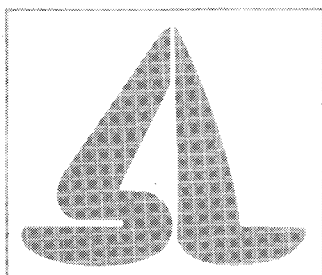
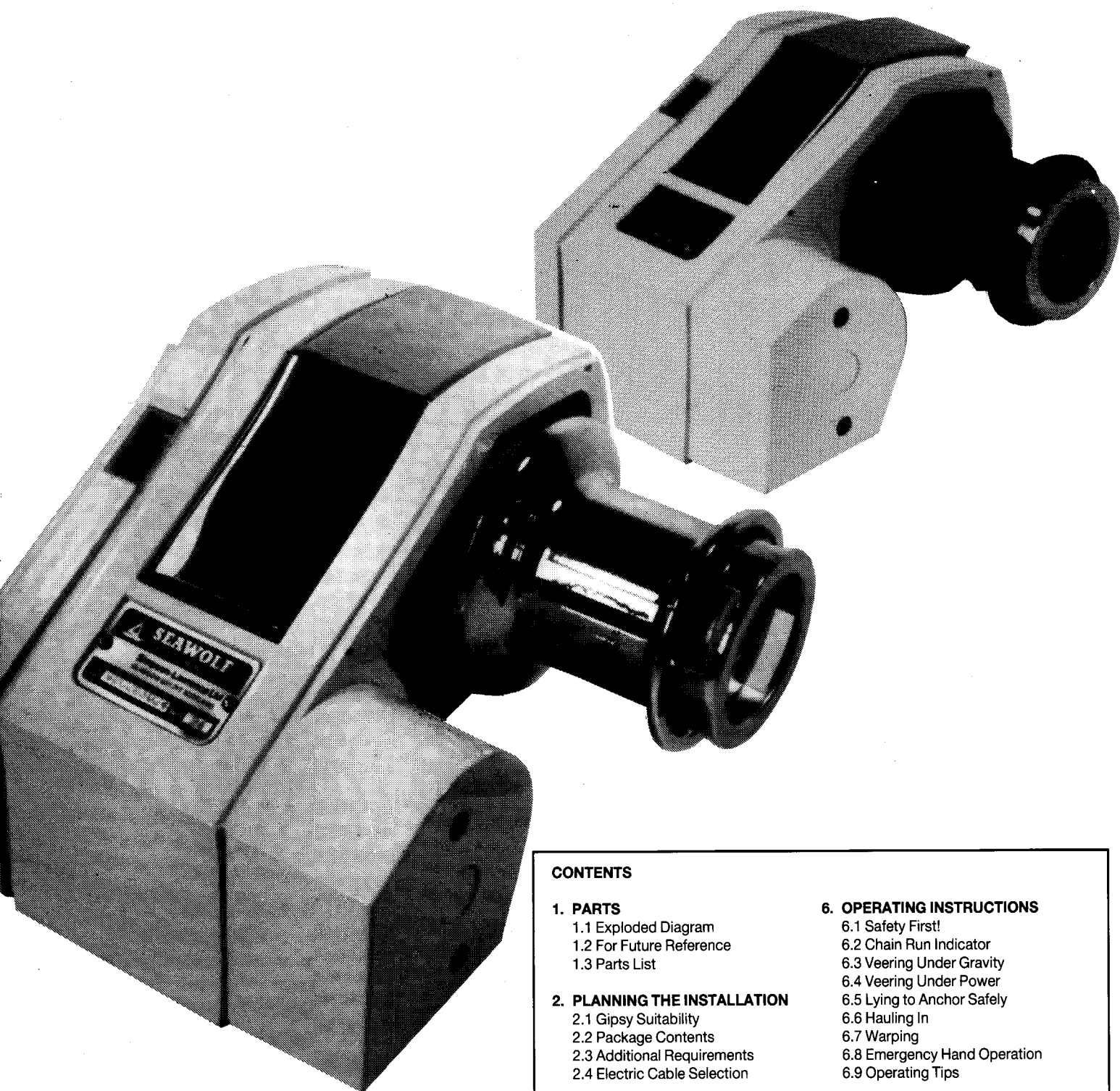


# S-L SEAWOLF 520

## Installation, Operation and Maintenance Instructions



**SIMPSON  
LAWRENCE**

### CONTENTS

#### 1. PARTS

- 1.1 Exploded Diagram
- 1.2 For Future Reference
- 1.3 Parts List

#### 2. PLANNING THE INSTALLATION

- 2.1 Gipsy Suitability
- 2.2 Package Contents
- 2.3 Additional Requirements
- 2.4 Electric Cable Selection

#### 3. ACCESSORIES

#### 4. SPECIFICATION

- 4.1 Performance
- 4.2 Materials

#### 5. INSTALLATION

- 5.1 Fitting Windlass to Deck
- 5.2 Wiring
- 5.3 Joining Rope to Chain

#### 6. OPERATING INSTRUCTIONS

- 6.1 Safety First!
- 6.2 Chain Run Indicator
- 6.3 Veering Under Gravity
- 6.4 Veering Under Power
- 6.5 Lying to Anchor Safely
- 6.6 Hauling In
- 6.7 Warping
- 6.8 Emergency Hand Operation
- 6.9 Operating Tips

#### 7. IMPORTANT USER INFORMATION

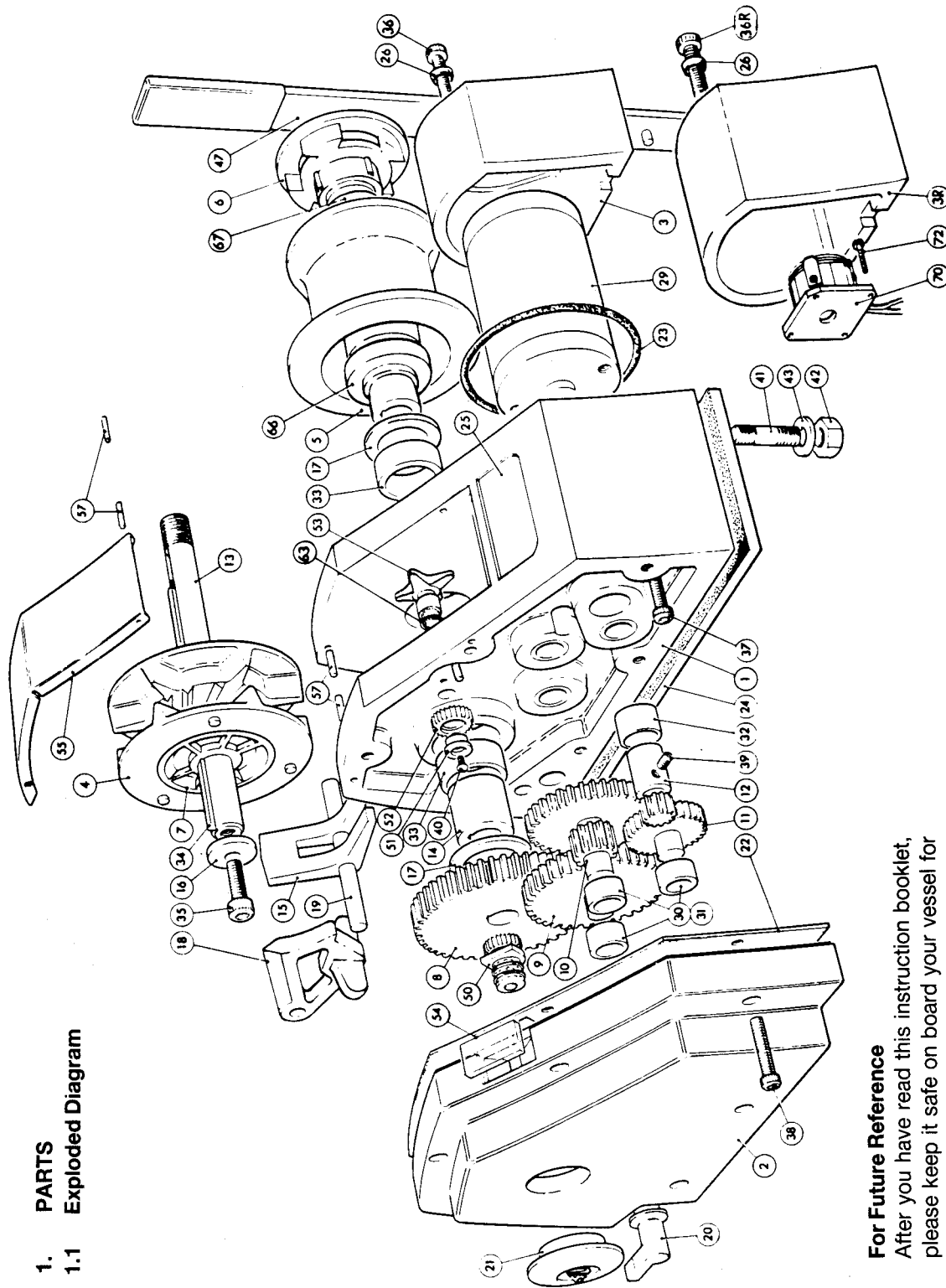
#### 8. MAINTENANCE

- 8.1 General Recommendations
- 8.2 Dismantling Procedures
- 8.3 Winter Laying Up

#### 9. WARRANTY

1. PARTS

1.1 Exploded Diagram



1.2 For Future Reference

After you have read this instruction booklet, please keep it safe on board your vessel for future reference.

1.2.1 Identify your model

MODEL	LIST No.	TICK
Single Direction	0052000	
Reversing	0052020	
Single Direction HS	0052050	
Reversing HS	0052060	

(HS has Chrome Plated Drum)

1.3 PARTS LIST

Item	Description	Qty	List No.
1	Case, Main Body	1	6052061
2	Case, Cover	1	
3	Case, Motor Cover	1	
4	Gipsy	1	
5	Drum	1	
6	Clutch Nut	1	
7	Clutch Cone	2	
8	Gear	1	
9	Gear	1	
10	Gear	1	
11	Gear	1	
12	Gear	1	
13	Mainshaft	1	
14	Spacer	1	
15	Pawl	1	
16	Washer	1	
17	Washer	2	
18	Chain Stripper	1	
19	Pawl Release Mechanism	1	
20	Plug	1	
21	Gasket, Case Cover	1	
22	Seal, Motor Cover	1	6052028 6052029
23	Gasket Base	1	
24	Nameplate	1	
25	Screw Seal	1	
26	12v Motor	2	
27	24v Motor	1	
28	Bearing	6	
29	Inner Ring	1	
30	Roller Clutch Bearing	2	
31	Key	1	
32	Screw	1	6052047
33	Screw	2	
34	Screw	2	
35	Screw	6	
36	Screw	1	
37	Screw	4	
38	Screw	4	
39	Studs	4	
40	Nut	4	
41	Washer	4	
42	Clutch Operating Lever	1	
43	Clutch Run Indicator	1	
44	Idler Gear Mount	1	
45	Idler Gear	1	
46	Gear, Actuator	1	
47	Window	1	
48	Stainless Steel Cover	4	
49	Spring Pin	1	
50	'O' Ring	1	
51	Drum, Spacer Bearing	1	
52	Spacer, Clutch Nut	1	
53	Case, Motor Cover	1	
54	12v Motor	1	
55	24v Motor	1	
56	Bearing	1	
57	Screw	2	
58	Electrically Released Brake	1	
59	Screw	4	
60	Screw	4	
61	Screw	4	

1.2.2 Please note your serial number and voltage.

V

The above information is to be found on the nameplate and is essential when ordering spares.

## 2. PLANNING THE INSTALLATION

### 2.1 Gipsy Suitability

The rope/chain gipsy enables the windlass to be used for hauling rope and chain without the need to transfer from warping drum to gipsy.

It is ideally suited to anchor rods which consist of rope with a chain tail.

Rope used with rope/chain gipsies should be three strand nylon.

The RC172 gipsy is designed to suit 12 mm (1/2") rope, the RC162 and RC152 gipsies to suit 16 mm (5/8") rope but they all may accept diameters that are plus or minus 3 mm (1/8") depending on the particular lay of the rope. The 180 & 181 gipsies handle chain only.

Chain should be chosen to suit gipsies as follows:-

GIPSY	CHAIN	
RC152	American NACM	5/16"
RC162	S-L 0058004	9.5 mm
	American Proof Coil G3	5/16"
	American BBB	3/8"
	French NFE 26011	10 mm
	German DIN 766	9 & 10 mm
	Italian	10 mm
	Norwegian	1/4"
	Australian PWB & Beavers	8 mm
	Australian Grade 'L'	10 mm
RC172	S-L 0058002	1/4"
	S-L 0058003	8 mm
	American Transport G7	1/4"
	American BBB	5/16"
	American Hi Test G4	5/16"
	French NFE 26011	8 mm
	German DIN 766	8 mm
	Italian	8 mm
	Norwegian	1/4"
		5/16"
		8 mm
	Australian	8 mm
180	Accoloy	9/32"
181	German DIN 766(86)	6 mm

Depending on manufacture, other chains in the range from 6 mm to 10 mm and 1/4" to 3/8" may be suitable with one of the above gipsies. Should you have difficulty in matching a gipsy to your chain please consult your local agent or Simpson-Lawrence Ltd.

### 2.2 Package Contents

Windlass

Overload Protection Unit

Base Gasket

Mounting Studs, Washers & Nuts

Safety Instructions D1000-1

Instruction Booklet D1019-2

### 2.3 Additional Requirements

Each windlass installation requires :

- A Circuit Breaker / Isolator Switch. (We recommend the ones listed under section '3 ACCESSORIES'.)
- A Solenoid for single direction installation, or a Boxed Pair of Solenoids for a reversing installation.
- A Control Switch (or Switches) by preference.
- Suitable electrical cable and crimp terminals.
- The following tools:

#### WINDLASS INSTALLATION

11 mm (7/16") Diameter Drill

16 mm (5/8") Diameter Drill

Jig Saw or Trepanning Tool

17mm Spanner

#### WIRING INSTALLATION

Flat Bladed Screwdriver

Crimping Pliers / Wire Stripper

13 mm (1/2") Spanner or Socket

Single Direction Only –

7 mm (9/32") Spanner or Socket

Reversing Only –

8 mm (5/16") Spanner or Socket

f. Sealant.

g. Stud Lock (Adhesive).

## 2.4 Electric Cable Selection

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 24V one.

The following table gives recommended cable sizes. The recommendations are based on the total length of cable required, between battery and windlass and back to the battery, following the route of the cables. (See the Wiring diagram for a definition.)

DO NOT confuse Cable Length with the length of the vessel!

### METRIC OR STARTER CABLE

VOLTAGE	Cable Length		Size
	m	ft	mm <sup>2</sup>
12	10.2	33	15
	11.1	36	16
	12.6	41	20
	17.6	58	25
	24.3	80	35
	27.1	89	40
24	32.7	107	15
	35.4	116	16

### AMERICAN CABLE

VOLTAGE	Cable Length	Cable Size
	ft	AWG
12	30	6
	48	4
	77	2
	97	1
24	61	8
	97	6

Thin wire of 2.5mm<sup>2</sup> cross sectional area, 35/0.30 or 50/0.25 PVC covered (American equivalent 14 AWG) is required for the control switch circuits. This is used to connect the switch(es) to the solenoid(s) and the breaker / isolator pilot light to the main circuit.

## 3. ACCESSORIES

List No.	Item
0052014	Windlass Cover ..... White
0052015	Windlass Cover ..... Blue
0052012	Emergency Hand Lever
0050710	50 Amp Circuit Breaker .. 12 Volt Installation
0050709	30 Amp Circuit Breaker .. 24 Volt Installation
0052505	12 Volt Solenoid ..... Single direction
0052506	24 Volt Solenoid ..... Single direction
0052509	12 Volt Solenoids ..... Reversing
0052510	24 Volt Solenoids ..... Reversing
0052512	Push Button Switch ..... Single direction
0052514	Foot Switch ..... Single direction
0052516	High Load Foot Switch ..... Single direction
0052511	Joystick Control Switch.. Single or Reversing
0052515	Hand Remote Switch.... Single or Reversing
0052513	Push Button Switch ..... Reversing
0052514	Foot Switch x 2 ..... Reversing
0052522	Touch Control Pad ..... Reversing

## 4. SPECIFICATION

### 4.1 Performance

Maximum Load	12V Rating	24V Rating
Chain in Gipsy	350kg (770lb)	450kg (990lb)
Rope on Drum	375kg (824lb)	475kg (1045lb)
Rope in Gipsy	400kg (880lb)	500kg (1100lb)

### Typical Working Figures

	Load	Speed	Current Draw
12V	100kg	9m/min	28 Amps
	200lb	29.5ft/min	
24V	100kg	12m/min	16 Amps
	220lb	39ft/min	

### 4.2 Materials

Shaft	Stainless Steel
Gears	Carbon Steel
Gipsy	Bronze, Chrome Plated
Drum	Aluminium Alloy BS 1490 LM25TF or Aluminium Bronze BS 1400 AB1 Chrome Plated (HS)
Case	Aluminium Alloy BS 1490 LM6
Covers	Pressure Moulded Reinforced Resin
Weight	21.5 kg (47 lb)

## 5. INSTALLATION

### 5.1 Fitting Windlass to Deck

- 5.1.1 If the deck is not flat a suitable mounting pad may be required to take up camber or sheer. Decks which are thin, or of foam or balsa laminate construction, will require a backing piece in order to spread the loads which will be applied locally to the deck while the windlass is in use.
- 5.1.2 Place the 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 to cut holes to later on. Check that the chain will line up correctly with the stemhead roller and that the chain will lead through into the locker below. 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 gipsy. This is most important in installations where it is proposed that the windlass is deep set in the locker.
- 5.1.3 Remove the windlass taking care not to alter the position of the base gasket. Using the gasket, mark the position of the four mounting bolt stud holes, the chain pipe hole and the electric cable entry hole. Four 11mm (7/16") holes are required for the holding down studs.  
One 16mm (5/8") hole is required for the wiring.  
The chain pipe hole is to the outline of the gasket and may best be cut using a jig saw.
- 5.1.4 It is recommended that Loctite 270 or equivalent is applied to the mounting studs threads prior to fitting them into the case. Screw the four studs into the underside of the case as far as they will go, this can best be done by putting two nuts on the opposite end, the inner one acts as a lock nut as the outer one is turned by a 17 mm spanner. Use this technique on each stud in turn.
- 5.1.5 Apply a small amount of sealant 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 sealant to the gasket's underside.
- NB** If using silicone or other rubbery type sealants it is advisable to allow curing of the sealant before final tightening of the mounting bolts.
- 5.1.6 Place the windlass with its gasket onto the deck. Apply the washers and nuts to the mounting studs from below and tighten the windlass firmly to the deck using a 17 mm spanner.
- 5.1.7 Should the 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.

## 5.2 Wiring

### 5.2.1 General Recommendations

The wiring system should be of the two cable fully insulated return type, which avoids possible electrolytic corrosion problems. Most modern installations are negative return (negative earth) but polarity should be checked.

A Circuit Breaker **must** be included in the windlass wiring circuit. This protects the wiring and prevents undue damage to the windlass motor, in the event of it being stalled by excessive load in service. The recommended Breaker / Isolator should be mounted in a dry, readily accessible place, as it must be manually reset should an overload occur that causes it to trip to the off position. If not using the Breaker / Isolator recommended, an alternative must have identical characteristics.

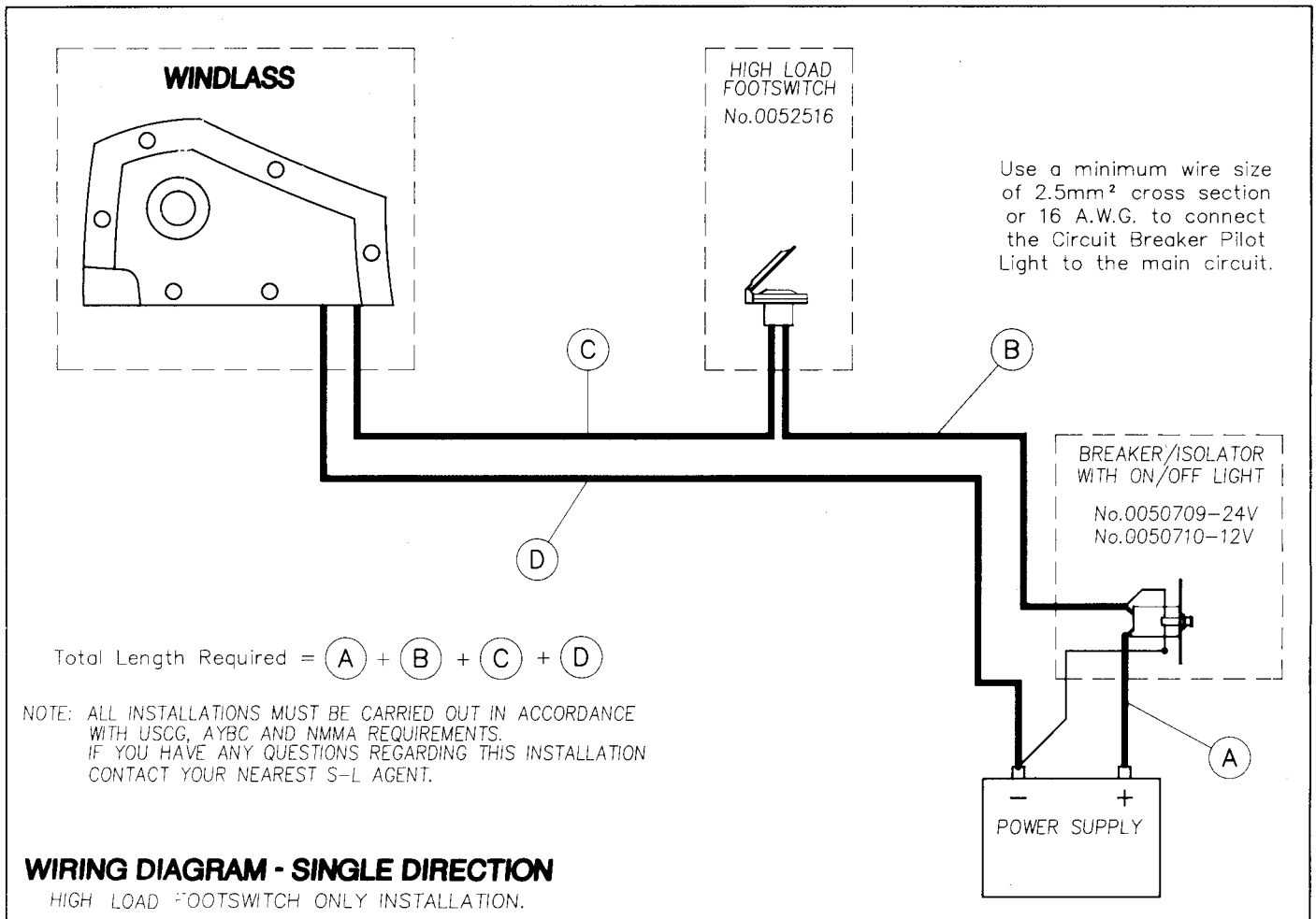
When fitted, Solenoids should be mounted as close to the battery as possible.

**NB** Crimp terminals should be used on **all** wire ends wherever possible for good electrical contacts.

### 5.2.2 Control Switch Installation

Follow the mounting instructions supplied with the switch. Remember, when using more than one Control Switch it is important to their correct operation that they are wired in a parallel circuit.

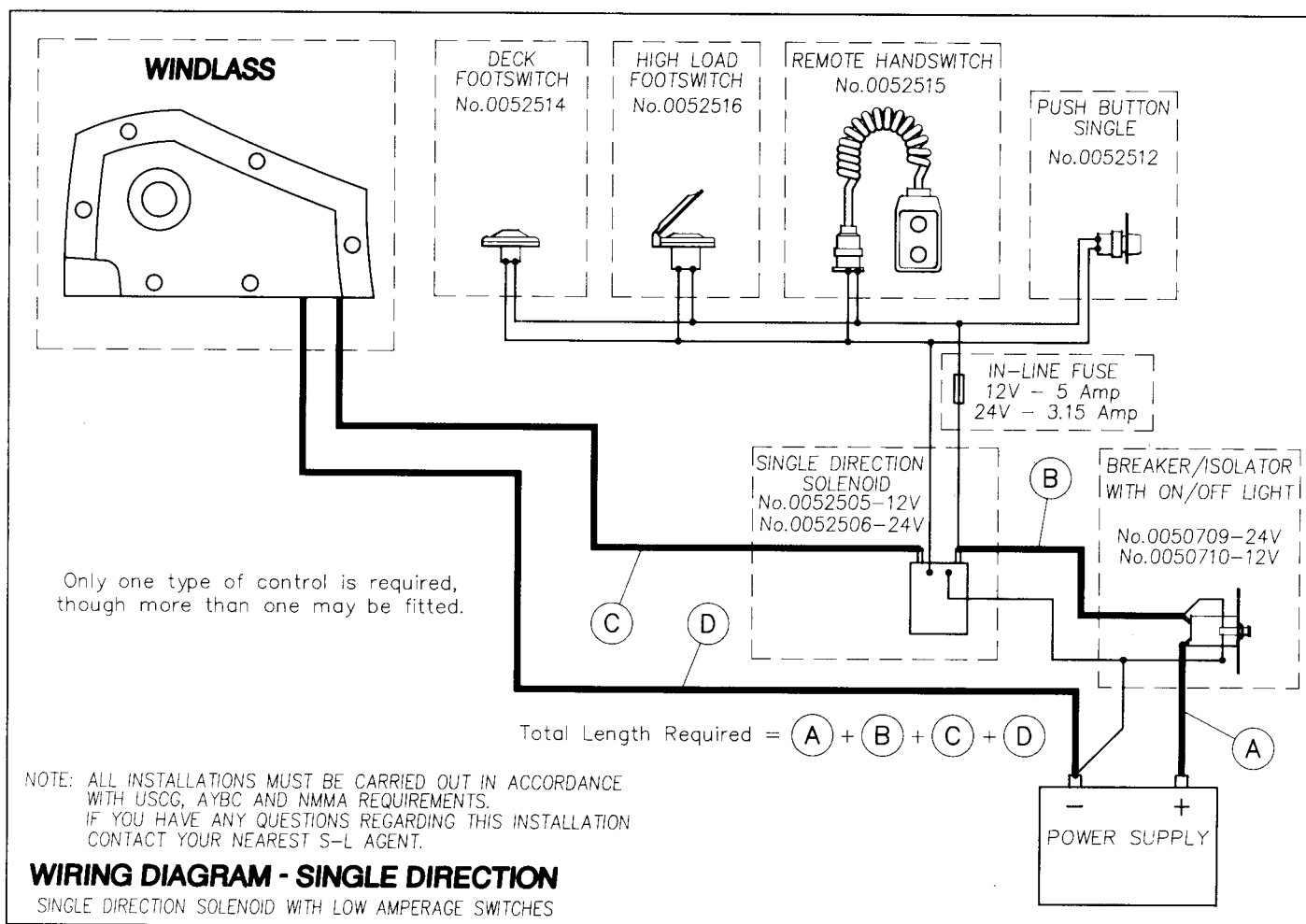
### 5.2.3 Non Reversing Wiring (High Load Foot Switch)



WIRE	FROM	TO
Thick cable	Positive battery terminal	Breaker / Isolator
Thick cable	Breaker / Isolator	High Load Foot Switch
Thick cable	High Load Foot Switch	Positive Motor Cable
Thick cable	Negative battery terminal	Negative Motor Cable
Thin wire	Breaker / Isolator Pilot Light	Main circuit (positive)*
Thin wire	Breaker / Isolator Pilot Light	Main circuit (negative)

\* The Thin Wire must be connected to the Positive Circuit at the 'non battery' side of the Breaker / Isolator

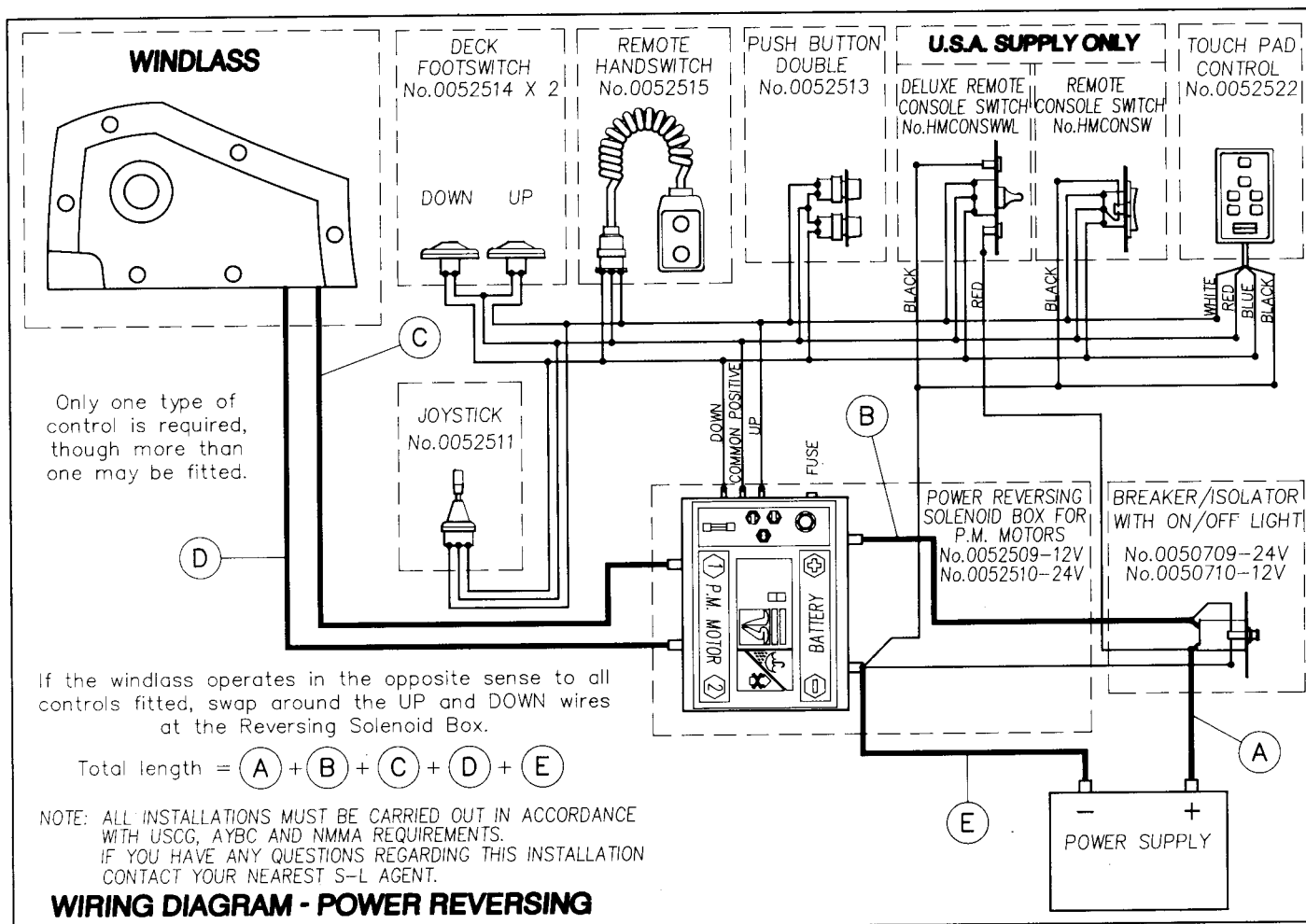
## 5.2.4 Non Reversing Wiring (Low Amperage Switches)



WIRE	FROM	TO
Thick cable	Positive battery terminal	Breaker / Isolator
Thick cable	Breaker / Isolator	Solenoid
Thick cable	Solenoid	Positive Motor Cable
Thick cable	Negative battery terminal	Negative Motor Cable
Thin wire	Solenoid	Control switch(es)
Thin wire	Control switch(es)	Main circuit (positive)
Thin wire	Solenoid	Main circuit (negative)
Thin wire	Breaker / Isolator Pilot Light	Main circuit (positive)*
Thin wire	Breaker / Isolator Pilot Light	Main circuit (negative)

\* The Thin Wire must be connected to the Positive Circuit at the 'non battery' side of the Breaker / Isolator

## 5.2.5 Power Reversing Wiring



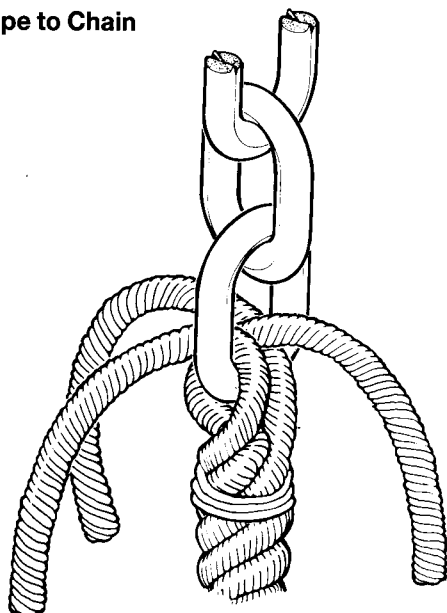
WIRE	FROM	TO
Thick cable	Positive battery terminal	Breaker / Isolator
Thick cable	Breaker / Isolator	Solenoid Box
Thick cable	Negative battery terminal	Solenoid Box
Thick cable	Solenoid Box (Positive Terminal)	Motor & Brake (Positive)
Thick cable	Solenoid Box (Negative Terminal)	Motor & Brake (Negative)
Thin wire	Solenoid box	Control switch(es) Common terminal
Thin wire	Solenoid box	Control Switch(es) Up terminal
Thin wire	Solenoid box	Control Switch(es) Down terminal
Thin wire	Breaker / Isolator Pilot Light	Main circuit (positive)*
Thin wire	Breaker / Isolator Pilot Light	Main circuit (negative)

\* The Thin Wire must be connected to the Positive Circuit at the 'non battery' side of the Breaker / Isolator

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



### 5.3 Joining Rope to Chain



- 5.3.1 With whipping twine or similar, seize your rope 300 mm (12") from the rope's end and unlay the strands.
- 5.3.2 Pass one strand through the chain end link from one side and the other two strands from the opposite side.
- 5.3.3 Remove seizing and complete a back splice in the normal manner for two full tucks.
- 5.3.4 With a hot knife pare down the three strands by one third and continue with two further tucks.
- 5.3.5 Pare the strands down by another third and finish with another two tucks.
- 5.3.6 Cut away any remaining tails.

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.

Because of wide variations in rope type and construction some experimentation may be required.

## 6. OPERATING INSTRUCTIONS

### 6.1 Safety First!

- 6.1.1 To avoid personal injury ensure that limbs, fingers and clothing are kept clear of the anchor rode and windlass during operation.
- 6.1.2 Always ensure that there are no swimmers nearby when dropping your anchor.
- 6.1.3 Never power the windlass with the clutch handle in place in the clutch nut.

### 6.2 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 the chain when indicator is at zero.

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

### 6.3 Veering (Letting Go) Under Gravity

- 6.3.1 Disengage the gipsy pawl by pressing down on the pawl release lever on the port side of the windlass.

- 6.3.2 Release the clutch nut slowly with operating handle; Insert the handle across the clutch nut and push it forwards (turn it clockwise) until the gipsy begins to turn and the rode runs out.
- 6.3.3 Note the handle may also be used as a brake and the speed at which the rode runs out can easily be controlled by moving it back or forward.
- 6.3.4 Watch the indicator as the rode is being run out. The amount of chain to be let out should be calculated to suit the water depth and weather conditions.
- 6.3.5 When sufficient rode has been let out, pull the handle backwards. This will stop it running by tightening the clutch.
- 6.3.6 Re-engage the gipsy pawl by pulling the plastic lever up to the engaged position.

### 6.4 Veering Under Power

- 6.4.1 With the power reversing model the anchor can be lowered at a regular rate.
- 6.4.2 Check that the clutch nut is fully tightened by inserting the handle across it and by pulling it aft (rotating it anti-clockwise).
- 6.4.3 Disengage the gipsy pawl by pressing down on the pawl release lever on the port side of the windlass.
- 6.4.4 Activate a 'down' control switch.
- 6.4.5 Note: If the windlass is correctly wired to a Simpson-Lawrence Solenoid Box, pressing both UP and DOWN controls simultaneously will cause it to stop.

### 6.5 Lying to Anchor Safely

- 6.5.1 Boats lying to their anchor in a high swell or heavy weather conditions will snub on the rode and this can cause slippage or apply excessive loads to the windlass.
- 6.5.2 For maximum safety and to prevent damage, the windlass must not be left to take the entire force from the anchor rode. A bridle should be fixed to the rode, relieving the load on the windlass.

Alternatively, some rode can be removed from the windlass and made fast directly to a bollard or sampson post.

### 6.6 Hauling In

- 6.6.1 Ensure that the gipsy pawl is engaged and the clutch nut is fully tightened by turning the clutch handle anti-clockwise.
- 6.6.2 Press an 'up' control. The speed of hauling depends on the load on the anchor and will increase after the anchor breaks out.
- 6.6.3 By watching the run indicator it is possible to tell when the anchor is approaching the stemhead. Take care to avoid bringing the anchor hard up against the stemhead fitting causing damage.
- 6.6.4 Should the windlass stall, switch off and wait a few seconds before trying again.  
It is important to the future high performance of the windlass' motor that the windlass is not allowed to stall for more than a few seconds.  
It is sensible to avoid stalling your windlass whenever possible.

## **6.7 Warping**

- 6.7.1 If the gipsy is in use, ensure that the gipsy pawl is engaged. Slacken the gipsy clutch nut by inserting the handle across the clutch nut and by pushing it forwards
- 6.7.2 The warping drum can now be made to revolve independently of the gipsy when the power is applied.
- 6.7.3 Rope / drum slippage can normally be overcome by increasing the number of turns of rope taken on the drum.

## **6.8 Emergency Hand Operation**

- 6.8.1 An emergency hand lever can be supplied as an extra, see section '3, ACCESSORIES'.
- 6.8.2 Engage the open end of the emergency hand lever around the windlass mainshaft directly to starboard of the gipsy, so that the tongue on the side of the lever engages in a gipsy pocket.
- 6.8.3 Engage the gipsy pawl and disengage the clutch.
- 6.8.4 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.

## **6.9 Operating Tips**

- 6.9.1 When anchoring it is best to allow the rode to run out slowly, allowing the vessel to take up sternway before full scope is let out. This helps prevent the rode from becoming tangled on top of your anchor on the seabed.
- 6.9.2 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 by lessening the load on the windlass and by providing the opportunity for greater control when the anchor breaks out.
- 6.9.3 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 rode 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 your vessel with warps from the stern.

## **7. IMPORTANT USER INFORMATION**

- 7.1.1 Classification Societies require that a vessel lying to anchor should have its rode 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!
- 7.1.2 At all times it is the responsibility of the boat user to ensure that the anchor and rode are properly stowed for the prevailing sea conditions. This is particularly important with high speed power boats as an anchor accidentally falling into the water whilst under way can cause considerable damage.
- 7.1.3 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 any necessary maintenance. This is of even greater importance when the windlass is installed in an anchor well!

## **8. MAINTENANCE**

### **8.1 General Recommendations**

- 8.1.1 After the first two or three anchor recoveries, check that the windlass is still fastened tightly to your deck as it should now be 'bedded-in'.
- 8.1.2 Regularly wash down the exterior of your windlass with fresh water. The geartrain and its bearings have been lubricated for you and should require no regular attention. As with all types of similar equipment it is advisable to run the windlass occasionally to circulate the lubricant if nothing else.
- 8.1.3 External moving parts should have a few drops of oil applied occasionally. It is advisable to apply a small amount of waterproof grease to the mainshaft where it enters the windlass case at the same time.
- 8.1.4 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.
- 8.1.5 Examine all electrical connections for possible corrosion.  
Clean and lightly grease as necessary.

### **8.2 Dismantling Procedures**

- 8.2.1 Gipsy Removal  
Unscrew the clutch nut, item 6. Remove the drum, item 5, by withdrawing it from the mainshaft, item 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 pops out. The mainshaft can now slide right through the windlass until it is clear of the gipsy and its 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.
- 8.2.2 Gipsy Replacement  
A small amount of grease should be applied to all moving parts on re-assembly. To replace the gipsy and cones, carefully align the clutch cone keyways with the mainshaft key and slide the mainshaft through as far as it will go.  
Slide the drum onto the mainshaft.  
Ensure that the ground diameter of the mainshaft is running in the mainshaft bearing, 33.  
Replace the clutch nut.
- 8.2.3 Chain stripper and Pawl Removal and Replacement  
Remove the gipsy as detailed above. Tap the pawl shaft, item 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.

**8.2.4 Chain Run Indicator Actuator Removal and Replacement**  
Remove the gipsy as detailed above. Pull the actuator, item 53, straight out from the case.  
Replace it adding a small amount of grease. It will be necessary to insert the actuator with a pushing and twisting motion to properly engage the gear teeth.

**8.2.5 Chain Run Indicator Removal and Replacement**  
Remove the side cover, item 2, by unscrewing the 6 socket head cap screws, item 38.  
Carefully part the side cover from the main case, as the geartrain runs between them both.  
The chain run indicator assembly, item 50, 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 the side cover onto the geartrain and fix it to the main case using the socket head cap screws.

**8.2.6 Electric Motor Removal and Replacement**  
Remove the side cover as above. Remove the motor cover, item 3, by unscrewing the 2 socket head cap screws, item 36 or 36R.  
Remove the gear, item 12, by unscrewing the grub screw, item 39, and slide it from the motor shaft.  
Unscrew cap screws, item 37, and remove motor.  
Re-assemble in reverse order. Apply the final tightening to the two cap screws, 37, to obtain the minimum resonance when the motor is run with its gear, 12, but without the rest of the geartrain.  
Replace the geartrain and side cover, tighten screws, 38, for minimum resonance also. As a general rule, the quieter the windlass runs whilst off load the less power it is consuming.  
Replace the motor cover.

**8.2.7 Gipsy Cover Removal and Replacement**  
Swing the cover, item 55, to the fully open position.  
Grip one of the pivot pins, item 57, with a pair of pliers and tap them on the side with a hammer to pull the pin out. The cover can then be manipulated from the other pin.  
Re-assemble in the reverse order.

### **8.3 Winter Laying Up**

As with all items of marine equipment poor installation or neglect is often responsible for damage caused during the winter lay up period.  
Given correct installation and maintenance your windlass will require little attention prior to, or after, winter lay up.  
Check between the windlass deck housing and deck for signs of water ingress. Should it occur, remove, clean and reseal the deck plate.

## **9. 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 booklet. Our current catalogue contains our full 'Conditions of Sale'. A copy of these conditions can be obtained by application to any of our branches or our agents.  
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 see Back Cover.

## **NOTES**