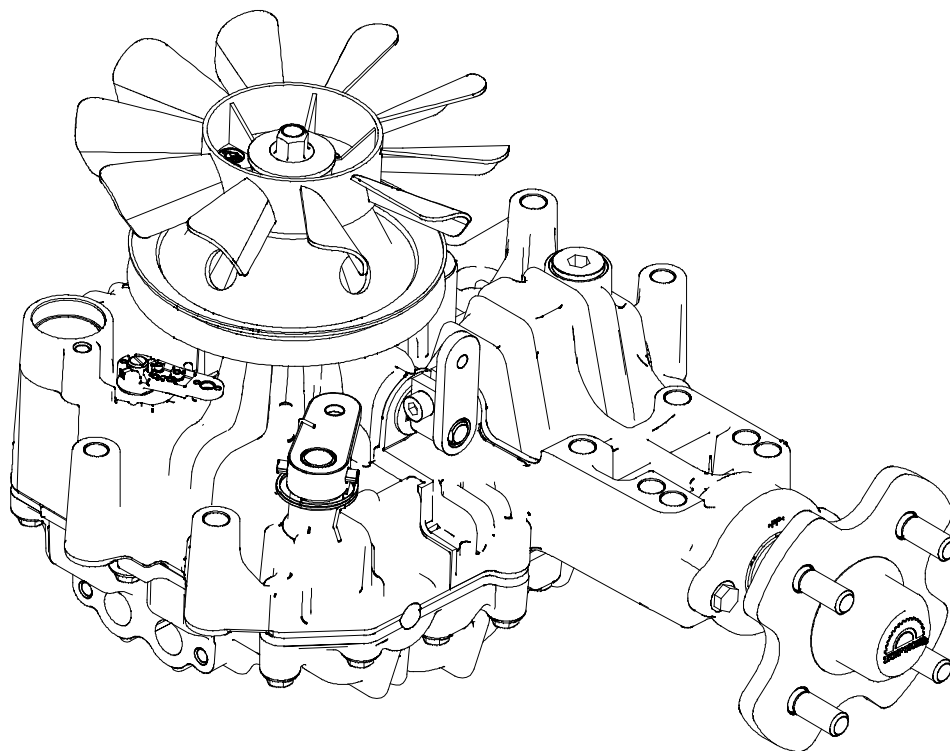


Model TZT13 Tuff Torq Transaxle

Service Manual



TZT13 TRANSAXLE SERVICE MANUAL

DISASSEMBLY, INSPECTION

1. DISASSEMBLE TRANSAXLE

1) THOROUGHLY CLEAN OUTSIDE SURFACE OF TRANSMISSION.

2) LOOSEN 2 BOLTS TO DRAIN TRANSMISSION OIL.

<NOTE>

REPLACE 2 SEAL WASHERS AND PACKING WITH NEW PARTS WHEN ASSEMBLING.

3) LOOSEN AND REMOVE LOCK NUT FROM INPUT SHAFT AND REMOVE WASHER AND FAN.

4) REMOVE TAPERED PULLEY FROM INPUT SHAFT WITH SUITABLE PULLER.

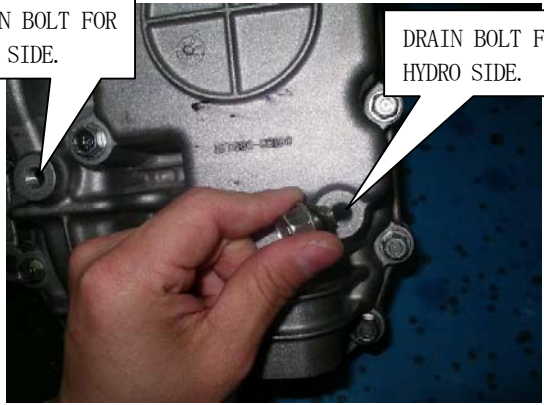
<NOTE>

TO PREVENT DAMAGE TO TAPERED PULLEY, USE TORO PULLEY PULLER (TOR6031) TO REMOVE PULLEY.



DRAIN BOLT FOR
GEAR SIDE.

DRAIN BOLT FOR
HYDRO SIDE.



5) REMOVE 2 CONNECTORS FROM LOWER CASE.

6) REMOVE FILTER CAP FROM LOWER CASE.

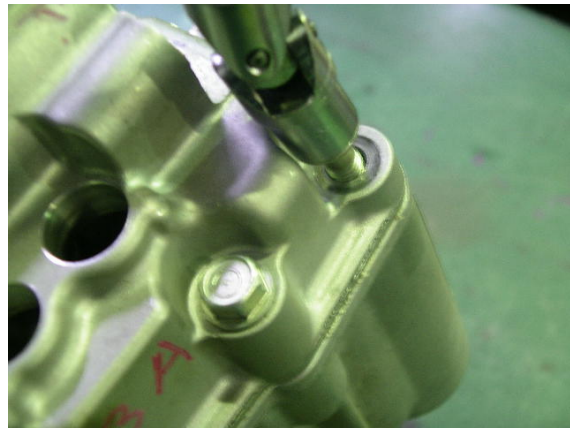
7) REMOVE FILTER FROM LOWER CASE.

<NOTE>

REPLACE FILTER WITH NEW PART DURING ASSEMBLY.



8) LOOSEN 2 BOLTS AND 16 TAPPING SCREWS TO OPEN LOWER CASE FROM UPPER CASE.



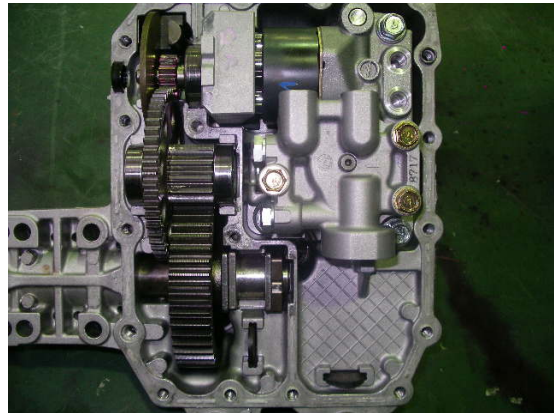
9) CAREFULLY PRY UPPER CASE FROM LOWER CASE USING UPPER CASE CASTING TABS AS PRY POINTS.



10) REMOVE LOWER CASE FROM UPPER CASE.

<NOTE>

CAREFULLY REMOVE SEALANT FROM UPPER AND LOWER CASES. TAKE CARE TO NOT DAMAGE SEALING SURFACES.



11) REMOVE MAGNET FROM LOWER CASE.

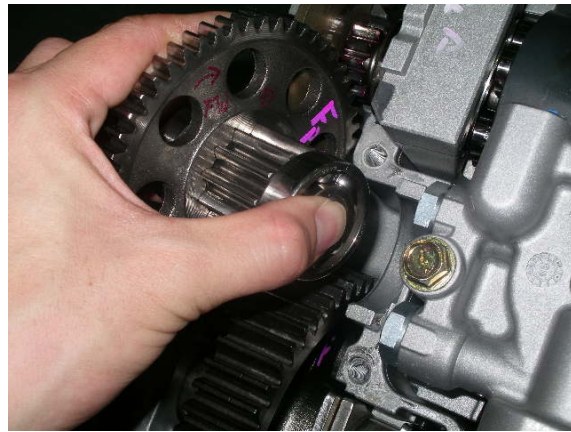
<NOTE>

CLEAN MAGNET WITH CLEAN CLOTH.

BE CAREFUL WITH IRON DUST.



12) REMOVE FINAL PINION ASSY. FROM UPPER CASE.



13) REMOVE 2 RINGS FROM AXLE SHAFT.



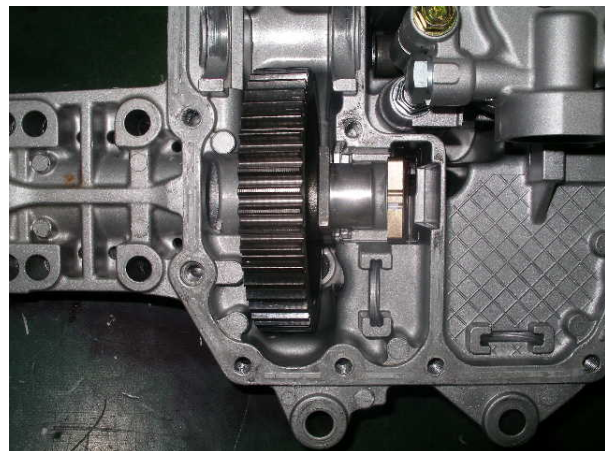
14) REMOVE C-RING FROM AXLE SHAFT.



15) REMOVE AXLE SHAFT BY CAREFULLY TAPPING IT WITH A HAMMER.



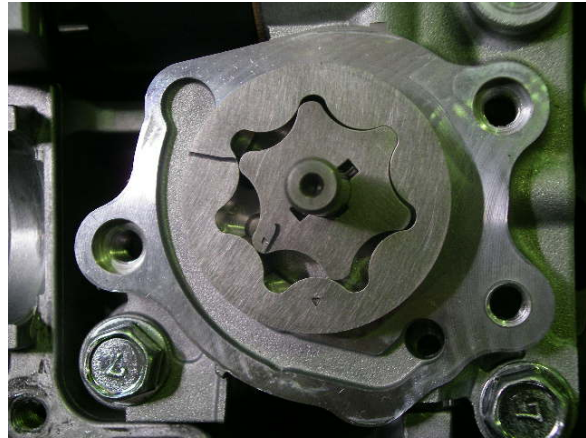
16) REMOVE AXLE SHAFT ASSEMBLY FROM UPPER CASE.



17) REMOVE COLLAR, BUSHING AND FINAL GEAR FROM UPPER CASE.



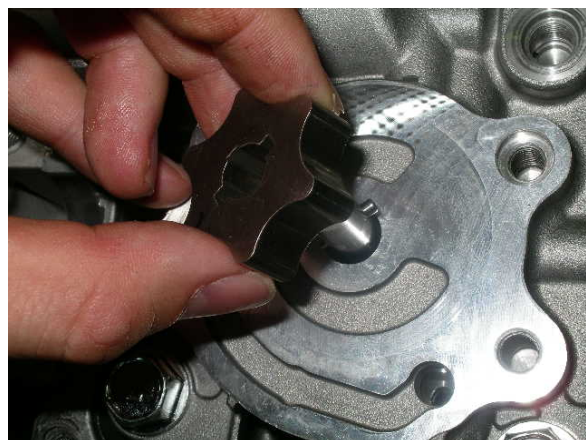
18) REMOVE 3 BOLTS TO OPEN CHARGE PUMP CASE FROM CENTER CASE.



19) REMOVE OUTER ROTOR FROM CENTER CASE.



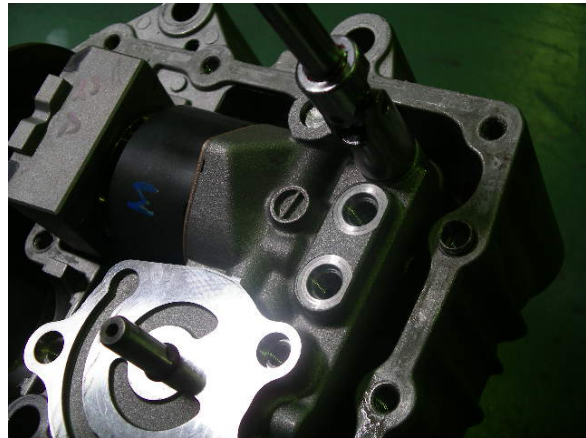
20) REMOVE INNER ROTOR FROM CENTER CASE.



21) REMOVE PIN FROM PUMP SHAFT.



22) REMOVE 3 BOLTS FROM CENTER CASE ASSY.



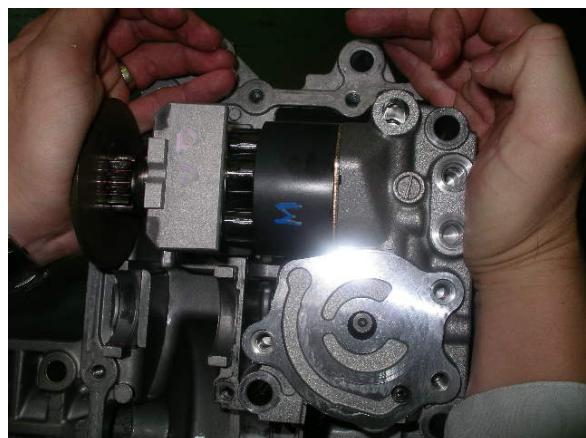
23) CAREFULLY PRY CENTER CASE ASSY. FROM UPPER CASE.



24) CAREFULLY REMOVE MOTOR SHAFT ASSY AND CENTER CASE ASSY. AS AN ASSEMBLY FROM UPPER CASE.

<IMPORTANT>

WHEN REMOVING, TAKE CARE TO NOT DAMAGE MATING SURFACES OF CENTER CASE AND CYLINDER BLOCKS.



25) REMOVE CYLINDER BLOCK ASSY. FROM UPPER CASE.

<IMPORTANT>

WHEN REMOVING CYLINDER BLOCK, RETAIN THE PISTONS SO THEY DO NOT DROP FROM THE ASSEMBLY.

<NOTE>

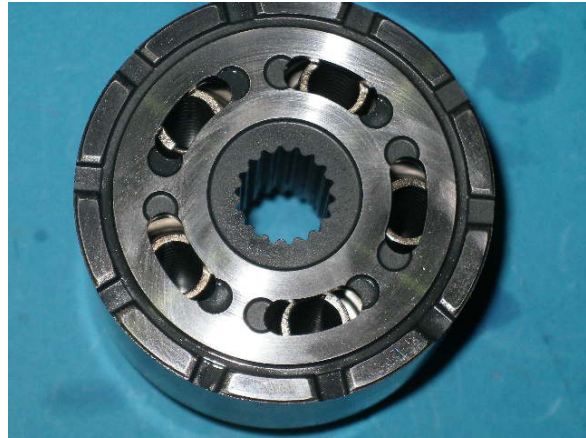
INSPECT 5 CYLINDER BORES FOR BURRS OR SCORING.

INSPECT 5 PISTONS FOR WEAR OR DAMAGE.

INSPECT ALL PARTS OF THE CYLINDER BLOCK ASSY. FOR WEAR OR DAMAGE.

IF ANY PARTS OF THE CYLINDER BLOCK ASSY. ARE DAMAGED, REPLACE CENTER CASE AND BOTH CYLINDER BLOCK ASSY.

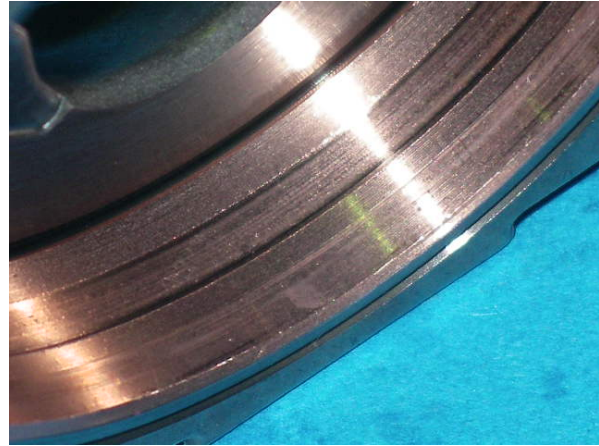
26) REMOVE SPRING FROM PUMP SHAFT.



27) REMOVE SWASH PLATE SUB ASSY. FROM UPPER CASE.

<NOTE>

INSPECT SWASH PLATE, THRUST BEARING, THRUST PLATES AND BUSHING FOR WEAR OR DAMAGE.
REPLACE IF REQUIRED.



28) REMOVE 2 THRUST METALS FROM UPPER CASE.

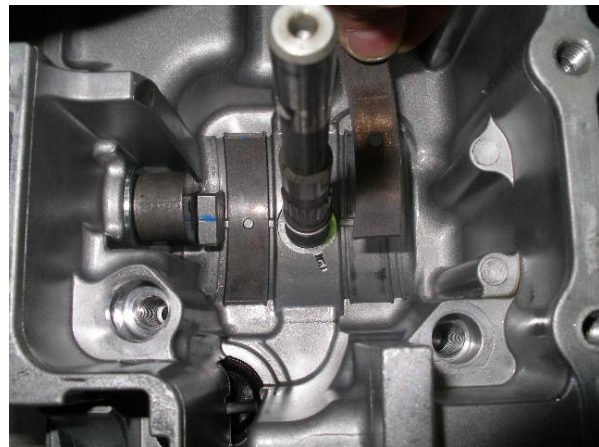
<NOTE>

INSPECT THRUST METALS AND MEASURE THEM.

THICKNESS — [1.45 - 1.55 mm]

MINIMUM — 1.30 mm (WEAR LIMIT)

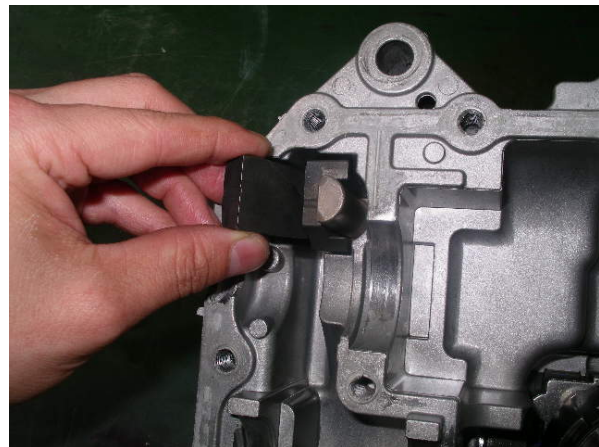
IF LESS THAN MINIMUM, REPLACE BOTH THRUST METALS WITH NEW PARTS.



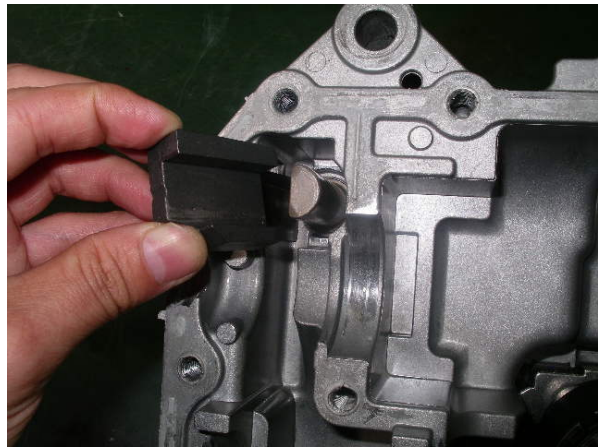
29) REMOVE SHIM, BRAKE SHOE AND BRAKE ACTUATOR FROM UPPER CASE.

<NOTE>

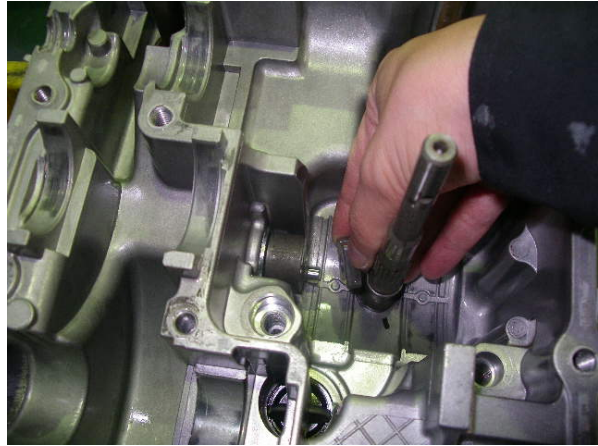
INSPECT ALL PARTS OF THE BRAKE FOR WEAR OR DAMAGE.



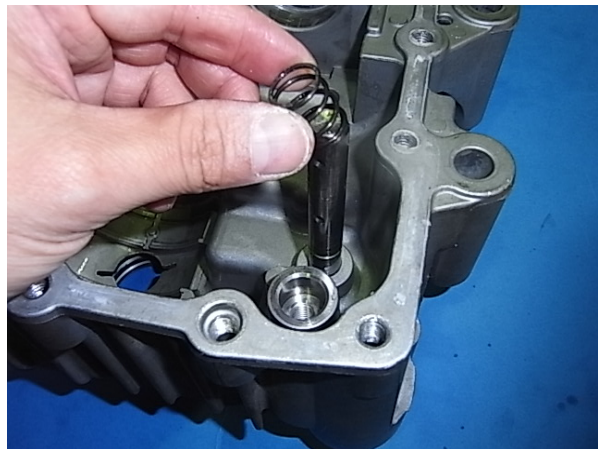
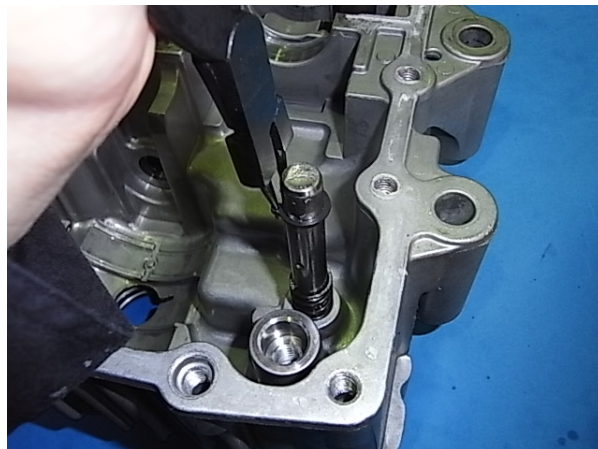
30) REMOVE SHIFT BLOCK FROM CONTROL ARM.



31) REMOVE SNAP RING FROM BY-PASS SHAFT ASSY.



32) REMOVE SPRING FROM BY-PASS SHAFT ASSY.



33) REMOVE BY-PASS SHAFT ASSY. FROM UPPER CASE.

<NOTE>

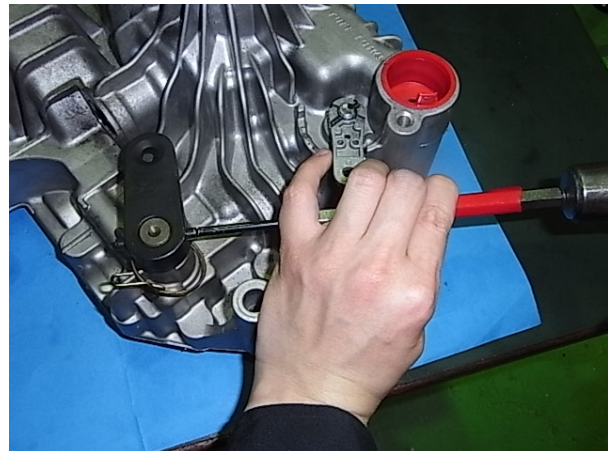
INSPECT 2 PACKINGS FOR DEFORMATION OR WEAR.



34) REMOVE SPRING FROM BRAKE SHAFT ASSY.



35) REMOVE SPRING PIN FROM BRAKE SHAFT ASSY.



36) REMOVE BRAKE SHAFT ASSY. FROM UPPER CASE.



37) CAREFULLY REMOVE OIL SEAL AT PUMP SHAFT FROM UPPER CASE.

<NOTE>

REPLACE REMOVED OIL SEAL WITH NEW ONE DURING ASSEMBLY.



38) REMOVE SNAP RING AND PUMP SHAFT SUB ASSY. FROM UPPER CASE.



39) REMOVE SNAP RING FROM PUMP SHAFT SUB ASSY.

<NOTE>

REPLACE REMOVED SNAP RING WITH NEW ONE DURING ASSEMBLY.



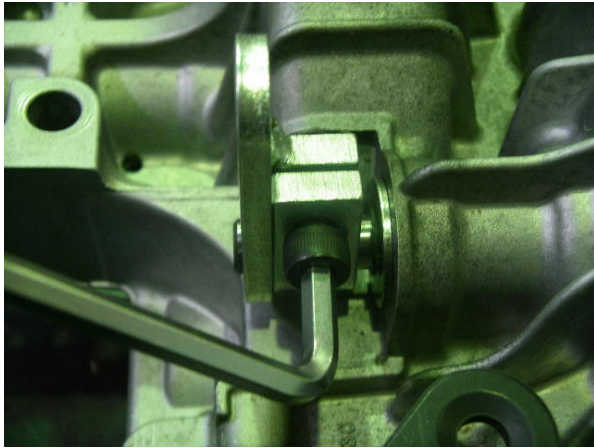
40) REMOVE SNAP RING AND BEARING FROM PUMP SHAFT.

<NOTE>

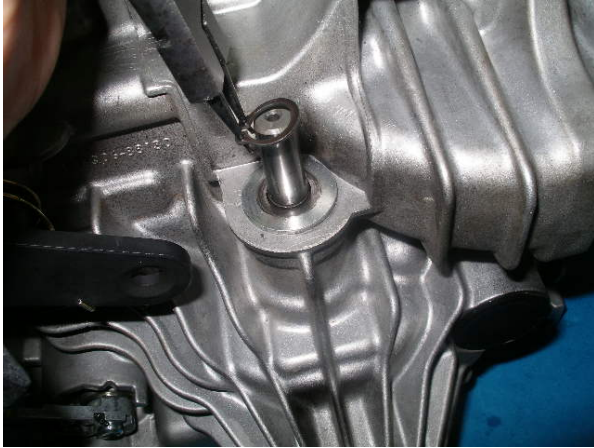
INSPECT BEARING AND PUMP SHAFT FOR WEAR OR DAMAGE. REPLACE IF REQUIRED.



41) REMOVE CONTROL LEVER FROM CONTROL ARM.



42) REMOVE SNAP RING FROM CONTROL ARM.



43) CAREFULLY REMOVE OIL SEAL FROM UPPER CASE.



<NOTE>

REPLACE REMOVED OIL SEAL AND SNAP RING WITH
NEW ONES DURING ASSEMBLY.



44) REMOVE DUST COVER FROM UPPER CASE.



45) REMOVE SNAP RING FROM UPPER CASE.



46) REMOVE CAP FROM UPPER CASE.



47) REMOVE MAGNET FROM UPPER CASE.

<NOTE>

CLEAN MAGNET WITH CLEAN CLOTH.

BE CAREFUL WITH IRON DUST.



48) REMOVE OIL CAP WITH PACKING FROM UPPER CASE.

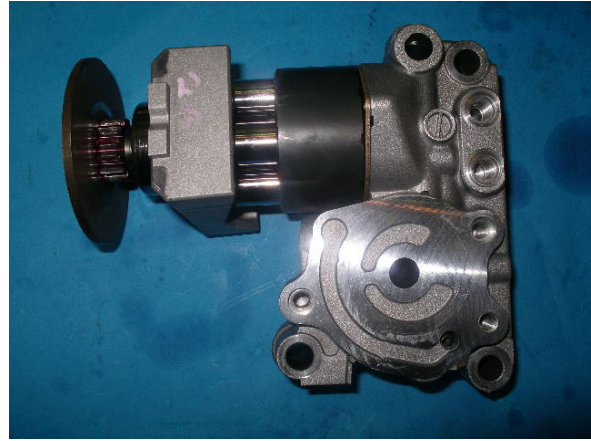
<NOTE>

INSPECT PACKING FOR DEFORMATION OR DAMAGE.
REPLACE IF REQUIRED.



2. DISASSEMBLE CENTER CASE SUB ASSY.
AND MOTOR SHAFT ASSY.

1) REMOVE MOTOR SHAFT ASSY. FROM CENTER CASE.

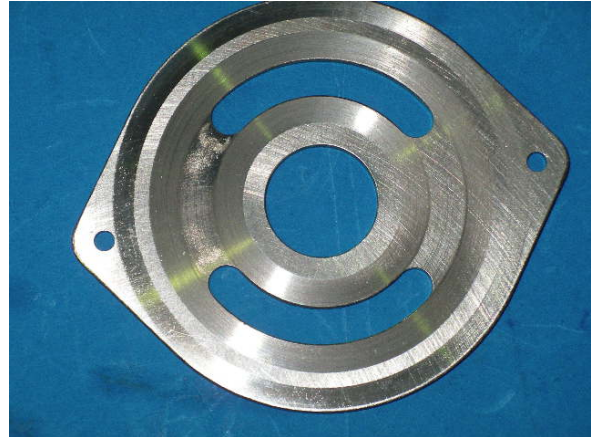


3. DISASSEMBLE CENTER CASE SUB ASSY.

1) REMOVE VALVE PLATE FROM CENTER CASE.

<NOTE>

REPLACE VALVE PLATE IF SURFACE OF PLATE HAS
ANY DAMAGE.



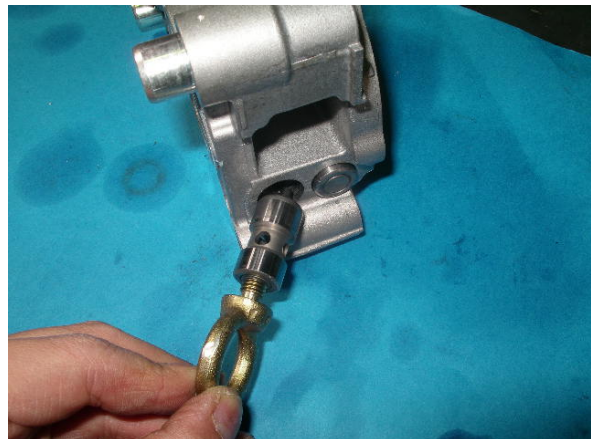
2) REMOVE PIN FROM CENTER CASE.



3) REMOVE CHECK VALVE FROM CENTER CASE.

<NOTE>

MAKE A HOLE FOR EYEBOLT INTO CHECK VALVE AND
REMOVE IT WITH A PLASTIC HAMMER.



4) REMOVE PLUG FROM CENTER CASE.

<NOTE>

REPLACE O-RING IF IT HAS ANY DAMAGE.

4. DISASSEMBLE MOTOR SHAFT ASSY.

1) REMOVE CYLINDER BLOCK ASSY. FROM MOTOR SHAFT.

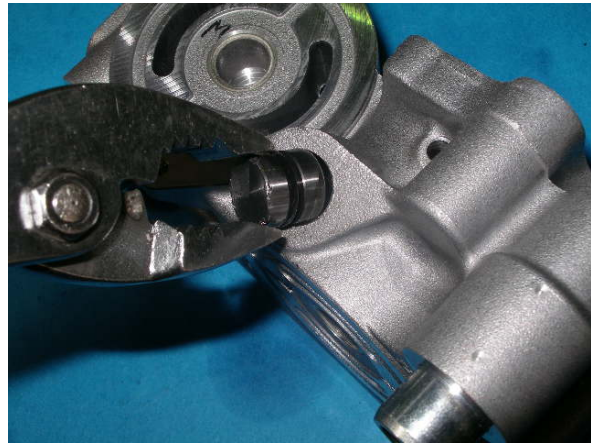
<NOTE>

INSPECT 5 CYLINDER BORES FOR WEAR OR SCORING.

INSPECT 5 PISTONS FOR WEAR OR DAMAGE.

INSPECT ALL PARTS OF THE CYLINDER BLOCK ASSY.
FOR WEAR OR DAMAGE.

IF ANY PARTS OF THE CYLINDER BLOCK ASSY. ARE
DAMAGED, REPLACE CENTER CASE AND BOTH
CYLINDER BLOCK ASSYS. AS A COMPLETE ASSEMBLY.



<NOTE>

REPLACE BUSH, THRUST BEARING ASSY. IF THERE IS ANY DAMAGE.

2) REMOVE SNAP RING AND BEARING FROM MOTOR SHAFT.

<NOTE>

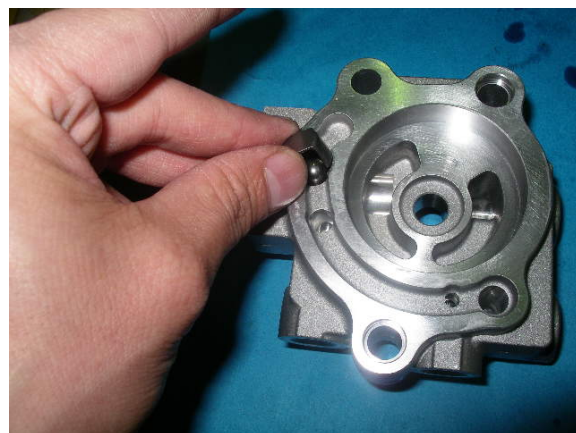
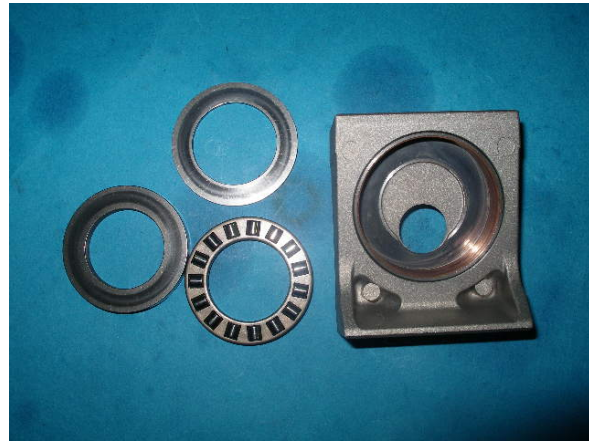
INSPECT MOTOR SHAFT AND BEARING FOR WEAR OR DAMAGE. REPLACE IF REQUIRED.

5. DISASSEMBLE POWER PUMP ASSY.

1) REMOVE HOLDER, BALL AND SEAT FROM POWER PUMP CASE.

<NOTE>

INSPECT BALL AND SEAT AT POWER PUMP CASE FOR WEAR OR DAMAGE.

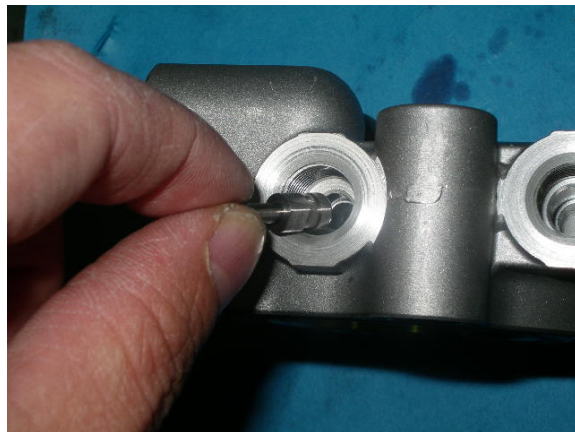
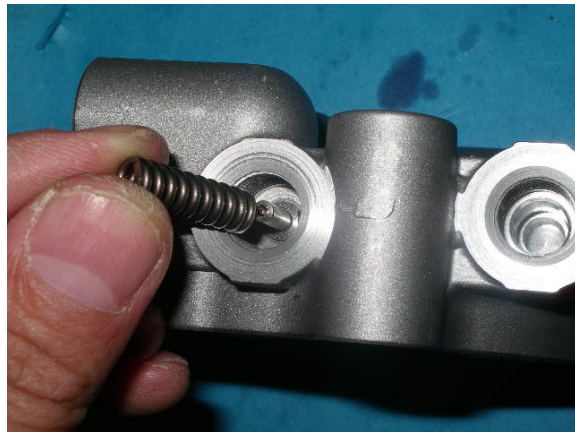
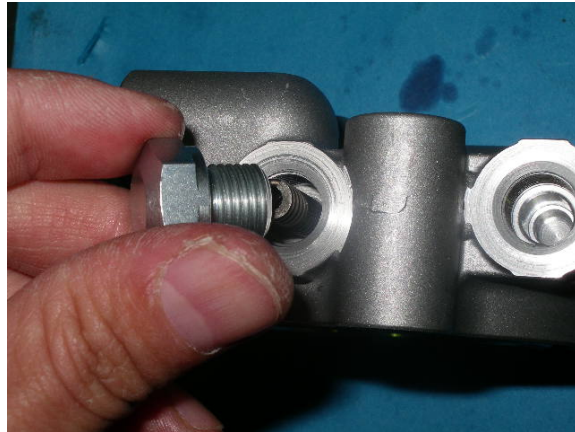


3) LOOSEN PLUGS AT CHARGE AND IMPLEMENT RELIEF VALVE FROM POWER PUMP CASE.

3) REMOVE BOTH SPRINGS AND SPOOLS FROM POWER PUMP CASE.

<NOTE>

INSPECT SPOOLS AND HOLES IN POWER PUMP CASE FOR WEAR OR DAMAGE.

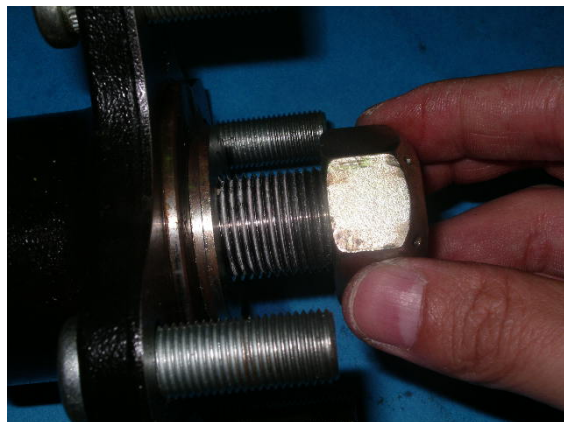
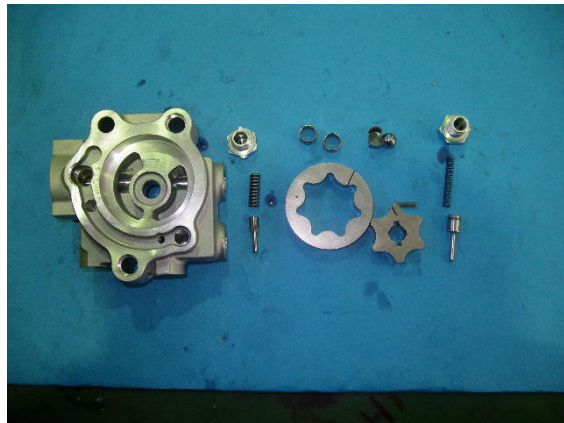
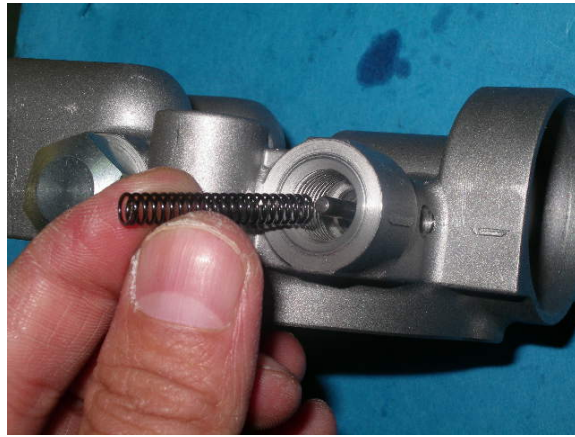


6. DISASSEMBLE AXLE SHAFT ASSY.

1) REMOVE LOCK NUT FROM AXLE SHAFT. REMOVE AXLE FLANGE FROM AXLE SHAFT BY CAREFULLY TAPPING WITH A DEAD-BLOW HAMMER.

<NOTE>

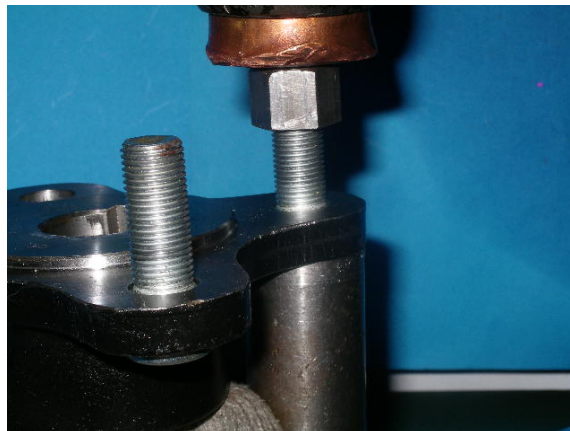
TO PREVENT DAMAGE TO AXLE FLANGE, USE TORO WHEEL HUB PULLER (TOR4097) TO REMOVE AXLE FLANGE.



2) REMOVE 4 LUG BOLTS FROM AXLE FLANGE.

<NOTE>

REMOVE LUG BOLTS FROM AXLE FLANGE WITH
SUITABLE PRESS. CHECK THREADS OF BOLTS AND
REPLACE PARTS IF DAMAGE IS FOUND.



<NOTE>

CHECK AXLE AND LUG BOLT HOLES IN AXLE FLANGE
AND REPLACE FLANGE IF ANY DAMAGE IS FOUND.



TZT13 TRANSAXLE SERVICE MANUAL ASSEMBLY, INSPECTION

1. ASSEMBLE TRANSAXLE

—— GENERAL ——

ALL PARTS SHOULD BE CLEANED BEFORE ASSEMBLING.

1. ASSEMBLE BRAKE SHAFT SUB ASSY. INTO UPPER CASE.

1) INSTALL NEW PACKING TO BRAKE SHAFT.

<NOTE>

APPLY GREASE TO PACKING.

2) INSTALL BRAKE SHAFT SUB ASSY. TO UPPER CASE.

3) INSTALL BRAKE SPRING TO UPPER CASE.

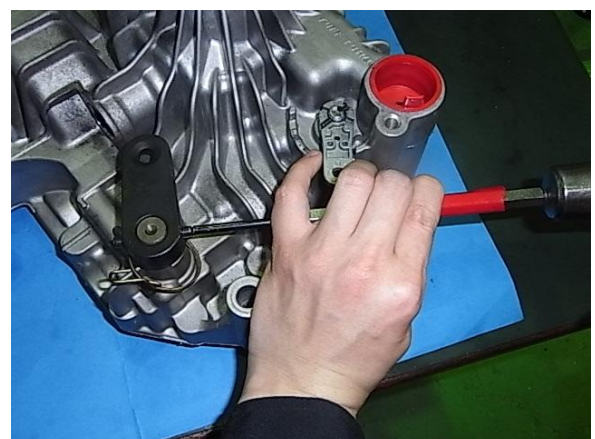
<NOTE>

PAY ATTENTION WHEN INSTALLING BRAKE SPRING.
SPRING MAY CAUSE INJURY WHEN TENSIONED.

4) DRIVE NEW SPRING PIN WITH BRAKE ARM
TO BRAKE SHAFT.

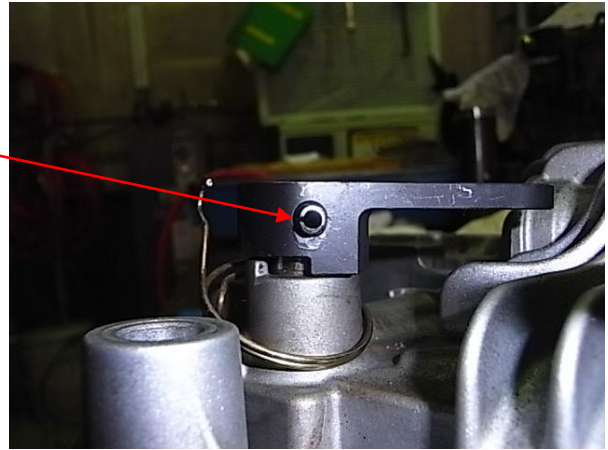
<NOTE>

WHEN INSTALLING, PAY ATTENTION TO THE
DIRECTION OF SLIT ON SPRING PIN.



<NOTE>

SLIT TO BE
PERPENDICULAR TO AXIS OF BRAKE SHAFT.



- 5) INSTALL BRAKE ARM SPRING TO BRAKE ARM, HOOK
WITH HOUSING AND BRAKE ARM.



2. ASSEMBLE BY-PASS SHAFT SUB ASSY. INTO UPPER CASE.

- 1) INSTALL NEW PACKING TO BY-PASS SHAFT.

<NOTE>

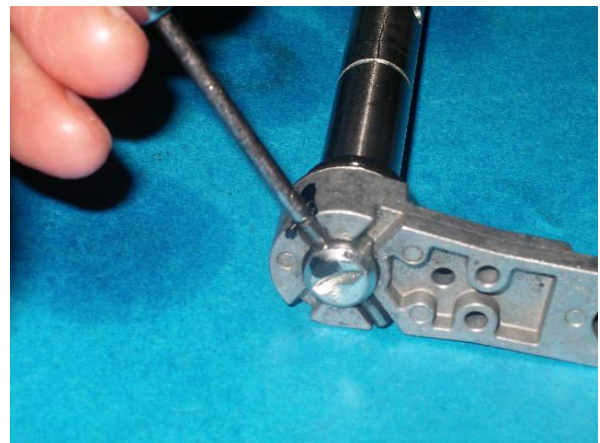
APPLY GREASE TO PACKING.



- 2) DRIVE NEW SPRING PIN WITH BYPASS ARM
TO BYPASS SHAFT.

<NOTE>

WHEN INSTALLING, PAY ATTENTION TO THE
DIRECTION OF SLIT ON SPRING PIN.

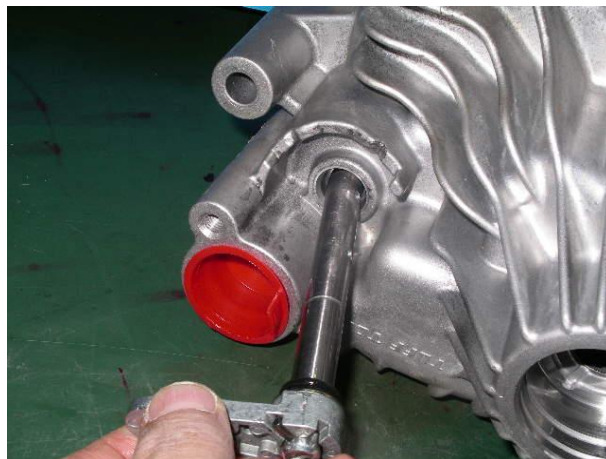


<NOTE>

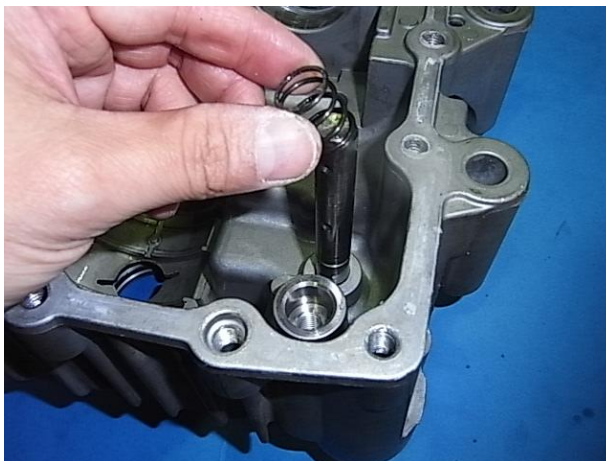
SLIT TO BE
PERPENDICULAR TO AXIS OF BY-PASS SHAFT.



3) INSTALL BY-PASS SHAFT SUB ASSY. TO UPPER CASE.



4) SLIDE SPRING ONTO BY-PASS SHAFT.



5) INSTALL RING TO BY-PASS SHAFT.

<NOTE>

CHECK THAT RING FITS IN GROOVE CORRECTLY.



3. ASSEMBLE CONTROL SHAFT SUB ASSY. INTO UPPER CASE.

1) INSTALL BUSHING TO UPPER CASE.



2) PRESS BUSHING INTO UPPER HOUSING.



3) PRESS NEW SEAL INTO UPPER CASE.

<NOTE>

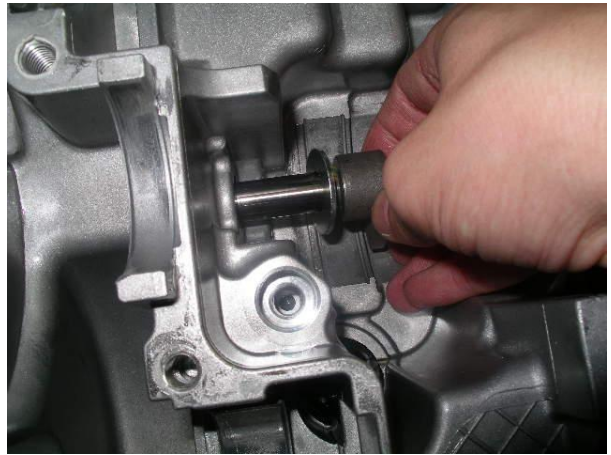
APPLY GREASE TO PACKING.



4) CONTROL SHAFT ASSY. INTO CASE.



5) INSTALL CONTROL SHAFT ASSY. TO UPPER CASE.



6) INSTALL WASHER AND C-RING TO CONTROL SHAFT.

〈NOTE〉

CHECK THAT RING FITS IN GROOVE CORRECTLY.



7) INSTALL CONTROL LEVER TO CONTROL SHAFT.

〈NOTE〉

TIGHTENING TORQUE ON BOLT.

26.5Nm~32.3Nm



4. ASSEMBLE PUMP SHAFT SUB ASSY. INTO UPPER CASE.

1) INSTALL BEARING ONTO PUMP SHAFT.

2) INSTALL RING ONTO PUMP SHAFT.

〈NOTE〉

CHECK THAT RING FITS IN GROOVE CORRECTLY.



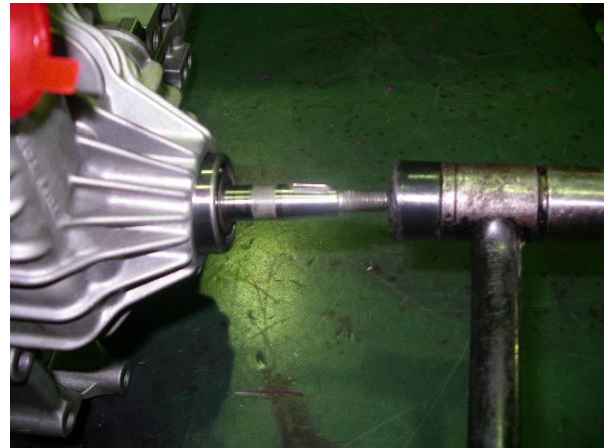
3) INSTALL PUMP SHAFT TO UPPER CASE.



4) INSTALL PUMP SHAFT AND SNAP RING TO UPPER CASE.

〈NOTE〉

CHECK THAT SNAP RING FITS IN GROOVE CORRECTLY.
IT SHOULD BE INSTALLED TO SHOULDER OF UPPER HOUSING.



5) INSTALL RING TO UPPER CASE.

〈NOTE〉

CHECK THAT RING SITS IN GROOVE CORRECTLY.



6) APPLY PROTECTION TAPE TO KEY GROOVE.

〈NOTE〉

TAPE WILL HELP PREVENT DAMAGE TO SEAL LIP.



7) INSTALL OIL SEAL TO UPPER CASE.

<NOTE>

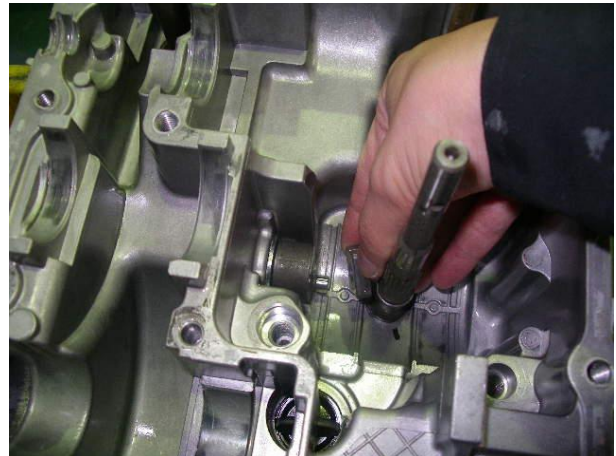
APPLY GREASE TO PACKING.



8) TAKE CARE TO PREVENT DAMAGE TO SEAL LIP WHEN INSTALLING OIL SEAL.

5. ASSEMBLE SHIFT SUB ASSY. INTO UPPER CASE.

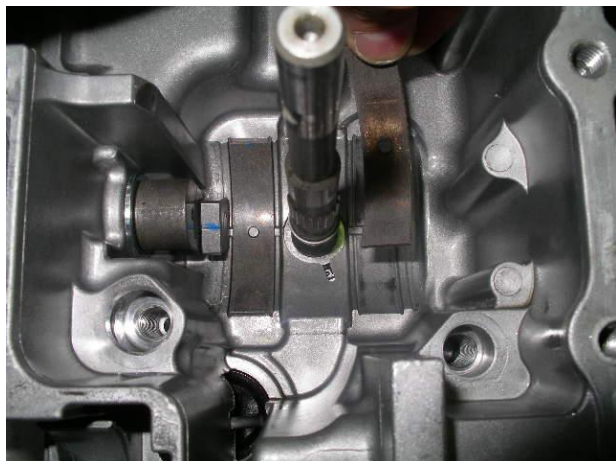
1) INSTALL SHIFT BLOCK TO CONTROL ARM.



2) INSTALL 2 THRUST METALS TO UPPER CASE.

<NOTE>

WHEN INSTALLING, APPLY NEW TRANSMISSION OIL ON THRUST METALS.



3) INSTALL THRUST PLATE B, THRUST BEARING AND THRUST PLATE A TO SWASH PLATE.

<NOTE>

WHEN INSTALLING, APPLY NEW TRANSMISSION OIL TO ALL PARTS.

4) INSTALL SWASH PLATE ASSY TO UPPER CASE.

5) INSTALL SPRING TO UPPER CASE.

6. ASSEMBLE PUMP CYLINDER BLOCK ASSY. INTO UPPER CASE.

1) INSTALL 5 SPRINGS, WASHERS AND PISTONS TO CYLINDER BLOCK.

<NOTE>

BEFORE ASSEMBLY, CLEAN AND APPLY NEW TRANSMISSION OIL ON ALL PARTS.

<NOTE>

VIEW OF CYLINDER BLOCK WITH PISTONS.



2) INSTALL CYLINDER BLOCK SUB ASSY TO PUMP SHAFT.

<NOTE>

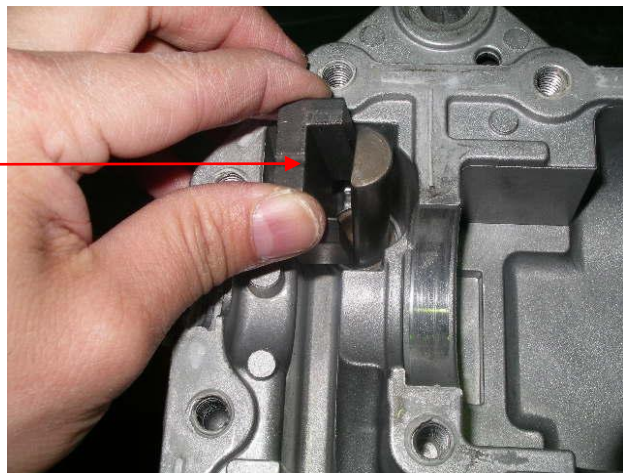
WHEN INSTALLING, TAKE CARE SO THAT PISTONS
DO NOT SHIFT FROM CYLINDER BLOCK ASSY.



3) INSTALL BRAKE ACTUATOR BEFORE INSTALLING HST PARTS.

<NOTE>

APPLY GREASE BETWEEN BRAKE ACTUATOR AND
BRAKE SHAFT TO PREVENT INCLINE OF ACTUATOR.



7. ASSEMBLE MOTOR SHAFT AND HST SUB ASSY.

<NOTE>

PREPARE THE FOLLOWING PARTS.
MOTOR SHAFT ASSY, CYLINDER BLOCK ASSY,
CENTER CASE ASSY, BRAKE DISK, MOTOR HOUSING,
THRUST BEARING ASSY, VALVE PLATE OF PUMP
AND MOTOR.



1) INSTALL BEARING TO MOTOR SHAFT.

<NOTE>

NOTE THE DIRECTION OF BEARING SEAL.

2) INSTALL RING TO MOTOR SHAFT.

<NOTE>

CHECK THAT RING FITS IN GROOVE CORRECTLY.

3) INSTALL BRAKE DISK TO MOTOR SHAFT BEFORE
INSTALLING HST PARTS.



8. ASSEMBLE CENTER CASE SUB ASSY. INTO UPPER CASE.

1) PRESS 2 KNOCK PINS AND BUSHINGS TO CENTER CASE.

2) INSTALL NEW PACKING TO PLUG.

<NOTE>

TAKE CARE WHEN INSTALLING PLUG.
APPLY GREASE ON PACKING.

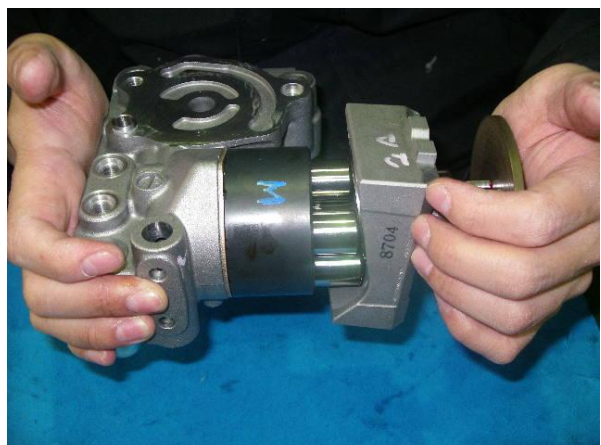
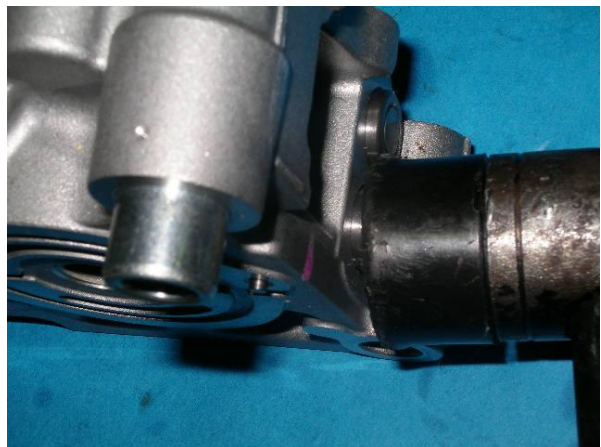
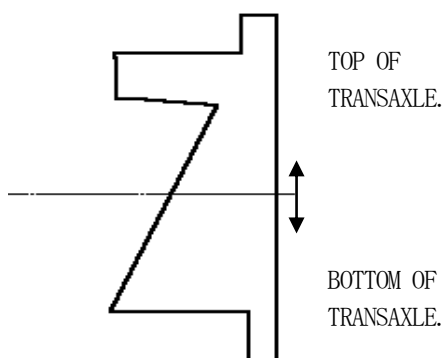
3) INSTALL PLUG TO CENTER CASE.

4) INSTALL CHECK VALVE TO STOPPER OF CENTER CASE
WITH DEAD BLOW HAMMER. USE CARE DURING VALVE
INSTALLATION.

5) INSTALL MOTOR SHAFT ASSY TO CENTER CASE.

<NOTE>

WHEN INSTALLING, APPLY NEW TRANSMISSION
OIL TO CONTACT SURFACES OF CENTER CASE AND
CYLINDER BLOCK, VALVE PLATE, THRUST BEARING.
USE CARE SO THAT THE CENTER CASE SURFACE
IS NOT DAMAGED DURING ASSEMBLY.



6) PUT THE UPPER CASE UPSIDE DOWN AND SET SUITABLE BLOCK UNDER BASE TO ELEVATE BY-PASS LEVER.

<NOTE>

PUT BLOCK UNDER BYPASS SHAFT TO AVOID IT COMING OUT OF UPPER CASE WHEN ASSEMBLING CENTER CASE ASSY.

7) INSTALL CENTER CASE ASSY TO UPPER CASE.

<NOTE> BEFORE INSTALLING, APPLY NEW TRANSMISSION OIL TO CONTACT SURFACES OF CENTER CASE AND PUMP VALVE PLATE TO PREVENT PARTS FROM SHIFTING OR FALLING DURING ASSEMBLY.

<NOTE>

COMPRESS SPRINGS OF PISTONS IN CYLINDER BLOCK AND ALIGN THRUST BEARING TO THE HOUSING. LOWER CENTER CASE ASSEMBLY INTO HOUSING AND ALIGN KNOCK PINS WITH HOLES. TAKE CARE TO NOT DAMAGE THE CENTER CASE OR HOUSING DURING ASSEMBLY.

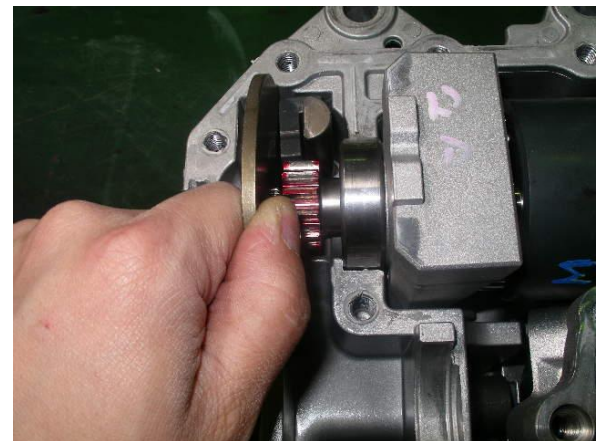
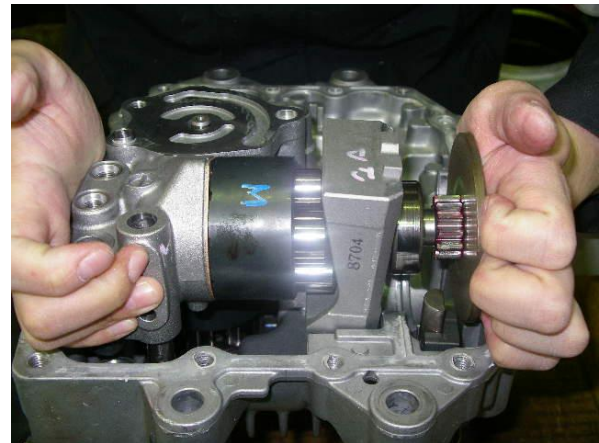
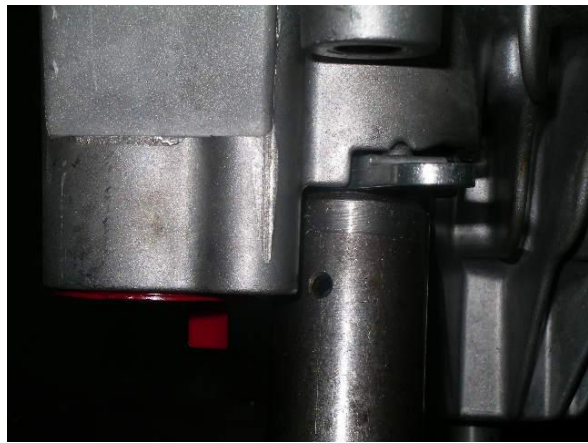
A SUITABLE CLAMPING DEVICE MAY MAKE ASSEMBLY EASIER.

8) INSTALL THREE M10*75 BOLTS TO UPPER CASE AND CENTER CASE.

9) PLEASE CHECK THE FOLLOWING ITEMS.

<CHECK POINT>

- ① MOTOR RADIAL BEARING IS INSTALLED TO BEARING POCKET OF UPPER HOUSING
- ② BRAKE DISK CAN TURN SMOOTHLY
- ③ BYPASS SHAFT IS INSTALLED TO CENTER CASE
(MAKE SURE BYPASS SHAFT SHOULD BE INSIDE)
- ④ BYPASS SHAFT CAN BE ROTATED SMOOTHLY
- ⑤ CONTROL LEVER CAN BE MOVED SMOOTHLY
- ⑥ PUMP SHAFT CAN BE MOVED SMOOTHLY

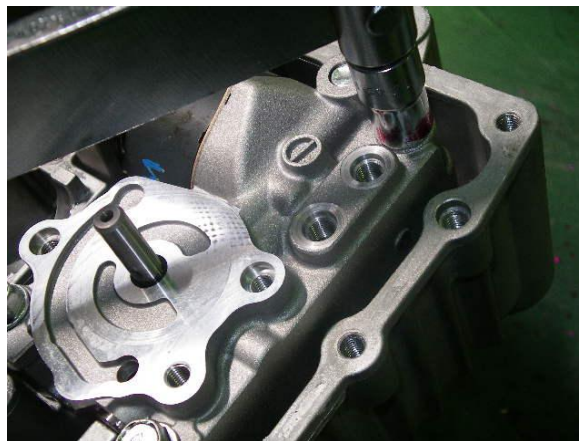


10) TORQUE 3 BOLTS TO SECURE UPPER AND CENTER CASES.

TIGHTENING TORQUE...44.1Nm~63.7Nm

<NOTE>

TIGHTEN 3 BOLTS EQUALLY WITH 20NM AND THEN
TIGHTEN EQUALLY WITH 44.1Nm - 63.7Nm.



11) CHECK AGAIN.

<CHECK POINT>

①MOTOR RADIAL BEARING IS INSTALLED TO
BEARING POCKET OF UPPER HOUSING

②BRAKE DISK CAN TURN SMOOTHLY

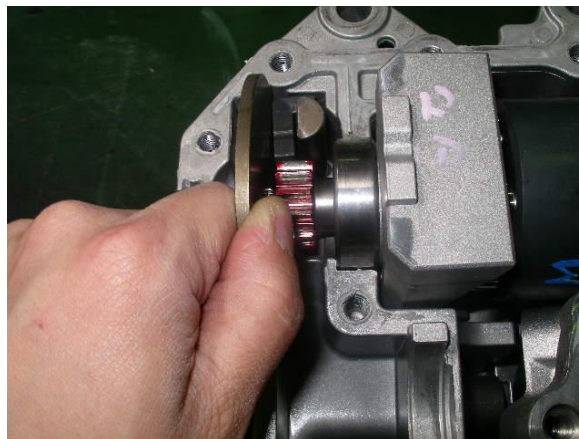
③BYPASS SHAFT IS INSTALLED TO CENTER
CASE

(MAKE SURE BYPASS SHAFT SHOULD BE INSIDE)

④BYPASS SHAFT CAN BE ROTATED SMOOTHLY

⑤CONTROL LEVER CAN BE MOVED SMOOTHLY

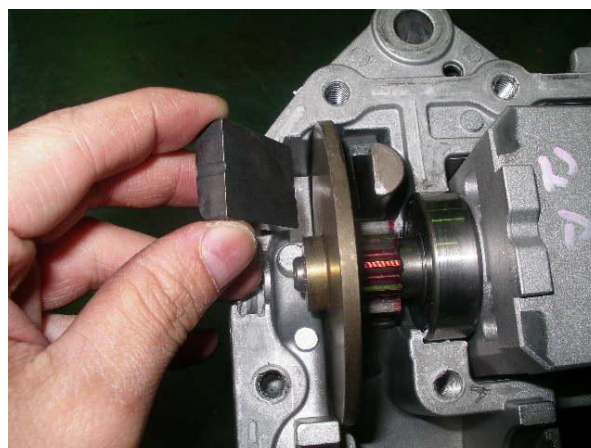
⑥PUMP SHAFT CAN BE MOVED SMOOTHLY



12) INSTALL BRAKE SHOE TO UPPER CASE.

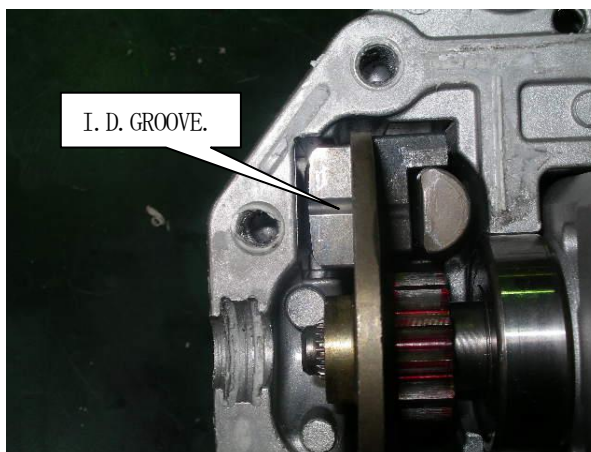
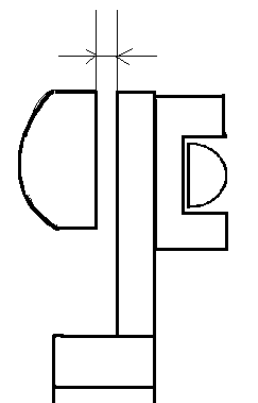
<NOTE>

I. D. GROOVE SHOULD FACE LOWER CASE.



13) INSTALL SHIM TO UPPER CASE.

CLEARANCE : 0.8~1.3 mm



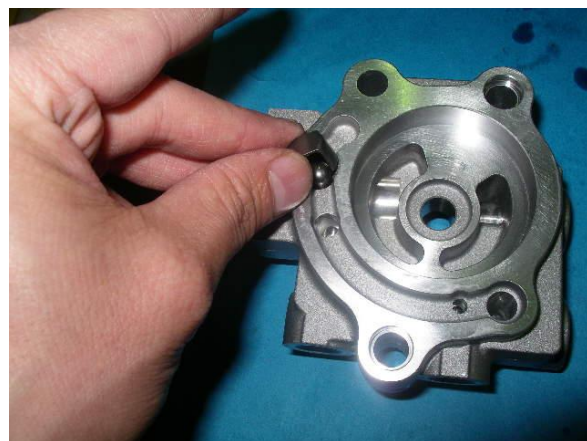
9. ASSEMBLE CHARGE PUMP ASSY. INTO UPPER CASE.

<NOTE>

PREPARE CHARGE PUMP CASE, PLUG(2), HOLDER, STEEL BALL, SPRING(2), VALVE(2), PIN, INNER ROTOR, OUTER ROTOR, KNOCK PIN(2).

1) INSTALL BALL TO CHARGE PUMP CASE.

2) INSTALL HOLDER TO CHARGE PUMP CASE.



3) INSTALL VALVE TO CHARGE PUMP CASE.

<NOTE>

APPLY NEW TRANSMISSION OIL TO VALVE BEFORE
ASSEMBLY.

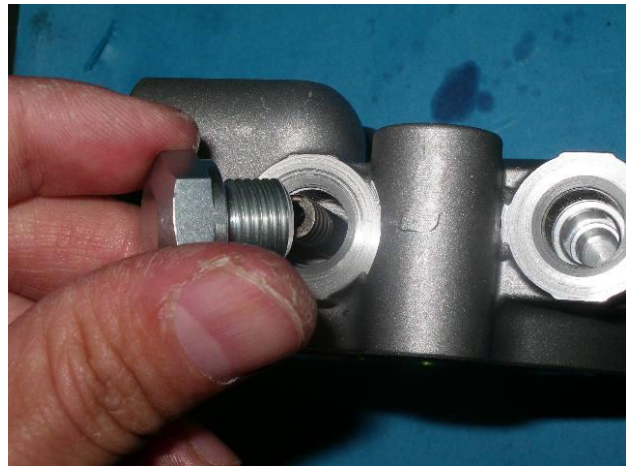
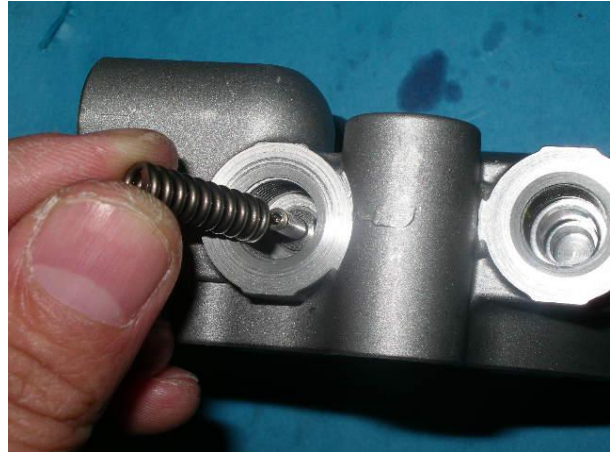
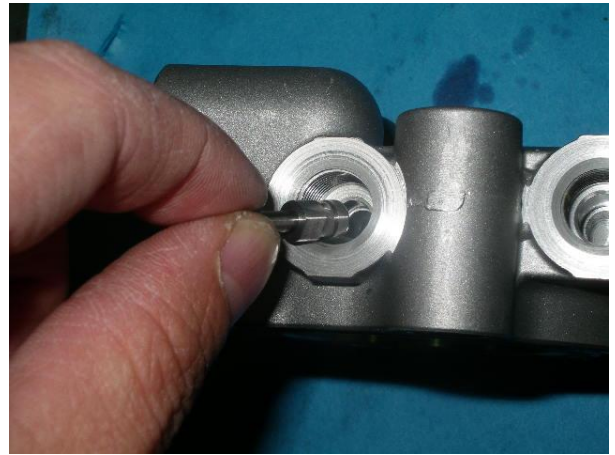
4) INSTALL SPRING TO CHARGE PUMP CASE.

5) INSTALL PLUG TO CHARGE PUMP CASE.

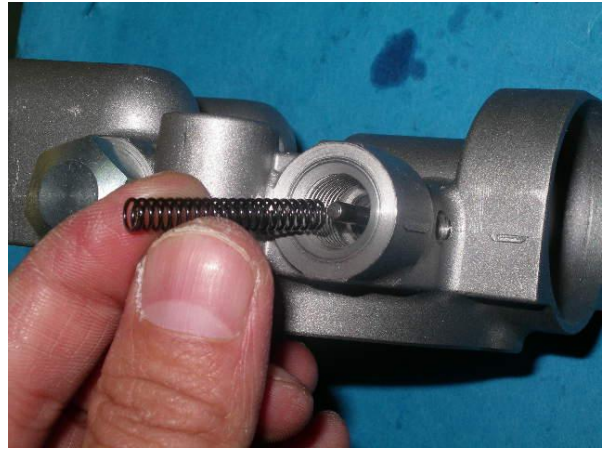
6) INSTALL VALVE TO CHARGE PUMP CASE.

<NOTE>

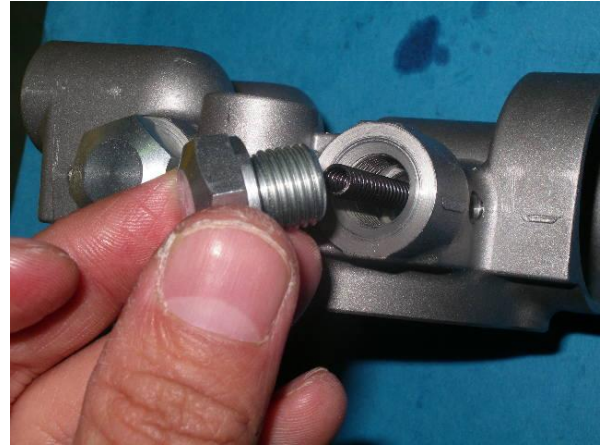
APPLY NEW TRANSMISSION OIL TO VALVE BEFORE
ASSEMBLY.



7) INSTALL SPRING TO CHARGE PUMP CASE.



8) INSTALL PLUG TO CHARGE PUMP CASE.



9) TORQUE PLUG.

TIGHTENING TORQUE...19. 6Nm~24. 5Nm



10) INSTALL 2 PINS TO CENTER CASE.



11) INSTALL PIN TO PUMP SHAFT.



12) INSTALL INNER ROTOR TO PUMP SHAFT.

<NOTE>

WHEN INSTALLING, APPLY NEW TRANSMISSION
OIL TO CONTACT SURFACES OF CENTER CASE
AND CHARGE PUMP.



13) INSTALL OUTER ROTOR TO INNER ROTOR.



14) INSTALL CHARGE PUMP CASE TO CENTER CASE.



15) INSTALL 3 BOLTS TO CENTER CASE.

TIGHTENING TORQUE...22.6Nm~29.4Nm



10. ASSEMBLE AXLE SHAFT ASSY. AND FINAL GEAR ASSY.
INTO UPPER CASE.



1) INSTALL WASHER TO AXLE SHAFT.



2) INSTALL SLEEVE TO AXLE SHAFT.

<NOTE>

USE PLASTIC HAMMER TO INSTALL SLEEVE.



<NOTE>

CHECK BOLT HOLES IN WHEEL FLANGE AND REPLACE FLANGE IF DAMAGE IS FOUND.

3) INSTALL FLANGE AND WOODRUFF KEY TO AXLE SHAFT.

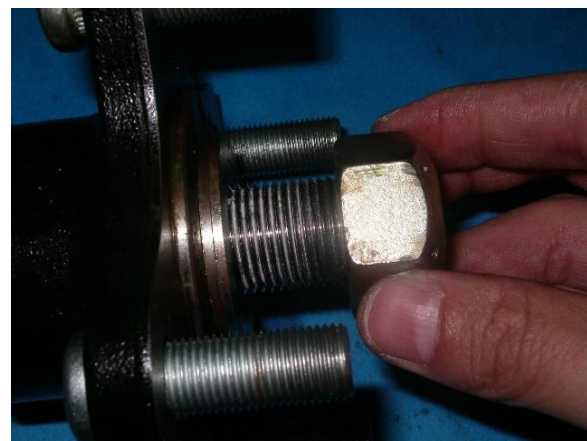
4) INSTALL WASHER AND LOCK NUT TO AXLE SHAFT.

<NOTE>

CHECK THREADS IN LOCK NUT BEFORE ASSEMBLY AND REPLACE LOCK NUT IF NEEDED.

6) CORRECTLY TORQUE LOCK NUTS ON AXLE SHAFT.

TIGHTENING TORQUE...323. 7Nm~402. 2Nm



7) INSTALL BEARING TO UPPER CASE.



8) INSTALL RING TO UPPER CASE.

〈NOTE〉

CHECK THAT RING FITS IN GROOVE CORRECTLY.



9) INSTALL OIL SEAL TO UPPER CASE.

〈NOTE〉

APPLY GREASE TO PACKING.



10) INSTALL DUST COVER TO UPPER CASE.

TIGHTENING TORQUE・・・5.9Nm～8.8Nm



11) INSTALL AXLE SHAFT ASSY TO UPPER CASE.



12) INSTALL FINAL GEAR TO AXLE SHAFT.

〈NOTE〉

MAKE SURE THAT FINAL GEAR IS INSTALLED SO THAT THE FACE OF THE GEAR WITH THE BOSS IS CLOSEST TO THE CASE BUSHING.



13) INSTALL BUSHING TO AXLE SHAFT.



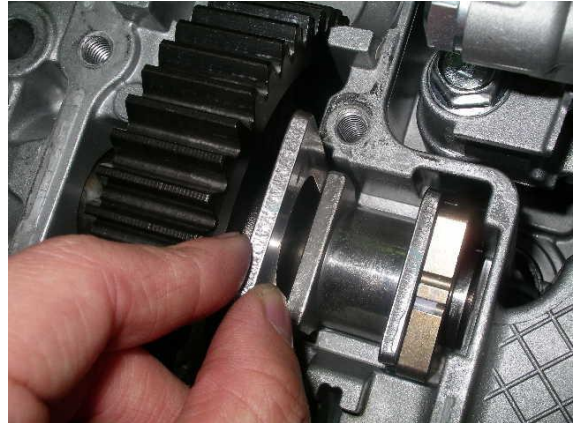
14) INSTALL COLLAR TO AXLE SHAFT.



15) INSTALL C-RING TO AXLE SHAFT.



16) INSTALL 2 RINGS TO AXLE SHAFT.

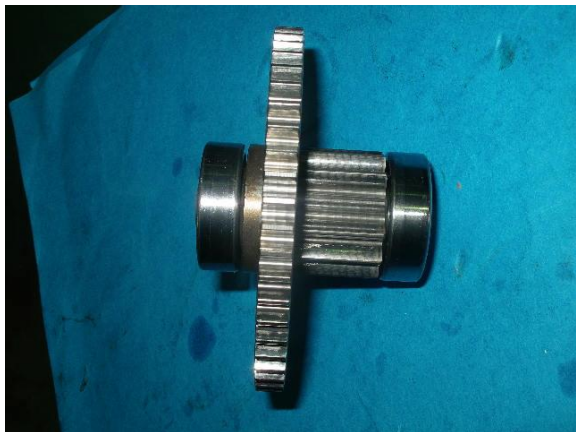


11. ASSEMBLE FINAL PINION ASSY. INTO UPPER CASE.



<NOTE>

MAKE SURE OF DIRECTION OF COLLAR.
THE FACE OF COLLAR WHICH HAS BOSS SHOULD BE
CLOSEST TO THE BEARING.



1) INSTALL FINAL PINION ASSY. TO UPPER CASE.

〈NOTE〉

MAKE SURE BEARING SHOULD BE IN CASE POCKET.



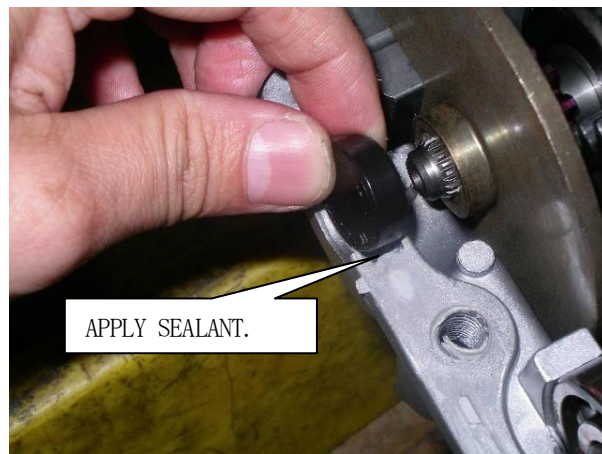
2) INSTALL 2 MAGNETS TO UPPER CASE.



3) INSTALL CAP SEALING TO UPPER CASE.

〈NOTE〉

APPLY SEALANT ON UPPER AND LOWER CASE.



4) INSTALL 2 PINS TO UPPER CASE.



12. ASSEMBLE TRANSAXLE CASE SUB ASSY.

<NOTE>

APPLY SEALANT ONTO LOWER HOUSING.

REF: PINK LINE IN PICTURE.



1) INSTALL 2 BOLTS TO LOWER CASE.

<NOTE>

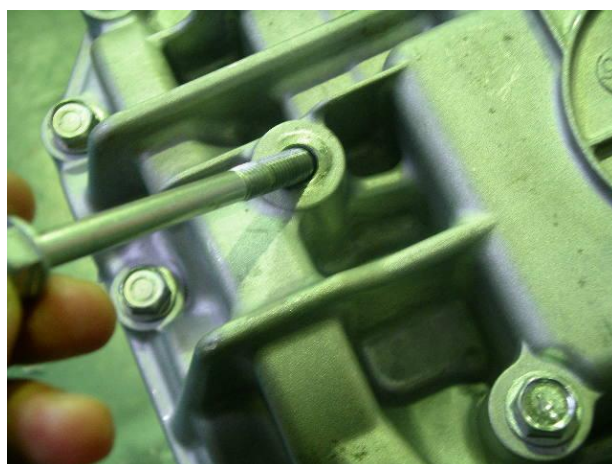
BOLT...M8×85mm

TIGHTENING TORQUE...27.4Nm~31.4Nm

(NEW TRANSAXLE CASE)

TIGHTENING TORQUE...22.5Nm~27.4Nm

(FOR THE SECOND TIME)



2) INSTALL 4 SELF TAPPING SCREWS TO LOWER CASE.

<NOTE>

TAPPING SCREWS...M8×40mm

TIGHTENING TORQUE...27.4Nm~31.4Nm

(NEW TRANSAXLE CASE)

TIGHTENING TORQUE...22.5Nm~27.4Nm

(FOR THE SECOND TIME)



3) INSTALL 11 SELF TAPPING SCREWS TO LOWER CASE.

<NOTE>

SELF TAPPING SCREWS $\cdot \cdot M8 \times 30mm$

TIGHTENING TORQUE $\cdot \cdot \cdot 27.4Nm \sim 31.4Nm$

(NEW TRANSAXLE CASE)

TIGHTENING TORQUE $\cdot \cdot \cdot 22.5Nm \sim 27.4Nm$

(FOR THE SECOND TIME)

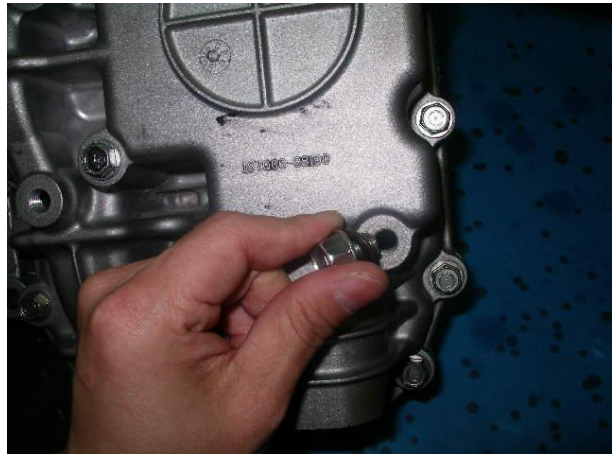
SCREW TIGHTENING SHOULD BE DIAGONAL AND EQUAL.



4) INSTALL 2 BOLTS TO LOWER CASE WITH NEW SEAL WASHER.

<NOTE>

TIGHTENING TORQUE $\cdot \cdot \cdot 19.6Nm \sim 24.5Nm$



5) INSTALL FILTER TO LOWER CASE.



6) INSTALL CAP TO LOWER CASE.

<NOTE>

TIGHTENING TORQUE $\cdot \cdot \cdot 7.3Nm \sim 12.3Nm$



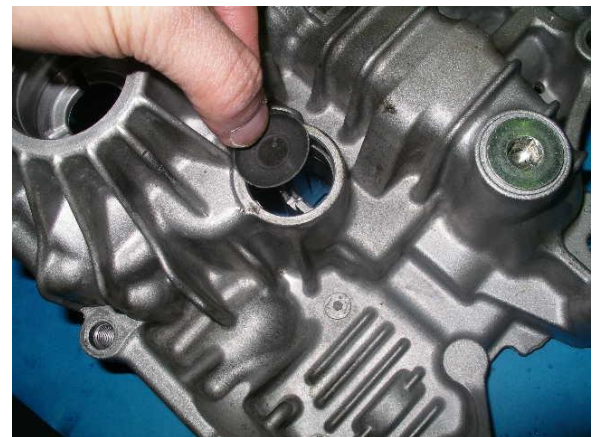
7) INSTALL 2 CONNECTORS TO LOWER CASE.

<NOTE>

TIGHTENING TORQUE...22.6Nm~27.5Nm



8) INSTALL MAGNET TO UPPER CASE.



9) INSTALL CAP TO UPPER CASE.



10) INSTALL CAP TO UPPER CASE.

<NOTE>

TIGHTENING TORQUE・・・2.0Nm～3.0Nm



11) INSTALL PULLEY TO PUMP SHAFT.



12) INSTALL FAN TO PUMP SHAFT.



13) INSTALL WASHER TO PUMP SHAFT.



14) INSTALL LOCK NUT TO PUMP SHAFT.

<NOTE>

TIGHTENING TORQUE...39.0Nm~46.0Nm

