

## GROUP 4 AUXILIARY PUMP

### 1. AUXILIARY PUMP(STD)

#### 1) REMOVAL AND INSTALL

##### (1) Removal

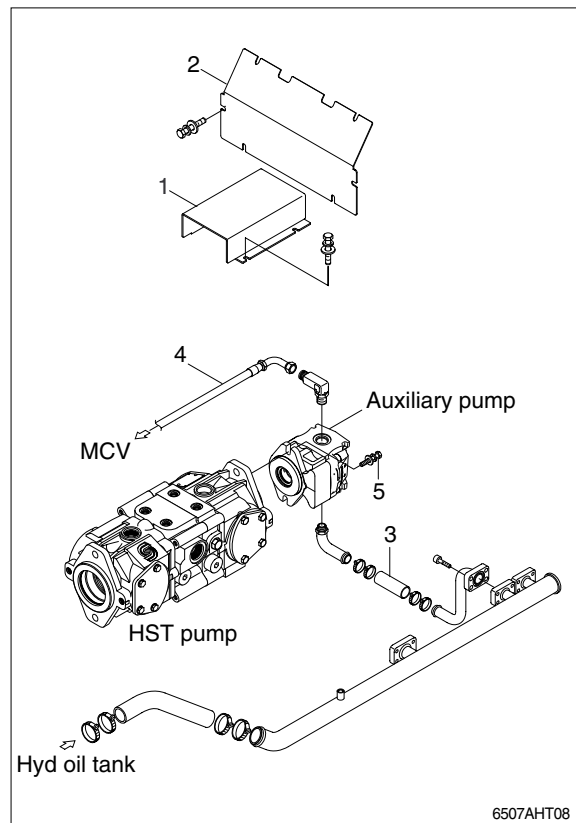
▲ If engine is running or full up pressure into hydraulic system, absolutely does not repair or tighten hose, fitting.  
As hydraulic line explode, dangerous accident may occur.

- ① Lowered the bucket on the ground.
- ② Shut off engine and raise the seat bar.
- ③ Raise canopy and remove the front cover (1, 2).  
※ For raising and lowering of the canopy, refer to page 4-14 of the operator's manual.

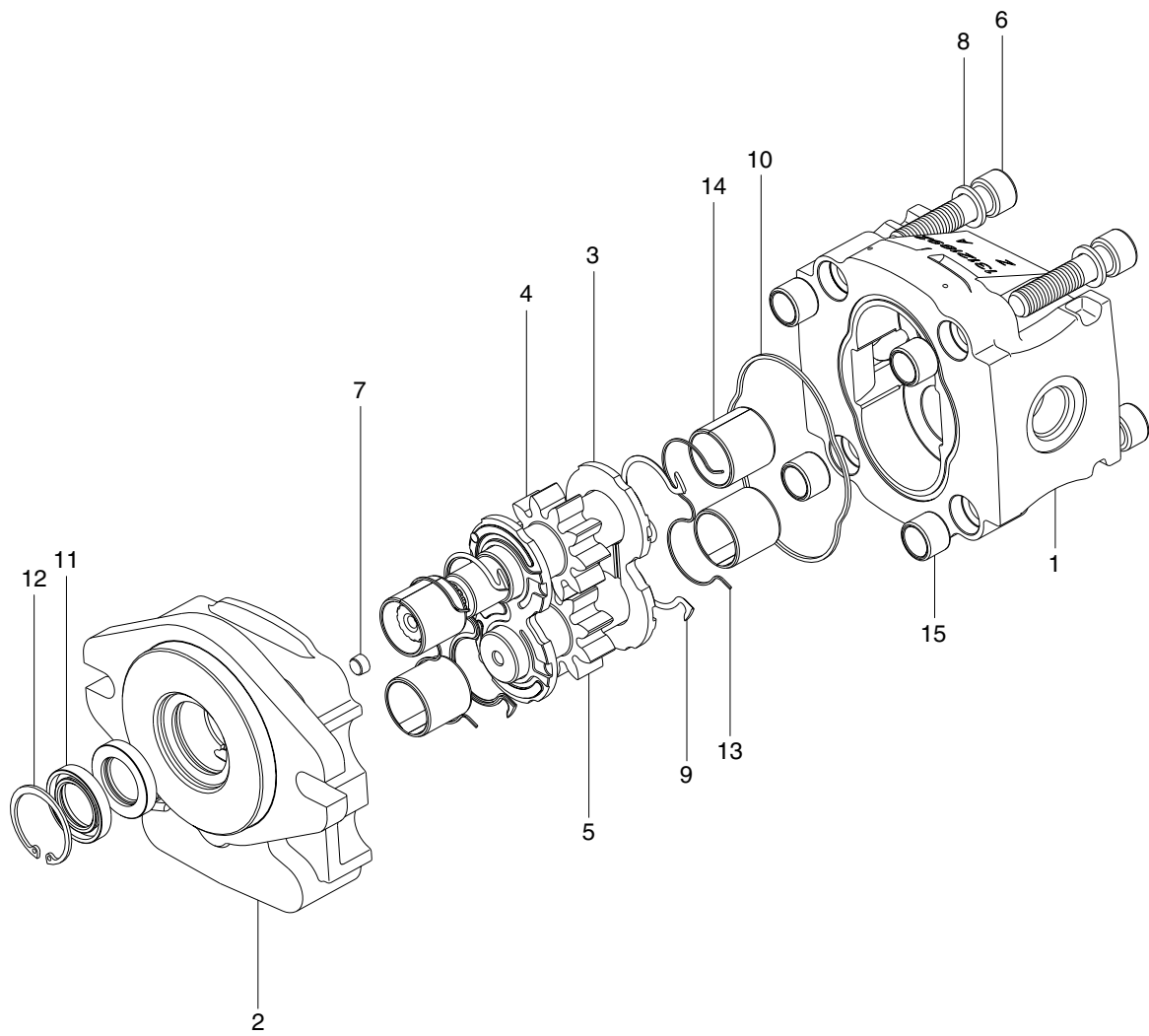
- ④ Disassemble inlet hose(3) of auxiliary pump and oil tank.
- ⑤ Disassemble outlet hose(4) of auxiliary pump.
- ⑥ Loose two bolts(5) joined HST pump and auxiliary pump.
- ⑦ Disassemble auxiliary pump from HST pump.

##### (2) Install

- ① Join auxiliary pump to HST pump, tighten with bolts(5).
  - Tightening torque : 3.7~4.2 kgf · m  
(26.8~30.4 lbf · ft)
- ② Assemble hose inlet hose(3) and outlet hose(4).



## 2) STRUCTURE



6507AHT38

- |   |              |    |               |    |                |
|---|--------------|----|---------------|----|----------------|
| 1 | Body         | 6  | Bolt          | 11 | Shaft seal     |
| 2 | Front cover  | 7  | Screw         | 12 | Snap ring      |
| 3 | Thrust plate | 8  | Washer        | 13 | Backup ring    |
| 4 | Drive shaft  | 9  | O-ring        | 14 | Sleeve bearing |
| 5 | Driven gear  | 10 | Square O-ring | 15 | Guide tube     |

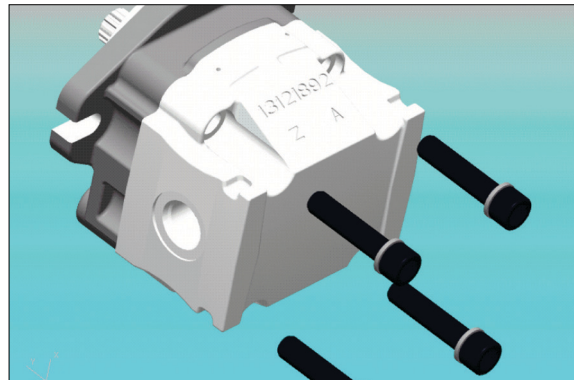
### 3) IMPORTANT

- (1) Check immediately that any spare parts you receive have not been damaged in shipment.
- (2) Always work in a clean environment.
- (3) Wash all components in solvent and blow dry with compressed air before refitting.
- (4) Take care not to damage rubber seals.
- (5) Avoid damaging precision machined surfaces.
- (6) Components should fit into their housings without excessive force. If force is necessary, this normally means that the component does not have the correct dimensional tolerances or is aligned incorrectly.
- (7) When hand pressure is insufficient, only use presses or rubber hammer to fit components.
- (8) Never strike components with steel hammers.
- (9) Steel bush must be fitted only with a suitable press.
- (10) Do not use hammers to fit bearings.
- (11) Always respect the direction of rotation when assembling components.

### 4) DISASSEMBLY

#### (1) Front cover

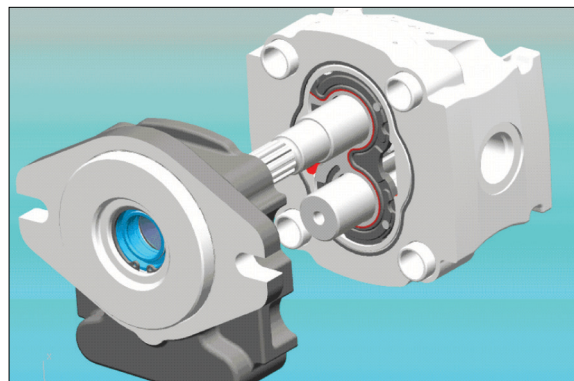
- ① Loosen and remove the assembling bolts and washers from the pump.



6507AWP01

- ② Remove front cover taking care to keep it as straight as possible during removal. Tap around the edge with rubber mallet in order to break away from the body.

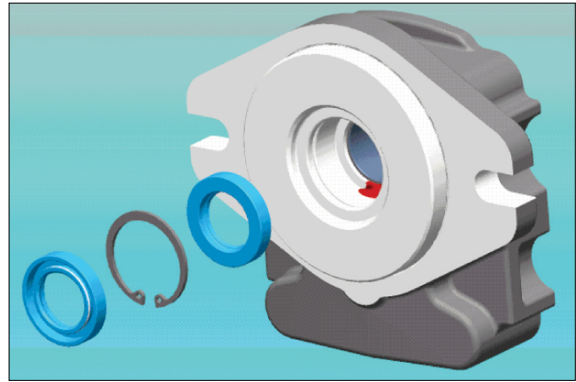
- ※ Ensure that while removing it, the drive shaft and other components remain position.



6507AWP02

- ③ Remove shaft seal with (-) screwdriver and take out snap ring with proper tool and shaft seal again.

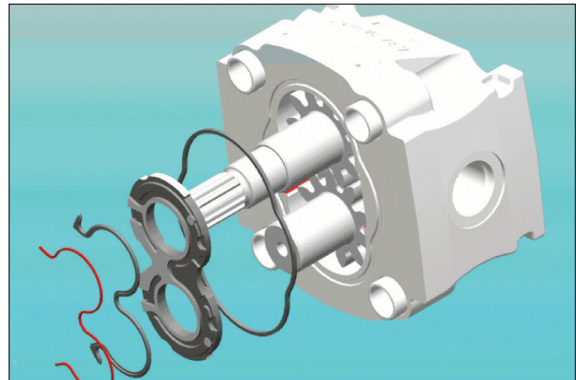
※ Take out the shaft seals only needed.  
Shaft seals disassembled from the front cover is not reusable



6507AWP03

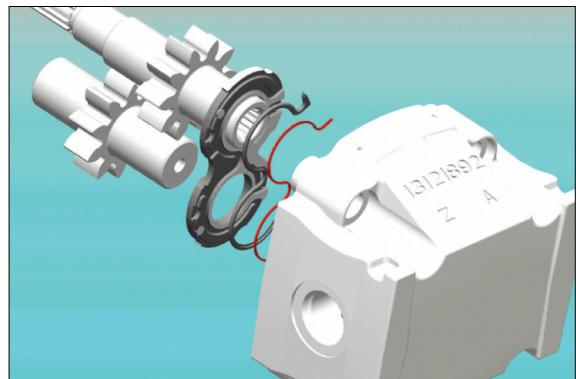
## (2) Working section

- ① Remove the thrust plate with prearranged parts, O-ring & backup ring from the working section and examine it carefully.



6507AWP04

- ② Pull out driving gear & driven gear keeping gears as straight as possible.
- ③ Remove other thrust plate on rear side with same way for front side. .



6507AWP05

## 5) ASSEMBLY

### (1) Pre-assembly

#### Thrust plates

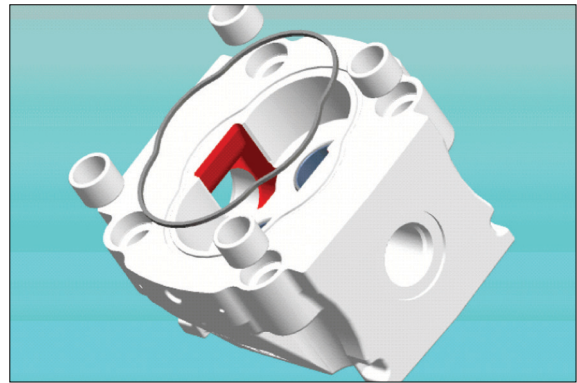
- ① Locate O-ring into the groove on the aluminum thrust plate.
- ② Locate backup ring upon the O-ring.
- ③ Smear clean grease on the O-ring & backup ring to fix their position while moving.



6507AWP06

#### Working body

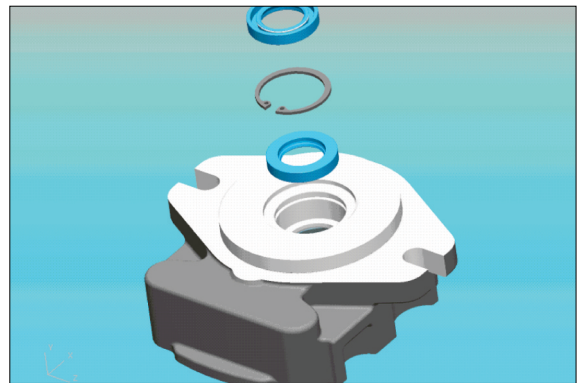
- ① Insert square O-rings into the grooves. Shape of square O-ring is different depend on type of bodies.
- ② Insert the guide tubes into the body.



6507AWP07

#### Front cover

- ① Locate shaft seal inside shaft hole to the end.
- ② Insert snap ring and locate it into the groove prearranged on the front cover.
- ③ Locate shaft seal again but different direction.

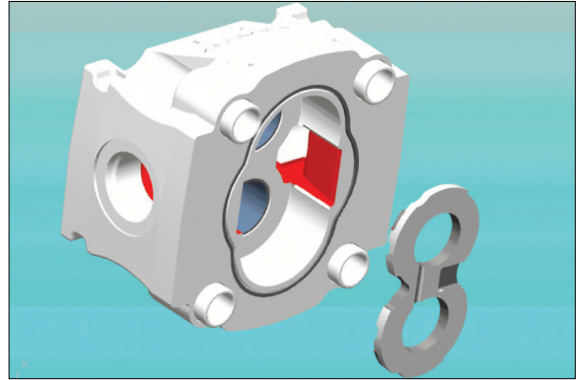


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## (2) Assembling

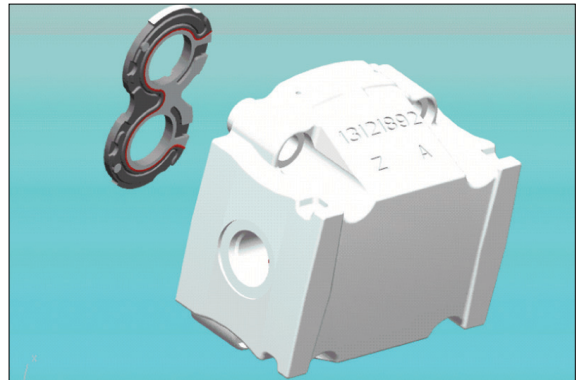
- ① Prepare cleaned 2nd body prearranged guard pins and square O- ring.



6507AWP09

- ② Insert a thrust plate prearranged O-ring & backup ring inside of body.

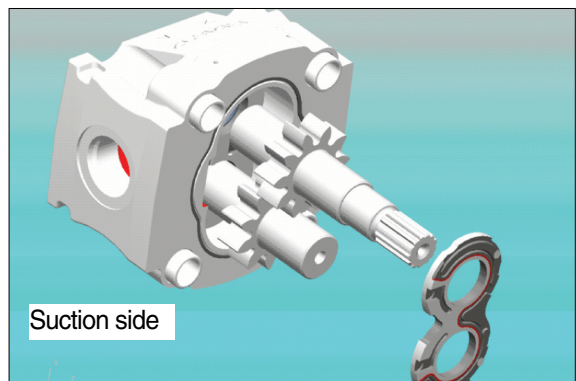
※ Opened area of O-ring should face to suction side. And O-ring side should face to the body.



6507AWP10

- ③ Locate driving gear and driven gear keeping as straight as possible during assembling.

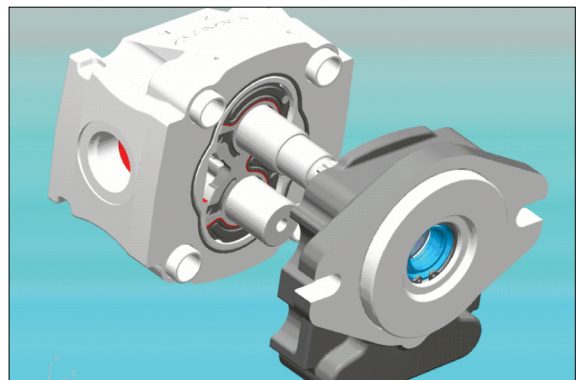
- ④ Locate one of thrust plates preassembled.



6507AWP11

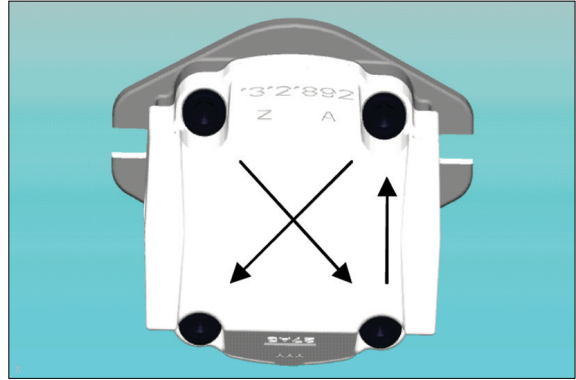
- ⑤ Assemble front cover to the body, taking care not to give any damage on the shaft seals by sharp edge of shaft.

※ Smear clean grease on the lips of shaft seals before assembling.



6507AWP12

- ⑥ Assemble the bolts and tighten the bolts with in a crisscross pattern to a torque value of 14.3 kgf · m (103 lbf · ft).
- ⑦ Check that the pump rotates freely when the drive shaft is turned by hand, if not a possible, plate seal may be pinched.



6507AWP13

## 2. TANDEM AUXILIARY PUMP(OPTION)

### 1) REMOVAL AND INSTALL

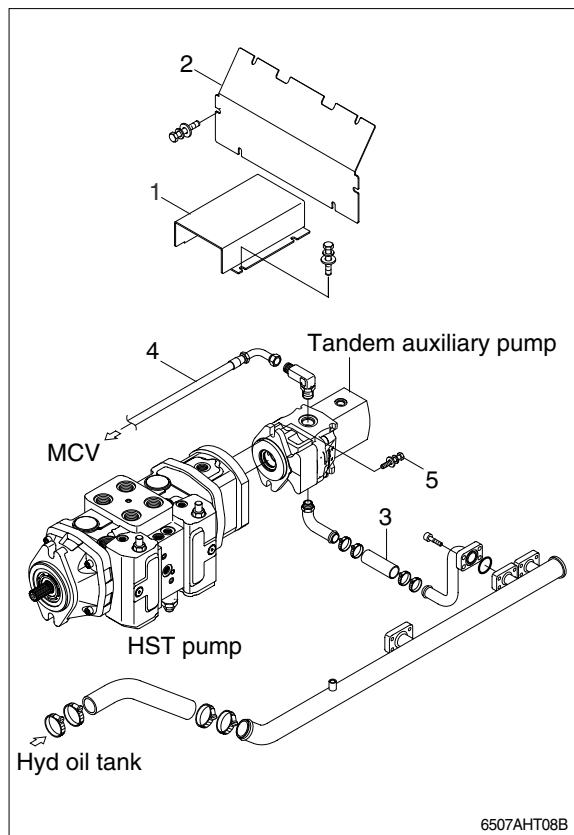
#### (1) Removal

▲ If engine is running or full up pressure into hydraulic system, absolutely does not repair or tighten hose, fitting.  
As hydraulic line explode, dangerous accident may occur.

- ① Lowered the bucket on the ground.
- ② Shut off engine and raise the seat bar.
- ③ Raise canopy and remove the front cover (1, 2).  
※ For raising and lowering of the canopy, refer to page 4-14 of the operator's manual.
- ④ Disassemble inlet hose(3) of auxiliary pump and oil tank.
- ⑤ Disassemble outlet hose(4) of auxiliary pump.
- ⑥ Loose two bolts(5) joined HST pump and tandem auxiliary pump.
- ⑦ Disassemble tandem auxiliary pump from HST pump.

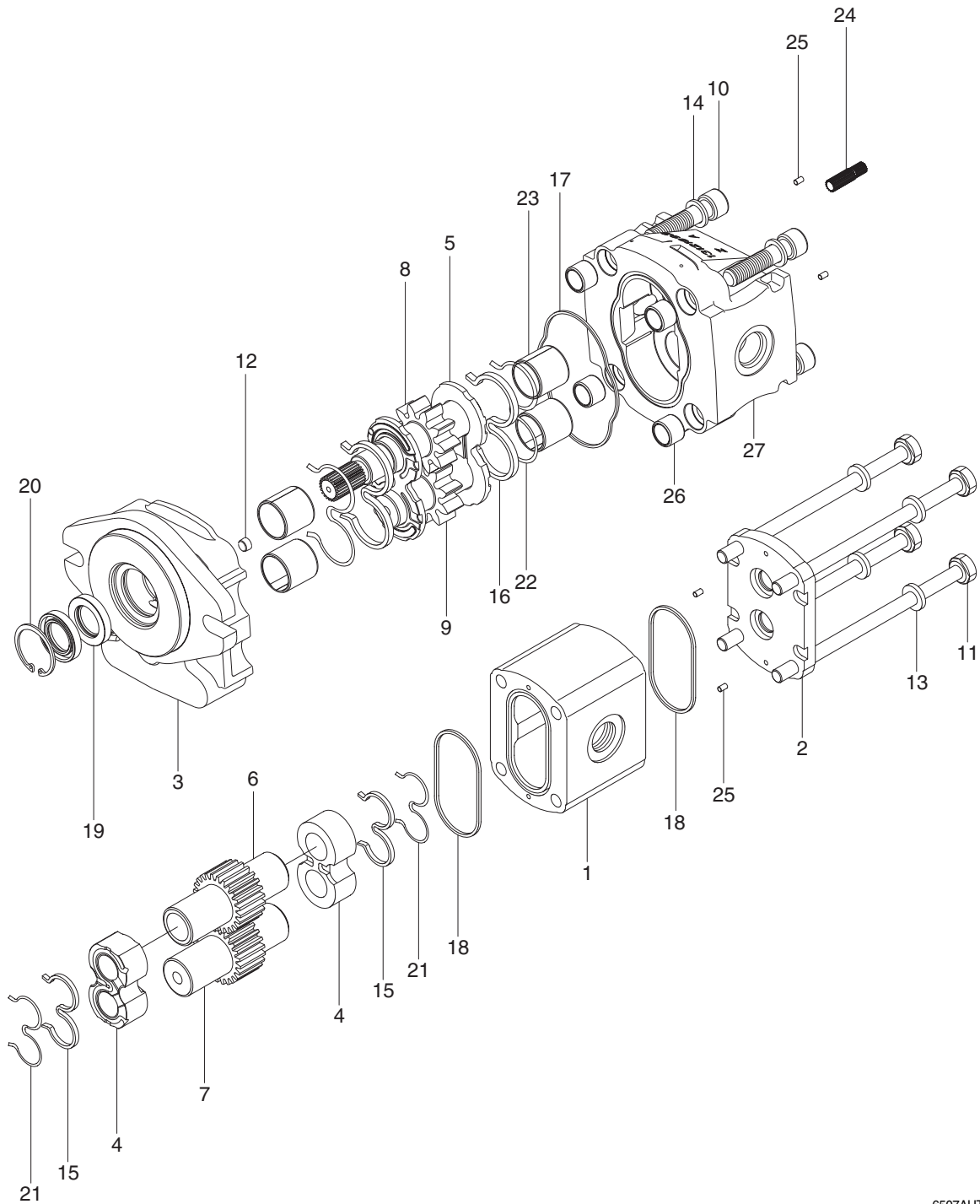
#### (2) Install

- ① Join tandem auxiliary pump to HST pump, tighten with bolts(5).  
· Tightening torque : 3.7~4.2 kgf · m  
(26.8~30.4 lbf · ft)
- ② Assemble hose inlet hose(3) and outlet hose(4).





## 2) STRUCTURE



6507AHT39

1	Rear cover	10	Screw	19	Shaft seal
2	Rear cover	11	Port	20	Snap ring
3	Front cover	12	Screw	21	Backup ring
4	Thrust plate	13	Washer	22	Backup ring
5	Thrust plate	14	Washer	23	Sleeve bearing
6	Drive gear	15	O-ring	24	Hub
7	Driven gear	16	O-ring	25	Dowel pin
8	Drive shaft	17	Square O-ring	26	Guide tube
9	Driven gear	18	Square O-ring	27	Body

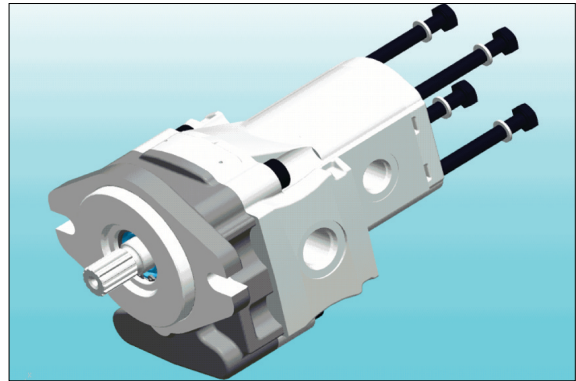
### 3) IMPORTANT

- (1) Check immediately that any spare parts you receive have not been damaged in shipment.
- (2) Always work in a clean environment.
- (3) Wash all components in solvent and blow dry with compressed air before refitting.
- (4) Take care not to damage rubber seals.
- (5) Avoid damaging precision machined surfaces.
- (6) Components should fit into their housings without excessive force. If force is necessary, this normally means that the component does not have the correct dimensional tolerances or is aligned incorrectly.
- (7) When hand pressure is insufficient, only use presses or rubber hammer to fit components.
- (8) Never strike components with steel hammers.
- (9) Steel bush must be fitted only with a suitable press.
- (10) Do not use hammers to fit bearings.
- (11) Always respect the direction of rotation when assembling components.

### 4) DISASSEMBLY

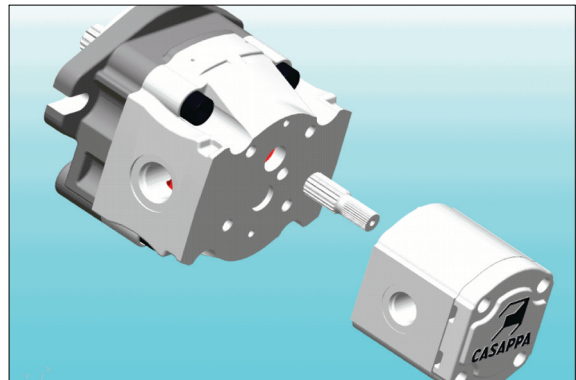
#### (1) Separation 1st & 2nd working bodies

- ① Loosen and remove the assembling bolts and washers from the pump.



6507AWP20

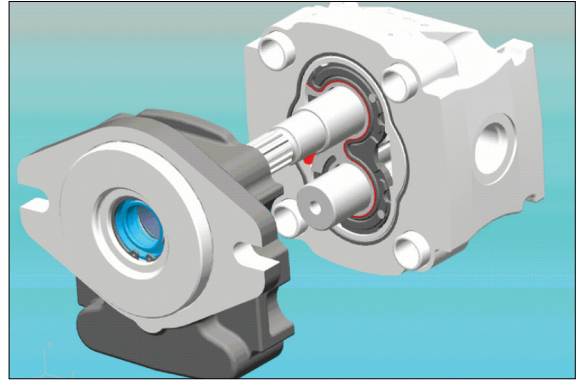
- ② Remove the complete 2nd working section.
- ③ Remove through shaft.



6507AWP21

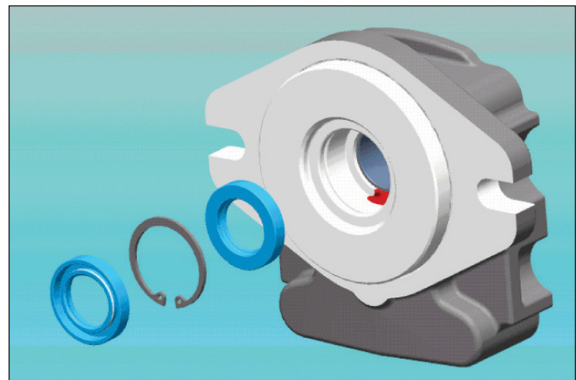
## (2) Front cover

- ① Remove front cover taking care to keep it as straight as possible during removal.  
Tap around the edge with rubber mallet in order to break away from the body.
- ※ Ensure that while removing it, the drive shaft and other components remain position.



6507AWP22

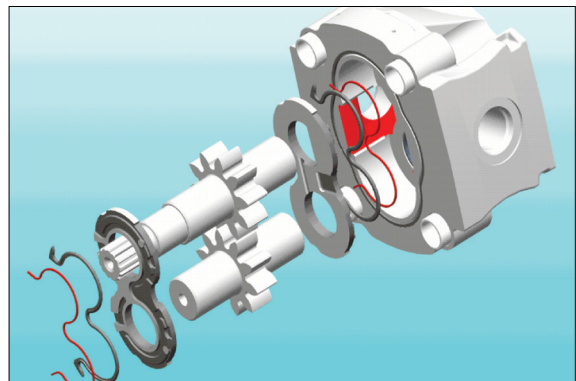
- ② Remove shaft seal with (-) screwdriver and take out snap ring with proper tool and shaft seal again.
- ※ Take out the shaft seals only needed.  
Shaft seals disassembled from the front cover is not reusable.



6507AWP23

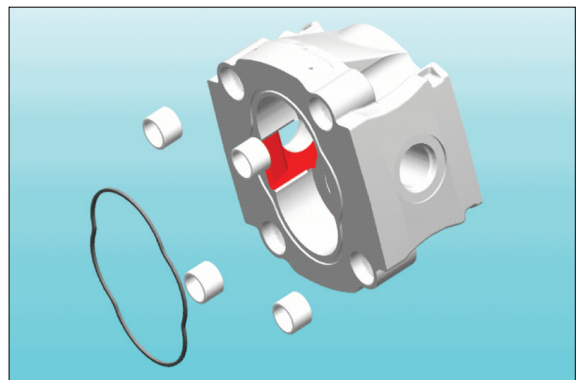
## (3) Working section

- ① Remove the thrust plate with prearranged parts, O-ring & backup ring from the working section and examine it carefully.
- ② Pull out driving gear & driven gear keeping gears as straight as possible.
- ③ Remove other thrust plate on rear side with same way for front side.



6507AWP24

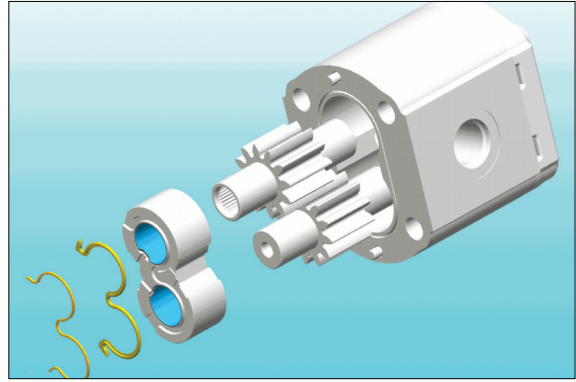
- ④ Take out square O-ring from the groove on the body.
  - ⑤ Pull out 4 guide tubes from the body if necessary.
- ※ Be careful not to give any damage on the surface of rings.



6507AWP25

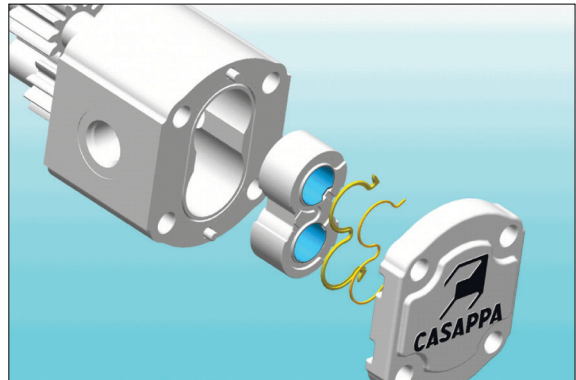
**(4) 2nd Working section**

- ① Remove the thrust plate with prearranged parts, O-ring & backup ring from the working section and examine it carefully.
- ② Pull out driving gear & driven gear keeping gears as straight as possible.



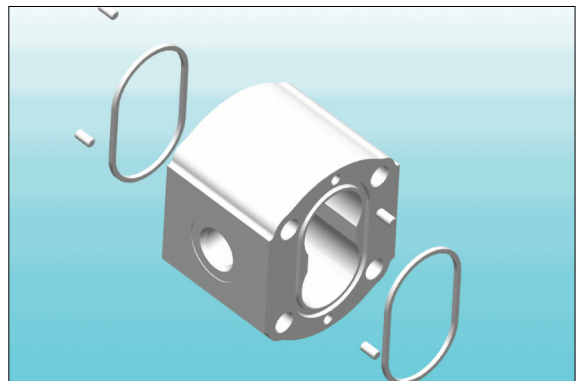
6507AWP26

- ③ Remove rear cover and other thrust plate at rear side with same way for front side.



6507AWP27

- ④ Take out two square O-rings from the body and alignment pins.



6507AWP28

## 5) ASSEMBLY

### (1) Preassembly

#### Thrust plates for 1st working section

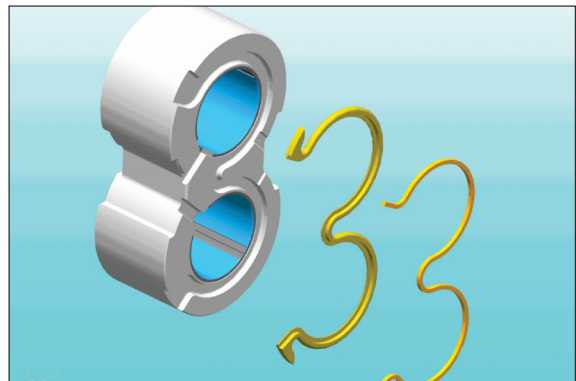
- ① Locate O-ring into the groove on the thrust plate.
- ② Locate backup ring upon the O-ring.
- ③ Smear clean grease on the O-ring & backup ring to fix their position while moving.



6507AWP29

#### Thrust plates for 2nd working section

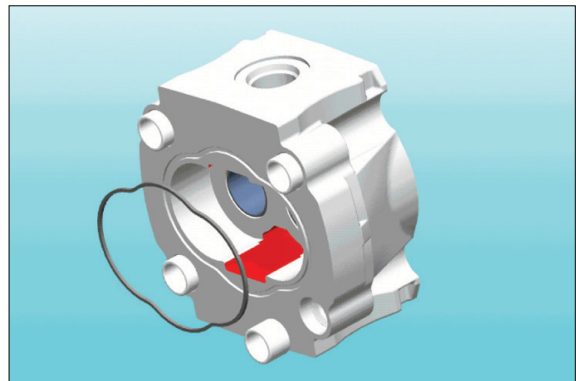
- ① Repeat same procedure.



6507AWP30

#### 1st working body

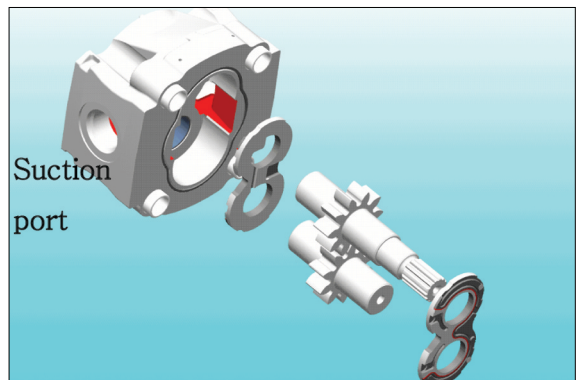
- ① Insert square O-rings into the groove and 4 guide tubes.
- ② Smear clean grease on the square O-ring to fix its position while moving.



6507AWP31

- ③ Put one of preassembled thrust plates into the body and locate two gears, then load another plate upon the gears.

※ Pay attention the positions of gears and directions of thrust plates.

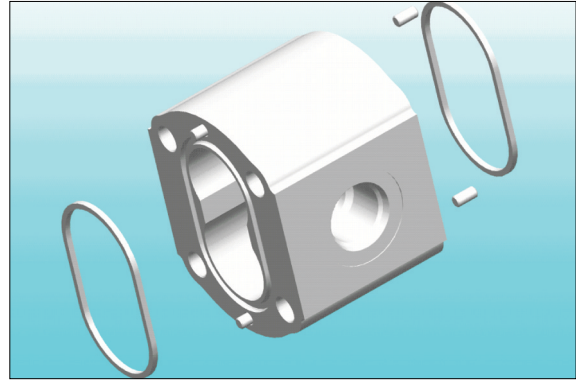


6507AWP32



### 2nd working body

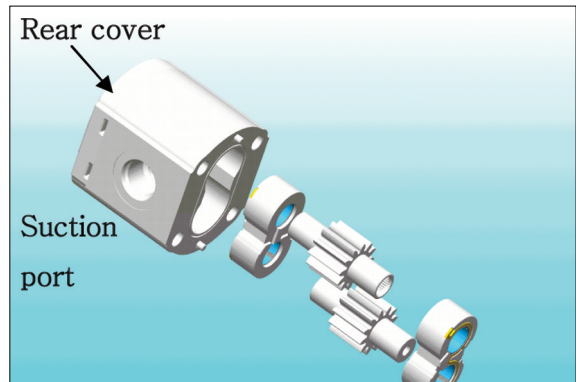
- ① Insert square O-rings into the grooves.
- ② Smear clean grease on the square O-ring to fix its position while moving.



6507AWP33

- ③ Put one of preassembled thrust plates into the rear cover and locate two gears, then load another plate upon the gears.

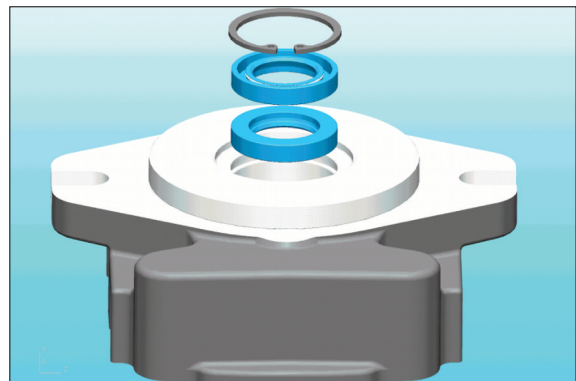
※ Pay attention the positions of gears and directions of thrust plates.



6507AWP34

### Front cover

- ① Locate shaft seal inside shaft hole to the end.
- ② Insert snap ring and locate it into the groove prearranged.

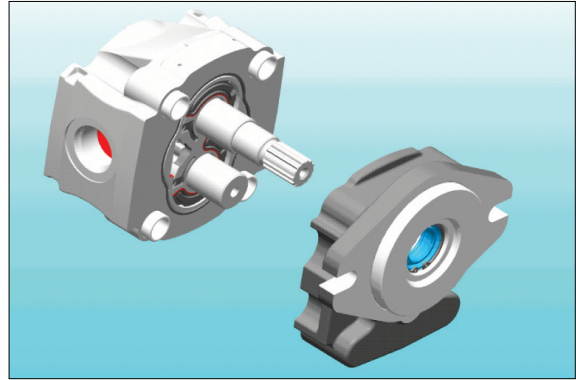


6507AWP35



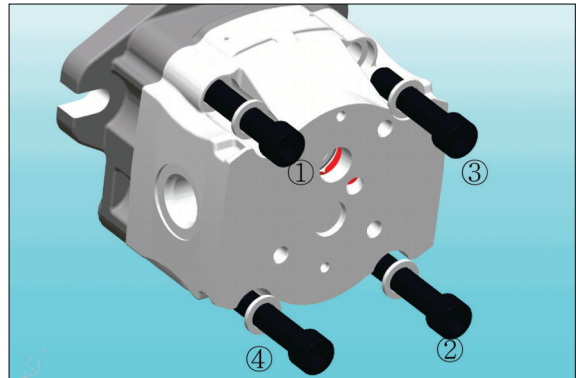
## (2) Assembling

- ① Assemble front cover to the body, taking care not to give any damage on the shaft seals by sharp edge of shaft.
  - ※ Smear clean grease on the lips of shaft seals before assembling.



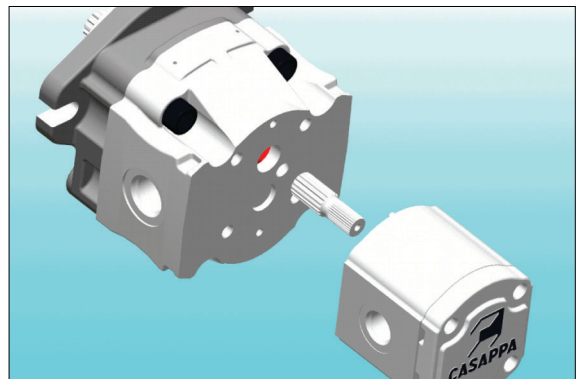
6507AWP36

- ② Assemble the bolts and tighten the bolts with in a crisscross pattern to a torque value of 14.3 kgf · m (103 lbf · ft).



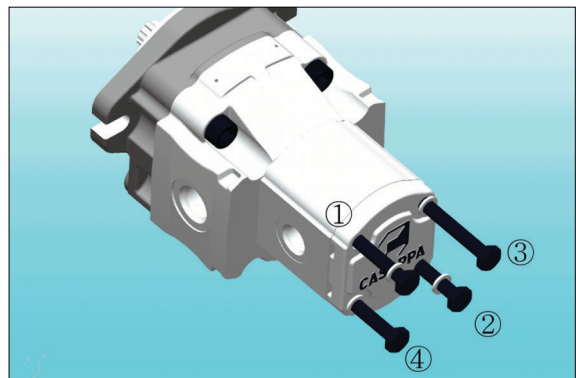
6507AWP37

- ③ Insert a through shaft to the 1st working section.
- ④ Locate 2nd working section to the rear of 1st working section.



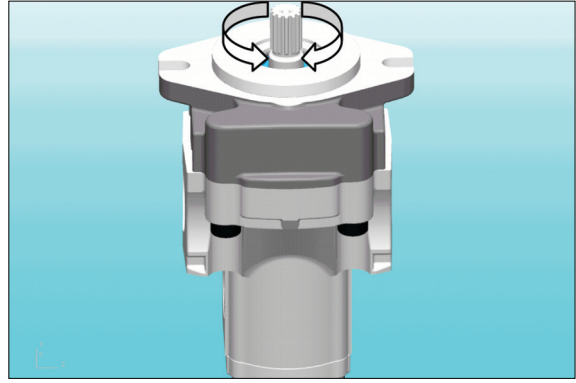
6507AWP38

- ⑤ Assemble the bolts and tighten the bolts with in a crisscross pattern to a torque value of 4.59 kgf · m (33.2 lbf · ft).



6507AWP39

- ⑥ Check that the pump rotates freely when the drive shaft is turned by hand, if not a possible, plate seal may be pinched.



6507AWP40