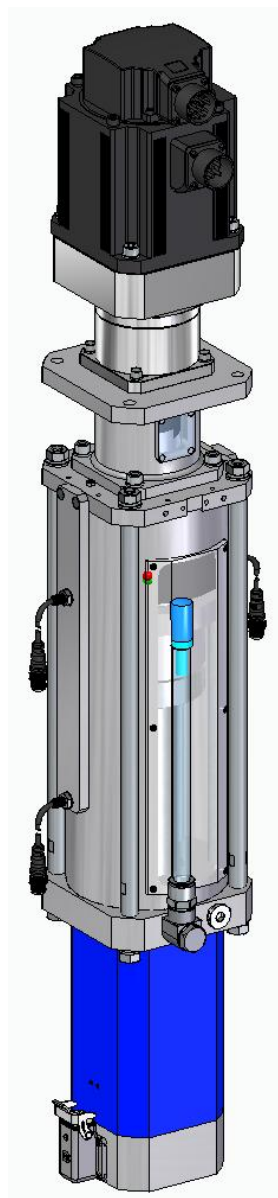


USER's Manual

ENG 5F 00D V 000

Booster pump (300cc)

5F00000D



This manual explains the important information and warnings.
Please read carefully and follow the instructions.

Table of Contents

Warnings and Cautions	p. 3 ~ 4
Specification & Performance	p. 5 ~ 7
Installation	p. 8
Trouble Shooting	p. 9
Overhauling	
Disassembling & Reassembling	p. 10 ~ 19
Maintenance and Repair Kit	p. 20 ~ 21
Dimensions	p. 22 ~ 23
Standard Warranty	p. 24

WARNING & CAUTIONS



WARNING

This symbol means the possibility of serious injury or death if you ignore the instructions.



CAUTION

This symbol means the possibility of damage or destruction of equipment if you ignore the instructions.



WARNING

HAZARD OF EQUIPMENT MISUSE

Equipment misuse may provoke its malfunction, rupture or unexpected start and result in a serious injury.

- This equipment is for professional use only.
- Read all instructions in manual, tags and labels carefully before operation.
- Use this equipment for specified purpose. If not, inquire to Binks.
- Do not remodel or modify this equipment.
- Use the genuine parts and accessories from Binks.
- Do daily check for the equipment. The worn or damaged part should be repaired or replaced with new one.
- Do not exceed the maximum pressure of parts or accessories.
- Route the hoses or cables away from traffic areas, sharp edges, moving parts and hot surfaces.
- Do not twist, bend and pull the hoses and cables arbitrarily.
- Read the MSDS of material and follow it.
- Wear the earplug when operating this equipment with RAM pump.
- Wear the protecting gears like goggles, gloves, mask and suits recommended by the manufacturer of material.
- Comply with the local regulations about fire, electric and safety.



WARNING

HAZARD FROM THE HIGH PRESSRE EQUIPMENT

The leak of hoses or the rupture of parts can inject high pressure fluid to your skin or eyes and result in serious injuries.

- Check hoses, tubes and fittings daily. The worn, damaged or loosened parts should be replaced with new one immediately.
- Check bolts and nuts weekly and fasten the loosened one.

HAZARD FROM FIRE OR EXPLOSION

As not being ventilated, flame or sparks can cause fire or explosion.

- Keep the shop ventilated to prevent from accumulating flammable or toxic gas.
- Isolate all equipment from electric sources.
- Remove all flammable material and keep the shop clean.
- Do not smoke at the shop.

HAZARD FROM TOXIC MATERIAL

If your eyes or skin are exposed to toxic materials, serious damages or death can be resulted.

- Wear the protecting gears like goggles, gloves, mask and suits recommended by the manufacturer of material.

SPECIFICATION & PERFORMANCE

This booster pump is optimized to be used just for high pressure, high viscous materials and the mass dispensing.

This booster pump can dispense max. 300cc as one stroke and also can dispense in several times within 300cc.

■ Specification

Servo Motor	model	APM-FE22A	LS MECAPION(Kor.)
	rating torque	7 Nm	(Max. 21.01 Nm)
	rating speed	3,000 rpm	(Max. 5,000 rpm)
	rating power	2.2 kW	
	rating ampere	13.24 A	
	rating voltage	166 V 3P	
Reducer	model	HSS0901M-D3110103	LS ELECTRIC(Kor.)
	ratio	6 : 1	
Plunger rod diameter		Ø50 mm	
Effective stroke		153 mm	
Max. stroke		173 mm	
Effective displacement		300.4 cc	
Max. displacement		339.7 cc	
Inlet size diameter		Ø10 mm	
Outlet size diameter(port)		Ø30 mm (Rc1")	
Max. allowable pressure		250 bar	

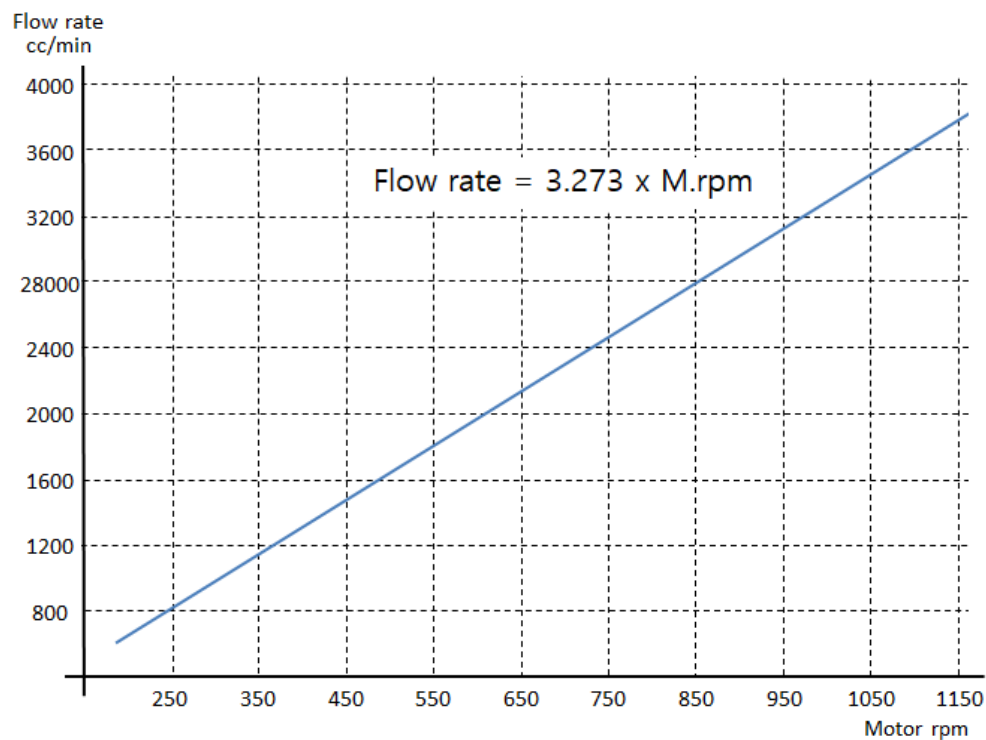
■ Leak durability

100,000 cycles at 100 bar, Temp. 55°C
(500 [cycles/day] x 25 [days/month] x 8months)

■ Performance

This chart show flow rate vs motor rpm.

Flow rate can be obtained from the chart or its formula.



* Weight(gram) can be calculated by multiplying ccpm by specific weight(γ).

EX 1) Motor rpm, 550

Its flow rate = 1,800 cc/min = 1.8 L/min (from chart)
 $= 3.273 \times 550 \text{ rpm} = 1,800 \text{ cc/min} = 1.8 \text{ L/min}$ (from formula)

EX 2) Max. Motor rpm, 3,000

Max. flow rat = $3.273 \times 3,000 \text{ rpm} = 9,819 \text{ cc/min} = 9.82 \text{ L/min}$ (from formula)

■ Use for :

This Booster pump developed for high pressure, high viscous material is machined and assembled precisely and thus achieve low power and saving energy.

Thus, this pump is very useful for the followings in combination with various valves, nozzles and controllers.

high pressure & high viscous material	Automobile industry (Body & Powertrain)	above 500,000 cps (sealing/painting/hemmi ng/bonding system)
low pressure & low viscous material	Pharmaceutical Industry	less than 500,000 cps (Pumping/transferring/m etering)
	Cosmetic industry	
	Food industry	
	Oil & Chemical industry	

Viscosity of various materials

material	viscosity (cps)	material	viscosity (cps)
sodium silicate(20°C)	240,000	dynamo oil(20°C)	100
pomade(21°C)	45,000	frying oil(18°C)	88
chocolate topping(21°C)	38,000	tomato juice(24°C)	77
tooth paste(21°C)	30,000	salad oil(23,5°C)	65
cylinder oil(20°C)	25,000	glycerin(20°C)	15
cold cream(23°C)	18,000	phenol(20°C)	11.6
shoe polish(20°C)	12,000	kerosene oil(20°C)	10
mayonnaise(23°C)	8,000	soy sauce(17°C)	5.3
strawberry jam(23°C)	6,000	aniline(20°C)	4,4
condensed milk(21.5°C)	2,000	milk(15°C)	2.5
ketchup(24°C)	1,800	nitro benzene(20°C)	2,0
honey(21°C)	1,300	acetic acid(20°C)	1.22
castor oil(20°C)	1,000	ethyl alcohol(20°C)	1.19
asphalt(20°C)	1,000	water(20°C)	1

* cps : centi-poise
1 ps = 100 cps
1 Pa.s = 1,000 cps
cst : centi-stroke
cps = v x cst
(v : specific weight)

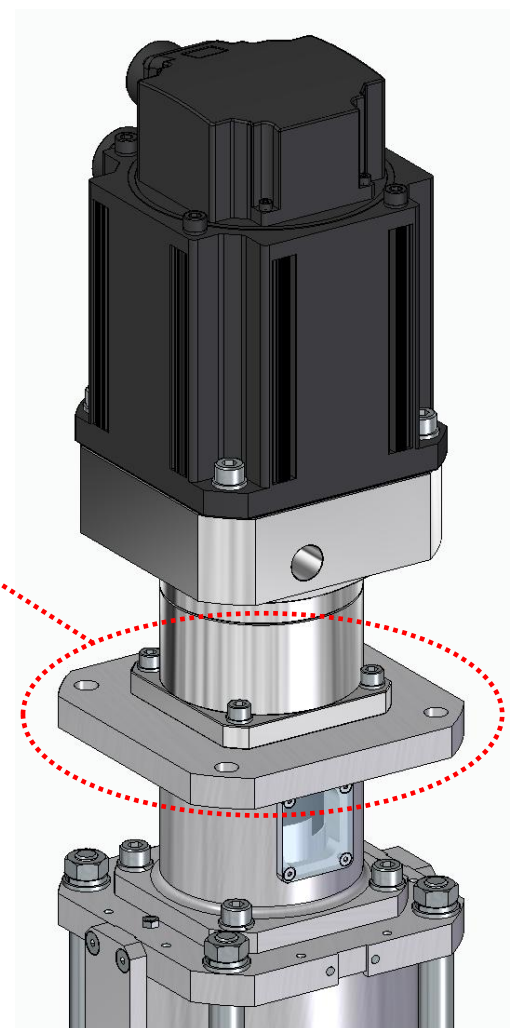
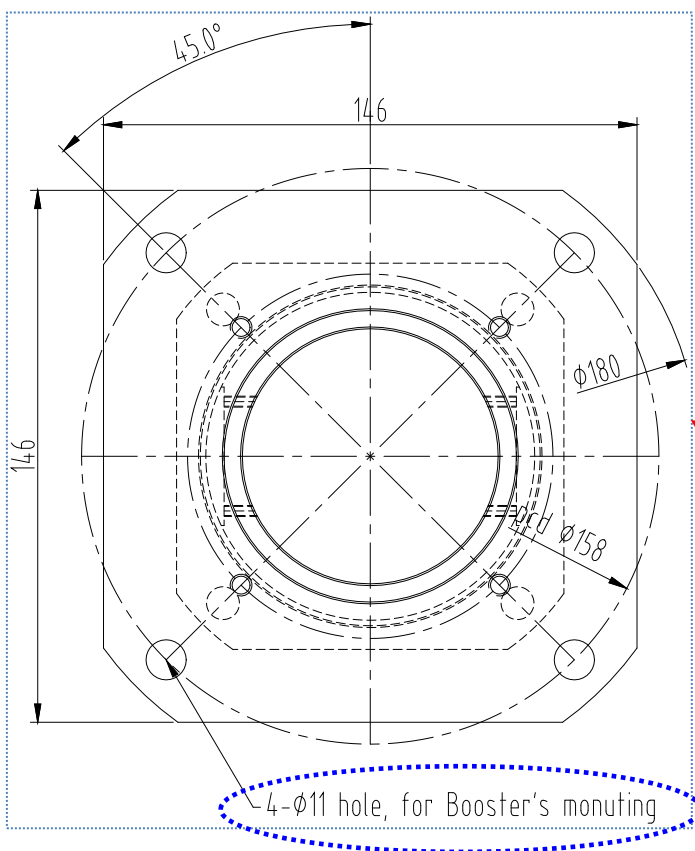
INSTALLATION

This booster pump needs a stand for decking and can be combined directly or separately with dispensing Gun on the purpose.

For system designers and engineers, Binks is preparing not only various valves, guns but also attachments and things like that.

Designers or engineers can draw connectors or fittings for their demands but please inquire to Binks as possible as they can.

It is best desirable to use the genuine parts manufactured or warranted by Binks.



TROUBLE SHOOTING

Troubles	Causes	Solution
Not discharging fluid	Power off	Check power line and recover
	Primary pump blocking	Check and recover
	(Servo) motor jammed	Repair or exchange
	Air off	Check air line and recover
	Fluid hardened	Check temperature and overhaul
	Elec. Connector contaminated	Remove and recover
Mechanical noises	Bearing failure	Exchange
	Misalignment	Overhaul and reassemble
	Shaft bended	Overhaul and reassemble
	Reducer failure	Repair and lubricate

OVERHAULING

Keep instructions and use specified tools because this Booster pump is manufactured and assembled precisely.

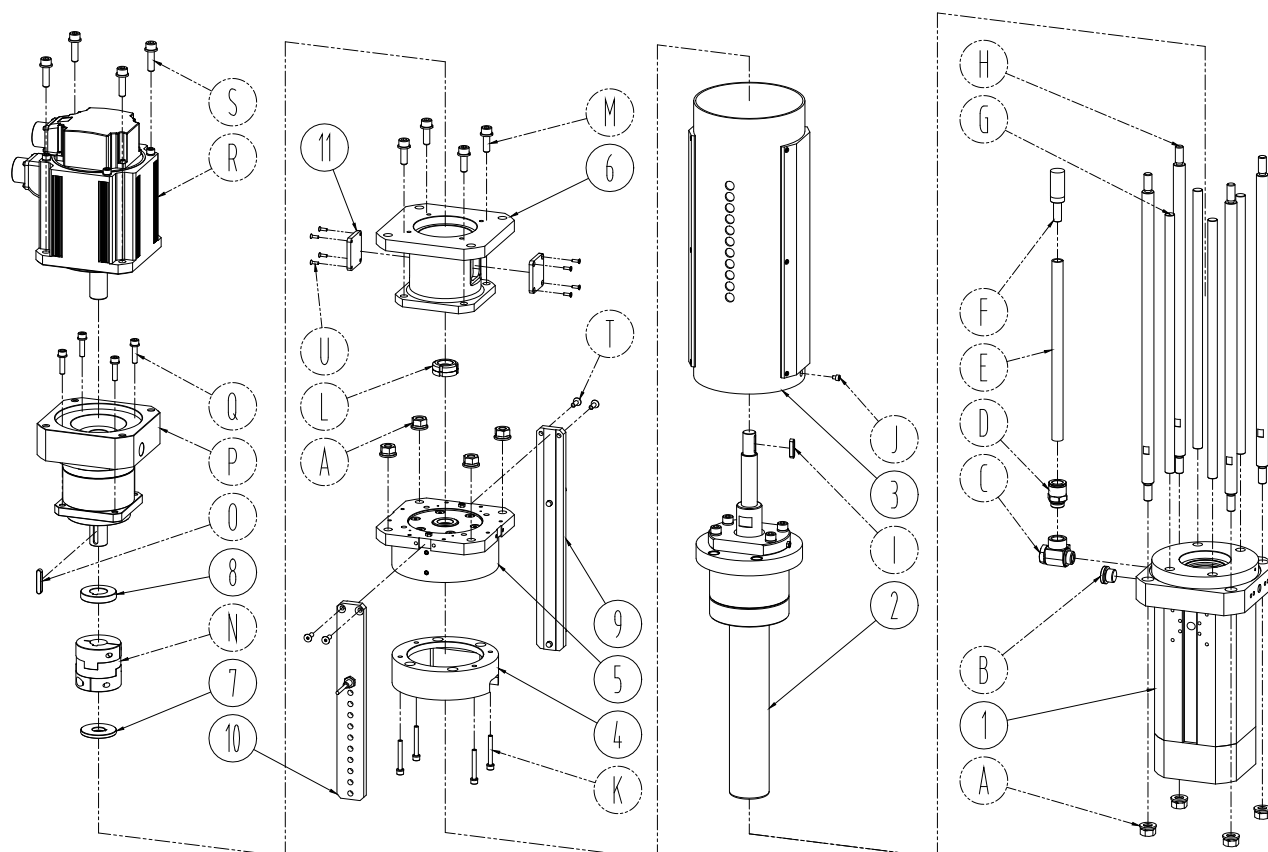
Do not fasten the bolts & nuts forcedly and keep torque by using torque wrench.

(Stronger forces than specified can carve or deform thread and then cause to leak.)

And prepare the specified repair kits before overhauling.

1. Disassembling Main

- Sequentially loosen the bolts and nuts and disassemble the sub-assemblies and individual parts as shown in the exploded diagram below (main exploded view).



※ Notice!

- Unfasten or fasten bolts by Zigzag way in order to prevent from deformations by force concentration.

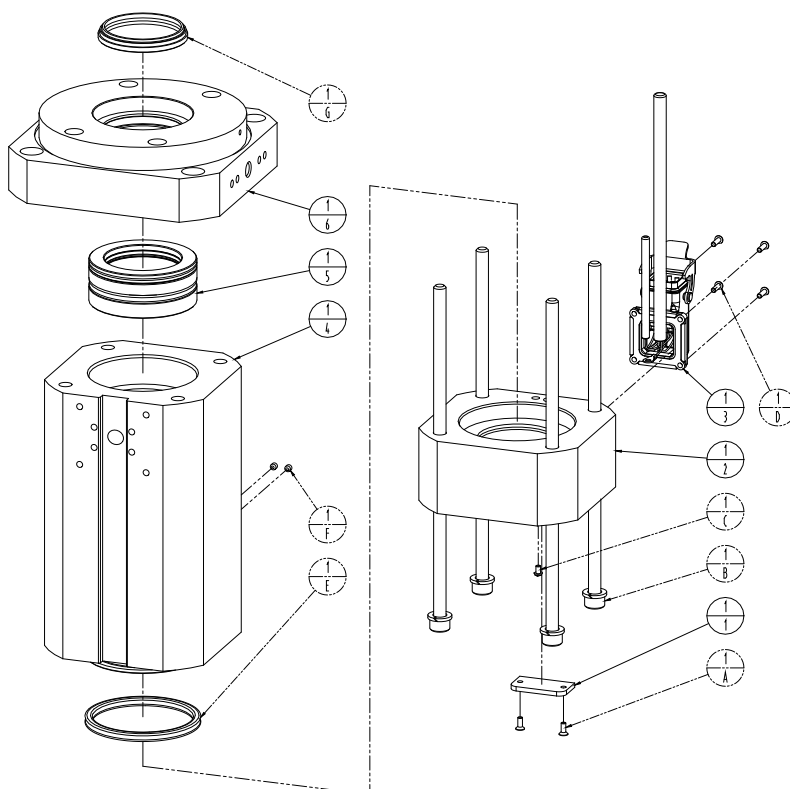
PARTS LIST						
NO.	PART NAME	PART NO.	SPECIFICATION	MATERIAL	Q'TY	REMARK
1	DOSER BODY ASSEMBLY	5F10000D	-	-	1	-
2	PLUNGER ASSEMBLY	5F20000D	-	-	1	-
3	DOSER COVER ASSEMBLY	5F30000D	-	-	1	-
4	UPPER STOPPER	5F00001D	-	-	1	-
5	UPPER FLANGE ASSEMBLY	5F40000D	-	-	1	-
6	MOTOR BRACKET	5F00002D	-	-	1	-
7	COUPLING SPACER A	5F00003D	-	-	1	-
8	COUPLING SPACER B	5F00004D	-	-	1	-
9	PROX. SENSOR BLOCK A ASS'Y	5F50000D	-	-	1	upper/lower limit
10	PROX. SENSOR BLOCK B ASS'Y	5F60000D	-	-	1	work origin
11	COUPLING CHECK WINDOW	5F00005D	-	-	2	-
A	HEX NUT & S/W & P/W	Q2115	-	-	8	-
B	BLANKING PLUG	M2592	-	-	1	-
C	ELBOW FITTING	M2500.008	-	-	1	-
D	PUSH-IN FITTING	M2500.009	-	-	1	-
E	OIL TANK	M2640	-	-	1	-
F	SILENCER	M2500.010	-	-	1	-
G	GUIDE ROD	M1413	-	-	4	-
H	TIE ROD	M1414	-	-	4	-
I	KEY	M2203	-	-	1	-
J	WRENCH BOLT & S/W	Q1376	-	-	1	-
K	WRENCH BOLT & S/W	Q1310	-	-	4	-
L	HARD LOCK BEARING NUT	Q2015	-	-	1	-
M	WRENCH BOLT & S/W	Q1316	-	-	4	-
N	OLDHAM COUPLING	M2106	-	-	1	-
O	KEY	M2207	-	-	1	-
P	REDUCER	M1113	-	-	1	-
Q	WRENCH BOLT & S/W	Q1314	-	-	4	-
R	SERVO MOTOR	E1211	-	-	1	-
S	WRENCH BOLT & S/W	Q1300022	-	-	4	-
T	DISH HEADED WRENCH BOLT	Q1704	-	-	4	-
U	DISH HEADED WRENCH BOLT	Q1714	-	-	8	-

2. Disassembling Sub ("DOSER BODY ASSEMBLY")

- Sequentially loosen the bolts and disassemble the sub-assemblies and individual parts as shown in the exploded view (sub-explosion view) below.

※ Notice!

- Unfasten or fasten bolts by Zigzag way in order to prevent from deformations by force concentration.



PARTS LIST						
NO.	PART NAME	PART NO.	SPECIFICATION	MATERIAL	Q'TY	REMARK
1/1	HEATER COVER PLATE	5F10001D	-	-	1	-
1/2	DOSER BODY A	5F10002D	-	-	1	-
1/3	HEATING CONNECTOR ASS'Y	5F11000D	-	-	1	-
1/4	DOSER BODY B	5F10003D	-	-	1	-
1/5	PACKING CASE ASS'Y	5F12000D	-	-	1	-
1/6	LOWER FLANGE	5F10004D	-	-	1	-
1/A	FLAT HEADED WRENCH BOLT	Q1707	-	-	2	-
1/B	WRENCH BOLT & S/W	Q1300020	-	-	4	-
1/C	ROUNDHEAD(+) SCREW	Q1810	-	-	1	-
1/D	ROUNDHEAD(+) SCREW	Q1811	-	-	4	-
1/E	QUAD RING	M3152	-	-	1	-
1/F	SET SCREW	Q1603	-	-	2	-
1/G	DOUBLE WIPER SEAL	M3329	-	-	1	-

RPK

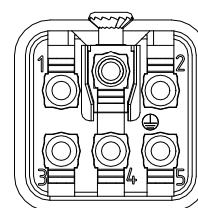
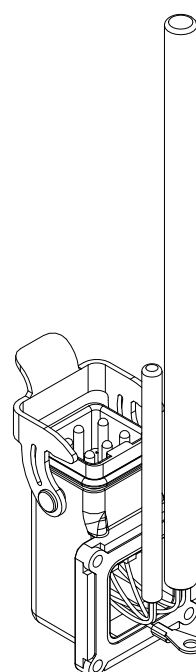
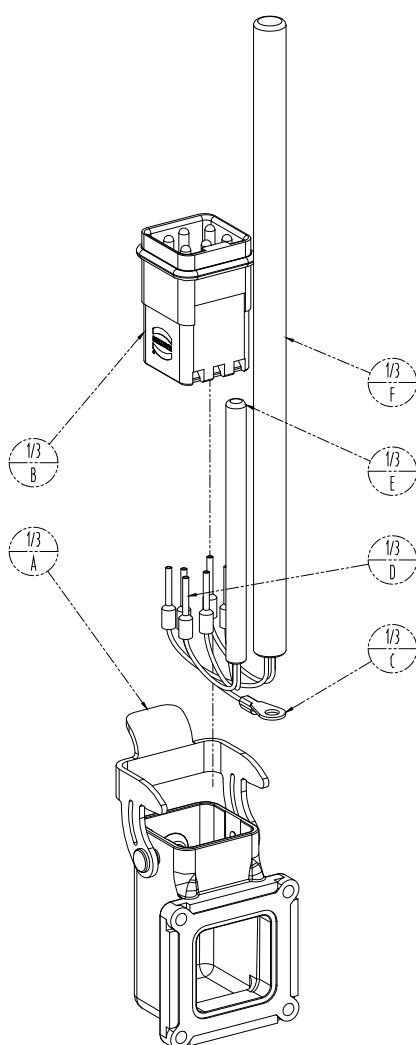
RPK

3. Disassembling Sub ("HEATING CONNECTOR ASSEMBLY")

- Sequentially loosen the bolts and disassemble the sub-assemblies and individual parts as shown in the exploded view (sub-explosion view) below.
- When connecting the harness, follow the pin map below.

※ Notice!

- Do not disassemble 'Connector block ass'y' unless any special situations like replacing or repairing.



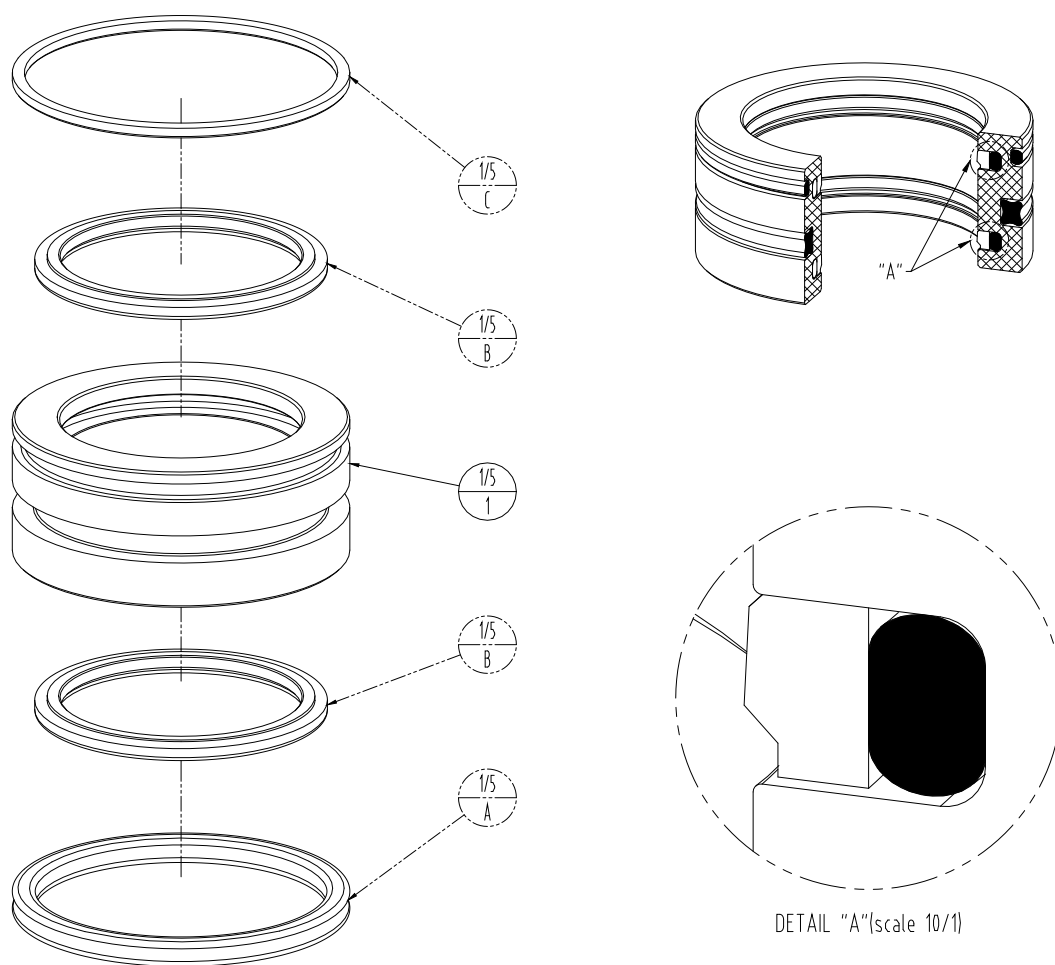
"PIN MAP" Detail(scale 2:1)

PARTS LIST						
NO.	PART NAME	PART NO.	SPECIFICATION	MATERIAL	Q'TY	REMARK
1/3/A	Han 3A Hous'g Angled bulkhead mount'g	E2118	-	-	1	-
1/3/B	Han Q. Insert male quick lock	E2120	-	-	1	-
1/3/C	INSULATED O-TERMINAL	E2405	-	-	1	-
1/3/D	PEN HOLE TERMINAL	E2406	-	-	6	-
1/3/E	TEMP. SENSOR	E6107	-	-	1	-
1/3/F	CARTRIDGE HEATER	E7224	-	-	1	-

Heater & Sensor Pin Connection No.			
PIN NO.	DESCRIPTION	Q'TY	REMARK
1	HEATER POWER	1	BLACK
2	HEATER POWER	1	BLACK
3	SENSOR	1	WHITE
4	SENSOR	1	RED
5	SENSOR	1	WHITE
⊕	GROUND	1	GREEN

4. Disassembling Sub ("PACKING CASE ASSEMBLY")

- Disassemble the seals sequentially as shown in the exploded view (sub-explosion view) below.
- Reassembling the seals, pay attention to the assembly direction (important) as shown in the figure.
- And be careful not to scratch or damage the seal when assembling.



PARTS LIST						
NO.	PART NAME	PART NO.	SPECIFICATION	MATERIAL	Q'TY	REMARK
1/5/1	PACKING CASE	5F12001D	-	-	1	-
1/5/A	QUAD RING	M3142	-	-	1	-
1/5/B	ROD SEAL	M3328	-	-	2	-
1/5/C	O-RING	M3200005	-	-	1	-

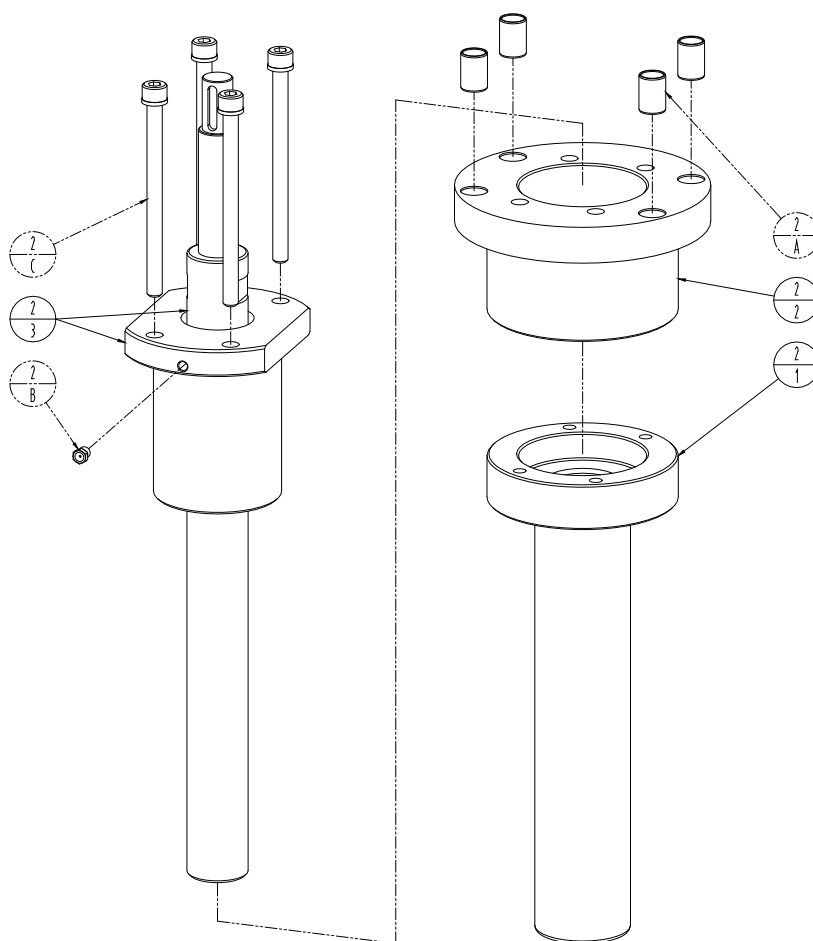
RPK

5. Disassembling Sub ("PLUNGER ASSEMBLY")

- Sequentially loosen the bolts and disassemble the sub-assemblies and individual parts as shown in the exploded view (sub-explosion view) below.
- When Reassembling, please be careful not to scratch or damage the surface of the "PLUNGER" (No. 2/1). The scratches may cause to leak fluids.

※ Notice!

- Unfasten or fasten bolts by Zigzag way in order to prevent from deformations by force concentration.

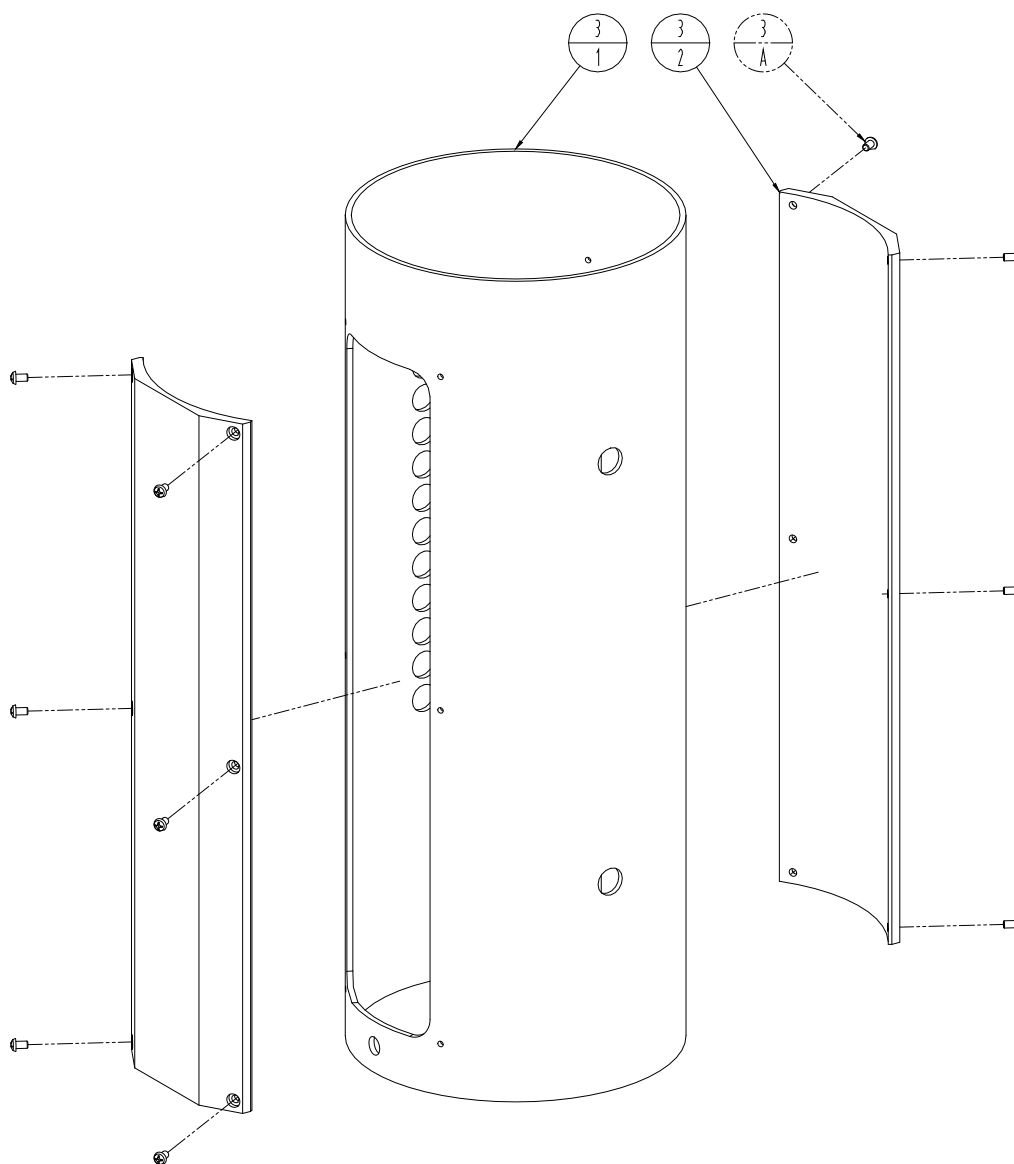


PARTS LIST						
NO.	PART NAME	PART NO.	SPECIFICATION	MATERIAL	Q'TY	REMARK
2/1	PLUNGER	5F20001D	-	-	1	-
2/2	BALL NUT HOUSING	5F20002D	-	-	1	-
2/3	BALL SCREW SET	5F20003D	-	-	1	-
2/A	DRY BUSH STRAIGHT	M1406	-	-	4	-
2/B	GREASE NIPPLE	M2400.005	-	-	1	-
2/C	WRENCH BOLT & small S/W	Q1300021	-	-	4	-

RPK

6. Disassembling Sub ("DOSER COVER ASSEMBLY")

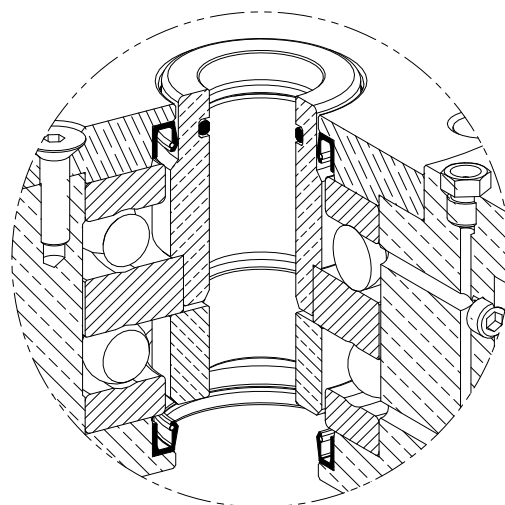
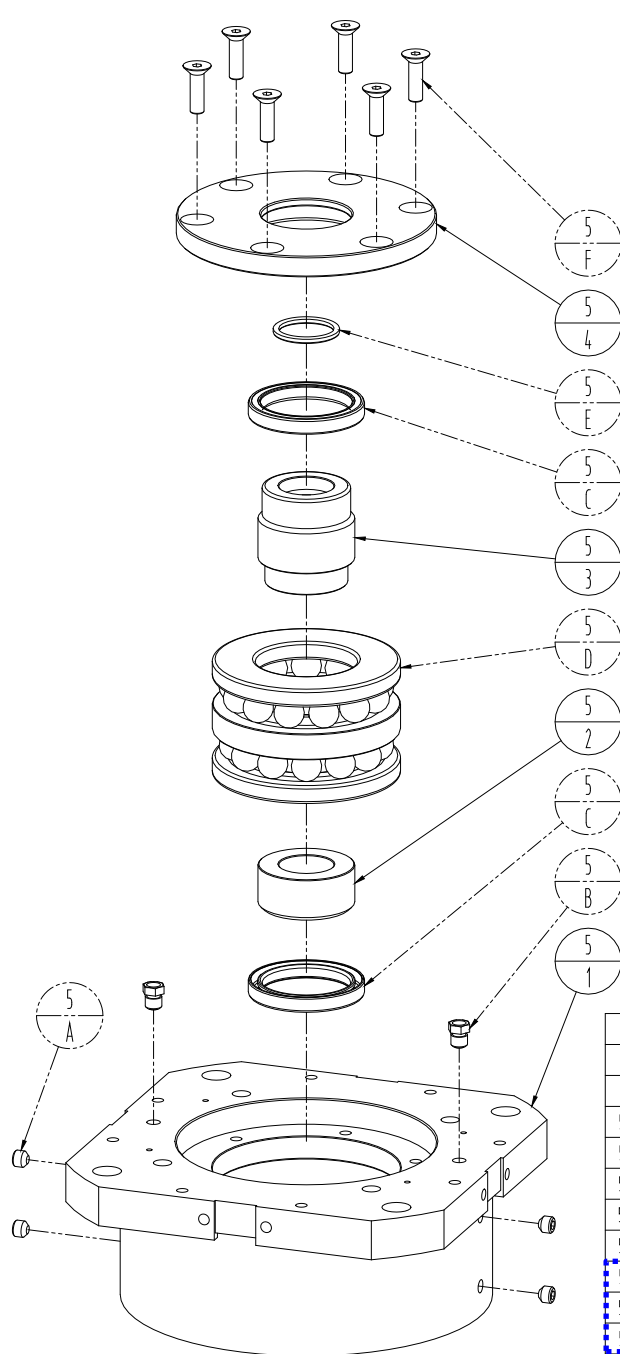
- Sequentially loosen the bolts and disassemble the sub-assemblies and individual parts as shown in the exploded view (sub-explosion view) below.



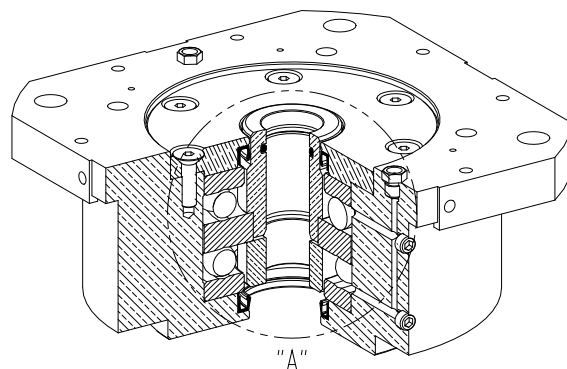
PARTS LIST						
NO.	PART NAME	PART NO.	SPECIFICATION	MATERIAL	Q'TY	REMARK
3/1	DOSER COVER	5F30001D	-	-	1	-
3/2	CHECK WINDOW	5F30002D	-	-	2	-
3/A	ROUNDHEAD(+) SCREW	Q1011	-	-	12	-

7. Disassembling Sub ("UPPER FLANGE ASSEMBLY")

- Sequentially loosen the bolts and disassemble the sub-assemblies and individual parts as shown in the exploded view (sub-explosion view) below.
- Reassembling the seals, pay attention to the assembly direction (important) as shown in the figure.
- And be careful not to scratch or damage the seal(o-ring) when assembling.



Detail "A"(scale 2/1)

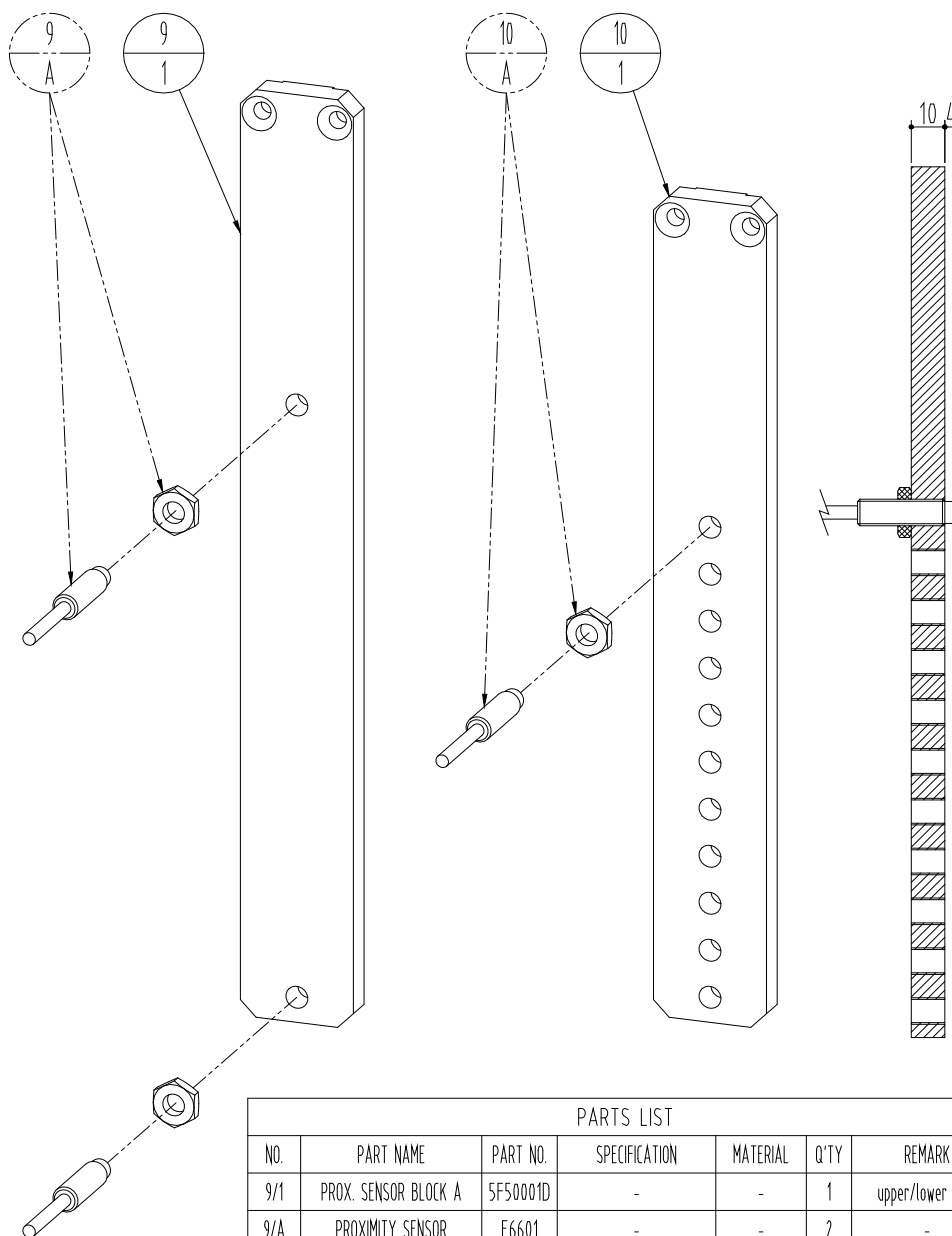


PARTS LIST						
NO.	PART NAME	PART NO.	SPECIFICATION	MATERIAL	Q'TY	REMARK
5/1	BEARING HOUSING FLANGE	SF40001D	-	-	1	-
5/2	BEARING SPACER	SF40002D	-	-	1	-
5/3	BEARING NUT SPACER	SF40003D	-	-	1	-
5/4	BEARING COVER	SF40004D	-	-	1	-
5/A	SET SCREW	Q1604	-	-	4	-
5/B	GREASE NIPPLE	M2400.005	-	-	2	-
5/C	OIL SEAL	M3330	-	-	2	-
5/D	THRUST BALL BEARING	M1318	-	-	1	-
5/E	O-RING	M3225	-	-	1	-
5/F	FLAT HEADED WRENCH BOLT	Q1713	-	-	6	-

RPK

8. Disassembling Sub ("PROXIMITY SENSOR BLOCK A & B ASS'Y")

- Sequentially loosen the bolts and disassemble the sub-assemblies and individual parts as shown in the exploded view (sub-explosion view) below.
- Assemble the proximity sensor (PRW08-2DN) so that it protrudes 4 mm as shown in the figure below.



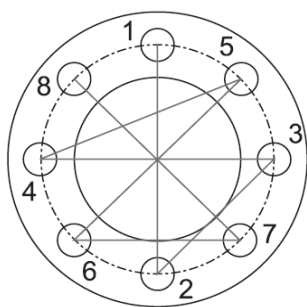
9. Reassembling Main & Sub

- Reassembling should be done in the reverse order of disassembling.
- Use the specified tools and apply the designated torque to fasten bolts and nuts.
 - ▶ Over torque can carve or deform the threads and then weaken their strength.
- Assemble by bear hands in order to prevent from dust, debris or small fabric things.
- Prepare RPK in advance.

※ Notice!

- ▶ Unfasten or fasten bolts by Zigzag way in order to prevent from deformations by force concentration.

Zigzag tightening
or loosening



▶ Torque table (for reference)

No.	Bolt or Nut size(M)	Bolt material	Torque(Nm)		Remark
			Base material AL6061-T6	Base material STEEL	
1	M3	SCM435			
2	M4	SCM435	2	4.5	
3	M5	SCM435	3	5.5	
4	M6	SCM435	4.5	7	
5	M8	SCM435	8	12.5	
6	M10	SCM435	13	17.5	
7	M12	SCM435		42	
8					
9					
10					

MAINTENANCE and REPAIR KIT (RPK)

Maintenance is important for the best performance and the life of the equipment. This maintenance shown here is the general procedure and the condition of operation is dependent on the material, operating period, the circumstances of shop and so on. Therefore, every cases of operation can not be offered the warranty.

It is recommended to consider user's experiences and the circumstances of shop in order to decide overhaul period.

The following check table describes about an equipment including Booster pump unit.

■ Daily Check

Acoustic test	servo motor	metallically frictional sounds clacking noises	Stop to operate. Inquire to Binks.
	reducer		
	Booster pump		
	shut off v/v	air leaking sounds	Remove causes and repair.
	sol. v/v		
Visual test	Booster pump	leaking of fluid, contamination	Overhaul, and then Inquire to Binks.
	shut off v/v		Repair with RPK or overhaul
	ball v/v		
	elec. Connector	wetness and contamination	Cleansing
	pressure gauge	abnormal operation	Exchange
	hoses and cables	damages or contamination	Exchange or cleansing

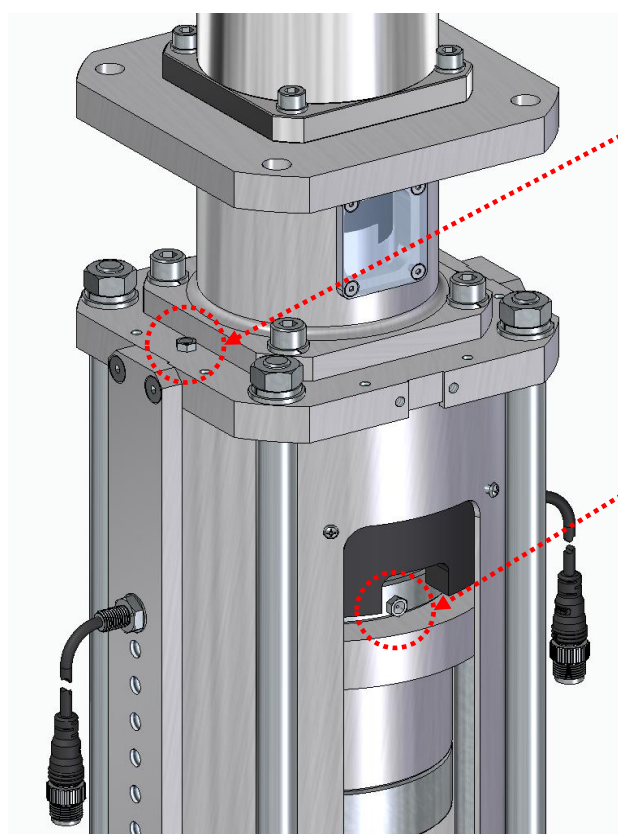
■ Monthly Check

Mechanical test	bolts and nuts	loosened	Torque check and Fastening
	fittings		
Lubrication check	moving parts	dried or contaminated	Lubricate

■ Lubrication :

It is recommended to be lubricated once every 6 months.

Where being needed are two points like the figure.



Nipple for greasing Bearing

► After removing the opposite grease nipple, fill it enough to drain the old grease.

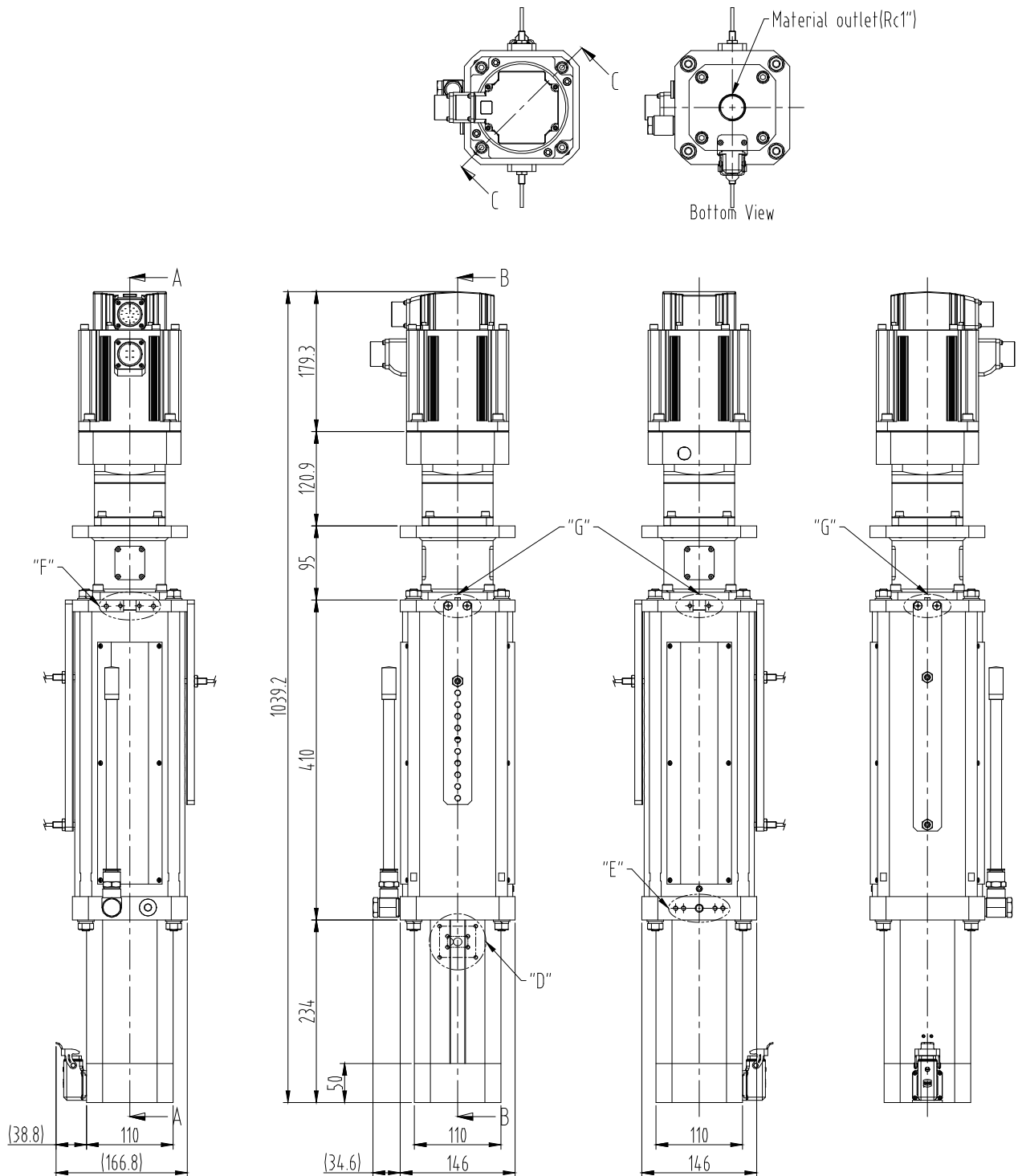
Nipple for greasing Ball screw

► After disassembling the inspection window, fill it enough to drain the old grease.

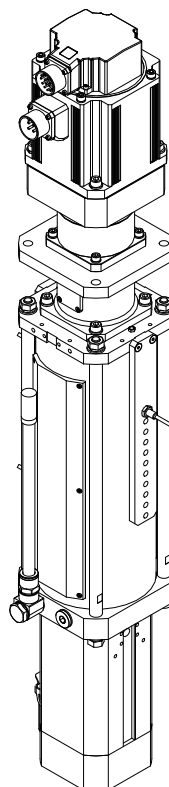
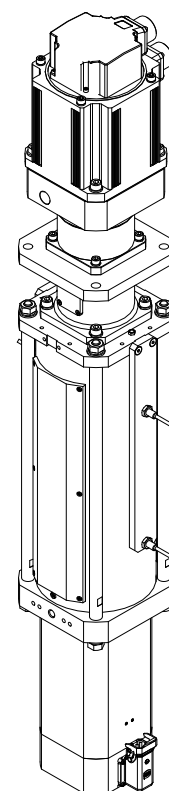
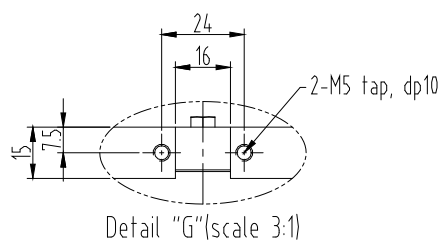
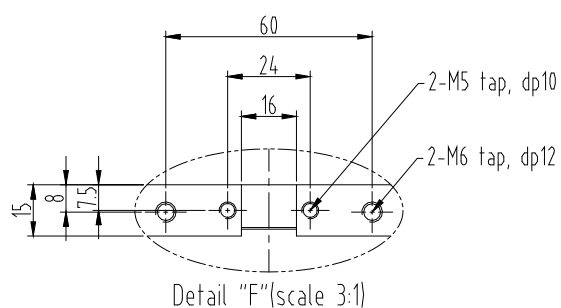
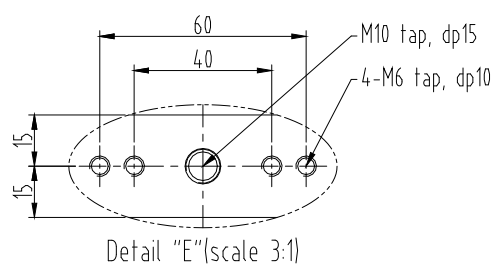
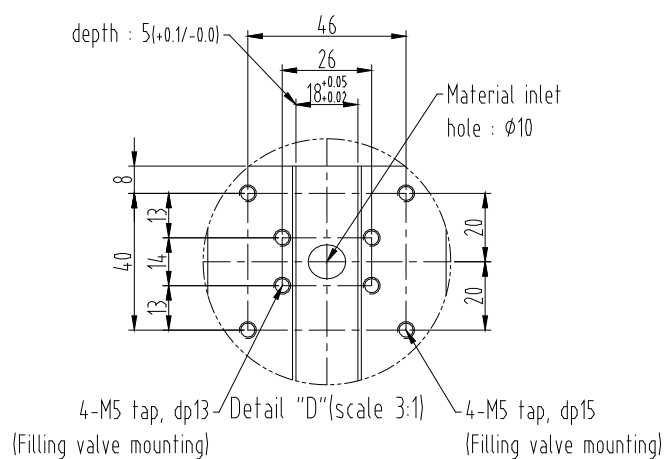
■ 3FRK0003 Booser pump(300cc) RPK

Repair Kit Lists (RPK)						
NO.	PART NAME	PART NO.	SPECIFICATION	MATERIAL	Q'TY	REMARK
2/1	PLUNGER	5F20001D	-	-	1	Material contact parts
1/E	QUAD RING	M3152	-	-	1	Material contact parts
1/G	DOUBLE WIPER SEAL	M3329	-	-	1	Material contact parts
1/5/A	QUAD RING	M3142	-	-	1	Material contact parts
1/5/B	ROD SEAL	M3328	-	-	2	Material contact parts
1/5/C	O-RING	M3200005	-	-	1	Material contact parts
5/C	OIL SEAL	M3330	-	-	2	Bearing parts
5/D	THRUST BALL BEARING	M1318	-	-	1	Bearing parts
5/E	O-RING	M3225	-	-	1	Bearing parts

DIMMENSIONS



DIMMENSIONS



STANDARD WARRANTY

Binks warrants all equipment manufactured by Binks to be free from defects in material and workmanship on the date of sale to original purchaser for use. With the exception of any special, extended, or limited warranty published by Binks, Binks will, for a period of 12 months from date of sale, repair or replace any part of equipment determined by Binks to be defective.

This warranty applies only when the equipment is installed, operated and maintained in accordance with Binks's written recommendations.

This warranty does not cover, and Binks shall not be liable for general wear and tear, or any malfunction, damage or wear caused by faulty installation, misapplication, inadequate maintenance, negligence, accident, tampering, or substitution of non-Binks component parts.

Nor shall Binks be liable for malfunction, damage or wear caused by the incompatibility of Binks equipment with structures, accessories, equipment or materials not supplied by Binks, or improper design, manufacture, installation, operation or maintenance of structures, accessories, equipment or materials not supplied by Binks.

This warranty is conditioned upon the prepaid return of the equipment claimed to be defective to an authorized Binks distributor for verification of the claimed defect. If the claimed defect is verified, Binks will repair or replace free of charge any defective parts. The equipment will be returned to the original purchaser transportation prepaid. If inspection of the equipment does not disclose any defect in material or workmanship, repairs will be made at a reasonable charge, which charges may include the cost of parts, labor, and transportation.

This warranty is exclusive, and is in lieu of any other warranties, express or implied, including but not limited to warranty of merchantability or warranty of fitness for a particular purpose.

Binks's sole obligation and buyer's sole remedy for any breach of warranty shall be as set forth above. The buyer agrees that no other remedy (including, but not limited to, incidental or consequential damages for lost profits, lost sales, injury to personal property, or any other incidental or consequential loss) shall be available. Any action for breach of warranty must be brought within (2) years of the date of sale.

Binks makes no warranty, and disclaims all implied warranties of merchantability and fitness for a particular purpose in connection with accessories, equipment, materials or components sold but not manufactured by Binks. The items sold, but not manufactured by Binks like electric motor, switches, reducers, bearings and so on, are subject to warranty, if any, of their manufacturer. Binks will provide purchaser with reasonable assistance in making any claims for breach of these warranties.

In no event will Binks be liable for indirect, incidental, special or consequential damages resulting from Binks supplying equipment hereunder, or the furnishing, performance or use of any product or other goods sold hereto, whether due to a breach of contract, breach of warranty, the negligence of Binks, or otherwise.

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