SERIES GRP NYLON POWERTRAK

Installation/Maintenance Instructions

Prior to installing PowerTrak, be sure you read and understand "Cable and Hose Guidelines", Page 4.

1. The PowerTrak carrier system requires a level, rigid support for proper operation. A retaining tray to guide and support the lower track section is recommended. Ambient temperature of +40ºF or higher is recommended while working with the PowerTrak.

2. Lay the track on a flat surface with the flexing radius facing upward (runner side up). Locate clip ends of retaining bars (largest protrusion on bar which utilizes entire notch area in link side wall). Release bar clips using 1/4" wide flat tip screwdriver. Insert screwdriver beneath end of clip in the lower notch area and gently twist until bar "snaps" free and it swings upward. CAUTION: Too much force could break off clip.

3. Lay cables/hoses in track compartment, allowing sufficient length at each end for connections. Adjust separator(s) as required and reinstall retaining bars as described below. If more convenient, bars may be turned around so they open on opposite side of track.

   Carefully insert hook end of bar into the upper area of the notch in the link side-wall. Swing bar down and center the clip end over the notch in the opposite side wall. Gently apply an increasing downward force until the clip "snaps" into place. DO NOT hammer with fist or other instrument as damage to bar may occur. The top of the link side wall and the retaining bar should be flush. Check to make sure bar is "snapped" securely into the side wall. NOTE : Some track systems may utilize a nylon split-bar carrier insert in every second or third link. Install lower half section before laying cables/hoses. Point profile edge downward into link with the grooved ends straddling the cable wear bars running vertically along both inner side-walls. Push lower section down into link opening until it reaches the bottom ribbed beam. After laying cables/hoses, insert the upper half section in link frame so the machined cable/hose openings match with the first inserted section. Be sure hole pattern is arranged per your requirements. Lastly, insert the retaining bar and "snap" in place as described above. The split carrier insert will be captivated all around if properly installed.

4. Secure the fixed end mounting brackets to the rigid support. Locate and drill mounting holes using the brackets as templates if desired.

5. Fasten the movable end mounting brackets to the machine arm in direct (plumb) alignment with the fixed end brackets.

6. Complete all cable/hose terminations. The cables/hoses must not be twisted and shall be free of kinks or other irregularities. The basic rule for the maximum allowable cable/hose area utilized within the track compartment for uniform arrangements is 20 percent clearance (minimum inside dimensions = cable/hose diameter x 1.20). This allows for dimensional tolerances of the cables/hoses and insures freedom of movement to prevent erratic track operation and premature cable/hose failure.

7. Operate machine slowly throughout total travel stroke to insure track is running true and the travel limits are not exceeded.

8. Adjust cable/hose tension to help prevent twisting and premature wear. Cable/hose must lay within the loop section of the track in a relaxed condition–not pulled against the track bars–and follow a straight path through the entire length of the track. Secure the cables/hoses at both ends of the track, near the mounting brackets, to prevent any movement relative to the track.

9. No lubrication is required. To clean the PowerTrak, periodically wash-down with water (do not allow to freeze) or blow dirt and debris away with air pressure.

10. Periodically inspect for cable/hose wear, track wear and breakage. Also check that track mounting brackets and cable/hose terminations are secure.

SERIES GRP NYLON POWERTRAK

Materials and Servicing Guide

Track length adjustment and replacement of damaged or worn parts can be accomplished by following these instructions very carefully. But first, a brief discussion of material and components will provide a better understanding.

All Series GRP PowerTrak components are injection molded of chopped fiberglass filled nylon resin with black colorant. Nylon (polyamide) is a crystalline plastic exhibiting excellent fatigue resistance, low coefficient of friction, good toughness, and resistance to a wide range of fuels and chemicals. Glass fiber reinforced compounds provide greater strength and stiffness with improved impact strength. Flame retardant nylon compounds are available with 94V-O classification.

All nylon absorb moisture which has proven to enhance certain properties of Series GRP PowerTrak. The moisture content decreases stiffness and increases elongation and impact resistance. When handling the PowerTrak during installation, length adjustments or part replacement, this resiliency is important in preventing part fracture or breakage due to abnormally high stresses which don't occur during normal track operation. This does not imply that nylon Series GRP PowerTrak is unbreakable, but it is an extremely tough, long wearing, lightweight, corrosion resistant, low cost method of containing electrical cables and hoses supplying power to machinery in motion.

Series GRP PowerTrak is designed to be simple to use, virtually maintenance free, and strong enough to be self-supporting for shorter travel lengths containing light to moderate payload weights. The resilient nature of the PowerTrak material will allow deflection of longer unsupported track lengths to permit sliding upon itself, finished steel or rollers within a steel tray designed for this purpose. Please refer to Bulletin No. PT–124 for tray installation.

Series GRP PowerTrak components require no special tools for installation or servicing. You will only need a 1/4" wide flat tip screwdriver approximately 6" long. An additional 3/8" wide flat tip screwdriver is required for the larger PowerTrak models.

Please note the following as you examine a section of Series GRP PowerTrak:

1. PART IDENTIFICATION

1.1 Link Frame – U-shaped body with a wide, ribbed beam molded integrally with the side plates. Side plates have holes and slots or holes and pins for joining link frames.

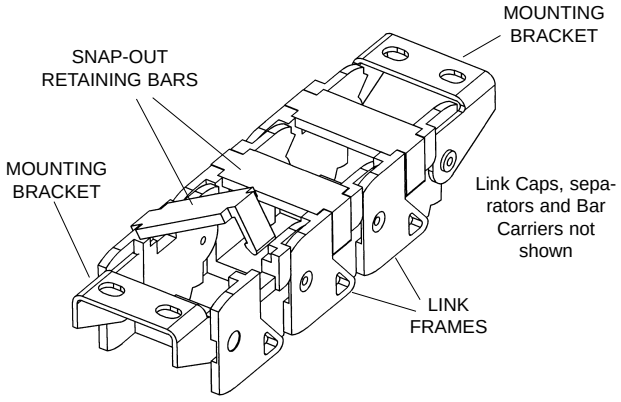
1.2 Link Caps (RH & LH) – For use on 263P and 354P PowerTrak models only. Discs with pins and accurate bosses assembled to sides of track. Model number, RH or LH, and arrow pointing to track flexing radius are embossed on the caps. Link caps join all link frames together without pins, bolts, or rivets. A centrally located 2 or 3 jaw pin holds caps in place for a secure, reliable track assembly.

1.3 Retaining Bar – Removable, ribbed bar located at top (open end) of the link frame and held in place by a hook at one end and a clip at the other end. The bars are factory installed so the link compartment may be accessed from one side only. When removed, they can be flipped end for end so access is from the other side of the track. This is a unique feature to help ease compartment access of an installed track.

1.4 Separators – Adjustable partitions within the track compartment which separate cables/hoses so as to prevent cable/hose entanglement and act as a support column to strengthen load capacity of the retaining bar. Separators securely grip the link frame beam and cradle the retaining bar.

1.5 Bar Carriers (optional) – For use on 263P and 354P PowerTraks only. Machined nylon bars contain cables/hoses on an individual basis. They are custom manufactured per specific payload requirements and increase cable/hose life by restricting movement within link compartment.

1.6 Mounting Brackets – Zinc plated steel brackets secured to both ends of PowerTrak for a strong, reliable assembly. Bracket on one end of the PowerTrak are bolted to the fixed (non-moving) support surface. The opposite end is bolted to a support arm on the moving machine. Brackets can be pivoted 90° for face mounting or inverted.



SERIES GRP NYLON POWERTRAK TRAY SYSTEM
Material and Servicing Guide (Continued)

Use the following procedures to adjust track length, replace links or splice track sections. Adding or removing links when ambient temperature is lower than +40ºF may produce material fractures. Warm material in hot tap water if required.

2. LINK REMOVAL (Models 263P & 354P only)

2.1 If track is lying within a guide tray, elevate and support track above tray or completely remove from tray to allow access to link caps on both sides of track.

2.2 Identify link joints to be disassembled and relieve joint stress by shimming track to establish a slight arc in the flexing direction.

2.3 Place a 1/4" screwdriver into the recess at the edge of each link disc. Gently pry the cap off by pushing the screwdriver tip between the kidney shaped bosses (visible as indentations on disc face) and the central holding jaws. **NOTE: DO NOT** force the blade directly toward the holding jaws at the center of the cap. An impact from the screwdriver may fracture the jaws.

2.4 Continue forcing the screwdriver blade beneath the link cap until it snaps free of the inner link side wall. A 90º twist of the screwdriver will lift the cap further. Rotate the cap in both directions to be sure it is free.

2.5 Position the 3/8" wide screwdriver tip adjacent to the holding jaws between the link cap and side wall. Twist the screwdriver gently using the width of the tip to pry off cap. DO NOT pry off cap by lifting on screwdriver handle (as a lever) because force applied at the outer rim could cause cap distortion or breakage.

2.6 Repeat steps 2.3 thru 2.5 for remaining link caps to be removed.

2.7 Remove the links as required.

3. LINK ASSEMBLY (Models 263P & 354P only)
TIP: Lay PowerTrak links on edge when assembling several links together and then assemble into track.

3.1 Select the proper radius and RH or LH side link cap by matching with other link caps in the track. If unsure of RH or LH, position links so you are looking into the end with the kidney shaped slots and the runners are at the bottom. The RH caps go onto the right side, the LH caps the left side.

3.2 Position link frames so the round holes at one end match up with the kidney shaped slots in the adjacent link and the relative angle formed at the runner side is slightly less than 180º. Be sure all links have the runners facing a common direction.

3.3 Position the link cap with the center jaws over the center hole of the link side wall. Rotate cap until protrusions on the cap are aligned with the holes in the inner link side wall.

3.4 Gently squeeze link cap and link side walls together with hands (apply evenly distributed force) until you hear the jaws snap into place. Be sure jaws "snap" through both outer and inner link walls. A properly installed link cap will be tight against outer link wall and will rotate with inner link wall.

3.5 Repeat steps 3.2 thru 3.4 for all link caps to be installed.

4. LINK REMOVAL AND ASSEMBLY
(All other models)

4.1 Determine link(s) to be removed and insert blade of 1/4" wide flat tip screwdriver between link frame side walls. Gently pry apart until the outer wall pull free from the pin. If links cannot be separated, carefully repeat operation on the opposite side.

4.2 To assemble, match male and female ends of adjacent links and push together for a snap-fit.

NOTE: Some PowerTrak models are available as riveted assemblies. Long sections are shipped in shorter lengths with additional pop-rivets and washers for splicing joints. For additional information contact Gleason Reel.

Gleason® Reel
HUBBELL A Hubbell Company

Gleason Reel Corp.
P.O. Box 26 • 600 S. Clark St.
Mayville, Wisconsin 53050-0026
Phone 920-387-4120 • FAX 920-387-4189

CABLE and HOSE GUIDELINES

Special attention must be given when installing cable or hose into PowerTrak. Below are a few considerations.

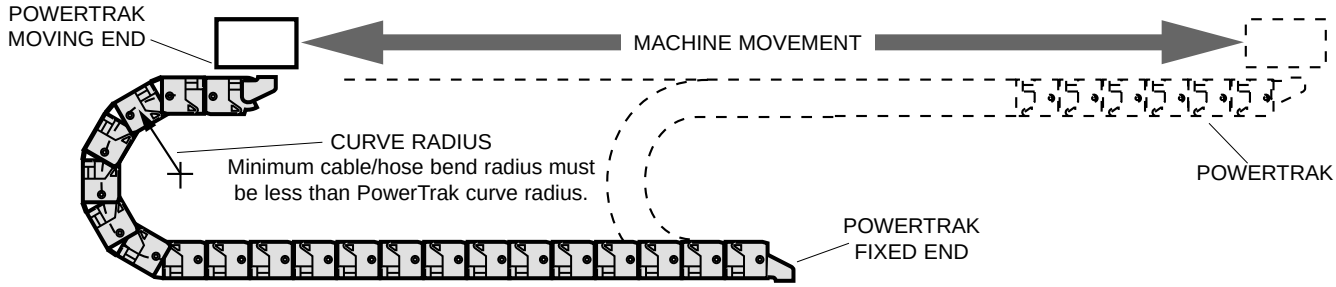


Figure 1

CABLE/HOSE SELECTION

1. Select cable or hose with minimum bend radius (MBR) *less* than curve radius of PowerTrak. Follow cable or hose manufacturer's specifications and guidelines. See Figure 1.

2. Select cable that is rated "continuous flex". Cables built for robotics are designed to flex millions of times, but some only flex on one axis. Consult your supplier for complete cable specifications.

3. Be sure cable and hoses are suitable for use in anticipated operating environment. This is especially important in outdoor applications where sub-zero temperatures cause some cable or hose material to stiffen or even break.

INSTALLATION

1. The cables/hoses must not have twists, bends or kinks at the time of installation. Unspool (do not uncoil) cable or hose from shipping reel several hours in advance of installation. Hang cables and hoses for 24 hours or, at the minimum, lay out in straight line to allow kinks and curves to straighten out. See Figure 2.

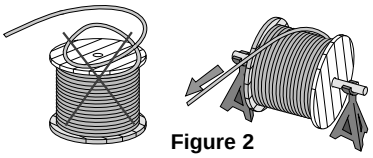


Figure 2

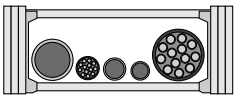


Figure 3

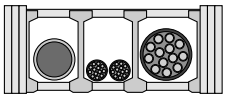


Figure 4

2. Arrange cables and hoses in PowerTrak so that load is evenly distributed across width with largest and/or heaviest cables/hoses located to the outer sides of the PowerTrak (Fig. 3)**.** Use separators between different sizes of cables and hoses to maintain proper spacing and to reduce cable/hose jacket wear (Fig. 4). Do not place large cable or hoses in same compartment with small ones (Figs. 5 & 6).

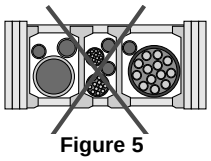


Figure 5

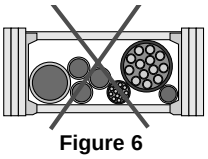


Figure 6

3. Arrange cables/hoses in the PowerTrak so as to allow adequate movement. The largest cable or hose in the trak should have 20% clearance of the trak height and the total of all cables/hoses should have 20% clearance of the trak width (Fig. 7).

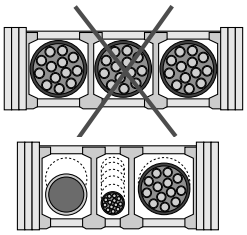


Figure 7

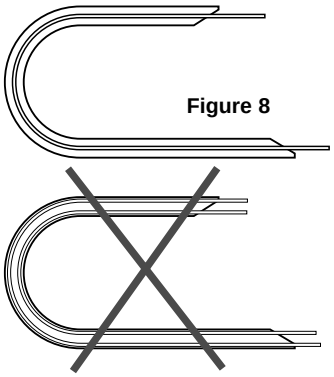


Figure 8

4. Cables/hoses should be installed along the centerline of the carriers (Fig. 8)**.** This eliminates undue cable/hose wear caused by excessive contact on the inner or outer radius of the trak. Be sure cables/hoses are not under tension or installed with too much slack.

5. Allow extra space in trak for high pressure hoses. Depending on type of construction, some hoses will increase in length under pressure while others will shrink. Check hose manufacturer to ascertain how much shrinkage or lengthening will occur.

6. Clamp all cables/hoses firmly at both ends of the trak (Fig. 9)**.** To avoid damage to the inner structure of the cables/hoses, clamp over a wide area of the outer jacket. Always leave slack between clamps and termination points to avoid stress on cables/hoses.

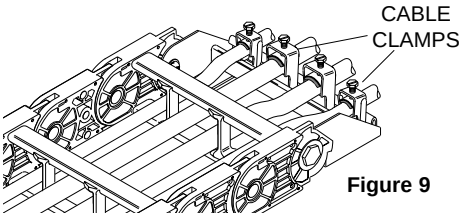


Figure 9

7. Test run PowerTrak at slow speed to make sure there is no pinching and that no kinks have developed in hoses or cables. Perform test with hoses at operating pressure. Re-adjust cable/hose length if required.

Gleason® Reel
HUBBELL A Hubbell Company

Gleason Reel Corp.
P.O. Box 26 • 600 S. Clark St.
Mayville, Wisconsin 53050-0026
Phone 920-387-4120 • FAX 920-387-4189

Bulletin #046823.a