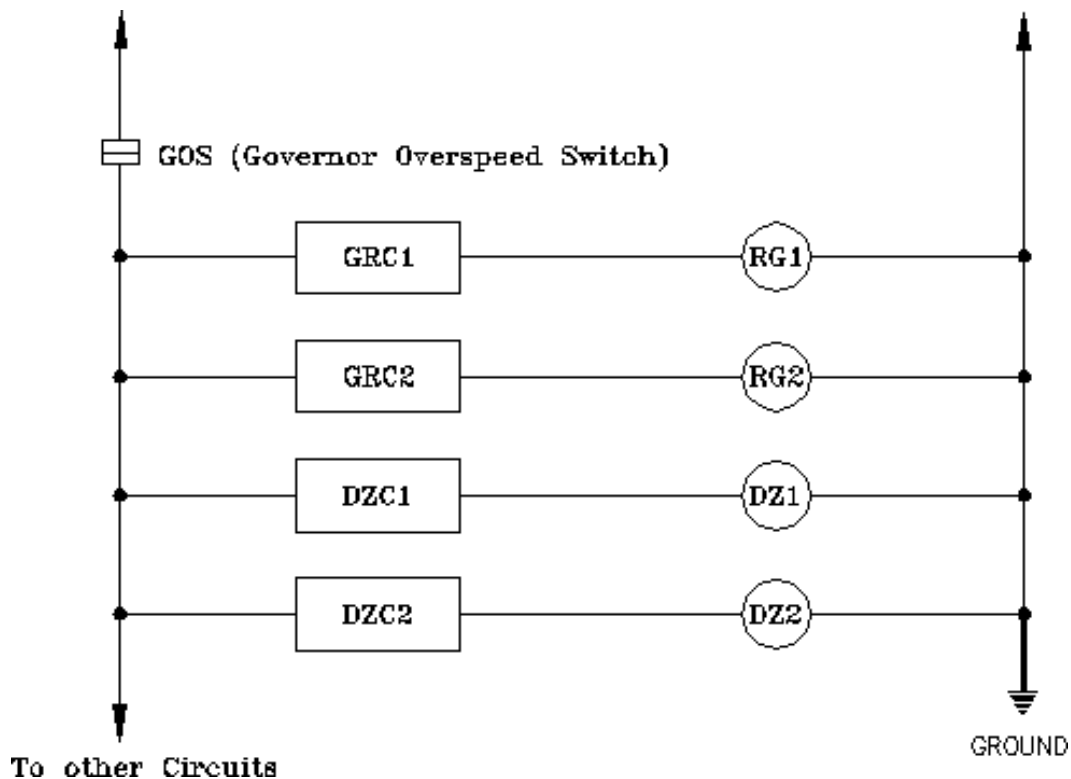


Figure 22 - Circuit – I

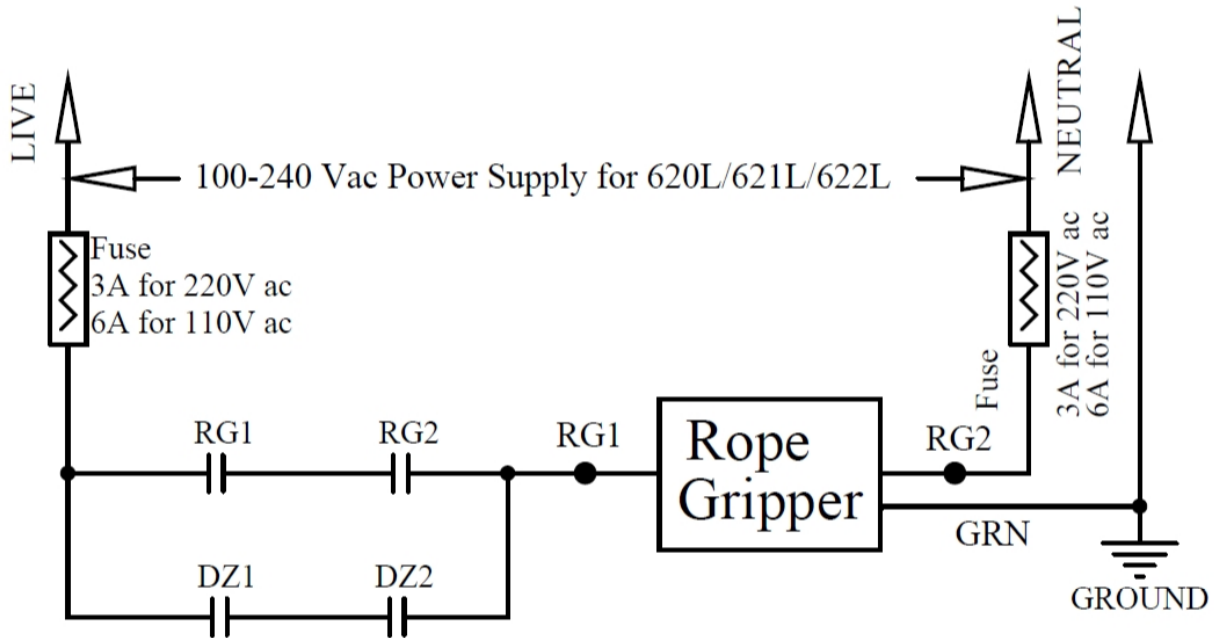


Figure 23 - Circuit – II

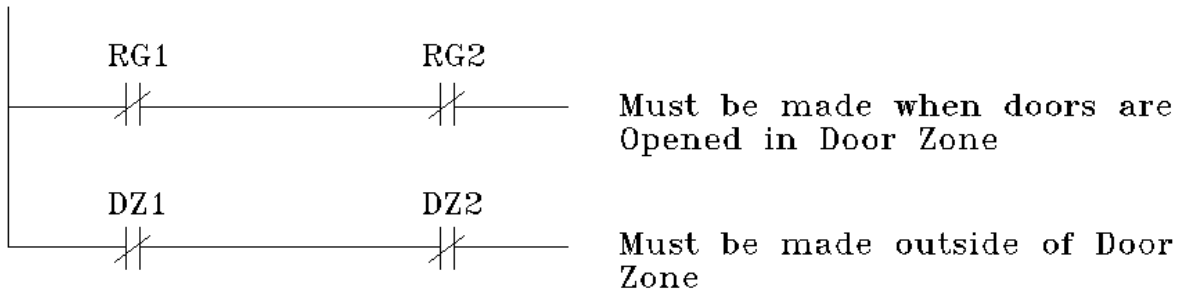


Figure 24 - Circuit –III



NOTE -

IF FORCE GUIDED RELAYS ARE USED FOR RG1, RG2, DZ1, AND DZ2, USE THIS DIAGRAM.

3.5.3 DZC1 Description

DZ1 is energized in the door zone and de-energized outside of the door zone (See Figure 24's Note). Maximum door zone is +/-3 inches [6 inches Total].

3.5.4 DZC2 Description

- Circuits for DZ2 function are identical to DZ1 except a separate door zone signal is utilized.

If the above circuits (Figure 24) do not make contact when required, the elevator must be prevented from running. If other types of relays are used, circuits must prove that contacts from RG1, RG2, DZ1 and DZ2 are functioning properly and when a failure is detected the elevator must be prevented from running.

3.5.5 Gripper Self-Test

The Rope Gripper® is equipped with self-monitoring functionality to ensure that it functioned properly. It is recommended that the controller periodically activate the Rope Gripper® to test proper functioning. It is suggested the controller self-test be done with the elevator doors closed and the normal service brake “set”. If the Rope Gripper® functions properly, the controller will reopen the Rope Gripper® and the elevator will go back into normal operation. It is recommended that this self-test occur at regular intervals such as every three months with the car at the top of the hoist way at a low traffic time in accordance with all standard and local elevator regulations and protocols. Please contact your controller manufacture for further implementation considerations.

Section

4

4 Operation

4.1 Normal Operation

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

4.2 Over-Speed

When an over-speed is detected, the governor over-speed switch opens; additional over-speed can be detected by use of an encoder or tachometer that detects the speed of the elevator. (Not the motor or worm shaft of a geared elevator.) When detected, relays RG1, RG2, DZ1 and DZ2 de-energize. This removes power from the Rope Gripper®, clamping the ropes and stopping the car.

4.3 Over-Speed Reset

Over-speed reset is accomplished by resetting the governor over-speed switch and the elevator control circuits. Refer to and follow the controller manufacturer's instructions for Rope Gripper® reset.

* IMPORTANT-

The code requires that the Rope Gripper® be manually reset if it is triggered by fault. It is intended that a qualified technician inspect for and correct any malfunction before the car is placed back into service. A dangerous situation can be produced if a Rope Gripper® is manually reset without first correcting the cause of the fault. E.g.: 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.

4.4 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.

4.5 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.

IMPORTANT-

The code requires that the Rope Gripper® be manually reset if it is triggered by fault. It is intended that a qualified technician inspect for and correct any malfunction before the car is placed back into service. A dangerous situation can be produced if a Rope Gripper® is manually reset without first correcting the cause of the fault. E.g. 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.

4.6 Smart Rope Gripper

The Rope Gripper® is equipped with intelligent self-monitoring functionality and will not complete the safety circuit if any internal fault is detected. If you find that the Rope Gripper® is not giving the controller a signal that it is safe to run consult the LED Troubleshooting Guide Figure 29 – LED Troubleshooting Guide to aid in troubleshooting procedures.

4.7 Manual Opening

CAUTION

USE CAUTION WHEN MANUALLY OPENING THE GRIPPER. THE SPRINGS APPLY GREAT FORCE REQUIRING CONSIDERABLE TORQUE TO ROTATE THE BALL SCREW WHEN MANUALLY OPENING. ENSURE TOOLS ARE PROPERLY SECURED TO SHAFT AND TOOLS ARE CONTROLLED WITH A FIRM STEADY GRIP.

During a power failure the Rope Gripper® will activate. 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, manually open the Rope Gripper® as follows:

1. **Confirm the Rope Gripper® power switch to OFF.**
2. Confirm machine brake is functioning properly (preventing car movement).
3. Remove the electrical covers so that the end of the ball screw shaft is accessible.
4. Locate the two 10 mm ratchet wrenches that were provided with the Rope Gripper®.
5. Place one 10 mm ratchet wrench on the end of the ball screw on the top of the Rope Gripper® to act as a holding wrench making sure it locks against the Rope Gripper® as the Rope Gripper® tries to close in the CLAMP direction shown.
6. Use the other ratchet wrench to rotate the shaft in the RESET direction shown to open the Rope Gripper® until the brake is fully opened. The two wrench arrangement can be seen in Figure 25 – Manual Opening below.

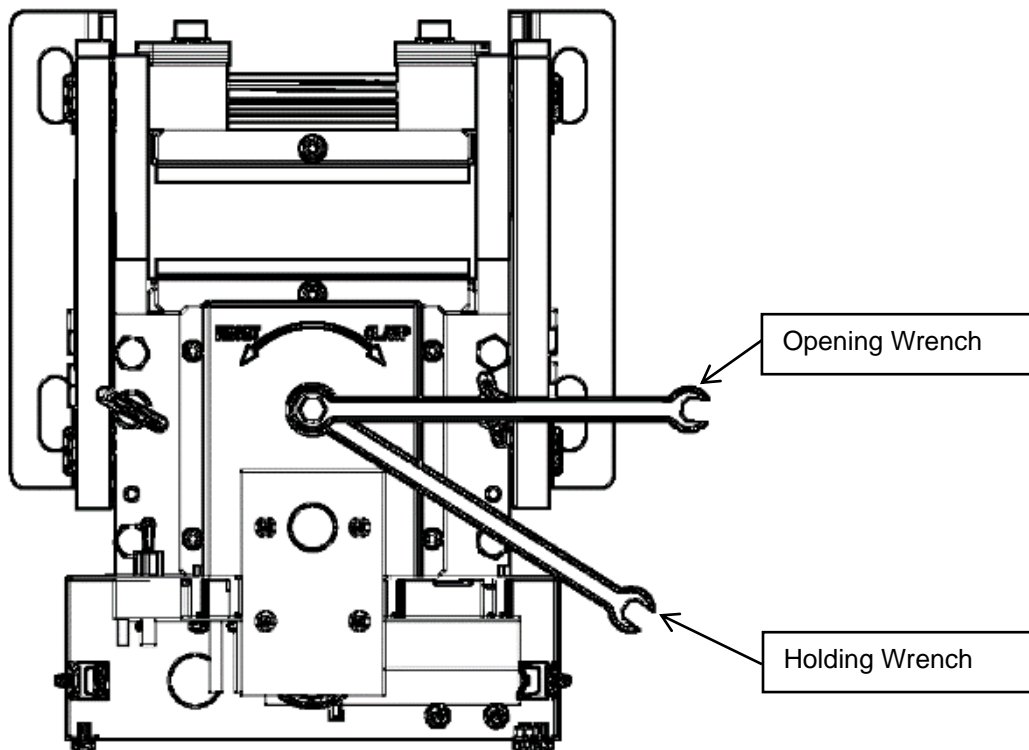


Figure 25 – Manual Opening

* IMPORTANT-

Use wrench(s) to open Rope Gripper® only as far as is necessary to allow car movement. Opening further may damage the Rope Gripper®.

7. To manually close the Rope Gripper®, if applicable turn the wrench a little so that the holding wrench is free and remove the holding wrench.
8. Slowly and carefully guide the wrench to allow the Rope Gripper® to return to the closed position. It may be necessary to use two wrenches to “crab-walk” the Rope Gripper® closed.
9. Once closed remove any wrenches and replace covers.

CAUTION

NEVER TURN THE ROPE GRIPPER® POWER SWITCH ON WITH WRENCHES ATTACHED TO THE BALL SCREW. SERIOUS PERSONAL INJURY AND EQUIPMENT DAMAGE CAN OCCUR.

Section 5

5 Warning Labels

5.1 High Pressure Applied Warning Label

The Rope Gripper® applies significant pressure to the elevator ropes. It is important to use great caution when working with the Rope Gripper®. A warning label is located on the front of the Rope Gripper® to notify personnel Figure 26 – High Pressure Applied Warning Label.



Figure 26 – High Pressure Applied Warning Label

5.2 Movable Shoe Warning Label

The Rope Gripper® applies significant pressure to the elevator ropes. It is important to use great caution when working with the Rope Gripper®. Heightened safety precautions should be used when working around or with the movable shoe. A warning label is located on the movable shoe of the Rope Gripper® to notify personnel Figure 27 – Movable Shoe Warning Label.



Figure 27 – Movable Shoe Warning Label

5.3 More Than One Live Circuit Warning Label

The Rope Gripper® contains more than one live circuit. A warning label is located on the back of the electrical cover Figure 28 – More than one Live Circuit Warning Label. See the wiring schematic Figure 30 – Wiring Schematic for more details.

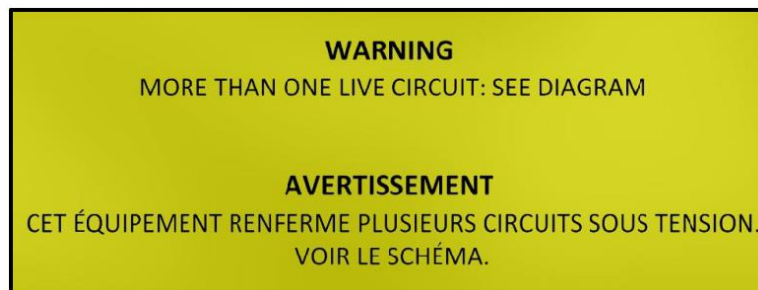


Figure 28 – More than one Live Circuit Warning Label

Section 6

6 Troubleshooting Guide

6.1 LED Troubleshooting Guide

Three LED's are present on the Rope Gripper® circuit board. Please reference Figure 29 – LED Troubleshooting Guide below for troubleshooting.

Linear Gripper PCB LED Troubleshooting Guide			
LED Color			Status Description
RED (POWER)	AMBER (STATUS)	GREEN (OPEN)	
OFF	*	*	Power OFF
ON	*	*	Power ON
ON	ON	ON	Gripper ready
ON	ON	FLASH	Gripper locked OPEN with safety set screws upon power being applied
ON	ON	OFF	1. Preparing to reset and J2 is open 2. Actively resetting and J2 is open
ON	OFF	OFF	1. Excessive pad wear - will not reset and J2 is open 2. Excessive pad wear - actively resetting and J2 is closed 3. Excessive pad wear - reset and J2 is closed
ON	FLASH	FLASH	Gripper closing - loss of power
ON	FLASH	OFF	System error (motor current overload, clutch current overload, rope gripper set without external trigger, etc.)

Figure 29 – LED Troubleshooting Guide

6.2 Wiring Schematic

The wiring schematic depicted in Figure 30 is also present on the back of the electrical box cover to assist in any wiring troubleshooting.

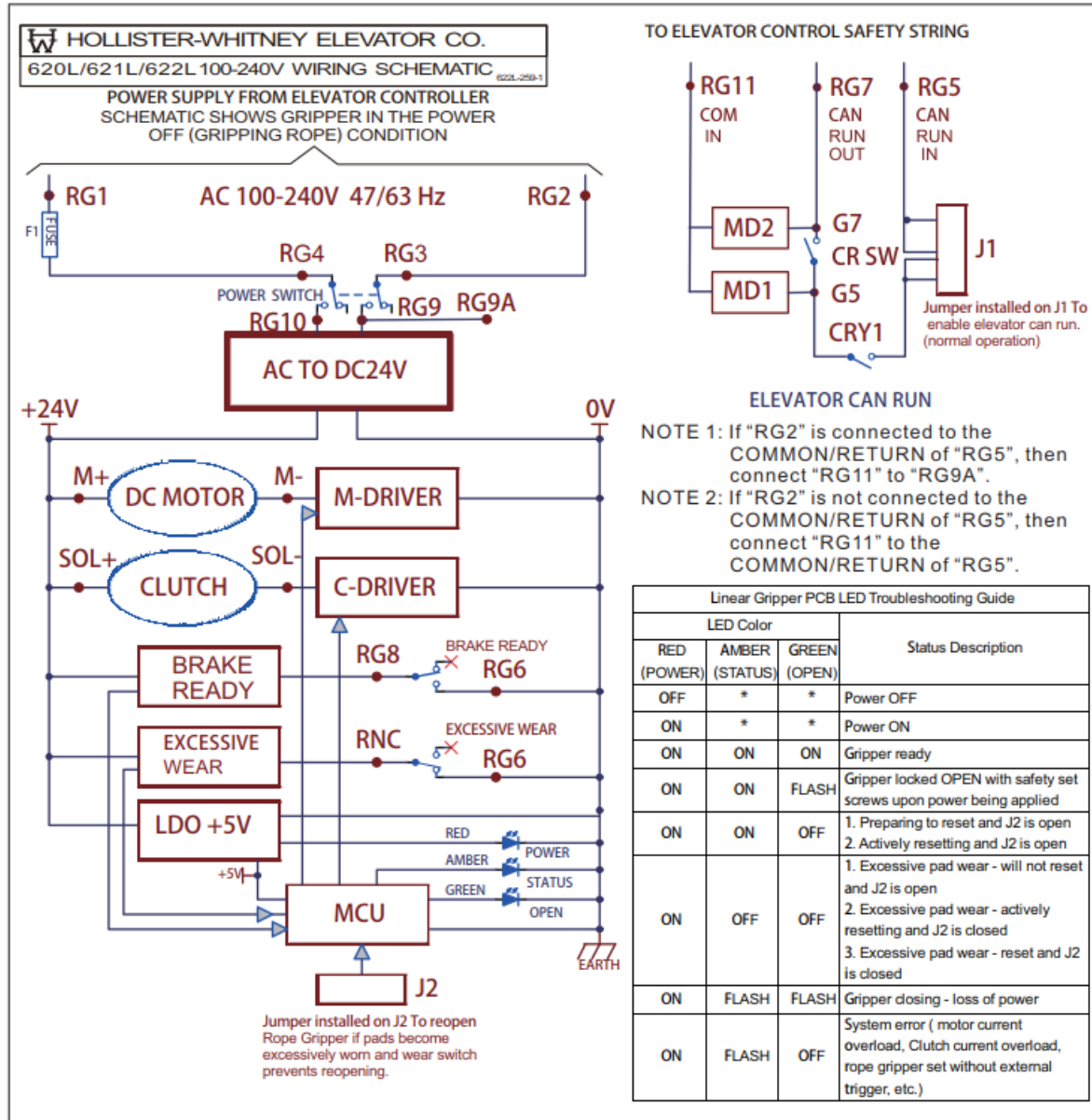


Figure 30 – Wiring Schematic




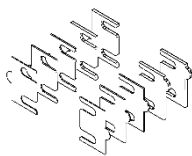
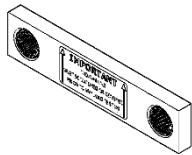
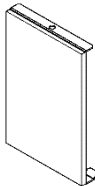
NOTE -

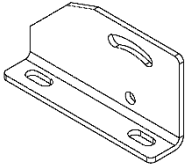
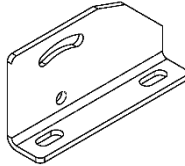
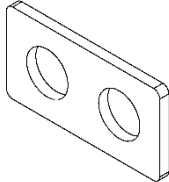
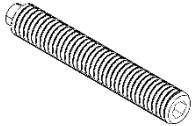
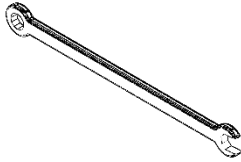
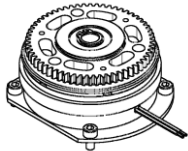
IF RG5 DOES NOT HAVE VOLTAGE PRIOR TO OPENING THE GRIPPER THE SAME LED STATUS AS "GRIPPER LOCKED OPENED WITH SAFETY SET SCREWS UPON POWER BEING APPLIED" WILL BE DISPLAYED.

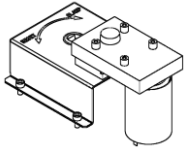
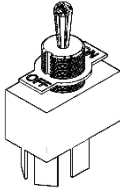
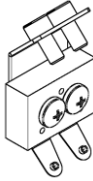
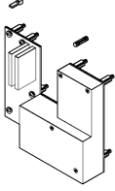

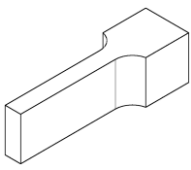
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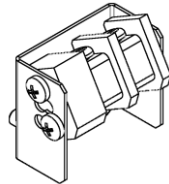

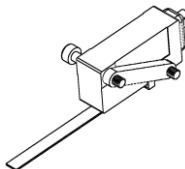


7

7 Service Parts

Gripper Model	Part Number	QTY Per Gripper	Description	Image
620L 622L	90-033	4	External Retaining Clip	
620L	620L-008A	1	Movable Shoe Shim Kit	
622L	622L-008A			
620L	620L-020	2	Connecting Arm Assembly	
622L	622L-020			
620L	620-022-GY 620-022-CH	2	Lining Assembly	
622L	622-022-GY 622-022-CH			

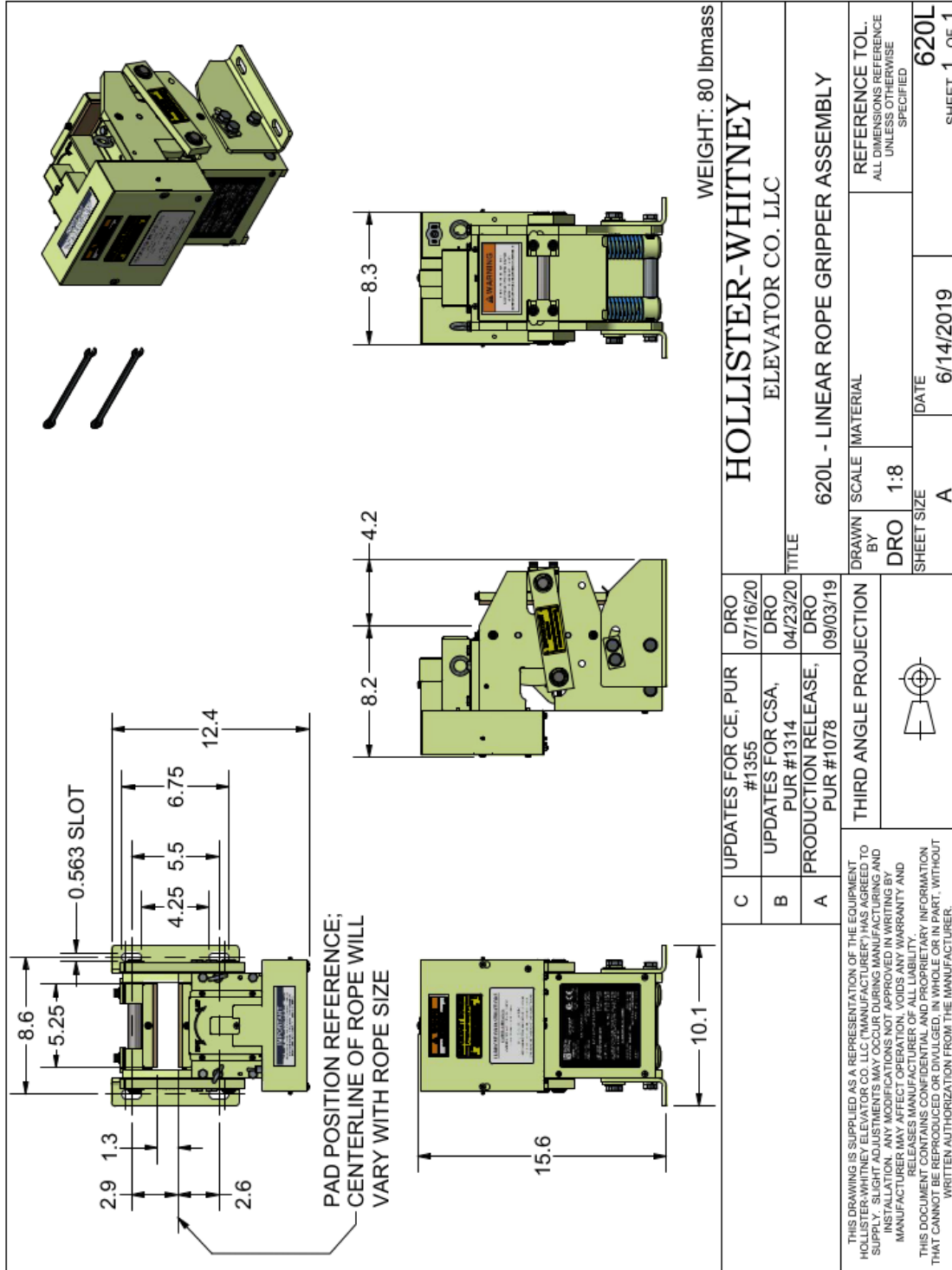
Gripper Model	Part Number	QTY Per Gripper	Description	Image
620L	601-041-L	1	Mounting Angle – Left	
622L	600-041-L			
620L	601-041-R	1	Mounting Angle – Right	
622L	600-041-R			
620L	601-095	2	Double Bolt Washer	
622L	600-095			
620L 622L	620-121	2	Safety Set Screw	
620L 622L	620L-268	2	Ratchet Wrench	
620L	620L-300	1	Electromechanically Clutch Assembly	
622L	622L-300			

Gripper Model	Part Number	QTY Per Gripper	Description	Image
620L	620L-301	1	Motor-Gearbox Assembly	
622L	622L-301			
620L 622L	620-302	1	Switch Assembly	
620L 622L	620L-303	1	Contact Assembly	
620L 622L	620L-304	1	Complete PCBA Assembly	
620L 622L	620L-304-002	1	Fuse	
620L 622L	620L-304-003	1	Jumper	

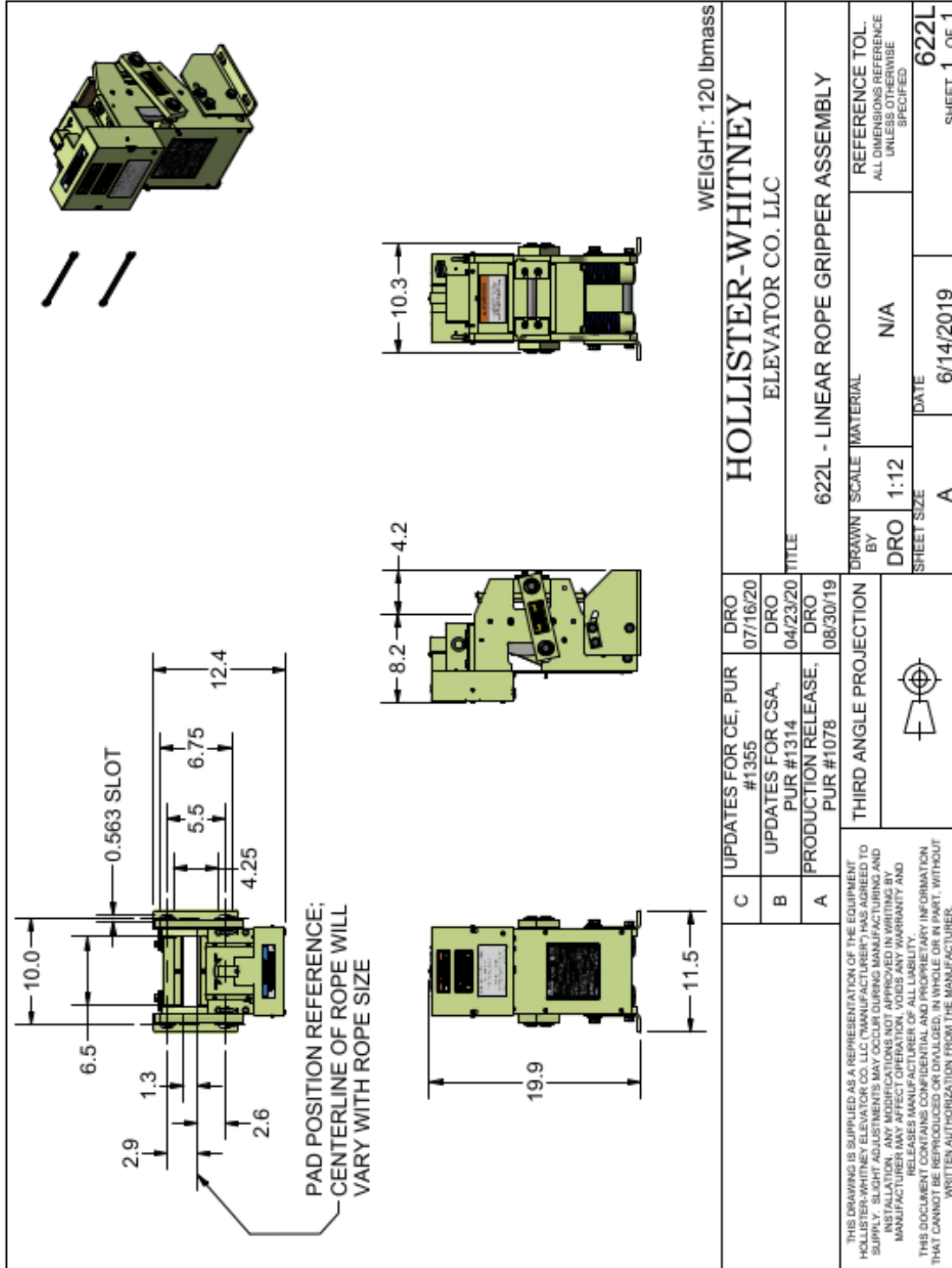
Gripper Model	Part Number	QTY Per Gripper	Description	Image
620L 622L	620L-306	1	Contact Terminal Assembly	
620L 622L	620L-307	1	Brake Ready Micro-Switch Assembly	
620L 622L	620L-308	1	Excessive Wear Micro-Switch Assembly	
620L 622L	620L-309	1	Electrical Cover Assembly	
620L	620L-310	1	Lower Front Cover Assembly	
622L	622L-310			

Appendix

Drawing 1 – 620L	b
Drawing 2 – 622L	c
Drawing 3 – CSA Certificate of Compliance Page 1	d
Drawing 4 – CSA Certificate of Compliance Page 2	e
Drawing 5 – CSA Certificate of Compliance Page 3	f
Drawing 6 – CSA Certificate of Compliance Page 4	g
Drawing 7 – CE Certificate	h



Drawing 1 – 620L



Drawing 2 – 622L



Certificate of Compliance

Certificate: 80000312 **Master Contract:** 155941
Project: 80116280 **Date Issued:** 08/22/2022
Issued to: Hollister-Whitney Elevator Co., LLC
 2603 North 24th St
 Quincy, Illinois 62305
 United States

Attention: Donald Owens

The products listed below are eligible to bear the CSA Mark shown with adjacent indicators 'C' and 'US' for Canada and US or with adjacent indicator 'US' for US only or without either indicator for Canada only.



Issued by: *Irfan Usmani*
 Irfan Usmani

CSA B44.1/ASME A17.5

PRODUCTS

C241101 ELEVATOR EQUIPMENT-Open and Enclosed - Elevator Electrical Equipment
 C241181 ELEVATOR EQUIPMENT - Open and Enclosed Elevator - Electrical Equipment - Certified to US Standards

Rope Gripper

Models	Phase	Voltage (VAC)	Frequency (Hz)	Current (A)	Contact Rating
620L, 621L, 622L	1	100-240	50/60	1	250Vac, 5A, 5A/30Vdc



Certificate: 80000312

Master Contract: 155941

Project: 80116280

Date Issued: 08/22/2022

APPLICABLE REQUIREMENTS

CSA B44.1:19/ASME A17.5-2019 - Elevator and escalator electrical equipment



Certificate: 80000312

Master Contract: 155941

Project: 80116280

Date Issued: 08/22/2022

Notes:

Products certified under Class C241101, C241181 have been certified under CSA's ISO/IEC 17065 accreditation with the Standards Council of Canada (SCC). www.scc.ca



Drawing 5 – CSA Certificate of Compliance Page 3



Supplement to Certificate of Compliance

Certificate: 80000312

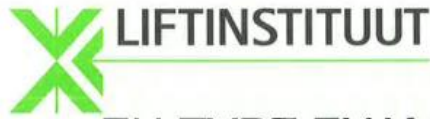
Master Contract: 155941

*The products listed, including the latest revision described below,
are eligible to be marked in accordance with the referenced Certificate.*

Product Certification History

Project	Date	Description
80116280	August 22, 2022	Update to report 80000312 to add the following alternate components: 1. Terminal Block (CN1, CN3, CN4), PHOENIX CONTACT GmbH & Co. KG, Type MVSTBW2.5/X-ST (-5.08) and Terminal Block Header (CN1, CN3, CN4), PHOENIX CONTACT GmbH & Co. KG, Type MSTBVA2.5/X-G (-5.08). 2. Fuse (F1), Cooper Bussmann, LLC., Type GMA-3-R. 3. Relay (CRY1), Omron Electronics LLC, Type: G2RL-1-E.
80000312	March 04, 2020	Original certification of 620L rope gripper

Drawing 6 – CSA Certificate of Compliance Page 4



EU-TYPE EXAMINATION CERTIFICATE

Issued by Liftinstituut B.V.
Identification number Notified Body 0400,
commissioned by Decree no. 2018-0000125182

Certificate no.	: NL20-400-1002-020-05	Revision no.:	-
Description of the product	: Rope Brake, certified as stopping element of ascending car overspeed protection and/or unintended car movement protection		
Trademark	: Linear Rope Gripper Assembly		
Type no.	: 620L, 621L, 622L		
Name and address of the manufacturer	: Ensota (Guangzhou) Technologies Ltd. Suixing Industrial Building, Minghua 1 Street, Guangzhou Economic & Technological Development District, Guangzhou, China		
Name and address of the certificate holder	: Hollister-Whitney Elevator Co., LCC P.O. Box 4025 2603 North 24th Street Quincy, Illinois 62305, USA		
Certificate issued on the following requirements	: Lifts Directive 2014/33/EU		
Certificate based on the following standard	: Parts of: EN 81-20/50:2014		
Test laboratory	: Shenzhen Institute of Special Equipment Inspection and Test (SISE) 1032 Honggang Road, Luohu District, Shenzhen, China		
Date and number of the laboratory reports	: June 15, 2020; 2020AF0416, 2020AF0417, 2020AF0436, 2020AF0437, 2020AF0438, 2020AF0439		
Date of EU-type examination	: August 20, 2020		
Additional document with this certificate	: Report belonging to the EU-type examination certificate no.: NL20-400-1002-020-05		
Additional remarks	: None		
Conclusion	: The safety component meets the requirements of the Lifts Directive 2014/33/EU taking into account any additional remarks mentioned above.		

Amsterdam

Date : 26-08-2020
Valid until : 26-08-2025

ing. P.J. Peeters
Manager Certification

Certification decision by

Liftinstituut B.V. · Buikslotermeerplein 381 · P.O. Box 36027 · 1020 MA Amsterdam Netherlands · www.liftinstituut.com
Registered at the KvK under number 34157363

F23-02-16-v18.0

Drawing 7 – CE Certificate