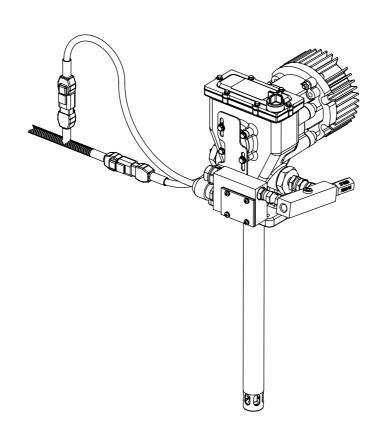


# Hose reel pump assembly

85751 85753



December 2012
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#### 🛕 DANGER

Read manual prior to installation or use of this product. Keep manual nearby for future reference. Failure to follow instructions and safety precautions may result in death or serious injury.



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## Safety

Read and carefully observe these installation instructions before installing, operating or troubleshooting the assembly. The assembly must be installed, maintained and repaired exclusively by persons familiar with the instructions.

Assemble this equipment only after safety instructions and this guide have been read and are completely understood.

Adequate personal protection must be used to prevent splashing of material on the skin or in the eyes.

Always disconnect power source (electricity, air or hydraulic) from the pump when it is not being used.

This equipment generates very high grease pressure. Extreme caution should be used when operating this equipment as material leaks from loose or ruptured components can inject fluid through the skin and into the body. If any fluid appears to penetrate the skin, seek attention from a doctor immediately.

Do not treat injury as a simple cut. Tell attending doctor exactly what type of fluid was injected.

Any other use not in accordance with instructions will result in loss of claim for warranty or liability.

- Do not misuse, over-pressurize, modify parts, use incompatible chemicals, fluids, or use worn and/or damaged parts.
- Do not exceed the stated maximum working pressure of the pump or of the lowest rated component in your system.
- Always read and follow the fluid manufacturer's recommendations regarding fluid compatibility, and the use of protective clothing and equipment.
- Failure to comply may result in personal injury and/or damage to equipment.

# Explanation of signal words for safety

#### Â

This is the safety alert symbol. It is used to alert you to potential physical injury hazards. Obey all safety messages that follow this symbol to avoid possible injury or death.

#### A SAFETY INSTRUCTIONS

Safety instruction signs indicate specific safety-related instructions or procedures.

#### **A** DANGER

Indicates a hazardous situation which if not avoided will result in death or serious injury.

#### **A** WARNING

Indicates a hazardous situation which, if not avoided will result in death or serious injury.

#### **A** CAUTION

Indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.



# Use of this manual

## Overview

This manual details the procedure that must be followed while installing, operating, troubleshooting and repairing the FlowMaster II hose reel pump.

All required parts, tools, and equipment needed to complete the operation of the FlowMaster II hose reel pump are defined and listed within this manual.

Review of the parts list and nomenclature is recommended before starting disassembly or operation.

# Appropriate use

The hose reel pump assembly is intended for use in mobile applications where there are grease points that require the use of a grease fitting due to abusive environments or an inability to reach the lube point with a grease hose. An example of this situation is the bucket lubrication points on an earth mover or backhoe.

The hose reel pump assembly can also serve well in applications where a lower cost option to a fully automated lubrication system is desired.

## General description and information

The Hose Reel Pump Assembly is a portable 5 U.S. gallon (18, 9 liter) pump intended to operate from a 12 or 24 V DC power source, depending on model, for dispensing grease or other lubricant through a hose and control valve.

Model 85751 is 24 V DC and model 85753 is for 12 V DC operation. The pumps include a pressure switch in the wiring harness to turn off the pump when maximum pressure is achieved.

Model 85751 is a 24 V DC, 5 gallon, 7:1 ratio FlowMaster II pump. Model 85753 is a 12 VDC, 5 gallon, 19:1 ratio, FlowMaster II pump.

The pump outlet pressure is controlled by a pressure switch, (8) mounted on the rear of the pump housing. An outlet check, item (2), is connected to the pump outlet to maintain pressure on the hose reel, minimizing leak-back through the pump. A safety unloader, (4), prevents pressure from exceeding 7,000 psi (482 bar). A manifold, (5), is used for connections to the pump outlet. The manifold includes a pipe plug, (6), that can be removed for installing an optional pressure gauge, 274872. These features are included on all models.

Models 274887 and 276359 consist of a pump, bucket cover assembly, follower, hose reel (which includes swivel and control

valve), and a 7 ft. (2 m) connecting hose. Refer to table 3 for appropriate models.

Models 274886 and 276358 consist of a pump, bucket cover assembly, and follower. Refer to table 3 for appropriate models.

Refer to figure 2 for the wiring diagram for the pump motor.

#### Inspection

If over pressurizing of the equipment is believed to have occurred, contact the factory authorized warranty and service center nearest you for inspection of the pump.

Specialized equipment and knowledge is required for repair of this pump.

Annual inspection by the factory authorized warranty and service center nearest you is recommended.

#### Damaged Pumps

Do not use any pump that appears to be damaged, badly worn or operates abnormally. Remove the pump from service and contact the factory authorized warranty and service center nearest you for repairs.

A listing of authorized warranty and service centers is available upon request.

#### Table 1

#### Pump specifications

Model 85751 Model 85753

Operating temperature -20 to 140 °F (-29 to 60 °C)

-20 to 140 °F (-29 to 60 °C)

Operating voltage

24 V DC, (18 to 32)

12 V DC, (9 to 16)

Gear ratio Motor, power

1/3 HP (0,33 kW) 0.07 in.3 (1,15 cm<sup>3</sup>)

1/3 HP (0,33 kW)

Output/pump cycle Pump performance

18.0 in.3/min (295 cm3/min) at 0 psi back 7.0 in.3/min (115 cm3/min.) at 0 psi

0.07 in.3 (1,15 cm<sup>3</sup>)

pressure 14.0 in.3/min (230 cm3/min) at 5,000 psi (345 bar) back pressure

back pressure 3.9 in.3/min (64 cm<sup>3</sup>/min.) at 5,000 psi (345 bar)

back pressure

Pump outlets 1/4 NPTF internal 1/4 NPTF internal

The hose reel pump assembly is intended to be used in kits that include all parts necessary to mount and dispense grease to points that are not serviced by an automated lubrication

**Table 3** lists the kits and accessories available for use with the hose reel assembly.



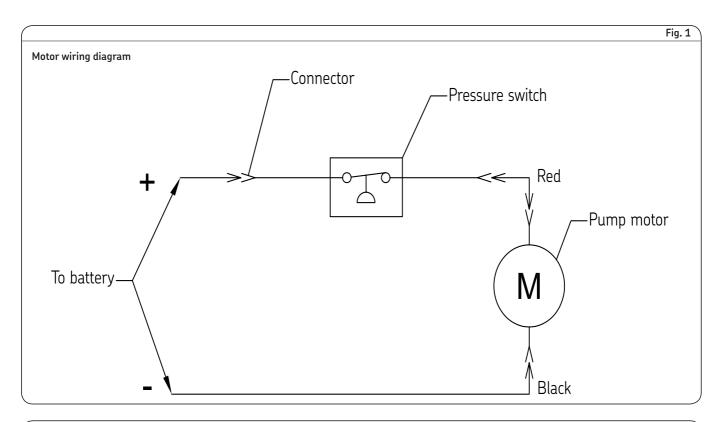
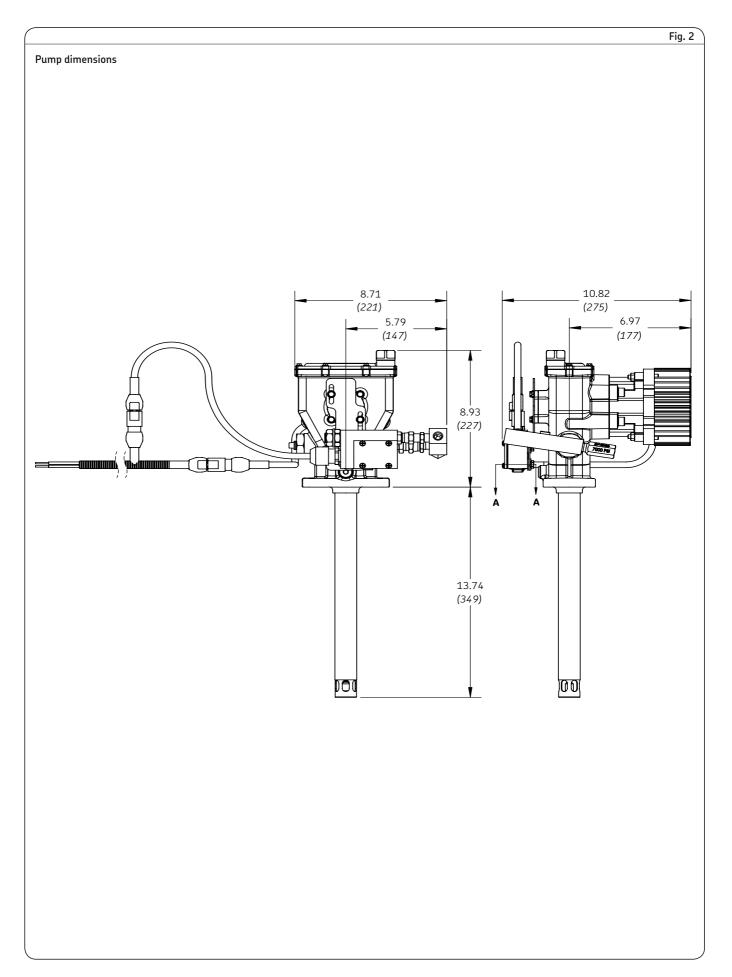


								Table 3
Kits								
Description	Model	Voltage	Pump assembly	Lid	Follower	Connecting hose	Reel, control valve and swivel	
Pump w/ bucket lid and follower	274886 276358	24 V DC 12 V DC		274878 274818	274888 274888	NA NA	NA NA	
Pump as above with reel, 50 ft. (15 m)	274887	24 V DC	85751	274818	274888	276366	94553H	
hose, control valve, swivel and connecting hose	276359	12 V DC	85753	274818	274888	276366	94553H	
Accessories								
Description	Part num	ber						
Pressure gauge 10,000 psi (690 bar) Container mount 35 lb. (16 kg) / 5 U.S. gallon (19 I)	274872 274934							

1			lable 2
	Torque specifications		
	Part Spool stop (30) Jam nut (27)	Torque 18–22 ft. lbf. (24–29 Nm) 12–15 ft. lbf. (16–20 Nm)	
	Adapter (39) Cover screws (15) Switch screws (20)	12–15 ft. lbf. (16–20 Nm) Compress gasket 0.015–0.020 in. (0,381–0,508 mm) Hand tight	
l	5witch 3crew3 (20)	riana agric	



## Pump installation

#### **A** WARNING

Verify a relief valve is installed in the pump outlet to insure pump pressure remains below 5,000 psi (345 bar). Use only high pressure components. Failure to comply may result in serious personal injury.

The pump should be wired using 12 AWG (3,5 mm<sup>2</sup>) wire capable of carrying 20 A at 24 V DC.

A separate fuse should be wired between the pump and power supply on the positive side of the circuit.

**1** Mount the hose reel and pump in the desired location.

#### Notice

Never allow pump to run dry of lubricant. A dry pump quickly speeds up, creating friction heat and can damage seals. Monitor supply lubricant level and refill when necessary.

Failure to comply may result in damage to equipment.

- 2 Connect the pump outlet from the manifold to the hose reel inlet using the supplied hose and fittings. Use a teflon based thread sealant on fitting threads to ensure proper sealing.
- **3** With the pump in a full container of lubricant, energize the pump.
- 4 Purge air from the pump.
- **5** Verify lubricant is flowing evenly from the pump.
- **6** Stop the pump.
- **7** Attach the pump outlet line to the outlet port (**55**).

End of procedure

#### Notice

If optional pressure gauge is used, install in manifold by removing plug and screwing gauge into manifold port. Use a teflon based thread sealant on fitting threads to ensure proper sealing.

#### Pressure switch adjustment

The pressure switch is factory set at 5,800 psi (400 bar). Pump life will be increased by maintaining a lower pump shut off pressure. It is recommended that the pressure be set no higher than the application requires.

# Notice Refer to the FlowMasterII pump service sheet for information on the pump. Refer to parts list on page 13.

#### **A** DANGER

Pumps are not equipped with a high pressure shut off valve. Do not exceed maximum rated outlet pressure. Failure to comply may result in personal injury and/or damage to equipment.

#### Notice

Pump motor is polarity sensitive and will not run if connected incorrectly.

- 1 Loosen adjustment stem locknut (27) Refer to **figure IPB 1**.
- 2 Using a 5/16 hex head wrench, turn the adjustment spring cap (28) clockwise to increase (or counterclockwise to decrease) the pump shut-off pressure.

#### Notice

If the optional pressure gauge is not used, install a temporary gauge in the provided manifold port until the switch is reset.

Do not exceed a shutoff pressure of 6,000 psi (414 bar). Failure to comply may result in damage to equipment.

- 3 Turn the stem 1/8 of a turn at a time, checking the setting by releasing the pressure and allowing it to build again.
- 4 While holding the adjustment stem with a 5/16 hex head wrench, tighten the locknut.
- **5** Check the setting once more to ensure the adjustment stem did not move when the locknut was tightened.

#### Disassembly

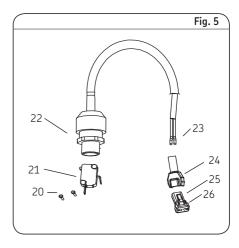
While the pressure switch will provide years of service, in time, components will wear out. It is possible to replace the switch element and all of the soft parts to overhaul the pressure switch.

- 1 Unplug the electrical connector to free the switch from the assembly.
- 2 Refer to figure 3 and remove the two 1/4-20 screws (14) holding the unit to the support bracket (9).
- 3 Unscrew the adaptor fitting (39) from the manifold (34). Refer to figure 6.
- 4 Remove the four cover screws (15) along with the cover (16) and cover gasket (17).

- 6 Pull out the locking wedge (26) using needle nose pliers.
- 7 With the connector body (25) removed, pull the boot (24) off of the wire.

**Notice** Wire terminals (23) can be freed from the connector body (25) by pushing back locking tab inside the connector body (25) while pulling on the individual wire. A small screwdriver is needed to depress this tab.

- 8 Loosen and remove the cap and rubber plug from cord grip connector (22).
- 9 Disconnect the cord grip connector body (22) from the switch body (21).



12 Remove the adaptor fitting (39) from the switch body (34).

Fig. 6

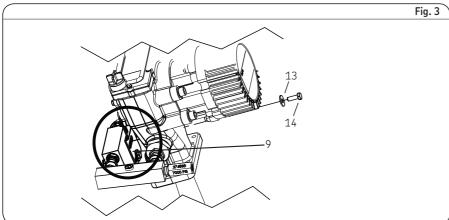
27 28

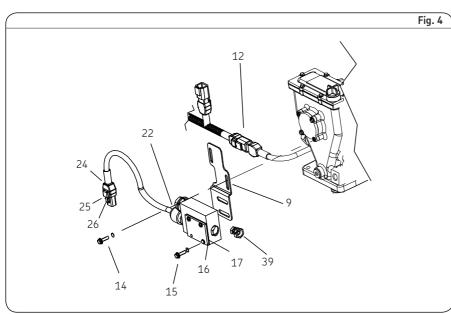
30 31

32

33

13 Loosen the jam nut (27).





- page 8.
  - 14 Remove the spring cap (28) using a 5/16 hex head wrench. Refer to figure 6,
  - 15 Loosen the spool stop (30) using a 1 in. open end wrench and remove from the body (34).
  - 16 Remove the spring (32).

- 5 Pull back the boot (24) from the connector body (25) and slide it back down the wire about 1 in. (25,4 mm).
- 10 Refer to figure 5 and remove the two screws (20) and pull out the switch and wire assembly (21).
- **11** Remove the ball **(19)**.

**Notice** Jam nut (27) and thread seal (29) can remain in place on spring cap (28).

17 Using a small rod or stiff wire 0.093 in. (0,2 cm) or smaller, push the spool assembly (33) up from the bottom and remove it from the body.

The rod must contact the <sup>1</sup>/<sub>8</sub> diameter plunger rod on the underside of the spool assembly (33) to push the plunger rod through the cup seal (36).

18 Pull out the retainer (37), cup seal (36) and backup washer (35) using a stiff wire with a hook bent into it. Refer to figure 6, page 8.

End of procedure

#### Notice

Cup seal (36) and backup washer (35) are held in place by a push-in retainer (37).

Retainer (37) grips smooth bore in switch body (34) and must be broken to remove.

Using small flat blade screwdriver, wedge retainer on outside diameter and push toward center of bore. Repeat in two or three locations outside of retainer until it falls out.

#### Inspection

While the pressure switch will provide years of service, in time, components will wear out. It is possible to replace the switch element and all of the soft parts to overhaul the pressure switch.

- 1 Inspect the steel plunger (33) to ensure there are no gouges or scratches that would prevent proper sealing.
- 2 Inspect the switch body (34) for signs of mechanical damage that would prevent proper function.
- **3** Insepct the spring (**32**) for serviceability.
- 4 Inspect the switch element for pitting and or corrosion.

#### Notice

If the spring and steel plunger are serviceable, it is recommended that the following parts be replaced:
Gasket (17), cup seal (36), retainer clip (37), o-ring (31), o-ring (38) and thread seal (29).

Replace the switch element (21) if the unit fails to operate for any unknown reason.

#### **Assembly**

### **Notice**

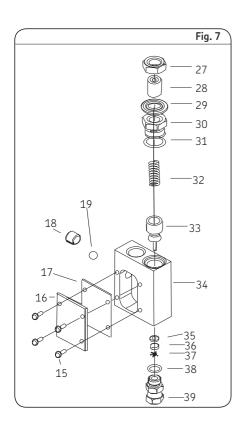
Prior to starting assembly perform inspection of all parts.

Lightly coat rubbing surfaces of spool (33) and ball (19) as well as both o-ring seals with a good quality NLGI grease to ease assembly.

Torque all threaded joints to torque specified in **table 3**.

Failure to comply may result in equipment damage.

- 1 Insert back up washer (35).
- 2 Insert the cup seal (36).



- 3 With the concave surface out, push the retainer clip (37) into the seal bore so that it lightly touches or not quite touches the cup seal. Refer to figure 7.
- 4 Insert the spool assembly (33).
- 5 Install the spring (32).
- 6 Apply thin coat of greast to o-ring (31) and install on spool stop (30).

#### Notice

Seat all parts against the bottom of the bore.

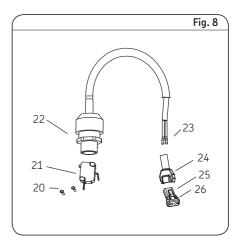
Failure to comply may result in equipment damage.

#### Notice Notice

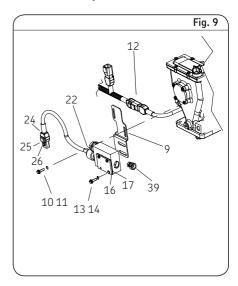
Do not over tighten switch housing screws.

Failure to comply may result in equipment damage.

- 7 Insert spool stop (30) into body (34) and tighten to a torque of 18–22 ft. lbf. (24–29 Nm).
- 8 Install the thread seal (29) onto spring cap (28).
- 9 Install the spring cap (28) into the spool stop (30).
- 10 Install the jam nut (27) and tighten using a <sup>15</sup>/<sub>16</sub> hex head wrench.
- **11** Torque jam nut (**27**) to a torque of 12–15 ft. lbf. (16–20 Nm).
- 12 Install the o-ring (38) and retainer (37) onto the adaptor fitting (39).
- 13 Thread the adaptor fitting (39) into the switch body (34).
- **14** Torque the adaptor fitting (**39**) to a torque of 12–15 lb. lbf (16–20 Nm).
- 15 Insert the ball (19) into the switch body (34).
- 16 Insert the switch and wire assembly (21) into the switch body (34).
- 17 Insert screws (20) into switch housing.
- **18** Tighten screws **(20)** hand tight.
- **19** Install the grip connector body onto the wire and switch assembly **(21)**.
- 20 Install the cord grip (22) into the switch body (34).
- 21 Install the cap and rubber plug on the grip connector (22).
- 22 Install the boot (24) on the wire and switch assembly (21).
- 23 Install connector pins (23) into connector body (25).
- 24 Insert locking wedge (26) into connector body (25). If needed, use needle nose pliers.
- 25 Place the cover gasket (17) onto the switch body (34) mating surface.



- 26 Install the cover (16) on the cover gasket (17).
- 27 Thread four screws (15) through cover and into switch body (34).
- 28 Tighten screws (15) until a 0.015–0.020 in. (0,381–0,508 mm) gasket squeeze is observed.
- 29 Place the switch body (34) in position on the suport bracket (9).
- 30 Install the two 1/4-20 screws (14) holding the unit to the support bracket (9).
- **31** Plug the electrical connector into the assembly.



End of procedure

#### Troubleshooting

Possible cause	Corrective action
Pump is seized or damaged.	Refer to applicable pump manual.
la como el contro d	Defeate and inchine an analysis of the second
incorrectly wired.	Refer to applicable pump manual and check wiring diagram.
Low level of grease or reservoir is empty.	Fill reservoir.
Follower plate is stuck and separated from grease.	Check follower plate and container for damage.
Pump piston or checks are worn.	Refer to applicable pump manual.
Faulty inlet check, faulty discharge check or damaged o-ring.	Refer to applicable pump manual.
Crankcase needs oil.	Refer to applicable pump manual.
Worn wrist pin bushing.	Check the bushings and replace if necessary Dismantle and clear check.
Foreign material holding lower check open.	Consider adding grease filter to system.
Gear set or adapter shaft stripped or broken.	Refer to applicable pump manual.
	Pump is seized or damaged.  Incorrectly wired.  Low level of grease or reservoir is empty.  Follower plate is stuck and separated from grease.  Pump piston or checks are worn.  Faulty inlet check, faulty discharge check or damaged o-ring.  Crankcase needs oil.  Worn wrist pin bushing.  Foreign material holding lower check open.

## Parts and tools

#### Tool and consumable list

 $^{7}/_{16}$  in. open end wrench  $^{1}/_{2}$  in. open end wrench  $^{3}/_{4}$  in. open end wrench

12 in. adjustable wrench 1/8 in. hex head wrench 5/32 in. hex head wrench

1/4 in. hex head wrench 5/16 in. hex head wrench 3/8 in. hex head wrench

1/4 in. drive socket 1/4 in. socket 5/16 in. socket

Flat screwdriver 0.10 in. (2,54~mm) wide 0.025 in. (0,635~mm) thick Pick to remove seals and spiral retaining rings Small snap ring pliers

Special tool kit 276275 Phillips screwdriver 1/2 in. hex head wrench

Hammer

Torque wrench (ft. lbf. and in. lbf.)
Hex head socket adapters (required to torque hex head screws)

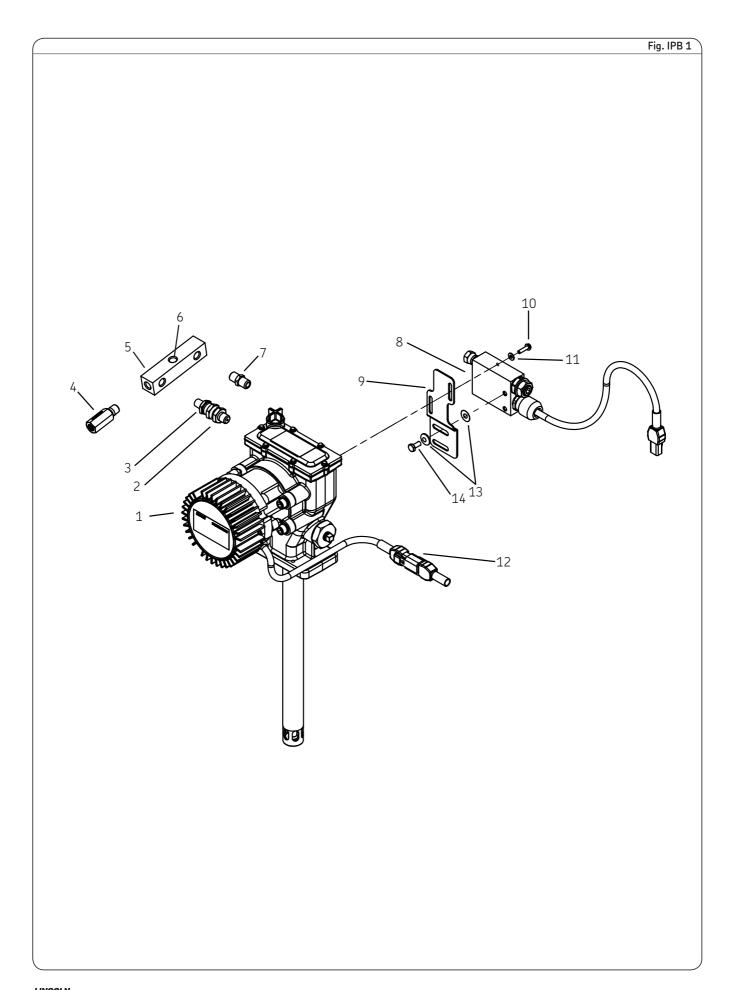
Loctite 242 medium strength thread lock or equivalent

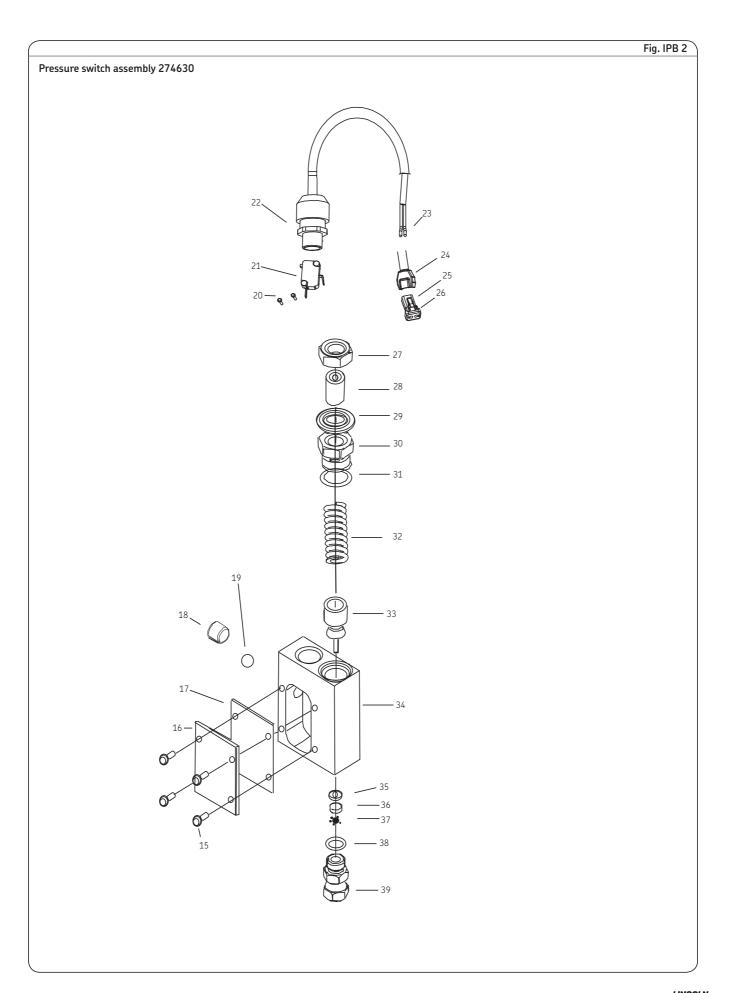
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K6.	nair	parts	list
111	pun	puits	

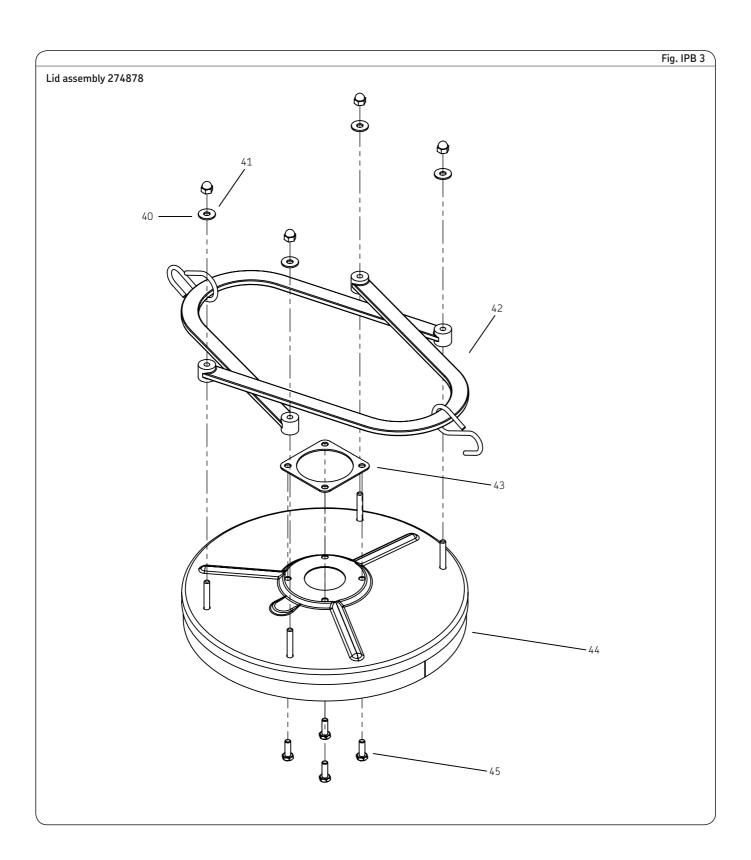
Item no.	Description	Part no.	Quantity	Item no.	Description	Part no.	Quantity
1 2 3	Pump	See Chart	1	24	Boot	274871	1
	Check valve assembly	274825	1	25	Connector body	274627	1
	Adaptor	274853	1	26	Wedge	274628	1
4	Unloader assembly	274833	1	27	Jam nut	274852	1
5	Manifold	274638	1	28	Adjustment screw	274612	1
6	Pipe plug, ¹/4 NPT	67359	1	29	Thread seal	274841	1
7	Pipe nipple, <sup>1</sup> / <sub>4</sub> NPTF	10462	1	30	Spool stop	274618	1
8	Pressure switch assembly	274630	1	31	O-ring	274619	1
9	Support bracket	274772	1	32	Spring	55362	1
10	Hex head screw, #10–24 x <sup>3</sup> / <sub>4</sub>	274851	2	33	Spool assembly	274614	1
11	Flat washer, #10	48218	2	34	Pressure switch body	274621	1
12	Wiring harness	274858	1	35	Backup washer	274616	1
13	Washer, <sup>1</sup> / <sub>4</sub>	274857	4	36	Seal	274617	1
14	Hex head screw, <sup>1</sup> / <sub>4</sub> –20 x <sup>3</sup> / <sub>4</sub>	50169	2	37	Retainer	274613	1
15	Screws	274898	4	38	O-ring (included with item 39)	252782	1
16	Cover	274625	1	39	Adaptor	274620	1
17	Gasket	274626	1	40	Acorn nut	274875	4
18	Pipe plug	67359	1	41	Washer	274857	4
19	Ball	66001	1	42	Bungee cord	274876	2
20	Screw	50094	2	43	Pump gasket	33152	1
21	Switch and wire assembly	274637	1	44	Cover assembly	274843	1
22 23	Cord grip Connector pins	273169 274629	1 2	45	Hex head screw, $^{1}/_{4}$ -20 x $^{3}/_{4}$	50169	4

#### Pump assembly

Model	Voltage	Bare pump	Service page section
	24 V DC 12 V DC	85750 85752	Section C8 page 364 series Section C8 page 365 series







# Lincoln industrial standard warranty

#### Standard limited warranty

Lincoln warrants the equipment manufactured and supplied by Lincoln to be free from defects in material and workmanship for a period of one (1) year following the date of purchase, excluding there from any special, extended, or limited warranty published by Lincoln. If equipment is determined to be defective during this warranty period, it will be repaired or replaced, within Lincoln's sole discretion, without charge. This warranty is conditioned upon the determination of a Lincoln authorized representative that the equipment is defective. To obtain repair or replacement, you must ship the equipment, transportation charges prepaid, with proof of purchase to a Lincoln Authorized Warranty and Service Center within the warranty period.

This warranty is extended to the original retail purchaser only. This warranty does not apply to equipment damaged from accident, overload, abuse, misuse, negligence, faulty installation or abrasive or corrosive material, equipment that has been altered, or equipment repaired by anyone not authorized by Lincoln. This warranty applies only to equipment installed, operated and maintained in strict accordance with the written specifications and recommendations provided by Lincoln or its authorized field personnel.

This warranty is exclusive and is in lieu of any other warranties, express or implied, including, but not limited to, the warranty of merchantability or warranty of fitness for a particular purpose. Warranty on items sold by Lincoln, but not manufactured by Lincoln are subject to the warranty consideration, if any, of their manufacturer (such as hoses, hydraulic and electric motors, electrical controllers, etc.) Assistance in making such warranty claims can be offered as required.

In no event shall Lincoln be liable for incidental or consequential damages. Lincoln's liability for any claim for loss or damages arising out of the sale, resale or use of any Lincoln equipment shall in no event exceed the purchase price. Some jurisdictions do not allow the exclusion or limitation of incidental or consequential damages, therefore the above limitation or exclusion may not apply to you.

This warranty gives you specific legal rights. You may also have other rights that vary by jurisdiction.

Customers not located in the Western Hemisphere or East Asia: Please contact Lincoln GmbH and Co. Kg, Walldorf, Germany, for your warranty rights.

#### Special limited warranties

Special limited 2 year warranty sl-v series, single injectors-85772, 85782, replacement injectors-85771, 85781 and the DC electric FlowMaster II

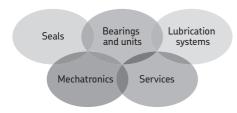
Lincoln warrants the DC electric FlowMaster II and SL-V Injector series to be free from defects in material and workmanship for two (2) years following the date of purchase. If an injector model (single or replacement) is determined to be defective by Lincoln, in its sole discretion, during this warranty period, it will be repaired or replaced, at Lincoln's discretion, without charge.

#### Special limited 5 year warranty series 20, 25, 40 bare pumps, DC electric FlowMaster II, pmv bare pumps, heavy duty and 94000 series bare reels

Lincoln warrants series 20, 25, 40 bare pumps, pmv bare pumps, heavy duty (82206), mini bench (81133, 81323), and all 94000 LFR series (single arm and dual arm) bare reels to be free from defects in material and workmanship for five (5) years following the date of purchase. If equipment is determined by Lincoln, in its sole discretion, to be defective during the first year of the warranty period, it will be repaired or replaced at Lincoln's discretion, without charge. In years two (2) and three (3), the warranty on this equipment is limited to repair with Lincoln paying parts and labor only. In years four (4) and five (5), the warranty on this equipment is limited to repair with Lincoln paying for parts only.

#### Lincoln Industrial contact information

To find Lincoln Industrial's nearest service center in the United States, call customer service at 314-679-4200. For international callers dial 01-314-679-4200. You may also use our website lincolnindustrial.com.



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