

**J.K. FABRICATION, Inc.**

**HYDRAULIC MARINE EQUIPMENT**

**Exclusive Manufacturer of NORDIC Products**

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## **GENERAL SINGLE REDUCTION ANCHOR WINCH INSTRUCTIONS**

### **A. General Description**

The **J.K. Fabrication** Single Reduction Anchor Winch is constructed to provide many years of reliable service, being built with the finest Marine Grade Materials and utilizing the proven RE Series of hydraulic motors from White Hydraulics. The Winch is designed to haul (or pay-out) rope (or cable) by the rotation of the hydraulic powered drum. It is important that the Anchor Winch be mounted “in-line” with the vessel Bow Roller, so that the incoming rope (or cable) spools onto the winch drum as evenly as possible.

Your new **J.K. Fabrication** Single Reduction Anchor Winch may or may not be equipped with the Optional Winch Brake manually operated by a Handbrake Wheel.

Contact **J.K. Fabrication** for recommendations and circuit diagrams before adding an Anchor Winch 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 ANCHOR WINCH  
IN AN UNSAFE MANNER AT ANY TIME.**

## B. Anchor Winch Installation

The **J.K. Fabrication** Anchor Winch must be securely mounted to a rigid surface, which will not flex when the winch is in use. The winch should be mounted with the centerline of the drum in a horizontal position. Also consider the strength of the deck the winch will be installed onto, along with any needed winch foundation, which may be necessary to strengthen (and/or to secure) the winch to the deck, along with the location of the hydraulic hose connections.

In determining the Anchor Winch hauling location, you should consider that the **J.K. Fabrication** Anchor Winch will spool the rope (or cable) onto the drum more evenly if the winch is mounted farther from the bow roller. The closer the winch is to the roller, the more un-even the rope (or cable) will spool onto the drum, as the fleet angle is greater.

Secure the winch to your deck using best practice. Remember, you may not have to anchor very often, but when you do, you'll want the anchor winch to hold, and not fail. If you have any doubt, consult your naval architect. Note: Large holes are provided in the winch housing to aid in mounting. Use Bolts of adequate Size and Strength to mount the Anchor Winch keeping in mind the intended load on the winch.

The **J.K. Fabrication** Anchor Winch is Pre-plumbed with a Directional Control Valve for easy installation (see Fig. 1 below for Typical Connection of Hydraulic Lines to Winch Control Valve).

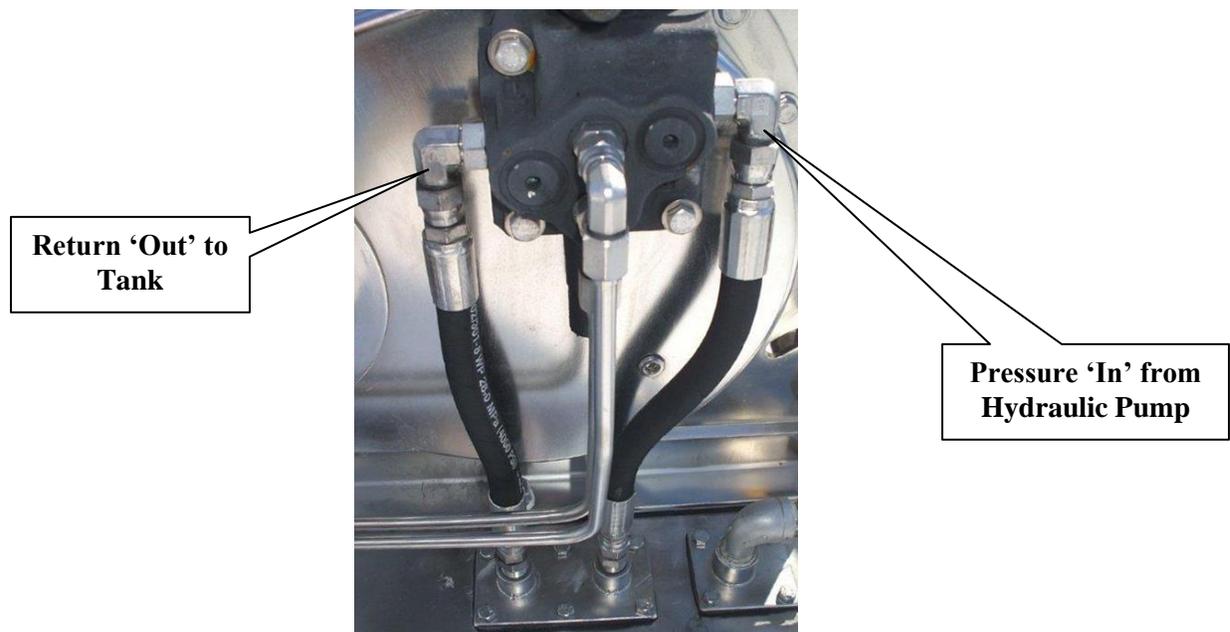


Figure 1- Typical Hose Connections

### C. General Anchor Winch Operation

As the **J.K. Fabrication** Anchor Winch is equipped with a Push-Pull operated Valve Spool having four positions, moving the valve control handle will cause the winch to:

- 1) Haul-in
- 2) Center or neutral (Hold Position)
- 3) Pay-out
- 4) Float-position or free-wheel

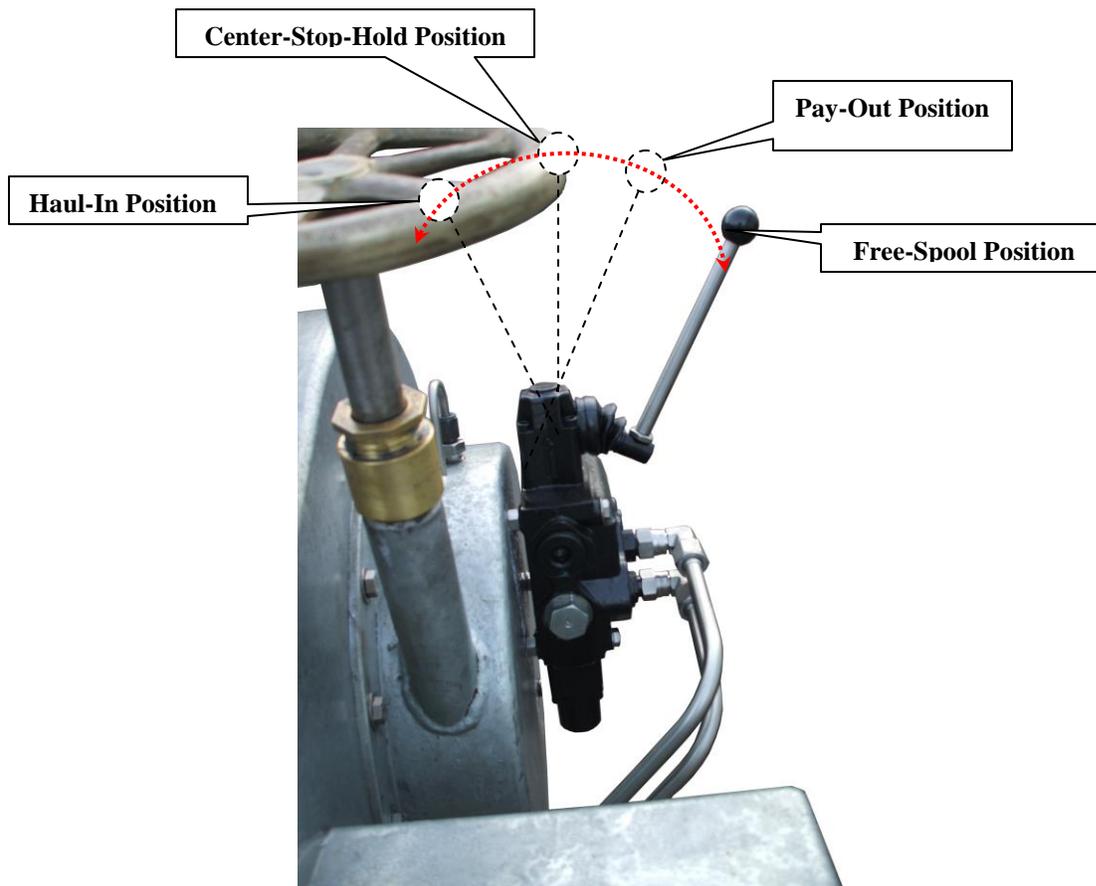


Figure 2- Control Valve Handle Positions

- **NOTE:** The **J.K. Fabrication** Anchor Winch Directional Control Valve is equipped with a Relief Valve 'Factory-Set to 1500 PSI.' Adjustment of this valve is possible should customer desire to change. Please consult **J.K. Fabrication** for instructions prior to adjusting.
- **NOTE:** Even though the Directional Control Handle is designed to be re-positional, **NEVER** re-position the handle while the Hydraulic Power is on, as loss of winch control could be the result!

- **NOTE:** Spool Cable onto the Drum in **Overwound** direction, and always have **AT LEAST TWO LAYERS** of Cable on the Drum **UNUSED** during payout. The **J.K. Fabrication** Anchor Winch is equipped with a locking Dog to firmly lock the drum while anchored. **NOTE: Wire Cable must be spooled ‘Overwound’ onto the Drum for the Dog to work properly.**

Drum Dog Operation: Upon completion of Pay-out of Anchor and Cable, Loosen Dog Wing Nut, Rotate Dog Clip towards the Anchor allowing the dog arm (pawl) to engage the drum ratchet. (See Fig. 3 and Fig.4)

- **NOTE: Always have the Drum Dog ‘ENGAGED’ while anchored, AND while hauling in your Cable and Anchor!**

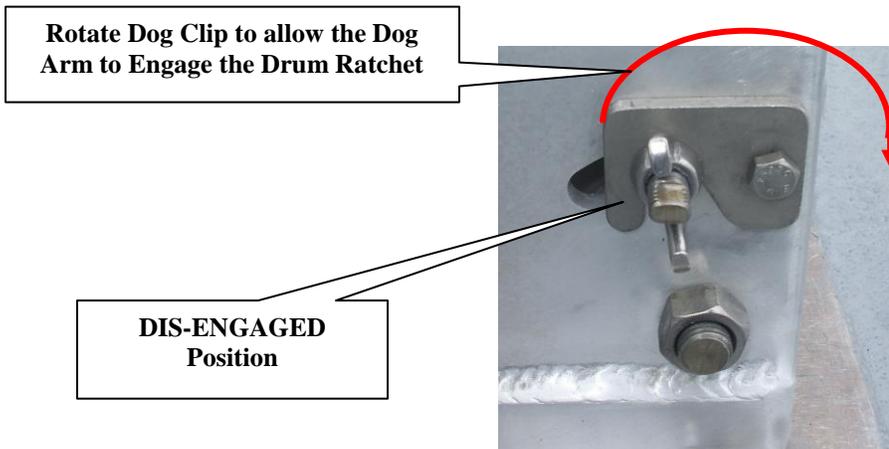


Figure 3- Locking Dog Position “A” Allows Drum to Rotate Freely

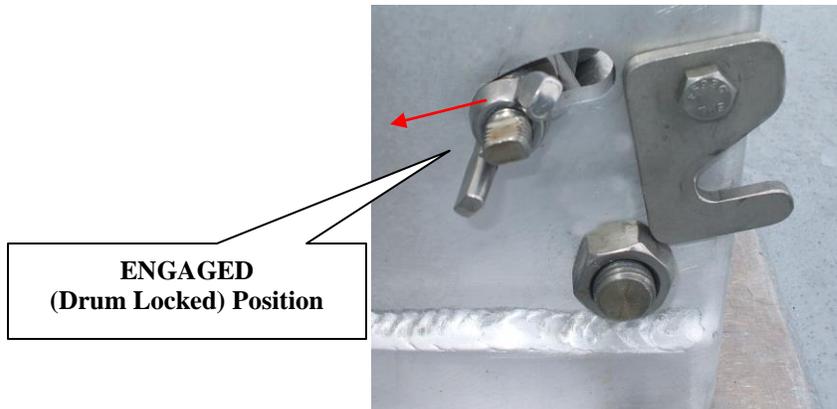


Figure 4- Locking Dog Position “B” Engages Drum-Dog to Drum, Locking Drum While Anchored

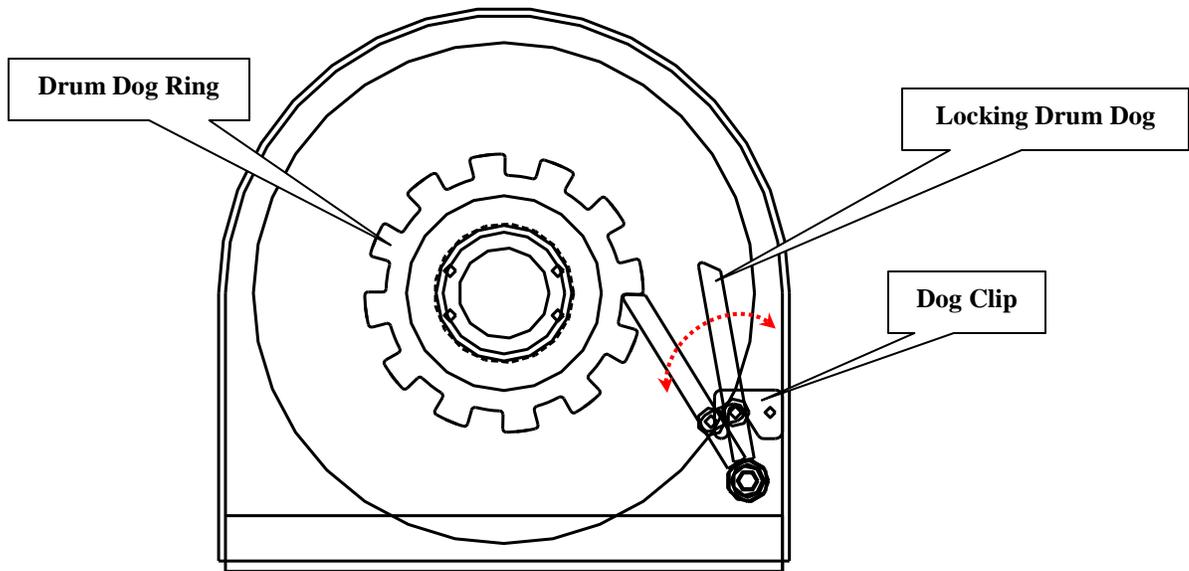


Figure 4- Locking Dog Operation Drawing

Dog Secured by Clip Dis-Engages Drum-Dog to Drum, Allowing Drum to Turn  
 Dog Released from Clip Engages Drum-Dog to Drum, Locking Drum While Anchored

**NOTE!**

→ **DO NOT Engage 'Locking Dog' while Anchor Winch is Free-spooling Out or Powering Out!**

**RB Series Anchor Winch Operation:**

As stated above, the Anchor Winch is controlled with the supplied 4-position Bi-directional hydraulic control valve. The 4 positions include, power-in, power-out, neutral, and a Detented (Float) position. The Information which follows covers the operation of all 18", 20", 24", 26", 28", and 32" Single reduction Anchor Winches that are equipped the optional, manual Handbrake Wheels.

Follow the steps in the order below to operate the Winch:

1- When deploying the anchor, power the drum out until the anchor is free from the bow. Stop the winch drum by slowly releasing the valve handle to its neutral (or spring-centered) position. With the handle in this position, the drum will stop.

2- Rotate the Handbrake Wheel in a Clockwise Direction until it becomes 'Snug', tightening the Band Brake to the Brake Drum.

3- Shift the Hydraulic Control Valve Handle to its full travel (Detented) position. The user will note that the valve handle will hold itself in this Detented (Drum Free-spool) position.

4- Slowly begin to release the brake by rotating the Handbrake Wheel in a Counter-Clockwise Direction. Deployment speeds of 80 to 140 Feet per Minute are normal.

**NOTE!**

- It's very important to leave some tension on the Brake Band as the Anchor is being deployed. Do not release the Handbrake Wheel completely during deployment. When the Anchor reaches the ocean floor or seabed, the drum could over-rotate (due to the inertia of the rotating drum) causing the cable to turn into a 'Bird's Nest', if some tension is not left on the Band Brake.

**NOTE!**

- Never use the Hydraulic Control Valve or Shift the Valve Handle from its 'Float-position' to slow down or to stop the winch drum during anchor deployment. Use ONLY the Handbrake Wheel to slow and stop the anchor during deployment.

5- Once the Anchor is safely on the ocean floor or seabed, turn the Handbrake Wheel in a Counter-Clockwise Direction to further release the Band Brake completely. When the Handbrake Wheel is rotated Counter-Clockwise completely, the user will notice the Brake Handwheel will come up against a 'stop'. Come-up easy against this 'Stop'... Don't apply high torque after the stop is reached.

**NOTE!**

- Failure to completely release the Handbrake Wheel after the anchor reaches bottom will prematurely wear out the Brake Band, and cause the Hydraulic Motor to work harder. If maximum anchor weight is used, it can also cause the Drive Chain and Sprockets to wear faster than normal.

6- The operator may now pay-out cable and chain until the desired 'scope' is achieved.

**NOTE!**

- NEVER SPOOL OFF THE LAST TWO LAYERS of rode on the drum core!

7- Now loosen the Dog Clip by turning the wing nut in a Counter-Clockwise Direction. Move the Dog Clip forward allowing the Dog Arm to engage the Dog Ring.

**NOTE!**

→ Always use the Dog System. Failure to use the Dog System will break and damage the Drive Side Components. Never engage the Dog System during anchor deployment (or when the drum is being rotated in a Free-spool or power-out direction). Keep the Dog System engaged during all anchoring, as well as when bringing up the anchor, especially as the anchor approaches the Bow Roller. Once the Anchor reaches the waterline, see the **Very Important Note** that follows to ensure that the Anchor may be deployed easily the next time.

**VERY IMPORTANT NOTE!**

→ As the anchor is hauling-in and reaches the waterline, bring the winch to a stop by slowly releasing the valve handle to its Spring-loaded Center Position. At this point, the user must DIS-ENGAGE THE DOG into Position A (allowing the drum to rotate freely). The user may now bring up the anchor and snug to the Bow Roller. **NEVER** leave the Dog engaged to the Drum when the anchor is snug to the Bow Roller, as the Dog Arm could jam tight, thereby not allowing anchor deployment on the next set.

#### D. Wire Cable Installation

All **J.K. Fabrication** Anchor Winches are designed to 'Over-Spool': that is, the cable or line must be led onto the drum above the Core Barrel. This orientation allows the Drum Dog Pawl to work properly.

Located on the Drum Core Barrel is the Cable Hold Tube. This Tube is welded securely to the Core Barrel internal structures, and is fitted with set screws. When spooling onto the drum, the cable is held fast by this tube and the tightened set screws. The Sole purpose of this arrangement is to allow the initial spooling of the cable onto the drum.

→ **NOTE: THE CABLE HOLD TUBE AND SET SCREWS ARE NOT DESIGNED TO WITHSTAND ANY LOADS GENERATED DURING THE USE OF THE WINCH.**

- **J.K. Fabrication strongly recommends a minimum wire capacity of Two Layer's deep on all J.K. Fabrication Winches during operation. This means that the 1<sup>st</sup> and 2<sup>nd</sup> layers of wire in direct contact with the Core Barrel must never be wound or unwound when the winch is under loaded conditions. This condition insures secure handling of the intended loads, along with safe operation of the winch.**
- **ALL WINCH OPERATORS MUST BE NOTIFIED AND AWARE OF THE ABOVE RECOMMENDATION!**

### E. Hydraulics

The **J.K. Fabrication** Single Reduction Anchor Winch requires a vessel hydraulic system delivering 16 to 20 Gallons Per Minute (GPM), along with a corresponding hydraulic system operating pressure of 2000 to 3000 Pounds Per Square Inch (PSI) (3000 PSI Maximum), for normal winch operation. See the first page (Title Page) of this Manual for Hydraulic Oil Flow and Pressure Recommendations for your particular Winch.

(See the Typical Hydraulic Circuit Drawing following the General Instructions for Hydraulic Circuit Recommendations)

- **NOTE: The J.K. Fabrication Single Reduction Anchor 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.**

### F. Maintenance

There is one provided grease fitting (which lubricates the outermost drum bearing) on the **J.K. Fabrication** Anchor Winch. It is recommended that during heavy anchor winch operations this Zerk Fitting be greased on a weekly basis with Multi-purpose grease.