

# BORGESON

## *Steering You Forward*

### 800112 Dodge Steering Box Installation

**NOTE: INSTALLATION REQUIRES USE OF A BORGESON AFTERMARKET STEERING SHAFT. TO USE THE STOCK SHAFT A FLAT MUST BE GROUND ON THE STEERING BOX ADAPTER TO MATCH THE ORIENTATION FLAT ON THE STOCK STEERING SHAFT**

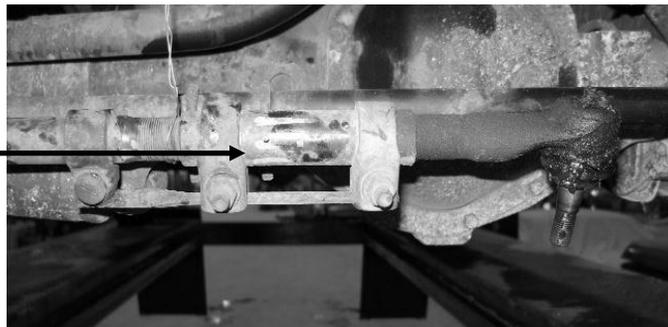
#### **Removal:**

- Center wheels and lock steering wheel column lock before you begin.
- Remove intermediate steering shaft and P/S hoses from steering box.
- Using a pitman arm puller remove pitman arm from steering box.
- Remove three bolts holding steering box to frame and remove from vehicle.
- Retain mounting hardware for new box installation.

#### **Installation of new steering box:**

- Install the new steering box to frame using hardware saved from the original box and tighten the bolts to factory specifications. **If you are using an aftermarket steering box brace it may be necessary to elongate the holes in the steering box brace in order to properly attach it to the steering box.**
- Bring the steering box to its center position using the steering box input shaft.
- Using the threaded adjusting sleeve on the drag link, adjust the end link in 3/8" to compensate for the spacers on the new steering box. (See photo below)
- Install the pitman arm lining up the master splines and torque pitman nut to 115 foot-pounds.
- At this time it will be necessary to collapse your Borgeson steering shaft for clearance of the slightly longer steering box. Be sure to loosen the shaft collar before trying to collapse the shaft.
- Install Borgeson steering shaft to new steering box and properly tighten set-screw then lock nut. Reinstall steering shaft collar.
- With the front end of the vehicle raised so the front wheels are just off the ground, rotate the steering wheel from one direction to the other and check the function of the newly installed components.
- **Flush any remaining old P/S fluid from the power steering system before connecting to the new box.**
- Connect power steering hoses. Insure fittings are sealed and properly tightened and then slowly fill the pump with the recommended power steering fluid for your vehicle.
- With the engine running check new system for leaks and bleed off any air trapped in the system by slowly turning the wheel full left to full right with the wheels off the ground. Be sure to keep fluid full.
- Have the front end re-aligned.

Use the adjuster to shorten link 3/8" to accommodate new steering box.



#### **Steering box Warranty:**

- This Borgeson steering box has a three-year unlimited mileage warranty.

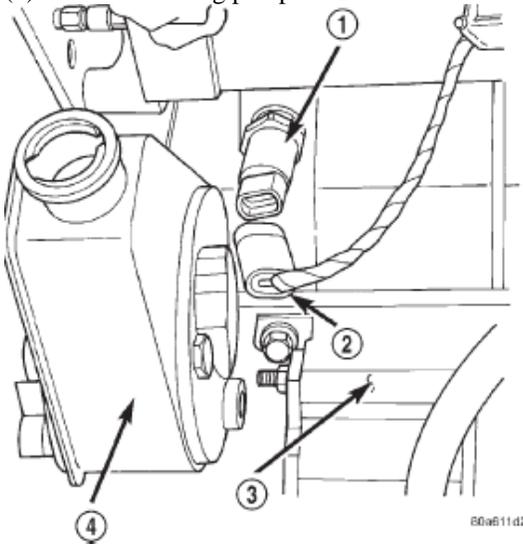
# BORGESON

**Steering You Forward**

## Part #800328

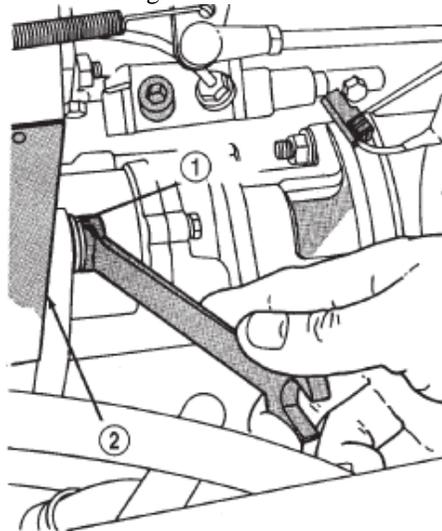
### REMOVAL

- (1) Remove and cap steering pump hoses and vacuum pump vacuum line.
- (2) Remove the oil pressure sender unit from engine block and plug hole in the block (Fig.5).
- (3) Remove the serpentine belt.
- (4) Remove and cap the oil feed line from the bottom of the vacuum pump (Fig. 6).
- (5) Remove the lower bolt that attaches the vacuum / steering pump assembly to the engine block. Remove the nut from the steering pump attaching bracket (Fig. 6).
- (6) Remove upper bolt from the pump assembly (Fig. 7) and remove the assembly.
- (7) Remove the mounting gasket.
- (8) Remove the steering pump to vacuum pump bracket attaching nuts (Fig. 8).
- (9) Slide the steering pump from the bracket. Use care not to damage the internal oil seal in the vacuum pump.



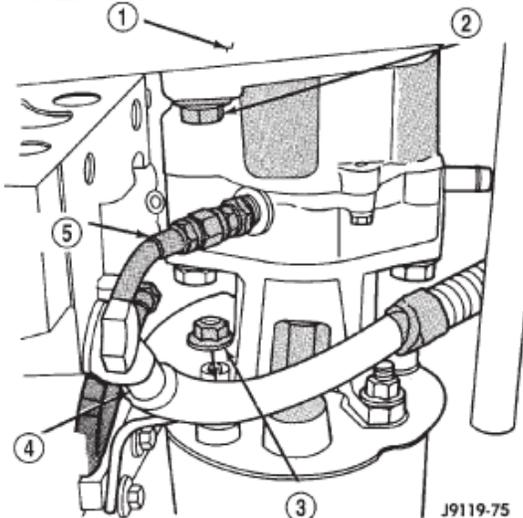
**Fig. 5 Oil Pressure Sending Unit**

- 1 - OIL PRESSURE SENDER UNIT
- 2 - ELECTRICAL CONNECTOR
- 3 - ENGINE BLOCK
- 4 - STEERING PUMP



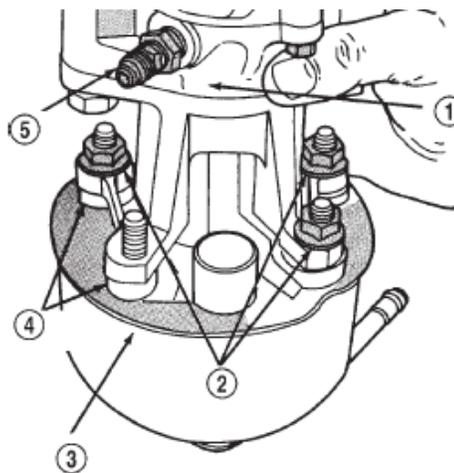
**Fig. 7 Pump Assembly Upper Bolt**

- 1 - PUMP UPPER BOLT
- 2 - DRIVE COVER



**Fig. 6 Oil**

- 1 - ENGINE BLOCK
- 2 - LOWER PUMP ASSEMBLY BOLT
- 3 - STEERING PUMP BRACKET ATTACHING NUT
- 4 - BATTERY GROUND CABLE
- 5 - OIL FEED LINE



**Fig. 8 Bracket Mounting Nuts**

- 1 - VACUUM PUMP
- 2 - ATTACHING NUTS
- 3 - STEERING PUMP
- 4 - PUMP SPACERS
- 5 - OIL FEED FITTING

## INSTALLATION

- (1) Install the two pump body spacers.
- (2) Rotate the drive gear until the steering pump and vacuum pump drive dogs align. Install the steering pump onto the vacuum pump bracket. Use care to avoid damaging the oil seal in the vacuum pump during installation. **The steering pump housing and spacers must mate completely with the vacuum pump bracket.**
- (3) Install the vacuum pump bracket to steering pump nuts and tighten to 18 ft. lbs.
- (4) Position gasket on vacuum pump assembly. Use sealer if necessary to retain the gasket.
- (5) Align and install the pump assembly on the engine. Ensure the steering pump stud is inserted into the block bracket. Tighten the pump- to-engine block attaching bolts to 57 ft. lbs.
- (6) Install the steering pump to attaching bracket nut and tighten to 18 ft. lbs.
- (7) Remove plug and install the oil pressure sending unit and electrical connector.
- (8) Install the oil feed line to the vacuum pump. Tighten the oil line connection snug +/- 5ft. lbs.
- (9) Install the fluid hoses to the power steering pump. Tighten the pressure fitting at the pump to 23 ft. lbs.
- (10) Install and clamp the hose on the vacuum pump.
- (11) Install the serpentine belt.
- (12) Fill the pump fluid reservoir to the proper level and let the fluid settle for at least two minutes. Raise the front wheels off the ground and slowly turn the steering wheel lock-to-lock 20 times with the engine off while checking the fluid level.
- (13) Lower the vehicle and start the engine. With the engine idling, be sure to maintain the proper fluid level. Turn the steering wheel in both directions and verify power assist and quiet operation of the pump. If the fluid is extremely foamy or milky looking, allow the vehicle to stand a few minutes and repeat this procedure.

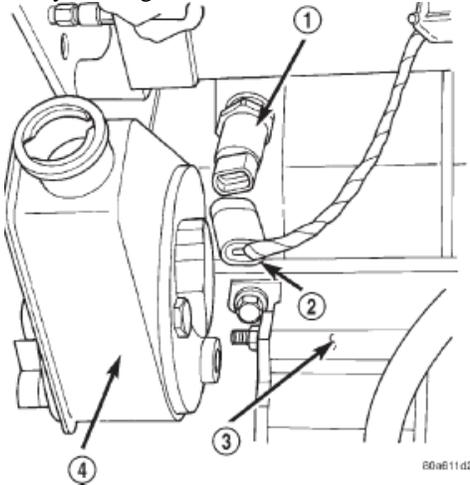


Fig. 5 Oil Pressure Sending Unit

- 1 - OIL PRESSURE SENDER UNIT
- 2 - ELECTRICAL CONNECTOR
- 3 - ENGINE BLOCK
- 4 - STEERING PUMP

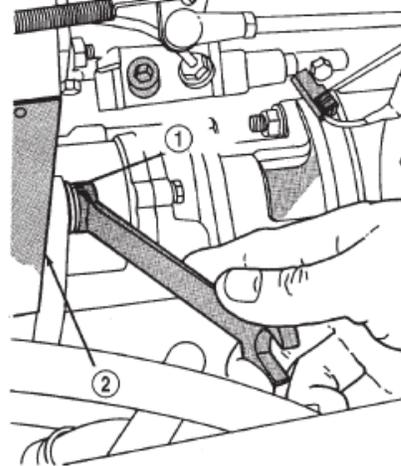


Fig. 7 Pump Assembly Upper Bolt

- 1 - PUMP UPPER BOLT
- 2 - DRIVE COVER

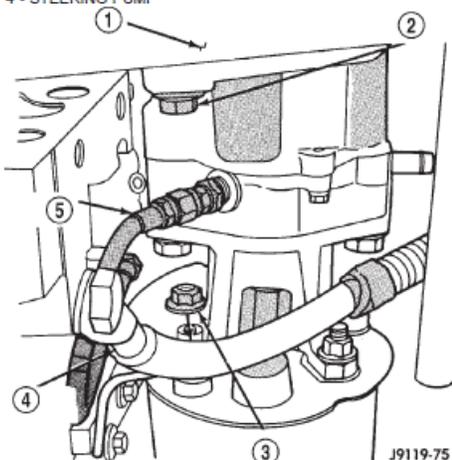


Fig. 6 Oil

- 1 - ENGINE BLOCK
- 2 - LOWER PUMP ASSEMBLY BOLT
- 3 - STEERING PUMP BRACKET ATTACHING NUT
- 4 - BATTERY GROUND CABLE
- 5 - OIL FEED LINE

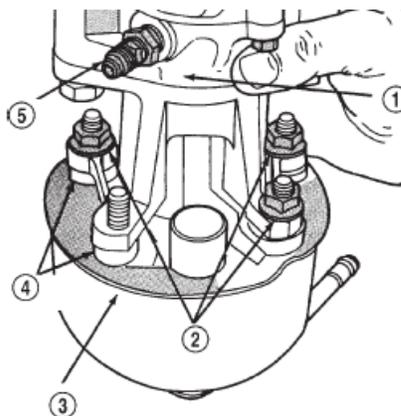


Fig. 8 Bracket Mounting Nuts

- 1 - VACUUM PUMP
- 2 - ATTACHING NUTS
- 3 - STEERING PUMP
- 4 - PUMP SPACERS
- 5 - OIL FEED FITTING

# Installation Instructions for '94 - '02 Dodge Trucks

## Part # 000945, 000950

**CAUTION: NOT ALL VEHICLES CONFORM TO PUBLISHED SPECIFICATIONS! TEST FIT THIS ASSEMBLY IN YOUR TRUCK BEFORE PAINTING OR ALTERING IN ANY WAY. ONLY ASSEMBLIES IN NEW CONDITION WILL BE ACCEPTED FOR RETURN OR EXCHANGE.**

### REMOVAL:

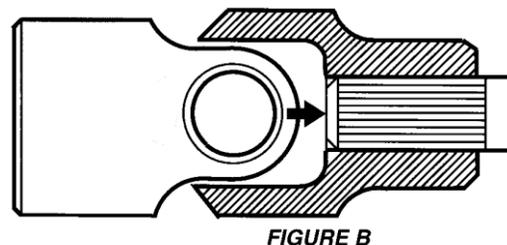
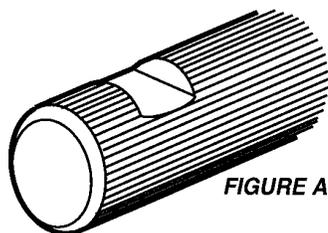
1. Engage the ignition switch / steering column lock with the steering wheel & wheels centered. (**NOTE** It may be necessary to loosen the clamp screws at each end of stock assembly prior to locking for accessibility)
2. Remove the stock shaft assembly by first loosening the clamp screws at each end of the assembly; one at the steering column and one at the steering box and then slide each coupling off of the shaft at each end. The slip feature of the shaft assembly allows compression of the shaft length to allow removal.

### INSTALLATION:

3. Fully collapse the Borgeson shaft assembly and fit into position. Now extend the shaft length so that the ends fit over the splined or "DD" shafts at the steering box and steering column to the depth shown in Figure B below.
4. For splined connections at the box or column a seat must be provided for the set screw as shown in Figure A. (**NOTE** The existing factory flat will not be used) Tighten the set screw to mark the shaft and then remove the universal joint to file a new flat spot on the splined shaft. Tighten the set screw into the seat and then tighten the lock nut.
5. For Double-D connections at the column a small dimple should be drilled into the shaft at the set screw locations to insure proper seating of the set screws. First install the universal joint to the depth shown in Figure B and mark set screw locations. Remove universal joint from column shaft and drill a small dimple into shaft at locations marked. Reinstall universal joint to depth shown in figure B. Tighten the set screws into the seat and then tighten the lock nuts.

It should be noted here that Chrysler has issued a Recall Notification for all 1994 and 1995 Model Year Dodge Ram Trucks because of a fault inside the steering column itself which can cause the shafts inside the column to disengage from each other and result in loss of steering control of the vehicle. Chrysler has addressed this problem by instructing Dodge dealers to install a "stop" on the intermediate shaft to prevent disengagement of the steering column shafts. We have added a feature to our assembly that provides the same measure of safety.

6. Position the steel collar on the lower section of the shaft so that it is at the bottom edge of the rubber boot and tighten the set screw.
7. After approximately 100 miles, retighten set screws and then lock nuts. If you wish to use a product such as Loctite, we recommend Loctite 222 for ease of removal.



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