

J.K. FABRICATION, Inc.

HYDRAULIC MARINE EQUIPMENT

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GENERAL JK5 PURSE WINCH INSTRUCTIONS

1. DESCRIPTION

A. General Description

The **J.K. Fabrication** JK5 Purse Winch is designed to haul Purse Rope by rotating the main Capstans and Sheaves in either a forward or reverse direction, depending upon which side of the vessel the operator chooses to haul.

The Purse Winch Assembly consists of Two Steel Capstan Heads With the Option of One Set of 24" Diameter Stainless Steel Pursing Sheaves with Stainless Steel Splitter, a Horizontal Roller, Two Stainless Steel Idler Sheaves, One hydraulically powered CharLynn Motor, and a provision for adding as an option an E-STOP Emergency Kill Switch Arrangement (installed and fitted into one of the Winch Horns). The Winch Assembly requires a Directional Control Valve equipped with a 'Closed Center' Spool, along with the ship's hydraulic and 12V DC electrical system (if E-STOP equipped). The hydraulic system may be used to operate other machinery.

Contact **J.K. Fabrication** for recommendations and circuit diagrams before adding to your hydraulic system.

CAUTION

AS WITH ANY WINCH OR HOIST, EXTREME CARE MUST BE FOLLOWED TO PREVENT INJURY WHILE IN USE. DO NOT OPERATE THE J.K. FABRICATION PURSE WINCH IN AN UNSAFE MANNER AT ANY TIME.

B. JK5SW Winch Description

The heart of the **J.K. Fabrication JK5 Purse Winch** is the CharLynn 10000/57 Hydraulic Motor, installed onto the winch for providing maximum performance. The hydraulic motor is flange mounted to an adjustable motor mount (to facilitate Drive Chain Tensioning Adjustment), which is thence mounted directly to the Winch Frame.

A Motor Drive Sprocket is affixed to the hydraulic motor shaft with chain connecting and driving the Capstan Drive Sprocket. When hydraulic fluid is pumped through the motor at 32 Gallons per Minute (GPM) at a system relief pressure of 1500 Pounds per Square Inch (PSI), the hydraulic motor shaft and motor drive sprocket will turn 120 Revolutions per Minute (RPM).

As the Hydraulic Motor Shaft turns at its respective speeds, and as the Hydraulic Motor Sprocket has 15 Teeth and as the Gypsy Shaft Sprocket has 45 Teeth, a 3:1 Ratio is developed. The result is the Gypsy Drive Sprocket with the attached Gypsies and Pursing Sheaves will turn 40 RPM while hauling the purse line.

Again, with the System Relief set to 1500 PSI, the corresponding Line Pull on the Capstan Head is 10,000 Lbs and 3,500 Lbs on the Pursing Sheaves. See Figure 1 and Figure 2 below for Basic Winch Parts and Component Locations.

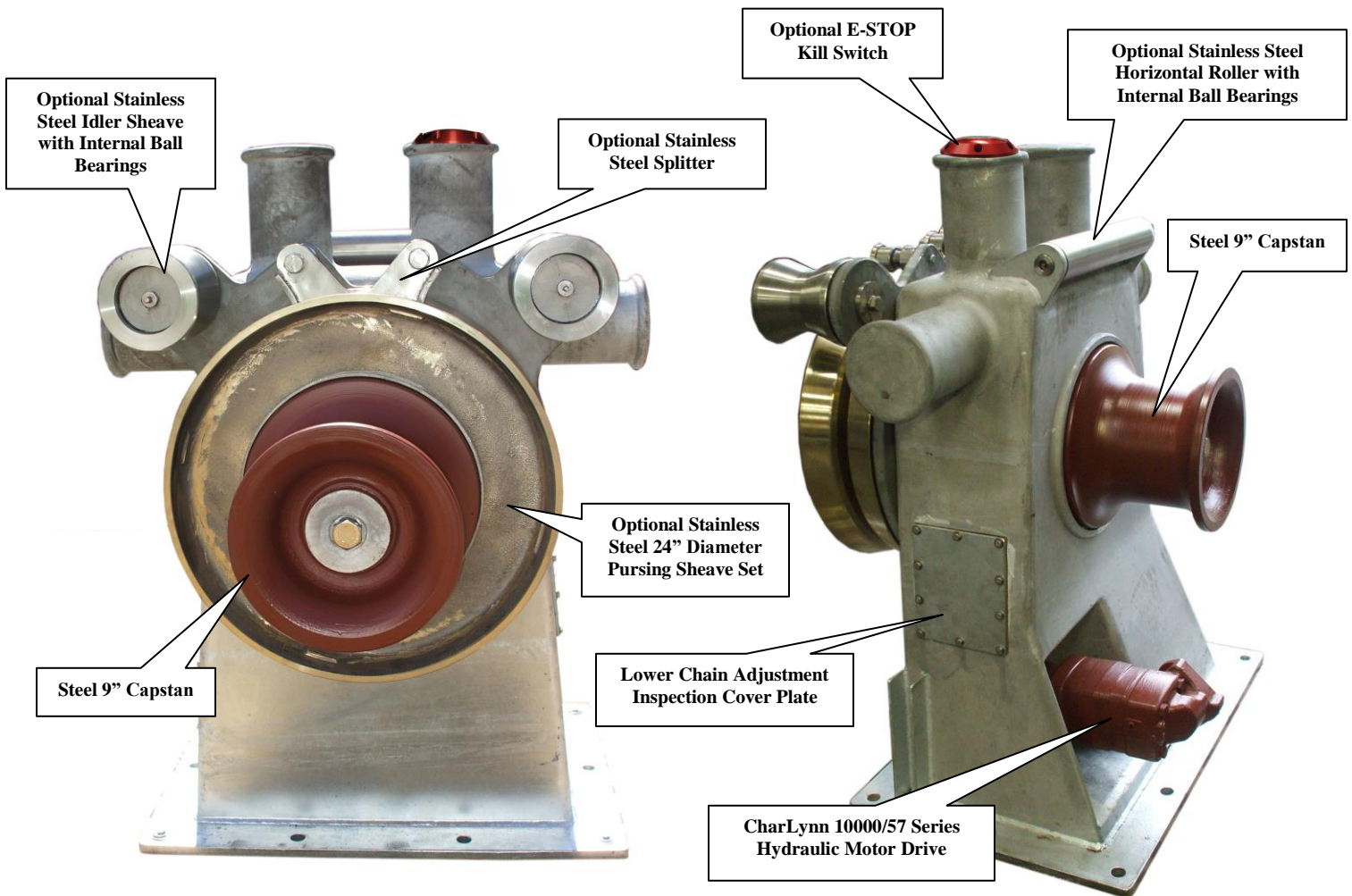


Fig 1. JK5SW Purse Winch

Fig 2. JK5SW Purse Winch

2. WINCH INSTALLATION

A. Securing the Winch to Deck

As the JK5 Purse Winch will develop very high Line Pull, the winch must be securely mounted to the deck surface. Large 1-1/16" diameter holes are pre-drilled into the winch frame allowing the use of 1" diameter bolts. The use of Anti-corrosive Fastenings, such as Stainless Steel, along with being of adequate Size and Strength to mount the Winch, (keeping in mind the intended load on the winch) are recommended.

The **J.K. Fabrication** Purse Winch must be securely mounted to a rigid surface, which will not flex when the winch is in use. Secure the winch to the deck or winch foundation using best practice. If any doubt, consult with **J.K. Fabrication** or your naval architect for his or her recommendations. See Figure 3 below for dimensions of Winch Footprint.

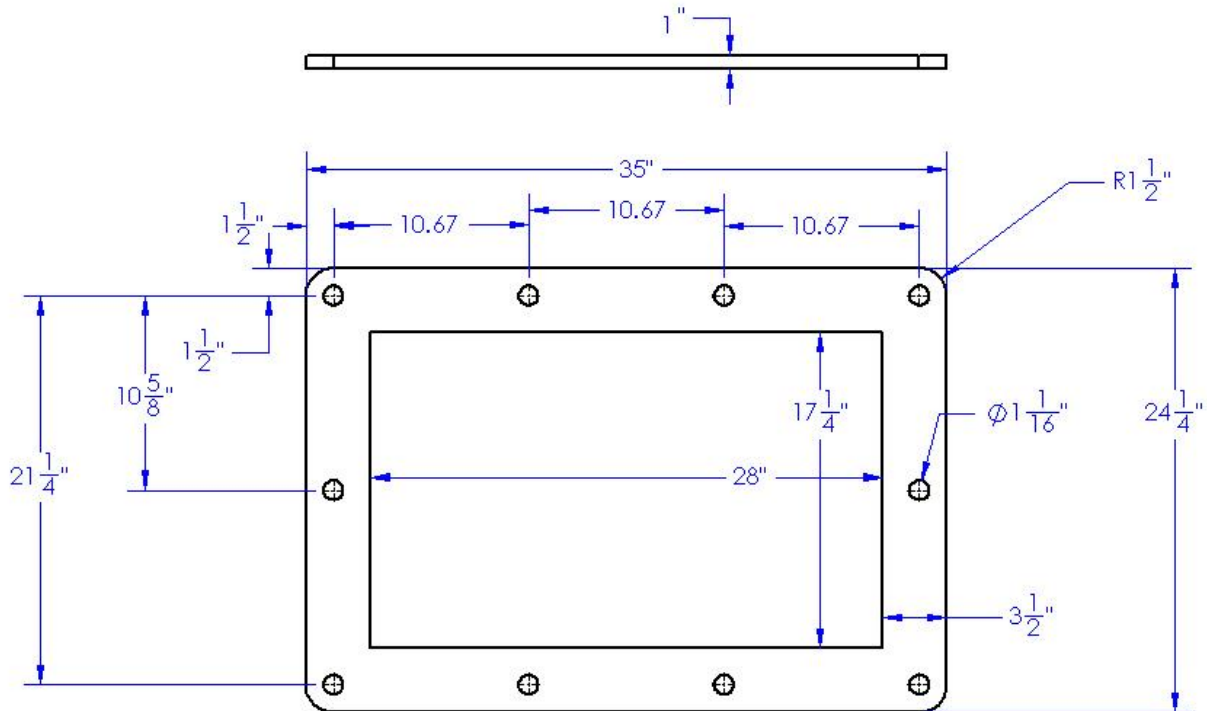


Fig 3. JK5SW Winch Footprint

When selecting winch placement location, consider the direction of the incoming purse line as it is directed to the Capstans (and the Pursing Sheaves, if so equipped), keeping the line as straight to the gysies from the rail as possible.

Also consider the placement of the hydraulic hoses (which need to be connected to the hydraulic motor arrangement near the bottom of the winch), and the required 12V E-STOP Cabling (also at the bottom of the winch) in order to keep the hoses and cable from being stepped on while the winch is being operated. Directing the hoses and cable under the false deck is preferred.

3. WINCH HYDRAULICS

The Standard **J.K. Fabrication** JK5SW Purse Winch is equipped with One CharLynn 10000/57 Hydraulic Motor and requires a vessel hydraulic system delivering 32 Gallons per Minute (GPM), (45 GPM Maximum per the Hydraulic Motor Manufacturer) along with a corresponding hydraulic system operating pressure of 1500 Pounds Per Square Inch (PSI) (1700 PSI Maximum, again per the Hydraulic Motor Manufacturer), for normal winch operation.

→ **NOTE:** The **J.K. Fabrication** Purse Winch is designed to develop very high (and potentially dangerous) line pull torque. Consult with **J.K. Fabrication** or a licensed Hydraulic Company to ensure proper Hydraulic Connections, Hydraulic Line Sizes, Hydraulic Flows and Hydraulic Pressures.

4. ADJUSTMENTS AND MAINTENANCE

A. Drive Chain and Main Bearing Lubrication

There are Two Access Cover Plates provided and located on the sides of the Winch Housing. These Access Plates provide a convenient and easy access way to inspect the rotating sprockets and chain. By removing the covers, the chain and rotating drive sprockets are easily visible. Periodically, inspect and check the chain tension (adjust the tension if necessary), and apply Multi-purpose Grease to the chain in sufficient quantity to lubricate the chain and sprockets.

In order to lubricate the Main Capstan Shaft and Bearings, simply feed grease to the two provided grease zerks. See Figure 5 and Figure 6 below for the location of the Access Plates and the Main Winch Bearing grease zerks.

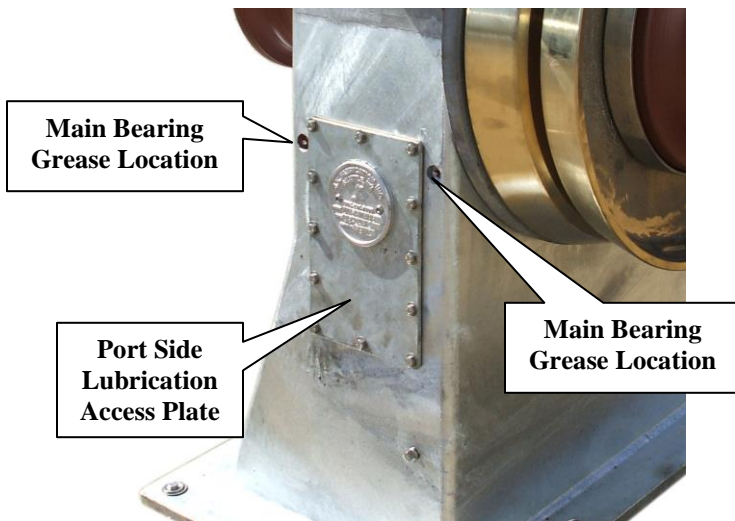


Fig. 5. JK5SW Portside Access Cover Plate

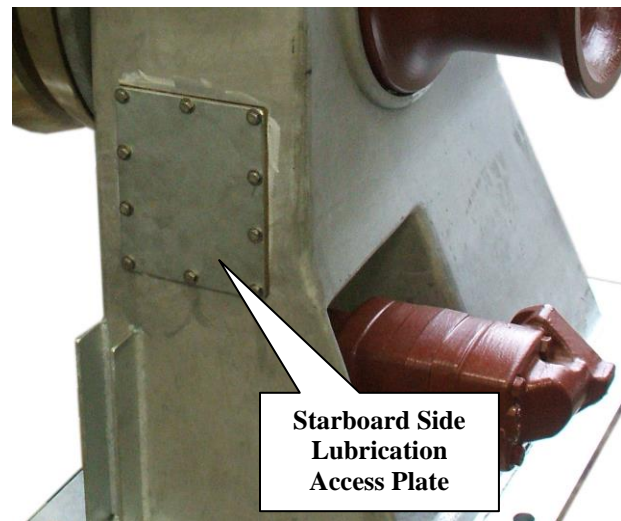


Fig 6. JK5SW Starboard Side Access Cover Plate

As your **J.K. Fabrication JK5** may be fitted with the Optional Pursing Sheave Package, there are a few grease points which must not be overlooked. The Horizontal Roller is equipped with Ball Bearings, there are Two provided Grease Fittings located in the Roller Shaft. Periodically, grease the provided Grease Fittings with Multi-purpose Grease, to insure lubrication to the internal bearings. See Figure 8 below for Horizontal Roller Grease Fitting location.



Fig 8. JK5SW Horizontal Roller Grease Fitting Locations

B. Pursing Sheave Adjustment (if equipped)

Again, as your **J.K. Fabrication JK5** Winch may be equipped with the Optional Pursing Sheave Package, a set of 24" Stainless Steel Hauling Sheaves, and the spacing between the sheave halves may periodically need to be adjusted, to facilitate different purse line sizes. The sheave spacing is achieved by either removing or installing sheave shims between the two sheave halves. To adjust the sheave spacing, follow the procedure below.

- 1) Remove the Stainless Steel Splitter from its mounting block by removing the two Large Bolts which secure the Splitter to the Winch Splitter Block. See Figure 9 for Splitter Bolt Location.

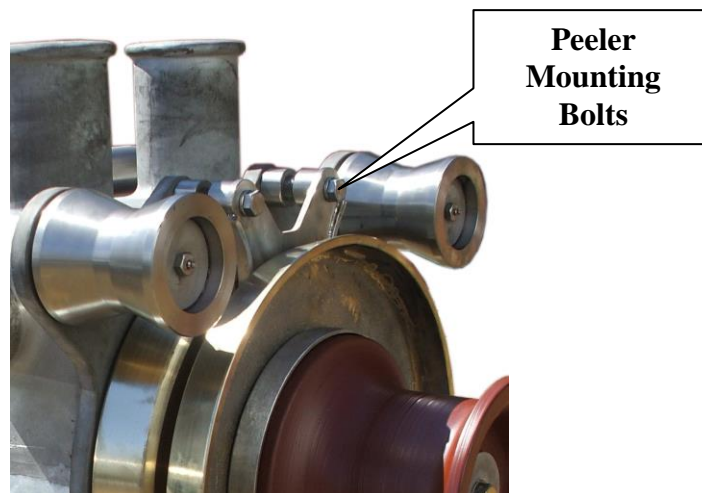


Fig 9. Splitter Mounting Bolt Location

- 2) Remove Capstan mounting bolt, and remove the capstan.
- 3) Remove mounting bolts for sheaves.
- 4) Remove outside sheave.

C. Drive Chain Adjustment

- 1) Remove the Lower Chain Adjustment Cover Plate to inspect Chain tensioning. By turning and Loosening the (4) Motor Plate Mounting Bolts, and by turning the Motor Plate Adjustment Bolt Heads, the Hydraulic Motor with the Hydraulic Motor Mounting Plate (which is slotted to allow adjustment) and Motor Drive Sprocket will be adjusted up or down to achieve proper Chain tension. See Figures 14, 15 and 16 below for guidance.
- 2) Allow for some looseness in the chain adjustment! Do not adjust the drive chain too tight, as it could bind the rotating group and prematurely wear the Drive Sprocket and Chain, along with increased side wear on the Motor Shaft, which could be the result.

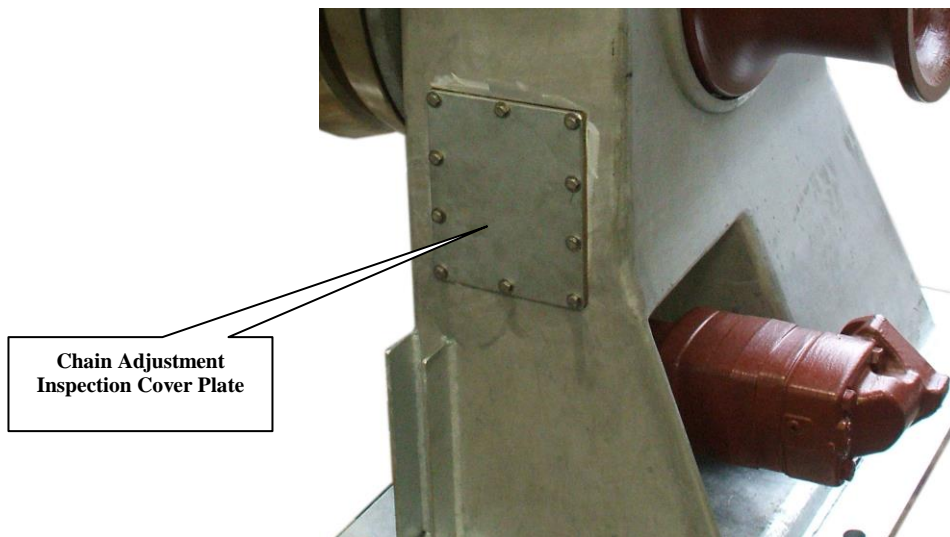


Fig 14. Lower Chain Cover Inspection Plate

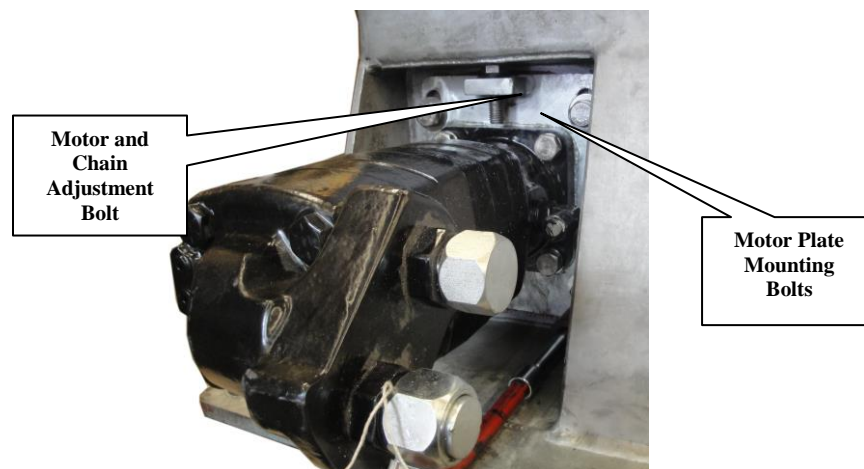


Fig 16. Hydraulic Motor and Motor Plate Adjustment Bolt