

ASSOCIATION STANDARD

T/CSAE 79-2018

**Performance requirements and bench test methods for
energy-regeneration automobile hydraulic anti-lock braking
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, requirements and test methods of the energy feedback type automotive anti-lock brake system (EABS).

This standard applies to energy-feedback hydraulic anti-lock braking systems of various switch valve types for M1 and M2 electric vehicles.

A type of energy feedback hydraulic anti-lock brake system can be implemented by reference.

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 2423.37-2006 Test L. sand dust test 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, and the terms and definitions referred to in QC/T 1005 apply equally to this standard.

3.1

Energy feedback automotive anti-lock braking system (EABS) Energy-regeneration Antilock Brake System

3.4 Low Pressure Accumulator LPA Low Pressure Accumulator

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

3.5 Medium Pressure Accumulator (MPA) Medium Pressure Accumulator

A storage device used in the EABS assembly to temporarily store excess brake fluid due to energy recovery from the vehicle.

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3.6 Return Pump Return Flow Pump

The pump element used in the EABS 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.

3.7 Return pump motor Motor

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

3.8 Inlet Valve Inlet Valve

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

3.9 Outlet Valve Outlet Valve

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

3.10 Isolation valve Separating Valve

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

3.11 Switching Valve Switching Valve

The solenoid valve used to control the master cylinder brake fluid into the medium pressure accumulator in the EABS assembly.

3.12 Pressure Regulators Release Valve

The solenoid valve used to control the brake fluid of the medium pressure accumulator into the wheel cylinder in the EABS assembly.

3.13 Rated working pressure Rated Working Pressure

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

3.14 Rated Working Voltage Rated Working Voltage

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

3.15 Boost time Time of Pressure build-up

Pressurization phase during one braking (with brake pressure as ordinate and time as abscissa), EABS actuator assembly the time elapsed from the rise of the outlet pressure from 0.1 MPa to 10 MPa.

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3.16 Buck Time Time of Pressure decrease

The depressurization phase during a braking process (with brake pressure as the ordinate and time as the abscissa), the output of the EABS actuator assembly the time elapsed since the outlet pressure dropped from 10 MPa to 1.5 MPa.

3.17 Boost lag time Lag time of pressure build-up

In the step-up stepping process, the lag time of the pressure signal relative to the electrical signal when the first step is boosted.

3.18 Buck time lag time Lag time of pressure decrease

In the step-down process, the lag time of the pressure signal relative to the electrical signal when the first step is stepped down.

4.1 Basic requirements

The basic parameters are shown in Table 1.

Table 1 Basic parameter requirements

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