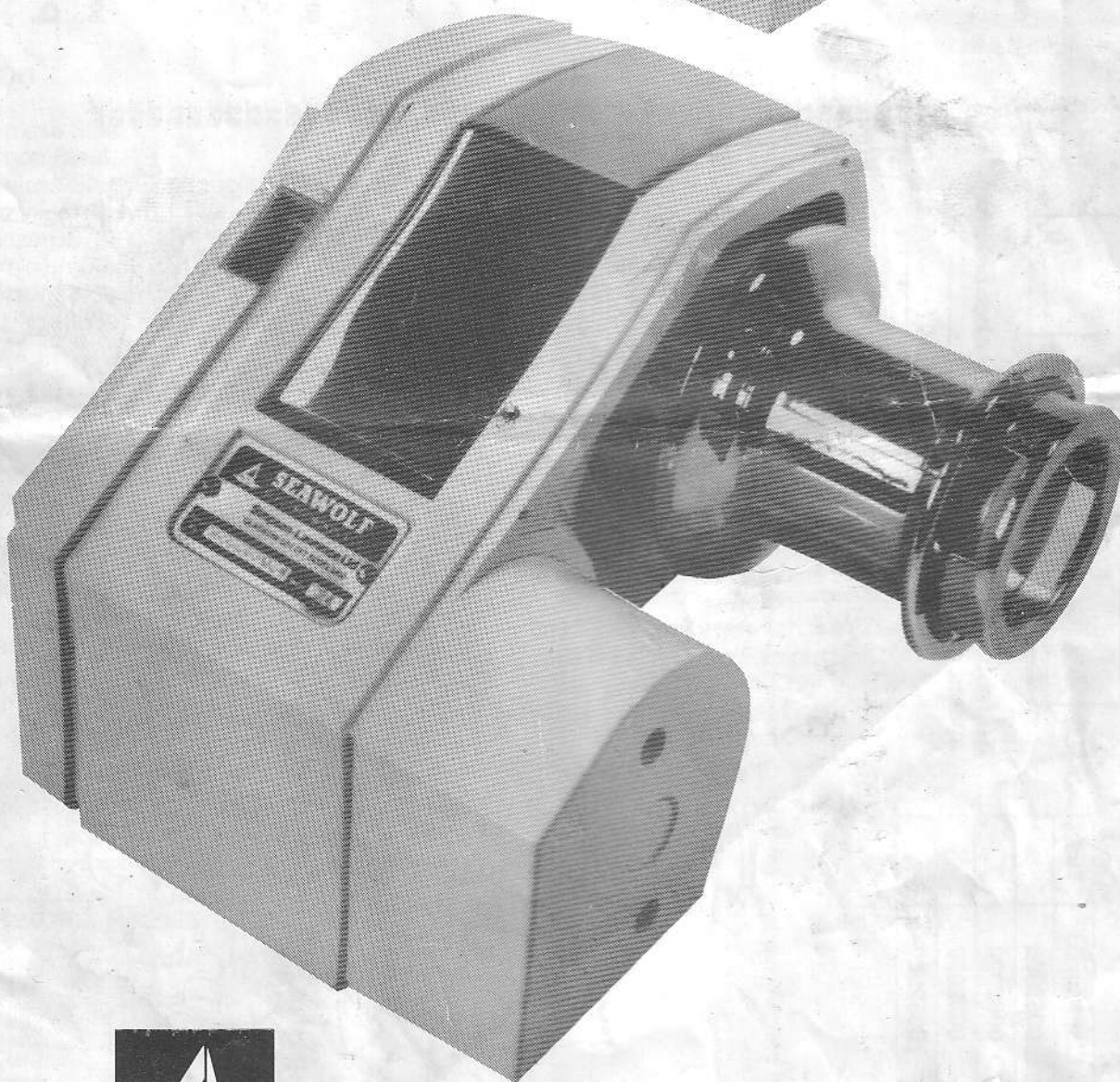
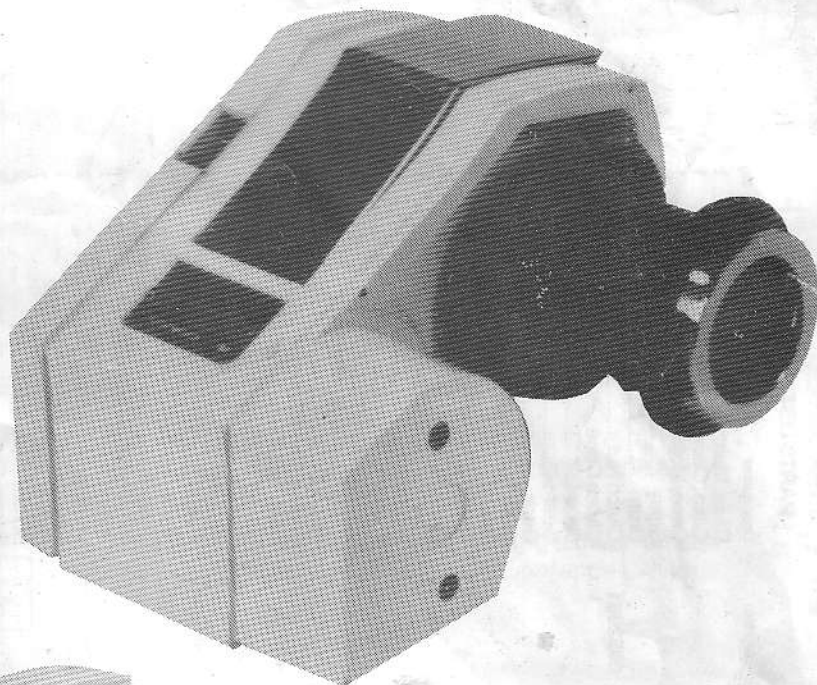


S-L Seawolf

520 ELECTRIC ANCHOR WINDLASS

Installation
Operation
Maintenance
and Parts List



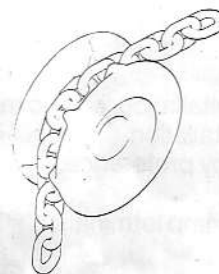
Simpson-Lawrence
INCORPORATING CHANNEL MARINE

Marine Equipment

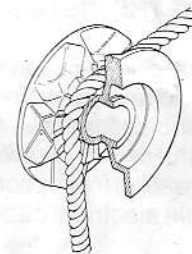
The S-L 0520 Seawolf Electric Anchor Windlass of modern and compact design is manufactured to a high specification using first class materials throughout. A smartly styled main casing is diecast in light weight aluminium alloy. The side cover and motor cover are from corrosion free pressure moulded re-inforced resin. All gipsies are of the S-L patented rope/chain type to suit 7, 8, 10mm (1/4, 5/16", 3/8") short link calibrated chain and 3 strand rope 12-/14mm diameter.

PERFORMANCE

VOLTAGE	PULL	kg	lb	Vessel Suitability
12V	Line Pull	325	715	Approx 12m (40ft)
	Chain Pull	275	600	
24	Line Pull	385	850	Approx 14m (46ft)
	Chain Pull	325	715	



The action of the chain.



The rope gripping and stripping action.

Depending on manufacture, other chains in the range 6mm (1/4") to 12mm (1/2") may be suitable with one of the above gipsies.

Should difficulty be experienced in fitting a chain please consult your local agent or Simpson-Lawrence Limited.

The windlass is supplied with:

Operating Handle
Overload Protection Unit
Base Gasket
Mounting Bolts
Instruction Booklet

SPECIFICATION

Shaft	Stainless Steel
Gears	Carbon Steel
Gipsy	Stainless Steel Electropolished
Drum	Aluminium Alloy BS 1490 LM25TF or Aluminium Bronze BS 1400 AB1 Chrome Plated
Case	Aluminium Alloy BS1490 LM6
Covers	Pressure Moulded Reinforced Resin
Weight	16.2 kg (36 lb)

ANCHOR CABLE SUITABILITY

The patented rope/chain gipsy, common to both models, enables the windlass to be used for hauling rope and chain without the need to transfer from warping drum to gipsy. They are both consequently ideally suited to anchor rode which consist of rope runs with a tail scope of chain.

Rope used with rope/chain gipsies should be three strand nylon. The RC170 gipsy is designed for 12 mm (1/2") rope and the RC160 for 16mm (5/8") rope but both may accept 12 - 16mm depending on the particular lay of the rope. The 180 gipsy handles chain only.

Chain should be chosen to suit gipsies as follows:-

GIPSY	CHAIN	
RC160	S-L 0058004/0058204	9.58mm
	American BBB	5/16"
	American Proof Coil	5/16"
	American BBB	3/8"
	American Proof Coil	3/8"
	American Hi Test	3/8"
	French	10mm
	German DIN 766	10mm
	Italian	10mm
RC170	S-L 0058003/0058203	5/16"
	American Hi Test	5/16"
	French	8mm
	German	8mm
	Italian	8mm
180	American Accoloy	9/32"

ACCESSORIES

List Number Item

0052505	12 volt solenoid (For single direction installation)
0052506	24/32 volt Solenoid (For single direction installation)
0052507	12 volt Solenoids (For reversing installation)
0052508	24-32 volt Solenoids (For reversing installation)
0052509	Foot Switch - Single direction installation
0052500	Hand Remote Switch - Single direction installation
0052509	Foot Switch x 2 - Reversing installation
0052510	Hand Remote Switch - Reversing installation
0052501	Joystick Control - Reversing installation
0052013	Windlass Cover - Single Direction
0052033	Windlass Cover - Reversing
0052012	Emergency Hand Lever

PLANNING THE INSTALLATION

Each windlass installation requires:-

1. Solenoid for single direction installation, or a boxed pair of solenoids for a reversing installation.
2. A control switch (or switches) by preference.
3. An Overload Protection Unit.
4. Suitable electrical cable and crimp terminals.

The following table gives recommended cable cross sectional areas. They are based on the total length of cable required, between battery and windlass and back to battery, NOT On the length of vessel.

Voltage	Cable size		Cable length			
	mm ²	AWG	m	ft	m	ft
12V	16	4	0-6	0-20	—	—
	25	2	6-10	20-35	0-6	0-20
	35	1	10-13	35-44	6-10	20-35
24/32V	16	4	0-14	0-47	—	—
	25	2	14-25	47-81	0-14	0-47
	35	1	—	—	14-19	47-62

AWG = American Wire Gauge

INSTALLATION

If deck is cambered a suitable mounting pad may be required under windlass. Place windlass in the desired position on top of any mounting pad and on top of its gasket, (the base gasket will be used as a template for bolt holes). Check that the chain will line up correctly with the stemhead roller and that the chain will lead back into the locker below.

Remove the windlass taking care not to move the position of the base gasket. Using the gasket, mark the position of the 4 mounting stud holes, chain pipe hole and cable entry hole. 4 × 11mm (7/16") holes are required for the mounting studs and 1 × 16mm (5/8") is required for the wiring. The chain pipe hole is to the outline of the gasket. Screw the 4 studs completely into the underside of the case, this can be done quite simply by locking 2 nuts together on each stud in turn. It is recommended that Loctite 270 or equivalent is applied to the stud's thread on fitting. Apply a small amount of jointing compound around the perimeter of the windlass and around the studs and electric cables. Place the gasket onto the bottom of the windlass and apply further jointing compound to the gasket's underside. Place the windlass with its gasket on deck. Apply washers and nuts to the underside and tighten firmly to the deck.

Note: If using silicone or other rubbery type sealants it is advisable to allow curing of the sealant before final tightening of the mounting bolts.

Should windlass be mounted in an anchor well, it is important to ensure that the anchor well is properly drained, this is to avoid continuous flooding. Also ensure that the forward lead of the chain will be able to make contact with at least one quarter of the circumference of the gypsy. This is most important in installations where it is proposed that the windlass is deep set in the locker.

WIRING – GENERAL RECOMMENDATIONS

To achieve the best performance and safeguard your electrical system it is essential that any electric windlass is fitted with sufficiently large diameter cable to cope with the current draw imposed upon it and to keep the voltage drop within acceptable limits. In any circumstance voltage drop due entirely to cable resistance should not exceed 5%, roughly 0.5v for a 12v installation and 1.0v for a 24/32v one. (See table under 'Planning the Installation').

Study the appropriate wiring diagram.

The wiring system should be of the 2 cable fully insulated return type, to avoid possible electrolytic corrosion problems. Most modern installations are negative return and polarity should be checked.

The solenoids are splash proof but not watertight and should be situated away from the possibility of water contamination, such as from the chain as it comes through the deck. The underside of the deck is one recommended site.

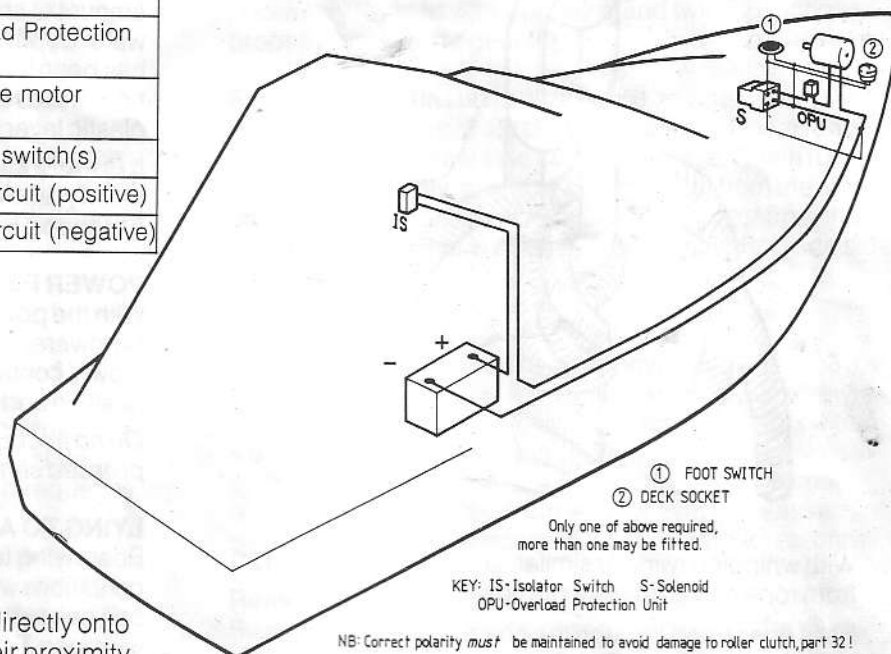
The Overload Protection Unit must be incorporated in the windlass wiring circuit. We recommend that the OPU is wired close to the windlass motor for maximum protection.

Finally, thin wire of 2.5mm cross sectional area, 35/0.30 or 50/0.25 PVC covered (American equivalent 14 AWG) is required for the connections between the solenoid(s), control switch(s) and the main motor circuit.

*Note: Crimp terminals should be used on **all** wire ends for good electrical connections. When the option to use more than one control switch is exercised it is important for their correction operation that they are wired in parallel.*

WIRING OF SINGLE DIRECTION INSTALLATION

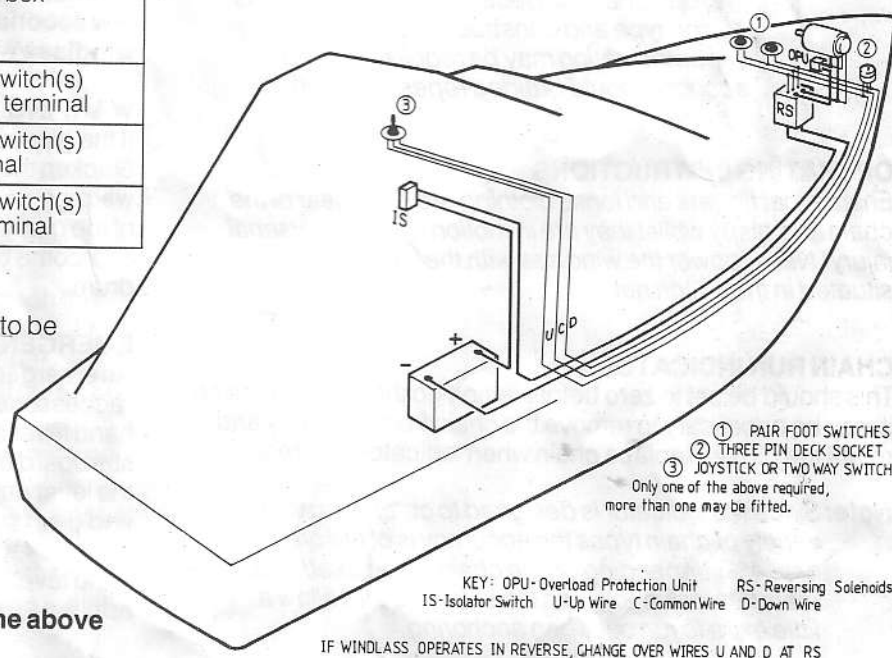
WIRE	FROM	TO
Thick cable	Positive battery terminal	Isolating Switch
Thick cable	Isolating Switch	Solenoid
Thin cable	Solenoid	Overload Protection Unit
Motor cable	Motor, Positive	Overload Protection Unit*
Thick cable	Negative battery terminal	Negative motor cable
Thin wire	Solenoid	Control switch(s)
Thin wire	Control switch(s)	Main circuit (positive)
Thin wire	Solenoid	Main circuit (negative)



*It may be possible to connect the motor wire directly onto the overload protection unit depending on their proximity.

WIRING OF REVERSING INSTALLATION

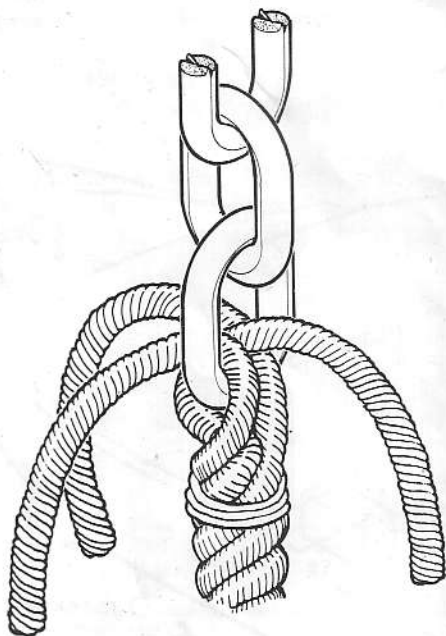
WIRE	FROM	TO
Thick cable	Positive battery terminal	Isolating Switch
Thick cable	Isolating Switch	Solenoid box*
Thin cable	Solenoid box	Overload Protection Unit
Thick cable	Negative battery terminal	Solenoid box
Positive Motor cable & Brake wire	Motor & Brake	Overload Protection Unit
Negative Motor cable & Brake wire	Motor & Brake	Solenoid box
Thin wire	Solenoid box	Control switch(s) common terminal
Thin wire	Solenoid box	Control switch(s) up terminal
Thin wire	Solenoid box	Control switch(s) down terminal



*Further information regarding connections are to be found under the lid of the box.

If you are not sure that you understand the above guidelines seek professional advice.

JOINING ROPE TO CHAIN



1. With whipping twine or similar, seize rope 300mm (12") from rope end and unlay strands.
2. Pass one strand through the chain end link from one side and the other two strands from the opposite side.
3. Remove seizing and complete back splice in normal manner for two full tucks. With a hot knife pare down the three strands by one third and continue with two further tucks. Then pare strands down by another third and finish with another two tucks. Cut away remaining tails.

Note: A This method of joining is designed to minimise chafe between rope and chain but as a matter of prudent seamanship it should be checked regularly and remade if there is any evidence of wear.

B The rope chain gipsy is not a self tailing device, therefore rope, of the correct size, will require to be tailed sufficiently taut to allow it to grip in the rope channel. Because of wide variations in rope type and construction some experimentation may be required. On no account should braided ropes be used!

OPERATING INSTRUCTIONS

Ensure that fingers and loose clothing are kept clear of the chain and gipsy whilst they are in motion to avoid personal injury! Never power the windlass with the clutch handle situated in the clutch nut.

CHAIN RUN INDICATOR

This should be set to zero before letting go the chain. To do so it may be necessary to remove the chain from the gipsy and rotate the gipsy. Replace chain when indicator is at zero.

Note: Since the indicator is designed to cater for a wide variety of chain types the accuracy is of the order of + or - 4%, depending on the chain being used. It is therefore better to err on the safe side and allow a little extra to run out when anchoring.

VEERING (LETTING) GO

Disengage the gipsy pawl by pressing down on the pawl release lever on the port side of the windlass. Release the clutch nut slowly with the handle provided until the gipsy begins to turn and the cable runs out. The handle may also be used as a brake and the speed at which the chain runs out can easily be controlled by moving it back or forward. Watch the indicator as the chain is being run out. The amount of chain to be let out should be calculated to suit the water depth and weather conditions. When sufficient chain has been let out, stop the chain by pulling the handle backwards and re-engage the gipsy pawl by pulling the plastic lever up to the engaged position.

It is more satisfactory to allow the chain to run out slowly, allowing the vessel to take up sternway before full scope is let out.

POWER REVERSING

With the power reversing model the anchor and chain can be lowered slowly and at a regular rate by activating a 'down' control when the gipsy pawl is in the disengaged position and the clutch is fully engaged.

On no account should both UP and DOWN controls be pressed simultaneously!

LYING TO ANCHOR SAFELY

Boats lying to their anchor in high swell or heavy weather conditions will snub on the anchor or mooring rope and this can cause the chain to slip or apply excessive loads to the windlass. For maximum safety the windlass must not be left to take the entire load and a bridle should be used to transfer the load to a mooring cleat or bollard. Alternatively, the chain can be removed from the windlass gipsy and made fast directly to a bollard or sampson post.

HAULING IN

Ensure that the gipsy pawl is engaged and the clutch nut is fully tightened. Press an 'up' control. The speed of hauling depends on the load on the anchor and will increase after the anchor breaks out. By watching the chain run indicator it is possible to tell when the anchor is approaching the stemhead and care should be exercised to avoid bringing the anchor hard up against the stemhead fitting causing damage, the chain can be inched by judicious use of the controls. Should the windlass stall, switch off and wait a few seconds before trying again. **It is important that the windlass should not be allowed to stall for more than a few seconds. It is sensible to avoid stalling your windlass whenever possible.**

WARPING

If the gipsy is in use, ensure that the gipsy pawl is engaged. Slacken the clutch nut to disengage the gipsy clutch. The warping drum can now be made to revolve independently of the gipsy. Rope/drum slippage can normally be overcome by increasing the turns of rope taken on the drum.

EMERGENCY HAND OPERATION

An emergency hand lever can be supplied as an extra, see "accessories". Engage the open end of the emergency hand lever around the windlass mainshaft directly to starboard of the gipsy such that the tongue on the side of the lever engages in a gipsy pocket. Engage the gipsy pawl and disengage the clutch. The gipsy can now be turned one pocket at a time by engaging and disengaging the hand lever. Whilst slow, considerable leverage can be applied to the gipsy by this method.

OPERATING TIPS

To aid anchor recovery under conditions where wind or tide cause additional load on the anchor, we recommend that the vessel's engine be used to assist. When mooring stern-to drop the anchor at the required distance from the jetty and gently ease off the gipsy clutch just enough to allow the chain to run out under the influence of the stern way of the vessel, preventing the bows from swinging. By engaging the clutch fully, the anchor can be used to restrain the vessel as it approaches the jetty. Make fast with warps from the stern.

SAFETY INSTRUCTION

Classification Societies require that a vessel lying to anchor should have its chain held by a cable stopper or equivalent strong point as windlasses are not designed to withstand the loads generated under storm conditions.

This rule should be applied to all craft!

IMPORTANT USER INFORMATION

An anchor windlass is mounted in the most exposed position on a vessel and is thus subject to severe atmospheric attack resulting in a possibility of corrosion in excess of that experienced with most other items of deck equipment. As the windlass may only be used infrequently, the risk of corrosion is further increased.

When the windlass is mounted in an anchor well with a closing lid, due to lack of ventilation and consequent high saline conditions the rate of corrosion is accelerated.

It is essential that the windlass is regularly examined, operated and given frequent maintenance. This is of even greater importance when the windlass is installed in an anchor well!

MAINTENANCE

Regularly wash down the exterior of your windlass with fresh water. The gearbox and its bearings have been lubricated for you and should require no regular attention. As with all types of marine equipment it is advisable to run the windlass occasionally to circulate the lubricant. External moving parts should have a few drops of oil applied from time to time, also, it is advisable to apply a small amount of waterproof grease to the mainshaft where it enters the windlass case. For smoothest operation of the clutch ensure that the clutch cones and their seats on the sides of the gipsy are kept free from excess salt deposits.

Examine all electrical connections for possible corrosion. Clean and lightly grease as necessary.

DISMANTLING PROCEDURES

Removal of Gipsy

Unscrew clutch nut, 8. Remove drum, 5, by withdrawing from mainshaft, 13. Gently tap the mainshaft towards the port side of the windlass until it comes into contact with the plastic plug, 21, and continue to tap until the plug is removed. The mainshaft can now slide right through the windlass until it is clear of the gipsy and clutch cones. Do not remove the mainshaft completely unless further dismantling is required. The gipsy, 4, and clutch cones, 7, can now be lifted out vertically.

A small amount of grease should be applied to all moving parts on re-assembly.

To replace the gipsy and cones, carefully line the mainshaft key with the keyways on the clutch cones, gently tap the mainshaft through as far as it will go. Slide the drum on the mainshaft and ensure that the ground diameter fits exactly in the mainshaft bearing, 33. Replace the clutch and plastic cap.

Removal of chain stripper, 18 and pawl, 15.

Remove gipsy as above. Tap pawl shaft, 19, from the port side through to the starboard side until it comes clear of the chain stripper and pawl. These can now be lifted vertically out. Re-assemble in reverse order.

Replacing chain run indicator actuator, 53.

Remove gipsy as above. Pull actuator straight out from case. Replace adding a small amount of grease. It will be necessary to insert with a pushing and twisting motion to properly engage the gear teeth.

Removal of chain run indicator, 50

Remove side cover, 2, by unscrewing socket head cap screws, 38. Withdraw side cover from case. Chain run indicator assembly, can now be pulled out from the side cover. When re-assembling push the indicator from the centre until it locates in its housing correctly. Replace side cover.

Removal of motor

Remove side cover as above. Remove motor cover, 3, by unscrewing screws, 36. Remove gear, 12, by unscrewing grub screw, 39, and slide from motor shaft. Unscrew cap screws, 37, and remove motor. Re-assemble in reverse order and finally tighten cap screws to obtain minimum resonance when motor is run without gears. Re-assemble side cover and tighten screws, 38, for minimum resonance.

Removal of cover, 55

Swing cover to fully open position. Grip one of the pivot pins with a pair of pliers and tap them on the side to pull the pin out. The cover can then be manipulated from the other pin. Re-assemble in the reverse order.

WARRANTY

The Simpson-Lawrence warranty covers your unit for a period of one year from the date of purchase, to be free from defects in material and workmanship. This warranty is subject to proper installation and use in service as described in this literature.

The models described in this document are subject to a policy of continual improvement. Simpson-Lawrence Ltd. reserve the right to alter specifications and recommendations without notice. For the latest information regarding any aspect of your windlass please contact your local agent or Simpson Lawrence Limited.

001/347 2144-287



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Simpson-Lawrence
INCORPORATING CHANNEL MARINE

Marine Equipment