

EDS

Engineering,
GM DAEWOO Auto & Technology
Standards

DURABILITY OF NEEDLE BEARING CRANKSHAFT/INPUT SHAFT FWD AND RWD

EDS-T-2217

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	DURABILITY OF NEEDLE BEARING CRANKSHAFT/INPUT SHAFT FWD AND RWD	EDS-T-2217
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1. PURPOSE

This standard evaluates the durability of the needle bearing in the crankshaft, for RWD/FWD manual transmissions.

2. SCOPE

This standard shall be only applied to the needle bearing used for manual transmission in automobile.

3. EQUIPMENT

3.1. FWD needle bearing test stand (See Fig. 1)

3.2. RWD needle bearing test stand (See Fig. 2)

4. PREPARATION

4.1. Install the needle bearing to be tested in the holding fixture, with the press-in force specified in the drawing.

4.2. For monitoring the temperature of the needle bearing, install a thermocouple at the fixed outer ring.

4.3. Install holding fixture with needle bearing in the test stand, in vehicle ASM, condition.

4.4. The speed of the input shaft journal is 6,000 rpm. It is adjusted by using the appropriate ratios of transmissions 1 and 2.

4.5. Adjust the test temperature of the bearing to $+135 \pm 5^{\circ}\text{C}$ using a suitable hot air blower.

4.6. The needle bearing temperature will be monitored by a temperature recorder. When exceeding the temperature limit of $+160^{\circ}\text{C}$, the test stand will stop.

5. PROCEDURE

5.1. Accelerate the input shaft from 0 to 6,000 rpm within 1.3 seconds (by engaging clutch 1 while clutch 2 remains disengaged).

5.2. For about 4 seconds the speed of the input shaft is 6,000 rpm.

5.3. Decelerate the input shaft from 6,000 rpm to 0 within 1 sec. (by disengaging clutch 1 and engaging clutch 2).

5.4. After a pause of 3.5 seconds the next cycle will start as described clause 5.1

5.5. The test will be concluded as soon as, A the specified cycles are reached, or B the temperature of the fixed outer ring of the bearing exceeds the temperature limit of $+160^{\circ}\text{C}$, we know from experience that the bearing is