

GLEASON® PowerTrak[®] GRP

Installation and Servicing Guide TYPE 225 POWERTRAK CARRIAGE Standard and Opposed System

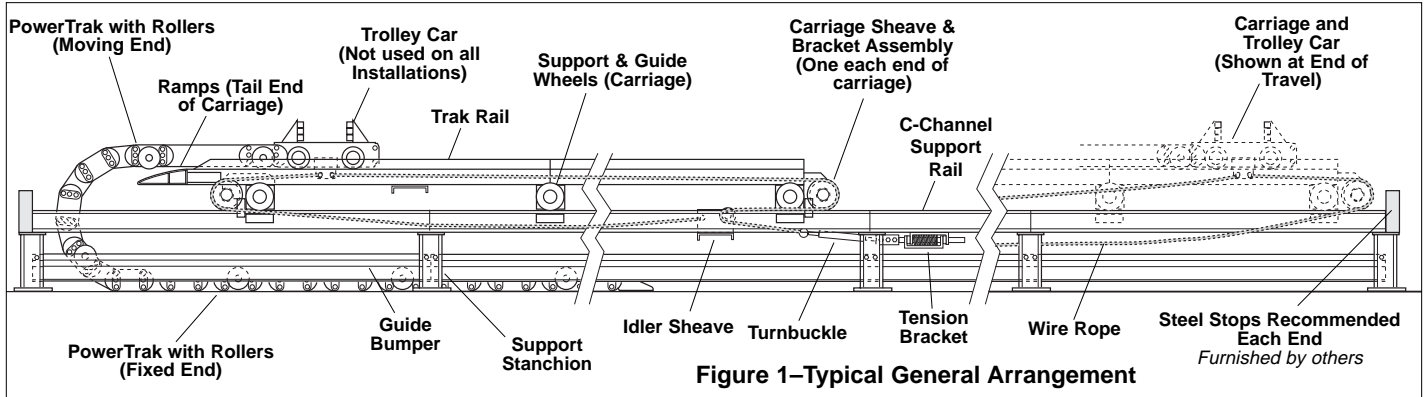


Figure 1—Typical General Arrangement

I. INTRODUCTION

The type 225 PowerTrak Carriage System is designed to allow high acceleration and velocity of PowerTrak Carrier Chains with low towing forces and maximum PowerTrak life. The system consists of a stationary C-channel rail supporting a rolling carriage. The carriage consists of Trak rail with numerous wheel assemblies which support and guide the carriage on the C-channel rail. Rollers on the PowerTrak links ride in the Trak rail. The carriage moves half as far and half as fast as the moving end of the PowerTrak. Carriage movement is controlled by cables running around sheaves at each end of the carriage. Please see Figure 1 and Figure 2 and the General Arrangement Print specific to your installation.

NOTE: Unless otherwise stated, all components are supplied by Gleason Reel. Customer or installing contractor must supply suitable system support, hardware or welding materials for affixing system to support, tow arm, cables or hoses conveyed by PowerTrak, and other items as noted.

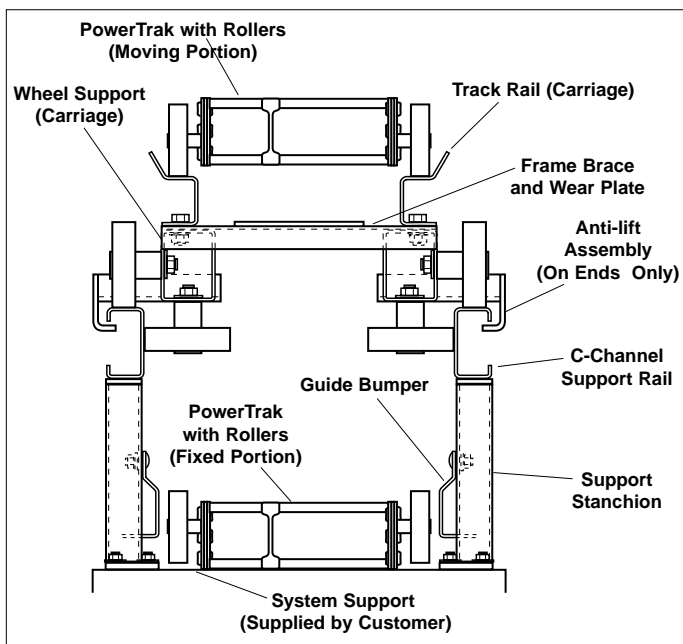


Figure 2—Typical Section View

II. C-CHANNEL RAIL INSTALLATION

- 1) Bolt or weld first and last stanchions for one side of system to system support. Install stanchions with open side out (Fig. 3). Run line or laser between them to act as guide when installing remaining stanchions. Tops of stanchions must be precisely aligned, parallel with line and level, with spacing between centerlines of stanchions exactly as shown on print supplied with system.
- 2) Repeat Step 1 for stanchions on opposite side of system, paying special attention to spacing between the two sides. Refer to section view on print for required spacing between rails.
- 3) Rail sections must be paired throughout system (right side and left side must match). Sections join at support stanchions (Fig. 3). Bolt rail sections to stanchions. Be sure joints between all C-Channel sections are tight and smooth with no gaps or bumps. See allowable tolerances on following page.
- 4) Bolt guide bumper sections to insides of stanchions (Fig.3).

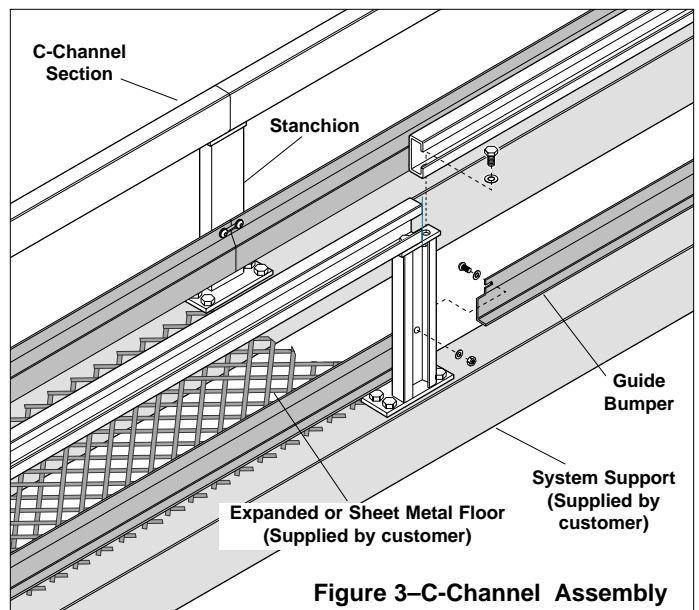


Figure 3—C-Channel Assembly

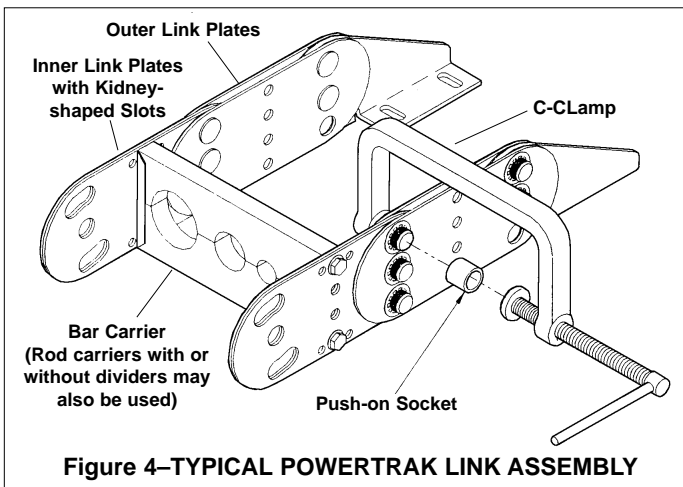
C-Channel rail must be installed to meet the following tolerances:

- A) Slope deviation must not exceed rise/run ratio of 1.00"/10' along rail length and .005"/1.00" across top flanges between rails.
- B) Camber and sweep deviation must not exceed 0.2" in 10'.
- C) Dimensional tolerance between rails to be + 0.12".
- D) Stanchions to be perpendicular to rail.
- E) Rail joints must be matched and butted tight—max. 0.30" gap and offset.
- F) Rails must be parallel with machine travel. Deviation not to exceed 1" in 10' or 2" for entire system length.
- G) No expansion joints allowed.

III. POWERTRAK ASSEMBLY

NOTE: If system is elevated, there must be a floor to support lower section of PowerTrak.

1) Splice PowerTrak sections together on the floor or provided supporting surface between the rails with the flexing (loop) direction facing upward. The trak joints assemble like a tongue and groove with the kidney-shaped slots clevised between the outer link plates (Fig. 4).



2) Position the trak with the carrier hole pattern (bar carriers only) or compartment partitions oriented to match the cable/hose arrangement shown on the print.

3) Coil two sections of trak so the links to be joined are outside the coil and meet at the floor. This method will compensate for the crown (positive camber) which is built into PowerTrak for most applications. PowerTrak lengths greater than 20' may be difficult to handle in this manner.

4) Block each coil to prevent unwinding.

5) Install fasteners provided at joint; hinge pins and retaining rings are typical (Fig 4) although, on some models, bolts are used.

6) Slowly uncoil PowerTrak. Keep coils under control because free-rolling can be dangerous as well as damaging to PowerTrak or rails. If no other trak sections are required, go to Step 9.

The following two steps are recommended when joining three or more PowerTrak sections, lengths greater than 20 feet or heavy duty PowerTraks difficult to handle in coiled sections:

7) Lay the PowerTrak sections end to end between the C-Channel rails with carrier hole patterns or compartment partitions oriented the same on all sections and with the flexing (loop) direction facing upward.

8) Install the fasteners as shown above. If PowerTrak has a crown, install the central (pivot) pin only. The two outer pin positions cannot

be installed at this time. **IMPORTANT: Mark each joint for the outer pins to be installed later.**

9) Secure the fixed end mounting brackets in location shown on print using Grade 5 bolts or better.

A heavy cable/hose load may make it desirable to install cable/hoses after carriage is installed and PowerTrak is in place on trolley car. If that is the case, go to CONSTANT TENSION DEVICE INSTALLATION and install cables/hoses during PowerTrak installation procedure.

10) Install cables/hoses as required. For two or more layers, install the layer nearest the floor first, working upward.

11) Cables/hoses must be fed through the entire length of trak when carrier options are welded channel or solid bar type. This method of installation is also acceptable for any carrier option on PowerTraks of 20' or less. Do not attachable/hose connectors before installing into PowerTrak using this method unless it is certain the connectors will pass through the carriers holes or openings.

12) When PowerTrak lengths exceed 20', it is recommended the upper portion of all carriers be removed, if possible, and set immediately beside trak. Cables/hoses are then easily set into their corresponding compartments. In this way, connectors can be attached before installation. Mid-length splices are also possible with this method.

13) Cables/hoses must not be twisted and must be free of kinks. Multiple conductor cables with internal twists or kinks may result in rapid conductor failure. A quality P&R cable is recommended.

14) Cable/hose jacket lubricant will reduce friction and improve wear rate during PowerTrak operation. Consult your cable/hose supplier.

15) Reassemble the upper portion of all carriers.

IV. CONSTANT TENSION DEVICE INSTALLATION

1) Clamp tension bracket (Fig. 5) to underside of C-channel in location shown on assembly print with holes centered along flange width.

2) Drill four 0.531" dia. holes through bottom rail flange and secure tension bracket with hardware supplied.

3) Clamp idler sheave assembly (Fig. 5) to underside of C-channel in location shown on assembly print with holes centered along flange width. Drill holes and secure as with tension bracket.

NOTE: Clevis end of tension bracket plunger must point toward idler sheave.

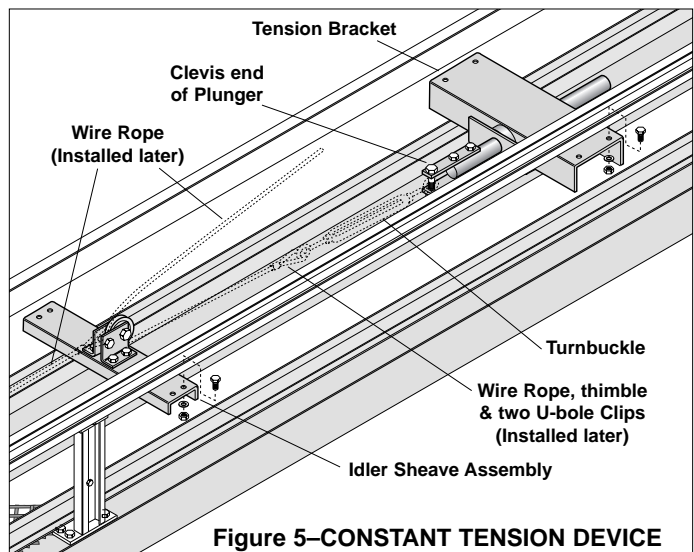


Figure 5—CONSTANT TENSION DEVICE

V. CARRIAGE ASSEMBLY

Carriage consists of formed trak rails made up of 72" long intermediate sections (quantity depends on system length) with shorter sections on each end to obtain the required length. Refer to print for your installation for number of intermediate sections and lengths and placement of end sections.

1) Lay out intermediate carriage rail sections in pairs on flat surface, preferably floor next to C-Channel rail installation.

2) Position each pair of rails with opening to the outside and angled flange up (Fig. 6). At mid-length of each pair attach a tie channel (wear bar up) with fasteners supplied.

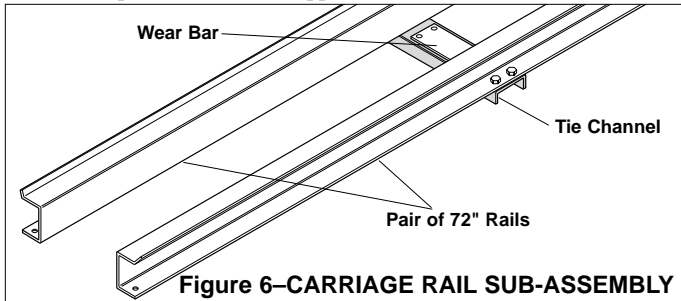


Figure 6-CARRIAGE RAIL SUB-ASSEMBLY



WARNING

This movable carriage may present a drop hazard when operated in elevated locations. It is recommended that a metal stop be installed at each end of the support tray or rails to prevent the carriage from rolling beyond the ends of the support should a wire rope or chain fail. See Fig 1.

3) Turn the first, third, fifth (etc.) rail assemblies over. At each end attach a tie channel, two splice angles and two wheel support assemblies (Fig 7). Check to make sure assemblies are square and flat. Tighten all bolts securely. Return to upright position.

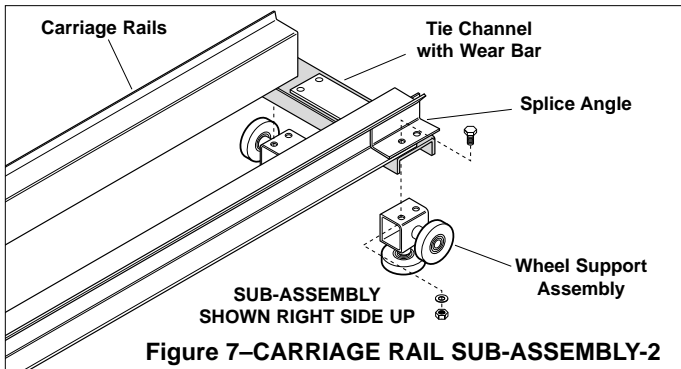


Figure 7-CARRIAGE RAIL SUB-ASSEMBLY-2

4) Place sub-assemblies on C-Channel rails. Roll along rails to make sure there is no binding or other alignment problem.

5) Insert one of the assemblies without wheels (step 2) between the first and third assemblies (Fig. 8). Bolt securely in place and "test roll" this 18' section to check for binding.

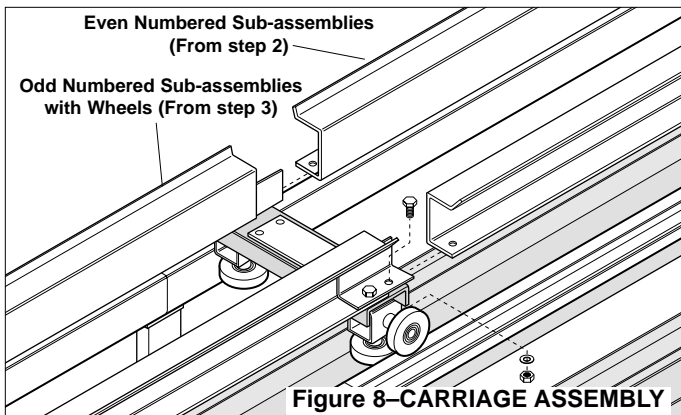


Figure 8-CARRIAGE ASSEMBLY

NOTE: Special care must be taken when joining rail sections.

Top flanges must meet with no gap or discernable bump.

6) Continue as in step 5 until all 72" sub-assemblies are assembled.

7) Slide two wheel supports with anti-lift hooks onto tail end of C-Channel rail. Assemble wheel supports, carriage sheave & bracket assembly and two shorter carriage rail sections (per print) as shown in Figure 8. Attach this sub-assembly to carriage as in Step 5.

8) Install ramps onto ends of rail (Fig. 9).

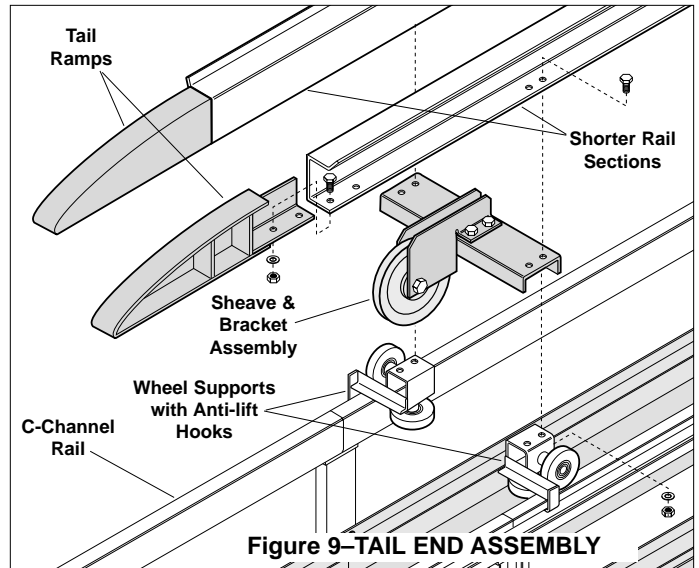


Figure 9-TAIL END ASSEMBLY

9) Slide two wheel supports with anti-lift hooks onto head (opposite) end of C-Channel rail. Assemble wheel supports, carriage sheave & bracket assembly and two shorter carriage rail sections (per print) as shown in Figure 10. Attach this sub-assembly to carriage as in Step 5.

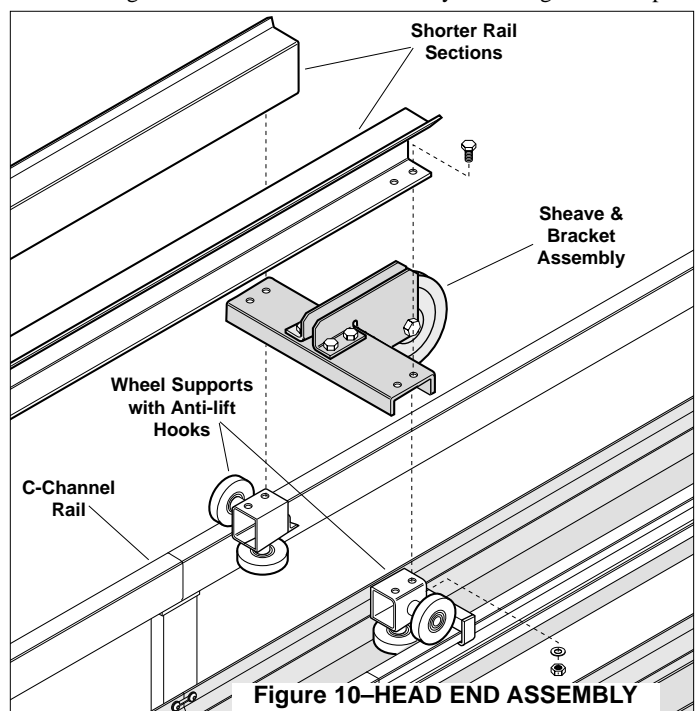


Figure 10-HEAD END ASSEMBLY

10) Place trolley car on carriage rails and test carriage alignment by rolling trolley full length of carriage. Adjust carriage as required to eliminate binding, bumps, etc.

VI. WIRE ROPE INSTALLATION

1) Temporarily fix trolley car at location shown in Figure 1.

2) Form eye in one end of wire rope supplied by wrapping 5.5" of wire rope around thimble and securing with two U-bolt clips. Torque clip nuts to 30 lbs-ft.

3) Attach both wire ropes to anchor beneath trolley car. Run one rope each way to ends of carriage, around sheave and back toward idler bracket on C-Channel rail. Refer to Figure 1.

4) Attach wire rope from tail end of carriage to bolt through idler sheave bracket. Attach fully extended turnbuckle to clevis on tension bracket plunger. Run other wire rope around idler sheave and attach to turnbuckle. NOTE: Terminate ropes by forming eye as in step 2 but leave 12" extra rope for future adjustment.

5) Release trolley car and adjust tension on wire ropes. Tighten turnbuckle until spring in tension bracket is compressed 1.0" to 1.2" (75 lbs. tension).

6) Push trolley car to move carriage along rails. Operation must be smooth when a constant force is applied.

VII. POWERTRAK INSTALLATION

1) Loop free end of PowerTrak up and over carriage tail ramps and connect to trolley car with link fasteners provided. (Refer to PowerTrak Assembly.

2) Install cables/hoses. Return to Steps 10 – 16, POWERTRAK ASSEMBLY. Following cable/hose installation, continue with Step 3.

3) Secure all cables/hoses at both ends of the PowerTrak, adjacent to the mounting brackets, to prevent any movement relative the trak.

4) Complete all cable/hose terminations.

5) A customer furnished tow arm is required to transmit motion from the machine to the PowerTrak system. Clearances between 0.1" and 1.0" within the trolley car jaw opening are recommended. The arm **MUST** be able to move on all three axes to allow for variations between machine rails and PowerTrak system rails.

NOTICE:

Preventing three axis tow arm movement by clamping or otherwise affixing tow arm to trolley or PowerTrak link could lead to system damage or failure and will void Gleason warrantee.

6) Operate the carriage and PowerTrak slowly toward the fixed end. **IMPORTANT:** If trak crown prevented insertion of outer fasteners during PowerTrak assembly, stop movement as each marked joint enters the loop so the link is only slightly flexed. Install missing fasteners on each side chain.

7) Operate the machine and PowerTrak system a few times throughout entire travel stroke. Check for binding of link joints and cables/hoses during flexing. Check for adequate clearance between PowerTrak wheels and the carriage rail flanges...wheels must not ride on the sloped retaining flanges at both sides of the trak. Check cable/hose connections and securing devices at both ends.

VIII. MAINTENANCE

The PowerTrak Chain and Carriage system is engineered for provide long, trouble-free service in the most demanding applications. Please follow the maintenance schedule below for safe and reliable operation.

DESCRIPTION	PRIOR TO OPERATION	EVERY 6 MONTHS	AFTER FIRST & 100th CYCLE	EVERY 1000 CYCLES
Check chain link, carriers, and mounting brackets for tightness		X		
Check cable/hose connections and splices	X	X		
Check cable/hoses for twists or kinks	X		X	X
Check wire rope tension				X
Clean and lubricate chain side links*		X		
Check to make sure carriage and trak rails are free of obstructions	X	X		
Clean Carriage system		X		
Check all carriage and rail fasteners		X		
Check cable/hose wear and tension			X	X
Lubricate wire rope**			X	
Lubricate wire rope idler sheave***		X		
Check carriage rail alignment		X		

*PowerTrak chain links joints are lubricated at the factory prior to shipment. Operation in environments having high humidity, periodic flooding, dirt, dust, abrasive or corrosive contamination, etc. will require periodic trak cleaning with water or air pressure followed by lubrication. A molybdenum disulfide or silicone filled lubricant is recommended. **Do not** use grease or oil lubricants.

**Use good, penetrating, water resistant wire rope lubricant.

***Flood Idler sheave with oil or pack with general purpose grease. All other carriage, PowerTrak and trolley car sheaves and wheel bearings are greased and sealed for life.

NOTE: Replace any damage chain links or carriers immediately after detection. It is recommended that 5 to 10 percent of the overall PowerTrak length with carriers be kept on hand as spare parts.



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Supersedes Bulletin PT-225.1
PN 044534.a