

# STEERING

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## POWER STEERING—2.5L VM DIESEL

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#### GENERAL INFORMATION

##### POWER STEERING PUMP

The power steering pump used with the 2.5L VM Diesel engine operates the same way as the power steering pump used with the 2.5/4.0L gasoline engines. Refer to the Description and Operation section for the 2.5/4.0L gasoline engine power steering pump for more information.

## POWER STEERING PUMP—2.5L VM DIESEL

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## SERVICE PROCEDURES

## POWER STEERING PUMP – INITIAL OPERATION

**WARNING: THE FLUID LEVEL SHOULD BE CHECKED WITH ENGINE OFF TO PREVENT INJURY FROM MOVING COMPONENTS.**

**CAUTION: Use MOPAR Power Steering Fluid or equivalent. Do not use automatic transmission fluid and do not overfill.**

Wipe filler cap clean, then check the fluid level. The dipstick should indicate **COLD** when the fluid is at normal ambient temperature.

- (1) Fill the pump fluid reservoir to the proper level and let the fluid settle for at least two minutes.
- (2) Start the engine and let run for a few seconds then turn engine off.
- (3) Add fluid if necessary. Repeat the above procedure until the fluid level remains constant after running the engine.
- (4) Raise the front wheels off the ground.
- (5) Slowly turn the steering wheel right and left, lightly contacting the wheel stops at least 20 times.
- (6) Check the fluid level add if necessary.
- (7) Lower the vehicle, start the engine and turn the steering wheel slowly from lock to lock.
- (8) Stop the engine and check the fluid level and refill as required.
- (9) If the fluid is extremely foamy or milky looking, allow the vehicle to stand a few minutes and repeat the procedure.

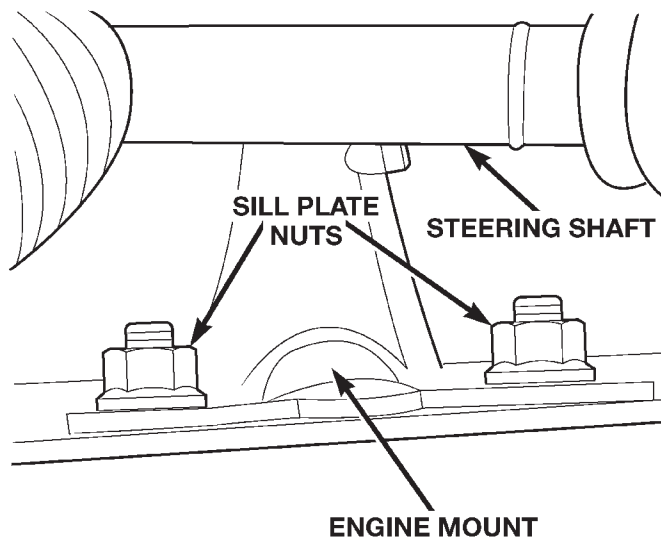
**CAUTION: Do not run a vehicle with foamy fluid for an extended period. This may cause pump damage.**

## REMOVAL AND INSTALLATION

## POWER STEERING PUMP — LHD

## Removal

- (1) Disconnect the negative battery cable.
- (2) Remove the A/C line support bracket from the rear of the rocker cover.
- (3) Disconnect the A/C compressor electrical connector.
- (4) Remove the (2) engine mount upper sill plate nuts (Fig. 1).



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**Fig. 1 Engine Mount Sill Plate Nuts**

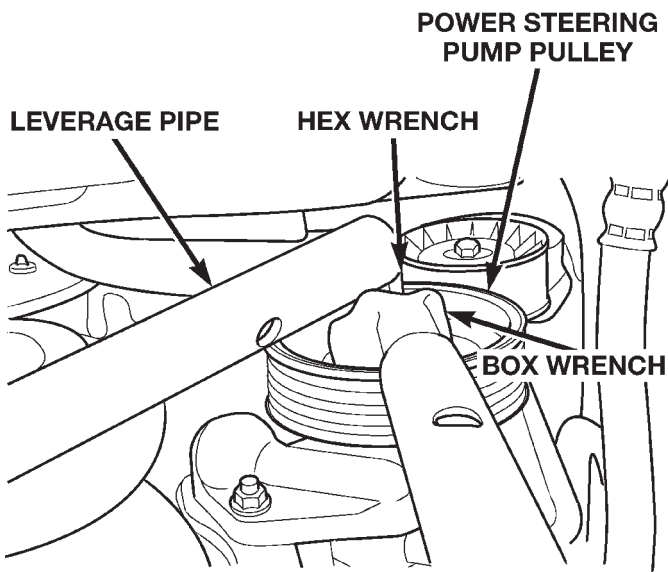
- (5) Make sure the steering wheel is in the unlocked position.

REMOVAL AND INSTALLATION (Continued)

- (6) Raise the vehicle on a hoist.
- (7) Remove the steering shaft pinch bolt and slide the steering shaft straight off the gearbox input shaft, position the shaft aside.

**CAUTION:** Avoid turning the steering shaft while disconnected from the steering gearbox. Damage to steering column clockspring could occur.

- (8) Remove the power steering fluid supply hose from the pump and let the fluid drain.
- (9) Loosen the (4) H-Block retaining bolts. Do not remove the bolts at this time.
- (10) Remove the accessory drive belt from the power steering pump pulley. Refer to Group 7, Cooling System for procedure.
- (11) Remove the power steering pump pulley. Use a hex socket to secure the pump shaft while removing the pulley nut with a box wrench (Fig. 2).



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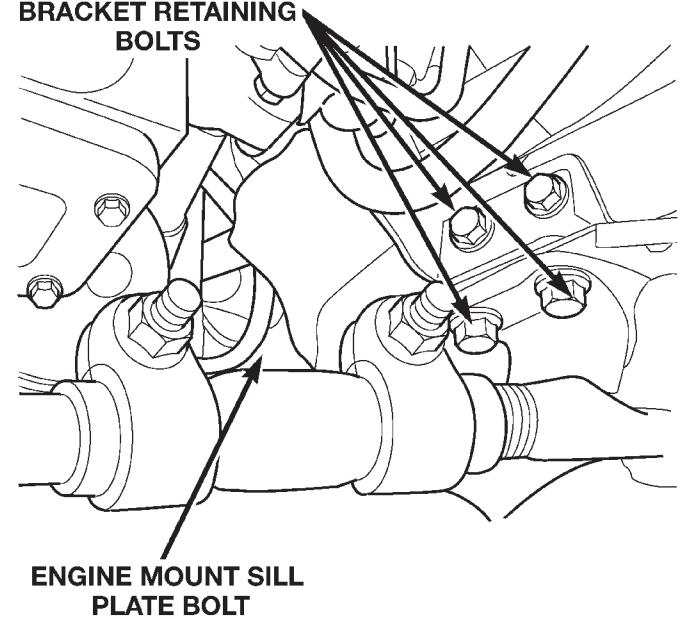
**Fig. 2 Removing the Power Steering Pump Pulley**

**NOTE:** Mark the position of the H-Block in relation to the A/C Compressor so it may be reinstalled in the same position.

- (12) Remove the (2) bolts retaining the H-Block to the power steering pump shaft coupler.
- (13) Loosen the coupler pinch bolt and slide the coupler towards the pump.
- (14) Remove the power steering pump pressure line from the steering gear. This is more accessible, but will require you to install the pressure line on the new pump prior to installation.

- (15) Remove the remaining 2 bolts from the H-Block and remove the H-Block from the compressor.
- (16) Support the A/C compressor with mechanics wire before proceeding to the next step.
- (17) Remove the (4) A/C compressor retaining bolts.
- (18) Remove the left engine mount throughbolt nut only. Do not remove the bolt at this time.
- (19) Position a jack stand and raise weight off left engine mount.
- (20) Remove the track bar support bracket retaining bolts and remove bracket (Fig. 3).

**TRACK BAR SUPPORT BRACKET RETAINING BOLTS**



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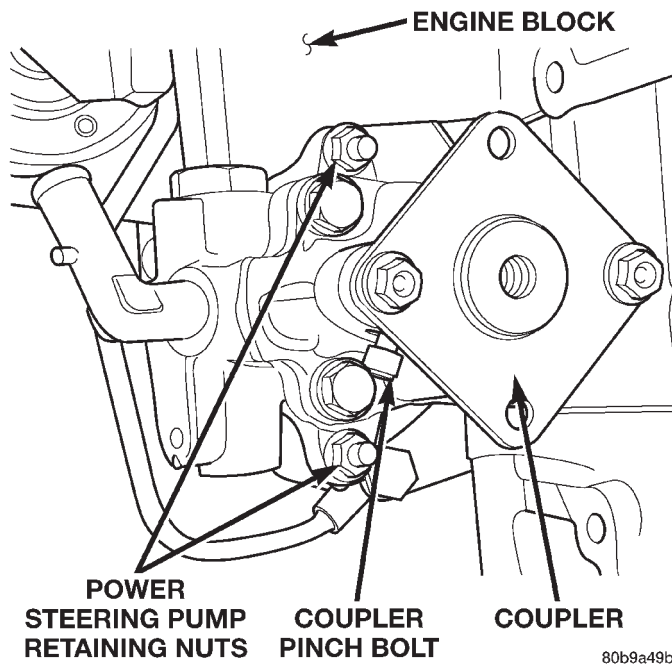
**Fig. 3 Engine Mount Retaining Bolts**

- (21) Remove the lower engine mount bolt from the sill plate (Fig. 3).
- (22) Remove the (4) engine mount bracket bolts from the engine block.
- (23) Remove the engine mount throughbolt.
- (24) Remove the engine mount and engine mount bracket from the vehicle.
- (25) Remove the (2) power steering pump retaining nuts (Fig. 4).
- (26) Remove the power steering pump from the vehicle.

**Installation**

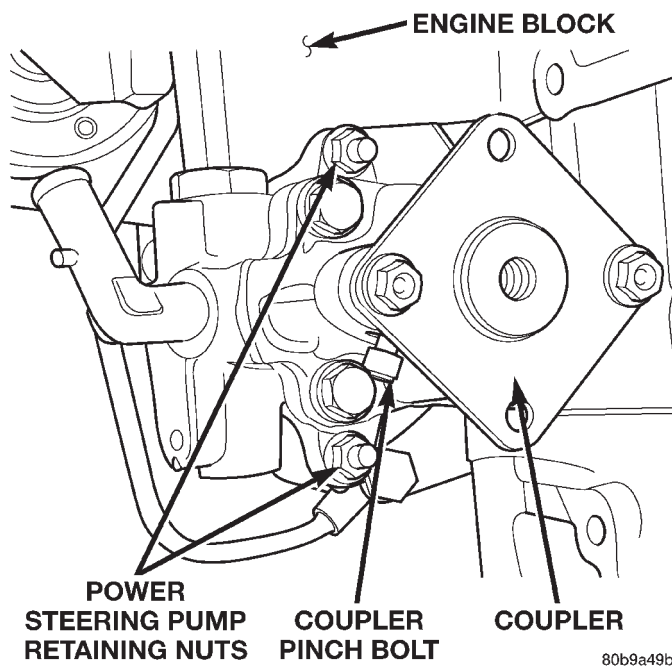
**WARNING:** Power steering system fluid may be contaminated with metal shavings, overheated or improper fluid. All fluid should be drained from the system. After component replacement, system should be flushed and filled with Mopar Power Steering Fluid, or equivalent.

## REMOVAL AND INSTALLATION (Continued)



**Fig. 4 Power Steering Pump**

- (1) Transfer the pressure line to the new pump , making sure line is in original position.
- (2) Transfer the coupler to the new pump leaving pinch bolt loose at this time (Fig. 5).
- (3) Install the power steering pump (Fig. 5).

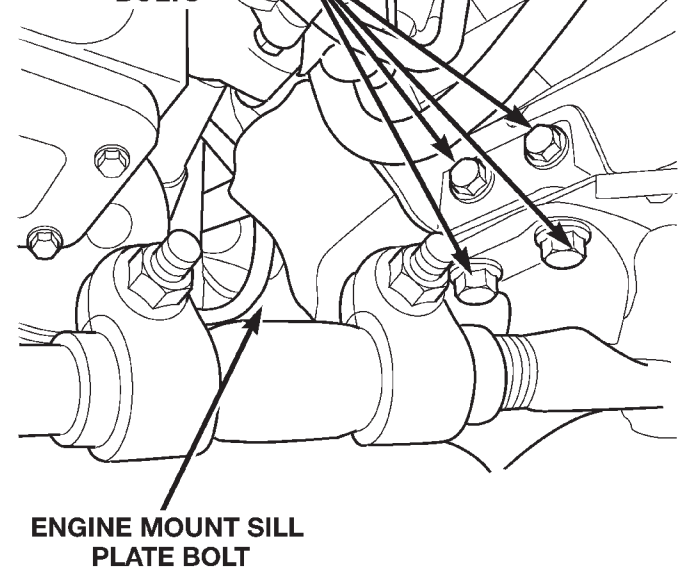


**Fig. 5 Power Steering Pump**

- (4) Install the engine mount and the engine mount bracket in the vehicle.
- (5) Install the engine mount throughbolt and leave loose at this time.

- (6) Install, but do not torque the engine mount and track bar support bracket bolts (Fig. 6).

**TRACK BAR SUPPORT BRACKET RETAINING BOLTS**



**Fig. 6 Engine Mount Retaining Bolts**

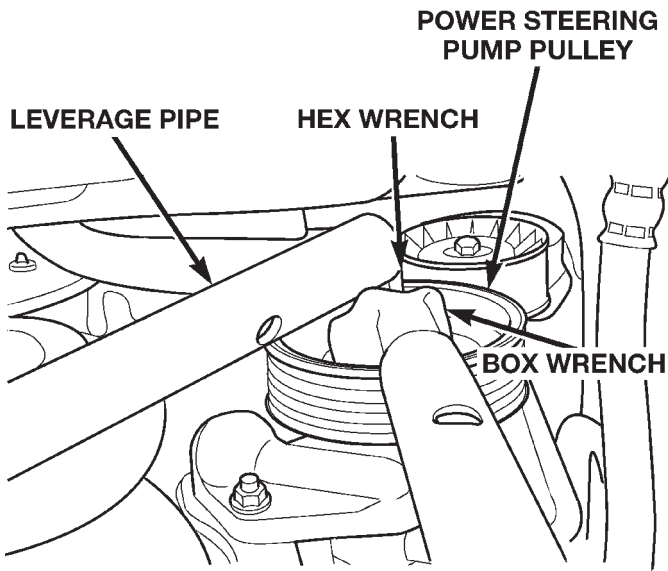
- (7) Install the (4) engine mount bracket to engine block retaining bolts. Torque bolts to 47 N·m (35 ft. lbs.).
- (8) Torque the engine mount sill plate bolts to 41 N·m (30 ft. lbs.).
- (9) Torque the larger trackbar support bracket bolts to 125 N·m (92ft. lbs.).
- (10) Remove the jack stand.
- (11) Install the H-Block on the A/C compressor in its original position and leave the bolts loose at this time.
- (12) Position and install the A/C compressor.
- (13) Slide the drive coupler in its original position and install the remaining (2) H-Block bolts.
- (14) Install the power steering pump pulley (Fig. 7). Torque nut to 166 N·m (120 ft. lbs.).
- (15) Install the accessory drive belt. See Group 7, Cooling System for procedure.
- (16) Torque all the H-Block bolts.
- (17) Install the steering shaft. Torque the steering shaft pinch bolt to 49 N·m (36 ft. lbs.).
- (18) Install the pressure line on steering gear. Torque nut to 28 N·m (21 ft. lbs.).
- (19) Install the power steering fluid supply hose on the pump.
- (20) Lower the vehicle from the hoist.
- (21) Install and torque the engine mount upper sill plate nuts to 41 N·m (30 ft. lbs.) (Fig. 8).
- (22) Connect the A/C compressor electrical connector.

REMOVAL AND INSTALLATION (Continued)

**POWER STEERING PUMP — RHD**

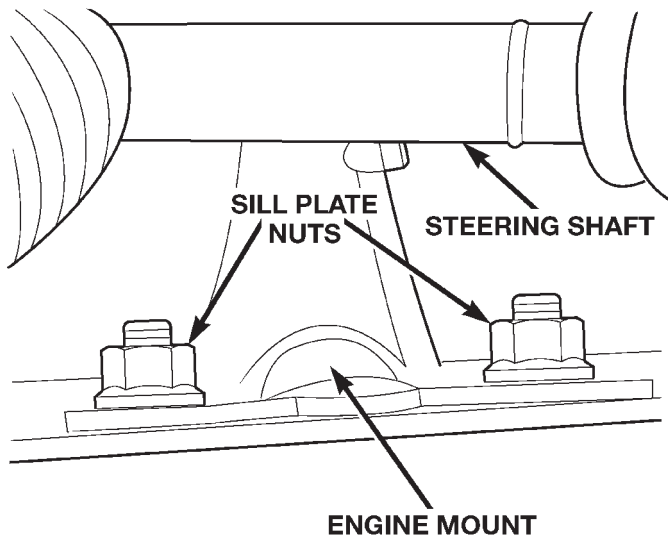
**Removal**

- (1) Disconnect the negative battery cable.
- (2) Remove the refrigerent line support bracket bolt from the top of the radiator.
- (3) Remove the A/C filter-drier assembly support bracket nuts from left fender well.
- (4) Disconnect the A/C compressor electrical connector.
- (5) Raise the vehicle on a hoist.
- (6) Remove the power steering fluid supply hose from pump and drain fluid.
- (7) Remove power steering line support bracket bolt from below radiator.
- (8) Remove the engine mount upper sill plate nuts.
- (9) Loosen the (4) H-Block retaining bolts. Do not remove at this time.
- (10) Remove the accessory drive belt from the power steering pump pulley. See Group 7, Cooling System for procedure.
- (11) Remove the power steering pump pulley. Use a hex socket to secure the pump shaft while removing the pulley nut with a box wrench (Fig. 9).



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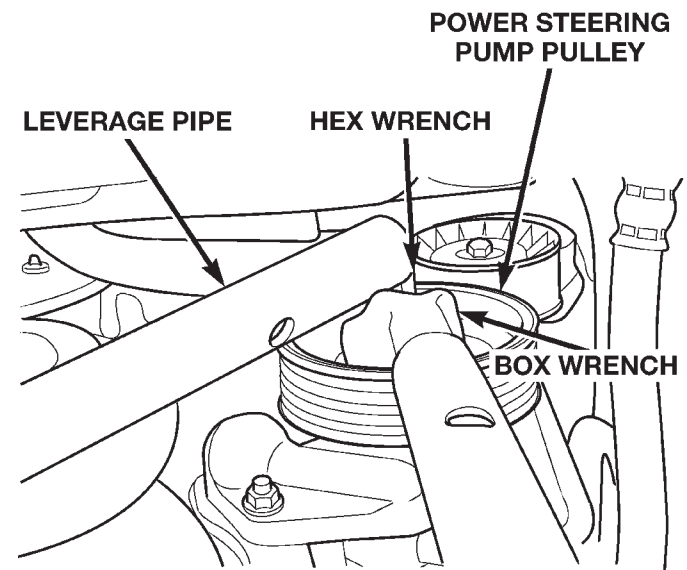
**Fig. 7 Installing Pump Pulley**



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**Fig. 8 Engine Mount Sill Plate Nuts**

- (23) Install the A/C line support bracket bolt at the rear of the valve cover.
- (24) Fill the power steering fluid. See Group 19, Steering for Power Steering Pump-Initial operation procedure.
- (25) Connect the negative battery cable.



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**Fig. 9 Removing Pump Pulley**

**NOTE:** Mark position of the H-Block in relation to the A/C Compressor so it can be installed in the same position.

- (12) Remove the (2) bolts retaining the H-Block to the power steering pump shaft coupler.
- (13) Loosen the coupler pinch bolt and slide coupler towards pump.

## REMOVAL AND INSTALLATION (Continued)

(14) Remove the left engine mount throughbolt nut only. Do not remove the bolt at this time.

(15) Remove the remaining 2 bolts from the H-Block and remove the H-Block from the compressor.

(16) Position a jack stand and raise weight off left engine mount.

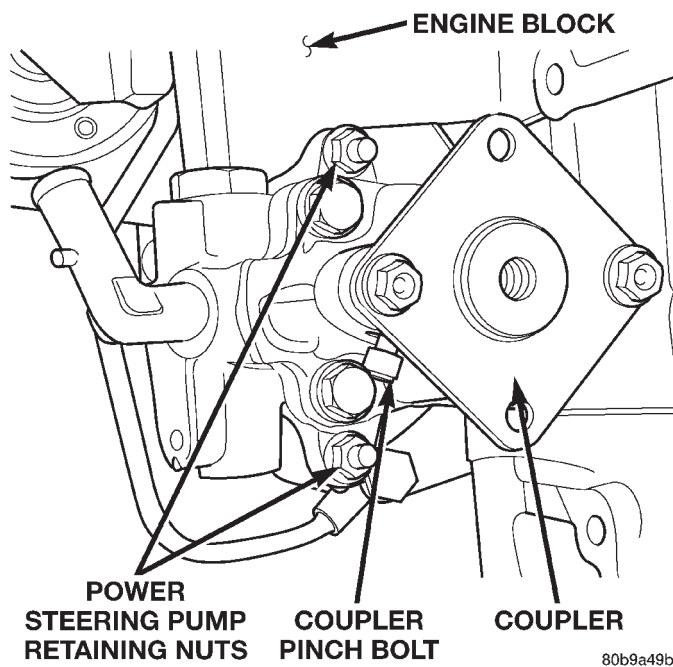
(17) Remove the (2) engine mount sill plate bolts.

(18) Remove the (4) engine mount bracket bolts from the engine block.

(19) Remove the engine mount throughbolt.

(20) Remove the engine mount and engine mount bracket from vehicle.

(21) Remove the (2) power steering pump retaining nuts (Fig. 10).



**Fig. 10 Power Steering Pump**

(22) Slide pump off mounting studs and position so pressure line can be removed. This will require you to install pressure line on the new pump prior to installing it in the engine block.

(23) Remove the power steering pump from the vehicle.

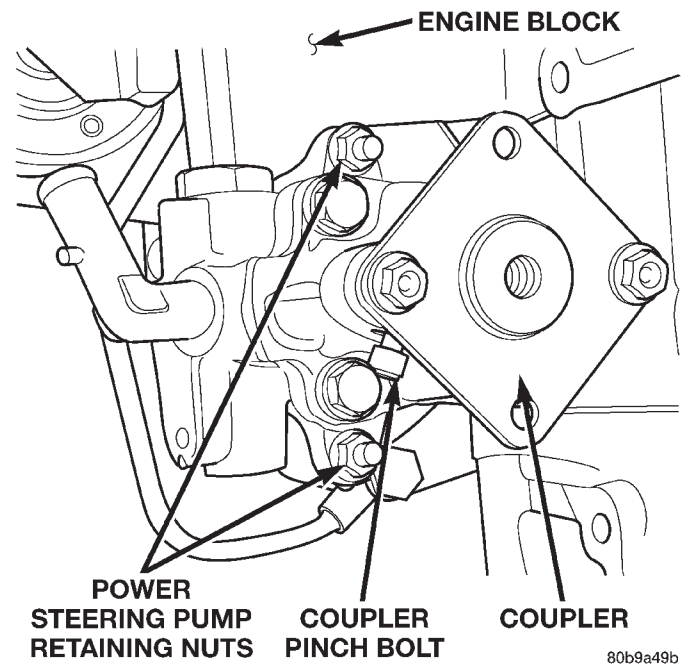
### Installation

**WARNING:** Power steering system fluid may be contaminated with metal shavings, overheated or improper fluid. All fluid should be drained from the system. After component replacement, system should be flushed and filled with Mopar Power Steering Fluid, or equivalent.

(1) Install the pressure line on pump in original position.

(2) Transfer the drive coupler to new pump leaving pinch bolt loose at this time (Fig. 11).

(3) Install the power steering pump in the engine block. Torque retaining nuts to 24 N·m (18 ft. lbs.) (Fig. 11).



**Fig. 11 Power Steering Pump**

(4) Install the engine mount and engine mount bracket in vehicle.

(5) Install the engine mount throughbolt and leave loose at this time.

(6) Install, do not torque engine mount sill plate nuts and bolts.

(7) Install (4) engine mount bracket to engine block retaining bolts and Torque to 61 N·m (45 ft. lbs.).

(8) Torque the engine mount sill plate nuts to 41 N·m (30 ft. lbs.).

(9) Torque the engine mount sill plate bolts to 41 N·m (30 ft. lbs.).

(10) Remove jack stand.

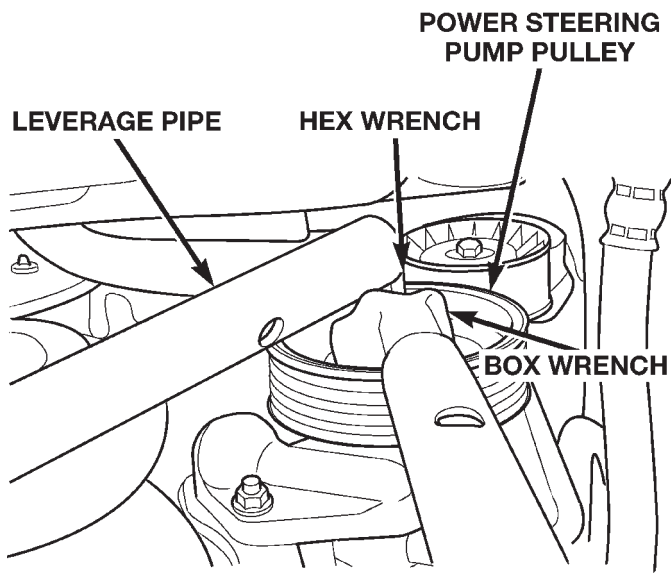
(11) Install the H-Block on the A/C compressor in the original position and leave bolts loose at this time.

(12) Position and install A/C compressor.

(13) Slide the drive coupler into its original position and start remaining (2) H-Block bolts.

(14) Install the power steering pump pulley (Fig. 12). Torque nut to 166 N·m (120 ft. lbs.).

## REMOVAL AND INSTALLATION (Continued)



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**Fig. 12 Installing Pump Pulley**

(15) Install the accessory drive belt. See Group 7, Cooling for procedure.

(16) Torque all the H-Block bolts.

(17) Torque the engine mount throughbolt nut to 65 N·m (48 ft. lbs.).

(18) Install the power steering fluid supply hose on pump.

(19) Install the power steering line support bracket bolt.

(20) Lower the vehicle from hoist.

(21) Install the refrigerent line support bracket and bolt on the top of the radiator.

(22) Install the A/C filter-drier assembly support bracket nuts on the left fender well.

(23) Reconnect the A/C compressor electrical connector.

(24) Re-fill the power steering fluid. Refer to Group 19, Steering for Power Steering Pump-Initial Operation for procedure.

(25) Connect the negative battery cable.

# STEERING COLUMN

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## GENERAL INFORMATION

### STEERING COLUMN

The tilt and standard column (Fig. 1) has been designed to be serviced as an assembly; less wiring, switches, shrouds, steering wheel, etc. Most steering column components can be serviced without removing the steering column from the vehicle.

### SERVICE PRECAUTIONS

Safety goggles should be worn at all times when working on steering columns.

To service the steering wheel, switches or airbag, refer to Group 8 M and follow all WARNINGS and CAUTIONS.

**WARNING: THE AIRBAG SYSTEM IS A SENSITIVE, COMPLEX ELECTRO-MECHANICAL UNIT. BEFORE**

**ATTEMPTING TO DIAGNOSE, REMOVE OR INSTALL THE AIRBAG SYSTEM COMPONENTS YOU MUST FIRST DISARM THE AIRBAG FIRING MECHANISM. FAILURE TO DO SO COULD RESULT IN ACCIDENTAL DEPLOYMENT OF THE AIRBAG AND POSSIBLE PERSONAL INJURY.**

**WARNING: THE FASTENERS, SCREWS, AND BOLTS, ORIGINALLY USED FOR THE AIRBAG COMPONENTS, HAVE SPECIAL COATINGS AND ARE SPECIFICALLY DESIGNED FOR THE AIRBAG SYSTEM. THEY MUST NEVER BE REPLACED WITH ANY SUBSTITUTES. ANYTIME A NEW FASTENER IS NEEDED, REPLACE WITH THE CORRECT FASTENERS PROVIDED IN THE SERVICE PACKAGE OR FASTENERS LISTED IN THE PARTS BOOKS.**

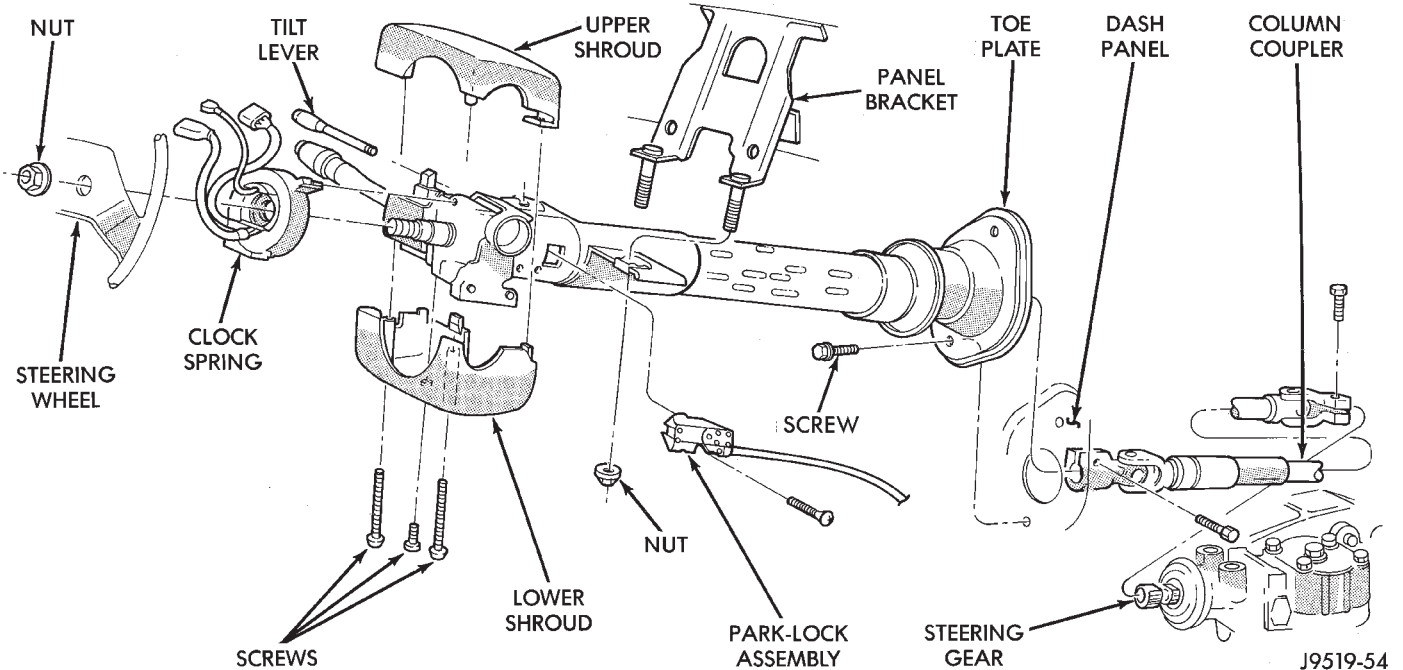


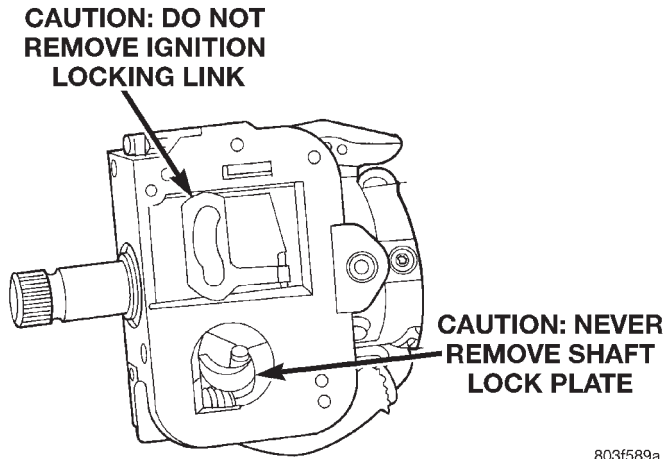
Fig. 1 Steering Column

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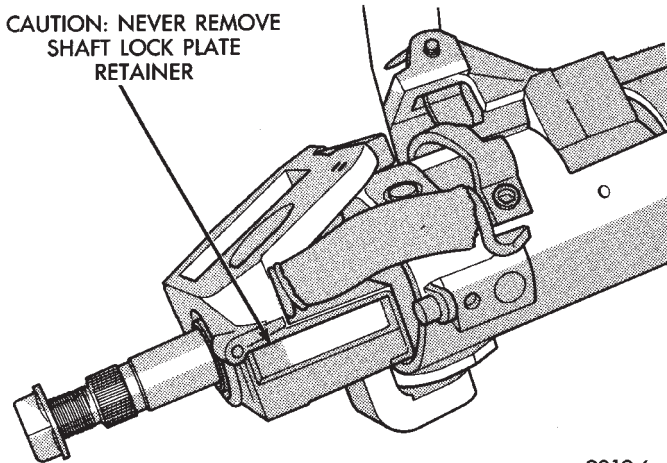


GENERAL INFORMATION (Continued)

**CAUTION:** Do not attempt to remove the pivot pins to disassemble the tilting mechanism. Do not remove ignition locking link, shaft lock plate or plate retainer. This will damage the column (Fig. 2) and (Fig. 3).



**Fig. 2 Observe Cautions**



**Fig. 3 Observe Cautions**

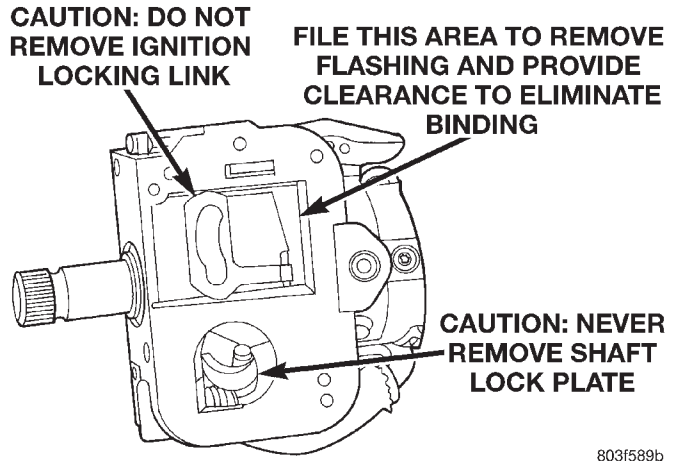
DIAGNOSIS AND TESTING

IGNITION SWITCH

TEST AND REPAIR

If the ignition switch effort is excessive, remove the ignition switch from the steering column. Refer to Group 8D Ignition System. Using a key cylinder, check the turning effort of the switch. If the ignition switch binds look for the following conditions.

- (1) Look for rough areas or flash in the casting and if found remove with a file (Fig. 4).
- (2) With the ignition switch removed, slide the slider in its slot in the sleeve and verify a loose fit over the length of the slot. If the slider binds in the



**Fig. 4 Steering Column Flash Removal And Non-Serviceable Components**

slot at any point lightly file the slider or slot until clearance is achieved.

- (3) If no binding is found, lightly file the ramp on the ignition switch, (The ramp fits into the casting) until binding no longer occurs.

REMOVAL AND INSTALLATION

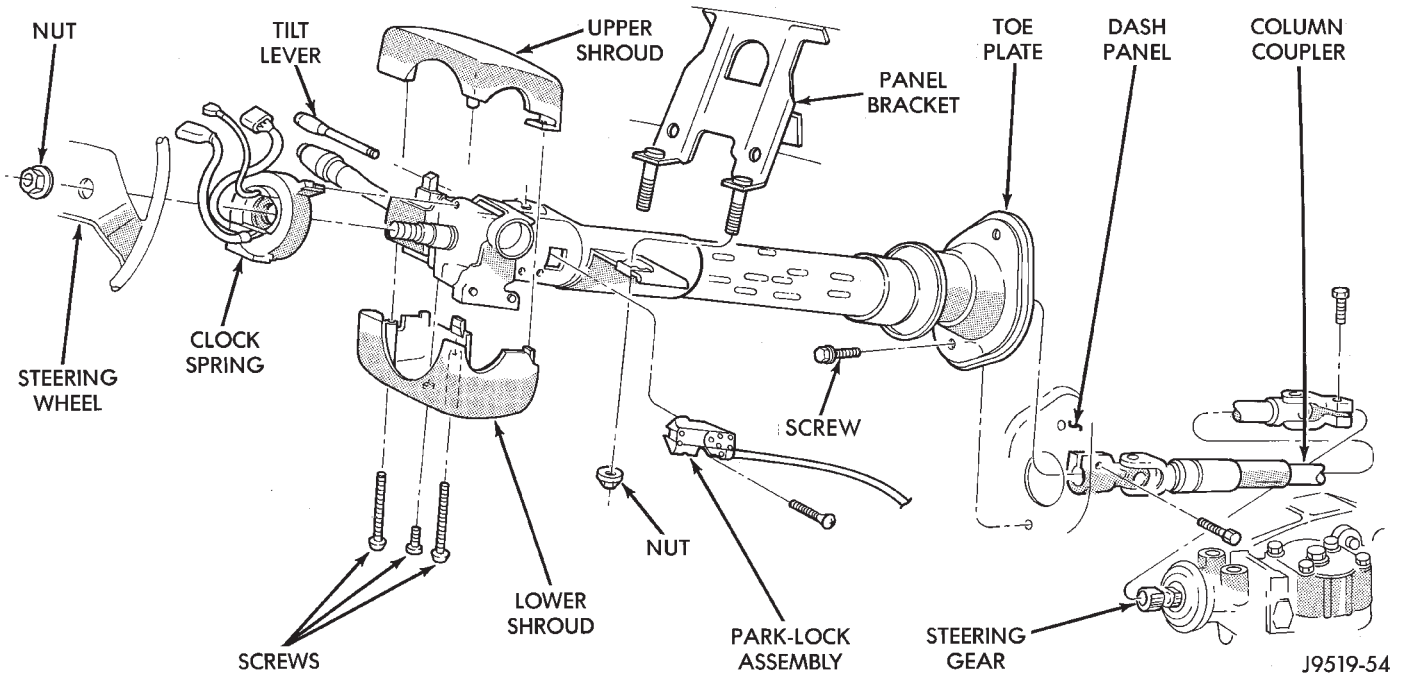
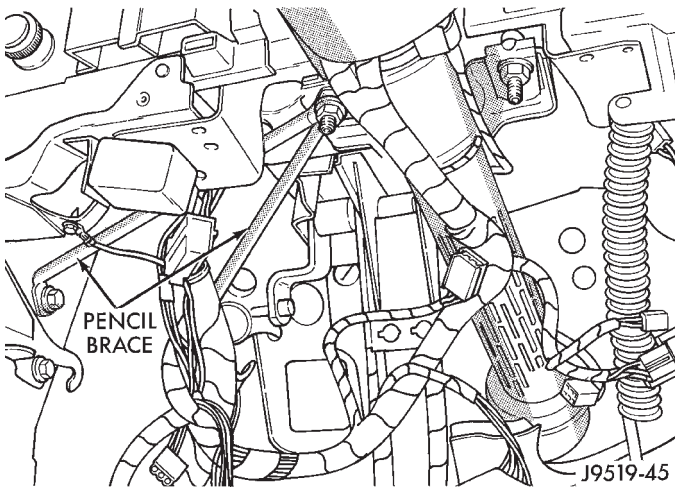
STEERING COLUMN

**WARNING:** BEFORE SERVICING THE STEERING COLUMN THE AIRBAG SYSTEM MUST BE DISARMED, REFER TO GROUP 8M RESTRAINT SYSTEMS FOR SERVICE PROCEDURES. FAILURE TO DO SO MAY RESULT IN ACCIDENTAL DEPLOYMENT OF THE AIRBAG AND POSSIBLE PERSONAL INJURY.

REMOVAL

- (1) Position the front wheels **straight ahead** .
- (2) Remove the negative (ground) cable from the battery.
- (3) Disarm and remove airbag, steering wheel and clockspring, refer to group 8M Restraint Systems for service procedures.
- (4) Remove lower instrument panel/knee blocker.
- (5) Remove column coupler upper pinch bolt (Fig. 5).
- (6) Remove relay box.
- (7) Remove tilt lever (if equipped) from column.
- (8) Remove upper and lower steering column shrouds.
- (9) Remove lower fixed column shroud.
- (10) Remove column braces (Fig. 6).
- (11) Remove column bracket mounting nuts and lower column.

## REMOVAL AND INSTALLATION (Continued)

**Fig. 5 Steering Column****Fig. 6 Steering Column Braces**

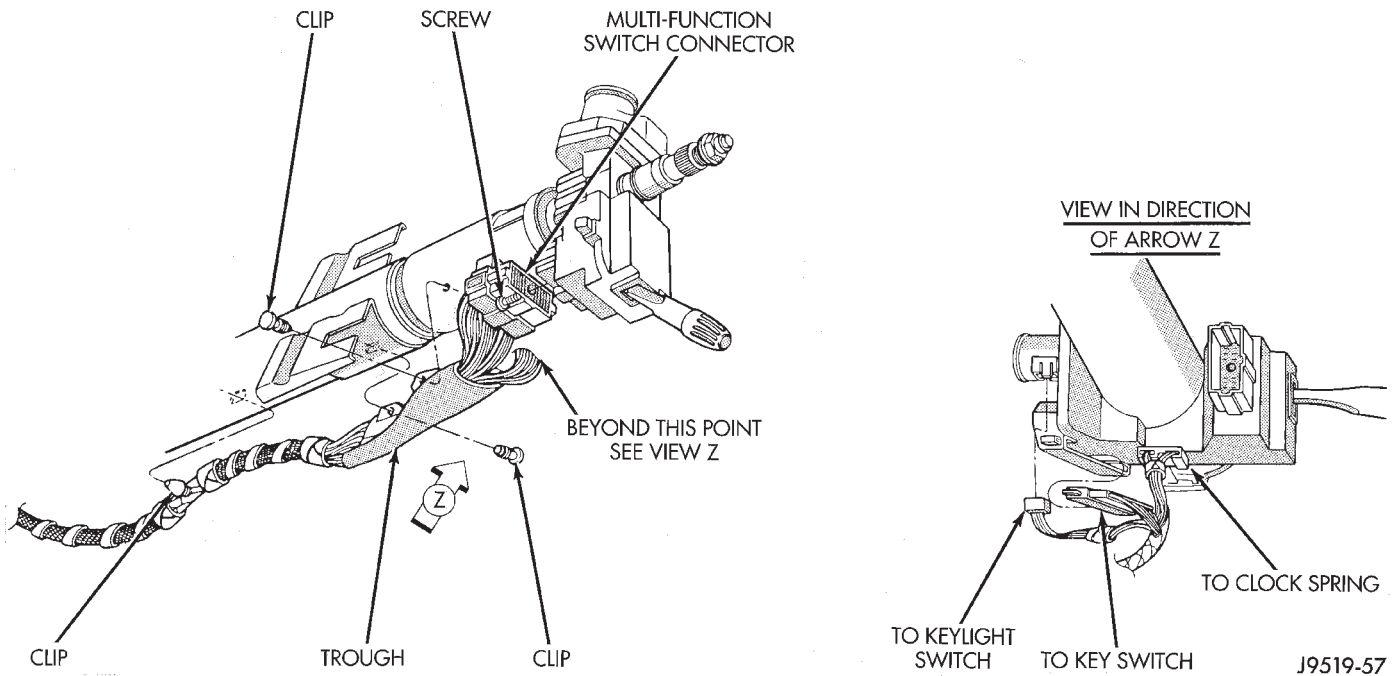
- (12) Remove upper fixed column shroud.
- (13) Remove multi-function switch tamper proof mounting screws and connector screw. Connector screw will stay in the connector.
- (14) Unplug wiring harness from the column switches (Fig. 7).
- (15) Remove the wiring harness from steering column.

- (16) Remove ignition switch.
- (17) Remove interlock cable from the steering column, refer to Group 21 Automatic Transmission Shifter/Ignition Interlock.
- (18) Remove the column.

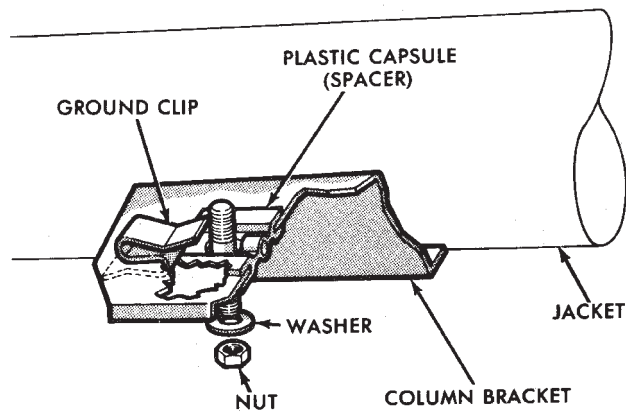
**INSTALLATION**

- (1) Align and install the column to the coupler. **Do not apply force at the top of the steering column shaft.**
- (2) Ensure the ground clip is position (Fig. 8).
- (3) Install interlock cable from the steering column, refer to Group 21 Automatic Transmission Shifter/Ignition Interlock.
- (4) Install wiring harness connections to steering column. **Ensure the wiring is not pinched and all connections are correctly locked in place.**
- (5) Install wiring harness connector onto multi function switch. Tighten function switch wiring harness connector retaining bolt to 2 N·m (17 in. lbs.).
- (6) Plug in wiring harness connector to remaining switches.
- (7) Install ignition switch.
- (8) Install upper fixed column shroud cover.
- (9) Install shaft coupler pinch bolt loose, load column up to panel bracket.

REMOVAL AND INSTALLATION (Continued)



**Fig. 7 Steering Column Wiring Harness**



**Fig. 8 Ground Clip & Spacer**

- (10) Be sure both spacers are fully seated in the column support bracket. Tighten the column panel bracket support nuts to 12 N·m (105 in. lbs.).
- (11) Tighten the coupler pinch bolt to 47 N·m (35 ft. lbs.).
- (12) Install lower fixed shroud.
- (13) Install upper and lower shrouds. Install the tilt lever (if equipped).
- (14) Install relay box.

- (15) Install lower instrument panel/knee blocker.
- (16) Install clockspring, steering wheel and airbag. Refer to Group 8M Restraint Systems for service procedures.
- (17) Remove the column shaft shipping lock pin (installed in service column).
- (18) Connect the battery ground (negative) cable.

SPECIFICATIONS

TORQUE CHART

DESCRIPTION	TORQUE
<b>Tilt Steering Column</b>	
Steering Wheel Nut . . . . .	54 N·m (40 ft. lbs.)
Mounting Nuts . . . . .	23 N·m (17 ft. lbs.)
Coupler Bolt . . . . .	49 N·m (36 ft. lbs.)
<b>Non-Tilt Steering Column</b>	
Steering Wheel Nut . . . . .	54 N·m (40 ft. lbs.)
Mounting Nuts . . . . .	23 N·m (17 ft. lbs.)
Coupler Bolt . . . . .	49 N·m (36 ft. lbs.)
Upper Bracket Nut . . . . .	17 N·m (150 in. lbs.)

