



SURFACE VEHICLE INFORMATION REPORT

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Keyword Protocol 1281

RATIONALE

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1. SCOPE

This Technical Information Report defines the diagnostic communication protocol Keyword Protocol 1281 (KWP1281). This document should be used in conjunction with SAE J2534-2 in order to fully implement the communication protocol in an SAE J2534 interface.

Some Volkswagen of America and Audi of America vehicles are equipped with ECUs, in which a KWP1281 proprietary diagnostic communication protocol is implemented. The purpose of this document is to specify the KWP1281 protocol in enough detail to support the requirements necessary to implement the communication protocol in an SAE J2534 interface device.

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 version 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 724-776-4970 (outside USA), www.sae.org.

SAE Technical Paper 950041 An Arbitration Mechanism on ISO 9141-2 (as information)

SAE J2534-1 Recommended Practice for Pass-Thru Vehicle Programming

2.1.2 ISO Publications

Available from ANSI, 25 West 43rd Street, New York, NY 10036-8002, Tel: 212-642-4900, www.ansi.org.

ISO 9141:1989-10-01	Road vehicles—Diagnostic systems—Requirements for interchange of digital information
ISO 9141-2:1994	Road vehicles—Diagnostic systems—CARB requirements for interchange of digital information
ISO 9141-2:1996	Road vehicles—Diagnostic systems—CARB requirements for interchange of digital information Amendment 1
ISO 9141:1992-10-13	Key word assigning authority—Master data base
ISO 14230-2:1999	Road vehicles—Diagnostic systems—Keyword protocol 2000 Part 2: Data link layer

3. TERMS AND ACRONYMS

3.1 ECU

Electronic Control Unit located in the vehicle that communicates over KWP1281.

3.2 ETX

End of transmission. This is the last byte of a Message. It is the ASCII value 0x03.

3.3 Scan Tool

Diagnostic Tool that communicates over KWP1281 to the ECU located in the vehicle.

3.4 Serial Diagnosis

The serial diagnosis offers the possibility of rapid access to ECU information and functions without disconnecting the wire harness. Serial diagnosis allows interrogation of input signals present at the ECU, external switching of actuators to which the ECU has access as well as reading the internal unit information such as the fault memory. Serial diagnosis can be used in the end of line inspection or in the service workshops and can contribute towards considerable savings in inspection time.

3.5 MESSAGE

The smallest repeatable unit of transmission is a "MESSAGE".

A message consists of a certain number of bytes and always has the same format.

3.6 SERVICE

Structure of one or more "MESSAGES" used as a request or response.

3.7 SESSION

The sum of all messages transmitted during communication with an ECU is a "SESSION".

3.8 TRANSMITTER

The unit (ECU or Scan Tool) which is entitled to output a message is called a "TRANSMITTER". The transmitter executes a passive handshake (i.e. it checks the complemented byte with respect to correct transmission).

3.9 RECEIVER

The receiver of a message is called a "RECEIVER". The receiver performs an active "handshake" (each received byte (except "ETX") is complemented and returned to the transmitter).

4. OVERVIEW

4.1 Stimulation and Initiation

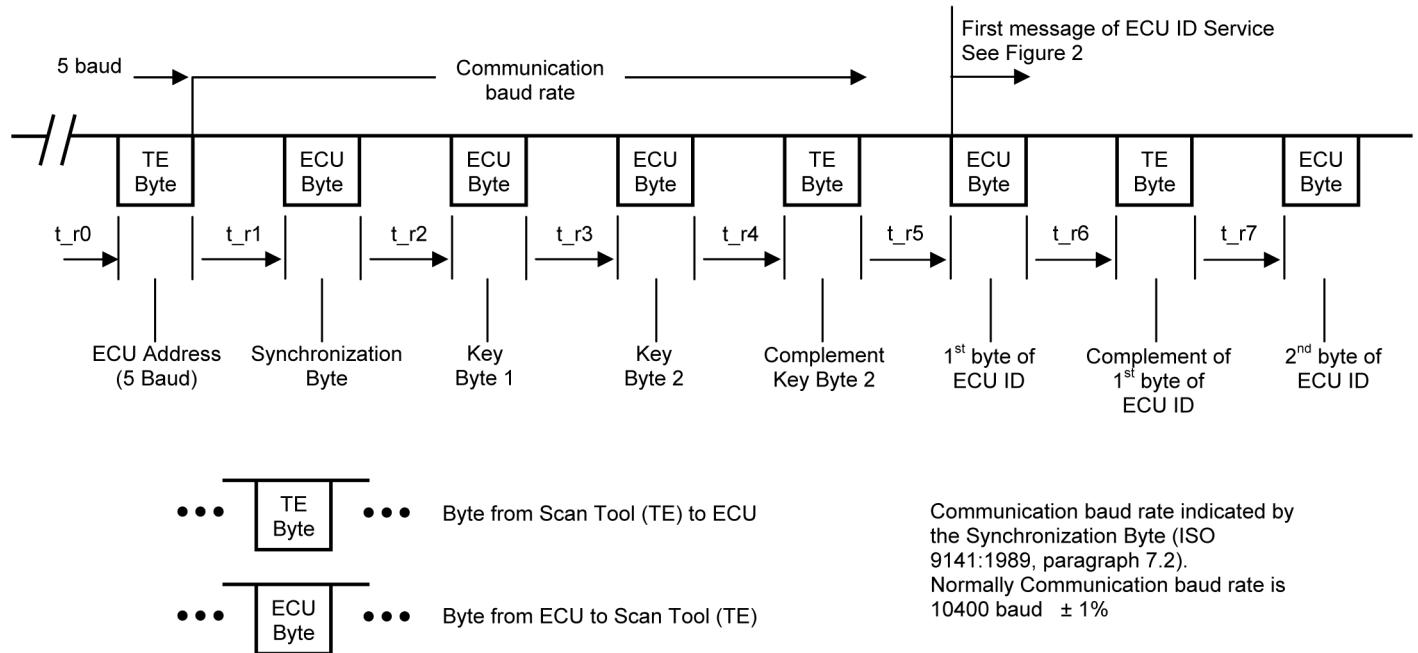


FIGURE 1 - INITIATION OF DIAGNOSTIC COMMUNICATION

4.2 Data Byte Communication

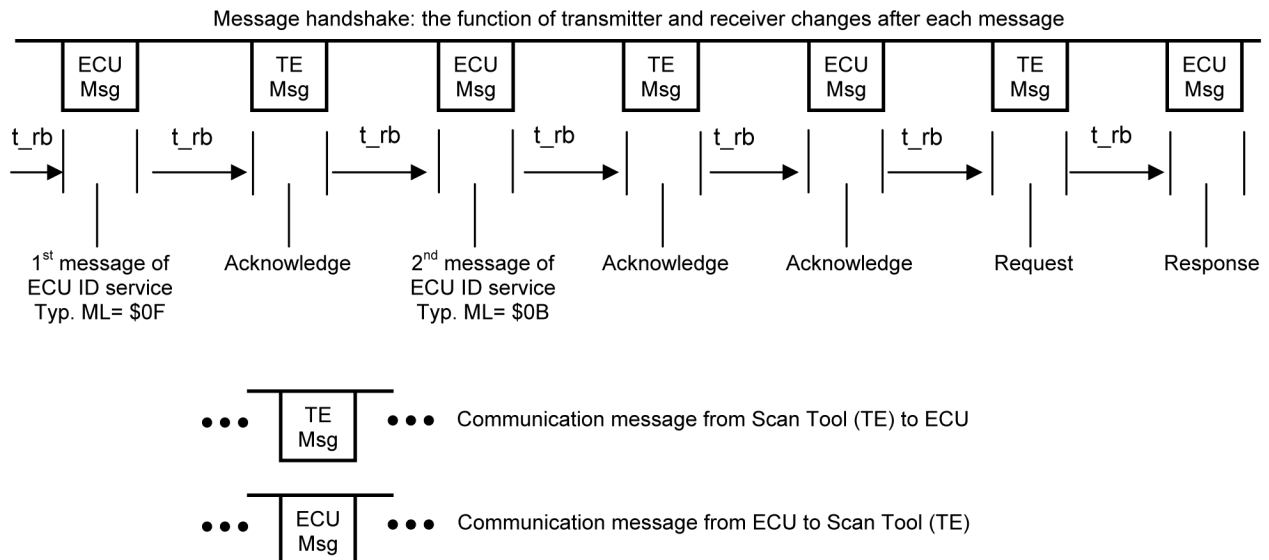


FIGURE 2 - DATA BYTE COMMUNICATION