

OKamura

TRANSMISSION
SERVICE MANUAL

Y43280D

Y43280H

Y43280N

Y43280K

Okamura Corporation

Aug. 2018

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PARTS LIST

Note.

Illustrations and photographs can be different from the actual parts.

The unit of length is mm.

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Technical data

Specification

Torque converter

Torque converter type		3-Element 1-Stage 2-Phase
Converter-out pressure	MPa	max 0.3
Circular flow	ℓ/min	17~21
Input rotation		Clockwise viewed from engine
Max input speed	rpm	2700

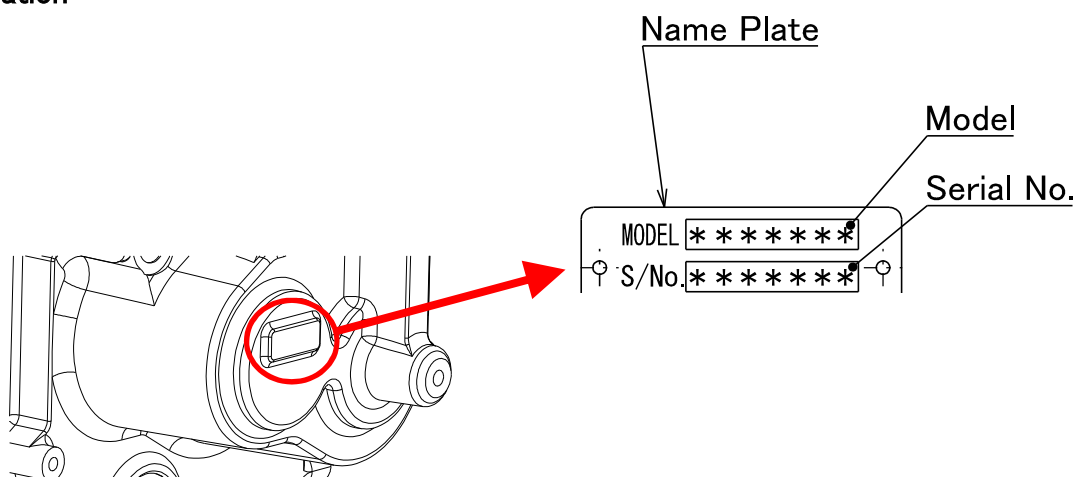
Transmission

Gear ratio	Forward		2.178
	Reverse		2.235
Clutch	Type		Wet multiple clutch plates
	Main oil pressure	MPa	1.0±0.2
	F oil pressure	MPa	1.0±0.2
	R oil pressure	MPa	1.0±0.2
Control type			Power shift
Output rotation	Forward		Counterclockwise viewed from output
	Reverse		Clockwise viewed from output

Transmission ASSY

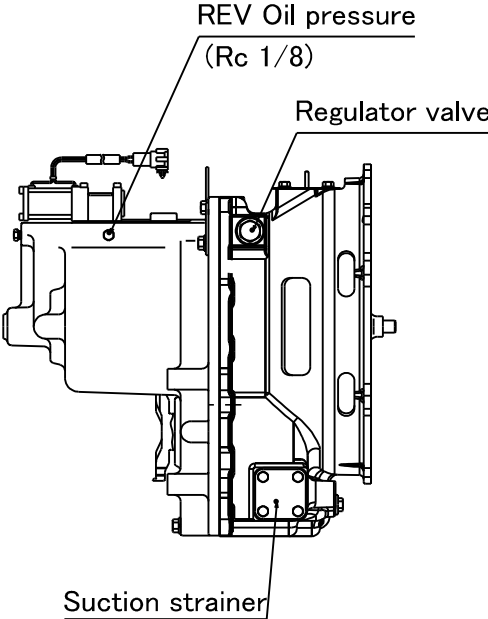
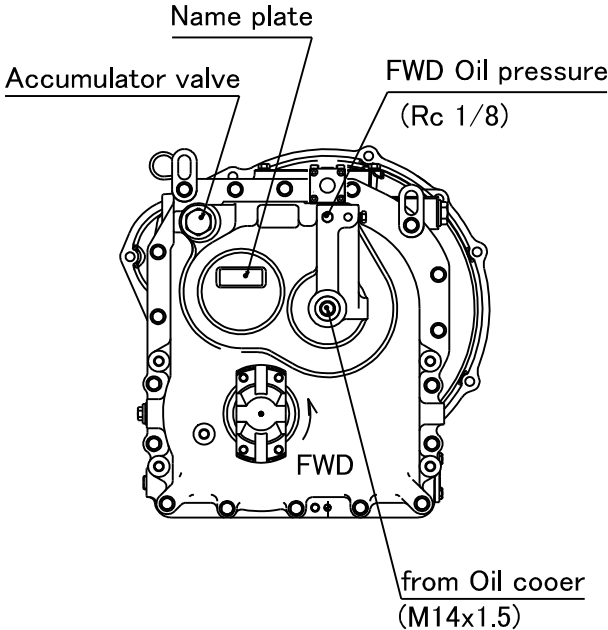
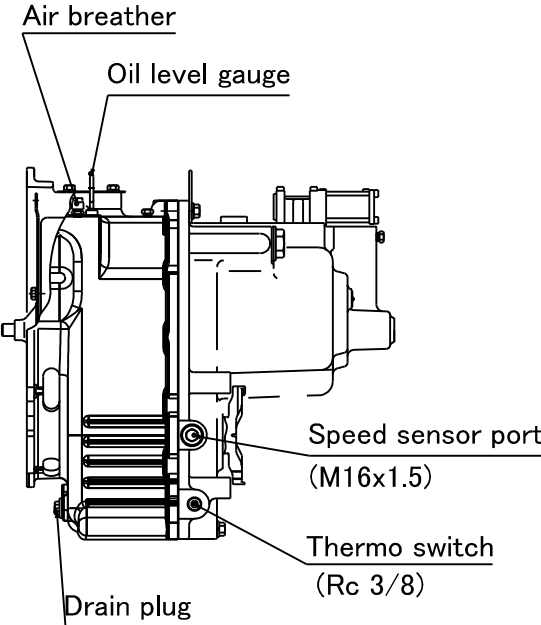
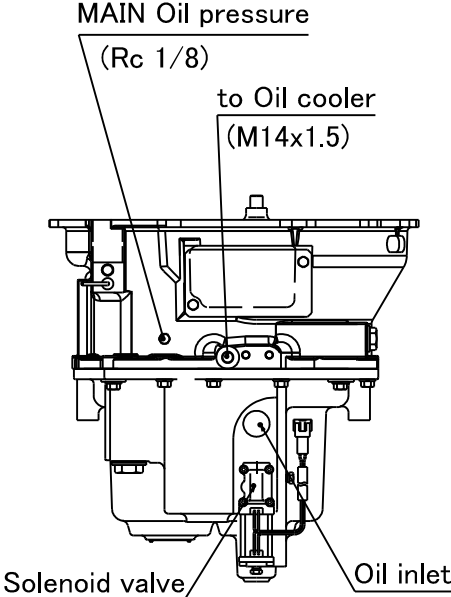
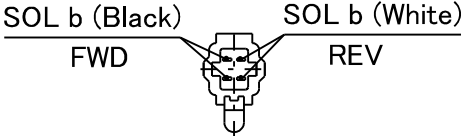
Mass (Dry)	kg	120
Oil type		ATF DEXRON II
Oil capacity	ℓ	8
Max oil temperature	°C	120
Others		-

Identification



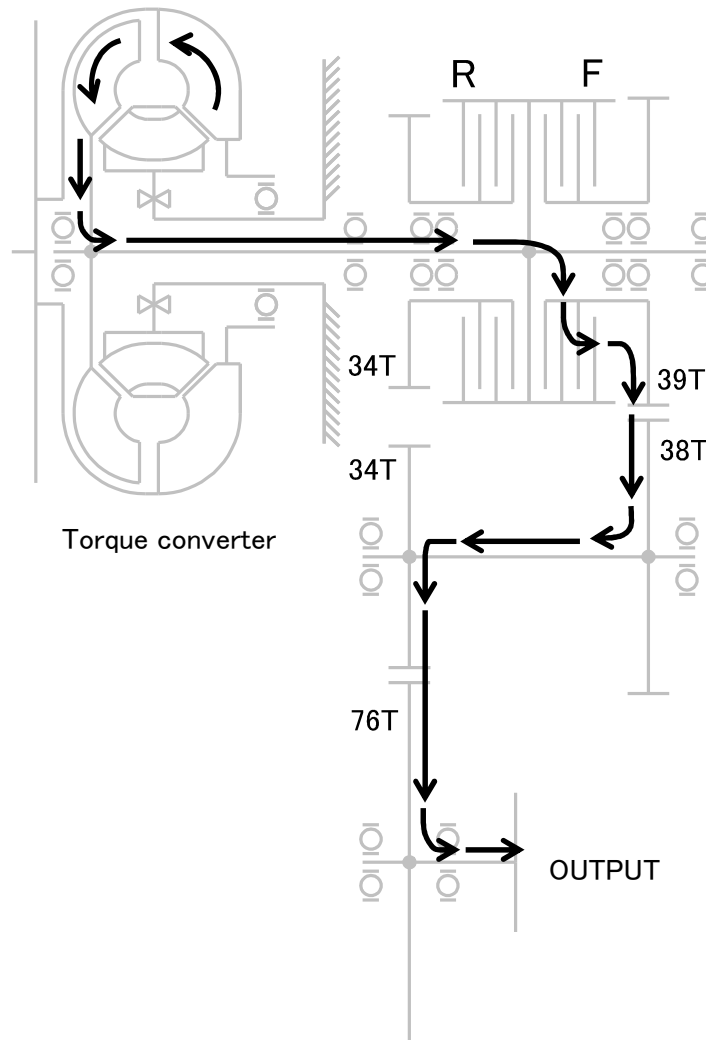
Description and Operation

Transmission



Transmission power flow

Forward

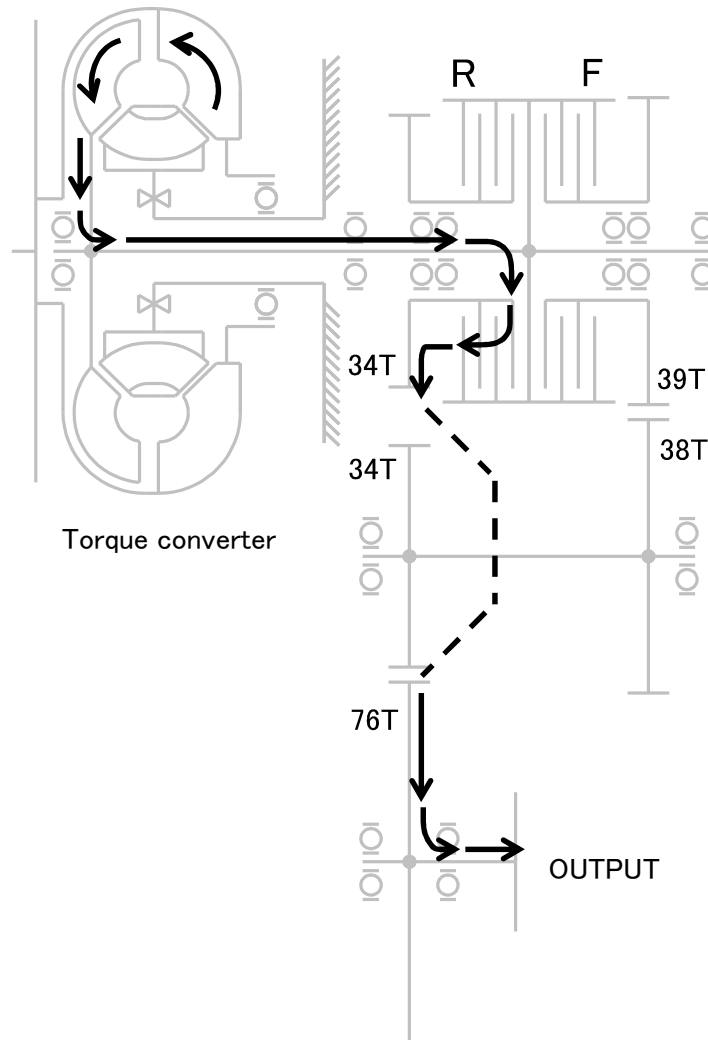


Transmission of power from the turbine

("(")" shows the numbers of gear teeth.)

Turbine → Main shaft → Clutch gear (39) →
 Counter gear (38) → Counter shaft → Counter gear (34) →
 Output gear (76) → Output shaft

Reverse



Transmission of power from the turbine
 ("(") shows the numbers of gear teeth.)

Turbine → Main shaft → Clutch gear (34) →
 Output gear (76) → Output shaft

Hydraulic system

The hydraulic system, which is located in the upper section of the transmission case, comprises a regulator valve, an accumulator valve and a solenoid valve.

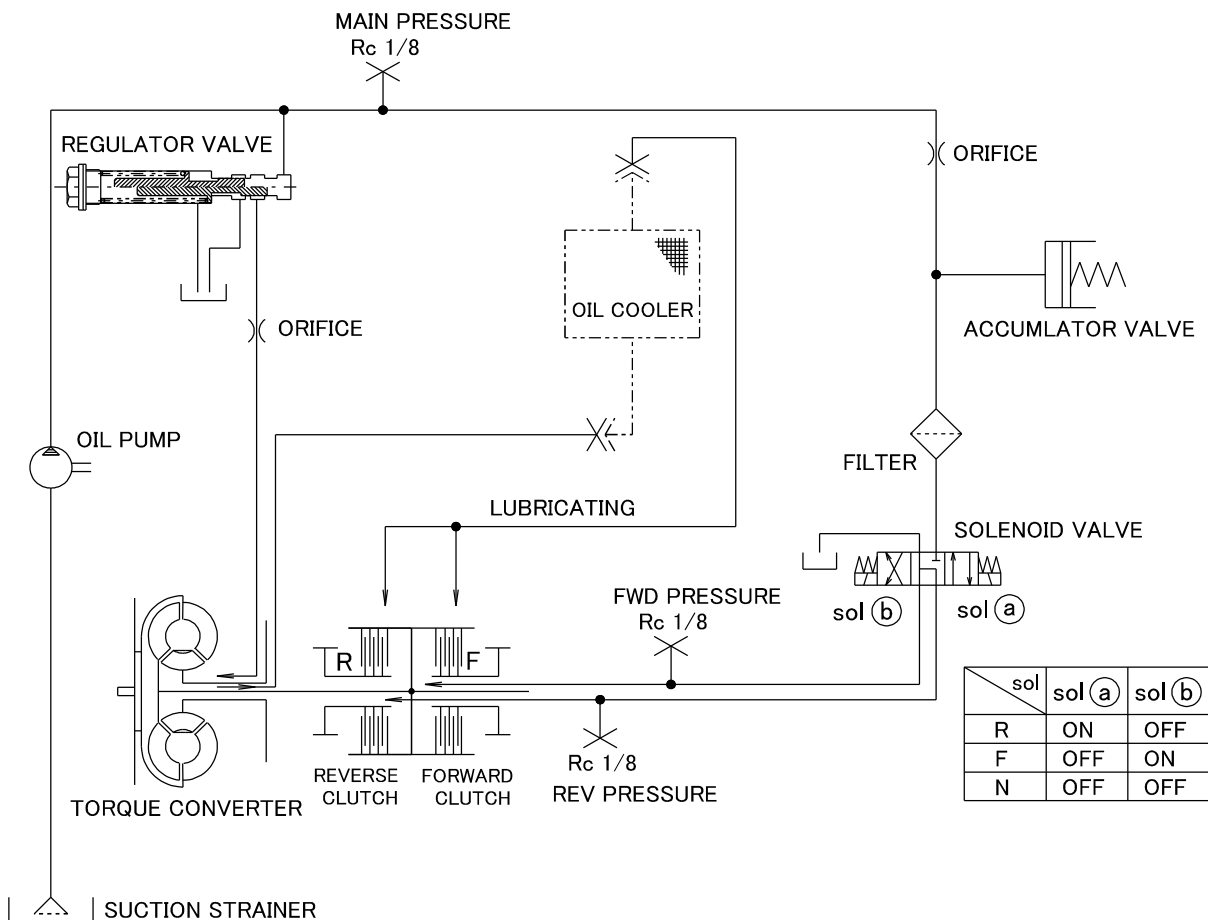
When the engine is started, the oil pump will suck up oil from the transmission sump through the oil screen and supply it to the regulator valve which regulates the pressure to 0.8 to 1.2 MPa. The oil then will go through the accumulator valve and inching valve to the solenoid valve.

When the solenoid valve opens the circuit, the pressure oil will go through the oil path in the case and the shaft hole to the clutches and engage the driven plate with the clutch plate.

The clutch hydraulic pressure is increased gradually by the accumulator valve to provide smoother clutch engagement.

The circulation oil for the torque converter will be restricted by the orifice of the regulator valve before entering the torque converter.

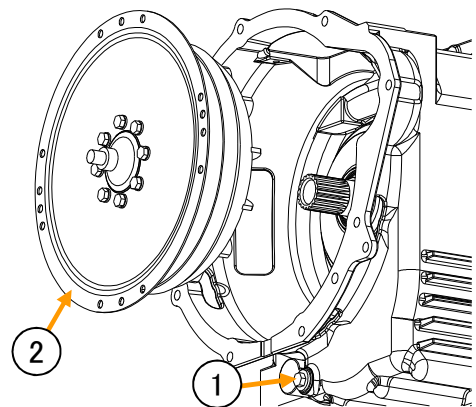
The oil discharged from the torque converter will be directed into the transmission lubrication circuit through the oil cooler and be used to cool and lubricate the transmission.



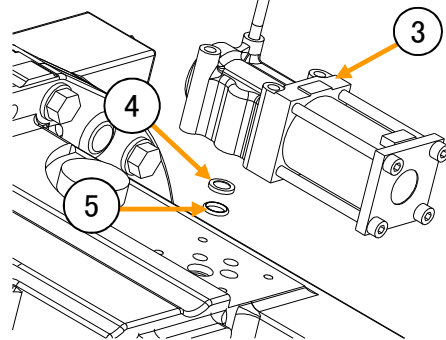
Disassembly of the Transmission

- 1 Remove the drain plug ① and drain oil in the transmission.

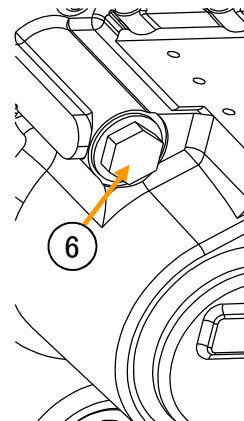
Remove the T/C Assy ②.



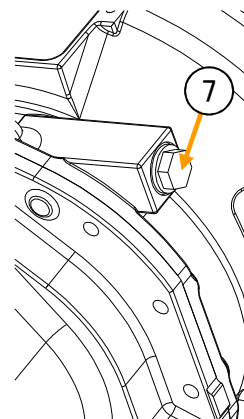
- 2 Remove the solenoid valve ③, the coin filter ④ and O-ring ⑤.



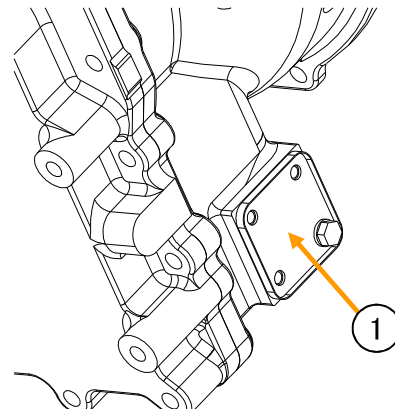
- 3 Remove the accumulator valve ⑥.



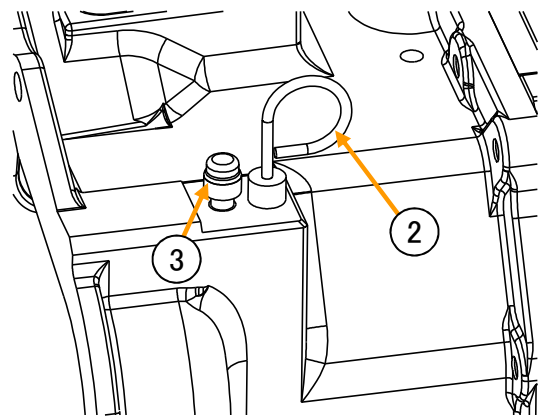
- 4 Remove the regulator valve ⑦.



- 1 Remove the suction strainer ① and the gasket.



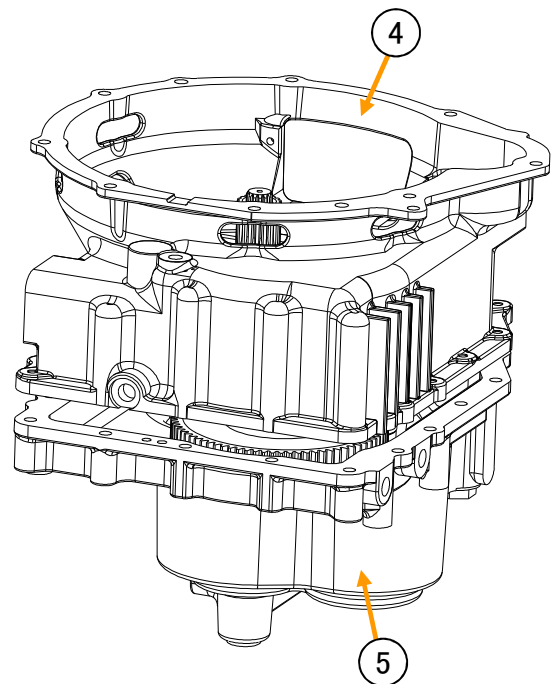
- 2 Remove the level gauge ② and the breather ③.



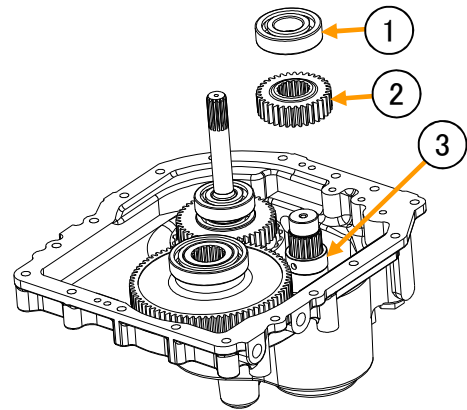
- 3 Unscrew the bolts fixing the torque converter case ④ and the transmission case ⑤.

Hang the converter case to a hoist to separate it from the transmission case.

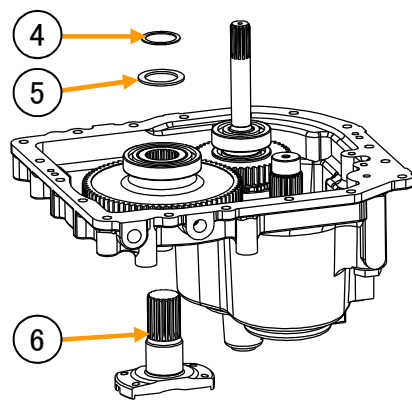
Remove the gasket.



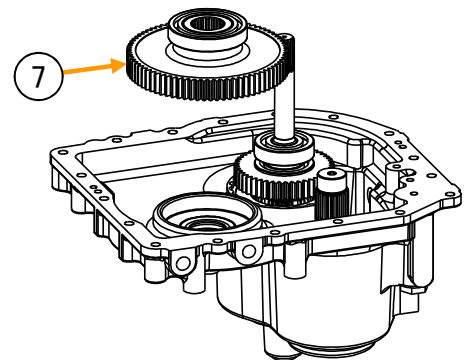
- 1 After remove the bearing ①, remove the counter gear ②, the spacer ③.



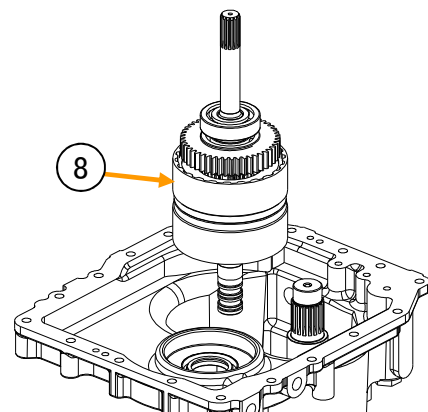
- 2 Remove the snap ring ④, the spacer ⑤ and the coupling ⑥.



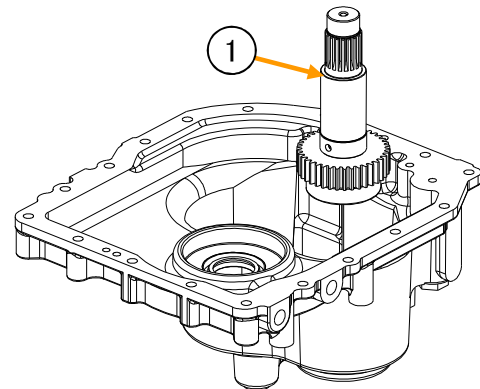
- 3 Remove the output gear ⑦.



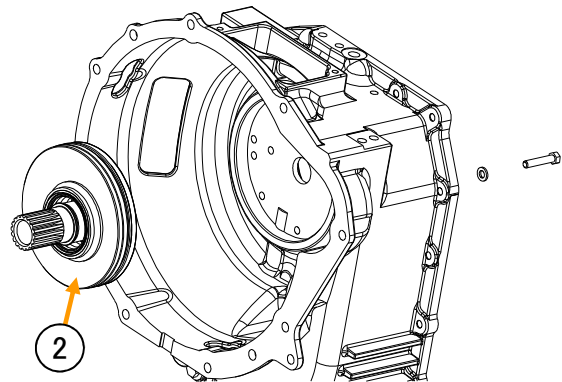
Remove the clutch pack ASSY ⑧.



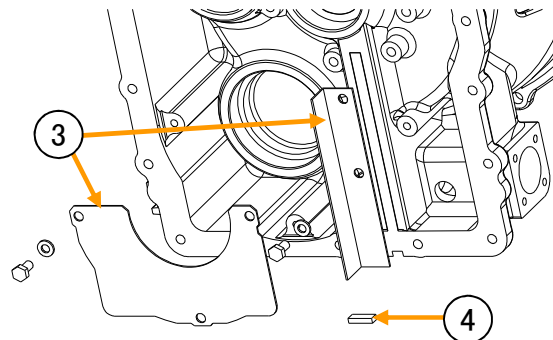
- 1 Remove the counter shaft ASSY ①.



- 2 Remove the oil pump case ASSY with the stator shaft ②.



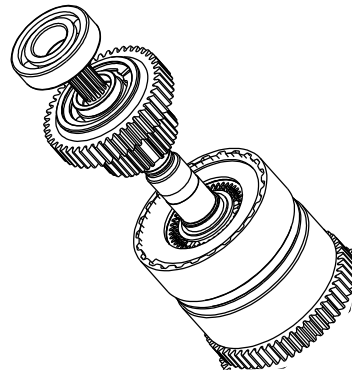
- 3 Remove the gear cover ③ and the magnet ④.



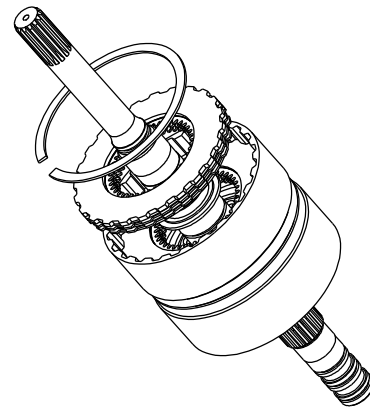
Disassembly of clutch pack

Refer to the following page.

- 1 Remove seal rings, and using a puller, remove the bearing and the clutch gear.

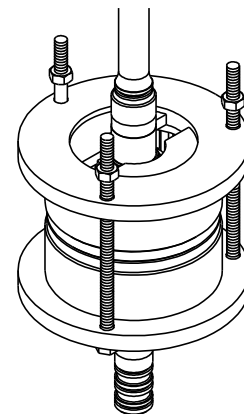


- 2 Remove the snap ring and plates.

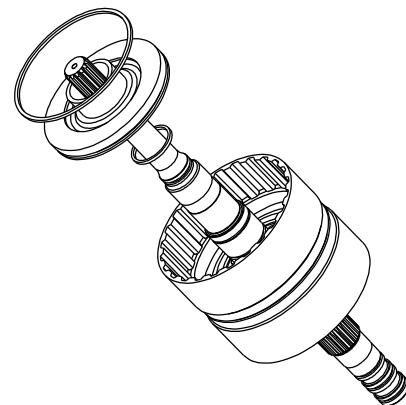


- 3 Using a special tool, compress the clutch spring, and remove the snap ring.

Special tool	SST1
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- 4 Remove the clutch piston.
Remove piston rings from the clutch piston and the shaft.

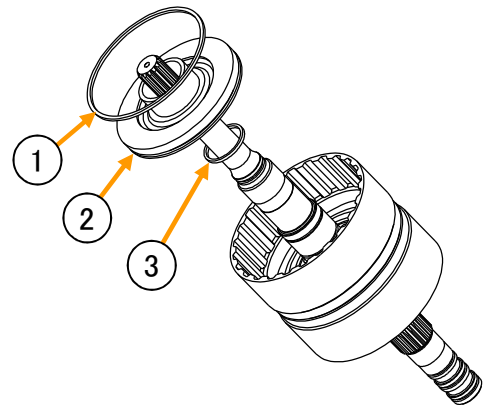


Resassembly of clutch pack

Refer to the following page.

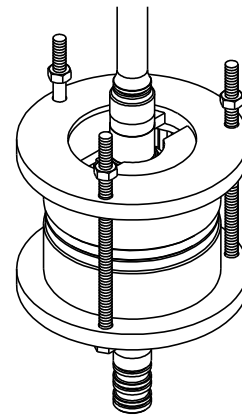
- 1 Install the piston ring ① to the clutch piston ②.

Install the piston ring ③ to the shaft, and install the clutch piston with the piston ring.

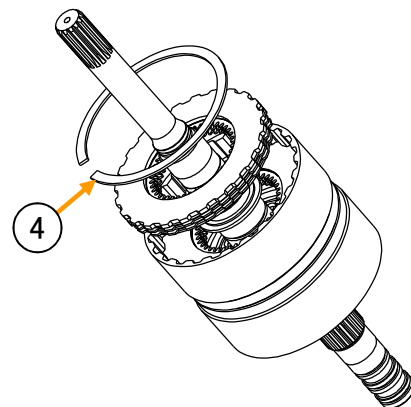


- 2 To install the snap ring, compress the clutch spring with a special tool.

Special tool	SST1
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- 3 Install clutch plates, driven plates, the camber plate, the pressure plate and the snap ring ④.

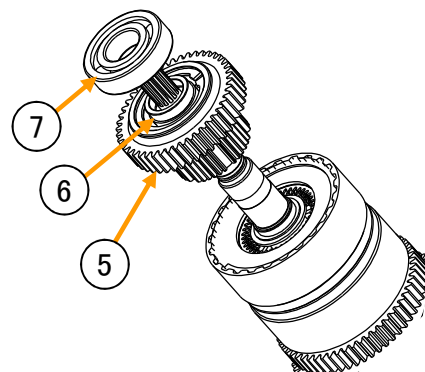


Using a special tool, press the clutch gear with the bearing and the snap ring ⑤, and install the spacer ⑥.

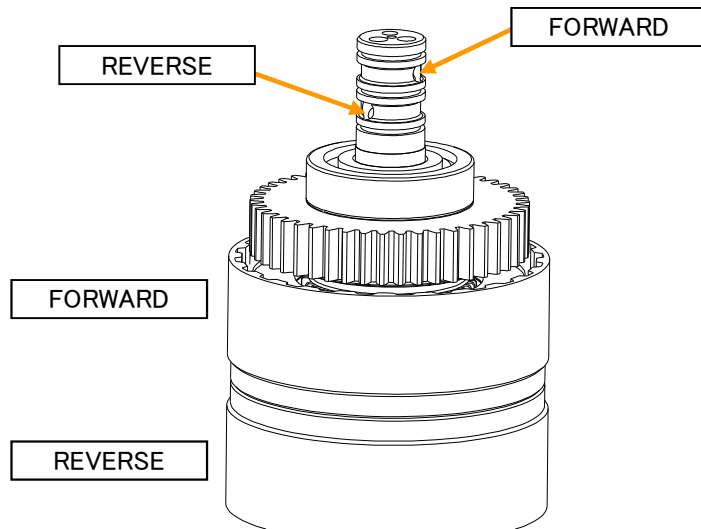
Be careful not to damage teeth of the clutch plate.

Using a special tool, press the bearing ⑦.

Special tool	SST2
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- 1 Apply air to the clutch piston through oil hole to make sure that the piston moves freely.



- 2 Install seal rings.

Clutch pack

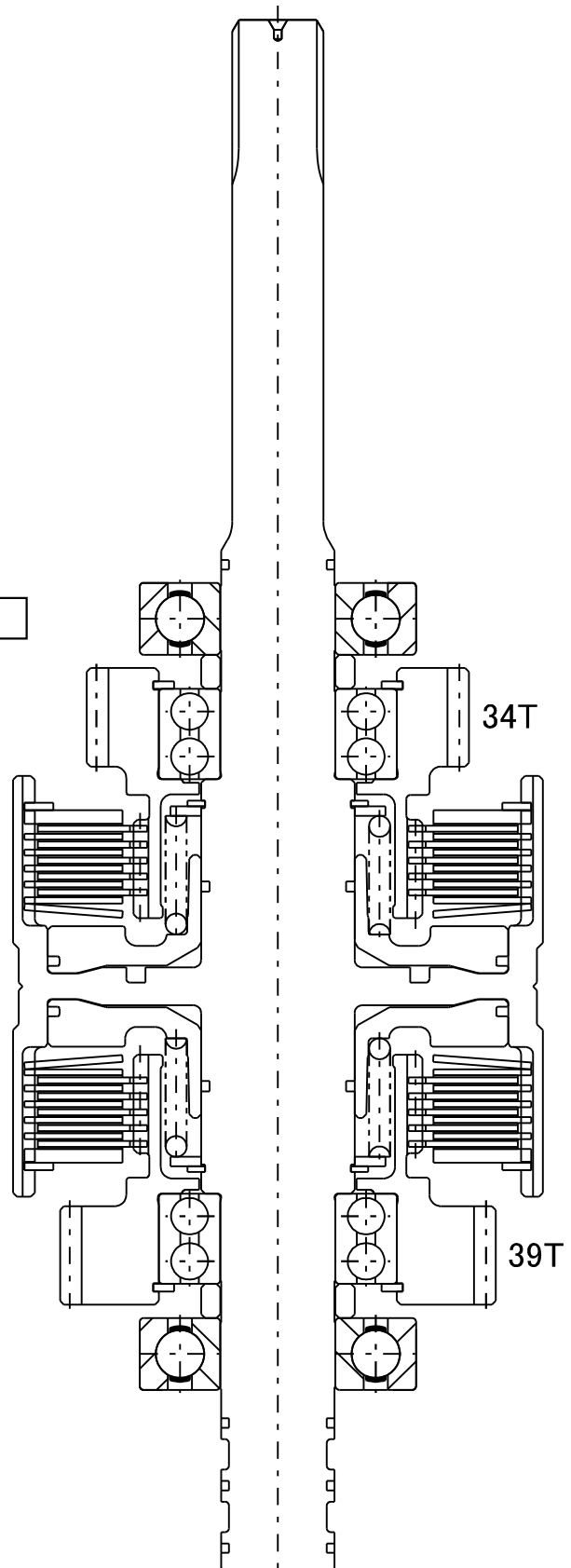
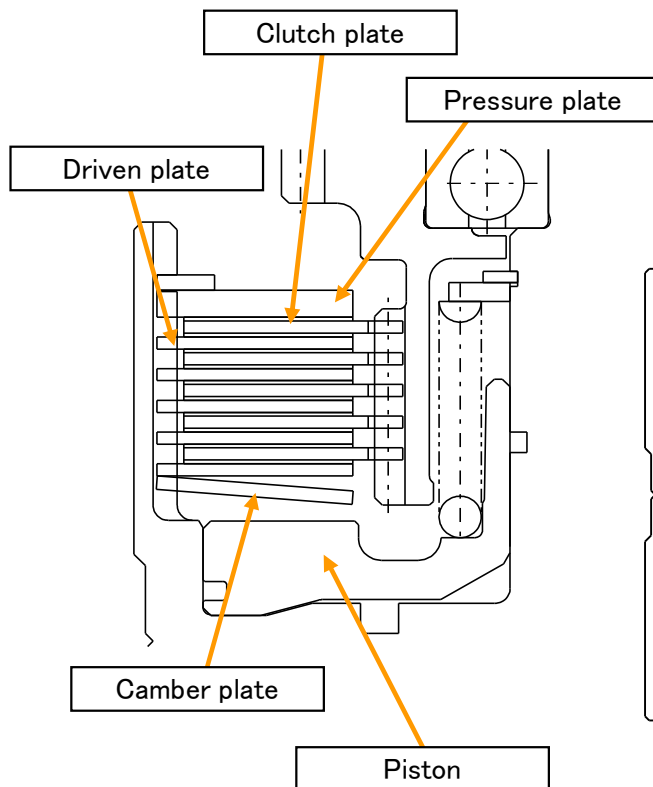
Installing plate

- 1) Make sure that the combination and number of plates are correct.

Number of plates

Clutch plate	5
Driven plate	5

- 2) Install the camber plate by setting its inside face against the driven plate.



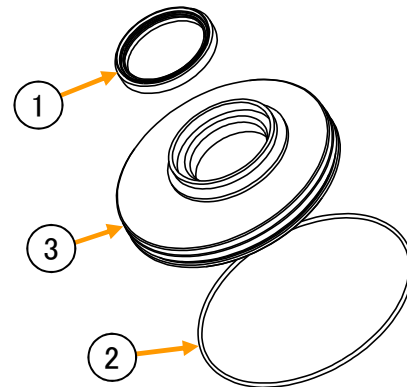
Reassembly of transmission

- 1 Apply ThreeBond No.1102 to the outer side of the oil seal ①, and using a special tool, install the oil seal. And install the O-ring ② to the oil pump case ③.

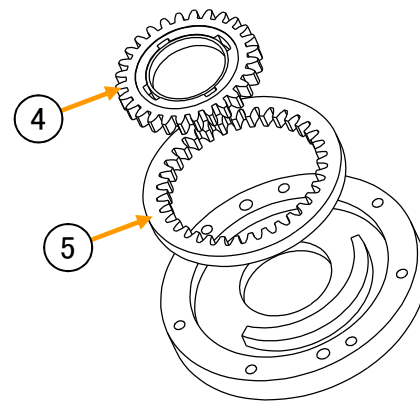
Be careful not to damage a lip of the oil seal.

Sealant	ThreeBond No.1102
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Special tool	SST3
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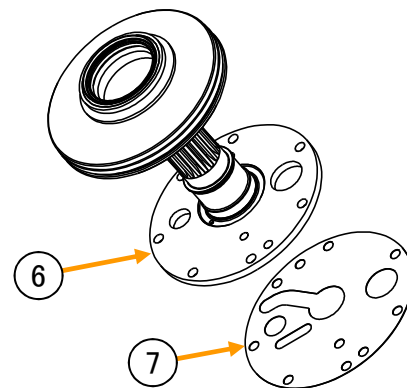


- 2 Install the oil pump drive gear ④ and the oil pump driven gear ⑤ to the oil pump case.



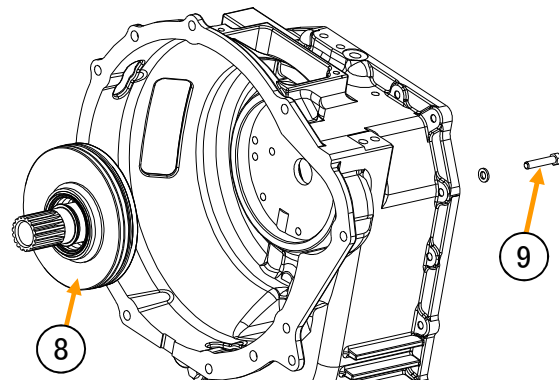
- 3 Install the stator shaft ⑥ and the gasket ⑦ to the oil pump case with the oil pump gear and the oil pump driven gear.

Be careful that the oil pump drive gear and the oil pump driven gear don't come off.

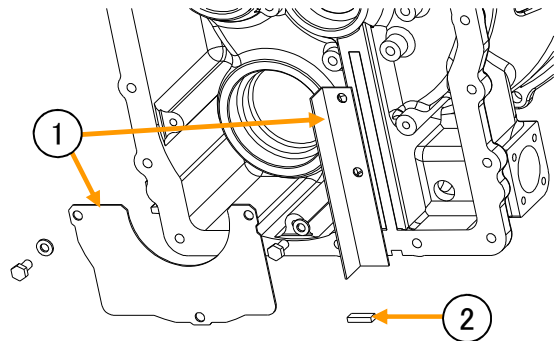


- 4 Install the oil pump ASSY with the stator shaft and the gasket ⑧ to the T/C case, and tighten the bolts ⑨.

Tightening Torque	18.6 to 24.5 Nm
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- 1 Install the gear cover ① and the magnet ②.

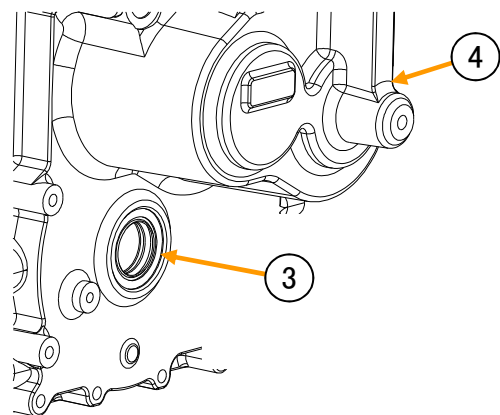


- 2 Apply ThreeBond No.1102 to the outer side of the oil seal ③, and using a special tool, install the oil seal to the T/M case ④

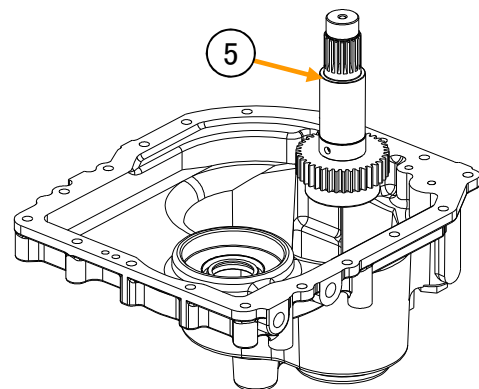
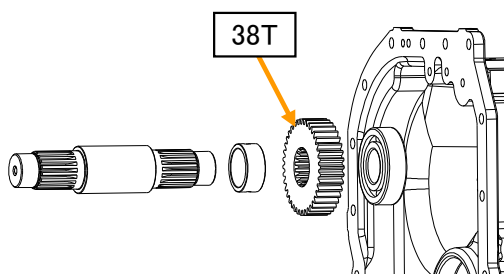
Be careful not to damage a lip of the oil seal.

Sealant	ThreeBond No.1102
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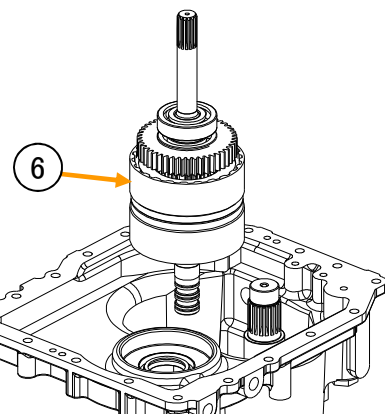
Special tool	SST3
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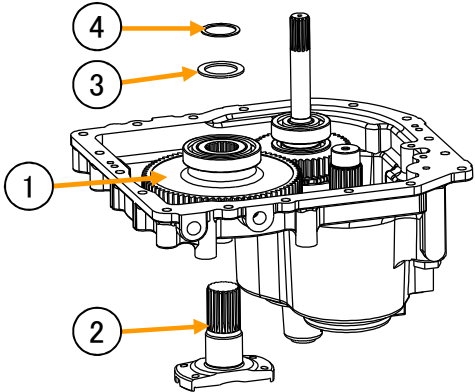
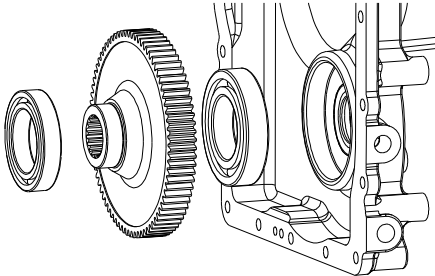
- 3 Install the counter shaft Assy ⑤.



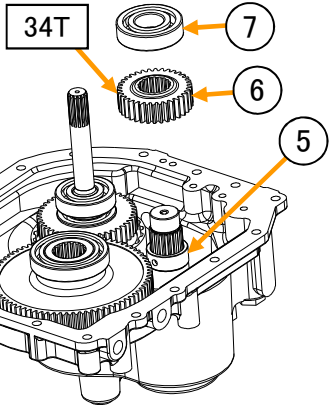
- 4 Install the clutch pack Assy ⑥.



- 1 Install the output gear ASSY ①, coupling ②, the spacer ③ and the snap ring ④.

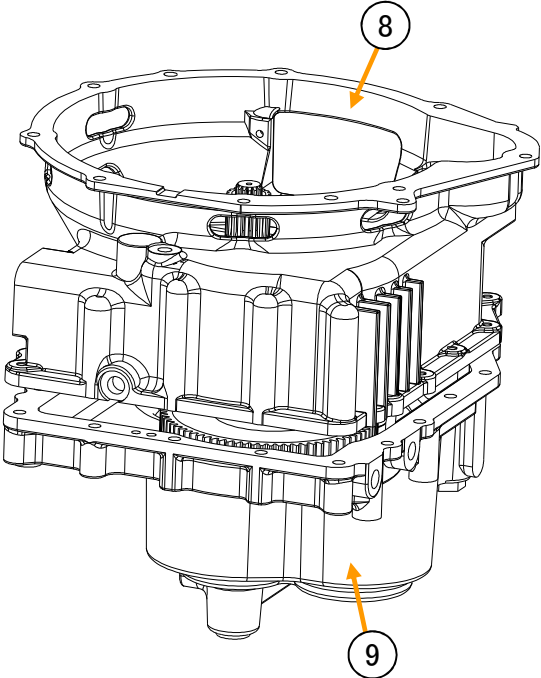


- 2 Install the spacer ⑤, the counter gear ⑥ and the bearing ⑦.



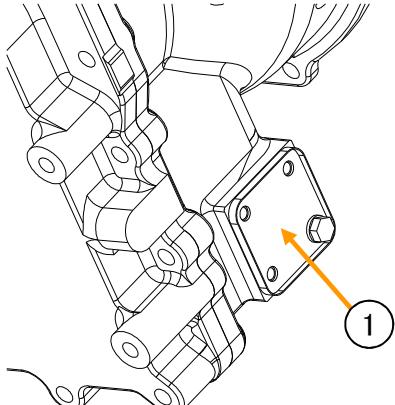
- 3 Install the gasket. Hang the converter case ⑧ to a hoist, and lower the case ⑨ onto the converter case by aligning the input shaft with the transmission.

Tightening Torque	47.0 to 55.9 Nm
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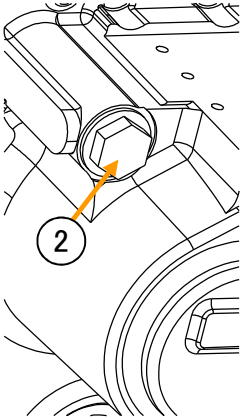
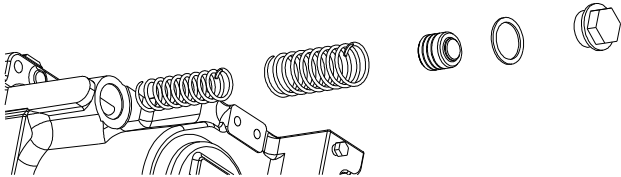
1 After applying LOCTITE No.572 to both sides of the gasket, install the suction strainer ①.

Sealant	LOCTITE No.572
Tightening Torque	18.6 to 24.5 Nm



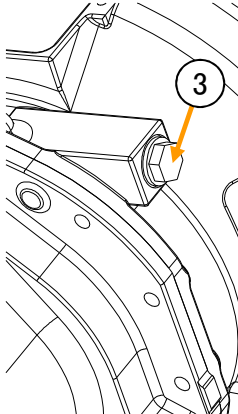
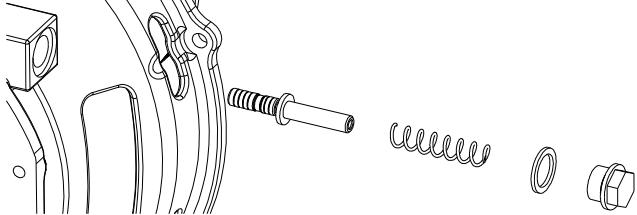
2 Install the accumulator ②.

Tightening Torque	107.8 to 127.4 Nm
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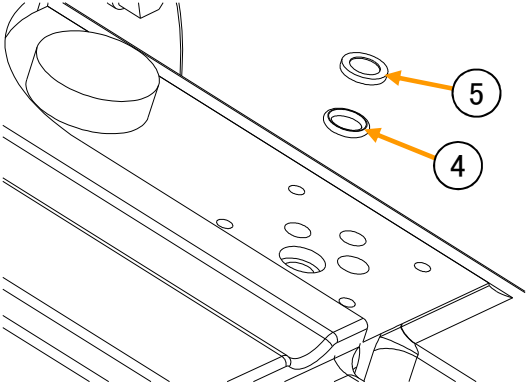


3 Install the regulator ③.

Tightening Torque	49.0 to 58.6 Nm
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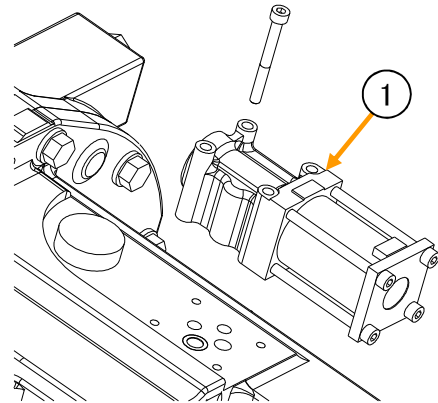


4 Install the O-ring ④ and the coin filter ⑤.

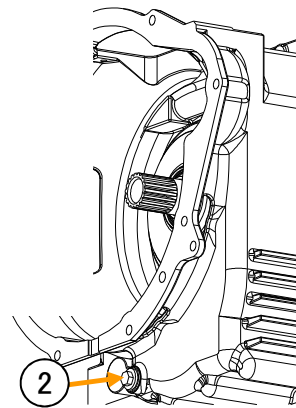


- 1 Install the solenoid valve ①.

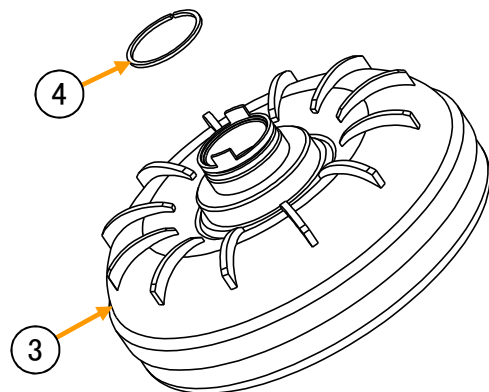
Tightening Torque	4.9 to 7.8 Nm
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- 2 Install the drain plug ②.

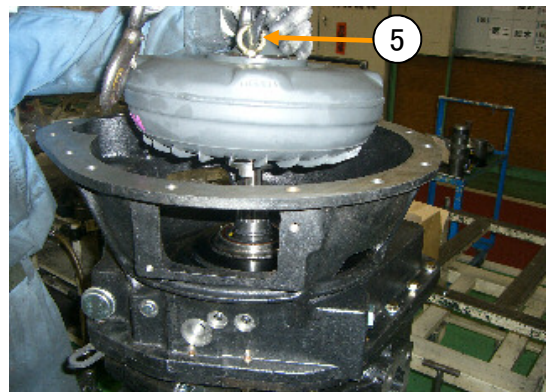


- 3 Install the seal ring ④ to the T/C ASSY ③.



- 4 Fix two eyebolts (SST4) ⑤ on the T/C ASSY ③, and install the T/C ASSY.

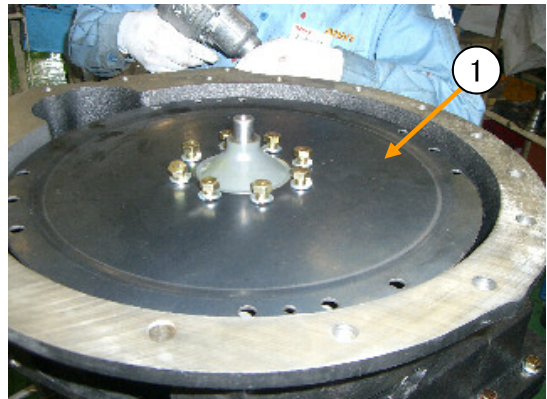
Special tool	SST4
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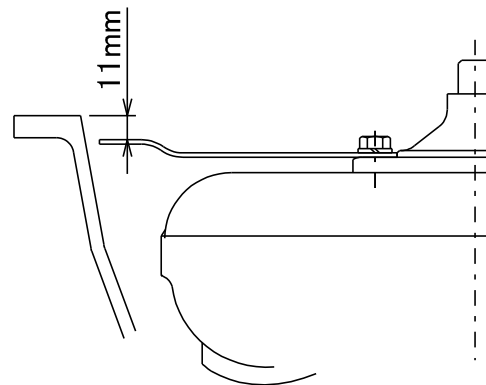
- 1 Install the flexible plate ①.

Be careful to the direction.

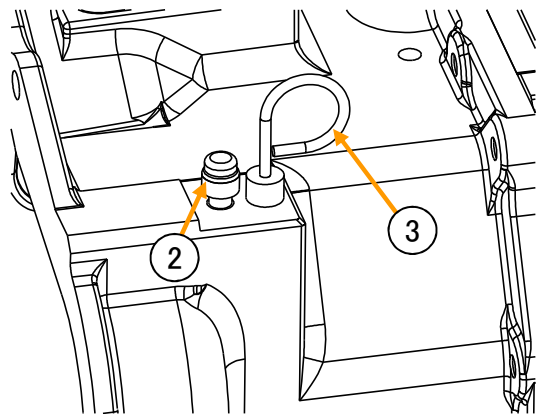
Tightening Torque	18.6 to 24.5 Nm
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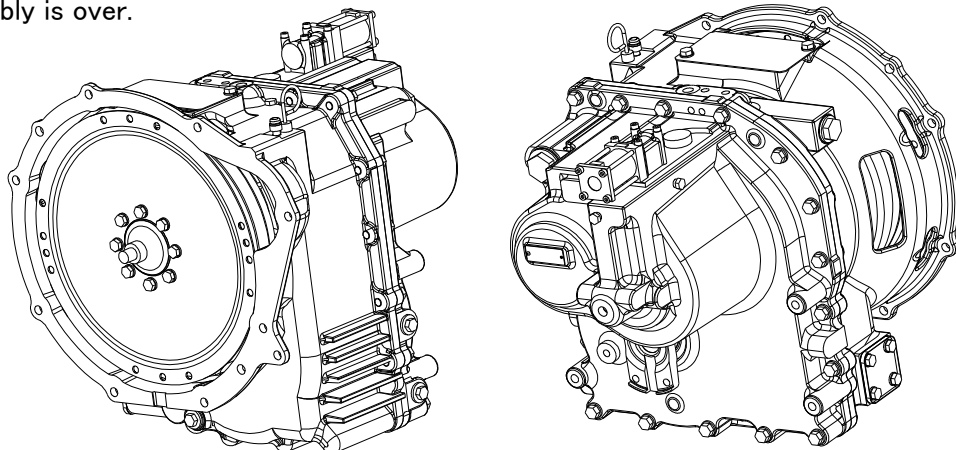
After installing, check that the height of between the flexible plate and the T/C case is about 11mm.



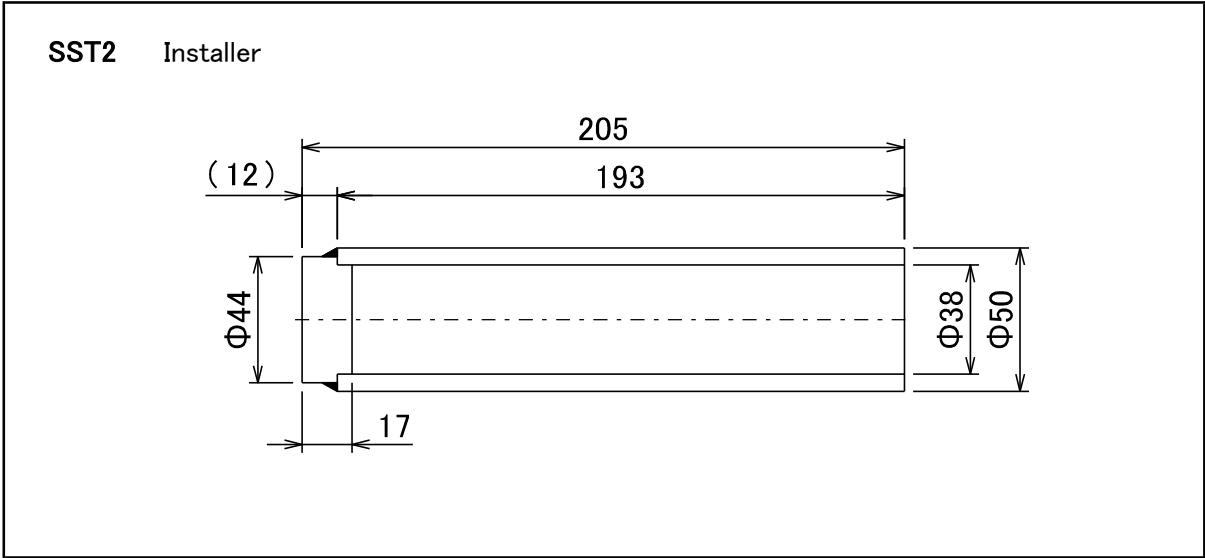
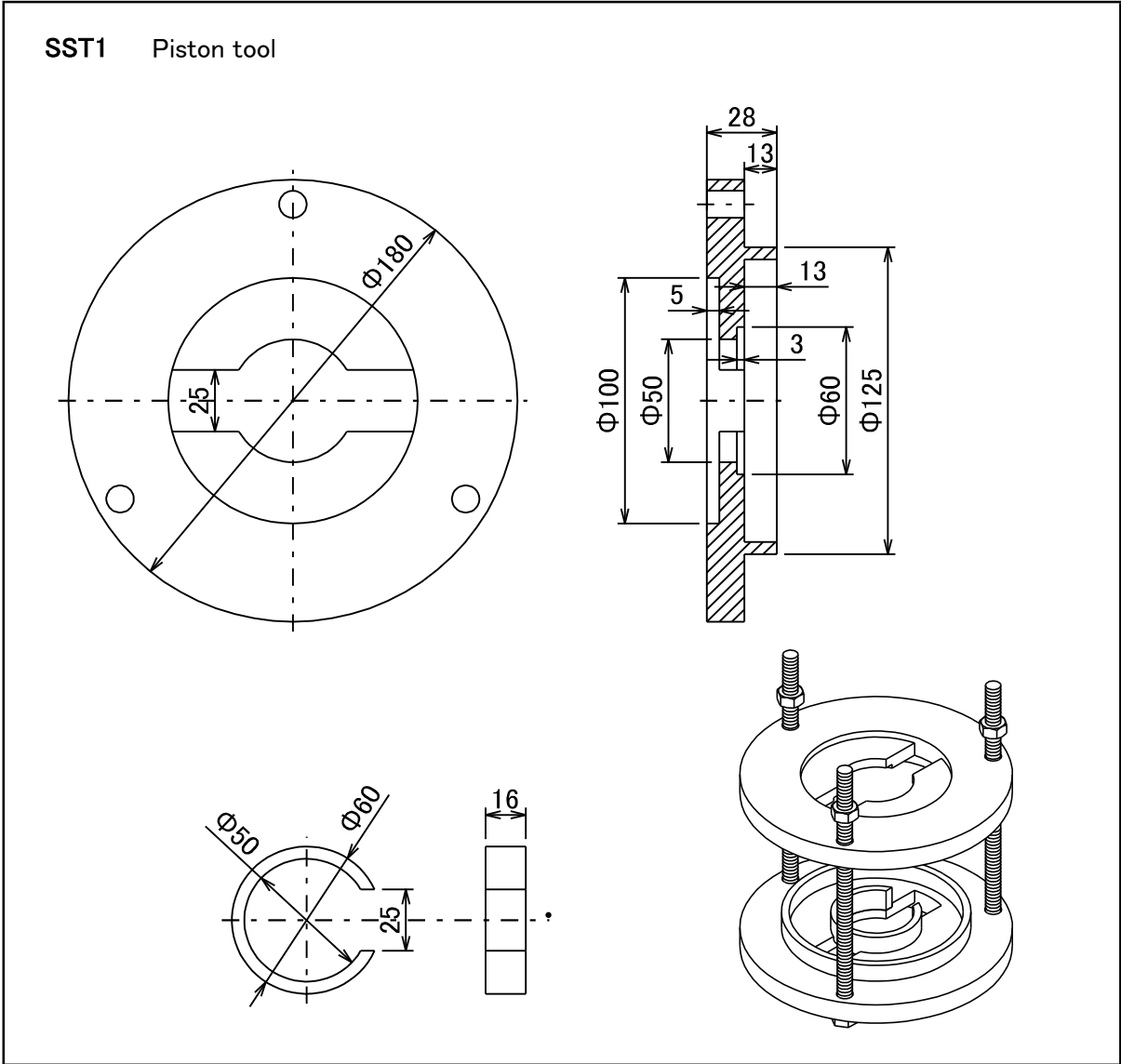
- 2 Install the breather ② and the level gauge ③.

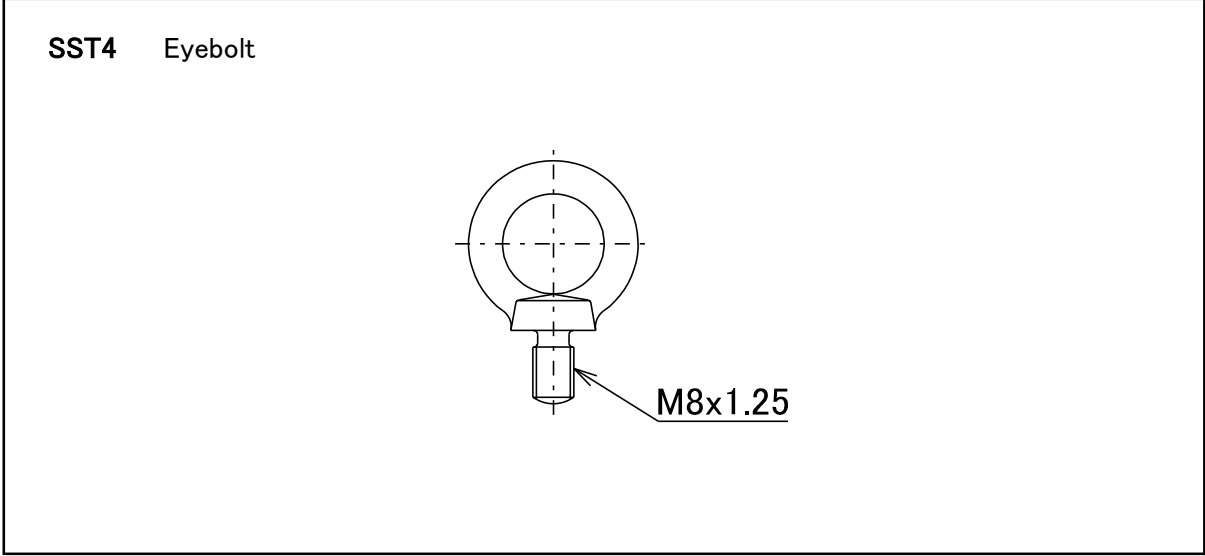
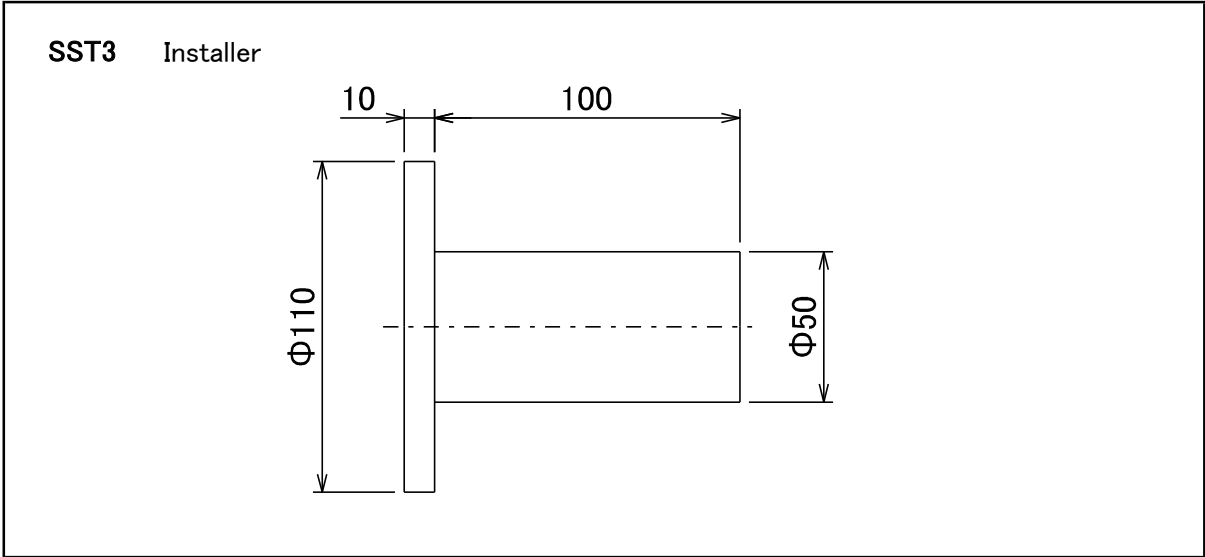


- 3 Reassembly is over.



Special tools





Maintenance standards

Maintenance check List

A = Standard B = Repair or service limit

Unit: mm

Transmission

Items	A	B
1. Fluctuation of the flexible plate	-	0.5
2. Outside diameter of pilot boss end	15	14.95
3. Outside diameter of the pump boss (sliding surface with the oil seal)	60	59.9
4. Side clearance of the oil pump	0.06 to 0.10	0.12

Clutch pack

Items	A	B
1. Clearance between width of the seal ring and that of groove	-	0.3
2. Clearance between width of the piston seal ring (inside) and that of groove	-	0.3
3. Clearance between width of the piston seal ring (outside) and that of groove	-	0.3
4. Thickness of the mating plate	1.6	1.4
5. Thickness of the friction plate	2.6	2.4
6. Free length of the return spring	45	42.8

Regulator valve

Items	A	B
1. Free length of the spring (main pressure)	95	90

Accumulator valve

Items	A	B
1. Free length of spring (at the accumulator piston) (outside)	100.5	90.5
2. Free length of spring (at the accumulator piston) (inside)	95	85



TRANSMISSION PARTS LIST

<i>Y43280D</i>	<i>SERIAL NO.0001~</i>
<i>Y43280H</i>	<i>SERIAL NO.0001~</i>
<i>Y43280N</i>	<i>SERIAL NO.0001~</i>
<i>Y43280K</i>	<i>SERIAL NO.0001~</i>

Okamura Corporation

Aug. 2018

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Note.

Parts that there is * sign in the part number column are not supplied as a repair parts.

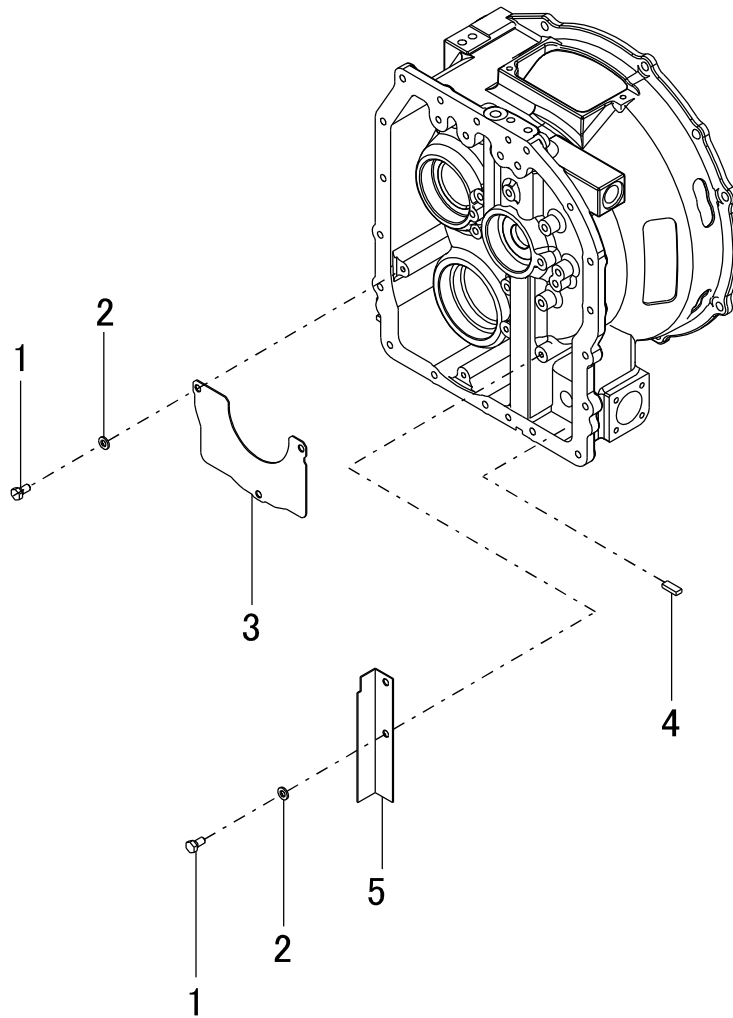
Parts and Part NO. is subject to change without notice.

01-01-01 TRANSMISSION (PART-1)

REF. -NO.	PART NO.	PART NAME & DESCRIPTION	Q T Y	MODEL & APPLICABLE SERIAL NO.			
				Y43280D	Y43280H	Y43280N	Y43280K
				@FROM- -@UPTO	@FROM- -@UPTO	@FROM- -@UPTO	@FROM- -@UPTO
1	C12414	BOLT	8				
2	C99514	WASHER, SPRING	8				
3	441442A	PLATE, FLEXIBLE	1				
4	470008B	T/C ASSY	1				
5	R61800	RING, SEAL	1				
6	R63030	OIL SEAL	1				
7	430442A	CASE, OILPUMP ASSY	1				
7 01	*	CASE, OILPUMP	1				NOT SHOWN
7 02	*	DRIVE GEAR ASSY	1				NOT SHOWN
7 03	*	DRIVEN GEAR, OILPUMP	1				NOT SHOWN
8	R62545A	O RING	1				
9	431735C	SHAFT, STATOR	1				
10	432519A	GASKET	1				
11	C54425	PIN	2				
12	C93814	PLUG	1				
13	C94614	WASHER, SEAL	1				
14	440419B	T/C CASE ASSY	1				
14 01	*	CASE, T/C	1				
14 02	K60912	PLUG	1				
14 03	C94618	WASHER, SEAL	1				
14 04	C93818	PLUG	1				
15	C12435S	BOLT, WASHER ASSEMBLED	3				
15	C12445S	BOLT, WASHER ASSEMBLED	4				
16	9165340814	BOLT, WASHER ASSEMBLED	2				
17	K62028B	COVER	1				
18	R63114	GAUGE, LEVEL	1				
19	R60325	BREATHER	1				
20	591306C	SPOOL, REGULATOR	1				
21	491427A	SPRING, REGULATOR	1				
22	C94624	WASHER, SEAL	1				
23	C93824	PLUG	1				
24	564501B	GASKET	1				
25	564102B	SUCTION STRAINER	1				
26	C12416S	BOLT, WASHER ASSEMBLED	4				

01-01-02 TRANSMISSION (PART-2)

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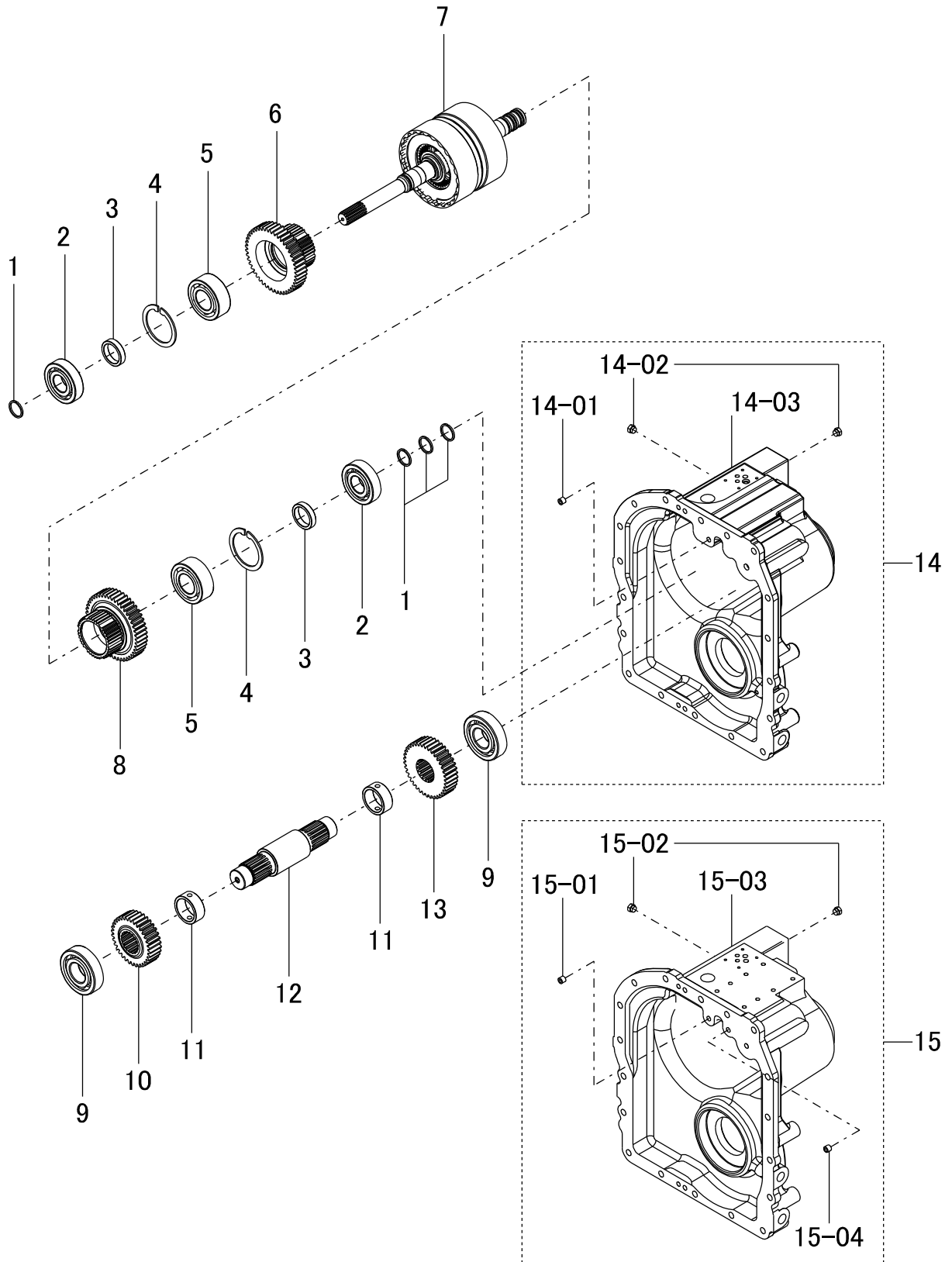


01-01-02 TRANSMISSION (PART-2)

REF. -NO.	PART NO.	PART NAME & DESCRIPTION	Q T Y	MODEL & APPLICABLE SERIAL NO.			
				Y43280D	Y43280H	Y43280N	Y43280K
				@FROM- -@UPTO	@FROM- -@UPTO	@FROM- -@UPTO	@FROM- -@UPTO
1	C12416	BOLT	5				
2	C99514	WASHER, SPRING	5				
3	487017B	COVER, GEAR A	1				
4	R62824	MAGNET	2				
5	487018A	COVER, GEAR B	1				

01-01-03 TRANSMISSION (PART-3)

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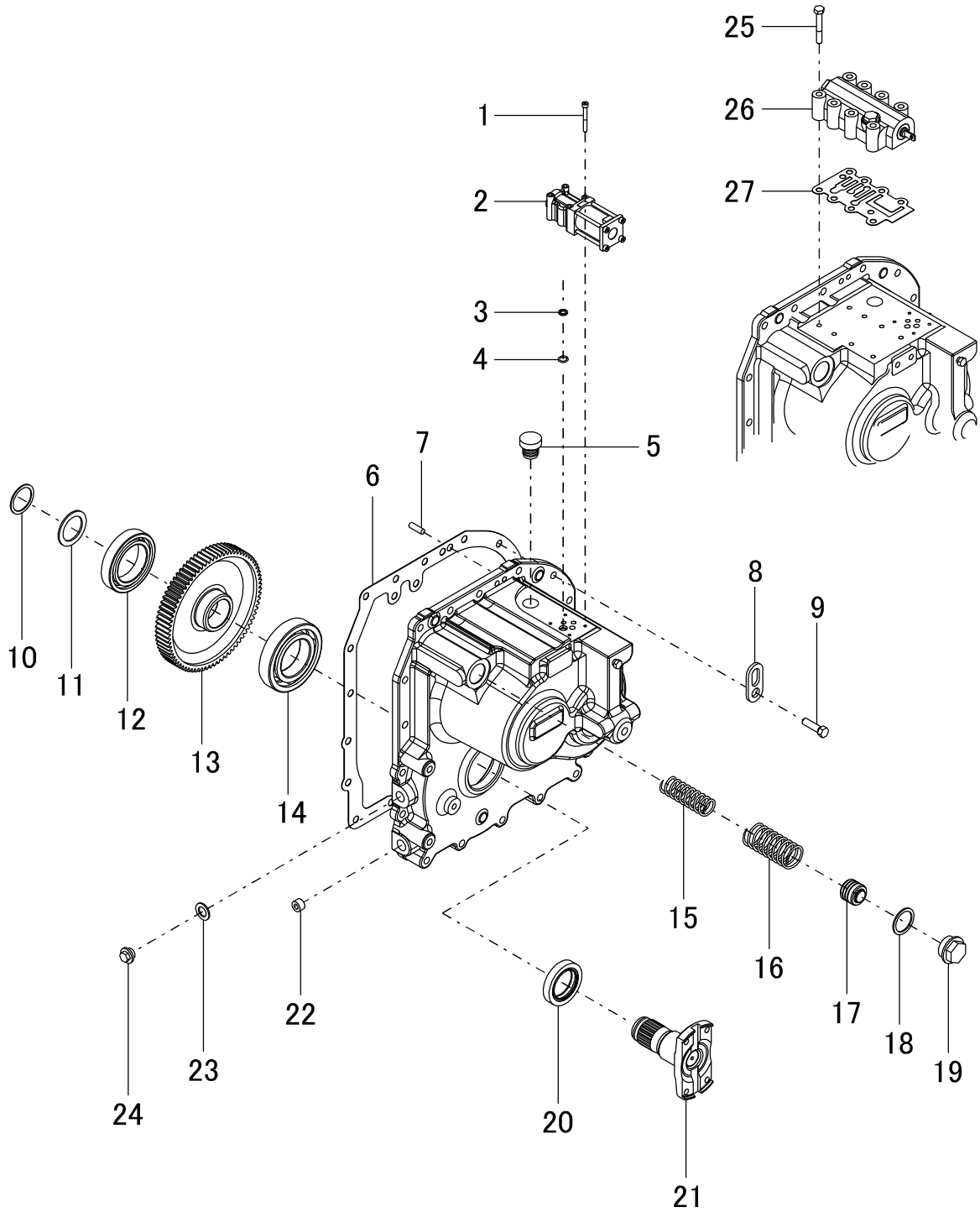


01-01-03 TRANSMISSION (PART-3)

REF. -NO.	PART NO.	PART NAME & DESCRIPTION	Q T Y	MODEL & APPLICABLE SERIAL NO.			
				Y43280D	Y43280H	Y43280N	Y43280K
				@FROM- -@UPTO	@FROM- -@UPTO	@FROM- -@UPTO	@FROM- -@UPTO
1	R63383	RING, SEAL	4				
2	C76306	BEARING, BALL	2				
3	R63115	SPACER	2				
4	C95262	RING, SNAP	2				
5	C75206	BEARING, BALL	2				
6	484154A	GEAR, CLUTCH	1				Z=34
7	480252C	CLUTCH ASSY	1				
8	484155A	GEAR, CLUTCH	1				Z=39
9	C76307	BEARING, BALL	2				
10	484527A	GEAR, COUNTER	1				Z=34
11	R63116	SPACER	2				
12	482227A	SHAFT, COUNTER	1				
13	484528A	GEAR, COUNTER	1				Z=38
14	480166A	T/M CASE ASSY	1		@0214-	@0075-	
14 01	K69518	ORIFICE	1		@0214-	@0075-	
14 02	K60912	PLUG	2		@0214-	@0075-	
14 03	*	CASE, T/M	1		@0214-	@0075-	
15	480162B	T/M CASE ASSY	1	-----	-@0213	-@0074	-----
15 01	K69527	ORIFICE	1	-----	-@0213	-@0074	-----
15 02	K60912	PLUG	2	-----	-@0213	-@0074	-----
15 03	*	CASE, T/M	1	-----	-@0213	-@0074	-----
15 04	K69518	ORIFICE	1				

01-01-04 TRANSMISSION (PART-4)

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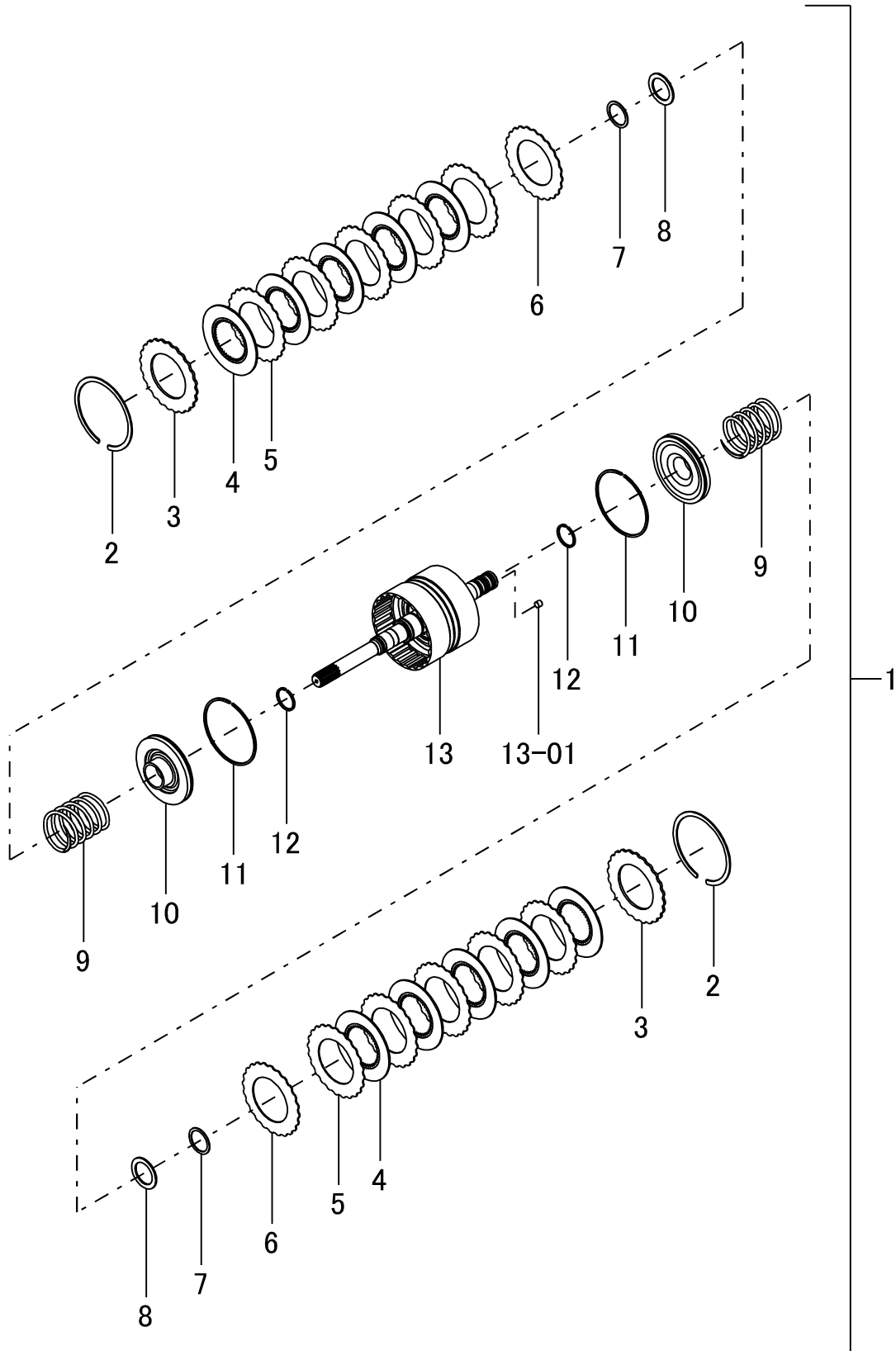


01-01-04 TRANSMISSION (PART-4)

REF. -NO.	PART NO.	PART NAME & DESCRIPTION	Q T Y	MODEL & APPLICABLE SERIAL NO.			
				Y43280D	Y43280H	Y43280N	Y43280K
				@FROM- -@UPTO	@FROM- -@UPTO	@FROM- -@UPTO	@FROM- -@UPTO
1	C29250	BOLT, HEXAGON SOCKET	4				
2	490312A	SOLENOID VALVE ASSY	1				
3	R62632	FILTER, COIN	1				
4	CP0090F	O-RING	1				
5	R63125	CAP, OIL INLET	1				
6	488430C	GASKET	1				
7	C54425	PIN	2				
8	K60304	PLATE, EYE	2				
9	C15530S	BOLT, WASHER ASSEMBLED	11				
9	C15535S	BOLT, WASHER ASSEMBLED	2				
9	C15565S	BOLT, WASHER ASSEMBLED	5				
10	K61757	RING, SNAP	1				
11	R63228	SPACER	1				
12	C76012	BEARING, BALL	1				
13	484786A	GEAR, OUTPUT	1				
14	C76212	BEARING, BALL	1				
15	493607A	SPRING, ACC INNER	1				
16	493606A	SPRING, ACC OUTER	1				
17	593508C	PISTON, ACC	1				
18	C94633	WASHER, SEAL	1				
19	C93833	PLUG	1				
20	CAD452A	SEAL, OIL	1				
21	487543B	COUPLING	1				
22	N60088	PLUG	1				
23	C94616	WASHER, SEAL	1				
24	C93816	PLUG	1				
25	C12455S	BOLT, WASHER ASSEMBLED	8	-----	@0213	@0074	-----
26	590276A	INCHING VALVE ASSY	1	-----	@0213	@0074	-----
27	592215B	GASKET	1	-----	@0213	@0074	-----

01-01-05 TRANSMISSION (PART-5)

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01-01-05 TRANSMISSION (PART-5)

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REF. -NO.	PART NO.	PART NAME & DESCRIPTION	Q T Y	MODEL & APPLICABLE SERIAL NO.			
				Y43280D	Y43280H	Y43280N	Y43280K
				@FROM- -@UPTO	@FROM- -@UPTO	@FROM- -@UPTO	@FROM- -@UPTO
1	480252C	CLUTCH ASSY	1				
2	*	RING, SNAP	2				
3	*	PLATE, PRESSURE	2				
4	483019A	PLATE, CLUTCH	10				
5	483116A	PLATE, DRIVEN	10				
6	483117A	PLATE, CAMBER	2				
7	*	RING, SNAP	2				
8	*	RETAINER, SPRING	2				
9	*	SPRING, RETURN	2				
10	*	PISTON, CLUTCH	2				
11	*	RING, PISTON	2				
12	*	RING, PISTON	2				
13	*	MAIN SHAFT & DRUM ASSY	1				
13 01	*	PLUG	2				

02-01 OVERHAUL KIT

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REF. -NO.	PART NO.	PART NAME & DESCRIPTION	個 数 Q T Y	PARTS INDEX	
				GRP NO.	REF NO.
1	T60988	OVERHAUL KIT	1		
1 01	R61800	RING, SEAL	1	01-01-01	5
1 02	R63030	SEAL, OIL	1	01-01-01	6
1 03	432519A	GASKET	1	01-01-01	10
1 04	R62545A	O RING	1	01-01-01	8
1 05	564501B	GASKET	1	01-01-01	24
1 06	564102B	STRAINER, SUCTION	1	01-01-01	25
1 07	R63383	RING, SEAL	4	01-01-03	1
1 08	488430C	GASKET	1	01-01-04	6
1 09	CAD452A	SEAL, OIL	1	01-01-04	20
1 10	R62632	FILTER, COIN	1	01-01-04	3
1 11	CP0090B	O RING	1	01-01-04	4

