

# Subaru Wheel Bearing Replacement

Ongoing studies of vehicle repairs and service procedures have led to the development of a new rear wheel bearing replacement procedure for the following vehicles:

- 1998-2003 Forester
- 1993-2003 Impreza (excluding WRX)
- 1990-1999 Legacy

Additionally, several design changes have been made to increase the durability of the original equipment caged ball bearings in all types of operating conditions. The installation of secondary dust shields to the axle (August 2000 vehicle production), and changes to the wheel bearing itself represent some of the results of this continued study. The most recent production changes were:

- Grease material changed,
- Treatment changes to the rear ball bearing and inner race,
- Initial preload applied in produc-

tion changed.

These changes took place effective August 21, 2001, starting with the following VINs:

- **Impreza Sedan:** 2\*517136
- **Impreza Wagon:** 2\*817579
- **Forester:** 2\*735724

To reduce the possibility of repeat premature failures, Subaru has introduced a new procedure to service the rear wheel bearings of the models listed above that entails replacing the rear wheel bearing on the vehicle. This new procedure eliminates the heavy forces needed to service the rear wheel bearings that occur when using a hydraulic press. This smooth, low force installation eliminates the chances of deforming the wheel bearing housing and increases the efficiency of the repair.

A new special tool kit has been developed to perform this procedure on the vehicle (Kent Moore J45697). The

new tools are designed to work only with tapered roller bearings. The complete repair procedure can be found in Subaru Service Publication Booklet MSA5TT0201.

Subaru has also authorized the installation of a taper roller-type bearing, part number 28016AA030, as the replacement part on the applicable Impreza and Forester models. This taper bearing is the same bearing that is applicable to 1999 model year and prior Legacy models.

If you have diagnosed a failed rear wheel bearing, repair it with the new procedure and check the condition of the remaining side. Replace only if needed.

The new genuine Subaru rear wheel bearings are not to be packed with grease of any kind. The bearing is ready to install out of the box.

### Wheel Bearing Installation Procedures

The following is a summary of the revised wheel bearing installation procedures. A PDF version of Booklet Number MSA5TT0201, containing the complete procedure, photographs and tool listings is available for download on the *End Wrench* website at [www.endwrench.com](http://www.endwrench.com). Do not attempt this procedure without the proper tools. They may be purchased from Kent-Moore by calling 800.345.2233.

- ❶ Remove the wheel.
- ❷ Remove the caliper mounting bolts.
- ❸ Secure the caliper. Place a mark on the hub and rotor so that they can be reassembled the same way they came apart.

- ❹ Remove the rotor.
- ❺ Unstake and remove the axle nut.
- ❻ Remove the lateral link bolt.
- ❼ Push the bearing housing outward and slide the axle out.
- ❽ Set the axle below the lateral link bolt and reinstall the lateral link bolt.

*Note: Inspect the axle for any deep scratches, pitting or damage dust shield. Replace if necessary.*

- ❾ Connect the slide hammer to the wheel-bearing hub. Do not use the original wheel lug nuts. Note: After threading on the five lug adapter to the slide hammer, thread on the nut and tighten the adapter to the nut.

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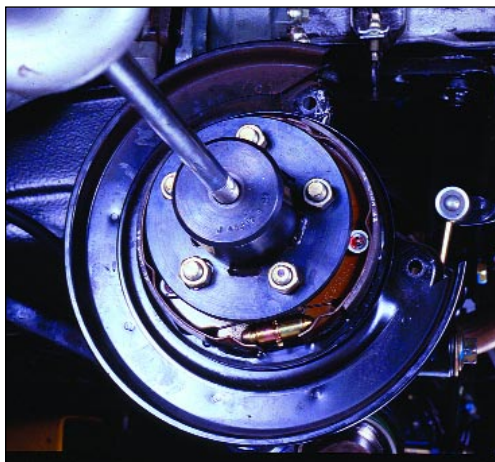
**Step 8**

*Set the axle below the lateral link bolt and reinstall the lateral link bolt.*

⑩ Carefully thrust the slide outward until the wheel bearing hub is removed.

⑪ Remove the snap ring.

⑫ Remove the inner seals from the bearing housing.



**Step 10**

*Use a slide hammer to remove the wheel bearing hub.*

⑬ Place OTC 311882 over the bearing housing. The groove must face outward.

⑭ Rotate the OTC 311882 as it is installed and make sure it is making full contact with the backing plate.

⑮ Place the OTC 311883 into the OTC 311882.

⑯ Make sure the groove is outward.

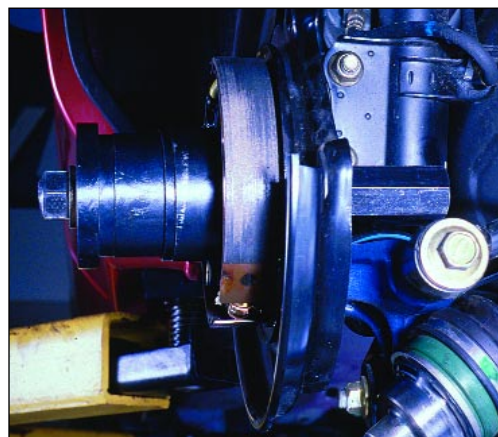
⑰ Place the OTC 314308 with a washer onto the puller bolt. This will be placed into the bearing housing. Apply the included special grease to the puller bolt, once during disassembly and again during reassembly.



**Step 16**

*Install the special tool.*

⑱ The OTC 311887 with washer and nut will be placed onto the opposite end of the puller bolt after it has been inserted into the bearing housing. If the wrong side of OTC 311887 is placed against the bearing the tool will become jammed into the inner race.



**Step 19**

*Position the tools for bearing removal.*

⑲ Position the tools for bearing removal.

⑳ Secure a wrench on the nut located on the backside of the bearing hous-

ing. Using a breaker bar, begin tightening the puller bolt.

21 Switch to the air ratchet after the initial tension of the bearing has been overcome.

22 Remove the bearing and tools from the outside of the bearing housing.

23 Clean and inspect the bearing housing for damage. Use the test outlined below to check for out of roundness condition. Replace bearing housing if out of round.

*Note: Measure the roundness of the housing where the bearing is installed as follows.*

- Measure inner diameter “X” and “Y” at both “A” and “B” positions by using cylinder bore gauge.
- If difference of the measure-

ment between “X” and “Y” is more than .020mm, replace the housing with a new one.

24 Prepare the new tapered roller bearing for installation. Do not remove the bearing stay (plastic piece inside the bearing) at this time.

*Note: Do not disassemble the bearing. Do not add any grease to the bearing.*

25 Set the bearing assembly into the bearing housing.

26 Assemble the tools for wheel bearing installation. Place a washer on the bolt followed by OTC 311888 (open end facing toward the wheel bearing housing). Place another washer on the bolt followed by J45697-9. Apply the included grease to the puller bolt.

*Note: All three included washers are the same thickness.*

27 The J45697-1 larger diameter surface will face the wheel bearing housing on the inner side after the puller bolt has been inserted into the bearing housing.

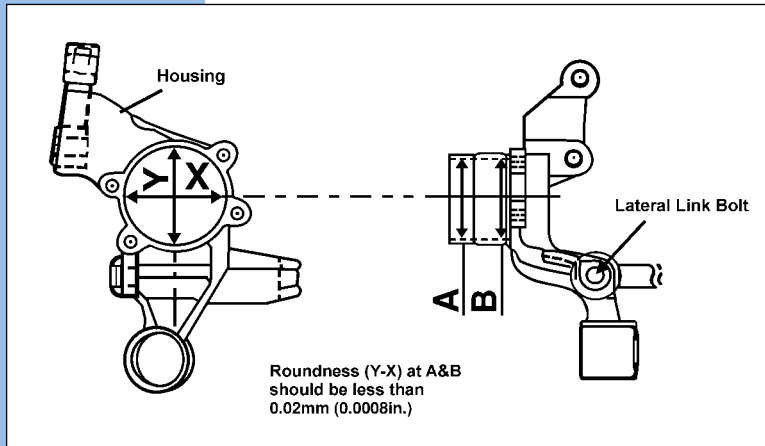
28 Position the tools on the bearing housing front side for installation.

29 Position the tools on the back side of the housing for installation.

30 Secure the nut on the inner side with a wrench and begin tightening the bolt with an air ratchet.

31 Tighten the last few turns with the breaker bar if necessary. Installation is complete when OTC 311888 makes contact with the bearing housing.

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**Step 23**

Measure the bearing housing.

32 Remove the tools.

33 Insert the snap ring. If the snap ring will not seat properly the bearing is not fully installed.



**Step 30**

Install the new bearing.

34 Thread seal installer J45697-11 with the smaller diameter facing outward onto driver handle J8092.

35 Install the outer seal.

36 Remove all tools from the puller bolt. Push out the bearing stay from the center of the installed bearing using the head of the bolt.

37 Prepare the hub for installation. Remove the old outer seal from the hub.

38 Remove the tone wheel if equipped.



**Step 38**

Remove the old inner bearing race.

39 Install a set of press plates below the old inner race and remove with appropriate press and press tools.

40 Reinstall the tone wheel (5.4 ft-lb) if equipped. Insert the puller bolt with washer into the hub.

41 Place the J45697-1 with the *smaller* diameter surface facing inward onto the puller bolt after it has been inserted through the bearing housing.

42 The slot will be used to insert a depth gauge.

43 Secure a wrench on the nut and begin tightening the puller bolt with the air ratchet. Finish the installation with the breaker bar.



**Step 50**

Install and torque the lateral link bolt.

44 Check the installed depth of the hub with the following procedure. Measure through the provided slot on J45697-1. (Remove the washer if necessary and reinstall nut) Using an appropriate depth gauge measure from the top of J-45697-1 to the top flat edge of the wheel bearing. This will represent "A." Measure again to the top flat of the hub. This will represent "B". Use the following formula:  $B - A = C$ . "C" should equal  $2.0 \pm 0.3$  mm, the correct installed depth of the wheel bearing hub.

45 Thread seal installer J 45697-10 onto driver handle J 8092 with the pictured surface facing outward. Place the inner number one seal on the tool and install the seal. The tool will make contact with the bearing housing when the seal is fully installed.

46 Reverse the J 45697-10 on the driver handle J 8092. Place the inner number two seal on the tool and install the seal.

*Note: The seal is fully installed when the seal is flush with the bearing housing.*

47 Check the rolling resistance of the hub with the supplied torque wrench. The hub should turn smoothly. (Starting force should be 7 to 17 inch-pounds.)

48 Remove the lateral link bolt.

49 Push the bearing housing outward and slide the axle in.

50 Install and torque the lateral link bolt. Use a new self-locking nut.

*Note: Do not use impact tools.*

**Legacy: 87-116 ft-lb**

**Impreza and Forester:  $101 \pm 14$  ft-lb**

51 Install the brake rotor. Match the marks made during disassembly. Install and torque new axle nut.

**Legacy, Impreza and Forester:  $137 \pm 14$  ft-lb**

52 Stake the axle nut. Then install the brake caliper mount and torque the bolts to  $38 \pm 4$  ft-lb.

53 Install the wheel and torque the lug nuts.

**Legacy, Impreza and Forester steel wheels: 65.7 ft-lb**

54 Pump the brake pedal before moving the vehicle.