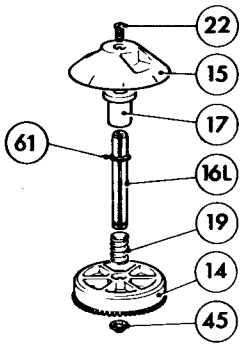
S-L Francis 1000/2000

ELECTRIC ANCHOR WINDLASS

Installation
Operation
Maintenance
and Parts List

Simpson-Lawrence
INCORPORATING CHANNEL MARINE
Marine Equipment



DETAIL OF FATHOMETER

PARTS LIST

Part No.	Description	Qnty.
1.	Main Body	1
2.	End Plate	1
9.	Clutch Thrust Plate	2
10.	Worm Wheel	1
18A.	Drive Screw	2
18B.	Screw	6
20.	Nameplate	1
22.	Screw	9
23.	Ring	2
24A.	Shroud, Inch	1
24B.	Shroud, On/Off	1
26.	Worm	1
27.	Sprag Bush	1
28.	Gear	1
29.	Retaining Plate	1
30.	Solenoid Spacer	2
31.	Gear	1
32.	Clutch Bush	1
36.	Retaining Plate	1
37.	Washer	1
38.	Thrust Bearing Pin	2
39.	Clutch Disc	2
40.	Ball Bearing	2
41.	Thrust Washer	2
42.	Disc Spring	8
46.	Circlip	1

SINGLE PARTS

4.	Clutch and Bearing Housing	1
6.	Clutch and Bearing Housing	1
7.	Ball Bearing	1
8.	Clutch	1
11.	End Housing	1
12.	Warping Drum (Chromed)	1
13.	Washer	1
14.	Fathometer Wheel	1
15.	Indicator	1
16L.	Spindle	1
17.	Bush	1
19.	Spring	1
21.	Spacing Bush	1
43.	O Ring	1
44.	Circlip	2
45.	Circlip	1
47.	Circlip	1
48.	Oil Seal	1
55.	Bearing	1

DOUBLE PARTS

3.	Clutch and Bearing Housing (P)	1
4.	Clutch and Bearing Housing (S)	1
5.	Clutch and Bearing Housing (P)	1
6.	Clutch and Bearing Housing (S)	1
7.	Ball Bearing	2
8.	Clutch	2
12.	Warping Drum	2
13.	Washer	2
14.	Wheel Fathometer	2
15.	Indicator	2
16L.	Spindle	2
17.	Bush	2
19.	Spring	2
21.	Spacing Bush	2
22.	Screw	1
43.	O Ring	2
44.	Circlip	3
45.	Circlip	2
47.	Circlip	2
48.	Oil Seal	2

1000 ELECTRICAL PARTS

33.	Spacing Bush	1
34.	Compound Gear	1
35.	Waisted Nut	1

2000 ELECTRICAL PARTS

34.	Compound Pinion	1
86.	Solenoid Switch	1
98.	Distance Piece	1
100.	Electric Motor	1

Part No.	Description	Qnty.
49.	Switch On/Off	1
50.	Switch Inch	1
51.	Filler Plug	1
52.	Thrust Bush	1
53.	Bearing	1
54.	Grease Nipple	1
56.	Thrust Plate	1
60.	Gasket, Base	1
63.	Screw	2
64.	Screw	8
65.	Screw	12
67.	Screw	10
68.	Screw	2
69.	Plug	14
73.	Pawl	1
76.	Screw	4
77.	Screw	2
81.	Key	1
82.	Oil Sight Glass	1
84.	Sprag Bush	1
87.	Bearing	1
119.	Liner Bearing	1
120.	Seal	1
121.	Locking Spanner	1
130.	Wiring Harness	1

58.	Nut	2
59.	Mainshaft	1
61.	O Ring	1
66.	Bolt	2
70.	Screw	2
71.	Clutch Handle	1
72.	Handle Grip	1
74.	Pin	1
75.	Split Pin	1
78.	Key	2
79.	Key	1
85.	Key	1
90.	Fathometer Indicator Plate	1
91.	Retaining Nut	1
92.	Gipsy	1
95.	Fathometer Hole Plug	1
96.	Pawl Pin Hole Plug	1
105.	Emergency Hand Lever	1
132.	Washer	2

54.	Grease Nipple	2
57.	Mainshaft	1
58.	Nut	4
61.	O Ring	2
66.	Bolt	3
70.	Screw	4
71.	Clutch Handle	2
72.	Handle Grip	2
73.	Pawl	1
74.	Pin	2
75.	Split Pin	2
77.	Screw	1
78.	Key	4
79.	Key	2
85.	Key	1
90.	Fathometer Indicator Plate	1
92.	Gipsy	2
93.	Retaining Nut	2
105.	Emergency Hand Lever	2
132.	Washer	4

86.	Solenoid Switch	1
88.	Electric Motor	1
114.	Gasket, Motor	1

102.	Gear Retaining Washer	1
103.	Gear Retaining Screw	1
104.	Spring Washer	1
116.	Gasket, Motor	1

The S-L Francis 1000/2000 Electric Anchor Windlass is of a modern and compact design and manufactured to a high specification using first class materials throughout. A smartly styled main case, in light weight aluminium alloy LM6, primed and electrostatically painted in white polyester is fitted with chrome plated warping drums. Chain gipsies are of high quality galvanised cast iron and suit the following chain sizes:

1000 – 10mm (3/8")-14mm (9/16") short link calibrated chain.
2000 – 10mm (3/8")-16mm (5/8") short link calibrated chain.

PERFORMANCE

MODEL		PULL	kg	lb	VESSEL SUITABILITY
1000	12V	Line Chain	1035 700	2280 1540	Approx. 16m (53 ft).
1000	24V	Line Chain	1395 930	3075 2050	Approx. 18m (59 ft).
2000	24V	Line Chain	1800 1200	3970 2645	Approx. 25m (82 ft).

SPECIFICATION

Shaft Precision Ground Steel EN8
Gears Carbon Steel and Bronze
Gipsy Cast Iron, Galvanised
Drum Bronze BS1400 LG2 Chrome Plated
Case Aluminium Alloy BS1490 LM6
Weight 1000 Single 80 kg (176 lb)
1000 Double 104 kg (229 lb)
2000 Single 86 kg (190 lb)
2000 Double 113 kg (249 lb)

Model	SPECIFICATION		
	List Number	Gipsy	Drum
1000 Single 12V	**0010001**	Cast Iron Galvanised	Bronze Chrome Plated
1000 Double 12V	**0010005**	Cast Iron Galvanised	Bronze Chrome Plated
1000 Single 24V	**0010002**	Cast Iron Galvanised	Bronze Chrome Plated
1000 Double 24V	**0010006**	Cast Iron Galvanised	Bronze Chrome Plated
2000 Single 24V	**0020001**	Cast Iron Galvanised	Bronze Chrome Plated
2000 Double 24V	**0020006**	Cast Iron Galvanised	Bronze Chrome Plated

Recommended Optional Extras

List No. 0050701 1000 Overload Protection Unit, 24V. 50 Amp.
List No. 0050702 1000 Overload Protection Unit, 12V. 60 Amp.
List No. 0020007 2000 Overload Protection Unit, 24V. 100 Amp.
List No. 0052509 Foot Switch, 12/24V.
List No. 0052500 Hand Remote Switch, 12/24V.
List No. 0010009 Windlass Cover, Single
List No. 0010008 Windlass Cover, Double

Chain should be chosen to suit gipsies as follows:

GIPSY	CHAIN	
C90	S-L 0058004, 0058204 S-L 0058005/0058205 American BBB Most European	9.5mm 7/16" 3/8" 10mm
C82	American Hi Test Most European	3/8" 10mm
C72	S-L 0058006/0058206 American BBB American Proof Coil American Proof Coil American Hi Test Most European	1/2" 1/2" 7/16" 1/2" 1/2" 12mm
C67	S-L 0058007/0058207	14mm
T	S-L 0058101/0058302	5/8"
C66	American BBB American Proof Coil	5/8" 1/2"
C50	American Proof Coil American Hi Test	5/8" 5/8"

Note: 1000 Model suits chain sizes up to 14mm (9/16") only.

Should difficulty be experienced in fitting a chain, please contact local expert.

Installation

The windlass is supplied with:
Base Gasket
Emergency Hand Lever (s)
Locking Spanner
Information Pack.

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 or hawse pipe such that the chain leads forwards and downwards from the gipsy to ensure maximum gipsy/chain grip and that the chain will feed correctly into the locker below.

Remove the windlass taking care not to move the position of the mounting gasket. 'Four 17.5mm (11/16") diameter holes are required for the holding down bolts. A hole approximately 38mm (1 1/2") is also required to take the electrical supply cables through the deck and this should be in a position to line up with the electric cables below the windlass. Drill these holes and pass the electric cables through the mounting pad. Apply bedding compound to the rim of the base of the windlass. Feed the electric leads through the deck and replace the windlass on the base mat. Bolt to the deck with 16mm (5/8") diamter bolts.

Notes:
Please note that if the basemat is not properly fitted giving a completely watertight joint, corrosion may occur in the internal mechanism.

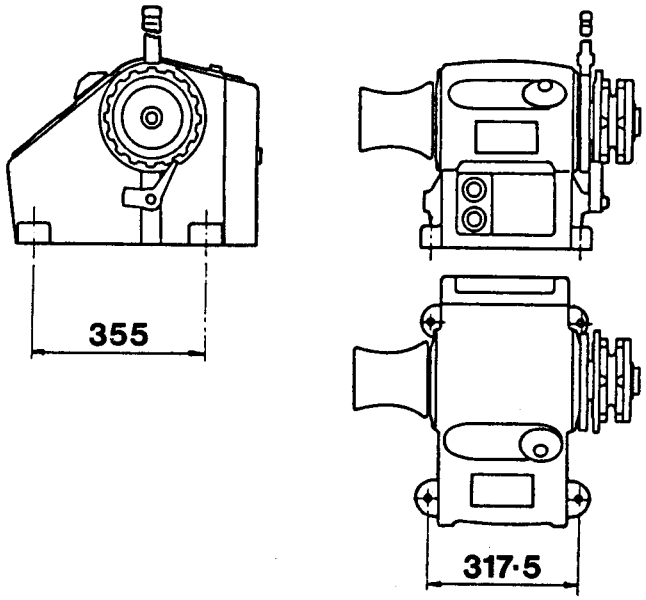
LUBRICATION

The windlass is supplied without lubrication.
With the windlass in position fill the gearbox with 2 litres (3½ pints) of an automotive gearbox oil 80 or 90 EP. The correct oil level is about 3mm (1/8") down from the top of the sight glass on the forward face of the windlass. Check oil level periodically. Replace filler plug after filling.

Should the windlass be mounted in an anchor well, it is important to ensure that the anchor well is properly drained to avoid continuous flooding of the windlass. Also ensure that forward lead of chain from gipsy still allows the maximum of 90° wrap of chain on the gipsy.

1000/2000 BOLTING CENTRES

Bolting centres, common to singles and doubles.



WIRING

To achieve the best performance from your windlass and safeguard your electrical system, it is essential that it is fitted with sufficiently large cables to cope with the current required and to keep the voltage drop within acceptable limits. In any circumstances voltage drop should not exceed 5 per cent. i.e. 12V/0.5V-24V/1V.

The following table gives suggested electric cable sizes.

VOLTAGE	CABLE SIZE mm²	MODEL NUMBER			
		Cable Length		Cable Length	
		Ft.	m.	Ft.	m.
12	25	0-16	0- 5	—	—
	35	17-22	5- 7	—	—
	50	22-30	7- 9	—	—
24	25	0-40	0-12	0-32	0-10
	35	40-51	12-16	32-41	10-12
	50	—	—	41-56	12-17

The table refers to the length of cable runs and should not be confused with boat length.

Study the wiring diagram below.

The electrical system on your boat should be 2 wire or fully insulated return type to avoid possible electrolytic corrosion problems. This applies to all electrical and metallic equipment on board and for this reason modern systems are negative return.

The solenoid and Inch and Run switches are incorporated in the windlass itself.

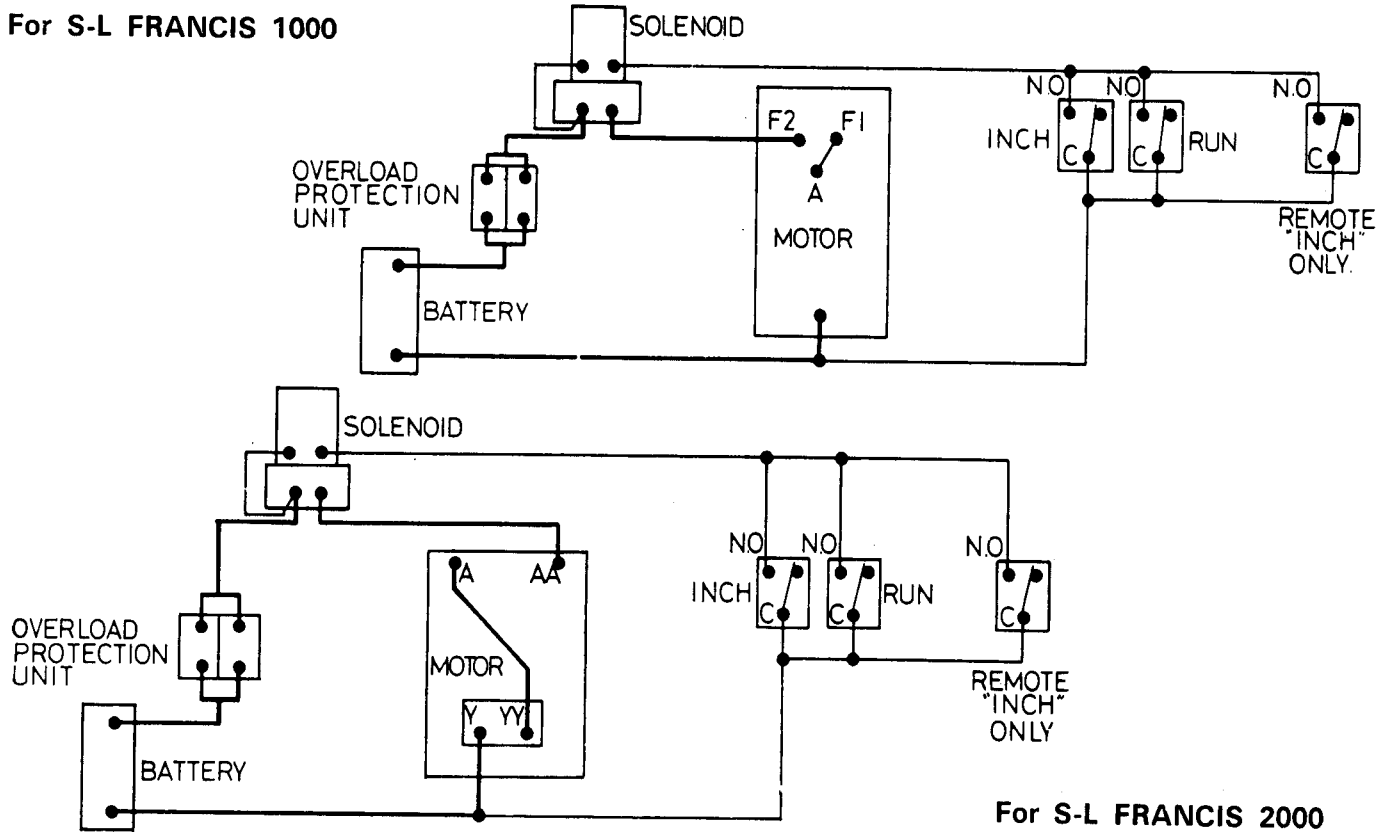
An isolating switch should be incorporated between the battery and the windlass with its controls and should be kept in the off position except while the windlass is in use.

Take one cable from the positive battery terminal through the overload protection unit to one of the heavy leads from the windlass. A second cable should be taken from the negative battery terminal to the other heavy lead cable from the windlass.

Should additional control options be fitted these should be connected as shown in the diagrams using 2.5mm cross sectional area wire 30/0.30 or 50/0.25 PVC covered. (American equivalent 14 AWG).

Note: The above installation principles should be used as a guideline for fitting your windlass. If you are not sure that you understand then seek professional advice.

For S-L FRANCIS 1000



For S-L FRANCIS 2000

OPERATING INSTRUCTIONS

Veering (Letting Go)

Ensure that fingers or loose clothing are kept clear of the chain and gipsy to avoid personal injury.

Dis-engage the gipsy pawl and release the clutch slowly by pushing the clutch lever forward until the gipsy begins to turn and the cable runs out. The handle also acts as a brake and the speed at which the chain runs out can be easily controlled by pulling the lever aft to slow down and pushing to speed up. To stop the chain run out, pull lever fully aft and re-engage the gipsy pawl.

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.

Hauling In Cable

Ensure that the gipsy pawl is engaged and that the clutch operating lever is pulled aft. Press the On/Off button and the gipsy will start to turn pulling in the cable. The speed of hauling depends on the load on the chain and will increase after the anchor breaks out. The automatic gear change mechanism fitted in all models, allows the gear ratio to give optimum hauling performance. As the anchor comes clear of the water, chain movement can be controlled by use of the Inch button pressed intermittently. Should the windlass stall, switch off and wait a few seconds before again pressing the switch.

It is important that the windlass should not be allowed to stall for more than a few seconds.

If the windlass continues to stall then the anchor may be fouled and any attempt to clear should be made as indicated under "Hand Operation"

Warping

Ensure that the gipsy pawl is engaged and that the gipsy clutch is released by pushing the lever fully forward. In the double version both clutch levers must be pushed forward. Press the On/Off switch, and the warping drum, or drums, will revolve independently of the gipsy or gipsies. The most convenient way to use a warping drum is to have it revolving continuously with about 3 turns of the warp on it. Pull on the free end when hauling is required and surge the turns when no further hauling is required.

Chain Run Indicator

This should be set at zero before veering by lifting the dial and rotating it until the mark at 65m is opposite the indicator arrow on the windlass. For each complete turn of the indicator dial 65 metres of chain will have been veered. Other position marks on the indicator dial will represent 16.25m opposite ¼, 32.5m opposite ½, and 48.75m opposite ¾.

Note: Since the windlass is designed to cater for a wide variety of chains the accuracy is + or — 4 per cent and thus it is better to err on the safe side and allow a little extra to run out when anchoring.

Emergency Hand Operation

The emergency hand lever (2 supplied with a double windlass) for use in the event of an electrical supply failure or a fouled anchor. Ensure that the gipsy pawl is in the engaged position and then release the clutch by pushing the clutch handle fully forward. The forked end of the emergency lever should be placed between the gipsy and the clutch mechanism with the angled end of the tube engaging the gipsy ratchet. Pull the lever aft and the gipsy will turn. Push the lever forward and the lever will ratchet. Continue moving the handle backwards and forwards to pull in the cable. A very considerable leverage can be applied to the gipsy by this method but it is slow, so the windlass should be used under power as soon as the anchor has been broken out or cleared.

Safety Instructions

Vessels lying to their anchor in high swell or heavy weather conditions will snub on the anchor chain and this can cause the chain to slip or apply excessive loads to the windlass. For safety when lying to an anchor the windlass must not be left to take the entire load and a bridle should be used to transfer the load to a mooring bollard or cleat. The use of a cable stopper is recommended.

This instruction is in keeping with good seamanship.

OPERATING HINTS AND TIPS

1. To aid manoeuvrability we recommend that the vessels engine is run while lifting anchor.
2. The easiest way to clean the anchor is to haul it clear of the water and then drop it rapidly back into the water. This can be repeated several times. By keeping the windlass motor running continuously control the raising and lowering by movement of the clutch lever, forward to drop, aft to raise.
3. When mooring stern-to drop the anchor at the required distance from the jetty and gently ease off the gipsy clutch just enough for the chain to run out under the influence of the sternway of the vessel.

   Maintain sufficient chain tension to control the vessel and prevent the bows from swinging. By operating the clutch lever the anchor chain can be used as a brake for the vessel as it approaches the jetty. Make fast with warps from the stern.

MAINTENANCE

Regularly wash down the exterior of your windlass with fresh water. The windlass requires very little servicing. Check that the oil level is as stated under "Lubrication" and this can also be checked by removing the filler plug with the motor running when a fine mist should be seen. Regularly grease part number 1000/54 adjacent to the clutch leverl. A few drops of oil should be applied to the clutch operating lever where it enters the windlass case and it is recommended that during lay up the clutch is left in the disengaged position.

DISMANTLING PROCEDURES

Removal of Gipsy

Single Model:

1. Remove retaining nut, 91, using locking spanner supplied.
2. Remove gipsy 92.

Double Model:

1. Remove screws 66, washers 13 from drum ends 12.
2. Remove drums and keys, 79.
3. Remove circlips 44 from mainshaft.
4. Unscrew retaining nut 93 using locking spanner supplied.
5. Remove gipsy 92.

Re-assemble in reverse order.

Removal of Motor

1. Remove windlass from deck.
2. Drain oil from case by removing sight glass, 82.
3. Remove plugs, 69.
4. Remove socket head cap screw, 67 and 68 to release cover 2.
5. Unscrew oil impellor, 25, compound gear, 34, and spacer, 33.
6. Unscrew 4 off screws, 76 to release motor, 88 or (100 for 2000 model).
7. To remove motor, detach electrical leads.

Re-assemble in reverse order paying particular attention to sealing gasket, 114 (116 for 2000 model).

Switches and Solenoid

To replace these, the windlass requires to be removed from the deck.

Clutch Adjustment

Single gipsy:

1. Remove gipsy as above.
2. Remove screws, 65, securing clutch and bearing housing 4 to the windlass case. This can be done through the spokes of item 6.
3. Mark a position identification of part 4 against the windlass case and then withdraw the whole clutch and housing assembly from the mainshaft to examine for wear.
4. Replace assembly with clutch and bearing housing, 4, rotated in a clockwise direction by one hole.

Re-assemble in reverse order with attention to the following points:

A. Use gasket sealent between 4 and windlass case.

B. Re-assemble screws 65 using thread retaining compound.

C. Smear Graphite free grease on shaft and moving parts and lubricate grease nipple, 54.

D. Lift chain run indicator when re-locating clutch assembly.

E. When the clutch handle is in the forward position the gipsy should be able to rotate. By moving the clutch handle approximately vertical the clutch should be fully engaged.

Clutch Adjustment

Double gipsy:

1. Remove gipsy as above, and use the same procedure, as for single, bearing in mind that clutch and bearing housing, 4, is rotated by one hole clockwise on the starboard side and anti-clockwise on the port side.

Adjustment of Automatic Gear Change Mechanism

The mechanism is set to change gear at approximately 250 kg (550 lb) chain load, and should not require adjustment for several years. However, should loss of transmission occur below the above figure the following adjustment can be made using a 13/16 AF spanner.

1. Remove screw, 66, from end cover, 2.
2. Replace omitting washer, 37.
3. Make sure screw is correctly tightened.
4. Removal of washer 37 will normally give sufficient adjustment to compensate for wear of clutch discs, 39, but a further adjustment can be obtained by replacing screw 66 with one of a length 1.5mm greater.

No further adjustment should take place without examination of the clutch discs, 39.

WARRANTY

The Simpson-Lawrence warranty covers windlasses, for a period of one year from 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.

Simpson-Lawrence
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Marine Equipment

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