

Periodic Smoke Inspection Program On-Board Diagnostic Submission Guide

The Periodic Smoke Inspection Program^{1,2} (PSIP) requires fleets of two or more vehicles to annually test their vehicles for compliance with opacity standards. In lieu of performing a smoke opacity test, the PSIP regulation now gives fleets the option to submit on-board diagnostics (OBD) data from applicable vehicles to the California Air Resources Board (CARB). This voluntary submittal option applies to vehicles with 2013 model year engines and newer that are equipped with OBD systems.

The purpose of this document is to provide instructions for fleets that wish to take advantage of the OBD submission option. For the vehicle in question, the fleet owner is required to submit to CARB the results of an OBD data scan from the vehicle's electronic control unit and fill out the [owner and vehicle information](#) template supplied with this guidance document. OBD data can be collected through a variety of methods. Acceptable modes of submission include, but are not limited to, remote OBD collection through the engine manufacturer or a telematics provider, and direct collection of OBD data through the use of an OBD scan tool by the fleet themselves or by a repair shop. If the malfunction indicator light (MIL) is shown to be commanded on or any permanent fault code is stored, the fleet will be required to repair the issue and submit an updated clean OBD data report. Once a clean OBD data scan is submitted to CARB that includes the required data listed in the PSIP regulation, section 2193(f), the fleet will receive a confirmation from CARB that they have met the annual PSIP requirements for the vehicle in question. This document provides guidance to fleets on what OBD data is required to be submitted to meet the annual inspection requirements through the submission of OBD data and how this OBD data can be submitted to CARB's web submission platform.

OBD Data Submission Requirements:

In accordance with the requirements in the regulation, for each vehicle for which OBD data will be submitted in lieu of smoke opacity testing, the following data from the vehicle will need to be submitted:

- MIL status
- All stored emission-related fault codes:
 - Active (MIL on) fault codes
 - Previously active fault codes (if available)
 - Pending fault codes
 - Permanent fault codes
- Vehicle Identification Number
- Engine Serial Number (if available)
- Status of each readiness indicator
- Calibration Verification Number (CVN)
- OBD requirements to which the engine is certified

¹ <https://ww2.arb.ca.gov/our-work/programs/smoke-inspection-programs>

² <https://www.arb.ca.gov/enf/hdvp/hdvp.htm>

- Distance traveled or engine run time while MIL activated
- Distance traveled/engine run time since fault memory last cleared
- Number of warm-up cycles since fault memory last cleared

Fleets interested in submitting OBD data should contact CARB staff at:

PsipObdSubmission@arb.ca.gov to get started. Staff can establish a File Transfer Protocol (FTP) account for the interested fleet for submission of the required OBD data if the data files are too large to be submitted via email. OBD data should be submitted in an Extensible Markup Language (XML) or Comma-Separated Values (CSV) file format. Table 1 lists the Parameter IDs (PID) and Diagnostic Messages (DM) that need to be pulled from the vehicle to gather the required OBD data for submission. The protocol used for OBD collection depends on the type of engine in the vehicle itself. Vehicles with engines manufactured by Cummins, Detroit Diesel, Navistar, and Paccar predominantly follow the Society of Automotive Engineers (SAE) J1939 protocol for OBD collection. Vehicles with engines manufactured by Volvo, Hino, Isuzu, GM, Ford, and Fiat predominantly follow the SAE J1979 protocol for OBD collection.

Table 1: OBD Request Parameters for SAE J1939 and SAE J1979 protocols:

Required OBD Data Parameter	J1979 Request	J1939 Request
MIL Status	Service Mode 1 (Mode 1) PID 01 Byte A, bit 7	DM1 (PGN 65226)
Active Fault Codes	Mode 3	DM12 (PGN 65236)
Previously Active Fault Codes	Not Applicable	DM23 (PGN 64949)
Pending Fault Codes	Mode 7	DM6 (PGN 64898)
Permanent Fault Codes	Mode A (or Mode 10)	DM28 (PGN 64896)
Status of Each Readiness Indicator	Mode 1, PID 01	DM5 (PGN 65230)
Vehicle Identification Number	Mode 9, PID 02	VI (PGN 65260)
Engine Serial Number	Mode 9, PID 0D	PGN 65259
Calibration Identification Number	Mode 9, PID 04	DM19 (PGN 54016)
Calibration Verification Number	Mode 9, PID 06	DM19 (PGN 54016)
OBD Requirements to which engine is certified	Mode 1, PID 1C	DM5 Byte 3 (PGN 65230)
Distance Traveled with MIL Activated	Mode 1, PID 21	DM21 (PGN 49408) Bytes 1 and 2
Engine Run Time with MIL Activated	Mode 1, PID 4D	DM21 (PGN 49408) Bytes 5 and 6
Distance Traveled Since Memory Last Cleared	Mode 1, PID 31	DM21 (PGN 49408) Bytes 3 and 4
Engine Run Time Since Memory Last Cleared	Mode 1, PID 4E	DM21 (PGN 49408) Bytes 7 and 8
Number of Warm-up Cycles Since Memory Last Cleared	Mode 1, PID 30	DM26 (PGN 64952)

For assistance with your OBD download tool:

OBD download tools differ vendor by vendor and have varying interfaces for requesting OBD parameters. Please consult your tool's technical support documentation or contact the vendor's helpdesk for assistance with their unique interface to ensure the above information is collected. CARB staff will also be available to provide assistance to help ensure fleets use the proper procedure for collecting the required OBD parameters. Please reach out to CARB staff at PsipObdSubmission@arb.ca.gov for any needed assistance.

Steps for Submitting OBD Data to CARB:

Two submittal options are available. OBD data files may be submitted to staff via the PSIPObdsuBmission@arb.ca.gov email address. For larger files that cannot be sent via email, staff can set up an FTP file sharing process to allow fleets to transfer OBD data to CARB. Below are the steps fleets need to take in order to properly submit the required OBD data via the FTP process.

1. Email CARB staff with a request to submit OBD data in lieu of performing the annual smoke opacity test and staff will establish a FTP account for your fleet.
2. Staff will email a username, password, host and port number to the interested fleet that can be input into your FTP Program to share files with CARB.
3. Download and install a FTP Program. One potential program for use is FileZilla, which can be downloaded via the following website: <https://filezilla-project.org/download.php?type=client>. The FileZilla website contains detailed installation instructions and usage tutorials that are available at: https://wiki.filezilla-project.org/Client_Installation and <https://wiki.filezilla-project.org/Using>.
4. Fill out the [owner and vehicle information](#) forms supplied with this guidance document and upload the files through the FTP program. All vehicles supplying OBD data to meet the PSIP annual testing requirements must be included on the vehicle information form.
5. Upload the required OBD data through the FTP program. Acceptable formats for data submission include XML files or CSV files.
6. After the files are uploaded, CARB staff will process the file. Once processing is complete, the file will be removed from the folder and replaced with a text file confirming the results of the submission.
7. Staff will send a confirmation email back to the fleet after confirming the OBD data submission meets the requirements of the PSIP regulation. If the OBD data submission is incomplete, staff will inform the fleet of the invalid submission. If the OBD data shows repairs are required, staff will inform the fleet which vehicles have fault codes that need to be remedied, where upon a follow up OBD scan will be required to be submitted upon repairing the issue.