



1992-2017 Dodge Viper Ceramic Bearing Hubs

Overview:

Ceramic bearings have many benefits over their steel equivalents. They weigh only 38 % of steel bearings and have greatly reduced friction both initially and over time. Reasons for consistency and reduced friction and wear include superior hardness, no corrosion or galling, and are made to precision tolerances all which reduce uneven wear on the bearing race.

For a wheel hub application benefits include less unsprung and rotating weight along with reduced friction resulting in faster acceleration, lower heat, longer life, and more consistent performance over time.

Compatibility:

These parts will fit any 1992-2017 Dodge Viper and are built to order with new OEM wheel hubs. Alternate wheel studs may be specified at the time of build.

Construction:

New OEM hubs packed with top grade silicon nitride bearings. Front axle stubs and nut locks are cadmium plated to protect from corrosion.

Weight:

The weight savings is approximately 0.444 lbs per corner in the rear and 0.2 lbs per corner in the front. The titanium nut lock system saves an additional 0.25lbs per corner.

Ordering Information: <http://dougshelbyengineering.com/Viper.html>

Installation Guide:

- The wheel hubs are installed no differently than the OEM hubs.
- Experience has found the following tips to be helpful with the OEM hubs with OEM bearings:
 - Some grease seeping from the hub seal is normal after a new installation.
 - If excessive grease is found to be leaking from the hub, check torque of the axle nut and retighten to 250 ft lbs.
 - Frequently tracked cars may find benefit in torquing the axle nut to 300 ft lbs (up to 350 ft lbs).
 - If the hub leaks grease more than twice, the seal may be damaged or not engaging properly.
 - Use a high temp Loctite (Restobond 970TS) to further secure the hub nut.
 - Frequently check the rear axle nut torque and ensure there is no wobble or play in the hubs.
 - The front hubs are locked in place and torqued to spec by customer request and should not require maintenance.

Titanium Nut Lock System:

- The nut lock system is a lightweight version of the OEM nut lock found on the rear axle of the OEM installation.
- The DSE-built front hubs have a modified axle stub to accept the nut-lock system instead of the OEM thread crimp.
- Install the aluminum washer/spacer (in the rear a thicker washer or doubled spacer is used), then the wavy washer, and tighten the nut to spec using Restobond 970TS.
- Once the nut has been torqued in place, install the nut lock. There are 2 versions of nut lock with different hole alignments. One of each is provided in the kit. Select the one that most closely matches and/or torque the nut a bit more to achieve proper alignment.



Front and Rear Hubs Packed with Ceramic Bearings

- Install blue Loctite 242 on the screw and insert through the nut lock and axle (or axle stub).



Installed Spacer, Nut, Wavy Washer



Installed Titanium Nut Lock



Titanium Nut Lock Kit

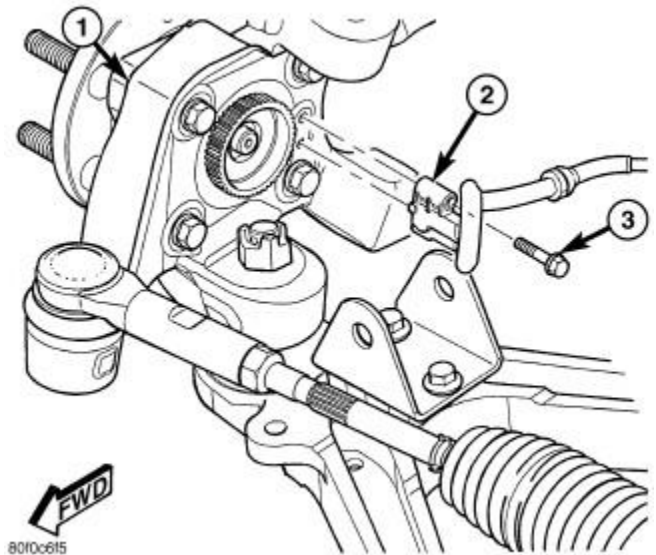
Excerpts from the Service Manual

(please see full manual for complete instructions):

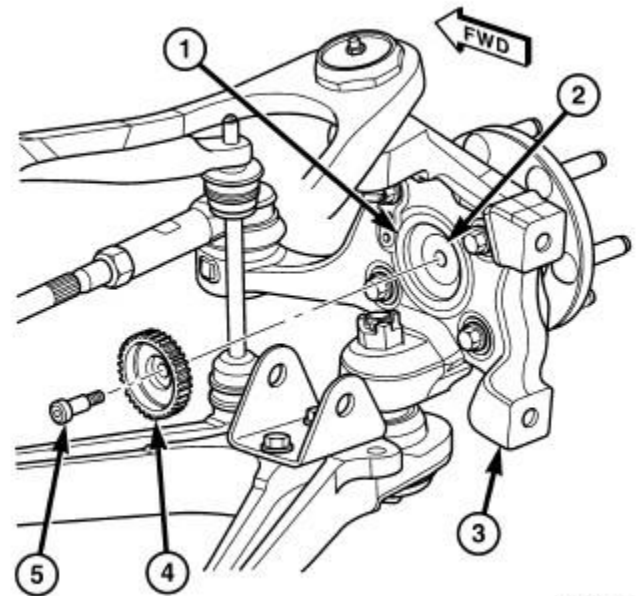
-FRONT HUB REMOVAL-

1. Raise vehicle.
2. Remove wheel and tire assembly.
3. Remove brake caliper from knuckle and hang out of way, then remove brake rotor.

4. Remove bolt (3) fastening ABS wheel speed sensor head (2) to steering knuckle (1). Remove sensor head from knuckle.

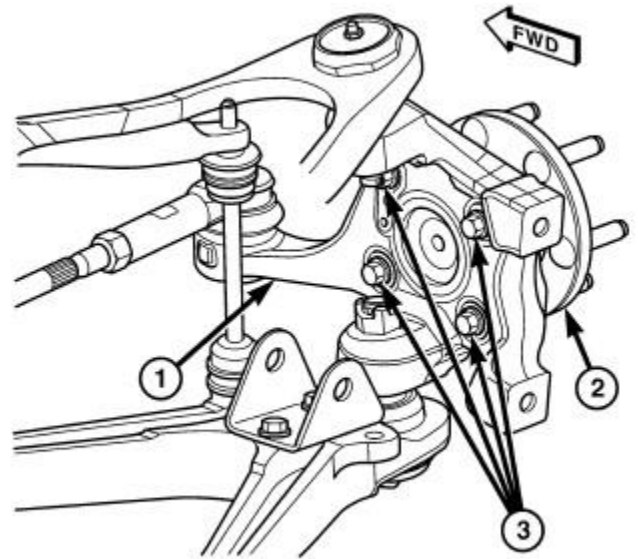


5. Remove bolt (5) retaining ABS tone wheel (4) to hub and bearing (2).
6. Remove ABS tone wheel.



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7. Remove hub and bearing mounting bolts (3).
8. Remove hub and bearing assembly (2) from knuckle (1).

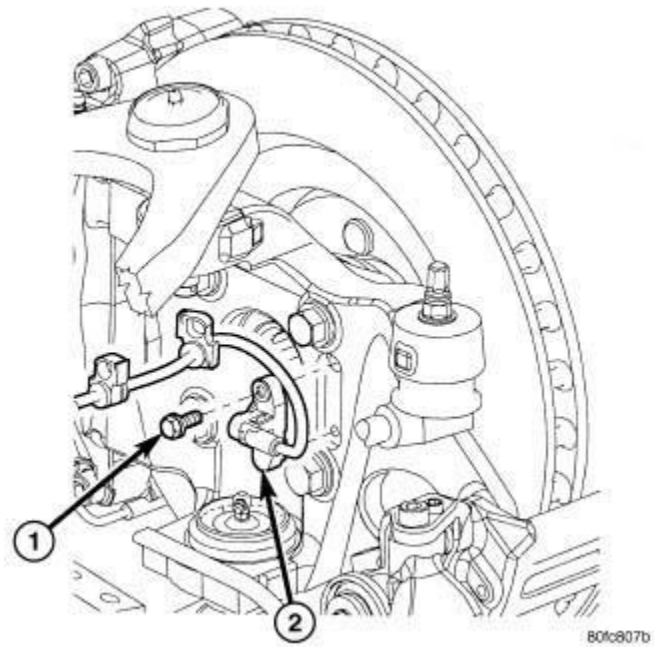


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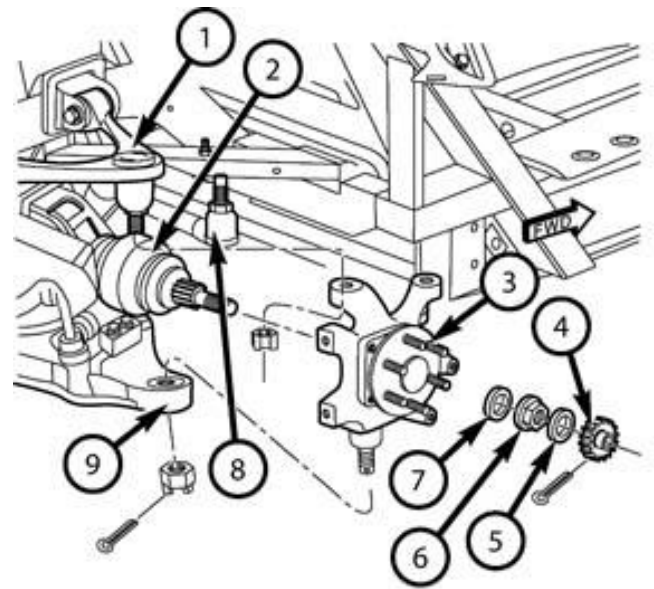
-REAR HUB REMOVAL-

1. Raise and support vehicle.
2. Remove wheel and tire assembly.
3. Remove parking brake caliper and hydraulic brake caliper from knuckle, and hang out of way, then remove brake rotor.

4. Remove bolt (1) fastening ABS wheel speed sensor head (2) to steering knuckle. Remove sensor head from knuckle.



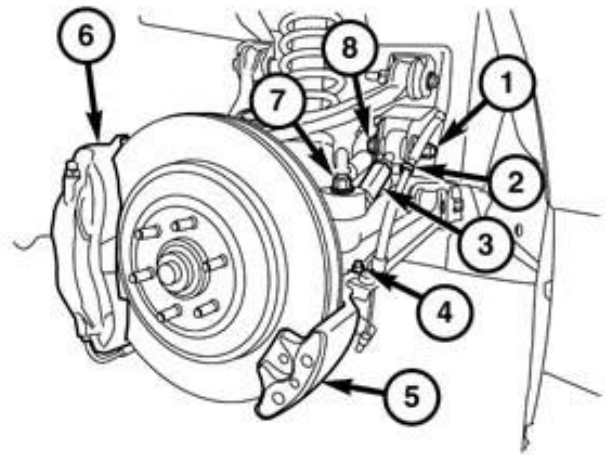
5. Remove cotter pin, nut lock (4) and spring washer (5) from end of halfshaft yoke.
6. Remove hub nut (6) and washer (7) from halfshaft yoke.



7. Remove plastic appearance cap from toe link stud.

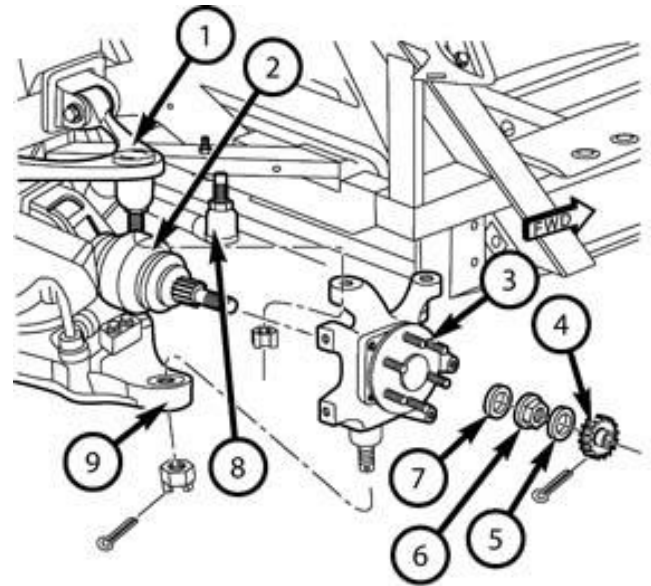
8. Remove nut from toe link (7).

NOTE: Do not use a pickle fork or ball joint separator to remove the toe link tapered stud as the ball joint seal is made from a soft, heat resistant, silicone and damage to the seal will occur. A rubber, plastic or brass mallet used on the end of the ball stud is advised.



9. Release toe link (3) from knuckle.

10. Remove cotter pin and castle nut from lower ball joint stud.



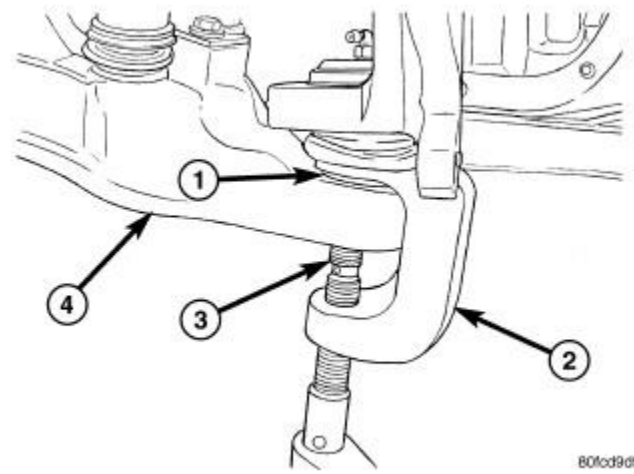
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CAUTION: Do not strike or apply heat to steering knuckle in an effort to separate ball joint studs from knuckle.

NOTE: Use of Spacer, Special Tool [Adapter 6983](#) , is necessary to allow proper use of Puller, Special Tool [C-4150A](#) , to release lower ball joint from lower control arm.

11. Insert Spacer (1), Special Tool [Adapter 6983](#) , between lower ball joint grease seal boot and lower control arm (4). Push Spacer in until it surrounds ball joint stud. **Use care not to damage grease seal boot.**

CAUTION: When releasing ball joint from knuckle using Puller (2), Special Tool [C-4150A](#), use care not to pinch and damage ball joint grease seal.



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12. Install Puller (2), Special Tool [C-4150A](#) , over Spacer and lower control arm as shown. **Ball bearing in bolt of Special Tool [C-4150A](#) must be centered in end of lower ball joint stud.**

13. Release lower ball joint (3) from lower control arm using Puller. Remove tools. Lift ball joint stud from lower control arm.

14. Install Puller (2), Special Tool [CT-1003](#), on hub and bearing flange (1).

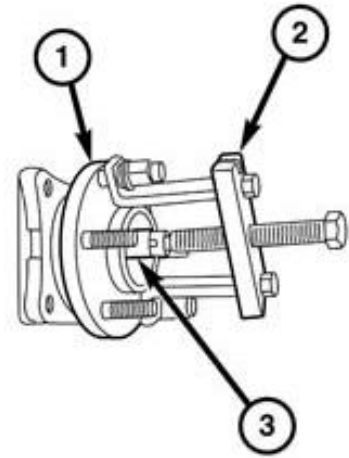
15. Tighten Puller screw against halfshaft yoke (3), pressing yoke out of hub and bearing assembly.

16. Pull outward on lower end of knuckle and move halfshaft away from hub and bearing.

17. Remove Puller from hub and bearing flange.

18. Remove four bolts fastening hub and bearing to knuckle.

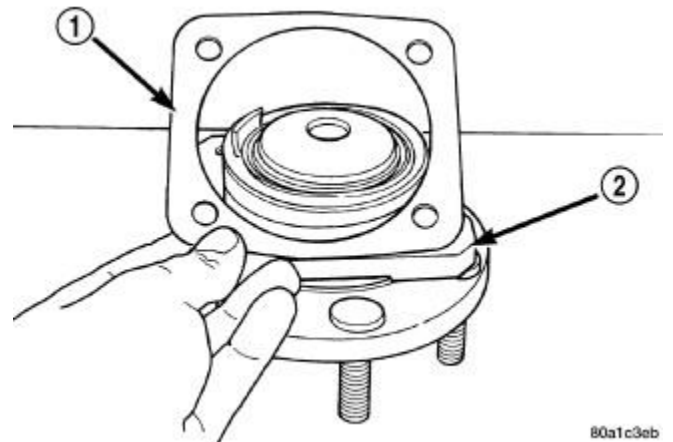
19. Remove hub and bearing from knuckle.



-FRONT HUB INSTALLATION-

CAUTION: A special corrosion prevention gasket (1) must be installed between the hub and bearing and the steering knuckle. The gasket is required to prevent galvanic corrosion between the hub and bearing and the steering knuckle.

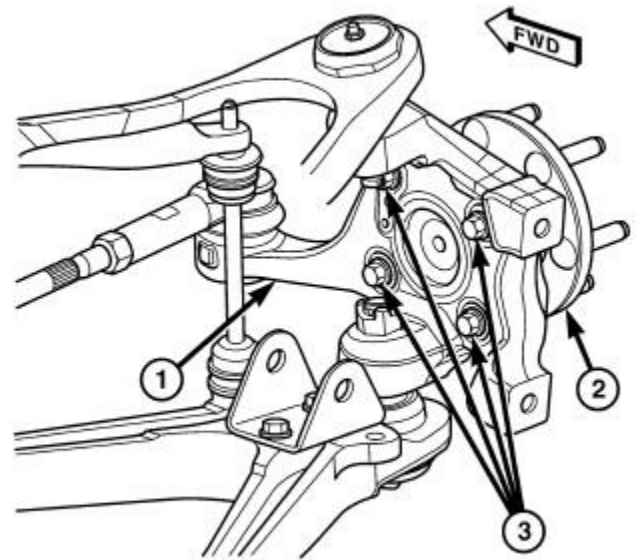
1. Install a new corrosion prevention gasket (1) on hub and bearing mounting flange (2).



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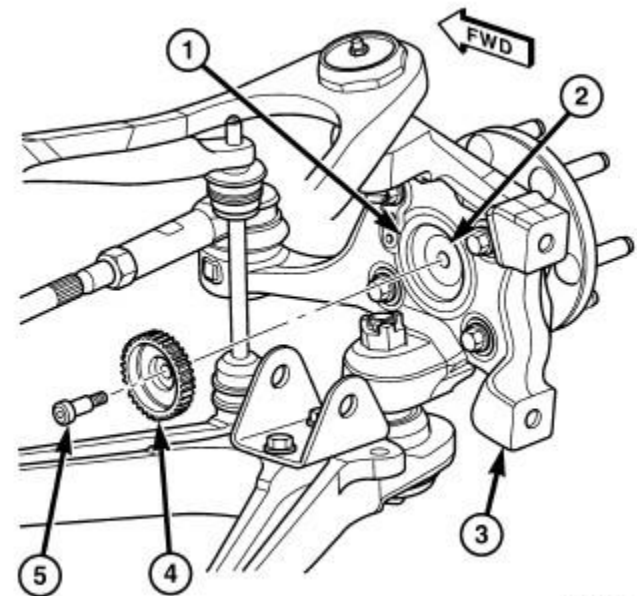
2. Install hub and bearing (with gasket) in steering knuckle (1). Align holes in corrosion prevention gasket with holes in hub and bearing, and knuckle.

3. Install four hub and bearing mounting bolts (3) and tighten mounting bolts to 48 ft lbs



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4. Install ABS wheel speed sensor tone wheel (4) and tighten mounting bolt (4) to 13 ft lbs



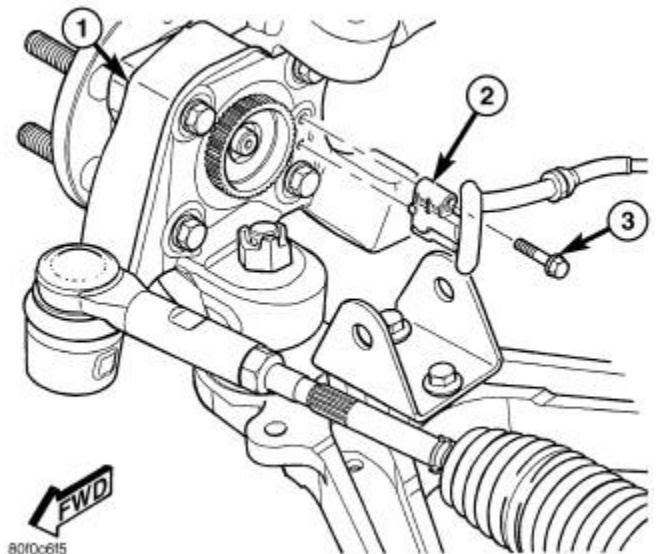
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5. Install ABS wheel speed sensor head (2) on knuckle (1). Tighten mounting bolt (3) to 100 in lbs

6. Install brake rotor, then caliper.

7. Install wheel and tire assembly.

8. Lower vehicle.

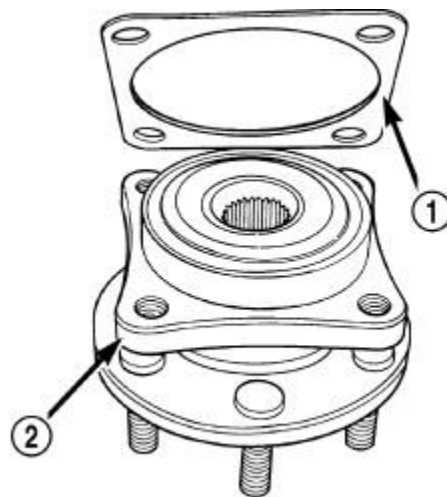


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-REAR HUB INSTALLATION-

CAUTION: A special corrosion prevention gasket (1) must be installed between the hub and bearing and the steering knuckle. The gasket is required to prevent galvanic corrosion between the hub and bearing and the steering knuckle.

1. Install NEW corrosion prevention gasket (1) on hub and bearing (2) before installation.

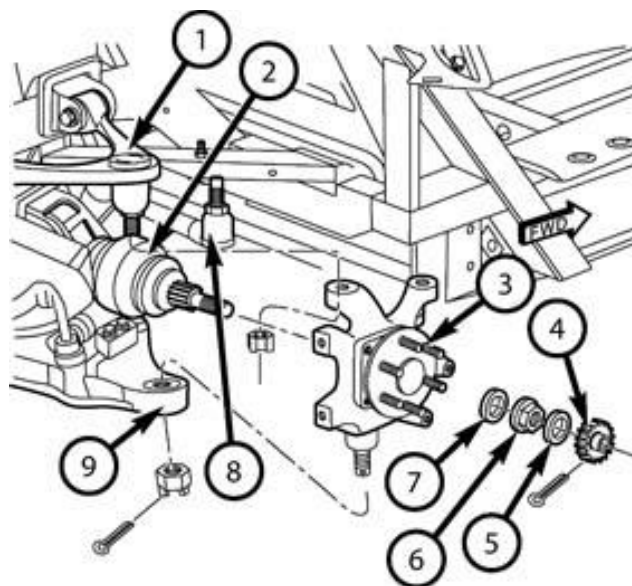


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2. Install hub and bearing on knuckle. Align holes in hub and bearing and corrosion gasket with holes in knuckle.
3. Install four hub and bearing mounting bolts and tighten bolts to 63 ft lbs.
4. Pull outward on lower end of knuckle and slide halfshaft yoke into rear of hub and bearing assembly.

NOTE: Lubricate ball joint, if applicable. Lubricate ball joint assembly using Mopar® Multi-Mileage Lube or equivalent.

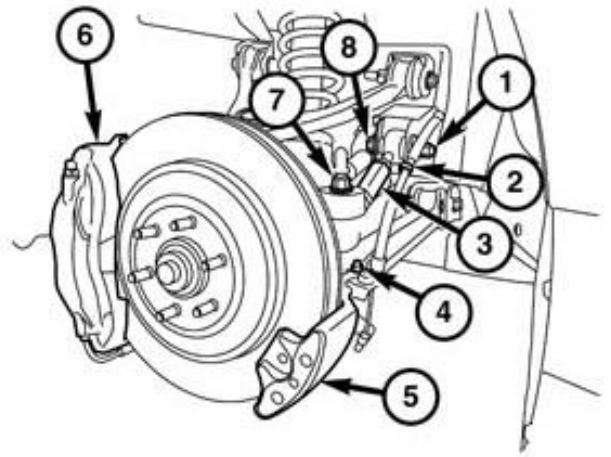
5. Install lower ball joint into lower control arm (9). Install ball joint castle nut, but **do not tighten at this time.**



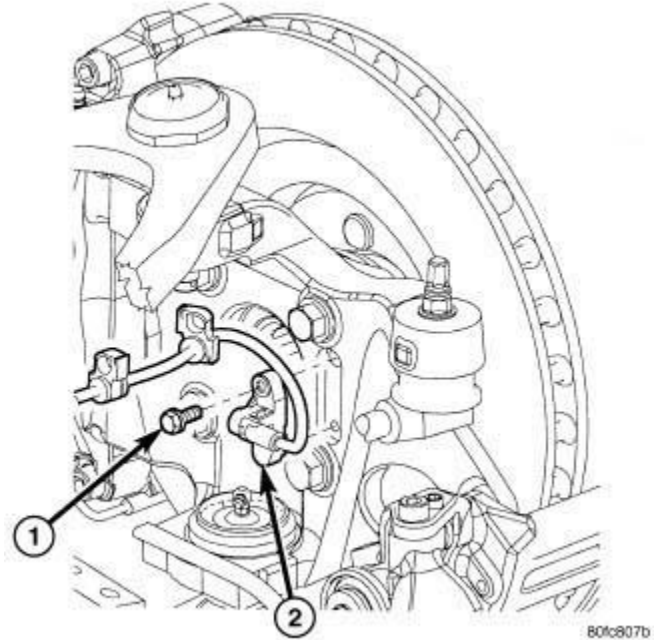
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6. Install toe link (3) into mounting hole on knuckle. Install **NEW** nut on toe link stud, but **do not tighten at this time**.

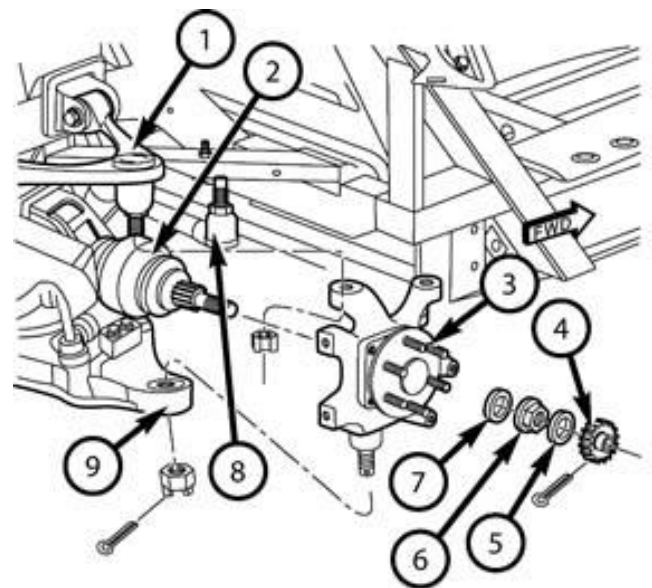
7. Install plastic appearance cap on toe link stud.



8. Install ABS wheel speed sensor head (2) on knuckle. Install bolt (1) fastening speed sensor head to knuckle and tighten to 100 in lbs

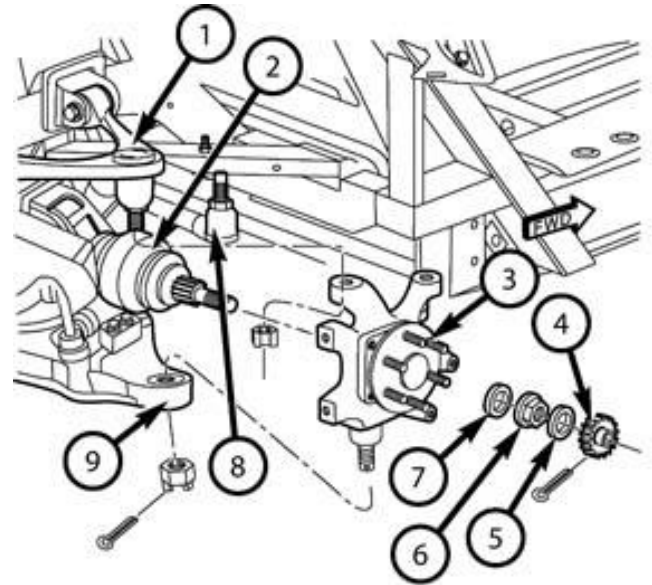


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9. Install washer (7) and hub nut (6) on halfshaft yoke. **Do not tighten at this time.**
10. Install brake rotor, parking brake caliper and hydraulic brake caliper on knuckle.
11. Lower vehicle just enough to gain access to interior. **Do not lower completely at this time.**
12. Apply brakes several times to seat brake shoes and actuate parking brake lever several times to equalize parking brake adjustment.
13. Apply parking brake to keep halfshaft from rotating while tightening hub nut.
14. Tighten hub nut (6) to (207, 250 or 300+ ft lbs – see notes)
15. Install spring washer (5), nut lock (4) and cotter pin on end of halfshaft yoke.

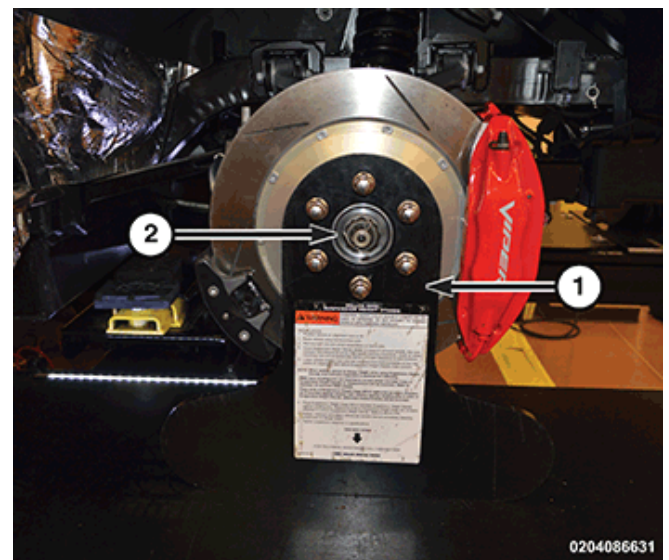


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16. Install tire and wheel assembly
17. Lower vehicle.
18. Position vehicle on alignment rack/drive-on hoist.

NOTE: On models equipped with six piston calipers the calipers need to be unbolted from the knuckle and hung out of the way so that the suspension height stands can be installed correctly.

19. Remove tire and wheels assemblies and install [Height Stands, Suspension 9096](#) (1) onto the hub and bearing assembly (2) and tighten to the proper ([Torque Specifications](#)) .
20. Tighten lower ball joint castle nut to 123 ft lbs.
21. Install cotter pin in end of lower ball joint stud.
22. Tighten toe link to knuckle mounting nut to 22 ft lbs plus 175° **



** Do not reuse fastener. If removed, a new fastener must be installed and tightened to specifications.

NOTE: On models equipped with six piston calipers the calipers need to be reinstalled onto the knuckle and tighten the two mounting bolts to the 85 lb ft

23. Remove the special tool and install the tire and wheel assembly
24. Perform wheel alignment.
25. Road test vehicle to ensure proper operation.

Inspection and Maintenance:

- Experience has found the following tips to be helpful with the OEM hubs with OEM bearings:
 - Some grease seeping from the hub seal is normal after a new installation.
 - If excessive grease is found to be leaking from the hub, check torque of the axle nut and retighten to 250 ft lbs.
 - Frequently tracked cars may find benefit in torquing the axle nut to 300 ft lbs (up to 350 ft lbs).
 - If the hub leaks grease more than twice, the seal may be damaged or not engaging properly.
 - Use a high temp Loctite (Restobond 970TS) to further secure the hub nut.
 - Frequently check the rear axle nut torque and ensure there is no wobble or play in the hubs.
 - The front hubs are locked in place and torqued to spec by customer request and should not require maintenance.
 - Periodically check the Titanium Nut lock system to ensure the screw is still fully engaged and there is no damage.

Thank you for your purchase!

Your business is appreciated and customer satisfaction is our top priority! Don't hesitate to contact us via email with any questions or feedback. Word of mouth is the best form of advertising so if you are satisfied please spread the word!

Disclaimer of Liability:

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Vehicle Modification:

Modification of your vehicle with the parts identified above may alter its stock performance; the buyer hereby expressly assumes all risks associated with any such modification.

Disclaimer of Warranty:

Seller disclaims any warranty express or implied with respect to the parts sold hereby whether as to merchantability, fitness for particular purpose, or any other matter.