



# Service Repair Manual

## **Models**

135H NA Motor Grader

---

[Previous Screen](#)

Product: MOTOR GRADER

Model: 135H NA MOTOR GRADER 3YK

Configuration: 135H Motor Grader 3YK00001-UP (MACHINE) POWERED BY 3116 Engine

## Disassembly and Assembly 120H & 135H MOTOR GRADERS POWER TRAIN

Media Number -SEN8543-02

Publication Date -01/09/2004

Date Updated -25/08/2009

SENR85430004

### Brake & Wheel Spindle Housings

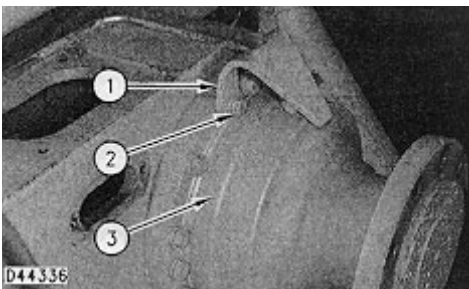
SMCS - 4002-011; 4002-012; 4002-015; 4002-016

### Remove Brake & Wheel Spindle Housings

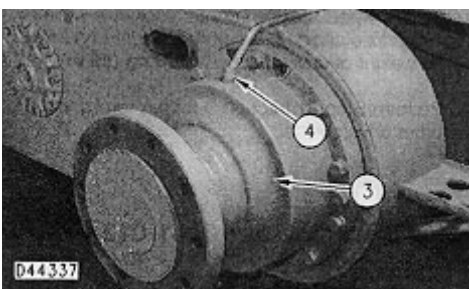
Tools Needed		A
5P-9736	Lifting Link	1

Start By:

a. remove drive chains



1. Remove two bolts (2), the washers and guard (1) from brake and wheel spindle housing (3).

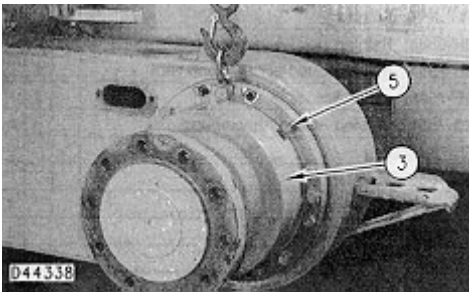




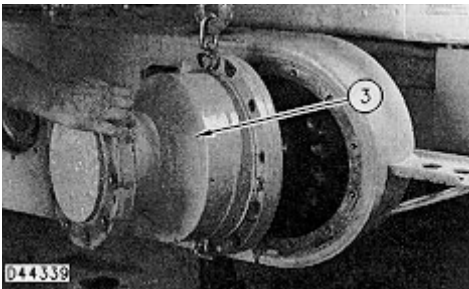
## WARNING

**Do not disconnect any air line to the machine until the air pressure in the air tank is to zero. Release the air pressure in the air tank by opening the bleed valves. The bleed valves are on the air tank underneath the rear bumper. Close the bleed valves.**

2. Disconnect air line (4) from brake and wheel spindle housing (3). Disconnect the other end of the air line from the block on the tandem housing.



3. Attach Tool (A), a lifting chain and a hoist to brake and wheel spindle housing (3).
4. Remove bolts (5) and the washers from brake and wheel spindle housing (3).



5. Remove brake and wheel spindle housing (3) from the tandem housing. The weight of brake and wheel spindle housing (3) is **159 kg (350 lb)**.
6. Repeat Steps 1 through 5 in order to remove the remaining brake and wheel spindle housing.

## Install Brake & Wheel Spindle Housings

Tools Needed		A
5P-9736	Lifting Link	1

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

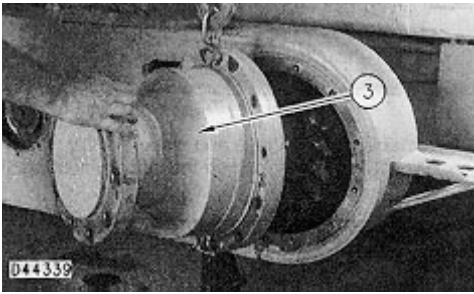
Hello dear friend!

Thank you very much for reading.

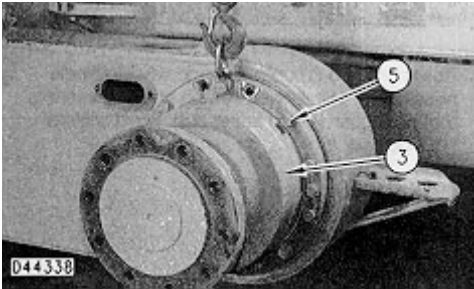
Enter the link into your browser.

The full manual is available for immediate download.

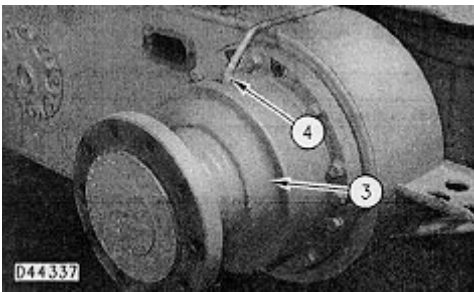
**<https://www.ebooklibonline.com>**



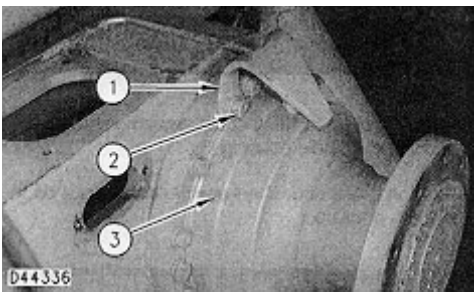
1. Attach Tool (A), a lifting chain and hoist to brake and wheel spindle housing (3).
2. Position brake and wheel spindle housing (3) on the tandem housing.



3. Install bolts (5) and the washers that hold brake and wheel spindle housing (3) to the tandem housing.
4. Remove the hoist, chain and Tooling (A) from the tandem housing.



5. Install air line (4) on brake and wheel spindle housing (3) and the block on the tandem housing.



6. Position guard (1) on brake and wheel spindle housing (3). Install two bolts (2) and the washers that hold guard (1) to brake and wheel spindle housing (3).

End By:

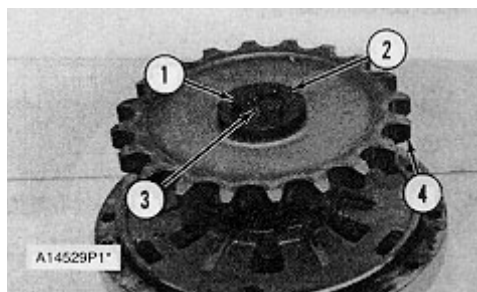
- a. install drive chains

# Disassemble Brake & Wheel Spindle Housings

Tools Needed		A	B	C
7M-3976	Adapter	1		
8H-0684	Ratchet Box Wrench		1	
8B-7554	Bearing Cup Pulling Attachment		1	
8B-7548	Puller Assembly		1	
8B-7551	Bearing Pulling Attachment			1
5F-7369	Leg			2
8B-7555	Adapter			2
1P-0820	Puller Group			1
8B-7560	Step Plate			1
9U-6600	Pump Group			1

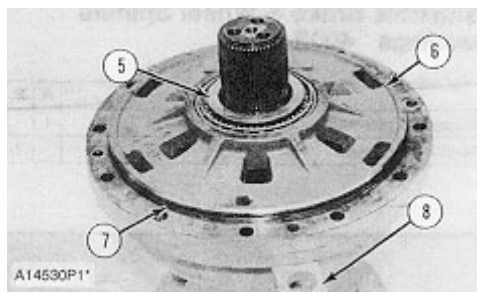
Start By:

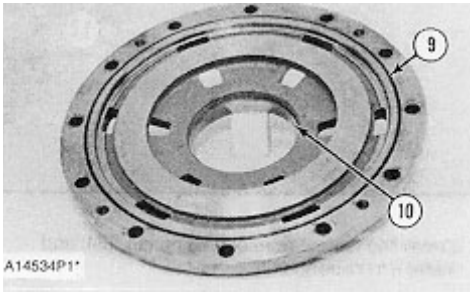
- a. remove brake and wheel spindle housings.



1. Remove wire (3) from bolts (1). Remove bolts (1). Remove the retainer (2) and shims that are under retainer (2).

2. Remove sprocket (4). The weight of sprocket is **16 kg (36 lb)**.



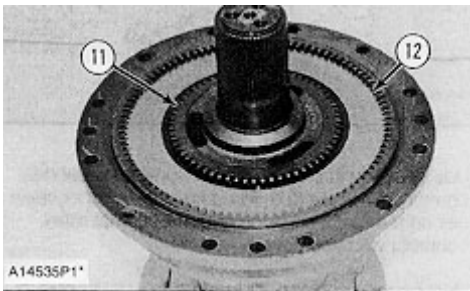


3. Remove bearing cone (5) from the spindle and cover (6). Remove O-ring seal (7) from cover (6).

4. Remove the bolts and plate (8) that hold cover (6) to the housing.

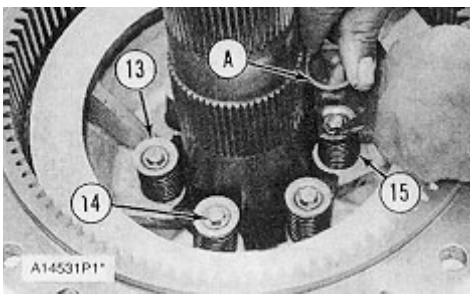
5. Install two 5/8 in - 11 NC Forged Eyebolts in cover (6). Fasten a hoist to the eyebolts and remove cover (6). The weight of cover (6) is **23 kg (50 lb)**. Remove bearing cup (10) from cover (6).

6. Remove O-ring seal (9) from cover (6).



7. Remove hub (11) from the wheel spindle.

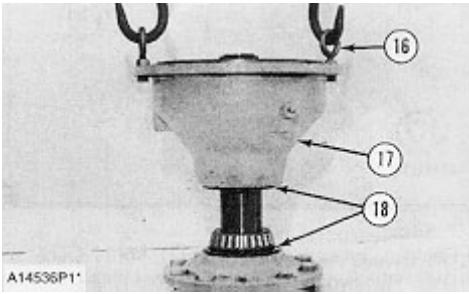
8. Remove ten discs (12) and nine disc assemblies from the housings.



9. Use Tool (A) in order to put springs (15) in compression.

10. Remove rings (14) from the studs with pliers. Carefully release the compression from springs (15).

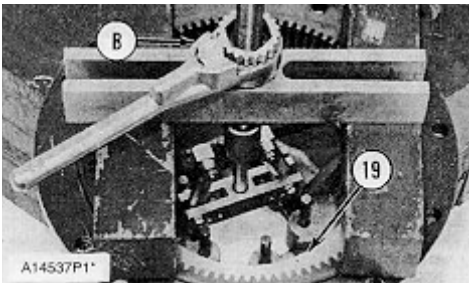
11. Remove Tool (A). Remove washers (13) and springs (15) from the studs.



**12.** Install two 5/8 in - 11 NC Forged Eyebolts (16) in housing (17). Fasten a hoist to the eyebolts.

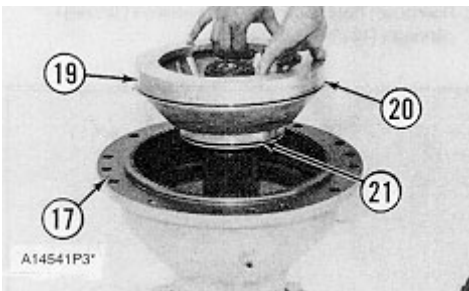
**13.** Remove housing (17) from the wheel spindle. The weight of housing (17) is **45 kg (100 lb)**.

**14.** Remove Duo-Cone seals (18) from the wheel spindle and housing (17).

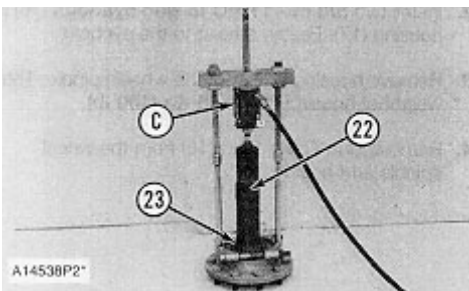


**15.** Install Tooling (B) and blocks on housing (17) as shown.

**16.** Use Tooling (B) in order to remove piston (19) from housing (17).



**17.** Remove O-ring seals (20) and (21) from piston (19). Remove the bearing cup from housing (17).

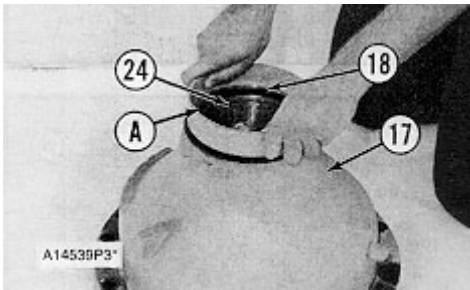


**18.** Use Tooling (C) in order to remove bearing cone (23) from wheel spindle (22).

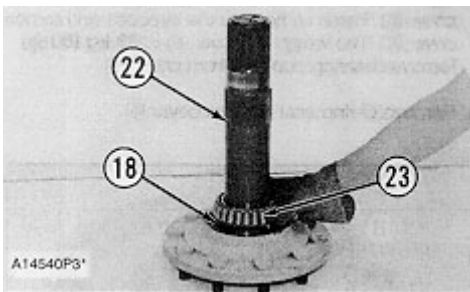
**19.** Perform Steps 1 through 18 for the other brake and wheel spindle housings.

# Assemble Brake & Wheel Spindle Housings

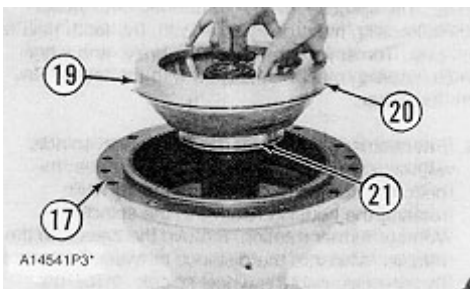
Tools Needed		A	B
1U-8699	Seal Installer	1	
7M-3976	Adapter		1



1. Lower the temperature of bearing cup (24) and install it in housing (17).
2. Make sure the Duo-Cone seals for wheel spindle housing (17) and the wheel spindle are clean and dry. Make sure all metal surfaces that the seals make contact with are clean and dry. Use Tool (A) in order to install Duo-Cone seal (18) in wheel spindle housing (17).

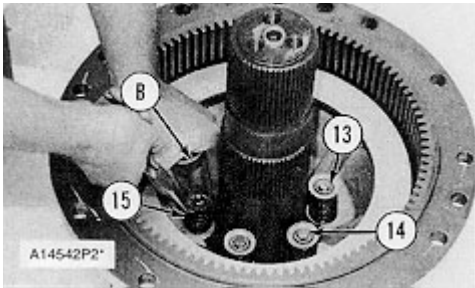


3. Use Tool (A) in order to install Duo-Cone seal (18) on wheel spindle (22). Put a small amount of clean oil on the metal surfaces of the seals that make contact with each other.
4. Heat bearing cone (23), to a maximum temperature of **135° C (275° F)**. Install bearing cone (23) on the shaft of wheel spindle (22).



5. Install small O-ring seal (21) on, piston (19). Install large O-ring seal (20) on piston (19). Install piston (19) in housing (17).
6. Install two **5/8 in - 11 NC Forged Eyebolts** in housing (17). Fasten a hoist to the eyebolts.

7. Put housing (17) in position on wheel spindle (22). Be careful not to damage the Duo-Cone seals. Remove the hoist and the eyebolts.



8. Put springs (15) in position on the studs.

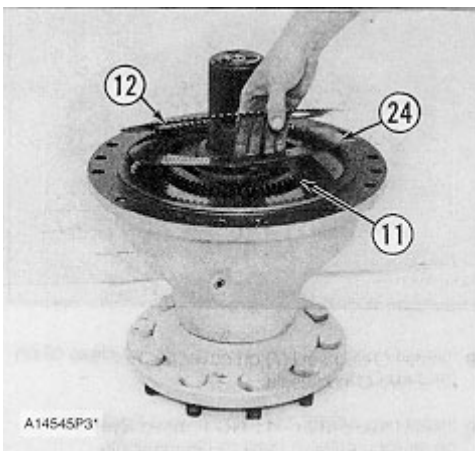
9. Put washers (13) in position on the springs.

10. Put springs (15) in compression with Tooling (B).

11. Install rings (14) on the studs with pliers.

12. Slowly release the pressure on the springs.

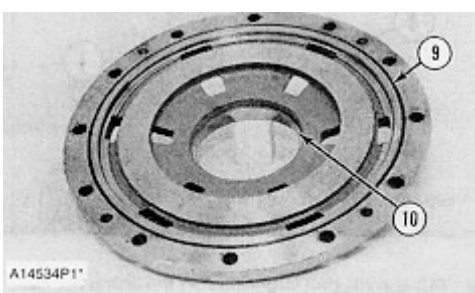
13. Remove Tooling (B).



14. Install hub (11) on the wheel spindle.

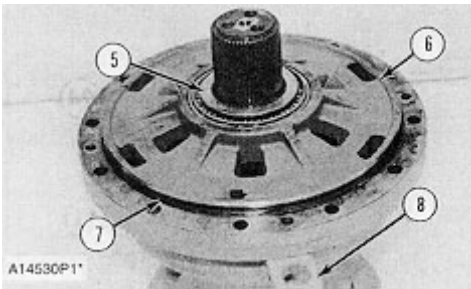
15. Put clean **SAE 30 Weight Oil** on the discs and on the disc assembly.

16. Put discs (12) and disc assemblies (24) in position in wheel spindle housing (17), starting with a disc. There are ten discs and nine disc assemblies. Make sure there is a disc assembly between each disc.



17. Install O-ring seal (9) in cover (6).

18. Lower the temperature of bearing cup (10) and install it in cover (6).



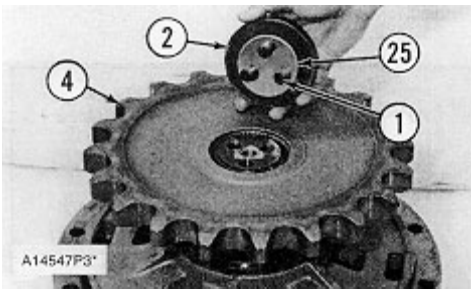
19. Install O-ring seal (7) on cover (6). Put clean oil on the two O-ring seals.

20. Install two 5/8 in - 11 NC Forged Eyebolts in cover (6). Fasten a hoist to the eyebolts.

21. Put cover (6) in position on wheel spindle housing (17). Remove the hoist and the eyebolts.

22. Install the bolts and plate (8) that hold cover (6) to the housing.

23. Install bearing cone (5) on the wheel spindle and in cover (6).



24. Put sprocket (4) in position on the splines of the wheel spindle.

**NOTE:** The sprocket for the front brake and wheel spindle housing must be installed with the teeth next to the cover. The sprocket for the rear brake and wheel spindle housing must be installed with the teeth away from the cover.

25. Put retainer (2) in position on the wheel spindle without shims (25). Install bolts (1). Tighten the bolts to a torque of **47 N·m (35 lb ft)** while rotating the housing relative to the spindle. Without further rotation, remove the bolts and the retainer. Measure the distance between the end of the sprocket and the wheel spindle. Install the retainer and shims (25) that are the same thickness as the distance measured minus **0.25 to 0.38 mm (.010 to .015 in)**. If additional shims are required, use **9D-7047** shims. Install bolts (1) that hold retainer (2) on the wheel spindle. Tighten the bolts to a torque of **130 ± 7 N·m (95 ± 5 lb ft)**. Install the wire on bolts (1).

End By:

a. install brake and wheel spindle housings

[Previous Screen](#)

Product: MOTOR GRADER

Model: 135H NA MOTOR GRADER 3YK

Configuration: 135H Motor Grader 3YK00001-UP (MACHINE) POWERED BY 3116 Engine

## Disassembly and Assembly 120H & 135H MOTOR GRADERS POWER TRAIN

Media Number -SEN8543-02

Publication Date -01/09/2004

Date Updated -25/08/2009

SEN85430005

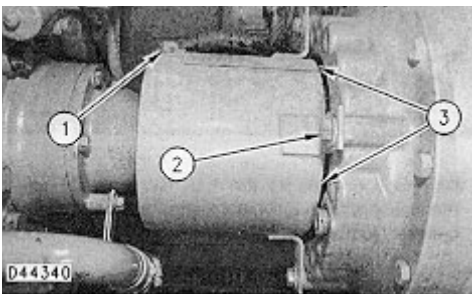
### Differential Drive Shaft

SMCS - 3251-010

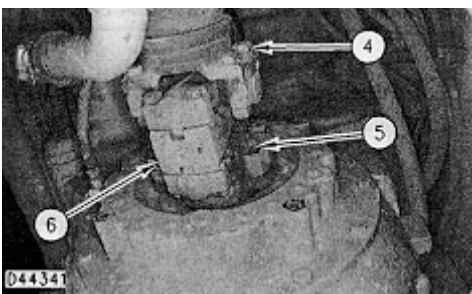
## Remove & Install Differential Drive Shaft

Start By:

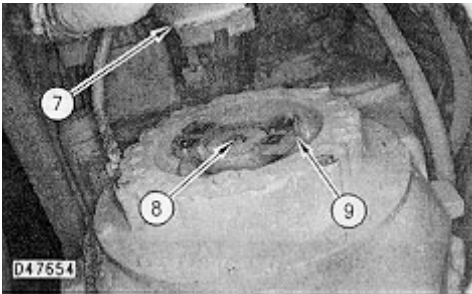
- a. Lower blade to rest on an object.
- b. Engage the park brake.
- c. Disengage the differential lock.
- d. Chock the front or rear tire.



1. Remove bolts (1), the washers, bolts (2) and the washers from two guards (3). Remove two guards (3) from the front of the transmission.



2. Remove four bolts (4), the nuts, four bolts (5) and the washers from universal joint group (6). Remove universal joint group (6) from between the differential and the transmission.



3. Remove yoke (7) from the differential.

4. Remove bolt (8) that holds yoke (9) to the transmission. Remove yoke (9) and its O-ring seal from the transmission.

**NOTE:** The following steps are for the installation of the differential drive shaft.

5. Position yoke (9) and its O-ring seal in the transmission. Install bolt (8) that holds yoke (9) to the transmission. Tighten bolt (8) to a torque of **120 ± 20 N·m (90 ± 15 lb ft)**.

6. Position universal joint group (6) to yokes (7) and (9).

7. Install bolts (4), the nuts, four bolts (5) and the washers in universal joint group (6). Tighten bolts (4) and (5) to a torque of **160 ± 25 N·m (120 ± 18 lb ft)**.

8. Position two guards (3) to the front of the transmission. Install bolts and washers (1) that hold two guards (3) together. Install bolts and washers (2) that hold guards to the front of the transmission.

Previous Screen

Product: MOTOR GRADER

Model: 135H NA MOTOR GRADER 3YK

Configuration: 135H Motor Grader 3YK00001-UP (MACHINE) POWERED BY 3116 Engine

**Disassembly and Assembly**  
**120H & 135H MOTOR GRADERS POWER TRAIN**

Media Number -SEN8543-02

Publication Date -01/09/2004

Date Updated -25/08/2009

SEN85430006

**Parking Brake**

SMCS - 4267-011; 4267-012

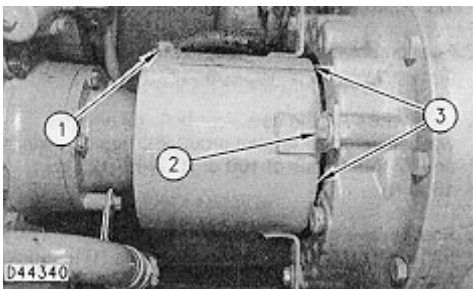
**Remove Parking Brake**

Tools Needed		A
1U-9752	Transmission Jack	1

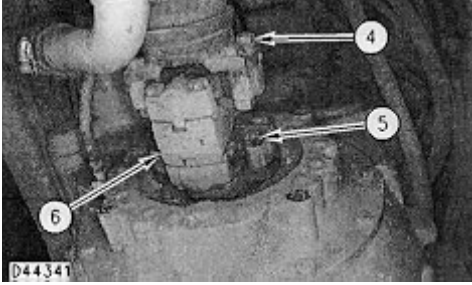
 **WARNING**

**Be cautious of hot oil when draining the oil from the transmission and when disconnection and transmission oil lines Hot oil can cause burns. Stay clear of any oil that may spill during disconnected of transmission oil lines or draining of oil.**

**1. Drain the transmission oil in a suitable container for storage or disposal. The capacity of the power train system on the 120H and 135H Motor Graders is 47 Liters (50 qt).**



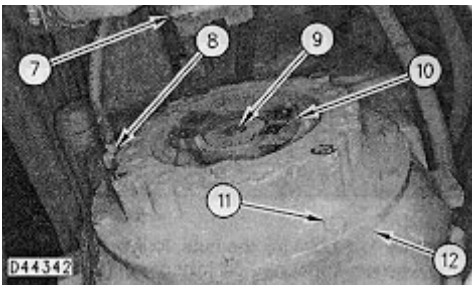
2. Remove bolts (1), the washers, bolts (2) and the washers from two guards (3). Remove two guard (3) from the front of the transmission.



3. Remove four bolts (4), the nuts, four bolts (5) and the washers from universal joint group (6). Remove universal joint group (6) from the shaft.



**Do not disconnect any air line from the machine until all the air pressure in the air tank is to zero. Release air pressure from the air tank by loosening the bleed valves. The bleed valves are underneath the rear bumper on the sides of the air tank.**



4. Release the air pressure from the air tank.

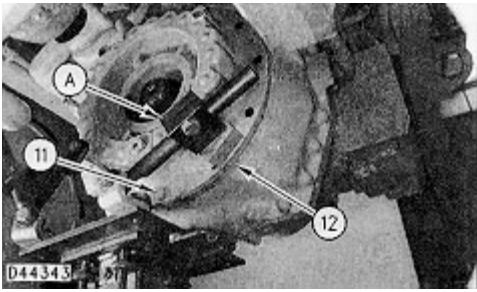
5. Disconnect air line (8) from the parking brake housing.

6. Remove bolt (9) and the washer that hold yoke (10) to the transmission shaft.

7. Remove yoke (10) and its O-ring seal from the transmission shaft.

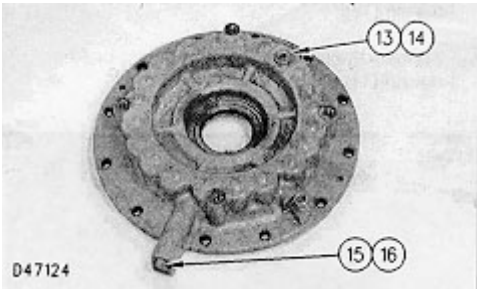
8. Remove yoke (7) from the differential.

9. Remove all but two of bolts (11) from parking brake housing (12). Leave one bolt at the top and bolt at the bottom of parking brake housing (12).



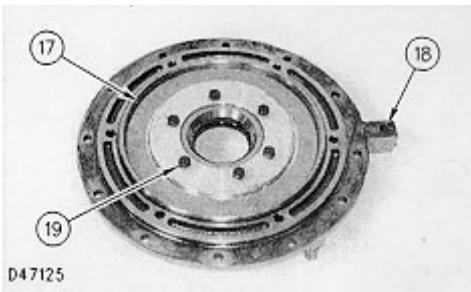
**10.** Attach Tooling (A) to parking brake housing (12).

**11.** Remove remaining bolts (11) from parking brake housing (12). Remove parking brake housing (12) from the transmission.



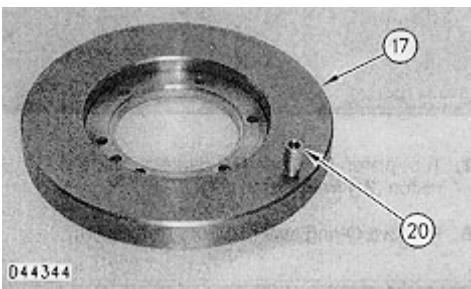
**12.** Remove plug (13) and O-ring seal (14) from parking brake housing (12).

**13.** Remove plug (15) and O-ring seal (16) from parking brake housing (12).

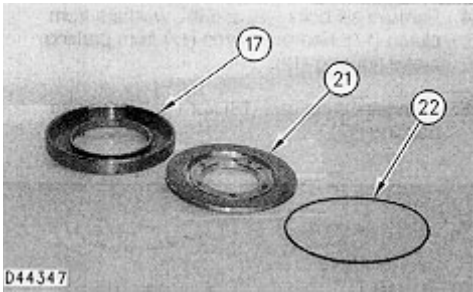
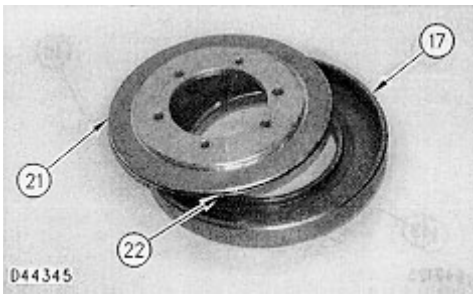


**14.** Remove six bolts (19) and the washers from piston (17). Remove piston (17) from parking brake housing (12).

**15.** Remove O-ring seal (18) from parking brake housing (12).

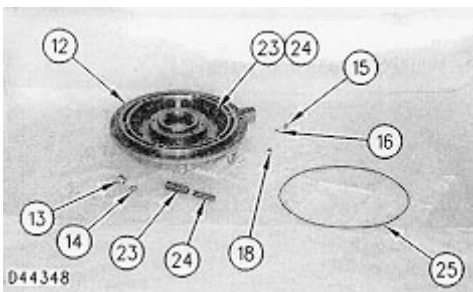


**16.** Remove plug (20) from piston (17).

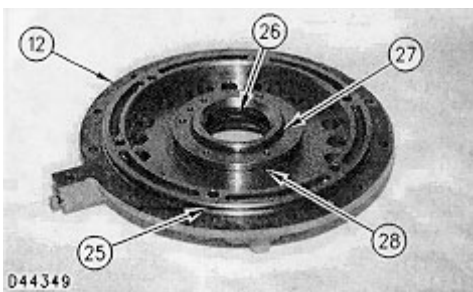


**17.** Turn piston (17) over 180 degrees. Separate piston (21) from piston (17).

**18.** Remove O-ring seal (22) from piston (21).



**19.** Remove twenty springs (23) and twenty springs (24) from parking brake housing (12).

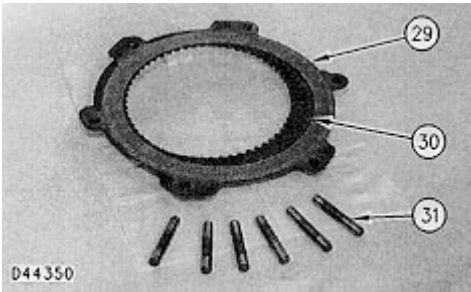
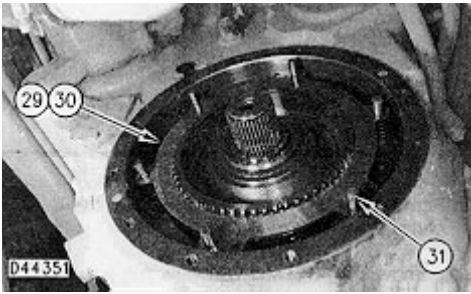


**20.** Remove O-ring seal (25) from parking brake housing (12).

**21.** Remove lip seal (26) from parking brake housing (12).

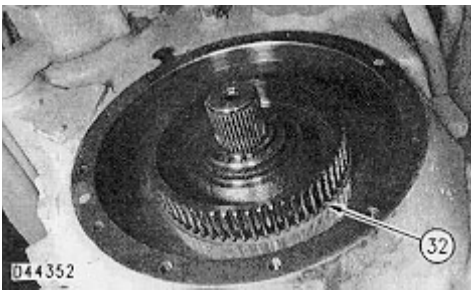
**22.** Remove O-ring seal (27) from parking brake housing (12).

**23.** Remove O-ring seal (28) from parking brake housing (12).



24. Remove six clutch plates (29) and five friction discs (30) from the transmission.

25. Remove six reaction dowels (31) from the transmission.

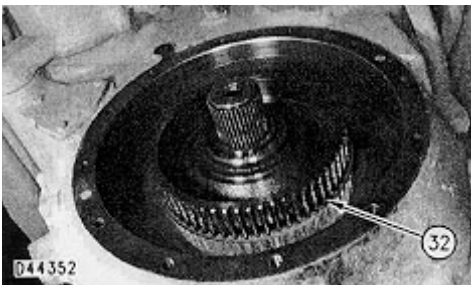


26. Remove clutch hub (32) from the transmission.

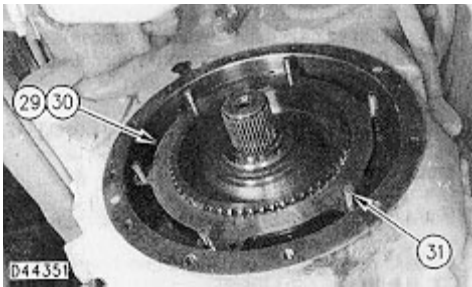
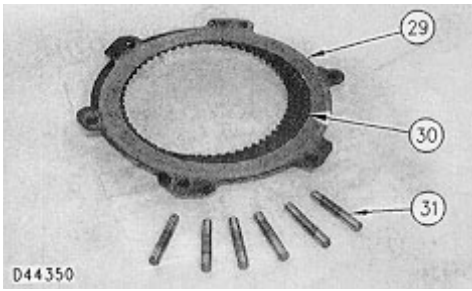
## Install Parking Brake

<b>Tools Needed</b>		<b>A</b>
1U-9752	Transmission Jack	1

**NOTE:** During the installation of the parking brake, check the condition of all of the O-ring seals used in the assembly. If any of these seals are damaged, use new parts for replacement.

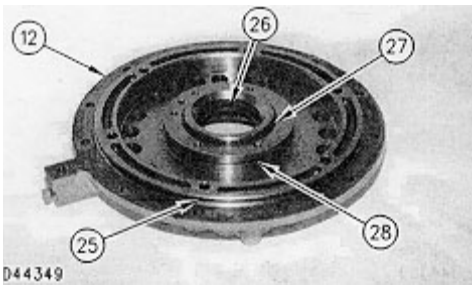


1. Install clutch hub (32) to the transmission.



2. Install six reaction dowels (31) in the transmission.

3. Starting with a clutch plate, install six clutch plates (29) and five friction disc (30) in the transmission.

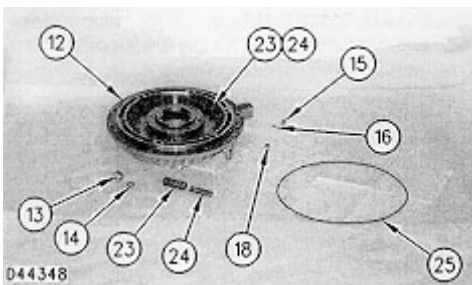


4. Install lip seal (26) to the parking brake housing (12). The sealing lip must face toward the transmission side of the parking brake housing. Lubricate the lip of the lip seal with clean transmission oil.

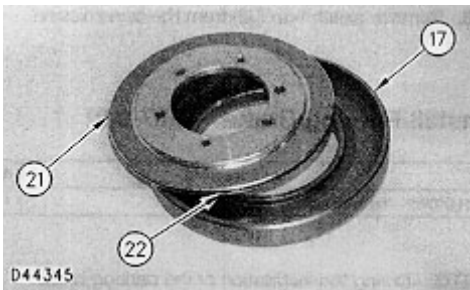
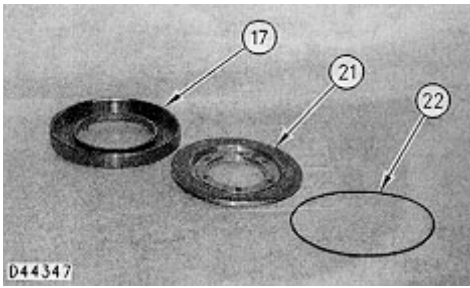
5. Install O-ring seal (27) in parking brake housing (12). Lightly lubricate O-ring seal (27) with clean transmission oil.

6. Install O-ring seal (28) in parking brake housing (12).

7. Install O-ring seal (25) to parking brake housing (12). Lightly lubricate O-ring seal (25) with clean transmission oil.

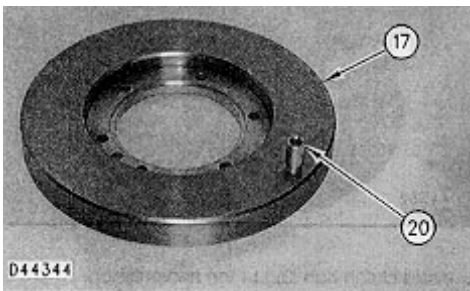


8. Install twenty springs (23) and twenty springs (24) in parking brake housing (12).

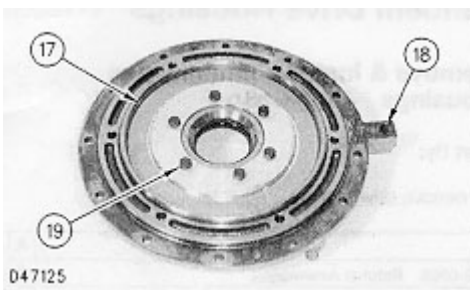


9. Install O-ring seal (22) to piston (21). Lightly lubricate O-ring seal (22) with clean transmission oil.

10. Install piston (21) in piston (17).



11. Install plug (20) in piston (17).



12. Install piston (17) in parking brake housing (12). Install six bolts (19) and the washers that hold piston (17) to parking brake housing (12).

13. Install O-ring seal (18) in parking brake housing (12).



**Suggest:**

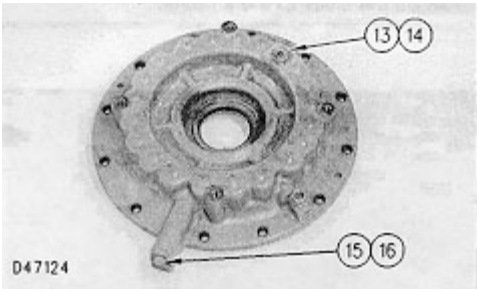
**If the above button click is invalid.**

**Please download this document**

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

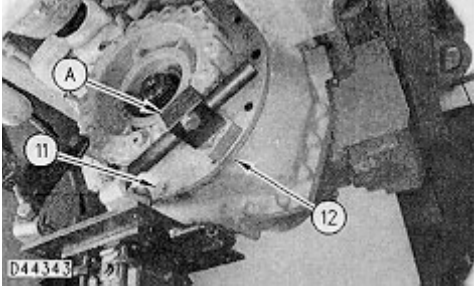
**to download the complete manual.**

**Thank you so much for reading**



14. Install O-ring seal (16) on plug (15). Install plug (15) in parking brake housing (12).

15. Install O-ring seal (14) on plug (13). Install plug (13) in parking brake housing (12).

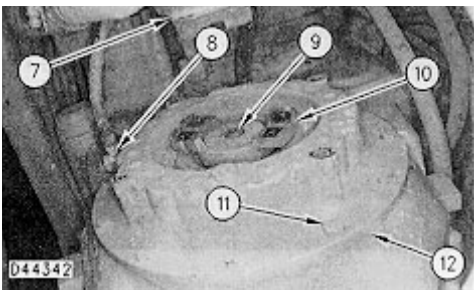


16. Install Tooling (A) to parking brake housing (12).

17. Position parking brake housing (12) to the transmission.

18. Install bolts (11) that hold parking brake housing (12) to the transmission.

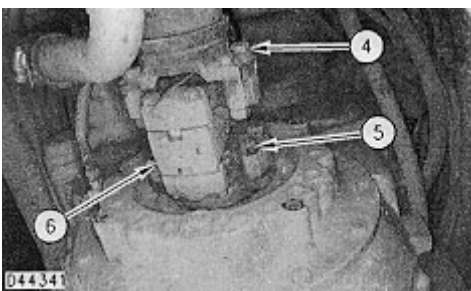
19. Remove Tooling (A) from parking brake housing (12).



20. Install yoke (10) with its O-ring seal to the transmission shaft.

21. Install bolt (9) and the washer that hold yoke (10) to the transmission shaft. Tighten bolt (9) to a torque of  $120 \pm 20 \text{ N}\cdot\text{m}$  ( $90 \pm 15 \text{ lb ft}$ ).

22. Install yoke (7) to the differential.



**<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>**