

# **NOP FILTER PUMP YTH-GCI 132/135 Repair Kit**

## **User's Instruction Manual**

### **IMPORTANT NOTICE**

Please read this instruction manual carefully before repairing the pump. It describes the content of repair parts and provides instructions for disassembling and reassembling the pump. Failure to read this instruction manual may result in reduced equipment performance, damage to the equipment, or injury to human beings!






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## 1. For Your Safety

Be familiar with the safety measures and always follow the precautions and safety operations indicated. When the following symbols and headings are present, pay special attention to them as they may cause personal injury or property damage.

In this manual, danger levels are divided according to the following headings.

 <b>Danger</b>	It means that if mishandled, the user is extremely likely to be killed or severely disabled.
 <b>Warning</b>	Improper handling may cause death or severe injury to the user.
 <b>Caution</b>	Improper handling may result in minor injury to the operator or damage to the equipment.

## 2. Product Warranty

After disassembling and reassembling by the customer, the product warranty (either 1 year from shipment or 5,000 hours of operation) will no longer apply.

The design of the product is subject to change without prior notice for improvement. Please be aware that the repair kits you have purchased in the past may no longer be usable.

### 3. Target Pumps

The models covered by this repair kit are as follows.

Please check the nameplate of the pump you are using and confirm that the models match.

Product Model	Input Voltage/Frequency	
TOP-YTH1500R1-I135CG	AC 415 V	50 Hz
TOP-YTH1500R2-I132CG	AC 230 V	60 Hz
TOP-YTH1500R3-I135CG	AC 200 V	50 Hz
TOP-YTH1500R3-I132CG		60 Hz
TOP-YTH1500R4-I135CG	AC 400 V	50 Hz
TOP-YTH1500R5-I135CG	AC 380 V	50 Hz
TOP-YTH1500R6-I132CG	AC 440 V	60 Hz
TOP-YTH1500R7-I132CG	AC 220 V	60 Hz



E.g.: TOP-YTH1500R3-I132CG (60Hz)



#### 4. Included Items

This product includes the complete set of repair parts shown below.

Before starting work, please check the quantity of parts and appearance for any abnormalities.



#### Caution

Parts other than this repair kit are not sold individually. Please be careful not to damage or lose any parts during the disassembly and reassembly work to be performed.

- Item list for GCI-130 Seal Kit

Symbol	Part name	Qty
m1	Seal ring (rotating side)	1
m2	Floating seat (fixed side)	1
m3	Sealing washer	1
m4	O-ring G10	2
m5	O-ring S120	6

[m1]



[m2]



[m3]



[m4]



[m5]



- Item list for GCI-130 Suction Strainer Kit

Symbol	Part name	Qty
s1	Suction strainer	1
s2	Pan head screw with cross recess	4

[s1]



[s2]



## 5. Necessary Tools

Please prepare the following tools for the repair work.

Symbol	Tool name	Standard	Specification	Used for
T1	Allen keys	ISO 2936	s = 2.5 / 3 / 4 / 5 / 6 mm	Hexagon socket head cap screw
T2	Cruciform screw drivers	ISO 8764	PH #1, #2	Pan head screw with cross recess
T3	Slotted screwdriver or the like	ISO 2380	l = 50 - 300	Disassembling of floating seat
T4	Open-end or adjustable wrench	ISO 6787	AF 27 mm / l = 250 mm	Double nut
T5	Open-end wrench	ISO 4229	AF 13 mm	Hexagon head bolt
T6	Pipe wrench	BS 3594-1	L = 250 mm or applicable to OD 45 mm	As a fixture of pump shaft
T7	Barrel nipple	ISO 7-1	3/4" BSPT male, about 300 mm length	As a handle for tightening screws
T8	Raw material block		OD 40 mm to 110 mm, height > 40 mm	As a jig for pressing
T9	Mechanical puller	ISO 4510-2	for OD 140 mm	Coupling positioning
T10	Feeler gauge		0.5 mm	Coupling positioning
T11	Torque wrenches	ISO 6789-1	Open ended wrench: 13mm 12 Nm, 27 mm 20 Nm, Hex bits: 3 mm 3.5 Nm, 4 mm 7 Nm and 9 Nm, 6 mm 12 Nm.	Bolts and nuts
T12	Eyebolt	ISO 3266	M10, 2 pcs	Hoisting

[T1]



[T2]



[T3]



[T4]



[T5]



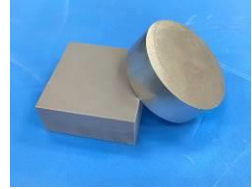
[T6]



[T7]



[T8]



[T9]



[T10]



[T11]



[T12]





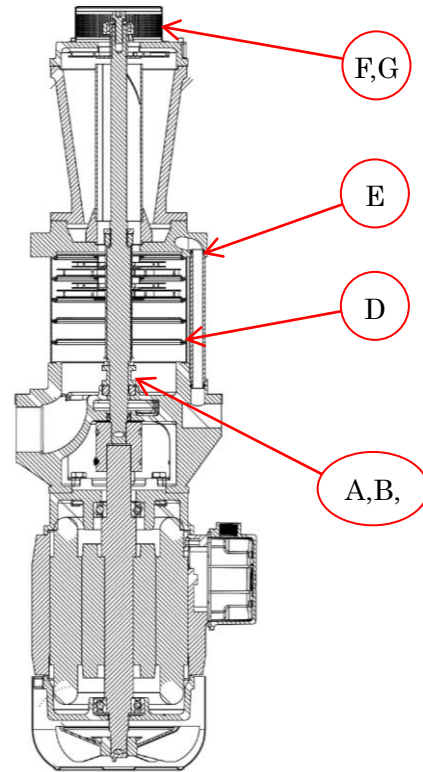
## 6. Disassembling Procedure

### 6.1. Pump model check

Pull the pump out of the tank and drain the coolant well before placing it upside down on the work bench. Refer to the cross-sectional drawing below to determine the structure of the pump to be disassembled and the location of the replacement parts.



Cross-sectional drawing of 60Hz model

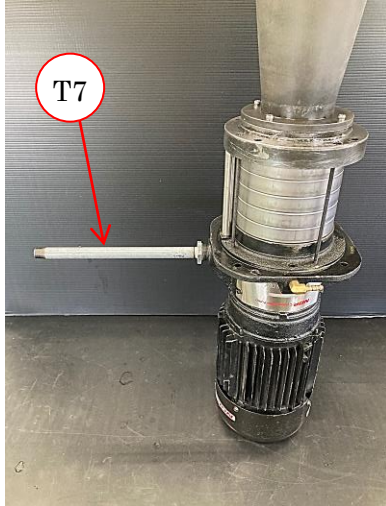


<p><b>⚠ Danger</b></p>	<p>The weight of this product is approximately 40 kg. Use cargo handling equipment (hoist, crane, etc.) for transportation or posture adjustment.</p>
<p><b>⚠ Warning</b></p>	<p>Crane operation and slinging operations must be performed by qualified personnel.</p>
<p><b>⚠ Caution</b></p>	<p>Prepare a sorting container to prevent mixing of removed and replaced parts. Incorrect parts may cause malfunction or failure of the product.</p>

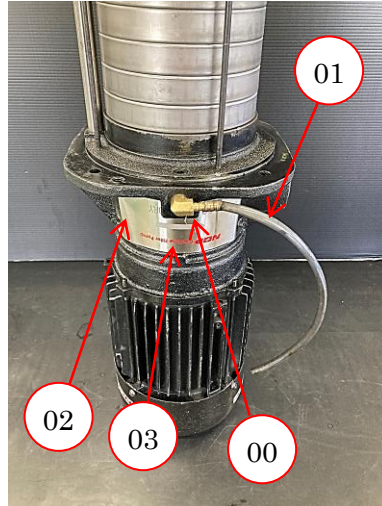
## 6.2. Disassembling preparation

To facilitate disassembly and assembly, perform the following operations.

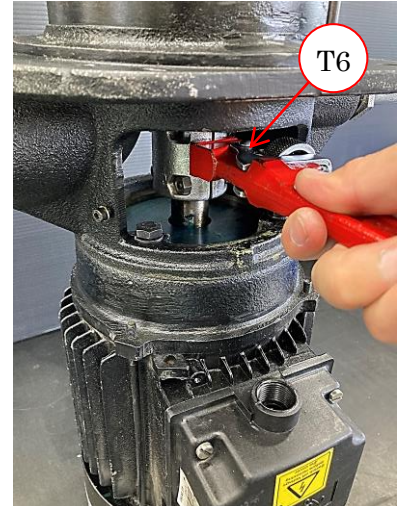
- Attach the [T7] Barrel nipple to the contaminant discharge port.
- Pull out the [01] Drain tube from [00] Hose nipple.
- Use the [T1] Allen key to loosen 4 pcs of [02] Hex socket head cap screw and remove 2 pcs of [03] Coupling cover.
- Fix the Coupling by [T6] Pipe wrench.



[01]



[02]



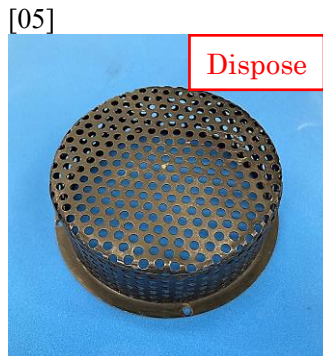
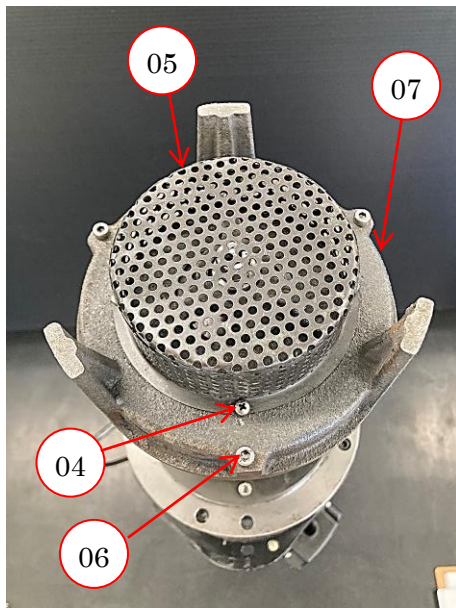
[03]



### 6.3. Remove Suction strainer

Use [T2] Cruciform screw drivers to remove 4 pcs of [04] Pan head screw with cross recess and [05] Suction Strainer.

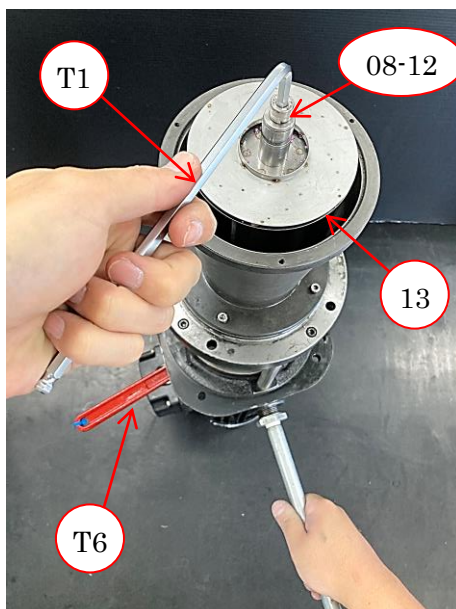
Use [T1] Allen keys to remove 3 pcs of [06] Hex socket head cap screw and [07] Suction flange.



### 6.4. Remove Suction impeller

Use [T1] Allen keys to turn [08] Hex socket head cap screw in counter-clockwise to ensure the [T6] Pipe wrench fixes the shaft.

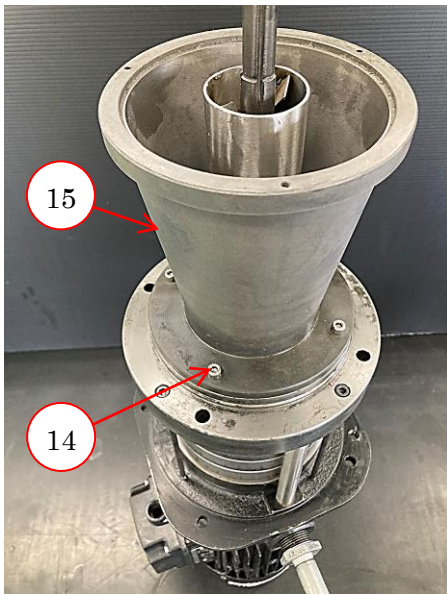
While holding [T7] Barrel nipple and supporting the entire pump, remove the [08] Bolt, [09] Spring washer, [10] Plain washer, [11] Bushing, [12] Collar and [13] Suction impeller.





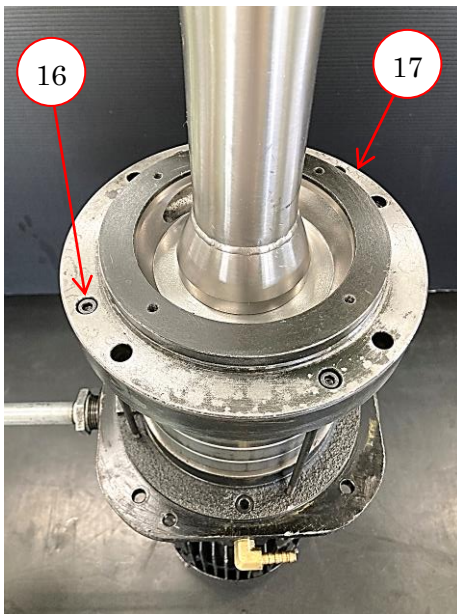
### 6.5. Remove Hydro cyclone filter

Use [T1] Allen keys to remove 4 pcs of [14] Hex socket head cap screw and [15] Hydro cyclone body.

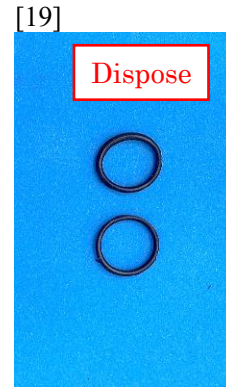
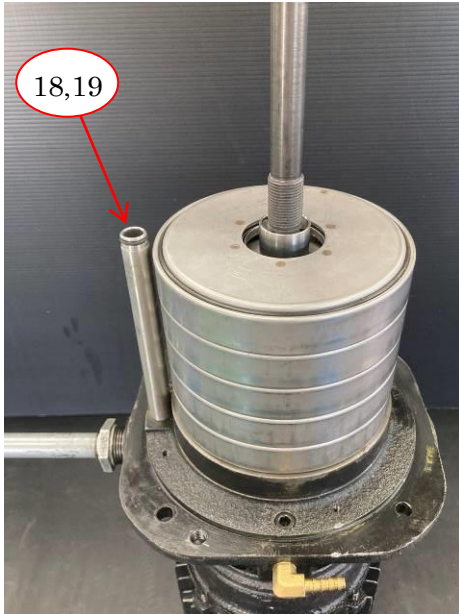


### 6.6. Remove Suction flange

Use [T1] Allen keys to remove 4 pcs of [16] Hex socket head cap screw and [17] Middle flange.



Pull out [18] Drain pipe and remove 2 pcs of [19] O-ring from it.

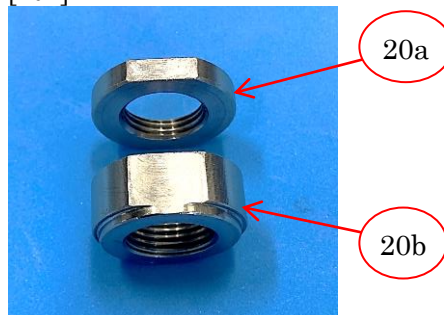


**6.7. Remove Double nut**

Use [T4] Adjustable wrench to remove [20a,20b] Double nut.



[20a] Upper side of double nut  
 [20b] Lower side of double nut

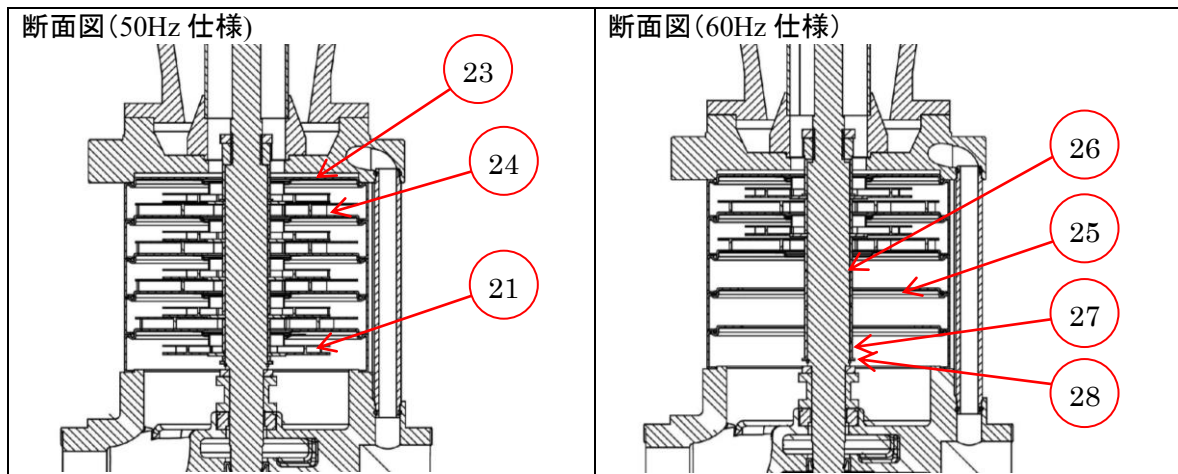


## 6.8. Disassemble Centrifugal pump

Referring the cross-sectional drawing below and remove [21] to [28] parts.

The structure of centrifugal pump part is different between the 50Hz model and the 60Hz model, so the number of parts used may differ.

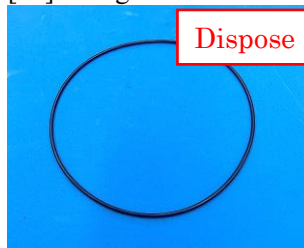
Please keep each part separated so that the assembling order and quantity will not be mistaken when reassembling.



[21] Pressure impeller



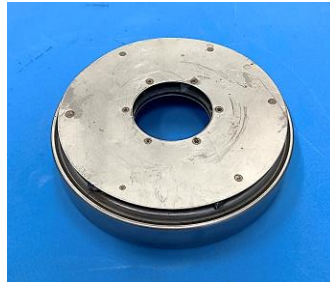
[22] O-ring S120



[23] Impeller cover



[24] Impeller cover with guide vane



[25] Dummy impeller cover



[26] Spacer A (5 pcs)



[27] Spacer B



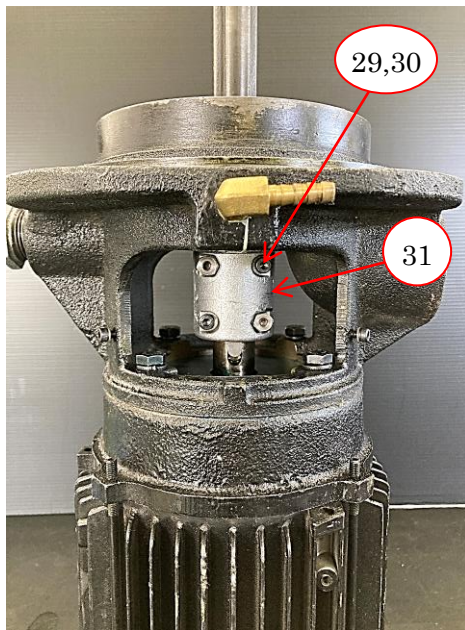
[28] Spacer C





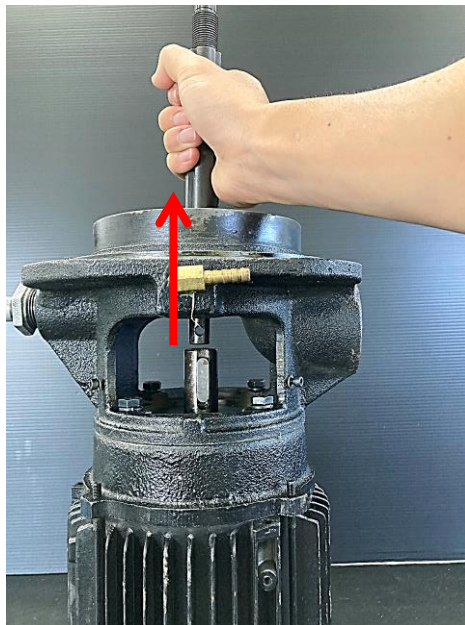
### 6.9. Remove Coupling

Loosen 4 sets of [29] Hex socket head cap screw and [30] Hex nut and remove [31] Coupling.



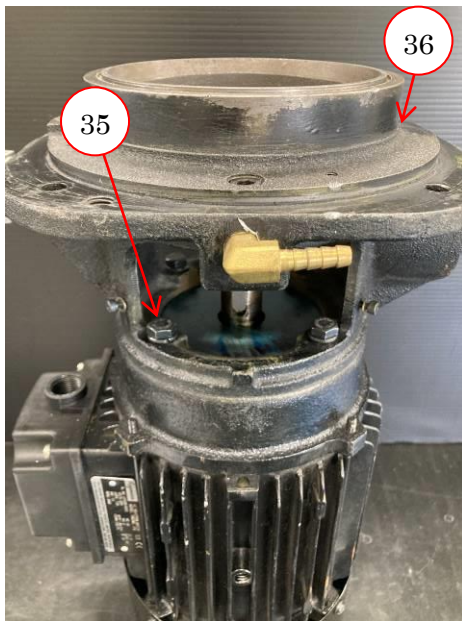
### 6.10. Remove Pump shaft and Mechanical seal

Pull out [32] Pump shaft and remove [33] Sealing washer and [34] Seal ring from it.

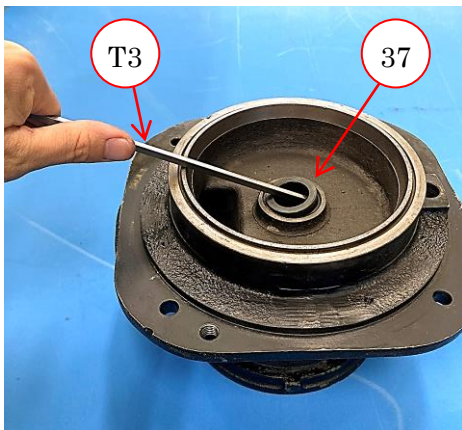


### 6.11. Remove Floating seat

Loosen 4 pcs of [35] Hex socket head cap screw and separate [36] Stem from the motor.



Use [T3] Slotted screwdriver or the like to remove [37] Floating seat.





### 6.12. Confirm disposed parts

Refer to section 2.1 and separate the parts to be replaced from the removed parts to be disposed so that they don't mixed up.

- Item list for GCI-130 Seal Kit

Symbol	Part name	Qty
m1	Seal ring (rotating side)	1
m2	Floating seat (fixed side)	1
m3	Sealing washer	1
m4	O-ring G10	2
m5	O-ring S120	6

[m1]



[m2]



[m3]



[m4]



[m5]



- Item list for GCI-130 Suction Strainer Kit

Symbol	Part name	Qty
s1	Suction strainer	1
s2	Pan head screw with cross recess	4

[s1]



[s2]



Wipe off as much dirt as possible from disassembled parts before assembling from the next page. Especially for fitting or sealing parts, use parts cleaner or the like to remove any dirt and oil

**⚠ Warning**

Up to about 0.5 MPa pressure is generated inside the pump. If foreign matter gets into the fitting or sealing area, liquid leakage may occur, resulting in damage to the pump and equipment, electrical leakage, etc.

## 7. Assembling Procedure

### 7.1. Assembling Mechanical seal

Apply grease to the outer circumference of the [m2] Floating seat and insert it into the [36] Stem using a hand press. At this time, please make sure that the sliding surface of the floating seat faces upwards (as shown on the photo below).

To prevent the [m2] Floating seat from being damaged by the press load, protect it using [T8] Raw material block.

[m2] Floating seat



[36] Stem (assembled with [m2])



### 7.2. Assembling Stem

Align [36] Stem to the motor flange and insert it, then tighten 4 pcs of [35] Hex socket head cap screw with 12 Nm tightening torque.



[36] Stem assy



### 7.3. Assembling Pump shaft

Insert the [33] Sealing washer into [32] Pump shaft.

Apply grease to the inner circumference of [m2] Sealing ring and insert it into [32] Pump shaft.

At this time, make sure that the sliding surface of the Sealing ring faces upwards as on the photo below.

[32] Pump shaft assy



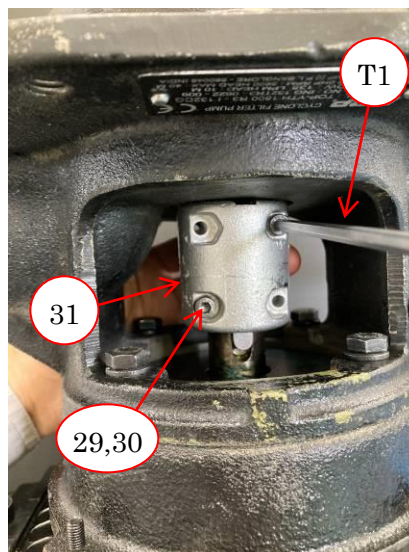
[m2] Seal ring



[m3]



Insert [32] Pump shaft assy into [36] Stem and temporarily assemble [31] Coupling.

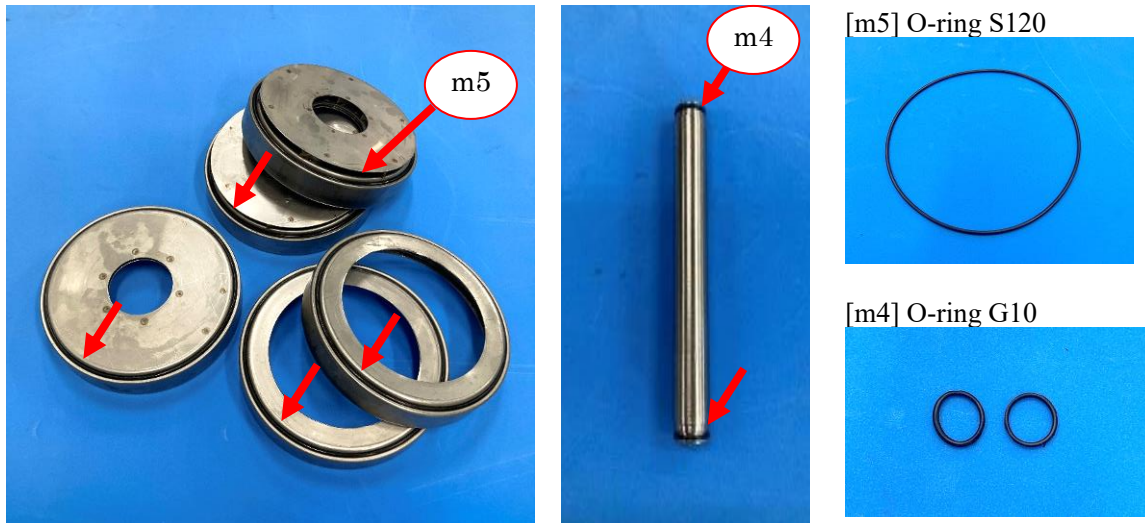




#### 7.4. Preparation of assembling centrifugal pump

Apply grease to 6 pcs of [m5] O-ring and set them in the grooves of all [23],[24],[25] Impeller covers and [36] Stem.

Apply grease to 2 pcs of [m4]O-ring and set them in the grooves of [18] Drain pipe.



Check the quantity of [21] Pressure impeller and each Spacer rings [26],[27],[28] are the same as in the table below for the next procedure.

Symbol	Part name	Part quantity	
		GCI-135 (50Hz)	GCI-132 (60Hz)
21	Pressure impeller	5	2
26	Spacer A	5	5
27	Spacer B	1	1
28	Spacer C	1	1

Example of 60Hz model.



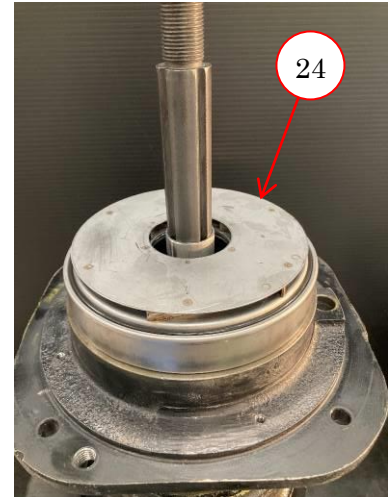
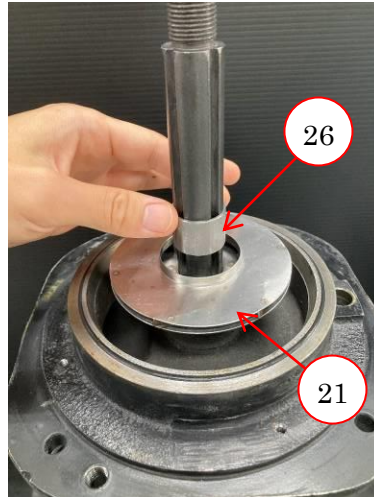
## 7.5. Assembling centrifugal pump

### 7.5.1. For the 50Hz model pump

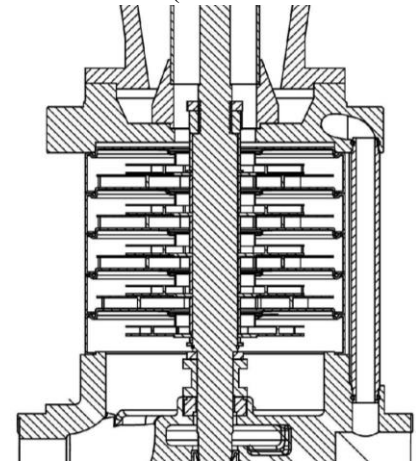
Insert [28] Spacer C and [27] Spacer B into [32] Pump shaft assy.

Assemble in the order of [21] Pressure impeller, [26] Spacer A, [24] Impeller cover with guide vane, then repeat it four times.

For the 5th stage, do the same but assemble [23] Impeller cover instead of [24] Impeller cover with guide vane.



Cross-section (50Hz Model)

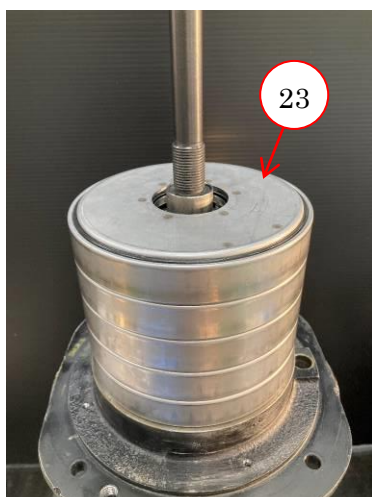
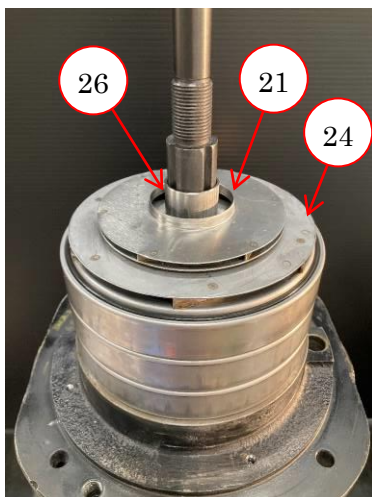
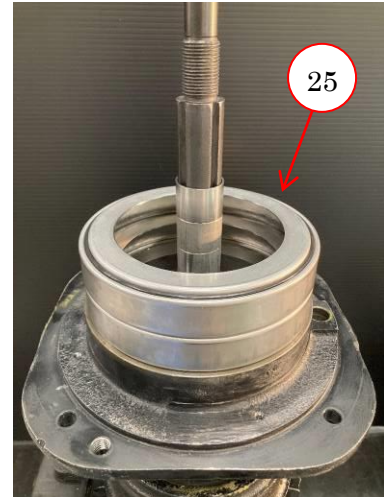
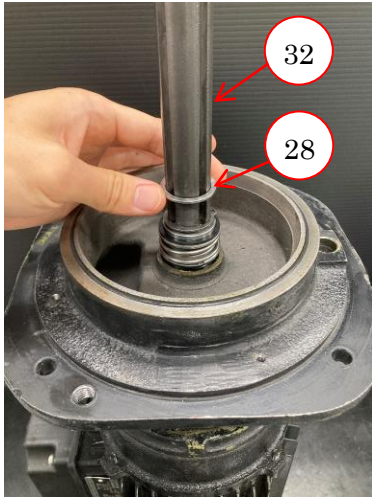


### 7.5.2. For 60Hz model pump

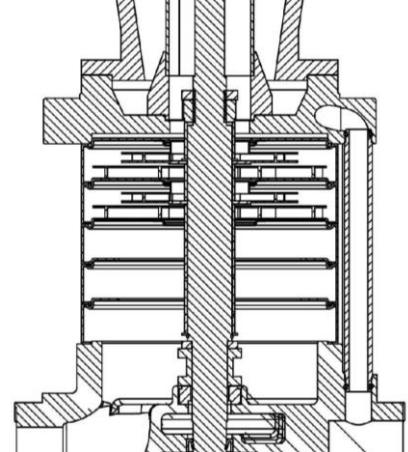
Insert [28] Spacer C, [27] Spacer B and 3 pcs of [26] Spacer A into [32] Pump shaft assy.

Place 2 pcs of [25] Dummy impeller cover onto the Stem.

Assemble in the order of [21] Pressure impeller, [26] Spacer A, [24] Impeller cover with guide vane and repeat it twice. For the 5th stage, do the same but assemble [23] Impeller cover instead of [24] Impeller cover with guide vane.



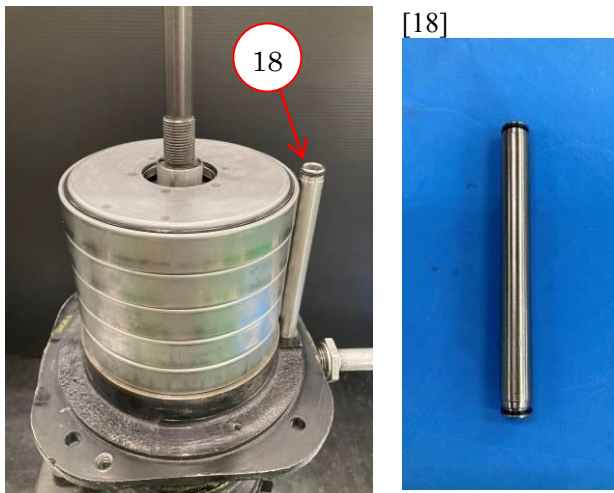
Cross-section (60Hz Model)





### 7.6. Assembling Drain pipe

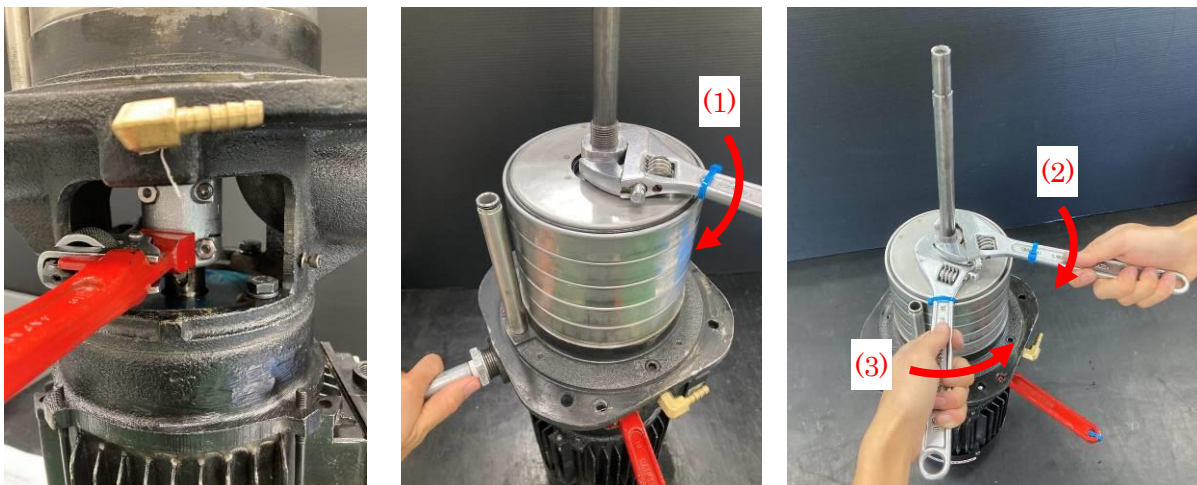
Insert either side of [18] Drain pipe into the hole on the Stem.  
At this time, make sure not to damage the [m4] O-rings on the pipe.



### 7.7. Assembling Double nut

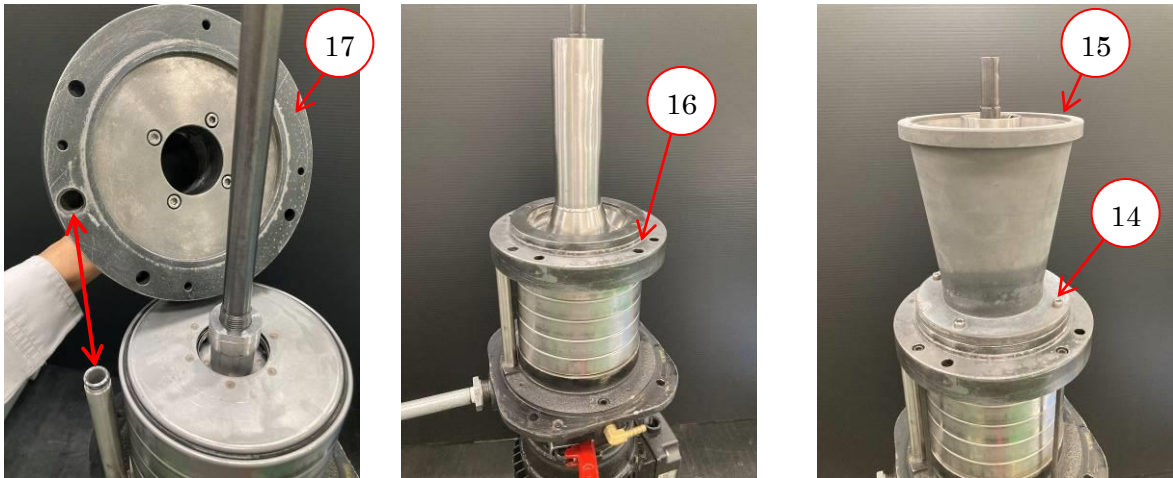
Fix the pump shaft by holding the [31] Coupling with [T6] Pipe wrench, and tighten [20b] Lower side of double nut with 20 Nm tightening torque using [T4] Adjustable wrench. Tighten [20a] Upper side of double nut in the same way with 20 Nm tightening torque.

While fixing [20a] Upper side of double nut, turn the [20b] Lower side of double nut in the loosening direction with 20 Nm tightening torque using another Adjustable wrench.



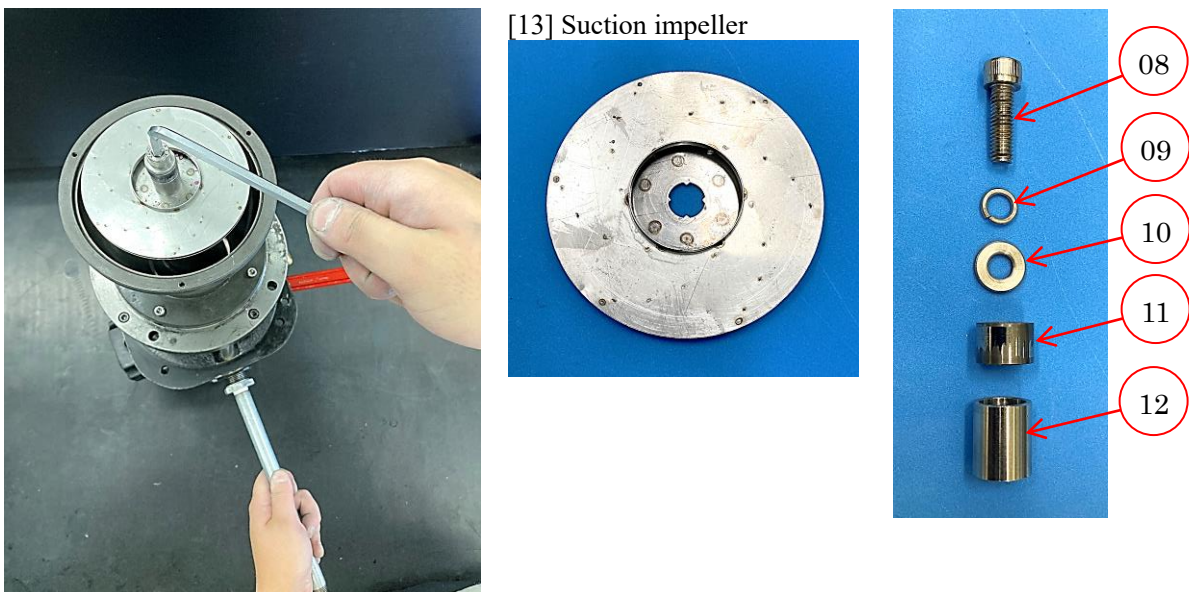
### 7.8. Assembling Hydro cyclone filter

Place [17] Middle flange onto the Impeller cover and fix it by 4 pcs of [16] Hex socket head cap screws with 7 Nm tightening torque. At this time, make sure not to damage the O-ring assembled with the Drain pipe. Place [15] Hydro cyclone body onto the Middle flange and fix it by 4 pcs of [14] Hex socket head cap screw with 7 Nm tightening torque.



### 7.9. Assembling Suction impeller

Place [13] Suction impeller, [12] Collar, [11] Bushing, [10] Plain washer, [09] Spring washer and [08] Hex socket head cap screw in the order to the shaft and tighten [08] with 12 Nm tightening torque.



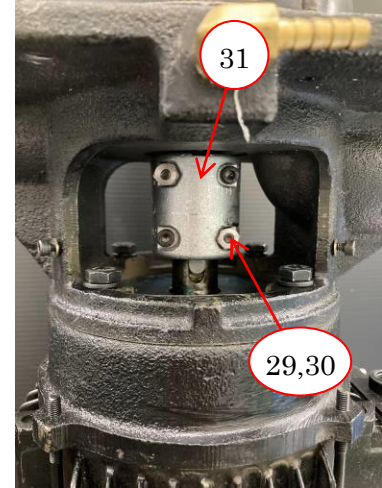
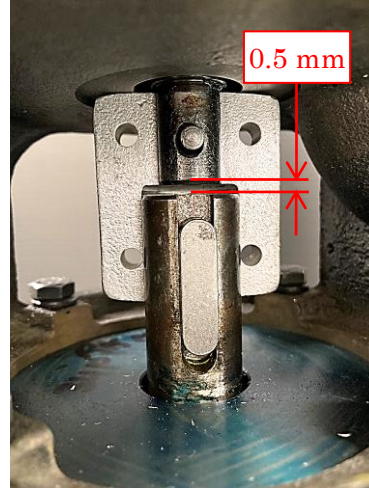
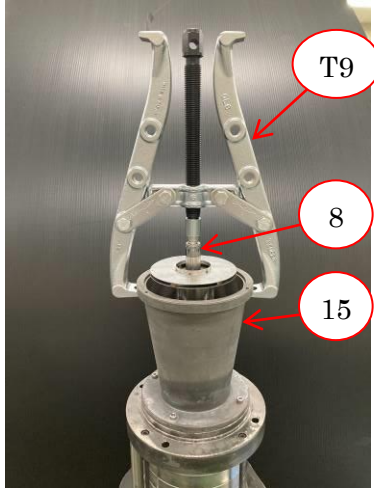


### 7.10. Assembling Coupling

Remove [31] Coupling once temporarily assembled.

Set the [T9] Mechanical puller to the flange of [15] Hydro cyclone body and push the [08] Hex socket head cap screw to move the shaft downwards. Then, adjust the space between each shaft ends to 0.5 (± 0.2) mm by rotating the puller screw while measuring the distance with [T10] Feeler gauge.

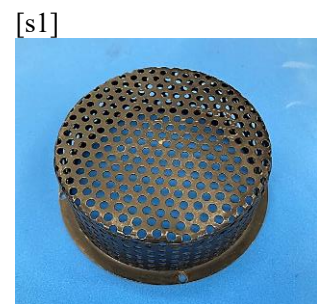
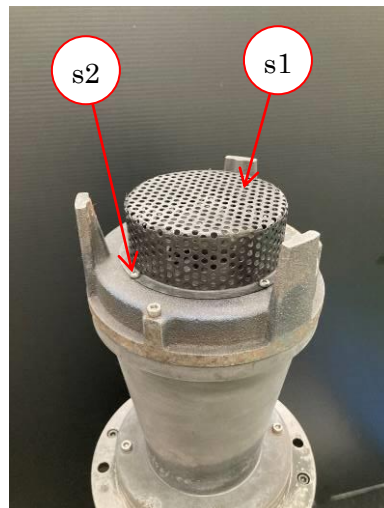
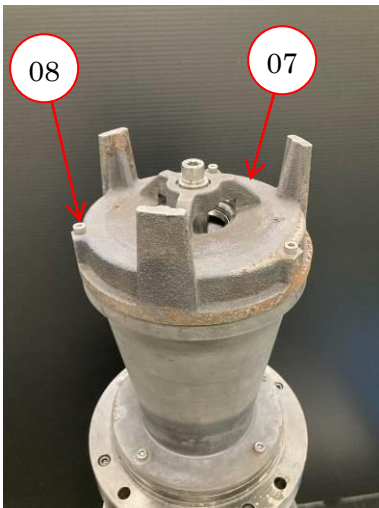
After the adjustment, fix the [31] Coupling by 4 sets of [29] Hex socket head cap screw and [30] Hex nut with 9 Nm tightening torque.



### 7.11. Assembling Suction strainer

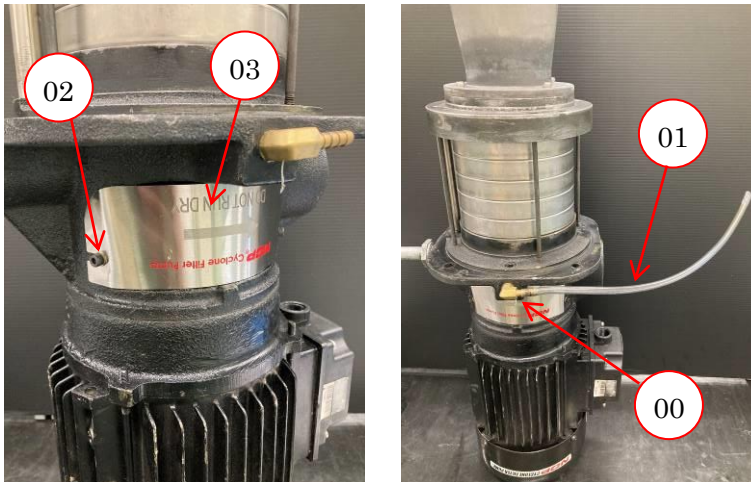
Place [07] Suction flange onto the Hydro cyclone body and fix it by 3 pcs of [08] Hex socket head cap screw with 3.5 Nm tightening torque.

Place [s1] Suction strainer and fix it by 4 pcs of [s2] Pan head screw with cross recess.



### 7.12. Assembling accessory parts

Fix 2 pcs of [03] Coupling cover to the pump Stem by 4 pcs of [02] Hex socket head cap screw.  
Insert [01] Drain tube into the [00] Hose nipple.



### 7.13. Conclusion

Replacement of the pump sliding parts is completed.

When hoisting the pump, attach 2 pcs of [T12] M10 Eyebolt on the pump Stem and make sure the product is stable.

When running the pump after replacement of the parts, run the pump for a short time to confirm that the shaft is rotating and there are no abnormalities like large sound or vibration.

For further information about the pump operation, please refer to the User's Instruction Manual (No. AGCI202111) of the product.

<p><b>⚠ Danger</b></p>	<p>The weight of this product is approximately 40 kg. Use cargo handling equipment (hoist, crane, etc.) for transportation or posture adjustment.</p>
<p><b>⚠ Warning</b></p>	<p>Crane operation and slinging operations must be performed by qualified personnel.</p>

MEMO:

## **NOP**® Nippon Oil Pump Co., Ltd.

Inquiries about our products:



Company Homepage

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