

ASSOCIATION STANDARD

T/CSAE 82-2018

**Endurance performance requirements and bench test methods
for energy- regeneration automobile electronic stability control
system**

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Foreword

This standard is based on GB/T 1.1-2009 "Standardization Work Guide Part 1. Standard Structure and Preparation" Then write.

1 Scope

This standard specifies the basic parameters, durability requirements, and tests of the energy feedback type vehicle dynamics control system (EESC).

method.

This standard is applicable to the energy feedback type vehicle dynamics control system of various switch valve types for M1 and M2 electric vehicles. Others the type of energy feedback type vehicle dynamics control system can be referred to for execution.

2 Normative references

The following documents are indispensable for the application of this document. For dated references, only the dated version applies.

This document. For undated references, the latest edition (including all amendments) applies to this document.

GB/T 2423 Basic Environmental Test Procedure Test for Electronic and Electrical Products
GB/T 10125 artificial atmosphere corrosion test - salt spray test GB 10830 Technical conditions for the use of brake fluids for motor vehicles GB 12676 Technical requirements and test methods for brake systems for commercial vehicles and trailers GB/T 13594 Anti-lock braking performance and test method for motor vehicles and trailers GB/T 30038 road vehicle electrical and electronic equipment protection level (IP code) Technical requirements and bench test method for hydraulic electromagnetic regulator of QC/T 1005 automobile anti-lock brake system

3 Terms and definitions

The following terms and definitions apply to this standard.

3.1

Energy feedback vehicle dynamics control system EESC Energy-regeneration Electronic Stability Control System Converting the kinetic energy of the vehicle into electrical energy during deceleration, and adjusting the braking force and engine torque as needed to change the car A yaw moment that causes the vehicle to follow the driver's intended active safety system.

3.2 Electronic Braking Force Distribution EBD Electric Brakeforce Distribution

During the braking process, by adjusting the braking force of the rear wheel, the braking force distribution of the whole vehicle tends to be idealized.

3.3 Hydraulic Control Unit HCU Hydraulic Control Unit

Mechanical hydraulic actuator of the energy feedback type vehicle dynamics control system.

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3.4 Low Pressure Accumulator LPA Low Pressure Accumulator

A storage device used in the EESC assembly to temporarily store brake fluid that is discharged by the wheel (or tends to lock).

3.5 Return Pump Return Flow Pump

The pump element used in the EESC assembly to draw the brake fluid from the LPA back to the master cylinder and pump the brake fluid from the MPA to the wheel cylinder.

3.6 Return pump motor Motor

The motor used to drive the return pump in the EESC assembly.

3.7 Inlet Valve Inlet Valve

The solenoid valve used to control the entry of brake fluid into the wheel cylinder in the EESC assembly.

3.8 Outlet Valve Outlet Valve

The solenoid valve used to control the brake fluid discharge wheel cylinder in the EESC assembly.

3.9 Isolation valve Separating valve

The solenoid valve used to control the master cylinder brake fluid into the wheel cylinder in the EESC assembly.

3.10 Switching Valve Switching valve

The solenoid valve used to control the master cylinder brake fluid into the pedal simulator in the EESC assembly.

3.11 Fuel Supply Valves Supplying valve

A solenoid valve used to control the opening and closing of the second circuit in the EESC assembly.

3.12 Rated working pressure Rated Working Pressure

Working hydraulic pressure as specified in the EESC actuator assembly technical documentation.

3.13 Rated Working Voltage Rated Working Voltage

The operating voltage specified in the EESC actuator assembly technical documentation.

3.14 ECU Electrical Control Unit

Electronic control unit.

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4.1 Basic requirements

The basic parameters are shown in Table 1.

Table 1 Basic parameters

Serial number item parameter value

- 1 Working medium DOT3 and above synthetic brake fluid
- 2 Working environment temperature and humidity -40 ° C ~ 120 ° C, the maximum allowable humidity of 95%
- 3 rated working fluid pressure 12MPa
- 4 Allows the use of the highest working fluid pressure of 16MPa

6 Working withstand voltage DC18V 1h 100 °C

4.2 Solenoid valve performance requirements After the sample has passed the endurance test, the performance retest shall be carried out, and the requirements of 4.2.1, 4.2.2, and 4.2.3 shall be met.

4.2.1 Sealing performance requirements During the test, the sample shall be free of functional damage and other anomalies. After the test, the sealing of each channel of the sample should be Meet the requirements of Table 2.

Table 2 Sealing requirements

Test project pressure drop (liter) value (MPa) High pressure sealing ≤ 0.7 Low pressure sealing ≤ 0.18 Vacuum tightness $\leq 0.15 \times 10^{-6}$ Pressure tightness ≤ 0.35 Low pressure accumulator cavity sealing performance ≤ 0.15 Medium pressure accumulator cavity sealing performance ≤ 0.15

4.2.2 Dynamic performance requirements