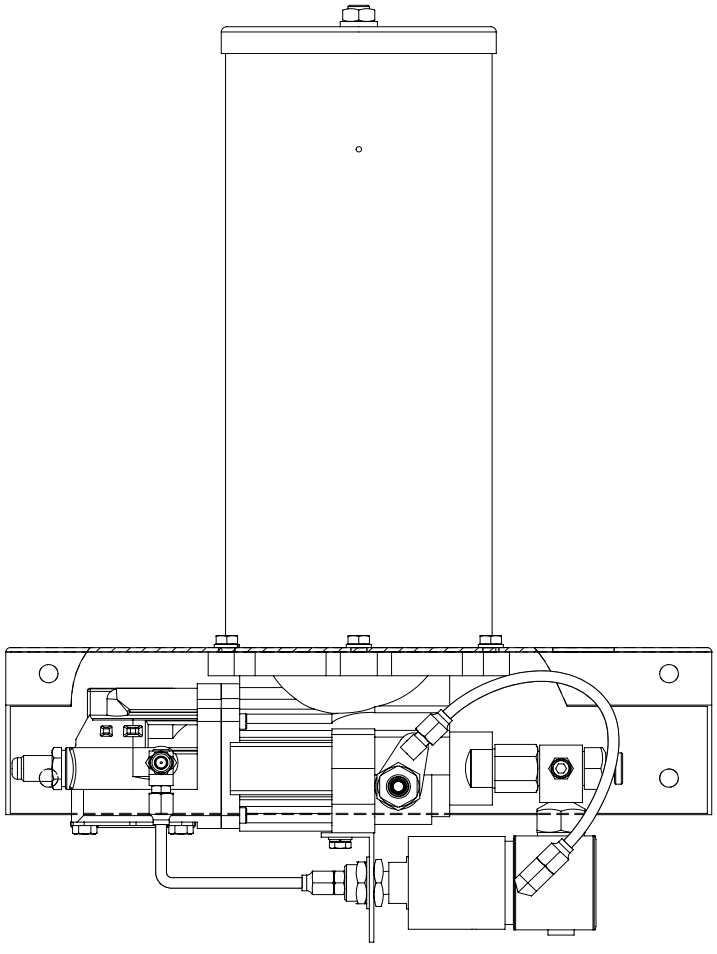
User and maintenance instructions

Air operated grease pump

Model 83167, series “J”



Date of issue	**November 2017**
Form number	**404402**
Version	**2**

Contents

Safety **2**
Explanation of safety signals 2
Description 3
Specifications 3
Fill reservoir **3**
Dimensions 4
Lubricate air valve mechanism. 5
Change pump to new series follower configuration. **5**
Prime system. **5**
Operation. **5**
Vent valve. **5**
Safety unloader. **5**
Exploded views 6
Service parts. 8
Troubleshooting 9
Warranty **12**

Safety

Read and carefully observe operating instructions before unpacking and operating pump. Pump must be operated, maintained and repaired exclusively by persons familiar with operating instructions. Local safety regulations regarding installation, operation and maintenance must be followed.

Operate pump only after safety instructions and this service manual are fully understood.

Explanation of signal words for safety

NOTE
Emphasizes useful hints and recommendations as well as information for efficient and trouble-free operation.

⚠ CAUTION
Indicates dangerous situation that can lead to light personal injury or property damage if precautionary measures are ignored.

⚠ WARNING
Indicates dangerous situation that can lead to death or severe personal injury if precautionary measures are ignored.

⚠ DANGER
Indicates dangerous situation that will lead to death or severe personal injury if precautionary measures are ignored.

Specifications

Ratio	Lubricant output Per cycle [1]	Per minute at 100 psi *(60 bar)*	Reservoir capacity	Air inlet	Lubricant outlet	Lubricant operating pressure Type of system	Minimum	Maximum	Recommended
40:1	0.11 in³ *(1,8 cm³)*	12 in³ *(197 cm³)*	12 lbs. *(5,4 kg)*	1/8 in NPTF (internal)	3/4 in NPTF (internal)	SL-1	1 850 psi *(128 bar)*	3 550 psi *(245 bar)*	2 500 psi *(172 bar)*
						SL-11	1 850 psi *(128 bar)*	3 550 psi *(245 bar)*	2 500 psi *(172 bar)*
						SL-32	1 200 psi *(83 bar)*	3 550 psi *(245 bar)*	1 500 psi *(103 bar)*
						SL-33	1 200 psi *(83 bar)*	3 550 psi *(245 bar)*	1 500 psi *(103 bar)*

[1] Based on lubricants free of entrapped air. Aerated lubricants will reduce output of pump.

Description

Pump 83167 is used as pumping unit for centralized lubrication system having single line circuit of SL-1, SL-11, SL-32 or SL-33 injectors.

It is an air operated reciprocating pump that discharges 0.11 in³ *(1,8 cm³)* of lubricant into circuit for each pump cycle.

Fill reservoir

1. Use 81834 manual filler pump to fill reservoir through filler fitting (**23**) in pump body.
2. Attach coupler on delivery hose to filler fitting.
3. Stroke filler pump handle until there is weepage at air vent hole in reservoir. Lower portion of follower (**16**) must rise beyond air vent hole to expel entrapped air from lubricant.

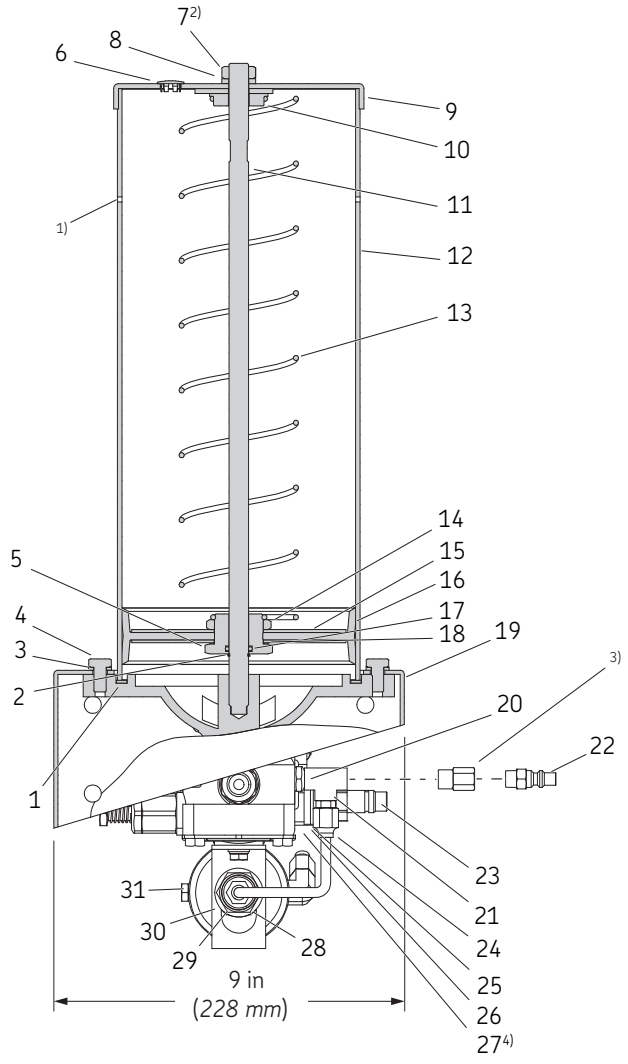
NOTE

Amount of lubricant discharged is based on lubricants free of entrapped air. Aerated lubricants will reduce output of pump.

NOTE

Caution should be used when filling reservoir as extreme pressure may cause damage to reservoir and follower assembly.

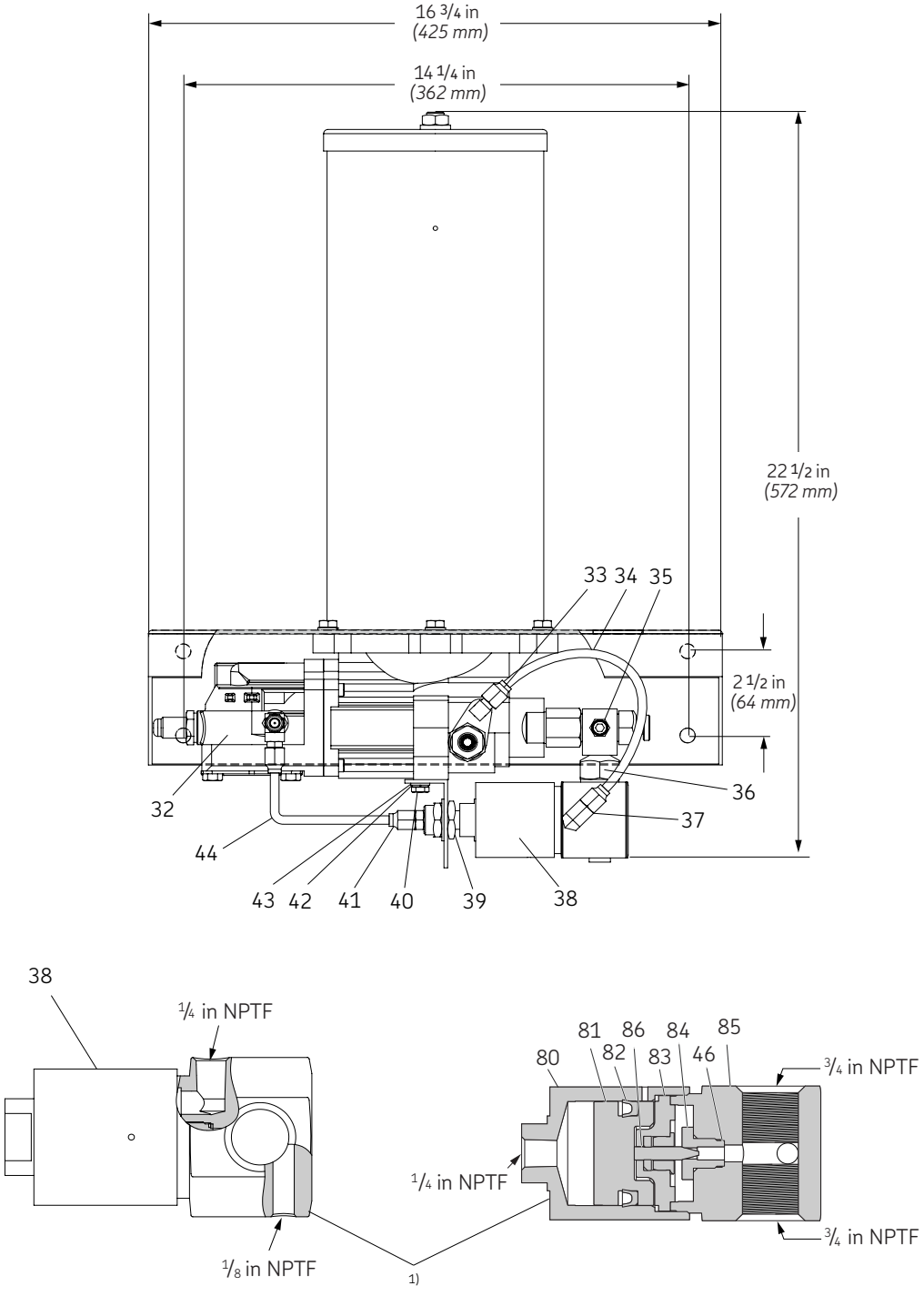
Fig. IPB 1



[1] Vent hole
[2] Torque to 15 ft.lbf (*20 Nm*).
[3] Restrictor 13345 (not furnished with pump) may be added between (**21**) and (**22**) to reduce pump noise. Pump speed and output per minute will be reduced accordingly.
[4] Torque to 12 to 17 ft.lbf. (*16 to 23 Nm*).

Fig. 1

Dimensions



1) Vent valve (**38**)

Lubricate air valve mechanism

1 Disconnect air to pump and remove four cover screws (**61**), cover plate (**96**) and cover plate gasket (**60**).
2 Remove and disassemble air valve casting (**52**) from pump.
3 Air valve casting should be cleaned or flushed to remove any chips or other foreign particles prior to reassembly.
4 Before replacing toggle assembly (**97**), pack cavity with grease. Use 1 1/2 oz *(44,3 ml)* of NLGI 1 water repellent grease.
5 Replace cover gasket (**60**), cover (**96**) and screws (**61**). Tighten to avoid air leaks.
6 Periodic inspection of parts at least once each year is advisable for optimal use.

Change pump to new series follower configuration

1 Use follower upgrade kit 278232.
2 Remove bushing (**5**), washer assembly (**15**) and retaining ring (**2**).
3 Place follower washer on lower side of follower packing (**16**), making sure top follower washer is still in place.
4 Place o-ring (**17**) into bushing.
5 Place gasket (**18**) on bushing.
6 Place bushing and gasket into assembled follower packing and washers.
7 Place 2 drops of blue Loctite 242 at 180° apart on threads of bushing.
8 Assemble nut (**7**) to bushing and tighten. Place hex of bushing in vice and tighten nut to 60 in-lbs (±5 in-lbs).

Prime system

Supply lines

Operate pump until lubricant starts to bleed around vent plug to expel air pockets trapped between pump and supply line connection. Continue operating pump until lubricant flows around any plug.

Feeder lines

Fill each feed line with lubricant before connecting lines to outlets of injectors and bearings to prevent having to cycle each injector.

Operation

Lube cycle initiates when pump times out. Air solenoid is energized to deliver air to pump and vent valve. Pump dispenses lubricant through injectors to bearings. Once all bearings receive lubricant, pressure rises in system to actuate pressure switch. When pressure switch actuates, control is reset to de-energize solenoid valve, cutting off air to pump and vent valve. Pump stops, pressure vents and pressure switch de-actuates. Control begins timing toward next lube event.

Vent valve

Vent valve (**38**) operates with compressed air from same source that operates pump. When pump is in operation, air pressure keeps vent valve closed and lubricant is directed through outlet to injectors. When air to pump is shut off, vent valve opens and supply line pressure vents back into reservoir.

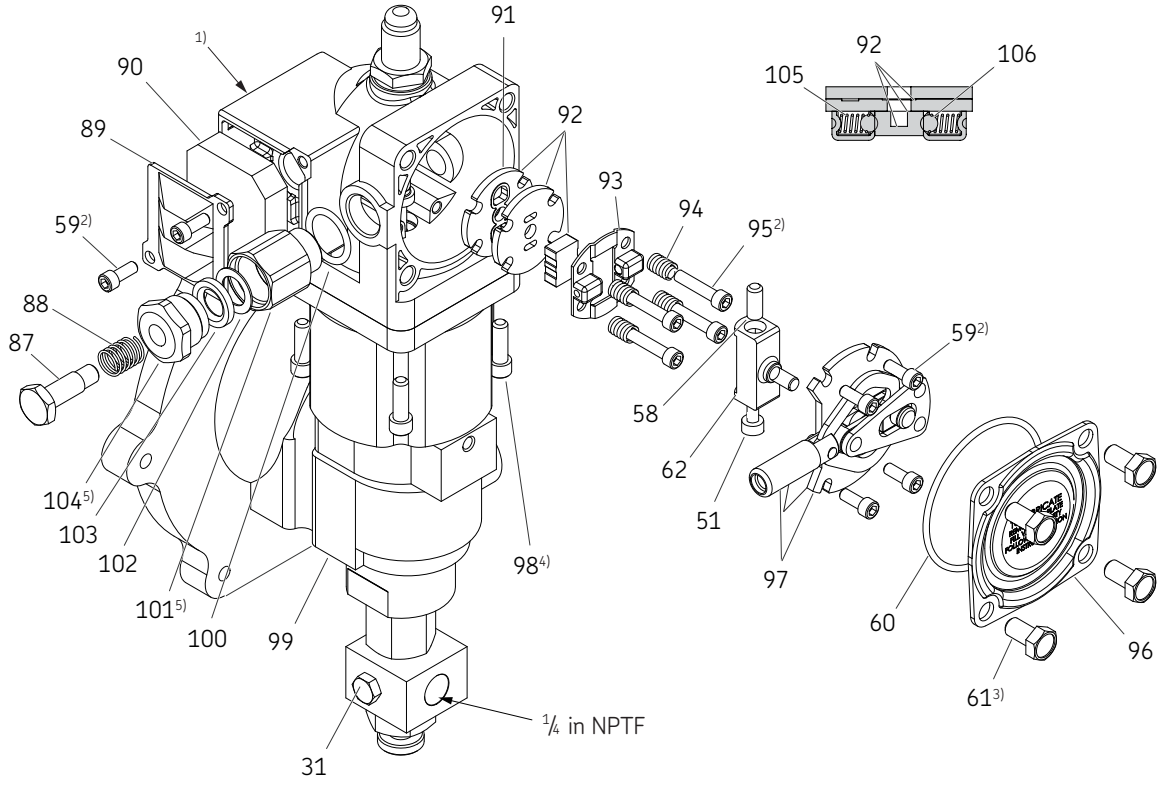
Safety unloader

Safety unloader (**35**) is provided at pump outlet to prevent build-up of dangerously high lubricant pressure in system. It is factory set to open at approximately 3 750 psi to 4 250 psi *(259 to 293 bar)*.

⚠ WARNING
Safety unloader requires no adjustment and should not be tampered with.
Failure to comply may result in death or serious injury.

Fig. IPB 2

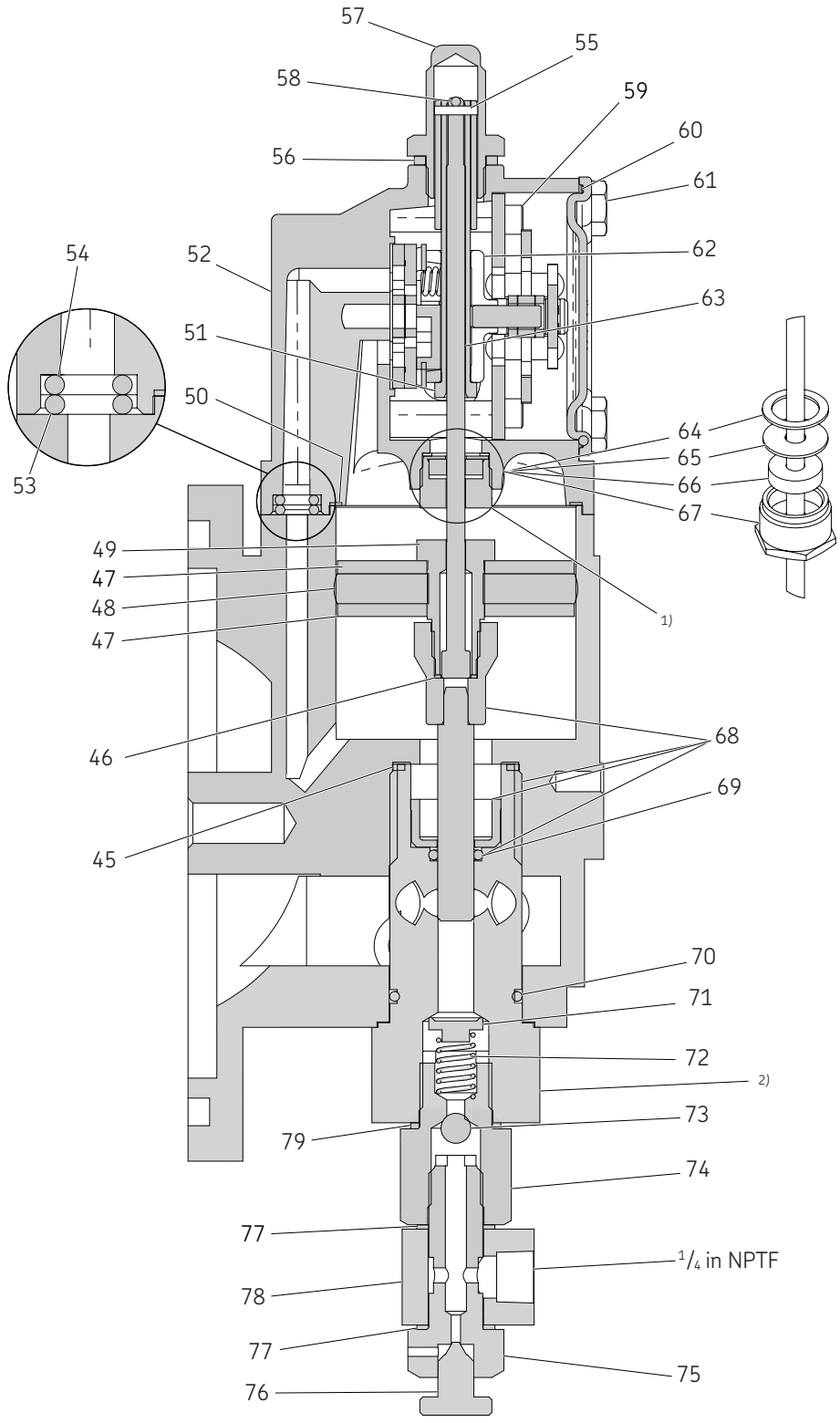
Model 84509



1) Air exhaust port
2) Torque 30 to 40 in.lbf. (*3,3 to 4,5 Nm*).
3) Torque 90 to 100 in.lbf. (*10 to 12 Nm*).
4) Assemble with Loctite #242 Blue.
5) Tighten to 20 to 25 ft.lbf. (*27 to 33 Nm*).

Fig. 2

Model 84509



1) Tighten to 10 to 15 ft.lbf. *(13,5 to 20,3 Nm).*
2) Torque to 95 to 105 ft.lbf. *(128 to 142 Nm).*

Service parts

Item	Description	Qty.	Part no.
1	Gasket (nitrile)	1	34308
2	Retaining ring	1	274225
3	Lockwasher	6	66246
4	Screw	6	50000
5	Bushing	1	278181[3]
6	Plug button	1	68797
7	Nut	1	51039
8	Lockwasher	1	69181
9	Reservoir cap	1	91817
10	Retainer washer	1	14491
11	Tie rod	1	14449
12	Reservoir (acrylic)	1	247244
13	Follower spring	1	55346
14	Nut	1	510933]
15	Follower washer	2	48417[3]
16	Follower	1	34438
17	O-ring (Nitrile)	1	34166[3]
18	Gasket	1	278025[3]
19	Base	1	360383
20	Nipple	1	10772
21	Tee	1	67011
22	Plug	1	244882
23	Filler fitting	1	92441
24	Straight tube connector	1	66200
25	Check disc packing	1	34122[2]
26	Strainer	1	68528
27	Adapter	1	13808
28	Washer	1	48216
29	Nut	1	51099
30	Bracket	1	361066
31	Pipe plug	2	12511
32	Air motor	1	84509
33	90° tube connector	1	66201
34	Nylon tubing	1	272724
35	Safety unloader	1	90942[2]
36	Reducer nipple	1	14727
37	90° tube connector	1	256101*
38	Vent valve assembly	1	83948
39	Support adapter	1	16471
40	Bolt	1	50086
41	Straight tube connector	1	66211
42	Lockwasher	1	66186
43	Washer	1	48140
44	Nylon tubing	1	247763
45	Gasket (Nitrile coated fiber)	1	310561]
46	Gasket	2	31047
47	Washer	2	48212
48	Packing (Nitrile)	1	34090
49	Air piston bolt	1	12094
50	Gasket	1	33014
51	Trip sleeve	1	119471)2]
52	Air valve casting	1	237562
53	O-ring (Nitrile)	1	2443591)2]
54	Seat	1	2443131)2]
55	Trip rod pin	1	114721)2]
56	Gasket	1	2468161]
57	Cap	1	11470
58	Trip rod collar	1	114711)2]
59	Screw	6	236869
60	Gasket (Neoprene)	1	341581)2]
61	Screw	4	2368684]
62	Trip shoe	1	114751)2]
63	Trip rod	1	907701)2]
64	Gasket (Nitrile)	1	330391)2]
65	Gasket	1	2366161)2]
66	Packing (Nitrile)	1	2368351)2]
67	Trip rod packing nut	1	2454251)2]
68	Bushing, plunger and O-ring assembly	1	84508
69	O-ring	1	279461
70	O-ring	1	343141)2]
71	Pump check disc	1	100611)2]
72	Spring	1	560031]
73	Steel ball	1	66002
74	Check housing	1	12093
75	Outlet body	1	12095
76	Plug	1	10127
77	Gasket	2	310071)2]
78	Outlet block	1	12096
79	Gasket	1	31054
80	Air cylinder	1	14720
81	Piston	1	14721
82	Packing (Nitrile)	1	342292]
83	Viton packing assembly	1	239330
84	Valve seat	1	147232]
85	Valve body	1	239336
86	Needle	1	147222]
87	Spring retainer	1	12834
88	Spring	1	55231
89	Muffler cover	1	236615
90	Muffler	1	236833
91	Valve gasket (Nitrile)	1	381621)2]
92	Valve slide, seat and gasket assembly	1	830631)2]
93	Valve guide plate	1	456051)2]
94	Spring	4	55138
95	Valve seat bolt	4	236870
96	Cover	1	238286
97	Toggle assembly	1	913311)2]
98	Screw	4	505214]
99	Base casting	1	40821
100	Gasket	1	300031]
101	Packing nut	1	11904
102	Washer	1	48237
103	Packing (Nitrile)	1	341101]
104	Packing cap	1	11905
105	Spring	2	560381]
106	Steel ball	2	660101)2]

1] Included in 246415 repair kit.
2] Recommended service parts inventory.
3] Included in 278232 follower upgrade kit.
4] Assemble with Loctite #242 Blue.
* Indicates change.

Troubleshooting

Problem	Cause	Solution
Pump operates continuously.	Pump has lost prime.	Examine lubricant supply. Refill reservoir if necessary.
	Air pocket trapped in lubricant.	Loosen vent plug one turn. Allow pump to operate until trapped air is pumped out. Close vent plug.
Pump continues to operate without discharging lubricant.	Pump check (**71**) and steel ball (**73**) fouled.	Remove and clean checks and check seats.
	Vent valve (**38**) fouled.	Replace vent valve.
	Foreign material prevents needle (**86**) from seating properly.	Clean or replace parts.
Pump fails to operate.	Air system is leaking.	Verify air supply is connected.
		Verify air system is not leaking.
Injectors fail to cycle.	Leak in supply line.	Examine lines and connections.

This page left intentionally blank.

This page left intentionally blank.

Warranty

The instructions do not contain any information on the warranty. This can be found in the General Conditions of Sales, available at: www.lincolnindustrial.com/technicalservice or www.skf.com/lubrication.

skf.com | lincolnindustrial.com

® SKF and Lincoln are registered trademarks of the SKF Group.

© SKF Group 2017
The contents of this publication are the copyright of the publisher and may not be reproduced (even extracts) unless prior written permission is granted. Every care has been taken to ensure the accuracy of the information contained in this publication but no liability can be accepted for any loss or damage whether direct, indirect or consequential arising out of the use of the information contained herein.

November 2017 · Form 404402 Version 2