

# Hydraulic Winch Assembly Instructions

## Introduction

These instructions will assist you in assembling the hydraulic winch components. The winch package contains the following items that need to be assembled on to the winch:

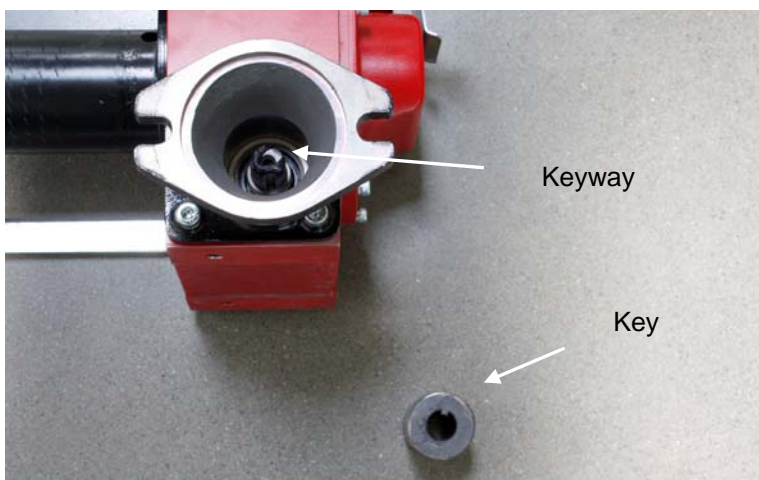
- Hydraulic motor with Sleeve
- Fairlead
- Winch Control Bar (this item may be packaged separately)

The tools required (included with winch) are:

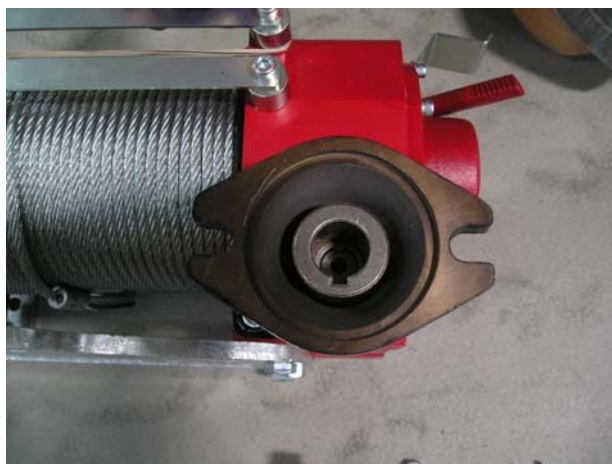
- 3/8 inch Allen wrench
- (2) 11/16 x 3/4 inch open end wrenches

## Hydraulic Motor Assembly

Step 1: Slide the sleeve into the coupling housing being careful to line up the key with the keyway.



When finished, the end of the sleeve with the keyway should be facing out as shown below.



Step 2: Insert the keyed shaft of the hydraulic motor into the keyway of the sleeve.



Step 3: Insert the two Allen bolts into the two mounting slots, add lock washers and nuts, then tighten with the provided tools.



### Fairlead Assembly

Attach the fairlead assembly to the baseplate using the two 1 1/4" long half inch bolts. Tighten nuts with the provided tools.



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### Winch Control Bar Assembly

Attach the winch control bar to the baseplate using the two 2 ½" long half inch bolts. Tighten nuts with the provided tools.



### Connecting the Hydraulic Power Unit (HPU) to the Hydraulic Winch

Both the HPU and the winch come with pre-assembled quick disconnect fittings. The male and female fittings on both the HPU and the winch insure that the two units cannot be connected incorrectly. Attach each fitting to its corresponding fitting on the winch.



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## HPU and Winch Operation

Insert the plug of the integral controller into the socket located on the HPU as shown.



To operate the winch, start the HPU. For engine operation and maintenance, consult the provided owner's manual. Press the "IN" button on the controller to wind in the cable. Press the "OUT" button to spool out the cable.



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**IMPORTANT!**

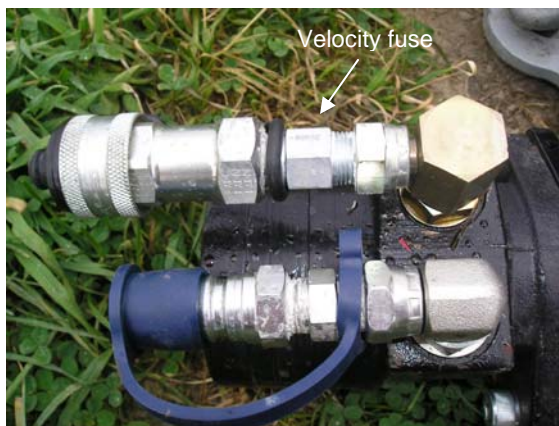
The underside of the HPU contains a radiator used to cool the hydraulic fluid. Avoid placing the HPU on uneven surfaces with rocks, stumps, etc. These could puncture or damage the radiator.



The hydraulic fluid used in the HPU is conventional power steering fluid. The reservoir (and pump unit) has a dipstick located on the cap. For proper system operation it is important to keep the fluid level at the appropriate marks (hot and cold) on the dipstick.



Note: The hydraulic winch comes equipped with an in-line velocity fuse that provides full-line shut-off in the event of a line failure. To reset, repair the line failure, then press the up button on the controller. A 50 PSI reopening differential in the system resets the velocity fuse.



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This winch is rated for NRG 60m XHD TallTowers or smaller. **NOTE: This winch is based on a 4082 kg (9000 lbs) design but has been modified by NRG Systems for the sole purpose of raising and lowering NRG TallTowers. This winch MUST NOT be used for applications other than raising or lowering NRG TallTowers.**

### Specifications for Kit 4254 Winch-Hydraulic, 60m XHD TallTower, with HPU, W/Hydraulic Fittings, Misc.Hdwr, Kit

|                    |                             |   |
|--------------------|-----------------------------|---|
| Description        | Applications                | Raising and lowering NRG TallTowers   |
|                    | Duty cycle                  | Intermittent duty   |
|                    | Tower compatibility         | All TallTowers up to and including 60m XHD  |
| Power requirements | Fuel                        | 5 HP Gasoline powered hydraulic power unit. Fuel Capacity - 3.6L (0.95 US gal , 0.79 Imp gal)   |
| Installation       | Tools required              | 3/8 inch Allen wrench, (2) 11/16 x 3/4 inch open end wrenches (included)  |
| Physical           | Weight                      | <ul style="list-style-type: none"> <li>Winch: 67.5 kg (149 lbs)</li> <li>Hydraulic Power Unit: 37.6 kg (83 lbs)</li> </ul>  |
|                    | Rated capacity              | This winch is rated for NRG 60m XHD TallTowers or smaller. <b>NOTE: This winch is based on a 4082 kg (9000 lbs) design but has been modified by NRG Systems for the sole purpose of raising and lowering NRG TallTowers. This winch <u>MUST NOT</u> be used for applications other than raising or lowering NRG TallTowers.</b>                         |
|                    | Line speed                  | 2 m/min (6.5 ft/min), first wrap on drum  |
|                    | Braking action              | Worm drive, hydraulic power unit  |
|                    | Wire rope breaking strength | 3175 kg (7000 lbs). This is a safety factor of 2:1 minimum during worst case lift with 60m XHD tower down 10° and winch anchors down 10° from elevation of tower pivot pin.   |
|                    | Anchor connection           | Eye in the winch baseplate for a 5/8 inch shackle (included). See manual.   |
|                    | Controls                    | <ul style="list-style-type: none"> <li>12 foot remote hand controller on HPU operates an electric solenoid control valve powered directly from the engine.</li> <li>Variable engine throttle for wider speed and power ranges</li> <li>Freespool feature allows the wire rope to be pulled out from winch drum without using hydraulic power</li> </ul> |
|                    | System protection           | Hydraulic fluid cooler and filter on HPU  |
| Materials          | Wire rope                   | 6.35mm (1/4 inches) 7 x 19 galvanized aircraft cable  |
|                    | Wire rope length            | 300 ft with 1/4" thimble  |
|                    | Winch control bar           | 25mm (1 inch) Schedule 80 pipe  |
| Safety features    | Velocity fuse               | Completely shuts off hydraulic fluid movement and instantly brakes and holds winch operations in the event of a hydraulic line failure or loss of pressure  |
|                    | Freespool lever guard       | Prevents unintentional actuation of freespool mode  |

## Specifications for #4234 Winch-Hydraulic, 60m XHD TallTower, Worm Gear, W/Hydraulic Fittings, Misc.Hdwr

|                    |                             |   |
|--------------------|-----------------------------|---|
| Description        | Applications                | Raising and lowering NRG TallTowers   |
|                    | Duty cycle                  | Intermittent duty   |
|                    | Tower compatibility         | All TallTowers up to and including 60m XHD  |
| Power requirements | Hydraulic power unit        | Open system with filtered return line   |
|                    | Max oil pressure            | 103 bar (1500 psi)  |
|                    | Max oil flow                | 45.4 L/min (12 gpm)   |
|                    | Connectors                  | <ul style="list-style-type: none"> <li>Female quick disconnect coupling attached to port A (return) on winch motor (Parker part # H3-62 or equivalent)</li> <li>Male quick disconnect coupling attached to port B (input) on winch motor (Parker part # H3-63 or equivalent)</li> </ul>   |
|                    | Relief valve                | Pressure not to exceed 1500 psi   |
| Installation       | Tools required              | 3/8 inch Allen wrench, (2) 11/16 x 3/4 inch open end wrenches (included)  |
| Physical           | Weight                      | 67.5 kg (149 lbs)   |
|                    | Rated capacity              | This winch is rated for NRG 60m XHD TallTowers or smaller. <b>NOTE: This winch is based on a 4082 kg (9000 lbs) design but has been modified by NRG Systems for the sole purpose of raising and lowering NRG TallTowers. This winch <u>MUST NOT</u> be used for applications other than raising or lowering NRG TallTowers.</b> |
|                    | Line speed                  | 7.3 m/min (24 ft/min) first wrap on drum @ 12 gpm.  |
|                    | Braking action              | Worm drive, hydraulic power unit  |
|                    | Wire rope breaking strength | 3175 kg (7000 lbs). This is a safety factor of 2:1 minimum during worst case lift with 60m XHD tower down 10° and winch anchors down 10° from elevation of tower pivot pin.   |
|                    | Controls                    | Freespool feature (to allow the wire rope to be pulled out without using hydraulic power)   |
| Materials          | Wire rope                   | 6.35mm (1/4 inches) 7 x 19 galvanized aircraft cable  |
|                    | Wire rope length            | 300 ft with 1/4" thimble  |
|                    | Winch control bar           | 25mm (1 inch) Schedule 80 pipe  |
| Safety features    | Velocity fuse               | Completely shuts off hydraulic fluid flow and instantly brakes and holds winch operations in the event of a hydraulic line failure or loss of pressure  |
|                    | Freespool lever guard       | Protects against going into freespool mode inadvertently  |