SERVICE BULLETIN

NUMBER: 03-003-07

GROUP: Axle

DATE: November 07, 2007

SUBJECT:
Squeal-Like Sound From Front Axle Pinion Gear Flange And Seal

OVERVIEW:
This bulletin involves the replacement of the front axle pinion gear flange slinger and seal.

MODELS:

2007	(JK)	Wrangler

SYMPTOM/CONDITION:
The customer may experience a squeal-like sound from the front axle. The sound will increase or decrease with vehicle speed. The sound may be more noticeable at low vehicle and engine speeds. This condition may be due to an interference between the front axle pinion gear seal and the pinion gear flange oil slinger.

DIAGNOSIS:
If the above condition is present, and the squeal-like sound is from the front axle pinion gear flange, then perform the Repair Procedure.

PARTS REQUIRED:

Qty.	Part No.	Description
1	68043159AA	Slinger, Front Axle Pinion Gear Flange
1	68004072AA	Seal, Front Axle Pinion Gear
1	04720895	Nut, Front Axle Pinion Gear

SPECIAL TOOLS/EQUIPMENT REQUIRED:

	Inch Pound Torque Wrench
	Foot Pound Torque Wrench
	Hydraulic Press
C-3281	Flange Wrench
C-452	Puller, Pinion Gear Flange
8681	Installer, Pinion Gear Seal
C-4171	Handle, Pinion Gear Seal Installer

8112	Screw, Pinion Flange Installer
8109	Cup, Pinion Flange Installer

REPAIR PROCEDURE:

A). FRONT AXLE PINION GEAR FLANGE AND SEAL REMOVAL:

NOTE: DO NOT USE AN IMPACT WRENCH TO REMOVE OR INSTALL THE PINION GEAR FLANGE NUT.

1. With the vehicle in neutral, raise the vehicle on a suitable lift.
2. Remove the left and right front wheel and tire assemblies.
3. Remove the left and right brake calipers and rotors. DO NOT allow the brake calipers to hang. Support the brake calipers correctly.
4. For later assembly reference (Fig. 1), mark the interface/joint between the front axle pinon flange and front propeller shaft. The front axle and front propeller shaft are balanced units. This balance must be maintained to insure lowest level of noise, vibration, and harshness (NVH) from these components.

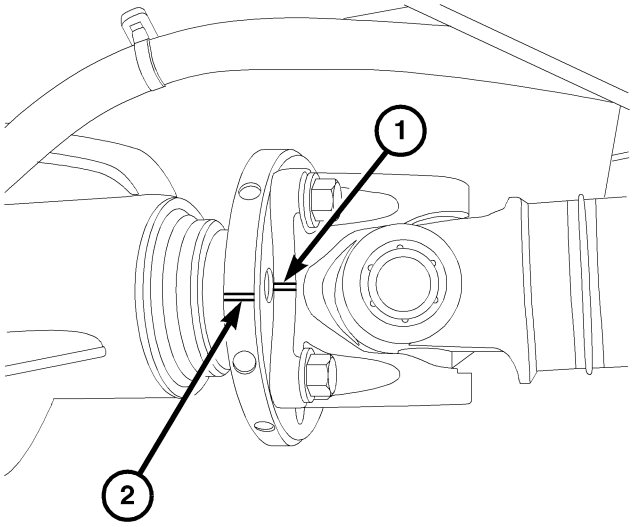

Fig. 1 FRONT REFERENCE MARK

1 - Alignment Reference Mark - Front Propeller Shaft

2 - Alignment Reference Mark - Front Axle Flange

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5. Remove the propeller shaft from the front axle pinion gear flange. SUPPORT the propeller shaft correctly, do not allow the propeller shaft to hang down.
6. Using an inch pound torque wrench, rotate the pinion gear three or four times (Fig. 2).

7. While still rotating the pinion gear with the torque wrench, obtain and record the “Total Torque To Rotate” measurement. It is important to obtain an accurate measurement now for later preload reference during reassembly. The “Total Torque To Rotate” measurement must be taken while the pinion gear is in motion (rotating).

NOTE: During reassembly of the flange, the final reassembly “Total Torque To Rotate” value must equal the original “Total Torque To Rotate” measurement obtained now (prior to disassembly) PLUS an additional 0.56 Nm (5 in. lbs.). It is VERY IMPORTANT to take an accurate “Total Torque To Rotate” measurement prior to flange and flange nut removal.

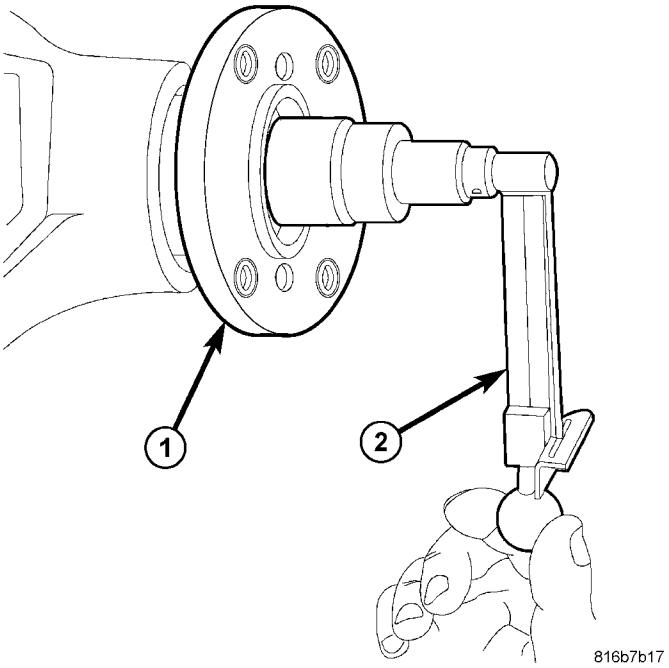

Fig. 2 TORQUE TO ROTATE

1 - Front Axle Pinion Gear Flange

2 - Torque Wrench - Inch Pound

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8. Hold the pinion flange with the Flange Wrench (C-3281) and remove the pinion nut using a ratchet or wrench (Fig. 3).

NOTE: DO NOT USE AN IMPACT WRENCH TO REMOVE OR INSTALL THE PINION GEAR FLANGE NUT.

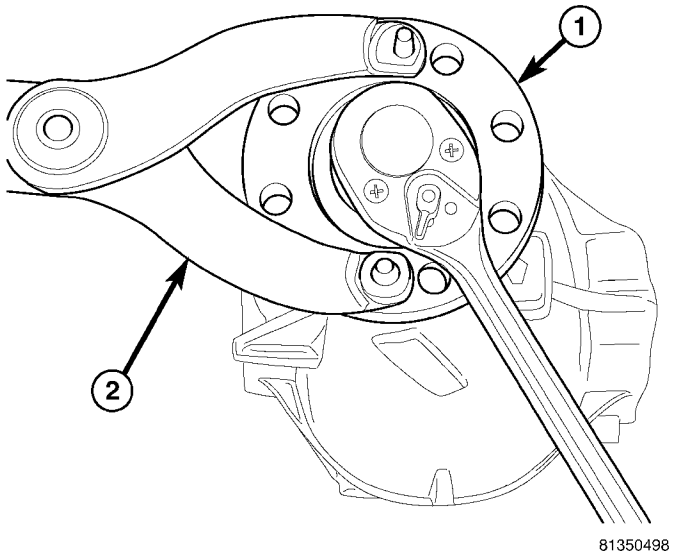

Fig. 3 FLANGE HOLDER

1 - Front Axle Pinion Gear Flange

2 - Flange Holder

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9. For later assembly reference, mark the interface/joint between the front axle pinon flange and front axle pinion gear. The front axle is a balanced unit. This balance must be maintained to insure lowest level of noise, vibration, and harshness (NVH) from these components (pinion gear and flange).
10. Remove the pinion flange from the pinion gear using puller C-452 (Fig. 4).
11. Remove the pinion gear seal using a seal puller.

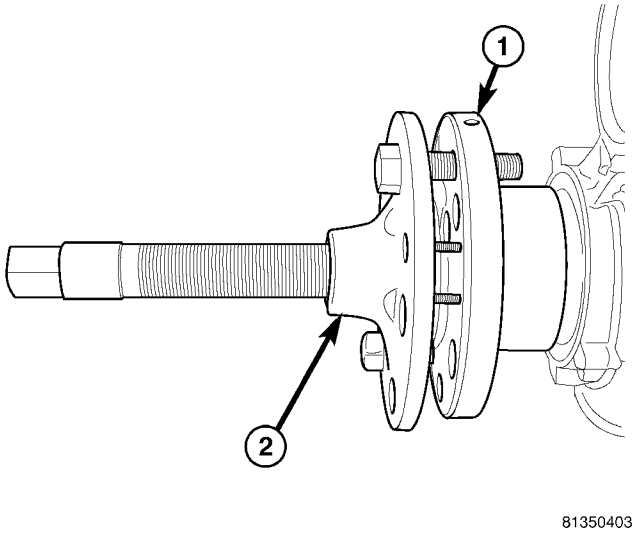

Fig. 4 FLANGE PULLER

1 - Front Axle Pinion Gear Flange

2 - Flange Puller

B). FRONT AXLE PINION FLANGE REPLACEMENT:

NOTE: Care should be taken to not damage or nick the pinion flange surface that the pinion seal contacts. This could lead to front pinion seal oil leak.

1. Note the flange outer diameter that the slinger inner diameter rests against. Note the smaller diameter of the flange that the pinion seal contacts.
2. Remove the flange slinger using a press and either a clam shell or split style gear bearing puller. Rest the slinger flat against the FLAT side of the puller jaws or clam shell.
3. Using care not to damage the flange-to-pinion seal surface, press the flange from the slinger (Fig. 5).

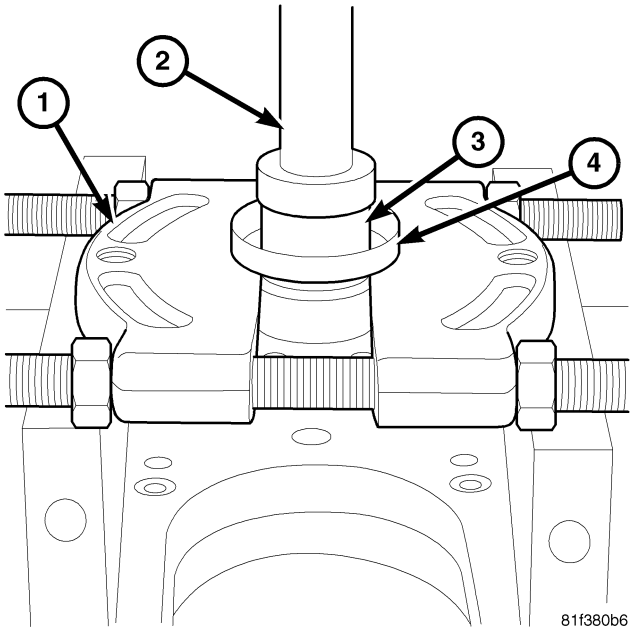

Fig. 5 PRESSING OFF OLD SLINGER

1 - Large Gear Puller Jaws - FLAT Side Up

2 - Hydraulic Press Ram

3 - Pinion Seal Wear Surface - DO NOT DAMAGE

4 - Old Flange Slinger

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4. With the slinger removed, clean the flange hub of any oil and debris.
5. Wrap the flange sealing surface with removable masking tape to protect the surface from nicks or burrs. DO NOT tape the outer diameter of the flange where the slinger will rest against (Fig. 6).

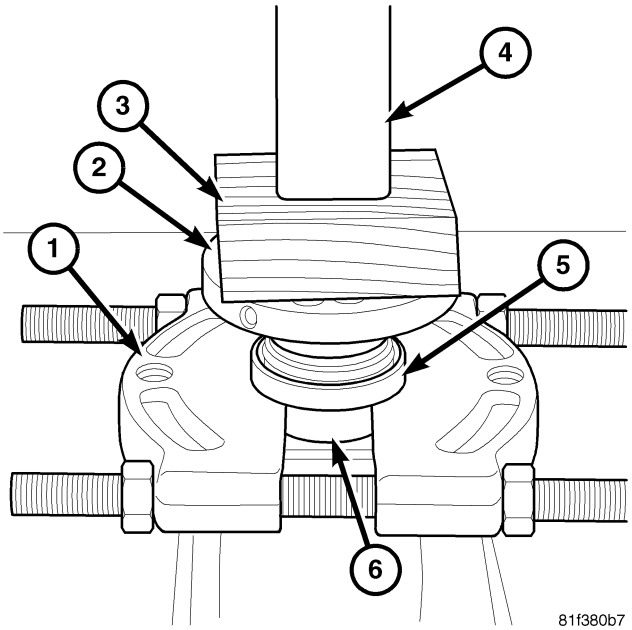

Fig. 6 PRESSING ON NEW FLANGE

1 - Large Gear Puller Jaws - FLAT Side Up

2 - Pinion Gear Flange

3 - Flat Block Of Wood

4 - Hydraulic Press Ram

5 - New Flange Slinger - DO NOT EXCESS FORCE

6 - Pinion Seal Wear Surface - DO NOT DAMAGE - Apply Protective Tape

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6. Rest the new slinger (cone down) on the FLAT side of the puller jaws or clam shell.

NOTE: Make sure that there is enough clearance between the flange pinion seal contact surface and the puller jaws or clam shell. DO NOT damage or nick the pinion flange surface.

7. Place the flange as squarely as possible into the slinger inner diameter. Place a flat block of wood between the flange and the face of the press ram. The flange must be square to the slinger .

NOTE: DO NOT use excess force when pressing the slinger onto the flange, doing so could deform the slinger. Lightly seat slinger to flange.

8. Carefully press the slinger onto the flange until the slinger begins to seat.
9. Use a .050 mm (.002 inch) feeler gauge to verify that the slinger is properly seated and positioned on the flange. Measure at three (3) locations around the flange. The feeler gauge should not fit (Fig. 7).

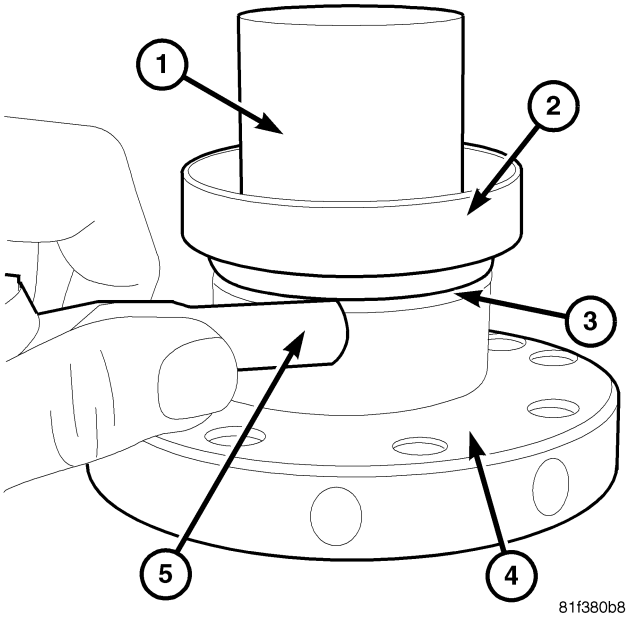

Fig. 7 VERIFYING SLINGER IS SEATED

1 - Pinion Seal Wear Surface - DO NOT DAMAGE - Apply Protective Tape

2 - New Pinion Gear Flange Slinger

3 - Gap Between New Slinger And Shoulder Of Flange

4 - Pinion Gear Flange

5 - Feeler Gauge - 0.050 mm (0.002 inches)

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10. Remove the masking tape and any adhesive residue and debris from the flange surface.

C). FRONT AXLE PINION GEAR SEAL AND FLANGE INSTALLATION:

1. Apply a light coating of gear lubricant on the lip of the pinion gear oil seal.
2. Install the pinion gear oil seal with Installer 8681 and Handle C-4171 (Fig. 8).

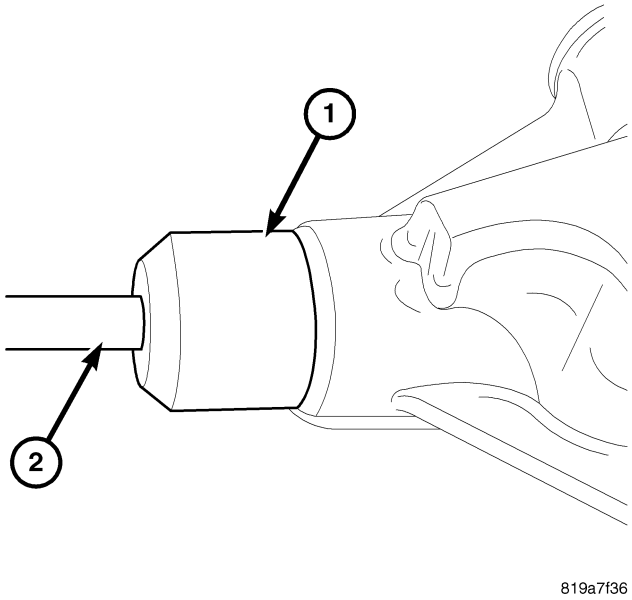

Fig. 8 SEAL INSTALLER 8681

1 - Seal Installer

2 - Handle - Seal Installer

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3. Note the pinion gear to flange reference marks made earlier. Align these marks. Install the flange to the pinion gear.
4. Seat the flange to the pinion gear using Installer 8112 and Cup 8109 (Fig. 9).

NOTE: DO NOT USE AN IMPACT WRENCH TO REMOVE OR INSTALL THE PINION GEAR FLANGE.

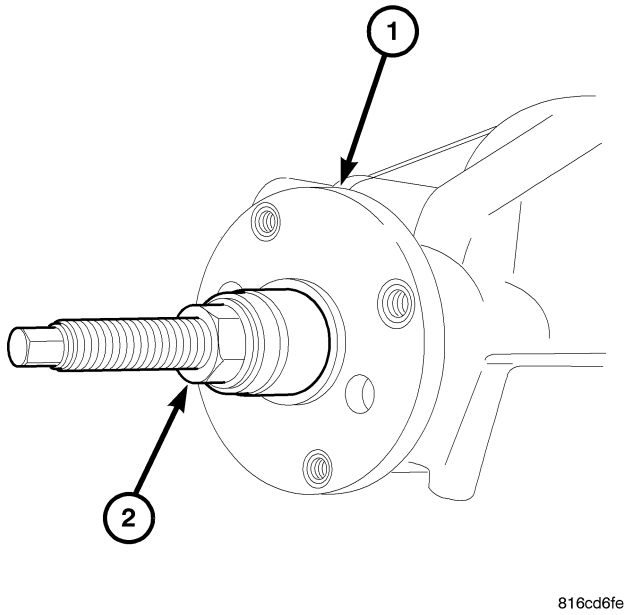

Fig. 9 FLANGE INSTALLER

1 - Front Axle Pinion Gear Flange

2 - Flange Installer

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5. Install a new pinion nut to the pinion gear.

NOTE: DO NOT USE AN IMPACT WRENCH TO REMOVE OR INSTALL THE PINION GEAR FLANGE NUT.

6. Hold the pinion gear flange with Flange Wrench C-3281 and tighten the pinion nut, using a ratchet and socket. Tighten the pinion nut until no end play is obtained (Fig. 3).
7. Tighten the pinion nut in 6.8 Nm (5 ft. lbs.) increments, then obtain a “Total Torque To Rotate” measurement by rotating the pinion gear three or four complete turns with the inch pound torque wrench. While still rotating the pinion gear with the torque wrench, obtain “Total Torque To Rotate” measurement. The “Total Torque To Rotate” measurement must be taken while the pinion gear is in motion (rotating).

NOTE: The final (desired) “Total Torque To Rotate” value must equal the original “Total Torque To Rotate” measurement obtained prior to disassembly of the flange and flange nut PLUS an additional 0.56 Nm (5 in. lbs.).

8. Continue tightening the pinion flange nut in 6.8 Nm (5 ft. lbs.) increments and obtaining a “Total Torque To Rotate” measurement using the correct procedure to obtain the measurement (Fig. 2).

NOTE: NEVER loosen the pinion gear nut to decrease the “Total Torque To Rotate” measurement. Failure to follow these instructions may result in bearing damage. Measure “Total Torque To Rotate” frequently to prevent over crushing the pinion collapsible sleeve.

9. Stop tightening the pinion flange nut when the “Total Torque To Rotate” measurement now equals the original “Total Torque To Rotate” measurement obtained prior to disassembly of the flange and flange nut PLUS an additional 0.56 Nm (5 in. lbs.).

NOTE: The final “Total Torque To Rotate” measurement MUST EQUAL the original “Total Torque To Rotate” measurement obtained prior to the removal of the pinion gear flange and nut PLUS 0.56 Nm (5 in. lbs.).

10. Note reference marks on the pinion gear flange and front propeller shaft.
11. Align the reference marks and install the front propeller shaft to the front axle pinion gear flange (Fig. 1).
12. Tighten the propeller shaft attaching fasteners to 110 Nm (81 ft. lbs.).
13. Verify correct front axle fluid level.
14. Install the left and right brake rotors and calipers. Tighten the caliper slide pin bolts to 35 Nm (26 ft. lbs.) torque.
15. Install the left and right wheel and tire assembly to the axle. Tighten the lug nuts to 152 Nm (112 ft. lbs.) torque.

NOTE: Make sure the lug nuts are tighten correctly and to the correct specification or distortion of the brake rotor(s) may occur.

16. Lower the vehicle.

NOTE: Before starting or moving the vehicle, apply the vehicle service brakes several times to correctly position the front brake calipers to the front brake linings.

17. Place the vehicle transmission into the park position (if automatic transmission) or in gear (if manual transmission).

POLICY:
Reimbursable within the provisions of the warranty.

TIME ALLOWANCE:

Labor Operation No:	Description	Amount
02-12-15-90	Front Axle Flange Slinger and Pinion Gear Seal - Replace (B)	1.0 Hrs.

FAILURE CODE:

ZZ	Service Action