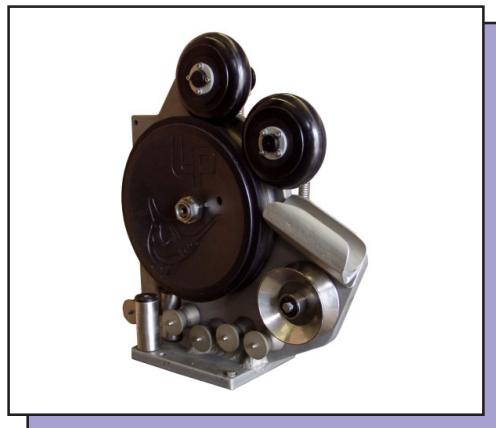




LINDGREN-PITMAN



General Maintenance of Lindgren-Pitman Hydraulic Systems & Equipment



Lindgren-Pitman hydraulic driven equipment is designed to give long reliable service with a minimum of repairs and maintenance in the marine environment if driven by a Lindgren-Pitman hydraulic system or other supplier.

Reliability of all hydraulic systems is dependent on oil quality and cleanliness. Almost all hydraulic failures are caused by excessive wear from oil contamination or water contamination. It is very important to change oil filters regularly.

How often should you change your filter? Small filters have less dirt holding capacity and need to be changed more often and larger filters as provided on Lindgren-Pitman packaged systems can be changed in 6 months or 1 year depending on the use. Any signs of water in hydraulic systems requires immediate determination of cause and repair. After repair oil change is required. Moisture in hydraulic oil will make the oil appear milky after use.

How does dirt get in my hydraulic system? Dirt is introduced first in new hydraulic systems that have not taken good precautions to keep them clean when assembled. Usually the filter can quickly remove this dirt, but problems are often encountered during the first 100 hours of operation. Secondly dirt is introduced with new oil. Your filter can take care of this, however, if you have hydraulic leaks and are continually adding oil to your system this adds dirt and wear to hydraulic parts and requires additional filter changes.

Never install a hydraulic component in your hydraulic system that is not assured to be clean and in perfect condition. These components put your entire hydraulic system at risk.

Lindgren-Pitman equipment will operate with most good quality hydraulic oil available today. Your local dealer should be able to assist you to choose oil that is good quality, readily available and is appropriate for your climate. If you need assistance for oil selection contact Lindgren-Pitman or a local hydraulic oil distributor.

Hopefully the maintenance tips in this manual will make the small amount of service required easier and your fishing venture will be reliable and successful.

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3.1 Longline Spool Maintenance

Lindgren-Pitman longline reels are designed to provide long term service with a minimum of maintenance. The reels are designed for the maintenance to be done in a very basic manner with basic tools.

Regular Cleaning

If possible the longline reel should be sprayed with fresh water after each trip or as often as possible to remove salt and help reduce corrosion. The longline reel and frame made by Lindgren-Pitman is constructed from corrosion resistant alloy aluminum. Washing with fresh water will help reduce corrosion and electrolysis to parts attached to the frame and reel such as the motor and bearings.

Lubrication

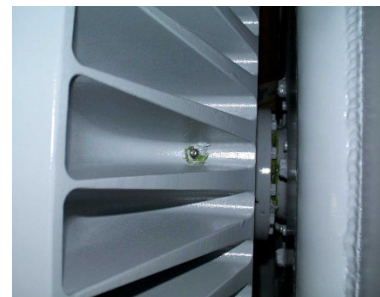
Lubrication for the longline reel should be done about once a week. It is important that lubrication be done at the end of a trip. Often bearings will obtain moisture while the boat is out of service for several days or weeks because parts are not regularly re-coated with a grease film. Greasing at the end of a fishing trip fills voids in bearings with grease and removes air and moisture that can cause bearing failure.

Greasing should be done for the following parts.

1 - Spool axle pillow block bearing (do not over grease)



1 - Hydraulic motor drive coupling



(Zerk mounted on spool between end ribs).

Note on over greasing. Over greasing can push bearing seals out of their retainer grooves and make bearings more susceptible to moisture. Careful greasing will fill the bearing, but will not push the seals out of the retaining grooves. Bearings that make noise or show rust coming from the bearing races and balls should be replaced.

3.2 Longline Spool Maintenance free parts

The following parts on Lindgren-Pitman longline reels have been improved on our G3 models. They now do not require any lubrication to operate properly.

1 - level winder roller assembly - now permanently sealed at factory using roller bearings submerged in Loctite "Viperlube" synthetic lubricant.

2 - level winder 2 - bolt flange bearings are now constructed with nylon bodies containing stainless steel roller bearings.

1 - level winder worm screw is now manufactured using "Delrin", a plastic which is known for its self lubricating properties.

An inspection hole has been added to the levelwind block to allow fresh water flushing and cleaning of the levelwind block and pawl fingers. (*reels manufactured after December 2006*)

The new plastic levelwind worm screw does not require any lubrication. In fact, applying grease to the worm screw actually inhibits the worm screw and pawl from working properly and will eventually damage the worm screw.

Maintenance on the new plastic worm / block assembly is simply flush and wash with fresh water after each trip to make certain all salt build up has been thoroughly rinsed off.

5.1 Level Winder Maintenance and repair

The level winder pawl is the only part on the Lindgren ñ Pitman longline spool that requires periodic replacement from wear. The level winder pawl rides in the diamond shaft groove and pulls the level winder block and roller assembly back and forth to level wind the monofilament. Depending on side loads and salt water spray contamination on the diamond shaft, the level winder pawl may last from 3 months to one year or more before replacement is necessary.

The pawl blade is 1/4" thick when new and will operate normally until it is worn to about 1/8" thickness. It is best to open the level winder block halves to inspect the pawl by removing the 1/4" bolts (10 on double bar block, 6 on single bar block) attaching the block halves. Excessively worn pawls should be replaced.

Excessively worn pawls will eventually bend and stop the level winder. ***NEVER*** force the level winder to turn. Opening the level winder block for cleaning and/or replacing the pawl will return the level winder to smooth operation.

The new "Delrin" worm screw requires no grease, as did the old style aluminum screw. Only periodic rinsing with fresh water to clean off salt spray contamination is required.

5.2 Replacing the level winder bearings

Parts required

	Part Number
2 Level winder bearings	
2 Bolt flange ball bearing	LW-2B-FLG-BRG
or Rulon plastic bushings (older models)	LW-RULON-BRG
Optional Level winder pulley	
12" diameter	LW-PUL-12
(Super Spools and standard spools with 2" shaft)	
10" diameter	LW-PUL-10
(Standard Spools and smaller spools with 1 1/2" or 1 3/4" shaft)	

Replacement of these parts does not require special tools or procedure. Due to corrosion effects it is sometimes easier or required to replace the shaft pulley while changing the level winder bearings. It is recommended to have the pulley on hand.

6.1 Replacing the main spool axle bearing

Parts required

	Part Number
Spools with 2" diameter shaft	
2" standard duty pillow block bearing used only on old style reels (30X36, 33X40, 36X48 standard, 36X60 standard)	STD-MN-BRG-2
2" dia. heavy duty pillow block bearing used on all current and old style Super Spools	HD-MN-BRG-2
Level winder drive pulley	LW-PUL-3.6
Spools with 1 1/2" shafts	
1 1/2" standard duty pillow block bearing or 1 3/4" standard duty pillow block bearing (older model standard duty spools)	STD-MN-BRG-15 STD-MN-BRG-175
Level winder drive pulley	LW-PUL-3

Remove the level winder link belt from the level winder drive pulley. Clean the spool shaft after removing the level winder link belt and remove and remaining rust scratches or marks on the shaft with a flat file all the way to the old bearing race. Loosen the spool bearing bolts 2 or 3 turns.

Cut two wooden wedges approximately 1 ft long that tapers from about 1/2" to 3" . Drive the wedges between the spool stand and the spool rim on the bearing side of the rim with a hammer.

Remove the bearing bolts and remove the old bearing. Drive the wooden wedges in farther if required.

Inspect the shaft again for any small marks and clean and file as required prior to installation of the new bearing. Put a silicone or other sealant on bearing footing and bolts. Remove wedges before tightening bearing bolts.

7.1 Hydraulic motor and drive gear replacement or inspection.

The Hydraulic motor and drive spline are a very reliable and long lasting assembly with proper greasing of the coupling.. Periodic inspection without cause is not necessary. Life of this assembly with clean hydraulic oil and periodic coupling grease is beyond what can be established with a 15 year history. The

Hydraulic motor has a cast iron case and external repainting will be necessary.

To remove the hydraulic motor, cut two wooden wedges approximately 1 ft long that tapers from about 1/2" to 3" . Drive the wedges between the spool stand and the spool rim on the motor side of the spool with a hammer. Remove the hoses and plug and cap fittings. Remove the 5 locking nuts on motor mounting bolts and then remove the bolts with a socket wrench. *Case drain and bleeder fittings are to be removed & possibly replaced depending on condition.* The motor can be removed by pulling straight out. Reverse procedure for re-assembly. Hammer wedges in or out for necessary adjustment.

If the hydraulic motor is connected with sufficient length hoses you may not wish to disconnect the hoses to inspect the coupling.

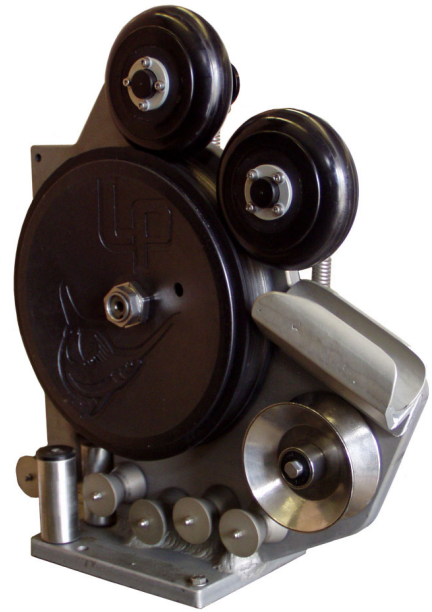
Hydraulic system maintenance

Change hydraulic oil filters every 6 months

7.2 Line Setter Maintenance LS-5

Line Setter Maintenance LS-5

The Lindgren-Pitman line setter is designed to provide long reliable service, but does require maintenance to keep it performing at peak performance.



Cleaning

The line setter should be washed with fresh water as often as feasible. Especially at the end of each trip when it will lay idle for days or weeks. Cleaning with soap and water and wiping off with rags or towels will prevent dirt and grease from getting on the main drive wheel and affecting its ability to grip the line properly.

Lubrication

Grease nipples are provided for lubricating hourglass rollers. They have been pre-greased during assembly - use caution when adding grease to avoid damage to the dirt seal. If the hour glass rollers do not turn freely they should be replaced.

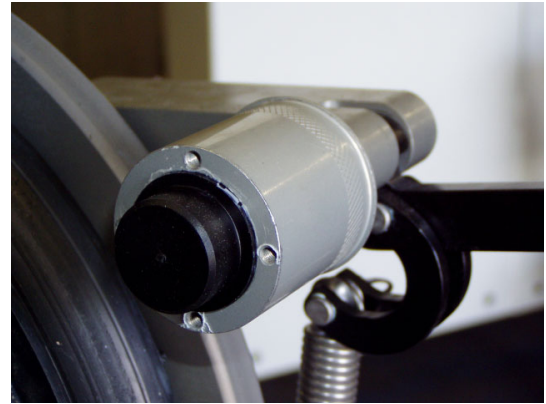
The two 1-3/4" stainless steel line setter lead in rollers are oil filled and require no further lubrication for the life of the rollers.

Rubber drive element replacement

The rubber drive elements are a wearable item that requires periodic replacement. Line setter drive element life will depend on the line setter speed, length of line set, diameter of the line, and hydraulic adjustments. Expected life is about 6 - 20 sets per element. Replacement elements should always be kept available for replacement.

To remove, cut the element perpendicular to the circumference and remove. Wipe the drive wheel off with a clean rag. Push on a new drive element starting from the top and stretching it down while forcing it on the drive wheel. A mallet or soft faced hammer will help final positioning.

Replacement of the rubber contact idler wheels



The contact wheels will outlast the drive elements many times. Severe wear can effect line setter performance and when a deep groove is worn from the monofilament the rubber drive element cannot perform properly and the upper idler contact wheel must be replaced.

No special tools or procedure is required for its replacement. Remove the four socket head (allen head) screws and the four bolt retaining ring. Do not remove the center plastic oil cap. Slide the rubber idler wheel off the center bearing carrier hub. Push a new wheel on the hub and install the retaining ring with the four socket head caps screws and seal washers.

(Torque Specification 22-26 in./lb.)

V-groove pulley replacement



The V - groove pulley does not require replacement from wear of the pulley. When bearings are worn they should be replaced. No special tools or procedure is required. The v-groove pulley is mounted from a 1/2" - 13 N.C. threaded stud formed on the axle end. It also has "wrench flats" to facilitate proper tightening and removal.

To replace first remove the locking nut on the motor side or the frame with a 3/4" wrench. Then unscrew counter-clockwise to remove. When installing the new v-groove roller, tighten the roller with a wrench and hold it secure while tightening the 1/2" locking nut (3/4" wrench).

(Apply grease to threads before tightening.)

Hour Glass Rollers



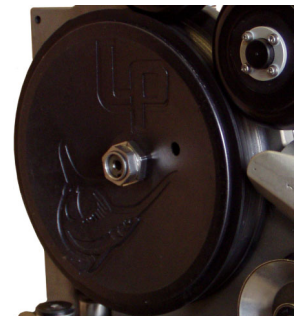
The hour glass rollers are key to holding the monofilament aligned for proper line setter performance. If bearings fail, the complete hour glass roller must be replaced.

The hour glass roller is mounted from a 1/2" - 13 N.C. threaded stud formed on the axle end. It also has either a screwdriver slot or allen socket at the end to facilitate proper tightening and removal.

To replace first remove the locking nut on the motor side or the frame with a 3/4" wrench. Then screw clockwise from the motor side of the line setter to remove.

When installing the new hour glass roller tighten the roller with the screwdriver or allen wrench and hold it secure while tightening the 1/2" locking nut (3/4" wrench). (Apply grease to threads before tightening.)

Removing the drive wheel



The motor and drive wheel do not require any routine maintenance and should not be removed without cause unless a leaky motor shaft seal becomes evident. The drive wheel is mounted on a stainless steel motor shaft with a stainless steel locking taper assembly. To remove, hold the drive wheel to prevent it from turning and loosen the external hex nut counterclockwise with a large crescent wrench. (Some models have a 1/2" hole in the wheel that can be aligned with another 1/2" hole in the frame, allowing a bolt to keep the wheel from rotating). It may seem to break loose but not release the drive wheel from the shaft. Continue turning counterclockwise and it will seem to tighten again and then loosen a second time. The drive wheel can now be removed from the spool.

When reinstalling the taper locking assembly reverse the process. No shaft key is required. Caution: When re-tightening the taper locking assembly the taper lock will pull the drive wheel slightly toward the frame. It may take several attempts to get it installed in the correct position. The line setter speed transducer can be adjusted from the motor side of the frame to get correct transducer clearance of about 0.010" - 0.020". If clearance of the pickup is too low it may contact the drive wheel. If clearance is too high the speed readout may not work at low speed or not at all.

The line setter speed readout

The line setter speed readout is powered by the magnetic pulse pick up. It does not need external power and does not require any maintenance. The pick-up requires 0.010" to 0.020" clearance from the drive wheel for proper operation.