

2009 DRIVELINE/AXLES**Differential and Driveline - Journey****HALF SHAFT, FRONT****DESCRIPTION****DESCRIPTION**

This vehicle is equipped with either an equal length halfshaft system, consisting of short halfshafts on both sides with an intermediate drive shaft on the right side, or an unequal length halfshaft system consisting of short left and long right halfshafts. The halfshafts consist of a fixed constant velocity (CV) joint at the outboard end connected by a solid shaft to a plunging CV joint on the inboard end. The inner (CV) joint has a splined connection into the transmission, or onto the intermediate drive shaft, and is retained with a snap ring. The outer joint has a spline connection to the wheel hub and is retained with a steel lock nut.

All the halfshaft assemblies use the same type of inner and outer joints. The inner joint is a tripod joint that allows for the changes in halfshaft length through the jounce and rebound travel of the front suspension. The outer joint is a Rzeppa joint that allows articulation during front suspension travel and steering. Both tripod joints and Rzeppa joints are true constant velocity (CV) joint assemblies.

The inner tripod joints are designed with a retention feature that prevents the tripod rollers from coming out of the inner joint housing up to a specific load. If this feature is overcome and any of the rollers are pulled past the retention feature the joint will "lock-up" and no longer function properly. The entire halfshaft assembly must be replaced if this occurs.

DIAGNOSIS AND TESTING**HALFSHAFT****VEHICLE INSPECTION**

1. Check for grease in the vicinity of the inboard tripod joint and outboard CV joint; this is a sign of inner or outer joint seal boot or seal boot clamp damage.

NOISE OR VIBRATION IN TURNS

A clicking noise or a vibration in turns could be caused by one of the following conditions:

- Damaged outer CV or inner tripod joint seal boot or seal boot clamps. This will result in the loss and/or contamination of the joint grease, resulting in inadequate lubrication of the joint.
- Noise may also be caused by another component of the vehicle coming in contact with the half shafts.

CLUNKING NOISE DURING ACCELERATION

This noise may be a result of one of the following conditions:

- A torn seal boot on the inner or outer joint of the half shaft assembly.
- A loose or missing clamp on the inner or outer joint of the half shaft assembly.
- A damaged or worn half shaft CV joint.

SHUDDER OR VIBRATION DURING ACCELERATION

This problem could be a result of:

- A worn or damaged half shaft inner tripod joint.
- A sticking tripod joint spider assembly (inner tripod joint only).
- Improper wheel alignment. Refer to **Front Suspension/Wheel Alignment - Standard Procedure**

VIBRATION AT HIGHWAY SPEEDS

This problem could be a result of:

- Foreign material (mud, etc.) packed on the backside of the wheel(s).
- Out of balance tires or wheels. Refer to **Tires and Wheels - Standard Procedure**
- Improper tire or wheel runout. Refer to **Tires and Wheels - Diagnosis and Testing**

REMOVAL**WITHOUT INTERMEDIATE SHAFT**

- NOTE:** Never grasp the halfshaft assembly by the inner or outer boots doing so may damage to the boot.
- NOTE:** The inner tripod joints are designed with a retention feature that prevents the tripod rollers from coming out of the inner joint housing up to a specific load. If this feature is overcome and any of the rollers are pulled past the retention feature the joint will "lock-up" and no longer function properly. The entire halfshaft assembly must be replaced if this occurs.
- NOTE:** Some halfshafts use a tuned rubber damper weight. When replacing a halfshaft assembly, be sure the replacement halfshaft has a damper weight.

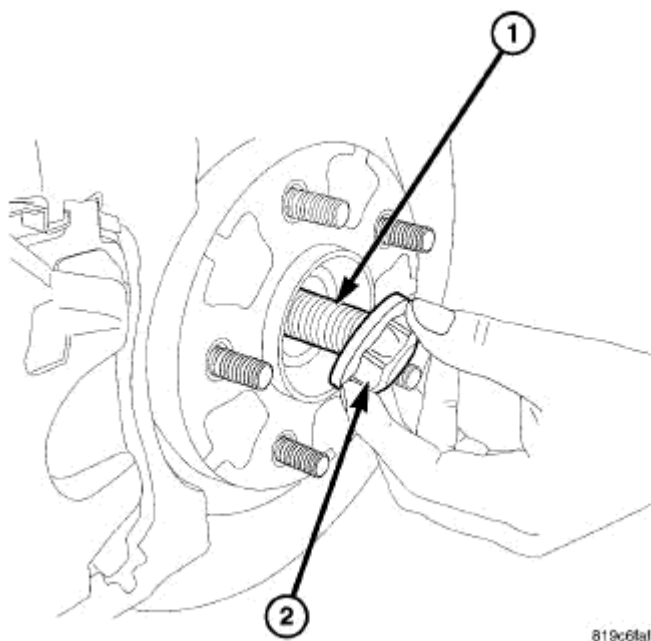


Fig. 1: Removing/Installing Halfshaft Nut
Courtesy of CHRYSLER LLC

1. Raise vehicle.
2. Remove the wheel and tire assembly from the vehicle. Refer to **Tires and Wheels - Removal**
3. Apply the service brakes to keep hub from turning, then loosen the halfshaft nut (2).

NOTE: Do not re-use the hub nut. The hub nut is a single-use type. A new hub nut is required for reassembly.

4. Remove the nut (2) from the halfshaft (1) and discard it.

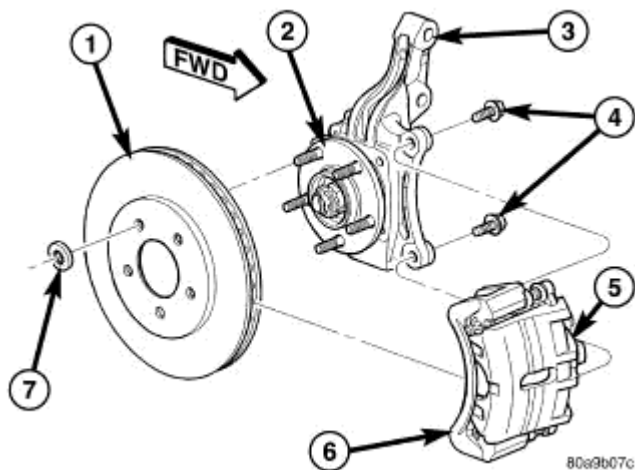


Fig. 2: Front Brake Mounting
Courtesy of CHRYSLER LLC

5. Remove the two bolts (4) that secure the front disc brake caliper (5) and adapter (6) to the steering knuckle (3).

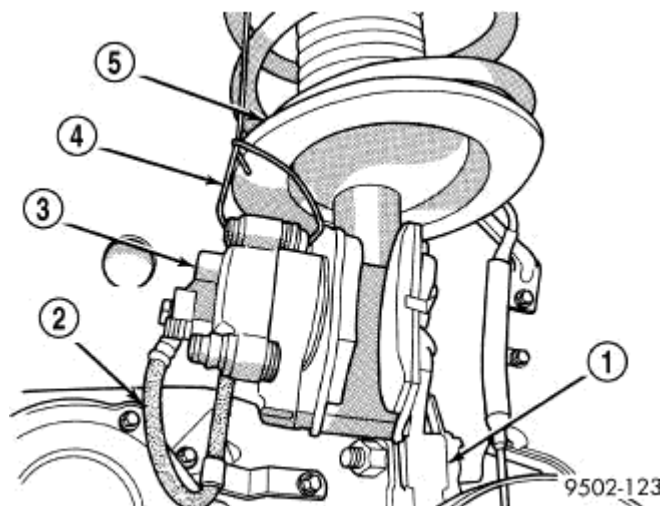


Fig. 3: Properly Supported Disc Brake Caliper - Typical
Courtesy of CHRYSLER LLC

6. Remove the disc brake caliper assembly (3) from the steering knuckle (1). Caliper assembly is removed by first rotating top of caliper assembly away from steering knuckle and then removing bottom of assembly out from under machined abutment on steering knuckle.

NOTE: Do not allow the brake caliper assembly to hang by the brake flex hose (2).

7. Support disc brake caliper assembly by using a wire hanger (4) and suspend it from the strut assembly (5).

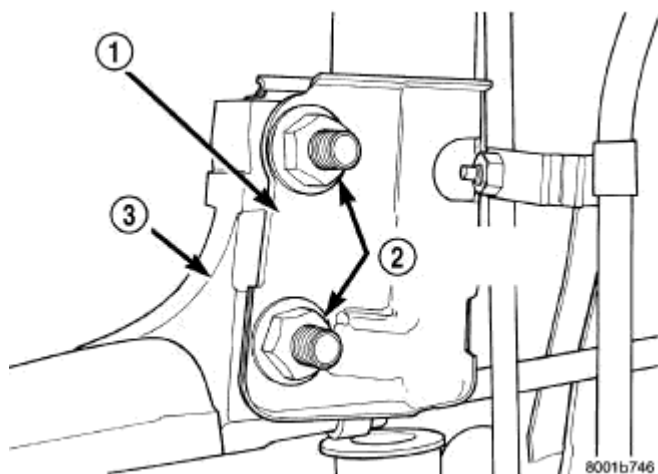


Fig. 4: Strut To Steering Knuckle Attaching Bolts
Courtesy of CHRYSLER LLC

8. Remove the brake rotor from the hub and bearing assembly.
9. Remove the steering knuckle-to-strut attachment bolts (2) from the steering knuckle (3).
10. Pull the steering knuckle from the strut clevis bracket (1).

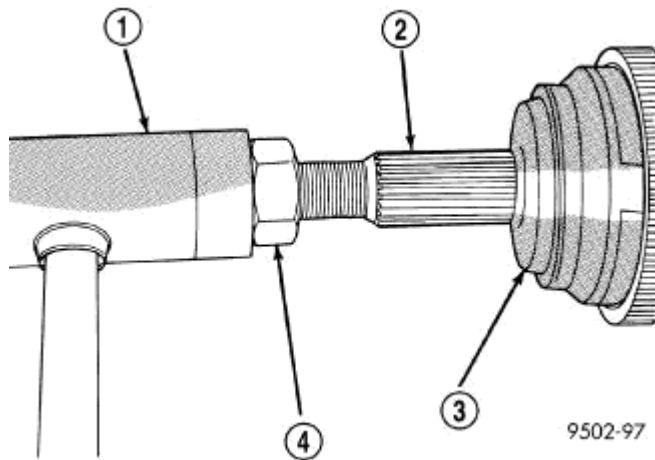


Fig. 5: Outer C/V Joint On Interconnecting Shaft
Courtesy of CHRYSLER LLC

NOTE: Due to tight tolerances, the outer C/V joint might have to be forced apart from the bearing hub. To avoid damaging the axle half shaft threads during removal, install the hub nut (4) so that approximately half the threads are engaged on the shaft, and use a soft faced hammer (1) to tap the shaft (2) out of the hub.

NOTE: Care must be taken not to separate the inner C/V joint during this operation. Do not allow halfshaft to hang by inner C/V joint after removing outer C/V Joint from the hub/bearing assembly in steering knuckle, end of halfshaft must be supported.

11. Pull steering knuckle assembly down and away from the outer C/V joint of the half shaft assembly while pulling the joint out of the hub bearing.

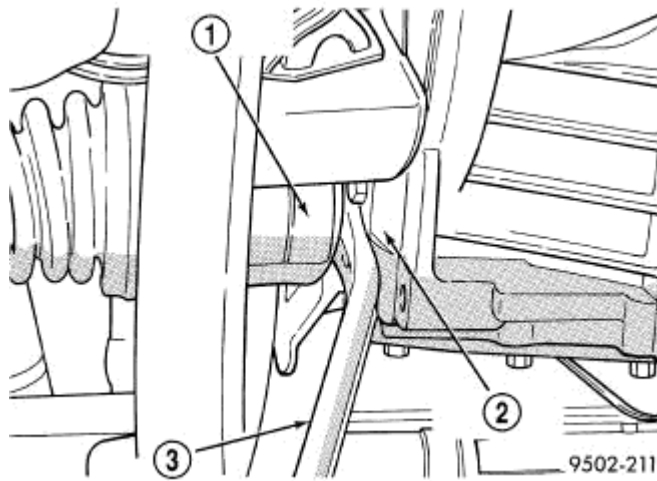


Fig. 6: Disengaging Inner Tripod Joint From Transaxle
Courtesy of CHRYSLER LLC

NOTE: Transaxle fluid might leak when the half shaft is removed from the transaxle.

12. If equipped, remove the engine belly pan.
13. Support the outer end of the halfshaft assembly. Insert a pry bar (3) between inner tripod joint (1) and transaxle case (2). Pry against inner tripod joint, until tripod joint retaining snap-ring is disengaged from transaxle side gear.

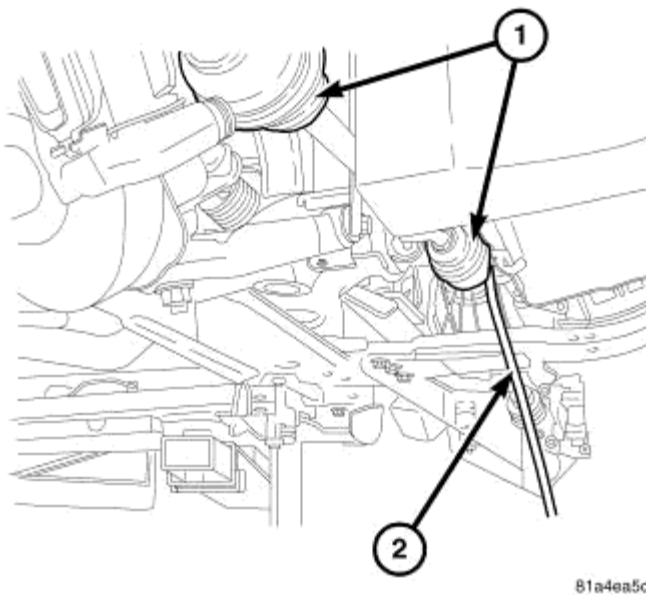


Fig. 7: View Of Manual Right Side Axle - 2.0L Gas
Courtesy of CHRYSLER LLC

14. Pull the steering knuckle assembly down and away from the outer C/V joint of the half shaft assembly while pulling the halfshaft (1) out of the transmission.
15. Remove the half shaft.

WITH INTERMEDIATE SHAFT

- NOTE:** Never grasp the halfshaft assembly by the inner or outer boots. This can cause damage to the boot, which will allow contaminants to enter the C/V joint.
- NOTE:** The inner tripod joints are designed with a retention feature that prevents the tripod rollers from coming out of the inner joint housing up to a specific load. If this feature is overcome and any of the rollers are pulled past the retention feature the joint will "lock-up" and no longer function properly. The entire halfshaft assembly must be replaced if this occurs.
- NOTE:** Some halfshafts use a tuned rubber damper weight to cancel vibration. When replacing a halfshaft assembly, be sure the replacement halfshaft has a damper.

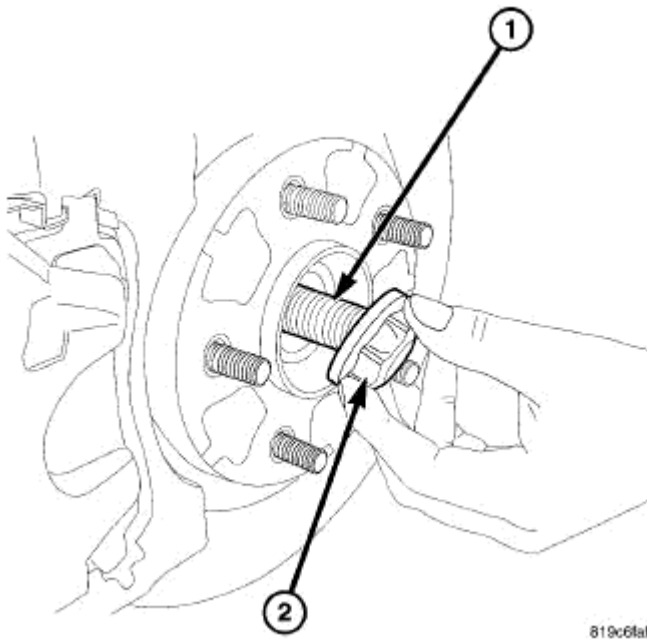


Fig. 8: Removing/Installing Halfshaft Nut
 Courtesy of CHRYSLER LLC

1. Raise vehicle.
2. Remove the wheel and tire assembly from the vehicle. Refer to **Tires and Wheels - Removal**
3. Apply the service brakes to keep hub from turning, then loosen the halfshaft nut (2).

NOTE: Do not re-use the hub nut. The hub nut is a single-use type. A new hub nut is required for reassembly.

4. Remove the nut (2) from the halfshaft (1) and discard it.

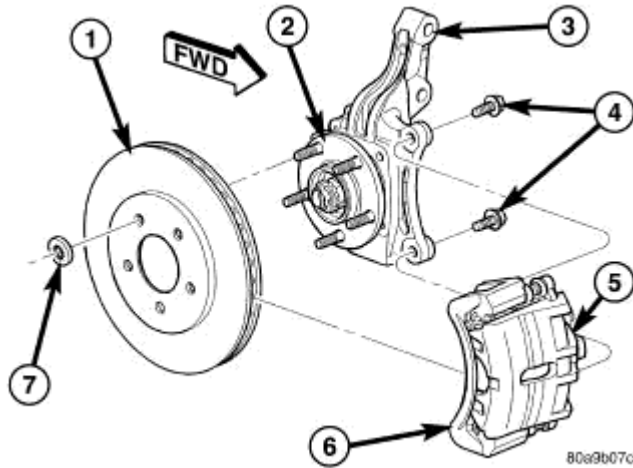


Fig. 9: Front Brake Mounting
Courtesy of CHRYSLER LLC

5. Remove the two bolts (4) that secure the front disc brake caliper (5) and adapter (6) to the steering knuckle (3).

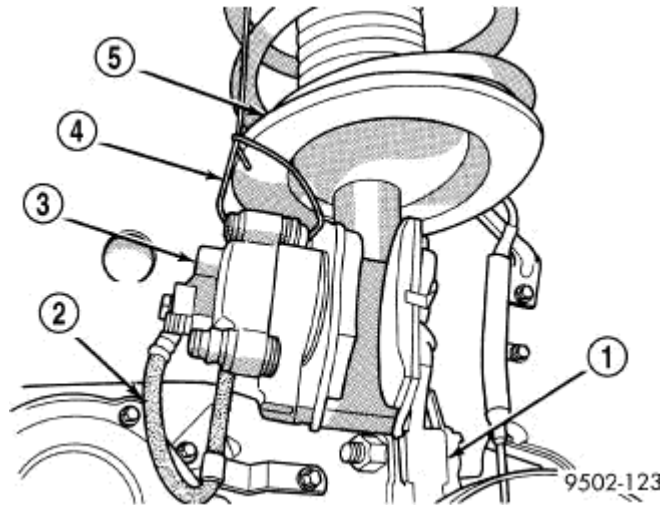


Fig. 10: Properly Supported Disc Brake Caliper - Typical
Courtesy of CHRYSLER LLC

6. Remove the disc brake caliper assembly (3) from the steering knuckle (1). Caliper assembly is removed by first rotating top of caliper assembly away from steering knuckle and then removing bottom of assembly out from under machined abutment on steering knuckle.

NOTE: Do not allow the brake caliper assembly to hang by the brake flex hose (2).

7. Support disc brake caliper assembly by using a wire hanger (4) and suspend it from the strut assembly (5).

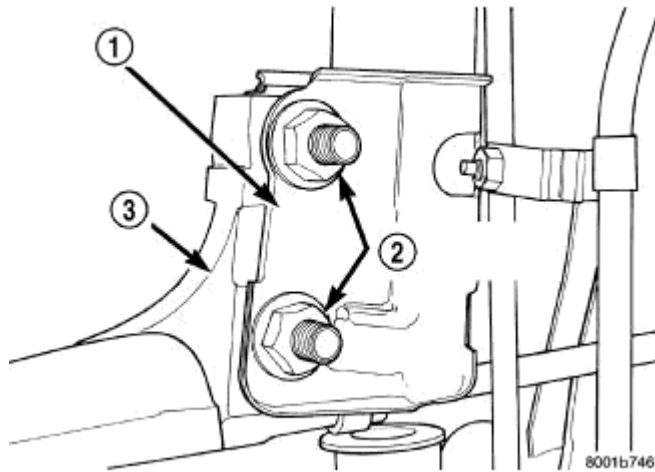


Fig. 11: Strut To Steering Knuckle Attaching Bolts
Courtesy of CHRYSLER LLC

8. Remove the brake rotor from the hub and bearing assembly.
9. Remove the steering knuckle-to-strut attachment bolts (2) from the steering knuckle (3).
10. Pull the steering knuckle from the strut clevis bracket (1).

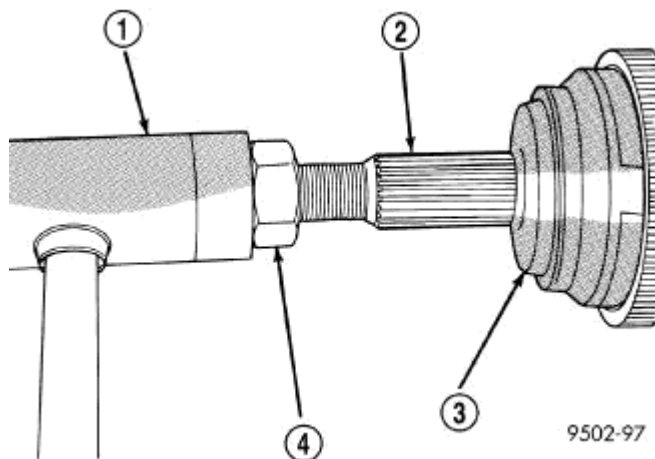


Fig. 12: Outer C/V Joint On Interconnecting Shaft
Courtesy of CHRYSLER LLC

NOTE: Due to tight tolerances, the outer C/V joint might have to be forced apart from the bearing hub. To avoid damaging the axle half shaft threads during removal, install the hub nut (4) so that approximately half the

threads are engaged on the shaft, and use a soft faced hammer (1) to tap the shaft (2) out of the hub.

NOTE: Care must be taken not to separate the inner C/V joint during this operation. Do not allow halfshaft to hang by inner C/V joint after removing outer C/V Joint from the hub/bearing assembly in steering knuckle, end of halfshaft must be supported.

11. Pull steering knuckle assembly down and away from the outer C/V joint of the half shaft assembly while pulling the joint out of the hub bearing.

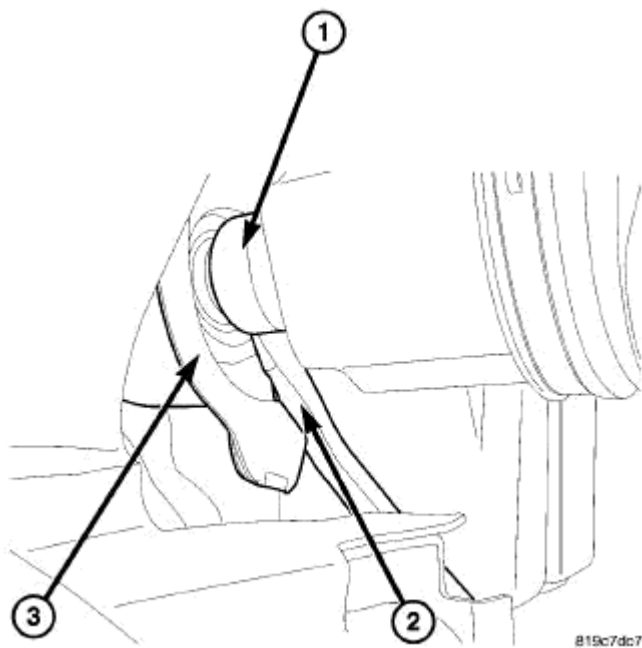


Fig. 13: Right Halfshaft From Intermediate Shaft
Courtesy of CHRYSLER LLC

NOTE: Transaxle fluid might leak when the half shaft is removed from the transaxle.

12. If equipped, remove the engine belly pan.
13. Support the outer end of the halfshaft assembly. Insert a pry bar (2) between inner tripod joint (1) and the intermediate shaft (3), or the transaxle case if removing the left half shaft. Pry against inner tripod joint, until tripod joint retaining snap-ring is disengaged from the intermediate shaft or transaxle side gear.

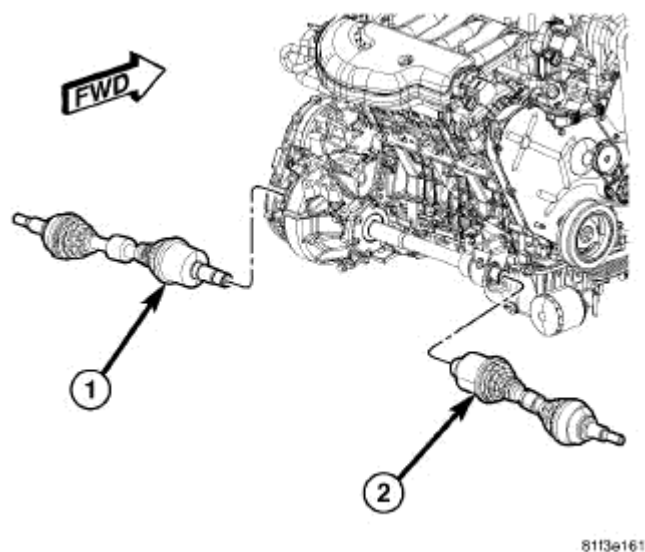


Fig. 14: Outer C/V Joint Of Half Shaft Assembly
Courtesy of CHRYSLER LLC

NOTE: 3.5L Shown in illustration, all others equipped with an intermediate shaft are similar.

14. Pull the steering knuckle assembly down and away from the outer C/V joint of the half shaft assembly while pulling the halfshaft (1 or 2) out of the transmission.
15. Remove the half shaft.

INSTALLATION

WITHOUT INTERMEDIATE SHAFT

NOTE: The inner tripod joints are designed with a retention feature that prevents the tripod rollers from coming out of the inner joint housing up to a specific load. If this feature is overcome and any of the rollers are pulled past the retention feature the joint will "lock-up" and no longer function properly. The entire halfshaft assembly must be replaced if this occurs.

NOTE: Some halfshafts use a tuned rubber damper weight. When replacing a halfshaft assembly, be sure the replacement halfshaft has the same damper weight as the original.

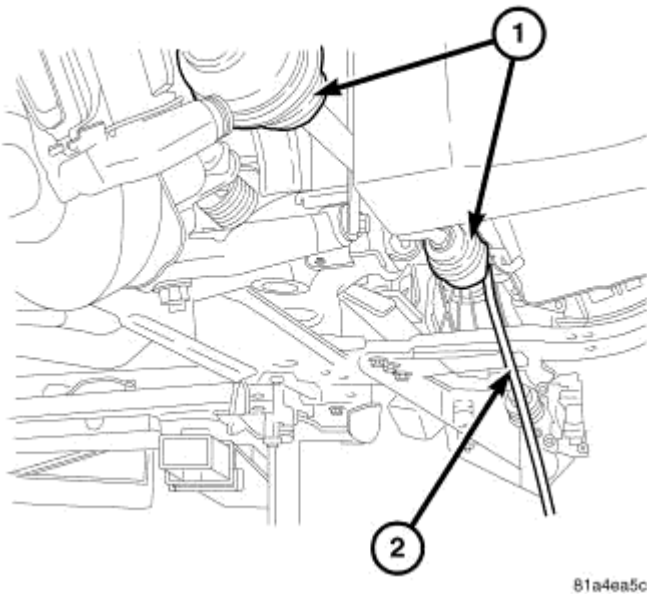


Fig. 15: View Of Manual Right Side Axle - 2.0L Gas
 Courtesy of CHRYSLER LLC

1. Thoroughly clean spline and oil seal sealing surface on tripod joint. Lightly lubricate oil seal sealing surface on tripod joint with fresh clean transmission lubricant.
2. Holding halfshaft assembly (1) by tripod joint and interconnecting shaft, install tripod joint into transaxle side gear as far as possible by hand. Be sure to engage splines prior to applying force.

NOTE: Attempt to remove tripod joint by hand to verify that the snap ring is fully engaged. If snap ring is fully engaged, tripod joint will not be removable from transmission by hand.

3. Forcefully push the tripod joint into the transaxle side gear, until snap-ring is fully engaged.

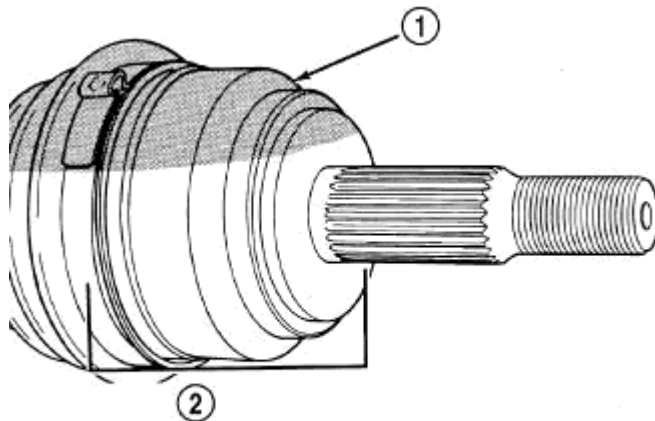


Fig. 16: Outer CV Joint Inspection
Courtesy of CHRYSLER LLC

4. Clean all debris and moisture out of steering knuckle, in the area where outer CV joint (1) will be installed into steering knuckle.
5. Ensure that front of outer CV joint (2) which fits against the face of the hub and bearing is free of debris and moisture before installing outer CV joint into hub and bearing assembly.

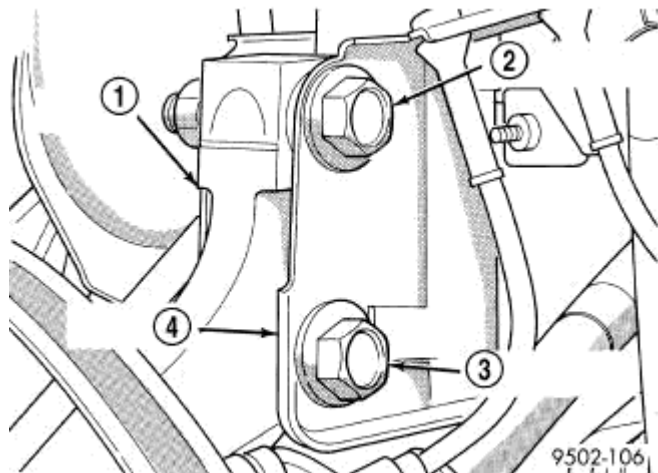


Fig. 17: Correctly Installed Eccentric Attaching Bolt
Courtesy of CHRYSLER LLC

6. Slide half shaft back into front hub and bearing assembly.

CAUTION: The steering knuckle to strut assembly attaching bolts are serrated and must not be turned during installation. Install nuts while holding bolts stationary in the steering knuckle.

CAUTION: If the vehicle being serviced is equipped with eccentric strut assembly attaching bolts, the eccentric bolt must be installed in the bottom (slotted) hole on the strut clevis bracket.

7. Install steering knuckle (1) into clevis bracket (4). Install the strut damper to steering knuckle attaching bolts (3 and 3). Tighten both bolts to 88 N.m (65 ft. lbs.) plus an additional 1/4 turn.

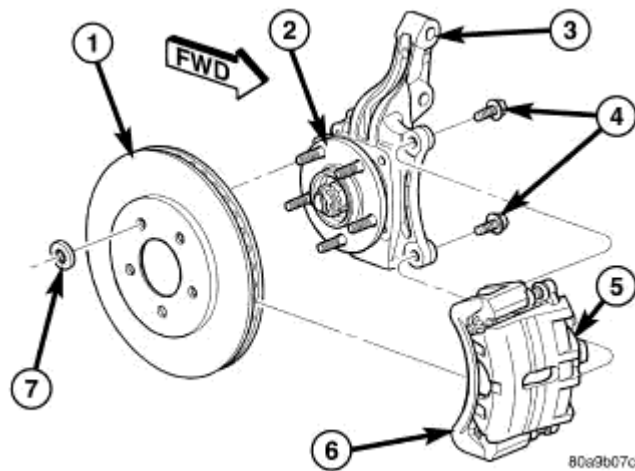


Fig. 18: Front Brake Mounting
Courtesy of CHRYSLER LLC

8. Install brake disc (1) onto hub and bearing assembly (2).
9. Install front disc brake caliper (5) and adapter (6) to the steering knuckle (3). Caliper is installed by first sliding bottom of caliper assembly under abutment on steering knuckle, and then rotating top of caliper against top abutment.
10. Install the two bolts (4) that secure the front disc brake caliper and adapter to the steering knuckle. Tighten the bolts to 169 N.m (125 ft. lbs.).

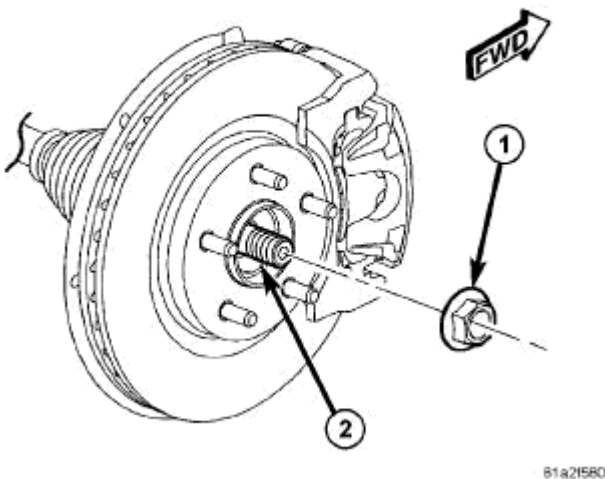


Fig. 19: View Of Hub Nut & Axle Shaft
Courtesy of CHRYSLER LLC

NOTE: Always install a new hub nut. The original hub nut is one-time use only and should be discarded when removed.

2009 Dodge Journey R/T

2009 DRIVELINE/AXLES Differential and Driveline - Journey

11. Clean all foreign matter from the threads of the outer CV joint. Install the half shaft to hub/bearing assembly nut (1) onto halfshaft (2).
12. With the brakes applied to keep hub from turning, tighten the hub nut to 160 N.m (118 ft. lbs.).
13. Install front wheel and tire assembly. Install and tighten the wheel mounting stud nuts in proper sequence until all nuts are torqued to half the required specification. Then repeat the tightening sequence to the full specified torque of 135 N.m (100 ft. lbs.).
14. Lower vehicle.
15. Check for correct fluid level in transaxle assembly. Refer to **Transmission and Transfer Case/Manual Automatic - Getrag MPS6/FLUID - Standard Procedure**
16. If equipped, install the engine belly pan.

WITH INTERMEDIATE SHAFT

- NOTE:** The inner tripod joints are designed with a retention feature that prevents the tripod rollers from coming out of the inner joint housing up to a specific load. If this feature is overcome and any of the rollers are pulled past the retention feature the joint will "lock-up" and no longer function properly. The entire halfshaft assembly must be replaced if this occurs.
- NOTE:** Some halfshafts use a tuned rubber damper weight. When replacing a halfshaft assembly, be sure the replacement halfshaft has the same damper weight as the original.
- NOTE:** 3.5L Shown in illustration, all others equipped with an intermediate shaft are similar.
- NOTE:** Care must be taken not to separate the inner C/V joint during this operation. Do not allow halfshaft to hang by inner C/V joint after removing outer C/V Joint from the hub/bearing assembly in steering knuckle, end of halfshaft must be supported.

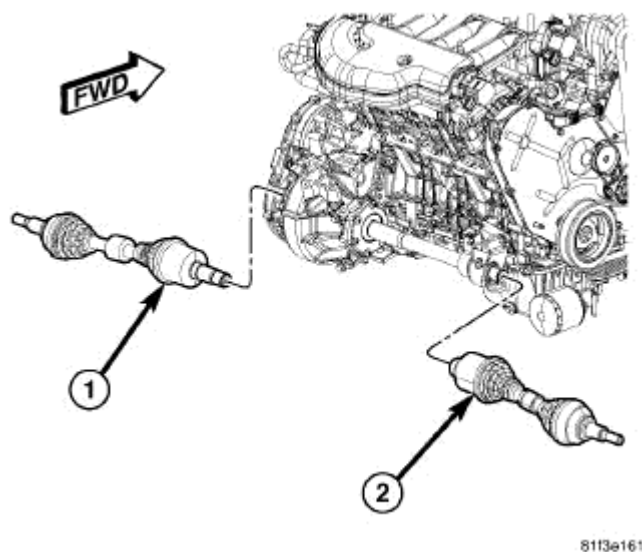
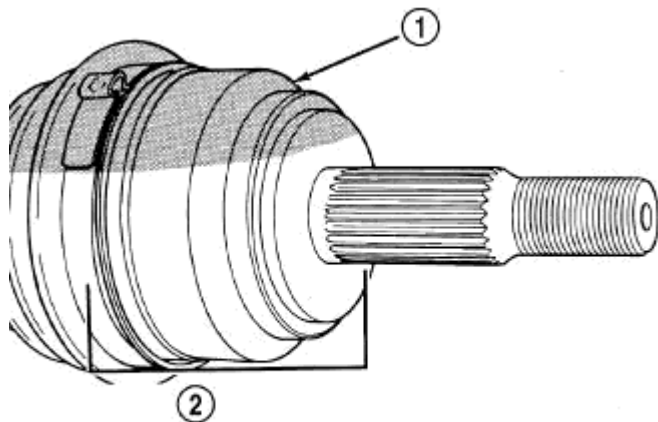


Fig. 20: Outer C/V Joint Of Half Shaft Assembly
 Courtesy of CHRYSLER LLC

1. Thoroughly clean spline and oil seal sealing surface on tripod joint. Lightly lubricate oil seal sealing surface on tripod joint with fresh clean transmission lubricant.
2. Holding half shaft assembly (1) or (2) by tripod joint and interconnecting shaft, install tripod joint into transaxle side gear (left side) or the intermediate shaft (right side) as far as possible by hand. Be sure to engage splines prior to applying force.

NOTE: Attempt to remove tripod joint by hand to verify that the snap ring is fully engaged. If snap ring is fully engaged, tripod joint will not be removable from transmission by hand.

3. Forcefully push the tripod joint into the transaxle side gear, until snap-ring is fully engaged.

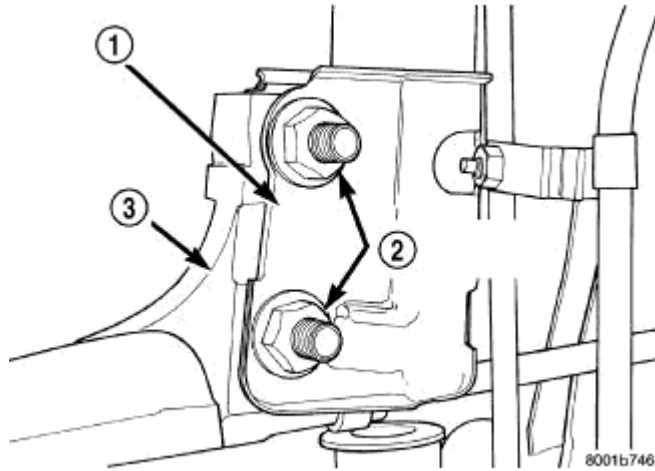


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Fig. 21: Outer CV Joint Inspection

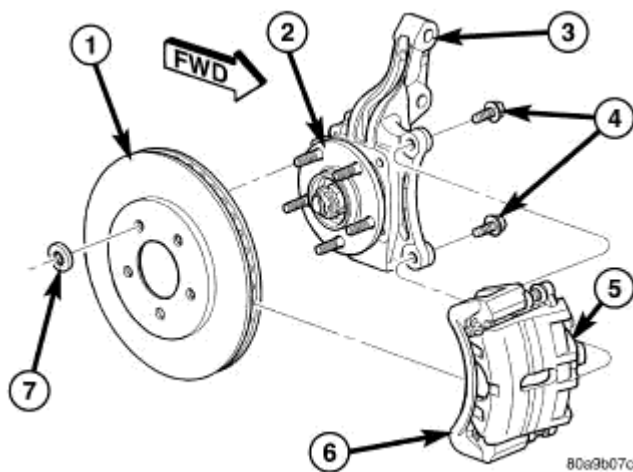
Courtesy of CHRYSLER LLC

4. Clean all debris and moisture out of steering knuckle, in the area where outer CV joint (1) will be installed into steering knuckle.
5. Ensure that front of outer CV joint (2) which fits against the face of the hub and bearing is free of debris and moisture before installing outer CV joint into hub and bearing assembly.

**Fig. 22: Strut To Steering Knuckle Attaching Bolts**

Courtesy of CHRYSLER LLC

6. Install the steering knuckle(3) to the strut clevis bracket (1).
7. Install the steering knuckle-to-strut attachment bolts and nuts (2). While holding the bolts in place, tighten the nuts to 140 N.m (103 ft. lbs.)

**Fig. 23: Front Brake Mounting**

Courtesy of CHRYSLER LLC

8. Install brake disc (1) onto hub and bearing assembly (2).
9. Install front disc brake caliper (5) and adapter (6) to the steering knuckle (3). Caliper is installed by first sliding bottom of caliper assembly under abutment on steering knuckle, and then rotating top of caliper against top abutment.
10. Install the two bolts (4) that secure the front disc brake caliper and adapter to the steering knuckle. Tighten the bolts to 169 N.m (125 ft. lbs.).

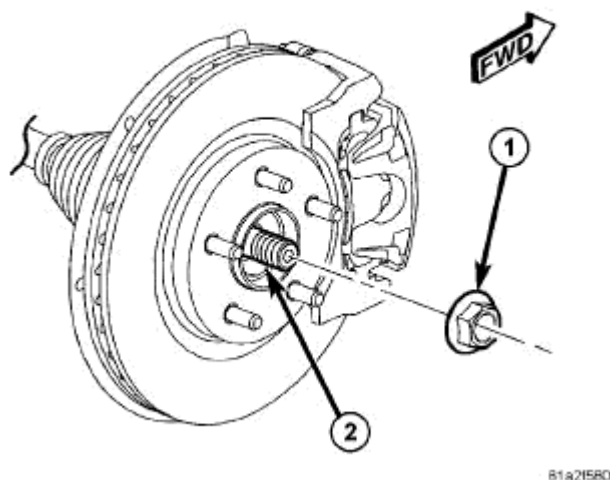


Fig. 24: View Of Hub Nut & Axle Shaft
Courtesy of CHRYSLER LLC

NOTE: Always install a new hub nut. The original hub nut is one-time use only and should be discarded when removed.

11. Clean all foreign matter from the threads of the outer CV joint. Install the half shaft to hub/bearing assembly nut (1) onto halfshaft (2).
12. With the brakes applied to keep hub from turning, tighten the hub nut to 160 N.m (118 ft. lbs.).
13. Install front wheel and tire assembly. Install and tighten the wheel mounting stud nuts in proper sequence until all nuts are torqued to half the required specification. Then repeat the tightening sequence to the full specified torque of 135 N.m (100 ft. lbs.).
14. Lower vehicle.
15. Check for correct fluid level in transaxle assembly. Refer to Transmission and Transfer Case/Manual Automatic - Getrag MPS6/FLUID - Standard Procedure
16. If equipped, install the engine belly pan.

SPECIFICATIONS

SPECIFICATIONS

TORQUE SPECIFICATIONS

DESCRIPTION	N.m	Ft. Lbs.	In. Lbs.
Bolts, Caliper Adapter to Knuckle	169	125	-
Nut, Hub	160	118	-
Nuts, Front Wheel Lug	135	100	-
Nut, Tie Rod End to Knuckle	75	55	-
Nut, Strut Clevis to Knuckle	88 +90°	65 +90°	-
Bolts, Heat shield	14	-	124
Bolts, Strut Damper to Steering Knuckle	88	65	-
Bolts, Disc Brake Caliper Adapter	169	125	-
10 mm Bolts, Intermediate Bearing to block	54	39	-

BOOT, DRIVE SHAFT, OUTER

Removal

REMOVAL

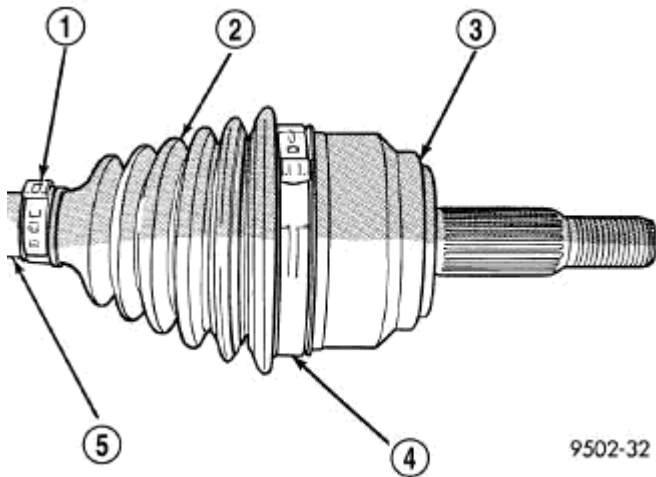


Fig. 25: Outer C/V Joint Seal Boot Clamps
Courtesy of CHRYSLER LLC

- | |
|----------------------------|
| 1 - SMALL CLAMP |
| 2 - SEALING BOOT |
| 3 - OUTER CV JOINT HOUSING |

4 - LARGE CLAMP

5 - INTERCONNECTING SHAFT

1. Remove halfshaft assembly requiring boot replacement from vehicle. See **Removal**
2. Remove large boot clamp (4) retaining CV joint sealing boot to CV joint housing (3) and discard. Remove small clamp (1) that retains outer CV joint sealing boot to interconnecting shaft (5) and discard. Remove sealing boot (2) from outer CV joint housing and slide it down interconnecting shaft.
3. Wipe away grease to expose outer CV joint and interconnecting shaft.

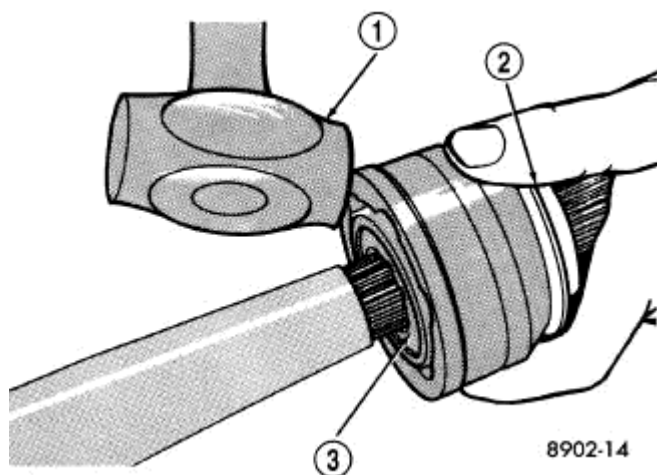


Fig. 26: Outer C/V Joint Removal from Interconnecting Shaft
Courtesy of CHRYSLER LLC

- | |
|---------------------------------------|
| 1 - SOFT HAMMER (TAP INNER RACE ONLY) |
| 2 - WEAR SLEEVE |
| 3 - CIRCLIP (OUTER END OF SHAFT) |

4. Remove outer CV joint from interconnecting shaft using the following procedure: Support interconnecting shaft in a vise equipped with protective caps on jaws of vise to prevent damage to interconnecting shaft. Then, using a soft-faced hammer (1), sharply hit the end of the CV joint housing to dislodge housing from internal circlip (3) on interconnecting shaft. Then slide outer CV joint off end of interconnecting shaft, joint may have to be tapped off shaft using a **soft-faced** hammer.

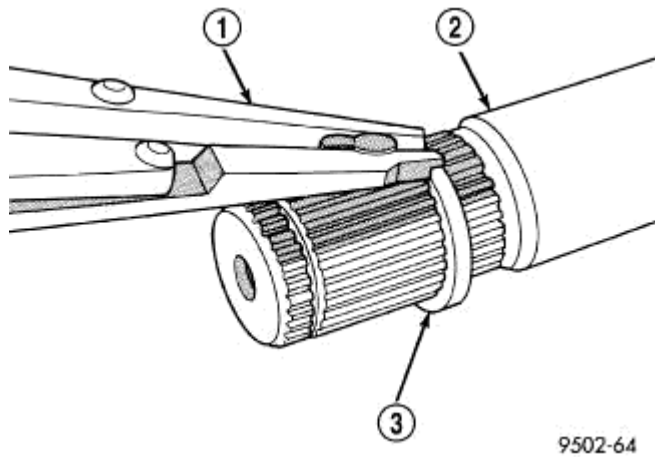


Fig. 27: Circlip Removal from Interconnecting Shaft
Courtesy of CHRYSLER LLC

1 - SNAP RING PLIERS
2 - INTERCONNECTING SHAFT
3 - CIRCLIP

NOTE: Always use a new circlip.

5. Remove large circlip (3) from the interconnecting shaft (2) before attempting to remove outer CV joint sealing boot.
6. Slide sealing boot off interconnecting shaft.
7. Thoroughly clean and inspect outer CV joint assembly and interconnecting joint for any signs of excessive wear. **If any parts show signs of excessive wear, the halfshaft assembly will require replacement. Component parts of these halfshaft assemblies are not serviceable.**

Installation

INSTALLATION

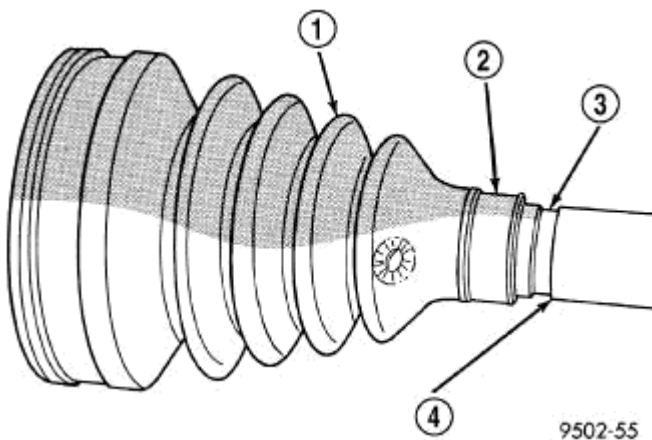


Fig. 28: Sealing Boot Installation on Interconnecting Shaft
Courtesy of CHRYSLER LLC

1 - SEALING BOOT
2 - RAISED BEAD IN THIS AREA OF SEALING BOOT
3 - GROOVE
4 - INTERCONNECTING SHAFT

1. Slide new sealing boot clamp (2) onto interconnecting shaft (4). Slide the outer CV joint assembly sealing boot (1) onto the interconnecting shaft (4). **Seal boot MUST be positioned on interconnecting shaft so the raised bead on the inside of the seal boot is in groove on interconnecting shaft.**

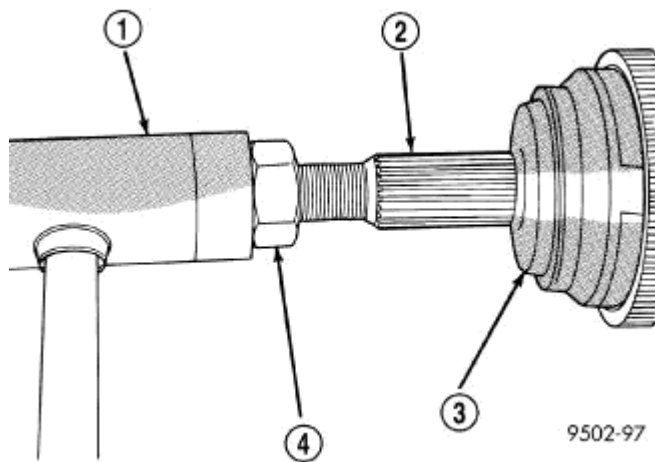


Fig. 29: Outer C/V Joint On Interconnecting Shaft
Courtesy of CHRYSLER LLC

1 - SOFT FACED HAMMER
2 - STUB AXLE
3 - OUTER C/V JOINT
4 - HUB NUT

NOTE: Always use a new circlip.

2. Align splines on interconnecting shaft with splines on cross of outer CV joint assembly and start outer CV joint onto interconnecting shaft.
3. Install outer CV joint assembly onto interconnecting shaft by using a **soft-faced** hammer (1) and tapping end of stub axle (2) (with hub nut (4) installed) until outer CV joint (3) is fully seated on interconnecting shaft.

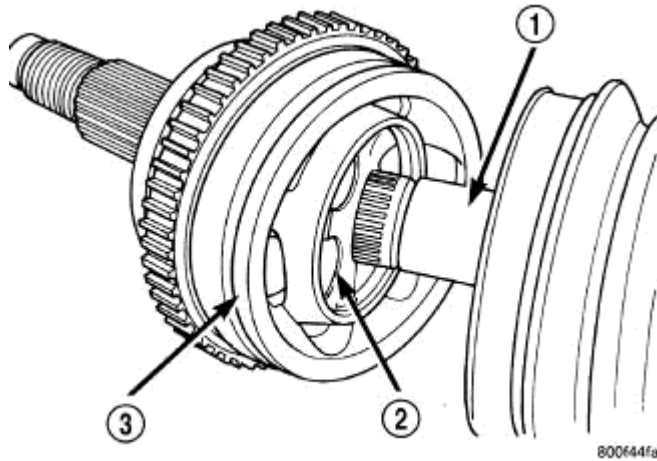


Fig. 30: Outer CV Joint Correctly Installed on Interconnecting Shaft
Courtesy of CHRYSLER LLC

1 - INTERCONNECTING SHAFT
2 - CROSS
3 - OUTER C/V JOINT ASSEMBLY

4. Outer CV joint assembly must be installed on interconnecting shaft until cross (2) of outer CV joint assembly (3) is seated against circlip on interconnecting shaft (1).

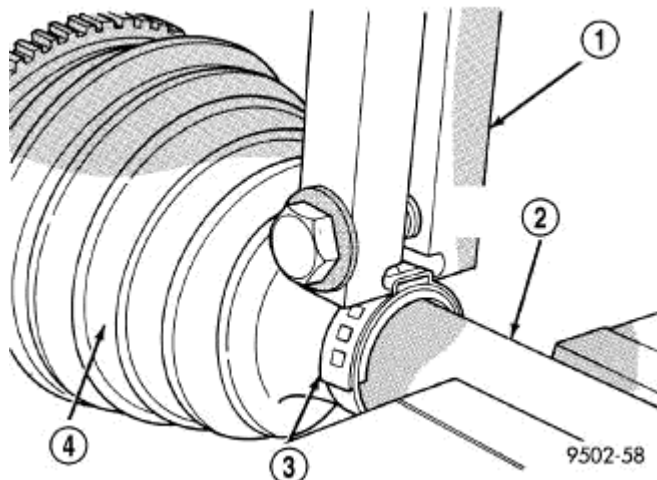


Fig. 31: Crimping Tool Installed on Sealing Boot Clamp
Courtesy of CHRYSLER LLC

1 - CRIMPING TOOL C-4975A
2 - INTERCONNECTING SHAFT
3 - CLAMP
4 - SEALING BOOT

5. Distribute 1/2 the amount of grease provided in seal boot service package (DO NOT USE ANY OTHER TYPE OF GREASE) into outer CV joint assembly housing. Put the remaining amount into the sealing boot (4) .
6. Install outer CV joint sealing boot to interconnecting shaft clamp evenly on sealing boot.
7. Clamp sealing boot onto interconnecting shaft (2) using crimper, Crimping Tool C-4975A and the following procedure. Place Crimping Tool C-4975A (1) over bridge of clamp (3).

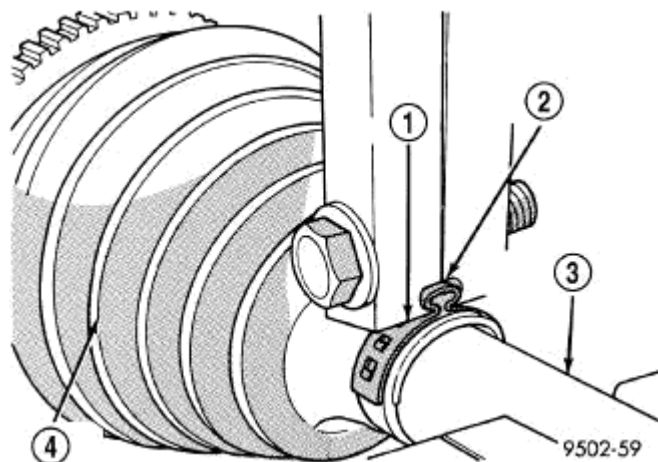


Fig. 32: Sealing Boot Retaining Clamp Installed
Courtesy of CHRYSLER LLC

1 - CLAMP
2 - JAWS OF CRIMPING TOOL C-4975A MUST BE CLOSED COMPLETELY TOGETHER HERE
3 - INTERCONNECTING SHAFT
4 - SEALING BOOT

8. Tighten nut on Crimping Tool C-4975A until jaws on tool (2) are closed completely together, face to face.

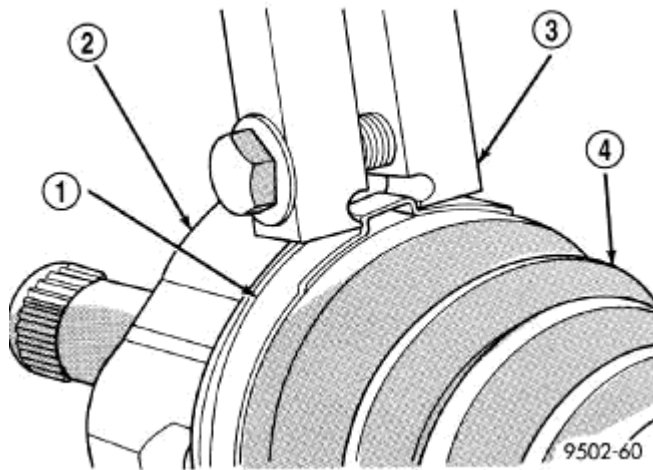


Fig. 33: Crimping Tool Installed on Sealing Boot Clamp
Courtesy of CHRYSLER LLC

1 - CLAMP
2 - TRIPOD JOINT HOUSING
3 - CRIMPING TOOL C-4975A
4 - SEALING BOOT

CAUTION: Seal must not be dimpled, stretched, or out-of-shape in any way. If seal is NOT shaped correctly, equalize pressure in seal and shape it by hand.

9. Position outer CV joint sealing boot (4) into its retaining groove on outer CV joint housing. Install sealing boot to outer CV joint retaining clamp (1) evenly on sealing boot.
10. Clamp sealing boot onto outer CV joint housing using Crimping Tool C-4975A (3) and the following procedure. Place Crimping Tool C-4975A over bridge of clamp (1).

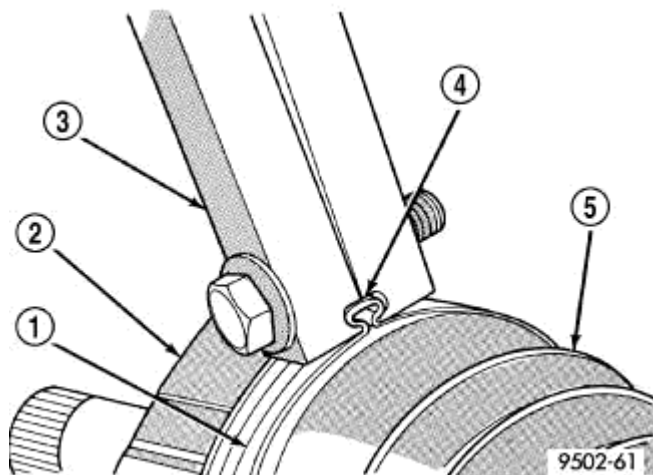


Fig. 34: Sealing Boot Retaining Clamp Installed

Courtesy of CHRYSLER LLC

1 - CLAMP
2 - TRIPOD HOUSING
3 - CRIMPING TOOL C-4975A
4 - JAWS OF CRIMPING TOOL C-4975A MUST BE CLOSED COMPLETELY TOGETHER HERE
5 - SEALING BOOT

11. Tighten nut on Crimping Tool C-4975A until jaws on tool are closed completely together (4) , face to face.
12. Install the halfshaft requiring boot replacement back on the vehicle. See **Installation**

HALF SHAFT, REAR**DESCRIPTION****DESCRIPTION**

The inner joints of both half shaft assemblies are tripod joints. The outer joints of both assemblies are Rzeppa Joints. The tripod joints are true constant velocity (CV) joint assemblies, which allow for the changes in half shaft length through the jounce and rebound travel of the rear suspension.

The inner tripod joint of both half shafts is splined into the rear differential assembly and retained by a snap ring. The outer CV joint has a stub shaft that is splined into the wheel hub and retained by a steel hub nut.

DIAGNOSIS AND TESTING**HALFSHAFT****VEHICLE INSPECTION**

1. Check for grease in the vicinity of the inboard tripod joint and outboard CV joint; this is a sign of inner or outer joint seal boot or seal boot clamp damage.

NOISE OR VIBRATION IN TURNS

A clicking noise or a vibration in turns could be caused by one of the following conditions:

- Damaged outer CV or inner tripod joint seal boot or seal boot clamps. This will result in the loss and/or contamination of the joint grease, resulting in inadequate lubrication of the joint.
- Noise may also be caused by another component of the vehicle coming in contact with the half shafts.

CLUNKING NOISE DURING ACCELERATION

This noise may be a result of one of the following conditions:

- A torn seal boot on the inner or outer joint of the half shaft assembly.
- A loose or missing clamp on the inner or outer joint of the half shaft assembly.
- A damaged or worn half shaft CV joint.

SHUDDER OR VIBRATION DURING ACCELERATION

This problem could be a result of:

- A worn or damaged half shaft inner tripod joint.
- A sticking tripod joint spider assembly (inner tripod joint only).
- Improper wheel alignment. Refer to **Front Suspension/Wheel Alignment - Standard Procedure**

VIBRATION AT HIGHWAY SPEEDS

This problem could be a result of:

- Foreign material (mud, etc.) packed on the backside of the wheel(s).
- Out of balance tires or wheels. Refer to **Tires and Wheels - Standard Procedure**
- Improper tire or wheel runout. Refer to **Tires and Wheels - Diagnosis and Testing**

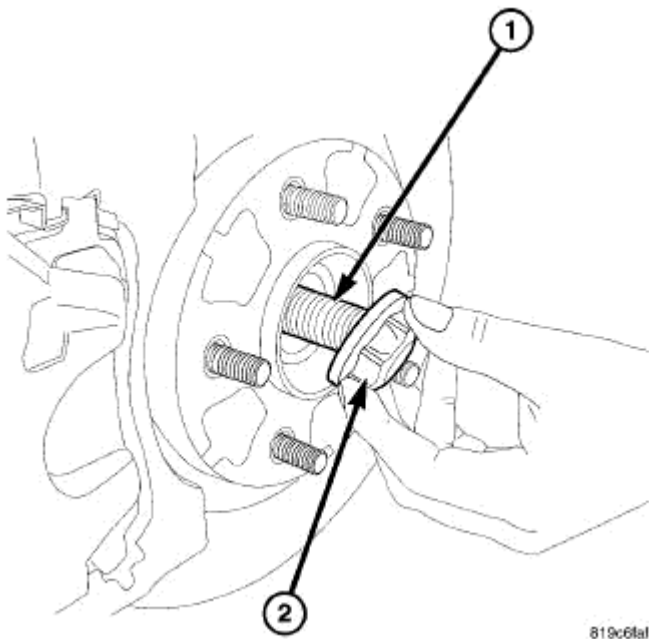
REMOVAL**REMOVAL**

Fig. 35: Removing/Installing Halfshaft Nut
Courtesy of CHRYSLER LLC

NOTE: Rear suspension and drivetrain design require this procedure to be performed on a "drive-on" hoist, as the front and rear suspension needs to be compressed to ride height to facilitate rear halfshaft removal.

1. Place vehicle on drive-on hoist in Park.
2. Remove rear wheel center cap.
3. Remove hub nut.

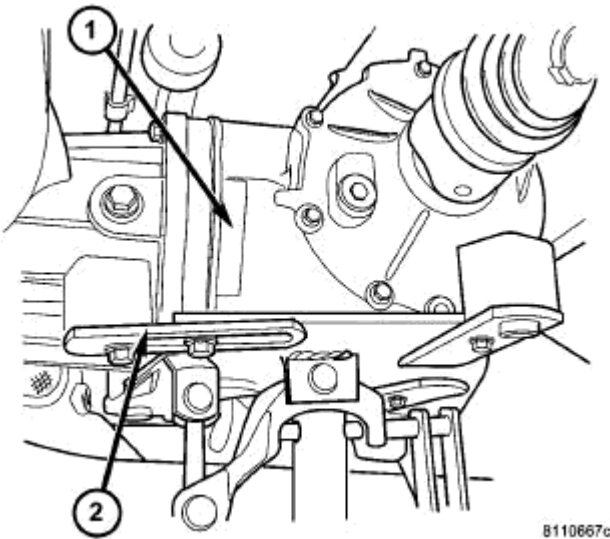


Fig. 36: Support Module With Jack
Courtesy of CHRYSLER LLC

1 - DRIVELINE MODULE 2 - TRANSMISSION JACK

4. Raise vehicle on hoist.
5. Remove exhaust system center hanger (at propeller shaft bearing/support).
6. Disconnect exhaust system at rear-most hanger and lower.
7. Lower exhaust system at least 254 mm (10 in.). Support system with suitable wire or rope.
8. Support driveline module (1) with transmission jack (or equivalent) (2).

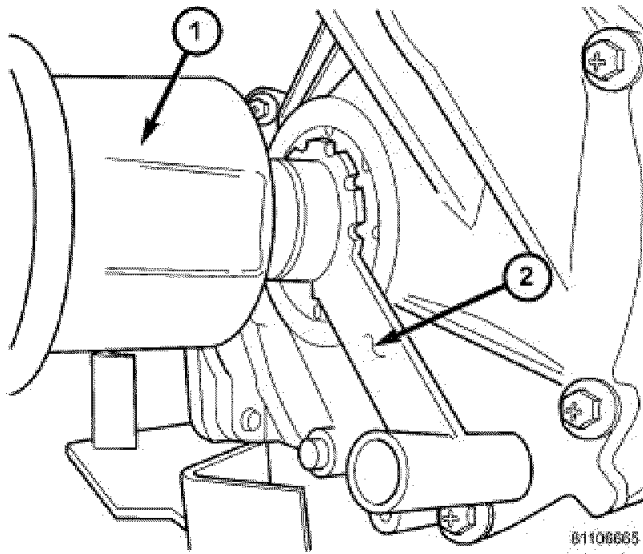


Fig. 37: Seal Protector
Courtesy of CHRYSLER LLC

1 - HALFSHAFT
2 - SEAL PROTECTOR

NOTE: Never grasp the halfshaft assembly by the inner or outer boots doing so may damage to the boot.

9. Using suitable screwdriver, partially dislodge halfshaft (side being removed) from differential. Install Seal Protector 9099 (2) to protect seal upon disassembly.

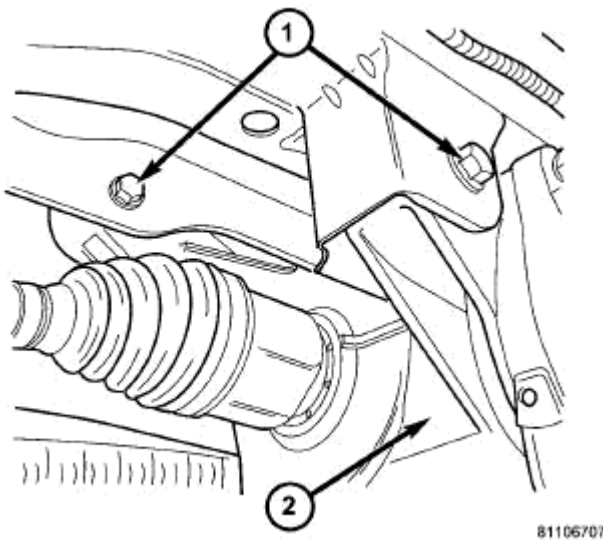


Fig. 38: Module Mounting Bolts

Courtesy of CHRYSLER LLC

1 - BOLT (2)
2 - DRIVELINE MODULE

10. Remove two rear driveline module-to-crossmember bolts .

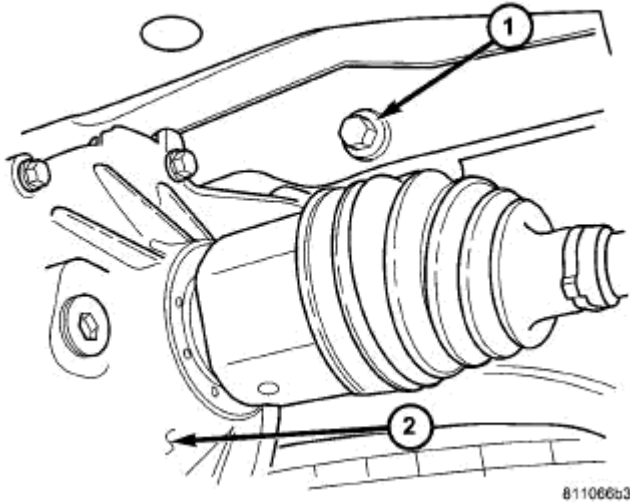


Fig. 39: Module Mounting Bolt
Courtesy of CHRYSLER LLC

1 - BOLT
2 - DRIVELINE MODULE

11. Remove the remaining driveline module-to-crossmember bolt (1) .
12. Lower driveline module assembly just enough to facilitate removal of shaft from differential. Make sure Seal Protector 9099 engages seal.
13. Remove halfshaft from hub/bearing assembly.

INSTALLATION

INSTALLATION

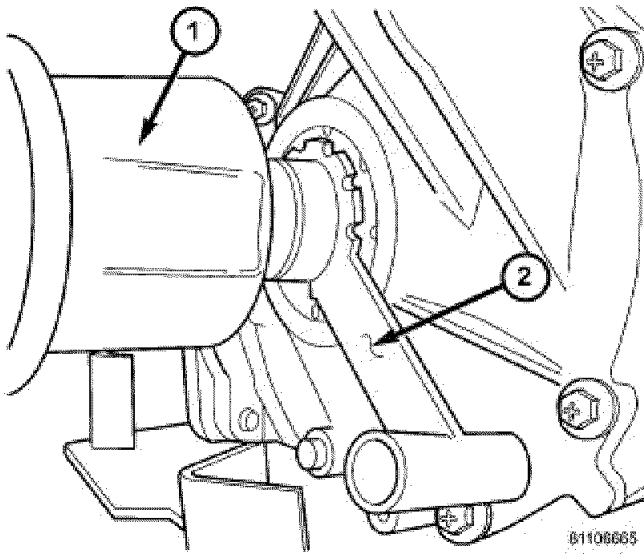


Fig. 40: Seal Protector

Courtesy of CHRYSLER LLC

1 - HALFSHAFT

2 - SEAL PROTECTOR

1. Install halfshaft to hub/bearing assembly. Install hub nut and washer but do not tighten at this time.
2. Using Seal Protector 9099 (2) , install halfshaft (1) to differential assembly. Clean tool and seal area to prevent debris intrusion.

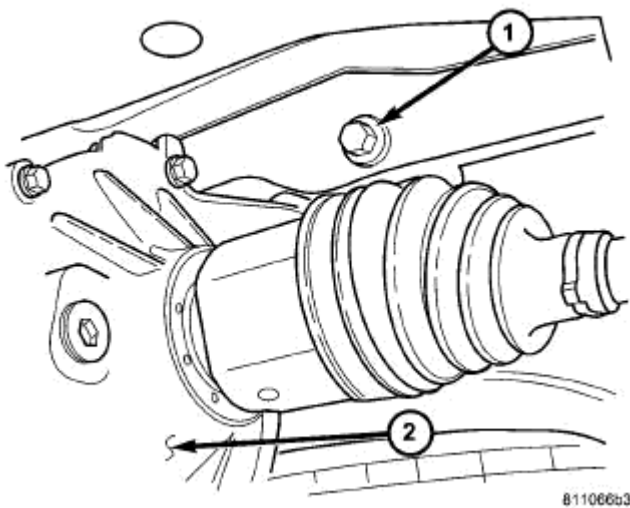


Fig. 41: Module Mounting Bolt

Courtesy of CHRYSLER LLC

- 1 - BOLT
2 - DRIVELINE MODULE

3. Raise driveline module into position. Install module mounting bolt (1) .

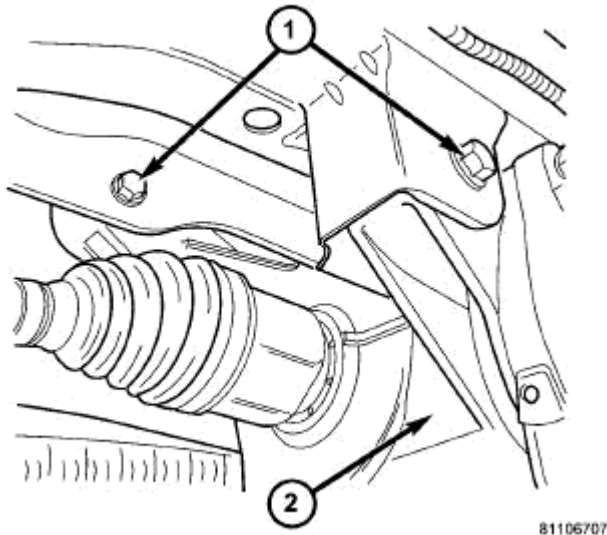


Fig. 42: Module Mounting Bolts
Courtesy of CHRYSLER LLC

- 1 - BOLT (2)
2 - DRIVELINE MODULE

4. Install remaining two module mounting bolts (2) .
5. Torque module-to-cradle bolts to 102 N.m (75 ft. lbs.)
6. Torque the halfshaft/hub nut to 160 N.m (118 ft.lbs.).
7. Install wheel center cap.
8. Check and adjust differential fluid level. See **STANDARD PROCEDURE - DIFFERENTIAL ASSEMBLY FLUID CHANGE**

SPECIFICATIONS

SPECIFICATIONS

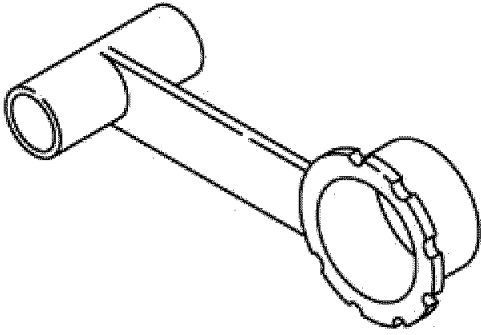
DESCRIPTION	N.m	Ft. Lbs.	In. Lbs.
Bolt, Propeller Shaft-to-Driveline Module	55	40	-
Bolt/Nut, Driveline Module-to-Cradle	102	75	-
Nut, Hub	160	118	-

Nuts, Rear Wheel Lug

135

100

-

SPECIAL TOOLS**SPECIAL TOOLS**

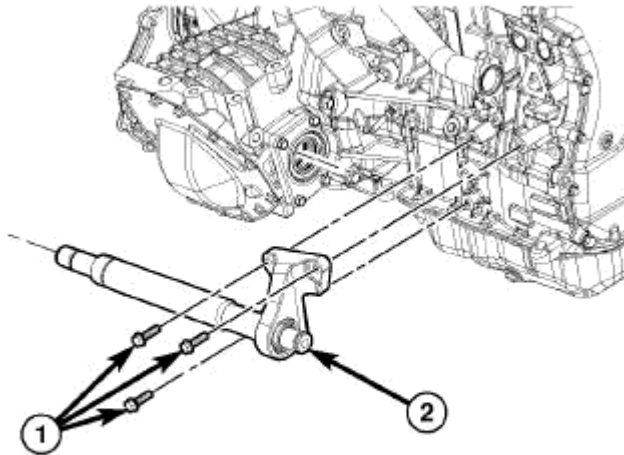
91408

Fig. 43: Protector, 9099

Courtesy of CHRYSLER LLC

INTERMEDIATE SHAFT, GAS**REMOVAL****2.4L**

1. Remove the right half shaft. See **Removal** .



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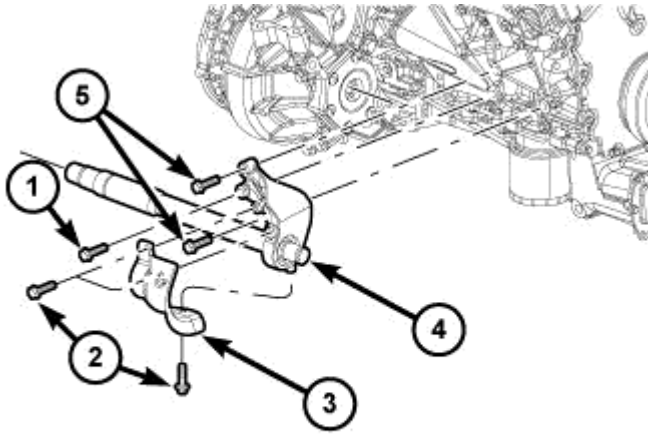
Fig. 44: Intermediate Shaft - 2.4L

Courtesy of CHRYSLER LLC

2. Remove the three intermediate shaft bolts (1).
3. Remove the intermediate shaft (2).

2.7L

1. Remove the right half shaft. See **Removal** .



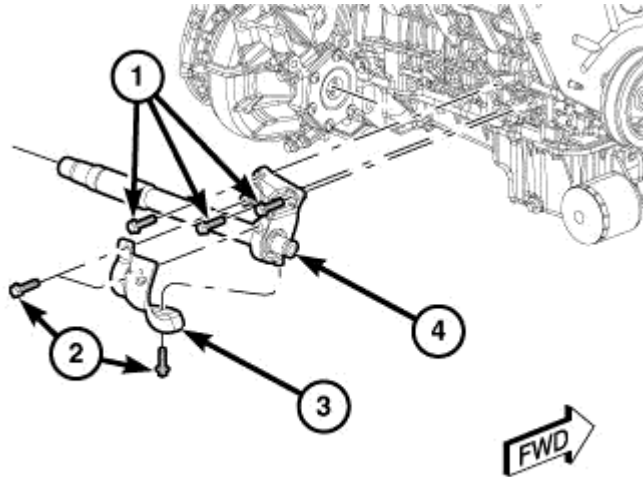
1792758

Fig. 45: Identifying Intermediate Shaft, Heat Shield & Bolts
Courtesy of CHRYSLER LLC

2. Remove the heat shield bolts (2).
3. Remove the heat shield (3).
4. Remove the intermediate shaft bolts (1) and (5).
5. Remove the intermediate shaft (4).

3.5L

1. Remove the right half shaft. See **Removal** .



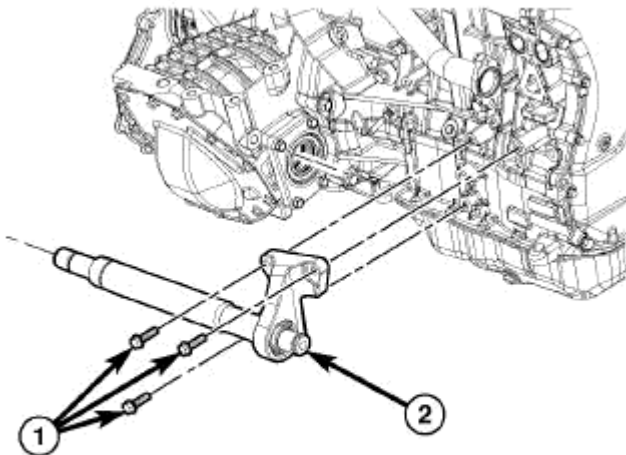
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Fig. 46: 3.5L Right Half Shaft Components
Courtesy of CHRYSLER LLC

2. Remove the intermediate shaft bolts (1).
3. Remove the heat shield bolts (2).
4. Remove the heat shield (3).
5. Remove the intermediate shaft (4).

INSTALLATION

2.4L

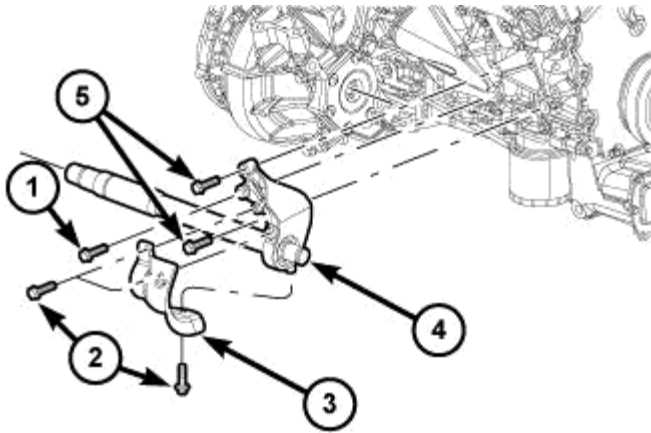


8114192b

Fig. 47: Intermediate Shaft - 2.4L
Courtesy of CHRYSLER LLC

1. Install the intermediate shaft (2).
2. Install the three intermediate shaft bolts (1).
3. Install the right half shaft. See **Removal** .

2.7L



1792758

Fig. 48: Identifying Intermediate Shaft, Heat Shield & Bolts
 Courtesy of CHRYSLER LLC

1. Install the intermediate shaft (4).
2. Install the intermediate shaft bolts (1) and (5). Tighten bolt (1) to 38 Nm (28 ft. lb.) and bolts (5) to 23 Nm (17 ft. lb.).
3. Install the heat shield (3).
4. Install the heat shield bolts (2).
5. Install the right half shaft. See **Installation** .

3.5L

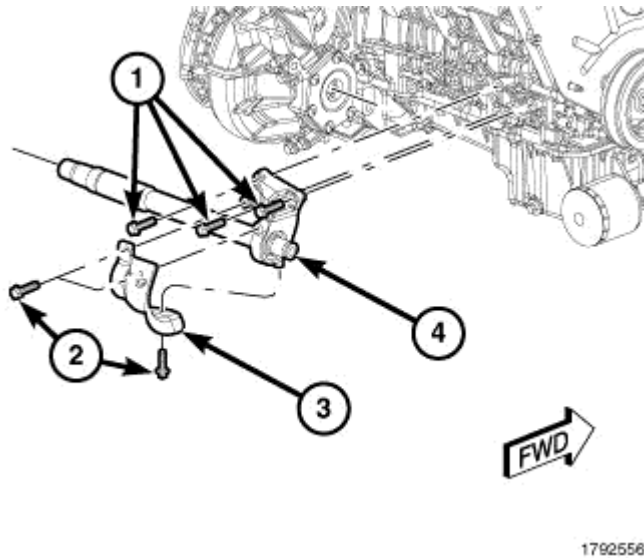


Fig. 49: 3.5L Right Half Shaft Components
Courtesy of CHRYSLER LLC

1. Install the intermediate shaft (4).
2. Install the intermediate shaft bolts (1) and tighten to 38 Nm (28 ft. lb.).
3. Install the heat shield (3).
4. Install the heat shield bolts (2) and tighten to 10 Nm (7 ft. lb.).
5. Install the right half shaft. See **Installation** .

INTERMEDIATE SHAFT, DIESEL

REMOVAL

2.0L DIESEL

1. Remove the right half shaft. See **Removal** .

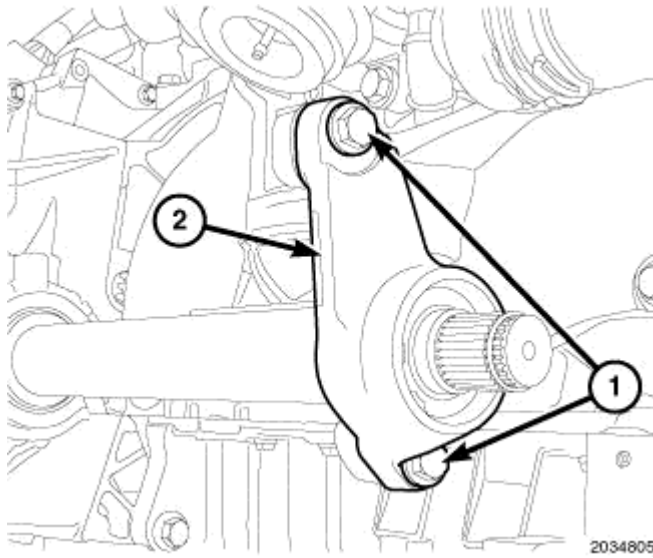


Fig. 50: 2.0L Diesel Right Half Shaft Components
Courtesy of CHRYSLER LLC

2. Remove the two intermediate shaft bolts (1).
3. Remove the intermediate shaft (2).

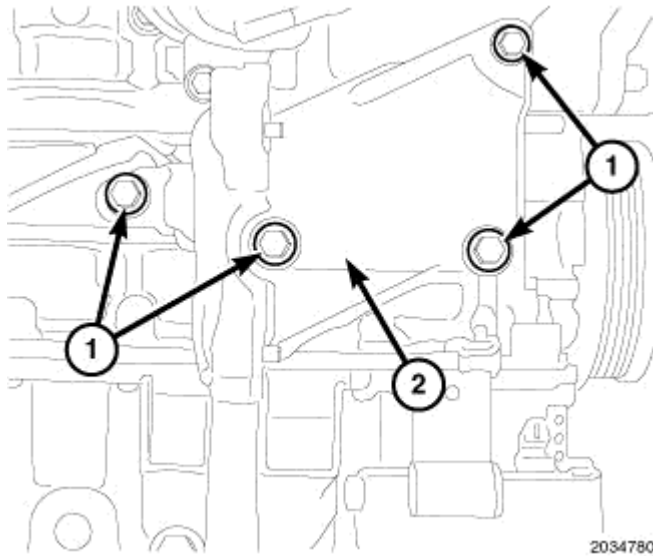


Fig. 51: Intermediate Shaft Bracket & Bolts
Courtesy of CHRYSLER LLC

4. If necessary, remove the intermediate shaft bracket bolts (1) and the intermediate shaft bracket (2).

INSTALLATION

2.0L DIESEL

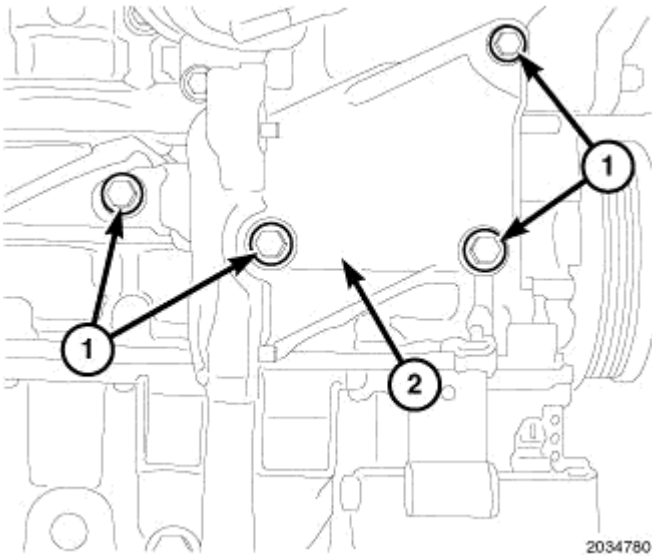


Fig. 52: Intermediate Shaft Bracket & Bolts

Courtesy of CHRYSLER LLC

1. If the intermediate shaft bracket was removed, install the intermediate shaft bracket (2), and the intermediate shaft bracket bolts (1). Tighten the bolts to 23 Nm (17 in. lbs.).

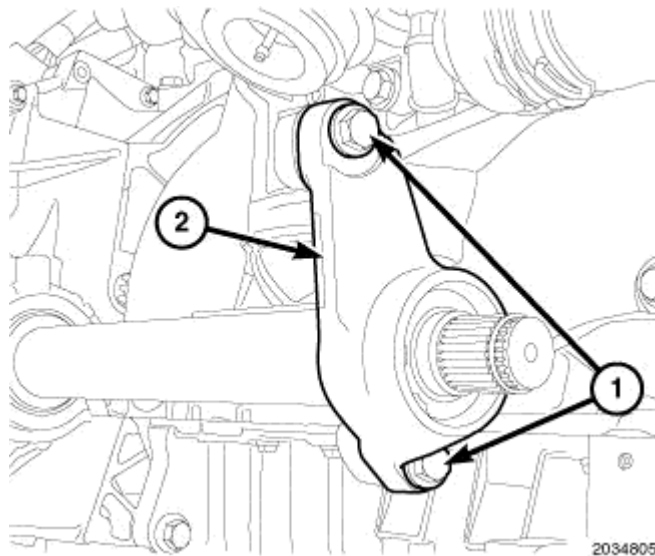


Fig. 53: 2.0L Diesel Right Half Shaft Components

Courtesy of CHRYSLER LLC

2. Install the intermediate shaft (2).
3. Install the two intermediate shaft bolts (1). Tighten the bolts to 38 Nm (28 in. lbs.).
4. Install the right axle half shaft. See **Installation** .

PROPELLER SHAFT

DESCRIPTION**DESCRIPTION**

WARNING: Due to propeller shaft imbalance concerns, the propeller shaft can only be serviced as an assembly.

AWD models utilize a "three-piece" propeller shaft to transmit torque to the rear driveline module assembly. This three-piece design consists of:

- Front center and rear shaft segments
- Plunging front CV joint.
- Center support bearings
- Rubber coupler at driveline module flange

The front shaft segment utilizes a plunging CV joint at the power transfer unit connection. The center and rear shaft segments utilize a support bearing/bracket assembly. The rear shaft segment uses a rubber coupler at the driveline module flange.

OPERATION**OPERATION**

The propeller shaft is used to transmit torque from the transaxle power transfer unit (PTU) to the rear driveline module of AWD equipped models.

The propeller shaft front segment utilizes a plunging CV joint at the PTU flange. The joint is flexible, allowing for torsional movement of the powertrain.

The propeller shaft center and rear segments utilize a support bearing/bracket, which support this three-piece assembly and isolates driveline vibrations from the body. The rubber coupler at the driveline module flange dampens out propeller shaft torsional vibrations, as the driveline module it connects to is fastened to the rear suspension crossmember.

REMOVAL**REMOVAL**

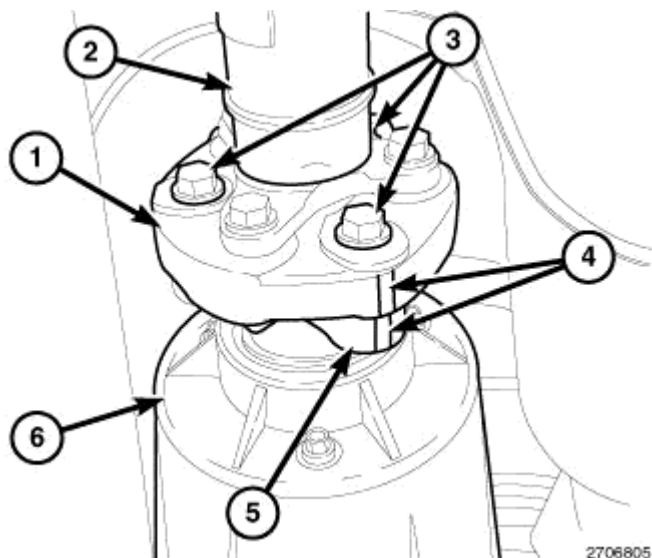


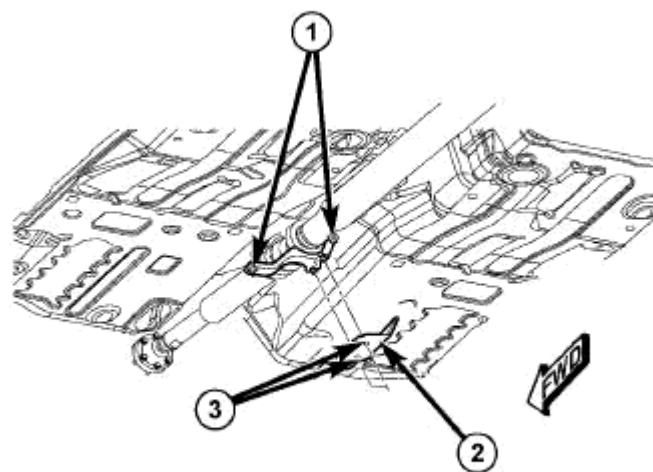
Fig. 54: Removing /Installing Propeller Shaft

Courtesy of CHRYSLER LLC

CAUTION: Propeller shaft removal is a two-man operation. Never allow propeller shaft to hang from the center bearing, or while only connected to power transfer unit (PTU) or rear driveline module flanges. A helper is required. If a propshaft section is hung unsupported, damage may occur to the joint, boot, and/or center bearing from over-angulation. This may result in driveline vibrations.

NOTE: Rubber coupler is part of the propeller shaft assembly. Removing coupler from propeller shaft will result in vibration/balance issues.

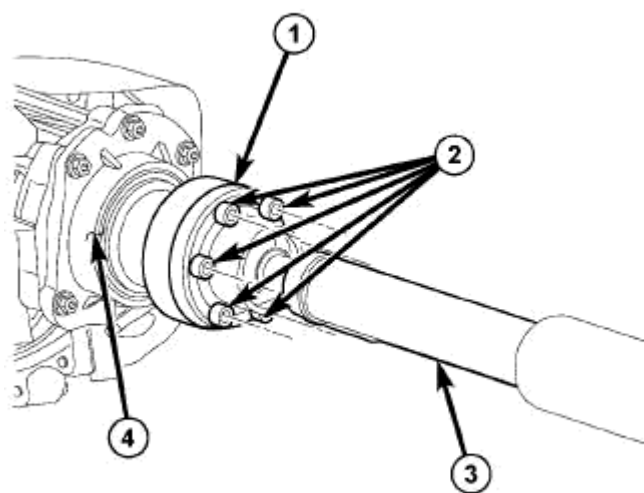
1. Make sure transaxle is in neutral (N).
2. Raise vehicle on hoist.
3. Apply alignment index marks (4) on the rear axle flange (5) and rubber coupler (1).
4. Remove three rear propeller shaft rubber coupler to rear axle input flange retaining bolts (3).



81ac7306

Fig. 55: Center Bracket/Heat Shield
Courtesy of CHRYSLER LLC

5. Remove the bolts (3) from the center support heat shield (2).
6. Remove the heat shield (2).
7. Remove the center support mounting bolts (1).



81ac7299

Fig. 56: Removing / Installing Propeller Shaft
Courtesy of CHRYSLER LLC

8. Remove the bolts (2) at the PTU
9. Remove the propeller shaft (3).

INSTALLATION

INSTALLATION

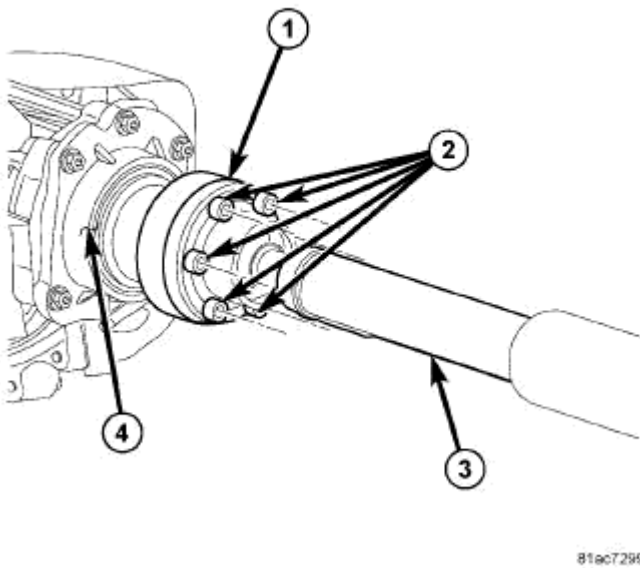


Fig. 57: Removing / Installing Propeller Shaft
Courtesy of CHRYSLER LLC

CAUTION: Propeller shaft installation. Never allow propeller shaft to hang while connected to Power Transfer Unit (PTU), rear driveline module flanges or center bearings. If propeller shaft section is hung unsupported, damage may occur to joint, boot and/or center bearing from over-angulation. This may result in vibration/balance issues. A helper may be needed.

1. Make sure transaxle is in Neutral (N) position.
2. Raise vehicle on hoist.
3. Obtain a helper if needed and lift propeller shaft assembly into position. Install propeller shaft to PTU with mounting bolts and tighten to 30 N.m (22 ft. lbs.).

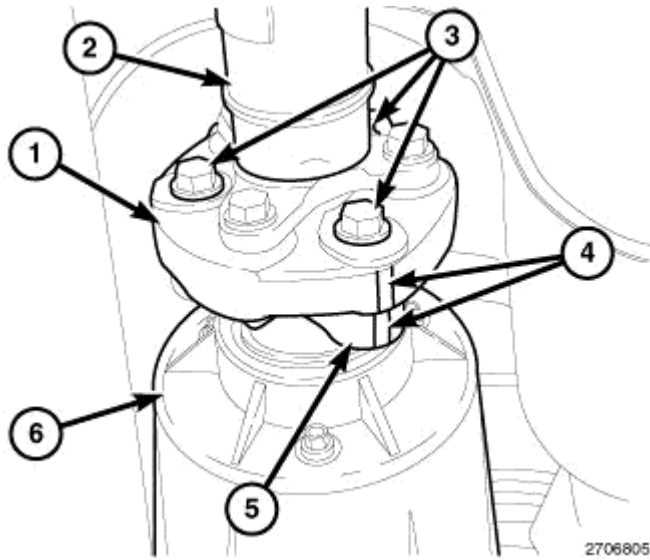


Fig. 58: Removing /Installing Propeller Shaft
Courtesy of CHRYSLER LLC

4. Align marks (4) on propeller shaft rubber coupler (1) to rear axle input flange (5).
5. Install three rear propeller shaft to rear axle retaining bolts (3) and tighten to 58 N.m (43 ft. lbs.).

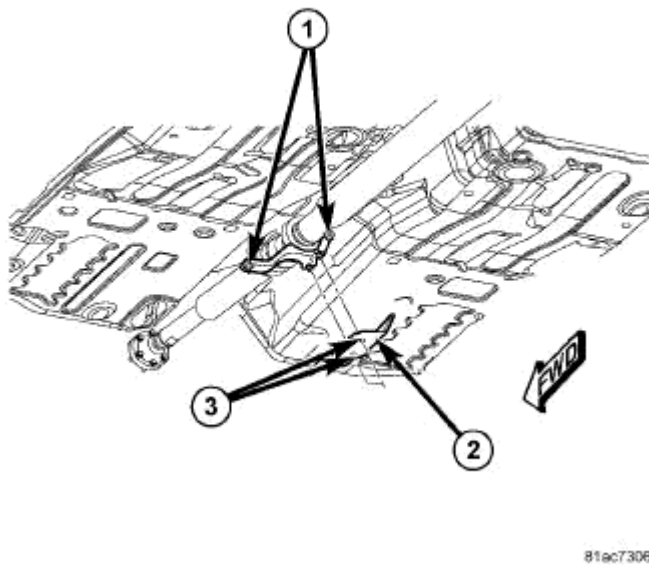


Fig. 59: Center Bracket/Heat Shield
Courtesy of CHRYSLER LLC

6. Raise the center support into position and install mounting bolts (1), tighten bolts to 41 N.m (30 lbs.ft.).
7. Install heat shield (2) and retaining nuts tighten to 21 N.m (15 ft. lbs.).

8. Lower vehicle.

REAR DRIVELINE MODULE

OPERATION

OPERATION

The primary benefits of All Wheel Drive are:

- Superior straight line acceleration, and cornering on all surfaces
- Better traction and handling under adverse conditions, resulting in improved hill climbing ability and safer driving.

The electronically controlled clutch (ECC) controls torque transfer to the rear differential assembly.

ECU (Inside vehicle) uses throttle position, wheel speeds and steering angle (if equipped) to control clutch.

DIAGNOSIS AND TESTING

REAR DRIVELINE MODULE NOISE

Different sources can be the cause of noise that the rear driveline module assembly is suspected of making. Refer to the following causes for noise diagnosis.

DRIVELINE MODULE ASSEMBLY NOISE

The most important part of driveline module service is properly identifying the cause of failures and noise complaints. The cause of most driveline module failures is relatively easy to identify. The cause of driveline module noise is more difficult to identify.

If vehicle noise becomes intolerable, an effort should be made to isolate the noise. Many noises that are reported as coming from the driveline module may actually originate at other sources. For example:

- Tires
- Road surfaces
- Wheel bearings
- Engine
- Transmission
- Exhaust
- Propeller shaft (vibration)
- Vehicle body (drumming)

Driveline module noises are normally divided into two categories: gear noise or bearing noise. A thorough and careful inspection should be completed to determine the actual source of the noise before replacing the driveline

module.

The rubber mounting bushings help to dampen-out driveline module noise when properly installed. Inspect to confirm that no metal contact exists between the driveline module case and the body or suspension cradle. The complete isolation of noise to one area requires expertise and experience. Identifying certain types of vehicle noise baffles even the most capable technicians. Often such practices as:

- Increase tire inflation pressure to eliminate tire noise.
- Listen for noise at varying speeds with different driveline load conditions
- Swerving the vehicle from left to right to detect wheel bearing noise.

All driveline module assemblies produce noise to a certain extent. Slight carrier noise that is noticeable only at certain speeds or isolated situations should be considered normal. Carrier noise tends to peak at a variety of vehicle speeds. Noise is **NOT ALWAYS** an indication of a problem within the carrier.

TIRE NOISE

Tire noise is often mistaken for driveline module noise. Tires that are unbalanced, worn unevenly or are worn in a saw-tooth manner are usually noisy. They often produce a noise that appears to originate in the driveline module.

Tire noise changes with different road surfaces, but driveline module noise does not. Inflate all four tires with approximately 20 psi (138 kPa) more than the recommended inflation pressure (for test purposes only). This will alter noise caused by tires, but will not affect noise caused by the differential. Rear axle noise usually ceases when coasting at speeds less than 30 mph (48 km/h); however, tire noise continues, but at a lower frequency, as the speed is reduced.

After test has been completed lower tire pressure back to recommended pressure.

GEAR NOISE (DRIVE PINION AND RING GEAR)

Abnormal gear noise is rare and is usually caused by scoring on the ring gear and drive pinion. Scoring is the result of insufficient or incorrect lubricant in the carrier housing.

Abnormal gear noise can be easily recognized. It produces a cycling tone that will be very pronounced within a given speed range. The noise can occur during one or more of the following drive conditions:

- Drive
- Road load
- Float
- Coast

Abnormal gear noise usually tends to peak within a narrow vehicle speed range or ranges. It is usually more pronounced between 30 to 40 mph (48 to 64 km/h) and 50 to 60 mph (80 to 96 km/h). When objectionable gear noise occurs, note the driving conditions and the speed range.

BEARING NOISE (DRIVE PINION AND DIFFERENTIAL)

Defective bearings produce a rough growl that is constant in pitch and varies with the speed of vehicle. Being aware of this will enable a technician to separate bearing noise from gear noise.

Drive pinion bearing noise that results from defective or damaged bearings can usually be identified by its constant, rough sound. Drive pinion front bearing is usually more pronounced during a coast condition. Drive pinion rear bearing noise is more pronounced during a drive condition. The drive pinion bearings are rotating at a higher rate of speed than either the differential side bearings or the axle shaft bearing.

Differential side bearing noise will usually produce a constant, rough sound. The sound is much lower in frequency than the noise caused by drive pinion bearings.

Bearing noise can best be detected by road testing the vehicle on a smooth road (black top). However, it is easy to mistake tire noise for bearing noise. If a doubt exists, the tire treads should be examined for irregularities that often causes a noise that resembles bearing noise.

ENGINE AND TRANSMISSION NOISE

Sometimes noise that appears to be in the driveline module assembly is actually caused by the engine or the transmission. To identify the true source of the noise, note the approximate vehicle speed and/or RPM when the noise is most noticeable. Stop the vehicle next to a flat brick or cement wall (this will help reflect the sound). Place the transaxle in **NEUTRAL** . Accelerate the engine slowly up through the engine speed that matches the vehicle speed noted when the noise occurred. If the same noise is produced, it usually indicates that the noise is being caused by the engine or transaxle.

REAR DRIVELINE MODULE OPERATION

Driveline module operation requires relatively straight-forward diagnosis. Refer to the following chart:

CONDITION	POSSIBLE CAUSES	CORRECTION
No AWD in forward or reverse directions, propeller shaft turning	1. Check ECC	1. Review ECC diagnostic information
	2. Rear differential failure	2. Replace the rear differential assembly
No AWD in forward or reverse directions, propeller shaft not turning	1. Power transfer unit failure.	1. Replace power transfer unit components as necessary
Vibration at all speeds, continuous torque transfer	1. Mis-matched tires, worn tires on front axle.	1. Replace worn or incorrect (mis-matched) tires with same make and size

REMOVAL

REMOVAL

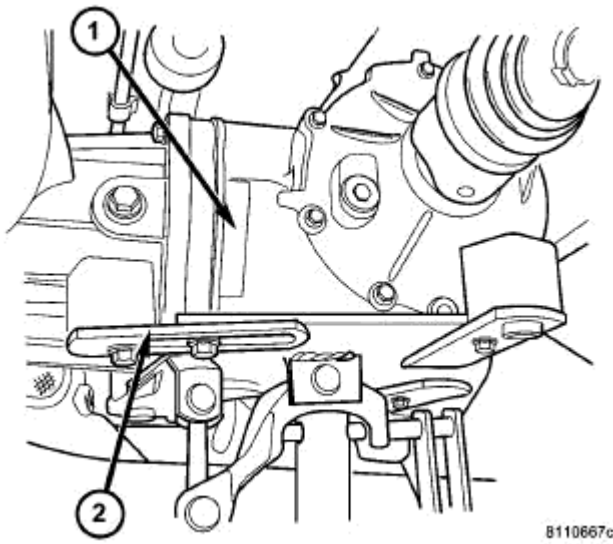


Fig. 60: Support Module With Jack
Courtesy of CHRYSLER LLC

- | |
|---|
| 1 - DRIVELINE MODULE
2 - TRANSMISSION JACK |
|---|

NOTE: Rear suspension and drivetrain design require this procedure to be performed on a "drive-on" hoist, as the front and rear suspension needs to be compressed to ride height to facilitate rear halfshaft removal.

1. Make sure transaxle is in Neutral (N) position.
2. Raise vehicle on hoist.
3. Remove exhaust system center hanger (at propeller shaft bearing/support).
4. Disconnect exhaust system at rear-most hanger and lower at least 254 mm (10 in.). Support system with suitable wire or rope.
5. Drain differential lubricant to prevent fluid spillage upon removal. See **STANDARD PROCEDURE - DIFFERENTIAL ASSEMBLY FLUID CHANGE**.
6. Support driveline module (1) with transmission jack (2) (or equivalent).

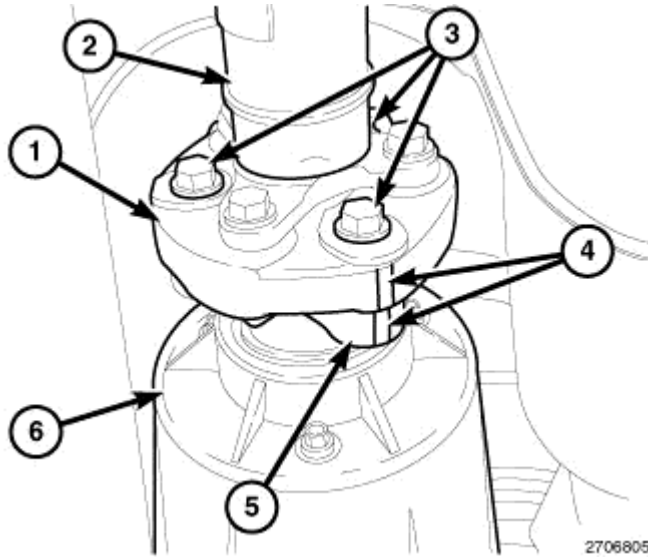


Fig. 61: Removing /Installing Propeller Shaft
Courtesy of CHRYSLER LLC

7. Apply alignment index marks (4) on the rear axle flange (5) and rubber coupler (1).
8. Remove three rear propeller shaft rubber coupler to rear axle input flange retaining bolts (3).

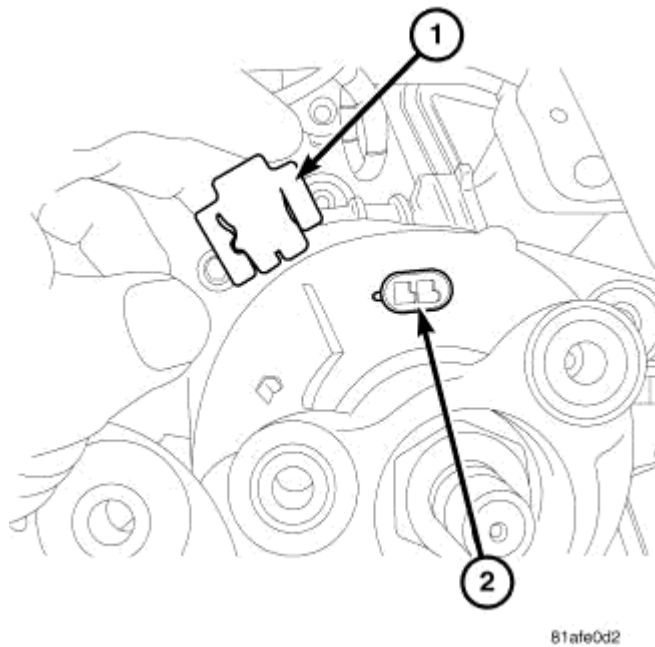


Fig. 62: ECC Electrical Connector
Courtesy of CHRYSLER LLC

9. Unplug ECC electrical connector.

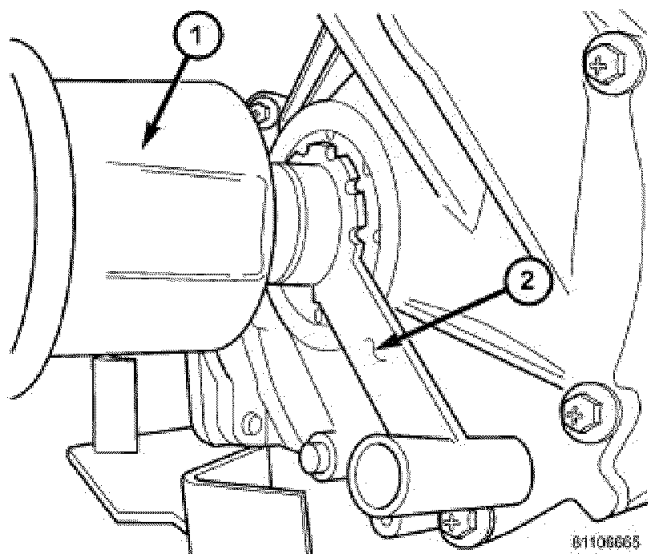


Fig. 63: Seal Protector
Courtesy of CHRYSLER LLC

- | |
|--------------------|
| 1 - HALFSHAFT |
| 2 - SEAL PROTECTOR |

10. Using suitable screwdriver, partially dislodge halfshafts (1) from differential. Install Seal Protector 9099 (2) to protect seal upon disassembly. Clean tool and seal area to prevent debris intrusion.

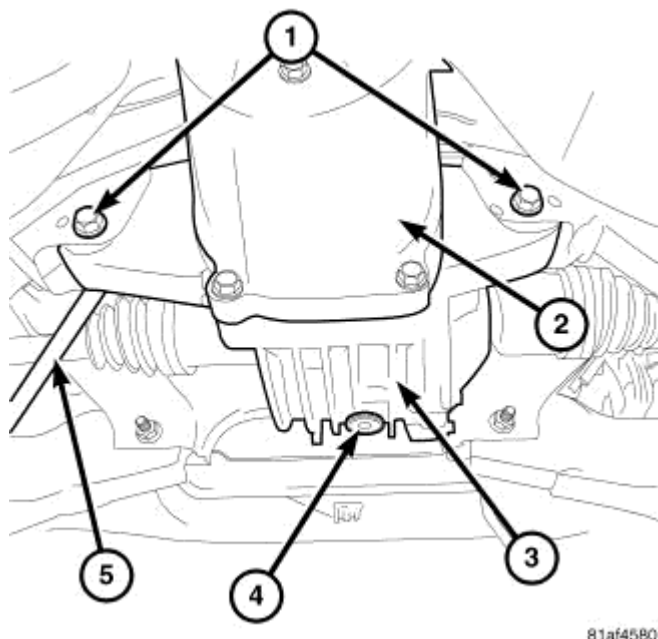


Fig. 64: RDA To Crossmember Bolts
Courtesy of CHRYSLER LLC

11. Remove the RDA - to - crossmember mounting bolts (1).

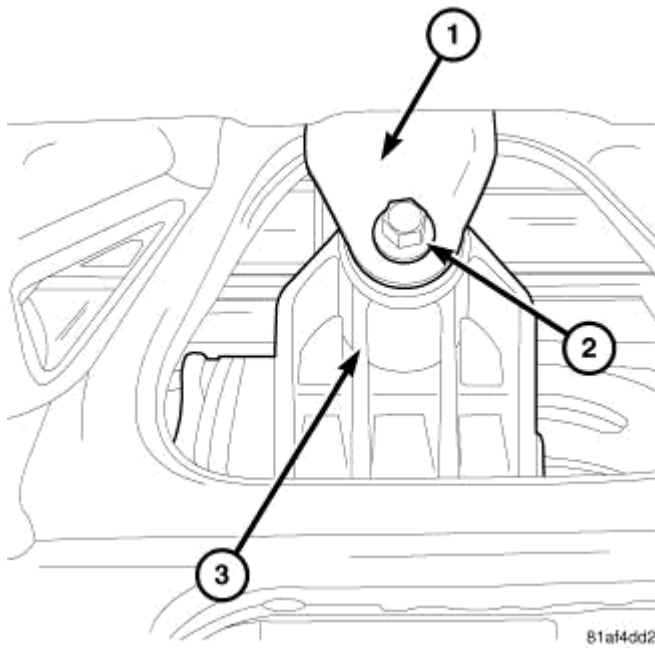


Fig. 65: Rear RDA Module-To-Crossmember Bolt
Courtesy of CHRYSLER LLC

12. Remove the rear RDA module-to-crossmember bolt (2).

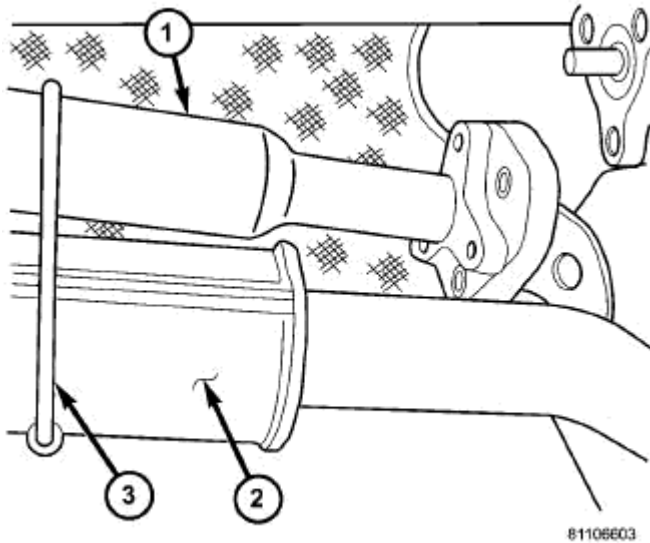


Fig. 66: Secure Propeller Shaft to Exhaust
Courtesy of CHRYSLER LLC

1 - PROPELLER SHAFT

- 2 - EXHAUST SYSTEM
- 3 - STRAP

13. Lower driveline module assembly just enough to facilitate removal of halfshafts from differential. Make sure Seal Protector 9099 engages seal.
14. Disconnect propeller shaft (1) from driveline module and secure to exhaust system (2) or support with jack stand.

CAUTION: Do not allow the propeller shaft to hang from the vehicle unsupported. Damage may occur to the joint, boot, and center bearing from over-angulation.

15. Remove driveline module assembly.

INSTALLATION

INSTALLATION

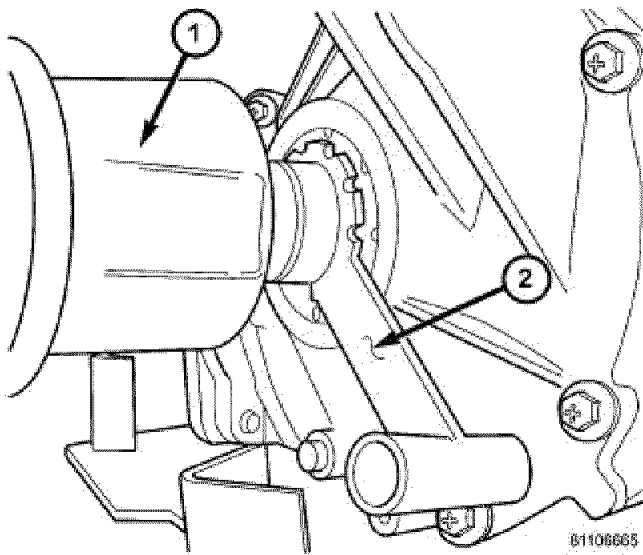


Fig. 67: Seal Protector
Courtesy of CHRYSLER LLC

- 1 - HALFSHAFT
- 2 - SEAL PROTECTOR

1. Install driveline module to transmission jack. Secure module to jack.
2. Using Seal Protector 9099 (2), load halfshafts to differential, one side at a time. Clean tool and seal area to prevent debris intrusion.

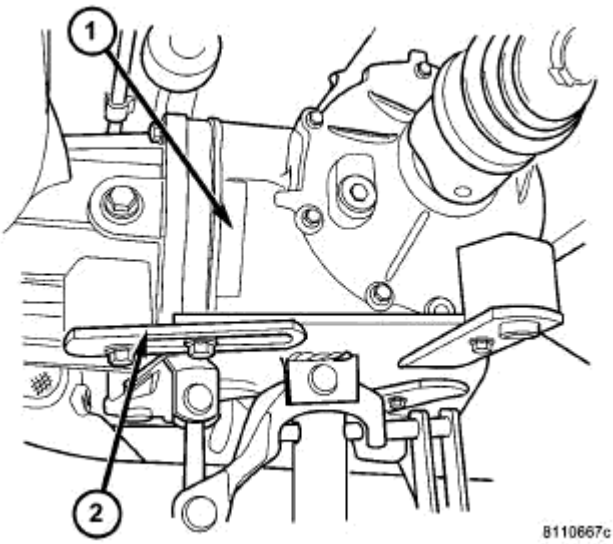


Fig. 68: Support Module With Jack
Courtesy of CHRYSLER LLC

1 - DRIVELINE MODULE
2 - TRANSMISSION JACK

3. Raise driveline module (1) into position.

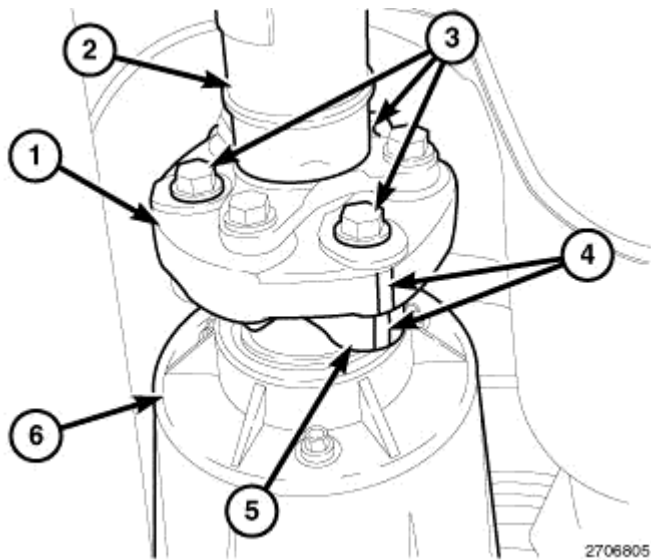


Fig. 69: Removing /Installing Propeller Shaft
Courtesy of CHRYSLER LLC

4. Align marks (4) on propeller shaft rubber coupler (1) to rear axle input flange (5).
5. Install three rear propeller shaft to rear axle retaining bolts (3) but do not tighten at this time.

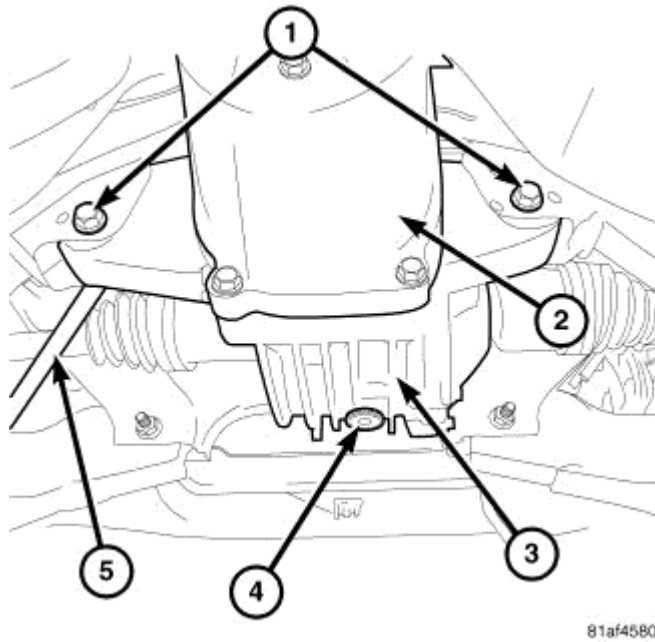


Fig. 70: RDA To Crossmember Bolts
Courtesy of CHRYSLER LLC

6. Install the RDA - to - crossmember mounting bolts (1) and tighten to 102 N.m (75 ft. lbs.).

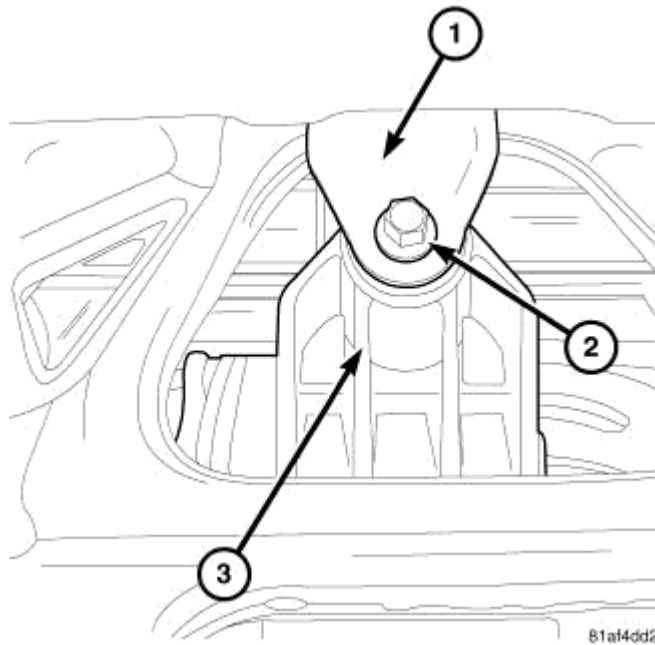


Fig. 71: Rear RDA Module-To-Crossmember Bolt
Courtesy of CHRYSLER LLC

7. Install the rear RDA - to - crossmember mounting bolt (2) to 102 N.m (75 ft. lbs.)
8. Tighten propeller shaft-to-driveline module bolts to 58 N.m (43 ft.lbs.).

9. Raise exhaust system into position and install hanger/brackets.
10. Fill differential with 0.7L (0.74 Quarts) of Mopar® Gear and Axle Lubricant (75W-90). See **STANDARD PROCEDURE - DIFFERENTIAL ASSEMBLY FLUID CHANGE**.

SPECIFICATIONS

SPECIFICATIONS

SPECIFICATIONS

DESCRIPTION	N.m	Ft. Lbs.	In. Lbs.
Bolt, Driveline Module-to-Body	54	40	-
Bolt, Overrunning Clutch Housing-to-Differential	60	44	-
Nut, Input Flange	135	100	-
Plug, Differential Drain/Fill	35	26	-
Bolt, Module to Cradle	102	75	-
Bolts, Propeller Shaft-to-Driveline Module	54	40	-

SPECIAL TOOLS

SPECIAL TOOLS

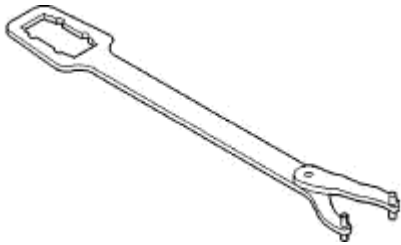


Fig. 72: Flange Wrench, C-3281
Courtesy of CHRYSLER LLC

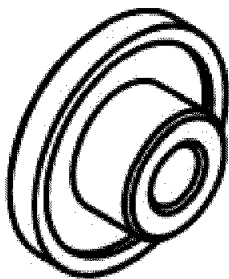


Fig. 73: Installer 8493
Courtesy of CHRYSLER LLC

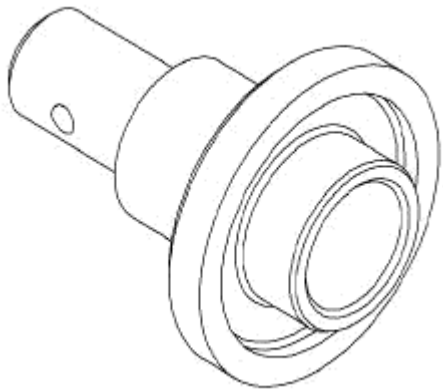


Fig. 74: Installer 9231A
Courtesy of CHRYSLER LLC

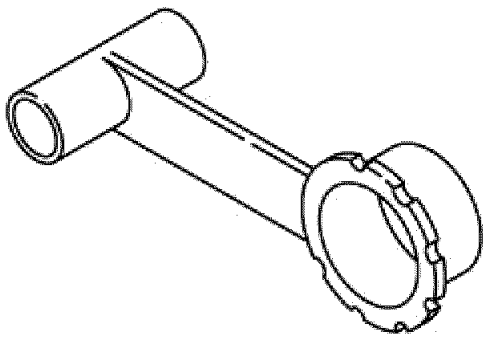


Fig. 75: Protector, 9099
Courtesy of CHRYSLER LLC

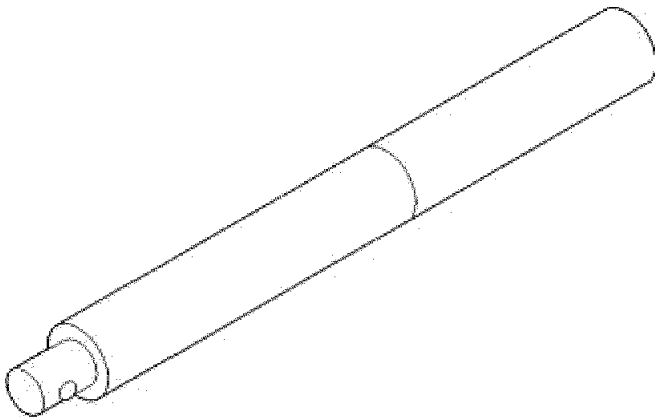


Fig. 76: Universal Handle C-4171
Courtesy of CHRYSLER LLC

CASE ASSEMBLY, DIFFERENTIAL

Description

DESCRIPTION

The differential gear system divides the torque between the axle shafts. It allows the axle shafts to rotate at different speeds when turning corners.

Each differential side gear is splined to an axle shaft. The pinion gears are mounted on a pinion mate shaft and are free to rotate on the shaft. The pinion gear is fitted in a bore in the differential case and is positioned at a right angle to the axle shafts.

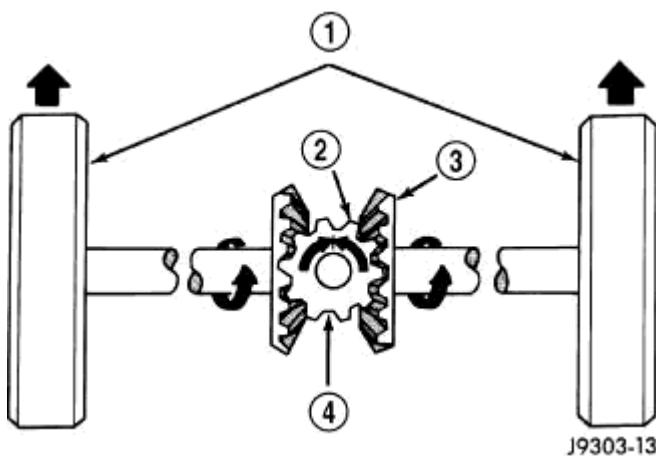
Operation**OPERATION**

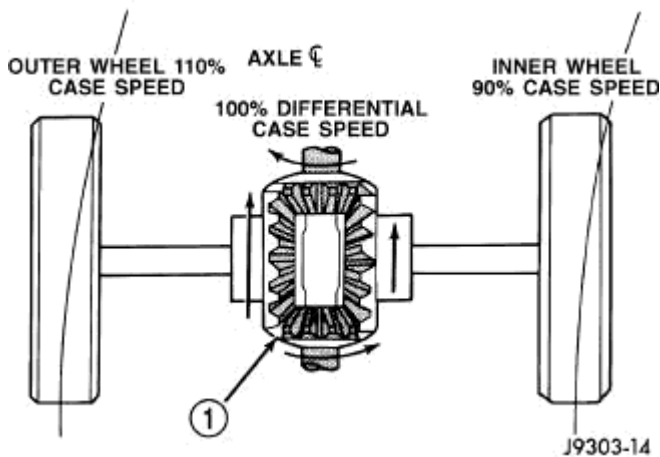
Fig. 77: Differential Operation-Straight Ahead Driving
Courtesy of CHRYSLER LLC

- | |
|--|
| <p>1 - IN STRAIGHT AHEAD DRIVING EACH WHEEL ROTATES AT 100% OF CASE SPEED</p> <p>2 - PINION GEAR</p> <p>3 - SIDE GEAR</p> <p>4 - PINION GEARS ROTATE WITH CASE</p> |
|--|

In operation, power flow occurs as follows:

- The pinion gear (2) rotates the ring gear
- The ring gear (bolted to the differential case) rotates the case
- The differential pinion gears (mounted on the pinion mate shaft in the case) rotate the side gears
- The side gears (splined to the axle shafts) rotate the shafts

During straight-ahead driving, the differential pinion gears do not rotate on the pinion mate shaft. This occurs because input torque applied to the gears is divided and distributed equally between the two side gears. As a result, the pinion gears revolve with the pinion mate shaft but do not rotate around it.

**Fig. 78: Pinion Gears**

Courtesy of CHRYSLER LLC

1 - PINION GEARS ROTATE ON PINION SHAFT

When turning corners, the outside wheel must travel a greater distance than the inside wheel to complete a turn. The difference must be compensated for to prevent the tires from scuffing and skidding through turns. To accomplish this, the differential allows the axle shafts to turn at unequal speeds. In this instance, the input torque applied to the pinion gears is not divided equally. The pinion gears now rotate around the pinion mate shaft in opposite directions. This allows the side gear and axle shaft attached to the outside wheel to rotate at a faster speed.

FLUID, DIFFERENTIAL

Standard Procedure

STANDARD PROCEDURE - DIFFERENTIAL ASSEMBLY FLUID CHANGE

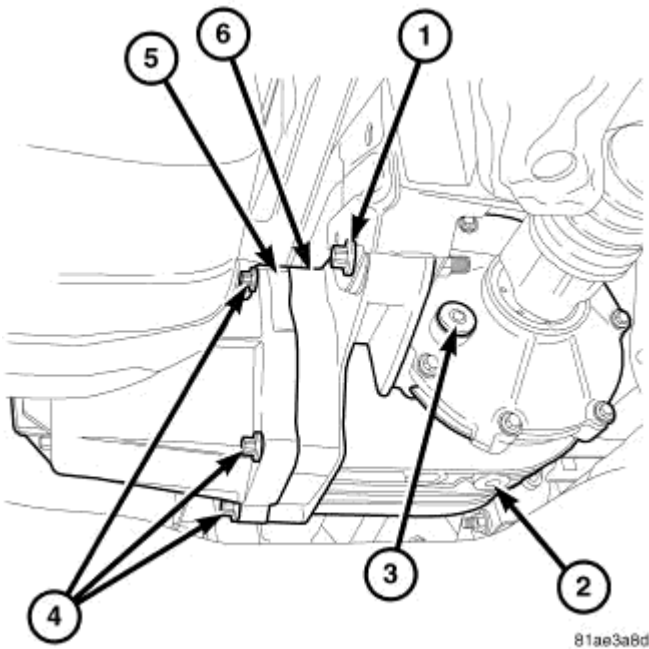


Fig. 79: Differential Assembly Fluid Change
Courtesy of CHRYSLER LLC

The drain plug (2) for the differential assembly is located in the bottom of the differential assembly case, toward the rear of the unit.

The fill plug (3) for the differential assembly is located on the left side of the assembly case.

The correct fill level is to the bottom of the fill plug hole. Be sure the vehicle is on a level surface, or is hoisted in a level manner, in order to obtain the correct fill level.

1. Raise the vehicle on a hoist.
2. Position a drain pan under the differential drain plug.
3. Remove the drain plug and allow the fluid to drain into the pan.
4. Install the drain plug and torque to 35 N.m (26 ft. lbs.).
5. Re-position the drain pan under the differential fill plug.
6. Remove the differential fill plug.
7. Using a suction gun or equivalent, fill the differential assembly with 0.7 L (0.74 Quarts) of Mopar® Gear and Axle Lubricant (75W-90).
8. Install the fill plug and torque to 35 N.m (26 ft. lbs.).

SEAL, INPUT FLANGE

Removal

REMOVAL

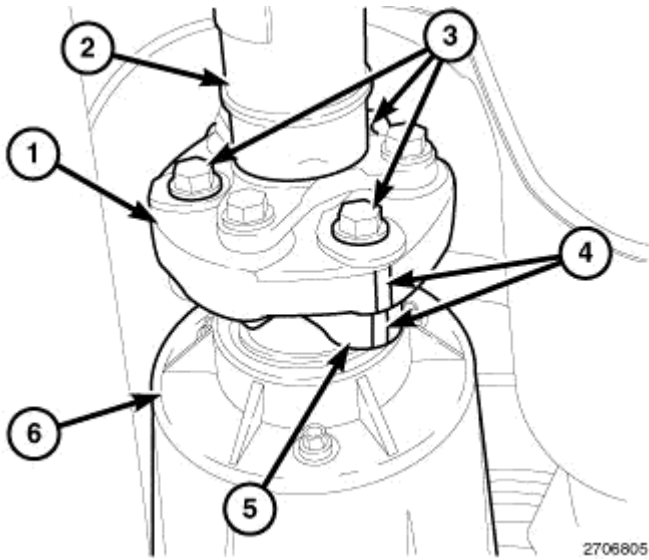


Fig. 80: Removing /Installing Propeller Shaft
Courtesy of CHRYSLER LLC

NOTE: Rubber coupler is part of the propeller shaft assembly. Removing coupler from propeller shaft will result in vibration/balance issues.

1. Raise vehicle on hoist.
2. Apply alignment index marks (4) on the rear axle flange (5) and rubber coupler (1).
3. Remove three rear propeller shaft rubber coupler to rear axle input flange retaining bolts (3).
4. Slide propeller shaft (2) back off rear axle input flange (5) and move out of the way as needed.

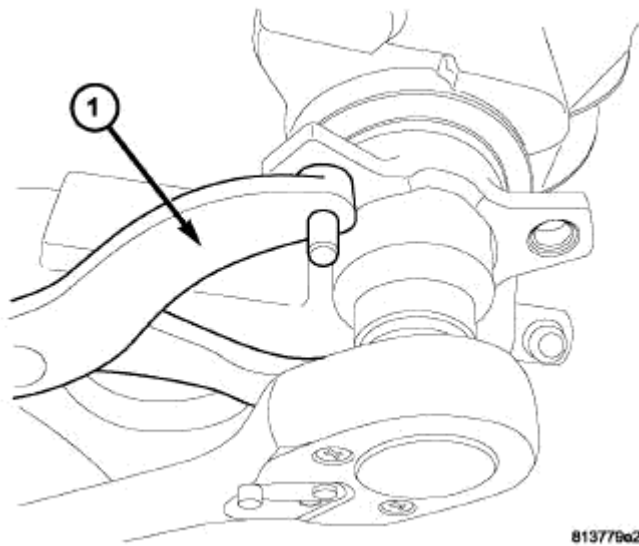
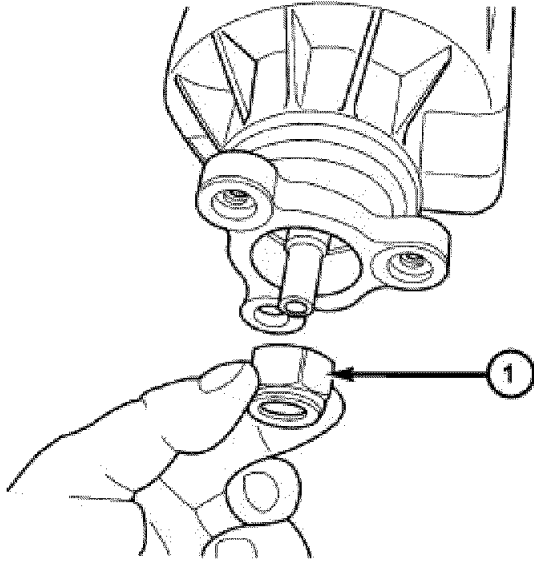


Fig. 81: Pinion Flange Nut Removal/Installation
Courtesy of CHRYSLER LLC

5. Using tool C-3281 (1), loosen input flange nut.

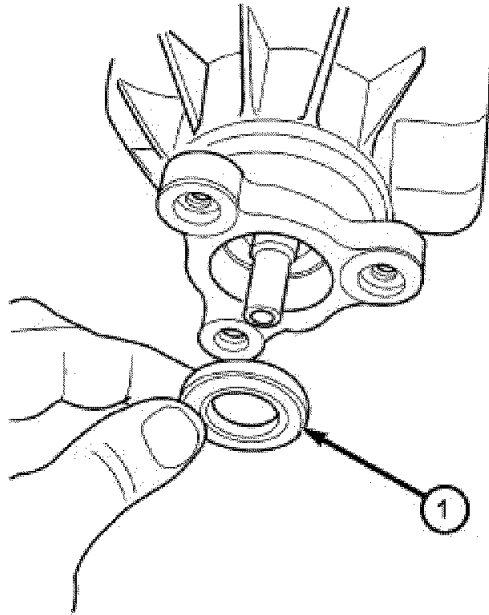


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Fig. 82: Input Flange Nut Removal/Installation
Courtesy of CHRYSLER LLC

1 - NUT

6. Remove input flange nut (1), and discard.

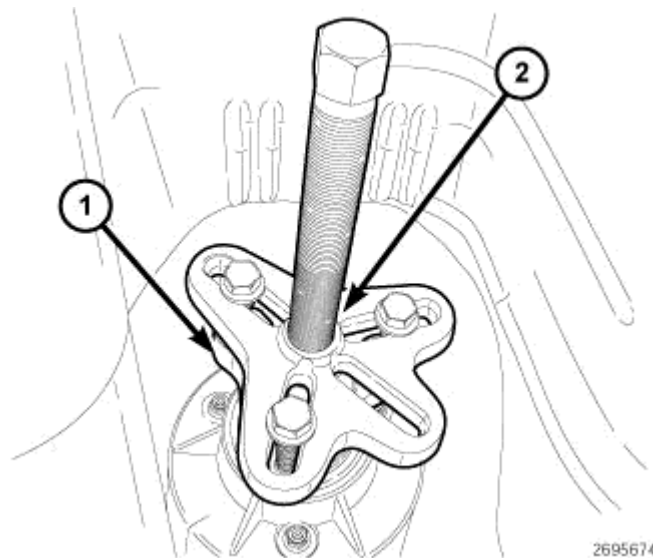


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Fig. 83: Input Flange Washer
Courtesy of CHRYSLER LLC

1 - WASHER

7. Remove input flange washer (1).



2695674

Fig. 84: Suitable Puller & Input Flange
Courtesy of CHRYSLER LLC

8. Using suitable puller (2), remove input flange (1).

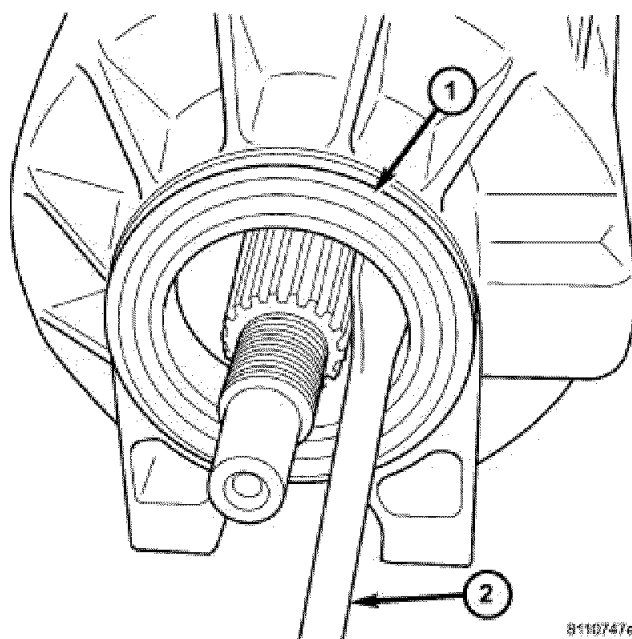


Fig. 85: Input Flange Seal Removal/Installation
Courtesy of CHRYSLER LLC

- | |
|-------------------------------------|
| <p>1 - SEAL
2 - SCREWDRIVER</p> |
|-------------------------------------|

9. Using suitable screwdriver (2), remove input flange seal from overrunning clutch housing.

Installation

INSTALLATION

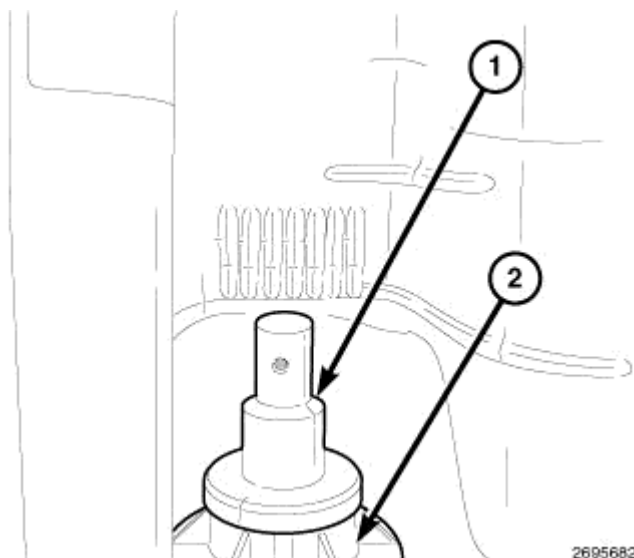


Fig. 86: Clutch Case

Courtesy of CHRYSLER LLC

1. Using tool 9231A (1), install input flange seal to overrunning clutch case (2).

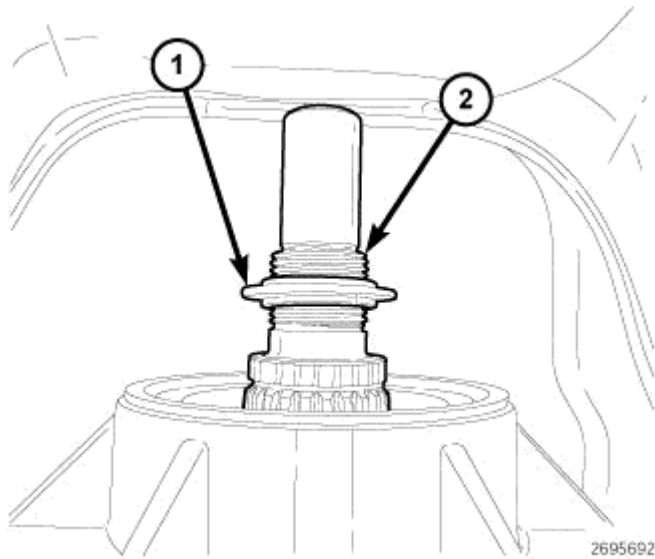


Fig. 87: Input Flange Shaft Seal

Courtesy of CHRYSLER LLC

2. Install input flange shaft seal (1), on shaft threads at midway point of threads (2).

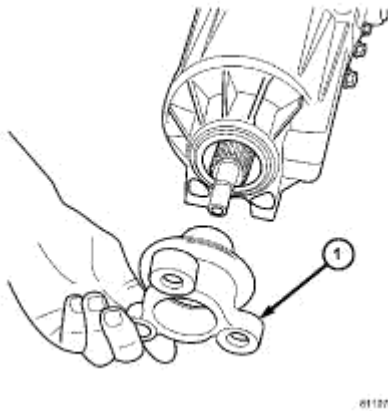
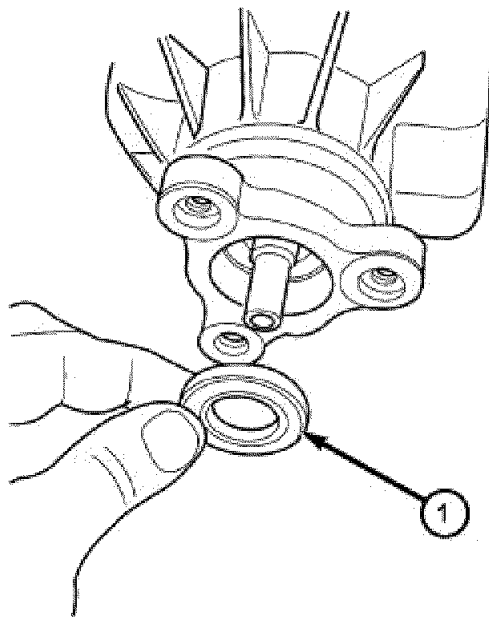


Fig. 88: Input Flange Removal/Installation

Courtesy of CHRYSLER LLC

1 - INPUT FLANGE

3. Install input flange (1).

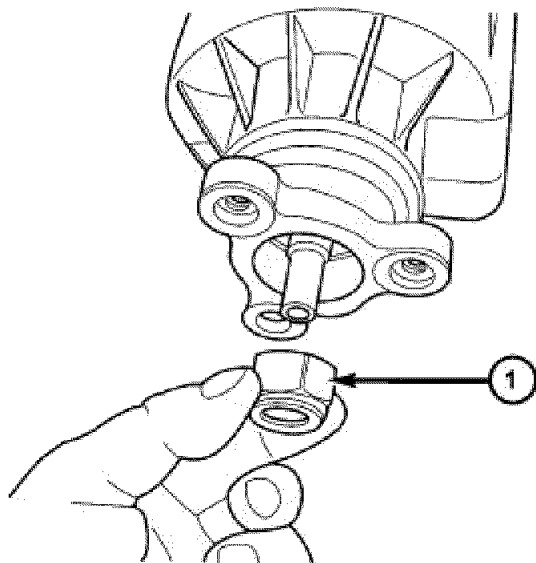


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Fig. 89: Input Flange Washer
Courtesy of CHRYSLER LLC

1 - WASHER

4. Install flange washer (1).



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Fig. 90: Input Flange Nut Removal/Installation
Courtesy of CHRYSLER LLC

1 - NUT

5. Install new flange nut (1).

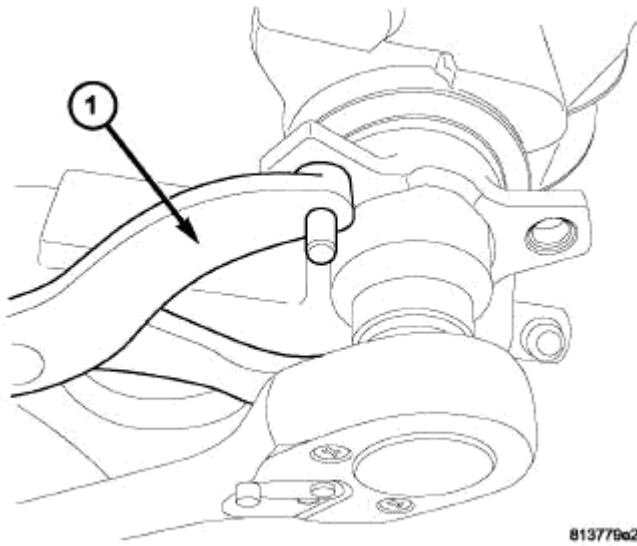


Fig. 91: Pinion Flange Nut Removal/Installation
Courtesy of CHRYSLER LLC

6. Using tool C-3281 (2), torque flange nut to 135 N.m (100 ft. lbs.).

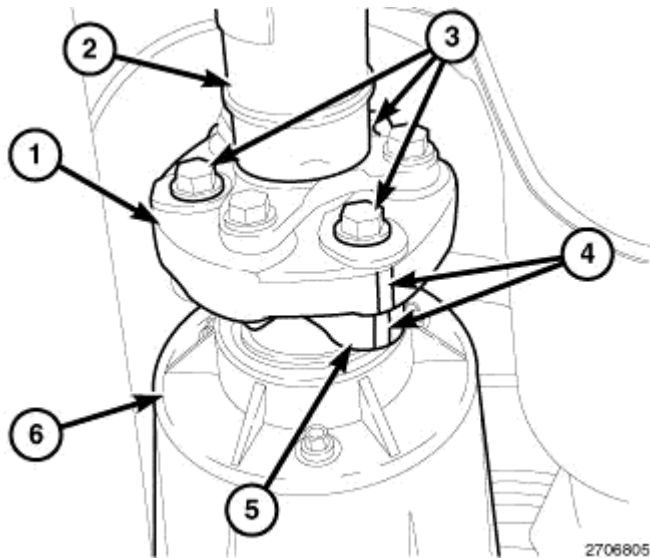


Fig. 92: Removing /Installing Propeller Shaft
Courtesy of CHRYSLER LLC

7. Align marks (4) on propeller shaft rubber coupler (1) to rear axle input flange (5).
8. Install three rear propeller shaft to rear axle retaining bolts (3) and tighten to 58 N.m (43 ft. lbs.).
9. Lower vehicle.

SEAL, OUTPUT FLANGE

Removal

REMOVAL

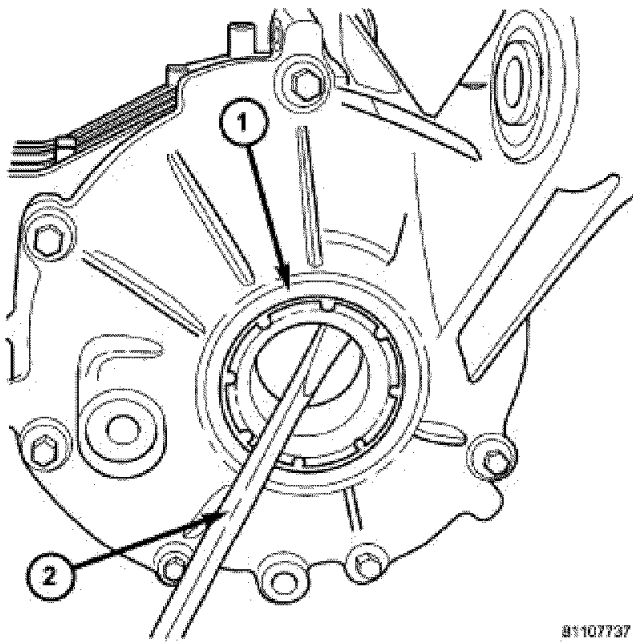


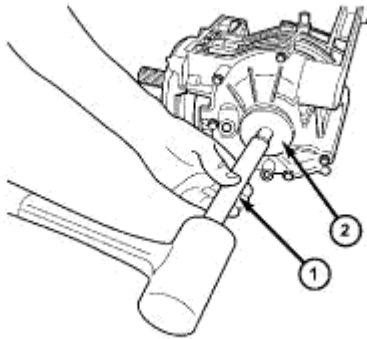
Fig. 93: Axle Seal Removal
Courtesy of CHRYSLER LLC

- | |
|-----------------------------|
| 1 - SEAL
2 - SCREWDRIVER |
|-----------------------------|

1. Raise vehicle on hoist.
2. Remove rear driveline module. See **Removal**
3. Use suitable screwdriver (2) to remove output seal (1).

Installation

INSTALLATION



81100572

Fig. 94: Axle Seal Installation
Courtesy of CHRYSLER LLC

- 1 - HANDLE C-4171
- 2 - INSTALLER 8493

1. Install output flange seal to differential housing using handle C- 4171A (1) and installer 8493 (2).
2. Install rear driveline module. See **Installation**
3. Check differential assembly fluid level and adjust as required. See **STANDARD PROCEDURE - DIFFERENTIAL ASSEMBLY FLUID CHANGE**

ELECTRONICALLY CONTROLLED CLUTCH

REMOVAL

REMOVAL

NOTE: Rubber coupler is part of the propeller shaft assembly. Removing coupler from propeller shaft will result in vibration/balance issues.

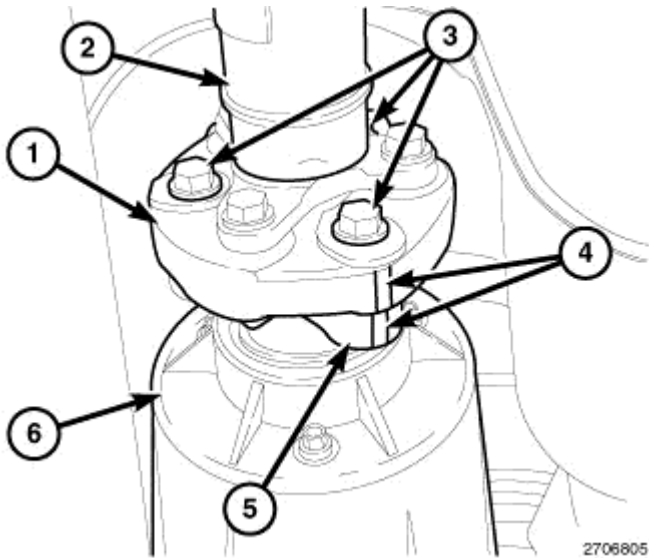


Fig. 95: Removing /Installing Propeller Shaft
Courtesy of CHRYSLER LLC

1. Make sure transaxle is in neutral (N).
2. Raise vehicle on hoist.
3. Apply alignment index marks (4) on the rear axle flange (5) and rubber coupler (1).
4. Remove three rear propeller shaft rubber coupler to rear axle input flange retaining bolts (3).
5. Slide propeller shaft (2) back off rear axle input flange (5) and move out of the way as needed.

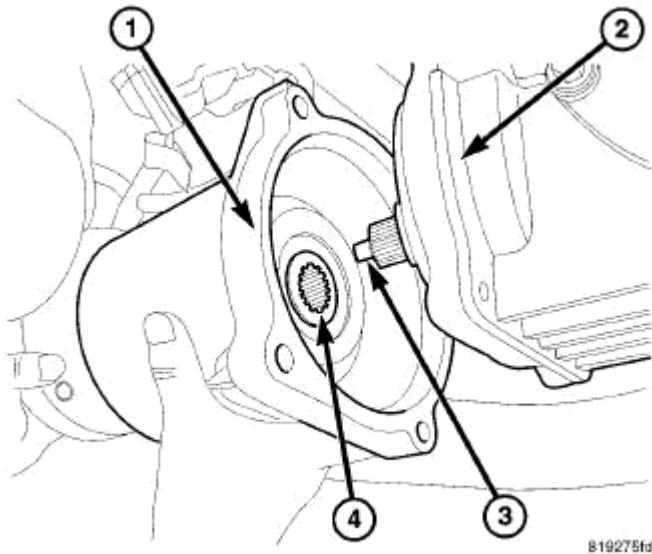


Fig. 96: Electrical Connector At ECC
Courtesy of CHRYSLER LLC

6. Unplug the electrical connector at the ECC.

7. Remove the mounting bolts at the ECC.
8. Remove the ECC.

INSTALLATION

INSTALLATION

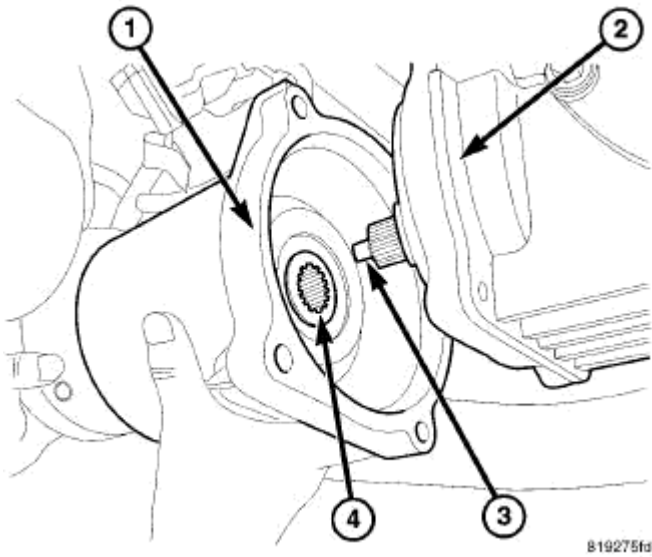


Fig. 97: Electrical Connector At ECC
Courtesy of CHRYSLER LLC

1. Make sure transaxle is in Neutral (N) position.
2. Raise vehicle on hoist.
3. Install the ECC.
4. Install the mounting bolts at the ECC and tighten to 60 N.m (44 ft. lbs.).
5. Connect the electrical connector at the ECC.

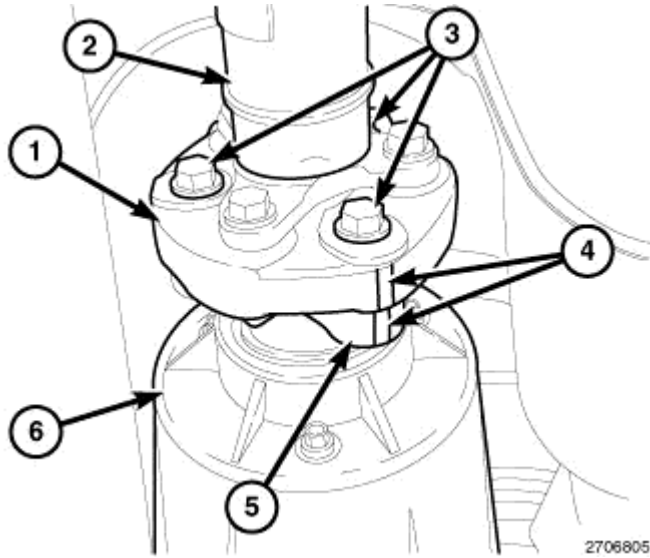


Fig. 98: Removing /Installing Propeller Shaft
Courtesy of CHRYSLER LLC

6. Align marks (4) on propeller shaft rubber coupler (1) to rear axle input flange (5).
7. Install three rear propeller shaft to rear axle retaining bolts (3) and tighten to 58 N.m (43 ft. lbs.).
8. Lower vehicle.