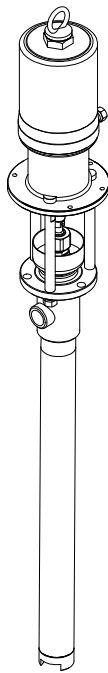


INSTRUCTION

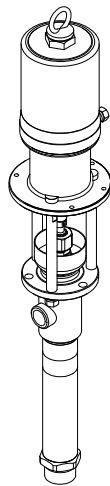
OIL PUMP

(110 type series)

PD-110B5	ITEM No.855259
SH-110B5	ITEM No.855260
DR-110B5	ITEM No.855261
SH-110B5SUS	ITEM No.851832
DR-110B5SUS	ITEM No.851833



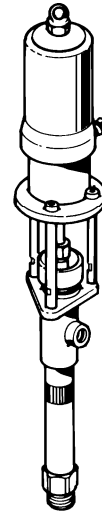
PD-110B5
DR-110B5



SH-110B5



DR-110B5SUS



SH-110B5SUS

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.

- Preface

Thank you very much for purchasing Yamada Pump. This 110 series 5x1 ratio pump is suitable for delivering anti-rust, oil...etc. Also, stainless steel pumps (SUS) are well adapted especially for feeding or supplying paint, lacquer, thinner, chemicals and food since stainless steel and fluorocarbon resin are used in wetted parts material.

- 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

-  - Keep your face away from the exhaust and discharge ports. Material may suddenly come out. 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.
-  - Keep your fingers away from each port to avoid injury from moving parts.
-  - Modification of this pump 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 the pump and performing maintenance in respect of this pump.
-  - Always wear proper safety equipments (facemask, ear plugs, and safety shoes, etc.) when installing, operating and disassembling the pump.
-  - Make ground connection when working with flammable material or in explosive atmosphere. Rapid pumping of material can result in static electrical charge. Also, be sure to provide proper ventilation where a flammable atmosphere may exist.
-  - Execute the daily checkup.
-  - Use this pump according to the product specification.
-  - Attach a valve (for stop in emergency) or regulator to the air supply pipe to keep supply air pressure under 0.7 MPa.
-  - Discontinue it when you feel a hazard or abnormality during the work. And correspond according to the troubleshooting.
-  - 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 especially careful when pumping explosive material. Mixture of an air and vaporized material can explode. If there is any possibility of running dry, install a dry-run protection device like a liquid level control.
-  - Before maintenance operation, be sure to stop air from being supplied to the pump, and release the internal pressure (both air and material) of the pump. There is danger such as spouting of the material when the maintenance work is done with air 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 pump according to the local regulations after removing residual material from inside pump. (Please contact industrial waste disposal service.)
-  - (SH type only) If using a wall mount bracket for installation, the wall must be strong enough to withstand vibration of the pump.
-  - Before starting pump operation, retighten the bolts or connection parts of the pump.



CAUTION



- Keep hands and fingers away from the pump during operation to avoid injury from moving parts.



- Use pump 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 fall-prevention measures if using a slim or light tank. Risk of falling will be increased due to shift in center of gravity caused by change in the material level in a tank.



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



- Be very careful about the edge of the pump when you lift the pump. Your hands might be injured.



- Be very careful about your posture when installing the pump. Back injury may be caused by lifting the pump.



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



- Stop the air supply source after the end of work when not using this pump for a long time such as nighntimes 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.



- (DR type only) Place a drum on a flat, level surface to position pump horizontally against a ground. Operating the pump on a slope may cause a fall or tip-over due to shift in center of gravity caused by change in the material level.



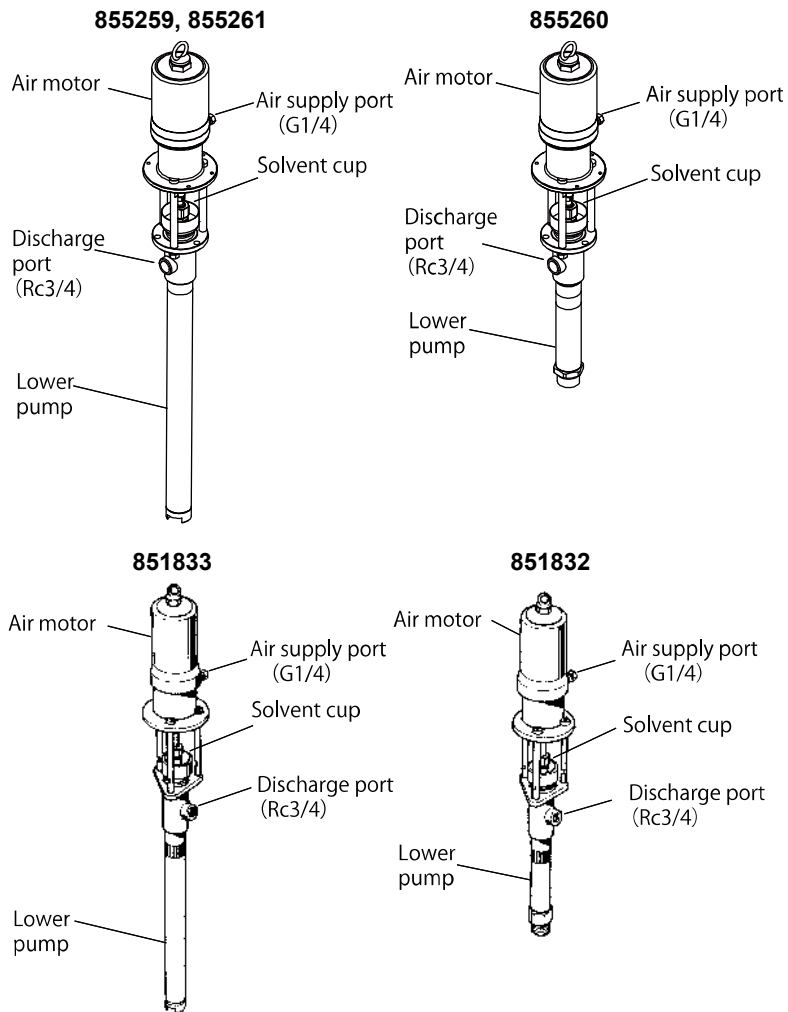
- (DR type only) Material remaining inside or on the surface of the pump may spill out by inserting or removing the pump into /from a drum. Be very careful not to get your clothing dirty.

Table of Contents

- Preface	
- For Safe Operation	
- Warnings and Cautions	
- Precautions on Use	
1. Names and Materials of Parts	
1.1 Names and Materials of Parts	1
1.2 Contents of Package	1
2. Principle of Operation	1
3. Installation	
3.1 Installing drum type (DR) pump	2
3.2 Installing stubby type (SH) pump	2
3.3 Installing delivery hose	2
3.4 Connecting supply air	2
3.5 Connecting the ground wire	3
4. Operating Method	3
5. Maintenance and Inspection	
5.1 Troubleshooting and Corrective Measures	4
5.2 Maintenance and Inspection	4
6. Disassembly and Assembly	5
7. Parts Disassembly Drawing and Parts List	6
8. Specification	9
9. Limited Warranty	11

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.

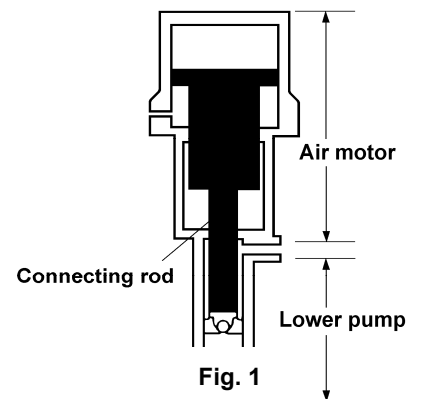
2. Principle of Operation (Fig. 1)

The Yamada air-powered pump is a reciprocating type pump that is driven by compressed air. The pump consists of an air motor section to drive the pump and a lower pump to pump up the material as shown in the Fig. 1 at right.



When the compressor feeds compressed air to the air motor, the air piston starts up/down reciprocating motion by means of the function of the built-in air changeover mechanism.

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

The material is pumped into the lower pump by the up/down reciprocating motion of the piston of the pump and discharged by pressure from the discharge port.

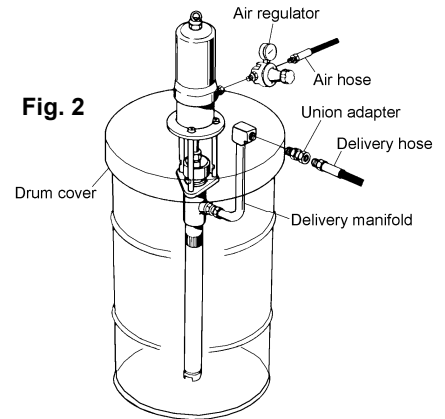


3. Installation

	CAUTION
	<p>- 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.</p>

3.1 Installing drum type (DR) pump

- 1) Use the drum cover (optional) and install on the open type drum. (Fig. 2)



3.2 Installing stubby type (SH) pump

- 1) Install the pump on the mounting bracket (optional) or panel unit (option) and fix on the flat wall.
- 2) Connect the suction hose assembly (optional) to the pump. (Fig. 3)

<NOTE>

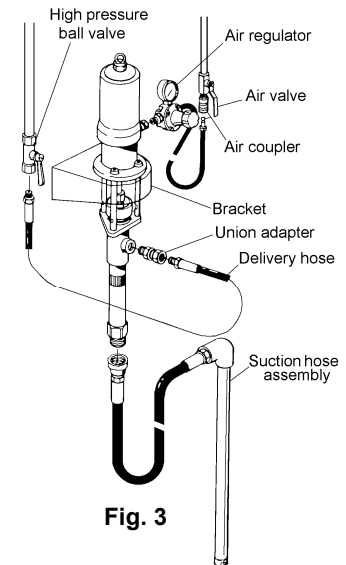
When the pump is not used for circulation pump, plug the material outlet (Rc3/4) of the pump.



3.3 Installing delivery hose

- 1) Install the union adapter (option) and delivery hose (option) at the material outlet of the pump. Screw them firmly. Use seal tape for connection.
- 2) Connect the hose to the piping.

<NOTE>

- When connecting to the long-distance piping, install the high- pressure ball valve at the end of the piping. (Fig. 3)
- When using the pump for paint circulation, install pressure valve and then connect the return hose to the pump.



	CAUTION
	<p>- Do not connect the piping directly to the pump. Vibration caused by direct connection may result in damage to the piping or generation of noise. As for a drum type, it may also be the cause of difficulty in changing a drum and inconvenience of pump maintenance. Be sure to use a flexible hose to connect the piping to the pump.</p>

3.4 Connecting supply air

- 1) Install the air regulator (option) at the air inlet of the pump.
- 2) Connect the supply air piping to the inlet of the air regulator.

<NOTE>

- Install the air valve at the end of the supply air piping for convenience of pump operation. Before installing the air regulator, be sure to adjust it to "0" position.
- 0.3 MPa - 0.5 MPa is the proper air pressure for normal operation.

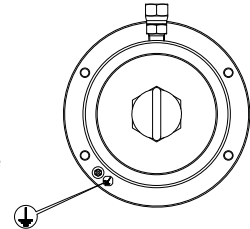
3.5 Connecting the ground wire

⚠ WARNING



- Make ground connection when working with flammable material or in explosive atmosphere. Rapid pumping of material can result in static electrical charge. Also, be sure to provide proper ventilation where a flammable atmosphere may exist.

- 1) When installing the pump, be sure to connect the ground wire at the specified position.
- 2) Also connect ground wires to peripheral equipment and piping.
- 3) Use 2.0mm² minimum ground wire.



Position for connecting the ground wire

4. Operating Method

The pump is equipped with the solvent cup. To protect the plunger rod and packing from damage caused by dried and stiffed pumping material, pour solvent or suitable lubricant to 2/3 level of the cup. (Fig. 4)

However, do not use any fluid that may affect the packing material (steel type: NBR, stainless steel type: PTFE).

⚠ CAUTION



- Do not bring a face close to the exhaust port of the operating pump in any case. Because of the high exhaust pressure, water may be frozen and it could cause injury.



- Do not put hands in the 3 studs that connect the air motor to the lower pump. Hands may be caught by the plunger in reciprocating motion. It may result in an injury.



- The maximum operating air pressure of this machine is 0.7 MPa. Using the machine exceeding 0.7MPa may result in a bodily injury or property damage. Do not operate the machine over 0.7 MPa. If the air line is 0.7 MPa, reduce the air line to 0.7 MPa or less by using the air regulator.



- Regarding a secondary accident such as hose damage that may be caused by not shutting off the air supplied to the hose or floor 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 stop operation, do not disassemble the pump thoughtlessly. Make sure to disassemble only necessary parts, referring to "5.1 Troubleshooting and Corrective Measures" and judging the situation properly.

- 1) Turn the knob of the air regulator clockwise to supply air into the pump. When the supply air pressure reaches 0.15 - 0.2 MPa, the pump starts to operate. The pointer of the pressure gauge indicates the supply air pressure.
- 2) When air is supplied, the pump is operated for a while to fill the hose, pipe, and gun with oil, and then stopped automatically. If the pump is continuously operated without stop, leak may have occurred in any connecting portion of the hose, pipe, or gun. Stop the air supply and make a check.
- 3) Operating the gun lever at the end of the delivery hose discharges oil. When the lever is pulled, the valve is opened and the pump is automatically operated to discharge oil. When the lever is reset, the valve is closed to stop the oil discharge and the pump is also stopped.
- 4) Adjust the supply air pressure according to the application. Usually, the operating pressure should be 0.3 - 0.5 MPa. In particular, when the pump is used for feeding oil, the discharge volume differs depending on the piping length and oil viscosity. Adjust the supply air pressure to your desired level.
- 5) After completion of the work, be sure to stop the supply air to the pump.

<NOTE>

- After completion of the work or when the pump is not operated for a long time, keep the plunger rod bottom position and soaked into the solvent cup to prevent damage on the packing by dried material that stuck on the plunger rod. (Fig. 4)
- If the oil in the drum has run out, the pump will be operated at a higher speed without oil. This may have an adverse effect on life of pump. Stop the pump operation at once and replace the drum to the new one.

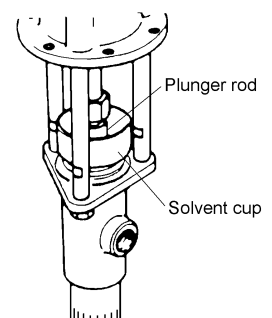


Fig. 4

5. Maintenance and Inspection

5.1 Troubleshooting and Corrective Measures

Symptom	Contents of inspection	Corrective measure
- The pump fails to start.	<ul style="list-style-type: none"> - Check if the air regulator is normally operated. - Check if the valve in the course of the pipe is not closed. <p style="text-align: center;">↓</p> <p>(Remove the delivery hose at the pump-side outlet and operate the pump.)</p> <ul style="list-style-type: none"> → If the pump is operated, the delivery hose, pipe, or outlet valve (gun) is clogged, or the operating pressure is low. → If the pump is not operated, the pump is defective. <p style="text-align: center;">↓</p> <p>(Separate the lower pump and operate the pump with only the air motor.)</p> <ul style="list-style-type: none"> → If the pump is operated, the lower pump is defective. → If the pump is not operated, the air motor is defective. 	<ul style="list-style-type: none"> → Pressure check. (0.2 - 0.7 MPa) → Inspection → Repair service for the lower pump → Repair service
-The pump fails to stop.	<ul style="list-style-type: none"> - Check if the pump cannot be stopped when the material outlet side remains open. - If the outlet side is closed, check if any leak occurs at the pipe, delivery hose, or each connecting portion. - Check if the air bleed valve or bleeder valve remains open. - Check if there is no material. 	<ul style="list-style-type: none"> → Inspection Replenishment
- The pump is operated but does not feed the material by pressure.	<ul style="list-style-type: none"> - Loosen the air bleed valve to bleed the air staying under the inductor plate and tighten the valve again. - If the pump cannot be operated, open the bleeder valve. When the material comes out, tighten the valve again. <p>If the material is not fed, disassemble the check valve and clean and check the ball seat surface and spring.</p> <ul style="list-style-type: none"> - The pump cannot be operated yet, the pump is defective. 	<ul style="list-style-type: none"> → Inspection → Inspection → Disassembly and inspection → Repair request for the lower pump
- The pump is operated but the pressure and flow rate are insufficient.	<ul style="list-style-type: none"> - Check if the supply air pressure is insufficient. - Check if the packing of the air valve is not worn away. 	<ul style="list-style-type: none"> → Pressure check → Repair request for the lower pump

5.2 Maintenance and Inspection

[Oiling]

For lubrication of the pump, perform oiling with a lubricant once every 10 days. Apply the lubricant as follows.

- 1) Remove the air regulator.
- 2) Inject several drops (approx. 0.5 mL) of lubricant to the air supply port as shown in the figure at right. (Fig.5)

Use turbine oil first class ISO (VG-32) as the lubricant.

[Inspection]

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

[Daily check]

Before starting pump operation, retighten the bolts or connection parts of the pump. (Fig. 6)

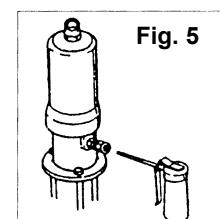


Fig. 5

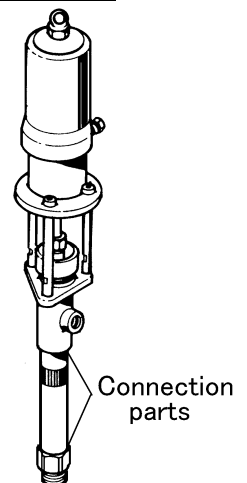


Fig. 6

6. Disassembly and Assembly



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.



- Before disassembling and inspecting the machine, be sure to stop the supply air and open the outlet valve to release the internal pressure of the pump.



- When cleaning pump parts, do not use a liquid that may corrode aluminum, copper ally, iron, etc.

[Separation of the air motor and the lower pump]

- 1) Shut off the air supply and release the pressure inside of the pump.
- 2) Remove the air hose and delivery hose.
- 3) Remove the pump and let the material out from the suction tube. The material inside of the suction tube can be out by pushing the ball at the foot valve.
- 4) Grip the air motor part in a vise.

<NOTE>

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

- 5) Loosen the lock nut.
- 6) Pull the lower pump and unscrew the cap nut that connects the connecting rod and plunger rod. Then the lower pump can be separated from the air motor. (Fig. 7)

[Disassembling the lower pump]

Disassembling the foot valve

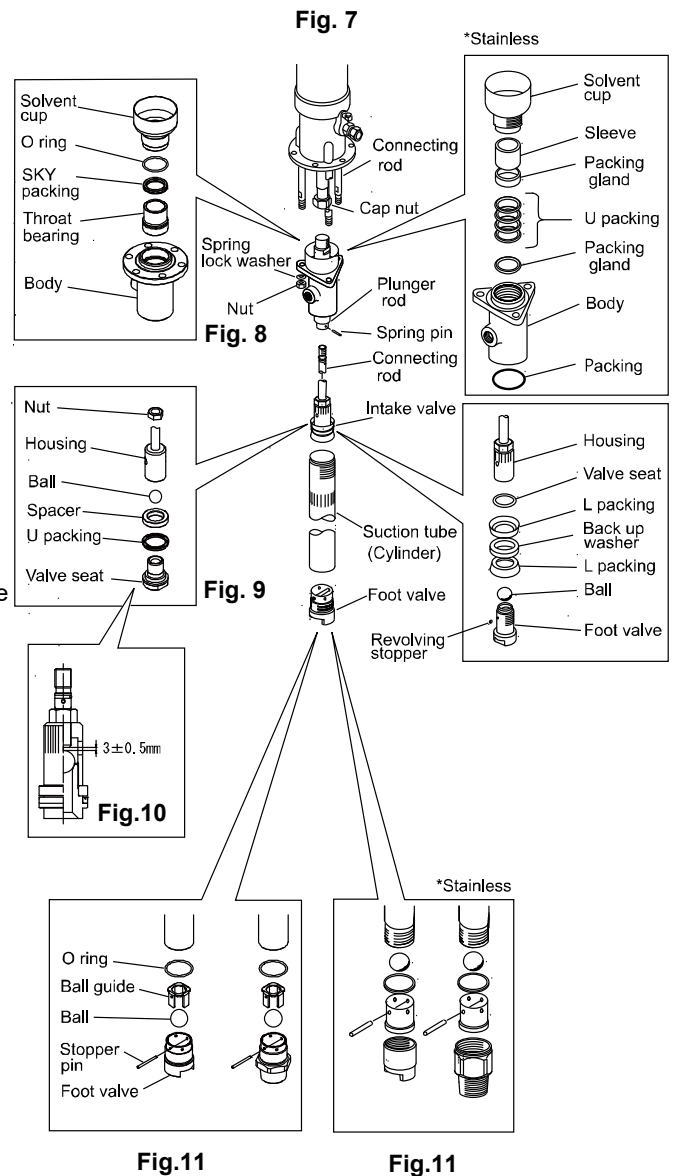
- 7) Fix the knurled part of the suction tube with a pipe wrench, set a wrench on the foot valve and unscrew it to remove the suction tube. (Fig. 7)
- 8) Remove the stopper pin at the foot valve and the ball and wash it. If scratch or wear is found on the ball and the seat, replace with new parts. (Fig. 11)

Disassembling the intake valve

- 9) Grip the body of the lower pump on a vise. Set a pipe wrench on the knurling part of the suction tube and unscrew it. (Fig. 7)
- 10) Remove the stopper pin that connects the connecting rod and the plunger rod and loosen the connecting rod screw.

<NOTE>

Be sure to set a wrench on the two flats cut of the plunger rod. Placing a wrench on a slide portion of the rod could cause damage and trouble.



11) Grip the housing on a vise. Set a wrench on the valve seat and unscrew it to remove the ball and Packing ... etc. If scratch or ware is found on them, replace with new parts. (Fig. 9)

12) The housing and the stud do not need to be disassembled usually. If disassembling them, beware to adjust the clearance between the stud and the ball 3 ± 0.5 mm when reassembling. (Fig.10)

Disassembling the U packing (Stainless steel specification only)

- 13) Grip the delivery manifold in a vise and remove the solvent cup by a hook wrench.
- 14) Remove the sleeve. Then the packing gland and U packing can be removed. (Fig. 8)
- 15) Wash and check each part. If scratch or wear is found, change to new parts.
- 16) To reassemble after checking take opposite procedure of disassembling.

[Disassembling the muffler]

The silencing effect of the muffler at the exhaust port is halved by clogging caused by long-term use. Disassemble and inspect it periodically.

- 1) Remove the stop ring with stop ring pliers. The muffler and plate can be taken out. (Fig.12)
- 2) Clean and inspect each part (in particular, check the plate for clogging). If any wear is found, replace the part.

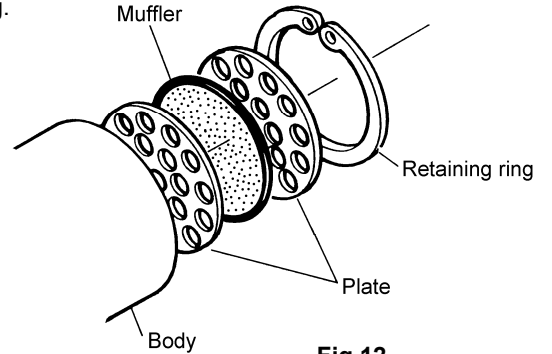


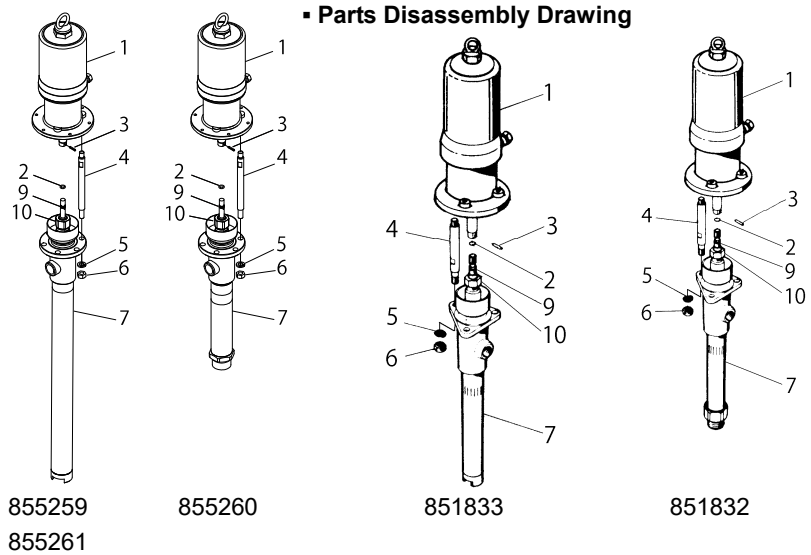
Fig.12

[Disassembling the air motor]

The air motor is hard to adjust at assembly. If the air motor is judged to be defective in the item pertaining to "5. maintenance and inspection", ask the dealer or our business office to repair it.

7. Parts Disassembly Drawing and Parts List

- 855259 PD-110B5
- 855260 SH-110B5
- 858261 DR-110B5
- 851832 SH-110B5 SUS
- 851833 DR-110B5 SUS



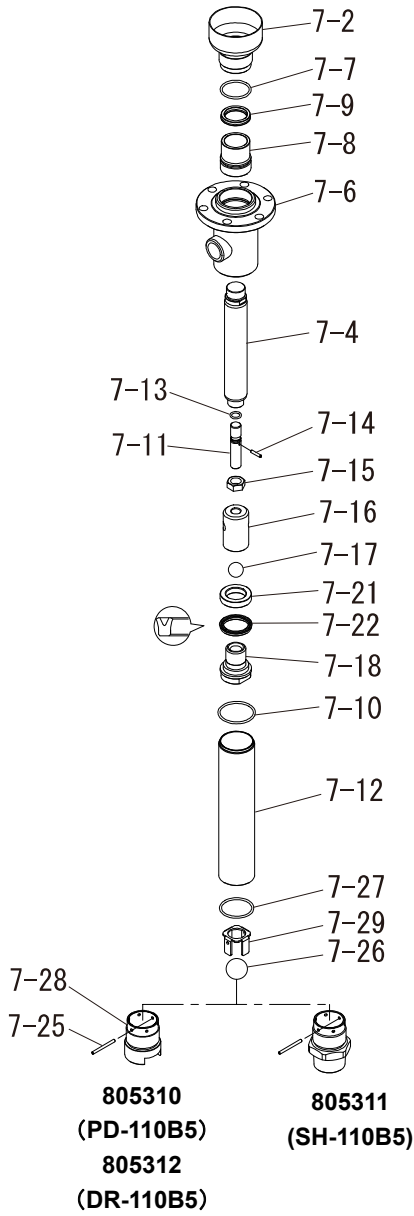
• Parts List

No.	Part No.					Description	Q'ty
	855259 PD-110B5	855260 SH-110B5	855261 DR-110B5	851832 SH-110B5 SUS	851833 DR-110B5 SUS		
1	802571	←	←	←	←	Air motor	1
2	640006	←	←	←	←	O ring	1
3	632773	←	←	←	←	Spring pin	1
4	701565	←	←	←	←	Connecting rod	3
5	631422	←	←	←	←	Spring lock washer	3
6	627045	←	←	←	←	Nut	3
7	805310	805311	805312	802578	802579	Lower pump	1
9	710794	←	←	710803	←	Connecting rod	1
10	700350	←	←	702283	←	Cap nut	1

■ 805310, 805311, 805312 Lower Pump

▀ Parts Disassembly Drawing

▀ Parts List

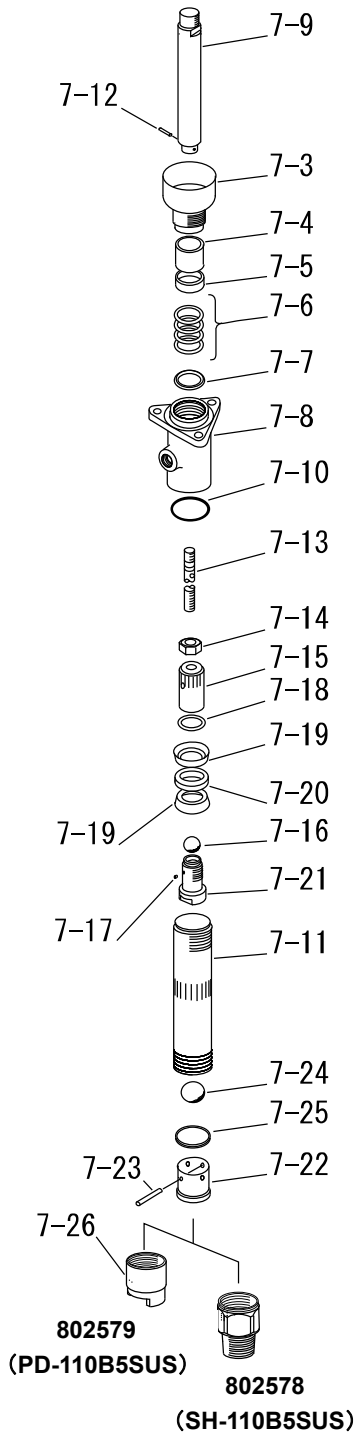


No.	Part No.			Description	Q'ty
	805310	805311	805312		
7-2	833014	←	←	Solvent cup assembly	1
7-4	716480	←	←	Plunger	1
7-6	833005	←	←	Body assy	1
7-7	640133	←	←	O ring	1
7-8	716431	←	←	Throat bearing	1
7-9	685795	←	←	SKY packing	1
7-10	640135	←	←	O ring	1
7-11	701552	←	704155	Connecting rod	1
7-12	704583	←	704584	Suction tube	1
7-13	640012	←	←	O ring	1
7-14	632774	←	←	Spring pin	1
7-15	627016	←	←	Nut	1
7-16	701554	←	←	Housing	1
7-17	630334	←	←	Ball	1
7-18	710926	←	←	Valve seat	1
7-21	710925	←	←	Spacer	1
7-22	686404	←	←	U packing	1
7-25	701556	←	←	Pin	1
7-26	630341	←	←	Ball	1
7-27	640134	←	←	O ring	1
7-28	704587	704586	704587	Foot valve	1
7-29	716432	←	←	Ball guide	1

■ 802578, 802579 Lower Pump (stainless)

• Parts Disassembly Drawing

• Parts List



No.	Part No.		Description	Q'ty
	802578	802579		
7-3	830200	←	Solvent cup assembly	1
7-4	770234	←	Sleeve	1
7-5	702278	←	Packing gland	1
7-6	770231	←	U packing	4
7-7	702279	←	Packing gland	1
7-8	709290	←	Suction body	1
7-9	702285	←	Plunger	1
7-10	770235	←	Packing	1
7-11	705288	705287	Suction tube	1
7-12	680177	←	Spring pin	1
7-13	702290	703815	Connecting rod	1
7-14	628016	←	Nut	1
7-15	702286	←	Housing	1
7-16	630434	←	Ball	1
7-17	770233	←	Revolving stopper	1
7-18	702280	←	Valve seat	1
7-19	770501	←	L packing	2
7-20	770236	←	Back up washer	1
7-21	702287	←	Piston body	1
7-22	702288	←	Foot valve	1
7-23	705336	←	Pin	1
7-24	630442	←	Ball	1
7-25	770237	←	Packing	1
7-26	702289	703816	Foot valve	1

8. Specification

■ Specification

TYPE		PD-110B5	SH-110B5	DR-110B5	SH-110B5 SUS	DR-110B5 SUS
MODEL No.		855259	855260	855261	851832	851833
PUMP RATIO (NOMINAL)		5 x 1				
FLUID CONNECTION	SUCTION PORT	—	R 1-1/2	—	R 1-1/2	—
	DISCHARGE PORT	Rc 3/4				
AIR CONNECTION	SUPPLY PORT	G 1/4(F) (Union Adapter)				
OPERATING AIR PRESSURE		0.3 - 0.7 MPa				
MAXIMUM OPERATING NOISE	A-WEIGHTED SOUND PRESSURE LEVEL *1	90 dB				
	A-WEIGHTED SOUND POWER LEVEL *2	101 dB				
AMB. TEMP. RANGE	TEMP. AMBIENT	0 - 60 °C				
	TEMP. MATERIAL	0 - 80 °C				
STROKE (NOMINAL)		60 mm				
DISCHARGE VOLUME per CYCLE *3		117 mL			100 mL	
MAXIMUM DISCHARGE PRESSURE		3.5 MPa				
WEIGHT		14.8 kg	12.7 kg	17.7 kg	15.0 kg	16.0 kg

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

*2 Measurement method of A-weighted sound power level is based on ISO 3744.

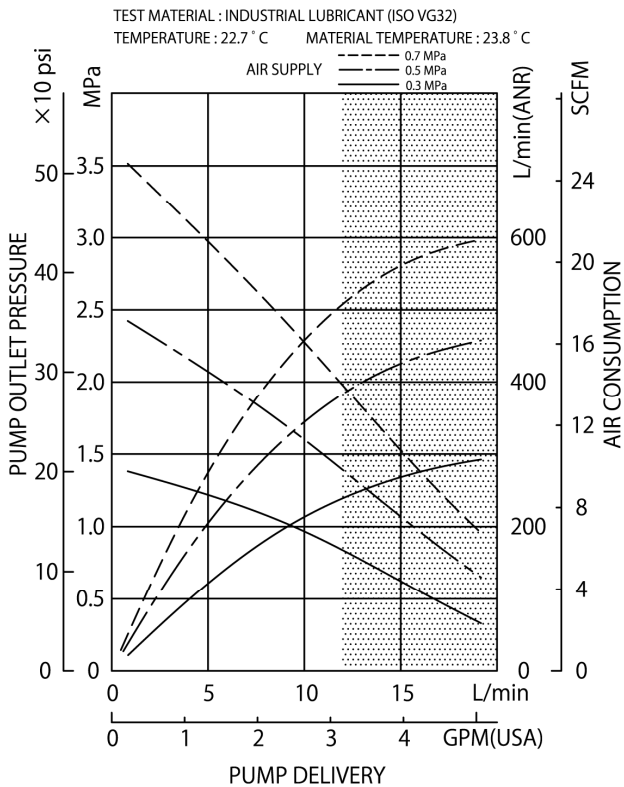
*3 Discharge volume (per cycle) varies according to use conditions.

■ Performance Curve

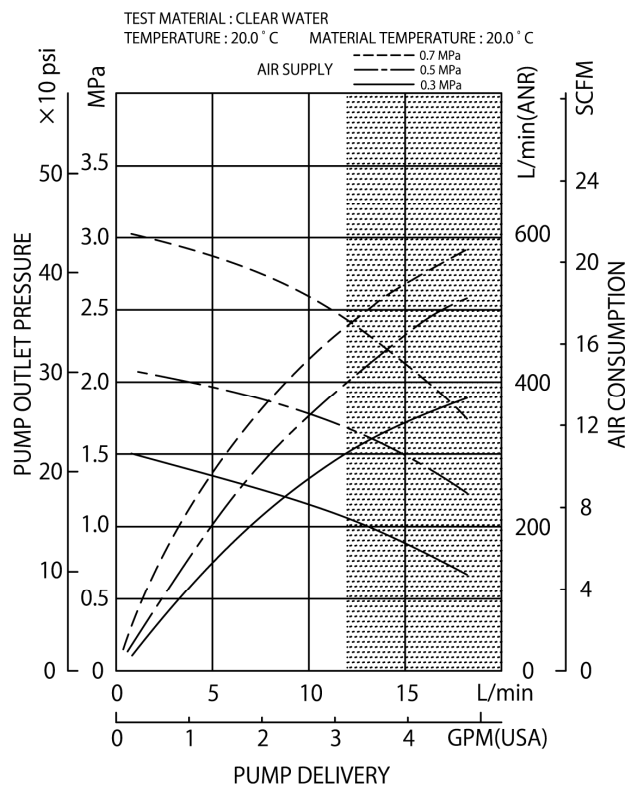
<NOTE>

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

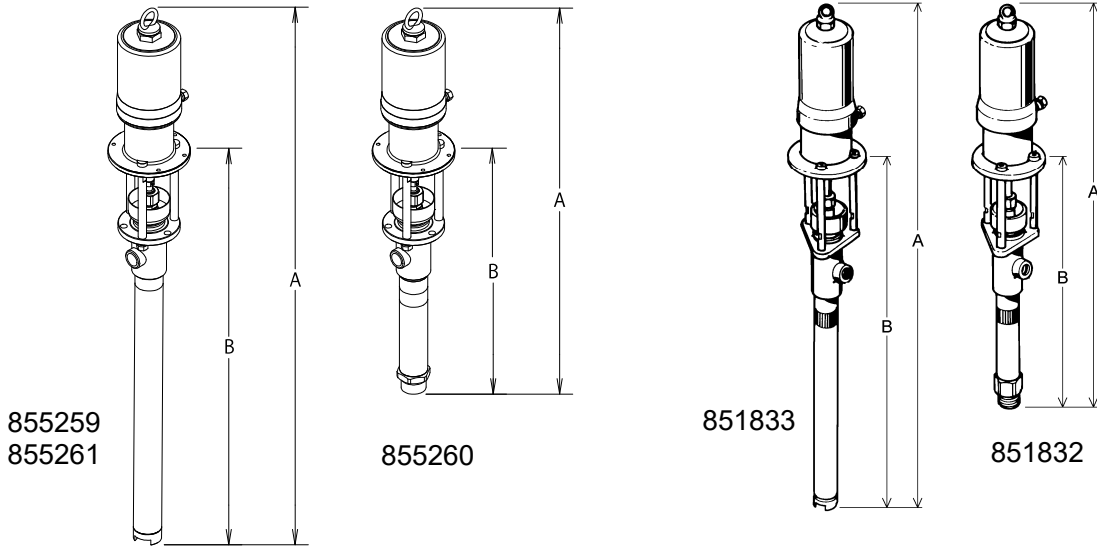
PD-110B5 • SH-110B5 • DR-110B5



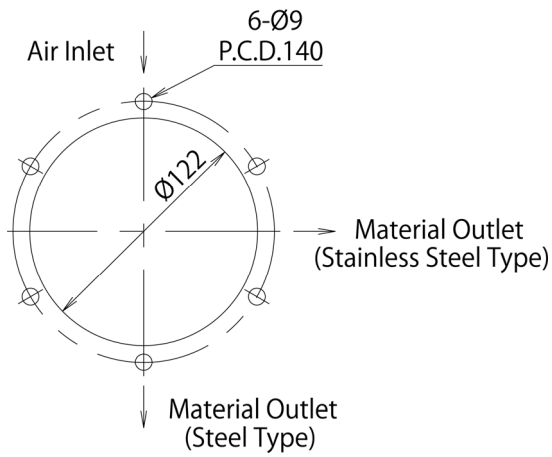
SH-110B5 SUS • DR-110B5 SUS



■ Dimension



Model No.	A (mm)	B (mm)
855259	843	523
855260	861	541
855261	1180	860
851832	857	538
851833	1229	909



Pump mounting hole layout

9. 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.

MEMO.

YAMADA EUROPE B.V.

Aquamarijnstraat 50,7554 NS Hengelo (O),The Netherlands

PHONE : +31-(0)74-242-2032

FAX : +31-(0)74-242-1055

E-mail : sales@yamada.nl

Web : www.yamada-europe.com

Manufactured by

YAMADA CORPORATION

INTERNATIONAL DEPARTMENT

1-1-3, Minami-Magome,Ota ku, Tokyo, 143-8504, Japan

PHONE : +81-(0)3-3777-0241

FAX : +81-(0)3-3777-0584

E-mail : intl@yamadacorp.co.jp

Web : www.yamadacorp.co.jp