



SURFACE VEHICLE INFORMATION REPORT

J2564™

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Superseding J2564 NOV2017

(R) Automotive Stability Enhancement Systems

RATIONALE

SAE J2564 has been updated to terminology in other standards. Since its introduction in December 2000 and its revision in December 2004, significant research, development, and testing have expanded the applications and implementation of Electronic Stability Control (ESC) Systems.

SAE J2564 has been reaffirmed to comply with the SAE Five-Year Review policy.

1. SCOPE

The purpose of this SAE Information Report is to describe currently known automotive active stability enhancement systems, as well as identify common names which can be used to refer to the various systems and common features and functions of the various systems. The primary systems discussed are:

- a. ABS - Antilock Brake Systems
- b. TCS - Traction Control Systems
- c. ESC - Electronic Stability Control

The document is technical in nature and attempts to remain neutral regarding unique features that individual system or vehicle manufacturers may provide.

2. REFERENCES

2.1 Applicable Publications

The following publications form a part of this specification to the extent specified herein. Unless otherwise indicated, the latest issue of SAE publications shall apply.

2.1.1 SAE Publications

Available from SAE International, 400 Commonwealth Drive, Warrendale, PA 15096-0001, Tel: 877-606-7323 (inside USA and Canada) or +1 724-776-4970 (outside USA), www.sae.org.

SAE J670 Vehicle Dynamics Terminology

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3. DEFINITIONS

Many automotive stability enhancement systems are being implemented. These systems each have an acronym unique to their design, performance, function, and marketing characteristics. This document lists many of the systems. Some of these names and acronyms are trade names of the system or vehicle manufacturers. See Table 1.

Table 1 - Currently known acronyms

Antilock Brake Systems	Traction Control Systems	Electronic Stability Control Systems
ABS (Antilock Brake System)	ASC (Automotive Stability Control)	ABC (Active Brake Control)
RWAL (Rear Wheel Antilock)	ASR (Automatic Stability Regulation)	AH (Active Handling System)
SCS (Stop Control System)	Brake Only Traction	Active Safety
RABS (Rear Antilock Brake System)	ETS (Enhanced Traction System)	AdvanceTrac
	TCS (Traction Control System)	ASMS (Automotive Stability Management System)
	TCB (Traction with Brake Intervention)	ASTC (Active Skid and Traction Control)
	TRAC (Traction Control System)	CBC (Cornering Brake Control)
	EDS (Electronic Differential-lock System)	DSC (Dynamic Stability Control)
		DSTC (Dynamic Stability and Traction Control)
		ESC (Electronic Stability Control)
		ESP (Electronic Stability Program)
		ICCS (Integrated Chassis Control System)
		IVD (Integrated Vehicle Dynamics)
		PCS (Precision Control System)
		PSM (Porsche Stability Management)
		SCS (Stability Control System)
		Stabilitrak
		STC (Stability and Traction Control System)
		Traxxar
		VDC (Vehicle Dynamics Control)
		VSA (Vehicle Stability Assist)
		VSC (Vehicle Stability Control)
		VSES (Vehicle Stability Enhancement System)
		YCS (Yaw Control Stability)

4. SYSTEM DESCRIPTIONS

In this section, the fundamental criteria of each system are listed. In addition, a brief description of a typical implementation and the advantages of each system are provided. This description is not intended to limit innovations such as development of alternate sensors, etc., but is intended to describe the current state-of-the-art. In addition, it should be noted that performance of the systems might vary somewhat from supplier to supplier, manufacturer to manufacturer, and from vehicle to vehicle as the systems are calibrated to satisfy the needs of specific vehicles and customer demographics.

4.1 Antilock Brake Systems (ABS)

4.1.1 Antilock Brake Systems (ABS) - General

4.1.1.1 A system is defined as an Antilock Brake System if it:

- a. Is computer controlled.
- b. Has a means to determine if any wheel is about to lock.
- c. Has the capability of regulating the brake torque at the wheels to limit wheel lock.
- d. Controls the brake torque to each of the front wheels independently and/or the rear wheels either independently or as a pair.

4.1.1.2 Description and Advantages

Antilock Brake Systems monitor the vehicle wheel speeds and regulate the brake forces during driver-applied braking to control the slip between the tire and the road surface. By controlling wheel slip, vehicle stability is improved and the driver retains steering capability. On most surfaces, the stopping distance of a vehicle with ABS can be improved when compared to the same vehicle without ABS. Whether the rear wheels are controlled individually or as a pair depends on the specific characteristics and the target market for the vehicle.

4.1.2 Rear Antilock Brake Systems (RABS)/Rear Wheel Antilock (RWAL)

4.1.2.1 A system is defined as a Rear Antilock Brake System if it:

- a. Is computer controlled.
- b. Has a means to determine if a rear wheel of the vehicle is about to lock.
- c. Has the capability of regulating the brake torque at the rear wheels to limit wheel lock.
- d. Does not have the capability of regulating the brake torque at the front wheels to limit wheel lock.

4.1.2.2 Description and Advantages

RABS/RWAL systems monitor the vehicle's rear wheel speeds or average rear wheel speed and limit the rear wheel brake torques to limit rear wheel lock-up during driver-applied braking. By controlling rear wheel slip, the vehicle stability is improved. This system does not control the vehicle's front wheels and is not intended to affect steering or stopping distance performance.

4.2 Traction Control Systems (TCS)

4.2.1 Engine and Brake Traction Control Systems (EBTCS)

4.2.1.1 A system is defined as an Engine and Brake Traction Control System if it:

- a. Is computer controlled.
- b. Has a means to determine if a drive wheel is spinning.
- c. Has the capability of applying brake force individually to the drive wheels without brake actuation from the driver to limit wheel spin.
- d. Has the capability of controlling engine torque to limit wheel spin.