MAXWELL™

Owners Service Manual

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INTRODUCTION

You are now the proud owner of a fine Maxwell winch. Maxwell winches are designed and precision engineered taking into account the arduous conditions of offshore yacht racing and cruising.

Like any precision engineered product Maxwell winches require regular preventative maintenance. By carrying out the simple maintenance procedures described in this booklet, you will ensure top performance and long life from your new Maxwell winches.

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INSTALLATION

1 When mounting winches use only 316 Stainless Steel fastenings. Hex heads captivate to allow mounting by one person. Access to mount is by removing drum.

2 Mount winch with the output gear that engages the drum pointing in general direction of incoming line.

3 Incoming line must lead up to winch at an angle of between 95° and 120° to vertical axis of winch.

4 Ensure prior to mounting that the deck is adequately reinforced, that the mounting area is flat and that suitable backing is provided for the mounting bolts.

5 Bed the base on a light coating of sealing compound and tighten bolts firmly.

6 Ensure drainage slots in bottom of base are clear.

7 Before replacing drum on geared winches, check that the screws fixing the pedestal to the base are tightened down hard.

8 Self-tailing winches — after mounting adjust stripper arm on spline to unload line conveniently into cockpit. Range of line diameters quoted are based on quality yachting braids.

FREQUENCY OF SERVICING

Monthly — Lift drum and generally spray interior with CRC6-66 or WD40. **Check that drainage slots in bottom of base are clear.**

Bi-monthly — Carry out the procedure described in the following pages.

End of Season — Completely strip, carrying out procedures herein, **before storage.**

Externally — Clean winch with cloth damp with kerosene (paraffin). Lightly spray with CRC6-66 or WD40 and polish off with clean non-fluffy cloth. Natural luster of bronze winch drums can be restored by polishing with mild abrasive liquid polish. **Don't use on chrome or alloy drums.**

IMPORTANT

Failure to carry out the maintenance service as described herein will invalidate warranty.

WARNING

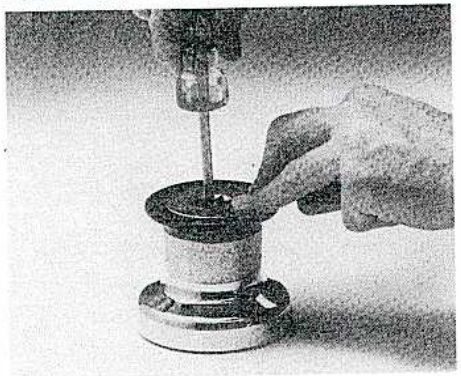
It is important, as with any ratchet mechanism to ensure that:-

On non-geared winches that the pawls, springs and ratchet teeth are kept in good condition and that they function properly.

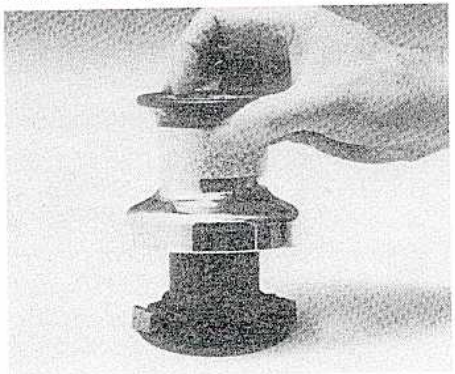
On geared winches that the clutches and springs are kept in good condition and that they function properly.

Malfunction of the ratchet mechanism could cause the handle to be driven backwards with considerable force and may cause bodily injury.

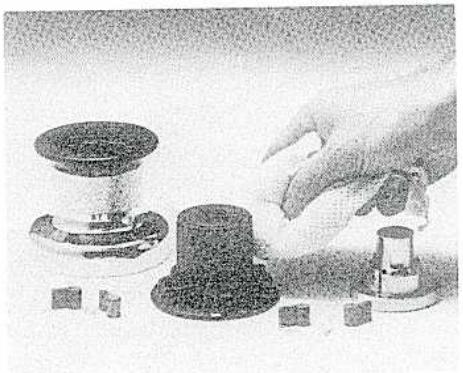
MAXWELL 14P, 16P One-speed Direct Drive — Ratcheting



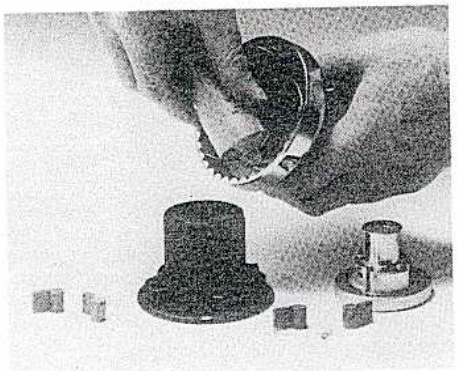
1 Insert screwdriver in slot of Quik-Loc™ mechanism and rotate ¼ turn anti-clockwise.



2 Lift drive boss and drum from pedestal. Remove drive boss, pawls and springs.

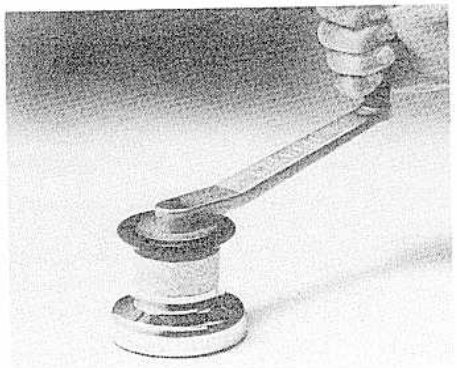


3 Thoroughly clean all parts with kerosene (paraffin) and dry with a clean, non-fluffy cloth. Make sure springs, pawls and ratchet are in good condition.



4 (a) Lightly grease bearing areas, pawls, springs and ratchet teeth.

(b) Re-assemble with pawls in stations marked "C" for clockwise rotation of drum. Unmarked stations for anti-clockwise rotation.

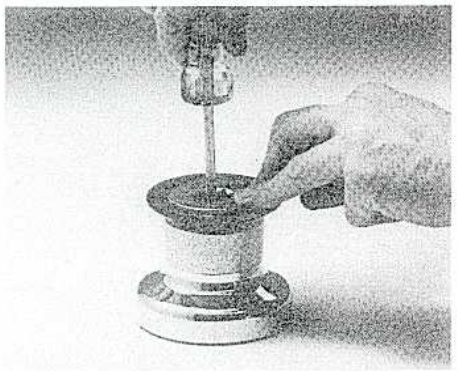


(c) Check action of pawls against springs.

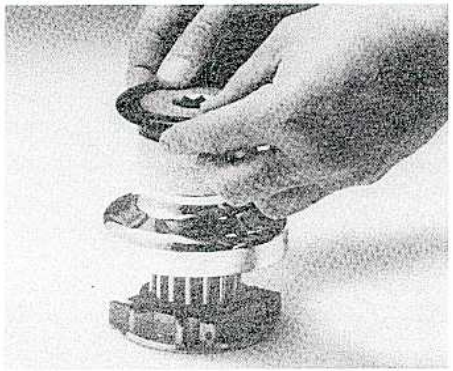
5 (a) Re-fit drum and drive boss, checking engagement of pawls.

(b) Using screwdriver, turn Quik-Loc™ anti-clockwise until it snaps into lock position.

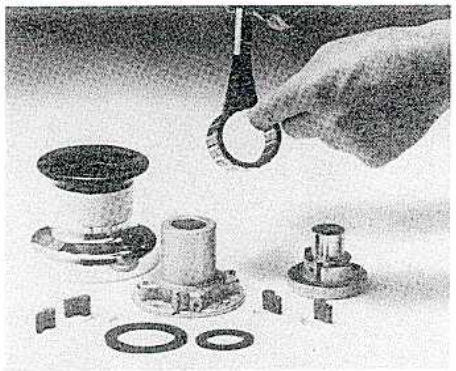
(c) Test action.



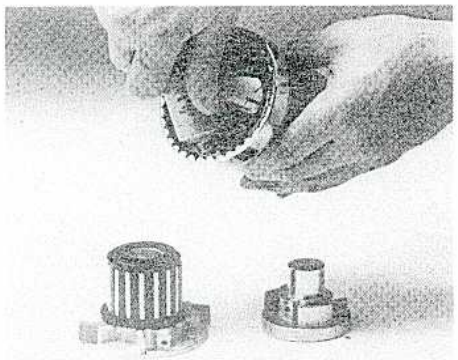
1 Insert screw driver in slot of Quik-Loc™ mechanism and rotate ¼ turn anti-clockwise.



2 Lift drive boss and drum from pedestal.

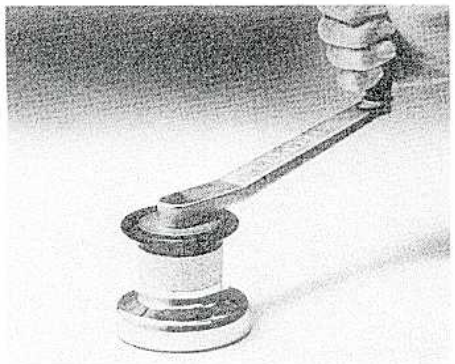


3 Remove and thoroughly clean all parts with kerosene (paraffin) and dry with a clean, non-fluffy cloth. Make sure all parts are in good condition.



4 (a) Lightly grease thrust washers, needle roller bearings, pawls and springs, ratchet teeth and drive boss bearing.

(b) Re-assemble with pawls in stations marked "C" for clockwise rotation of drum. Unmarked stations for anti-clockwise



(c) Check action of pawls against springs.

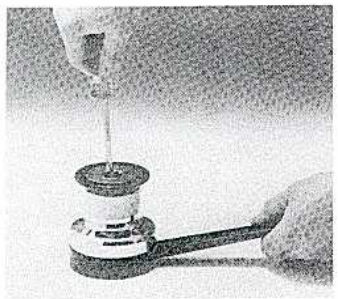
(d) Refit main thrust washer, bearing and top thrust washer.

5 (a) Refit drum and drive boss, checking engagement of pawls

(b) Using screwdriver, turn Quik-Loc™ anti-clockwise until it snaps into lock position.

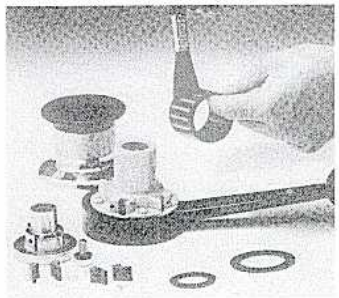
(c) Test action.

MAXWELL 14BH One-speed Bottom handle — Ratcheting



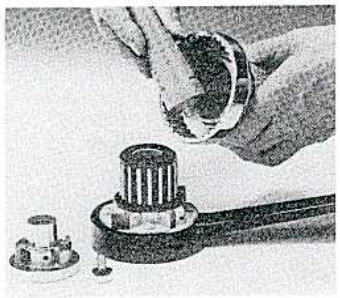
1 Unscrew central retaining screw. Note washer under screw head.

2 Lift drive boss and drum from pedestal.



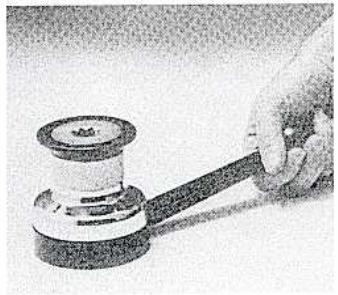
3 Remove and thoroughly clean all parts with kerosene (paraffin) and dry with a clean non-fluffy cloth. Make sure all parts are in good condition.

4 Spray down inside of pedestal and base with CRC6-66 or WD40.



5(a) Lightly grease thrust washers, needle roller bearing, pawls and springs, ratchet teeth and drive boss bearing.

(b) Re-assemble with pawls in stations marked "C" for clockwise rotation of drum. Unmarked stations for anti-clockwise rotation. Check action of pawls against springs.,

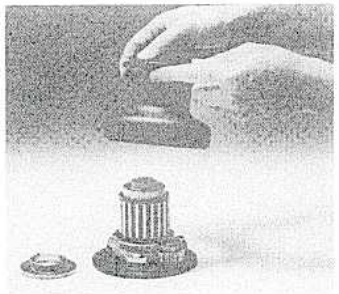


(c) Refit main thrust washer, bearing and top thrust washer and drum, checking engagement of pawls.

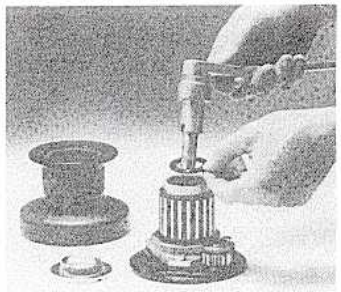
6 Refit drive boss, aligning with spline on drive shaft and checking engagement of pawls. Refit retaining screw with lock washer under head. Tighten firmly.

Test action.

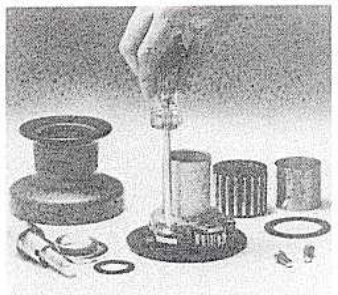
1 Remove retaining cap — tap undone in anti-clockwise direction.



2 Lift drum.

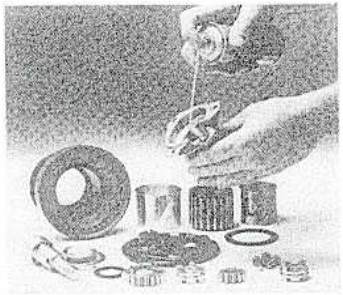


3 Extract drive shaft and thrust washer (use lock-in handle). Remove needle roller bearing, thrust washer, stainless steel bearing race and on Ultra-light models — bearing race from bore of drum.



4 Undo 3 cheese head screws, removing pedestal, gears, clutch sets with springs (8 off), from base.

5 Thoroughly clean all parts with kerosene (paraffin). Take care to remove any salt build up and crustation from surfaces of bearing races including mating faces on drum and on pedestal. Dry parts with non-fluffy cloth. Check condition of parts for wear or damage. Replace if necessary.

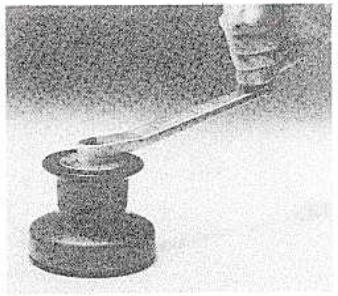


6 Spray inside drum, base and pedestal with CRC6-66 or WD40 and replace bearing race(s) making sure they are properly seated.

7 Lightly grease gears — teeth and bores, clutches, drive shaft, thrust washers and needle roller bearing.

8 (a) Reassemble central clutch/gear stack on to base. Clutches marked "C" at bottom for clockwise rotation, clutches marked "A" at bottom for anti-clockwise rotation of drum.

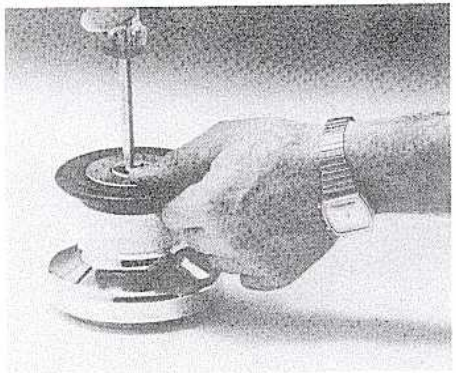
(b) Position idler gear, replace pedestal and tighten down firmly.



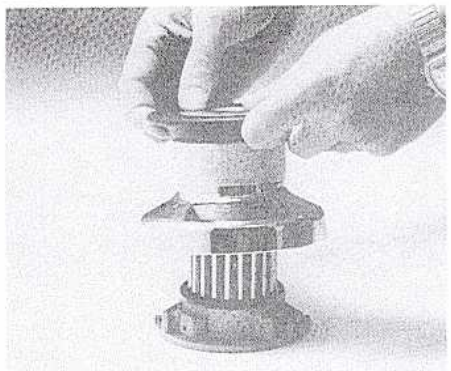
(c) Place thrust washer in top of pedestal and fit drive shaft checking alignment to engage dogs on clutch. Test action.

(d) Fit thrust washer, main bearing and drum.

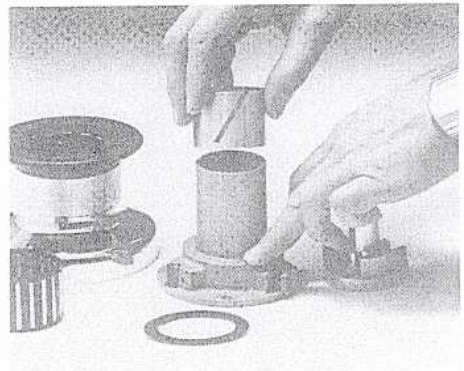
(e) Lightly grease thread and underside of retaining cap, refit,



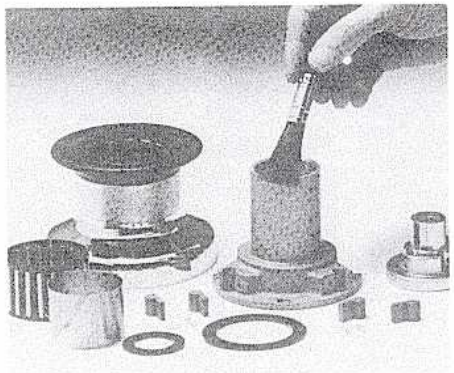
1 Insert screwdriver in slot of Quik-Loc™ mechanism and rotate ¼ turn anti-clockwise.



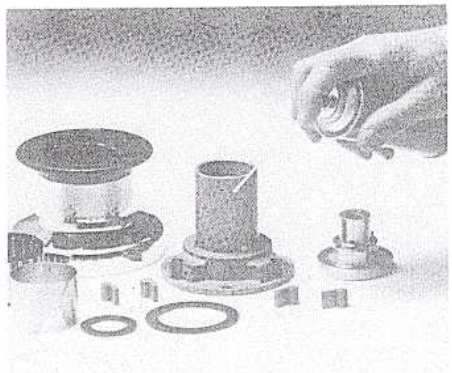
2 Lift drive boss and drum from pedestal.



3 Remove needle roller bearing, two thrust washers, pawls and springs (4 sets), stainless steel bearing race and on Ultra-light models — bearing race from bore of drum.



4 Thoroughly clean all parts with kerosene (paraffin). Take care to remove any salt build up and crustation from surfaces of bearing races and mating faces in drum and on pedestal.



5 (a) Spray pedestal and inside drum with CRC6-66 or WD40 and replace bearing race(s), making sure they are properly seated.

(b) Lightly grease thrust washers, needle roller bearing, pawls and springs, ratchet teeth and drive boss bearing.

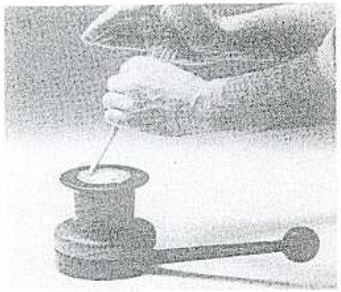
(c) Re-assemble with pawls in stations marked "C" for clockwise rotation of drum. Unmarked stations for anti-clockwise rotation.

(d) Check action of pawls against springs. Refit main thrust washer, bearing and top thrust washer.

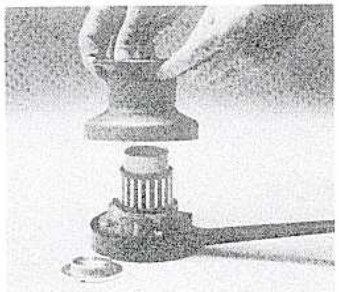
(e) Refit drum and drive boss checking engagement of pawls. Using screwdriver, turn Quik-Loc™ anti-clockwise until it snaps into lock position.

(f) Test action.

MAXWELL 18BH One-speed Bottom handle — Ratcheting

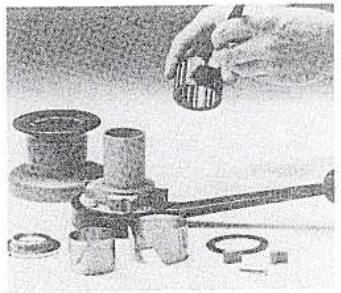


1 Remove retaining cap — tap undone in anti-clockwise direction.

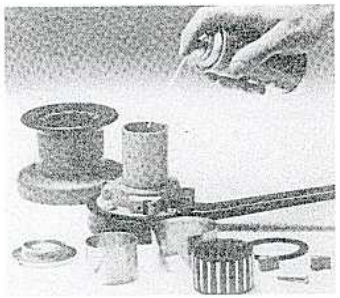


2 Lift drum from pedestal.

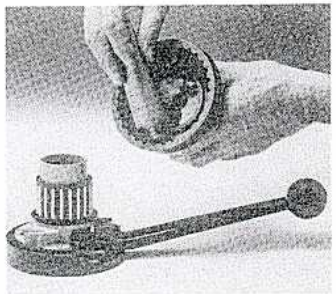
3 Remove needle roller bearing, thrust washer, pawls and springs (2 sets — 1 set captivated in ratchet handle block — remove screw to release), stainless steel bearing race and on Ultra-light models — bearing race from bore of drum.



4 Thoroughly clean all parts with kerosene (paraffin). Take care to remove any salt build up and crustation from surfaces of bearing races and mating faces in drum and on pedestal. If necessary, remove pedestal from base by undoing three cheese head screws. When refitting check seating in register and tighten screws firmly. Dry parts with non-fluffy cloth. Check condition of parts for wear or damage and replace if necessary.



5 Spray inside base, drum and pedestal with CRC6-66 or WD40 and replace bearing race(s) making sure they are properly seated.



6 Lightly grease thrust washers, needle roller bearing, pawls and springs and ratchet teeth.

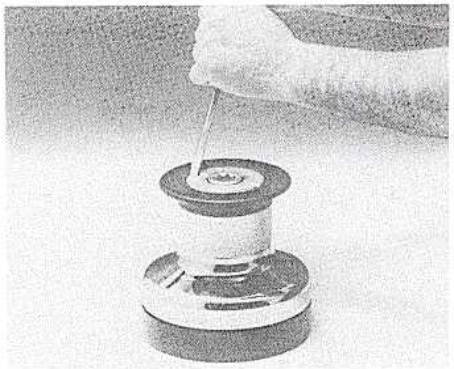
7 (a) Re-assemble with pawls in stations marked "C" for clockwise rotation of drum. Unmarked stations for anti-clockwise rotation. (Turn ratchet block over on handle for opposite rotation.)

(b) Check action of pawls against springs. Refit thrust washers, bearing and drum.

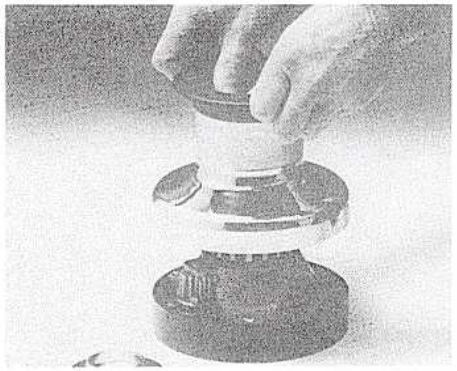
(c) Lightly grease thread and underside of retaining cap, refit and tighten firmly.

(d) Test action.

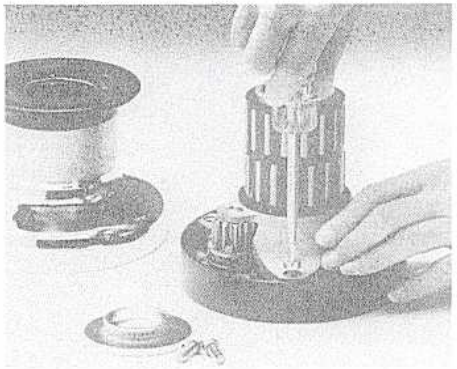
8



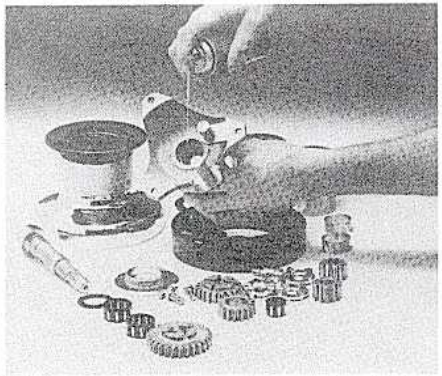
1 Remove retaining cap — tap undone in anti-clockwise direction.



2 Lift drum.

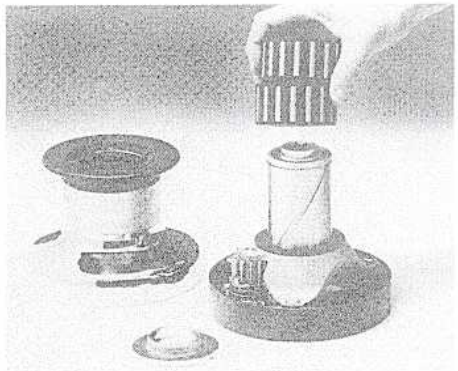


3 Undo cheese head screws — 3 off on models 20 through 27, 4 off on models 28 and 29.



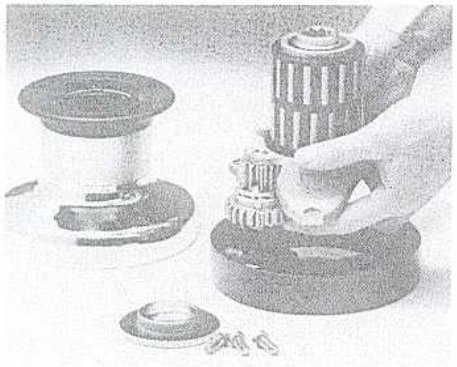
7 (a) Spray inside drum, base and pedestal with CRC6-66 or WD40 and replace bearing race(s) making sure they are properly seated.
(b) Lightly grease gears — teeth and bores, clutches, drive shaft, thrust washers and needle roller bearings.

8 (a) Re-assemble parts into pedestal with clutches marked "C" on central shaft for clockwise rotation. For anti-clockwise rotation, assemble clutches marked "A" on to central shaft.

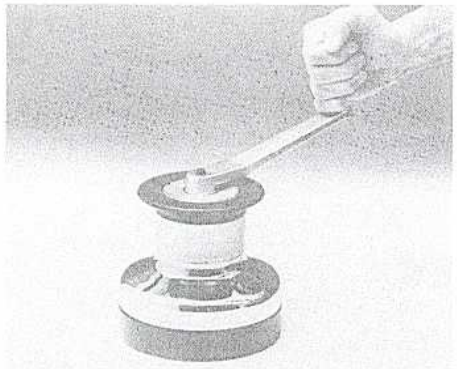


(b) Hold gearing on pedestal, turn pedestal over and align output gear with base and lower pedestal into place.
(c) Replace screws and tighten down firmly.

9 (a) Fit thrust washer, main bearing(s) and drum.



4 Lift pedestal from base.



(b) Lightly grease thread and underside of retaining cap, refit and tighten firmly.

10 Test action.

5 (a) Remove all parts by hand including drive shaft, bearings and stainless steel bearing races from inside top and bottom of pedestal (Models 22 through 29 only).

(b) Also remove stainless steel bearing race on pedestal main bearing.

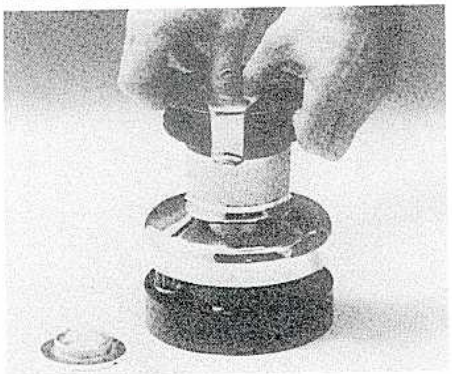
(c) On Ultra-light models, also remove bearing race from bore on drum.

(d) On models 26 through 29, idler gear needle roller bearing should also be removed.

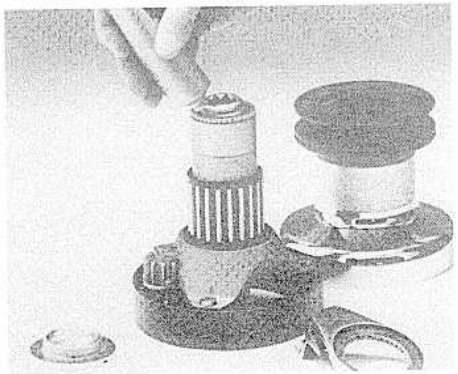
6 (a) Thoroughly clean all parts with kerosene (paraffin). Take care to remove any salt build up and crustation from surfaces of bearing races including mating faces on drum and pedestal.

(b) Dry parts with non-fluffy cloth.

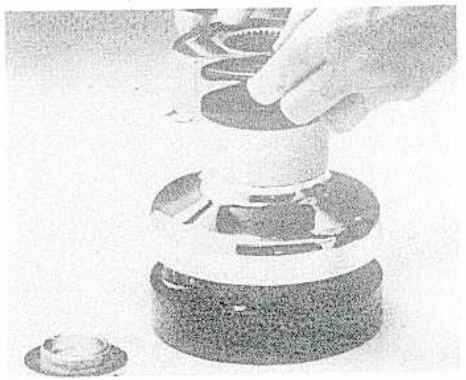
(c) Check condition of parts for wear or damage and replace if necessary.



1 After removing retaining cap, lift jaw assembly and stripper arm with drum. Proceed as for standard winches.



2 Grease spline on top of pedestal.



3 (a) Refit drum and adjust position of stripper arm on spline so as to unload rope in desired position.

(b) Lightly grease thread and underside of retaining cap, refit and tighten firmly.

(c) Test action.

To change rotation of Self-Tailing winches

All Maxwell self-tailers can be simply set for clockwise or anti-clockwise rotation. This allows for better deck layout by passing all lines to the outside of the winch port and starboard and can save turning blocks and lines cutting across combings. ***The direction of loading and rotation is clearly marked with arrows on top of the winch.***

1 Assemble pawls or clutches as explained for standard winches to achieve desired rotation.

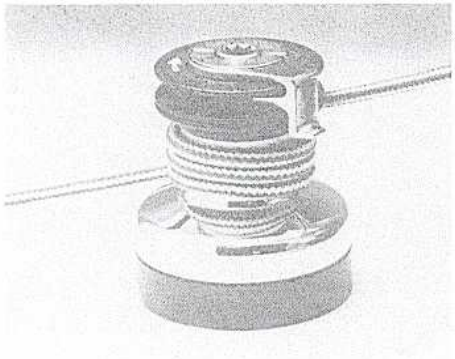
2 Arrows on self-tailing jaw show direction of rotation. If opposite rotation is required:

(a) Remove stripper arm from jaws.

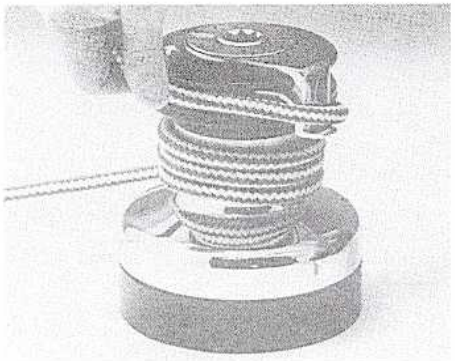
(b) Remove 4 screws fastening jaws to drum.

(c) Lift jaws from drum, turn pair over, relocate on spigot ring and 4 dowel pins. Replace screws and tighten them firmly.

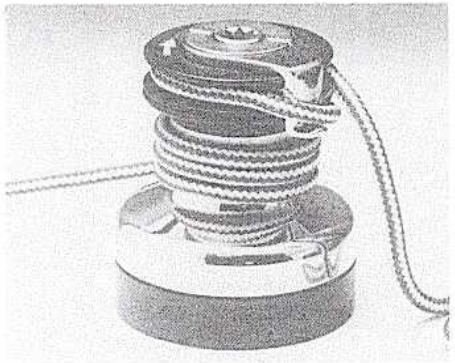
3 Replace stripper arm and retaining cap.



1 Place a minimum of 3 turns of rope round the drum. Wrap in direction of arrows.



2 Place rope over stripper arm.



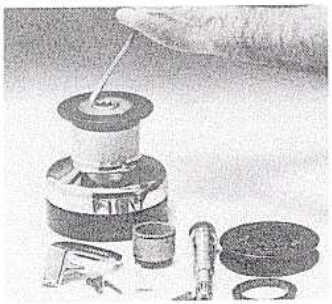
3 Cleat into jaws — you are now ready to tail automatically.

Notes:
The stripper arm should be positioned to unload the line into a safe storage position. Maxwell self-tailers automatically handle a wide variety of sheet and halyard sizes without the need for adjustment. The winch should only be used within the recommended range of line diameters. Because there is no differential and few frictional losses in the mechanism, you can through tail by hand. This means the winch can be set up before going about, for fast, safe tacking.

Recommended Line Sizes

MODEL		
17ST	8mm - 13mm	5/16" - 1/2"
18BHST	8mm - 14mm	5/16" - 9/16"
20ST	8mm - 13mm	5/16" - 1/2"
21ST	8mm - 13mm	5/16" - 1/2"
22ST	8mm - 14mm	5/16" - 9/16"
23ST	8mm - 14mm	5/16" - 9/16"
24ST	10mm - 16mm	3/8" - 5/8"
25ST	10mm - 16mm	3/8" - 5/8"
26ST	10mm - 16mm	3/8" - 5/8"
27ST	10mm - 16mm	3/8" - 5/8"
28ST	10mm - 16mm	3/8" - 5/8"
29ST	10mm - 16mm	3/8" - 5/8"

Converting your Standard Maxwell winch to Self-Tailing

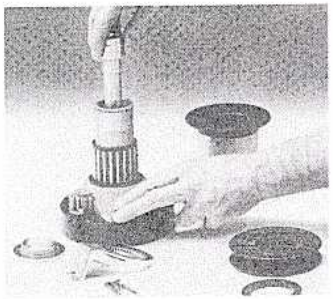


1 Procure appropriate conversion kit and remove retaining cap — tap undone in anti-clockwise direction.

2 Lift drum and extract drive shaft. Lock-in handle can assist.

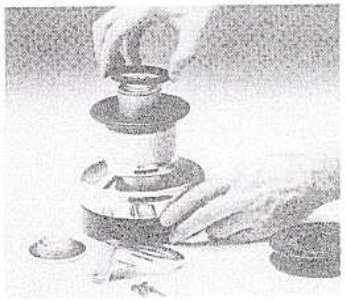
3 Remove thrust washer, bearing and stainless steel bearing race from top of pedestal.

4 Thoroughly clean thread on top of pedestal.

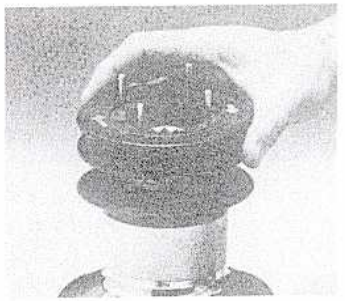


8 Grease and fit new drive shaft supplied with kit. Align splines on insertion. Test action.

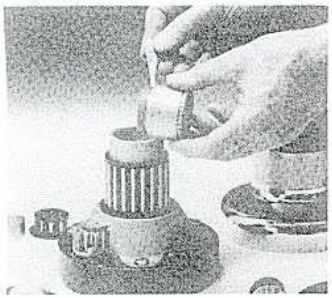
9 Replace drum.



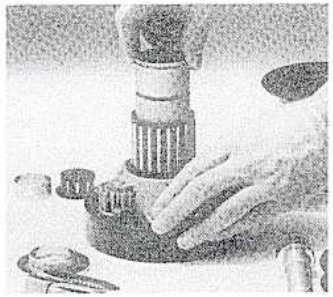
10 Locate spigot ring supplied in top of drum.



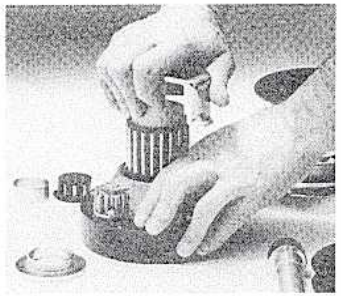
11 Locate jaw assembly, jaw with arrow showing correct rotation uppermost, on to spigot ring and tap dowel pins into holes — tap home flush. ***IMPORTANT: Be sure to use dowel holes — not screw holes.***

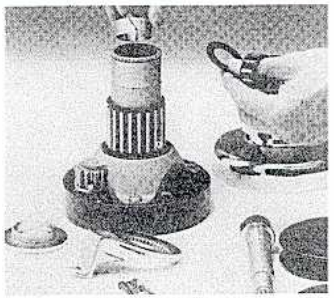


5 Apply LOCTITE™ supplied with kit to the male thread of pedestal extension.

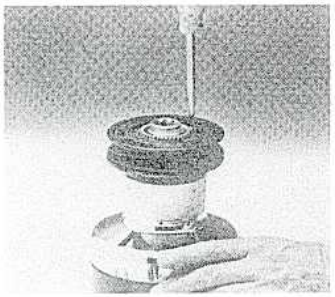


6 Screw extension into top of pedestal and tighten firmly using stripper arm applied to spline as a spanner.



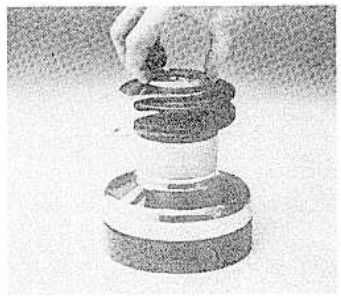


7 Spray extension internally with CRC6-66 or WD40 and fit parts removed in step 3 in top of extension.



12 Using 4 screws supplied, screw jaw assembly down firmly.

13 Grease spline, raise drum and fit stripper arm, positioning so as to unload line into safe storage position.



14 Refit retaining cap and tighten firmly. Test action.

Self-tailing Conversion Kits

Self-tailing conversion kits are available for the following standard MAXWELL winches:-

16 Bottom handle,
18 Bottom handle, 17, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29.