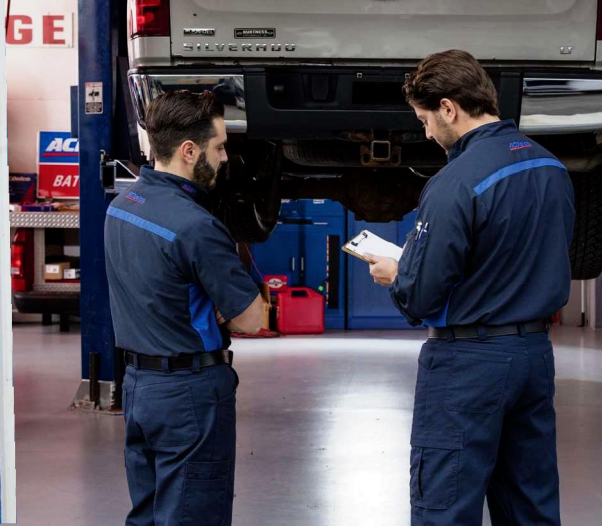
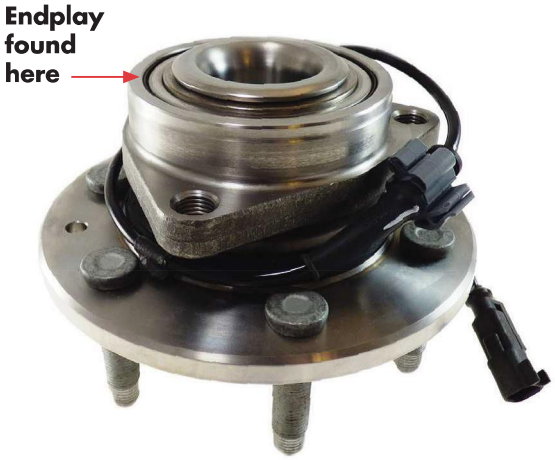
ACDelco

TECHNICAL PROCEDURAL PROCESS





BEARING ENDPLAY VERSUS PRELOAD

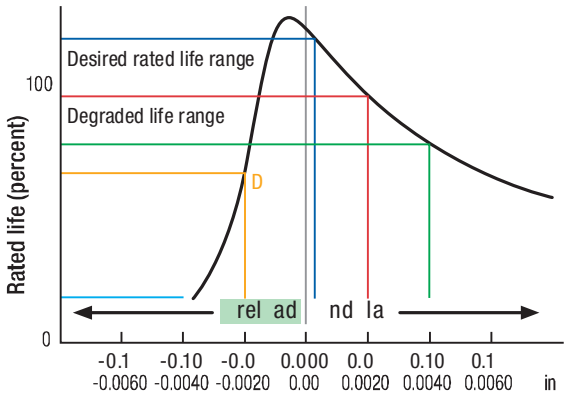
Many original equipment and aftermarket hub assemblies are designed with built-in bearing endplay. Endplay is the lateral movement of the bearing inside the hub assembly. The opposite condition to endplay is preload where the bearing is put under tension as a result of the tight tolerances between the bearing and hub housing.

In the aftermarket there are many opportunities for bearing installation variation and errors. This is the main reason designs with endplay are preferred because they have better durability in most circumstances. Installation specifications like nut torque are very critical in a preload design, at the same time preloaded designs don't significantly increase bearing life expectancy when compared to designs with endplay. A perfectly built preload design might give only 5-10% more bearing life, however, an overloaded preload design will degrade rapidly.

As can be seen in the reference curve to the right, a preload of -0.05mm (point D) will give a significantly degraded bearing life when compared with 0.10mm of bearing endplay (point C). A bearing preload of -0.10mm will likely result in rapid, premature failure (point E). A bearing endplay of even 0.10mm (point C on the curve to the right) will normally provide close to the expected bearing life (~80%).

ACDelco Advantage hub assemblies are designed with an endplay which will not exceed 0.05mm, the typical value is between 0.01-0.05mm (points A and B on the curve). Based on the individual design, the rated life is generally between 100% and 110% of the theoretical life.

If the Advantage bearing you are installing has a small amount of endplay that is OK, the part has been manufactured correctly to give it the best chance of a long service life in the vehicle.



ENDPLAY SPECIFICATION

In the summer of 2016 the manufacturer of Advantage bearings made adjustments to their manufacturing processes to reduce the maximum observed endplay. Where possible, the maximum endplay tolerance was reduced to give the product a more consistent 'feel.' This is a running change on new manufactured parts and will be complete by August 2016.

APPLICATION OF AXLE NUT TORQUE

Axle nut torque is a key factor in bearing life. Applying the wrong toque or using the wrong tool can result in early bearing failure and customer dissatisfaction. To help installers with this process a number of tools are available.

WARNING DECAL

A warning decal is now being pasted to the inside of new hub bearing boxes. This decal reminds installers that axle nuts must be torqued to the correct specification using a torque wrench. The use of an air gun can damage the new part and reduce product life. This is an example of the new decal.

GENERATION I BEARING INSTALLATION GUIDANCE

Some bearing designs are older than others. The older Generation I designs can be more susceptible to installation errors and shortened product life. To help identify Generation I parts ACDelco is now adding an insert into the boxes of these products. Follow the instructions as provided.

ATTENTION

This bearing installation requires special mechanical or hydraulic press equipment. The use of any tools which will result in any impact or loading on the bearing's rolling elements will result in certain damage to the bearing. Do not attempt to install this bearing without the proper equipment and training.

DOWNLOADABLE TORQUE SPECIFICATIONS

Axle nut torque specifications have historically been provided by suppliers through paper inserts in the product box. If the specifications change it is very difficult to purge obsolete documents. To give installers the best up-to-date information at the hoist, ACDelco is providing unique QR codes with downloadable/ printable torque specification sheets and web site addresses with this same information. Beginning with new product shipped to ACDelco in August 2016 QR codes and web addresses can be found on the outside of the box giving you easy access to this information.

ABS SENSOR RING ALIGNMENT

An the past it may have been difficult to identify the ABS encoder surface of certain bearings because the etched markings were not dark enough to be easily visible. Changes have been made to the manufacturing process to make the ABS encoder side of the bearing more easily identifiable starting with new parts manufactured in June 2016.

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