

INSTRUCTION

ELECTRIC GREASE LUBRICATOR (AC240V 50/60Hz)

EPL-240 ITEM No.881250



WARNING

Prior to operating this pump, be sure to read this operation manual for safety. After reading the manual, please keep it at hand any time for your quick reference.

YAMADA CORPORATION

- Preface

Thank you very much for purchasing Yamada Pump. This machine is a portable type lubricator that is indispensable for grease lubrication for machines and vehicles. The pump is driven by AC240V (50/60 Hz).

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 document 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, with a good understanding of its contents. Keep this manual carefully in an easy-to-access place so that the user may refer to it whenever necessary.

- Warnings and Cautions

To use this product safely, be sure to observe the contents of the following description. In this manual, warnings and cautions are indicated by using symbols. These symbols are intended to prevent death or serious injury that may be caused to the operator or those who are around the product and damage that may be caused to the articles that are around the product, as well as to use the product safely and correctly. Each symbol is indicated and has a meaning as shown below. Read the description with a good understanding of its contents.



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.

To indicate the contents of danger and damage, the following symbols are used together with the above indications.



This symbol indicates an act that is prohibited (prohibition). The concrete contents of prohibition are indicated by the side of the indication.



This symbol indicates the contents that must be observed. The concrete contents of observance are indicated by the side of the indication.

- Precautions on Use

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

 WARNING	
	- Not waterproof. Not drip-proof. Avoid wet locations and keep your hand dry. There might be the electric shock.
	- Not explosion-proof. Avoid a flammable atmosphere. There might be an explosion, the fire.
	- Keep your face and hands away from the outlet when handling the gun lever. Air-containing material may suddenly come out. There is a possibility of losing eyesight and injuring the hand.
	- Do not aim exhalation part of this product at any person. Residual pressure may be left inside the gun even when the pump is not in operation. There is a possibility of losing eyesight if it strikes eyes.
	- Gasoline is a high volatile fuel. Do not use it to clean the pump in any case, otherwise ignition or explosion may be caused.
	- Modification of this product may lead to death, bodily injury, or a failure. Do not modify it in any case because it involves a risk.
	- The operator and maintenance engineer should read the operation manual thoroughly before operating this product and performing maintenance in respect of this product.
	- Always wear proper safety equipments (facemask, ear plugs, and safety shoes, etc.) when installing, operating, and disassembling this product.
	- Do not use or leave this product in a slope or any unstable locations. The damage only accident and the facilities pollution by the fall of this product might occur if this product is used in an unstable place. Such a secondary disaster becomes a responsibility on the user side.
	- Execute the daily checkup.
	- Use this product according to the product specification.
	- Be careful not to drop this product when lifting it up to replace a pail. Catching a falling product may cause hand injury by its edge.
	- Turn off the power supply to stop pump operation when removing the pump from a pail. Being caught in a shovel, the lowest part of the pump, can cause hand injury and malfunction of the pump.
	- Discontinue it when you feel a hazard or abnormality during the work. And correspond according to <4.1 Troubleshooting and Corrective Measures>.
	- Stop pump operation immediately when a drum becomes empty. Running the pump dry will cause excessive vibration, resulting in reduction of pump life and damage to other equipment.
	- Be very careful not to drop the grease gun. It may become damaged, resulting in leakage and malfunction.
	- Avoid unnecessary adjustment of relief valve. There is a threat that machinery is damaged.
	- Before maintenance operation, be sure to stop power supply from being supplied to the pump, and release the internal pressure (material) of the pump. There is danger such as spouting of the material when the maintenance work is done with power supplied.
	- Do not discharge material directly onto the ground. Dispose of harmful materials according to the requirements specified in SDS or local regulations. Also, dispose of this product according to the local regulations after removing residual material from inside this product. (Please contact industrial waste disposal service.)
	- Make ground connection to pump and peripheral equipment. Rapid pumping of material can result in static electrical charge. Also, be sure to provide proper ventilation where a flammable atmosphere may exist.



CAUTION



- Keep hands and fingers away from this product during operation to avoid injury from moving parts.



- Do not use a power supply except AC240V 50/60Hz for this product. There might be malfunction of this product, the electric shock and the fire.



- Use this product for the material suitable for the specification. Parts may be corroded and material leak from the damaged parts can lead to environmental pollution. Also, follow handling notes (SDS) of the manufacturer about the handling of the material used.



- Take protective measures against rainwater and dust. It is likely to lead to the pollution of the material.



- Be careful about your hands when mounting/dismounting the cabinet or installing a pail. The edges of this product and pail may cause hand injury. Also, be careful about your posture when moving this product or lifting it to avoid back injury.



- Material remaining inside or on the surface of the pump may spill out by inserting or removing the pump into/from a pail. Be very careful not to get your clothing dirty.



- Do not touch the surfaces of the pump and the hose when pumping high-temperature material. Risk of burns exists.



- Be careful when handling the grease gun. Avoid finger injury from being caught between the lever and gun. The finger might be injured.



- Stop the power supply source after the end of work when not using this pump for a long time such as nighttimes and holidays. Also, open the valve of the exhalation port and liberate pressure in the pump and the hose. There is a possibility of polluting facilities because of the damage of the hose and the leakage of the valve. Such a secondary disaster becomes a responsibility on the user side.



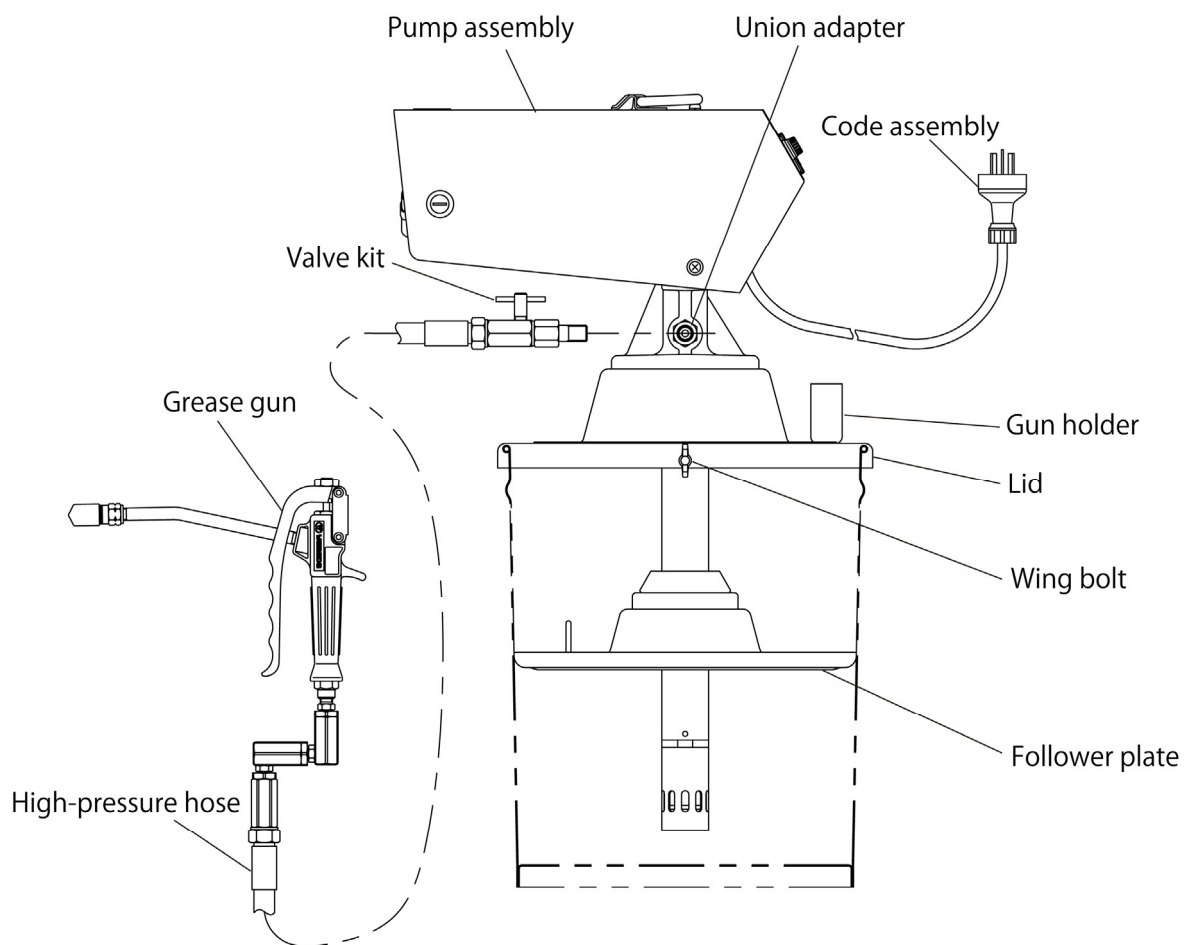
- Use a fuse of 3A for this product.

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1. Names and Materials of Parts

1.1 Names and Materials of Parts



1.2 Contents of Package

This machine is packaged in a corrugated fiberboard case.

Please make sure no damage during shipment and no missing accessories after unpacking as soon as possible.

Please make sure no loose screws, piping connections, and fastener components.

Please retighten if any screws, piping connections, and fastener components are loose.

2. Preparations before Operation

CAUTION



- Apply sealing compound or sealing tapes to the male screws and tighten tightly when the pipes are connected.
Be careful not to allow the sealing materials to enter the piping.
Do not apply the tip of the terminal (two thread ridges) to maintain conductive property of the ground.
(However, no applying is necessary if it will be connected to the hose union.)
Check that there is no leakage or electrical continuity in each part after connecting the piping.

[Assembling the unit] (Fig. 1)

- 1) Insert the pump assembly in the center hole from the front side of the lid.
- 2) Fix the pump assembly and the lid with 3 pan-head screws from the rear side of the lid.
- 3) Connect the high-pressure hose to the valve kit at the pump discharge port and connect a grease gun to the other end of the hose.

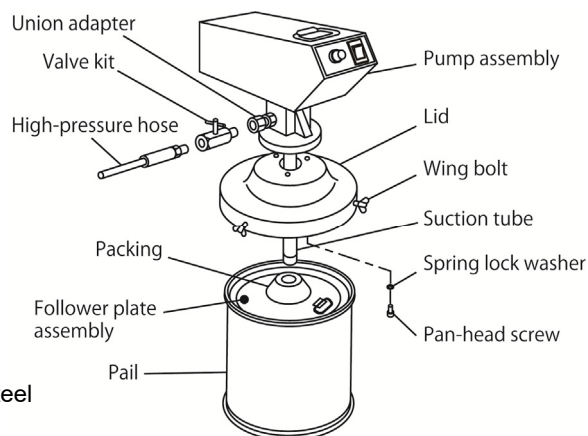


Fig. 1

[Setting the pump] (Fig. 1)

<NOTE>

This product is designed to fit pails that comply with JIS Z 1620 (steel pails): Taper-sided and Straight-sided types, Class 1 and 2.

- 4) Remove the lid of a new pail and set the attached follower plate assembly. Place the follower plate assembly on the grease horizontally and push it down by rubbing it to left and right with a hand until the grease comes out from the packing in the middle of the plate.

<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. 2)

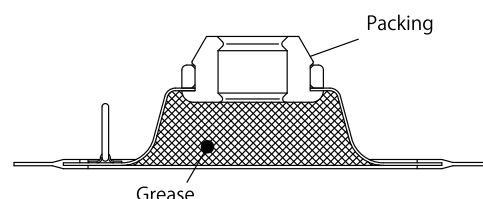


Fig. 2

- 5) Insert the pump in the packing in the middle of the follower plate and set the lid on the pail. Fix it securely by screwing 3 wing bolts equally.

<NOTE>

Take extreme care not to allow sand and dust to adhere on the suction tube and follower plate of the pump assembly. Do not blemish the packing of the follower plate by the end of the lower pump.

[Connecting to power supply]

- 6) Place the unit on flat and stable place.
- 7) Connect the attached cord assembly (5 m) to the power supply.

CAUTION



- The applicable power source is AC240V (50/60Hz) only.

[Bleeding air for grease] (Fig. 3)

- 8) The pump starts running by turning the switch ON. 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 valve kit and operate the pump until grease is discharged from a small hole under the valve kit. After grease is discharged in a perfect condition, close the valve kit. At this time, spread paper so that grease may not come into touch with the hand, and dispose of the discharged grease.

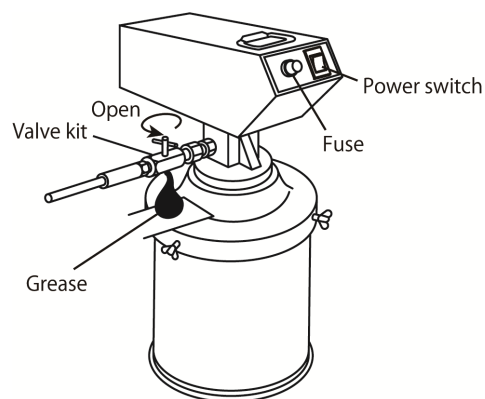


Fig. 3

<NOTE>

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

- 9) Discharge the air-mixed grease completely from the grease gun and the high-pressure hose by pulling the gun lever.

3. How to Operate the Machine

⚠ WARNING



- Do not operate the gun lever with the discharge port facing another person during machine operation. A direct hit against the human body may result in an accident such as skin damage.

⚠ CAUTION



- Regarding a secondary accident such as hose damage that may be caused without shutting off of the air supplied to the hose or installation contamination due to a leak from the valve or gun after completion of the work or at night, the responsibility rests with the user side.



- When the pump causes a malfunction or operation stop, do not disassemble the pump thoughtlessly and disassemble only necessary portions referring to the item pertaining to <4.1 Troubleshooting and Corrective Measures> and judging the situation properly.

<NOTE>

- If the pump is suddenly started, it may be due to non-existence of grease in the pail or a cavity produced. Stop the greasing work and make a check. If the grease is used up, replace the new pail.
 - The electric grease pump runs continuously even if the grease gun closed. When internal pressure goes up to 28 MPa, the grease is relieved by relief valve automatically. Thus, this unit is overload free. The grease returns to pail through the outer tube.
- 1) Wipe the grease nipple to be used for greasing completely. After that, push the hydro chuck of the grease gun against the grease nipple to perform chucking as vertically as possible. (Fig. 4)
 - 2) Pull the lever of the grease gun to supply grease. The pump is automatically operated to supply grease. When grease is normally injected, old grease will be squeezed out from the groove or clearance bear the grease nipple.
 - 3) After completion of grease supply, release the gun lever. The grease supply will be stopped, and the pump will also be stopped automatically.
 - 4) Remove the hydro chuck of the grease gun. Since pressure is applied to the hydro chuck, the head of the grease nipple may be broken if it is suddenly pulled. Incline the hydro chuck to bleed the internal pressure and loosen the claw bite, and the chuck can be easily removed. (Fig. 5)
 - 5) After completion of greasing work or when the pump is not used for a long time, be sure to shut off the supply air and bleed the internal air of the pump, grease gun, and hose by operating the gun lever.

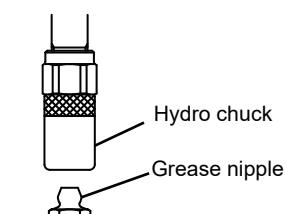


Fig. 4

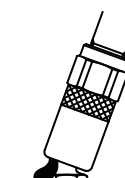


Fig. 5

[Replacing the pail]

CAUTION



- When replacing the pail, be sure to shut off the supply air for safety and pull the gun lever to bleed the internal pressure of the pump and hose beforehand.

- Unscrew the 3 wing bolts of the lid and remove the pump unit from the used pail and take out the follower plate.
- Remove the lid of a new pail and place the follower plate on the grease horizontally and push the follower plate by rubbing it until grease comes out from the central hole.
- Insert the pump in the packing in the middle of the follower plate and set the lid on the pail. Screw the 3 wing bolts equally so fix the lid securely.

4. Maintenance and Inspection

4.1 Troubleshooting and Corrective Measures

Symptom	Contents of inspection	Corrective measure
- The pump fails to start.	- Check if the power cable is cut. - Check if the fuse is blown. - Uninstall the lower pump and operate only by the motor. ↓ (Separate the lower pump and operate the pump with only the motor.) → If the pump is operated, the lower pump is defective. → If the pump is not operated, the motor is defective.	- Change to the new cable. - Change to new fuse (3A). - Repair service for the lower pump. - Repair service for the motor.
- The pump is operated but does not feed the material by pressure.	- Check if the high-pressure hose or grease gun is clogged up. - Check if the grease is ran out. - Check if the grease does not touch the pump suction because of cavity or diagonal installation of the follower plate. - Uninstall the lower pump and operate only by the motor.	- Remove the cause of clogging. - Replace the new pail. - Install the follower plate horizontally and push down till the grease comes out from the packing. Then operate the pump again. - Check the lower pump.
- The pump is operated but the pressure and flow rate are insufficient.	- Check if leakage is found on the connection of valve kit, high-pressure hose and grease gun. - Check if the relief valve is loose. - Check if the valve seat at lower pump is worn out.	- Tighten the connections - Adjust the relief valve at proper position. - Change to new valve seat.
- Grease leaks from the motor.	- Check if the seal packing between the motor and the lower pump is worn out.	- Change to new seal packing.
- The pump makes noise.	- Check if foot valve is stuck by foreign substance.	- Remove the foreign substance.

4.2 Maintenance and 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.

5. Disassembly and Assembly

When the trouble such as unstable operation or pump stop, do not disassemble the pump immediately. First refer to <4.1 Troubleshooting and Corrective Measures> and confirm the situation of the pump unit. Do not disassemble the part that is not concerned with the trouble.



CAUTION

- 
- Gasoline is a high volatile fuel. Do not use it to clean the pump in any case, otherwise ignition or explosion may be caused.
- 
- When washing parts, do not use such a liquid as corrodes aluminum, copper alloy, iron, etc.
- 
- Before disassembling and inspecting the machine, be sure to shut off the power supply and open the outlet valve to release the internal pressure of the pump.
- 
- Some types of grease to be used may contain carcinogens. Read the precautions provided by grease manufacturer thoroughly and handle the grease with care.

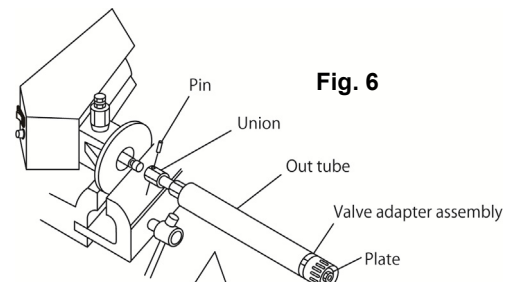


Fig. 6

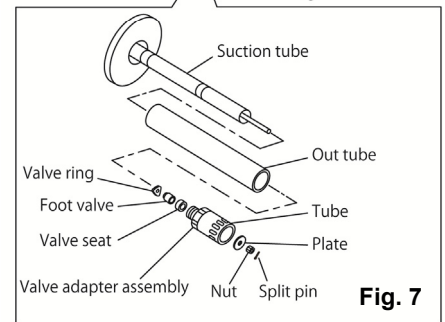


Fig. 7

[Disassembling the lower pump]

- 1) Shut off the power supply. Bleed the internal pressure of the pump and high-pressure hose and remove the valve kit and high-pressure hose from the pump.
- 2) Unscrew 3 wing bolts that fix the lid and the pail and dismount the unit from pail.
- 3) Unscrew 3 pan-head screws that fix the pump assembly and the lid and disassemble the lid from the pump assembly.
- 4) Fix the pump assembly on vise. (Fig.6)
- 5) Set a spanner on the valve adapter assembly and unscrew it. The suction tube can be pulled out from the motor. Continue to pull it out until it touches the plate. This will expose the union connecting to the Connecting Rod of the motor. Pull out the pin and unscrew the union, and the lower pump can be separated from the motor. Pull out the out tube. (Fig. 6)
If only the valve adapter assembly pulled it out, remove the split pin, unscrew the nut, and remove the plate. Then pull out the out tube and unscrew the suction tube with pipe wrench (set on notched part of the suction tube). This will expose the union connecting to the Connecting Rod of the motor. Pull out the pin and unscrew the union, and the lower pump can be separated from the motor. Pull out the out tube. (Fig. 7)
- 6) Fix the cylinder part of the lower pump on vise. Set a spanner on the valve adapter assembly and unscrew it. The valve seat, the foot valve and the valve ring can be removed. (Fig. 8)
- 7) Set a pipe wrench on notched part of the suction tube and unscrew it. The intake valve can be removed. (Fig. 9)
- 8) Flatten the bending part of the washer that fixes the union and the piston. Separate the union and the piston with a spanner and then remove the ball and the spring. (Fig. 9)
- 9) Wash each part and if damage or wear is found, change to new parts. Especially if the metal seal parts are damaged or wear out, grease will leak and discharge pressure cannot be increased and consequently discharge volume will be decreased. In this case the piston and the cylinder must be changed to new parts simultaneously. (Fig.10)

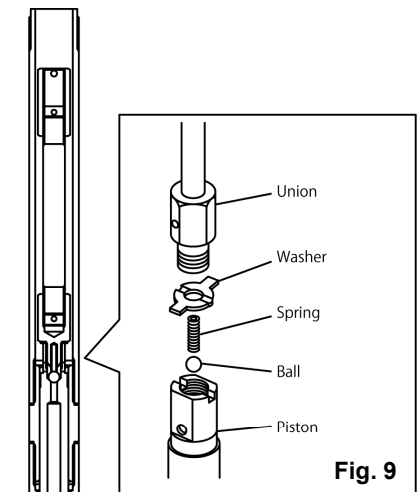


Fig. 9

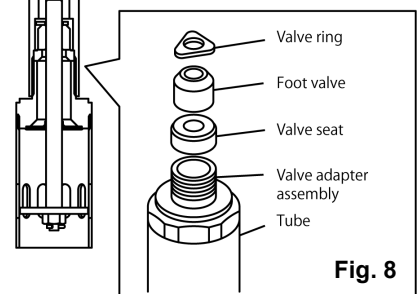


Fig. 8

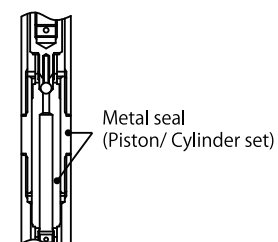


Fig.10

[Assembling the lower pump]

- Assembling the intake valve (Fig.11)

- 1) Insert the ball into the piston. Insert the spring into the union. Put the washer between the piston and the union and then connect each other. This time keep both edges of the washer right-angled position against the side of the hexagon part of the union. Then screw the union with a spanner and fix to the piston firmly. Bend both edges of the washer to the direction to the union. This plays a role of stopper.

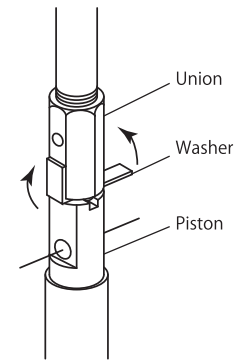


Fig.11

- Assembling the foot valve (Fig.12)

- 2) Insert the intake valve into the suction tube.
- 3) Insert the valve ring, the foot valve, and the valve seat onto the plunger rod in order of it. Be sure the direction of each part is correct.
- 4) Screw the valve adapter assembly and the tube. Install the plate with the nut and then install the split pin.
- 5) Insert the out tube from opposite side of valve adapter assembly. Pull out the union from the suction tube and screw it to the connecting rod of the motor side. Adjust the position of pinhole of both the connecting rod and the union and insert the pin.
- 6) Screw the suction tube into the crankcase of the motor with hands. Then fix it firmly by a spanner.

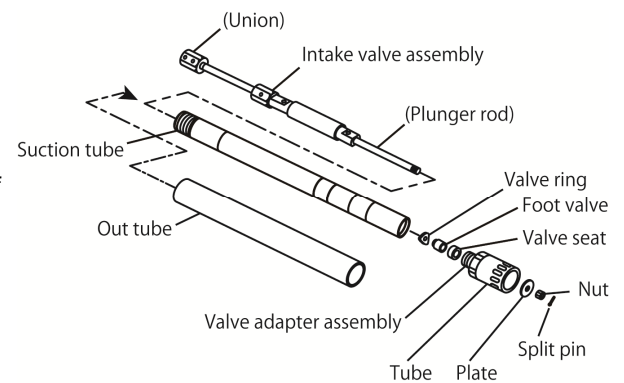


Fig.12

[Disassembling and Assembling the motor] (Fig.13)

Remove the cover assembly of the motor. If you confirm that no leaked grease has come up into the crankcase, it is not necessary to replace the packing.

- 1) Remove the packing retainer, the packing, and the back up ring with tweezers.
- 2) When replacing these with new parts, put a little grease on the packing and install it in the correct direction.

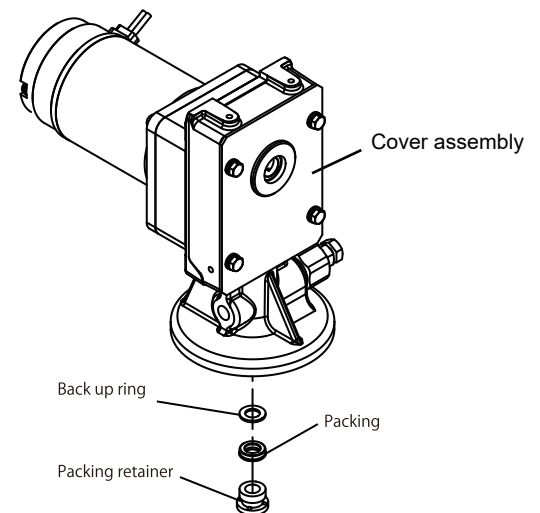


Fig.13

[Adjusting the relief valve] (Fig.14)

The relief valve is adjusted its pressure to 28 MPa and fixed in assembling at factory. Basically, adjusting is not necessity. If the relief valve is loosened for some reason, adjust with the procedure shown below.

	CAUTION
	- If the following points are not defended, the accident resulting in injury or death and the material damage accident might be caused.

- 1) Remove the high-pressure hose and the valve kit and then install a pressure gauge (Max. 50 MPa) and a high-pressure ball valve.
- 2) Operate the pump. After checking grease discharge, shut off the high-pressure ball valve. Adjust the relief valve to make the pressure gauge points 28 MPa. Tighten the nut and fix the relief valve firmly.

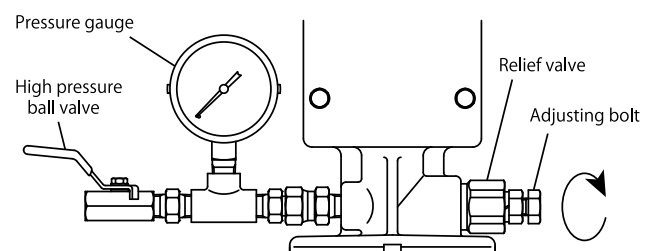
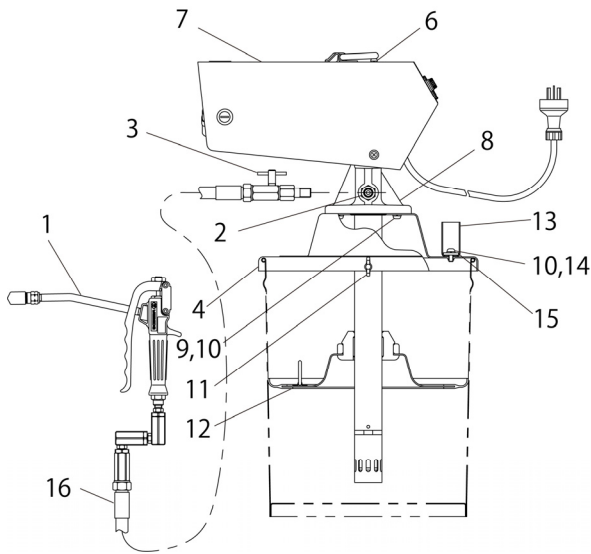


Fig.14

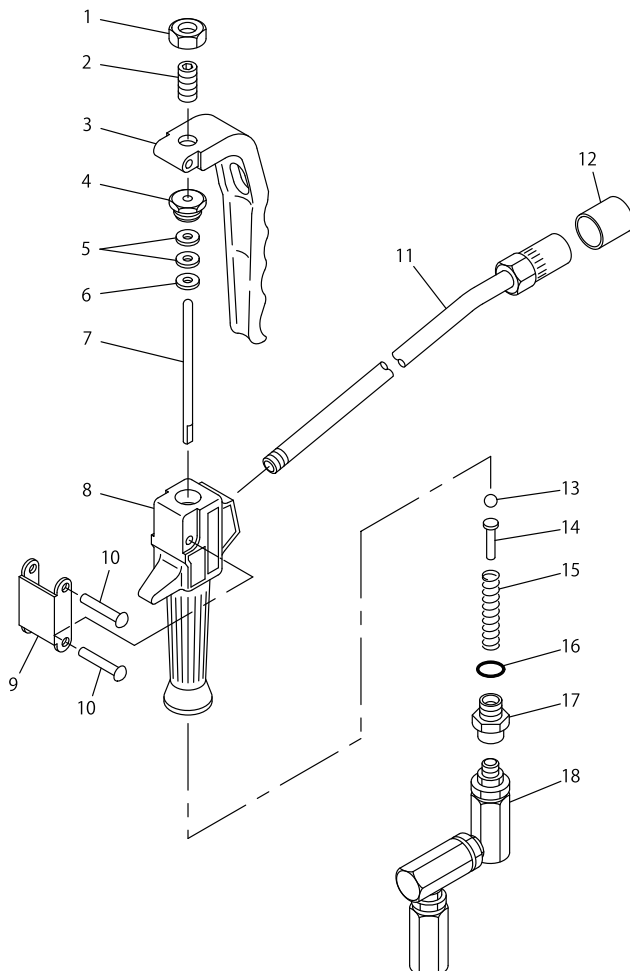
6. Parts Disassembly Drawing and Parts List

6.1 881250 EPL-240



No.	Parts No.	Description	Q'ty
1	851985	Grease gun assembly	1
2	680080	Union adapter	1
3	803903	Valve kit	1
4	717558	Lid	1
6	683347	Screw with washer	4
7	805430	Cover assembly	1
8	855475	Grease pump assembly	1
9	602296	Pan-head screw	3
10	631418	Spring lock washer	4
11	610623	Wing bolt	3
12	803085	Follower plate assembly	1
13	707937	Gun holder	1
14	602298	Pan-head screw	1
15	707880	Plain washer	1
16	695034	High-pressure Hose	1

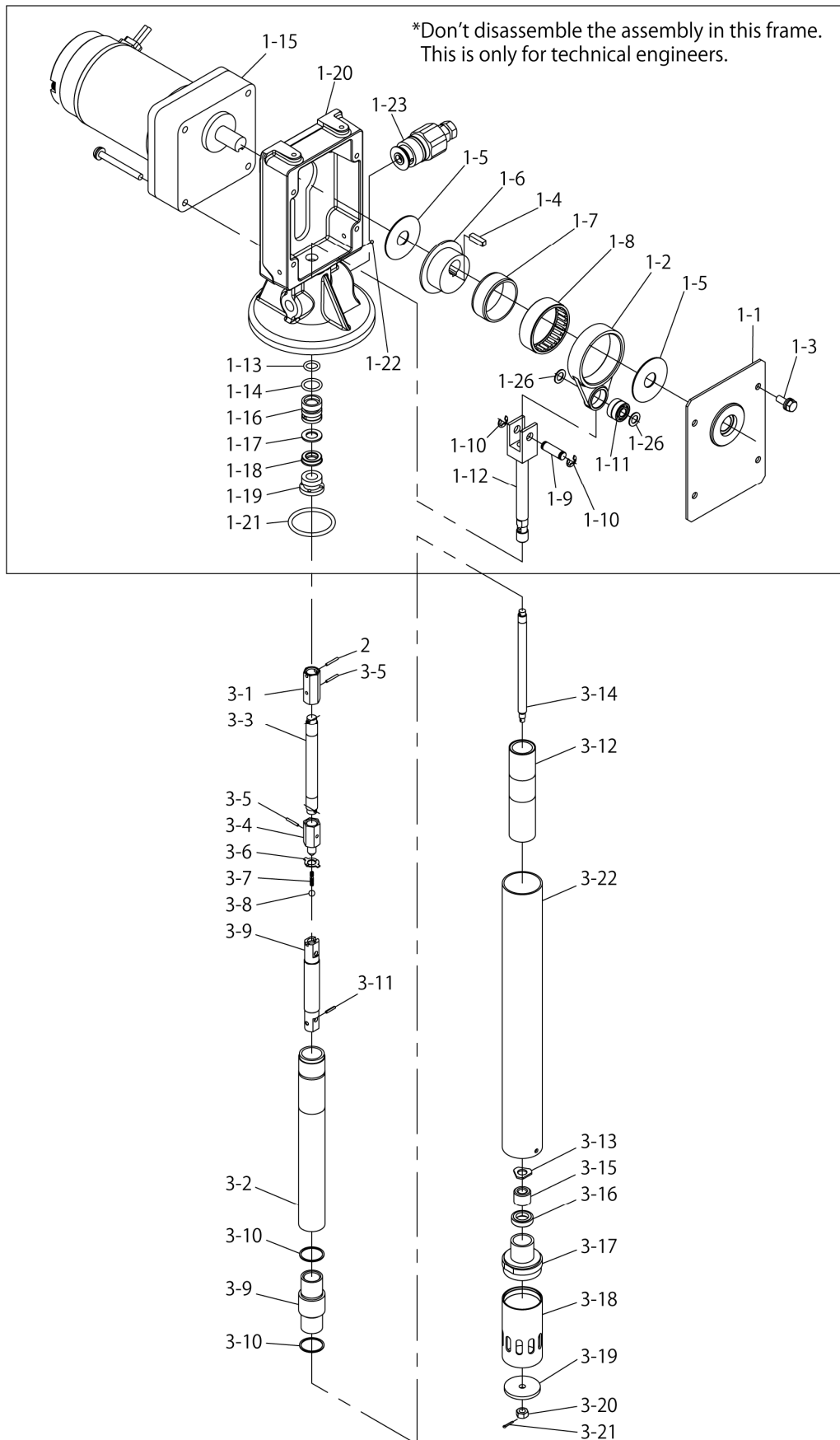
6.2 851985 Grease gun



No.	Parts No.	Description	Q'ty
1	627641	Nut	1
2	711750	Bolt	1
3	711354	Lever	1
4	711444	Retaining nut	1
5	772160	Packing	2
6	713638	Washer	1
7	711357	Rod	1
8	711352	Body	1
9	711351	Link	1
10	683201	Rivet	2
11	804911	Nozzle	1
12	685728	Cap	1
13	630314	Ball	1
14	711445	Spring retainer	1
15	711446	Spring	1
16	640011	O ring	1
17	710971	Union	1
18	802910	Swivel joint assembly	1

No.3,8,9 and No.10 are undissolution.

6.3 855475 Pump assembly



No.	Parts No.	Description	Q'ty
1	805432	Electric motor assembly	-
1-1	832933	Cover assembly	1
1-2	713240	Link	1
1-3	682262	Bolt	4
1-4	716029	Key	1
1-5	713230	Stopper	2
1-6	713231	Cam	1
1-7	682994	Inner race	1
1-8	682995	Needle bearing	1
1-9	710808	Pin	1
1-10	630779	Retaining ring	2
1-11	684347	Ball bearing	2
1-12	832192	Connecting rod	1
1-13	640009	O ring	1
1-14	640014	O ring	1
1-15	685944	Motor	1
1-16	710813	Bushing	1
1-17	771405	Back up ring	1
1-18	771418	Packing	1
1-19	710896	Packing retainer	1
1-20	715988	Crank case	1
1-21	640037	O ring	1
1-22	630310	Ball	1
1-23	802587	Relief valve assembly	1
1-26	713239	Washer	2
2	702971	Pin	1
3	802588	Lower pump assembly	-
3-1	706091	Union	1
3-2	709642	Suction tube	1
3-3	709643	Rod	1
3-4	702975	Union	1
3-5	702971	Pin	2
3-6	702974	Washer	1
3-7	702976	Spring	1
3-8	630313	Ball	1
3-9	801051	Cylinder assembly	1
3-10	702977	Washer	2
3-11	632754	Spring pin	1
3-12	706072	Foot tube	1
3-13	702980	Valve ring	1
3-14	706399	Plunger rod	1
3-15	771404	Foot valve	1
3-16	702982	Valve seat	1
3-17	830407	Valve adapter assembly	1
3-18	712043	Tube	1
3-19	702984	Plate	1
3-20	627010	Nut	1
3-21	632019	Split pin	1
3-22	710815	Out tube	1

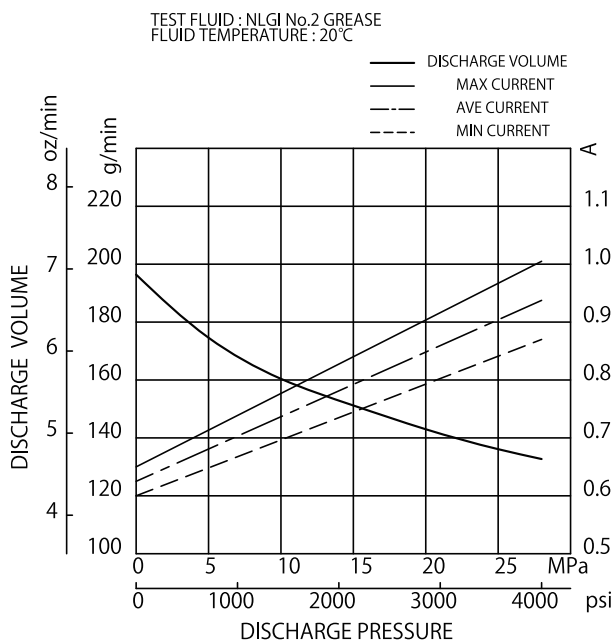
7. Specification

■ Specification

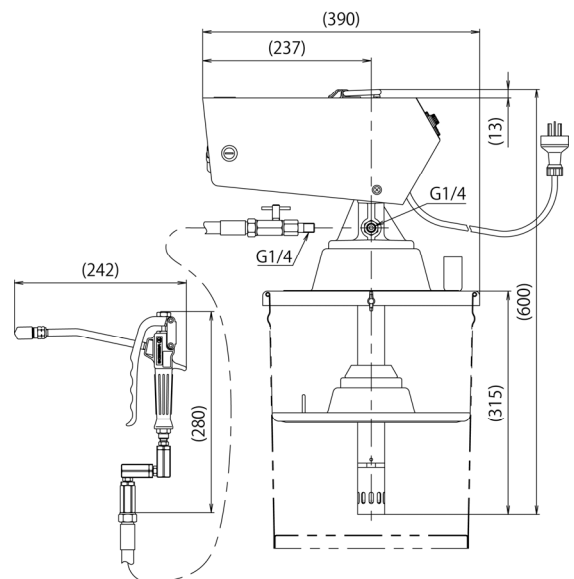
TYPE		EPL-240
ITEM No.		881250
RATED VOLTAGE		AC240V (50/60Hz)
MOTOR RATED	OUTPUT	100 W
	RATED CURRENT	0.83 A
MAXIMUM DISCHARGE PRESSURE		<CONSECUTIVE RATING> 28 MPa
MAXIMUM DISCHARGE VOLUME		<CONSECUTIVE RATING> 200 g / min
MAXIMUM OPERATING NOISE	A-WEIGHTED SOUND PRESSURE LEVEL *1	87.5 dB
AMB. TEMP. RANGE	ENV. TEMPERATURE	-10 ~ 40 °C
	MATERIAL TEMP.	0 ~ 80 °C
WEIGHT		13.0 kg
ACCESSORIES		851985 Grease gun 803085 Follower plate 680080 Union adapter 803903 Valve kit 805433 Code assembly (5 m) 695034 High-pressure hose (G1/4×2.5 m)
OPTION		852042 Hose reel (SHR-3C15) 852077 Hose reel (SR-3C10K) 695303 High-pressure delivery hose (3/8 inch ×10 m) 802817 Power cord for extension (5 m) 855470 Pail carry (S-200)

*1 Measurement method of A-weighted sound pressure level is based on ISO 1996.

■ Performance Curve



■ Dimensions



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 and hose.
- 7) Malfunction and/or damage due to use with incorrect voltage.
- 8) Malfunction and/or damage due to transportation, moving or drop page of the product after purchase
- 9) Malfunction and/or damage due to fire, earthquake, flood or other force majeure
- 10) 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
- 11) Malfunction arising from use of excessively abrasive material or of inadequate grease.

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

- hoses • packings • cords

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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