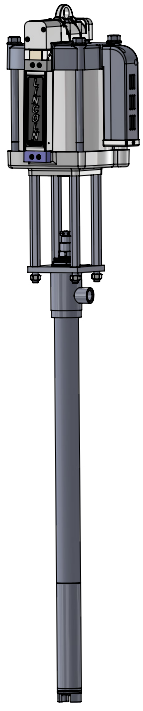
User instructions

PowerMaster III drum pumps

Models 84981, 84983, 84984 and 84985, ball-type foot valve



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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) 6227-30

Product: PowerMaster III pump
Description: drum pump with ball-type foot valve
Model(s): 84981, 84983, 84984, 84985
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, EN809, EN ISO 13732-1:2008, EN 60204-1:2018, EN 12162, EN 349,
International Standard ISO 20361,
European ROHS directive 2011/65/EU

SKF declares under its sole responsibility that the PowerMaster III pump models 84981, 84983, 84984, 84985

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 EC declaration 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

* Indicates change.

Safety

Read and observe instructions and warnings before installing, operating or troubleshooting pump.

- Pump must be installed, maintained and repaired exclusively by persons familiar with instructions.
- Maintain legibility of all warning and instruction labels on pump.
- Retain manual for future reference to warnings, operating and maintenance instructions.

Explanation of signal words for safety

NOTE
Emphasizes useful hints and recommendations as well as information to prevent property damage and ensure efficient trouble-free operation.

⚠ CAUTION
Indicates a dangerous situation that can lead to light personal injury 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.

Description

PowerMaster III pump is a double-acting (pumps material on UP and DOWN strokes), positive displacement reciprocating pump (intakes material only on UP stroke).

Appropriate use*

Use Lincoln replacement parts to assure compatible pressure rating.

Do not use material hoses and other components incompatible with fluid pressures developed by pump.

Do not operate pump continuously at speeds in excess of 75 cycles per minute.

Disconnect air line from pump air motor when system is idle for long periods of time.

Do not service pump with system pressurized or with supply lines connected.

Do not pump, flush or recirculate volatile solvents without adequate ventilation.

Keep solvents away from heat, sparks and open flames. Keep containers closed when not in use.

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

⚠ WARNING

Do not operate pump with 10 inch air motor.

Do not exceed stated maximum working pressure of air motor 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.

Do not operate equipment without ensuring all fluid connections are securely tightened.

Always read and follow fluid manufacturer's recommendations regarding fluid compatibilityand use of protective clothing and equipment.

Do not operate equipment with worn or damaged parts. Replace immediately.

⚠ WARNING

Do not misuse, over pressurize, modify parts, use incompatible chemicals and fluids, or use worn or damaged parts.

Failure to comply may result in death or serious injury or property damage.

⚠ WARNING

Ground pump, dispensing valve and containers when handling flammable fluids (petroleum products, paints, lacquers, etc.) and when discharge of static electricity is a hazard. Static sparking could result in fire or explosion.

⚠ CAUTION

Do not operate pump when empty.

Table 1

Specifications

Pump stroke	6 in *(152 mm)*
Output per cycle	11.9 in^3 *(195 cm^3)*
Maximum recommended continuous speed	75 cycles/min
Approximate cycles per gallon *(liter)*	20 *(5)*
Output at 75 cycles/min	3.9 gal/min *(14.7 l/min)*
Wetted part materials	
84985, 84984	Steel, brass, copper, polyurethane, nitrile
84983	Steel, brass, copper, polyurethane, leather, PTFE, nitrile
84981	Stainless steel, polyurethane, nitrile, PTFE

* Indicates change.

Operation

Attach air motor to pump tube

1 Attach tie rods tightly to airmotor (use short threaded end of tie rods).
2 Mount air motor on top of pump tube outlet and connect coupling nut (**2**) to air motor piston rod.
3 Hand tighten tie rods to pump tube with four nuts supplied with air motor.
4 Cycle pump slowly several times. Use just enough air pressure to operate pump without stalling.
5 Stop pump on an UP stroke. Tighten four nuts to securely fasten air motor to pump tube.

Prime pump

Prime pump before operating.

To prime pump:

1 Open output line (material valve).
2 Open air supply valve slowly until pump starts.
3 Cycle pump very slowly until all air is pushed out of lines and material fills up pump and lines.
4 Close output line (material shut-off valve). Pump should stall against pressure.

NOTE

Flush pump before use to prevent contamination of pumped material. Pumps are factory tested with light oil and some remains to protect pump parts during storage and transportation.

Disassembly

Tools required

- Strap wrench, 2 1/8 in diameter
- Hex wrench, 7/8 in
- Hex wrench, 2 1/4 inh
- Hex wrench, 1 3/8 inh
- Retaining ring pliers (internal)
- Hex wrench, 5/8 in
- Hex wrench, 1 in

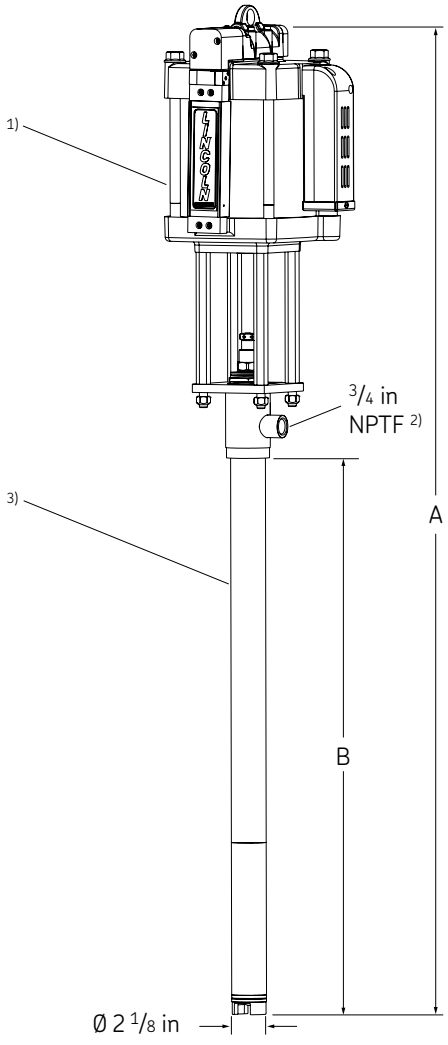
Procedure

1. Remove foot valve body (**36**) from bushing tube (**34**).
2. Slide retaining pin (**37**) from foot valve body (**36**) and remove ball (**35**).
3. Unscrew bushing tube (**34**) and slide off of piston (**23**).
4. Remove bolt connector (**1**) from plunger (**3**).
5. Pull piston (**23**) to remove plunger (**3**), connecting rod (**19**) and piston assembly from pump tube (**17**).
6. Remove pump tube (**17**) from body and plate assembly (**10**).
7. Remove o-ring (**8**) from body and plate assembly (**10**).
8. Remove gland nut (**4**) from body and plate assembly (**10**).
9. Remove plate from body and plate assembly (**10**).
10. Remove ball (**35**), piston check (**32**) and o-rings (**22, 33**) from body and plate assembly (**10**).
11. Remove retaining ring (**7**), packing washer (**6**) and u-cup (**5**) from gland nut (**4**).
12. Remove piston check (**32**) from piston rod (**20**).
13. Remove piston (**23**) and spring (**21**) from piston rod (**20**).
14. Remove cotter pins (**18**) from connecting rod (**19**).
15. Remove piston rod (**20**) and plunger (**3**) from connecting rod (**19**).

Reverse procedure to re-assemble pump **(→ fig. IPB 1**, **page 9** for torque specifications).

Fig. 1

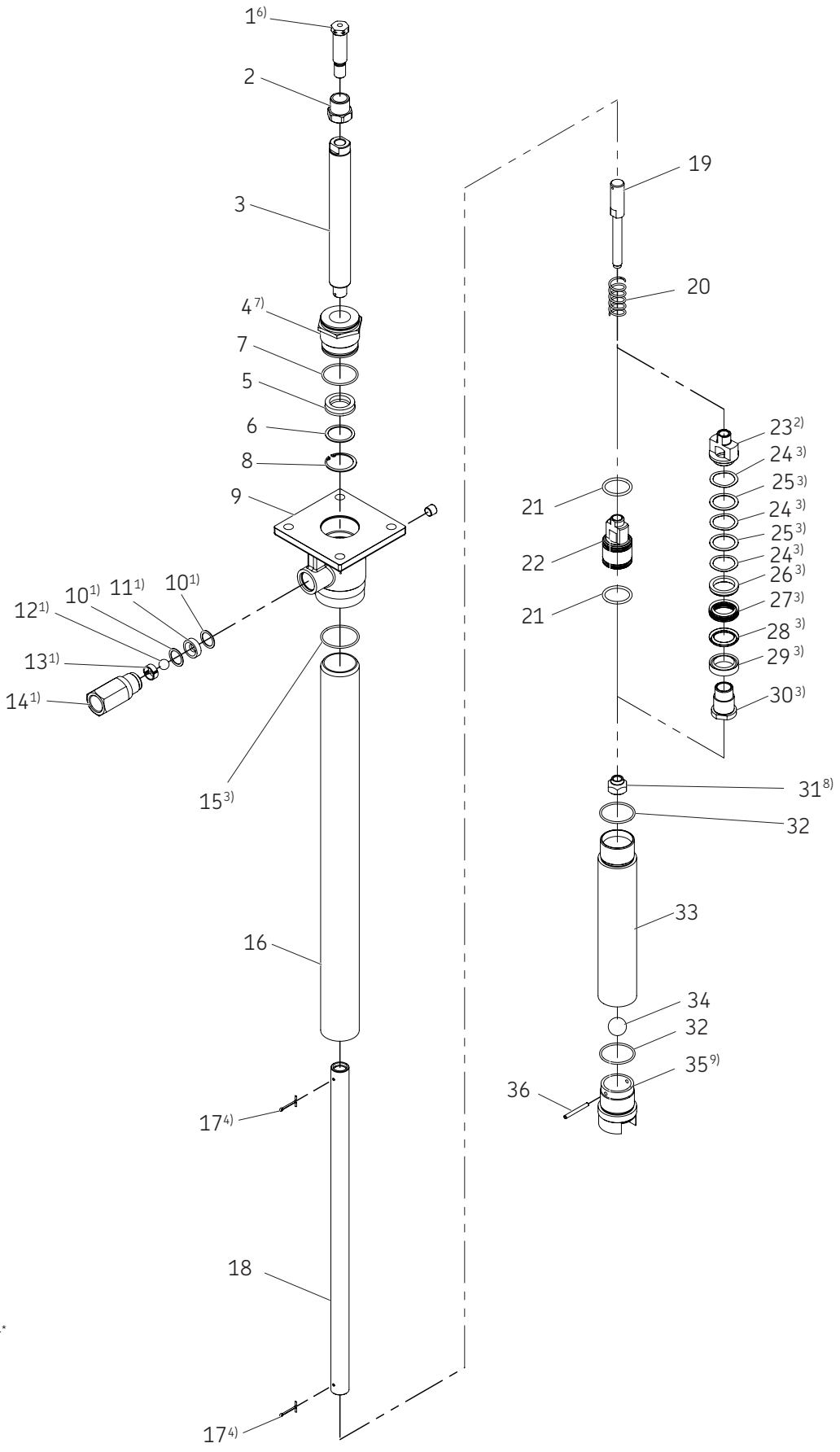
Dimensions



Pump tube	Pump model	Air motor 4)	Ratio	Delivery pressure maximum		Air pressure maximum		Dimension A		Dimension B	
				psi	*bar*	psi	*bar*	in	*cm*	in	*cm*
84985	2061	84808	42:1	4200	*286*	100	*7*	60	*152.4*	34	*86.4*
84985	2021	84806	24:1	2400	*165*	100	*7*	60	*152.4*	34	*86.4*
84985	2001	84804	12:1	2400	*165*	200	*14*	60 7/8	*154.6*	34	*86.4*
84985	2052	84803	6:1	1200	*83*	200	*14*	60 7/8	*154.6*	34	*86.4*
84984	2065	84808	42:1	4200	*286*	100	*7*	53 3/8	*135.6*	27 3/8	*69.5*
84984	2025	84806	24:1	2400	*165*	100	*7*	53 3/8	*135.6*	27 3/8	*69.5*
84984	2005	84804	12:1	2400	*165*	200	*14*	54 1/4	*137.8*	27 3/8	*69.5*
84984	2055	84803	6:1	1200	*83*	200	*14*	54 1/4	*137.8*	27 3/8	*69.5*
84983	2061-7	84808	42:1	4200	*286*	100	*7*	60	*152.4*	34	*86.4*
84983	2021-7	84806	24:1	2400	*165*	100	*7*	60	*152.4*	34	*86.4*
84983	2001-7	84804	12:1	2400	*165*	200	*14*	60 7/8	*154.6*	34	*86.4*
84983	2052-7	84803	6:1	1200	*83*	200	*14*	60 7/8	*154.6*	34	*86.4*
84981	2061-9	84808	42:1	4200	*286*	100	*7*	60	*152.4*	34	*86.4*
84981	2021-9	84806	24:1	2400	*165*	100	*7*	60	*152.4*	34	*86.4*
84981	2001-9	84804	12:1	2400	*165*	200	*14*	60 7/8	*154.6*	34	*86.4*
84981	2052-9	84803	6:1	1200	*83*	200	*14*	60 7/8	*154.6*	34	*86.4*

1) Air motor.
2) Lube outlet.
3) Pump tube.
4) Refer to user manual **404192**.

Fig. IPB 1



1) On models 84983, 84984 and 84985 only.*
2) On model 84983 only.*
3) Included in 86219 piston repair kit.
4) Included in 86220 piston repair kit.
5) Included in 86222 piston repair kit.
6) Torque to 65 to 75 lbf-ft *(88-102 Nm)*.
7) Torque to 100 to 110 lbf-ft *(136-149 Nm)*.
8) Torque to 55 to 60 lbf-ft *(75-81 Nm)*.
* Indicates change.

Parts list

Item number	Description	Quantity	Part number Model 84981	Model 84983	Model 84984	Model 84985
1 [6]	Bolt connector	1	236225	236225	236225	236225
2	Nut	1	237051	237051	237051	237051
3	Plunger	1	242240	242230	242230	242230
4	Gland nut	1	242248	242222	242222	242222
5	U-cup packing	1	34401	34401	34401	34401
6	Packing washer	1	48629-9	48614	48614	48614
7	O-ring	1	242229	242229	242229	242229
8	Retaining ring	1	68933 [4]	68908 [3]	68908 [3]	68908 [3]
9	Body and plate assembly	1	242223	242216	242216	242216
10 [1]	Gasket	2	–	31033	31033	31033
11 [1]	Outlet check seat	1	–	11948	11948	11948
12 [1]	Steel ball	1	–	66285	66285	66285
13 [1]	Ball stop	1	–	57036	57036	57036
14 [1]	Outlet body	1	–	12017	12017	12017
15 [3]	O-ring		34296	34296	34296	34296
16	Pump tube	1	242228	242232	242235	242232
17 [4]	Cotter pin	2	68647	66197	66197	66197
18	Connecting rod	1	242243	242245	242244	242245
19	Piston rod	1	16445-9	16445	16445	16445
20	Spring	1	55292	55262*	55262*	55262*
21	O-ring	2	34441	–	34262	34262
22	Piston	1	14611-9	–	92136	92136
23 [3]	Piston rod guide	1	–	14994	–	–
24 [2]	Wave washer	3	–	[5]	–	–
25 [2]	Washer	2	–	[5]	–	–
26 [2]	Male adapter	1	–	14993	–	–
27 [2]	Vee packing	4	–	[5]	–	–
28 [2]	Packing (check 4660)	1	–	[5]	–	–
29 [2]	Female adapter	1	–	14861	–	–
30 [2]	Piston nut	1	–	14859	–	–
31	Piston check	1	16103-9	16103	16103	16103
32	O-ring	1	34309	34309	34309	34309
33	Bushing tube	1	242215	242221*	242221	242221
34	Ball	1	68785	68649	68649	68649
35	Foot valve body	1	13222-9	13222	13222	13222
36	Retaining pin	1	13226-9	13226-9	13226-9	13226-9

1) On models 84983, 84984 and 84985 only.
2) On model 84983 only.
3) Included in 86219 piston repair kit.
4) Included in 86220 piston repair kit.
5) Included in 86222 piston repair kit.
6)Torque to 65–75 lbf-ft (88–102 Nm)
7) Torque to 100–110 lbf-ft (136–149 Nm)
8)Torque to 55–60 lbf-ft (75–81 Nm)
9)Torque to 200–220 lbf-ft (271–298 Nm)

Accessories and packing kits

Part number	Description
86214	Gland protection sleeve – increases life of gland seal
86213	Lube cup – for solvent, to prevent material from drying on pump rod
84502	PTFE packing kit – for models 84981, 84984, 84985
86221	FPM packing kit – for models 84981, 84984, 84985
16177	Foot valve adapter – converts pump inlet to 1 1/2 in NPTF female
84112	Pump piston replacement – with leather V-packings (standard on model 84983)

Pump repair kits

Part number	Description
86219	Includes soft parts for models 84983, 84984, 84985
86220	Includes soft parts for models 84981
86222	Piston rebuild kit for model 84983 [1]

1) Model 84983 requires kits 86219 and 86222 for rebuild.

Troubleshooting

Problem	Possible cause	Solution
Pump does not operate.	Restricted or inadequate air supply.	Check air supply pressure and air hose diameter (refer to air motor manual **404192** for minimum air supply hose diameter).
	Obstructed material output.	Check output line for restrictions.
Erratic or accelerated operation.	Pump is not primed.	Prime pump. Refer to Prime pump
	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 O-rings (**21**) or piston check (**22**, **31**).	Check and replace if needed.
Pump operates on UP stroke only (missing DOWN stroke).	Worn or damaged piston check (**31**) or ball (**34**)**.**	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.	Piston check (**31**) or ball (**34**) is not seating or is damaged.	Check and replace if needed.

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.

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