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Visit the Titan Hoist web page at jrclancy.com for more information.

- Note:** Please read and understand these instructions before using or setting up.
Note: Review all of the Installation Drawings and Reference Drawings.
Note: If you need additional information, contact JR Clancy using the information below.

Important Safety Information



- For any non-standard Titan Hoist there may be supplemental documentation for hoist installation. This documentation can be located at the end of the manual and/or on the hoist drawing(s).
- The procedures in this manual are for use by qualified personnel (furthermore all Qualified Person(s) or Personnel are as defined by ANSI E1.6-1-2019, Entertainment Technology-Powered Hoist Systems, section 3.22) only. If you are not qualified, contact the company that installed your system or JR Clancy to find the nearest service provider.
- The Titan Inspection Checklist must be completely filled out and a copy returned to JR Clancy as proof of initial and subsequent annual inspections. Proof of inspection may be required to activate and maintain the warranty period for this product.
- All users must be aware of maintenance requirements and warned of the associated hazards. Keep a copy of this manual available along with all other product documentation for future reference.



⚠ WARNING

Improper installation or maintenance can cause the machine to fail.

- Hoisting machines impose significant loads on the structure to which they are attached. It is the responsibility installer or service provider for verifying that a qualified person (as noted in ANSI E1.6-1-2019, section 3.22) has determined that this structure can withstand the loads.
- Equipment must be installed and maintained by qualified personnel.
- Annual inspection and maintenance of this product is required. Some applications may require more frequent inspection and service.
- Do not substitute or modify components provided with this equipment.
- Do not exceed the recommended working load of the hoist. It varies by model and is marked on the Identification Label on the hoist.
- Do not exceed lift line capacity on any one wire rope:
 - 1/4" wire rope capacity: 750 lb [340 kg]
 - 3/16" wire rope capacity: 500 lb [230 kg]
- Do not lift or support people or animals.
- Hoist weight varies depending on specifications and is listed on the hoist assembly drawing. Use appropriate handling equipment and safe work practices.



⚠ DANGER

Electrocution Hazard

- Remove power before opening electrical panels.
- Electrical equipment must be installed by qualified electricians.



⚠ WARNING

Moving parts can cut or crush.

- Keep body parts away from machinery in motion.
- Remove power source before working on machinery.
- Machines with moving parts within 106 inches (2.7m) vertically from the floor and less than 60 inches (1.5m) horizontally from a safety barrier must be fitted with machine guarding per ANSI E1.6-1-2019, section 6.7. Guards must be in place during use.

Product Use Requirements

- Installation of this equipment must comply with local building codes.
- Equipment must be installed according to manufacturer's drawings.
Individual component information is listed in the bill of materials of these drawings.
- Titan hoists must be inspected by qualified person(s) (as noted in ANSI E1.6-1-2019, section 3.22) every year, or more frequently depending on use and local, state, and federal laws.
Do not install in locations that prohibit access or prevents removal of any machine guarding.
- Titan hoists are designed for indoor use only in buildings with temperatures between 50° and 100° F (10° C - 38° C).
- Do not expose machines to rain or extreme humidity.
- Dimensions and weight of Titan hoists vary from project to project. Consult project drawings.
- The recommended working load of each machine is marked on the Identification Label on the hoist motor.
Do not exceed.
- The hoist machinery must be protected from oil, dust and other contaminants.
- Installation of Titan hoists must be coordinated with the location of loft blocks as well as electrical power and control devices.
Installation should be designed by qualified person(s) (as noted in ANSI E1.6-1-2019, section 3.22).
- Titan hoists are pre-programmed at the factory with set and channel numbers.
Both of these numbers are marked on the machine, and also marked at the power and control receptacles.
Machines must be installed so that the channel and set numbers on the hoist match the channel and set numbers on the receptacle.
These are also shown on the installation drawings.
- The Certificate of Inspection that is included with this manual must be completely filled out and returned to JR Clancy along with the completed installation checklists after the installation is complete.
Proof of inspection is required to activate and maintain the warranty period for this product.

Installation Procedure

Follow these steps carefully to help provide a safe and efficient installation of the Titan.

Notice: Titan machines are pre-programmed at the factory with a channel and a set number. Before removing the machinery from its packing, look at the channel and set numbers on the machine, the installation drawings, and the electrical receptacles. They must all match.

Step 1 - Unload the Packaged Machinery

Titan machines are shipped in crates or on pallets. While packaged for shipment you must:

- Protect crates and pallets from rain and humidity.
- Keep equipment upright and prevent from tipping.
- Follow instructions and use safe material handling practices.
- Store packaged machinery in clean and dry locations that are protected from impact or other abuse.

Step 2 - Hoist the Machinery into Position

Consult the project drawings for the weight of the Titan hoists. During and after removal from the packaging, the machine is designed to be handled by the 4" x 4" tube steel backbone, consult with JRC for other lifting options. Before hoisting the machine out of its packaging be sure to identify the channel number marked on the machine. It is essential that you install the units with the correct numbering as shown on the installation drawings.

Step 3 - Attach the Machine to the Mounting Structure

The Titan has been provided to you with beam clamps that are designed to fit the beam sizes you have specified for the project. These beam sizes are noted on the installation drawing. If the beams in the field do not match the dimensions on the installation drawing, contact JR Clancy.

Step 4 - Install the Wire Ropes onto the Drum

Titan hoists are designed for use with 1/4" diameter 7x19 Small Diameter Specialty Cord as defined by ASTM standard A1023. For additional wire rope options see addendum A.

 WARNING
<i>Do not use wire ropes of different dimensional or structural characteristics.</i>

 WARNING
<i>Disconnect the power before working on the machinery.</i>

Note: Under normal conditions the Titan is shipped WITHOUT guarding, the Wire Rope Terminations are at the proper orientation and the limits are set full open.

1. If required, remove the machine guarding (if provided) to expose the entire drum assembly.
2. If required, rotate the drum so that the wire rope termination clips are visible.
3. Reeve the end of the rope from the loft blocks thru the Titan head block, making sure that the cable rests on the sheave and not on the head block spacer bolts.
4. If required, wrap the rope around the drum enough times to match the number of wraps on the other lines of the hoist. Note that a minimum of three standing (dead) wraps **MUST** be maintained on the drum when the machine is at the lowest limit of travel.
5. Make sure the rope lays properly into the grooves on the drum. Insert rope between rope clip and drum, leaving 0.50" to 0.75" exposed past the clip.
6. Tighten the clip by tightening each bolt to a min torque value of 20 in-lb.

Installation Procedure (continued)

Step 5 - Terminate the Wire Ropes at the Batten or Lifted Load

1. Prior to terminating the lift lines, inspect the reeving and check the following:
 - a. The rope should be fully paid out from the machine and there must be at least three standing (dead) wraps remaining on the drum.
 - b. Ropes must lie smoothly in the grooves of the drum.
 - c. Double check that the ropes are reeved properly through the blocks.
2. Cut the lines to length and terminate at the batten.
 - a. Install a trim chain, turnbuckle, or other load leveling device on each lift line connection.
 - b. Use terminating hardware that is properly rated for the load. Follow hardware manufacturers' instructions carefully, e.g. use inspection gages for swaged sleeves.
 - c. Swaged sleeves are recommended for most installations. If wire rope terminations are used, follow the manufacturer's tightening instructions. Installation and annual maintenance must include checking the clip nuts with a torque wrench.

Step 6 - Check the Position of the Wire Rope Guide Rollers

Titan hoists are provided with wire rope guide rollers already installed, unless noted otherwise on the drawings. Wire rope guide rollers may be removed as necessary to aid the installation process. Wire rope guide rollers need to be inspected after the ropes are reeved and before energizing the machine.

Use the following procedure to replace and/or inspect the proper placement of the guide rollers.

⚠ WARNING

Disconnect the power before working on the machinery.

1. The rollers are attached to the stationary hoist frame with slotted holes for alignment. The roller should roll in the first empty groove next to the wire rope on the drum as shown in Figure 1. Once the rollers are properly aligned, tighten both mounting bolts.

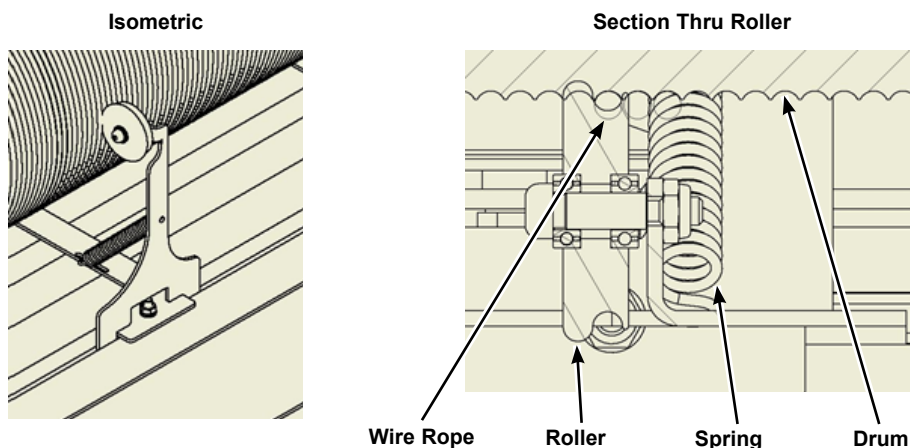


Figure 1: Guide Roller

2. Rollers are not necessary where no ropes are present.
-

Installation Procedure (continued)

Step 7 - Activate the Power and Control to the Hoist

⚠ WARNING

Machinery and loads can collide with surroundings when operated before limit switches are set. Operate machine at slow speed only. Operator or observer must be in sight of all obstacles in the path of the machine or load. Do not operate over the heads of people.

⚠ WARNING

Operating hoist using Maintenance Control Pendant while hoist is not connected to an energized permanent control system WILL corrupt load position within the control system computer and can cause load to crash. Verify position readout matches actual position of load each time control system is reconnected or restarted.

- The Titan can be manufactured with the drive modules mounted to the hoist frame or supplied separately to be mounted in another location.
 - If the drive module is mounted on the hoist, separate electrical connections for power and control will be provided. Each of these must be plugged into hard-wired receptacles that match the particular motor voltage and control scheme of your system.
 - If the drive module is external, a junction box will be supplied on the hoist frame. Conduit and wiring must be run between the external starter and this junction box / disconnect per ANSI E1.6-1-2019, section 7.1.5 before the hoist can be run. Consult the system electrical drawings for wire types and terminations.
- If your system features a motion control system, see the Control System Operation Manual for specific information on supplied Control Systems, you will need to run the machines individually using the Maintenance Control Pendant in order to adjust and verify the installation of the machinery and set the limit switches.

Three phase motor power must be available. Once that is complete the computerized control system can be activated.
- The speed of the hoist when controlled by the pendant is not adjustable. It is set to approximately 15% of the full speed of variable speed machines and to the full speed of the fixed speed machines.
- A temporary three phase power cord is available for order. If the permanent power receptacles are not yet installed, the cord can be used to run power from a suitable three phase source to the hoists. The power cord and the Maintenance Control Pendant can be used together to temporarily activate the hoists and set limit switches before the permanent wiring is complete.
- The hoist requires a 24VDC power source in order to run with the Maintenance Control Pendant. If the E-Stop system is installed and energized, this power is supplied from the E-Stop system. An external 24VDC power supply is available for order if the hoist must be run before the E-Stop system is installed.

Installation Procedure (continued)

7 - Activate the Power and Control to the Hoist (continued)

Follow the procedure below to connect the hoist to power and control:

1. Prior to connecting the hoist power, the electrician should double check that the supply voltage matches the motor voltage indicated on the motor name plate. Check voltage across all three phases.
2. If the drive module is mounted on the hoist, plug the hoist power cable into the matching power receptacle on the electrical raceway. The power receptacle should be marked with the hoist channel number. Consult the system drawings to confirm power receptacle locations. Gently twist the plug clockwise to lock it into place.
3. If the drive module is external to the hoist, run conduit between the hoist junction box and drive module and run wire as shown on the controls cabinet.
4. To use the maintenance pendant, plug the maintenance pendant into the receptacle on the face of the drive module and make sure the hoist is supplied with three phase power. The controls on the face of the pendant will operate as follows. See Figure 2.

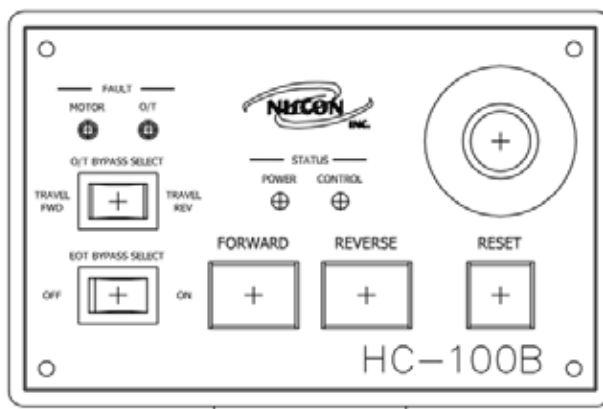


Figure 2: Face Plate of the Maintenance Control Pendant

- **ESTOP BUTTON:** Pressing the E-Stop button will activate the e-stop system, twist/pull to reset the button.
- **RESET BUTTON:** Pressing the reset button will send a reset command to the VFD drive.
- **POWER INDICATOR:** The power indicator shows 24VDC is present in the pendant.
- **CONTROL INDICATOR:** The control indicator shows control is available at the pendant.
- **MOTOR FAULT INDICATOR:** The motor fault indicator shows the VFD drive is faulted.
- **O/T FAULT INDICATOR:** The O/T fault indicator shows the axis is on an overtravel limit, estop is unhealthy, or hold-to-run is unhealthy.
- **FORWARD BUTTON:** The forward button is a momentary button used to move the axis in the forward direction. For hoisting applications, this will be up. For tracking applications this will be off-stage.
- **REVERSE BUTTON:** The reverse button is a momentary button used to move the axis in the reverse direction. For hoisting applications this will be down. For tracking applications this will be on-stage.
- **O/T BYPASS SELECT:** The o/t bypass select rocker is a 3-position momentary rocker used to bypass the forward or reverse overtravel switch.

⚠ WARNING

Bypassing overtravel limit may cause hoist or load to collide with surroundings. Keep bypass switch in NORMAL position when bypass function is not required for service.

- **EOT BYPASS:** The eot bypass rocker is a 2-position momentary rocker used to bypass the end of travel limit switches.

Installation Procedure (continued)

Step 8 - Check the Basic Machine Functions

Follow the procedure below to confirm that the hoist is operating correctly.

1. Position the operator or an observer so they can see both ends of the cable drum.
2. "Jog" the FORWARD button by pressing it for just long enough to see the direction that the drum is rotating. Confirm that the load moves upward.
3. "Jog" the REVERSE button by pressing it for just long enough to see the direction that the drum is rotating. Confirm that the load moves downward.
4. If the load moves down when the FORWARD button is pressed take the following steps:
 - a. Examine the Identification Label of the hoist.
 - b. If the machine is a fixed speed unit, an electrician must swap two legs of the three-phase power supply to the receptacle.

Notice: Do not modify the wiring of the hoist or power cord.

- c. If the machine is a variable speed unit, contact the JR Clancy factory for assistance.

Installation Procedure (continued)

Step 9 - Set the Limit Switches

⚠ WARNING

Machinery and loads can collide with surroundings when operated before limit switches are set. Operate machine at slow speed only. Operator or observer must be in sight of all obstacles in the path of the machine or load. Do not operate over the heads of people.

⚠ WARNING

Wire ropes must have at least three complete wraps around the drum at all times to avoid failure of the termination.

Notice: The limit switch indicator lights on the hoist drive module should be used to facilitate setting the limit switches.

- The Titan features a four element rotary limit switch to limit the travel of the hoist. This switch includes 4 independently adjustable switches, two to limit the normal travel of the hoist in the up and down direction and two redundant overtravel switches which should be set just outside the normal travel limits. In order to leave enough room for an emergency stop of the lifted load at full speed, the switches must be set so that striking the overtravel limit will stop the load with sufficient clearance of at least 6 inches (15 cm) from any obstruction.
- Limit switches must be set in the same way regardless of whether the hoist will be controlled by a computerized control system or by push buttons.
- Limit switches must be properly set before the computerized controller can be activated.
- Titan hoists are typically shipped without the wire rope paid out, and the limit switches set to give the greatest amount of travel possible in both the up and down directions, unless stated otherwise on the drawings and/or machine tag for the specific job. This amount of travel may not correspond to the confines of any particular installation, so great caution must be used until the limit switches are reset by the installer.

Follow the procedure on the following page to set the rotary limit switch.
See Figure 3.

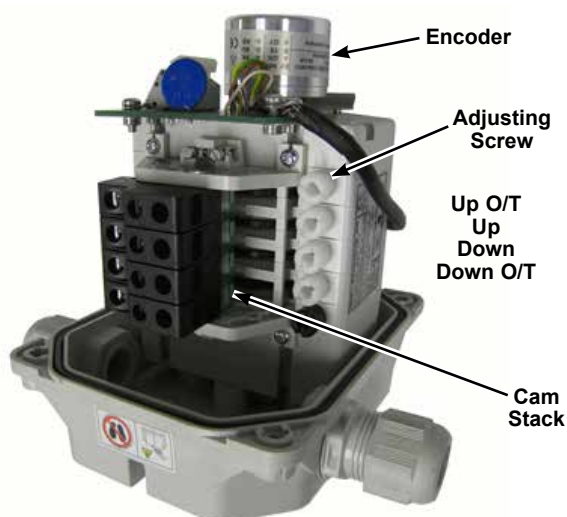


Figure 3: Stromag Rotary Limit Switch (with cover removed)

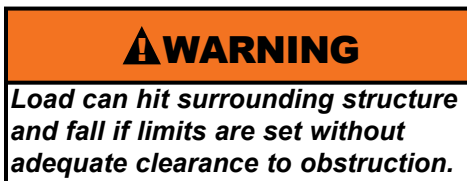
Installation Procedure (continued)

Step 9 - Set the Limit Switches (continued)

1. Position the operator or an observer so that the limit switches and both ends of the cable drum can be seen.
2. Position the operator or an observer so that all parts of the lifted load can be seen.
3. Remove the limit switch cover.
4. Establish switch rotation:
 - a. Drive hoist in UP direction. Note the direction of the cam stack rotation.
 - b. Mark switch cover or label inside switch to record cam stack rotation.
 - c. Avoid contacting screw terminals on switches while control system is on.

Notice: Do not allow hoist drum to hit the machine frame.
Observe during operation prior to setting limit switches.

5. Determine hoist travel:



- a. Determine where load must stop to avoid damage to hoist, lifted load or surrounding structure. Set overtravel to stop load short of this point.
 - b. For each end of travel, set overtravel switch first. Then, the normal end of travel switch.
 - c. At the lower end of travel, confirm there are at least three (3) standing "dead" wraps on the drum at all times.
6. Adjust limit:
 - a. Drive the hoist to the desired end of travel.
 - b. Re-verify cam stack rotation (when the hoist travels up, does the cam stack rotate clockwise or counterclockwise). Determine which side of the desired switch the limit cam must strike (i.e. if the cam stack rotates clockwise when the hoist travels down, and you are setting a down limit, the cam must actuate the down limit while moving in a clockwise direction).
 - c. Locate the adjusting screw for the desired limit by referring to the numbers adjacent to the adjusting screws. Note that the lowest switch in the cam stack (down overtravel) is switch 1, the next switch (down limit) is switch 2, the next switch (up limit) is switch 3, and the highest switch in the stack (up overtravel) is switch 4.
 - d. Rotate the adjusting screw with a 4mm hex (allen) key to adjust the limit cam lobe to a position where the selected limit switch is just actuated (audible click).

Installation Procedure (continued)

Step 9 - Set the Limit Switches (continued)

7. Test Limit
 - a. Drive hoist away from limit until limit is cleared (use overtravel bypass switch to move hoist off overtravel limit if needed).
 - b. Drive hoist toward limit until limit stops motion.
 - c. Assess stopping position (measurement vs. target).
 - d. Drive hoist off limit (use overtravel bypass switch to move hoist off overtravel limit if needed).
8. Refine Limit Adjustment
 - a. Repeat the Adjust Limit procedure, as detailed above.
 - b. Move cam lobe closer to switch to make switch trip sooner (decrease travel distance).
 - c. Move cam lobe further from switch to make switch trip later (increase travel distance).
 - d. Retest limit adjustment until hoist stops at desired position.
9. Adjust Remaining Limits
 - a. Once overtravel limit is set, set normal limit at same end of travel.
 - b. Check to ensure that there is sufficient distance between normal limit and overtravel limit - if the hoist strikes both limits before stopping, increase the distance between the limits by moving the normal limit to stop the load sooner.
 - c. Once all limits are set, replace the limit switch cover.

10 - Check The Fleet Angle Of The Cables To The Drum

Observe the angle of the drum grooves and determine if the cable is parallel to the drum grooves. See Figure 4.

The alignment between the head block and drum is not field adjustable. If the fleet angle is incorrect, the number of dead wraps on the drum must be adjusted to correct.

Refer to Section 5.

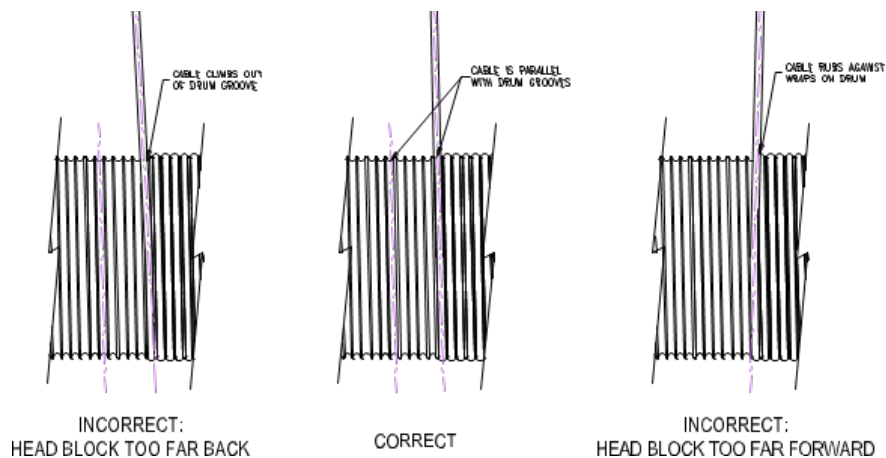


Figure 4: Inspecting The Fleet Angle At The Drum

Installation Procedure (continued)

Step 11 - Check Drum Screw Lubrication

The drum screw is typically lubricated at the factory, but must be checked at the time of installation.

Use the following procedure to inspect the lubrication.

1. Confirm that a film of grease covers the entire exposed area of the drum screw as seen in Figure 5.
2. If the grease is contaminated with debris or excessive dust, wipe all of the contaminated grease off and re-lubricate with a thin even film of Castrol Inc Pyroplex Red NLGI #2 EP High Temperature Grease. Contact JR Clancy if you cannot locate a dealer with the specified grease in your area.

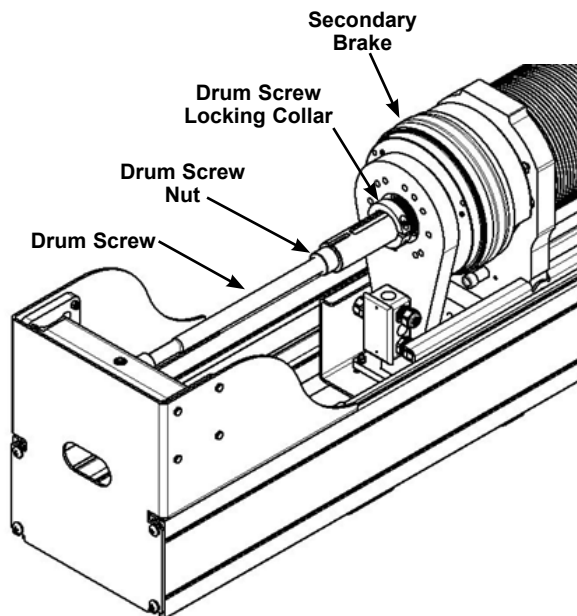


Figure 5: Drum Screw

Step 12 - Check Reducer Lubrication and Vent

The gear reducer unit is typically filled with oil when shipped from the factory. The oil level is determined by what position the machine will be operating in.

Because the orientation of the machines are sometimes changed during installation, the oil level must be checked when the machine is installed in its final operating position to ensure that the reducer is properly lubricated.

Check the oil level using the chart in Figure 7. Contact JR Clancy if lubrication level is incorrect.

Use the chart to locate the reducer breather valve and make sure that the protective rubber band is removed and discarded. See Figure 6.

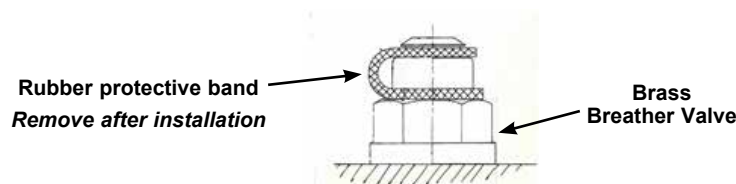


Figure 6: Reducer Breather Valve With Protective Band

Installation Procedure (continued)

Step 12 - Check Reducer Lubrication and Vent (continued)


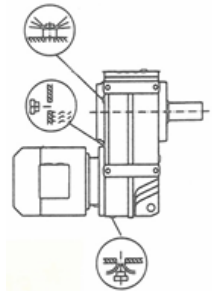

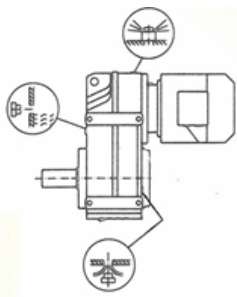

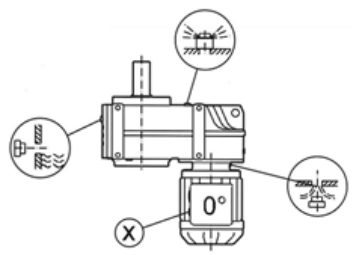



Mounting Position	Lubrication Ports
 <p data-bbox="227 483 446 535">Underhung Hoist Reducer Position M3</p>	
 <p data-bbox="227 819 446 871">Upright Hoist Reducer Position M1</p>	
 <p data-bbox="162 1239 397 1291">Wall Mounted Reducer Position M2</p>	
<div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  <p data-bbox="292 1438 389 1470">Fill Level</p> </div> <div style="text-align: center;">  <p data-bbox="454 1438 600 1470">Breather Valve</p> </div> <div style="text-align: center;">  <p data-bbox="665 1438 779 1470">Drain Plug</p> </div> </div>	

Figure 7: Reducer Lubrication

Installation Procedure (continued)

Step 13 - Check the Load Brake

The Titan is equipped with two brakes: a primary motor brake and an electrically operated secondary load brake.

⚠ WARNING

The primary and secondary brakes must be properly adjusted or the load can fall if the hoist loses power.

The secondary brake is calibrated at JR Clancy, but the following procedure should be used to check the brake once it is installed. See Figures 8-10 on the following page.

1. Locate the three locking nuts on the face of the brake.
Confirm that all three nuts are in place.
2. Locate the manual release bolt holes in the face of the brake.
Confirm that the release bolts have been loosened.
3. Slide the protective rubber boot back to expose the air gap between the brake magnet and the armature assembly. The edge of the paper disk will be visible.
4. Check the gap between the paper disk and magnet at a minimum of three locations around the brake.
This gap should be set to 0.9 mm (0.035 inches).
A mechanic's feeler gauge is recommended to inspect this gap.
5. Adjust the nuts on the face of the brake as necessary to maintain the proper clearance.
The nuts must remain fully threaded on the studs at all times.
6. Replace the rubber boot around the brake when adjustment is complete.

Installation Procedure (continued)

Step 13 - Check the Load Brake (continued)

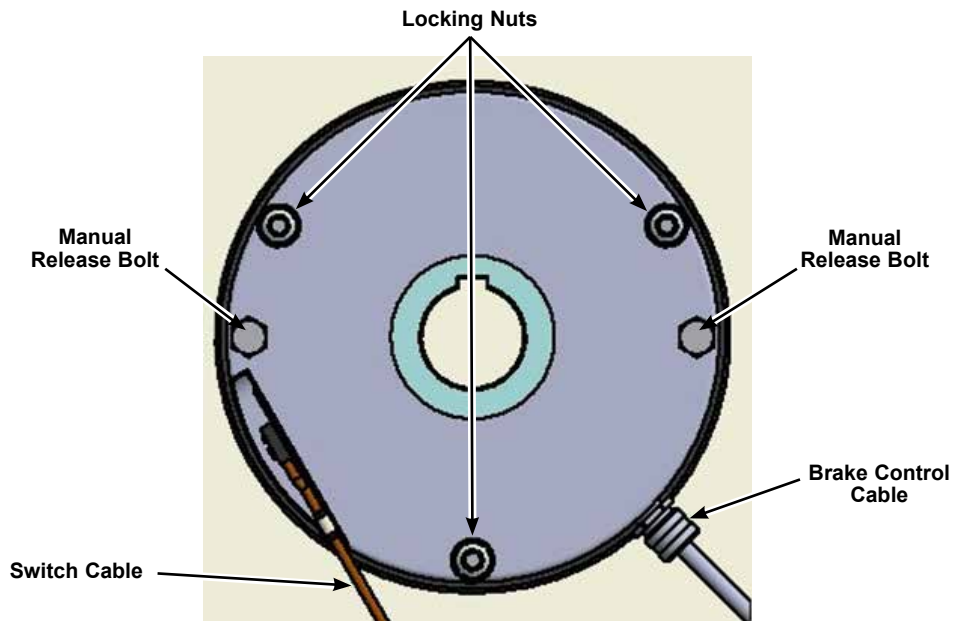


Figure 8: Secondary brake bolt locations

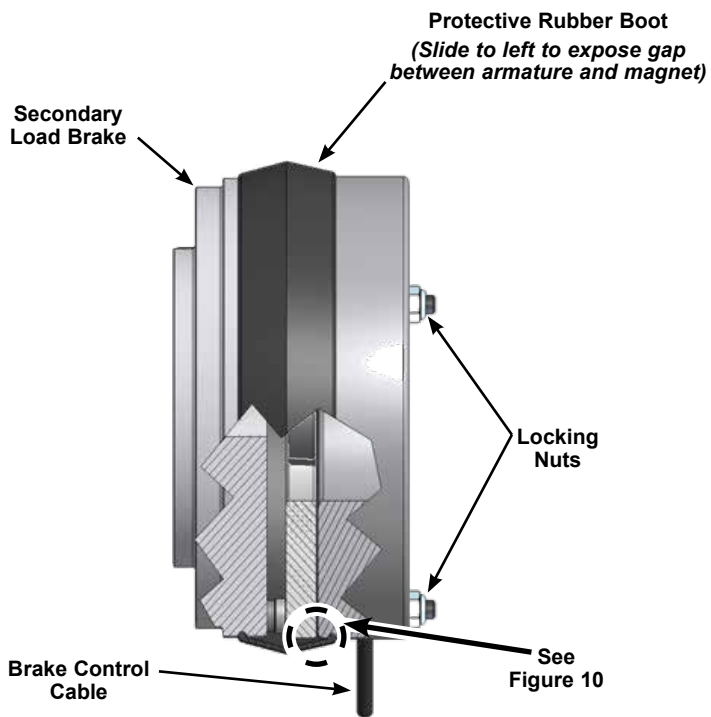


Figure 9: Side view of brake with rubber boot

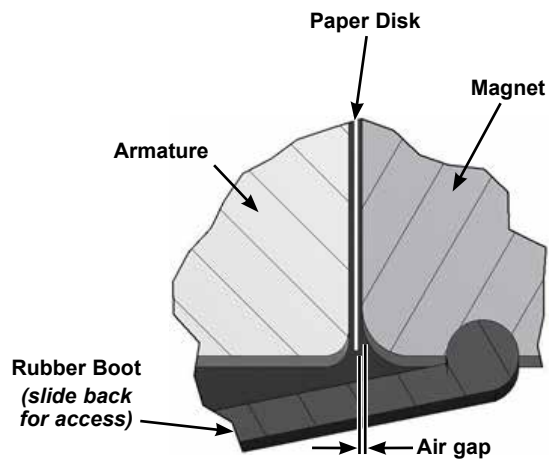


Figure 10: Detail view of brake air gap

Installation Procedure (continued)

Step 14 - Program the SceneControl User Interface

If a SceneControl computerized user interface has been provided with your equipment, it must be activated and programmed by JR Clancy factory personnel. All of the above steps of the installation must be complete prior to requesting activation of the controls.

Step 15 - Install Safety Signs and Capacity Labels

1. Install a capacity label on each batten. Make sure that the label capacity matches the capacity of the machine marked on the Identification Label.
2. Install the "Motorized Hoist Rigging" safety sign (Part # 002-WINSIGN). Fill in the set capacity information. Fill out or attach a business card to the designated area of the sign. Note the date of next required inspection.

Step 16 - Train the Operators

The owner and users must be trained to operate this equipment, including:

1. Use of the machinery controls.
Present and discuss the Operation and Maintenance Manual.
2. Basic safe operation of motorized rigging.
3. Basic maintenance and troubleshooting.
Present and discuss the Maintenance Manual.
4. The requirements for regular Training, Inspection and Maintenance.
5. Use of the Maintenance and Inspection Log.

Step 17 - Inspect the Completed Installation

Notice: Final inspection must be performed.

The inspection checklist must be filled out, signed, and returned to JR Clancy to activate the warranty.

After the system is installed a final inspection is required.

1. Use JR Clancy part number 003-2120 Titan Inspection Checklist.
A copy was shipped with your order, or contact the factory to obtain a copy.
2. Follow the instructions on the checklist and fill out completely.
3. Fill out the attached Certificate of Inspection. You must mail, fax or email a scanned copy of the signed document to JR Clancy to receive a letter of warranty for this product.