



SURFACE VEHICLE RECOMMENDED PRACTICE

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Marine Stern Drive and Inboard Spark-Ignition Engine On-Board Diagnostics Implementation Guide

RATIONALE

This technical report is being stabilized because it covers technology, products, or processes which are mature and not likely to change in the foreseeable future.

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Documents

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1. SCOPE

This document describes the application of the SAE J1939 recommended practices for compliance with on-board diagnostic malfunction detection system requirements for marine sterndrive and inboard spark ignition engines, as mandated by the California Air Resources Board (CARB). These Otto-cycle engines are not derived from automotive diesel-cycle engines.

1.1 Purpose

The purpose of this recommended practice is to provide a standard open interconnect architecture that allows a generic diagnostic tool to communicate with marine sterndrive and inboard spark ignition engine's on board diagnostic system. These on-board diagnostic malfunction detection system requirements are referred to as OBD-M in this document.

2. REFERENCES

2.1 Applicable Documents

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.

In general, all requirements of the SAE J1939 document apply to OBD-M applications, except as noted in this document.

2.1.1 SAE Publication

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 J1939	Serial Control and Communications Heavy Duty Vehicle Network - Top Level Document
SAE J1939-14	Physical Layer, 500 Kbps
SAE J1939-15	Physical Layer, 250 Kbps, Un-Shielded Twisted Pair (UTP)
SAE J1939-21	Data Link Layer
SAE J1939-31	Network Layer

SAE J1939-71	Vehicle Application Layer
SAE J1939-73	Application Layer - Diagnostics
SAE J1939-81	Network Management
SAE J1939DA	J1939 Digital Annex
SAE/USCAR2-4	Performance Specification for Automotive Electrical Connector Systems

2.1.2 ABYC Publication

Available from American Boat and Yacht Council, 613 Third Street, Suite 10, Annapolis, MD 21403, Tel: 410-990-4460, www.abycinc.org.

ABYC E-11 2003-07 edition, AC and DC Electrical Systems on Boats

2.1.3 CARB Publication

Available from California Air Resources Board, 1001 "I" Street, P.O. Box 2815, Sacramento, CA 95812, Tel: 916-322-2990, www.arb.ca.gov.

CALIFORNIA CODE OF REGULATIONS (CCR), effective December 13, 2006

TITLE 13. Motor Vehicles

Chapter 9. Off-Road Vehicles and Engines Pollution Control Devices

Article 4.7. Spark-Ignition Marine Engines

§ 2444.2. On-Board Engine Malfunction Detection System Requirements – Model Year 2007 and Later Spark-Ignition Inboard and Sterndrive Marine Engines.

2.1.4 ISO Publication

Copies of these documents are available online at <http://webstore.ansi.org/>

ISO 2575 Seventh edition 2004-05-01, Road Vehicles - Symbols for controls, indicators, and tell-tales

3. DEFINITIONS

See Title 13 CCR §2441 and SAE J1939 for terms and definitions that are not defined in this document. In the event of conflicting definitions, those in Title 13 CCR §2441 shall take precedence.

4. ABBREVIATIONS

ABYC	American Boat and Yacht Council
CARB	California Air Resources Board
DC	Direct Current
DLC	Data Link Connector
DM	Diagnostic Message
SPN	Suspect Parameter Number

See SAE J1939 for other abbreviations not defined in this document.

5. TECHNICAL REQUIREMENTS

5.1 Physical Layer

The datalink physical layer shall be according to SAE J1939-15, except as noted. SAE J1939-14 shall not be used for connections to pins C and D in 5.2.5.