CATERPILLAR®

Service Repair Manual

Models

M318 Excavator

Product: EXCAVATOR
Model: M318 EXCAVATOR 6ES
Configuration: M318 Excavator 6ES00001-UP (MACHINE) POWERED BY 3116 Engine

Disassembly and Assembly
M318 and M320 Excavators Power Train
Media Number -SENR6258-06 **Publication Date -01/08/2008** **Date Updated -14/08/2008**

i02765718

Differential - Assemble - Rear

SMCS - 3258-016

Assembly Procedure

Table 1

Required Tools			
Tool	**Part Number**	**Part Description**	**Qty**
A	1U-9352	Engine Stand	1
B	4C-6808	Plate	2
	1U-5847	Measuring Shaft As	1
C	4C-3085	Two Jaw Puller	1
D	1P-0520	Driver Group	1
E	1U-5834	Sleeve	
F	9U-6046	Seal Installer	1
G	9U-6047	Driver	1
	8T-0975	Driver Handle	1
H	6V-7030	Micrometer Depth Gauge Group	1
J	8S-2328	Dial Indicator	1
K	4C-4079	Brake and Electrical Cleaner	1
L	5P-0960	Grease Cartridge	1
M	6V-6640	Sealant	1
N	5P-0960	Grease Cartridge	1

P	9S-3263	Thread Lock Compound	1

NOTICE

Failure to properly assemble parts or failure to follow established procedures can lead to damage of the parts and assembly.

To avoid damage to parts, always identify and mark the parts so that they can be installed in the same location. Ensure that gear surfaces align. Never force parts during assembly.

Note: If the ring gear or the pinion shaft is damaged, both of the parts must be replaced as a set. The numbers on the ring gear and the numbers on the pinion shaft must mate. Do not use new bearings with used bearings in the differential. Mixing new bearings and used bearings will result in misalignment in the differential and the inability to accurately measure the rolling torque during the assembly.

Note: Correct measurements and torques are extremely important when the differential is assembled. Incorrect measurements could cause incorrect tooth contact patterns in the differential. Incorrect measurements could cause a premature failure. Make sure that all surfaces are clean and free of oil or dirt prior to taking any measurement. Make sure that all surfaces are clean and free of oil or dirt prior to assembly.

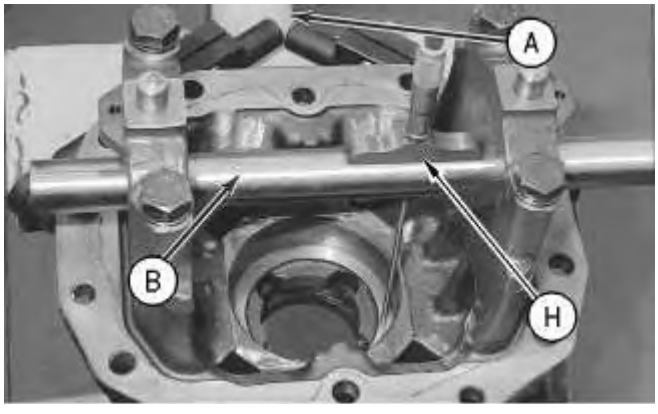

Illustration 1 g00675868

1. Securely attach the differential carrier housing to Tooling (A) .
2. Install Tooling (B) in the differential housing, as shown. Use the bearing caps to hold Tooling (B) in position.
3. Use the following procedure to determine the correct shim thickness for the inner pinion bearing.

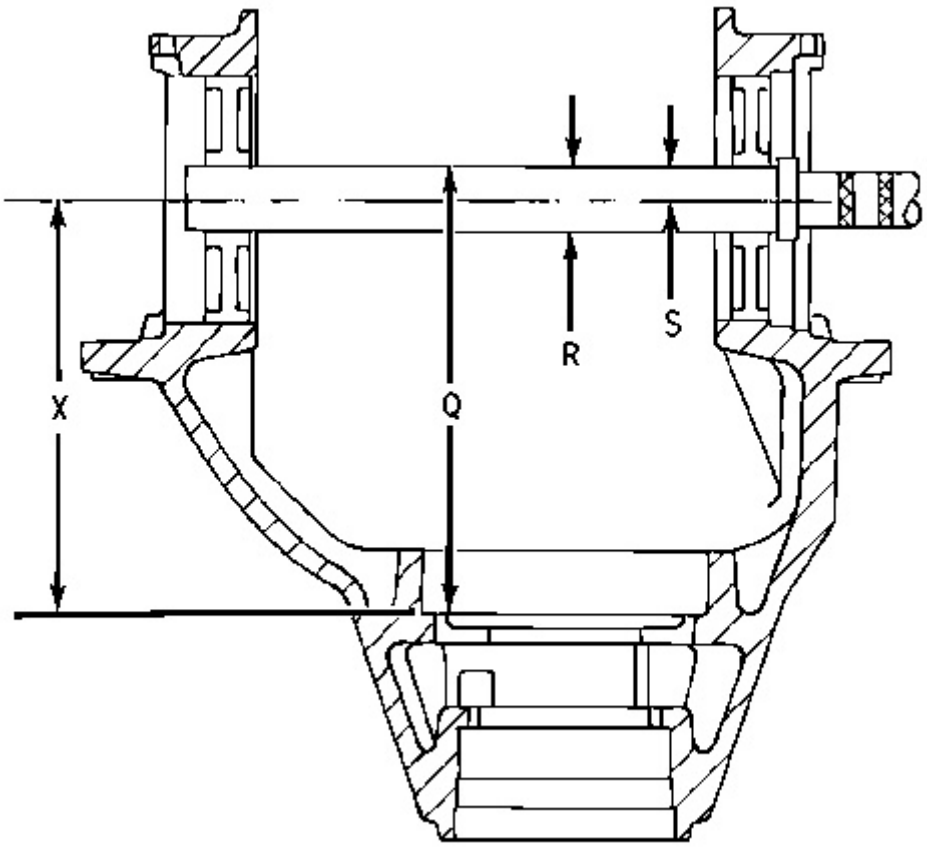

Illustration 2 g00654270

a. Use Tooling (H) to measure the distance from the top of the Measuring Shaft As (part of Tooling (B)) to the bottom of the bore in the differential carrier housing, as shown. Make sure that all previously used shims are removed from the differential carrier housing. Record this dimension as dimension (Q) .

   Example: (Q) = 157.70 mm (6.209 inch)

b. Measure the exact thickness of the Measuring Shaft As (part of Tooling (B)). Record this dimension as dimension (R) .

   Example: (R) = 15 mm (.60 inch)

c. Divide dimension (R) by two. Record this dimension as dimension (S) .

   (R) ÷ 2 = (S)

   Example: 15.00 mm (.591 inch) ÷ 2 = 7.50 mm (.295 inch)

d. Subtract dimension (S) from dimension (Q) . Record this dimension as dimension (X) .

   (Q) − (S) = (X)

   Example: 157.70 mm (6.209 inch) - 7.50 mm (.295 inch) = 150.20 mm (5.914 inch)

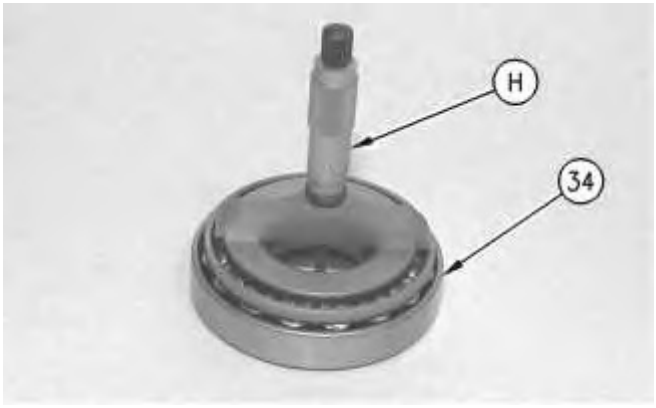

Illustration 3 g00675908

e. Use Tooling (C) to measure the thickness of a new bearing (34) . Record this dimension as dimension (T) .

   Example: (T) = 36.50 mm (1.437 inch)

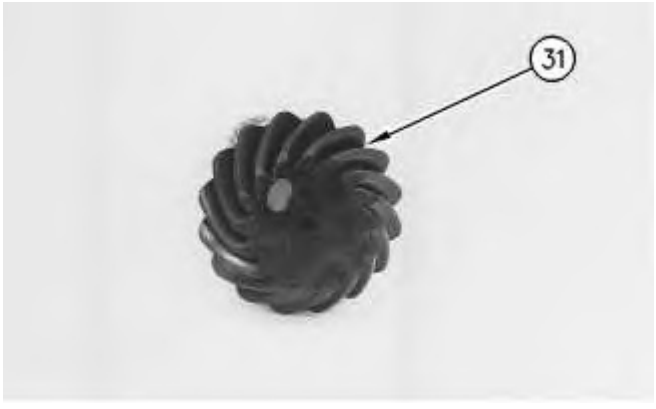

Illustration 4 g00675918

Note: A nominal dimension is stamped on the bottom of pinion shaft (31) (112.00 mm (4.409 inch)). The deviation from the nominal dimension is etched on the end of the pinion shaft (-0.15 mm (-.006 inch)). The part number for the pinion shaft and the ring gear is also etched on the end of the pinion shaft.

f. Record the nominal dimension that is stamped on the bottom of pinion shaft (19) . Record this dimension as dimension (U) .

   Example: (U) = 112.00 mm (4.409 inch)

g. Record the deviation that is stamped on the bottom of pinion shaft (31) . Record this dimension as dimension (V) .

   Example: (V) = -0.15 mm (-.006 inch)

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