

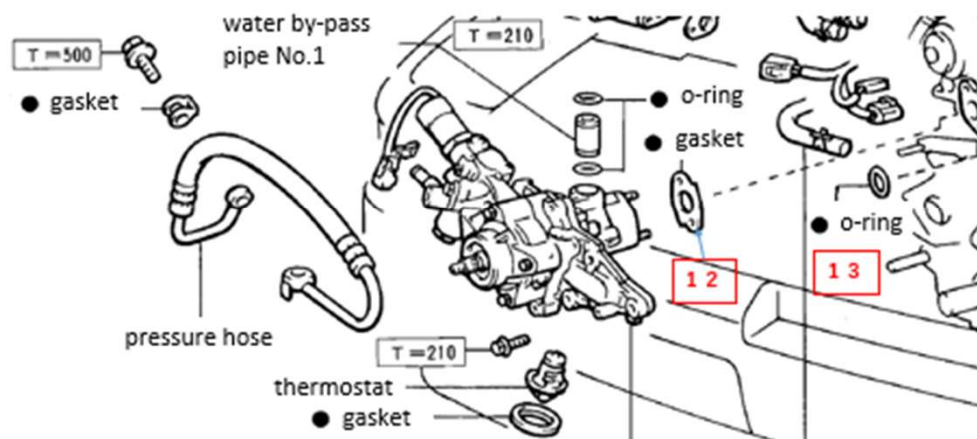
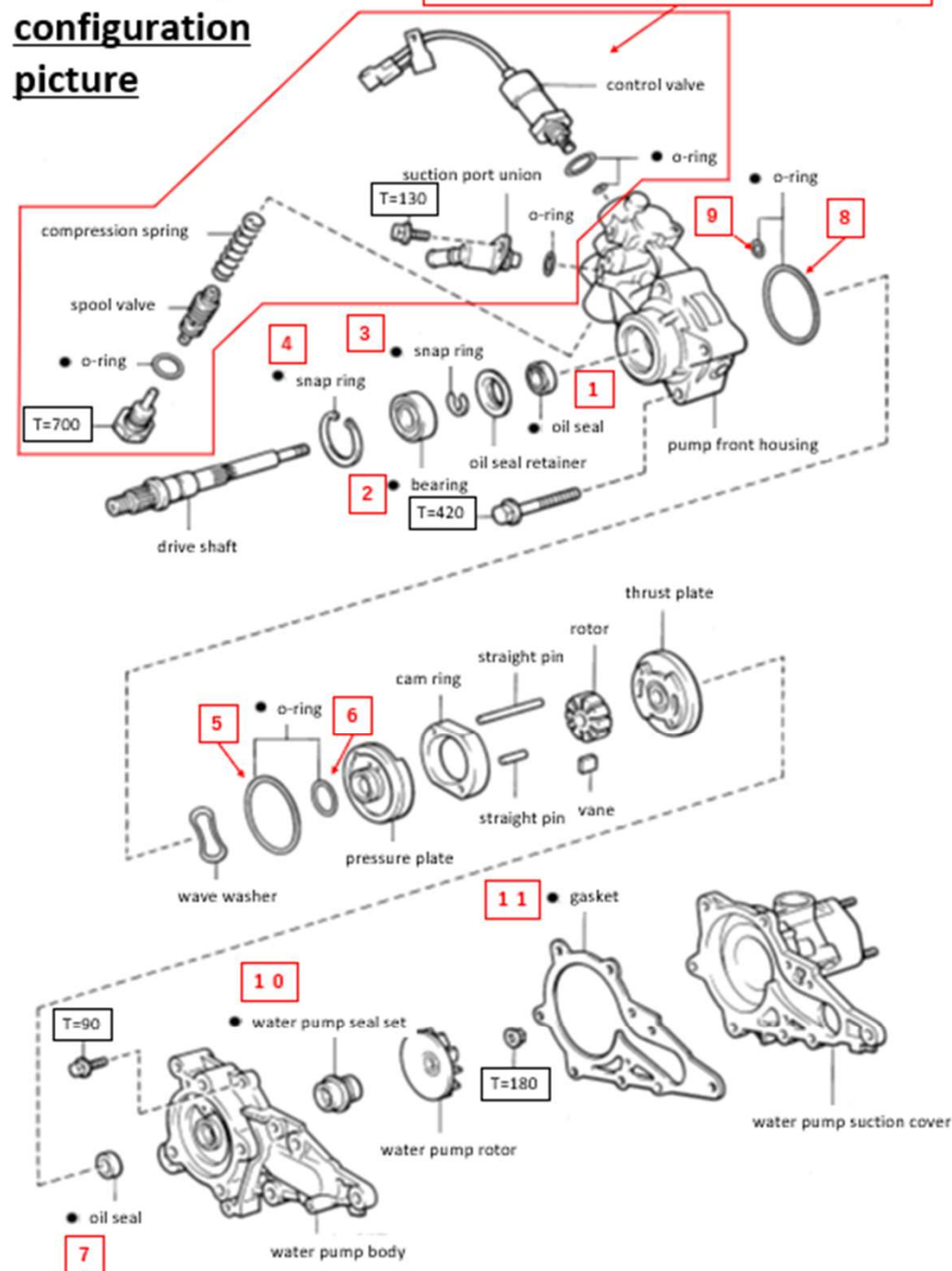
Water pump water leak, oil leak repair instructions

Kit part number : 04163-14010 Configuration list

No.	Part Number	Part Name
1	90029-21016	SEAL,OIL
2	90029-36006	BEARING,RADIAL BALL
3	90029-52402	RING,SHAFT SPRING
4	96151-04000	RING,SNAP
5	90029-20029	RING,O
6	90029-20035	RING,O
7	90029-21017	SEAL,OIL
8	90029-20037	RING,O
9	90029-20038	RING,O
10	16104-21030	SEAL SET,WATER PUMP
11	16124-46011	GASKET,WATER PUMP
12	16325-46010	GASKET,WATER INLET HOUSING
13	96761-24040	RING,O


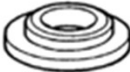









Disassembly configuration picture

Do not attach or remove control valves, spool valves, suction port unions as there is a possibility of contamination with foreign matter.

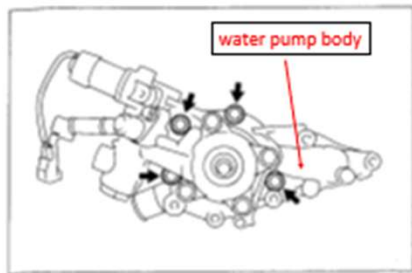


●..... non-reusable parts □..... fastening torque(kg·cm)

S S T 一覽

	09278-54012	Drive shaft holding tool	For fixing vane pump pulley
	09506-35010	Differential drive pinion rear bearing replacer	For removing vane pump drive shaft
	09608-04030	Front hub inner bearing cone replacer	For attaching vane pump drive shaft
	09631-00060	Oil seal replacer	For attaching vane pump drive shaft bearing
	09904-00040	Crow NO.3	For detaching snap ring
	09905-00013	Snap ring plier	For detaching snap ring
	09631-10030	Oil seal remover	For removing oil seal For removing water pump seal set
	09820-00021	Alternator rear bearing puller	For removing water pump seal set
	091XA-14010	Mechanical seal pressure	For pressing water pump seal set
	09631-00020	Handle	For attaching oil seal
	09631-10010	Oil seal D replacer	For attaching oil seal

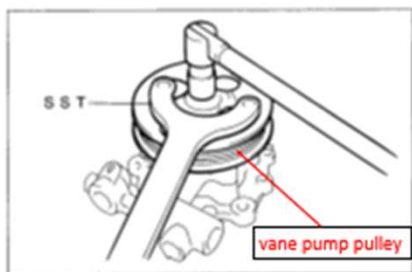
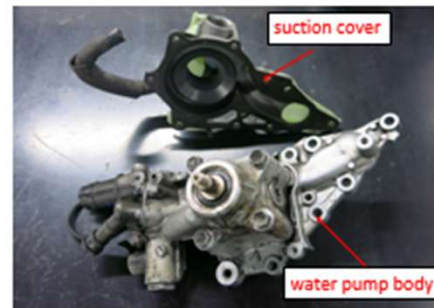
Water pump disassembly instructions



Hydraulic motor vane pump w/water pump disassembly

1 Water pump suction cover removal

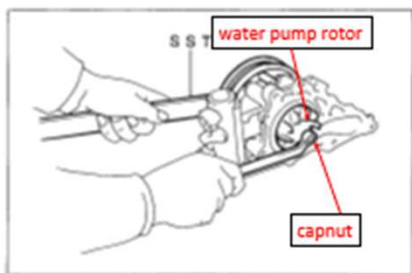
(1) Remove the four bolts and remove the suction cover and gasket from the water pump body.



2 Water pump rotor removal

(1) Temporarily attach the vane pump pulley to the vane pump drive shaft using SST.

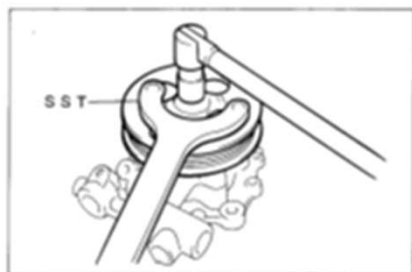
SST 09278-54012



(2) Using SST, fix the vane pump pulley and remove the cap nut (**left-hand thread**).

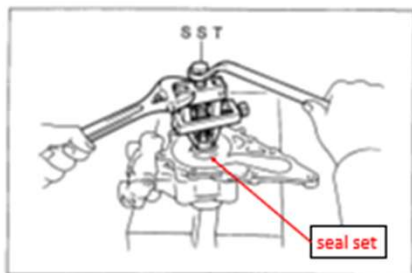
SST 09278-54012

(3) Remove the water pump rotor.



(4) Using SST, remove the vane pump pulley from the vane pump drive shaft.

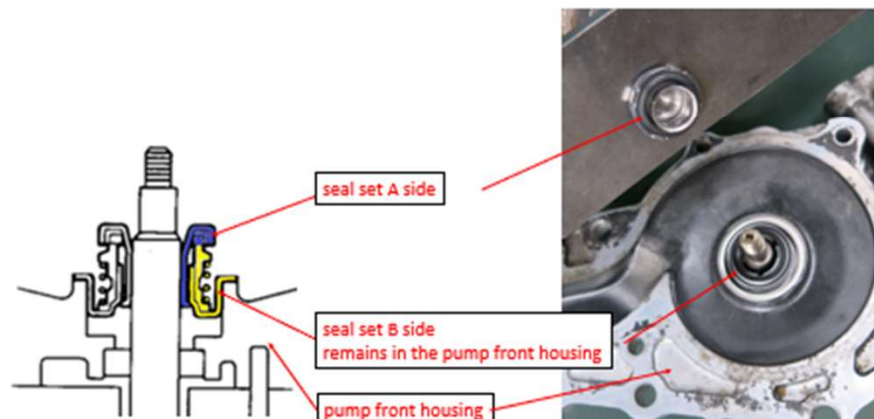
SST 09278-54012

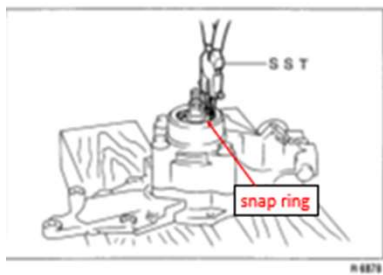


3 Water pump body w/water pump seal set removal

(1) Remove seal set A side from pump front housing using SST.

SST 09820-00021

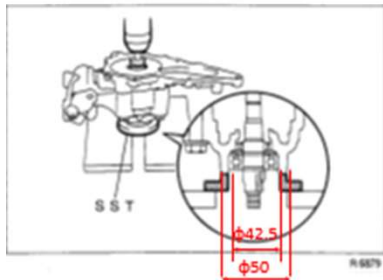




4 Vane pump drive shaft w/water pump seal set removal

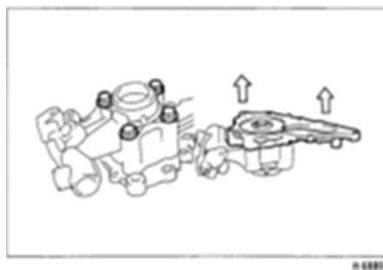
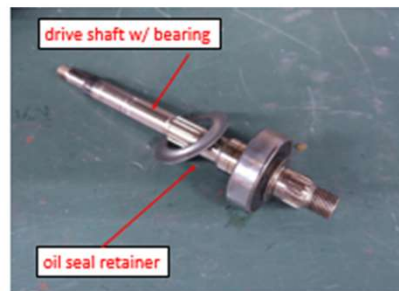
(1) Remove snap ring using SST.

SST 09904-00040, 09905-00013



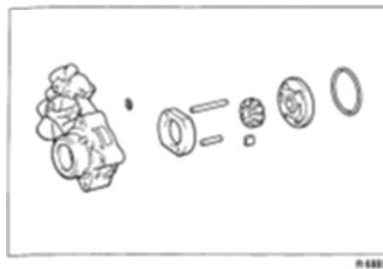
(2) Using SST and press, remove drive shaft w/bearing and oil seal retainer

SST 09506-35010

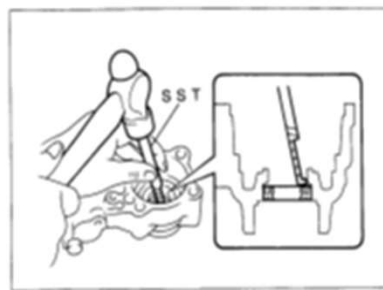
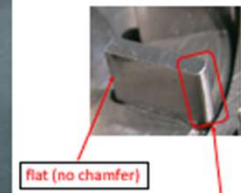
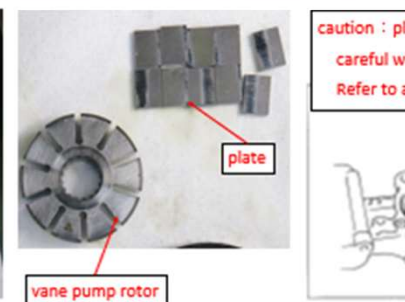
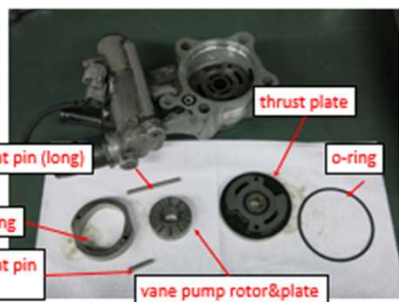


5 Water pump body removal

(1) Remove the 4 bolts, turn the water pump body upwards, and remove it from the pump front housing.



6 Thrust plate, cam ring, vane pump rotor & plate, straight pin (two), o-ring removal



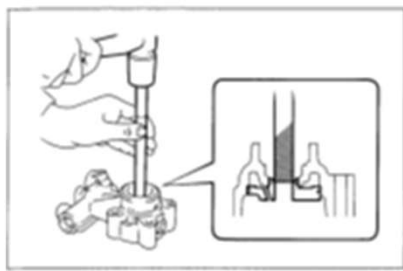
7 Front housing oil seal replacement

(1) Remove oil seal using SST.

SST 09631-10030

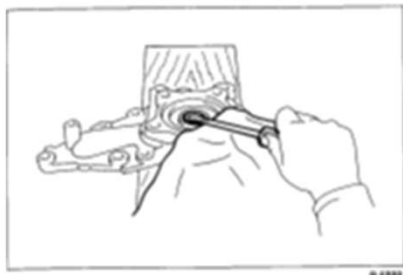
Caution : Wrap vinyl tape around SST.





8 Pressure plate removal

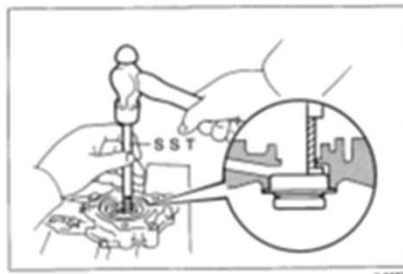
- (1) Remove the pressure plate and wave washer using a plus bar.
- (2) Remove the two O-rings from the pressure plate.



9 Water pump body oil seal replacement

- (1) Remove the oil seal using a flathead screwdriver.

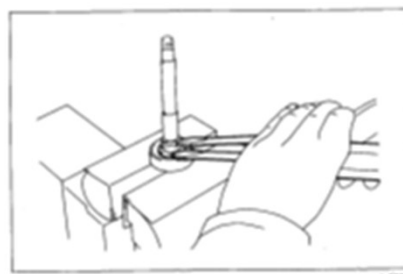
Caution : Not to damage the water pump body.



- (2) Using SST, **remove seal set B side** from the water pump body.

SST 09631-10030

Caution : Wrap vinyl tape around SST.

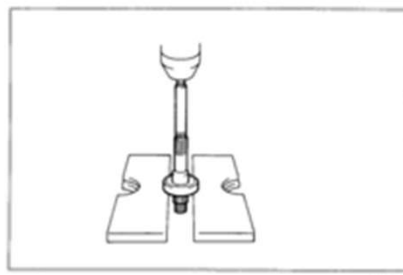


10 Bearing replacement

- (1) Fix the drive shaft in a vise and use a flathead screwdriver to remove the snap ring.

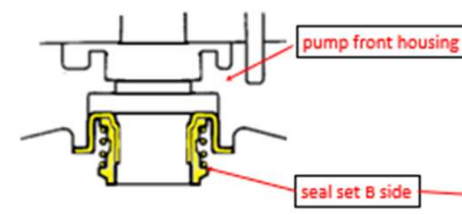
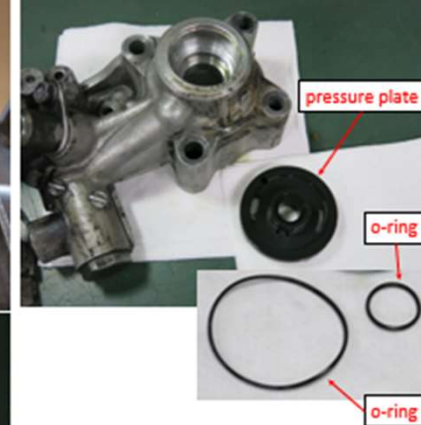
Caution : Be sure to use an aluminum plate when installing to a vise, and do not tighten it too tightly.

The snap ring will pop out, so cover with a cloth while working.

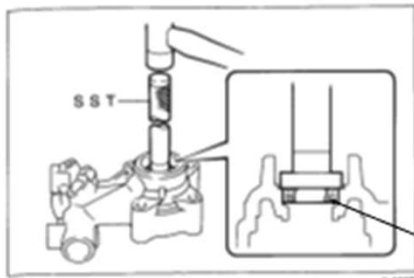


- (2) Using press, remove bearing.

Caution : Not to damage the vane pump shaft.



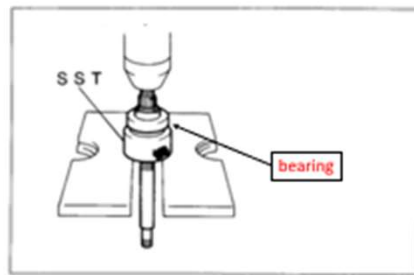
Water pump replacement parts assembly instructions



- 1 (1)Using SST, drive a new oil seal into the position shown in the illustration(flush with the housing end face).
SST 09631-00020, 09631-10010
(2)Apply castle power steering fluid to the oil seal lip.

oil seal

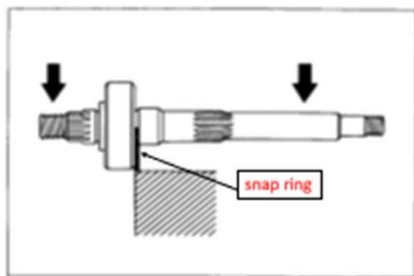
replacing new part
No.1 (90029-21016) oil seal



- (3)Install new bearings using SST.
SST 09631-00060
Caution : Not to damage the vane pump shaft.

bearing

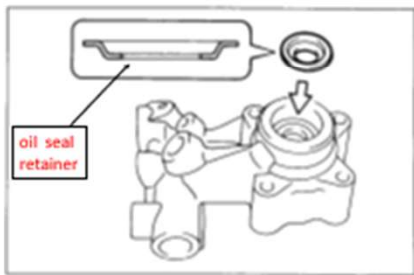
replacing new part
No.2 (90029-36006) bearing



- (4)Install a new snap ring as shown in the illustration.

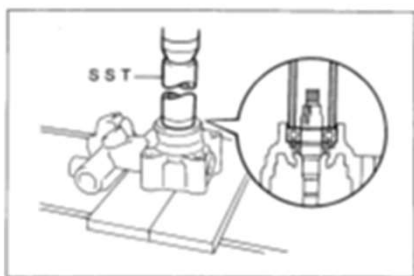
snap ring

replacing new part
No.3 (90029-52402) snap ring

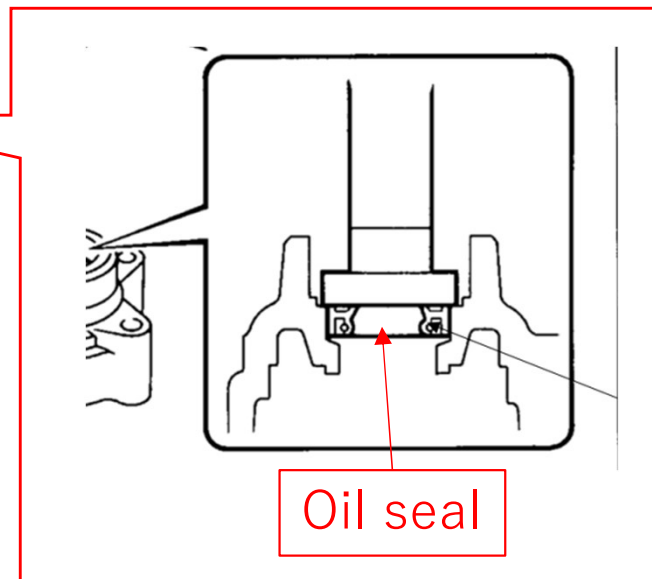


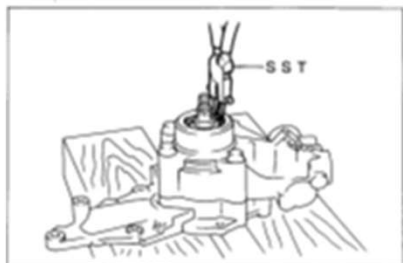
- 2 **Assemble vane pump drive shaft w/bearing**
(1)Assemble the oil seal retainer in the direction shown in the illustration.

oil seal retainer



- (2)Assemble the drive shaft w/bearing to the pump front housing using SST.
SST 09608-04030

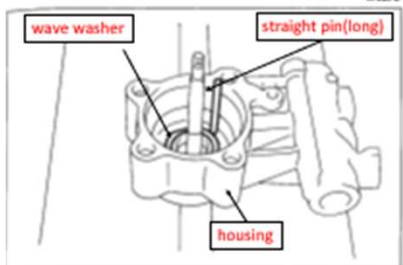




(3) Assemble a new snap ring using SST.

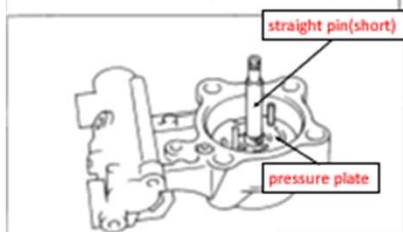
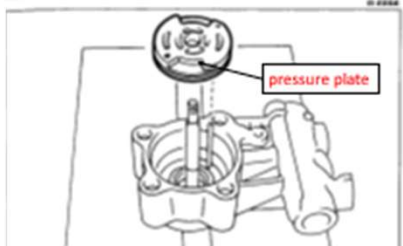
SST 09904-00040, 09905-00013

replacing new part
No.4 (96151-04000) snap ring



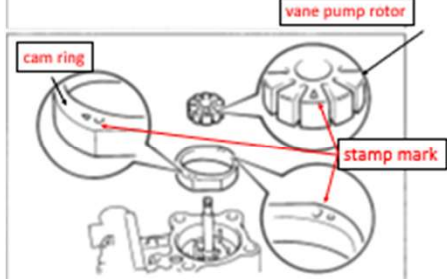
3 Assemble pressure plate

- (1) Assemble the long straight pin(l=55) into the housing.
- (2) Assemble the wave washer to the housing.



- (3) Assemble two new O-rings to the pressure plate.
- (4) Apply castle power steering fluid to the O-ring and push the pressure plate into the housing by hand.
Caution : Not to break O-ring.

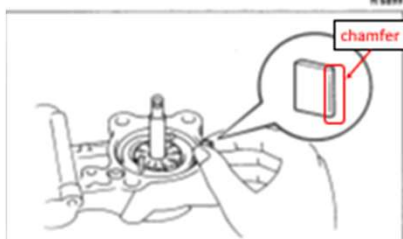
replacing new parts
No.5 (90029-20029) o-ring
No.6 (90029-20035) o-ring



4 Assemble vane pump and cam ring

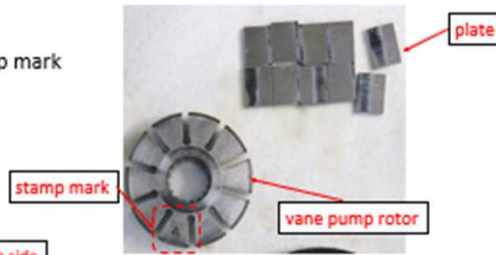
- (1) Assemble the short straight pin(l=24) into pressure plate.

- (2) Assemble the cam ring with the side with the stamped mark facing up, aligning the hole on the perfect circle side of the cam ring with the long straight pin.
- (3) Assemble the rotor with the side with the stamp mark facing up.

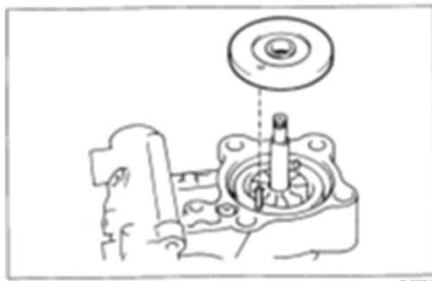


5 Assemble vane plate

- (1) Assemble the vane plate with the chamfered side facing the cam ring.



outer circumference side



6 Assemble thrust plate



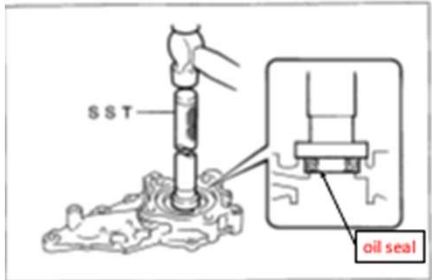
- (1) Using SST, drive the new oil seal to the position shown in the diagram (flush with the body end face).

SST 09631-00020, 09631-10010

Caution : Make sure to orient the oil seal correctly.

- (2) Apply castle power steering fluid to the oil seal lip.

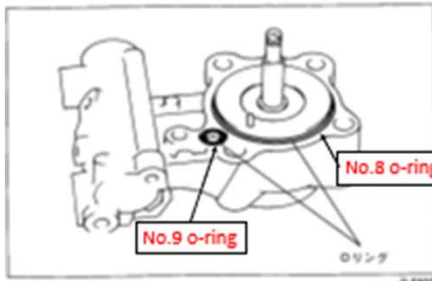
replacing new part
No. 7 (90029-21017) oil seal



7 Assemble water pump body

- (1) Assemble two new O-rings to the pump front housing.

replacing new parts
No. 8 (90029-20037) o-ring
No. 9 (90029-20038) o-ring

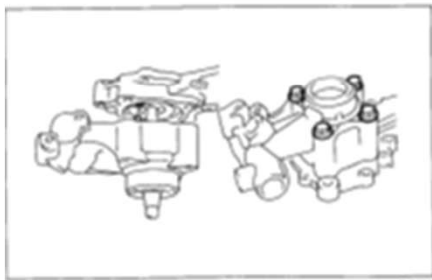


- (2) Assemble the water pump body to the pump front housing with 4 bolts.

T=420kg·cm

Caution : Align the straight pin with the hole on the water pump body and assemble.

To prevent the O-ring from falling off, temporarily tighten the bolts with the water pump body facing upwards, then secure in a vise and tighten to the specified torque.



8 Assemble water pump seal set

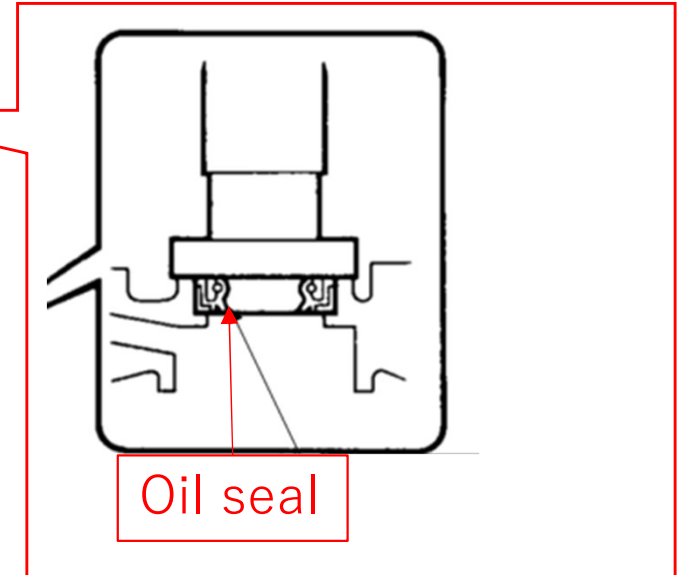
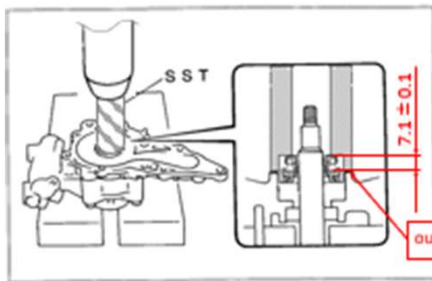
- (1) Press the outer periphery of the seal set into the water pump body using SST and a press.

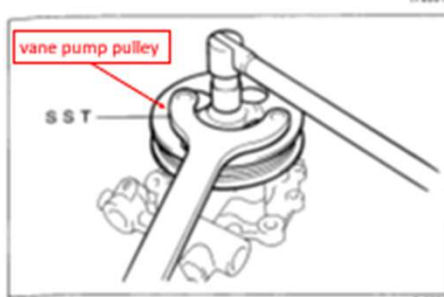
SST 091XA-14010

Caution : Press fit until the flange of the seal set touches the pump body.

outer periphery of the seal set

replacing new part
No. 10 (16104-21030) seal set





9 Drive shaft rotation weight check

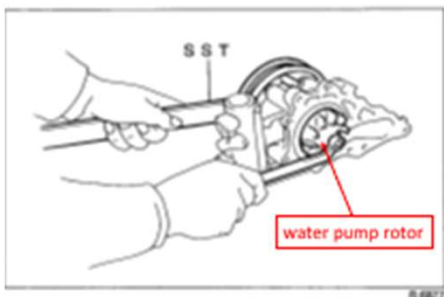
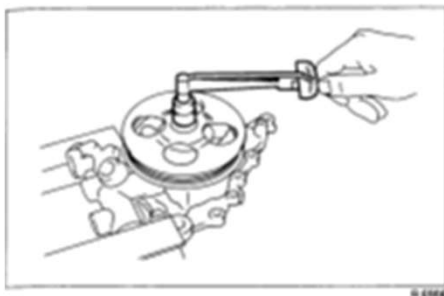
- (1) Temporarily attach the vane pump pulley to the vane pump drive shaft using SST.

SST 09278-54012

- (2) Check that the drive shaft rotates smoothly and there are no abnormal noises.

- (3) Measuring the rotational torque of the drive shaft.

Standard value 3.0 kg·cm or less (during rotation)



10 Assemble water pump rotor

- (1) Assemble the water pump rotor to the drive shaft.

- (2) Use SST to secure the vane pump pulley and tighten the cap nut (left-hand thread).

SST 09278-54012

T=180kg·cm

- (3) Remove the vane pump pulley from the vane pump drive shaft using SST.

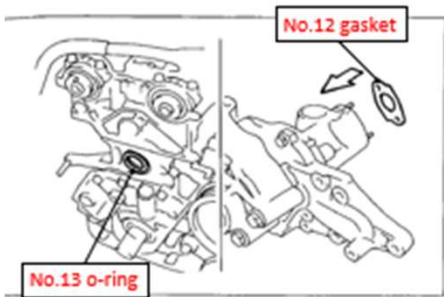
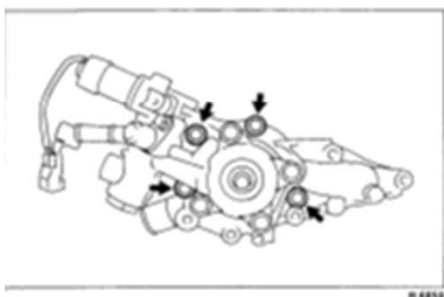
SST 09278-54012

11 Assemble water pump suction cover

- (1) Assemble the suction cover to the water pump body with 4 bolts using a new gasket.

T=90kg·cm

replacing new part
No.11 (16124-46011) gasket



12 Hydraulic motor vane pump w/water pump installation

- (1) Install a new O-ring into the cylinder block.

- (2) Install a new gasket to the vane pump.

replacing new parts
No.12 (16325-46010) gasket
No.13 (96761-24040) o-ring