



# Service Repair Manual

## **Models**

# D11N TRACK-TYPE TRACTOR

---

Previous Screen

Product: TRACK-TYPE TRACTOR

Model: D11N TRACK-TYPE TRACTOR 74Z

Configuration: D11N TRACTOR / POWER SHIFT / 74Z00001-UP (MACHINE) POWERED BY 3508 ENGINE

## Disassembly and Assembly D11N & D11R TRACTORS POWER TRAIN

Media Number -SEN3287-05

Publication Date -01/06/2004

Date Updated -13/11/2017

SEN32870029

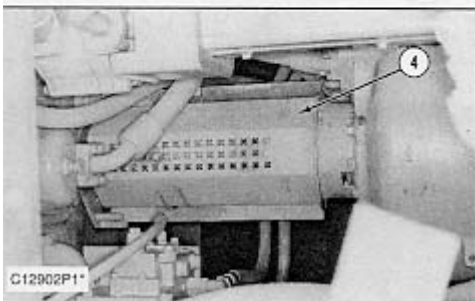
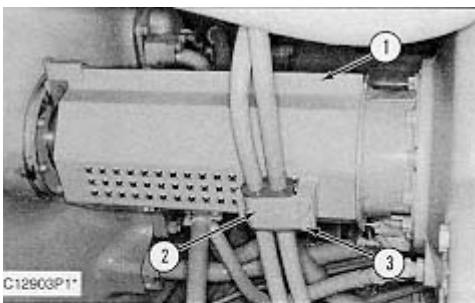
### Drive Shaft

SMCS - 3253-012; 3253-011

### Remove Drive Shaft

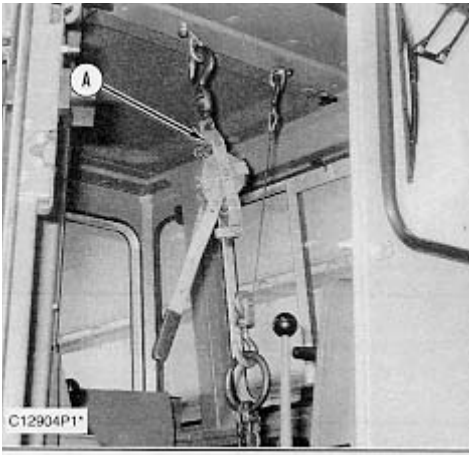
Tools Needed		A
8S9906	Ratchet Puller	1
5P9736	Link Bracket	2

1. Remove the floor plate from the machine.

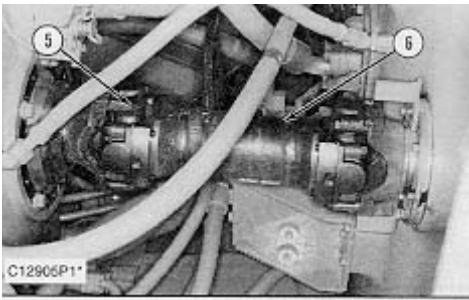


2. Remove two bolts (3) and clamps (2). Move the hoses away from guard assembly (1).

3. Remove the bolts that hold guard assemblies (1) and (4) in place, and remove the guard assemblies.



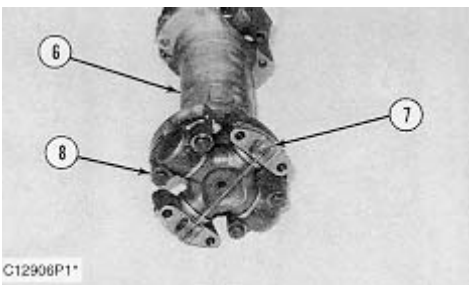
4. Fasten Tooling (A) to the inside of the cab as shown.



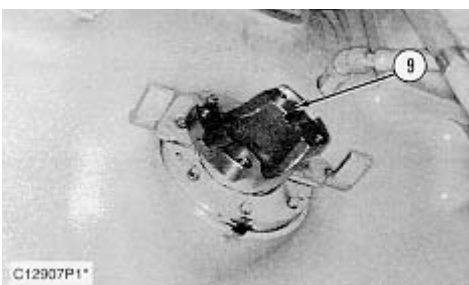
5. Fasten a nylon strap to drive shaft (6). Fasten the end of the strap to Tooling (A).

6. Remove four bolts (5) from each end of the drive shaft.

7. Use Tooling (A) and remove the drive shaft from the machine. The weight of the drive shaft is **43 kg (95 lb)**.



8. Remove four bolts (8) and bearing (7) from each end of drive shaft (6).



**<https://www.ebooklibonline.com>**

Hello dear friend!

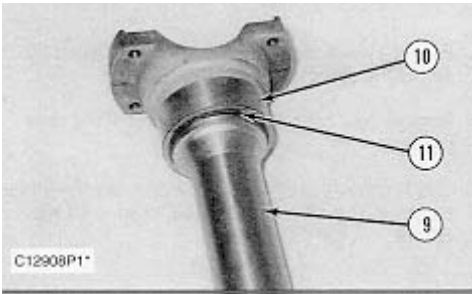
Thank you very much for reading.

Enter the link into your browser.

The full manual is available for immediate download.

**<https://www.ebooklibonline.com>**

9. Fasten Tooling (A) to yoke (9). Remove the yoke from the machine. The weight of the yoke is 32 kg (70 lb).



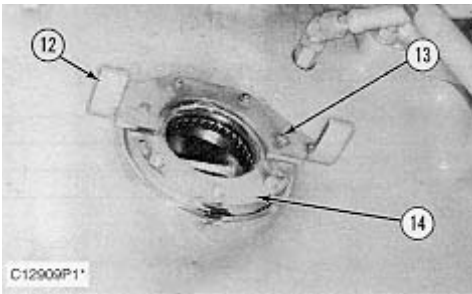
---

### NOTICE

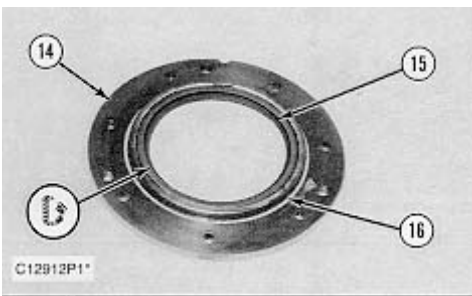
**Do not remove race (10) unless a replacement is needed. The race will be destroyed when it is removed.**

---

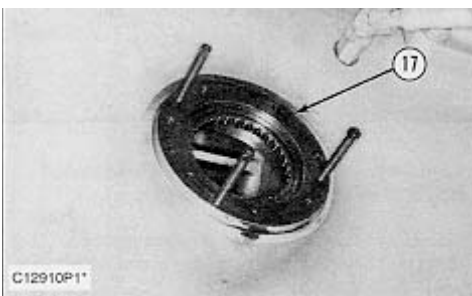
10. If necessary remove ring (11) and race (10) from yoke (9).



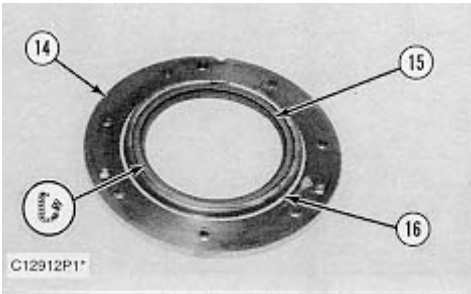
11. Remove bolts (13) bracket (12) and cover (14).



12. Remove O-ring seal (16) and seal (15) from cover (14).



13. Install three 1/2 - 13 NC forcing screws in cage (17). Tighten the forcing screws evenly and remove the cage.

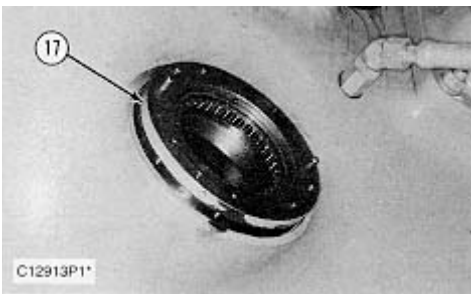


14. Remove O-ring seals (19) and (20) from cage (17).

15. If necessary remove bearing (18) from the cage.

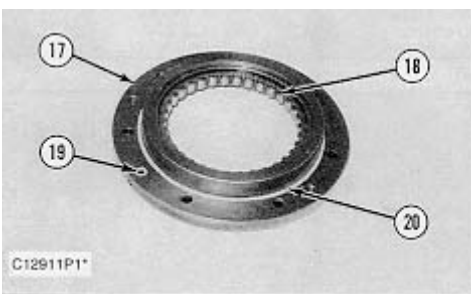
## Install Drive Shaft

Tools Needed		A	B
8S9906	Ratchet Puller	1	
5P9736	Link Bracket	2	
1P520	Driver Group		1

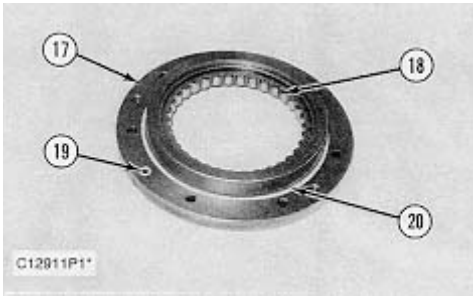


1. If bearing (18) was removed, lower the temperature of the bearing and install it in cage (17).

2. Install O-ring seals (19) and (20) in cage (17). Put clean oil on the O-ring seals.

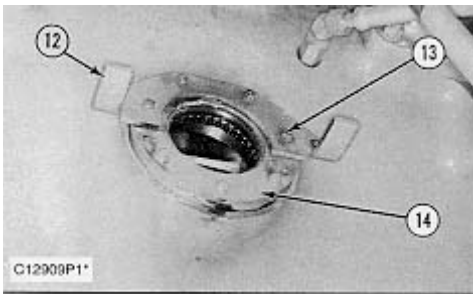


3. Install two 3/8 in - 16 NC guide bolts in the main frame case and install cage (17).

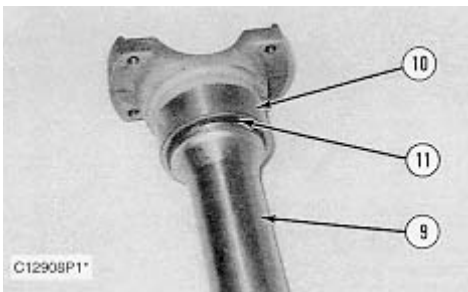


4. Use Tooling (B) and install seal (15) in cover (14) with the lip of the seal up as shown. Put clean oil on the lip of the seal.

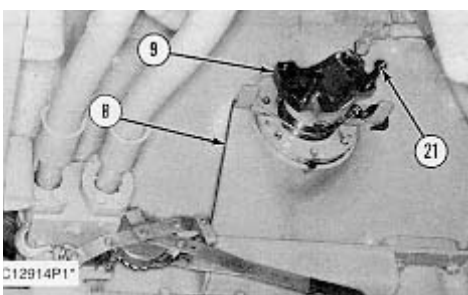
5. Put O-ring seal (16) in position in cover (14).



6. Put cover (14) and bracket (12) in position and install bolts (13).



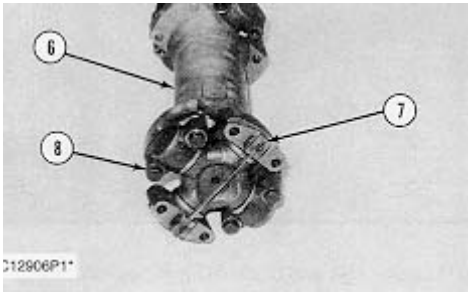
7. Install race (10) and ring (11) on yoke (9).



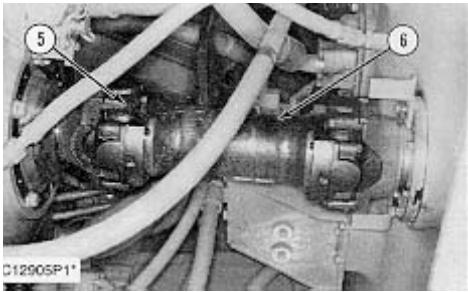
8. Fasten a strap and Tooling (A) to yoke (9). Put the yoke in position in the machine.

9. Put Tooling (B) in position as shown to support the end of yoke (9).

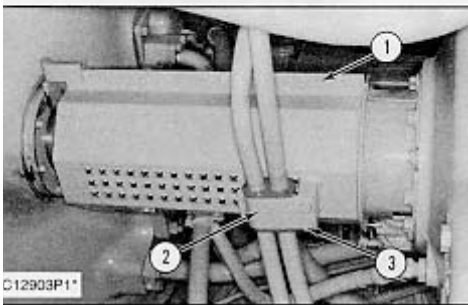
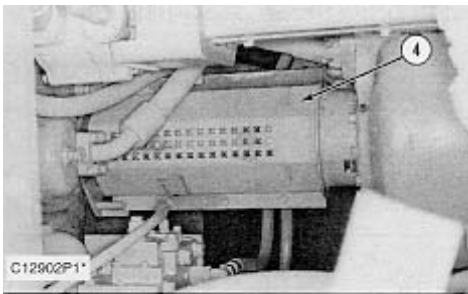
10. Install two 5/8 in - 11 NF x 3 in (76.2 mm) bolts (21) in yoke (9). Use the bolts and Tooling (B) and install the yoke in the main frame.



**11.** Put bearings (7) in position on each end of drive shaft (6) and install bolts (8). Tighten bolts (8) to a torque of  $300 \pm 20 \text{ N}\cdot\text{m}$  ( $200 \pm 15 \text{ lb ft}$ ).



**12.** Fasten a strap and Tooling (A) to drive shaft (6). Put the drive shaft in position on the machine and install bolts (5). Tighten the bolts to a torque of  $300 \pm 20 \text{ N}\cdot\text{m}$  ( $200 \pm 15 \text{ lb ft}$ ).



**13.** Put guard assemblies (4) and (1) in position and install the bolts that hold them in place.

**14.** Put the two hoses and clamp (2) in position on guard assembly (1) and install bolts (3).

**15.** Install the floor plate.

[Previous Screen](#)

Product: TRACK-TYPE TRACTOR

Model: D11N TRACK-TYPE TRACTOR 74Z

Configuration: D11N TRACTOR / POWER SHIFT / 74Z00001-UP (MACHINE) POWERED BY 3508 ENGINE

## Disassembly and Assembly D11N & D11R TRACTORS POWER TRAIN

Media Number -SEN3287-05

Publication Date -01/06/2004

Date Updated -13/11/2017

SENR32870030

### Torque Divider

SMCS - 3113-012; 3113-015; 3113-016; 3113-011

### Remove Torque Divider (74Z & 4HK)

Tools Needed		A	B	C
5P9694	Ratchet Hoist	1		
5P8622	Shackle	1		
8S9906	Ratchet Puller		1	
5P9736	Link Bracket		1	2

#### Fluid Spillage Containment

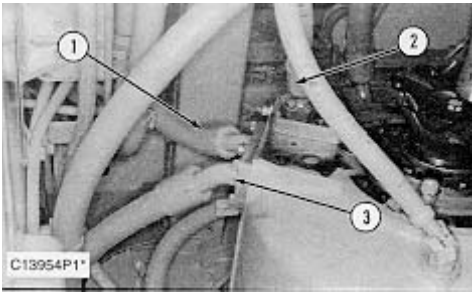
Care must be taken to ensure that fluids are contained during performance of inspection, maintenance, testing, adjusting and repair of the machine. Be prepared to collect the fluid with suitable containers before opening any compartment or disassembling any component containing fluids. Refer to "Tools And Shop Products Guide", NENG2500 for tools and supplies suitable to collect and contain fluids in Caterpillar machines. Dispose fluids according to local regulations and mandates.

a. remove drive shaft

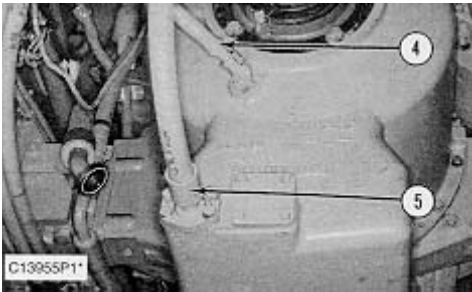
b. remove torque converter outlet relief valve

1. Remove the middle front bottom guard. The weight of the middle front bottom guard is **255 Kg (562 lb)**.

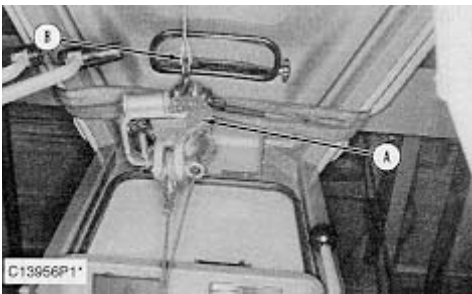
2. Drain the oil from the torque divider.



3. Disconnect hose assemblies (1), (2) and (3) from the torque divider.

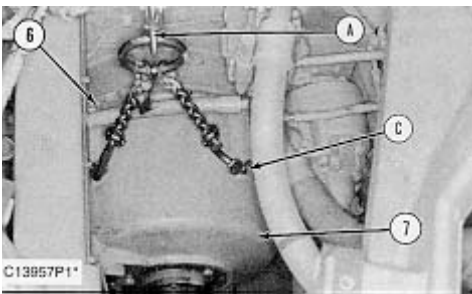


4. Disconnect hose assemblies (4) and (5).



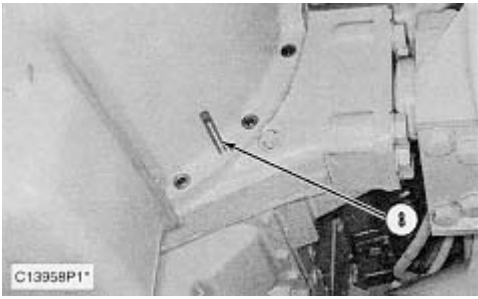
5. Install a nylon strap around the top of the cab. Fasten Tooling (A) to the nylon strap as shown.

6. Use Tooling (B) to pull Tooling (A) away from the instrument panel.



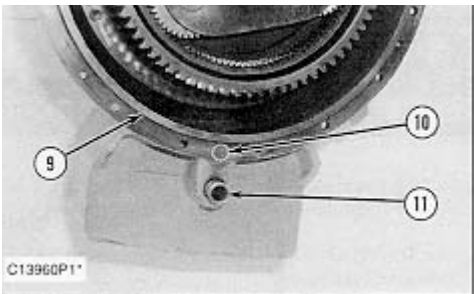
7. Install Tooling (C) on torque divider (7). Fasten Tooling (A) to Tooling (C).

8. Support the weight of the torque divider with Tooling (A). Remove bolts (6) that hold the torque divider to the flywheel housing.



9. Install three 1/2 in - 13 NC forcing screws (8) in the torque divider. Tighten the forcing screws evenly and separate the torque divider from the flywheel housing.

10. Use Tooling (A) and lower the torque divider to the ground. The weight of the torque divider is 567 Kg (1250 lb).

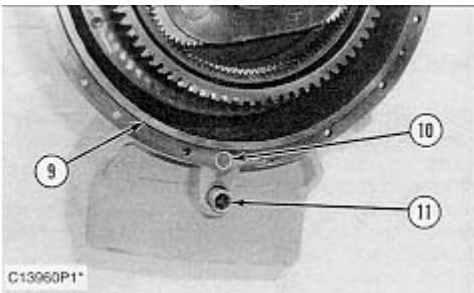


11. Remove O-ring seals (9) and (10) from the torque divider.

12. Remove sleeve (11). Remove the O-ring seals from the sleeve.

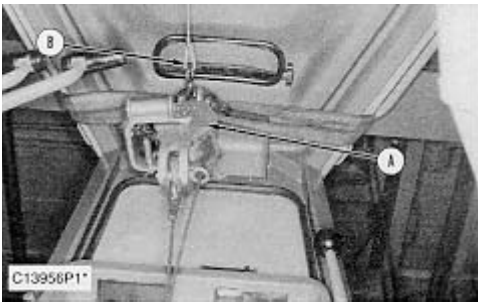
## Install Torque Divider (74Z & 4HK)

Tools Needed		A	B	C
5P9694	Ratchet Hoist	1		
5P8622	Shackle	1		
8S9906	Ratchet Puller		1	
5P9736	Link Bracket		1	2

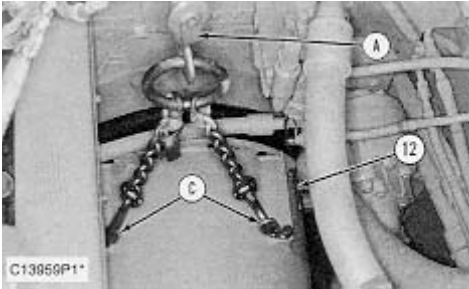


1. Put the O-ring seals in position on sleeve (11). Install the sleeve in the torque divider.

2. Put O-ring seals (9) and (10) in position on the torque divider.



3. Install Tooling (A) and (B) as shown.



4. Install two 1/2 in - 13 NC guide bolts (12) in the flywheel housing.

5. Install Tooling (C) on the torque divider. Fasten Tooling (A) to Tooling (C).

---

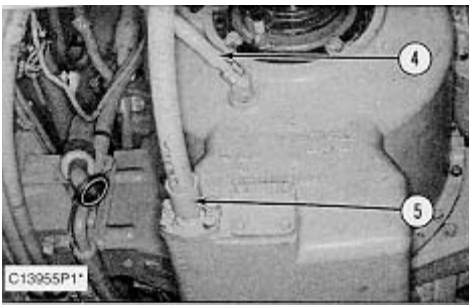
### NOTICE

**Make sure sleeve (11) is aligned with the elbow on the flywheel housing when the torque divider is installed.**

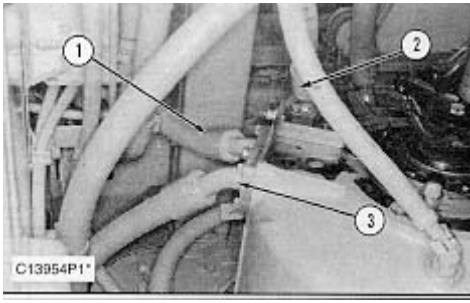
---

6. Put the torque divider in position on guide bolts (12) and install the bolts that hold it to the flywheel housing.

7. Remove the guide bolts and install the two remaining bolts.



8. Connect hose assemblies (4) and (5).



9. Connect hose assemblies (1), (2) and (3).

10. Install the torque converter outlet relief valve. See Remove and Install Torque Converter Outlet Relief Valve.

11. Fill the transmission with oil to the correct level. See the Maintenance Guide.

12. Install the middle front bottom guard.

End By:

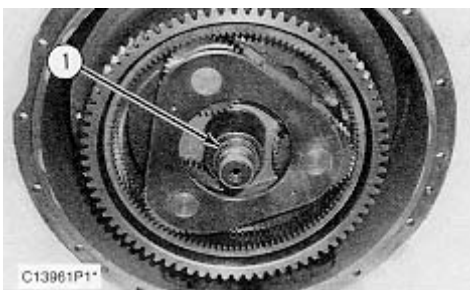
a. install drive shaft.

## Disassemble Torque Divider (74Z & 4HK)

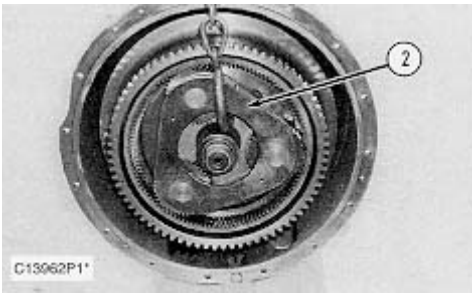
Tools Needed		A	B	C	D	E
5P5197	External Pliers	1				
5P9736	Link Bracket		2			
1P2322	Combination Puller			1	1	
5P3546	Puller Plate			1		
S2398	Spacer			1	1	
1P520	Driver Group				1	
FT553	Adapter					1
0S1618	Bolt 5/16" - 18 NC x 1" (25.4 mm)					2

Start By:

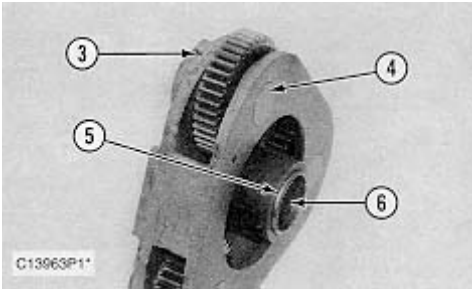
a. remove torque divider



1. Use Tool (A) and remove snap ring (1) from the shaft.

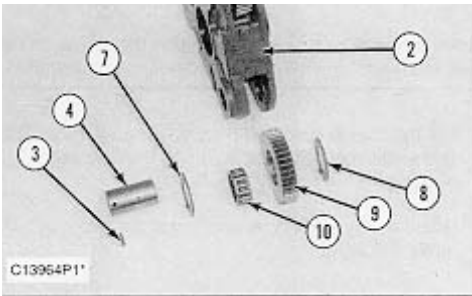


2. Fasten a hoist to carrier (2) and remove the carrier. The weight of carrier (2) is 32 Kg (70 lb).



3. Remove spacer (5). Remove spiral lock ring (6) behind the spacer.

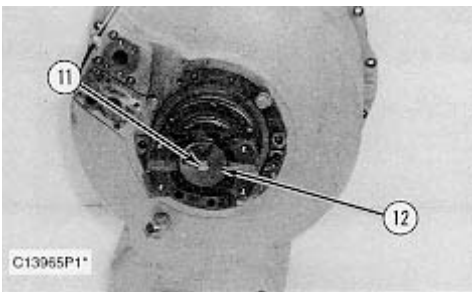
4. Use a hammer and punch and push pins (3) in shafts (4).



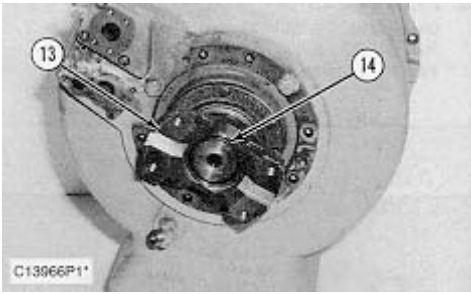
5. Remove shafts (4) from carrier (2). Remove pins (3) from the shaft.

6. Remove gears (9) and washers (7) and (8) from the carrier.

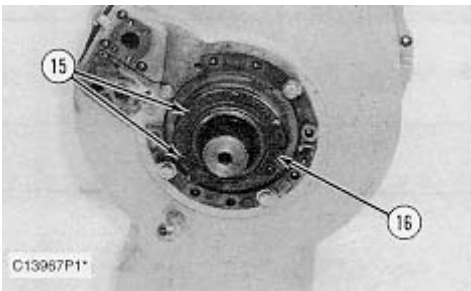
7. Remove bearing (10) from gear (9).



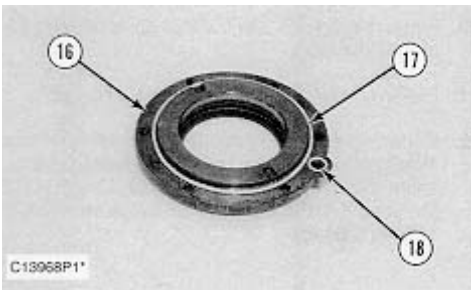
8. Remove bolt (11) and retainer (12).



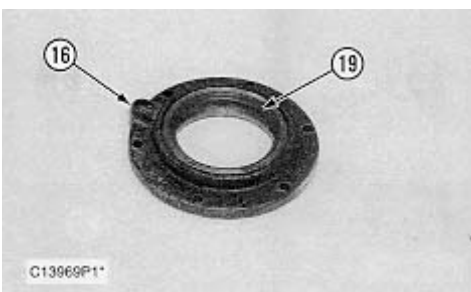
9. Remove O-ring seal (14) and yoke (13).



10. Remove six bolts (15). Use two 3/8 in - 16 NC forcing screws and remove retainer (16) from the support.



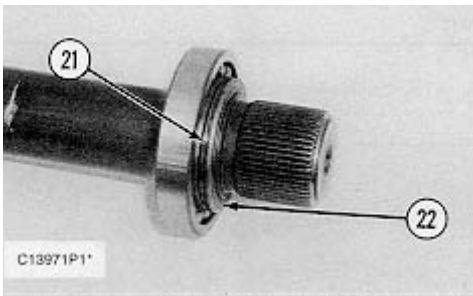
11. Remove O-ring seals (17) and (18) from retainer (16).



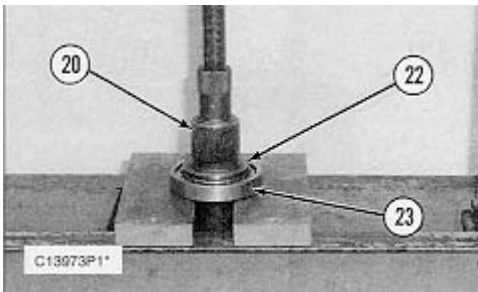
12. Remove seal (19) from retainer (16).



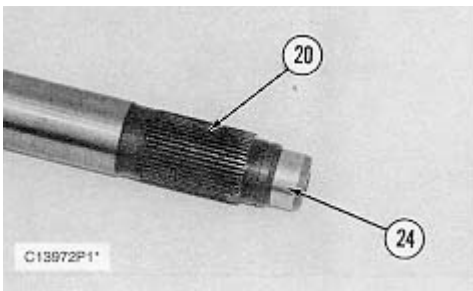
13. Pull shaft (20) part way out of the torque divider. Fasten a hoist to shaft (20) and remove it. The weight of the shaft is **25 Kg (55 lb)**.



14. Remove ring (21) from carrier (22).



15. Use a press and remove carrier (22) and bearing (23) from shaft (20).



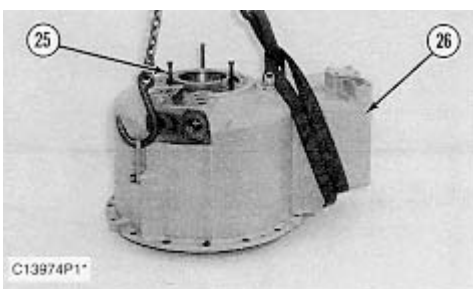
---

### NOTICE

**Race (24) will be damaged if it is removed from the shaft.**

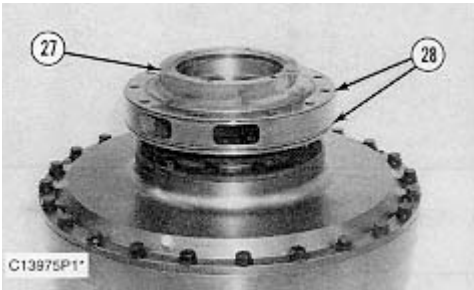
---

16. If necessary remove race (24) from shaft (20).

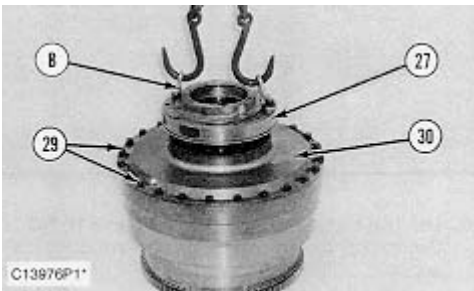


17. Remove the bolts that hold cover (26) to the support. Fasten a hoist to cover (26).

**18.** Install three 5/8 in - 11 NC forcing screws (25) in cover (26). Tighten the forcing screws evenly and remove the cover. The weight of the cover is **181 Kg (400 lb)**.



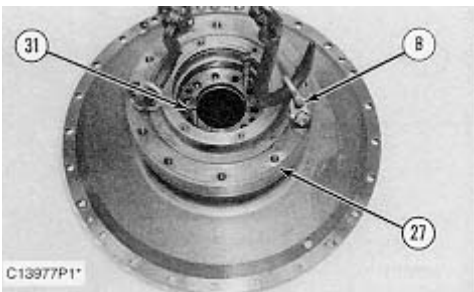
**19.** Remove O-ring seals (28) from support (27).



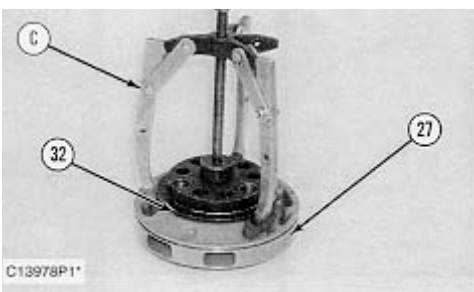
**20.** Remove bolts (29) that hold flange assembly (30) to the housing.

**21.** Fasten a hoist and Tooling (B) to support (27).

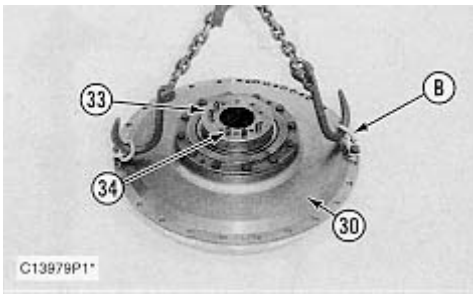
**22.** Install two 1/2 in - 13 NC forcing screws in flange assembly (30). Tighten the forcing screws evenly and remove the flange assembly and support (27). The weight of the support and flange assembly is **113 Kg (250 lb)**.



**23.** Remove the bolts that hold support (27) to the carrier. Install two 1/2 in - 13 NC forcing screws (31) in the support. Tighten the forcing screws evenly and remove support (27) with Tooling (B) and a hoist. The weight of the support is **30 Kg (65 lb)**.

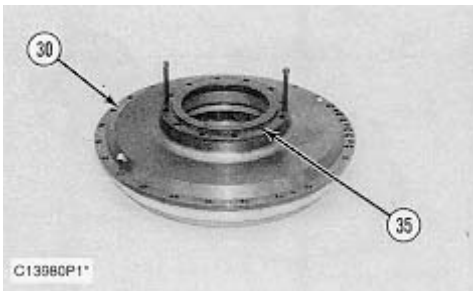


**24.** If necessary remove plate (32) from support (27) with Tooling (C).

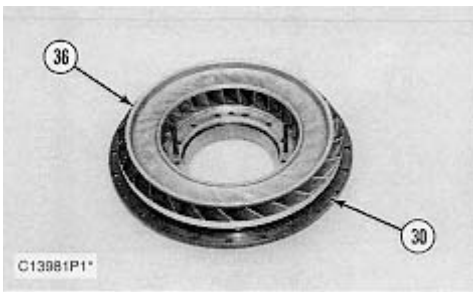


**25.** Fasten a hoist and Tooling (B) to flange assembly (30). Remove the flange assembly from carrier (33). The weight of the flange assembly is **52 Kg (115 lb)**.

**26.** Remove five roll pins (34) from carrier (33).

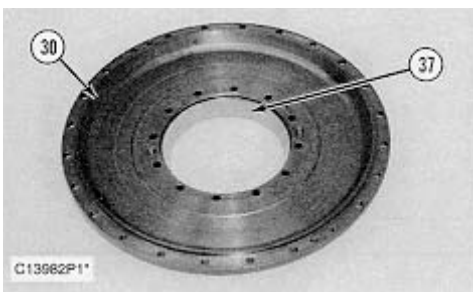


**27.** Remove the bolts that hold sleeve (35) to flange assembly (30). Install two 1/2 in - 13 NC forcing screws and remove the sleeve.

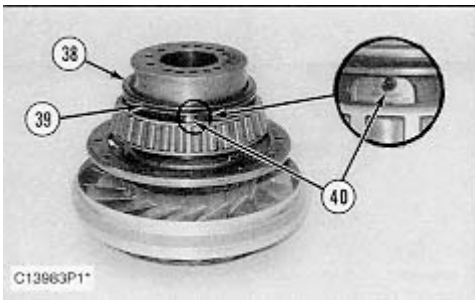


**28.** Turn the flange assembly over.

**29.** Install two 1/2 in - 13 NC forcing screws in impeller (36) and remove the impeller from flange assembly (30).

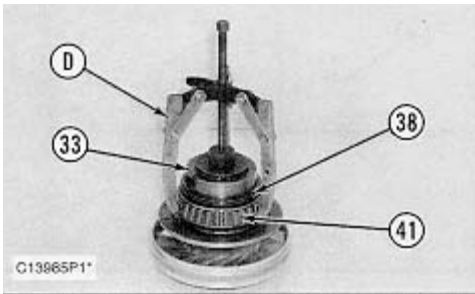


**30.** If necessary remove bearing cup (37) from flange assembly (30).

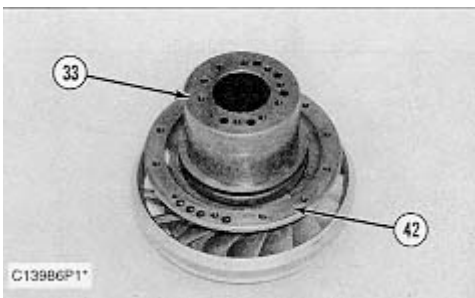


**31.** Remove ring (39) from carrier (38).

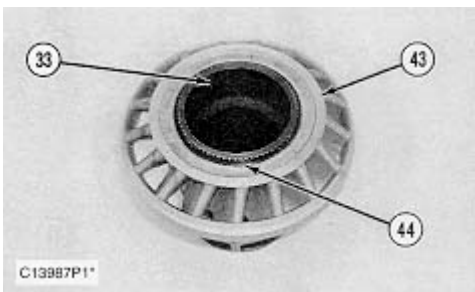
**32.** Use a hammer and punch and push pin (40) in the carrier.



**33.** Use Tooling (D) and remove carrier (38) and bearing cone (41) from carrier (33).

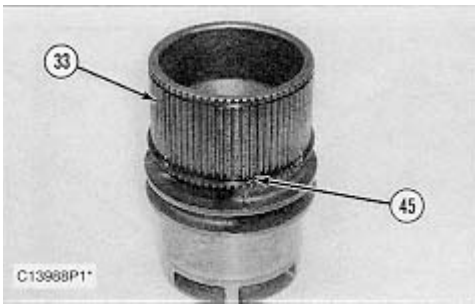


**34.** Remove hub (42) from carrier (33).

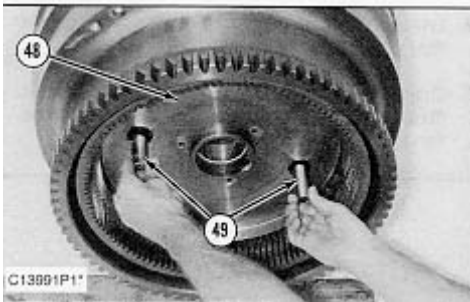
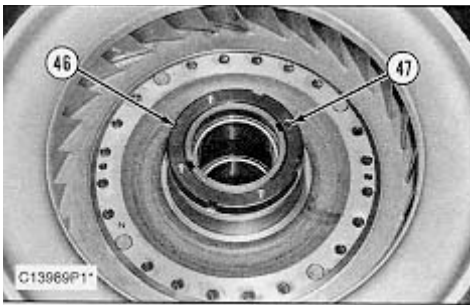


**35.** Remove spiral locking (44) from carrier (33).

**36.** Heat carrier (33) and stator (43) to a maximum temperature of **121°C (250°F)** and remove the stator from carrier (33).



**37.** Remove spiral locking (45) from carrier (33).

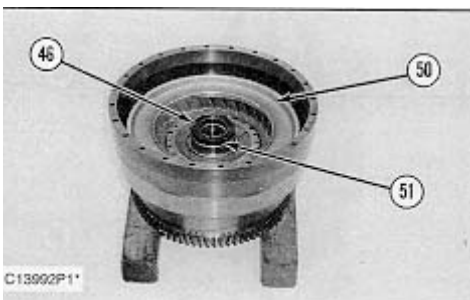


**38.** Remove setscrew (47) from nut (46).

**39.** Align the two holes in flange assembly (48) with two of the bolts under the flange assembly.

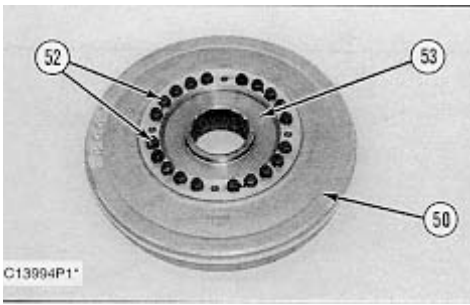
**40.** Install two deep sockets (49) on the bolts to keep the flange assembly from turning.

**41.** Use Tooling (E) and loosen nut (46).

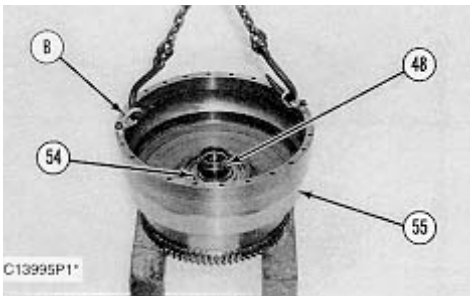


**42.** Put the housing in position on blocks as shown.

**43.** Remove nut (46), washer (51) and turbine (50).

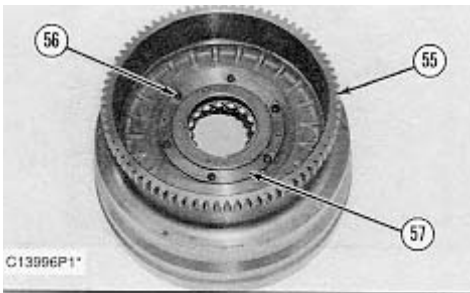


44. Remove bolts (52) and remove turbine (50) from hub assembly (53).

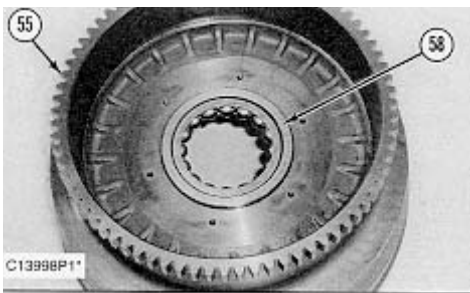


45. Fasten a hoist and Tooling (B) to housing (55). Remove the housing from flange assembly (48). The weight of the housing is **102 Kg (225 lb)**.

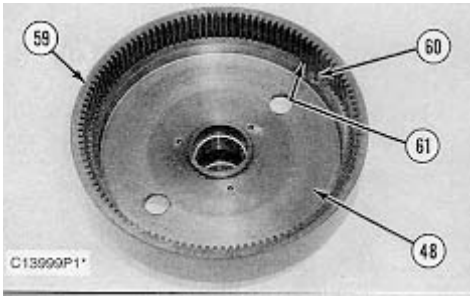
46. Remove bearing race (54) from the bearing.



47. Remove six bolts (56). Use two 3/8 in - 16 NC forcing screws and remove retainer (57) from housing (55).

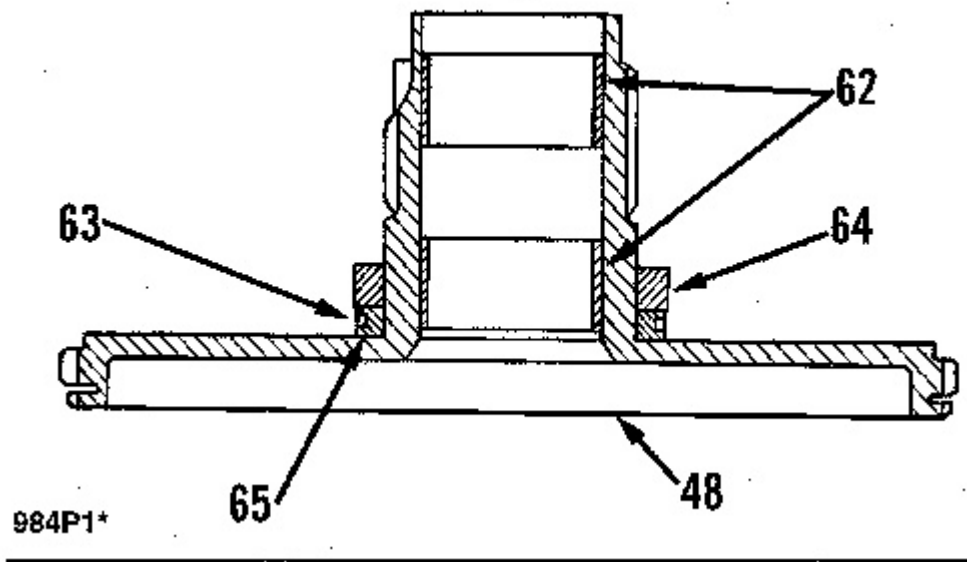


48. Remove bearing (58) from housing (55).



49. Use a hammer and punch and push pins (60) in flange assembly (48).

50. Compress ring (61) and separate gear (59) from flange assembly (48). Remove ring (61) from the flange assembly.



51. Remove ring (63) from carrier (65).

52. Remove bearing race (64) from flange assembly (48).

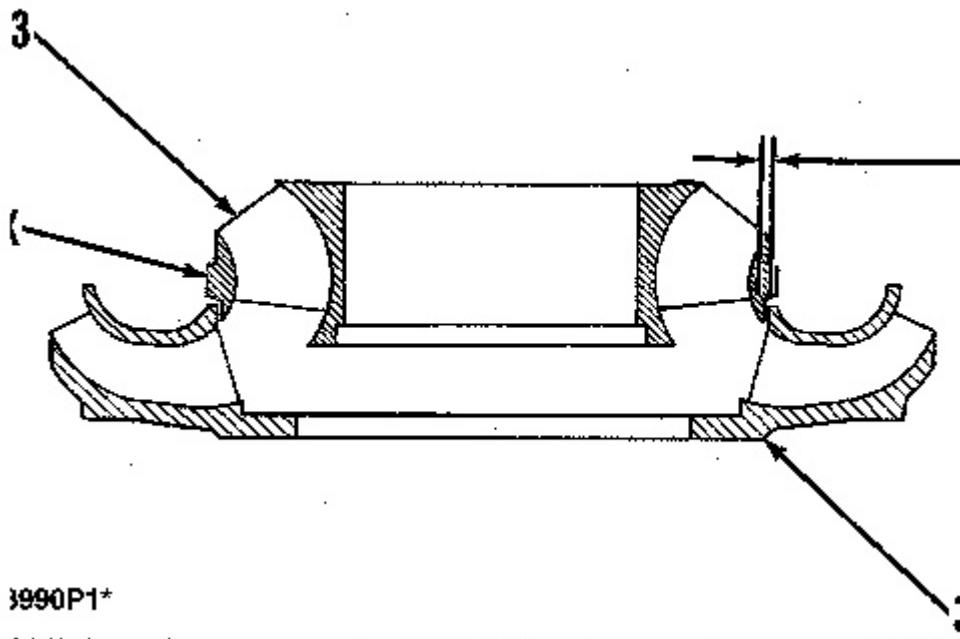
53. Use three 3/8 in - 16 NC forcing screws and remove carrier (65) from flange assembly (48).

54. If necessary remove two bearings (62) from flange assembly (48).

## Assemble Torque Divider (74Z & 4HK)

Tools Needed		A	B	C	D	E
5P5197	External Pliers	1				
5P9736	Link Bracket		2			
FT553	Adapter			1		
0S1618	Bolt 5/16" - 18 NC x 1" (25.4 mm)			2		
8S2328	Dial Indicator Test Group				1	
1P520	Driver Group					

1. Clean and inspect all parts. Replace all parts that are damaged or worn.



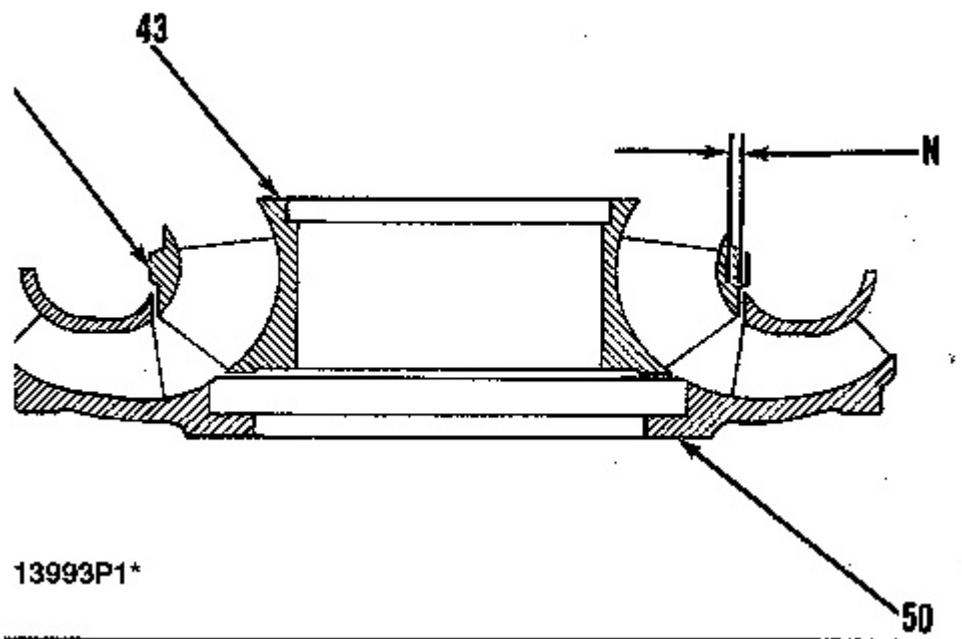
2. Check the clearance [dimension (m)] between impeller (36) and stator (43) as follows:

a. Put stator (43) in position on impeller (36).

b. Put Tooling (F) in position on the impeller with the point of the dial indicator against the surface (X) on stator (43).

c. Push stator (43) toward Tooling (F) until it makes contact with the impeller. Adjust the dial indicator until it is on zero. Slide stator **180 degrees** away from Tooling (F) until it makes contact with the other side of the impeller. Make a record of this dimension.

d. Make this check at several locations around the housing. Make a record of each of the dimensions measured. The largest dimension measured is used for the clearance between the two parts. The total clearance measured across the diameters must be **0.82 ± 0.50 mm (.032 ± .020 in)**.

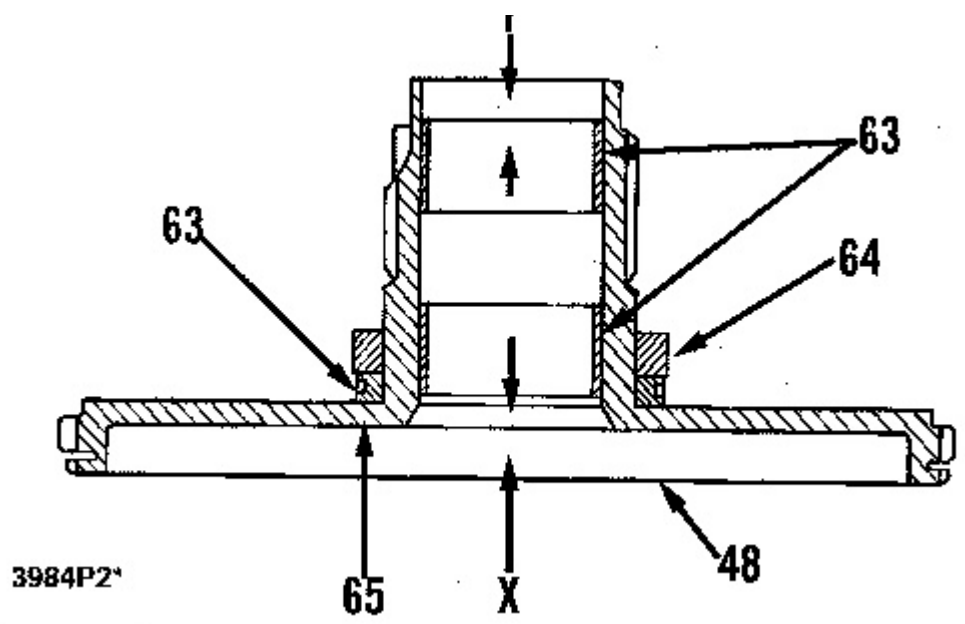


3. Check the clearance [dimension (N)] between stator (43) and turbine (50) as follows:

a. Put stator (43) in position on turbine (50).

b. Put Tooling (F) against surface (X). Move the stator toward Tooling (F) until it makes contact with the inside diameter of the turbine. Adjust the dial indicator until it is on zero. Slide stator (43) **180 degrees** away from Tooling (F) until it makes contact with the other side of the turbine. Make a record of dimension measured.

c. Make this check at several locations around the housing. Make a record of each of the dimensions measured. The largest dimension measured is used for the clearance between the two parts. The total clearance measured across the diameters must be **0.82 ± 0.26 mm (0.032 ± .010 in)**.



4. Install bearings (62) in flange assembly (48) with Tooling (G). Install the bearings until dimension (Y) is **19.0 mm (.748 in)** and dimension (Z) is **28.0 mm (1.102 in)**. The inside diameter of the bearings must be **72.878 ± 0.065 mm (2.8692 ± .0026 in)** after installation.

5. Heat carrier (65) to a maximum temperature of **121°C (275°F)** and install the carrier on flange assembly (48).

6. Install bearing race (64) on the flange assembly.

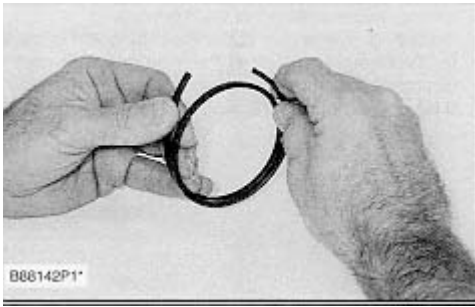


Figure 1. Correct Method To Make (Non-Metal) New Seal Rings Ready For Installation.

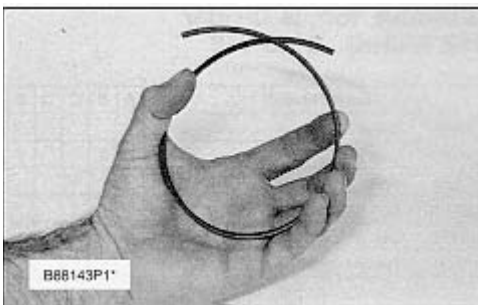


Figure 2. Wrong Method To Make (Non-Metal) New Seal Rings Ready For Installation.

---

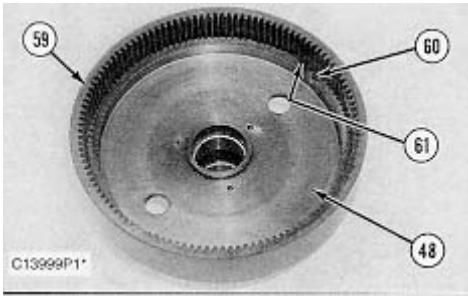
## NOTICE

**New seal rings must be preloaded before they are installed to prevent them from being damaged or broken. There is a correct method to preload new seal rings prior to installation. Place your hands on each end of the seal ring, and pull (wind) the ends several inches past each other or until they almost make contact. See Figure 1. Use care to keep the ring shaped like a circle. This will make an even bend (or ring "set") all around the ring. When the seal ring is in the groove of the carrier, the ends must butt together lightly. Do not bend the seal ring as shown in Figure 2. This does not make an even bend all the way around the ring.**

**Do not attempt to use this method to preload a used seal ring. Also, do not use this procedure for cast iron seal rings. This will cause used or cast iron seal rings to break.**

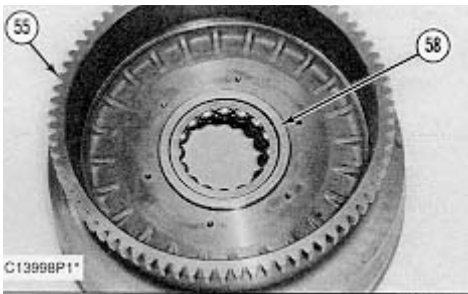
---

7. Install ring (63) on carrier (65).

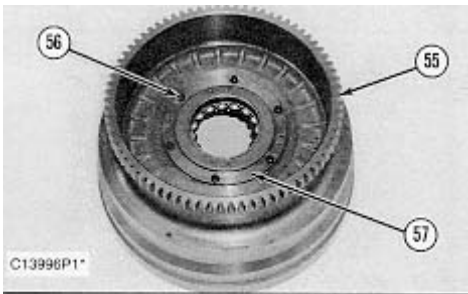


**8.** Install ring (61) in flange assembly (48). Compress the ring and put gear (59) in position on flange assembly (48).

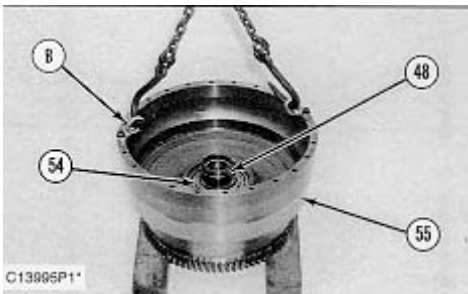
**9.** Make sure ring (61) is in position in flange assembly (48) and gear (59) and install two pins (60).



**10.** Install bearing (58) in housing (55).

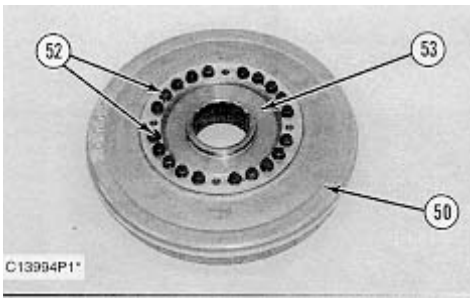


**11.** Put retainer (57) in position on housing (55) and install bolts (56). Tighten bolts (56) to a torque of  $50 \pm 7 \text{ N}\cdot\text{m}$  ( $37 \pm 5 \text{ lb ft}$ ).

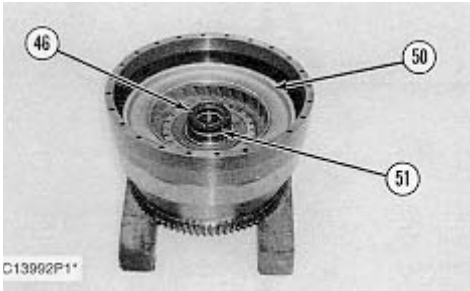


**12.** Fasten a hoist and Tooling (B) to housing (55). Put the housing in position on flange assembly (48).

**13.** Install bearing race (54).



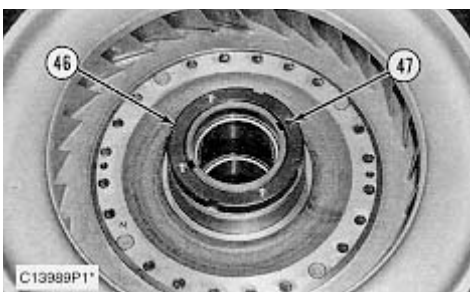
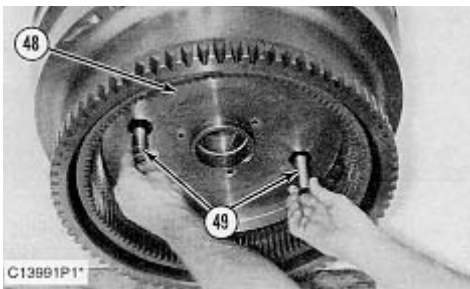
**14.** Put turbine (50) in position on hub assembly (53) and install bolts (52). Tighten the bolts to a torque of  $120 \pm 15 \text{ N}\cdot\text{m}$  ( $90 \pm 11 \text{ lb ft}$ ).



**15.** Put turbine (50) and the hub assembly in position on the flange assembly.

**16.** Put clean oil on the surfaces of washer (51), the washer face and threads of nut (46) and the threads of the flange assembly.

**17.** Install washer (51) and nut (46) on the flange assembly.



**18.** Install two deep sockets (49) on the bolts through the holes in flange assembly (48) to keep the flange assembly from turning.

**19.** Tighten nut (46) to a torque of  $985 \pm 35 \text{ N}\cdot\text{m}$  ( $730 \pm 25 \text{ lb ft}$ ).

**20.** If necessary tighten nut (46) to align a hole in the nut with a hole in the washer.

**21.** Install setscrew (47). Stake nut (46) to hold setscrew (47) in place.



**Suggest:**

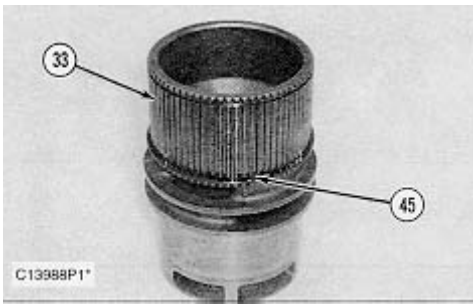
**If the above button click is invalid.**

**Please download this document**

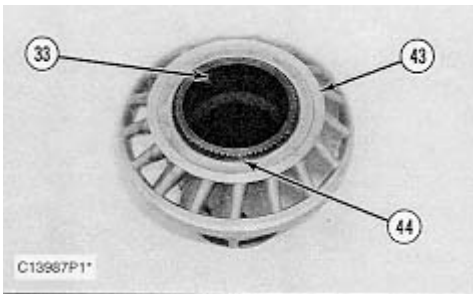
**first, and then click the above link**

**to download the complete manual.**

**Thank you so much for reading**

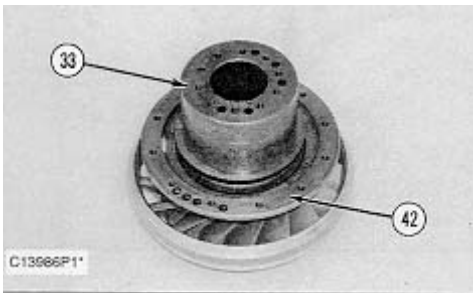


22. Install spiral lockring (45) on carrier (33).

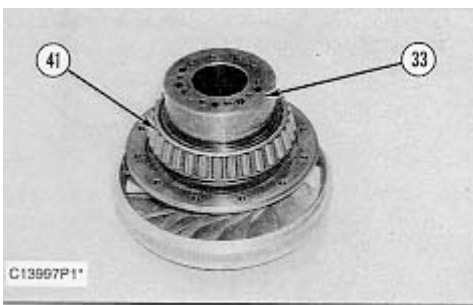


23. Heat stator (43) to a maximum temperature of **121°C (250°F)** and install the stator on carrier (33) as shown.

24. Install spiral lockring (44).



25. Put hub (42) in position on carrier (33).



26. Heat bearing cone (41) to a maximum temperature of **135°C (275°F)**. Install bearing cone (41) on carrier (33).

**<https://www.ebooklibonline.com>**

Hello dear friend!

Thank you very much for reading.

Enter the link into your browser.

The full manual is available for immediate download.

**<https://www.ebooklibonline.com>**