AIR GREASE INJECTOR

Please read the instruction manual carefully before use!
Пожалуйста, внимательно прочтите инструкцию перед использованием!



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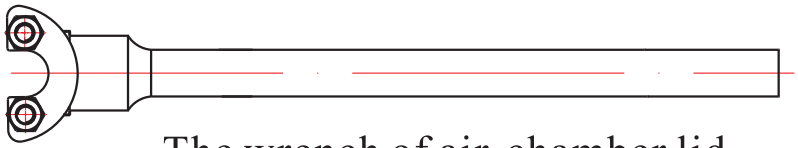
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Spare part list

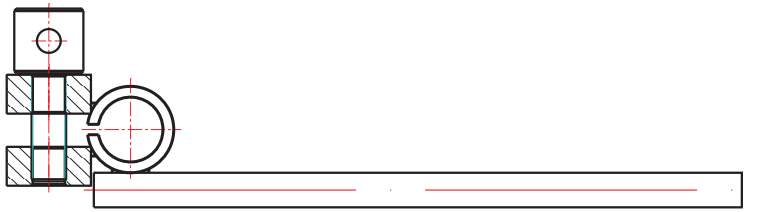
Code NO.	Name	Material	Specification	Number	Installation place
GB3452.1-1992	O shape rubber seal ring	Grease-resistant rubber	Φ16x2.4	2	Sealing screw
GB3452.1-1992	O shape rubber seal ring	Grease-resistant rubber	Φ23.6x1.8	2	Sealing screw
GB3452.1-1992	O shape rubber seal ring	Grease-resistant rubber	Φ22.3x2.65	2	Sliding seating cover
GB3452.1-1992	O shape rubber seal ring	Grease-resistant rubber	Φ24x2.4	2	Connector
GB3452.1-1992	O shape rubber seal ring	Grease-resistant rubber	Φ19.3x2.65	2	Pump body

Note: We don't tut up a notice if there is changed

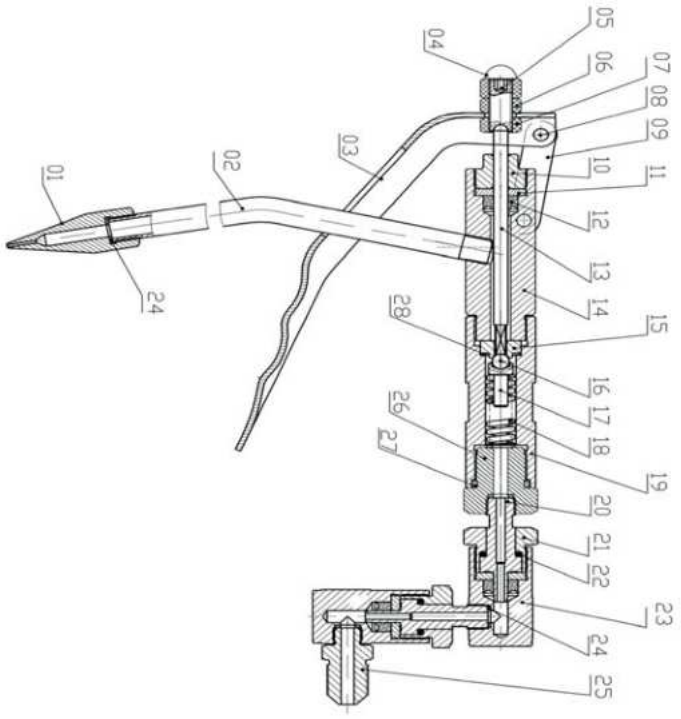
Remark: the wrench sells alone



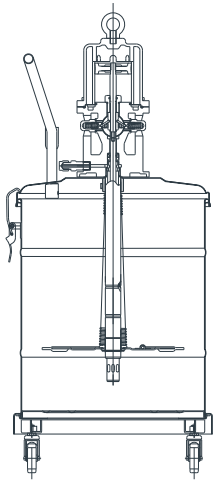
The wrench of air-chamber lid



The wrench of connecting hose



NO	NAME	NO	NAME	NO	NAME
01	Gun mouth	10	Compression screw	19	Takes over control
02	Drill tubing	11	Seal filling piece	20	Core axis
03	Handle	12	Grease seal	21	Seals the nut Ⅰ
04	Round head nut	13	Roof bar	22	2mm Steel ball
05	Adjusts the screw rod	14	Main body	23	Attachment body
06	Thin nut	15	Valve holder	24/28	Red copper pad
07	Thick nut	16	6mm Steel ball	25	Grease-inlet connector
08	Rivet	17	Steel ball place	26	Seals the nut Ⅱ
09	Including contact tag	18	Spring	27	O type seal ring



PGG45-A AIR GREASE INJECTOR

PGG45-A Security clause

(1) The operator shall put personal protective equipment during operation.
(2) Sound pressure level at workplace(1m away from pump)is lower than 80dB(A);
(3) The vibration value fro handle bar of spraying gun is 0.1m/s^2
(4) The permitted force is 200N.M on pump inlet and outlet branches connection.

Equipment Introduction

The PGG45-A air grease injector will uses compressed air as drive, the pump creates the high-pressure by pressing the grease, and the oil injected by the high pressure, the grease injector is becoming the essential equipment in oil injected industrialization. Its features are good reliability, low air consumption, high working pressure, convenient usage, high efficiency of production, low labor intension, capability of injecting grease of high viscidity. Applying in automobile, tractors, and other dynamic machines' grease injection aspects.

This machine can be used all year round. Normal in winter with 0#~1# lithium grease, in spring and autumn with 2# lithium grease, in summer with 2#~3# lithium grease. In order to avoid oil viscosity too large, please add a little engine oil and mix thoroughly.

Caution: Temperature ranged: -20~50℃
Humidity range allowed: 20%~80%
Altitude range allowed: <1000m

The lithium grease used is made of higher fatty acid lithium soap thickening medium viscosity mineral oil added antioxidant and antirusting agents. It has good performance in water-resistance, mechanical stability, oxidation stability and rust protection, it is

suitable for a variety of equipment rolling bearings and sliding bearings at the temperature rang from -20 to 120 ℃.

	Cone penetration	Dropping point
1# lithium grease	310~340/(1/10mm)	≥170℃
2# lithium grease	265~295/(1/10mm)	≥175℃
3# lithium grease	220~250/(1/10mm)	≥180℃

Machine noise at work ≤90Db, it meets the national standards for urban construction.

Main technology parameters

Pressure ratio: 50 : 1 abrasion wastage omitted	Compressed air: 6-8 Bar
Air cylinder diameter: 70mm	Journey: 35mm
Grease transmission velocity: 0.85 L/min	Transmission pressure: 30-40 Bar
Weight of equipment: 21Kg	Outline dimension: 400x400x830 mm

Operation theory and structure of equipment

The PGG45-A air grease injector is composed by grease-inject pump, grease-inject gun, high-pressure tube, quick-changing connector, grease-storage vehicle. Among these, grease-inject pump can see the figure

1 grease-inject pump

The grease-inject pump is combined with upper air pump and lower plunger piston pump,see figure 2.Air pump is the driving pump of plunger piston pump;compressed air is used to drive the plunger piston pump in reciprocating motion for grease-inlet grease-outlet and creating the grease-pressure.Because of the valid area of the piston of cylinder is bigger than that of cylinder of plunger piston pump,so pressure can be greatly enhanced,the valid area ratio is 50:1(named as pressure ratio),when 0.6Mpa compressed air inputted,the output grease pressure can reach 30Mpa(omit wastage).Now instroduce the operation theory of air pump and plunger piston pump respectively

(1) Operation theory of air pump

The air pump is composed of pressure governor valve cylinder piston gas-supply

Malfunction causes of equipment and solutions

Malfunction description	Malfunction causes	Solutions
1 Stop the pump(omit the normal stop pump in pressure equilibrium condition	Malfunction of reverse machine	Check the reverse machine if it has been locked,modulated or replaced
2 Grease can not be inhaled	1 Loading board loosed	Install the loading board and screw up the screwcap
	2 Impurity at grease inlet slot	Check and remove it
	3 Viscidity of grease is high or over viscid	Change the grease seasonal, using the 0# and 1# lithium grease in winter,1# and 2# lithium grease in spring and autumn,and using 2# and 3# lithium grease in summer
	4 Impurities in valve	Check and remove it
	5 Insufficient grease in storage tank	Supply the grease
3 Air leak	1 Abrasion in touching area of sliding block and air-supply valve seating	Uninstall and rubbing them to reach the requirement of sealing
	2 Replacement of sliding blocks and screws on blocking board loosed	Disassemble and modulate them,and tighten the screws
4 Insufficient grease outlet pressure	1 Parts of the outlet pipeline blocked ,and grease transferring obstructed	Check the blocking area.clean and dredge it
	2 Grease way in grease injection gun partly obstructed	Disassemble the grease injection gun.clean and dredge the blocked parts
	3 Two single direction valves in plunge piston pole have impurity	Disassemble the plunge piston pole and cleasn,dredge it
	4 Between the check valve and grease-inlet valve seating has impurity	Disassemble the grease-inlet value seating and clean,dredge it
5 Grease is leaked while exhausting air	U type seal ring has grease leaked	Change the new U type seal ring
6 The rotating part of grease injection gun has grease leaking	Butyl rubber seal ring has grease leaking	Change new seal parts

MAINTENACE OF EQUIPMENT

To have proper maintenace of equipment ,keep the equipment good operation condition is a key measure of extending the long eity of equipment, and improving the efficiency of it .The maintenance of PGG45-A high-pressure grease injection device should notice the following points:

1) the compressed air should be filtrated to keep the dirt in air from entering the air pump to abrade the air-supply sliding block and cylinder, etc.

2) the compressed air should not sulpass 0.8Mpa,so as to prevent overloading and effect the longevity of high-pressure pipe.

3) While using the high-pressure pipe, forcing bending and heavy loading is forbidden to prevent damage.

4) During the rest time,the quick replacing connector should be uninstalled,and pull the trigger of grease-injection gun to emit the grease,so as to decrease the inner grease pressure of the equipmetn to extend the longevity of high-pressure pipe

5) Lubricant grease should be injected into the air pump regularly.

6) In the disassembling process,avoid the touching of each part to keep the accuracy of the disassembled parts

7) Do not run the machine without loads while the grease is insufficient in storage tank,so as to prevent heating the plunge piston pump to damage parts.

8) Cleaning and maintenance job should be done regularly,cleaning the whole grease way system on shcedule,uninstall the gun injector of the grease injection gun,and clean the impurity in grease way by suing the cleaning grease, and keep the grease of storage tank clean

Remark (1) : forbid pump nozzle towards to person and animal to prevent damaged.

Remark (2) : everyone should wear personal safe guard.

cabinet, etc. Three equidistant holes located in air-supply chamber of air-supply cabinet,the mid one is vent hole,the upper hole is connected to the lower cylinder of piston,and the lower hole is connected to the upper cylinder of piston.The other pars in the zir-supply chamber constitute the air-supply framework;the framework is used for controlling the air inlet and outlet of the air pump ,making the piston upward and downward motion。

When quick shifting connector installed, the compressed air are imputed to air-supply chamber after modulated in pressure,the sliding block in the air-supply room is a key part in controlling the upward and downward motion of the piston..When sliding block located in the upper limit place,the compressed air enters the upper cylinder of piston through the lower hole of the three holes in air-supply room,and drives the piston to move downwards .The exhaust gas in the cylinder was emitted through

The second hole covered by the sliding block.When piston move downwards to a certain place,the bottom area of piston pushes the pulling cover to move downward,because of the downward motion of the pulling cover,the reverse valve supported by valve sleeves and reverse spring changed the hunting angle downwards,till under the horizontal center line.Under the function of reverse spring and reverse valve ,pulling cover leaves the bottom area of piston pole,and leaps downwards,while leaping,sliding blocks moves to lower limit place to change the mode of entering air from upper area of piston and emit air from underside in to a totle contrary mode.

Because of the direction change in air-in and air-out,the piston also changes from downward motion to upward motion.As the same way mentioed above,while the piston moves upward to a certain place,the pulling cover jumps upward quickly, and the sliding block moves to the upper limit place.Thus a period of reciprocating motion finished. Given the compressed air,the reciprocating motion of air pump can go on.

(2) The operation theory of plunger piston pump

The driving force of plunger piston pump is coming from the air pump,connected with the connecting pole ,and have reciprocating motion with the air pump synchronously,in the motion,grease is inhaled and output high pressure,and its motion condition mentioned as follow:

The connecting pole connects the plunger piston pole ,while the plunger piston pole connects the single direction valve seating and loading pole,thus,while air pump has reciprocating motions, the loading board installed on the loading pole also has the up and down reciprocating motion synchronously.

The plunger piston pump is made up of four single direction valves,so as to increase the grease level and pressure.When the loading board moves upward,the grease level in injection sleeves upgraded by the loading board,through the overflowing ring into the injection valve seating ,pushing the check valve move upwards,and enters the pump body ;when the loading

board moves downwards,under the gravity of grease and self weight,the check valve move downward,block the grease way from the grease inlet valve seating back to grease inlet pipe, this is the first single direction valve.When the loading board continue to its reciprocating motion,the grease gradually filled the pump body,and pushes the second single direction valve to open and enter into the plunge piston pole ,the valve consists of steel ball and grease inlet spring, spring seating. When the grease level in plunge piston pole elevated continusly, push the third single direction valve open once more and into the connection pipe. When the grease is filled in the connection pipe and into the grease storage tank of air-supply body ,and reaches the fourth valve. When grease is filled in the whole plunge piston pump, the grease pressure reaches the 30-40Mpa;the grease pushes the fourth single direction valve open, through the grease outlet connector into the high pressure pipe, and finally reaches the grease injector gun, this realizes the grease inlet ,grease outlet and increase the grease pressure functions of the plunger piston pump.

When the loading board loading the grease,because of the grease entered the valve seating,so negative pressureis created betweenthe grease inlet pipes and loading board while the latter move downwards,the negative pressureforcesthe grease inhaled into the injection pipe.At the sametime,under the affection of the grease-compressing device in grease storage,the greasecan be supported aroundthe grease inlet pipe,so asto keepthe normal operation of plungepiston pump.

2 Greaseinjection gun

The grease injection gun is used for grease injection operation,the high-pressure greasefrom greaseinjection pump through the high-pressure pipe to grease injection gun.Handling the gun andtriggering,grease can be injected into the pad you want.Under the grease injection gun handle,two active connectors can be found,they can be rotated freely and operated with ease.

3、high-pressure pipe

The high-pressure pipe is connected betweenthe greaseinjection pumpand greaseinjectlon gun,and used for transmitting high-pressure grease,used by grease-resistant rubber,the middlelayeris reinforced bybvisted steelwire,and can endure 60Mpa high-pressure.

4、quick replacing connector

The quick replacing connector is connected between the gas source and air pump,there is a valve in the connector,When the pipe inserted,the air way opened automatically;and automatically close the air way before uninstalling it, so the convenient goal,and quick connecting or breaking to gas source can be realized.

5、Grease storage tank vehicle

The grease storage vehicle is has grease storage function,and bears grease injection pump,grease injection gun,and high-pressure pipe,etc as movable components,to make grease injection operation with ease.45L lubricant grease can be stored in grease storage tank;covers sealthetank to keep the dirt or impurities from the grease .grease injection pump pump is inserted in the grease storage tank.In grease storage tank grease-pressing devices are installed,the grease-pressing board are on the surface of grease to press the lubricant grease forced to flow into the grease inlet pipe of grease injection pump, so as to supply the grease sucked out during operation of the grease injection pump.

(1) Switch on the air compressor ,have 0.6Mpa to 0.8Mpa compressed air in preparation.

(2) Screw off the dishing houslng srcews beside the two sides of tank cover,tilt the handles of body with the tank cover,grease injection pump,and grease-pressing device to an angle of 20 to 30 degrees ,to let air enter through the bottom of oii-pressure rubber board,it is convenient to pull it out without the necessity of uninstalling any parts

(3) The maximum capacity of lubricant grease to beinstalled in grease storage tank is 12kg,full installation is depending on reauirement .To prevent the bubble from creating ,the grease should be pressed and surface should be planed.

(4) The handles of cars,with the cover ,grease injection pump,grease pressing devices ,are placed vertically into the grease storage tank,press the fubber board tightly on the grease surface,insert the grease-inlet pipe into the bottom of the cabinet ,screw on the dishing tightening screw beside the tank cover.

(5) Install the quick replacing connector in the air source pipe.

(6) Connect the grease pump and grease gun by high-pressure hose (the maximum torque of connection is 200 NM) and clean all the parts before connection. Use a wrench to tighten the nut to prevent oil leakage.

(7) Insert the quick replacing connctor into the air-inlet connector,put through the compressed air,and switch on the pressure-adjusting pump,so the air pump can have reciprocting motion and emit air through the muffle.

At the beginning of the grease injection pump,the grease gradually filled in the pipe of plung piston pump,and the grease-pressure also increasing gradually after working preject,the velocity of reciprocating motion of grease injection pump decreased,till the final stop,then the inner pressure of pump reaches the equilibrium,and the pressure also reaches the maximun value this time,if triger of grease injection pump is pulled,high-pressure grease will inject from the gun.With the output of grease,pressure in Grease injection Pump will be unbalanecd,so the grease injection pump will continue its reciprocating motion to supple the grease.When the grease filled in the pipe of plunge piston pump again,the grease-pressure also reaches the maximum value,and the grease injection pump stops the reciprocating motion.The grease injection pump is thus working discontinuously.

At the time of grease-injection pump stop the reciprocating motion highest grease-pressure,its necessary to check all connecting parts to ensure noleak exists.After finishing the operations above, grease injection operation is permitted.

GREASE PUMP PARTS LIST

No.	Type NO.	Name	Notes
1	RH5451-G-01-001	Cylinder	
2	RH5451-G-01-003	Piston Cylinder	
3	GB/T 70.1-2000	Inside hexangular cylinder head bolt	M6x25
4	GB/T 93-1987	Spring gasket	Φ6
5	GB/T 6175-2000	Turret Nut	
6	RH1121-07	Piston Gasket	
7	RH1121-06	Piston	
8	RH1121-08	Piston rod	
9	RH1121-26	Piston rod	
10	RH1121-09	Sealing screw	
11	GB3452.1-1992	O type seal ring	Super abrasion resistance Outer Ø16*2.4
12	GB3452.1-1992	O type seal ring	Outer diameter Φ23.6X1.8
13	RH5451-G-01-002	Pump body seat	
14	GB3452.1-1992	O type seal ring	Outer diameter Φ67.5X3.1
15	GB3452.1-1992	O type seal ring	Outer diameter Φ116.1X3.55
16	GB/T 70.1-2000	Inside hexangular cylinder head bolt	M6x20
17	RH5451-G-01-008	Gas distbution cap	
18	DS-7-01-0001-3-1	Gun rivet	Ø 5X8
19	GB 3452.1-1992	O type seal ring	Outer diameter Ø8.5x1.6
20	GB 3452.1-1992	O type seal ring	Outer diameter Φ46X2.5
21	GB 3452.1-1992	O type seal ring	Outer diameter Ø45.3x2.65
22	RH1121-52	Paper gasket	
23	RH1121-19	Gas-supplier sealing	
24	RH1121-20	Clapboard	
25	RH1121-21	Gas-supplier slide block	
26	RH1121-22	Damping spring	
27	GB/T 859-1987	Spring gasket	Φ4
28	GB/T 65-2000	Cross recessed small pan head screws	M4x9
29	RH1121-11	Reverse valve	
30	RH1121-12	Valve sleeves	
31	RH1121-13	Reverse spring	
32	GB3452.1-1992	O type seal ring	Outer diameter Φ22.3X2.65
33	RH1121-14	Slide seating	
34	RH1121-53	Purplr copper gasket	
35	RH9121-004	grease-outlet connector	
36	RH1121-23	draw cover	
37	RH1121-17	Sealing gasket	
38	GB3452.1-1992	O type seal ring	Outer diameter Φ19.6X1.8
39	GB3452.1-1992	O type seal ring	Super abrasion resistance Outer Ø14.8*1.8
40	RH1121-18	U seal ring	UN 12X22X8
41	RH1121-27	Sealing cover	
42	RH2121-02	Adjust nut	
43	GB/T 91-2000	Cotter pin	Φ3x20
44	GB/T 879-2000	Spring pin	Φ3X15
45	RH9251-005	Connecting pole	
46	RH2121-04	grease inlet spring	

No.	Type NO.	Name	Notes
47	GB 308-89	Steel ball	SΦ6
48	RH2121-05	Plunger piston pole	
49	RH5451-G-01-006	The clinlet spring A	
50	RH2121-07/08	Loading pole assembly	
50-1	RH2121-07	Spool	
50-2	RH2121-08	Lifting rod	
51	RH9251-006	Connecting pipe	
52	GB3452.1-1992	O type seal ring	Outer diameter Φ24X2.4
53	GB3452.1-1992	O type seal ring	Outer diameter Φ19.3X2.65
54	GB3452.1-1992	O type seal ring	Outer diameter Φ25.5X2.65
55	RH2121-10	Pump body	
56	RH2121-25	U seal ring	UN 8x14x6
57	RH2121-12	Check valve	
58	RH2121-11	Check valve gasket	
59	RH2121-13	grease inlet valve seating	
60	RH2121-14	Overflow ring	
61	RH9122-004	Loading board	
62	GB/T 859-1987	Spring gasket	Ø6
63	GB/T 6175-2000	Turret Nut	
64	RH9122-003	grease inlet pipe	
65	GB/T 582	Eyenut	M12
66	GB/T 77-2000	Inner six angle set screws with flat	M12x25
67	JQ2-2-01A-1-02	Air inlet connector	
68	GB3452.1-1992	O type seal ring	Outer diameter Φ126X1.8
69	MF-4	Pressure governor valve	0-1Mpa,0-150PSI
70	RH5451-G-01-007	Pressure governor valve connector	
71	RH5451-G-01-009	Bloop	Ø18
72	GB 893-86	Hole Circlip	Ø18
73	RH1121-16	Learing oil caulking	
74	RH5451-G-01-005	The cover plate B	
75	RH5451-G-01-004	The cover plate A	
76	XYM-01-1	Silencer cotton	
77	GB/T 818-2000	Cruciform slot screw	M5x8
78	RH7201-D-003	Hand butter	
79	RH5451-W-004	Top Cap	
80	GB/T 5783-2000	Turret Bolt	M8x15
81	RH1121-51	Presses Oil Spring	
82	RH7201-01-0003	Presses oil disk	Outer diameter Ø282
83	RH9301-003	Hanger	
84	GB/T 5783-2000	Turret Bolt	M6x30
85	RH9301-004	Trigger	
86	GB/T 889.1-2000	Nylon Nut	M6
87	RH9451-002	Ladle body	
88	RH7201-01-0007	Wheel	M10

TRANSPORTATION AND STORAGE

1)Hold on

When grease pump replace working position through horizontal short distance , it would depends upon the two wheels to carry on the migration ;

When grease pump replace working position through long distance ,first the grease should be pour out of the container ,or you should use standard grease . The grease should transport alone. Then you should tie the bottom of grease pump with rope, then for carrying on.

If needs to hoist up time, first falls over in vessel's butter to the tight container or the use standard loaded in barrels butter, transports alone ; Then ties up the yellow oil pump base with the rope, carries on again hoists up

2) **transportation**

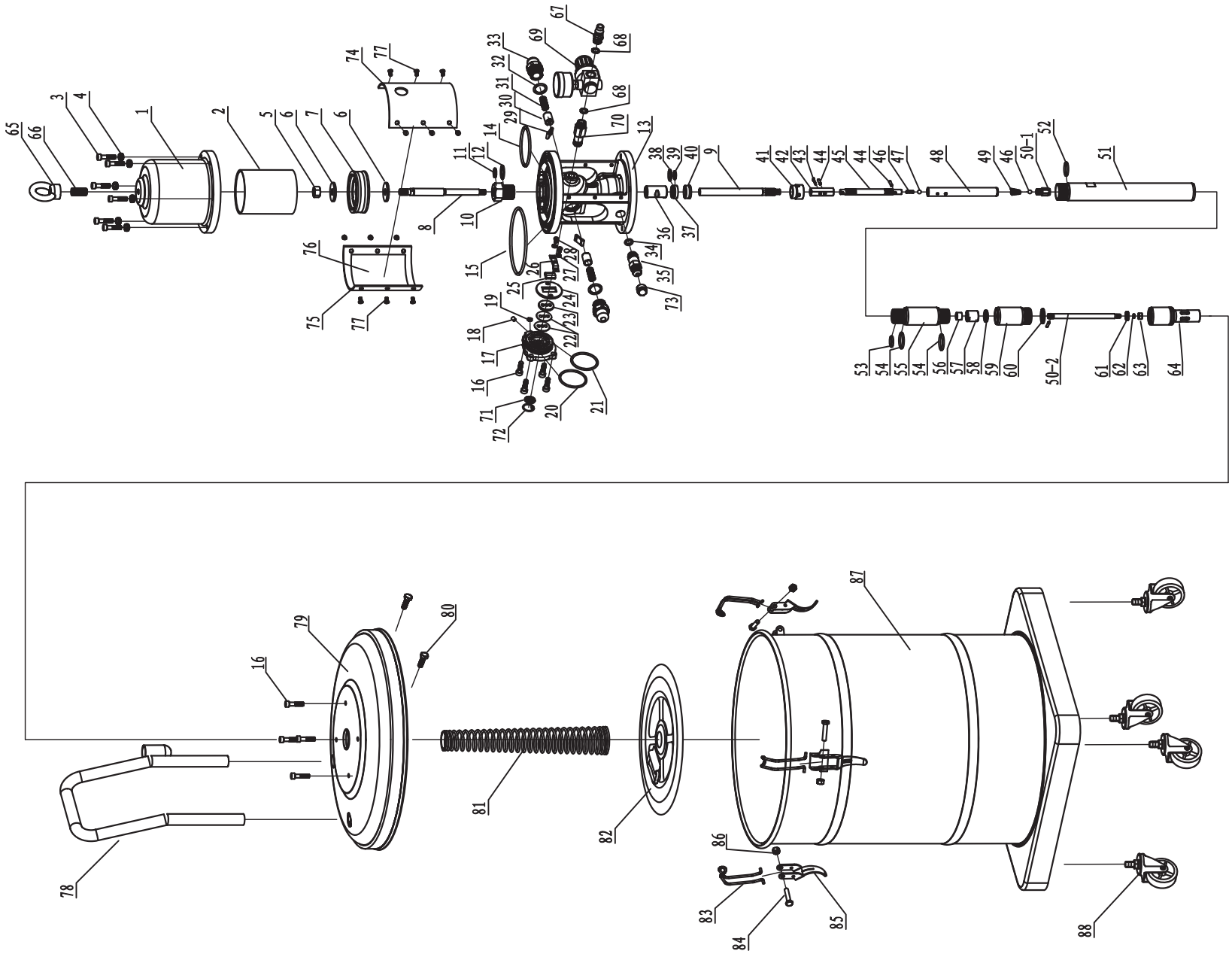
Before transportation the grease pump should be binded in order to prevent the movement bringing the danger or damage,

3) **storage**

Before storage, firstly you should recycle the grease in the container, then wash the container, clean the Pump body and pipelines with cleaning oil. After cleaning, you should make it dry then it will get a long service life

Storage conditions

The clean grease pump should be put on the dry, ventilated condition to ,it should be avoid high temperature, solarization or inflammable gas



RH5451-G GREASE-INJECTOR