
MODELS:

1996 - **1999** (NS) Town & Country/Caravan/Voyager
1996 - **1999** (GS) Chrysler Voyager (International Market)

NOTE: THIS BULLETIN APPLIES TO LEFT HAND DRIVE VEHICLES.

SYMPTOM/CONDITION:

**SYMPTOM ONE:**
"Honk" noise, which may also be described by vehicle operator as an intermittent groan or squawk noise, heard during stationary or low speed parking lot maneuvers, the duration is usually less than one second. The noise usually occurs near the ends of steering travel when reversing direction. This noise condition typically does not develop until the vehicle has accumulated at least a few hundred miles.

**SYMPTOM TWO:**
A high pitched squeal lasting up to a couple of seconds which occurs when returning the steering wheel to center from near the end of travel. This condition can occur on a new vehicle or one with little or no mileage after service.

Two other potential steering system issues which are not covered under this bulletin are steering moan and steering shudder. Steering moan, unlike honk, is normally sustained throughout the entire steering range and usually related to power steering line grounding, air in the steering system due to leaks, or power steering pump performance. It may or may not be present at all temperatures. Steering shudder is a vehicle vibration which usually occurs during stationary steering and may also be temperature dependent. Vehicles should be expected to have increased shudder after servicing the steering system. Several hundred customer miles may be required to stabilize the system.**
**DIAGNOSIS:**

If the vehicle operator describes either of the above Symptoms/Conditions, perform the Repair Procedure. Limited steering evaluations by service technicians to familiarize themselves with the issue should be performed, but prolonged evaluation of the steering system could result in overheating of the system resulting in incorrect diagnosis and system damage.

**PARTS REQUIRED:**

1. 05011872AA Line, Power Steering Pressure
2. 05011873AA Line, Power Steering Return
3. 04883077 Fluid, Power Steering
4. 04546098 Clip, Line
5. 04641780 Strap, Tie
6. 06035824 Clamp, Hose
7. AR (1) 04874878AB Gear, Power Steering
8. AR (1) 06504585 Bolt, Power Steering Gear Left Side Attaching
9. AR (1) 06032839 Clamp

**REPAIR PROCEDURE:**

NOTE: THE REPAIR PROCEDURE IS A COMPLETE REVISION AND NO **ASTERISKS** HAVE BEEN USED TO HIGHLIGHT REVISIONS.

This bulletin involves installing revised power steering pressure and return lines and/or power steering gear.

WARNING: POWER STEERING OIL, ENGINE PARTS AND THE EXHAUST SYSTEM MAY BE EXTREMELY HOT IF THE ENGINE HAS BEEN RUNNING. DO NOT START THE ENGINE WITH ANY LOOSE OR DISCONNECTED LINES. DO NOT ALLOW LINES TO TOUCH HOT EXHAUST MANIFOLD OR CATALYST.

NOTE: IF REVISED POWER STEERING LINES HAVE BEEN INSTALLED PREVIOUSLY OR IF THE VEHICLE IS EQUIPPED WITH A 2.4L ENGINE, SKIP TO THE STEERING GEAR REPLACEMENT PROCEDURE BEGINNING ON PAGE 6 OF THIS BULLETIN.

1. Wipe the power steering fluid reservoir cap and area around it free of dirt. Remove the power steering fluid reservoir cap.

2. Use a siphon pump to remove as much fluid as possible from the power steering fluid reservoir.
3. Raise the vehicle on an appropriate hoist.

4. Move the heat sleeve on the power steering fluid return line to expose the return line to steel tube connection. Remove the hose clamp from the power steering fluid return line (Figure 1).

5. Obtain a drain pan and remove the power steering fluid return line from the steel tube and allow the power steering fluid to drain into the pan.

6. Remove the bolt attaching the power steering line routing bracket to the front suspension cradle. Save the bracket and fastener for reuse.

7. Remove the power steering fluid return line screw clamp & hose from the power steering pump return line fitting and the power steering fluid return line tube from the steering gear (Figure 2). Discard the line and screw clamp.

8. Remove the power steering fluid pressure line from the power steering pump pressure fitting (Figure 3).
9. Disconnect the power steering pressure line from the power steering gear assembly (Figure 2). Remove and discard the power steering pressure line.

10. Loosely install the revised power steering pressure line, p/n 05011872AA and the revised power steering return line, p/n 05011873AA fittings to the steering gear.

NOTE: DO NOT TORQUE THE POWER STEERING LINE FITTINGS TO THE STEERING GEAR PRIOR TO INSTALLING THE BRACKET THAT SECURES THE LINES TO THE FRONT SUSPENSION CRADLE AND THE CLIPS THAT SEPARATE THE LINE, (FIGURE 4). DO NOT ALLOW TWISTING OF THE RUBBER PORTION (PROTECTED BY CONVOLUTE TUBING) OF THE POWER STEERING RETURN LINE.

11. Route the power steering pressure line so it is over top of the power steering pump return tube and loosely install the power steering pressure line fitting to the power steering pump.

12. Install the bracket removed in step 6 around both the power steering pressure and return lines. Attach the bracket to the front suspension cradle with the original bolt and the slotted hole side of the bracket is against the front suspension cradle. Orient the bracket so the bolt is in the 1 to 2 o’clock position when viewed from the rear of the vehicle (Figure 4). Torque the bolt to 16 Nm (150 in. lbs.).

13. Use clips, p/n 04546098, to clip the power steering pressure and return lines together just left of the bracket attaching the power steering lines to the front suspension cradle and just to the right of the convoluted tubing on the return line (Figure 4).

14. Place screw clamp, p/n 06035824, over the power steering return line hose end and push the hose end of the power steering return line onto the power steering pump return fitting. Position the clamp between the bead on the pump fitting and the end of the hose, then torque the clamp screw to 2 Nm (18 in. lbs.).
15. Slide the heat sleeving on the power steering return line over the clamp and hose, secure the sleeving position with tie strap p/n 04641780. Trim tie strap excess to prevent contact with surrounding components.

16. Rotate the power steering pressure line until it is against the power steering pump return fitting and hose. Torque the power steering pressure line fitting to 27-35 Nm (240-310 in. lbs.)

17. Torque the power steering line fittings to the power steering gear (Figure 2) to 27-35 Nm (240-310 in. lbs.).

18. **POWER STEERING FLUID LEVEL ADJUSTMENT**

**NOTE:** DO NOT USE AUTOMATIC TRANSMISSION FLUID.

a. Add P/S fluid, p/n 04318085, to bring the fluid level in the reservoir to the "Full Cold" mark (ambient temperature 21-27°C (70-80°F) and let the fluid settle for at least 2 minutes.

b. Start the engine and let it run for 10 seconds and turn it off.

c. Check the P/S fluid level in the reservoir. Add fluid to bring it to the "Full Cold" mark if necessary and let the fluid settle for at least 2 minutes.

d. Raise the front wheels off the ground.

e. Start the engine. Slowly turn the steering wheel right and left, until lightly touching the full turn stops.

f. Turn off the engine and check the P/S fluid level in the reservoir. Add fluid to bring it to the "Full Cold" mark if necessary.

g. Lower the vehicle and start the engine. Slowly turn the steering wheel lock to lock.

h. Turn off the engine and check the P/S fluid level in the reservoir. Add fluid to bring it to the "Full Cold" mark if necessary.

i. If the fluid is extremely foamy, do not run the engine for 10 minutes and repeat steps a through h.

**NOTE:** STEERING SHUDDER CAN BE EXPECTED IMMEDIATELY AFTER FLUID FILL AND WILL LESSEN CONSIDERABLY WITH ADDED MILEAGE.
19. After performing the power steering fluid level adjustment procedure and verifying no system leaks, place the vehicle in drive with the brakes applied and steer the vehicle from stop to stop 50 times. Do not hold the vehicle at the steering stops or exceed 60 cycles as overheating could occur. If no honk noise is heard, the Repair Procedure is complete. If either type of honk noise occurs, replace the steering gear using the following procedure:

STEERING GEAR REPLACEMENT PROCEDURE

1. With the front wheels centered, turn the ignition switch to the locked position and remove the key from the switch. Turn the steering wheel to the left until the steering wheel security lock engages (180°). This step ensures the clock spring will not be over extended.

2. With the vehicle on the ground, remove the black trim cover at the lower left side of the instrument panel to gain access to the steering column shaft coupler. Disconnect the steering column shaft coupler from the steering gear intermediate coupler (Figure 5).

3. Raise the vehicle on an appropriate hoist and remove both front tire and wheel assemblies.

4. Push back the insulating wrap on the P/S return hose to expose the return hose to steel tube connection and disconnect the hose from the tube (Figure 6). Allow the P/S fluid to drain then dispose of the fluid properly.

5. Remove the nut attaching the outer tie rod end to the steering knuckle by holding the tie rod end stud stationary with an 11/32 in. socket while turning the nut with a wrench (Figure 7). Repeat for the other side.
6. Remove both of the tie rod ends from the steering knuckles using Special Tool MB-990635 or MB-991113 (Figure 8).

7. Remove the 2 bolts and loosen the third that attach the Antilock Brake System (ABS) Hydraulic Control Unit (HCU) to the front suspension cradle, as shown in Figure 9. Then rotate the HCU rearward to allow access to cradle plate attaching nut and bolt just forward of the HCU.

8. Remove the 10 nuts and bolts attaching the cradle plate to the bottom of the front suspension cradle. Separate the cradle plate from the vehicle.

9. Using an 18 mm crowfoot, remove both P/S fluid lines from the steering gear (Figure 10).

10. Remove the 3 bolts and nuts attaching the steering gear to the front suspension cradle and lower the steering gear enough to allow access to the intermediate coupler roll pin.

11. Install Special Tool 6381A through the center of the roll pin and secure the tool with the knurled nut (Figure 11). Hold the threaded rod stationary while turning the nut to pull the roll pin out of the intermediate coupler. Remove the special tool from the intermediate coupler.
12. Separate the intermediate coupler from the steering gear shaft and remove the steering gear from the vehicle.

13. Position the revised steering gear (P/N 4874878) into the front suspension cradle, leaving room to install the intermediate coupler.

14. Start the roll pin into the intermediate coupler by tapping it with an appropriate hammer, then install the intermediate coupler onto the shaft of the steering gear.

15. Install Special Tool 6381A through the center of the roll pin and secure the tool with the knurled nut (Figure 11). Hold the threaded rod stationary while turning the nut to push the roll pin into the intermediate coupler. Remove the special tool from the intermediate coupler.

16. Attach the steering gear to the front suspension cradle with the 2 right side mounting bolts removed in step 10, revised left side bolt (P/N 6504585), and 3 three nuts removed in step 10. Torque the bolts/nuts to 183 Nm (135 ft. lbs.).

17. Attach the P/S fluid lines to the proper fitting on the steering gear (Figure 9). Torque the P/S fluid line tube nuts to 31 Nm (275 in. lbs.).

18. Install the tie rod end into the steering knuckle and install the attaching nut onto the stud of the tie rod end finger tight. Hold the tie rod end stud stationary with an 11/32 in. socket and torque the nut with a crowfoot to 54 Nm (40 ft. lbs.). Repeat for the other side.

19. Attach the cradle plate to the front suspension cradle using the 10 bolts/nuts removed in step 8. Torque the bolts/nuts to 165 Nm (123 ft. lbs.).

20. Position a gear type clamp (P/N 6032839) over the P/S fluid return hose and push the hose onto the steel tube portion of the return line. Be sure the hose and clamp are positioned past the upset bead on the steel tube and torque the clamp to 1.5-2.5 Nm (14-22 in. lbs.).

21. Install front tire and wheel assemblies. Torque lug nuts to 129 Nm (95 ft. lbs.).
22. Lower the vehicle to a level where the interior of the vehicle is accessible, but the tires are still off the ground.

23. Starting with the front wheels of the vehicle centered straight ahead, use the intermediate coupler to turn the front wheels to the left until the intermediate coupler shaft is properly aligned with the steering column coupler and assemble the couplers together.

24. Lower the vehicle so its full weight is resting on the ground.

25. Install the steering column coupler intermediate shaft retaining pinch bolt/nut and torque them to 28 Nm (250 in. lbs.). Install the safety pin.

26. P/S fluid level adjustment, use the procedure outline on page 5, step 18.

28. FRONT TOE IN ADJUSTMENT

   a. Ensure all tires are the same size and inflated to the recommended pressure.

   b. Verify vehicle ride height is within specification (Figure 12).

<table>
<thead>
<tr>
<th>RIDE HEIGHTS AT CURB AT FENDER</th>
<th>PREFERRED SETTING</th>
<th>ACCEPTABLE ALIGNMENT RANGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>FRONT w/ 16&quot; wheel</td>
<td>+753.4 mm</td>
<td>Reference</td>
</tr>
<tr>
<td>FRONT all except 16&quot; wheels</td>
<td>+747.4 mm</td>
<td>Reference</td>
</tr>
<tr>
<td>FRONT DIFFERENTIAL</td>
<td>+0.00 mm</td>
<td>15 mm Maximum</td>
</tr>
<tr>
<td>REAR w/ 16&quot; wheel</td>
<td>+772.7 mm</td>
<td>Reference</td>
</tr>
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<td>15 mm Maximum</td>
</tr>
</tbody>
</table>

When measuring ride heights: 1) Ensure that the tire pressure is correct. 2) Jounce the vehicle at the bumper several times and release at the bottom of the stroke, and 3) Measure from the ground to the outboard, lower, center section of the fender lip opening.

Ride heights are not adjustable. If out of specification, check for damage and/or worn out suspension components and replace them as necessary.

FIGURE 12

c. Ensure the fuel tank is full and the vehicle is on a level surface

d. Center the steering wheel and lock in place with a steering wheel clamp.

NOTE: DO NOT TWIST THE FRONT INNER TIE ROD TO STEERING GEAR RUBBER BOOTS DURING FRONT WHEEL TOE IN ADJUSTMENT.
e. Loosen the front inner to outer tie rod end jam nut on both sides. Grasp the inner tie rods at their serrations and rotate then to set the individual front toe into +0.05° and total front toe into +0.10°.

f. Torque the tie rod jam nuts to 75 Nm (55 ft. lbs.).

g. Adjust the steering gear tie rod boots so they are not stressed.

h. Remove the steering wheel clamp.

POLICY: Reimbursable within the provisions of the warranty.

TIME ALLOWANCE:
Labor Operation No:
19-50-17-90 P/S Hose Replacement .............................. 0.4 Hrs.
19-00-02-92 Steering Gear Replacement ........................... 2.3 Hrs.

FAILURE CODE: P8 - New Part