CATERPILLAR®

Service Repair Manual

Models

938F Wheel Loader

Product: WHEEL LOADER
Model: 938F WHEEL LOADER 2RM
Configuration: 938F Wheel Loader 2RM00001-UP (MACHINE) POWERED BY 3116 Engine

Disassembly and Assembly
938F WHEEL LOADER POWER TRAIN
Media Number -SENR6706-04 **Publication Date -01/08/2004** **Date Updated -26/10/2004**

SENR67060016

Axle Shaft Assemblies

SMCS - 3260-017

Disassemble & Assemble Axle Shaft Assemblies

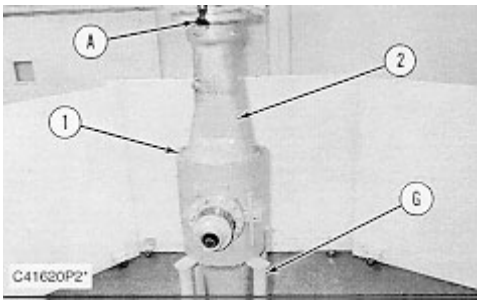
Tools Needed		A	B	C	D	E	F	G
6V2157	Link Bracket	2						
1P1863	Pliers		1					
6V2156	Link Bracket			3				
6V7820	Torque Multiplier				1			
1U9478	Spanner Wrench Assembly				1			
FT1183	Plate					1		
1U6439	Installer						1	
1P2420	Transmission Repair Stand							1

Start By:

a. remove front axle housing group (fixed)

b. remove rear axle housing group (oscillating)

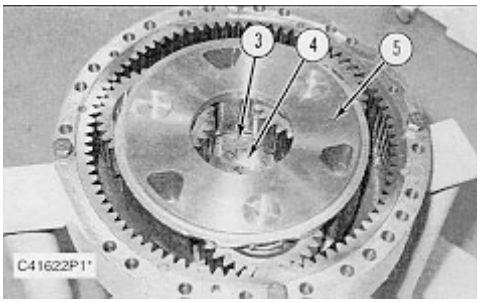
NOTE: The axle shaft assemblies used in the front and rear axle housing groups are similar. The removal, disassembly, assembly and installation procedures are the same for both axle groups.



Typical Example

1. Install the axle housing group on Tool (G) in a vertical position as shown.

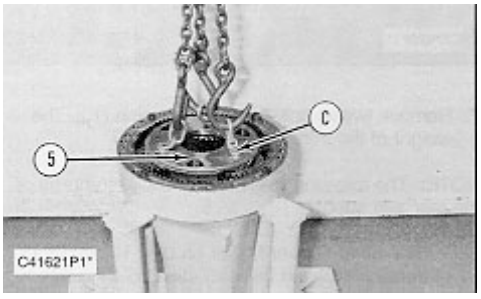
2. Fasten Tool (A) and a hoist to the rim flange of the axle shaft as shown. Remove twenty six bolts (1) and the washers that hold axle shaft assembly (2) to the differential housing. Carefully remove the axle shaft assembly. The weight of the axle shaft assembly is approximately 295 kg (650 lb).



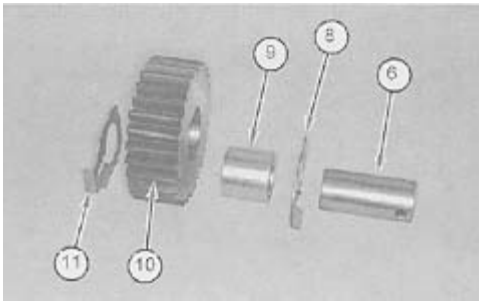
3. Remove the bottom half of the axle housing group from Tool (G). Install axle shaft assembly (2) on Tool (G) with planetary carrier assembly (5) facing up as shown.

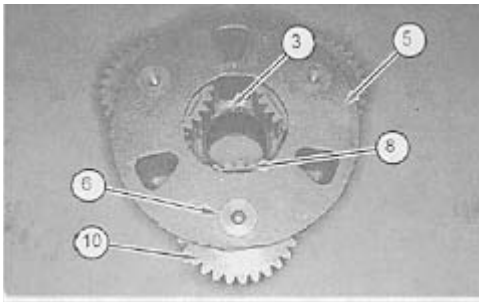
NOTE: To completely remove retaining ring (3) from the axle shaft assembly, planetary carrier assembly (5) must be removed and disassembled.

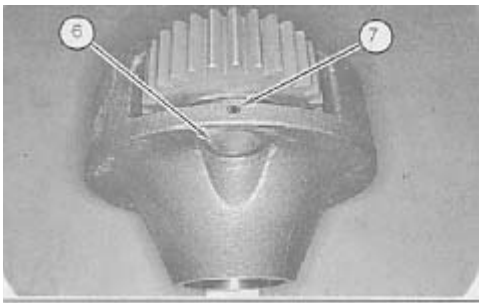
4. Use Tool (B) to remove retaining ring (3) from the groove in the end of axle shaft (4). Position the retaining ring in the planetary carrier.



5. Fasten Tool (C) and a hoist to planetary carrier assembly (5) as shown. Remove the planetary carrier assembly from the axle shaft housing. The weight of the planetary carrier assembly is approximately 80 kg (175 lb).







6. Disassemble planetary carrier (5) as follows:

a. Using a hammer and punch, push spring pin (7) all the way into shaft (6).

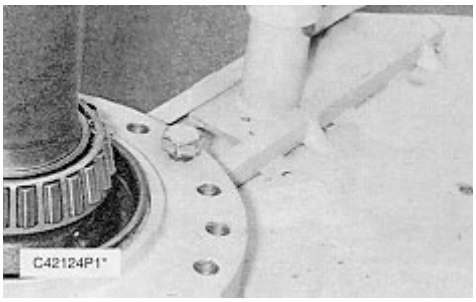
b. Remove shaft (6), thrust washers (11) and (8) and planetary gear (10) from the carrier.

c. Remove bearing (9) from planetary gear (10).

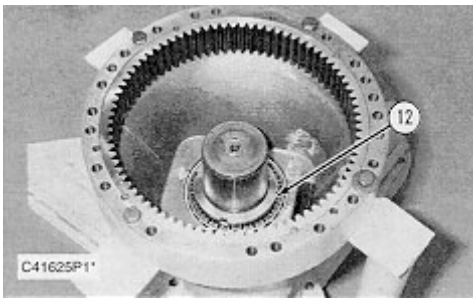
d. Remove spring pin (7) from shaft (6) with a hammer and punch.

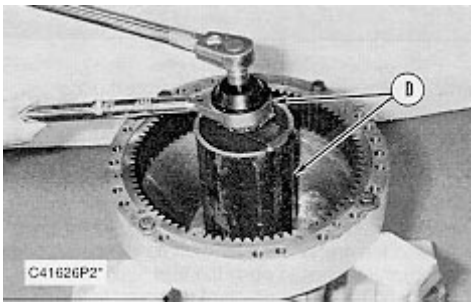
e. Remove the other two planetary gears (10) from the carrier as in Steps 6a through 6d.

f. Remove retaining ring (3) from the carrier.

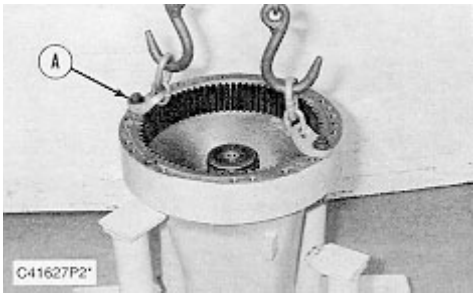


The axle shaft housing has been removed from the axle shaft for better photo illustration of mounting the axle shaft to Tool (G).

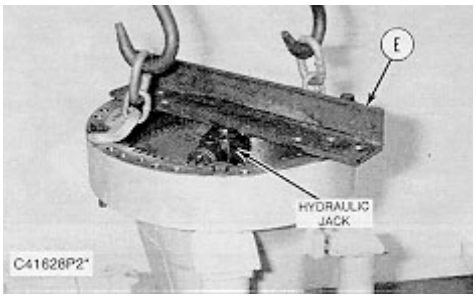




7. Fasten the rim flange of the axle shaft to Tool (G) with suitable size bolts as shown in Photo C42124P1. Installation of the bolt will prevent the axle shaft from turning when bearing nut (12) is removed. Use Tooling (D) to remove bearing nut (12) from the axle shaft.



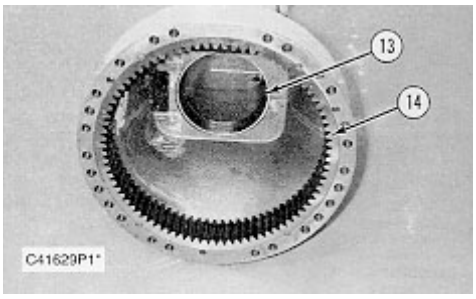
8. Fasten Tooling (A) and a hoist to the axle shaft housing as shown. Put slight lifting tension on the axle shaft housing.



NOTE: The bearing cone which is located under bearing nut (12) will be removed at the same time that the axle shaft is being removed from the shaft.

9. Fasten Tool (E) to the axle shaft housing as shown. Put a hand operated hydraulic jack between Tool (E) and the end of the axle shaft as shown. Operate the hydraulic jack to push the axle shaft housing and inner bearing cone off of the axle shaft. Remove the axle shaft housing and inner bearing cone from the axle shaft. The weight of the axle shaft housing is approximately 105 kg (231 lb).

10. Remove the inner bearing cone from the axle shaft housing.



Typical Example

11. Remove inner bearing cup (13) from the axle shaft housing.

NOTICE

Ring gear (14) will be destroyed when it is removed from the axle shaft housing.

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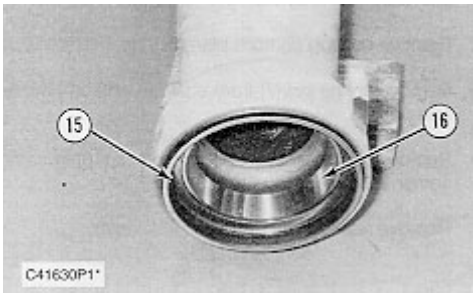
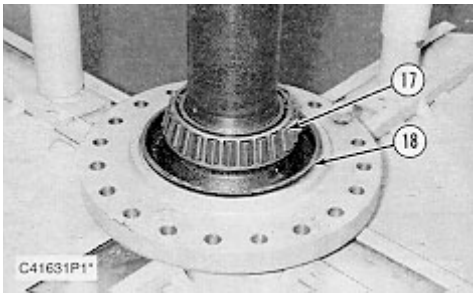
12. Remove ring gear (14) from the axle shaft housing. Using a torch, cut the ring gear in two places 180° apart. Cut the ring gear at the position of the locating dowels in the axle shaft housing. An alternate method is to make three welds equally spaced around the circumference of the ring gear to cause it to shrink. Remove the locating dowels for ring gear (14).

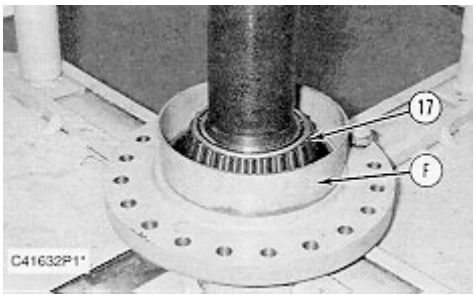


13. Remove Duo-Cone seal (15) and outer bearing cup (16) from the opposite end of the axle shaft housing.



14. Remove Duo-Cone seal (18) and outer bearing cone (17) from the axle shaft.

NOTE: The following steps are for the assembly of the axle shaft assemblies.



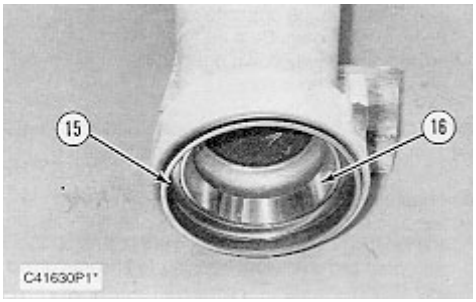
15. Fasten the rim flange of the axle shaft to Tool (G) with suitable size bolts as shown. Heat outer bearing cone (17) to a maximum temperature of 135°C (275°F), and install the bearing cone on the axle shaft as shown. Be sure the bearing cone is seated against the shoulder on the end of the axle shaft. Allow the bearing cone and shaft to cool.

NOTICE

See, "Assembly And Installation Of Conventional Duo-Cone Seals" in this module.

NOTE: The rubber seals and all surfaces that make contact with the seals must be clean and dry. After installation of the seals, put clean SAE 30 oil on the contact surfaces of the metal seals.

16. Use Tool (F) to install the Duo-Cone seal in the end of the axle shaft.



17. Lower the temperature of outer bearing cup (16), and install it in the end of the axle shaft housing as shown. Be sure the bearing cup is seated all the way down in the axle shaft housing.

NOTICE

See, "Assembly And Installation Of Conventional Duo-Cone Seals" in this module.

NOTE: The rubber seals and all surfaces that make contact with the seals must be clean and dry. After installation of the seals, put clean SAE 30 oil on the contact surfaces of the metal seals.

18. Use Tool (F) to install the Duo-Cone seal in the end of the axle shaft.

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