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The technical specifications for remanufactured automotive components - Automatic transmission

汽车零部件再制造产品 标识规范

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The technical specifications for remanufactured automotive components - Automatic transmission

1 Scope

This Standard specifies the terms and definitions, disassembly, classification and cleaning, inspection, testing and repair, assembly, performance requirements and test methods, inspection rules, marking and packaging for remanufactured automatic transmission.

This Standard applies to remanufactured hydraulic automatic transmission (AT), dual-clutch automatic transmission (DCT), and continuously variable automatic transmission (CVT). It can be implemented for remanufactured automatic transmissions of other power-driven vehicles by reference.

This Standard does not apply to remanufactured automatic mechanical transmissions (AMT) for motor vehicles.

2 Normative references

The following documents are indispensable for the application of this document. For dated references, only the dated version applies to this document. For undated references, the latest edition (including all amendments) applies to this document.

GB/T 26989, Automobile recovery - Terminology

GB/T 28675, Remanufacturing of automotive components - Disassembly

GB/T 28676, Remanufacturing of automotive components - Classification

GB/T 28677, Remanufacturing of automotive components - Cleaning

GB/T 28678, Remanufacturing of automotive components - Pre-delivery inspection

GB/T 28679, Remanufacturing of automotive components - Assembly

GB/T 39895-2021, Remanufactured automotive components - Specifications of labels

QC/T 1077, Terms of automotive automatic transmission classifications

j) Rubber piston;

k) Inhaul cable;

l) Vacuum control valve.

5.1.3 The following parts and assemblies can be used as direct-use parts if they are free of defects after inspection:

a) Bracket;

b) Shift lever;

c) External fastening bolts;

d) Fixed mount.

5.2 Cleaning

5.2.1 The cleaning shall meet the requirements of GB/T 28677.

5.2.2 Do not use cleaning media that contain water or corrosive components to wash parts with friction materials and electronic components.

5.2.3 Parts and assemblies shall be subjected to fine filtration before they are cleaned.

5.2.4 Use compressed air to blow-dry or dry the cleaned parts and assemblies; their cleanliness shall meet the technical requirements of remanufactured product drawings.

6 Inspection, testing and repair

6.1 Inspection and testing requirements

The inspection or testing results of the parts, which are mentioned in 6.2 ~ 6.17, shall meet the technical requirements such as remanufactured product drawings; repair or replacement shall be carried out if they do not meet the requirements.

6.2 Box

6.2.1 Check for defects such as cracks, chipping, and deformation.

6.2.2 Check the plunger hole, threaded hole and bearing saddle bore working surface for screw loose, scratches, cracks and pitting.

6.3 Oil pump

6.4.5 Check whether the ball non-return valve on the piston is free and has one-way sealing.

6.4.6 Check the gap of the seal ring groove.

6.4.7 Check the working surfaces of the piston and the seal ring on the clutch hub and disc brake for damage such as scratches, pitting and cracks.

6.4.8 Check the clutch hub and disc brake hub for deformation, damage, cracks and other damage conditions.

6.4.9 Check the welding parts on the clutch hub and the disc brake hub and the tooth meshing surface of the steel sheet for deformation, damage, cracks and other damage conditions.

6.4.10 Check the working surface of the brake band on the clutch hub for damage such as scratches, ablation and cracks.

6.4.11 Check the tightness of the clutch and disc brake.

6.4.12 Check the working clearance of the clutch and disc brake.

6.4.13 Check the appearance of the spring for damage or deformation.

6.4.14 Check the appearance condition and tightening condition after assembly of the jump ring.

6.5 Band brake

6.5.1 Check the working surface of the brake band of the band brake for damage, abrasion or burn and other damage conditions.

6.5.2 Check the welding or riveting of the brake band of the band brake for damage.

6.5.3 Check the gap of the band brake.

6.6 One-way clutch

6.6.1 Check whether the one-way clutch can only drive one-way.

6.6.2 Check the wear condition of the outer ring, inner ring, bracket, end cover, roller and wedge.

6.7 Synchronizer

6.7.1 Check the working surface of the cone ring for damage such as scratches, pitting and cracks.

6.11.3 Check whether the two working surfaces of the belt wheel and chain wheel of the stepless speed change mechanism can move smoothly in the axial direction.

6.12 Shaft

6.12.1 Check the working surface of the shaft for wear, damage, deformation and other damage conditions.

6.12.2 Check the geometric dimensions of the bearing bush.

6.12.3 Check the input and output shaft clearance.

6.12.4 Check the working surface of the bearing for damage such as scratches, pitting and cracks.

6.13 Valve body

6.13.1 Check the appearance of the valve seat for deformation and damage.

6.13.2 Check the spool valve and spool valve seat hole for wear and scratches.

6.13.3 Check the surface of the valve seat for damage such as scratches, pitting and cracks.

6.13.4 Check the unsupported length, outer diameter, number of turns, and wire diameter of the spring.

6.13.5 Check the valve body assembly main oil pressure, clutch brake oil pressure, torque converter lock-up and release oil pressure, cooling and lubricating oil pressure and other pressures.

6.14 Solenoid valve

6.14.1 Check the appearance of the solenoid valve for damage and other conditions.

6.14.2 Check the resistance of the solenoid valve.

6.14.3 Check the oil pressure output characteristics of the solenoid valve.

6.15 Sensor

6.15.1 Check the appearance of the sensor for damage.

6.15.2 Check electrical characteristics such as resistance and rated voltage of the sensor.

6.16 Control unit

7.8 The pre-tightening force of the tapered roller bearing shall meet the technical requirements such as the remanufactured product drawings.

7.9 The above-mentioned test results shall meet the technical requirements such as the remanufactured product drawings.

8 Performance requirements and test methods

8.1 Tightness

Gently apply 30 kPa ~ 120 kPa of dry compressed gas to the inside of the automatic transmission; after maintaining the pressure for at least 5 s, the internal pressure drop shall not exceed 10%.

8.2 Shift performance

8.2.1 When the input speed (v_1) is set to 600 r/min ~ 900 r/min during the bench test, put the gear to the parking gear (P), reverse gear (R), neutral gear (N), forward gear (D), and other forward gears; each gear shall exist stably, and there is no abnormal noise, shock, or abnormal vibration in the process.

8.2.2 When the oil temperature is not lower than 50 °C during the bench test, put the gear to the forward gear (D) and other forward gears; adjust the input speed (v_1) to 1 800 r/min ~ 2 200 r/min; input up-and-down shift signal and lock signal step by step through the controller; observe the operating conditions and record the following parameters:

a) Output speed of each gear (v_2); calculate the transmission ratio i ($i = v_1/v_2$) (the i value of CVT is in a certain continuous range);

b) Measurable oil pressure;

c) Cooling flow;

d) Working oil temperature.

8.2.3 The test operating results shall meet the following requirements:

a) Each parameter value meets the requirements of the product drawings and technical documents which are approved according to the prescribed procedures;

b) The up-and-down shift process is normal, and there is no abnormal noise, slip, abnormal vibration, or impact;

c) The connecting parts and fasteners do not loosen or fall off; the tightening torque value shall be within the required range.

a) The connecting parts and fasteners do not loosen or fall off; the tightening torque value shall be within the required range;

b) There is no leakage at each sealing element;

c) All plastic and rubber parts shall not be damaged;

d) There should be no wear and clamping stagnation on all working surfaces;

e) Other parts shall meet the requirements of Chapter 6;

f) The total mass of inclusions in the automatic transmission does not exceed 260 mg; the maximum cross-sectional area of a single inclusion does not exceed 0.4 mm^2.

9 Inspection rules

9.1 Delivery inspection

The remanufactured automatic transmission shall be inspected to be qualified before being delivered. The delivery inspection shall be carried out in accordance with the provisions of this Standard and user requirements; the inspection items shall include (but not limited to) the contents of 8.1 and 8.2.

9.2 Type inspection

9.2.1 Type inspection shall be carried out in any of the following cases:

a) Before mass production;

b) When there is a major change in the process that may affect the performance of the product;

c) When continuous normal production reaches 2 years;

d) When production resumes after 1 year of suspension;

e) When it is required by the buyer or the type approval party.

9.2.2 Inspection samples, items and judgments:

a) The type inspection samples shall be randomly selected from the qualified products of the delivery inspection; the number of samples is 3 for each performance;

b) The inspection items shall include (but not limited to) the contents of 8.1, 8.2, and 8.3;

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