A Program of ASTM International

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L-33-1 Information Letter 16-3
Sequence Number 19
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ASTM consensus has not been obtained on this information letter. An appropriate ASTM ballot will be issued in order to achieve such consensus.

TO: L-33-1 Surveillance Panel

SUBJECT: Editorial revisions to wording adopted for introduction of American Axle K2XX hardware.

During a November 2, 2016 meeting, the L-33-1 Surveillance Panel approved a number of editorial clean ups to the revisions made by Information Letters 16-1 and 16-2 introducing American Axle K2XX test hardware.

The text of the revisions is shown in the attachment. The changes are effective immediately.

Angela Trader
Chairman
L-33-1 Surveillance Panel

Frank Farber
Director
ASTM Test Monitoring Center

Attachment

cc: ftp://ftp.astmtmc.cmu.edu/docs/gear/l331/procedure_and_ils/il16-3.pdf

Distribution: Email

(Revises Test Method D 7038-15 as revised by Information Letters 16-1 and 16-2)

Replace section 6.2.5 with the following:

6.2.5 Housing Axle Tube Opening Seals — Since the differential is tested without axle shafts or axle tubes, use a stainless steel plumbing test plug for a 2.9 in. to 3.1 in. (74 mm to 79 mm) pipe diameter to seal the housing openings. McMaster-Carr p/n 2908K28 or 2908K29[12] with the outer washer and seal ring cut to 2.9 in. to 3.1 in. (74 mm to 79 mm) has been found acceptable for this purpose. Install a pair of seals in the axle housing openings before installing the carrier/case into the axle housing. When using Dana Model 30 hardware rather than the AAM K2XX hardware see Fig. A5.2 for an example of construction dimensions for fabricating a pair of suitable seals.

Replace section 9.2.1.1 with the following:

9.2.1.1 Disassembly—Disassemble the differential housing assembly leaving the pinion inner and outer races in place. Remove and discard the oil drain plug magnet (if present). Remove all parts from the differential case. Disassemble all bearings from their mating parts. Maintain right differential case shim for axle assembly.

(1) Be aware that the bolts attaching the ring gear to the carrier are left-hand thread.

Replace section 9.2.2.1 with the following:

9.2.2.1 Drive Pinion Shaft Installation—Assemble the drive pinion shaft with its bearings and install it in the housing following the guidelines in 9.2.2. A late model GM, GMC or Chevrolet service manual may be used for assembly details not included here.

(1) Install the rear pinion bearing onto the pinion shaft with the original shim.

(2) Place the front pinion bearing into the housing and then install the pinion front seal into the housing. Note that the front seal might be damaged during disassembly and may need to be replaced.

(3) Install the pinion shaft into the differential housing. The front bearing may need to be tapped into place using a small punch. Install the pinion yoke washer and nut. Torque pinion-nut until a turning torque of 3 lbf-in to 10 lbf-in (0.3 N·m to 1.1 N·m) is achieved.

(4) If necessary, replace the pinion crush collar and repeat pinion assembly process.

(5) Record the final pinion break and turning torque on the appropriate test report form.

Replace section 9.2.2.2 with the following:

9.2.2.2 Differential Case Installation—Assemble the differential pinion, side gears, shafts and thrust washers, shims, bearings, and ring gear. Be aware that the bolts attaching the ring gear to the carrier are left-hand thread. Install the differential case assembly and bearing caps in the differential housing. Torque the differential housing bearing caps to 35 lbf-ft to 50 lbf-ft (48 N·m to 68 N·m). Measure break and turning torque; turn torque shall be 7 lbf-in. to 13 lbf-in. (0.8 N·m to 1.5 N·m) and break torque shall be 8 lbf-in. to 18 lbf-in.(0.9 N·m to 2.0 N·m).
(1) Adjust the final turning torque by removing the differential case, adding or removing shims on the left ring gear side only, and then reassemble to obtain final preload.
(2) Repeat Item 1 of 9.2.2.2 until the appropriate final turning torque is reached.
(3) Record final break and turning torque in the space provided in the test report.
(4) After completion of the test axle build and before the cover plate installation, place the test axle in a vertical position with the yoke oriented upward. Place the cover in a vertical position. Allow the assembled test axle and cover plate to drain for a minimum of 10 min.

Replace section 9.2.2.4 with the following:

9.2.2.4 Cover Plate, Seals, Temperature Probe and Pressure Control Valve Installation—Install the cover plate with a new TFE fluorocarbon gasket pre-wetted with the test oil on both sides (see 6.2.4). Use a new TFE fluorocarbon cover plate gasket for every test. Orient the gasket such that the hook on the gasket is nearest the tapped vent hole in the axle housing.
(1) Torque the cover plate bolts to 20 lbf-ft to 25 lbf-ft (27 N·m to 34 N·m).
(2)Install the temperature probe using TFE fluorocarbon tape as shown in Fig. A5.4, Fig. A5.11, and Fig. A5.12.
(3) Install the NPT stainless steel fittings and stainless steel full port valve into the pre-tapped axle housing vent tube opening. Some of the cover plate bolts may be replaced with longer bolts or studs which are then used to attach a bracket used to mount the axle housing in the motoring stand. Ensure that all fasteners used to attach the cover plate are evenly torqued to the given specification.

Replace section 10.1 with the following:

10.1 Reference Test Frequency—Conduct one reference test every ten test starts or every five months, whichever comes first. This calibration frequency is subject to change as required. Current calibration information is available from the TMC.