NILSSON WINCHES LTD.

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INSTALLATION AND OPERATION INSTRUCTIONS

VERTICAL ANCHOR WINDLASS

LOCATION. Any position giving a clear run from fairlead to winch drum and chain gypsy. Chain must be able to be fed into the chain locker via the navel pipe. Standard rotation is clockwise when viewed from above and the windlass must be positioned so that the footswitch or hydraulic control valve can be conveniently operated.

INSTALLATION. A deck template is supplied with these instructions and is used to position all necessary holes accurately.

It is possible to position the gearbox in a number of ways under the deck and thought must be given to the best run for the chain. If the navel pipe cannot be positioned directly over the chain locker, heavy wall flexible plastic tube can be used to direct the chain to the required area. If the plastic tube system is to be used, a trial should be made to ensure that the chain will slip through completely unaided to avoid jamming. The chain locker must be of such size that the chain will heap up and feed out naturally without fouling

Allowance must be made for electric power cables or hydraulic lines to be conveniently connected under the deck after installation.

A nominal 5" (125mm) deck allowance is provided on standard units. To check the exact deck allowance, slide the deck flange up the shaft to within $\frac{1}{4}$" (6mm) of the gypsy and carefully measure the distance between the underside of the deck flange and the top surface of the gearbox mounting flange. Deck thickness must be built up to match this measurement.

An above deck spacer of $\frac{3}{4}$" (18mm) is ideally suited as it allows fitting of the optional fibreglass cover. The above deck spacer surface cut to suit the template supplied, should be level and accurately parallel to the underdeck mounting surface. Depending on the deck construction, care must be taken that the underdeck spacer provides sufficient steffening to sustain the pull of the windlass.

The navel pipe is also postioned by the template. The chain stripper is to ensure that the anchor chain will always peel off the gypsy smoothly and some adjustments may be necessary to obtain a correct installation. Due to wide variations in chain sizes used on this type of windlass, the centre groove of the gypsy will vary in height above the deck and in bottom diameter. It may be necessary to pack up (or sometimes lower) the height of the navel pipe so that the stripper aligns correctly with the centre line of the gypsy groove. It may also be necessary to modify the end of the stripper to ensure clearance at the bottom of the groove and a minimum of metal should be filed off. Adjustment of the navel pipe is made after bolting down of the windlass.

CHAIN FIT Correct fit of chain to gypsy is essential and can only be guarranteed where a standard chain known to us is used or a 12"(300mm) or 8 links (which ever is longer) sample has been forwarded for testing. Exchange gypsies can be supplied at any time for a charge based on the condition of the unit returned.

PREPARING WINDLASS To fit the winch, all above deck components must be removed from the main shaft. Examination of the parts diagram supplied will show what is necessary combined with these instructions.

1) Unfold clutch nut handles (10)
2) Remove centre screw (47) and washer (35)
3) Unscrew clutch nut - anticlockwise.
4) Carefully remove all components from the shaft down to the lower clutch cone noting which way each item is fitted.
5) Remove deck bolts (and woodscrew if supplied)
6) Remove bronze balls or plungers and springs (28) from lower clutch.
7) A change in the fixing and driving of the lower clutch was introduced in 1979 at various times for different models of this windlass. Examination of the lower clutch will quickly determine which model is being worked on and how to remove the clutch.
   SERIES 1 windlass units are fitted with a hollow spring tension pin in a plain hole drilled completely through clutch and shaft.
   SERIES 2 windlass units are fitted with a driving key, grubscrew and split clutch retainers under the cone.
   SERIES 1 Remove hollow spring tension pin by laying winch on its side and supporting the shaft either side of the clutc cone on hardwood packers with hole vertical. Using 5/16" (7mm punch, drive the pin through until it clears the shaft using a medium hammer and forcefull blows. Remove punch and rock the clutch cone up and off the shaft. Do not strike the clutc cone itself.
   SERIES 2 Unscrew the grubscrew in the clutch cone and (using a soft hammer or wood chock if necessary) tap the underside of the clutch cone until it is free of the key and split clutch retainer ring. Remove all items from the shaft.
8) Remove deck flange with seal and chain meter fitted (if supplied)

FITTING WINDLASS

9) Clean shaft thoroughly.
10) Grip shaft and memorise "feel" of backlash built into box
11) Offer up gearbox from under deck and position deck flange above deck using suitable rubber sealant between flange and deck.
12) Fit deck bolts (and woodscrew if supplied) and lightly screw up nuts under deck. Check that "feel" of back lash is the same as noted at step 10. Tighten deckbolt nuts progressively and evenly ensuring that final backlash is unchanged. This is very important.
13) Fit all components in reverse order to that used in steps 1 to 8 inclusive. Lightly grease shaft after fitting deck flange and seal (45) which should lightly press onto top of deck flange. (In series 1 clutch arrangements after fitting the spring tension pin, check the backlash has not changed. Pack the tension pin hole completely with a water repellent grease and tap in plastic sealing plugs where provided)
14) Thoroughly grease clutch cone faces and all grease nipples using a medium to light grade of water repellent grease.

ELECTRICAL WIRING INSTRUCTIONS. If the windlass is within 25ft (8 metres) of battery use 37/036 (25 squaremm) heavy cable or 490/0076 welding cable. For longer runs use 61/036 (40 square mm) heavy cable or 770/0076 welding cable.

It is not important which way the positive and negative cables are connected to the motor. Use only the terminal on the motor end cap and body of the motor. Where a third terminal is fitted, this is part of an electrical shunt and the light wire fitted between the third terminal and the main body terminal must not be removed under any circumstances.

A battery isolator should be fitted in one of the cables to the motor and the deck switch is connected in series.

Ordinary fuses are not supplied or recommended and where an overload protection device is fitted, the manufacturers instructions should be followed.

Standard motors fitted are high torque, short rated and are not intended for continious operation or stalled loads.

HYDRAULIC INSTRUCTIONS as separate sheets.

OPERATION

Chain- haul in :- Unfold clutch handles and tighten clutch nut clockwise tightly. Depress footswitch or actuate control valve. If anchor is fouled and windlass is stalled or nearly stalled stop immediately and use engine power to free anchor.

Chain - holding anchor:- Snap in gypsy ratchet at the right moment and release clutch nut so that all weight is on ratchet pawl.

Chain - letting go anchor:- Release pawl by applying power to winch briefly if necessary. Release clutch nuts carefully and use clutches as a brake to control run of chain. When the ancho is out release clutches and engage ratchet pawl to avoid transmission of shock loads back through gearing.

Warping drum:- May be operated at any time by releasing clutches and applying power to winch motor.

ALWAYS Tie off or cleat anchor chains or warps to main bollard or cleats. NEVER use the anchor windlass as a bollard.

Emergency hand crank:- Remove centre screw, clutch nut, capstan, capstan key and upper clutch cone. Engage emergency hand crank and using ratchet pawl to hold weight of chain between pulls, haul in the anchor.

MAINTENANCE Refer separate instructions for deckswitch and hydraulic section.

The gearbox is a sealed unit and should never require lubrication except if opened up. Use Castrol TC fluid grease or equivalent (Refer guarantee)

Regularly grease nipples provided and oil ratchet pawl pin. On annual maintenance, check that all parts including clutch faces are well lubricated and remove any hardened grease or other deposits. Oil chain meter regularly.

STORAGE Prior to installation - store with shaft vertical and grease well if held for a long period.

On boat - thoroughly lubricate prior to laying up or slipping for long periods.

GUARANTEE We will consider any reasonable claim for failure due in our opinion to faulty workmanship or materials provided the windlass is returned to us or other approved address. Full details of age, usage, evidence of purchase etc are necessary.

Motors and gearbox must not be opened up or attempts at repair made if a claim under guarantee is envisaged as this will adversly prejudice the claim.

Claims related to failure due to fair wear and tear, misuse, incorrect installation or neglect will not proceed.

FINALLY We expect you will have many years of satisfactory operation from your NILSSON windlass. We will welcome any query or suggestion you may have and you are always free to call on us for advice. We manufacture a variety of standard and special winches related to marine and industrial use and product guides are available on request.