

PM3 Pump

55:1, Air-operated, Grease

General

The PM3 Pump is a compressed air-operated reciprocating piston pump designed for high pressure greasing. These pumps are compatible with all types of mineral and synthetic greases (up to NLGI grade 2 viscosity). These pumps can be supplied as separate components or as complete systems with all the elements necessary for installation. These pumps can be mounted on mobile units as well as on fixed drums and connected to a distribution line for single reel use.

Operation

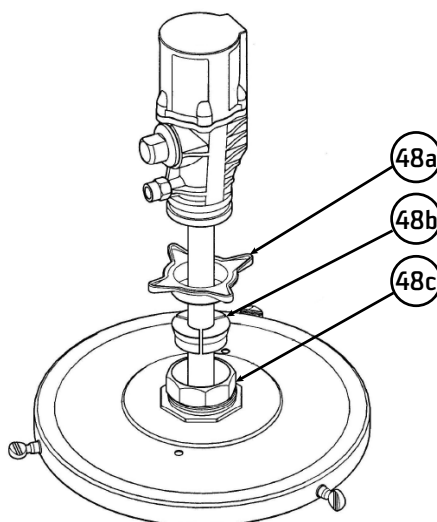
This pump is self-priming. To prime it the first time, connect the air supply to the pump and slowly increase the air pressure from 0 to the desired pressure using a pressure regulator, while keeping the outlet valve opened. Once grease begins to flow through the grease gun/guns, the pump is primed. *(Note: It is important that the foot valve of the pump does not come into contact with contaminated surfaces, such as a workshop floor, as it may become contaminated with dirt or foreign particles that can damage the seals.)*

Technical Data

Maximum Air Pressure	140 psi (10 bar)
Minimum Air Pressure	20 psi (1.5 bar)
Maximum Delivery	0.7 lb/min (21 cu.in./min)
Air Inlet Thread	1/4" NPT (F)
Grease Outlet Thread	1/4" NPT (F) (includes 1/2"-27 male conn)
Air Piston Diameter	2.75" (70mm)
Air Piston Stroke	1.5" (35mm)

Installation

These pumps must be mounted on drums using covers fitted with a 2" bung. Loosen the star nut (48a) of the bung adapter to remove the lower nut (48c) and screw this into the 2" bung opening of the cover. Place the star nut (48a) and the three jaws (48b) on the suction tube. Lower the pump through the opening and fasten the assembly at the desired height. Secure the cover to the drum with the thumbscrews.



ATTENTION
Always keep fingers and hands away from moving parts. Do not dent or damage the riser tube.



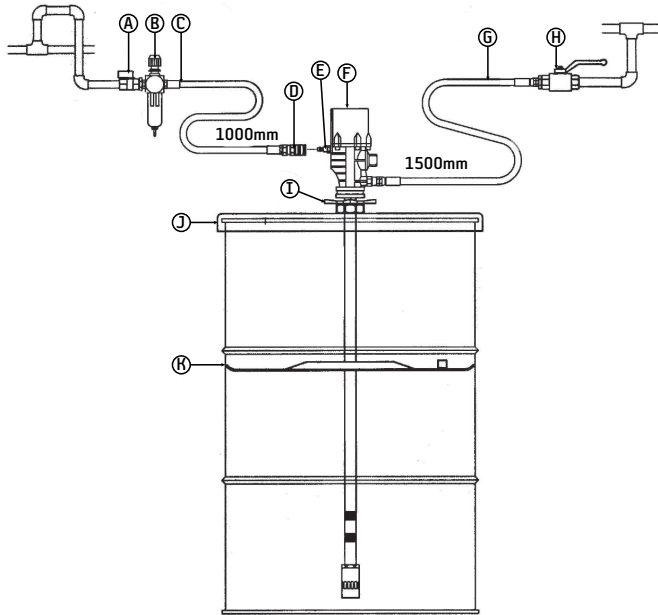
Ensure that the mounting surface and attachments are strong enough to support the lift and pump assembly during operation.

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Typical Layout

See drawing below for typical layout with all the recommended accessories for the pump to operate correctly. The compressed air supply must be fixed between 20 and 140 psi (1.5 and 10 bar), 90 psi (6 bar) the recommended pressure. An air shut-off valve must be installed to be able to close the compressed air line at the end of the day (if the air inlet is not closed and there is leakage in some point of the grease outlet circuit, the pump will start automatically, emptying the container).



Item	Description
A	Air shut-off valve (LP)
B	Filter regulator
C	2' air hose
D	Quick coupling
E	Connection nipple
F	55:1 Pump
G	5' grease hose
H	Grease shut-off valve (HP)
I	Bung adapter
J	Cover (400 lb drum)
K	Follower plate

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Maintenance

Separate the Air Motor from the Pump

1. Unscrew and remove the grease outlet adapter and the air inlet adapter. Remove the air motor cover.
2. Mount the pump to a vise in horizontal position, securing it on the suction tube (47).
3. Unscrew the priming cylinder (60) from the priming filter head (57).
4. Unscrew the air motor body (15) from the suction tube (47) using a threaded rod or a pipe wrench, and pull it out until it stops. The union nut (37) will be visible after cleaning the grease from the rod.
5. Slide an open end wrench over the flats of the lower part of the air piston (36) and unscrew the nut (59) and remove the washer (58).
6. Remove the large roll pin (38) located in the upper part of the union nut (37) and unscrew the air motor body (15) from the suction tube assembly. (See drawing on right.)

Foot Valve

1. Unscrew the foot tube (53) with the priming filter (57) from the high pressure cylinder (51). Attach the foot tube to the vise, unscrew the priming filter (57), remove the foot valve seat (56), the foot valve assembly (55) and the valve washer (54).
2. Clean these parts, replace if damaged. Assemble the pump following the previous instructions, reversing each step. (Note the position of (55 and 56) on page 5 - the mating surfaces are ground flat and the conical surfaces are opposed.)

Pressure Check Valve

1. Insert a steel rod (Ø4mm recommended) through the lower grease by-pass hole in the high-pressure piston (44) and unscrew it from the grease valve body (40).
2. Clean the check ball (43) and its seat in the high pressure piston (44). If damaged, replace all the affected parts.
3. If the high pressure piston (44) is scored, unscrew the high pressure cylinder (51) from the suction tube (47) and from the foot tube (53) and replace it. Assemble the pump following the previous instructions, reversing each step.

Inverting Set and Air Motor

1. Secure the air motor body (15) and loosen the five 4mm screws (29) to remove the air motor dolly (1).
2. Slide an open-end wrench over the flats of the lower part of the air piston (36). With second wrench unscrew the air piston nut (2) and remove the parts (2-5).
3. Pull the air piston rod (36) down and out of the air motor body (15).
4. Unscrew the toggle nut (27) from the air motor body (15) and remove the parts (23-27).
5. Unscrew the 3mm allen screws (22) and remove the parts (16-21).

Packing Set and O-ring

1. Follow the procedure for the air motor until the air piston rod (36) has been removed from the air motor body.
2. Remove the packing set (32-35) and the seal O-ring (31). Replace these parts and clean the seat of the seal O-ring (31).

ATTENTION

Refer to page 5 for parts reference.

WARNING

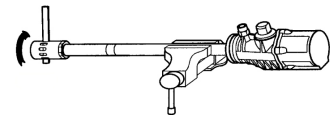
Before starting any kind of maintenance or repair, disconnect the compressed air supply and open a downstream valve to relieve the grease pressure.

ATTENTION

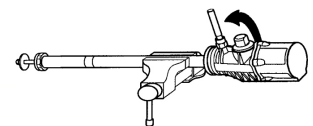
The high-pressure piston and cylinder must always be replaced at the same time; they are a matched set.

ATTENTION

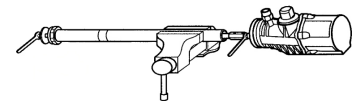
It is important that the packing set and O-ring are mounted in the correct order: First locate the O-ring in the correct position inside the motor body and use a dab of grease to hold it in position. Then install the large and small packing set.



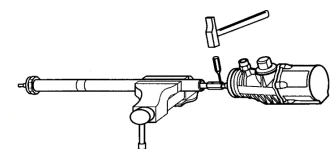
Unscrew intake filter tube from intake filter head



Unscrew air motor body from suction tube



Unscrew nut, remove washer



Remove pin, unscrew air motor body

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Troubleshooting

Symptom	Possible Cause	Remedy
The pump is not working or there is no grease delivery.	Not enough air supply pressure.	Slowly increase the air supply pressure.
	Some outlet line component is clogged or closed.	Clean or open the outlet circuit.
	There are air pockets in the grease inlet area.	Stir and compact the grease.
The pump begins to operate very fast.	The drum is empty or the grease level is beneath the suction tube inlet.	Replace the drum or lower the suction tube until the inlet reaches below the grease level.
The pump runs on continuously after the grease outlet is closed.	There is a grease leak in some point of the outlet circuit.	Verify and tighten or repair.
	Contamination in the upper valve or in the foot valve.	Disassemble and clean. Replace damaged components.
Grease is leaking through the outlet muffler.	The outlet adapter (62) is loose.	Reinstall with Loctite #242 or equivalent.
	Grease has by-passed to the air motor caused by worn or damaged seals (33) or seal O-ring (31).	Replace the worn or damaged parts.
Air is leaking through the outlet muffler.	The sliding valve (19) does not close correctly.	Disassemble and clean. Replace damaged components.
	The valve strap (20) or the toggle spring (25) are damaged.	Replace damaged components.
	The air piston (4) is damaged.	Replace damaged components.
	The O-ring (6) is damaged.	Replace damaged components.
Reduction of grease.	There are air pockets in the grease inlet area.	Stir and compact the grease.
	Contamination in the upper valve or in the foot valve.	Disassemble and clean. Replace damaged components.
Diminution of grease pressure.	The high pressure cylinder (51) or the high pressure piston (44) is scored.	Replace high pressure cylinder or the high pressure piston.

ATTENTION

Refer to page 5 for parts reference.

How to Order

Name	Drum Size	Part #
PM3 Pump	35 lb	F300
	120 lb	F302
	400 lb	F304
PM3 Pump*	35 lb	9035
	120 lb	9120
	400 lb	9400

*These units include Return Tube for Injector/Dualine Systems.

Refer to the following documents:

+ Operators Manual #36404:
9000 Series Drum Pumps

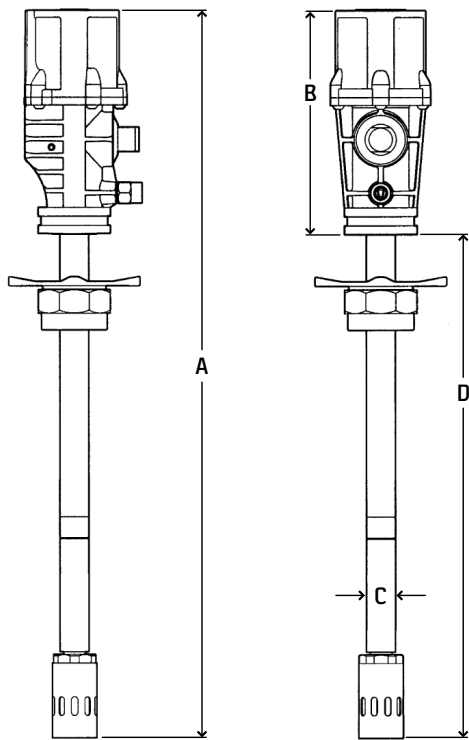
When ordering, specify by name, description and part number, e.g. PM3 Pump, 35 lb Drum, Part #F300.

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Dimensional Schematics

Measurements shown in millimeters.

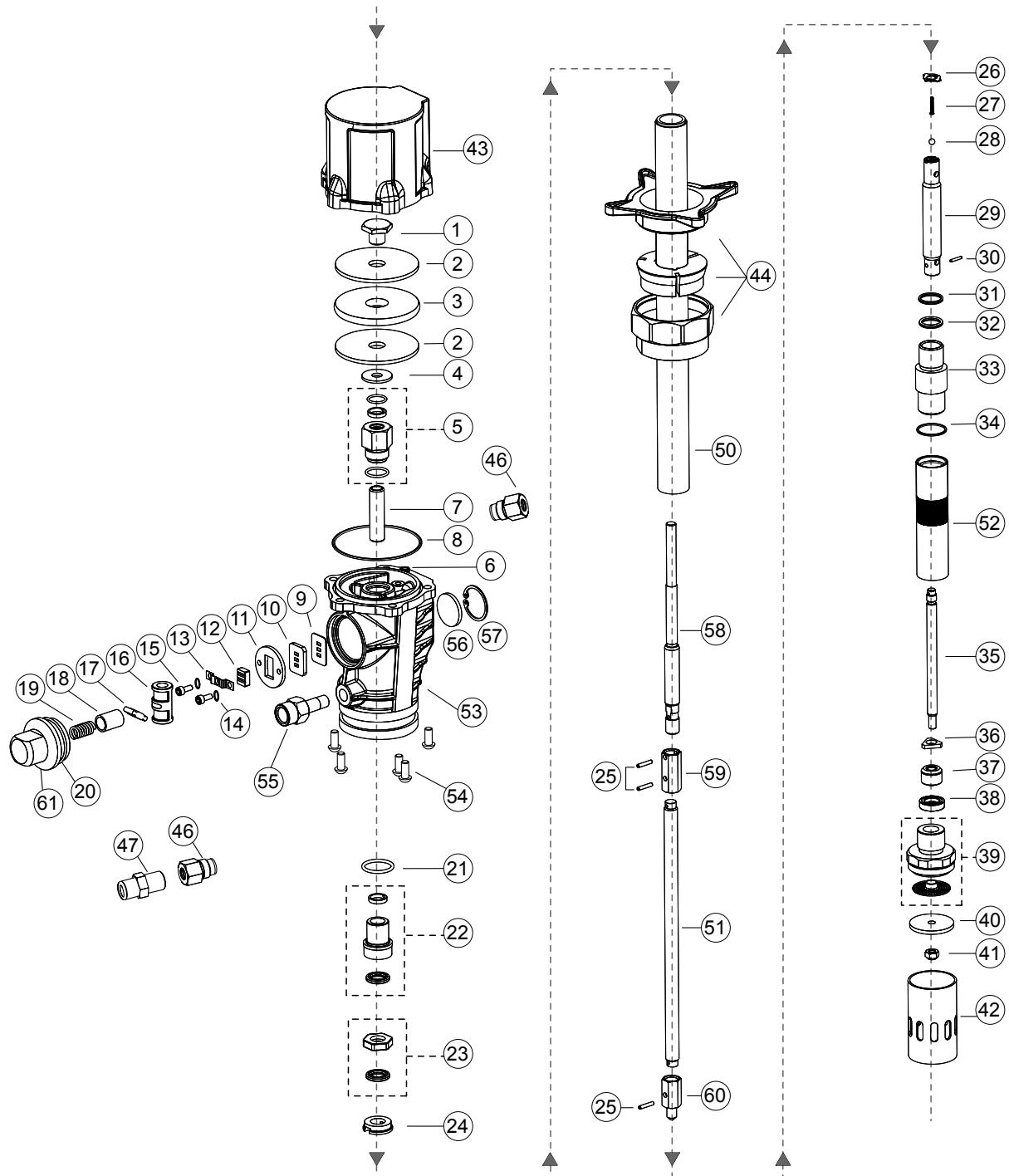


Part #	A	B	C	D
F300	610mm (24")	200mm (7.87")	42mm (1.6")	410mm (16.1")
F302	925mm (36.5")	200mm (7.87")	42mm (1.6")	725mm (28.5")
F304	1120mm (44")	200mm (7.87")	42mm (1.6")	920mm (36.2")
9035	610mm (24")	200mm (7.87")	42mm (1.6")	410mm (16.1")
9120	925mm (36.5")	200mm (7.87")	42mm (1.6")	725mm (28.5")
9400	1120mm (44")	200mm (7.87")	42mm (1.6")	920mm (36.2")

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Service Parts Drawing (All Models except 9120/9400)



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Service Parts (All Models except 9120/9400)

Item(s)	Description	Part #
1-20	Air Motor Kit	FGK1
21-24	Packing Seals Kit	FGK2
25-28	High Pressure Valve	FGK3
30,35-38	Foot Valve	FGK4
25-34	Pressure Check Valve, high Pressure Cylinder & Piston	FGK5
39-42	Grease Intake Repair Kit	F740958
43	Air motor dolly	F740100
44	Bung Adapter	300 Series F2028
		9000 Series F366002
46	Outlet adapter BSPM/NPTF	F740247
47	Nipple 1/4 NPTM* 1/2-27M	F740248
50	Suction tube: 35 lb	N/A
	Suction tube: 120 lb	N/A
	Suction tube: 400 lb	N/A
51	Suction rod: 35 lb	F740302
	Suction rod: 120 lb	F740310
	Suction rod: 400 lb	F740318
52	Foot tube	F740215
53	Air Motor Body	F740105
54	4mm air bonnet screw	F940321
55	Outlet valve	F740237
56	Muffler	F835400
57	Muffler Circlip	F942728
58	Air piston rod	F740225
59	Union nut	F740203
60	Grease valve body	F740205
61	Toggle nut	F740150

Service Parts -Kit Listings

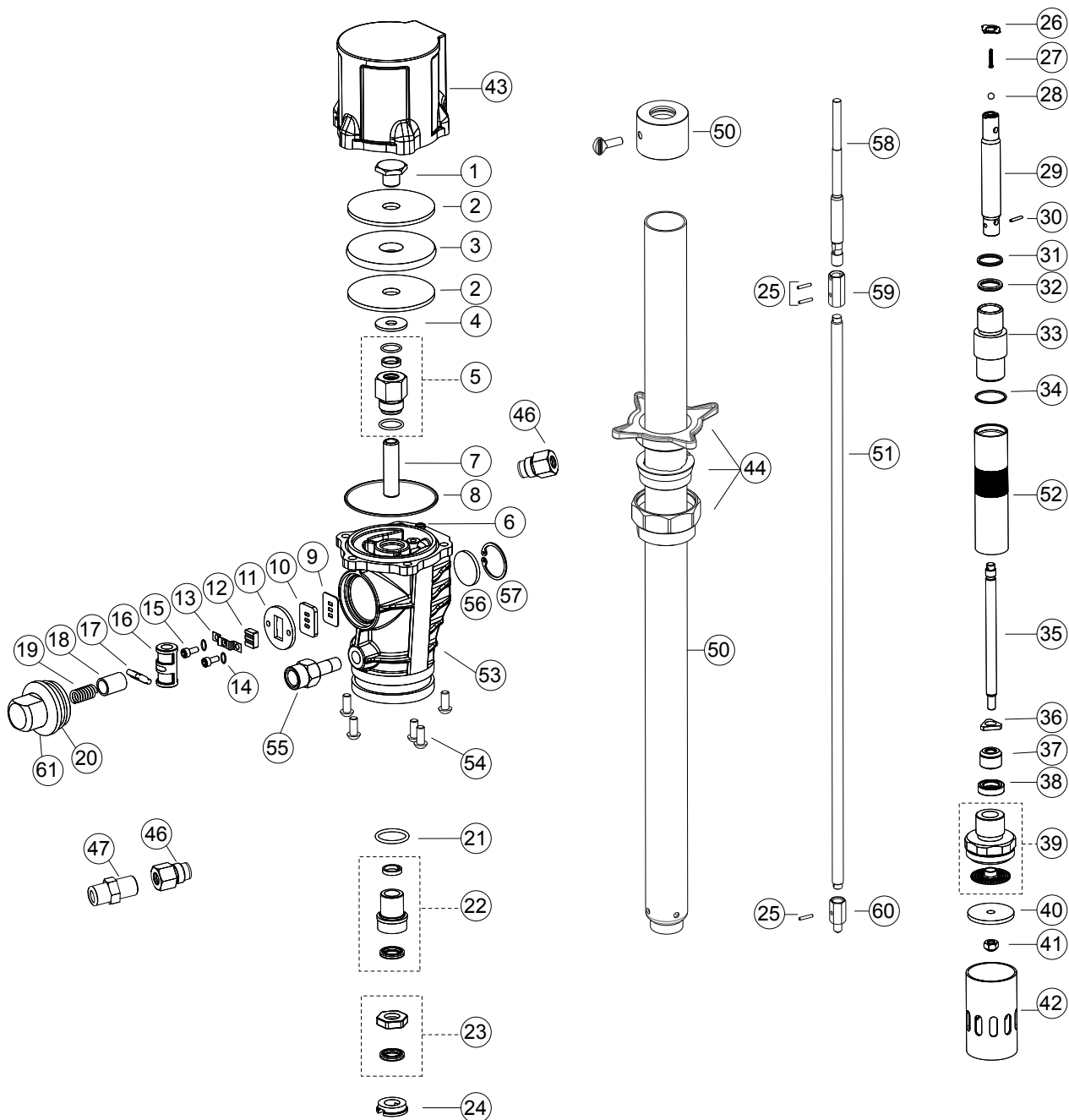
Item(s)	Includes:
FGK1	Air piston nut (1)
	Air piston plate (2)
	Air piston (3)
	Air Piston Washer (4)
	Upper packing nut (5)
	Small O-ring (6)
	Air Motor Space (7)
	Large O-ring (8)
	Paper valve gasket (9)
	Valve seat (10)
	Valve guide plate (11)
	Valve slide (12)
	Valve strap (13)
	Washer (14)
	3mm Allen screw (15)
	Trip shoe (16)
	Toggle (17)
	Toggle spring cup (18)
	Toggle spring (19)
	Toggle nut O-ring (20)
FGK2	Seal O-ring (21)
	Upper packing nut (22)
	Seal assembly (23)
FGK3	By-pass washer (24)
	Large roll pin (25)
	Tabbed lock washer (26)
	Check spring (27)
	Check ball (28)

FGK4	Small roll pin (30)
	Shovel rod (35)
	Triangular washer (36)
	Foot valve (37)
	Foot valve seat (38)
FGK5	Large roll pin (25)
	Tabbed lock washer (26)
	Check spring (27)
	Check ball (28)
	HP piston (29)
	Small roll pin (30)
	HP cylinder Outer O-ring (31)
	Inner O-ring (32)
F740958	HP cylinder (33)
	Copper ring (34)
	Priming filter/Priming shovel washer (39)
	Priming shovel washer (40)
	10mm Nylock nut (41)
	Priming cylinder (42)

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Service Parts Drawing Models 9120/9400



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1-20	Air Motor Kit	FGK1
21-24	Packing Seals Kit	FGK2
25-28	High Pressure Valve	FGK3
30,35-38	Foot Valve	FGK4
25-34	Pressure Check Valve, high Pressure Cylinder & Piston	FGK5
39-42	Grease Intake Repair Kit	F740958
43	Air motor dolly	F740100
44	Bung Adapter	F360002
46	Outlet adapter BSPM/NPTF	F740247
47	Nipple 1/4 NPTM* 1/2-27M	F740248
50	Suction tube: 120 lb	N/A
	Suction tube: 400 lb	N/A
51	Suction rod: 120 lb	F740310
	Suction rod: 400 lb	F740318
52	Foot tube	F740215
53	Air Motor Body	F740105
54	4mm air bonnet screw	F940321
55	Outlet valve	F740237
56	Muffler	F835400
57	Muffler Circlip	F942728
58	Air piston rod	F740225
59	Union nut	F740203
60	Grease valve body	F740205
61	Toggle nut	F740150

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	Air piston (3)
	Air Piston Washer (4)
	Upper packing nut (5)
	Small O-ring (6)
	Air Motor Space (7)
	Large O-ring (8)
	Paper valve gasket (9)
	Valve seat (10)
	Valve guide plate (11)
	Valve slide (12)
	Valve strap (13)
	Washer (14)
	3mm Allen screw (15)
	Trip shoe (16)
	Toggle (17)
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	Toggle spring (19)
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	Shovel rod (35)
	Triangular washer (36)
	Foot valve (37)
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FGK5	Large roll pin (25)
	Tabbed lock washer (26)
	Check spring (27)
	Check ball (28)
	HP piston (29)
	Small roll pin (30)
	HP cylinder Outer O-ring (31)
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	HP cylinder (33)
	Copper ring (34)
F740958	Priming filter/Priming shovel washer (39)
	Priming shovel washer (40)
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	Priming cylinder (42)