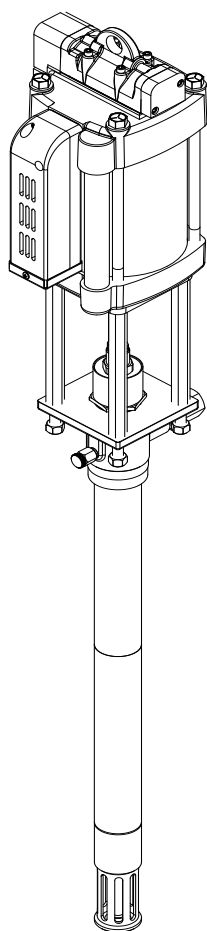


PowerMaster III drum pumps

Packed piston shovel type foot valve - models 84976, 84977, 84978 and 84979



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* Indicates change.

EC Declaration of Incorporation*

Manufacturer: SKF
5148 N. Hanley Road
St. Louis, MO U.S.A.
URL: SKF.com
Phone: 314-679-4200

EU Contact:SKF
Heinrich-Hertz-Straße 2-8
69190 Walldorf
Phone: 49 (0) 6227-33259

Product: PowerMaster series III pumps

Description: grease pumps

Model(s): 84976, 84977, 84978 and 84979

Year of construction: see type identification plate complies with all basic requirements of the following directives at the time when first being launched in the market.

Report No.'s: NA

The equipment indicated on this declaration complies with the following directives:

Machinery Directive 2006/42/EC

And was evaluated using the following harmonized EN standards:

EN ISO 12100:2010, EN ISO 4413:2010, EN ISO 809:1998+A1:2009, EN 12163

SKF declares under its sole responsibility that the

PowerMaster series III pumps model(s): 84976, 84977, 84978 and 84979
are in conformity with the Machinery Directive 2006/42/EC.

In the case of modifications or alterations of the above mentioned machine not authorized by the manufacturer, validity of this ECdeclaration of conformity will cease. The person empowered to assemble the technical documentation on behalf of the manufacturer is the head of standardization; see EC-representative's address.



Brad Edler
Manager Product Development
Product Engineering LPD North America
Innovation and Product Management
3/30/2020

* Indicates change.

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.

NOTE

Failure to heed warnings including misuse, over-pressurizing, modifying parts, using incompatible chemicals and fluids, or using worn or damaged parts, may result in equipment damage and/or serious personal injury, fire, explosion, or property damage.

Explanation of signal words for safety

NOTE

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

CAUTION

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

WARNING

Indicates a dangerous situation that could lead to death or serious injury if precautionary measures are ignored.

DANGER

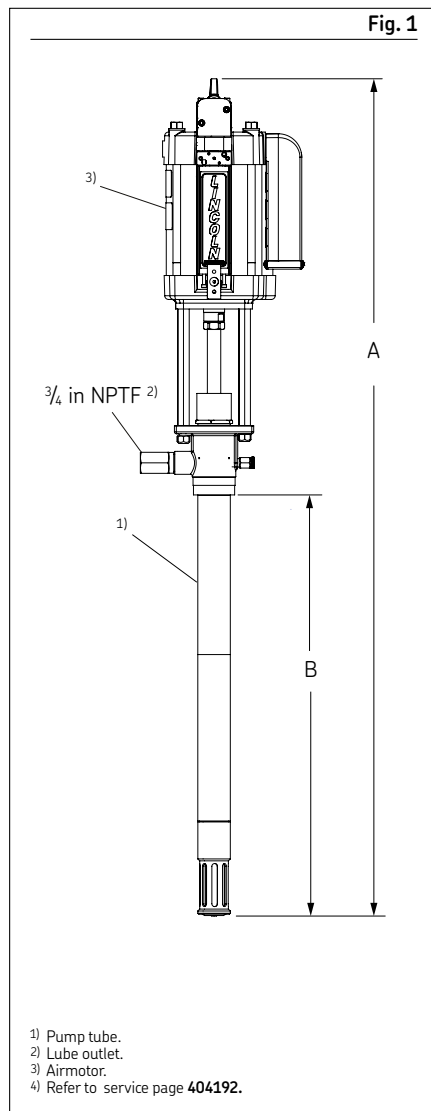
Indicates a dangerous situation that will lead to death or serious injury if precautionary measures are ignored.

WARNING

- Do not operate pumps with 10 in airmotor.
- Do not exceed stated maximum working pressure of airmotor or lowest rated component in system.
- Do not alter or modify any part of equipment.
- Do not operate equipment with combustible gas.
- Do not attempt to repair or disassemble equipment while system is pressurized.
- Tighten all fluid connections securely before using equipment.
- Always read and follow fluid manufacturer's recommendations regarding fluid compatibility, and use of protective clothing and equipment.
- Check all equipment regularly and repair or replace worn or damaged parts immediately.

Attach airmotor to pump tube

- 1 Tightly attach tie rods to the airmotor (use short threaded end of the tie rods).
- 2 Mount airmotor on top of the pump tube outlet and tightly connect coupling nut (2) to airmotor piston rod.
- 3 Hand tighten tie rods to the pump tube with four nuts supplied with airmotor.
- 4 Slowly cycle the pump several times, using just enough air pressure to operate the pump without stalling.
- 5 Stop the pump on an "up" stroke and tighten the four nuts to securely fasten the airmotor to the pump tube.



Models							
Pump tube	Pump model	Airmotor 1)	Ratio	Maximum delivery pressure	Maximum air pressure	Dimension "A"	Dimension "B"
84976	2072	84808	80:1	8 000 psi (552 bar)	100 psi (7 bar)	60 in (152,4 mm)	34 in (864 mm)
	2070	84806	44:1	4 400 psi (304 bar)			
	2068	84804	22:1	4 400 psi (304 bar)	200 psi (14 bar)	60-7/8 in (154,8 mm)	
	2066	84803	10:1	2 000 psi (138 bar)			
84977	2079	84808	80:1	8 000 psi (552 bar)	100 psi (7 bar)	53-3/8 in (135,6 mm)	27-3/8 in (695 mm)
	2077	84806	44:1	4 400 psi (304 bar)			
	2075	84804	22:1	4 400 psi (304 bar)	200 psi (14 bar)	54-1/4 in (137,8 mm)	
	2073	84803	10:1	2 000 psi (138 bar)			
84978	2071	84806	64:1	6 400 psi (442 bar)	100 psi (7 bar)	60 in (152,4 mm)	34 in (864 mm)
	2069	84804	32:1	6 400 psi (442 bar)			
	2067	84803	15:1	3 000 psi (207 bar)	200 psi (14 bar)	60-7/8 in (154,8 mm)	
84979	2078	84806	64:1	6 400 psi (442 bar)	100 psi (7 bar)	53-3/8 in (135,6 mm)	27-3/8 in (695 mm)
	2076	84804	32:1	6 400 psi (442 bar)			
	2074	84803	15:1	3 000 psi (207 bar)	200 psi (14 bar)	54-1/4 in (137,8 mm)	

1) Refer to service page 404192.

Operating precautions

- Use Lincoln replacement parts to assure compatible pressure rating. Heed all warnings.
- Be sure material hoses and other components are able to withstand fluid pressures developed by this pump.
- Do not operate pump continuously at speeds in excess of 75 cycles per minute.
- Disconnect air line from pump air motor when system sits idle for long periods of time.
- Before servicing or cleaning pump, or removing fluid hose or gun from unit that has been used, disconnect air lines and carefully bleed pressure off system.

⚠ WARNING

Prevent static sparking. If static sparking occurs, fire or explosion could result. Pump, dispensing valve, and containers must be grounded when handling flammable fluids such as petroleum products, paints, lacquers, etc. and wherever discharge of static electricity is hazard.

Failure to comply may result in serious personal injury and/or damage to equipment.

- Conductive hose is required in applications where volatile materials are being used. The maximum electrical resistance of the hose, from one fitting to the other, will depend on material being pumped as per certifying bodies. Check continuity (good static wire connection) with megohmmeter. Place one probe on one hose fitting and other probe on other hose fitting. Continuity or proper grounding through hose is good when reading is obtained on megohmmeter.*
- When pumping, flushing or recirculating volatile solvents, area must be adequately ventilated.
- Keep solvents away from heat, sparks and open flames. Keep containers closed when not in use.

⚠ CAUTION

Do not allow pump to operate when out of material.

Failure to comply may result in light personal injury and/or damage to equipment.

Pump priming

To begin operation, pump must be primed with pumped material. Power-Master III pump is a double acting (pumps material on “up” & “down” stroke) positive displacement reciprocating pump that intakes material only on “up” stroke.

To prime pump, open output line (material valve) and slowly open air supply valve until pump starts. Allow pump to cycle very slowly until all air is pushed out of lines and material fills up pump and lines. Close output line (material shut-off valve). Pump should stall against pressure.

NOTE

Flush pump before using to prevent contamination of material to be pumped. Pumps are factory tested with light oil and some of it is left in to protect pump parts during storage and transportation.

* Indicates change.

Disassembly

Procedure

- 1 Remove priming tube (42) from adapter tube (30).
- 2 Remove cotter pin (40) from priming plunger (39).
- 3 Remove priming shovel (41) from priming plunger (39).
- 4 Unscrew adapter tube (30) from pump tube (21) and slide off of piston assembly (25, 27 and 28).
- 5 Remove priming plunger (39) from piston body (28).
- 6 Remove check seat (38) and o-ring (37) from adapter tube (30).
- 7 Remove check assembly (31, 32, 33, 34, 35 and 36) from adapter tube (30).
- 8 Remove retaining ring (31) and guide washer (32) from check (36).
- 9 Remove retaining ring (33), packing washer (34) and u-cup packing (35) from check (36).
- 10 Remove lube cup (4) from gland nut (6).
- 11 Remove bolt connector (1) from plunger (3).
- 12 Pull piston assembly (25, 27 and 28) to remove plunger (3), connecting rod (23), adapter (24) and piston assembly from pump tube (21).
- 13 Remove pump tube (21) from outlet body (12).
- 14 Remove o-ring (20) from outlet body (12).
- 15 Remove gland nut (6) from outlet body (12).
- 16 Remove sleeve (11) from outlet body (12).
- 17 Remove priming plug (13) and adapter (14) from outlet body (12).
- 18 Remove outlet body (19) from outlet body (12).
- 19 Remove ball (17), check seat (16) and gaskets (15) from outlet body (12).
- 20 Remove retaining ring (10), packing washer (9) and u-cup packing (8) from gland nut (6).
- 21 Remove piston adapter (25) from adapter (24).
- 22 Remove ball (17) from adapter (24).
- 23 Remove cotter pins (22) from connecting rod (23).
- 24 Remove adapter (24) and plunger (3) from connecting rod (23).
- 25 Unscrew piston adapter (25) and remove piston collar (27) from piston body (28).
- 26 Remove u-cup packings (26) from piston adapter (25) and piston body (28).
- 27 To re-assemble pump, reverse disassembly procedure (Refer to illustration for torque specifications).

Troubleshooting

Problem	Possible cause	Solution
Pump does not operate.	Restricted or inadequate air supply.	Check air supply pressure and air hose diameter (see Airmotor manual for minimum air supply hose diameter).
	Obstructed material output.	Check output line for restrictions.
Erratic or accelerated operation.	Pump is not primed.	Prime pump (see "Pump Priming" instructions).
	Insufficient material supply.	Refill material supply.
	Material is too heavy for priming.	Lower output with material valve. Increase pressure to pressure primer (if in use). Check for inlet restrictions.
Pump operates on "down" stroke only (missing "up" stroke).	Worn or damaged piston U-cups (26) or piston check (17 and 25).	Check and replace if needed.
Pump operates on "up" stroke only (missing "down" stroke).	Worn or damaged inlet check (36 and 38).	Check and replace if needed.
	Insufficient material supply. Pump is not intaking enough material to dispense on both strokes.	Check inlet for restrictions. Lower output with material valve.
Pump is operating but not dispensing material.	Inlet Check (36 and 38) is not seating or is damaged.	Check and replace if needed.

Optional packing kits

(Includes 8,26 and 35)

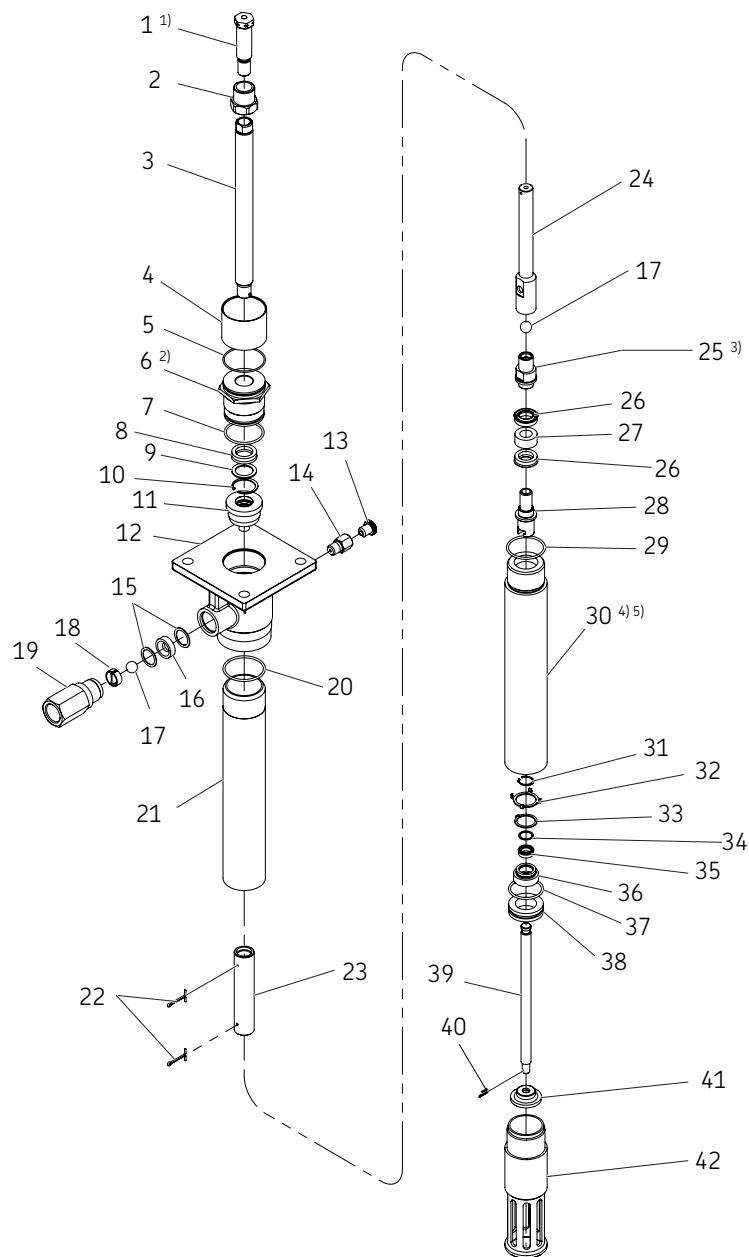
- 86223 Teflon packing kit - for models 84976 and 84977.
- 86224 Teflon packing kit - for models 84978 and 84979.
- 86225 UHMW polyethylene packing kit - for models 84976 and 84977.
- 86226 UHMW polyethylene packing kit - for models 84978 and 84979.
- 86227 Viton packing kit - for models 84976 and 84977.
- 86228 Viton packing kit - for models 84978 and 84979.

Pump repair kits

- 86229 - Includes soft parts for Models 84976 and 84977.
- 86230 - Includes soft parts for Models 84978 and 84979.

Specifications

Pump stroke	6 in (152 mm)
Maximum recommended speed (continuous)	75 cycles/min.
Output per cycle: 84976 and 84977	6.7 in ³ (110 cm ³)
84978 and 84979	4.6 in ³ (75 cm ³)
Approximately cycles per gallon (liter) 84976 and 84977	35 (9)
84978 and 84979	51 (13)
Output at 75 cycles/min. 84976 and 84977	2.2 gpm (8,2 liter/min.)
84978 and 84979	1.5 gpm (5,7 liter/min.)
Wetted part materials	Steel, brass, copper, polyurethane, nitrile



¹⁾ Torque to 65 ft.lbf (88 Nm).

²⁾ Torque to 25 ft.lbf (34 Nm).

³⁾ Torque to 100 ft.lbf (136 Nm).

⁴⁾ On models 84976 and 84977, torque to 100 ft.lbf (136 Nm).

⁵⁾ On models 84978 and 84979, torque to 50 ft.lbf (68 Nm).

* Indicates change.

Parts list

Item	Description	Quantity	Part number Model 84976	Model 84977	Model 84978	Model 84979
1	Bolt connector	1	236225	236225	236225	236225
2	Coupling nut	1	237051	237051	237051	237051
3	Plunger	1	242914	242914	242916	242916
4	Lube cup	1	242231	242231	242231	242231
5	O-ring (nitrile)	1	1)	1)	2)	2)
6	Gland nut	1	242915	242915	242393*	242393*
7	O-ring (polyurethane)	1	1)	1)	2)	2)
8	U-cup (polyurethane)	1	1)	1)	2)	2)
9	Packing washer	1	1)	1)	2)	2)
10	Retaining ring	1	1)	1)	2)	2)
11	Sleeve	1	86241	86241	86240	86240
12	Outlet body	1	242216	242216	242216	242216
13	Priming plug	1	16382	16382	16382	16382
14	Adapter	1	16381	16381	16381	16381
15	Gasket (copper)	2	1)	1)	2)	2)
16	Outlet check	1	11948	11948	11948	11948
17	Ball	2	66285	66285	66285	66285
18	Ball stop	1	57036	57036	57036	57036
19	Outlet body	1	12017	12017	12017	12017
20	O-ring (nitrile)	1	1)	1)	2)	2)
21	Pump tube	1	242396	242401	242396	242401
22	Cotter pin	2	1)	1)	2)	2)
23	Connecting rod	1	242397	242402	242397	242402
24	Adapter	1	242380	242380	242380	242380
25	Piston adapter	1	242691	242691	242689	242689
26	U-cup (polyurethane)	2	1)	1)	2)	2)
27	Piston collar	1	242410	242410	242400	242400
28	Piston body	1	242692	242692	242690	242690
29	O-ring (nitrile)	1	1)	1)	2)	2)
30	Adapter tube	1	242409	242409	242398	242398
31	Retaining ring	1	1)	1)	2)	2)
32	Guide washer	1	1)	1)	2)	2)
33	Retaining ring	1	1)	1)	2)	2)
34	Packing washer	1	1)	1)	2)	2)
35	U-cup (polyurethane)	1	1)	1)	2)	2)
36	Check	1	242918	242918	242918	242918
37	O-ring (polyurethane)	1	1)	1)	2)	2)
38	Check seat	1	242919	242919	242919	242919
39	Priming plunger	1	242920	242920	242920	242920
40	Cotter pin	1	1)	1)	2)	2)
41	Priming shovel	1	13235	13235	13235	13235
42	Priming tube	1	242375	242375	242375	242375

1) Included in 86229 pump repair kit.

2) Included in 86230 pump repair kit

* Indicates change.

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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

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