

Product: TRACK-TYPE TRACTOR

Model: D3B TRACK-TYPE TRACTOR 24Y

Configuration: D3B LGP TRACTOR / POWER SHIFT / 24Y00001-UP (MACHINE) POWERED BY 3204 ENGINE

## Disassembly and Assembly D3B TRACTOR & 931B TRACTOR TYPE LOADER POWER TRAIN

Media Number -SEN7918-02

Publication Date -01/11/2004

Date Updated -15/02/2017

SEN79180026

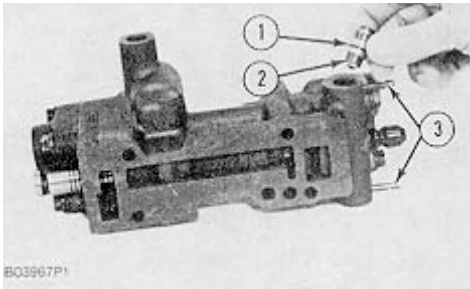
### Transmission Hydraulic Control Valve (3F/1R 931B Power Shift)

SMCS - 3152-017

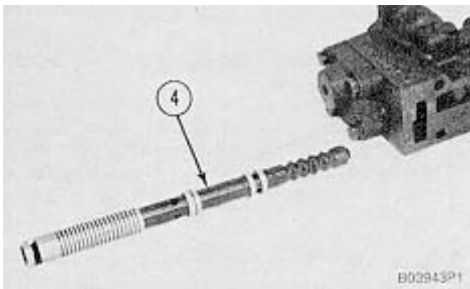
### Disassemble & Assemble Transmission Hydraulic Control Valve (3F/1R 931B Power Shift)

Start By:

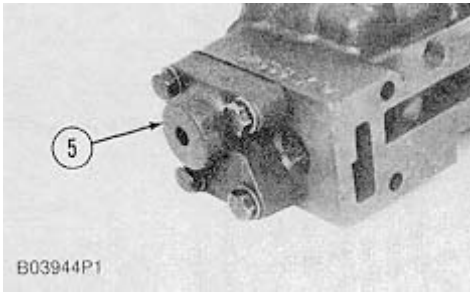
- a. remove transmission oil pump and transmission hydraulic control valve



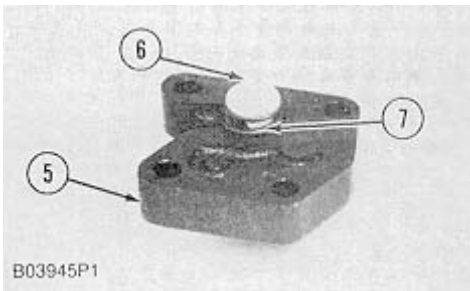
1. Push pins (3) out with a punch and hammer until detent assemblies (2) can be removed. Remove O-ring seal (1) from detent assemblies (2).



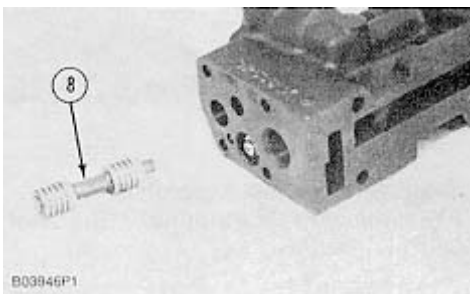
2. Remove valve spool (4) from the valve body.



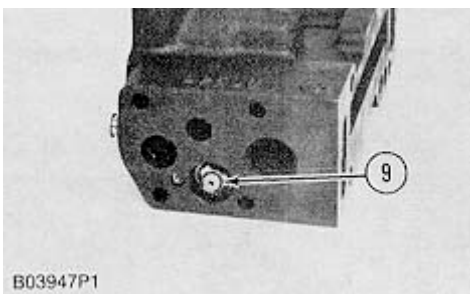
3. Remove cover (5) and the gasket from the valve body.



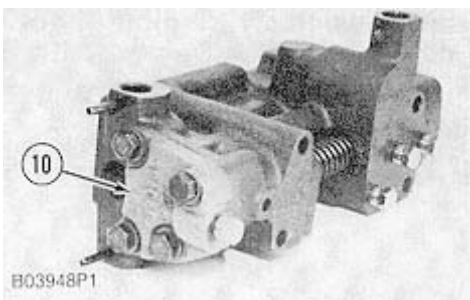
4. Remove plunger (6) and spring (7) from cover (5).



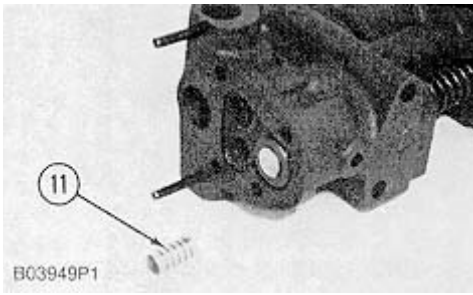
5. Remove valve spool (8) from the valve body.



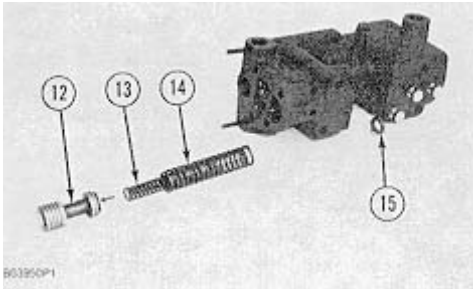
6. Remove valve (9) from the valve body.



7. Remove cover (10) and the gasket from the valve body.

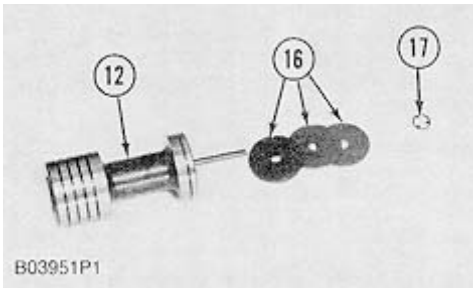


8. Remove slug (11) from the valve body.

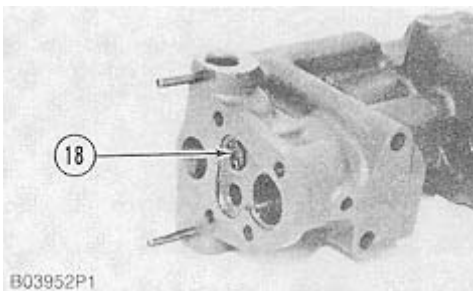


9. Remove valve spool (12), spring (13) and spring (14) from the valve body.

10. Remove washer (15).



11. Remove ring (17) and shims (16) from valve spool (12).



12. Remove orifice (18) from the valve body.

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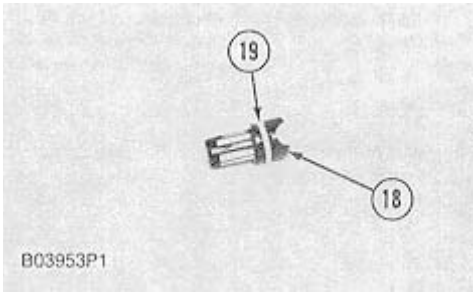
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**13.** Remove O-ring seal (19) from orifice (18).

**NOTE:** The following steps are for the assembly of the transmission hydraulic control valve.

**14.** Make sure all the parts of the transmission hydraulic control valve are clean. Inspect all parts for damage and make replacements if needed. Put clean transmission oil on all parts of the valve during assembly.

**15.** Install O-ring seal (19) on orifice (18).

**16.** Install orifice (18) in the valve body.

**17.** Install shims (16) and ring (17) on valve spool (12).

**18.** Put washer (15) in position in the valve body.

**19.** Install spring (14), spring (13) and valve spool (12) in the valve body.

**20.** Install slug (11) in the valve body.

**NOTE:** Make sure washer (15) is in position.

**21.** Put the gasket and cover (10) in position on the valve body, and install the bolts that hold them in place. Tighten the bolts to a torque of  $30 \pm 4$  N·m ( $22 \pm 3$  lb ft.)

**22.** Install valve (9) in the valve body.

**23.** Install valve spool (8) in the valve body.

**24.** Install spring (7) and plunger (6) in cover (5).

**25.** Put the gasket and cover (5) in position on the valve body, and install the bolts that hold them in place. Tighten the bolts to a torque of  $30 \pm 4$  N·m ( $22 \pm 3$  lb ft.)

**26.** Install valve spool (4) in the valve body.

**27.** Install O-ring seals (1) on the detent assemblies (2). Install detent assemblies (2) in the valve body, and install pins (3) to hold the detent assemblies in place.

End By:

**a.** install transmission oil pump and transmission hydraulic control valve

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Model: D3B TRACK-TYPE TRACTOR 24Y

Configuration: D3B LGP TRACTOR / POWER SHIFT / 24Y00001-UP (MACHINE) POWERED BY 3204 ENGINE

## Disassembly and Assembly D3B TRACTOR & 931B TRACTOR TYPE LOADER POWER TRAIN

Media Number -SEN7918-02

Publication Date -01/11/2004

Date Updated -15/02/2017

SEN79180027

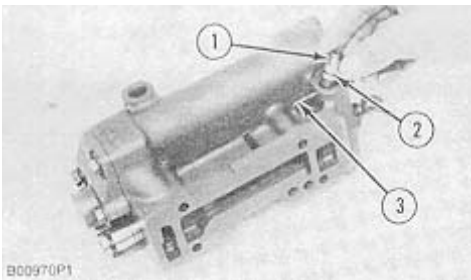
### Transmission Hydraulic Control Valve (3F/1R D3B Power Shift)

SMCS - 3152-017

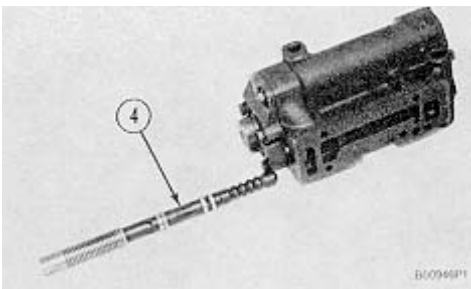
### Disassemble & Assemble Transmission Hydraulic Control Valve (3F/1R D3B Power Shift)

Start By:

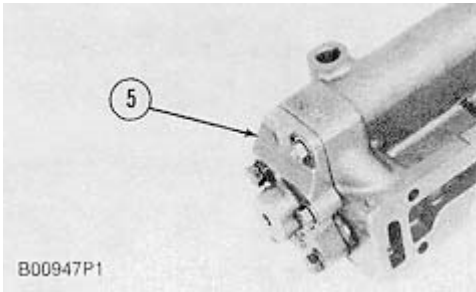
- a. remove transmission oil pump and transmission hydraulic control valve



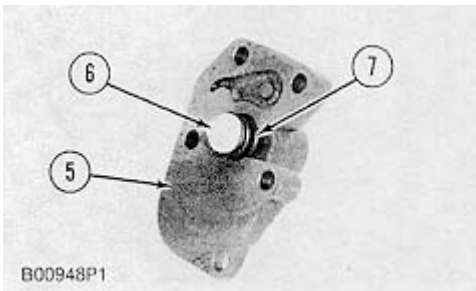
1. Push pin (3) out with a punch and hammer until detent assembly (1) can be removed. Remove O-ring seal (2) from detent assembly (1). Do this for the other side also.



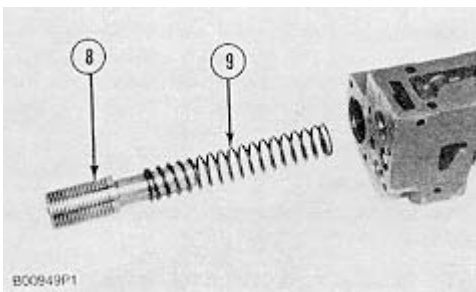
2. Remove valve spool (4) from the valve body.



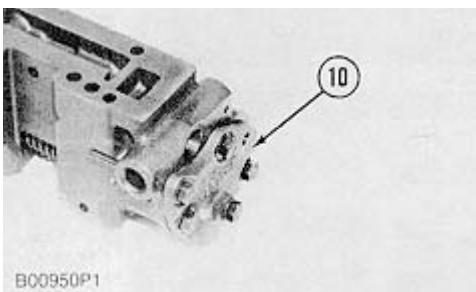
3. Remove cover (5), the gasket and the O-ring seal from the valve body.



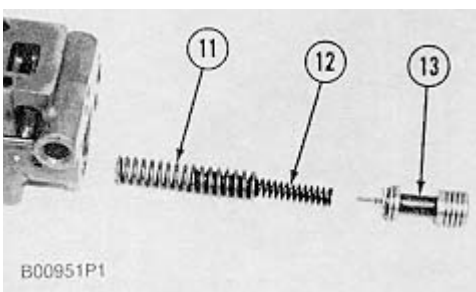
4. Remove plunger (6) and spring (7) from cover (5).



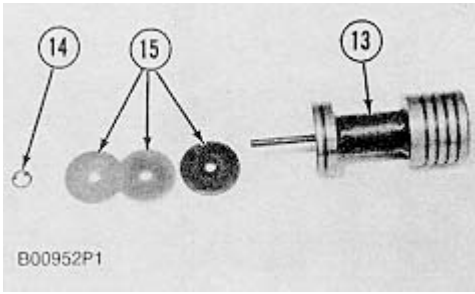
5. Remove valve spool (8) and spring (9) from the valve body.



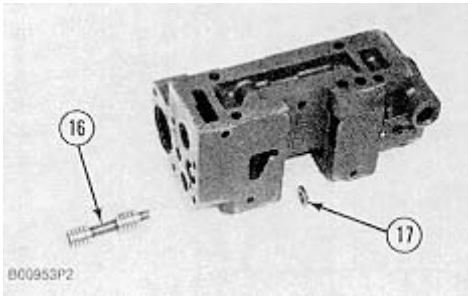
6. Remove cover (10) and the gasket from the valve body.



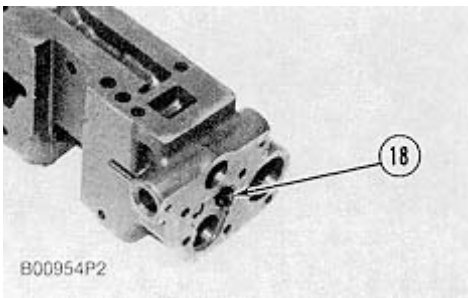
7. Remove valve spool (13), spring (12) and spring (11) from the valve body.



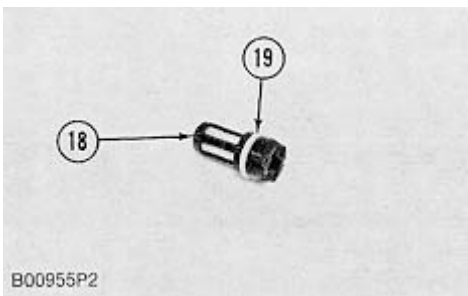
8. Remove ring (14) and shims (15) from valve spool (13).



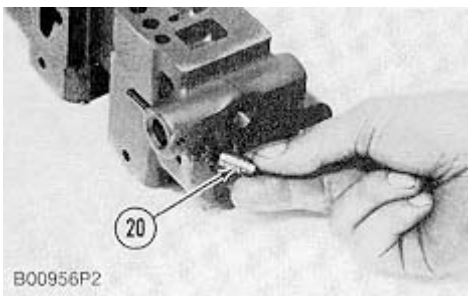
9. Remove valve spool (16) and washer (17) from the valve body.



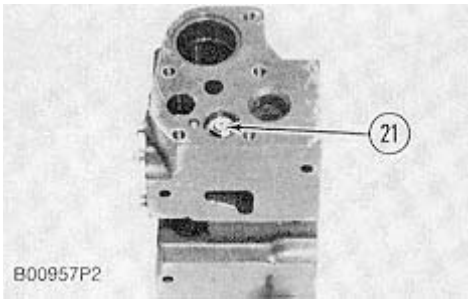
10. Remove orifice (18) from the valve body.



11. Remove O-ring seal (19) from orifice (18).



**12.** Remove slug (20) from the valve body.



**13.** Remove valve (21) from the valve body.

**NOTE:** The following steps are for the assembly of the transmission hydraulic control valve.

**14.** Make sure all the parts of the transmission hydraulic control valve are clean. Inspect all parts for damage and make replacements if needed. Put clean transmission oil on all parts of the valve during assembly.

**15.** Install valve (21) and slug (20) in the valve body.

**16.** Install O-ring seal (19) on orifice (18) and install the orifice in the valve body.

**17.** Install valve spool (16) in the valve body.

**18.** Put washer (17) in position in the valve body.

**19.** Install shims (15) and ring (14) on valve spool (13).

**NOTE:** Make sure washer (17) is in position.

**20.** Install spring (11), spring (12) and valve spool (13) in the valve body.

**21.** Put the gasket and cover (10) in position on the valve body, and install the bolts that hold them in place. Tighten the bolts to a torque of  $30 \pm 4$  N·m ( $22 \pm 3$  lb ft.)

**22.** Install spring (9) and valve spool (8) in the valve body.

**23.** Install spring (7) and plunger (6) in cover (5).

**24.** Put the O-ring seal, the gasket and cover (5) in position on the valve body, and install the bolts that hold them in place. Tighten the bolts to a torque of  $30 \pm 4$  N·m ( $22 \pm 3$  lb ft.)

**25.** Install valve spool (4) in the valve body.

**26.** Install O-ring seal (2) on the detent assembly (1) and install detent assembly (1) in the valve body. Install pin (3) to hold the detent assembly in place. Do this for the other side also.

End By:

**a.** install transmission oil pump and transmission hydraulic control valve

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Model: D3B TRACK-TYPE TRACTOR 24Y

Configuration: D3B LGP TRACTOR / POWER SHIFT / 24Y00001-UP (MACHINE) POWERED BY 3204 ENGINE

## Disassembly and Assembly D3B TRACTOR & 931B TRACTOR TYPE LOADER POWER TRAIN

Media Number -SEN7918-02

Publication Date -01/11/2004

Date Updated -15/02/2017

SEN79180028

### Torque Converter And Transmission (3F/1R Power Shift)

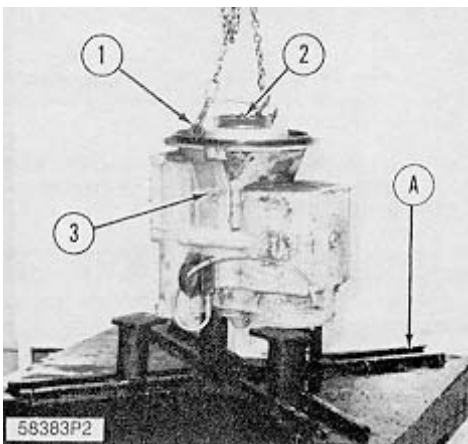
SMCS - 3001-010

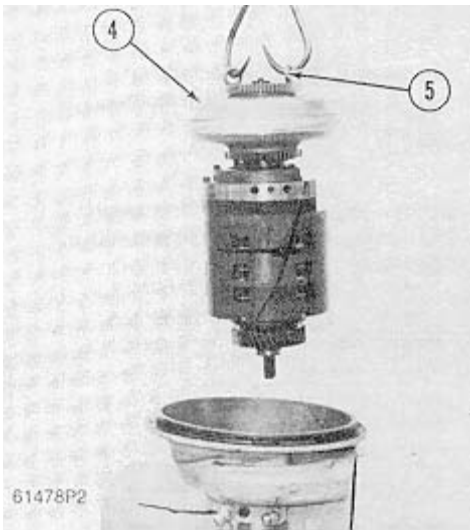
### Remove And Install Torque Converter And Transmission (3F/1R Power Shift)

Tools Needed		A
1P2420	Transmission Repair Stand	1

Start By:

- a. remove transmission oil pump and transmission hydraulic control valve





1. Fasten a hoist and two 1/2 " - **13 NC** forged eyebolts (1) to the transmission case. Put the transmission case in position on tooling (A) as shown.
2. Remove two bolts from torque converter drive gear (2), and install two 3/8 " - **16 NC** forged eyebolts in the torque converter.
3. Fasten a hoist to the torque converter, and remove bolt (3) from both sides of the transmission case.
4. Remove torque converter (4) and the transmission as an assembly from the transmission case. The weight of the torque converter and transmission is 135 kg (300 lb).

**NOTE:** The following steps are for installation of the torque converter and transmission.

5. Use a hoist and two 3/8 " - **16 NC** forged eyebolts (5) to position torque converter (4) and the transmission in the transmission case.
6. Install two bolts (3) that hold the transmission to the transmission case. Tighten the bolts to a torque of  $270 \pm 25 \text{ N}\cdot\text{m}$  ( $200 \pm 20 \text{ lb ft}$ ).
7. Remove two 3/8 " **16 NC** forged eyebolts from the torque converter, and install the two bolts that fasten torque converter drive gear to the torque converter.

End By:

- a. install transmission oil pump and transmission hydraulic control valve
-

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## Disassembly and Assembly D3B TRACTOR & 931B TRACTOR TYPE LOADER POWER TRAIN

Media Number -SEN7918-02

Publication Date -01/11/2004

Date Updated -15/02/2017

SEN79180029

### Torque Converter And Transmission (3F/1R Power Shift)

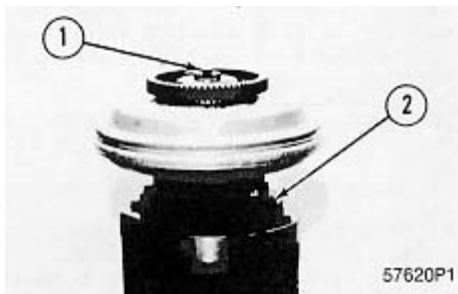
SMCS - 3001-015; 3001-016

### Disassemble Torque Converter And Transmission (3F/1R Power Shift)

Tools Needed		A	B
8B7548	Puller Assembly	1	
8B7560	Step Plate	1	
8H684	Ratchet Box Wrench	1	
8H663	Bearing Puller Attachment	1	
1P510	Driver Group		1

Start By:

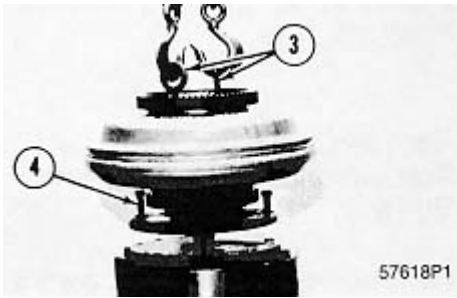
a. remove torque converter and transmission



Typical Example

1. Remove bolt (1) and the washer from torque converter.

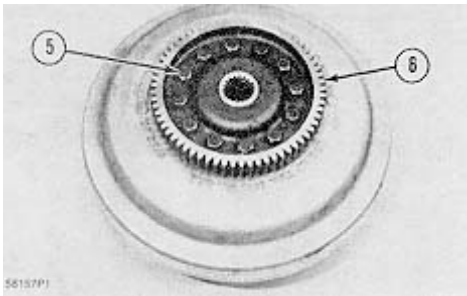
2. Remove bolts (2) that hold the flange to the manifold.



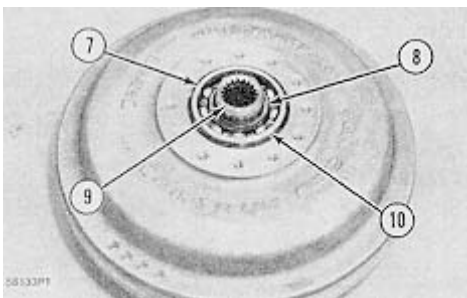
Typical Example

3. Install two 3/8 " - 16 NC forged eyebolts (3) in the torque converter and fasten a hoist.

4. Install two of the 3/8 " - 16 NC bolts (4) that were removed from torque converter as forcing screws in the flange. Remove the torque converter as a unit.



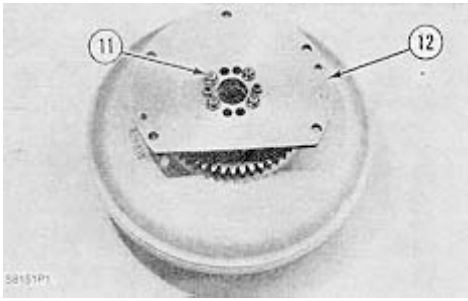
5. Remove bolts (5) that hold spider (6) on the torque converter.



6. Remove snap rings (7) and (8) and seal ring (9) from the hub.

7. Remove bearing (10) from the hub.

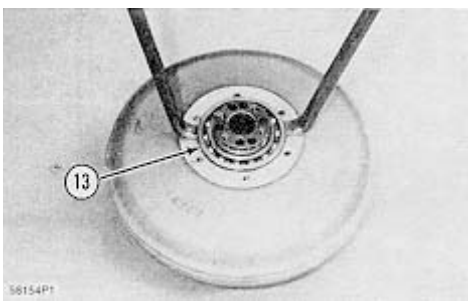
8. Turn the torque converter over.



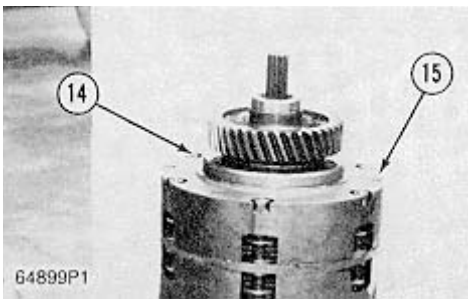
Typical Example

**9.** Remove bolts (11) that hold flange (12) on the hub. Remove flange (12). Remove the seal ring from the flange.

**10.** Remove the bolts that hold the gear on the torque converter. Remove the gear.



**11.** Remove bearing (13) from the hub with two bars.

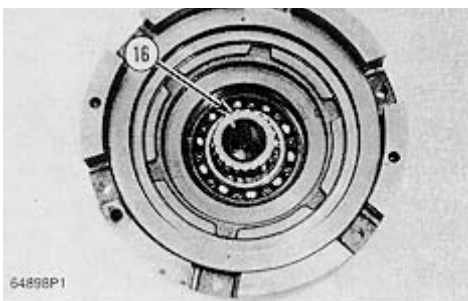


**12.** Turn the transmission assembly over with a hoist.

**NOTE:** Put a mark on each housing and plate for correct installation.

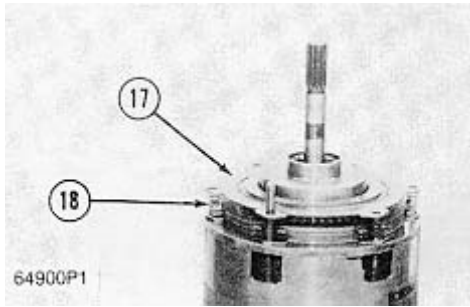
**13.** Remove nuts (14) from the bolts that hold the housing together.

**14.** Install two 3/8 " - 16 NC forged eyebolts. Fasten a hoist and No. 1 clutch housing (15) and gear as a unit.

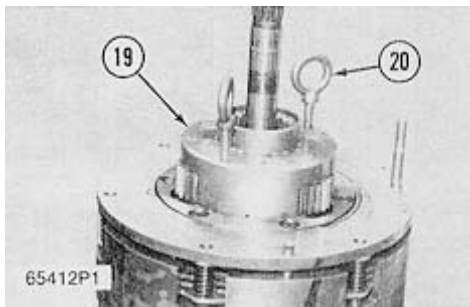


**15.** Remove the rings that hold gear (16) and bearing in the clutch housing. Remove the gear from the housing.

**16.** Remove the bearing race from gear (16) with tooling (A).

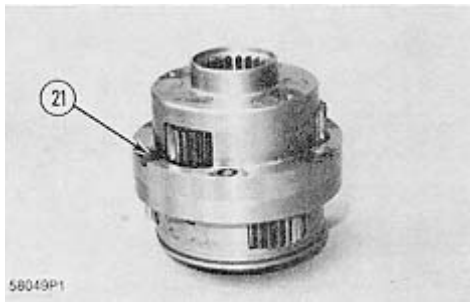


**17.** Remove No. 1 clutch plates (17), discs, springs (18) and ring gear. Remove the seal rings from the piston for No.1 clutch.



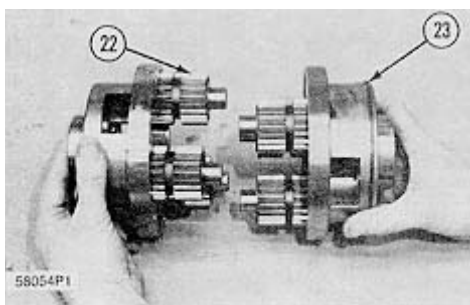
**18.** Install two 3/8 " - 16 NC forged eyebolts (20) in the carrier.

**19.** Remove No. 1 and reverse carrier (19) as a unit.

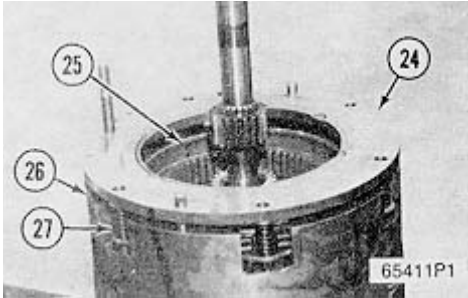


**20.** Remove bolts (21) and washers that hold No. 1 and reverse carrier together.

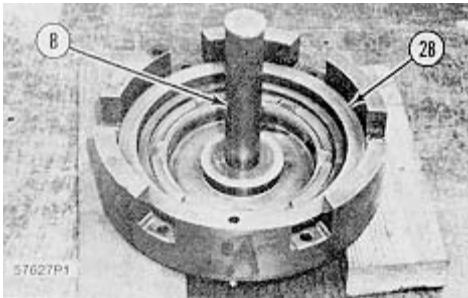
**21.** Make two separations of the carriers.



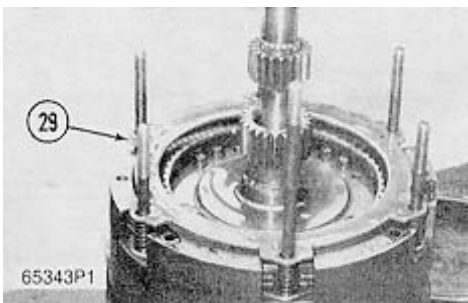
22. Remove six planetary gears (22) from the carriers.
23. Remove the washers from each side of the gears.
24. Remove the roller bearings from inside of each planetary gear.
25. Remove seal ring (23) from the carrier.



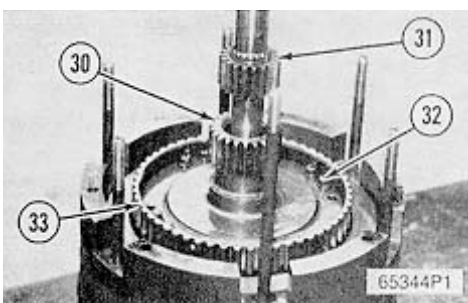
26. Remove plate (24), discs, plates, springs (27) and ring gear (25).
27. Remove reverse clutch housing.



28. Remove the bearing from the reverse clutch housing with tooling (B).
29. Remove piston (28) from the reverse clutch housing. Remove the seal rings from the piston.



30. Remove plates (29), discs and springs for the No. 2 clutch.



**31.** Remove snap rings and gear (31) from the shaft.

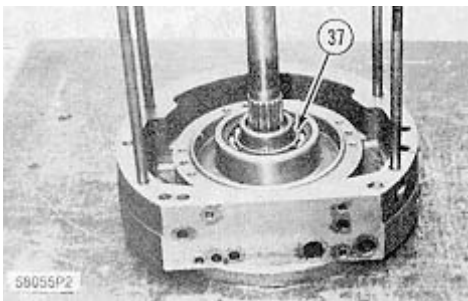
**32.** Remove bolts (32) evenly from sun gear (30). Remove the sun gear.

**33.** Remove ring gear (33), springs, discs and plates from the clutch housing. Remove the hub from the shaft.



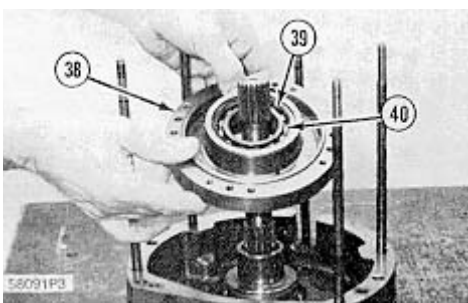
**34.** Remove the No. 2 clutch housing. Remove clutch piston (34). Remove seal rings (35) and (36) from the piston.

**35.** Remove the O-ring seal under seal ring (36).

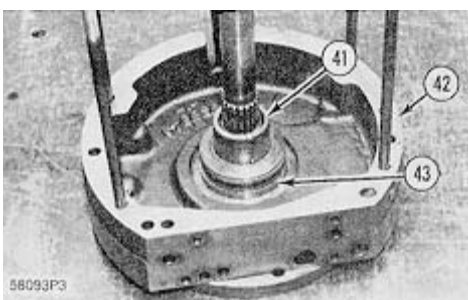


**36.** Remove the No. 3 clutch piston.

**37.** Remove snap ring (37) from the inside manifold.



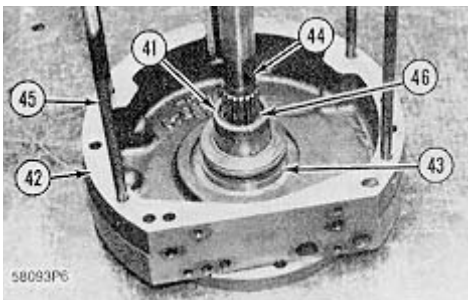
**38.** Remove piston housing (38). Remove snap ring (39) and bearing (40) from the piston housing.



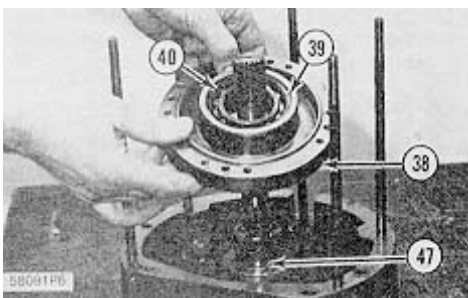
39. Remove seal rings (43) from the inside manifold.
40. Remove the shaft and inside manifold (41) from the outside manifold (42).
41. Remove the shaft from the inside manifold. Remove the snap ring from the shaft.
42. Remove the bolts that hold the clutch housings together.

## Assemble Torque Converter And Transmission (3F/1R Power Shift)

Tools Needed		B	C	D
1P510	Driver Group	1		
FT833	Clamp		1	
FT834	Clutch Testing Nozzle			1



1. Install snap ring (46) on shaft (44). Install the shaft inside manifold (41).
2. Install the shaft and the inside manifold in outside manifold (42).
3. Install bolts (45) that hold the transmission housings together.
4. Install seal rings (43) on the inside manifold.



5. Install bearing (40) and snap ring (39) in piston housing.
6. Install piston housing (38) over the inside manifold with the notch in the bearing in alignment with ball (47) in the manifold.



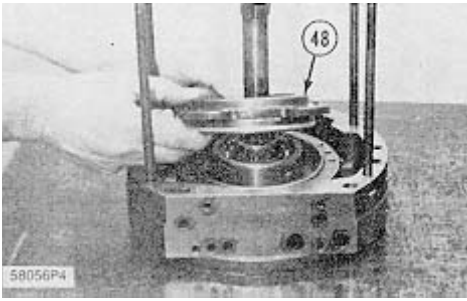
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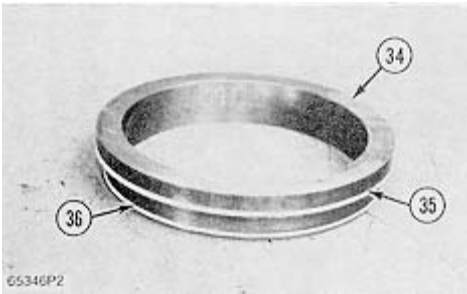
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7. Install the seal rings on the piston for the No. 3 clutch.
8. Install piston (48) for the No. 3 clutch in the piston housing.



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### NOTICE

**The seal ring (65) with the larger diameter must be installed with the lip of the seal ring toward the pressure oil.**

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9. Install an O-ring and seal ring (36) in the groove with the smallest diameter on the piston for No. 2 clutch. Install seal ring (35) on the piston in the groove with the larger diameter.

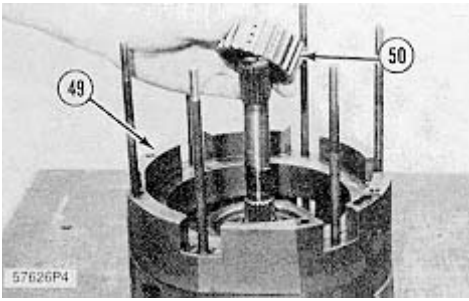
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### NOTICE

**The piston must not be pushed down too far. The seal ring will come out on the bottom side of housing and cause damage to seal ring.**

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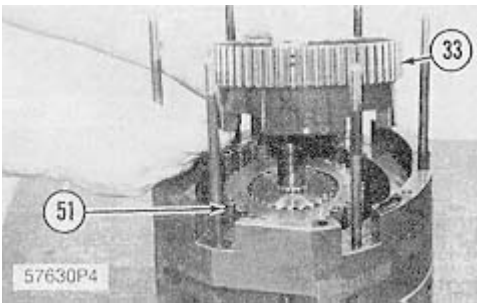
10. Carefully install piston (34) in the housing for the No. 2 clutch so the top of the piston is even with the bottom of the notch in the clutch housing.



11. Install housing (49) for the No. 2 clutch.

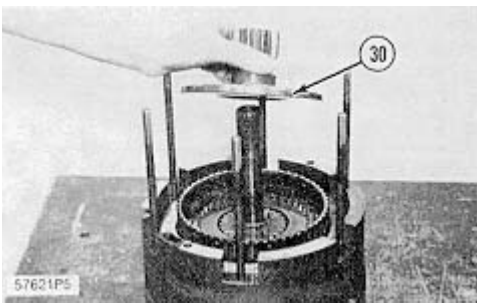
12. Install hub (50) on the shaft.

13. Install the snap ring that holds the hub in position.



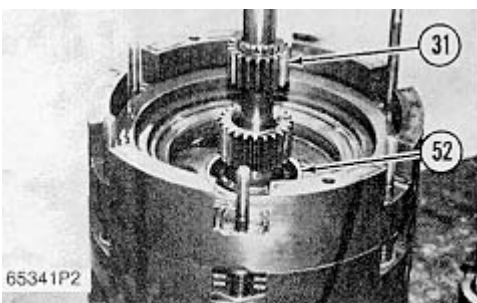
14. Install the plates, discs and springs (51).

15. Install ring gear (33) over the springs, discs and plates.



16. Install sun gear (30).

17. Install bolts that hold the sun gear on the ring gear.



18. Install the snap rings and small sun gear (31) on the shaft.

19. Install the plates, discs and springs for the No. 2 clutch.

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