

INSTRUCTION

GREASE LUBRICATOR

SKR- 110A50 MODEL No.880631



WARNING

Prior to operating this pump, be sure to read this operation manual for safety. After reading the manual, please keep it on hand for future reference.

YAMADA CORPORATION

- Preface

Thank you for purchasing a Yamada Pump. This machine is a portable type lubricator that is indispensable for grease lubrication for machines and vehicles. This lubricator cannot be used for oil lubrication.

The applicable grease is limited to a type of NLGI No.2 or less in the normal operating conditions.

- If the lubricator is used in an extremely cold or low-temperature environment, the discharge volume will be remarkably lowered.
- Silicone grease is not applicable.

- For Safe Operation

This manual describes the items that are important for the user to operate this product safely, correctly, and efficiently. Before operating this product, read this manual thoroughly, in particular, "Warnings and Cautions" at the beginning of this manual.

- Warnings and Cautions

For safe use of this product, be sure to note the following: In this document, warnings and cautions are indicated by symbols. These symbols are for those who will operate this product and for those who will be nearby, for safe operation and for prevention of personal injury and property damage. The following warning and caution symbols have the meanings described below. Be sure to remember their meanings.



WARNING : This indicates the existence of potential hazard which, if not avoided, will result in death or serious injury.



CAUTION : This indicates the existence of potential hazard which, if not avoided, may result in bodily injury or in physical damage.

Furthermore, to indicate the type of danger and damage, the following symbols are also used along with those mentioned above:







This symbol indicates a DON'T, and will be accompanied by an explanation on something you must not do.



This symbol indicates a DO, and will be accompanied by instructions on something you must do in a certain situation.

- Precautions on Use

The following warnings and cautions are very important. Be sure to observe them.

 WARNING	
	- If the material handled come into direct contact with or is splashed over your body, it could be harmful to the eye or skin. Be sure to check the material handled, and when you work with it, put on a protective gear (protective mask, glasses, safety gloves, etc.) depending on the degree of danger.
	- Some types of grease may contain a carcinogenic material. Read the cautions for handling grease given by the grease maker carefully when handling the grease.
	- Gasoline is a high-volatility material. Do not use gasoline to clean the pump in any case, otherwise it may cause ignition or explosion.








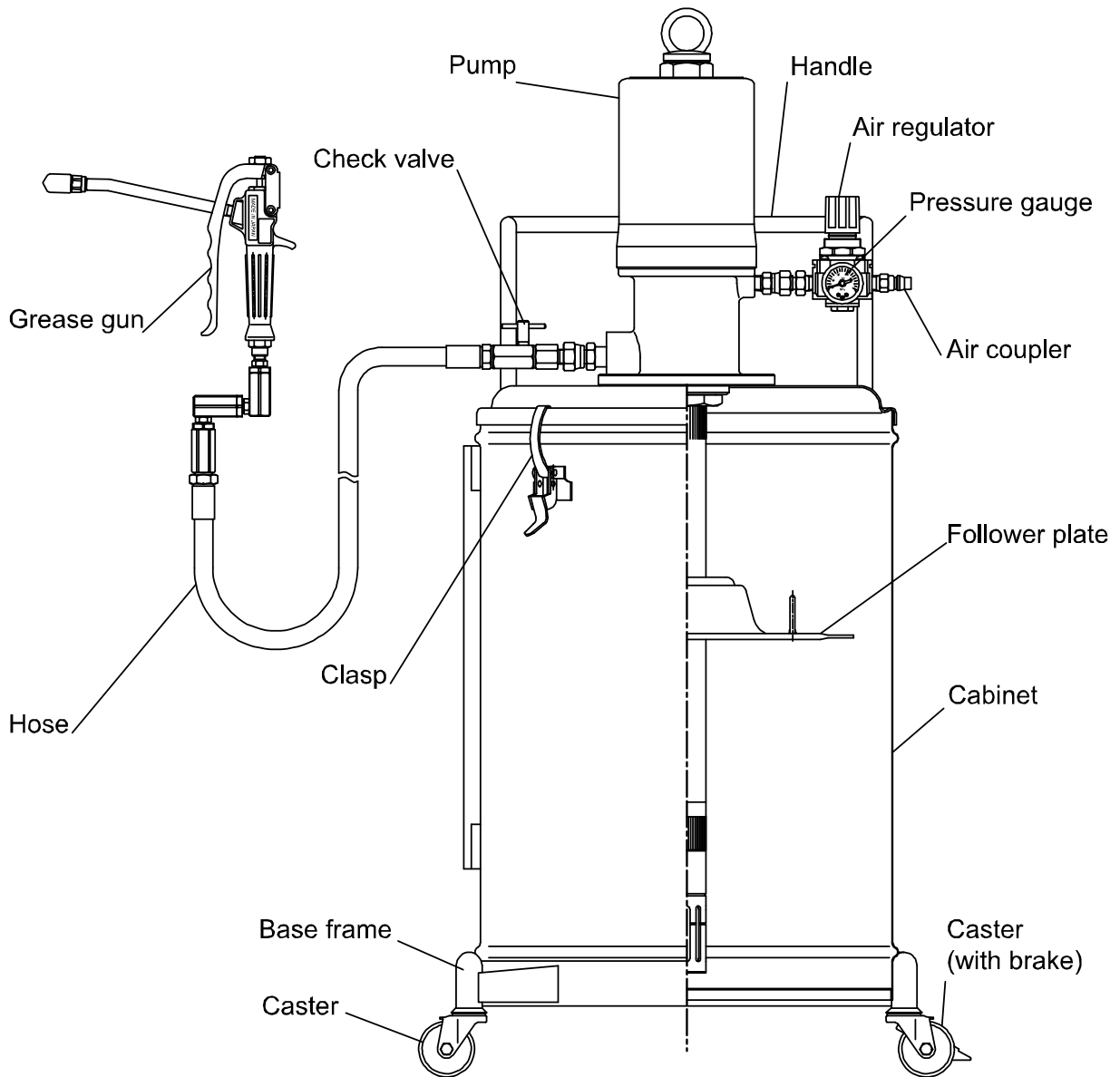
 CAUTION	
	- Restriction on handling The operator or administrator of this pump should not allow those who have no knowledge of the pump to operate it.
	- The maximum supply air pressure of this machine is 0.7 MPa. Using the machine with a supply air pressure exceeding this limit will lead to death or bodily injury or physical damage due to machine breakage. Be sure to adjust the supply air pressure below 0.7 MPa.
	- After the end of daily work, at night, and on holidays, be sure to shut off the supply air to this machine to release the gun so as to bleed the internal pressure. Any secondary accident such as pollution of installation, due to pump operation driven by worn-away packing or hose without shutting off the supply air, shall be attributable to the user's responsibility.
	- Do not operate the gun lever with the discharge port facing to another person during machine operation in any case. A direct hit against the human body may result in an accident such as skin damage.
	- During machine operation or after completion of movement, be sure to lock the caster brake for locking.
	- When replacing any part at maintenance, be sure to stop the air supply to the machine to avoid having fingers nipped because of a malfunction.

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1. Names of Parts

1.1 Names of Parts



1.2 Contents of Package

The main devices and the accessories are packed in different cases.

Open the top part of the corrugated fiberboard case and check if the devices and cabinet are not damaged and if accessories are all contained in the package.

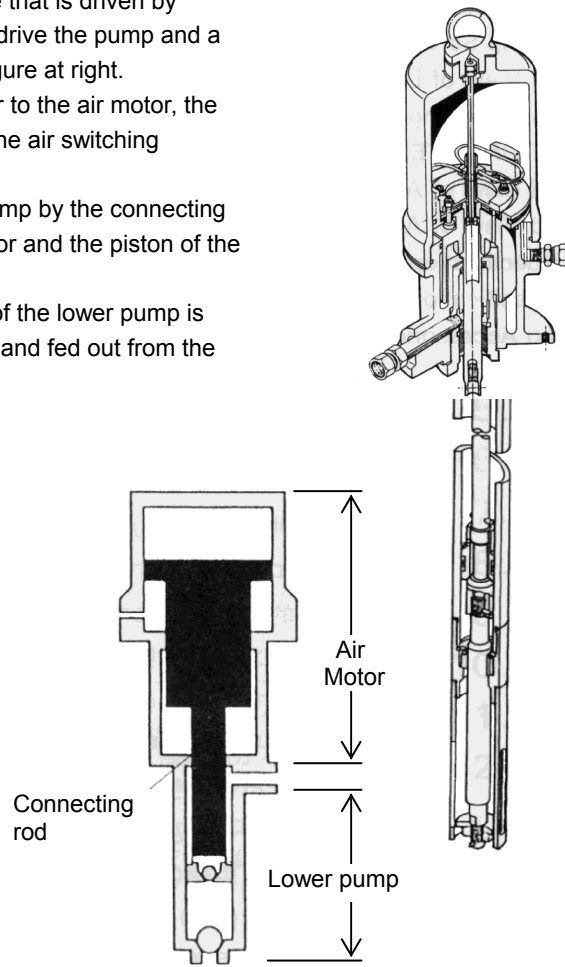
2. Principles of Operation

The Yamada Air-powered Pump is a reciprocating type that is driven by compressed air. The pump consists of an air motor to drive the pump and a lower pump to draw up the material as shown in the figure at right.

When compressed air is supplied from the compressor to the air motor, the air piston starts its up/down motion by the function of the air switching mechanism built in it.

This motion is transmitted to the piston of the lower pump by the connecting rod that connects between the air piston of the air motor and the piston of the lower pump, thereby giving the up/down motion to it.

When the up/down reciprocating motion of the piston of the lower pump is performed, the material is sucked into the lower pump and fed out from the discharge port by pressure.



3. Preparations before Operation

3.1 Setting a Pail (Fig. 1)

- 1) Release the 3 clasps on the top of the cabinet upward, and the lid can be removed together with the pump.
- 2) Take out the follower plate in the cabinet.

<Note>

Take extreme care not to allow sand and dust to adhere on the suction tube and follower plate of the pump Ass'y.

- 3) Prepare a new pail and remove its lid. Then, set the can in the middle of the cabinet.
- 4) Set the attached follower plate on the top surface of the grease in the set pail. (For the direction of the follower plate, refer to Fig. 1.)
- 5) Place the follower plate on the grease horizontally and push it down by rubbing it with a hand until the grease comes out from the packing in the middle of the plate. (Fig. 2)

<Note>

When using the follower plate for the first time after purchasing the product, pack grease beforehand in the rear-side concave portion of the plate. This facilitates the work. (Fig. 3)

- 6) Insert the suction tube in the pail so that the suction tube of the pump Ass'y may pass in the middle of the follower plate, put the lid on the cabinet, and fix the cabinet and the lid with the 3 clasps.

<Note>

Take care not to blemish the packing of the follower plate by the end of the suction tube.

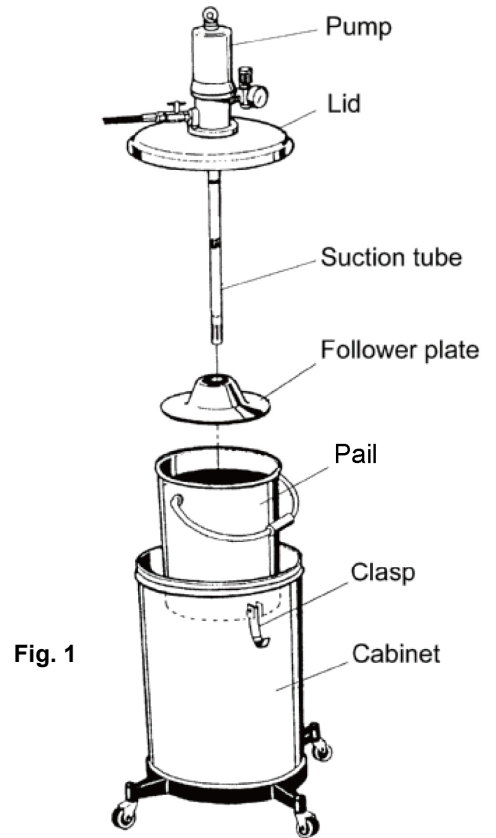


Fig. 1

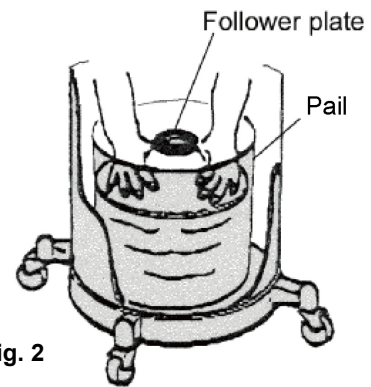
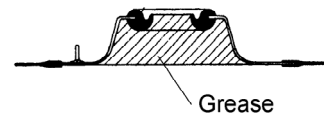


Fig. 2

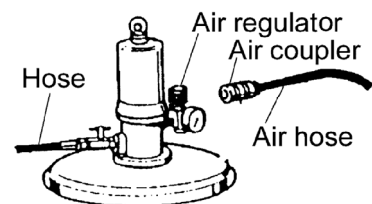
Fig. 3



3.2 Assembling the Equipment

- 1) Install the attached high-pressure hose and the high-pressure grease gun at the discharge port of the pump, and then install the air regulator at the air supply port. Clamp the connecting portion securely. (Fig. 4)
- 2) Install the attached air chuck on the air hose (for size 1/4, separately available), and fix it with a hose band. If the connecting air chuck for the compressor side is not available, purchase it separately.

Fig. 4



3.3 Operating the Equipment



CAUTION



- The maximum supply air pressure of this machine is 0.7 MPa. Using the machine with a supply air pressure exceeding this limit will lead to death or bodily injury or physical damage due to machine breakage. Do not set the supply air pressure over 0.7 MPa in any case.

- 1) Turn the knob of the air regulator counterclockwise for looseness, and then connect the air chuck to supply air.

<Note>

Using an air regulator permits adjusting the supply air pressure to the pump and reducing unnecessary pump motion, thereby improving the work efficiency and extending the life of the pump.

When the knob of the air regulator is turned clockwise, the air pressure will be increased (the indicator of the pressure gauge gradually goes from "0" to a larger number). When the knob is turned counterclockwise, the air pressure will be reduced (the indicator of the pressure gauge goes back to "0"). In the normal operating condition, the indicator of the pressure gauge is in the range of 0.3 to 0.5 MPa.

- 2) As the knob of the air regulator is gradually turned clockwise, the pump is started when the supply air pressure reaches 0.2 or 0.3 MPa. The pump is operated for a while and the pump and hose are filled with grease.

- 3) The first applied grease includes the internal air of the pump. This is not a good condition.

Obtain a perfect condition by the next operation.

First open the check valve and operate the pump until grease is discharged from a small hole under the check valve. After grease is discharged in a perfect condition, close the check valve. At this time, spread paper so that grease may not come into touch with the hand, and dispose of the discharged grease. (Fig. 5)

- 4) Set the supply air pressure to 0.5 to 0.7 MPa.

<Note>

The grease in which air is mixed is cloudy in white.

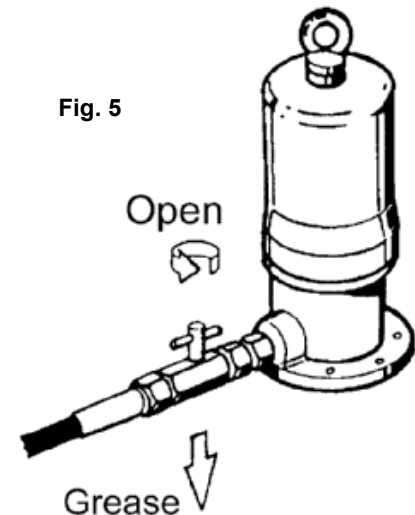




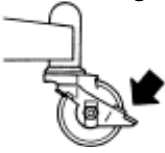
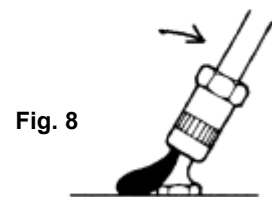
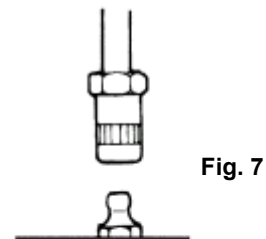


Fig. 5

4. How to Operate the Machine

 CAUTION	
<ul style="list-style-type: none"> - The supply air pressure should be 0.7 MPa or less. If the primary pressure is more than 0.7 MPa, adjust the pressure to 0.7 MPa or less. - After the end of daily work or when the machine is not operated for a long time, be sure to shut off the supply air and bleed the internal pressure of the pump, hose, and gun. - During machine operation or after completion of movement, be sure to lock the caster brake for locking. (Fig. 6)	 Fig. 6

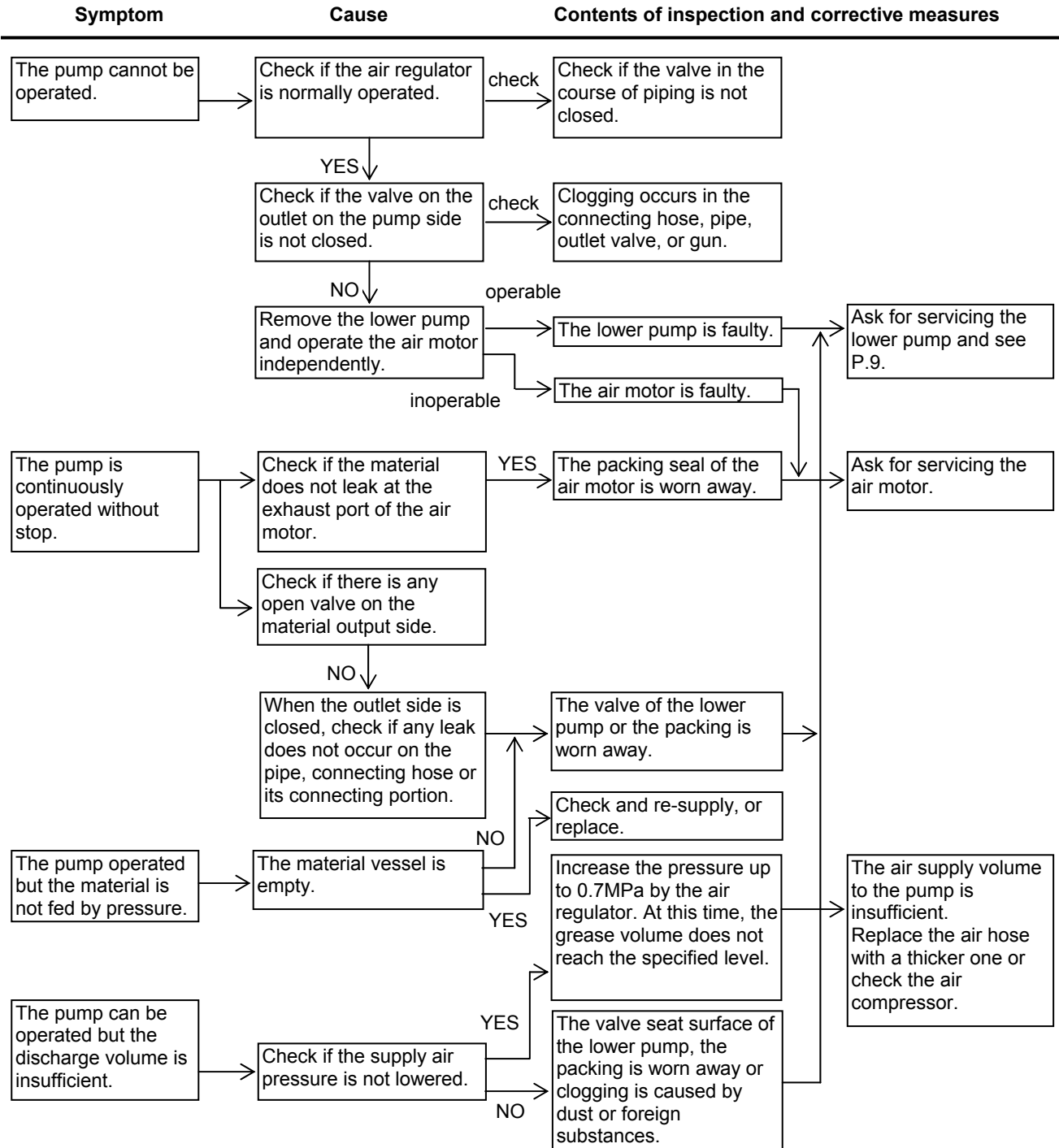
- 1) Wipe the grease nipple to be used for greasing cleanly. After that, push the chuck at the end of the grease gun against the nipple to perform chucking as vertically as possible. (Fig. 7)
- 2) Pull the gun lever to supply grease. When grease is normally injected, old grease will be squeezed out from the groove or clearance near the nipple.
- 3) After completion of grease supply, release the gun lever. The pump will be automatically stopped.
- 4) Remove the chuck at the end of the grease gun.
Since pressure is applied to the chuck, the head of the nipple may be broken if it is suddenly pulled. Incline the chuck to bleed the internal pressure, and the chuck can be easily removed. (Fig. 8)
- 5) After completion of greasing work, be sure to shut off the supply air of the pump and bleed the internal air of the hose.
- 6) If the pump is suddenly started, it may be due to non-existence of grease in the pail can or an air pocket produced. Stop the greasing work and make a check.
- 7) Exchange the pail when the grease stopped coming out.



5. Maintenance and Inspection

5.1 Troubleshooting and Corrective Measures

If the pump operation becomes unstable or trouble is caused to its grease discharge during operation, make a check according to the following procedure.

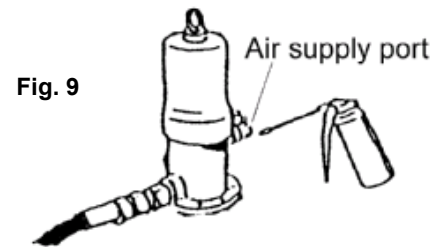


5.2 Maintenance and Inspection

For lubrication of the pump, perform oiling once every 10 days with lubricating oil. (Fig.9)

Apply the lubricating oil as following.

- 1) Remove the air regulator.
- 2) Inject a few drops of lubricating oil (approx. 0.5 mL) into the air supply port as shown in the figure at right. Use turbine oil class 1 ISO (VG-32) or equivalent as the lubricating oil.



[Inspection]

The hose is a consumable part. Check it periodically. If any blemish or leakage is found, replace the hose little earlier.

The packing and slide portion parts of the pump are worn away. Check and replace them once a year.



CAUTION






- When washing parts, do not use such a liquid as corrodes aluminum, copper alloy, iron, etc.

5.3 Disassembly and Assembly

When the pump operation becomes defective or stops, do not disassemble the pump thoughtlessly but judge the condition carefully by referring to the item pertaining to <Troubleshooting and Corrective Measures>.

The air motor that is not brought into direct contact with the material becomes defective rarely, so it does not need to be disassembled. If disassembly is required, ask the dealer to disassemble the air pump.

 WARNING	
	- Gasoline is a very volatile fuel. Do not use it for cleaning the pump in any case, otherwise it may lead to ignition or explosion.
	- When disassembling and checking the pump, be sure to stop the supply air and open the outlet valve to release the internal pressure of the pump beforehand.

5.3.1 Separating the air motor from the lower pump

- 1) Shut off the air that is supplied to the pump and bleed the internal pressure of the pump.
- 2) Remove the high-pressure hose and the air hose from the pump.
- 3) Release the 3 clasps on the top of the cabinet upward, and take out the pump Ass'y together with the lid.
- 4) Unscrew the 5 bolts (on the rear side of the lid) that fix the pump Ass'y and the lid and separate the pump Ass'y from the lid.
- 5) Fix the air motor body of the pump on the vise and set a pipe wrench on the knurling section of the suction tube of the lower pump and unscrew it. (Fig. 10)

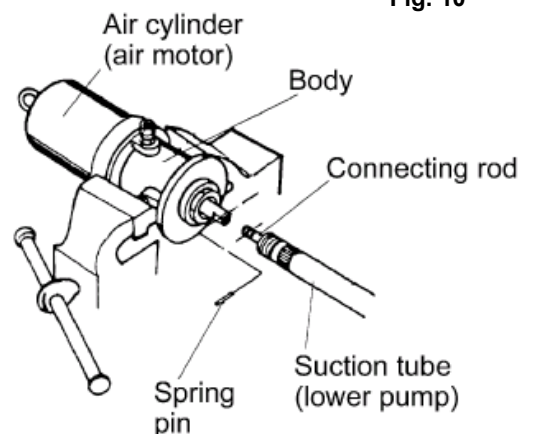


Fig. 10

<Note>

*The air cylinder is easily damaged.
Do not fix it on the vise in any case.*

- 6) Pull out the suction tube, and the connecting stud that connects the piston rod of the air motor becomes visible. Pull out the spring pin of the connecting section and unscrew the connecting stud or the lower pump, and the air motor can be separated from the lower pump. (Fig. 10)

5.3.2 Disassembling and inspecting the lower pump

- 1) Fix the suction tube on the vise and set a pipe wrench on the booster cover. Unscrew the suction tube and remove the spring pin, nut, and shovel. (Fig. 11)
- 2) Likewise, set a pipe wrench on the valve case and unscrew it. The valve stopper and the foot valve (a part of the plunger Ass'y) can be removed.
- 3) Pull out the plunger rod from the suction tube by holding it. The piston and connecting rod Ass'y can be pulled out. (Fig. 12)
- 4) Pull out the spring pin that connects between the connecting rod and the plunger, and take out the plunger. Wash the plunger and check it for blemish and wear.

<Note>

The plunger is an assembly for mating with the valve. Insert the foot valve in the plunger, and check if it can smoothly slide. These two parts, if they are blemished, must be replaced as an assembly.

- 5) The portions with which the lower part of the piston and the connecting stud come into contact form a seat surface. Check them for blemish.
- 6) Wash and check each disassembled part. If any blemish or wear is found, replace the part with a new one.
- 7) For assembling, reverse the disassembling procedure. (Fig. 13)
In particular, perform assembling taking care about the directions of the valve seat and the foot valve.

[Inspection]

The air motor is not easily adjusted at assembly. If an air motor failure is found at maintenance and inspection, ask the dealer to repair the air motor.

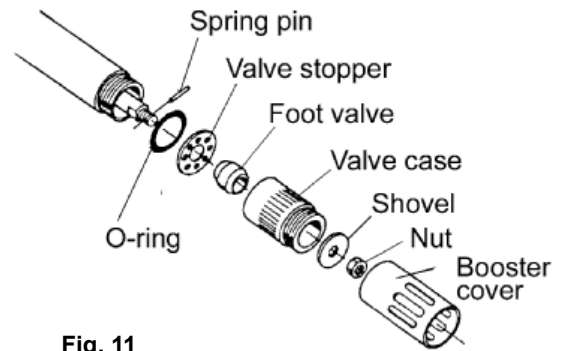


Fig. 11

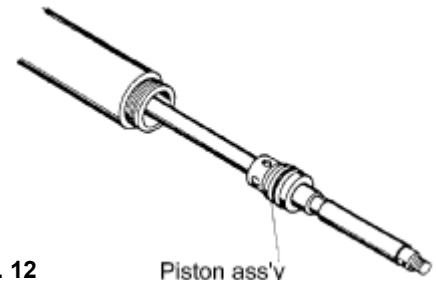


Fig. 12

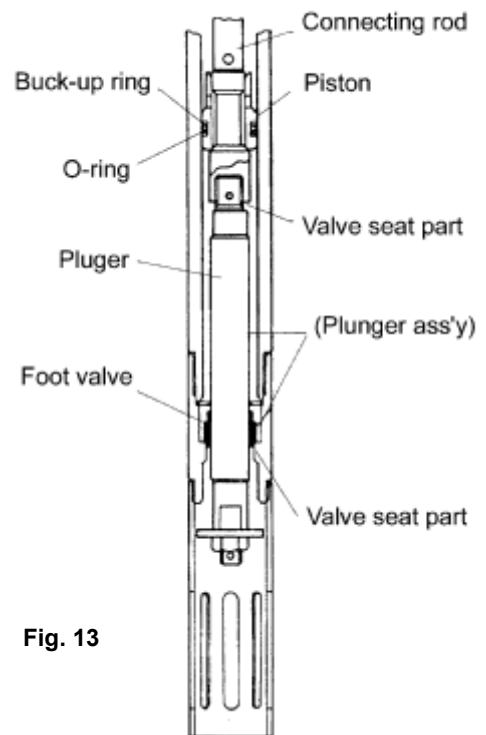
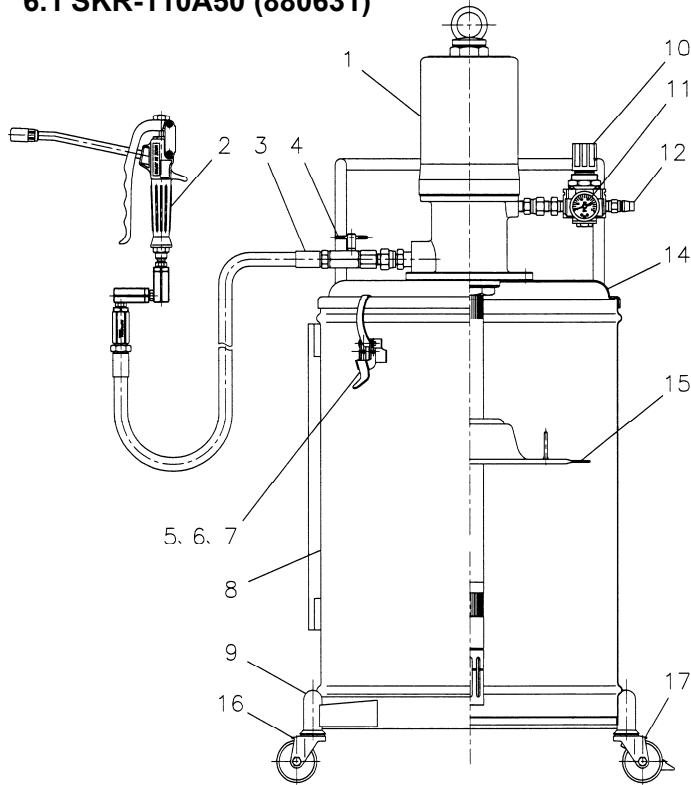


Fig. 13

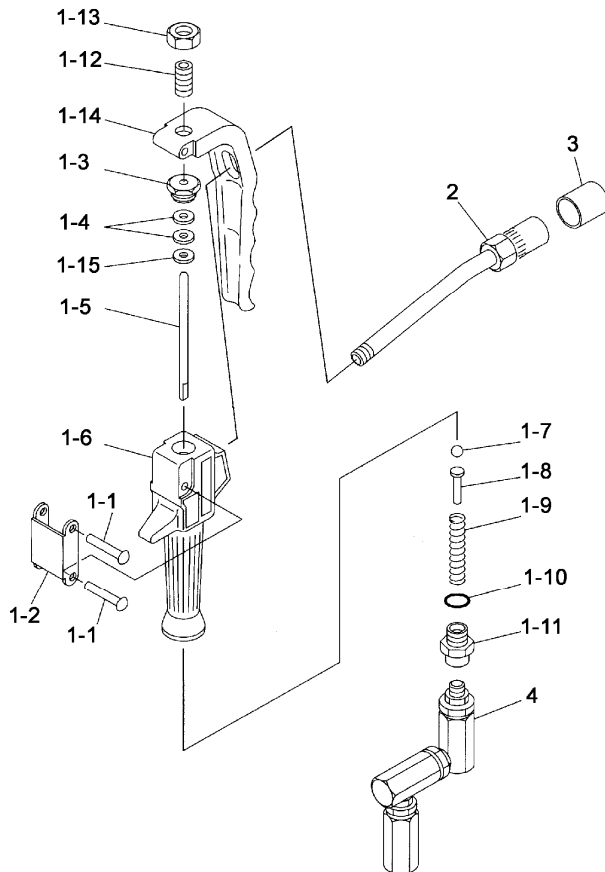
6. Parts Disassembly Drawing and Parts List

6.1 SKR-110A50 (880631)



No.	Parts No.	Descriptions	Q'ty
1	851779	Pump Ass'y	1
2	851985	Grease gun	1
3	695034	Hi-pressure hose	1
4	800431	Check valve	1
5	830112	Clasp	3
6	701747	Pin	3
7	680710	Snap pin	3
8	830745	Cabinet	1
9	830746	Base frame	1
10	682925	Air regulator	1
11	682924	Gauge	1
12	680743	Air coupler	1
14	705625	Lid	1
15	803481	Follower plate	1
16	680136	Caster	2
17	681767	Caster(with brake)	2

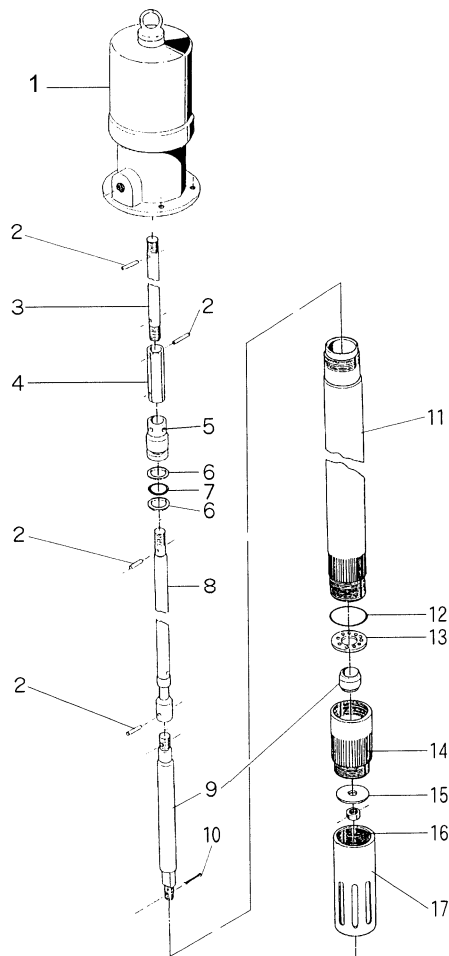
6.2 Grease Gun (851985)



No.	Parts No.	Descriptions	Q'ty
1-1	683201	Rivet	2
1-2	711351	Link	1
1-3	711444	Retaining nut	1
1-4	772160	Packing	2
1-5	711357	Rod	1
1-6	711352	Body	1
1-7	630314	Ball	1
1-8	711445	Spring retainer	1
1-9	711446	Spring	1
1-10	640011	O ring	1
1-11	710971	Union	1
1-12	711750	Bolt	1
1-13	627641	Nut	1
1-14	711354	Lever	1
1-15	713638	Washer	1
2	804911	Nozzle	1
3	685728	Cap	1
4	802910	Swivel joint Ass'y	1

■ No.1-1, 1-2, 1-6 and No.1-14 are undissolution.

6.3 Pump Ass'y (851779)



No.	Parts No.	Descriptions	Q'ty
1	802497	Air motor Ass'y	1
2	632773	Spring pin	4
3	710745	Conn. rod	1
4	710736	Socket	1
5	710619	Piston	1
6	771367	Back-up ring	2
7	682926	O-ring	1
8	710737	Connecting rod	1
9	802499	Plunger Ass'y	1
10	632032	Cotter pin	1
11	710739	Cylinder	1
12	682922	O-ring	1
13	701600	Valve stopper	1
14	710620	Valve case	1
15	710622	Shovel	1
16	627012	Nut	1
17	710621	Booster cover	1

<Note>

- If disassembly is required, ask the dealer to disassemble the air motor.
- As for the specialist of the dissolution, refer to the instruction manual.
(Separately APP 001 U : Maintenance Manual for Grease Pump)

7. Pump Specifications

7.1 Engineering Data

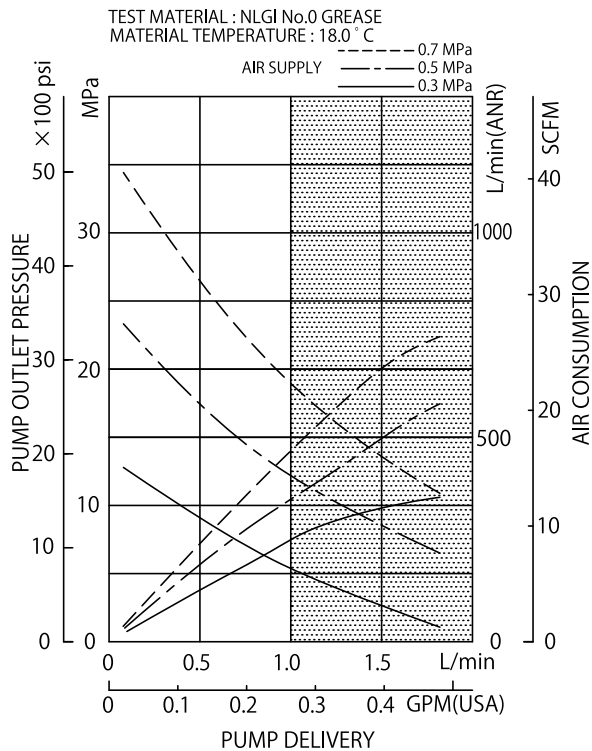
Type	SKR-110A50		
Model No.	880631		
Pump ratio	50 × 1		
Material connection	Discharge port	G 1/4	
	Suction port	—	
Air connection	Air inlet	G 1/4	
Operating range	Supply air pressure	0.3 ~ 0.7 MPa	
Noise dB(A)	0.3~0.7 MPa	Max. 80.5	
Operating temperature range	0~80 °C		
No. of cycle / liter	89		
Dimensions (mm)	480×480×953		
Mass (kg)	39		
Accessories	Hi-pressure Hose (695034) 1/4×2.5m Grease Gun (851985) Air regulator with coupler (802553) Follower plate (803481)		

Above conditions		Pump outlet pressure	32~35 MPa
Air pressure	0.7 MPa	Delivery	3.3 L/min (2.94kg)
Material	Grease NLGI-No.1	Cycle	276 cycle/min
Oil Temperature	18.4 °C	Air consumption	930 L/min(ANR)

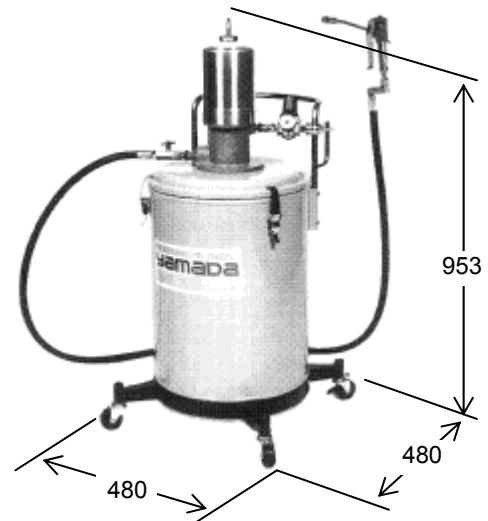
7.2 Performance Curve (only the pump)

<Note>

The continuous pump operation should be avoided if the desired delivery is in the range shaded in the figure below.



7.3 Demensions



8. Limited Warranty

- If an abnormality occurs during normal operation in accordance with the operating instructions and other operating cautions within the warranty period (12 months after date of purchase) that can be attributed to a manufacturing defect, the defective parts of this product will be serviced or the product will be replaced free of charge. However, this warranty will not cover compensation for incidental damage or any malfunction listed below.

1. Warranty period

This warranty will be valid for a period of 12 months after the date of purchase.

2. Warranty

If, during the warranty period, any of the material of the genuine parts of this product or the workmanship of this product is found defective, and is so verified by our company, the servicing cost will be fully born by our company.

3. Exclusion

Even during the warranty period, this warranty does not cover the following:

- 1) Malfunction arising from use of parts other than manufacturer-specified genuine parts
- 2) Malfunction arising from misuse or operating errors, or lack of storage or maintenance care
- 3) Malfunction arising from use with a fluid that may cause corrosion, inflation or dissolution of the component parts of the product
- 4) Irregularity arising from repair made by other than by our firm, our regional office, dealer or authorized service personnel
- 5) Malfunction arising from modification of the product by other than authorized service personnel
- 6) Wear and tear of parts that must be regularly replaced in the course of normal operation, such as packings, O-rings, balls, and valve seats
- 7) Malfunction and/or damage due to transportation, moving or droppage of the product after purchase
- 8) Malfunction and/or damage due to fire, earthquake, flood or other force majeure
- 9) Malfunction arising from use of compressed air that contains impurities or excessive moisture, or use of gases or fluids other than the specified compressed air
- 10) Malfunction arising from use with a fluid that causes excessive abrasion or use of lubricating oil other than that specified for this product

Furthermore, this warranty does not cover the rubber parts, or other parts that are subject to wear in normal operation, used in this product and its accessories.

4. Parts

Parts for this product will be kept available for 5 years after discontinuation of production. Once 5 years have elapsed after close of production, availability of parts for this product cannot be guaranteed.

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