

# **Pennsylvania**

## **Department of Transportation**

**On Board Diagnostics Test Procedure**

**Stand Alone Equipment and Software  
Specifications**

**Version 3.2**

**October 13, 2016**

## **Pennsylvania Analytical System (PAS) – OBD (Stand Alone) Display and Program Requirements**

---

---

### **Foreward**

On April 5, 2001, the United States Environmental Protection Agency (EPA) published its final rulemaking revising the On Board Diagnostics (OBD) I/M requirements for state emissions testing programs. (Amendments to Vehicle Inspection and Maintenance Program Requirements Incorporating the On Board Diagnostics Check; Final Rule (66 FR 18156)).

In order to integrate the OBD-I/M check into the I/M program, the Department of Transportation, Bureau of Motor Vehicles, pursuant to the authority contained in Sections 4351, 4701, 4706, 4707 and 4721 of the Vehicle Code, Act of June 17, 1976, P.L. 162, No. 81, as amended (75 Pa. C.S. §§ 4351, 4701, 4706, 4707, and 4721), previously announced its intention to amend **Title 67 of the Pennsylvania Code** by providing for equipment specifications to be used for On Board Diagnostic (OBD) testing in Pennsylvania's enhanced vehicle emissions inspection program and solicited comments on draft equipment and software specifications.

These are the final technical specifications for any qualifying party that wishes to provide "stand alone" OBD testing equipment for use in Pennsylvania's OBD testing program.

All OBD-I/M check equipment must be certified by PENNDOT to be in compliance with these specifications. Manufacturers will supply PENNDOT (or make available to PENNDOT) the equipment with the PAS software loaded, any user documentation for certification, and any other information necessary for certification requested by PENNDOT. Manufacturers must each supply at least one complete PAS Unit system to PENNDOT for certification and testing purposes. This PAS Unit is in addition to and separate from any equipment previously provided to PENNDOT for certification and testing under prior versions of this equipment specification. Manufacturers will not deliver/upgrade any equipment to any certified emissions test stations without written confirmation of certification from PENNDOT. Questions concerning these specifications may be directed to Manager of Administration and Technical Support, Vehicle Inspection Divisions, 3<sup>rd</sup> Floor, Riverfront Office Center, 1101 South Front Street, Harrisburg, PA, 17104.

**Pennsylvania Analytical System (PAS) – OBD (Stand Alone) Display and Program Requirements****Revision History**

<b>Revision</b>	<b>Date</b>	<b>Description</b>
3.0	05-02-2016	Initial draft and update of specification.
3.1	06-13-2016	Document moved to new format and structure, OBD inspection flowcharts and processes revised, Test Evaluations revised, minor corrections and updates throughout.
3.2	09-26-2016	Revisions to sections 1.2.A, 1.13.C, 1.18.E, 1.18.B, 3.19.B.4, 3.19.C.1.a, 3.23.5.C.3.b, 3.23.7.A.1, 3.23.7.A.2, 3.23.7.B.2, 3.23.7.B.3, 3.23.7.B.6, 3.23.8 flowchart, 3.23.8.A.2, 3.23.8.A.10, 3.23.8.A.13, and 6.3 (Appendix C). Added sections 1.2.G, 1.18.E.1, 1.18.N, 3.23.6.A.2.a, 3.33.C, 3.36.D, and 6.4 (Appendix D – OBD Protocol Codes and OBD Types). Existing Appendix D moved to section 6.5 and renamed Appendix E.

## Pennsylvania Analytical System (PAS) – OBD (Stand Alone) Display and Program Requirements

### Table of Contents

<b>1.0</b>	<b>Section One – Terms and General Specifications .....</b>	<b>7</b>
1.1	Acronyms .....	7
1.2	Operating System and Boot-up Controls .....	7
1.3	Directory and File Structures .....	8
1.4	Duplication of Files on Encrypted Removable Medium/USB Drive .....	10
1.5	Required Printer.....	11
1.6	Software/Hardware Modifications .....	11
1.7	Bar Code Readers.....	12
1.8	Training .....	12
1.9	Clock/Calendar .....	13
1.10	Lockout Notification.....	13
1.11	Software Loading .....	13
1.12	Technical and System Documentation.....	14
1.13	PAS Hardware/Software Security .....	14
1.14	Availability of Circuitry .....	15
1.15	PENNDOT Access.....	15
1.16	Data and File Transfer .....	15
1.17	Manual Data Entry .....	16
1.18	OBD I/M Check Equipment .....	16
1.19	Fuel Cap Test Equipment .....	18
<b>2.0</b>	<b>Section Two – Software Functions .....</b>	<b>19</b>
2.1	General.....	20
2.2	Inspector Access Procedure.....	20
2.3	Vehicle Information Entry .....	21
2.4	Applicable Model Years.....	21
2.5	Blind Test.....	22
2.6	Data Storage and Recall Capability .....	22
2.7	Warranty Message on VIR.....	22
2.8	Decision Criteria .....	22
2.9	VIID Communication Process .....	22
2.10	Data File Refresh .....	22
2.11	Receive System Date/Time Update .....	23
2.12	Lockout Processing.....	23
2.13	Receive PENNDOT Messages .....	24
2.14	Receive Updates to Vehicle Reference Table .....	24
2.15	Receive Updates of Equipment Lockout Status .....	25
2.16	Receive Updates to Inspector Data.....	25

## Pennsylvania Analytical System (PAS) – OBD (Stand Alone) Display and Program Requirements

2.17	Receive Updates to County Data .....	26
2.18	Receive Updates to System Data .....	26
2.19	Receive Other Communications, Transactions, and Statuses.....	26
2.20	IN USE Warning Messages (if applicable) .....	26
2.21	Print Screen Capability .....	26
2.22	Incomplete and Completed Inspection Counting .....	27
<b>3.0</b>	<b>Section Three – Display and Program Requirements .....</b>	<b>27</b>
3.1	General Description .....	27
3.2	Main Menu.....	28
3.3	Vehicle Emissions Inspection Menu.....	29
3.4	Vehicle Emissions Inspection .....	30
3.5	Abort Procedure.....	30
3.6	Inspector ID.....	31
3.7	Test Type .....	32
3.8	VIN, Title, and License Plate .....	32
3.9	VIID Communications.....	34
3.10	Receive TSB and Recall Information .....	37
3.11	Verify Test Type.....	38
3.12	Receive Prior Years Information .....	39
3.13	Model Year .....	40
3.14	Vehicle Make.....	40
3.15	Vehicle Model .....	41
3.16	Vehicle Body Type .....	41
3.17	Gross Vehicle Weight Rating (GVWR) .....	42
3.18	County of Registration .....	42
3.19	Additional Vehicle Data Entry .....	44
3.20	Vehicle Data Entry Confirmation .....	46
3.21	Visual Inspection Process .....	47
3.22	Fuel Cap Test Procedure .....	47
3.23	OBD I/M Check Procedure .....	51
3.23.1	MIL Bulb Check (KOEO) .....	53
3.23.2	MIL Bulb Check II (KOER) .....	54
3.23.3	OBD Hookup.....	55
3.23.4	Initiate OBD Communications.....	57
3.23.5	RPM.....	59
3.23.6	PID Count .....	61
3.23.7	Mode 9 .....	63
3.23.8	Extended Data.....	66
3.23.9	Readiness .....	68

## Pennsylvania Analytical System (PAS) – OBD (Stand Alone) Display and Program Requirements

3.23.10	DTC Check .....	70
3.24	Test Evaluation and Messages .....	71
3.24.1	Test Evaluation.....	73
3.24.2	OBD Usage Switch 'Y' & Problem Vehicle 'N' or No VRT Match .....	75
3.24.3	OBD Usage Switch 'Y' & Problem Vehicle '2' .....	77
3.24.4	OBD Usage Switch 'Y' & Problem Vehicle '3' .....	79
3.24.5	OBD Usage Switch 'Y' & Problem Vehicle '4' .....	81
3.24.6	OBD Usage Switch 'Y' & Problem Vehicle 'Y' .....	83
3.24.7	OBD Usage Switch '2' & Problem Vehicle 'N' or No VRT Match .....	85
3.24.8	OBD Usage Switch '2' & Problem Vehicle '2' .....	87
3.24.9	OBD Usage Switch '2' & Problem Vehicle '3' .....	89
3.24.10	OBD Usage Switch '2' & Problem Vehicle '4' .....	91
3.24.11	OBD Usage Switch '3' & Problem Vehicle 'N' or No VRT Match .....	93
3.24.12	OBD Usage Switch '3' & Problem Vehicle '2' .....	95
3.24.13	OBD Usage Switch '3' & Problem Vehicle '3' .....	97
3.24.14	OBD Usage Switch '3' & Problem Vehicle '4' .....	99
3.24.15	OBD Usage Switch '4' or 'N' & Problem Vehicle 'N' or No VRT Match .....	101
3.24.16	OBD Usage Switch '4' & Problem Vehicle '2' .....	103
3.24.17	OBD Usage Switch '4' or 'N' & Problem Vehicle '3' .....	105
3.24.18	OBD Usage Switch '4' & Problem Vehicle '4' .....	107
3.24.19	OBD Usage Switch 'N' & Problem Vehicle '2' .....	109
3.24.20	OBD Usage Switch 'N' & Problem Vehicle '4' .....	111
3.24.21	OBD Usage Switch '2', '3', '4' or 'N' & Problem Vehicle 'Y' .....	113
3.25	Repair Entry Procedure .....	114
3.26	Sticker Number, Sticker Expiration and Test Fee Charged to Motorist .....	116
3.27	Final Results and Printing of VIR .....	117
3.28	Equipment Maintenance Menu .....	118
3.29	VIR Reprint and Test Record Search and Retrieval .....	120
3.30	Training Mode .....	120
3.31	Replacement/Missing/Waiver/Exemption/Exception Sticker Numbers .....	120
3.32	Sticker Issuance Report Reprint .....	131
3.33	Technician Menu.....	132
3.34	Station Menu.....	133
3.35	State Menu.....	140
3.36	Manufacturer's Technician Menu .....	144
<b>4.0</b>	<b>Section Four – VIR and Printer Function Specifications .....</b>	<b>145</b>
<b>5.0</b>	<b>Section Five - Exhibits .....</b>	<b>148</b>
5.1	Exhibit A1 – Vehicle Inspection Report (Failed, MIL CMD & DTCs) .....	148
5.2	Exhibit A2 – Vehicle Inspection Report (Failed – Cannot Locate DLC).....	150

## Pennsylvania Analytical System (PAS) – OBD (Stand Alone) Display and Program Requirements

5.3	Exhibit A3 – Vehicle Inspection Report (Failed – Damaged DLC).....	152
5.4	Exhibit A4 – Vehicle Inspection Report (Failed – Inaccessible DLC).....	154
5.5	Exhibit A5 – Vehicle Inspection Report (Failed – No OBD Communications) .....	156
5.6	Exhibit A6 – Vehicle Inspection Report (Failed – No RPM Signal).....	158
5.7	Exhibit A7 – Vehicle Inspection Report (Not Ready for Testing).....	160
5.8	Exhibit A8 – Vehicle Inspection Report (Fuel Cap Fail, OBD Pass) .....	161
5.9	Exhibit A9 – Vehicle Inspection Report (Failed – Fuel Cap and MIL CMD) .....	163
5.10	Exhibit A10 – Vehicle Inspection Report (Failed – Readiness and MIL CMD) .....	165
5.11	Exhibit A11 – Vehicle Inspection Report (Failed – Fuel Cap, Readiness) .....	167
5.12	Exhibit B1 – Vehicle Inspection Report (Passed – All Tests) .....	169
5.14	Exhibit B2 – Vehicle Inspection Report (Passed – Cannot Locate DLC) .....	170
5.15	Exhibit B3 – Vehicle Inspection Report (Passed – Damaged DLC) .....	171
5.16	Exhibit B4 – Vehicle Inspection Report (Passed – Inaccessible DLC) .....	172
5.17	Exhibit B5 – Vehicle Inspection Report (Passed – No OBD Communications).....	173
5.18	Exhibit B6 – Vehicle Inspection Report (Passed – No RPM Signal) .....	174
5.19	Exhibit C1 – Vehicle Inspection Report (Problem Vehicle – Pass – Not Ready) .....	175
5.20	Exhibit C2 - Vehicle Inspection Report (Problem Vehicle – Fail – Not Ready, MIL CMD, DTC).....	176
5.21	Exhibit C3 – Vehicle Inspection Report (Problem Vehicle – Fail – No Comm, KOER) .....	178
5.22	Exhibit C4 – Vehicle Inspection Report (Problem Vehicle – Pass – No OBD Communications).....	180
5.23	Exhibit D – Vehicle Inspection Report (Aborted/Incomplete Inspection) .....	181
5.24	Exhibit E – Vehicle Inspection Report (Failed – Visual Only).....	182
5.25	Exhibit F – Vehicle Inspection Report (Passed – Visual Only) .....	184
5.27	Exhibit G – Emissions Related Repair Data Form .....	185
5.28	Exhibit H – Sticker Issuance Report.....	186
5.29	Exhibit I – Station Used Sticker Report .....	187
5.30	Exhibit J – Station and Inspector Information Report.....	188
5.31	Exhibit K – Rejection from Inspection Form.....	189
<b>6.0</b>	<b>Section Six – Appendices.....</b>	<b>190</b>
6.1	Appendix A – OBD Location Mapping .....	190
6.2	Appendix B – OBD II Diagnostic Trouble Codes .....	192
6.3	Appendix C – File Structure & Information .....	194
6.4	Appendix D – OBD Protocol Codes and OBD Types .....	208
6.4.1	OBD Protocol Codes, EIS.DAT Field 99 .....	208
6.4.2	OBD Type Codes, EIS.DAT Field 113.....	208
6.5	Appendix E – Overview of an AAMVA Compliant PDF417 Symbolology .....	209

## Pennsylvania Analytical System (PAS) – OBD (Stand Alone) Display and Program Requirements

### 1.0 Section One – Terms and General Specifications

#### 1.1 Acronyms

Acronym	Definition
ASM	Acceleration Simulation Mode
AAMVA	American Association of Motor Vehicle Administrators
BMV	Bureau of Motor Vehicles
CAN	Controller Area Network
DLC	Data Link Connector
DTC	Diagnostic Trouble Codes
KOEO	Key On Engine Off
KOER	Key On Engine Running
MIL	Malfunction Indicator Light
MY	Model Year
OBD	On Board Diagnostic
PA 97	Pennsylvania Emissions Test Analyzer
PAS	Pennsylvania Analytical System
PCM	Powertrain Control Module
PID	Parameter Identification
SAE	Society of Automotive Engineers
TIN	Transaction Identification Number
TSB	Technical Service Bulletins
TSI	Two Speed Idle
VIID	Vehicle Inspection Information Database
VIN	Vehicle Identification Number
VIR	Vehicle Inspection Report

#### 1.2 Operating System and Boot-up Controls

- A. The PAS unit must use an approved operating system supported by the operating system manufacturer. (i.e. Windows 7 or newer).
- B. The PAS unit must boot directly to the emission software.
- C. The BIOS of the PAS unit will not allow the booting of software from any peripheral/device other the hard disk/permanent storage that the emission software is installed on.
- D. Access to the BIOS must be restricted by the equipment manufacturer to only an equipment manufacturer representative or PENNDOT representative (i.e. password protected). The minimum requirements for the BIOS password are:
  1. Minimum length of eight (8) characters;
  2. Includes three of the following four character sets: lower case letters, upper case letters, numbers, and special characters; and
  3. Is not visible in clear text on the screen when entering.
- E. The PAS software will not allow a station user to directly access any other installed programs, software, software from any peripheral/device, or any part of the operating system or file structure. An equipment manufacturer



## Pennsylvania Analytical System (PAS) – OBD (Stand Alone) Display and Program Requirements

---

representative may have an option on the Manufacturer's Technician Menu to access installed programs and the operating system. The State Menu may also have option for a PENNDOT representative to access installed programs and the operating system.

- F. The Operating System installed on the PAS Unit must be supported and current, with all necessary updates, etc., at the time of submittal for certification.
- G. The PAS Unit software must include an ATP/Test Mode capability that retains all required software functionality but allows unimpeded access to file structures, directories, backup drives, USB drives, and other functions for the purposes of examining, modifying, and/or copying files and data required for the Acceptance Testing process and verifying compliance with necessary specifications. Access to this option must be included in the Manufacturer's Technician Menu detailed in section 3.36. When selected, the ATP/Test Mode will remain active until either deselected or the next shutdown/reboot of the equipment.

### 1.3 Directory and File Structures

- A. The hard disk/permanent storage will have directories with the following names in the root directory: PASDATA and MBDATA.
- B. The manufacturer may name directories for use of the PAS software and the operating system software but must provide the previously mentioned directories for PENNDOT use.
- C. The directory path must include at a minimum the ROOT, the PAS software directory, and the PASDATA subdirectory.
- D. The PASDATA and MBDATA directories are required to be protected from access by users other than manufacturer representatives and PennDOT representatives.
- E. The PASDATA directory will contain the following DAT/HST files (refer to Appendix "C" for File Structure & Layout Info), at a minimum:
  - 1. **AUDIT.DAT:** This file contains information relative to station audit data and secure function access.
  - 2. **CAL.DAT:** This file will contain calibration records from the start of any calibration test, which have not been transferred to the VIID. A mirror copy of this file, having the same name, will be stored on the root directory of the encrypted removable medium/USB drive. Both files will be updated at the same time by the test software. This mirror file will contain all the records that have not been successfully uploaded to the VIID and will be used as a backup in case of hard drive/permanent storage failure. The software must also test for the existence of both files before writing to the file and if not found will create either or both of the files. The equipment will purge records from both files that have successfully been transmitted to the VIID.
  - 3. **COUNTY.DAT:** (A reference file) This file will contain county information for all counties in the emissions testing program.
  - 4. **EIS.DAT:** This file will contain test records, from the start of any test, which have not been transferred to the VIID. A mirror copy of this file, having the same name, will be stored on the root directory of the encrypted removable medium/USB drive. Both files will be updated at the same time by the test software. This mirror file will contain all the records that have not been successfully uploaded to the VIID and will be used as a backup in case of hard drive/permanent storage failure. The software must also test for the existence of both files before writing to the file and if not found will create either or both of the files. The equipment will purge records from both files that have successfully been transmitted to the VIID.
  - 5. **EIS.HST:** This file will contain archived test records that have been transmitted to the VIID. The latest record will be appended to the end of the file each time the test record is successfully transmitted to the VIID. The EIS.HST file will maintain an equipment test record history of at least 240 days.

## Pennsylvania Analytical System (PAS) – OBD (Stand Alone) Display and Program Requirements

---

6. **INCOMPLT.DAT:** This file will contain counters for all emissions inspections started, aborted and completed. A record will be maintained for each inspector for every month. At the start of a new month the records for each inspector on file for the previous month will be transferred to the file INCOMPLT.HST and then purged from INCOMPLT.DAT.
7. **INCOMPLT.HST:** This file will be used to transfer the previous month's inspector inspection statistics record to the VIID. The equipment will purge records that have successfully been transmitted to the VIID.
8. **LOCKOUT.DAT:** This file will contain the lockout data (**Y** or **N**) for multiple conditions and must be read each time the PAS software is loaded.
9. **REC\_LIST.DAT:** This file is transmitted to the VIID for use in determining which records need to be added/ changed/ deleted in the VRT. The record count may be used by the VIID to determine if the table is corrupt. Use of this file will be described in the communications specification.
10. **REPAIR.DAT:** This file will contain repair information records from either the emissions tests or entry from the waiver portion of the Sticker routine, which have not been transferred to the VIID. A mirror copy of this file, having the same name, will be stored on the root directory of the encrypted removable medium/USB drive. Both files will be updated at the same time by the test software. This mirror file will contain all the records that have not been successfully uploaded to the VIID and will be used as a backup in case of hard drive/permanent storage failure. The software must also test for the existence of both files before writing to the file and if not found will create either or both of the files. The equipment will purge records, from both files, that have successfully been transmitted to the VIID.
11. **STATION.DAT:** This file contains station related data including PAS number, station address, station number, station name, maximum number of days and inspections without communication, etc.
12. **STICKER.DAT:** This file will contain sticker replacement, missing, damaged or stolen sticker data and waiver sticker issued data, which have not been transferred to the VIID. A mirror copy of this file, having the same name, will be stored on the root directory of the encrypted removable medium/USB drive. Both files will be updated at the same time by the test software, with the latest record being appended to the end of the file. This mirror file will contain all the records that have not been successfully uploaded to the VIID and will be used as a backup in case of hard drive/permanent storage failure. The software must also test for the existence of both files before writing to the file and if not found will create either or both of the files. The equipment will purge records, from both files, that have successfully been transmitted to the VIID.
13. **SYSTEM.DAT:** A reference file that contains analyzer based settings and global settings relative to how an emissions inspection is to be conducted. Items in this file include calibration frequency, waiver cut points, OBD usage switch etc. All values contained in this file are VIID updateable and ultimately controlled by the VIID.
14. **TECH.DAT:** This file will contain the information on each inspector currently able to perform emissions inspections at this station, on this equipment. Updates to this file will be transmitted during the contact with the VIID if necessary.
15. **USED\_S.DAT:** This file will store the stickers issued by the equipment for the past 240 calendar days, with the latest record being appended to the end of the file. This file will allow the station personnel to print a report of sticker usage from the equipment for the past 240-day period.
16. **VIN.DAT:** This file is transmitted to the VIID with a request for vehicle information. Use of this file will be described in the communications specification.
17. **VRT.DAT:** (A reference file) This file will contain vehicle information for all vehicles.

## Pennsylvania Analytical System (PAS) – OBD (Stand Alone) Display and Program Requirements

---

- F. The PASDATA directory will also contain the following REC files (refer to the Communication Specification for more information):
1. **AUTHORIZ.REC:** The Authoriz.rec file is used to store the results of the getWaiverAuthorization method. The VIID will return the waiver authorization status which is written to Authoriz.rec for use during waiver issuance.
  2. **COUNTY.REC:** The County.rec file is used to store the results of the getCounties method. The VIID will return a list of counties in the emissions program and write the list to County.rec
  3. **DIAGNOSE.REC:** The Diagnose.rec file is used to confirm a network connection to the VIID. Diagnose.dat will be used to send a test message string to the VIID. Upon successful connection to the VIID, a return message string will be written to Diagnose.rec. The send and receive strings may then be compared to confirm a successful communication test.
  4. **EIS.REC:** The EIS.rec file is used to store previous inspection records returned from the VIID during an initiateInspection request. If a VIN match is found the results of the previous inspection will be written to EIS.rec
  5. **LOCKOUT.REC:** The Lockout.rec data is received from the VIID via the authenticate transaction element. Lockout.rec will be used to update the PAS unit to the current lockout status.
  6. **MESSAGE.REC:** The getDMVMail method returns data from the VIID respective to messages from the DMV (Division of Motor Vehicles). These (scope) messages are written to the Message.rec and then displayed via the PAS unit to the inspector.
  7. **RECALL.REC:** The getRecalls message returns VIN specific Recall data from the VIID. This information is stored in the Recall.rec file.
  8. **REPORT.REC:** The getInspectionHistory message checks the VID and returns an inspection history report if one is found. Upon return, the inspection history report is written to REPORT.REC.
  9. **STATION.REC:** The Station.rec data is received from the VIID . The data (max offline tests and max offline days) is written to Station.rec file. This data is used to determine if the PAS unit has exceeded the allowable limits and should be locked out for either violation.
  10. **SYSTEM.REC:** The getSystemFile message returns a list of values found in the VIID. Data, including the calibration frequency, waiver cut points, and OBD usage switch will be written to the System.rec file.
  11. **TECH.REC:** The getTechnicians message returns all the technicians assigned to the analyzer. This data is written to the Tech.rec file.
  12. **TSB.REC:** The getTSBs message returns Technical Service Bulletins pertaining to a vehicle from the VIID. This data is written to the TSB.rec file.
  13. **VIN.REC:** The initiateInspection message checks the VIN and returns data via the BeginTestResponse element indicating whether a valid match was found on the VIID for the last vehicle inspection. Upon return from the VIID the data is written to VIN.REC.
  14. **VRT.REC:** The getVRT message returns changes to the Vehicle Reference Table from the VID. Upon return, the updated VRT information is written to VRT.rec.

### 1.4 Duplication of Files on Encrypted Removable Medium/USB Drive

- A. In order to limit PAS downtime after serious hard disk/permanent storage malfunctions, which may require new or reformatted hard disk/permanent storage, the manufacturer will store duplicate files on an encrypted

## **Pennsylvania Analytical System (PAS) – OBD (Stand Alone) Display and Program Requirements**

---

removable medium/USB drive. The minimum size allowed for the encrypted removable medium/USB drive is 8GB. All files contained in the PASDATA directory, as well as a complete current backup copy of the Vehicle Reference Table, must be duplicated on the removable medium/USB drive.

- B. Each time the files are modified, the changes must be written to both sets of the files.
- C. If the file cannot be found on the hard disk/permanent storage, the PAS must restore the file from the encrypted removable medium/USB drive. This will mean less downtime for the station in restoring access codes and station information.
- D. PAS must write the above files to the encrypted removable medium/USB drive any time a new encrypted removable medium/USB drive is installed. The files will be moved to a new drive any time a service technician or a PENNDOT representative installs a new encrypted removable medium/USB drive.
- E. In the event loaner equipment is placed in a testing station or complete replacement of the hard drive/permanent storage is required, the manufacturer must have a method and procedure to restore the station data, equipment ID and data stored on the encrypted removable medium/USB drive to the PAS software on the new hard drive/permanent storage. This restore method must be able to update the PAS software so that any inspection, sticker issuance, or other data that was previously not sent to the VIID will be sent on the next successful communication. This routine must also remove any and all data remaining from a previous station or equipment ID from the hard drive/permanent storage.
- F. If at any time the PAS unit cannot detect or access the encrypted removable medium/USB drive, the unit will update the LOCKOUT.DAT file with a 'Y' in the Data Backup Drive Missing/Corrupt field causing the PAS unit to be locked out of performing inspections, Sticker Menu functions, and Vehicle Inspection History Reports.

### **1.5 Required Printer**

- A. The printer will be a laser printer capable of printing the VIR and other reports as defined in Section 4 of this document.

### **1.6 Software/Hardware Modifications**

- A. Equipment manufacturers will provide PENNDOT-approved software updates at no additional cost to their customers when the update is required by PENNDOT to address identified EM-specific software/hardware issues or OBD inspection performance degradation that cause the equipment to no longer meet specification requirements.
- B. The PAS software version and OBD firmware version will be indicated on the equipment status screen, in every calibration record, on each vehicle test record, and the VIRs. The version number will consist of a four (4) digit code to be made up of two digits for the year, followed by a digit for the major revision number followed by a digit for sub versions of the software (i.e. 0211). The version numbers will only change during an approved software/firmware update. The OBD firmware version is a 16 character alpha numeric field defined by the manufacturer. The version of PAS software and OBD firmware used in running every vehicle test will be indicated on the test record.
- C. The equipment providers will notify PENNDOT in writing if they wish to make a PAS software or OBD firmware update and schedule installation of the modifications on PENNDOT's Equipment for PENNDOT to certify the software or firmware update. Manufacturers must obtain written PENNDOT approval prior to use of the software or firmware update in official PENNDOT Inspections. All installed software and firmware must have the correct version numbers installed, so that they are recorded to the test record and printed on each VIR. The

## **Pennsylvania Analytical System (PAS) – OBD (Stand Alone) Display and Program Requirements**

---

manufacturer will notify PENNDOT in writing when the update is complete and provide PENNDOT a list of all the equipment that was updated.

- D. All software or firmware updates done by the manufacturer will cause the software or firmware version number to change as indicated on the Equipment Status screen (see Section 3). In addition, the updated software or firmware version number will be recorded on the test record and VIR as soon as it is installed.
- E. Software/firmware updates required will be prepared by the equipment providers on removable medium/USB drive, CD ROM/DVD ROM, or downloadable and designed to be installed by PENNDOT representatives or other authorized representatives. If the manufacturer chooses to offer software updates via an electronic download, the following requirements must be adhered to:
  - 1. The OBD PAS equipment cannot automatically acquire the newest software or firmware version when the unit is powered on.
  - 2. The manufacturer must submit to PENNDOT or PENNDOT's representative the updated software for evaluation and certification prior to making the updated software available for download to the OBD PAS equipment.
  - 3. The manufacturer must submit a request for PENNDOT's approval of any changes to the OBD PAS software not required by PENNDOT for the emissions program prior to the software development. The request will contain a description of the proposed change, timeline for the software development, and estimated cost to the owners of the OBD PAS equipment. In order for PENNDOT to maintain the integrity of emissions program, the manufacturer will be limited to a maximum of one manufacturer initiated software upgrade per year.
  - 4. The manufacturer will supply a menu option under the STATION MENU option to initiate the download process.
  - 5. OBD PAS equipment will be able to receive from the VIID a message to upgrade their software. The inspector will proceed to the above menu option and upgrade the PAS equipment.
- F. PAS Unit Hardware and peripheral components that require substitution or replacement due to obsolescence must be submitted for review and approval prior to installation in field units. Examples include, but are not limited to, printers, bar code scanners, and PC models. The manufacturer must submit a request for PennDOT's review and approval of any PAS Unit component change.

### **1.7 Bar Code Readers**

- A. Non-contact bar code scanners and necessary interface software and hardware designed to read labels meeting the specifications, as defined in Appendix D, will be required on the equipment. The information scanned will be stored on the test record and will be used to identify the vehicle.
- B. In addition to the optional use for collecting the VIN and other vehicle information, scanners will be required to enter VIR information and other emissions information as required. Another function will include reading emissions inspector licenses and PENNDOT inspector identification badges.
- C. PENNDOT recommends that the equipment manufacturers contact the vehicle manufacturers to inquire about obtaining bar coded labels for testing purposes.

### **1.8 Training**

- A. The equipment will contain a training feature that will allow an inspector or student to complete the inspection procedure and generate a "training" VIR. All training VIRs will indicate to the satisfaction of PENNDOT that they

## Pennsylvania Analytical System (PAS) – OBD (Stand Alone) Display and Program Requirements

---

are for training only and cannot be used for certification. The word “VOID” will be printed in large letters on the face of the VIR and the overall result will not be printed on the VIR.

- B. The inspection record will not be stored on the PAS. In addition, the TIN field of the VIR will be printed with the word “VOID”.
- C. The training feature will be used by the authorized PENNDOT representatives for evaluating emissions inspector performance or by the manufacturers for training purchasers of the equipment.
- D. The training feature will not require the use of an inspector’s access code or allow access to secured areas of hardware or software. The display will show a message throughout the inspection that this is a training exercise and not a test for inspector certification.

### 1.9 Clock/Calendar

- A. The PAS unit will have a real time clock/calendar which will make available the current date and time. Both time and date will be in standard “IBM PC format” and used to set the PAS unit’s date and time on power up.
- B. The equipment will store the date and time on the test record. For the display, the date will be indicated as follows: **MM/DD/YYYY**. The time will be in a twenty-four (24)-hour clock format.
- C. The date/time, along with the time the inspection or test started and when it ended, is to be included on the test record. The start time is when the connection to PENNDOT was established and the VIID date/time received or when the attempt to establish the connection to PENNDOT failed. The end time is when the test record is saved.
- D. The equipment clock/calendar will be equipped with a battery backup feature and a battery with at least a five (5)-year expected life.
- E. The PAS will update its clock/calendar so it will match the clock/calendar of the VIID Computer. This update will be performed on the initial contact to the VIID for every test and other communication session that the equipment performs.

### 1.10 Lockout Notification

- A. The equipment will display a message on-screen to the operator when any lockout situation occurs.

### 1.11 Software Loading

- A. The inspector will not have to load the operating or applications software to operate the PAS. On each POWER ON of the PAS, the PAS will automatically perform all component diagnostics, memory checking and loading of all necessary operating and inspection software without intervention by the inspector.
- B. Upon satisfactory computer component check out, the applications software is to perform a Data File Refresh (refer to 3.33 D for requirements) prior to presenting the menu of available PAS operations.
- C. All offered features are to be menu-driven.
- D. For each feature, a context sensitive, on-line help facility is to be provided which can be accessed preferably with a single keystroke or double click of the mouse.
- E. If the PAS does not have a satisfactory component check out, the applications software is to lockout the unit and displays the message “System component failure! Please contact your repair technician”. Information regarding the failure must be included with the displayed message.

## Pennsylvania Analytical System (PAS) – OBD (Stand Alone) Display and Program Requirements

---

### 1.12 Technical and System Documentation

- A. The PAS software will be fully documented. Two (2) copies of the documentation listed below will be submitted to PENNDOT. Manufacturers will agree, in writing (signed by the chief executive officer (CEO) of the company), to submit copies of the program listings to PENNDOT upon request, within a time frame satisfactory to PENNDOT, or whenever a decision is made by the manufacturer to voluntarily suspend or terminate production of the PAS. PENNDOT does not expect to have a need to review the program listings and, therefore, will not require that they be included with the application for certification. PENNDOT reserves the right to require that copies be provided, if the need does arise. Software documentation will include at least the following.
  - 1. Complete program listings, including the source code as well as the object code, in both machine-readable and paper form, will be provided upon request. They are not required to be submitted with the application for certification;
  - 2. Functional specifications and Functional flowcharts of the manufacturer's software;
  - 3. All file layouts with file names, file types, file security, field names, field types, field sizes and field editing criteria.
- B. Documentation provided by the manufacturer will be treated as proprietary information by PENNDOT, provided such material is clearly marked as confidential. Any trade secrets or similar proprietary data that the manufacturer does not wish disclosed to other than PENNDOT personnel (and/or the subcontractor assigned to assist in the certification process) will be kept confidential if identified as described below:
  - 1. Each page will be identified in boldface type at the top and bottom as "Confidential". Any section of documentation, which is to remain confidential, should, in addition, be so marked in boldface type on the title page of the section. Marking of all material as confidential is not acceptable; only that material which is proprietary should be marked.
- C. The purpose of the requirement for detailed code is to provide PENNDOT with a mechanism to assure continued performance of inspection stations in the event that a major supplier of testing equipment should fail. PENNDOT is not interested in any disclosure of proprietary information, nor in the detailed operations of manufacturer code; however, it is essential that all of the necessary working code, schematics, drawings and so forth be available in case of such demise.

### 1.13 PAS Hardware/Software Security

- A. Only PENNDOT personnel or its authorized representatives will have access to the internal hardware components of the equipment. (i.e. hard disk/permanent storage)
- B. The inspector will not have the authority to add, change, or delete any files or software directly from the operating system.
- C. The hard disk/permanent storage and removable medium/USB drive must be encrypted using BitLocker and 128-bit encryption. It is recommended to employ the Trusted Platform Module Security Hardware (**TPM only**) for the hard disk/permanent storage and an **External Key** for the removable medium/USB drive.
- D. Automatic operating system updates must be disabled.
- E. The PAS unit must be adequately protected from accidents and the environment. The PAS enclosure will need to be submitted to PENNDOT for approval by PENNDOT personnel or its authorized representatives. The PAS enclosure must contain, organize, and protect all components of the PAS Unit and be recognizable as the specific equipment manufacturer's brand and equipment.

## **Pennsylvania Analytical System (PAS) – OBD (Stand Alone) Display and Program Requirements**

---

- F. The manufacturers are not required to add hardware to the PAS to detect tampering. If the required security features are implemented, the PAS and the inspection data should not be able to be tampered with.

### **1.14 Availability of Circuitry**

- A. All integrated circuits used in the PAS will be types and brands that are presently in common usage and supported. Custom ROM programs developed by the manufacturer for building the equipment are allowed.

### **1.15 PENNDOT Access**

- A. PENNDOT personnel or its authorized representatives will have access to update the equipment software. The software will be designed to include a State Menu as indicated in Section 3. Access to the State Menu will require that PENNDOT representatives enter via the keyboard the PENNDOT daily access code.
- B. Information contained in the files associated with PENNDOT representative Menu will be hidden in software to PENNDOT's satisfaction.

### **1.16 Data and File Transfer**

- A. Full-time High Speed Internet Connection
  - 1. A network connection, separate from the power cord, will be provided by the station for the full-time high speed unencumbered internet connection. The network connection may not pass through a firewall to reach the internet. The network cable will be enclosed in a protective cable meeting PENNDOT and UL or ETL approval. The PAS Unit must connect to the internet through a wired network connection. Alternative methods to connect to the internet may be submitted to PENNDOT for approval. PENNDOT personnel or its authorized representatives are not responsible for providing this internet connection but must verify its existence.
  - 2. If a connection to the VIID URL is not established or if inspection data is not transferred to the VIID in the specified time, an appropriate message will be displayed. The PAS will allow the station to continue performing inspections. At the end of each inspection a message will be displayed to the operator informing them of the problem that exists.
  - 3. The equipment will lock out the operator after performing a set number of off-line inspections that have been performed in a set number of calendar days. The values of these elements are stored in the STATION.DAT file. This lockout will prevent the performance of inspections, issuance of stickers, and requesting vehicle inspection history reports.
  - 4. The PAS Unit is only permitted to connect to the VIID and the equipment manufacturer's server. No other network connections are permitted. The PAS Unit cannot access the internet or other sites or servers, either separately or through the equipment manufacturer's server. The equipment manufacturer's server must be controlled and hosted directly by the equipment manufacturer. Connection to the PAS Unit cannot be initiated remotely by the equipment manufacturer. The PAS Unit cannot automatically connect to the equipment manufacturer's server. Any such connection must be initiated by a command entered by a user at the station. Inspection, vehicle, and OBD data cannot be transmitted to the equipment manufacturer's server.
- B. Encrypted Removable Medium/USB Drive
  - 1. The medium must be removable and show full compatibility with existing PENNDOT microcomputers. Both the medium and the medium access port must be secured logically to permit only duly authorized PENNDOT and manufacturer access. Manufacturer methodology to restrict such access will be approved by PENNDOT.



## Pennsylvania Analytical System (PAS) – OBD (Stand Alone) Display and Program Requirements

---

2. The PAS encrypted removable medium/USB drive will have the capability to store all required files from the PASDATA directory and a complete, current, backup of the Vehicle Reference Table as listed in section 1.4. The minimum required size for the encrypted removable medium/USB drive is 8GB. Storage will be maintained with power off.

### 1.17 Manual Data Entry

- A. If bar-code scanner or other automatic data capture systems are not available, the equipment will require redundant (double blind) data entry to facilitate accurate collection of critical vehicle identification data. The VIN, Title, and Plate, if entered manually, will be entered at least twice and automatically compared for consistency. Manufacturers may also provide additional methods of ensuring proper VIN entry.
- B. Manual entry of tampering inspection item results requires individual keystrokes for each inspection item. Holding down a single key to enter the same result in multiple fields is not allowed. Repeated pressing of the same key is allowed.
- C. Double blind entry is defined as:
  1. The inspector will enter the value on the screen and when data entry is completed press the <ENTER> key to continue.
  2. The equipment will blank the field and require the inspector to enter the value again without the benefit of seeing the first entry.
  3. At the completion of the second data entry the inspector will again press the <ENTER> key to indicate that the process has been completed.
  4. If the two (2) values do not match then the process must begin again.
  5. The inspector will be forced to enter the same exact value twice in a row before the process will proceed.

### 1.18 OBD I/M Check Equipment

**NOTE: Please ensure that the latest versions of all SAE & ISO specifications are utilized.**

- A. The PAS must be equipped with a standard connector (described in SAE J 1978/APR2002, SAE J 1979/APR2002, or SAE HS-3000/2003) and communications link to allow an RPM signal, readiness monitors, fault codes, MIL Command Status, PID, PCM ID, OBD VIN, and other required data to be downloaded from the onboard computer for applicable vehicles.
- B. The PAS must be capable of testing CAN equipped vehicles (in accordance with SAE J 2284-3/MARCH2002 and ISO 15765-4). Individual OBD module commands should be sent locally by the PAS Unit software by issuing SAE J2534 commands to the greatest extent possible. The guideline of the J2534 specification is to better attain similar communication success rates, results, and accuracy among all PAS units in the program, regardless of manufacturer. If a manufacturer can demonstrate meeting the specification requirements, other solutions may be considered.
- C. The equipment design and operation must meet all Federal requirements for OBD system inspections. Any conflicts between requirements that are contained in this specification and those contained in the references below, this specification overrides the conflicting requirement. If the equipment manufacturer has a reason to believe a conflicting requirement listed in this specification will adversely affect the performance of the OBD module, an explanation should be submitted to the State along with supporting documentation, evidence, and data. After examination of the documentation and supporting data certain requirements contained herein may

## Pennsylvania Analytical System (PAS) – OBD (Stand Alone) Display and Program Requirements

---

be removed by the State. References included in this section may not be the only specifications the OBD module must meet in order to communicate and retrieve data from all of the vehicles required. References include SAE J1962 - Diagnostic Connector, SAE J1978 - OBDII Scan Tool - Equivalent to ISO/DIS 15031-4, SAE J1979 - E/E Diagnostic Test Modes, and SAE J2534 - Recommended Practice for Pass Through Vehicle Reprogramming)

- D. The OBD interrogation process must be automated and require no inspector intervention to collect and record OBD data retrieved via the OBD diagnostic link. An RPM signal, OBD readiness monitors, confirmed fault codes, MIL status, PID Count, PCM ID, OBD VIN, and other required data will be automatically retrieved through a standard interface and vehicle connector.
- E. The PAS OBD module shall be primarily self-powered by a rechargeable battery. The PAS OBD module may use an alternative primary power source other than the battery indicated above. However, use of a 12 volt source through a pin on the DLC from the vehicle being tested is not permitted as a primary power source option. This requirement for the PAS OBD module is not intended to interfere with appropriate vehicle communication processes or protocols but instead to create a system that is able to operate and inspect vehicles without being dependent on vehicle power at the vehicle DLC.
  1. Vehicle battery voltage may be used to charge the PAS OBD module rechargeable battery but the charging circuit cannot interfere with vehicle communications or test functions.
- F. If using a wireless OBD module, the module shall have a minimum range of 30 feet with a clear line of sight from the transmitter to the receiver. The OBD module shall provide a method of securing the communications link to the PAS Unit. Data can either be encrypted or an alternative security protocol can be used subject to approval by the State. The OBD module shall be FCC Part 15 Class B approved. There shall be no loss of communications between the OBD module and the PAS Unit while being subjected to electromagnetic or radio frequency interference typically found in an automobile service garage from running engines, air compressors, welders, cell phones, etc. There shall be no loss of communications between the OBD module and the PAS Unit while being subjected to radio transmissions from citizen's band, emergency band, and other radio types of transmissions. The OBD module may use an alternative method to communicate with the PAS Unit other than the wireless specifications above. Alternatives can include but are not limited to a direct connection such as serial, USB, or Ethernet; or wireless communications with a reduced range.
- G. If using a wired OBD module, the minimum OBD Module cable length with male DLC connector shall be one meter and the maximum cable length shall be five meters. The Equipment Manufacturer may offer cables in a variety of lengths with the shortest being included in the standard equipment package with an option to purchase additional length cables. The cable should be of heavy gauge with strain reliefs at the cable ends and a SAE J1962 male DLC connector.
- H. The OBD module shall have an indicator light to inform the operator the device has sufficient power to perform an OBD test.
- I. The OBD module shall have an indicator light to inform the operator the device has established active communications with the vehicle. The communications light specified above shall blink or flash to inform the operator as messages are being sent and received between the OBD module and the vehicle.
- J. The OBD module shall be able to perform a self-check on the network layer of the device that includes the ability to check the SAE J1962 connector. The self-check will be used to verify that the OBD module hardware and cable is fully functional in the event of a vehicle communications failure during an OBD inspection. The self-check will also be required to be performed during the PAS Unit Calibration process. The results and corresponding data from the self-check shall be recorded in CAL.DAT and made available for transmission to the VIID on the next communications session. The self-check mechanism shall be designed in such a way that it cannot be used to simulate a real OBD vehicle during an inspection. The self-check mechanism is not required to be integrated into the OBD module itself, it may be integrated into the PAS Unit as an alternative.

**Pennsylvania Analytical System (PAS) – OBD (Stand Alone) Display and Program Requirements**

---

---

- K. The OBD module shall have a firmware version that shall be made available to the PAS Unit for transmission to the VIID. The OBD module shall have a method that allows the PAS Unit to update the firmware installed on the device. The PAS Unit software shall verify the OBD module is operating with the version of firmware certified in conjunction with the PAS software version prior to allowing an OBD inspection to continue.
- L. The OBD module shall be ruggedized to protect itself from accidental drops. The OBD module's durability shall be tested by performing a series of drop tests from a height of three feet. The OBD module drop tests shall consist of a series of 45 drops including an equal number of free fall, corner, and edge drops. The OBD module shall be considered durable if after all drop tests have been completed the OBD module is still functioning for all in-use OBD communications protocols with its casing still intact.
- M. The OBD communications rate for OBD eligible vehicles with a GVWR  $\leq$  8,500 pounds shall be greater than or equal to 99.0%. For the purposes of this calculation the definition of successful communication with a vehicle shall be when all of the data required to make a pass/fail determination was collected by the OBD module (i.e. MIL command status and readiness monitor status). The OBD module shall be able to communicate with vehicles that by design are currently known to be non-compliant with relevant SAE specifications. If the OBD communication rate falls below the accepted minimum level, the equipment manufacturer shall be required to submit software/firmware updates to address the issue. After approval of the updates, the equipment manufacturer shall update all its PAS Units at no cost.
- N. The OBD VIN retrieval rate for OBD eligible vehicles, Model Year 2005 and later, shall be greater than or equal to 99.0%.

**1.19 Fuel Cap Test Equipment**

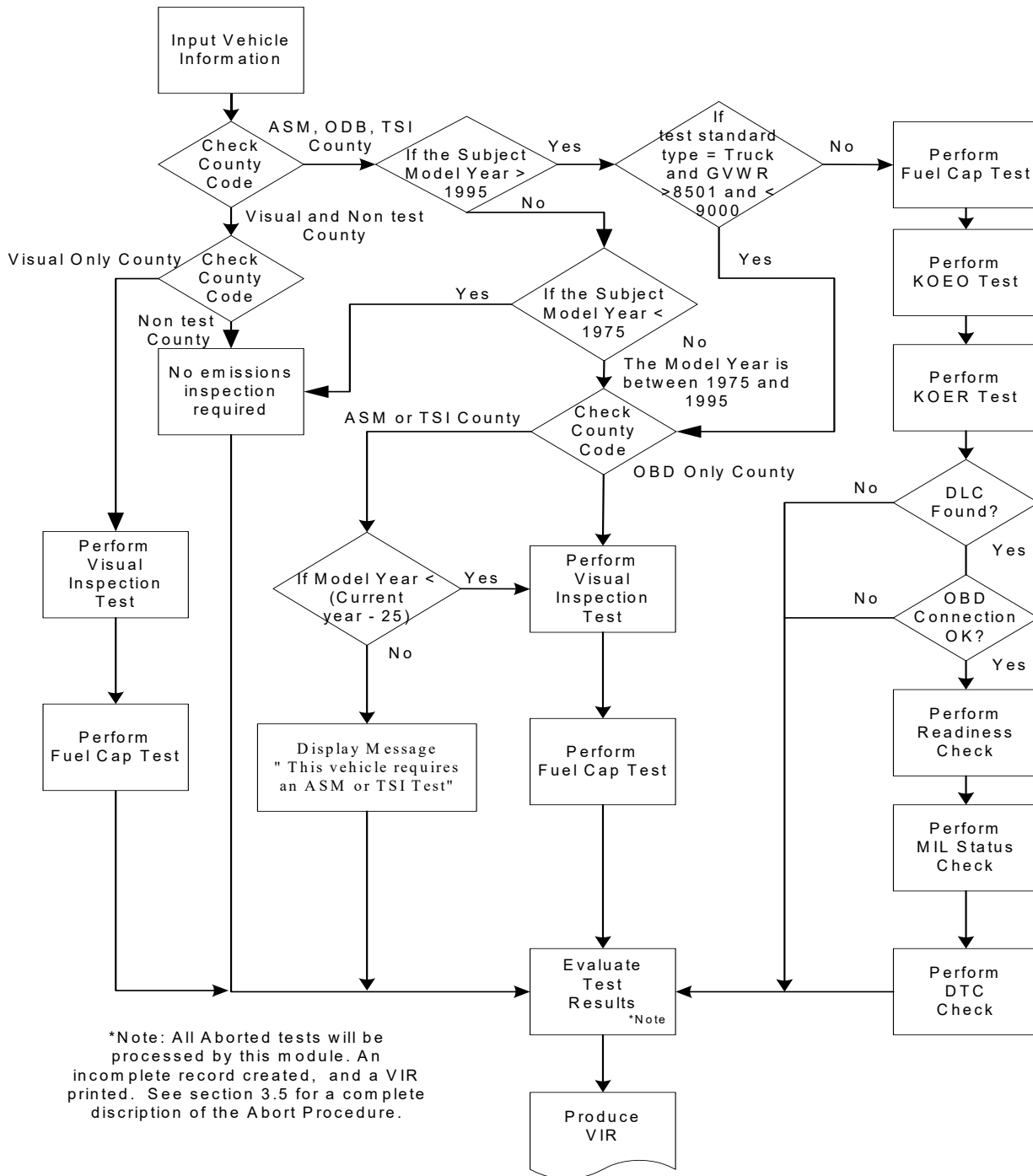
- A. The PAS will be equipped with a fuel cap tester that has the ability to test the vehicle fuel cap as set forth by EPA (EPA420-R-00-007 4/00) and transmit the results of the test to the PAS electronically. Electronic communication between the testing apparatus and the equipment does not indicate that the device cannot be connected to the PAS internally. It simply means that whatever the results the testing apparatus derives will be passed back to the inspection sequence as to require no data entry on the part of the inspector.
- B. The Fuel Cap Test Equipment will come with the necessary adapters to allow the station to test fuel caps on most vehicles with a model year of 1975 or later.

## Pennsylvania Analytical System (PAS) – OBD (Stand Alone) Display and Program Requirements

### 2.0 Section Two – Software Functions

This section describes the software functions of the OBD PAS.

Software Overview Flowchart



**Pennsylvania Analytical System (PAS) – OBD (Stand Alone) Display and Program Requirements**

---

---

**2.1 General**

- A. The equipment software will control the inspection sequence and equipment processes.
- B. This software, at a minimum, will require the inspector to proceed in the following sequence when performing a vehicle inspection:
  - 1. Enter the Inspector License Id Number and the Inspector Access Code;
  - 2. Enter VIN, Title, and Plate;
  - 3. For vehicles with a model year newer than 1975 and prior to 1996 and registered in an OBD county or for vehicles with a model year newer than 1975 and prior to 1996 and model year is less than the current year minus 25 and registered in an ASM or TSI county, or registered in an Visual only county
    - a. Conduct the visual anti-tampering inspection
    - b. Perform the fuel cap test.
  - 4. For vehicles with a model year newer than 1975 and prior to 1996 and model year is not less than the current year minus 25 and registered in ASM or TSI county
    - a. Display Message “This vehicle requires an ASM or TSI test”
  - 5. For vehicles with a model year after 1995 and registered in an OBD county
    - a. Perform the fuel cap test
    - b. Perform KOEO and KOER test
    - c. Connect to OBD II port and perform OBD test
  - 6. When the inspection of the vehicle is complete, the inspector information, vehicle identification information and the inspection results will be printed on the VIR and transmitted to the VIID.
- C. A description of these tasks is detailed in the following sections.

**2.2 Inspector Access Procedure**

- A. The PAS will be designed to require the inspector to scan their Vehicle Emissions Inspector License. If the bar code reader is not operational the inspector will be allowed to manually enter the inspector’s Inspector License ID Number from the keyboard before a Vehicle Emissions Inspection can begin.
- B. Following entry of the Inspector License ID the inspector will be required to enter a 5-digit access code.
- C. The Inspector License ID and the access code will neither be displayed nor printed at any time on the equipment.
- D. PENNDOT will assign both the Inspector Identification Number and the initial access code number.
- E. The equipment software will be designed to automatically abort the inspection if the inspector:
  - 1. Has not been issued an appropriate license;
  - 2. Access code does not match the license ID;
  - 3. License has expired, based on the expiration date in the file;
  - 4. Listed as locked out from testing privilege;
  - 5. Not listed as an inspector for the current station; or

## Pennsylvania Analytical System (PAS) – OBD (Stand Alone) Display and Program Requirements

---

6. An invalid emissions certification was found for OBD Stand-alone analyzer; valid values are “EI”, “EO”, “CI”, “CO”, “MI”, or “MO”. If a visual inspection is being performed, “EV”, “CV”, and “MV” are also valid emissions certifications.
- F. A message will be displayed indicating that the test has been aborted because of the appropriate reason shown above.
- G. The test will not proceed. Nothing will be printed on the printer.
- H. The software will be designed to compare the inspector’s license number, access code, and the inspector’s license expiration date against the local TECH.DAT file.
- I. The inspector’s name and a line for his/her signature will be printed on the VIR.

### 2.3 Vehicle Information Entry

- A. The equipment software must be designed to collect vehicle information like vehicle make, model year, etc.
- B. The inspector will then be instructed to: select a vehicle make by using the cursor and scrolling through the list; or by typing in the first letter or two of the vehicle make so that the cursor goes directly to the first vehicle make with that letter; or by a combination thereof.
- C. The inspector may also choose to enter the complete vehicle make code which will be edited against the displayed list of valid vehicle makes. The inspector will not be prompted to enter the make if the data was available from the bar code on the BMV Vehicle Registration Credential or a VIR.
- D. The equipment will store the Title number issued by BMV. The inspector will not be prompted to enter the Title number if the data was available from the bar code on the BMV Vehicle Registration Credential or a VIR.
- E. The equipment will store the License Plate number issued by BMV. The inspector will not be prompted to enter the License Plate if the data was available from the bar code on the BMV Vehicle Registration Credential or a VIR.

### 2.4 Applicable Model Years

- A. The PAS will not accept any vehicle older than 1975 for an emissions inspection.
- B. An attempt to make such an entry will cause the PAS to display the following message **“DO NOT TEST VEHICLES OLDER THAN 1975 FOR EMISSIONS”** and the equipment will not allow the inspection to continue.
- C. For vehicles registered in a Visual only county by checking the COUNTY.DAT file.
  1. Conduct the visual anti-tampering inspection (section 3.21)
  2. Perform the fuel cap test. (Section 3.22)
- D. For vehicles with a model year prior to 1996 and the vehicle is registered in an OBD county by checking the COUNTY.DAT file.
  1. Conduct the visual anti-tampering inspection (section 3.21)
  2. Perform the fuel cap test. (Section 3.22)
- E. For vehicles with a model year prior to 1996 and the vehicle is registered in an ASM or TSI county by checking the COUNTY.DAT file and model year is less than the current year minus 25:
  1. Conduct the visual anti-tampering inspection (section 3.21)
  2. Perform the fuel cap test. (Section 3.22)

---

---

## Pennsylvania Analytical System (PAS) – OBD (Stand Alone) Display and Program Requirements

---

---

- F. For vehicles with a model year after 1995
  - 1. Perform the fuel cap test (section 3.22)
  - 2. Perform OBD/IM test procedure (section 3.24)

### 2.5 Blind Test

- A. Once the emissions analysis has begun, no results are to be displayed until after the test record is written to storage and a final pass/fail determination has been made, unless the test is aborted in which case the equipment will print the appropriate message on the VIR.

### 2.6 Data Storage and Recall Capability

- A. The equipment will have the capability to store a minimum of 240 days of emissions tests and associated records.

### 2.7 Warranty Message on VIR

- A. Federal law for most emissions related defects (except certain fuel metering and ignition parts) covers most major emissions control components, for two (2) years or twenty four thousand (24,000) miles or in accordance with Clean Air Act amendments. However on 1998 and newer vehicles the major emissions control components are covered by federal law for most emissions related defects, for eight (8) years or eighty thousand (80,000) miles or in accordance with Clean Air Act amendments.
- B. The equipment will print the appropriate warranty message “Vehicles that fail the Emissions Inspection may be eligible for warranty coverage for the required repairs. Check with your service providers on your vehicle’s Emissions Warranty.” on the display as well as on the VIR.

### 2.8 Decision Criteria

- A. The PAS will be programmed to print the VIR and record the test results. See the sample VIR layout in Section 5 Exhibits A-C. VIRs for vehicles failing the emissions test will also include information on the possible causes of failure, warranty repairs, and waivers.

### 2.9 VIID Communication Process

- A. All VIID communication activities, including transactions and data files, will be handled by the communication software in accordance with the “PAS Communications Interface to VIID Functional Specification for Pennsylvania I/M Program Phase II”. The current communications software and host provider for PENNDOT is PARSONS. Proprietary PARSONS documentation and communications software is provided to an authorized equipment manufacturer.

### 2.10 Data File Refresh

- A. This process occurs automatically at PAS unit startup, prior to displaying the Main Menu.
- B. If 24 hours have passed since the last data file refresh was performed, the system will automatically start a data file refresh when the system is idle. Refer to section 3.35 Data File Refresh for specific requirements.

## Pennsylvania Analytical System (PAS) – OBD (Stand Alone) Display and Program Requirements

---

- C. Station personnel will be allowed to place a request to the VIID to update key equipment data files, such as reference tables, inspector information, lockout status, and program data (Refer to section 3.35 Data File Refresh for specific requirements).

### 2.11 Receive System Date/Time Update

- A. The communication software resets the current equipment date/time settings only when:
  - 1. During a Begin Test communications session when the equipment transmits the VIN, title and license plate number information to the VIID; or
  - 2. During a Data File Refresh communications session.
- B. During these two types of sessions the VIID will pass via the communication software the current date/time settings to the equipment.
- C. The communications software will not update the PAS clock during “End-of-Test” contact (passing emissions inspection results) or “communications system test” session.
- D. The communication interface program will set a response status bit in the response status words notifying the equipment that the PAS clock has been reset.
- E. If the equipment uses more than one clock, the equipment will be required to update all appropriate system clocks.
- F. The inspection start date and time stamp for an emissions inspection will be set in the test record following the receipt of the system date/time update by the equipment just after the initial VIID contact. If communications attempts fail for the initial VIID contact, the date and time stamp will be set using the appropriate equipment system clock settings.

### 2.12 Lockout Processing

- A. The status (on/off) of the lockouts will be transmitted by the VIID to the equipment. If a lockout(s) is set, then subsequent emissions inspections will be prohibited until the applicable lockout(s) has been cleared. Lockouts received from the VIID during a Begin Test communications session will affect all inspections following the current inspection in process. This is to avoid motorist inconvenience.
- B. The equipment will lockout from emissions testing, sticker issuance, and vehicle inspection history report functions if the number of inspections performed exceeds the maximum number of offline inspections or the last successful VIID contact has exceeded the maximum number of days. The values for maximum tests and maximum number of days are stored in the STATION.DAT file and can be adjusted for each station by PENNDOT. The software will count the number of offline tests and will keep track of the last time the VIID has been contacted with the successful transmission of EIS.DAT data or data file refresh. If the maximum number of offline tests has not been exceeded or the last VIID contact is within the maximum number of days the software will allow new emissions inspections, sticker issuances, or vehicle inspection reports. If this lockout is set, by exceeding the offline test number or the number of days with no VIID contact, the equipment must make contact with the VIID and upload all stored records using the Data File Refresh process. At that time the lockout is to be cleared by the equipment and the software will reset the offline counters and allow emissions testing and other functions to proceed. The offline counters will also be reset every time the EIS.DAT file is successfully transmitted to the VIID or a Data File Refresh is completed.



---

**Pennsylvania Analytical System (PAS) – OBD (Stand Alone) Display and Program Requirements**

---

**2.13 Receive PENNDOT Messages**

- A. PENNDOT messages will be transmitted by the VIID to the equipment. Even if multiple messages are in queue in the VIID only one (1) message is sent to the equipment in any communications session.
- B. All messages will be in a text file formatting of variable length with up to seventy-six (76) characters per display line.
- C. If a message is received during an emissions inspection it will be displayed at the end of the emissions inspection.
- D. The equipment will display PENNDOT messages on the screen and will always print a copy of the message to the printer. A prompt for the option to print additional copies will also be provided.
- E. Once a message has been displayed and printed, the equipment will delete the message.

**2.14 Receive Updates to Vehicle Reference Table**

- A. The Vehicle Reference Table will be in ASCII format. This table provides information about all vehicles including ones that have problems connecting/communicating with OBD equipment.
  - 1. Manufacturers are required to integrate the information from the table into the equipment software so information is properly utilized (in accordance with the specifications) during the inspection process.
  - 2. Manufacturers are required to allow periodic partial updates of the VRT.DAT through the VIID or full periodic updates via removable storage/USB drive and/or CD/DVD during later software updates.
  - 3. Manufacturers will provide a method for service personnel to refresh the current version (less VIID updates) if the equipment files become corrupted.
  - 4. This service routine must also reset the VRT Version date and number of records, described below, which the equipment transmits to the VIID. The date must be reset to reflect the date of the service source version being installed. This will allow the VIID to bring the VRT.DAT to current update level.
  - 5. The equipment will send the VRT version date and number of records to the VIID on every communication transaction as part of the security login, with the exception of diagnostic transactions. The VIID will compare the transmitted VRT version date and number of records on the equipment to the current version date and number of records of the VRT on the VIID. If an update is required, the VIID will prepare a differential update to be sent to the equipment during a subsequent transaction. If the transmitted version date and number of records does not match an approved VRT version date and number of records then a VRT corrupt lockout will be sent.
    - a. The differential update will consist of each VRT.DAT Rows that have been revised since the date of the most recent approved VRT version date and number of records.
    - b. When a "VRT.DAT Update" file is received from the VIID, the PAS will store the file to the hard drive/permanent storage device. If a VRT.DAT update is received during an emissions test, the PAS unit shall perform the VRT table maintenance function at the completion of the current emission test. Each VRT.DAT update record will be preceded by a single character and will be processed as follows:
      - 1) "C" = replace record (same row ID),
      - 2) "A" = append record (new row ID),
      - 3) "D" = delete record (same row ID).

**Pennsylvania Analytical System (PAS) – OBD (Stand Alone) Display and Program Requirements**

---

---

- c. After the VRT is successfully updated, the PAS unit will recalculate the total number of records and update the REC\_LIST.DAT file with the record count and current VRT version date.
- 6. The VRT.DAT file may appear to be corrupted if either of the following conditions exist:
  - a. The version date sent by the equipment does not match any dates stored in the “VRT Update History” table in the VIID (second consecutive occurrence); or
  - b. The number of records in the equipment’s VRT.DAT does not match the appropriate number of records for that version date (determined at the VIID).
  - c. If possible corruption is detected by the VIID, the VIID will send a response bit to the equipment. The equipment, upon receiving the response bit, will be locked out from performing further inspections, sticker issuances, or vehicle inspection history reports and display the following prompt:
    - 1) THE VRT DATABASE IS CORRUPT. CALL SERVICE.
  - d. This lockout can only be cleared by the VIID upon replacing the file providing the VIID has verified that the VRT data has been replaced.

**2.15 Receive Updates of Equipment Lockout Status**

- A. The status (on/off) of the lockouts will be transmitted by the VIID to the equipment during every inspection logon and upon request by the equipment (Data File Refresh and Lockout Status menu items). The VIID will return the state of the following lockout conditions to the equipment:
  - 1. QA/State PAS Lockout
  - 2. Station License Suspended
  - 3. Station License Revoked
  - 4. Station License Expired
  - 5. Failure to Pay for Communication Services
  - 6. VRT.DAT Corrupt
- B. If a lockout(s) is set, then subsequent emissions inspections, sticker issuances, and vehicle inspection history reports will be prohibited until the applicable lockout(s) has been cleared.
  - 1. The current inspection will be completed prior to the lockout taking effect.
  - 2. Lockouts received from the VIID during a Begin Test communications session will affect all inspections following the current inspection in process. This is to avoid motorist inconvenience.
  - 3. If the lockout is received during data file refresh, then the lockout takes effect at the completion of the data file refresh.

**2.16 Receive Updates to Inspector Data**

- A. When the inspector table for a station is updated on the VIID, the complete updated inspector table will be transmitted by the VIID to the equipment.
- B. This file will contain the license information for emissions inspectors, including name, license number, certification status and expiration dates.

**Pennsylvania Analytical System (PAS) – OBD (Stand Alone) Display and Program Requirements**

---

---

- C. The equipment software will only be allowed to modify the inspector's access code and the access code updated field. All other fields are not allow to be changed on the "Inspector Information File" from the equipment. All other inspector information can only be changed from the VIID.
- D. Upon receiving the inspector information from the VIID, the equipment software will not be required to validate the inspector information received from the VIID.
- E. Upon receiving data from the VIID, if the inspector's license number that is performing the current OBD inspection has been deleted, the equipment will allow the inspector to complete the inspection.
- F. The equipment will display instructions on where and how to review the updated list of inspector license numbers. An option to print the list will be provided, if desired. During any screen display or printing of the inspector information the equipment will not display the actual inspector ID numbers or access codes at any time.

**2.17 Receive Updates to County Data**

- A. When the COUNTY.DAT file is modified on the VIID the complete updated file will be transmitted by the VIID to the equipment.
- B. This file is used to list counties included in the emissions testing areas and define the default emissions inspection type for that county.

**2.18 Receive Updates to System Data**

- A. When the STATION.DAT file or SYSTEM.DAT file is modified on the VIID the complete updated file will be transmitted by the VIID to the equipment for the SYSTEM.DAT file and the Max # of tests in # of days with no VIID contact field and the Max # of days for # of tests with no VIID contact field for the STATION.DAT file.
- B. This file is used to define and set the equipment or inspection parameters for various settings in the equipment such as calibration frequency, amount of expenditure before waiver eligibility, etc.
- C. The equipment application must utilize the values defined in this file for each defined variable in the file.
- D. The application must be capable of resetting the values contained in STATION.DAT and SYSTEM.DAT at a minimum of when a new file is received in the equipment.

**2.19 Receive Other Communications, Transactions, and Statuses**

- A. The communications data stream, as received from the VIID, will contain the command response status such as "No Match", "Station License Expired", "Previous Failed Test ", etc. Data that may be received by the equipment, in addition to the aforementioned, is defined in subsequent sections.

**2.20 IN USE Warning Messages (if applicable)**

- A. When data is being stored or accessed, a message or icon will be displayed indicating that the equipment should not be moved or otherwise disturbed.

**2.21 Print Screen Capability**

- A. The PAS will have a print screen feature, which prints any current displayed screen by depressing the Print Screen key. No other key combinations are permitted for this function. The screen must be printed as displayed on the PAS Unit monitor.

## **Pennsylvania Analytical System (PAS) – OBD (Stand Alone) Display and Program Requirements**

---

- B. Print screen output will be directed to the printer.
- C. The print screen function will be available during the emissions inspection process.

### **2.22 Incomplete and Completed Inspection Counting**

- A. The equipment must be designed to track inspections started, aborted and completed by each inspector on a monthly basis.
- B. The file INCOMPLT.DAT will be used to track this data.
- C. Each inspector in the equipment will have a record in the file for each month where the inspector begins an emissions test on the equipment. When beginning a test, following login by the inspector, the equipment will increment the field TEST STARTED by one.
  - 1. If a record does not exist for the inspector one will be created at this time.
- D. When a test is aborted prior to the confirmation of the vehicle information the TEST ABORTED field will not be incremented. The equipment will increment the field TEST ABORTED by one, only after an inspector aborts the inspection at any point after confirming the vehicle information. When a test is completed, following printing of the VIR and writing the final test record, the equipment will increment the field TEST COMPLETED by one. When seeking the correct record to update on abort or test completion the correct month and year will be determined by the month and year of the TEST START DATE value.
- E. In the beginning of each month all records in INCOMPLT.DAT will be transferred to INCOMPLT.HST. Then INCOMPLT.DAT will be purged.
- F. On the first communication of any month the equipment will send to the VIID all records stored in the file INCOMPLT.HST for any previous months. After a successful communication with the VIID all records stored in INCOMPLT.HST will be purged. INCOMPLT.HST will not be purged unless successfully sent to the VIID.

## **3.0 Section Three – Display and Program Requirements**

**PURPOSE:** This section describes the computer screen displays and the software programming requirements of the PAS.

### **3.1 General Description**

This section describes the display prompts and programming criteria for the emissions inspection procedure. These items will be standardized to facilitate training of licensed inspector. Manufacturers may propose, for PENNDOT approval, alternative methodologies for the presentation of information and data entry as long as the substance and the priority of the sequence is not modified. Approval of alternative methodologies is necessary prior to the manufacture developing the PAS.

- A. The PAS manufacturers will utilize the following to make the equipment more user friendly:
  - 1. Direct cursor addressing or first letter selection versus a scrolling display;
  - 2. Data entry using the bar code scanner on bar coded VIN, VIR, BMV Issued Registration Credential, Emissions Inspector Licenses and other credentials as PENNDOT deems appropriate;
  - 3. Method of displaying DATA ENTRY ERROR MESSAGES;

## Pennsylvania Analytical System (PAS) – OBD (Stand Alone) Display and Program Requirements

---

4. Development of HELP screens to assist inspectors with data entry; and
  5. Other options may be proposed for approval by PENNDOT.
- B. Data entry from one (1) item to another will not proceed until a valid entry has been made. The Emissions inspector will utilize vehicle identification and visual information to determine what inspection criteria and emissions test standards are appropriate for the particular vehicle being inspected. Once the emissions inspection or test sequences have been initiated, the inspector will be prohibited from editing any vehicle identification or inspection information. Where editing is allowed, the inspector will have the ability to return to a previous display prompt without depressing more than three (3) keys. At that point the inspector will see the prior information and be permitted to correct or re-enter it if necessary.
- C. Unless otherwise specified in the programming criteria of this specification, the equipment will display an appropriate error message in response to an invalid or missing entry by the inspector and ask that the data be re-entered.
- D. Data that is entered using the keyboard and a bar code scanner will indicate successful entry/scanning and immediately display the data for the operator to review. The following sections include the minimum menus manufacturers are required to provide. Manufacturers may break the menus down further to increase user friendliness or expedite certain operations. PENNDOT reserves the right to require modification of any menu it determines does not meet the minimum requirements. Buffering of keys from the keyboard is to be prevented on all PAS units.
- E. Double blind entry will be required for the entry of the Vehicle Identification Number, vehicle Title Number and vehicle License Plate if it is not input from the bar code scanner. No exceptions will be considered.
- F. Data contained in memory will be written to storage, unless otherwise specified in the document, at the following points in the testing procedures. These are minimum requirements. If a manufacturer wishes, additional file writes will be allowed.
1. After completion of the inspection, following determination of passing or failing.
  2. After entry of repair information if this is a retest.
  3. After sticker number is entered if passing inspection.
  4. After TIN is calculated if passing inspection.
  5. After motorist fee is entered.
- G. License cards will be issued to inspectors, quality assurance auditors and Commonwealth staff. The license cards will be bar-coded in 1D, 3 of 9-symbol technology. The format will be the similar for all licenses, a leading identifier character followed by 8 characters. The leading identifier for an inspector license will be a “/”, a QA auditor will be a “Q” and Commonwealth personnel an “S”. Thus an inspector license could decode to “/12345678”. The leading identifier character is never displayed or stored in a record.

### 3.2 Main Menu

- A. When the equipment is turned on the equipment will notify the inspector of any required equipment maintenance. After this notification, the equipment screen will display the Main Menu.
- B. Menu Items:
- 1. VEHICLE EMISSIONS INSPECTION MENU**
  - 2. TECHNICIAN MENU**

## Pennsylvania Analytical System (PAS) – OBD (Stand Alone) Display and Program Requirements

---



---

### 3. STATION MENU

### 4. STATE MENU

### 5. MANUFACTURER'S TECHNICIAN MENU

- C. Activation of Menu Items: the equipment will allow the inspector to activate the Vehicle Emissions Inspection Menu options by entering a "1", the Station Menu by entering a "3", and so forth, or the functional equivalents approved by PENNDOT. Other menu structures may be submitted to PENNDOT for approval. A brief description of each item in the menu follows.
- D. Main Menu Item Descriptions:
1. **Vehicle Emissions Inspection Menu:** the Vehicle Emissions Inspection Menu will list the procedures available relevant to Vehicle Emissions inspections. The description of Vehicle Emissions Inspection Menu is contained in Section (3.3).
  2. **Technician Menu:** the Technician Menu will list the procedures available to station inspectors. The description of the Technician Menu is contained in Section (3.34).
  3. **Station Menu:** the Station Menu will list procedures available to station staff which are not directly related to emissions inspections. Communications procedures will be placed on this menu. The description of the Station Menu is included in Section (3.35).
  4. **State Menu:** The State Menu will list the procedures that are available only to PENNDOT authorized representatives. The selection of Item 4 from the Main Menu will cause the equipment to prompt the operator to scan their Identification Badge and enter the state generated daily access code to gain access to the menu. The State Menu option will be accessible upon power-up of the PAS. The description of the State Menu is included in Section (3.36).
  5. **Manufacturer's Technician Menu:** the Manufacturer's Technician Menu will list the procedures that are available only to manufacturer representatives. Security for this menu option is to be provided by the manufacturer. However PENNDOT will require that the manufacturer describe in writing to PENNDOT's satisfaction how this security will be implemented. The Manufacturer's Technician Menu option will be accessible upon power-up of the PAS. The description of the Manufacturer's Technician Menu is included in Section (3.44).

## 3.3 Vehicle Emissions Inspection Menu

### A. Menu Items:

1. **Vehicle Emissions Inspection**
2. **Equipment Maintenance**
3. **VIR Reprint and Test Record Search and Retrieval**
4. **Training Mode**
5. **Print Rejection From Testing Forms**
6. **Enter Replacement/Missing/Waiver/Exemption/Exception Sticker Numbers**
7. **Sticker Issuance Report Reprint**
8. **Return to Main Menu**

Select Option Desired, Enter Number:

## Pennsylvania Analytical System (PAS) – OBD (Stand Alone) Display and Program Requirements

---

- B. When the emissions inspector has entered a valid menu option number, the equipment will initiate the associated procedure. If the value entered is not a valid number, an error message will be displayed to the screen. After three (3) successive invalid entries are made, the equipment will automatically return to the Main Menu.
- C. If option 5 is selected the software will print the Rejection From Inspection Form without the vehicle information filled in (See Section 5 Exhibit K for sample of Rejection From Inspection Form).

### 3.4 Vehicle Emissions Inspection

An Emissions Inspection sequence will be initiated by an entry of 1 from the Vehicle Emissions Inspection Menu. This section will describe the programming criteria and the sequence of menus used in the Emissions Inspection.

- A. The PAS will not allow entry into the Vehicle Emissions Inspection Menu unless the PAS has passed the fuel cap calibration and OBD module self-check within the time period defined by the Calibration Frequency field of SYSTEM.DAT.
- B. Check for lockouts
  - 1. Programming Criteria:
    - a. The PAS will also confirm that no lockout indicators have been set. If a lockout indicator is present the lockout message will be displayed, the procedure will be aborted and the system will return to the Vehicle Emissions Inspection Menu.
  - 2. Suggested Display Messages:
    - a. **You Are Locked Out From Emissions Testing. A State Installed Lockout Has Been Set. Contact PENNDOT or Technical Support for Further Instructions.**
    - b. **You Are Locked Out From Emissions Testing. The Station License Has Expired. Contact PENNDOT or Technical Support for Further Instructions.**
    - c. **You Are Locked Out From Emissions Testing. The Station License Has Been Revoked or Suspended. Contact PENNDOT or Technical Support for Further Instructions.**
    - d. **You Are Locked Out From Emissions Testing. A Lockout Has Been Set Due To Failure To Pay For Communications Services. Contact the Inspector Hotline for Further Instructions.**
    - e. **You Are Locked Out From Emissions Testing. A Lockout Has Been Set Due To Failure To Communicate With The Host Computer. This Equipment Has Exceeded The Allowed Number Of Inspections Without Connection to the VIID. Attempt A Data Refresh To Restore Communications With The Host. If This Procedure Fails Contact Technical Support For Further Instructions.**
    - f. **You Are Locked Out From Emissions Testing. A Lockout Has Been Set Due To A Corrupt Data File Or Other Equipment Problem. Check The Equipment Status Screen For Details. You May Need To Contact The Manufacturer For Service.**

### 3.5 Abort Procedure

- A. Programming Criteria:
  - 1. The PAS will display the appropriate test information on the screen (test time, etc.) The inspector must be able to abort the inspection by pressing the “Escape” key. If the inspector presses the “Escape” key, the PAS will display the following message:

## Pennsylvania Analytical System (PAS) – OBD (Stand Alone) Display and Program Requirements

### ARE YOU SURE YOU WANT TO ABORT THIS TEST? (YES/NO)

- a. If the inspector enters “N”, the PAS shall resume the inspection at the point where the Escape key was pressed.
  - b. If the inspector enters “Y” any time prior to the completion of the Vehicle Data Entry Confirmation section, the inspection will end and the PAS will NOT print a VIR and the abort will NOT be tracked in the INCOMPLT.DAT file.
  - c. If the inspector enters “Y” any time after the completion of the Vehicle Data Entry Confirmation section, the inspection will end and the PAS will print “Invalid” next to all test fields on the VIR, the vehicle data will be printed on the VIR, and the abort will be tracked in the INCOMPLT.DAT file. (See Section 5 Exhibit D for sample VIR).
  - d. Aborted test records are not stored or transmitted to the VIID.
  - e. “THIS INSPECTION WAS ABORTED BY THE INSPECTOR” will be printed on the VIR.
  - f. A test can be aborted any time prior to the PAS software starting the logic in section 3.24.9, Readiness.
2. Aborts by inspectors will be tracked in a file, INCOMPLT.DAT, on the equipment, which will record the number of aborts in a month for each inspector license number.
    - a. The equipment must be designed to increment the TEST ABORTED counter field in the file INCOMPLT.DAT for the inspector and the proper month if an inspection is aborted after vehicle information is confirmed.
    - b. At the beginning of each month the equipment will send the previous month’s records to the VIID and delete the sent records from the equipment file.
    - c. Each record will contain the month, year, station license number, equipment ID, inspector ID and a count of aborted inspections for that inspector.
    - d. If a record does not exist for the inspector the equipment will create one when the test is started.

## 3.6 Inspector ID

- A. After the Vehicle Emissions Inspection Option is selected from the Vehicle Emissions Inspection Menu, the operator will then be prompted input their Inspector Id. They will have two options to enter the Inspector Id: 1) The Inspector Id can be scanned from their inspector license. The format will be the similar for all licenses, a leading identifier character followed by 8 characters. The leading identifier for an inspector license will be a “/”, a QA auditor will be a “Q” and Commonwealth personnel an “S”. Thus an inspector license could decode to “/12345678”. The leading identifier character is never displayed or stored in a record. 2) If the inspector does not have their license with them, they will be allowed to manually enter their Emissions Inspector License Number.
  1. After the Emissions Inspector License Number is scanned or entered, the inspector is required to enter their five (5) digit Access Code from the keyboard.
  2. The equipment will search the file TECH.DAT containing the authorized Inspectors for a matching identification number. If the following conditions are met the test can proceed:
    - a. A valid emissions inspector license is found matching the entered license number;
    - b. The Identification Number entered and the Access Code must match;
    - c. Inspector Emissions Lockout flag must not be set;



## Pennsylvania Analytical System (PAS) – OBD (Stand Alone) Display and Program Requirements

---



---

- d. The system date will not be greater than the inspector license expiration date; and
- e. The Access Code cannot be the default '11111'.
- 3. After any failed attempt to scan and enter the proper identification number with matching access code, the equipment will display the appropriate error message and then will return to the Main Menu. If a correct identification number is entered, the equipment will then initiate a new test record and record the station number, the PAS number, the software version, the firmware version, the emissions inspector number, date and time.
  - a. If the Access Code is the default "11111", error message number 5, below, will be displayed. When the inspector selects OK, the inspection procedure will abort and the software will execute the Change Technician Password procedure as detailed under section 3.34.
- 4. The equipment must be designed to increment the TEST STARTED counter field in the file INCOMPLT.DAT for the inspector and the proper month as an inspection is started.
  - a. If a record does not exist for the inspector the equipment will create one when the test is started.
- 5. **Display Prompts:**
  - a. **Please Scan or Enter your Inspector License ID Number**
  - b. **Please Enter your Access Code**
- 6. **Error Messages:**
  - a. **This license number is not found on file – Try Again or Contact the Helpline**
  - b. **Your access code is incorrect**
  - c. **Your license has expired**
  - d. **Your license has been suspended or revoked – Contact PENNDOT**
  - e. **Your access code needs to be updated – press OK to change your access code**

### 3.7 Test Type

- A. **Display Prompts:**
  - 1. **Select Test Type**
    - a. **Initial**
    - b. **After Repairs**
- B. **Error Message:**
  - 1. **Invalid Entry – Try Again**
- C. If Initial is selected then the test type is "I". If After Repairs is selected then the test type is "R".

### 3.8 VIN, Title, and License Plate

- A. The VIN must either be scanned from the BMV Registration Credential, vehicle, or a previous VIR or manually entered twice by the emissions inspector. The VIN and Title number will be the primary means of tracking the inspection history of a vehicle.
- B. **Display Prompts:**

## Pennsylvania Analytical System (PAS) – OBD (Stand Alone) Display and Program Requirements

---



---

1. Please ask the customer for their BMV Registration Credential or previous VIR.
2. Please scan the Bar Code on the BMV Registration Credential, VIR, or scan VIN from the vehicle and enter the Title number and License Plate using the keyboard or enter the VIN, Title number and License Plate using the keyboard.
3. Please re-enter the VIN using the keyboard.
4. Please enter the vehicle Title Number.
5. Please re-enter the vehicle Title Number using the keyboard.
6. Please enter the vehicle License Plate.
7. Please re-enter the vehicle License Plate using the keyboard.
8. Is this vehicle information correct? Yes or No.

### C. Error Messages:

1. Scan could not be read – Please enter from the keyboard.
2. Both entries of the VIN do not match.
3. Both entries of the vehicle Title Number do not match.
4. Both entries of the vehicle License Plate do not match.
5. VIN exceeds 17 characters in length – please recheck the VIN.
6. VIN less than 17 characters in length – please recheck the VIN.
7. Title must be between 5 and 10 characters long – please recheck the Title.
8. Invalid character entered in VIN (“I”, “O”, and “Q” invalid).

### D. Programming Criteria:

1. The equipment will show display prompt 1 on the screen.
2. The equipment will show display prompts 2, 4, & 6 and accept input from the bar code scanner or the keyboard.
3. Input from barcode scanner
  - a. If the equipment receives proper input from the bar code scanner the inspector will be shown display prompt 8.
4. Input from keyboard
  - a. Manual entry from the keyboard will require a second entry of the VIN, vehicle Title Number, and vehicle License Plate in the double blind manner described in Section 1.19 above and will require use of prompts 3, 5, and 7. If the second entry does not match the first error message 2, 3, or 4 will be displayed depending on which field is not matching and the VIN, Title, and License Plate process will start again from the field in error.
  - b. When error message 5 is displayed the equipment will prompt the inspector with the question: **Is the VIN greater than 17 characters? Yes or No.** If the VIN is greater than 17 characters then proceed to display prompt 4. If the VIN is not greater than 17 characters then restart the VIN process from the beginning.

## Pennsylvania Analytical System (PAS) – OBD (Stand Alone) Display and Program Requirements

---



---

- c. When error message 6 is displayed the equipment will prompt the inspector with the question: **Is the VIN less than 17 characters? Yes or No.** If the VIN is less than 17 characters then proceed to display prompt 4. If the VIN is not less than 17 characters then restart the VIN process from the beginning.
- d. Error message 8 will be displayed if any of the following characters are typed when entering the VIN (“I”, “O”, or “Q” )
- e. The equipment will not allow entry or proceed to the next display prompt until proper entry is obtained or the inspection is aborted. If after 3 data entry attempts on each field, no match is made, the equipment will abort the inspection procedure. No record will be written and nothing will print.
- f. Error message 7 is displayed if an inspector enters a title number less than 5 characters.
- g. If the equipment receives proper input from the keyboard the inspector will be shown display prompt 8.
- h. If the inspector answers ‘NO’ to prompt 8, the equipment will clear all fields and restart the VIN, Title and License Plate data entry process.

### 3.9 VIID Communications

- A. The PAS will attempt the initial VIID contact immediately after entering the VIN, title and license plate number of the vehicle to be inspected. Contact will be attempted for every emissions inspection. Following confirmation of the VIN, title and vehicle license plate number, the equipment will automatically initiate a connection to the VIID.
  - 1. Display Prompt:
    - a. **PERFORMING NETWORK ACCESS, PLEASE WAIT**
- B. The equipment will access the VIID URL and wait for a response from the VIID. If after 45 seconds the equipment doesn’t receive a response from the VIID the equipment will retry.
  - 1. The equipment will make a total of two (2) attempts to connect to the VIID. If VIID communications have not been achieved, the equipment will proceed with the emissions inspection without connecting to the VIID.
  - 2. At the end of a second unsuccessful attempt, the equipment will display the following prompt:
    - a. **CANNOT ACCESS NETWORK. PROCEED WITH THE EMISSIONS TEST.**
  - 3. Programming Criteria:
    - a. In such an event, the equipment will proceed with the inspection in the same manner as if a “No Match” message has been received following the second VIID access attempt. The equipment will enable the inspector to enter the vehicle information (Year, Make, Model, etc.) into the equipment.
- C. Each unit will be allotted a certain number of Emissions Tests that can be performed without VIID contact over a period of time. Both the number of no contacts and the number of days over which they are allotted will be sent from the VIID to the equipment. The equipment will record the data in the STATION.DAT file. If either condition is exceeded the equipment will be locked out from performing any additional tests, sticker issuances, or vehicle inspection history reports until communication with the VIID is reestablished and a data file refresh is completed.
  - 1. For most stations, the initial allowance in the STATION.DAT file will be 100 tests or 30 days whichever comes first.

## Pennsylvania Analytical System (PAS) – OBD (Stand Alone) Display and Program Requirements

---



---

2. Any failure in the communications session at the start of the emissions test will be the only point that will be counted as a communications failure for the purpose of incrementing the running total. For further clarification refer to section 2.11(B).
3. If the equipment is locked out display the following message:
  - a. **COMMUNICATION SECURITY VIOLATION. TOO MANY EMISSIONS TESTS SINCE LAST COMMUNICATION WITH THE VIID. THE INSPECTION CANNOT PROCEED, PERFORM DATA FILE REFRESH.**
- D. If security log in fails, the VIID will send the following message to the equipment and the equipment will display the following message:
  1. **COMMUNICATION SECURITY VIOLATION - INCORRECT IDENTIFICATION PASSWORD. CONTACT TECHNICAL SUPPORT IF THIS PROBLEM PERSISTS.**
  2. The inspector will note the violation and continue the test.
- E. After connecting to the VIID, the equipment will transmit at a minimum the following data:
  1. VIN/Title Number/License Plate number;
  2. Stored emissions test records, if any;
  3. Calibration records, if applicable;
  4. Sticker records, if any;
  5. Audit records, if any;
  6. Technician information;
  7. VRT version date and the number of records; and
  8. Request Current Lockout Status.
- F. **Programming Criteria:**
  1. If a vehicle match is found, the VIID will transmit to the equipment, via EIS.REC, the following information for the vehicle under test, in addition to any other pending transactions. This data can be verified and confirmed/changed by the inspector on the vehicle data review screen.
    - a. Vehicle Model Year
    - b. Vehicle Body Type
    - c. Vehicle Standards Type Code
    - d. GVWR
    - e. Vehicle Make
    - f. Vehicle Model Name
    - g. Number of Cylinders
    - h. Engine Size (cc)
    - i. Transmission Type
    - j. Fuel Type
    - k. County of Registration
    - l. Previous DLC Test Result (if available)

## Pennsylvania Analytical System (PAS) – OBD (Stand Alone) Display and Program Requirements

---



---

- m. Previous Odometer Reading (if available)
  - n. Previous inspection date (if available)
  - o. Previous overall inspection result (if available)
  - p. VID ID
- 2. Once a match has been made and the vehicle data has been transferred from the VIID to the equipment no changes or corrections are allowed to the VIN, title or license plate number. If changes or corrections have to be made, the inspector must abort the inspection. The new test will again require entry of correct VIN, title and license plate number.
- 3. If a “No Match” condition is returned by the VIID on the first attempt (note: attempts are to be counted by the equipment) for a Pennsylvania-licensed vehicle, then the equipment will prompt the inspector as follows:
  - a. This message will not be displayed and the test will proceed if
    - 1) Two VIID attempts have already been made on VIN/title/license plate.
    - 2) The initial attempt was based on data scanned from a PENNDOT registration credential.
    - 3) **Display Prompts:**
      - a) **Display VIN, Title and Plate**
      - b) ***NO VEHICLE MATCH HAS BEEN FOUND. VERIFY THAT THE VIN, TITLE AND LICENSE PLATE HAVE BEEN ENTERED CORRECTLY. MAKE ANY NECESSARY CHANGES AND PRESS (function key) TO PROCEED.***
      - c) The equipment will allow the inspector to reenter the VIN, title and/or vehicle license plate number, and after such changes the equipment will prompt the inspector to press a “Function Key” to initiate a second attempt to the VIID. If no changes are made, the “Function key” will cause the test to proceed directly to manual vehicle data entry.
  - b. If “No Match” is found after two attempts, then the equipment will proceed with the emissions inspection in accordance with the “No Match” criteria. The equipment must be able to differentiate between the first and the second “**No Match**” message. The equipment will display the following message:
    - 1) ***NO MATCH OF THIS VEHICLE INFORMATION HAS BEEN FOUND. PLEASE ADVISE THE CONSUMER THAT NO VEHICLE DATA MATCH WAS MADE WITH THE COMMONWEALTH REGISTRATION RECORDS. THE CONSUMER SHOULD RETAIN THE VEHICLE INSPECTION REPORT FOR FUTURE REFERENCE DURING ANY REGISTRATION PROCESS. PLEASE PROCEED WITH THE EMISSIONS TEST.***
- G. As the low level communication interface protocol makes contact with the VIID and establishes a session, the VIID will respond with stored transaction and messages (appropriate response bits), which are waiting for transmission to the equipment. These messages are listed below. The automatic transaction and message updates will occur on every session initiated by the equipment except during communications system test transaction. The communications interface will provide the equipment application with the appropriate status information to determine which transactions occurred following VIID session initiation.
  - 1. Receive Vehicle Data
  - 2. Receive TSB and Recall Information
  - 3. Receive System Date/Time Update

## Pennsylvania Analytical System (PAS) – OBD (Stand Alone) Display and Program Requirements

---



---

4. Receive Lockout Status
5. Receive Inspector Data (TECH.DAT)
6. Receive Lockout Data (LOCKOUT.DAT)
7. Receive PENNDOT Messages
8. Receive Program Data (SYSTEM.DAT)
9. Receive Updates to the Vehicle Reference Table (VRT.DAT) The VRT.DAT file updates will be transmitted and processed on the second contact to the VIID after the completion of the current emission test. If the updates are transmitted on the first contact, the updating will be processed at the completion of the current emission test.
10. Receive Updates to the County Table (COUNTY.DAT)

### 3.10 Receive TSB and Recall Information

- A. Emissions related Technical Service Bulletins (TSB) or recall information, if available from the VIID, should be transmitted to the equipment for use during the emission inspection.
- B. The initial information that will appear on the equipment screen will be the pertinent vehicle information as provided by the VIID. The inspector will review this information to ensure its accuracy. If manufacturer issued emission-related TSB or recall information is transmitted by the VIID, the equipment will display the emission-related information in the following format prior to continuing with the inspection.
- C. The equipment will provide the option to print a summary of the TSB and emissions recall information at time of display.
- D. Examples:

**\*\*\* EMISSION-RELATED TSB INFORMATION \*\*\***

*TSB #: 81-4 Make: AMC*

*Reference: Motor TSB Manual Model(s): Concord*

*Edition: 1981-83 Domestic Model Year (range): 1981 Page #: 23*

*Affected Vehicles: All 1981 49-State high altitude AMC Concorde with four-cylinder engine and M/T.*

*Defects: EGR valve changed to improve performance.*

*Fix: Install appropriate EGR valve and forward delay valve.*

**\*\*\* EMISSIONS RECALL \*\*\***

*Model Year: 1982 Engine Family: FAD1.6V6FBC2*

*Make: AUDI Recall Initiated: 06/01/90*

## Pennsylvania Analytical System (PAS) – OBD (Stand Alone) Display and Program Requirements

---



---

*Engine Size: 1.6L Recall #: GL*

*Model: 4000 Source: MFG/CARB*

*Class: PC*

*Affected Vehicles: ALL*

*Defects: AIR/FUEL CHECKING PROCEDURES ON EMISSION LABEL ARE NOT CONSISTENT WITH INSTRUCTIONS IN THE REPAIR MANUAL.*

*Fix:*

*REPLACE LABEL. NEW LABEL SHOULD BE WHITE WITH BLACK LETTERS AND SHOULD NOT HAVE AIR/FUEL MIXTURE CHECKING PROCEDURE.*

- E. For vehicles that fail the emission inspection, a summary of the TSB and recall information consisting of the first line (beginning with "&", no quotes) of the recall message, will be printed on the VIR.

### 3.11 Verify Test Type

This section will be processed to allow the PAS Software to warn the inspector that they may have entered an incorrect value. The inspector will be the final determining factor when determining the Test Type.

- A. If the current test type has been selected as "I" (Initial) and the data returned from the VIID or EIS.HST indicates that the previous inspection failed, the inspector will be advised and prompted to adjust the test type to "After Repairs".

#### 1. Display Prompts:

- a. **A previous initial inspection is on file for this vehicle. This inspection may be an after repairs test.**
- b. **The motorist may be entitled to a no charge re-inspection at your station.**
- c. **If no repairs have been performed or no repair form is available you may want to abort this inspection and inquire about repairs.**
- d. **Do you want to change the inspection to an After Repairs Inspection? Yes or No**

#### 2. Programming Criteria:

- a. If the value in the Paid Test field of VIN.REC is "F" or "U", display prompt 2.
- b. If a Previous Test Date is found on the data from the VIID or EIS.HST and Previous Overall Inspection Result is "F", the program will display prompts 1, 2, 3, and 4.
- c. If a Previous Inspection Date is found and Previous Overall Inspection Result is "P", the program will continue to the next section.
- d. If the response to display prompt 4 is 'Yes', the "I" test will be changed to an "R" test and the inspection will follow the normal "R" test procedures.
- e. If the response to display prompt 4 is 'NO', then continue to Receive Prior Years Information section.

## Pennsylvania Analytical System (PAS) – OBD (Stand Alone) Display and Program Requirements

---



---

- B. If the current test type has been selected as “R” (After Repairs) and the data returned from the VIID or EIS.HST indicate that no previous failed inspection (not passing) is on file for this vehicle the inspector will be advised and prompted to verify the test type is “After Repairs”.

### 1. Display Prompts:

- a. **No previous inspection information is on file for this vehicle. Please verify that repairs have been performed. If no repairs have been performed or no repair form is available you may want to abort this inspection by pressing the escape key. This inspection may be an initial test.**
- b. **Do you want to change the inspection to an Initial Inspection? Yes or No**

### 2. Programming Criteria:

- a. If the value in the Paid Test field of VIN.REC is “P”, display prompts 1 and 2.
- b. If a Previous Inspection Date is not found, the program will display prompts 1 and 2.
- c. If the response to display prompt 2 is ‘Yes’, the “R” test will be changed to an “I” test and the inspection will follow the normal “I” test procedures.
- d. If the response to display prompt 2 is ‘NO’, then continue to Receive Prior Years Information section.

## 3.12 Receive Prior Years Information

- A. Create a new EIS.DAT record and initialize the record to spaces or zeros depending on the data type.
- B. The following vehicle data in the proper test record format, if available, will be transmitted by the VIID via EIS.REC to the equipment and used as defaults. In some cases, the VIID will return an EIS.REC file that only contains vehicle information. The equipment is required to reference and use vehicle data in the EIS.REC file received from the VIID as defaults, even if the EIS.REC is not a complete test record. This data can be verified and confirmed/changed by the inspector on vehicle data review screen.

1. Vehicle Model Year
2. Vehicle Body Type
3. Vehicle Standards Type Code
4. GVWR
5. Vehicle Make
6. Vehicle Model Name
7. Number of Cylinders
8. Engine Size (cc)
9. Transmission Type
10. Fuel Type
11. County of Registration
12. Previous DLC Test Result (if available)
13. Previous Odometer Reading (if available)
14. Previous inspection date (if available)
15. Previous overall inspection result (if available)



## Pennsylvania Analytical System (PAS) – OBD (Stand Alone) Display and Program Requirements

---

---

### 16. VID ID

- C. **Failing contact with the VIID**, the equipment will search the EIS.DAT and EIS.HST file for the VIN, title and plate.
  - 1. If a previous vehicle inspection is found then all appropriate vehicle data will be taken for use by the inspection process as though it had been received from the VIID.
- D. If a previous vehicle inspection is found the OBD PAS SOFTWARE program will perform the validations from sections 3.13 through 3.19 and then proceed to section 3.20.

## 3.13 Model Year

- A. Display Prompts:
  - 1. **Enter the vehicle Model Year**
- B. Error Messages:
  - 1. **This vehicle's model year is prior to 1975 and will not be inspected.**
  - 2. **Enter a valid Model Year**
- C. Programming Criteria:
  - 1. Verify that the current vehicle needs to be inspected.
  - 2. Vehicles older than 1975 do not need to be inspected.
  - 3. Allow entry of model year equal to current year plus one (e.g. in 2016: 2016+1 = 2017 as the maximum model year)

## 3.14 Vehicle Make

- A. Display Prompts:
  - 1. **Enter the vehicle Make**
  - 2. **Select the appropriate Make from the list below. If the Make is not listed, type in the full Make name.**
- B. Error Messages:
  - 1. **No Make has been selected – Try Again**
- C. Programming Criteria:
  - 1. Vehicle make names will be entered by a method, approved by PENNDOT, which maximizes user friendliness, preferably via direct cursor selection or the first few letters of the name.
  - 2. A list, from the VRT.DAT file, will be displayed of all Make names for the previously entered model year.
    - a. For example, the inspector should be able to enter the first letter of the vehicle make which would cause the cursor to go to the first make beginning with that letter on the list which would also be highlighted.
    - b. If that is the correct make, the "enter" key would be pressed. If this is not the correct make, the inspector would at least be close and only have to move the cursor a short distance to the right one.
    - c. Duplicate make-names for the model year should not be displayed.
  - 3. A minimum of two characters must be entered to be considered a valid make name.

**Pennsylvania Analytical System (PAS) – OBD (Stand Alone) Display and Program Requirements**

---

**3.15 Vehicle Model**

- A. Display Prompts:
- 1. Enter the full Model Name**
  - 2. Select the appropriate Model from the list below. If the Model is not listed, type in the full Model Name.**
- B. Error Messages:
- 1. No Model has been entered – Try Again**
- C. Programming Criteria:
- Vehicle model names will be entered by a method, approved by PENNDOT, which maximizes user friendliness, preferably via direct cursor selection or the first few letters of the model name.
  - A list, from the VRT.DAT file, will be displayed of all Model names for the previously entered model year & Make name.
    - The list should also display the Vehicle Body Type (1 – 6) alongside the model name.
    - For example, the inspector should be able to enter the first letter of the vehicle model, which would cause the cursor to go to the first make model on the list that would also be highlighted.
    - If that were the correct model, the "enter" key would be pressed. If this is not the correct model, the inspector would at least be close and only have to move the cursor a short distance to the right one.
  - A minimum of one character must be entered (allowing for model names with a single character to be entered, such as Mazda 6, Saturn L, etc.).
  - When the PAS performs the model search in the Vehicle Reference Table (VRT), duplicate models with duplicate Vehicle Body Type should not be displayed. For example, for a 1978 Chevrolet, the VRT may contain several listings for "CAMARO," "CHEVELLE," "CORVETTE," etc. The PAS should only display each unique name and Vehicle Body Type once. This does not apply to model names that contain additional information that makes it unique. For example, the VRT may list "CORVETTE L-48" and "CORVETTE L-82." Those model listings are unique and would both be listed.

**3.16 Vehicle Body Type**

- A. Display Prompts:
- 1. Select the Appropriate Vehicle Body Type From The List Below:**
    - 1. SEDAN**
    - 2. STATION WAGON**
    - 3. PICKUP**
    - 4. SPORT/UTILITY VEHICLE**
    - 5. MINIVAN**
    - 6. FULL-SIZE VAN**
- Please note the Vehicle Body Type may not match what is listed on the Registration Card.**
- B. Error Messages:
- 1. No Body Style Type has been selected – Try Again**

---

**Pennsylvania Analytical System (PAS) – OBD (Stand Alone) Display and Program Requirements**

---

**C. Programming Criteria:**

1. If the model year, make and model entered describe a unique vehicle (i.e., a single VRT Row number), the body type may be taken directly from the VRT record and the inspector only needs to approve the body style type.
2. The Vehicle Body Type Code will be used to determine the vehicle test standards group (Passenger car or Truck)
  - a. Vehicle body type codes 1 and 2 will be tested as Passenger cars, while body type code 3-6 will be tested as Trucks. The Vehicle Standards Type Code will be stored in the test record.
  - b. Acceptable vehicle test standards group codes are:
    - 1) "P" = PASSENGER CAR
    - 2) "T" = TRUCK

**3.17 Gross Vehicle Weight Rating (GVWR)****A. If Vehicle Standards Type is "T" (Truck) then Prompt for GVWR****B. Display Prompts:**

- 1. Please enter the vehicle's Gross Vehicle Weight Rating (GVWR) as indicated on the vehicle's permanent identification plate.**
- 2. DO NOT INCLUDE DECIMAL POINTS OR COMMAS.**
- 3. REFER TO THE VEHICLE'S GVWR PLATE FOR THE CORRECT VALUE.**

**C. Error Messages:**

- 1. No Value Has Been Entered - Try Again**
- 2. Too Many Characters Have Been Entered - Try Again**
- 3. Gross Vehicle Weight Rating Must Be At Least 2,500 lbs. - Try Again**
- 4. The GVWR of this vehicle is greater than 9,000 pounds. The current emissions program does not inspect vehicles in this weight class.**

**D. Programming Criteria:**

1. GVWR must be printed on the VIR.
2. If GVWR of the vehicle is greater than 9,000 pounds, the program will display error message 4 and then return to the Vehicle Emissions Inspection Menu.

**3.18 County of Registration****A. Display Prompts:**

- 1. Enter the vehicle County of Registration.**
- 2. Select the appropriate County from the list below.**

**B. Error Messages:**

- 1. No County has been selected – Try Again**

## Pennsylvania Analytical System (PAS) – OBD (Stand Alone) Display and Program Requirements

---



---

### C. Programming Criteria:

1. The PAS equipment has three ways of obtaining the County of Registration.
  - a. Entered by a method, approved by PENNDOT, which maximizes user friendliness, preferably via direct cursor selection or the County Code.
  - b. Scanned from the BMV Registration Credential. The 'ZA' subsection of the BMV Registration Credential Bar Code contains the County Code field with 'ZAA' as the identifier.
  - c. Returned from the VIID with the previous information. **If a "No Match" status is returned from the VIID**, the equipment will search the EIS.DAT and EIS.HST file for a match on the VIN, title and plate for the previous County information.
2. If the PAS equipment has obtained the County Code from more than one of the previous three sources for any single emission inspection, the following criteria will be used to determine which County Code value is used.
  - a. If a BMV Registration Credential Bar Code was scanned, the County Code will be initially defaulted to the value from the bar code.
  - b. If no BMV Registration Credential Bar Code was scanned, but County information was returned by the VIID, the County Code will initially be defaulted to value returned by the VIID.
  - c. Any time an inspector enters or changes the county code value, the PAS software will always use that value for the emission inspection.
3. If county code field has no value after the BMV Registration Credential Bar Code scan and VIID / EIS.DAT / EIS.HST check, the PAS software will require the inspector to manually enter the county code.
4. When manually entering the county code, a list from the COUNTY.DAT file, will be displayed of all County Codes & County names contained in the file. Please note that the Emissions Test Required field from the COUNTY.DAT file is not to be displayed.
  - a. If a County Code was retrieved from a BMV Registration Credential Bar Code or received from the VIID, the equipment will highlight the appropriate county from the list.
  - b. In addition to the list of PA counties in the file there are four additional file entries which will be treated as any other county:
    - 1) Selection of "96" will make the Emissions Test Required equal to Visual only.
    - 2) Selection of "97" will make the Emissions Test Required equal to OBD only.
    - 3) Selection of "98" will make the Emissions Test Required equal to OBD for vehicles with a model year greater than 1995 or TSI for vehicles with a model year prior to 1996.
    - 4) Selection of "99" will make the Emissions Test Required equal to OBD for vehicles with a model year greater than 1995 or ASM for vehicles with a model year prior to 1996.
  - c. For example, the inspector should be able to enter the numeric County Code which would cause the cursor to go to the appropriate County name on the list which would also be highlighted.
  - d. If the correct County was highlighted, the "enter" key would be pressed, otherwise, the inspector would be able to move the cursor to the right one.
5. The Emissions Test required will be taken from the COUNTY.DAT file for the selected County.

## Pennsylvania Analytical System (PAS) – OBD (Stand Alone) Display and Program Requirements

---



---

6. If County of Registration Emission Test Required value from COUNTY.DAT equals "T" or "A" and the vehicle's Model Year is prior to 1996.
  - a. If the vehicle's model year is less than the current year minus 25 the program will proceed to Additional Vehicle Information Data Entry.
  - b. If the vehicle's model year is equal to or greater than the current year minus 25 the equipment will display the message **"THIS VEHICLE REQUIRES AN ASM OR TSI TEST. THE INSPECTION CANNOT PROCEED"** and the program will proceed to TEST EVALUATION and MESSAGES section.
7. If County of Registration Emission Test Required value, from COUNTY.DAT equals "T" or "A" and the vehicle's Model Year is after 1995 and the Vehicle Standards Type is "T" (Truck) and the GVWR is equal to or greater than 8501 and less than or equal to 9000 pounds the equipment will display the message **"THIS VEHICLE REQUIRES AN ASM OR TSI TEST. THE INSPECTION CANNOT PROCEED"** and the program will proceed to TEST EVALUATION and MESSAGES section.
8. If County of Registration Emission Test Required value, from COUNTY.DAT does not equal "O", "V", "T", or "A" the equipment will display the message **"THIS VEHICLE IS REGISTERED IN A COUNTY THAT DOES NOT REQUIRE AN EMISSION TEST. PRESS THE ESCAPE KEY TO ABORT THE TEST OR SELECT THE REQUESTED EMISSIONS TEST TO BE PERFORMED."** and the program will allow the inspector to select a different county from the COUNTY.DAT file.
9. Verify that the emissions inspector is certified to perform the emissions test requested. If an OBD inspection is being performed, inspectors with "EV", "CV", and "MV" emissions certifications are not allowed to perform the inspection, the equipment will display the message **"THIS VEHICLE IS REGISTERED IN A COUNTY THAT REQUIRES AN OBD EMISSION TEST. THE INSPECTOR IS NOT CERTIFIED TO PERFORM THE OBD INSPECTION."** and the inspection will be aborted.

### 3.19 Additional Vehicle Data Entry

#### A. Display Prompts:

1. Enter the Number of Cylinders. For Rotary engines, enter "R".
2. Enter the Vehicle's Engine Size followed by one of the following codes:
  - a. I = Cubic Inches
  - b. L = Liters
  - c. C = Cubic Centimeters
3. Enter the Vehicle Transmission Type:
  - a. M = Manual
  - b. A = Automatic
4. Please select the code that indicates the primary fuel type for the vehicle from the following list:
  - a. G GASOLINE
  - b. B BI-FUELED (alternate fuel and gasoline)
  - c. P LIQUID PROPANE GAS (LPG)
  - d. N LIQUID/COMPRESSED NATURAL GAS (LNG/CNG)
  - e. M METHANOL (greater than 20%)

## Pennsylvania Analytical System (PAS) – OBD (Stand Alone) Display and Program Requirements

- f. **E ETHANOL (greater than 20%)**
- g. **A BI-FUELED (alternate fuel only)**
- h. **D DIESEL**
- i. **L ELECTRIC**

5. Please enter the vehicle's odometer reading as it appears on the odometer:

- a. **DO NOT INCLUDE THE TENTH OF A MILE INDICATOR OR DECIMAL POINT IF PRESENT.**
- b. **PLEASE CHECK SAFETY STICKER TO DETERMINE OPERATING MILEAGE IN THE PREVIOUS YEAR – IF THE VEHICLE HAS BEEN OPERATED LESS THAN 5,000 MILES THE VEHICLE IS EXEMPT FROM EMISSIONS TESTING – ABORT THE TEST AND ISSUE EXEMPT STICKER**

B. Error Messages:

- 1. **No Value has been entered – Try Again**
- 2. **Invalid Number of Cylinders – Try Again**
- 3. **A valid Engine Size or Units Code has not been entered – Try Again**
- 4. **Engine Size is less than 300 cc – Be sure this is correct.**
- 5. **Engine Size is greater than 610 CID (9.999 Liters) – Is this correct? Yes or No**
- 6. **A minimum of one numeric entry is required for the Odometer reading; do not enter tenths of a mile.**

C. Programming Criteria:

1. Number of Cylinders

- a. The minimum Number of Cylinders is '1' and the maximum is '16.' Any entries outside of "1-16" or "R" will be rejected by the system.
- b. For Rotary engines, the inspector shall be prompted to enter an "R".

2. Engine Size

- a. Entry shall be designed to allow up to five characters to be the engine size plus one character for the units code. Unit used for the engine size shall be "L" for liters, "I" for cubic inches and "C" for cubic centimeters. The analyzer software shall be designed so that only an I, L or C can be entered for the units.
- b. Decimal point entry must be allowed for Liter size entries.
- c. Although the internal storage on the EIS.DAT record is set to cubic centimeters and any entry shall be automatically converted to cubic centimeters if required, the display shall remain in the original units entered.
- d. To convert from cubic inches to cubic centimeters, multiply by 16.387. To convert from liters to cubic centimeters, multiply by 1000. Products shall be rounded to the nearest cubic centimeter. If a correct engine size is greater than 9999, the value of 9999 will be stored on the EIS.DAT record and the entered value will be displayed on the VIR otherwise the program will allow the engine size to be corrected.

3. Fuel Type Code

- a. The selection list default code will be "G".
- b. Any fuel codes other than 'G' or 'B' will cause the test to abort

---

**Pennsylvania Analytical System (PAS) – OBD (Stand Alone) Display and Program Requirements**

---

- 1) Display Message: **ONLY GAS POWERED VEHICLES AND BI-FUELED VEHICLES OPERATING ON GAS ARE SUBJECT TO AN EMISSIONS INSPECTION**
- 2) Inspection will end, no record will be written, nothing will print.
4. Odometer Reading
  - a. If the odometer reading is less than 5,000 miles, display the following:
    - 1) Display Prompts:
      - a) **Has this vehicle ever been registered before? YES or NO**
      - b) If the answer is **No** then display:
        - i. **Confirm – the vehicle has less than 5,000 miles on the odometer and has never been registered anywhere before? YES or NO**
        - ii. If the answer is **YES** then display following message and allow the inspector to read it, then abort the inspection, do not write record, and do not print anything.
        - iii. Message: ***THIS VEHICLE IS EXEMPT FROM THIS INSPECTION BECAUSE IT IS A NEW REGISTRATION WITH LESS THAN 5,000 OPERATED MILES. GO TO THE STICKER MENU AND ISSUE AN EXEMPT STICKER TO THIS VEHICLE.***
      - c) If the answer is **YES** then proceed to the next section.

### **3.20 Vehicle Data Entry Confirmation**

- A. The PAS will display all previous entries and allow the inspector to edit the information. The software will be designed to require the inspector to confirm that previous entries are correct before allowing the emissions test to be initiated. If the vehicle information is retrieved from the VIID or EIS.HST, the odometer reading must be reentered to ensure that the value is the most current.
- B. Display Prompts:
  1. **Review the vehicle information entries for accuracy. If the information is correct, press Continue. If not, make the necessary corrections.**
  2. **Make**
  3. **Model Year**
  4. **Vehicle Model**
  5. **Body Type**
  6. **County of Registration**
  7. **Fuel Type**
  8. **Odometer Reading**
  9. **GVWR**
  10. **Number of Cylinders**
  11. **Engine Size**
  12. **Transmission Type**

---

**Pennsylvania Analytical System (PAS) – OBD (Stand Alone) Display and Program Requirements**

---

**3.21 Visual Inspection Process**

This test is ONLY performed if:

1. The vehicle is registered in an OBD county and the Model Year is greater than or equal to 1975 and is prior to 1996.
2. The vehicle is registered in a Visual county.
3. The vehicle is registered in an ASM or TSI county and the model year is less than the current year minus 25.
4. The vehicle is registered in an OBD county and the Vehicle Standards Type is “T” (Truck) and the GVWR is equal to or greater than 8501 and less than or equal to 9000 pounds.

A. Display Prompts:

**1. Tampering Inspection Checklist**

- a. **Air Injection System**
- b. **PCV System**
- c. **Catalytic Converter**
- d. **EGR System**
- e. **Fuel Inlet Restrictor**
- f. **Fuel Evaporation Control System**

**2. Enter P = Pass, F = Fail, or N = Not Applicable for each item.**

**3. Press Continue to Proceed.**

B. Error Messages:

**1. Invalid Entry – Try Again**

**2. A Valid Entry is required for this field – Try Again**

C. Programming Criteria:

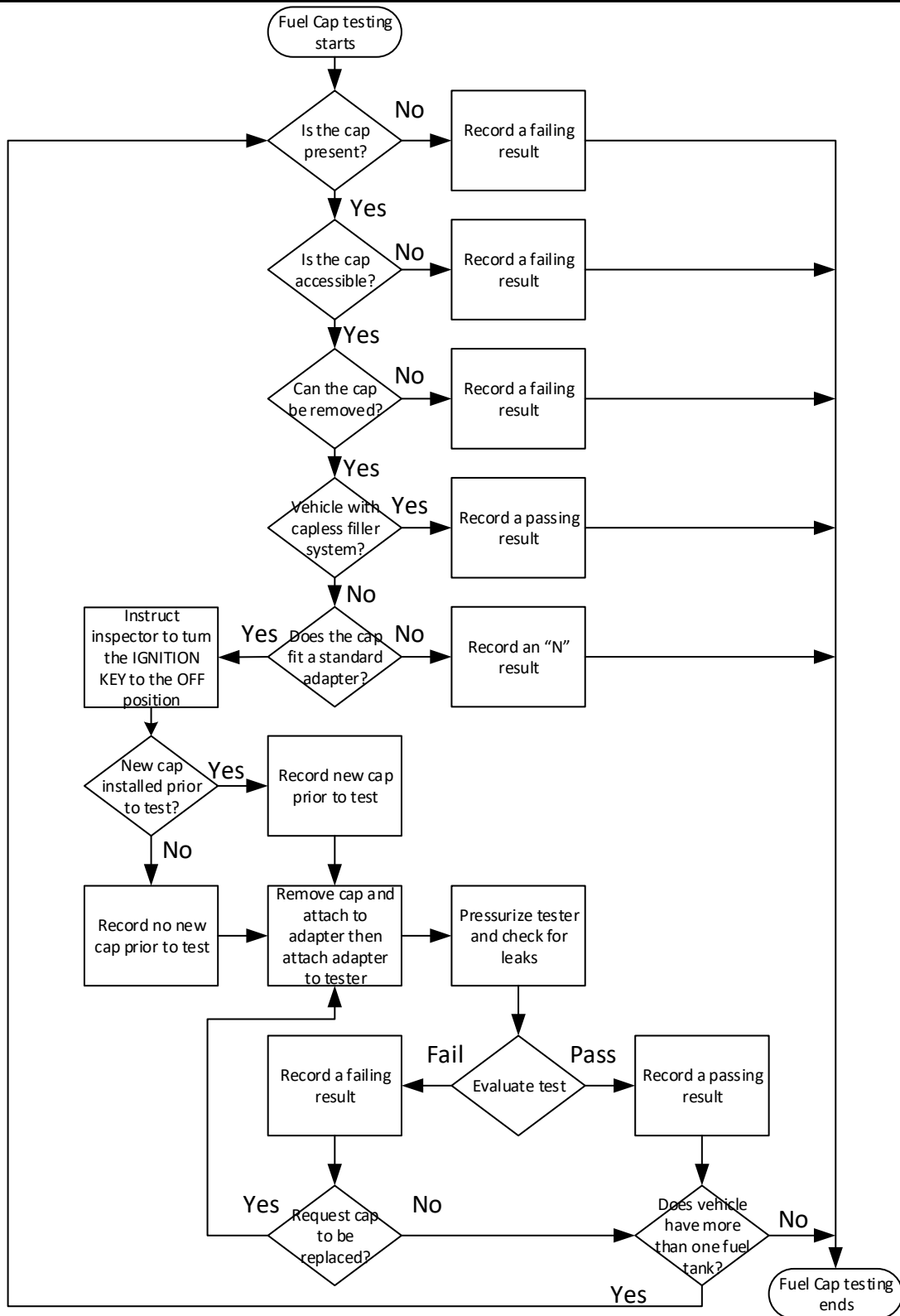
1. The equipment will display the Tampering Inspection Checklist. The equipment will then require entry of a P, F, or N for each remaining item. If the inspector determines that a component requested is not applicable to this vehicle, he / she may enter an **N** in the appropriate field. The test will not proceed unless each entry has a value.
2. If the inspector fails any component, the overall test result will be a “**FAIL**” and the Overall Visual Inspection Result field of the EIS.DAT will be set to ‘F’.
3. For the purposes of determining whether a vehicle has passed the inspection overall, entries of “**N**” (not applicable) for any of the components will be considered the equivalent of a PASS. If all visual components pass the Overall Visual Inspection Result field of the EIS.DAT will be set to ‘P’.
4. Set the TEST ROUTINE PERFORMED field in EIS.DAT to “V”.

**3.22 Fuel Cap Test Procedure**

A. General



# Pennsylvania Analytical System (PAS) – OBD (Stand Alone) Display and Program Requirements



1. All vehicles subject to an emissions test require a Fuel Cap Pressure Test.

## Pennsylvania Analytical System (PAS) – OBD (Stand Alone) Display and Program Requirements

---



---

2. The PAS must be able to test the fuel cap separately. The basic testing procedure is as follows. PENNDOT may accept alternative testing procedures, such as provisions for fast pass, if documentation of equivalence is presented.
3. The fuel cap is connected to an adapter on a separate fuel cap testing apparatus and the fuel cap is pressurized to a pressure of  $28 \pm 1.0$  inches of water. The flow is then turned off and the decay of pressure monitored for ten seconds. If at any time during the ten seconds that the fuel cap testing apparatus is being monitored the pressure drops from the starting pressure by more than 6 inches of water, the test will be terminated and the vehicle will be determined to fail the fuel cap test; otherwise the vehicle will pass the test.
4. Alternatively, the fuel cap leak rate may be compared to an orifice with a National Institute of Standards and Technology traceable flow rate which will result in a pass/fail flow rate threshold of 60 cubic centimeters per minute of air at 30 inches of water column. If the leak rate exceeds 60 cubic centimeters per minute at a pressure of 30 inches of water column, the cap will fail the test.
5. Additionally, a vehicle will fail the test if fuel cap is missing.

### B. Check Fuel Cap Status

1. Display Prompts:
  - a. **Gas Cap Test Status – Please Answer The Following Questions**
    - 1) **Is the vehicle's Fuel Cap present? Yes or No**
    - 2) **Is the Fuel Cap accessible? Yes or No**
    - 3) **Can the Fuel Cap be removed? Yes or No**
    - 4) **Does the vehicle have a Capless Filler System? Yes or No**
    - 5) **Does it fit a standard adapter? Yes or No**
2. Error Messages:
  - a. **Invalid Entry – Try Again**
3. Programming Criteria:
  - a. If *No* is entered for display prompt one (1), store the item number one (1) to the **Fuel Cap Status** field of **EIS.DAT**. Write an *F* to **Overall Fuel Cap Test Result** field of **EIS.DAT** and **Overall Visual Inspection Result** field of the **EIS.DAT**. Additionally, no Fuel Cap pressure test will be performed.
  - b. If *Yes* is entered for display prompt one (1), proceed to test display prompt two (2) above.
  - c. If *No* is entered for display prompt two (2), then store the item number two (2) to the **Fuel Cap Status** field of **EIS.DAT**. Write an *F* to **Overall Fuel Cap Test Result** field of **EIS.DAT** and **Overall Visual Inspection Result** field of the **EIS.DAT**. Additionally, no Fuel Cap pressure test will be performed.
  - d. If *Yes* is entered for display prompt two (2), proceed to test display prompt three (3) above.
  - e. If *No* is entered for display prompt three (3), then store the item number three (3) to the **Fuel Cap Status** field of **EIS.DAT**. Write an *F* to **Overall Fuel Cap Test Result** field of **EIS.DAT** and **Overall Visual Inspection Result** field of the **EIS.DAT**. Additionally, no Fuel Cap pressure test will be performed.
  - f. If *Yes* is entered for display prompt three (3), proceed to test display prompt four (4) above.

## Pennsylvania Analytical System (PAS) – OBD (Stand Alone) Display and Program Requirements

---



---

- g. If 'Yes' is entered for display prompt four (4), store the item number five (5) to the **Fuel Cap Status** field of **EIS.DAT**. Write a **P** to **Overall Fuel Cap Test Result** field of **EIS.DAT** and **Overall Visual Inspection Result** field of the **EIS.DAT**. Additionally, no Fuel Cap pressure test will be performed.
- h. If **No** is entered for display prompt four (4), proceed to test display prompt five (5) above.
- i. If **No** is entered for display prompt five (5), then store the item number four (4) to the **Fuel Cap Status** field of **EIS.DAT**. Write an **N** to **Overall Fuel Cap Test Result** field of **EIS.DAT**. If the **Overall Visual Inspection Result** field of the **EIS.DAT** is not 'F', the program will record a 'P' in the **Overall Visual Inspection Result** field of the **EIS.DAT**. Additionally, no Fuel Cap pressure test will be performed and Overall Inspection Result will disregard the Fuel Cap Pressure Test.
- j. If **Yes** is entered for display prompt five (5), then store the item number nine (9) to the **Fuel Cap Status** field of **EIS.DAT** and proceed to the Fuel Cap pressure Test sequence below.

### C. Fuel Cap Pressure Test sequence

#### 1. Display Prompts:

- a. **Turn the IGNITION KEY OFF**
- b. **Was a New Fuel Cap installed immediately prior to start of Test? Yes or No**
- c. **Remove Fuel cap.**
- d. **Select the appropriate Fuel Cap adapter if required**
- e. **Connect the Fuel Cap to the Fuel Cap adapter**
- f. **Connect the Fuel Cap and adapter (if required) to the Fuel Cap pressure tester.**
- g. **Press Continue to begin Fuel Cap pressure test.**
- h. **Fuel Cap Pressure Test in progress**
- i. **Fuel Cap Pressure Test Results: Fuel Cap (P = Pass, F = Fail)**
- j. **Remove the Fuel Cap adapter (if required) and return Fuel Cap to vehicle.**
- k. **Press Continue to Proceed**

#### 2. Programming Criteria:

- a. If **YES** was entered for "**Was a New Fuel Cap installed immediately prior to test?**" write a **Y** (YES) to the **Fuel Cap Replaced Prior to Test** field in **EIS.DAT** and initiate fuel cap pressure test sequence.
- b. If **NO** was entered for "**Was a New Fuel Cap installed immediately prior to test?**" write a **N** (NO) to the **Fuel Cap Replaced Prior to Test** field in **EIS.DAT** and initiate fuel cap pressure test sequence
- c. If the fuel cap meets the pressure requirements above (or alternative requirements approved by PENNDOT), indicate a Pass and record a "**P**" to the **Overall Fuel Cap Test Result** field in **EIS.DAT** and on the VIR. If the **Overall Visual Inspection Result** field of the **EIS.DAT** is not 'F', the program will record a 'P' in the **Overall Visual Inspection Result** field of the **EIS.DAT**. The program will proceed to the "**Does this Vehicle have more than ONE Fuel Tank/Fuel Cap? Yes or No**" prompt.
- d. If the fuel cap does not meet the pressure requirements above (or alternative requirements approved by PENNDOT), indicate a Fail and record an "**F**" to the **Overall Fuel Cap Test Result** field in **EIS.DAT**, **Overall Visual Inspection Result** field of the **EIS.DAT**, and on the VIR and proceed to the "**Did the Customer request that the Fuel Cap be replaced? Yes or No**" prompt.

## Pennsylvania Analytical System (PAS) – OBD (Stand Alone) Display and Program Requirements

---



---

- 1) If any one fuel cap fails, allow **ONLY** one second-chance test per fuel tank. If second chance test results in Fuel Cap Pressure Test Result = F (Fail) then proceed to the **“Does this Vehicle have more than ONE Fuel Tank/Fuel Cap? Yes or No”** prompt.
- 2) Display Prompt:
  - a) **Did the Customer request that the Fuel Cap be replaced? Yes or No**
- 3) Programming Criteria:
  - a) If **NO** is entered indicating Fuel Cap is not replaced then, **write an “N” to the Fuel Cap Replaced During Test field of EIS.DAT** and write an **F** to the **Overall Fuel Cap Test Result** field in **EIS.DAT**, **Overall Visual Inspection Result** field of the **EIS.DAT**, and proceed to **“Does this Vehicle have more than ONE Fuel Tank/Fuel Cap?” Yes or No**.
  - b) If **YES** is entered indicating Fuel Cap is replaced then proceed to **Replace Fuel Cap display prompt** below.
  - c) Display Prompt:
    - i. **Replace Fuel Cap and Press *Continue* to Begin Fuel Cap Pressure test.**
  - d) Programming Criteria:
    - i. Repeat the pressure test as above including determination of PASS/FAIL.
    - ii. Write a **“Y”** to the Fuel Cap Replaced During Test field of EIS.DAT.
- e. Determine if the vehicle has multiple caps.
  - 1) Display Prompt:
    - a) **Does this Vehicle have more than ONE Fuel Tank/Fuel Cap? Yes or No**
  - 2) Programming Criteria:
    - a) Default value will be **No** and proceed to OBD I/M Check Procedure.
    - b) If **YES** is entered, repeat the pressure test as above including determination of PASS/FAIL.
- f. A failure for one cap in a multiple set will be a failure result for all fuel caps. Record the results to the **Overall Fuel Cap Test Result** field in **EIS.DAT**, **Overall Visual Inspection Result** field of the **EIS.DAT**, and on the VIR, and continue with the inspection process. When testing multiple fuel caps, the program will record the results of fuel cap replacement both prior to inspection and during inspection as follows. Once the **Fuel Cap Replaced Prior to Test** field in **EIS.DAT** or **Fuel Cap Replaced during Test** field in **EIS.DAT** is set to a **“Y”** the value will not be overlaid by any additional fuel cap being tested during the current inspection.

### 3.23 OBD I/M Check Procedure

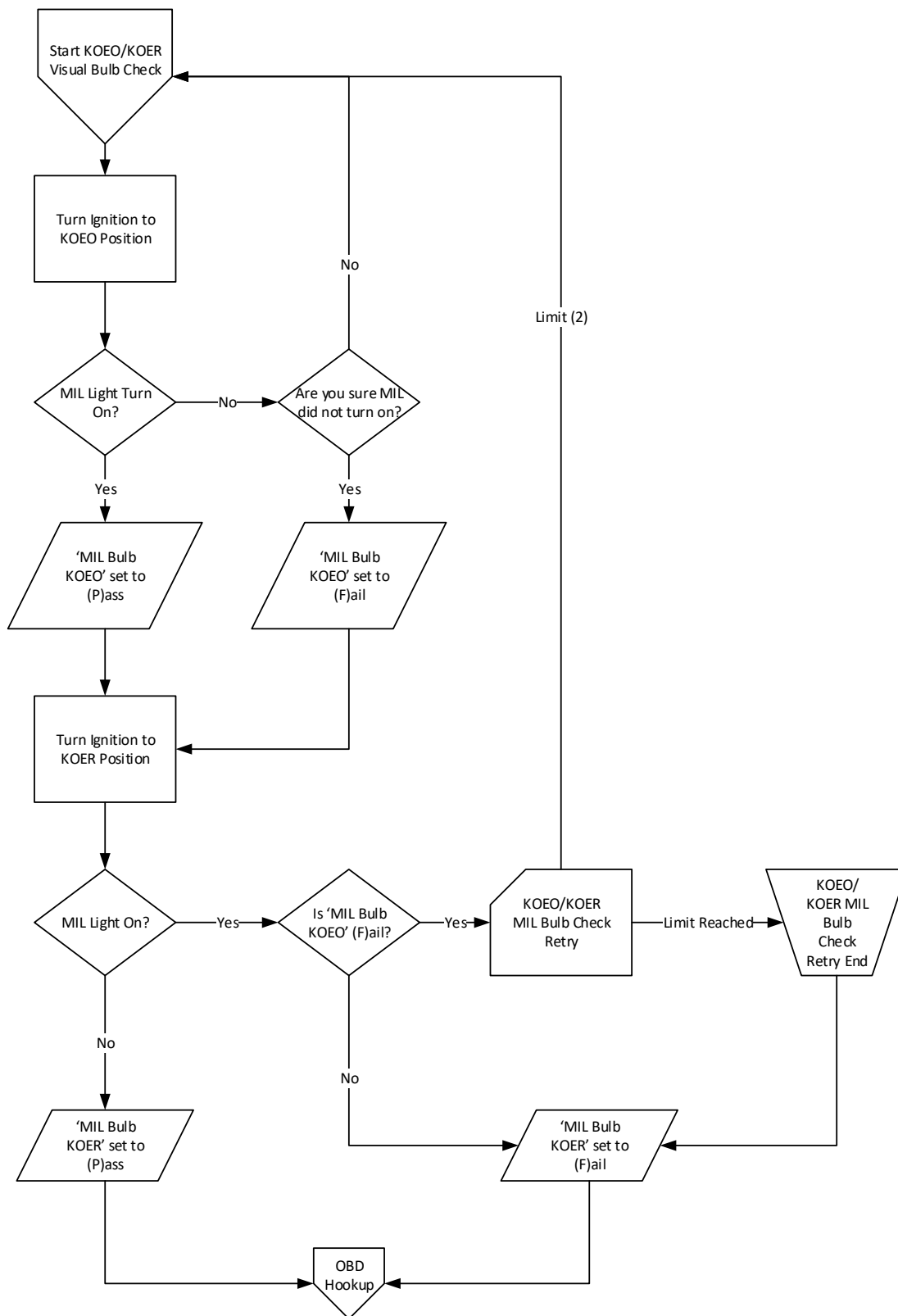
- A. This test is **only** performed if the vehicle’s Model Year is **after** 1995 and is registered in an ASM, OBD, or TSI county.
- B. However if the Vehicle Standards Type is **“T”** (Truck) and the GVWR is equal to or greater than 8501 and less than or equal to 9000 pounds the program will proceed to TEST EVALUATION and MESSAGES section.
- C. Default OBD-I/M Check Fields as soon as the OBD testing sequence is started.
  1. The program will fill the following EIS.DAT fields with **“F”**: MIL BULB KOEO, MIL BULB KOER, and OVERALL TEST RESULT.

## **Pennsylvania Analytical System (PAS) – OBD (Stand Alone) Display and Program Requirements**

---

---

2. The program will fill the following EIS.DAT field with **“N”**: OVERALL EMISSIONS RESULT.
3. The program will blank fill all the OBD READINESS MONITOR fields, the DTC STORED field, and all of the DTC FAULT CODE fields in the EIS.DAT record.
4. Set the TEST ROUTINE PERFORMED field in EIS.DAT to **“O”**.

**Pennsylvania Analytical System (PAS) – OBD (Stand Alone) Display and Program Requirements****3.23.1 MIL Bulb Check (KOEO)**

## Pennsylvania Analytical System (PAS) – OBD (Stand Alone) Display and Program Requirements

---

The OBD PAS SOFTWARE shall prompt the inspector to locate the MIL on the dashboard of the vehicle under test to perform a visual check of the MIL. In accordance with EPA guidance, the integrity of the MIL shall be determined during the check of the OBD system. The MIL should be able to be illuminated indicating a functional OBD system capable of warning the driver of possible problems. This step is to verify MIL bulb integrity.

- A. The OBD PAS SOFTWARE shall prompt the operator to turn the key to the ON position, asks the inspector to observe the MIL for illumination, and store the results.
- B. Display Prompts:
  1. **Turn the IGNITION KEY to the ON Position.**
  2. **DO NOT START ENGINE.**
  3. **Did the MALFUNCTION INDICATOR LIGHT (MIL) illuminate? YES or NO**
  4. **NOTE: MALFUNCTION INDICATOR LIGHT (MIL) ILLUMINATION MAY BE CONTINUOUS, OR ONLY LAST A FEW SECONDS.**
  5. **Are you sure the MALFUNCTION INDICATOR LIGHT (MIL) did not illuminate? YES or NO**
- C. Programming Criteria:
  1. If response to prompt (3) is **YES**, indicating bulb illumination, write a **"P"** to the MIL BULB KOEO field of the EIS.DAT and continue to the MIL BULB CHECK II (KOER) section.
  2. If response to prompt (3) is **NO**, indicating the MIL did not illuminate, the program shall display prompt (2) above.
  3. If response to prompt (5) is **YES**, the program shall continue to the MIL BULB CHECK II (KOER) section and an **"F"** shall be written to the MIL BULB KOEO field in EIS.DAT.
  4. If response to prompt (5) is **NO**, repeat the MIL Bulb Check (KOEO) test sequence.

### 3.23.2 MIL Bulb Check II (KOER)

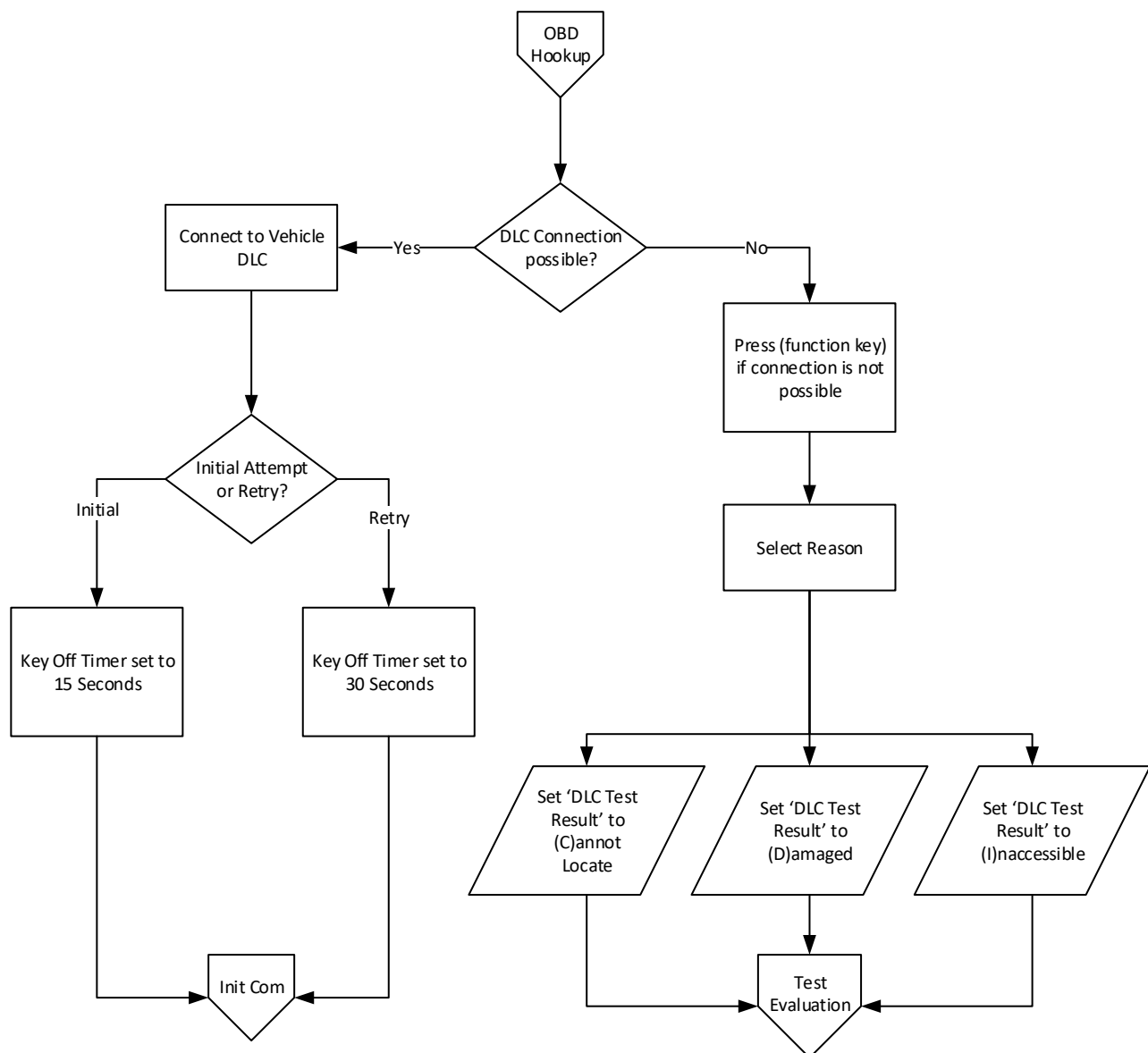
The OBD PAS SOFTWARE shall prompt the inspector to locate the MIL on the dashboard of the vehicle under test to perform a visual check of the MIL. Should the MIL be illuminated with the engine running, and using the results obtained from the OBD system interrogation, the inspector shall advise the motorist of the results.

- A. The OBD PAS SOFTWARE shall prompt the operator to start the vehicle, asks the inspector to observe the MIL for illumination, and store the results.
- B. Display Prompts:
  1. **Turn the IGNITION KEY to start the ENGINE and ALLOW TO IDLE.**
  2. **Did the MALFUNCTION INDICATOR LIGHT (MIL) remain on and/or continuously blink? YES or NO**
  3. **KOER/KOEO results conflict Please Repeat MIL Bulb Check (KOEO).**
  4. **Please turn OFF the ENGINE and connect the DLC.**
- C. Programming Criteria:
  1. If the response to prompt (2) is **'NO'**, indicating the MIL bulb did not remain on and/or continuously blink, the program shall continue to the MIL COMMAND STATUS section and a **"P"** shall be written to the MIL BULB KOER field of EIS.DAT. The program shall display prompt (4) above and proceed to OBD Hookup section.

## Pennsylvania Analytical System (PAS) – OBD (Stand Alone) Display and Program Requirements

2. If the response to prompt (2) is 'YES', indicating the MIL bulb did remain on and/or continuously blink, and the result in MIL BULB KOEO field is "P", the program shall write an "F" in the MIL BULB KOER field of EIS.DAT. The program shall display prompt (4) above and proceed to OBD Hookup section.
3. If the response to prompt (2) is 'YES' and the result in MIL BULB KOEO field is "F", the program shall display prompt (3) above and repeat the MIL Bulb Check (KOEO) test sequence.
4. If after the second retry, the program will not repeat the MIL Bulb Check (KOEO) test and shall display prompt (4) above then proceed to OBD Hookup section.

### 3.23.3 OBD Hookup



The OBD PAS SOFTWARE shall be designed to provide the inspector with DLC location references using a DLC look-up table supplied or approved by PENNDOT. This reference should, at a minimum, allow easy look-up of MY, Make, and Model. The information should indicate the approximate location using the standard locator grid as



## Pennsylvania Analytical System (PAS) – OBD (Stand Alone) Display and Program Requirements

---

shown in (Appendix A or the Federal OBD Draft Guidance Document dated June, 2001) or a manufacturer specific solution with the state's approval. The information should indicate if the DLC is covered.

### A. Display Prompts:

This screen is designed to allow the OBD computer time to power-down while following the instructions below.

#### 1. Turn the IGNITION KEY OFF.

**Locate the Vehicle's OBD Diagnostic Link Connector (DLC).**

**Attach the Equipment's OBD LEAD to the Vehicle Connector.**

**Leave the Key OFF for a MINIMUM OF 15 SECONDS before continuing.**

**Press (*function key*) if CONNECTION IS NOT POSSIBLE.**

**Press *Continue* to Proceed.**

#### 2. Select the reason that prevents the equipment's OBD lead from being connected to the vehicle's DIAGNOSTIC LINK CONNECTOR (DLC).

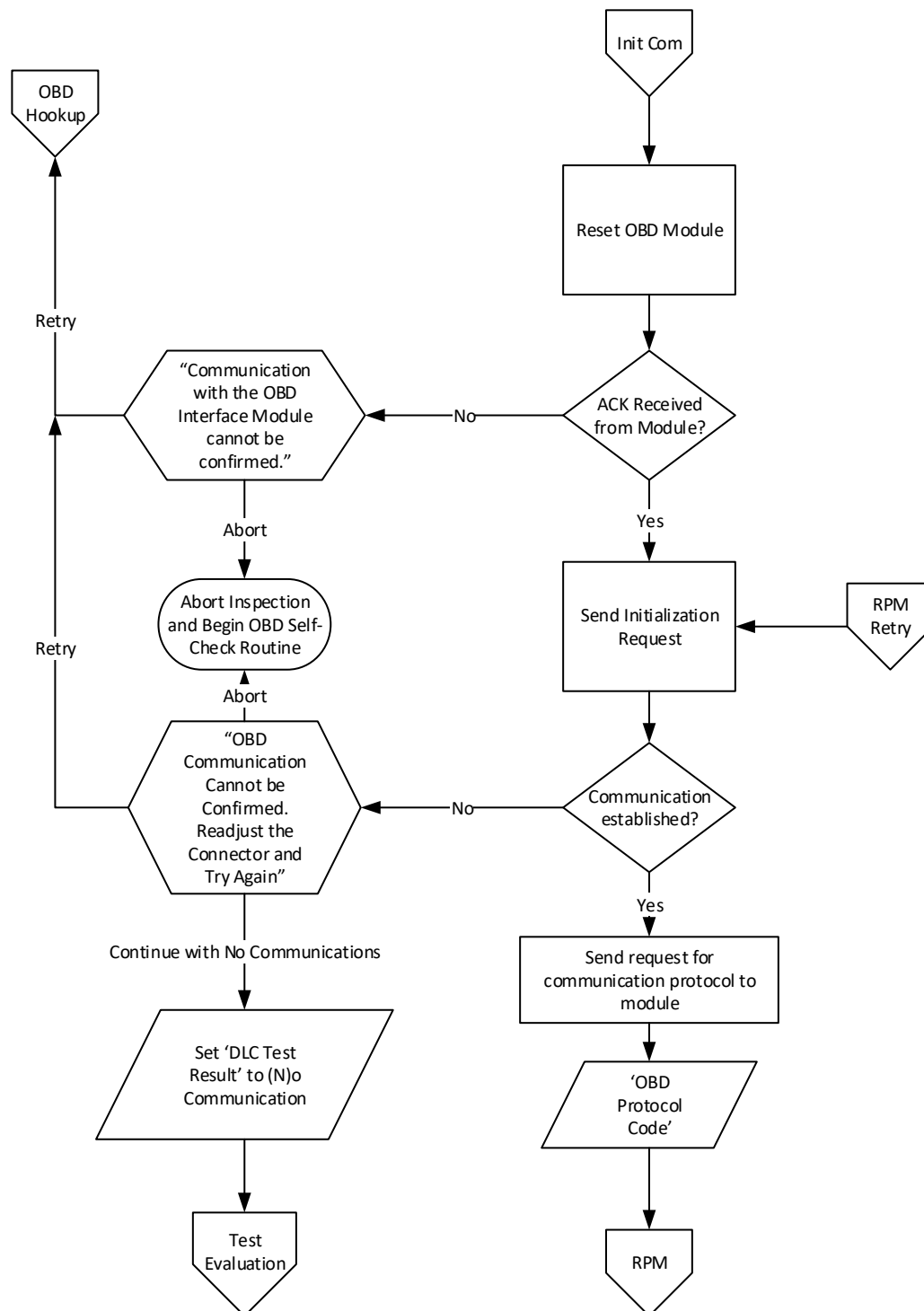
- a. The DLC cannot be located by the Inspector.
- b. The DLC is damaged or tampered and connection is not possible.
- c. The DLC is obstructed or inaccessible and connection is not possible.
- d. Return to previous screen.

### B. Programming Criteria:

1. If the inspector presses "**Continue**", after following the instructions described in prompt 1. above, the program shall pause for 15 seconds on an initial try and 30 seconds on a retry. The software will then proceed to the Initiate OBD Communications section.
2. Prompt 2. above shall be displayed if the DLC is missing, damaged, tampered, obstructed, or inaccessible.
3. If the DLC cannot be connected for reason a. above, a "**C**" (Cannot Locate Connector) will be written to the DLC TEST RESULT field in EIS.DAT. The OBD PAS SOFTWARE program shall proceed to the TEST EVALUATION Section.
4. If the DLC cannot be connected for reason b. above, a "**D**" (Damaged) will be written to the DLC TEST RESULT field in EIS.DAT. The OBD PAS SOFTWARE program shall proceed to the TEST EVALUATION Section.
5. If the DLC cannot be connected for reason c. above, an "**I**" (Inaccessible) will be written to the DLC TEST RESULT field in EIS.DAT. The OBD PAS SOFTWARE program shall proceed to the TEST EVALUATION Section.

## Pennsylvania Analytical System (PAS) – OBD (Stand Alone) Display and Program Requirements

### 3.23.4 Initiate OBD Communications



The OBD PAS SOFTWARE will communicate with the OBD system in the vehicle. The vehicle’s engine shall be running during this step and the next 6 steps of the inspection. The PAS Unit must successfully communicate with the OBD interface (wired or wireless) before attempting to communicate with the vehicle under test.

#### A. Display Prompts:

**Pennsylvania Analytical System (PAS) – OBD (Stand Alone) Display and Program Requirements**

---

---

- 1. Turn the IGNITION KEY to start the Engine and ALLOW TO IDLE.**
- 2. Press Continue to Proceed.**
- 3. Connecting with OBD Interface Module, Please Wait.**
- 4. COMMUNICATIONS WITH VEHICLE IN PROGRESS, PLEASE WAIT.**

**B. Error Messages:**

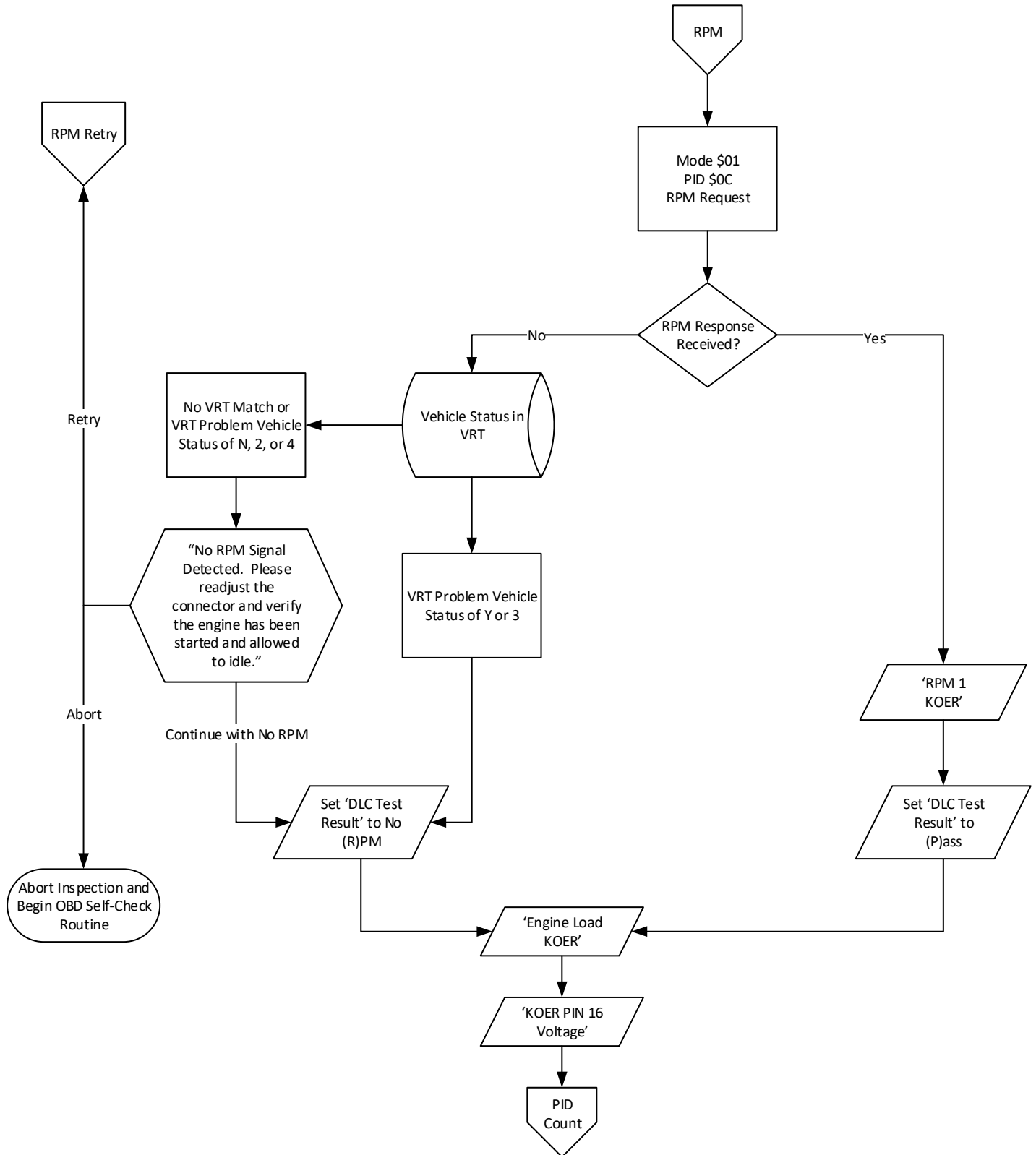
- 1. Communication with the OBD Interface Module CANNOT be confirmed.**
- 2. Press (Function Key A) to TRY AGAIN, or**
- 3. Press (Function Key B) to ABORT and Perform OBD Module Self-Check.**
- 4. OBD Communications with Vehicle CANNOT be confirmed. Readjust the Connector and Try Again.**
- 5. Press (Function Key A) when ready to TRY AGAIN, or**
- 6. Press (Function Key B) to CONTINUE the TEST with NO OBD COMMUNICATIONS.**

**C. Programming Criteria:**

1. The OBD PAS SOFTWARE shall perform an OBD interface check following the instructions described in prompts 1 and 2 above. During this process, prompt 3 shall be displayed.
2. If the OBD PAS SOFTWARE cannot communicate with the OBD interface module, Error Messages 1, 2, and 3 above shall be displayed.
  - a. If (function key A) is selected then the program shall loop back to display prompt 1 of the OBD Hookup section. In addition, the time the key is in the off position in the OBD Hookup section will be changed from 15 to 30 seconds allowing the OBD computer additional time to power-down.
  - b. If (function key B) is selected, the software shall execute the Abort Procedure as listed in section 3.5, and then execute the OBD Module Self-Check procedure from the Equipment Maintenance Menu in Section 3.28.
3. If the OBD PAS SOFTWARE successfully communicates with the OBD interface module, display prompt 4 and proceed to attempt communication with the vehicle under test.
4. If the OBD PAS SOFTWARE does not establish communications with the vehicle, Error Messages 4, 5, and 6 above shall be displayed.
  - a. If (function key A) is selected then the program shall loop back to display prompt 1 of the OBD Hookup section to reevaluate DLC communication. In addition, the time the key is in the off position in the OBD Hookup section will be changed from 15 to 30 seconds allowing the OBD computer additional time to power-down.
  - b. If (Function Key B) is selected, indicating that the OBD lead is connected without successful communication, the program shall store an "N" in the DLC TEST RESULT field of the EIS.DAT and then proceed to the TEST EVALUATION Section.
5. If the OBD PAS SOFTWARE does establish communications with the vehicle, send request for communication protocol to vehicle.
6. Save the response in the 'OBD Protocol Code' field of the EIS.DAT.
7. Proceed to the RPM section.

## Pennsylvania Analytical System (PAS) – OBD (Stand Alone) Display and Program Requirements

### 3.23.5 RPM



## Pennsylvania Analytical System (PAS) – OBD (Stand Alone) Display and Program Requirements

---

The software shall analyze the vehicle's RPM data from the OBD system to verify that the vehicle is running.

For a vehicle to be considered running, RPM values must be greater than or equal to 100.

A. Display Prompts:

1. **Retrieving Vehicle RPM.**

B. Error Messages:

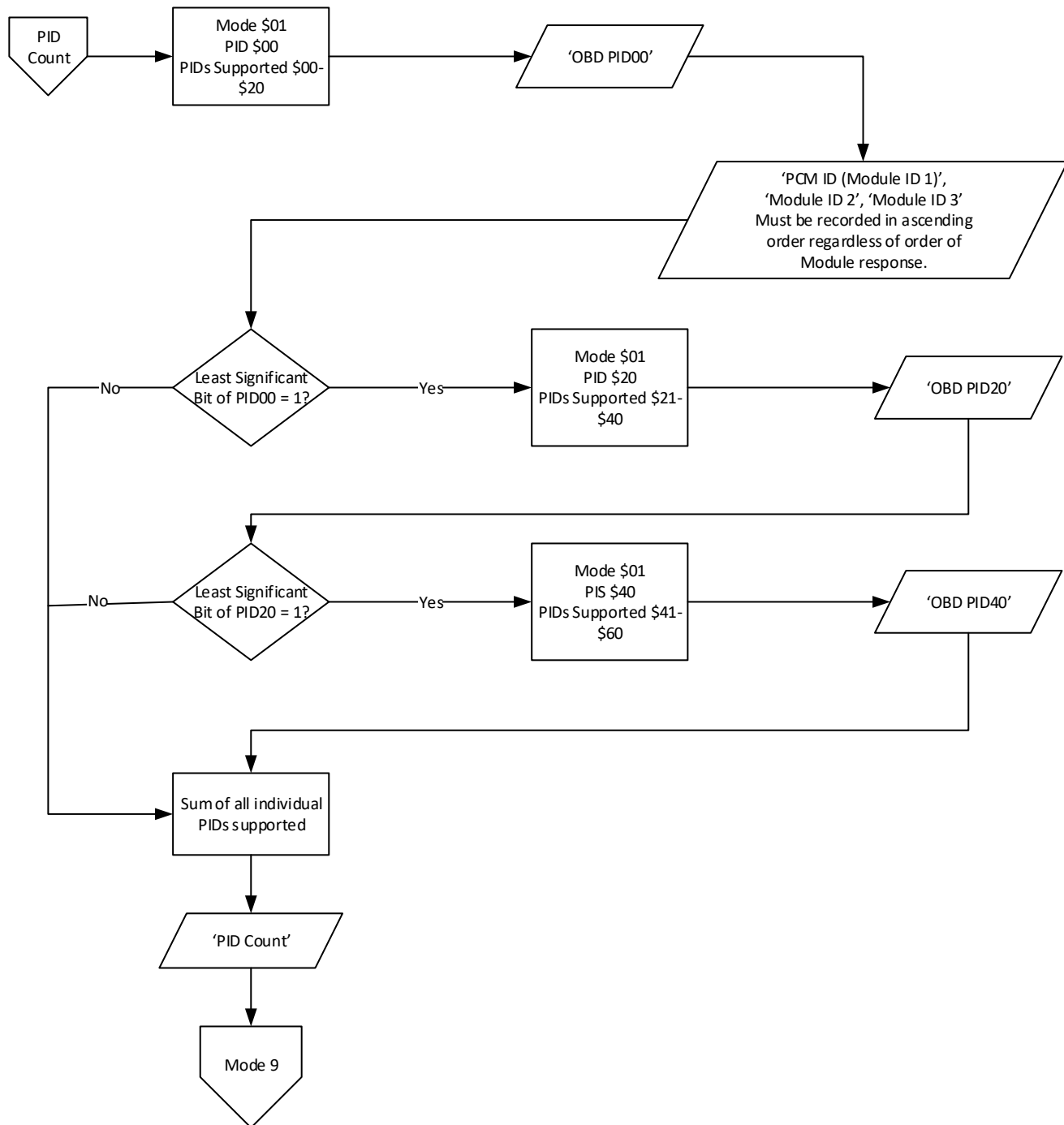
1. **No RPM signal detected. Please readjust the connector and verify that the engine has been started and allowed to idle.**
2. **PRESS (function key A) when ready to TRY AGAIN**
3. **PRESS (function key B) To CONTINUE the TEST with NO RPM Signal.**
4. **PRESS (function key C) To Abort Inspection.**

C. Programming Criteria:

1. The OBD PAS SOFTWARE shall display prompt 1 above and send Mode \$01 PID \$0C RPM Request.
2. If the RPM response is received, the following fields will be set in EIS.DAT: RPM 1 KOER, Engine Load KOER, KOER PIN 16 Voltage, and DLC Test result is set to 'P'.
3. If the OBD PAS SOFTWARE establishes communication with the OBD system AND cannot retrieve an RPM response, then the PAS will access the VRT.DAT, searching on Model Year, Vehicle Make, Vehicle Model, Number of Cylinders, Engine Size, Transmission Type, and Body Style fields, looking for an exact match.
  - a. If No VRT match is found or if a VRT match is found but the VRT OBD Problem Vehicle field is 'N', '2', or '4', the software will display Error Messages 1, 2, 3, and 4 above.
    - 1) If (function key A) is selected then the program shall loop back to display prompt 1 of the OBD Hookup section to reevaluate DLC communication. In addition, the time the key is in the off position in the OBD Hookup section will be changed from 15 to 30 seconds allowing the OBD computer additional time to power-down.
    - 2) If (Function Key B) is selected, indicating that the OBD lead is connected without an RPM signal, the program will store the following information into the EIS.DAT record: Engine load KOER, KOER PIN 16 Voltage, and an "R" shall be written in the DLC TEST RESULT field of the EIS.DAT. The software shall proceed to retrieving PID Count.
    - 3) If (Function Key C) is selected, the software shall execute the Abort Procedure as listed in section 3.5, and then execute the OBD Module Self-Check procedure from the Equipment Maintenance Menu in Section 3.28.
  - b. If a VRT match is found and the VRT OBD Problem Vehicle field is 'Y' or '3', the software will store the following information into the EIS.DAT record: Engine load KOER (Calculated Load), KOER PIN 16 Voltage, and an "R" shall be written in the DLC TEST RESULT field of the EIS.DAT. The software shall proceed to retrieving PID Count.

## Pennsylvania Analytical System (PAS) – OBD (Stand Alone) Display and Program Requirements

### 3.23.6 PID Count



#### A. Programming Criteria:

1. The OBD PAS SOFTWARE shall send Mode \$01 PID \$00 PIDs Supported \$00-\$20 Request
2. The following fields in the EIS.DAT file must be recorded in ascending order regardless of order of Module response: PCM ID (Module ID 1), Module ID 2, Module ID 3. (i.e. if 4 modules respond to Mode \$01 PID \$00

**Pennsylvania Analytical System (PAS) – OBD (Stand Alone) Display and Program Requirements**

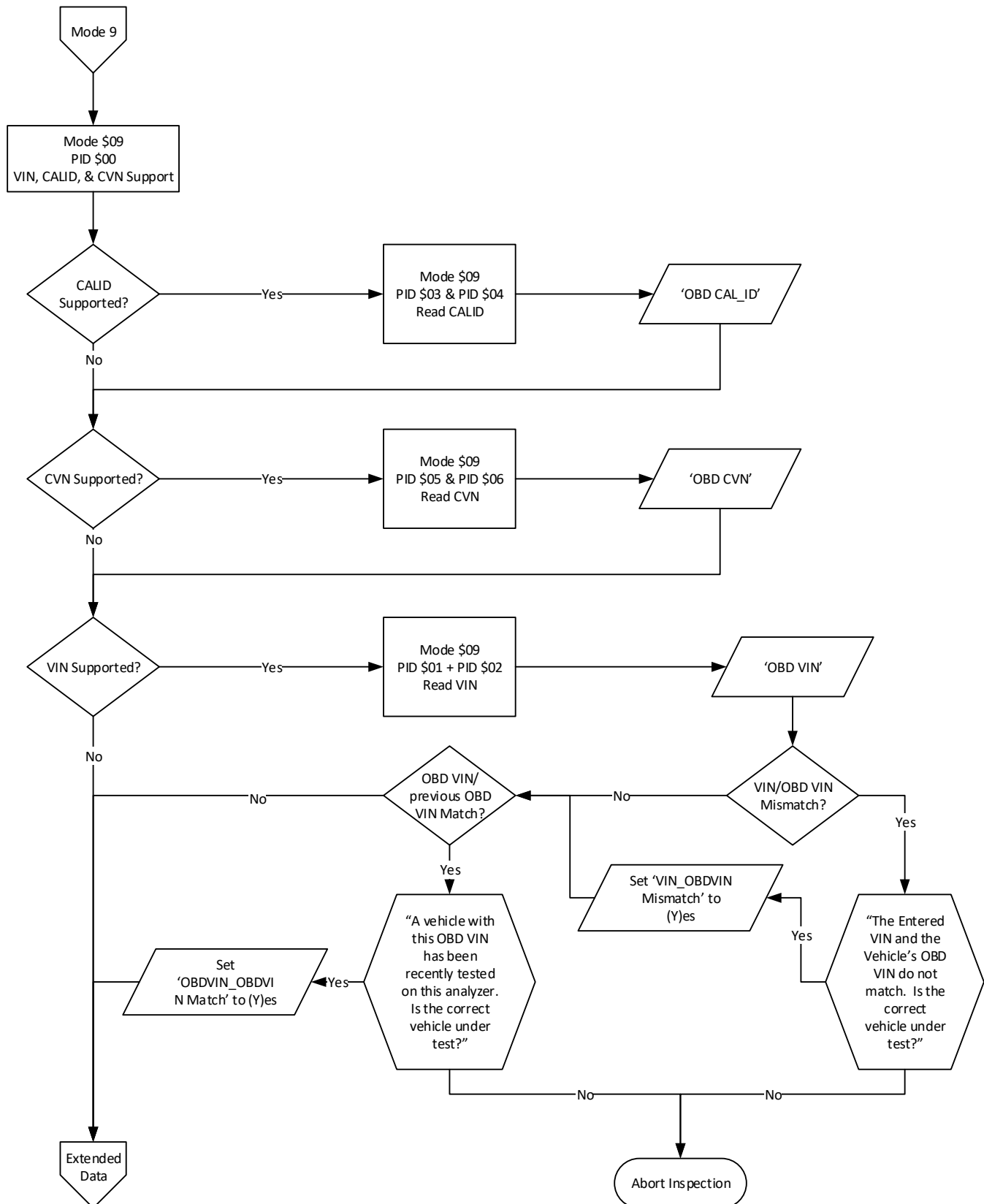
---

with a response order of \$FE, \$C2, \$10, \$2E, the ids should be recorded as: PCM ID (Module ID 1) = 10, Module ID 2 = 2E, Module ID 3 = C2)

- a. For all subsequent vehicle data requests during the inspection, the software is to use and record the response from the Module identified as the PCM ID (Module ID 1) in the step above when responses are received from multiple Modules.
3. Note: For PID00, PID20, and PID40, if responses are received from multiple modules 'inclusive or' must be used to determine the final PID (i.e. Mode \$01 PID \$00 and Module \$10 = \$B3 \$3C \$B8 \$11 and Modules \$18 = \$C0 \$50 \$80 \$00 then PID00 = FE 7C B8 11)
4. If the least significant bit of PID00 is equal to '1' send Mode \$01 PID \$20 PIDs Supported \$21-\$40 Request.
5. If the least significant bit of PID00 is not equal to '1' proceed to step 9.
6. Save the response in the 'OBD PID20' field of the EIS.DAT.
7. If the least significant bit of PID20 is equal to '1' send Mode \$01 PID \$40 PIDs Supported \$41-\$60 Request.
8. If the least significant bit of PID20 is not equal to '1' proceed to step 9.
9. Save the response in the 'OBD PID40' field of the EIS.DAT.
10. Store the sum of all individual PIDs supported in the EIS.DAT PID Count field (i.e. PID00 = FE 7C B8 11 and PID20 = 95 81 80 FC then PID Count = 31).
11. Proceed to Mode 9 request.

# Pennsylvania Analytical System (PAS) – OBD (Stand Alone) Display and Program Requirements

## 3.23.7 Mode 9





## Pennsylvania Analytical System (PAS) – OBD (Stand Alone) Display and Program Requirements

---



---

### A. Display Prompts:

1. **The Entered VIN and the Vehicle's OBD VIN do not match. Is the correct vehicle under test? YES or NO**

**Be advised that conducting the emission test on a vehicle other than the vehicle whose information you have entered will result in a suspension of your inspection certification and a fine. Additionally, entering incorrect vehicle information into the analyzer is a misstatement of fact, a misdemeanor of the third degree punishable by a fine up to \$2500 and/or imprisonment up to 1 year (18 Pa.C.S. Section 4904[b]).**

2. **A vehicle with this OBD VIN has recently been tested on this analyzer. Is the correct vehicle under test? YES or NO**

**Be advised that conducting the emission test on a vehicle other than the vehicle whose information you have entered will result in a suspension of your inspection certification and a fine. Additionally, entering incorrect vehicle information into the analyzer is a misstatement of fact, a misdemeanor of the third degree punishable by a fine up to \$2500 and/or imprisonment up to 1 year (18 Pa.C.S. Section 4904[b]).**

3. **This test will abort. Please start a new test with the correct vehicle. OK**

### B. Programming Criteria:

1. The OBD PAS SOFTWARE shall send Mode \$09 PID \$00 VIN, CALID, & CVN support.
2. If the CALID is supported, send Mode \$09 PID \$03 + PID \$04 Read CALID and record the result in EIS.DAT OBD CAL\_ID field. If the same controller returns multiple values for CALID, record all values in a comma delimited format.
3. If the CVN is supported, send Mode \$09 PID \$05 + PID \$06 Read CVN and record the result in EIS.DAT OBD CVN field. If the same controller returns multiple values for CVN, record all values in a comma delimited format.
4. If the OBD VIN is supported, send Mode \$09 PID \$01 + PID \$02 Read VIN and record the result in EIS.DAT OBD VIN field.
5. The software shall compare the OBD VIN to the VIN entered by the inspector.
  - a. If the OBD VIN does not match the VIN entered by the inspector, the equipment will show display prompt 1 on the screen.
  - b. If the inspector answers 'NO' the equipment shall display prompt 3 and execute the Abort Procedure as listed in section 3.5 after the inspector responds to the prompt.
  - c. If the inspector answers 'YES' the equipment will save the response in VIN\_OBDVIN Mismatch field of the EIS.DAT record for the current test.
6. If the OBD VIN matches the VIN entered by the inspector, or the inspector answers 'YES' to display prompt 1, the equipment will compare the OBD VIN to an internally stored and managed table of OBD VINs from inspections performed on the PAS Unit in the previous 90 days from the current system date.
  - a. If a match is found, the equipment will show display prompt 2 on the screen.
  - b. If the inspector answers 'NO' the equipment shall display prompt 3 and execute the Abort Procedure as listed in section 3.5 after the inspector responds to the prompt.
  - c. If the inspector answers 'YES' the equipment will save the response in the OBDVIN\_OBDVIN Match field of the EIS.DAT record for the current test and add the OBD VIN to the table of recently tested OBD VINs stored on the PAS Unit. The software will proceed to Extended Data.

## **Pennsylvania Analytical System (PAS) – OBD (Stand Alone) Display and Program Requirements**

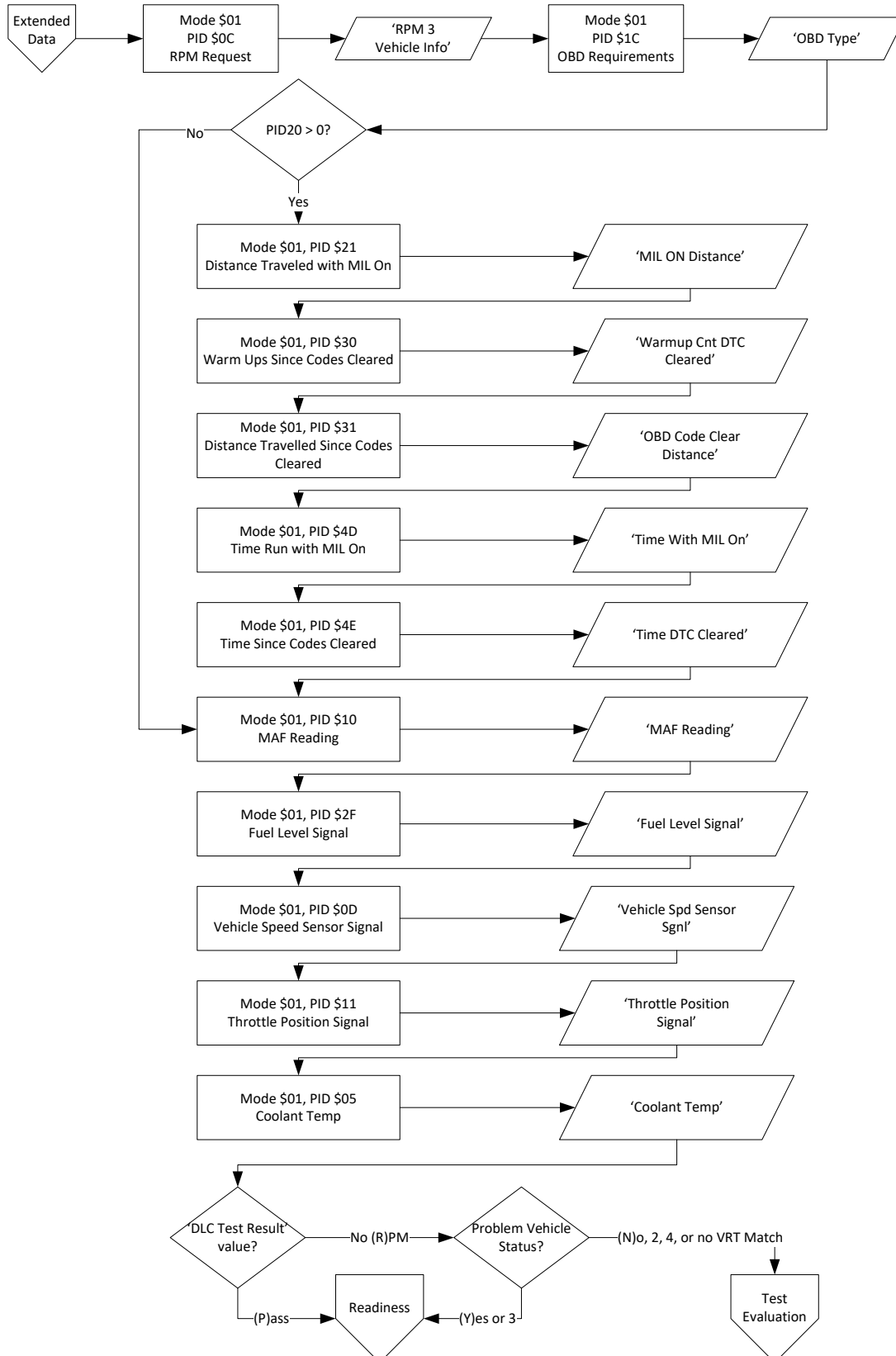
---

---

- d. If no match is found, the OBD VIN will be added to the table of PAS-stored OBD VINs and the software will proceed to Extended Data.

## Pennsylvania Analytical System (PAS) – OBD (Stand Alone) Display and Program Requirements

### 3.23.8 Extended Data



## Pennsylvania Analytical System (PAS) – OBD (Stand Alone) Display and Program Requirements

---



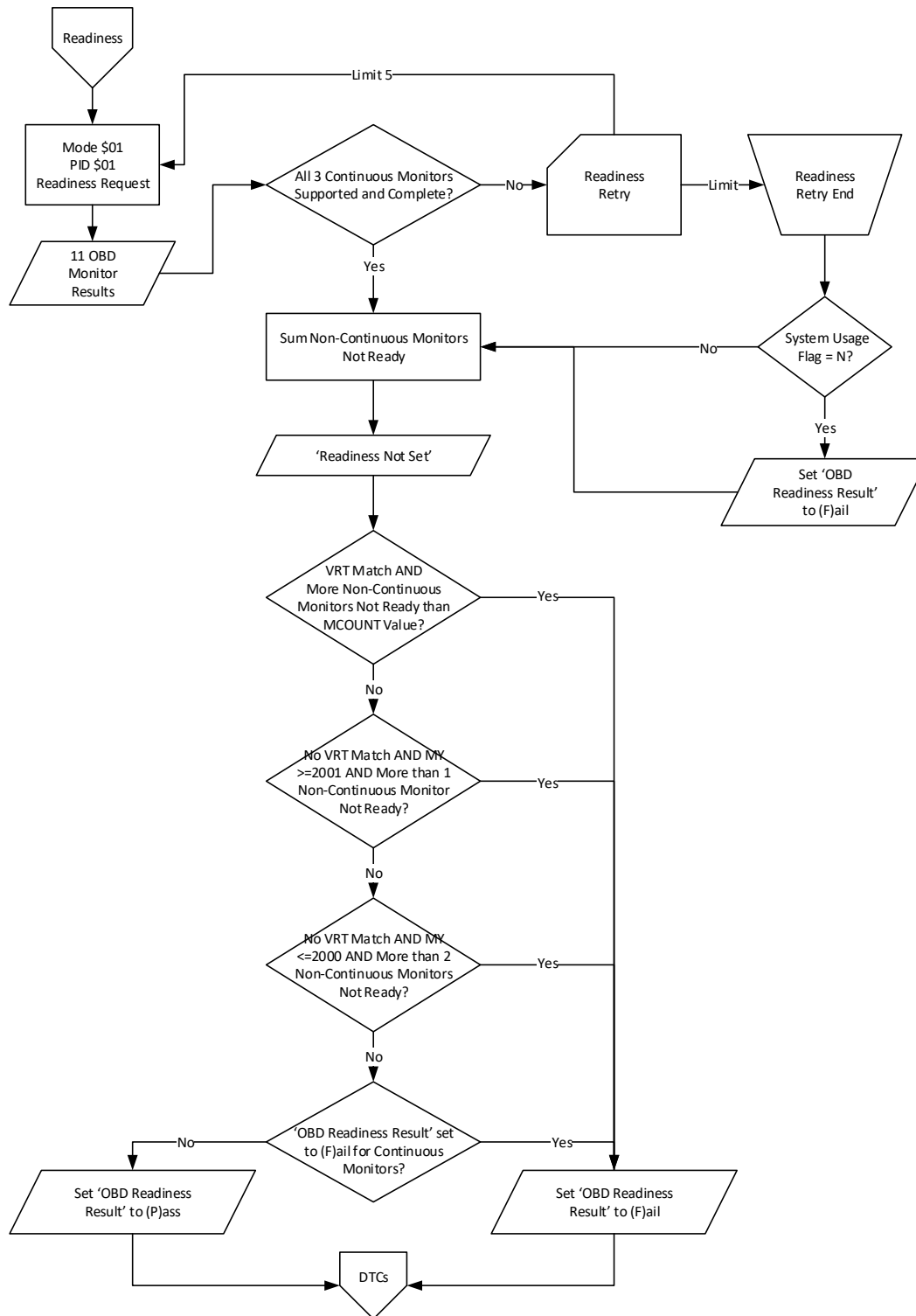
---

### A. Programming Criteria:

1. The OBD PAS SOFTWARE shall send Mode \$01 PID \$0C RPM Request and record the result in the EIS.DAT field RPM 3 Vehicle Info.
2. The OBD PAS SOFTWARE shall send Mode \$01 PID \$1C OBD Requirements and record the result in the EIS.DAT field OBD Type. The value retrieved from the vehicle should be stored, even if it falls outside the provided reference table in Appendix D.
3. If PID20 is not greater than zero proceed to step 9.
4. If PID20 is greater than zero the OBD PAS SOFTWARE shall send Mode \$01 PID \$21 Distance Traveled with MIL ON and record the result in the EIS.DAT field MIL ON Distance.
5. The OBD PAS SOFTWARE shall send Mode \$01 PID \$30 Warm Ups Since Codes Cleared and record the result in the EIS.DAT field Warmup Cnt DTC Cleared.
6. The OBD PAS SOFTWARE shall send Mode \$01 PID \$31 Distance Travelled Since Codes Cleared and record the result in the EIS.DAT field OBD Clear Distance.
7. The OBD PAS SOFTWARE shall send Mode \$01 PID \$4D Time Run with MIL on and record the result in the EIS.DAT field Time With MIL On.
8. The OBD PAS SOFTWARE shall send Mode \$01 PID \$4E Time Since Codes Cleared and record the result in the EIS.DAT field Time DTC Cleared.
9. The OBD PAS SOFTWARE shall send Mode \$01 PID \$10 MAF Reading and record the result in the EIS.DAT field MAF Reading.
10. The OBD PAS SOFTWARE shall send Mode \$01 PID \$2F Fuel Level Signal and record the result in the EIS.DAT field Fuel Level Signal.
11. The OBD PAS SOFTWARE shall send Mode \$01 PID \$0D Vehicle Speed Sensor Signal and record the result in the EIS.DAT field Vehicle Spd Sensor Sgnl.
12. The OBD PAS SOFTWARE shall send Mode \$01 PID \$11 Throttle Position Signal and record the result in the EIS.DAT field Throttle Position Signal.
13. The OBD PAS SOFTWARE shall send Mode \$01 PID \$05 Coolant Temp and record the result in the EIS.DAT field Coolant Temp in degrees Fahrenheit.
14. If the DLC Test Result field of EIS.DAT equal to 'R' (No RPM) then the PAS will access the VRT.DAT, searching on Model Year, Vehicle Make, Vehicle Model, Number of Cylinders, Engine Size, Transmission Type, and Body Style fields, looking for an exact match.
  - a. If No VRT match is found or if a VRT match is found and the VRT OBD Problem Vehicle field is 'N', '2', or '4', the software will proceed to section 3.25, Test Evaluation.
  - b. If a VRT match is found and the VRT OBD Problem Vehicle field is 'Y' or '3', the software will proceed to section 3.23.9 Readiness.
15. If the DLC Test Result field of EIS.DAT equal to 'P' (Pass) then proceed to section 3.23.9 Readiness.

## Pennsylvania Analytical System (PAS) – OBD (Stand Alone) Display and Program Requirements

### 3.23.9 Readiness



#### A. Programming Criteria

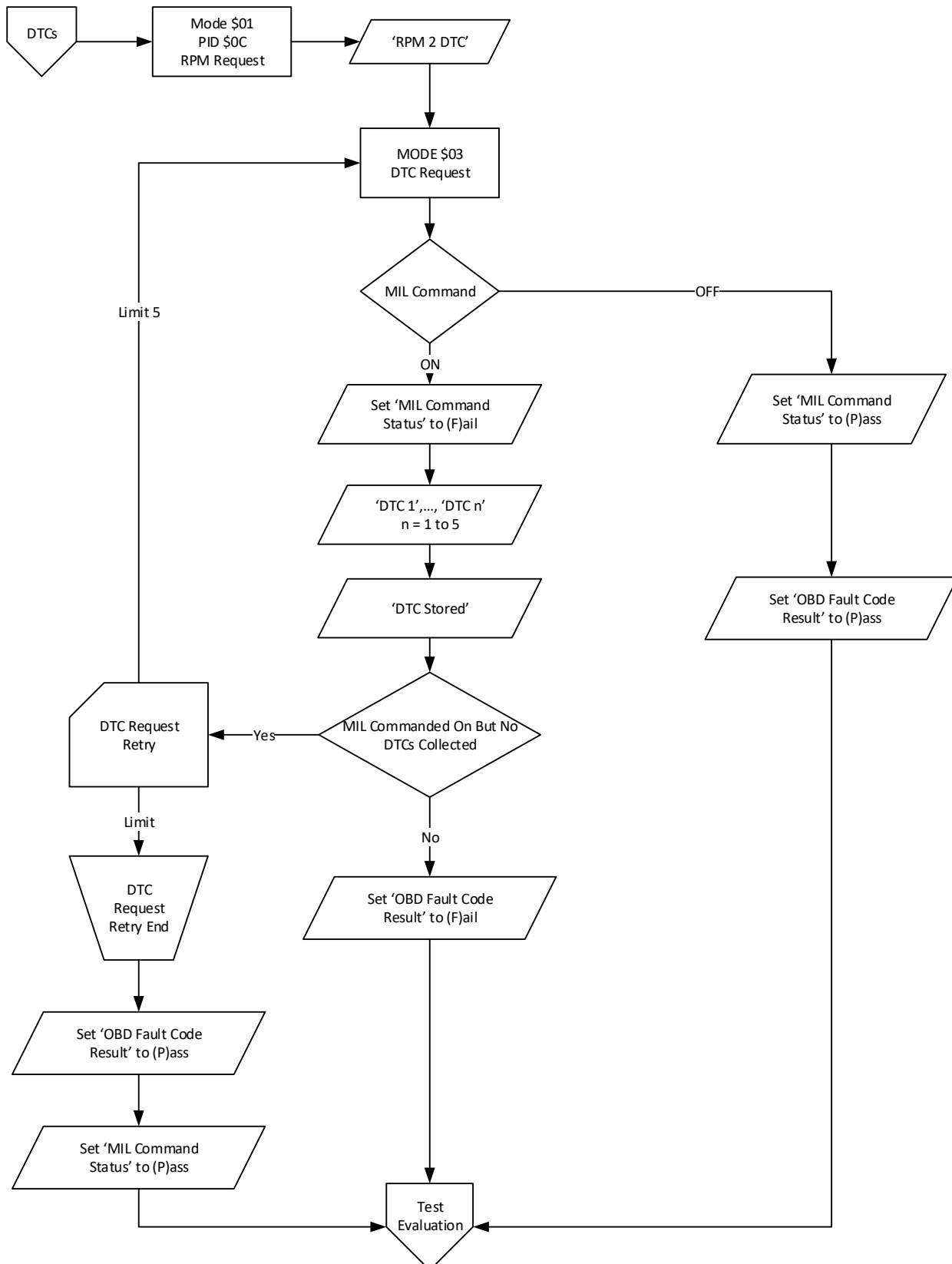
## Pennsylvania Analytical System (PAS) – OBD (Stand Alone) Display and Program Requirements

---



---

1. The OBD PAS SOFTWARE shall send Mode \$01 PID \$01 Readiness Request and record the results in the appropriate EIS.DAT fields for the Readiness Code Results.
2. All readiness monitor values will be written to the appropriate test record fields in the EIS.DAT for each inspection using the following value format:
  - a. Not Supported/Not Enabled = 0, or
  - b. Completed/Ready = 1, or
  - c. Not Completed/Not Ready = 2.
3. If all three Continuous Monitors (Misfire, Fuel System, and Comprehensive Component) are supported and complete (value of 1), proceed to step 5.
4. If any of the three continuous monitors (Misfire, Fuel system, and Comprehensive component) are not supported or not complete,
  - a. Add one to the number of times the readiness monitors have been checked.
  - b. If the number of times the readiness monitors have been checked is less than or equal to five (5) proceed to step 1 and re-execute the readiness request.
  - c. If the number of times the readiness monitors have been checked is greater than five (5), the OBD PAS SOFTWARE will check the status of the OBD Usage Switch in SYSTEM.DAT.
    - 1) If the status of the OBD Usage Switch is not equal to 'N', proceed to step 5.
    - 2) If the status of the OBD Usage Switch is equal to 'N', set to the OBD Readiness Result field of the EIS.DAT record to 'F' and proceed to step 5.
5. The OBD PAS SOFTWARE will sum the Non-Continuous monitors Not Ready (value of 2) and store the result in the Readiness Not Set field on the EIS.DAT record. The three Continuous Monitors are NOT included in this sum.
6. The PAS will access the VRT.DAT, searching on Model Year, Vehicle Make, Vehicle Model, Number of Cylinders, Engine Size, Transmission Type, and Body Style fields, looking for an exact match.
  - a. If a VRT match is found and the Readiness Not Set field on the EIS.DAT record is greater than the MCOUNT value, proceed to step 8.
  - b. If a VRT match is found and the Readiness Not Set field in the EIS.DAT record is less than or equal to the MCOUNT value, proceed to step 7.
  - c. If no VRT match is found and the vehicle's Model Year is greater than or equal to 2001, and the Readiness Not Set field on the EIS.DAT record is greater than one (1), proceed to step 8.
  - d. If no VRT match is found and the vehicle's Model Year is greater than or equal to 2001, and the Readiness Not Set field in the EIS.DAT record is less than or equal to one (1), proceed to step 7.
  - e. If no VRT match is found and the vehicle's Model Year is less than or equal to 2000, and the Readiness Not Set field on the EIS.DAT record is greater than two (2), proceed to step 8.
  - f. If no VRT match is found and the vehicle's Model Year is less than or equal to 2000, and the Readiness Not Set field in the EIS.DAT record is less than or equal to two (2), proceed to step 7.
7. If the OBD Readiness Result field is not equal to 'F', the OBD PAS SOFTWARE will set to the OBD Readiness Result field of the EIS.DAT record to 'P' and proceed to section 3.23.10 DTC Check.
8. The OBD Readiness Result field of the EIS.DAT record is set to 'F'. Proceed to section 3.23.10 DTC Check.

**Pennsylvania Analytical System (PAS) – OBD (Stand Alone) Display and Program Requirements****3.23.10 DTC Check**

## Pennsylvania Analytical System (PAS) – OBD (Stand Alone) Display and Program Requirements

---



---

### A. Programming Criteria:

1. The OBD PAS SOFTWARE shall send Mode \$01 PID \$0C RPM Request and record the result in the EIS.DAT field RPM 2 DTC.
2. The OBD PAS SOFTWARE shall send Mode \$03 DTC Request.
3. If the MIL Command is OFF, the OBD PAS SOFTWARE will set to the MIL Command Status field of the EIS.DAT record to 'P' and the OBD Fault Code Result field of the EIS.DAT record to 'P' and proceed to section 3.24 Test Evaluation.
4. If the MIL Command is ON, the OBD PAS SOFTWARE will set to the MIL Command Status field of the EIS.DAT record to 'F' and the following fields in the EIS.DAT file must be recorded DTC 1, DTC 2, DTC 3, DTC 4, DTC 5, and DTC Stored.
5. If the MIL Command is ON and no DTCs have been collected,
  - a. Add one to the number of times the DTCs have been checked.
  - b. If the number of times the DTCs have been checked is less than or equal to five (5) proceed to step 2 and re-execute the DTC request.
  - c. If the number of times the DTCs have been checked is greater than five, the OBD PAS SOFTWARE will set the MIL Command Status field of the EIS.DAT record to 'P' and the OBD Fault Code Result field of the EIS.DAT record to 'P'. The software shall proceed to the Test Evaluation.
6. If the MIL Command is ON and DTCs have been collected, the OBD PAS SOFTWARE will set the OBD Fault Code Result field of the EIS.DAT record to 'F'. The software shall proceed to the Test Evaluation.

## 3.24 Test Evaluation and Messages

- A. If the vehicle's Model Year is prior to 1996, registered in an ASM or TSI county and the vehicle's model year is greater than the current year minus 25, this vehicle could not be tested on OBD stand-alone equipment and needs an ASM or TSI test. The software will print the Rejection From Inspection Form with the vehicle information filled in. (See Section 5 Exhibit K for sample of Rejection From Inspection Form)
- B. If the vehicle's Model Year is after 1995, registered in an ASM or TSI county, and the Vehicle Standards Type is "T" (Truck) and the GVWR is greater than or equal to 8501 and less than or equal to 9000 pounds the program will print the Rejection From Inspection Form with the vehicle information filled in. (See Section 5 Exhibit K for sample of Rejection From Inspection Form)
- C. If the vehicle's Model Year is prior to 1996, registered in an ASM or TSI county and the vehicle's model year is less than the current year minus 25, the program will check that the Overall Fuel Cap Test Result field of the EIS.DAT is "N" or "P" and the Overall Visual Inspection Result field of the EIS.DAT is set to "P" and the program will store a "P" in the OVERALL TEST RESULT field of the EIS.DAT record. (See Section 5 Exhibit F for sample VIR) If either field is set to "F" then the OVERALL TEST RESULT field of the EIS.DAT record will be set to "F". (See Section 5 Exhibit E for sample VIR)
- D. If the vehicle's Model Year is prior to 1996 and registered in an OBD county, the program will check that the Overall Fuel Cap Test Result field of the EIS.DAT is "N" or "P" and the Overall Visual Inspection Result field of the EIS.DAT is set to "P" and the program will store a "P" in the OVERALL TEST RESULT field of the EIS.DAT record. (See Section 5 Exhibit F for sample VIR) If either field is set to "F" then the OVERALL TEST RESULT field of the EIS.DAT record will be set to "F". (See Section 5 Exhibit E for sample VIR)
- E. If the vehicle is registered in a Visual county, the program will check that the Overall Fuel Cap Test Result field of the EIS.DAT is "N" or "P" and the Overall Visual Inspection Result field of the EIS.DAT is set to "P" and the



**Pennsylvania Analytical System (PAS) – OBD (Stand Alone) Display and Program Requirements**

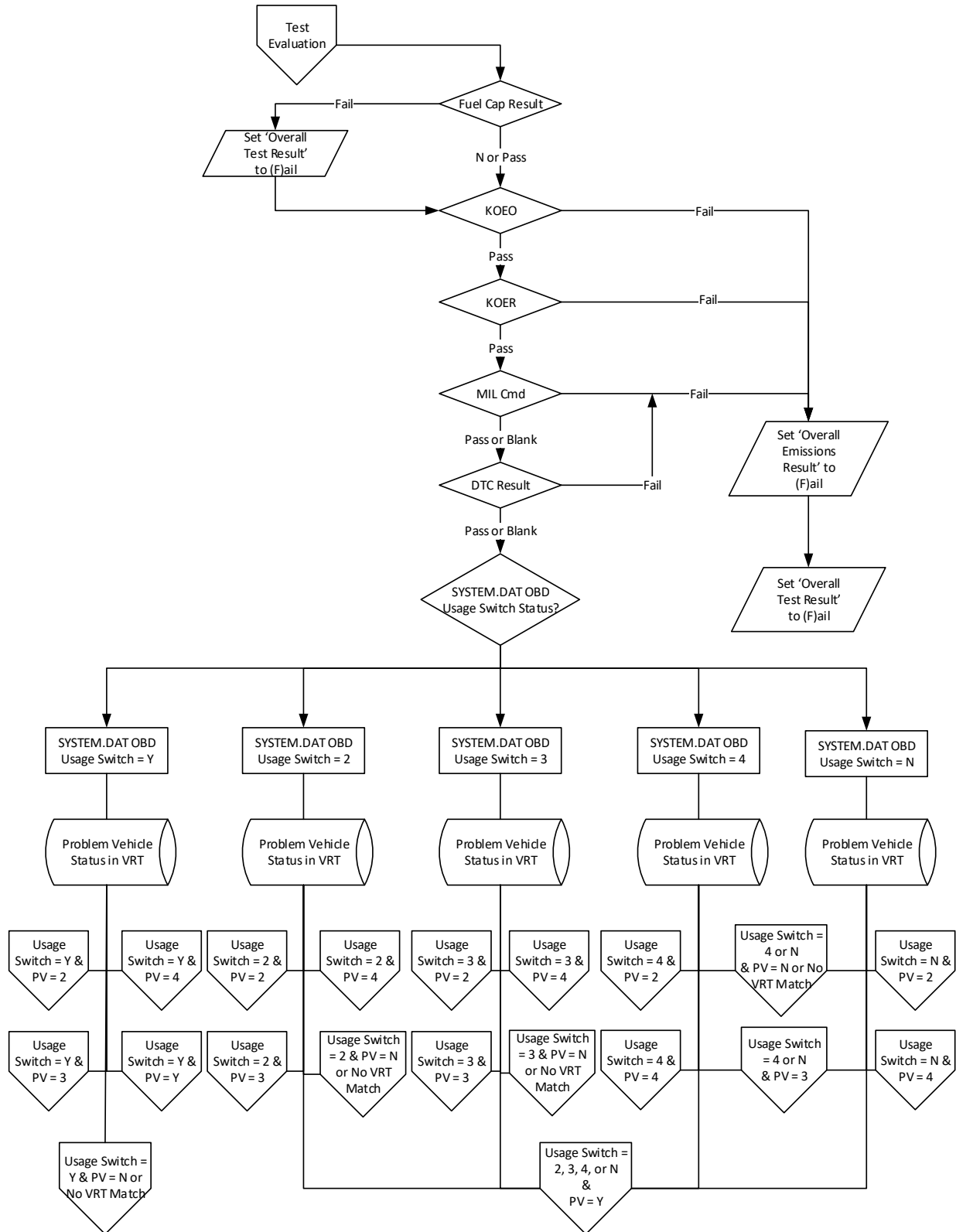
---

program will store a “P” in the OVERALL TEST RESULT field of the EIS.DAT record. (See Section 5 Exhibit F for sample VIR) If either field is set to “F” then the OVERALL TEST RESULT field of the EIS.DAT record will be set to “F”. (See Section 5 Exhibit E for sample VIR)

- F. If the vehicle’s Model Year is after 1995, registered in an OBD county, and the Vehicle Standards Type is “T” (Truck) and the GVWR is greater than or equal to 8501 and less than or equal to 9000 pounds the program will check that the Overall Fuel Cap Test Result field of the EIS.DAT is “N” or “P” and the Overall Visual Inspection Result field of the EIS.DAT is set to “P” and the program will store a “P” in the OVERALL TEST RESULT field of the EIS.DAT record. (See Section 5 Exhibit F for sample VIR) If either field is set to “F” then the OVERALL TEST RESULT field of the EIS.DAT record will be set to “F”. (See Section 5 Exhibit E for sample VIR)
- G. If the vehicle’s Model Year is after 1995 and not registered in a Visual county and the Vehicle Standards Type is not “T” (Truck) or the Vehicle Standards Type is “T” (Truck) and the GVWR is less than or equal to 8500 the results from section 3.24 will be used to determine the OVERALL TEST RESULT field of the EIS.DAT record. The Following fields from EIS.DAT will be used:
1. OVERALL FUEL CAP TEST RESULT is an automatic entry,
  2. MIL BULB KOEO is a manual entry,
  3. MIL BULB KOER is a manual entry,
  4. DLC TEST RESULT is an automatic entry unless there is no communication between the vehicle and the PA OBD SOFTWARE,
  5. MIL COMMAND STATUS is an automatic entry,
  6. OBD READINESS RESULT is a field populated automatically,
  7. OBD FAULT CODE RESULT depends if there are any stored DTCs causing the MIL to illuminate.
- H. The State is planning on controlling the OBD testing criteria and has defined the SYSTEM.DAT Usage Switch to allow the PAS unit test logic to be modified without updating the PAS software. At some point the State will change the value in the SYSTEM.DAT Usage Switch by transmitting the change through the VIID.

## Pennsylvania Analytical System (PAS) – OBD (Stand Alone) Display and Program Requirements

### 3.24.1 Test Evaluation



**Pennsylvania Analytical System (PAS) – OBD (Stand Alone) Display and Program Requirements**

---

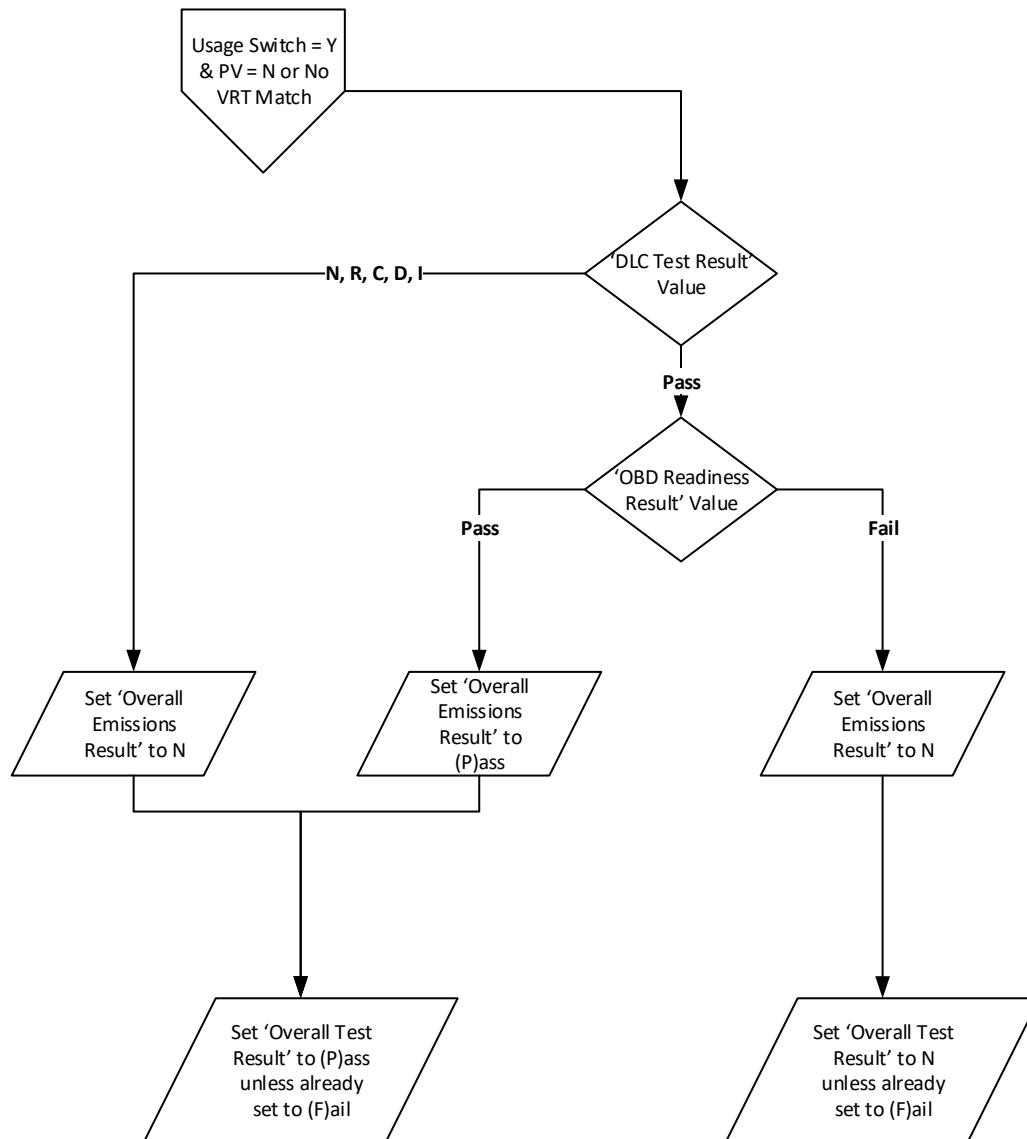
---

**A. Programming Criteria:**

1. If the Overall Fuel Cap Test Result is other than “N” or “P” then the OVERALL TEST RESULT field of the EIS.DAT record will be set to “F”. No subsequent test variable outcome will override this test result. (See Section 5 Exhibits A8 and A9 for sample VIRs).
2. If MIL Bulb KOEO contain a character other than a “P” then the OVERALL TEST RESULT field and OVERALL EMISSIONS RESULT field of the EIS.DAT record will be set to “F”. No subsequent test variable outcome will override this test result. (See Section 5 Exhibit A1 for sample VIR).
3. If MIL Bulb KOER contain a character other than a “P” then the OVERALL TEST RESULT field and OVERALL EMISSIONS RESULT field of the EIS.DAT record will be set to “F”. No subsequent test variable outcome will override this test result. (See Section 5 Exhibit A1 for sample VIR).
4. If MIL Command Status contain an “F” then the OVERALL TEST RESULT field and OVERALL EMISSIONS RESULT field of the EIS.DAT record will be set to “F”. No subsequent test variable outcome will override this test result. (See Section 5 Exhibit A1 for sample VIR). MIL Command is set to “F” if MIL is commanded on and DTCs are present.
5. If OBD Fault Code Result fields contain an “F” then the OVERALL TEST RESULT field and OVERALL EMISSIONS RESULT field of the EIS.DAT record will be set to “F”. No subsequent test variable outcome will override this test result. (See Section 5 Exhibit A1 for sample VIR). OBD Fault Code is set to “F” if MIL is commanded on and DTCs are present.
6. If the MIL Bulb KOEO and the MIL Bulb KOER fields contain a “P” and the MIL Command Status and OBD Fault Code Result fields contain a “P” or are blank, The PAS software will access the SYSTEM.DAT Usage Switch field to determine the value and will access the VRT.DAT, searching on Model Year, Vehicle Make, Vehicle Model, Number of Cylinders, Engine Size, Transmission Type, and Body Style fields, looking for an exact match. The software will use the SYSTEM.DAT Usage Switch status, VRT match status, and associated Problem Vehicle status to proceed to the appropriate evaluation section.

## Pennsylvania Analytical System (PAS) – OBD (Stand Alone) Display and Program Requirements

### 3.24.2 OBD Usage Switch 'Y' & Problem Vehicle 'N' or No VRT Match



#### A. Programming Criteria:

1. If the DLC TEST RESULT field has a 'N', 'R', 'C', 'D' or 'I' the program will store an "N" in the OVERALL EMISSIONS RESULT field of the EIS.DAT record and will store an "P" in the OVERALL TEST RESULT field of the EIS.DAT record unless the OVERALL TEST RESULT field is already set to 'F' by the Fuel Cap Result.
  - a. If the DLC TEST RESULT field has a "C" stored in it then the following message will be printed on the OBD-I/M Check Result section on the VIR: (See Section 5 Exhibit B2 for sample VIR)
    - 1) **Based on the information gathered during an attempt to perform an On Board Diagnostic test, your vehicle has a Data Link Connector that cannot be located by the inspector. This vehicle should have the Onboard Computer Data Link Connector available to the inspector and functioning properly to pass the vehicle inspection. This vehicle needs to have the above problem corrected prior to next year's emissions inspection.**

## Pennsylvania Analytical System (PAS) – OBD (Stand Alone) Display and Program Requirements

---

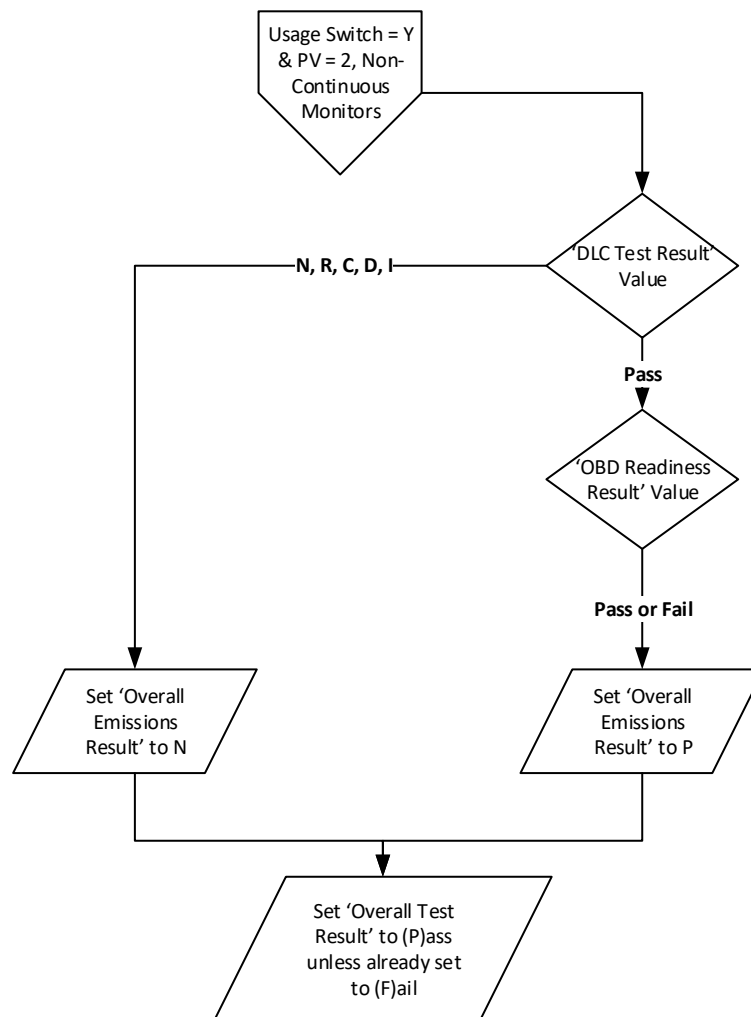


---

- b. If the DLC TEST RESULT field has a “D” stored in it then the following message will be printed on the OBD-I/M Check Result section on the VIR: (See Section 5 Exhibit B3 for sample VIR)
  - 1) **Based on the information gathered during an attempt to perform an On Board Diagnostic test, your vehicle has a missing, tampered, or broken Data Link Connector. This vehicle should have the Onboard Computer Data Link Connector functioning properly to pass the vehicle inspection. This vehicle needs to have the above problem corrected prior to next year’s emissions inspection.**
- c. If the DLC TEST RESULT field has a “I” stored in it then the following message will be printed on the OBD-I/M Check Result section on the VIR: (See Section 5 Exhibit B4 for sample VIR)
  - 1) **Based on the information gathered during an attempt to perform an On Board Diagnostic test, your vehicle has an inaccessible Data Link Connector. This vehicle should have the Data Link Connector accessible to allow the check of the On Board Diagnostic computer system. This vehicle needs to have the above problem corrected prior to next year’s emissions inspection.**
- d. If the DLC TEST RESULT field is “R” the program will print the following message on the OBD-I/M Check Result section on the VIR (See Section 5 Exhibit B6 for sample VIR).
  - 1) **Based on the information gathered during an attempt to perform an On Board Diagnostic test, NO RPM Signal was available from the On Board Diagnostic computer system. This vehicle should produce an RPM signal from the On Board Diagnostic computer system. This vehicle needs to have the above problem corrected prior to next year’s emissions inspection.**
- e. If the DLC TEST RESULT field is “N” the program will print the following message on the OBD-I/M Check Result section on the VIR (See Section 5 Exhibit B5 for sample VIR)
  - 1) **Based on the information gathered during an attempt to perform an On Board Diagnostic test, NO Signal was available from the On Board Diagnostic computer system. This vehicle should produce a signal from the On Board Diagnostic computer system. This vehicle needs to have the above problem corrected prior to next year’s emissions inspection.**
2. If the DLC TEST RESULT field has a ‘P’ and OBD Readiness Result has a ‘P’ program will store an “P” in the OVERALL EMISSIONS RESULT field of the EIS.DAT record and will store an “P” in the OVERALL TEST RESULT field of the EIS.DAT record unless the fields are already set to ‘F’ by the Fuel Cap, KOEO, KOER, or MIL CMD results (See Section 5 Exhibit B1 for sample VIR).
3. If the DLC TEST RESULT field has a ‘P’ and OBD Readiness Result has a ‘F’ program will store an “N” in the OVERALL EMISSIONS RESULT field of the EIS.DAT record and will store an “N” in the OVERALL TEST RESULT field of the EIS.DAT record unless the fields are already set to ‘F’ by the Fuel Cap, KOEO, KOER, or MIL CMD results. The program will print on the VIR in the “Overall Test Result” area “NOT READY FOR TESTING” and then the following message will be printed on the OBD-I/M Check Result section on the VIR (See Section 5 Exhibit A7 for sample VIR).
  - a. **Based on the information obtained from the On Board Diagnostic System in your vehicle, the system is not ready to make a determination regarding the pollution control system on the vehicle. This situation should be corrected before the OBD system can be evaluated. Contact your vehicle service advisor.**

## Pennsylvania Analytical System (PAS) – OBD (Stand Alone) Display and Program Requirements

### 3.24.3 OBD Usage Switch 'Y' & Problem Vehicle '2'



#### A. Programming Criteria:

1. If the DLC TEST RESULT field has a 'N', 'R', 'C', 'D' or 'I' the program will store an "N" in the OVERALL EMISSIONS RESULT field of the EIS.DAT record and will store an "P" in the OVERALL TEST RESULT field of the EIS.DAT record unless the OVERALL TEST RESULT field is already set to 'F' by the Fuel Cap Result.
  - a. If the DLC TEST RESULT field has a "C" stored in it then the following message will be printed on the OBD-I/M Check Result section on the VIR: (See Section 5 Exhibit B2 for sample VIR)
    - 1) **Based on the information gathered during an attempt to perform an On Board Diagnostic test, your vehicle has a Data Link Connector that cannot be located by the inspector. This vehicle should have the Onboard Computer Data Link Connector available to the inspector and functioning properly to pass the vehicle inspection. This vehicle needs to have the above problem corrected prior to next year's emissions inspection.**
  - b. If the DLC TEST RESULT field has a "D" stored in it then the following message will be printed on the OBD-I/M Check Result section on the VIR: (See Section 5 Exhibit B3 for sample VIR)

## Pennsylvania Analytical System (PAS) – OBD (Stand Alone) Display and Program Requirements

---

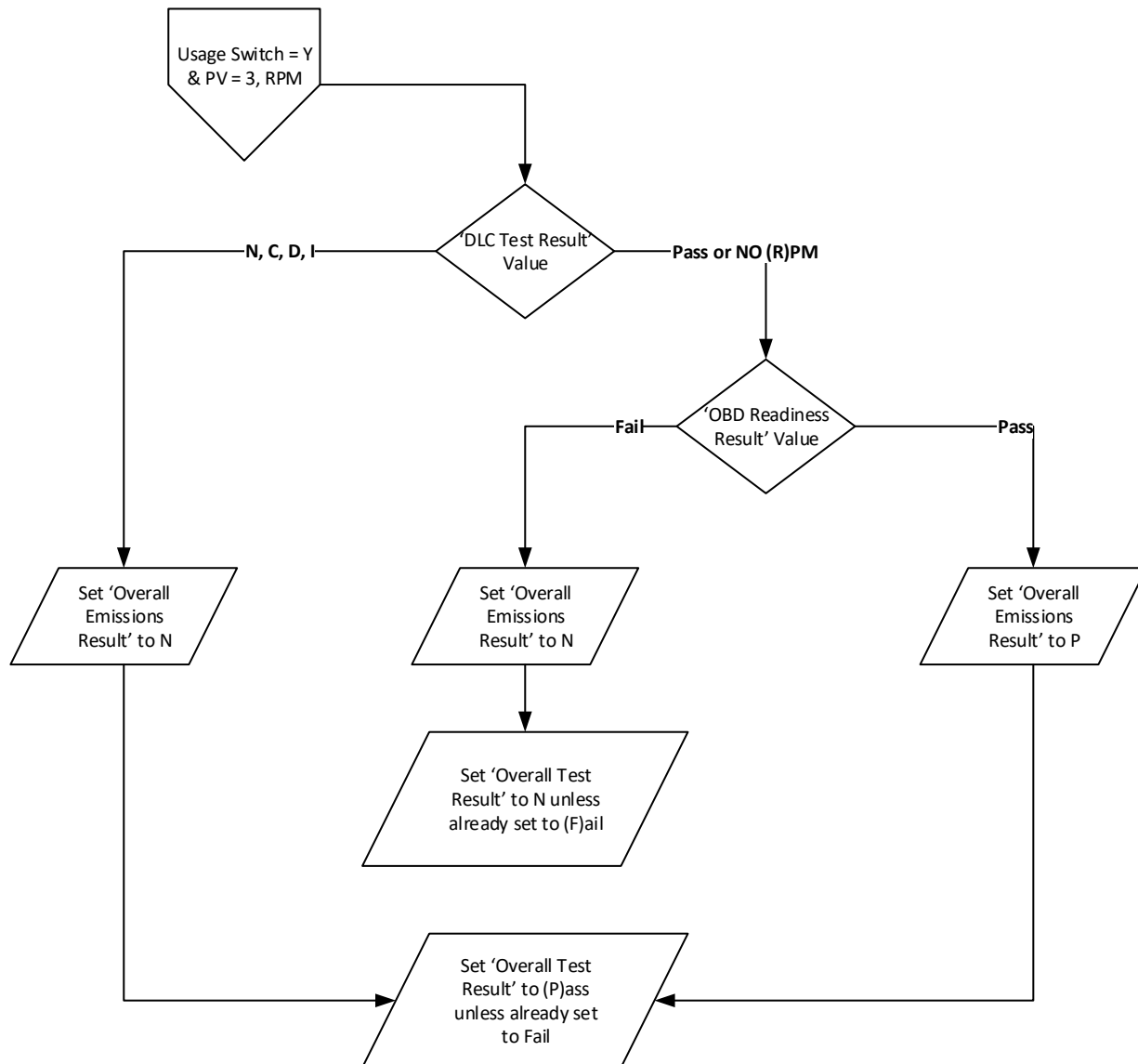


---

- 1) **Based on the information gathered during an attempt to perform an On Board Diagnostic test, your vehicle has a missing, tampered, or broken Data Link Connector. This vehicle should have the Onboard Computer Data Link Connector functioning properly to pass the vehicle inspection. This vehicle needs to have the above problem corrected prior to next year's emissions inspection.**
- c. If the DLC TEST RESULT field has a "I" stored in it then the following message will be printed on the OBD-I/M Check Result section on the VIR: (See Section 5 Exhibit B4 for sample VIR)
  - 1) **Based on the information gathered during an attempt to perform an On Board Diagnostic test, your vehicle has an inaccessible Data Link Connector. This vehicle should have the Data Link Connector accessible to allow the check of the On Board Diagnostic computer system. This vehicle needs to have the above problem corrected prior to next year's emissions inspection.**
- d. If the DLC TEST RESULT field is "R" the program will print the following message on the OBD-I/M Check Result section on the VIR (See Section 5 Exhibit B6 for sample VIR).
  - 1) **Based on the information gathered during an attempt to perform an On Board Diagnostic test, NO RPM Signal was available from the On Board Diagnostic computer system. This vehicle should produce an RPM signal from the On Board Diagnostic computer system. This vehicle needs to have the above problem corrected prior to next year's emissions inspection.**
- e. If the DLC TEST RESULT field is "N" the program will print the following message on the OBD-I/M Check Result section on the VIR (See Section 5 Exhibit B5 for sample VIR)
  - 1) **Based on the information gathered during an attempt to perform an On Board Diagnostic test, NO Signal was available from the On Board Diagnostic computer system. This vehicle should produce a signal from the On Board Diagnostic computer system. This vehicle needs to have the above problem corrected prior to next year's emissions inspection.**
2. If the DLC TEST RESULT field has a 'P' and OBD Readiness Result has a 'P' program will store an "P" in the OVERALL EMISSIONS RESULT field of the EIS.DAT record and will store an "P" in the OVERALL TEST RESULT field of the EIS.DAT record unless the fields are already set to 'F' by the Fuel Cap, KOEO, KOER, or MIL CMD results (See Section 5 Exhibit B1 for sample VIR).
3. If the DLC TEST RESULT field has a 'P' and OBD Readiness Result has a 'F', the program will store a "P" in the OVERALL EMISSIONS RESULT field of the EIS.DAT record and will store a "P" in the OVERALL TEST RESULT field of the EIS.DAT record unless the fields are already set to 'F' by the Fuel Cap, KOEO, KOER, or MIL CMD results (See Section 5 Exhibit C1 for sample VIR).

## Pennsylvania Analytical System (PAS) – OBD (Stand Alone) Display and Program Requirements

### 3.24.4 OBD Usage Switch 'Y' & Problem Vehicle '3'



#### A. Programming Criteria:

1. If the DLC TEST RESULT field has a 'N', 'C', 'D' or 'I' the program will store an "N" in the OVERALL EMISSIONS RESULT field of the EIS.DAT record and will store an "P" in the OVERALL TEST RESULT field of the EIS.DAT record unless the OVERALL TEST RESULT field is already set to 'F' by the Fuel Cap Result.
  - a. If the DLC TEST RESULT field has a "C" stored in it then the following message will be printed on the OBD-I/M Check Result section on the VIR: (See Section 5 Exhibit B2 for sample VIR)
    - 1) **Based on the information gathered during an attempt to perform an On Board Diagnostic test, your vehicle has a Data Link Connector that cannot be located by the inspector. This vehicle should have the Onboard Computer Data Link Connector available to the inspector and functioning properly to pass the vehicle inspection. This vehicle needs to have the above problem corrected prior to next year's emissions inspection.**



## Pennsylvania Analytical System (PAS) – OBD (Stand Alone) Display and Program Requirements

---

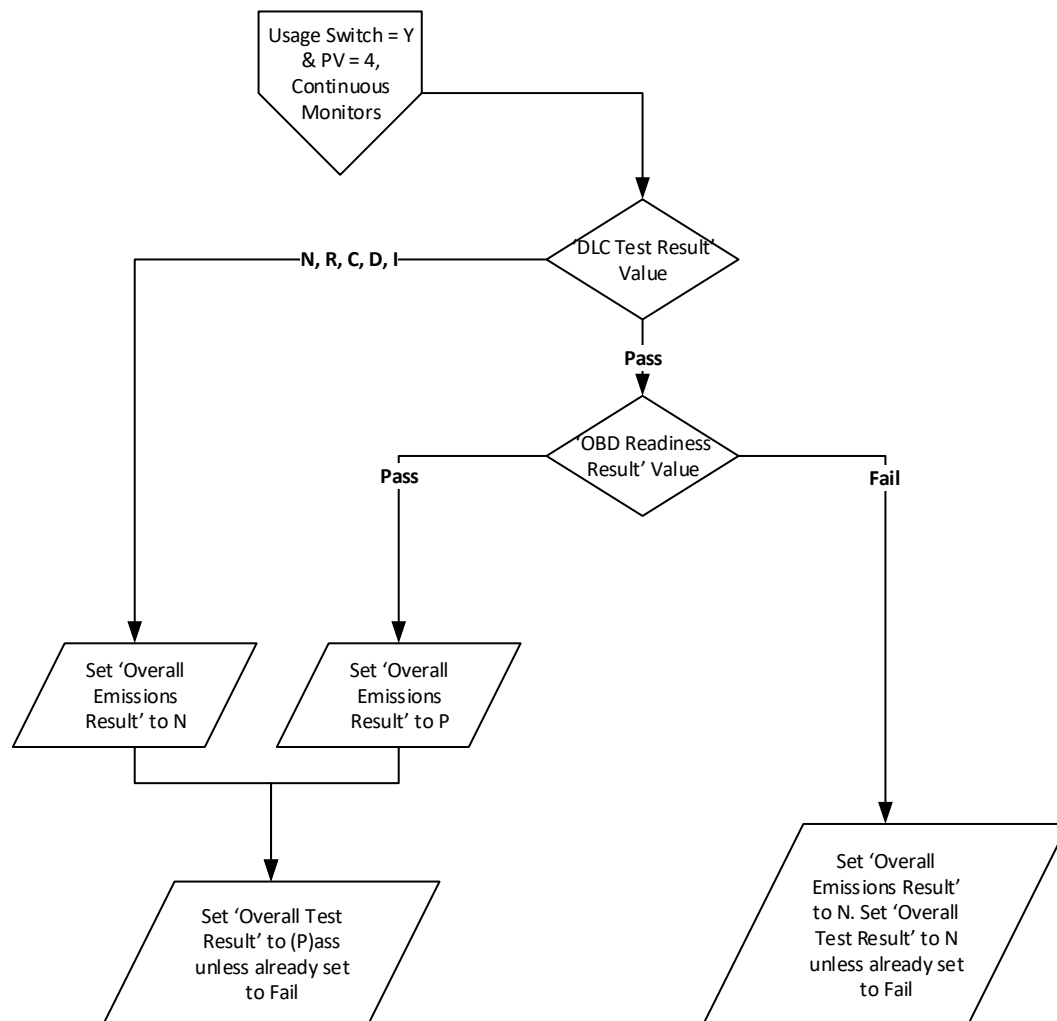


---

- b. If the DLC TEST RESULT field has a “D” stored in it then the following message will be printed on the OBD-I/M Check Result section on the VIR: (See Section 5 Exhibit B3 for sample VIR)
  - 1) **Based on the information gathered during an attempt to perform an On Board Diagnostic test, your vehicle has a missing, tampered, or broken Data Link Connector. This vehicle should have the Onboard Computer Data Link Connector functioning properly to pass the vehicle inspection. This vehicle needs to have the above problem corrected prior to next year’s emissions inspection.**
- c. If the DLC TEST RESULT field has a “I” stored in it then the following message will be printed on the OBD-I/M Check Result section on the VIR: (See Section 5 Exhibit B4 for sample VIR)
  - 1) **Based on the information gathered during an attempt to perform an On Board Diagnostic test, your vehicle has an inaccessible Data Link Connector. This vehicle should have the Data Link Connector accessible to allow the check of the On Board Diagnostic computer system. This vehicle needs to have the above problem corrected prior to next year’s emissions inspection.**
- d. If the DLC TEST RESULT field is “N” the program will print the following message on the OBD-I/M Check Result section on the VIR (See Section 5 Exhibit B5 for sample VIR)
  - 1) **Based on the information gathered during an attempt to perform an On Board Diagnostic test, NO Signal was available from the On Board Diagnostic computer system. This vehicle should produce a signal from the On Board Diagnostic computer system. This vehicle needs to have the above problem corrected prior to next year’s emissions inspection.**
- 2. If the DLC TEST RESULT field has an ‘R’ or ‘P’ and OBD Readiness Result has a ‘P’ the program will store an “P” in the OVERALL EMISSIONS RESULT field of the EIS.DAT record and will store an “P” in the OVERALL TEST RESULT field of the EIS.DAT record unless the fields are already set to ‘F’ by the Fuel Cap, KOEO, KOER, or MIL CMD results (See Section 5 Exhibit B1 for sample VIR).
- 3. If the DLC TEST RESULT field has an ‘R’ or ‘P’ and OBD Readiness Result has an ‘F’, the program will store an “N” in the OVERALL EMISSIONS RESULT field of the EIS.DAT record and will store an “N” in the OVERALL TEST RESULT field of the EIS.DAT record unless the fields are already set to ‘F’ by the Fuel Cap, KOEO, KOER, or MIL CMD results. The program will print on the VIR in the “Overall Test Result” area “NOT READY FOR TESTING” and then the following message will be printed on the OBD-I/M Check Result section on the VIR (See Section 5 Exhibit A7 for sample VIR).
  - a. **Based on the information obtained from the On Board Diagnostic System in your vehicle, the system is not ready to make a determination regarding the pollution control system on the vehicle. This situation should be corrected before the OBD system can be evaluated. Contact your vehicle service advisor.**

## Pennsylvania Analytical System (PAS) – OBD (Stand Alone) Display and Program Requirements

### 3.24.5 OBD Usage Switch 'Y' & Problem Vehicle '4'



#### A. Programming Criteria:

1. If the DLC TEST RESULT field has a 'N', 'R', 'C', 'D' or 'I' the program will store an "N" in the OVERALL EMISSIONS RESULT field of the EIS.DAT record and will store an "P" in the OVERALL TEST RESULT field of the EIS.DAT record unless the fields are already set to 'F' by the Fuel Cap, KOEO, KOER, or MIL CMD results.
  - a. If the DLC TEST RESULT field has a "C" stored in it then the following message will be printed on the OBD-I/M Check Result section on the VIR: (See Section 5 Exhibit B2 for sample VIR)
    - 1) **Based on the information gathered during an attempt to perform an On Board Diagnostic test, your vehicle has a Data Link Connector that cannot be located by the inspector. This vehicle should have the Onboard Computer Data Link Connector available to the inspector and functioning properly to pass the vehicle inspection. This vehicle needs to have the above problem corrected prior to next year's emissions inspection.**
  - b. If the DLC TEST RESULT field has a "D" stored in it then the following message will be printed on the OBD-I/M Check Result section on the VIR: (See Section 5 Exhibit B3 for sample VIR)

## Pennsylvania Analytical System (PAS) – OBD (Stand Alone) Display and Program Requirements

---

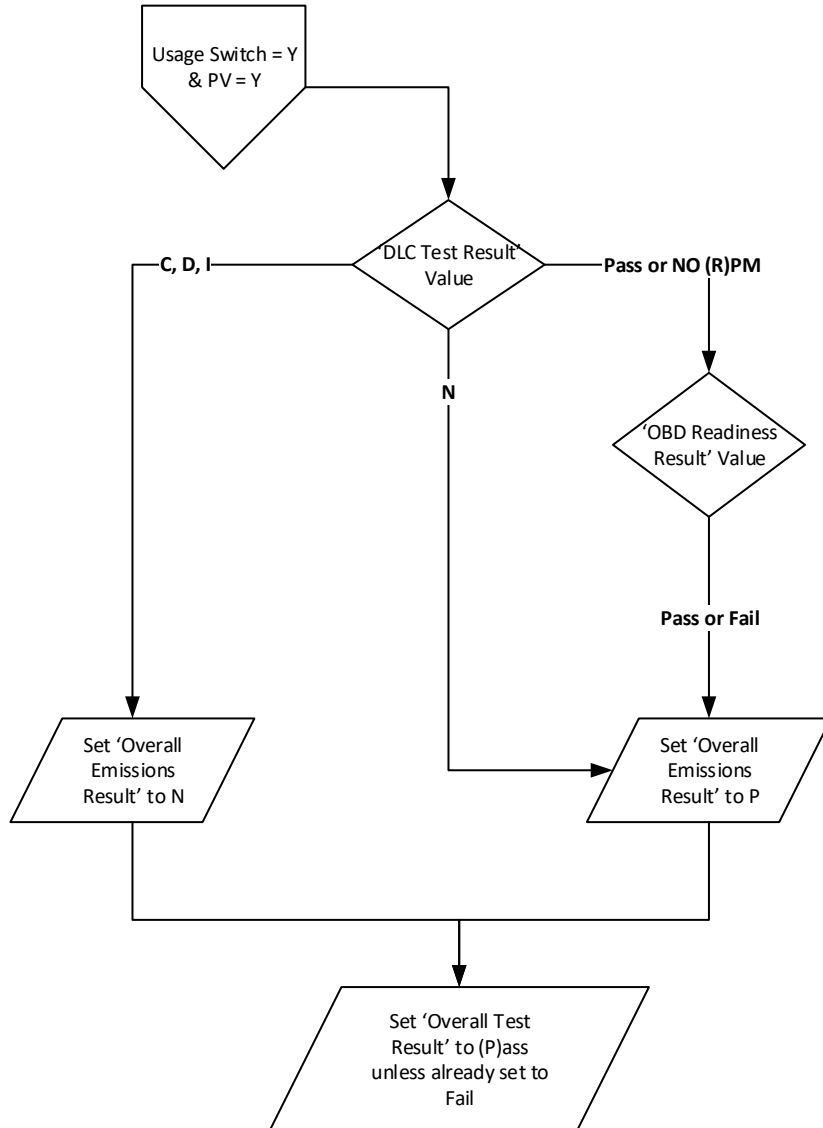


---

- 1) **Based on the information gathered during an attempt to perform an On Board Diagnostic test, your vehicle has a missing, tampered, or broken Data Link Connector. This vehicle should have the Onboard Computer Data Link Connector functioning properly to pass the vehicle inspection. This vehicle needs to have the above problem corrected prior to next year's emissions inspection.**
- c. If the DLC TEST RESULT field has a "I" stored in it then the following message will be printed on the OBD-I/M Check Result section on the VIR: (See Section 5 Exhibit B4 for sample VIR)
  - 1) **Based on the information gathered during an attempt to perform an On Board Diagnostic test, your vehicle has an inaccessible Data Link Connector. This vehicle should have the Data Link Connector accessible to allow the check of the On Board Diagnostic computer system. This vehicle needs to have the above problem corrected prior to next year's emissions inspection.**
- d. If the DLC TEST RESULT field is "R" the program will print the following message on the OBD-I/M Check Result section on the VIR (See Section 5 Exhibit B6 for sample VIR).
  - 1) **Based on the information gathered during an attempt to perform an On Board Diagnostic test, NO RPM Signal was available from the On Board Diagnostic computer system. This vehicle should produce an RPM signal from the On Board Diagnostic computer system. This vehicle needs to have the above problem corrected prior to next year's emissions inspection.**
- e. If the DLC TEST RESULT field is "N" the program will print the following message on the OBD-I/M Check Result section on the VIR (See Section 5 Exhibit B5 for sample VIR)
  - 1) **Based on the information gathered during an attempt to perform an On Board Diagnostic test, NO Signal was available from the On Board Diagnostic computer system. This vehicle should produce a signal from the On Board Diagnostic computer system. This vehicle needs to have the above problem corrected prior to next year's emissions inspection.**
2. If the DLC TEST RESULT field has a 'P' and OBD Readiness Result has a 'P' program will store an "P" in the OVERALL EMISSIONS RESULT field of the EIS.DAT record and will store an "P" in the OVERALL TEST RESULT field of the EIS.DAT record unless the fields are already set to 'F' by the Fuel Cap, KOEO, KOER, or MIL CMD results (See Section 5 Exhibit B1 for sample VIR).
3. If the DLC TEST RESULT field has a 'P' and OBD Readiness Result has an 'F', the program will store an "N" in the OVERALL EMISSIONS RESULT field of the EIS.DAT record and will store an "N" in the OVERALL TEST RESULT field of the EIS.DAT record unless the fields are already set to 'F' by the Fuel Cap, KOEO, KOER, or MIL CMD results. The program will print on the VIR in the "Overall Test Result" area "NOT READY FOR TESTING" and then the following message will be printed on the OBD-I/M Check Result section on the VIR (See Section 5 Exhibit A7 for sample VIR).
  - a. **Based on the information obtained from the On Board Diagnostic System in your vehicle, the system is not ready to make a determination regarding the pollution control system on the vehicle. This situation should be corrected before the OBD system can be evaluated. Contact your vehicle service advisor.**

## Pennsylvania Analytical System (PAS) – OBD (Stand Alone) Display and Program Requirements

### 3.24.6 OBD Usage Switch 'Y' & Problem Vehicle 'Y'



#### A. Programming Criteria:

1. If the DLC TEST RESULT field has a 'C', 'D' or 'I', the program will store an "N" in the OVERALL EMISSIONS RESULT field of the EIS.DAT record and will store a "P" in the OVERALL TEST RESULT field of the EIS.DAT record unless the fields are already set to 'F' by the Fuel Cap, KOEO, KOER, or MIL CMD results.
  - a. If the DLC TEST RESULT field has a "C" stored in it then the following message will be printed on the OBD-I/M Check Result section on the VIR: (See Section 5 Exhibit B2 for sample VIR)
    - 1) **Based on the information gathered during an attempt to perform an On Board Diagnostic test, your vehicle has a Data Link Connector that cannot be located by the inspector. This vehicle should have the Onboard Computer Data Link Connector available to the inspector and functioning properly to pass the vehicle inspection. This vehicle needs to have the above problem corrected prior to next year's emissions inspection.**

---

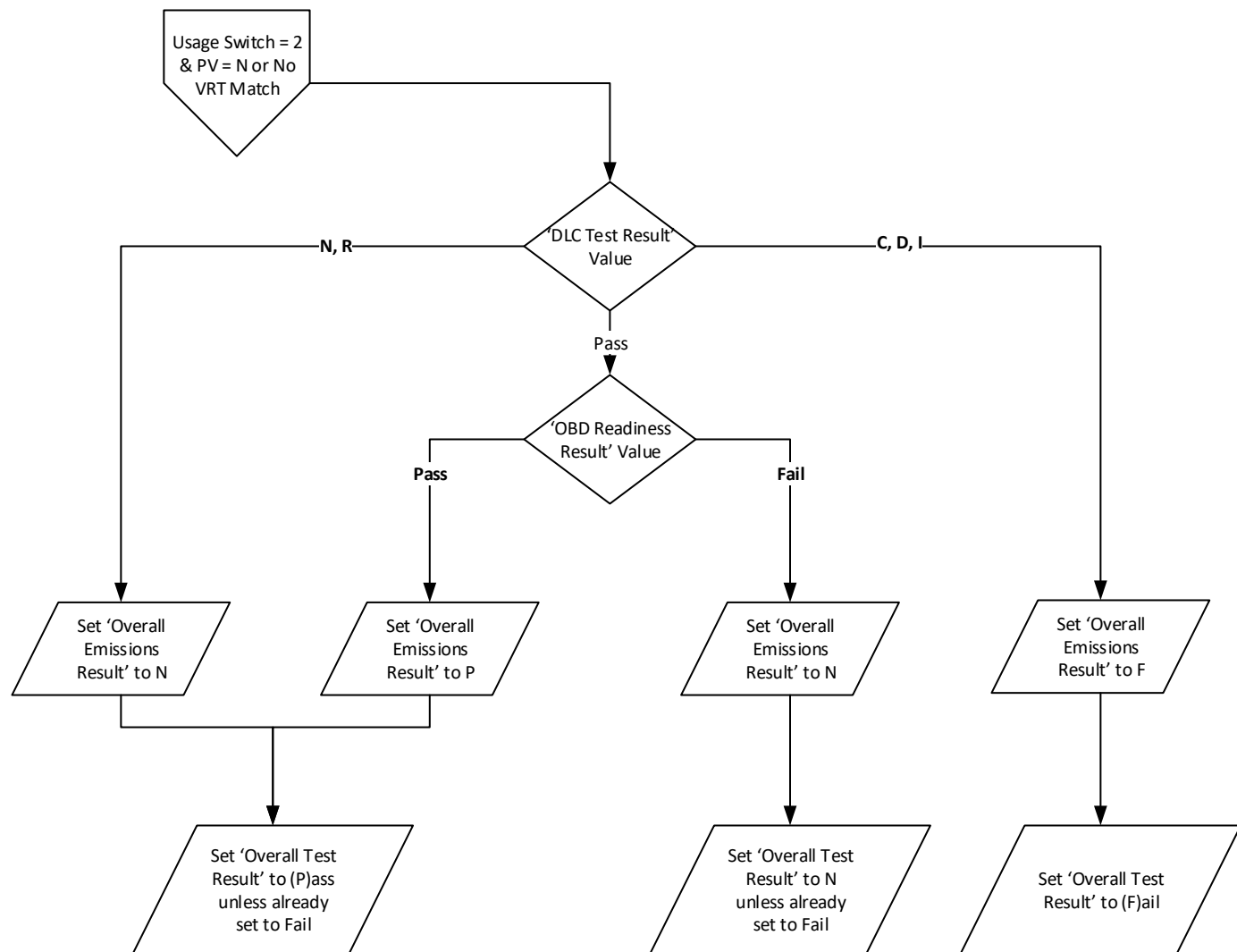
**Pennsylvania Analytical System (PAS) – OBD (Stand Alone) Display and Program Requirements**

---

- b. If the DLC TEST RESULT field has a “D” stored in it then the following message will be printed on the OBD-I/M Check Result section on the VIR: (See Section 5 Exhibit B3 for sample VIR)
  - 1) **Based on the information gathered during an attempt to perform an On Board Diagnostic test, your vehicle has a missing, tampered, or broken Data Link Connector. This vehicle should have the Onboard Computer Data Link Connector functioning properly to pass the vehicle inspection. This vehicle needs to have the above problem corrected prior to next year’s emissions inspection.**
- c. If the DLC TEST RESULT field has a “I” stored in it then the following message will be printed on the OBD-I/M Check Result section on the VIR: (See Section 5 Exhibit B4 for sample VIR)
  - 1) **Based on the information gathered during an attempt to perform an On Board Diagnostic test, your vehicle has an inaccessible Data Link Connector. This vehicle should have the Data Link Connector accessible to allow the check of the On Board Diagnostic computer system. This vehicle needs to have the above problem corrected prior to next year’s emissions inspection.**
- 2. If the DLC TEST RESULT field is “N”, the program will store a “P” in the OVERALL EMISSIONS RESULT field of the EIS.DAT record and will store a “P” in the OVERALL TEST RESULT field of the EIS.DAT record unless the fields are already set to ‘F’ by the Fuel Cap, KOEO, KOER, or MIL CMD results (See Section 5 Exhibit C4 for sample VIR).
- 3. If the DLC TEST RESULT field has an ‘R’ or ‘P’ and OBD Readiness Result has a ‘F’, the program will store an “P” in the OVERALL EMISSIONS RESULT field of the EIS.DAT record and will store an “P” in the OVERALL TEST RESULT field of the EIS.DAT record unless the fields are already set to ‘F’ by the Fuel Cap, KOEO, KOER, or MIL CMD results (See Section 5 Exhibit C1 for sample VIR).
- 4. If the DLC TEST RESULT field has an ‘R’ or ‘P’ and OBD Readiness Result has a ‘P’, the program will store an “P” in the OVERALL EMISSIONS RESULT field of the EIS.DAT record and will store an “P” in the OVERALL TEST RESULT field of the EIS.DAT record unless the fields are already set to ‘F’ by the Fuel Cap, KOEO, KOER, or MIL CMD results (See Section 5 Exhibit B1 for sample VIR).

## Pennsylvania Analytical System (PAS) – OBD (Stand Alone) Display and Program Requirements

### 3.24.7 OBD Usage Switch '2' & Problem Vehicle 'N' or No VRT Match



#### A. Programming Criteria:

1. If the DLC TEST RESULT field has a 'N', or 'R', the program will store an "N" in the OVERALL EMISSIONS RESULT field of the EIS.DAT record and will store an "P" in the OVERALL TEST RESULT field of the EIS.DAT record unless the fields are already set to 'F' by the Fuel Cap, KOEO, KOER, or MIL CMD results.
  - a. If the DLC TEST RESULT field is "R", the program will print the following message on the OBD-I/M Check Result section on the VIR (See Section 5 Exhibit B6 for sample VIR).
    - 1) **Based on the information gathered during an attempt to perform an On Board Diagnostic test, NO RPM Signal was available from the On Board Diagnostic computer system. This vehicle should produce an RPM signal from the On Board Diagnostic computer system. This vehicle needs to have the above problem corrected prior to next year's emissions inspection.**

## Pennsylvania Analytical System (PAS) – OBD (Stand Alone) Display and Program Requirements

---

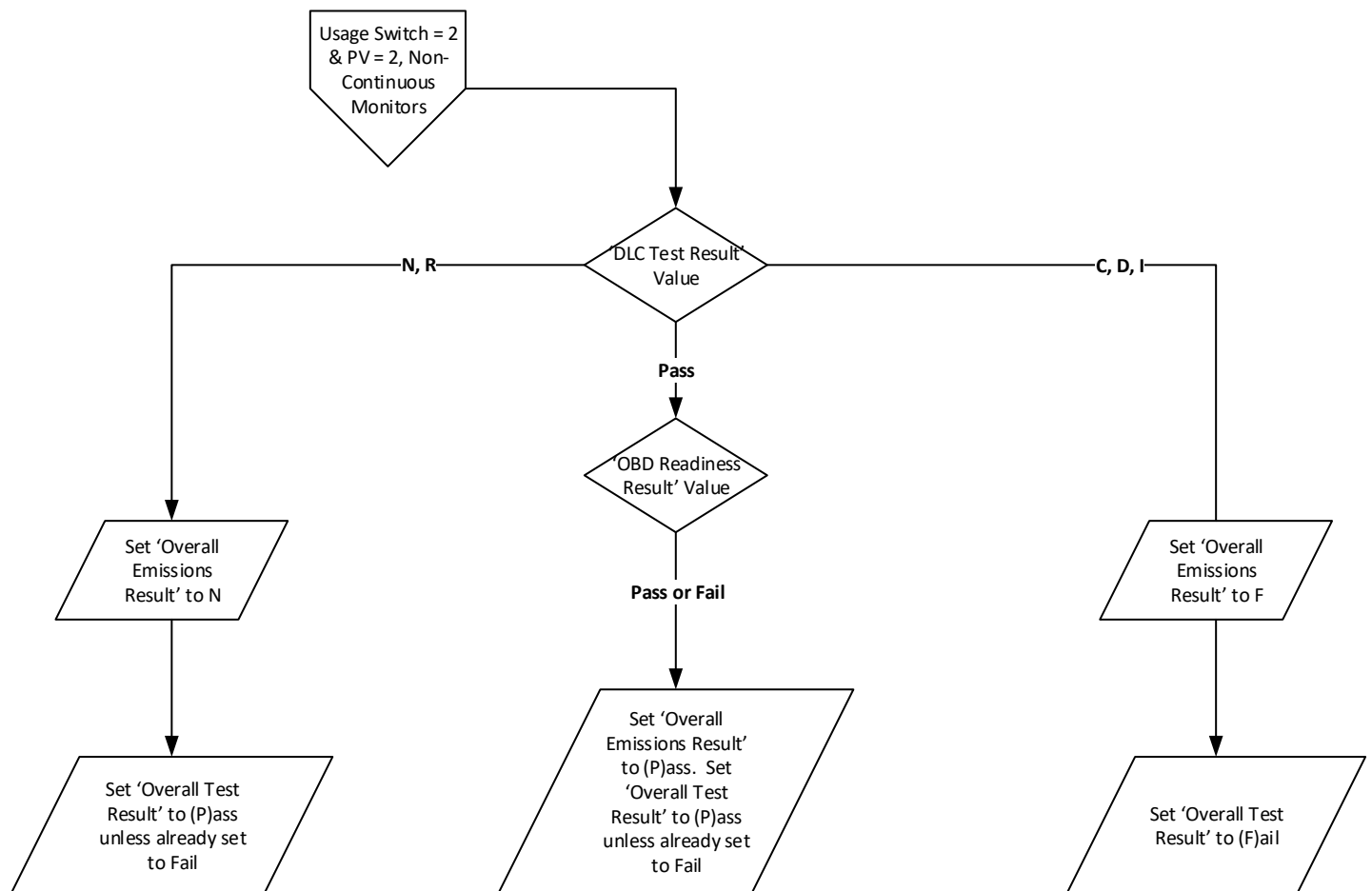


---

- b. If the DLC TEST RESULT field is “N”, the program will print the following message on the OBD-I/M Check Result section on the VIR (See Section 5 Exhibit B5 for sample VIR)
  - 1) **Based on the information gathered during an attempt to perform an On Board Diagnostic test, NO Signal was available from the On Board Diagnostic computer system. This vehicle should produce a signal from the On Board Diagnostic computer system. This vehicle needs to have the above problem corrected prior to next year’s emissions inspection.**
2. If the DLC TEST RESULT field has a ‘C’, ‘D’ or ‘I’, the program will store an “F” in the OVERALL EMISSIONS RESULT field of the EIS.DAT record and will store an “F” in the OVERALL TEST RESULT field of the EIS.DAT record.
  - a. If the DLC TEST RESULT field has a “C” stored in it then the following message will be printed on the OBD-I/M Check Result section on the VIR: (See Section 5 Exhibit A2 for sample VIR)
    - 1) **Based on the information gathered during an attempt to perform an On Board Diagnostic test, your vehicle has a Data Link Connector that cannot be located by the inspector. This vehicle should have the Onboard Computer Data Link Connector available to the inspector and functioning properly to pass the vehicle inspection.**
  - b. If the DLC TEST RESULT field has a “D” stored in it then the following message will be printed on the OBD-I/M Check Result section on the VIR: (See Section 5 Exhibit A3 for sample VIR)
    - 1) **Based on the information gathered during an attempt to perform an On Board Diagnostic test, your vehicle has a missing, tampered, or broken Data Link Connector. This vehicle should have the Onboard Computer Data Link Connector functioning properly to pass the vehicle inspection.**
  - c. If the DLC TEST RESULT field has a “I” stored in it then the following message will be printed on the OBD-I/M Check Result section on the VIR: (See Section 5 Exhibit A4 for sample VIR)
    - 1) **Based on the information gathered during an attempt to perform an On Board Diagnostic test, your vehicle has an inaccessible Data Link Connector. This vehicle should have the Data Link Connector accessible to allow the check of the On Board Diagnostic computer system.**
3. If the DLC TEST RESULT field has a ‘P’ and OBD Readiness Result has a ‘P’, program will store a “P” in the OVERALL EMISSIONS RESULT field of the EIS.DAT record and will store an “P” in the OVERALL TEST RESULT field of the EIS.DAT record unless the fields are already set to ‘F’ by the Fuel Cap, KOEO, KOER, or MIL CMD results (See Section 5 Exhibit B1 for sample VIR).
4. If the DLC TEST RESULT field has a ‘P’ and OBD Readiness Result has an ‘F’, program will store an “N” in the OVERALL EMISSIONS RESULT field of the EIS.DAT record and will store an “N” in the OVERALL TEST RESULT field of the EIS.DAT record unless the fields are already set to ‘F’ by the Fuel Cap, KOEO, KOER, or MIL CMD results. The program will print on the VIR in the “Overall Test Result” area “NOT READY FOR TESTING” and then the following message will be printed on the OBD-I/M Check Result section on the VIR (See Section 5 Exhibit A7 for sample VIR).
  - a. **Based on the information obtained from the On Board Diagnostic System in your vehicle, the system is not ready to make a determination regarding the pollution control system on the vehicle. This situation should be corrected before the OBD system can be evaluated. Contact your vehicle service advisor.**

## Pennsylvania Analytical System (PAS) – OBD (Stand Alone) Display and Program Requirements

### 3.24.8 OBD Usage Switch '2' & Problem Vehicle '2'



#### A. Programming Criteria:

1. If the DLC TEST RESULT field has a 'C', 'D' or 'I' the program will store an "F" in the OVERALL EMISSIONS RESULT field of the EIS.DAT record and will store an "F" in the OVERALL TEST RESULT field of the EIS.DAT record,
  - a. If the DLC TEST RESULT field has a "C" stored in it then the following message will be printed on the OBD-I/M Check Result section on the VIR: (See Section 5 Exhibit A2 for sample VIR)
    - 1) **Based on the information gathered during an attempt to perform an On Board Diagnostic test, your vehicle has a Data Link Connector that cannot be located by the inspector. This vehicle should have the Onboard Computer Data Link Connector available to the inspector and functioning properly to pass the vehicle inspection.**
  - b. If the DLC TEST RESULT field has a "D" stored in it then the following message will be printed on the OBD-I/M Check Result section on the VIR: (See Section 5 Exhibit A3 for sample VIR)
    - 1) **Based on the information gathered during an attempt to perform an On Board Diagnostic test, your vehicle has a missing, tampered, or broken Data Link Connector. This vehicle should have the Onboard Computer Data Link Connector functioning properly to pass the vehicle inspection.**



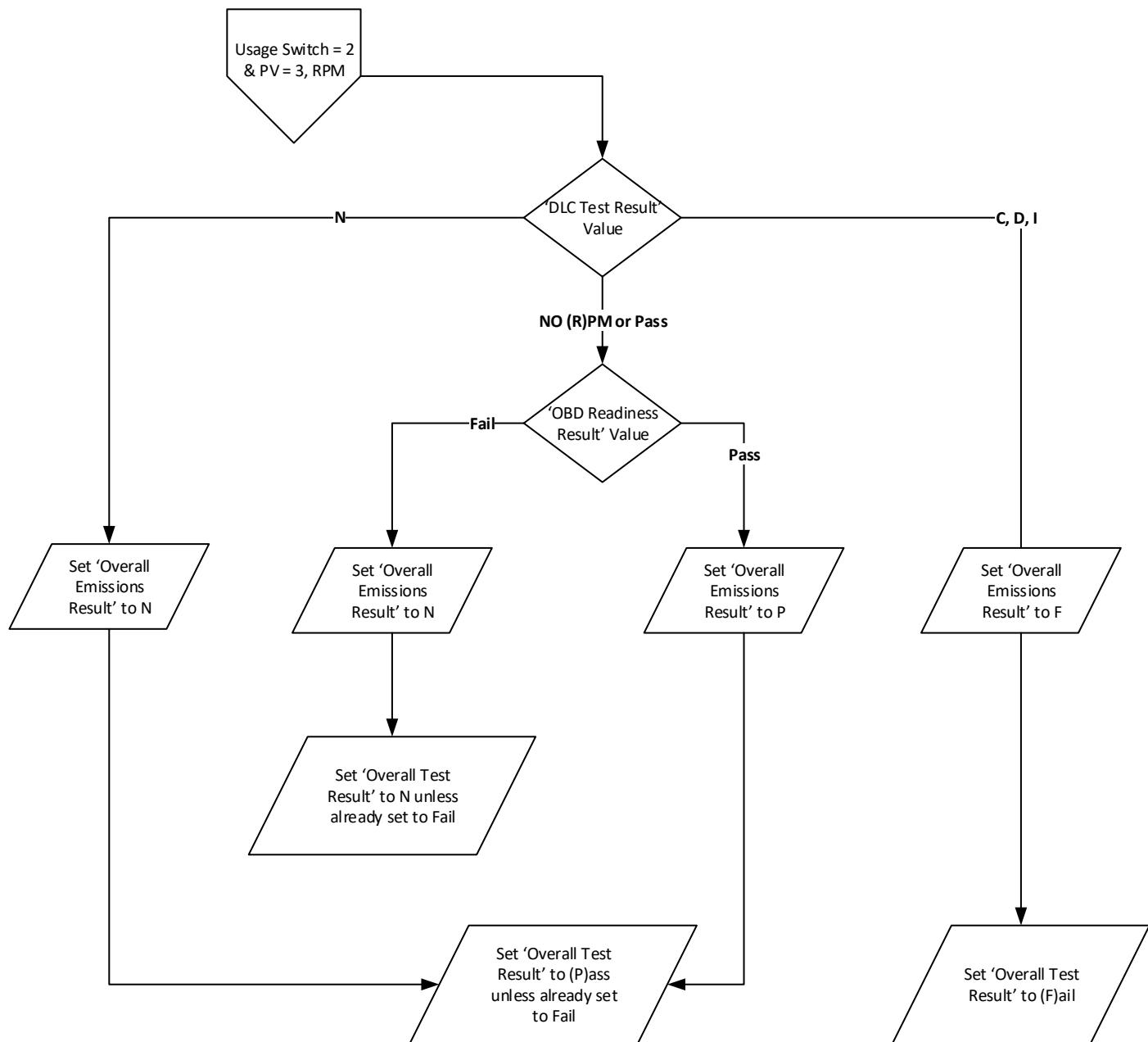
**Pennsylvania Analytical System (PAS) – OBD (Stand Alone) Display and Program Requirements**

---

- c. If the DLC TEST RESULT field has a “I” stored in it then the following message will be printed on the OBD-I/M Check Result section on the VIR: (See Section 5 Exhibit A4 for sample VIR)
  - 1) **Based on the information gathered during an attempt to perform an On Board Diagnostic test, your vehicle has an inaccessible Data Link Connector. This vehicle should have the Data Link Connector accessible to allow the check of the On Board Diagnostic computer system.**
2. If the DLC TEST RESULT field has a ‘N’ or ‘R’, the program will store an ‘N’ in the OVERALL EMISSIONS RESULT field of the EIS.DAT record and will store an “P” in the OVERALL TEST RESULT field of the EIS.DAT record unless the fields are already set to ‘F’ by the Fuel Cap, KOEO, KOER, or MIL CMD results.
  - a. If the DLC TEST RESULT field is ‘R’, the program will print the following message on the OBD-I/M Check Result section on the VIR (See Section 5 Exhibit B6 for sample VIR).
    - 1) **Based on the information gathered during an attempt to perform an On Board Diagnostic test, NO RPM Signal was available from the On Board Diagnostic computer system. This vehicle should produce an RPM signal from the On Board Diagnostic computer system. This vehicle needs to have the above problem corrected prior to next year’s emissions inspection.**
  - b. If the DLC TEST RESULT field is ‘N’, the program will print the following message on the OBD-I/M Check Result section on the VIR (See Section 5 Exhibit B5 for sample VIR)
    - 1) **Based on the information gathered during an attempt to perform an On Board Diagnostic test, NO Signal was available from the On Board Diagnostic computer system. This vehicle should produce a signal from the On Board Diagnostic computer system. This vehicle needs to have the above problem corrected prior to next year’s emissions inspection.**
3. If the DLC TEST RESULT field has a ‘P’ and OBD Readiness Result has a ‘P’ program will store a ‘P’ in the OVERALL EMISSIONS RESULT field of the EIS.DAT record and will store an ‘P’ in the OVERALL TEST RESULT field of the EIS.DAT record unless the fields are already set to ‘F’ by the Fuel Cap, KOEO, KOER, or MIL CMD results (See Section 5 Exhibit B1 for sample VIR).
4. If the DLC TEST RESULT field has a ‘P’ and OBD Readiness Result has an ‘F’, the program will store a ‘P’ in the OVERALL EMISSIONS RESULT field of the EIS.DAT record and will store a ‘P’ in the OVERALL TEST RESULT field of the EIS.DAT record unless the fields are already set to ‘F’ by the Fuel Cap, KOEO, KOER, or MIL CMD results (See Section 5 Exhibit C1 for sample VIR).

## Pennsylvania Analytical System (PAS) – OBD (Stand Alone) Display and Program Requirements

### 3.24.9 OBD Usage Switch '2' & Problem Vehicle '3'



#### A. Programming Criteria:

1. If the DLC TEST RESULT field has an 'N' the program will store an "N" in the OVERALL EMISSIONS RESULT field of the EIS.DAT record and will store an "P" in the OVERALL TEST RESULT field of the EIS.DAT record unless the fields are already set to 'F' by the Fuel Cap, KOEO, KOER, or MIL CMD results and will print the following message on the OBD-I/M Check Result section on the VIR (See Section 5 Exhibit B5 for sample VIR)
  - a. **Based on the information gathered during an attempt to perform an On Board Diagnostic test, NO Signal was available from the On Board Diagnostic computer system. This vehicle should produce a signal from the On Board Diagnostic computer system. This vehicle needs to have the above problem corrected prior to next year's emissions inspection.**

## Pennsylvania Analytical System (PAS) – OBD (Stand Alone) Display and Program Requirements

---

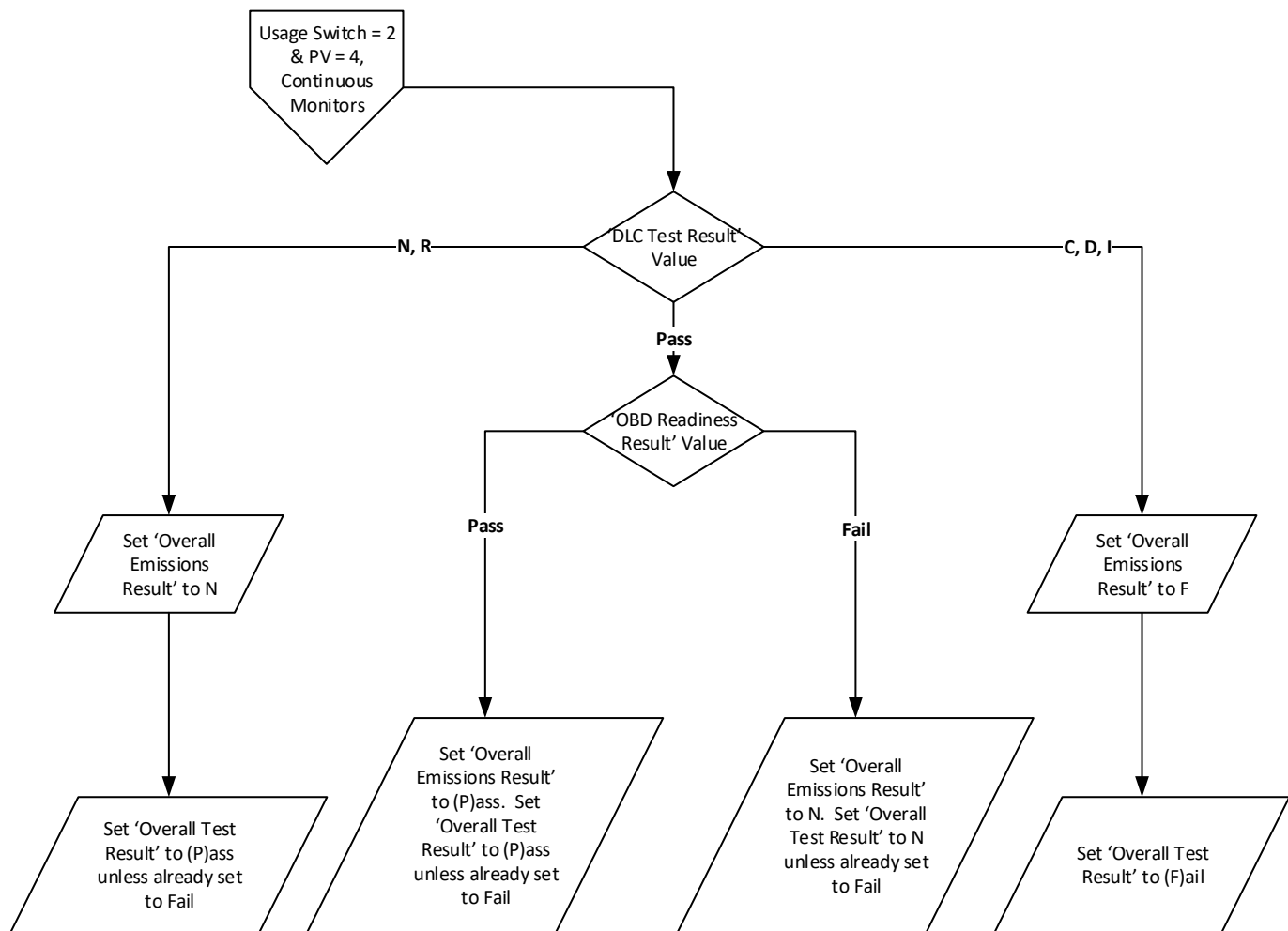


---

2. If the DLC TEST RESULT field has a 'C', 'D' or 'I' the program will store an "F" in the OVERALL EMISSIONS RESULT field of the EIS.DAT record and will store an "F" in the OVERALL TEST RESULT field of the EIS.DAT record.
  - a. If the DLC TEST RESULT field has a "C" stored in it then the following message will be printed on the OBD-I/M Check Result section on the VIR: (See Section 5 Exhibit A2 for sample VIR)
    - 1) **Based on the information gathered during an attempt to perform an On Board Diagnostic test, your vehicle has a Data Link Connector that cannot be located by the inspector. This vehicle should have the Onboard Computer Data Link Connector available to the inspector and functioning properly to pass the vehicle inspection.**
  - b. If the DLC TEST RESULT field has a "D" stored in it then the following message will be printed on the OBD-I/M Check Result section on the VIR: (See Section 5 Exhibit A3 for sample VIR)
    - 1) **Based on the information gathered during an attempt to perform an On Board Diagnostic test, your vehicle has a missing, tampered, or broken Data Link Connector. This vehicle should have the Onboard Computer Data Link Connector functioning properly to pass the vehicle inspection.**
  - c. If the DLC TEST RESULT field has a "I" stored in it then the following message will be printed on the OBD-I/M Check Result section on the VIR: (See Section 5 Exhibit A4 for sample VIR)
    - 1) **Based on the information gathered during an attempt to perform an On Board Diagnostic test, your vehicle has an inaccessible Data Link Connector. This vehicle should have the Data Link Connector accessible to allow the check of the On Board Diagnostic computer system.**
3. If the DLC TEST RESULT field has an 'R' or 'P' and OBD Readiness Result has a 'P' the program will store an "P" in the OVERALL EMISSIONS RESULT field of the EIS.DAT record and will store an "P" in the OVERALL TEST RESULT field of the EIS.DAT record unless the fields are already set to 'F' by the Fuel Cap, KOEO, KOER, or MIL CMD results (See Section 5 Exhibit B1 for sample VIR).
4. If the DLC TEST RESULT field has an 'R' or 'P' and OBD Readiness Result has a 'F', the program will store an "N" in the OVERALL EMISSIONS RESULT field of the EIS.DAT record and will store an "N" in the OVERALL TEST RESULT field of the EIS.DAT record unless the fields are already set to 'F' by the Fuel Cap, KOEO, KOER, or MIL CMD results. The program will print on the VIR in the "Overall Test Result" area "NOT READY FOR TESTING" and then the following message will be printed on the OBD-I/M Check Result section on the VIR (See Section 5 Exhibit A7 for sample VIR).
  - a. **Based on the information obtained from the On Board Diagnostic System in your vehicle, the system is not ready to make a determination regarding the pollution control system on the vehicle. This situation should be corrected before the OBD system can be evaluated. Contact your vehicle service advisor.**

## Pennsylvania Analytical System (PAS) – OBD (Stand Alone) Display and Program Requirements

### 3.24.10 OBD Usage Switch '2' & Problem Vehicle '4'



#### A. Programming Criteria:

1. If the DLC TEST RESULT field has a 'N', or 'R', the program will store an "N" in the OVERALL EMISSIONS RESULT field of the EIS.DAT record and will store an "P" in the OVERALL TEST RESULT field of the EIS.DAT record unless the fields are already set to 'F' by the Fuel Cap, KOEO, KOER, or MIL CMD results.
  - a. If the DLC TEST RESULT field is "R", the program will print the following message on the OBD-I/M Check Result section on the VIR (See Section 5 Exhibit B6 for sample VIR).
    - 1) **Based on the information gathered during an attempt to perform an On Board Diagnostic test, NO RPM Signal was available from the On Board Diagnostic computer system. This vehicle should produce an RPM signal from the On Board Diagnostic computer system. This vehicle needs to have the above problem corrected prior to next year's emissions inspection.**
  - b. If the DLC TEST RESULT field is "N", the program will print the following message on the OBD-I/M Check Result section on the VIR (See Section 5 Exhibit B5 for sample VIR).
    - 1) **Based on the information gathered during an attempt to perform an On Board Diagnostic test, NO Signal was available from the On Board Diagnostic computer system. This vehicle should produce**

**Pennsylvania Analytical System (PAS) – OBD (Stand Alone) Display and Program Requirements**

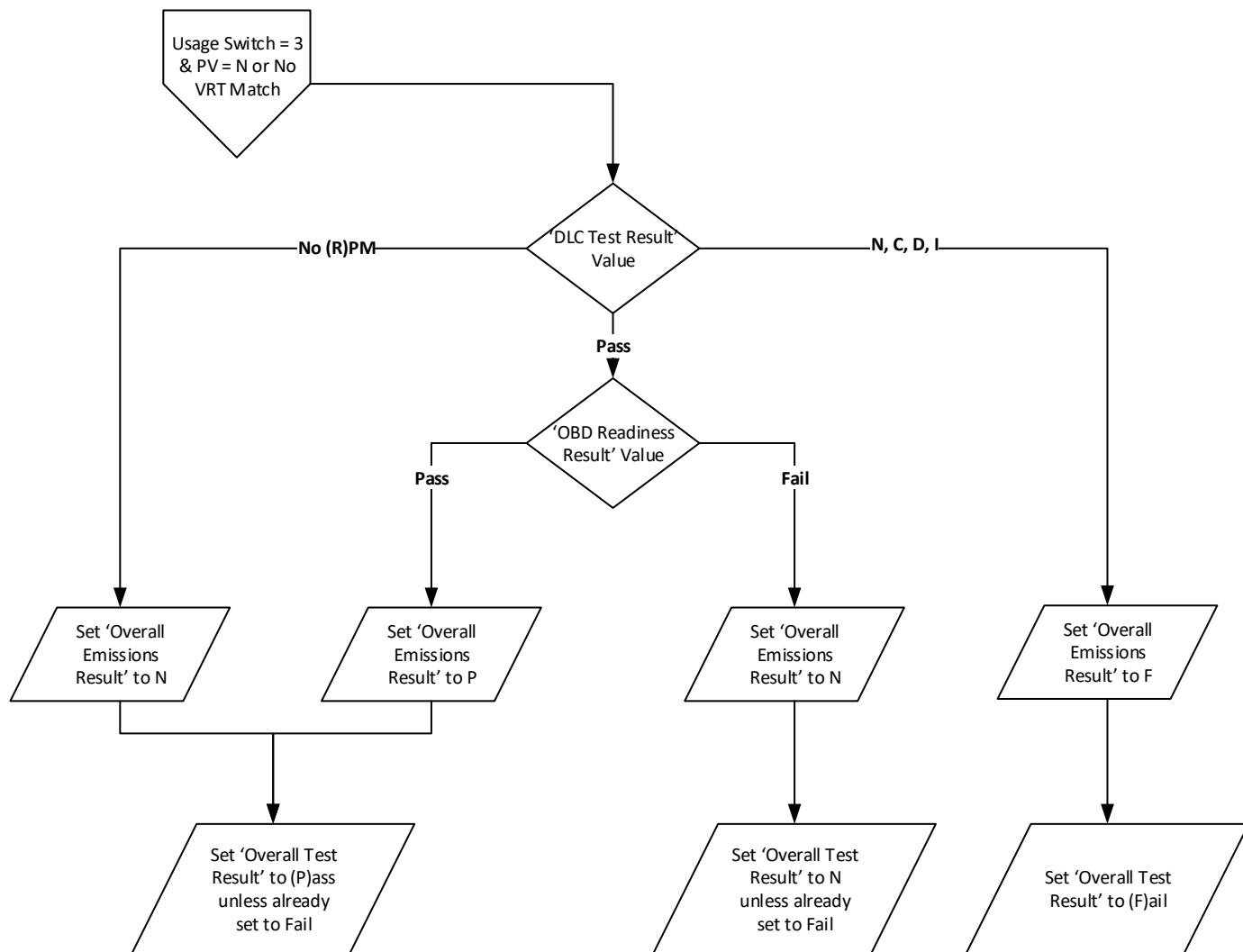
---

**a signal from the On Board Diagnostic computer system. This vehicle needs to have the above problem corrected prior to next year's emissions inspection.**

2. If the DLC TEST RESULT field has a 'C', 'D' or 'I', the program will store an "F" in the OVERALL EMISSIONS RESULT field of the EIS.DAT record and will store an "F" in the OVERALL TEST RESULT field of the EIS.DAT record.
  - a. If the DLC TEST RESULT field has a "C" stored in it then the following message will be printed on the OBD-I/M Check Result section on the VIR (See Section 5 Exhibit A2 for sample VIR).
    - 1) **Based on the information gathered during an attempt to perform an On Board Diagnostic test, your vehicle has a Data Link Connector that cannot be located by the inspector. This vehicle should have the Onboard Computer Data Link Connector available to the inspector and functioning properly to pass the vehicle inspection.**
  - b. If the DLC TEST RESULT field has a "D" stored in it then the following message will be printed on the OBD-I/M Check Result section on the VIR (See Section 5 Exhibit A3 for sample VIR).
    - 1) **Based on the information gathered during an attempt to perform an On Board Diagnostic test, your vehicle has a missing, tampered, or broken Data Link Connector. This vehicle should have the Onboard Computer Data Link Connector functioning properly to pass the vehicle inspection.**
  - c. If the DLC TEST RESULT field has a "I" stored in it then the following message will be printed on the OBD-I/M Check Result section on the VIR (See Section 5 Exhibit A4 for sample VIR).
    - 1) **Based on the information gathered during an attempt to perform an On Board Diagnostic test, your vehicle has an inaccessible Data Link Connector. This vehicle should have the Data Link Connector accessible to allow the check of the On Board Diagnostic computer system.**
3. If the DLC TEST RESULT field has a 'P' and OBD Readiness Result has a 'P' program will store an "P" in the OVERALL EMISSIONS RESULT field of the EIS.DAT record and will store an "P" in the OVERALL TEST RESULT field of the EIS.DAT record unless the fields are already set to 'F' by the Fuel Cap, KOEO, KOER, or MIL CMD results (See Section 5 Exhibit B1 for sample VIR).
4. If the DLC TEST RESULT field has a 'P' and OBD Readiness Result has a 'F', the program will store an "N" in the OVERALL EMISSIONS RESULT field of the EIS.DAT record and will store an "N" in the OVERALL TEST RESULT field of the EIS.DAT record unless the fields are already set to 'F' by the Fuel Cap, KOEO, KOER, or MIL CMD results. The program will print on the VIR in the "Overall Test Result" area "NOT READY FOR TESTING" and the following message will be printed on the OBD-I/M Check Result section on the VIR (See Section 5 Exhibit A7 for sample VIR).
  - a. **Based on the information obtained from the On Board Diagnostic System in your vehicle, the system is not ready to make a determination regarding the pollution control system on the vehicle. This situation should be corrected before the OBD system can be evaluated. Contact your vehicle service advisor.**

## Pennsylvania Analytical System (PAS) – OBD (Stand Alone) Display and Program Requirements

### 3.24.11 OBD Usage Switch '3' & Problem Vehicle 'N' or No VRT Match



#### A. Programming Criteria:

1. If the DLC TEST RESULT field has a 'N', 'C', 'D' or 'I' the program will store an "F" in the OVERALL EMISSIONS RESULT field of the EIS.DAT record and will store an "F" in the OVERALL TEST RESULT field of the EIS.DAT record.
  - a. If the DLC TEST RESULT field has a "C" stored in it then the following message will be printed on the OBD-I/M Check Result section on the VIR: (See Section 5 Exhibit A2 for sample VIR)
    - 1) **Based on the information gathered during an attempt to perform an On Board Diagnostic test, your vehicle has a Data Link Connector that cannot be located by the inspector. This vehicle should have the Onboard Computer Data Link Connector available to the inspector and functioning properly to pass the vehicle inspection.**
  - b. If the DLC TEST RESULT field has a "D" stored in it then the following message will be printed on the OBD-I/M Check Result section on the VIR: (See Section 5 Exhibit A3 for sample VIR)

## Pennsylvania Analytical System (PAS) – OBD (Stand Alone) Display and Program Requirements

---

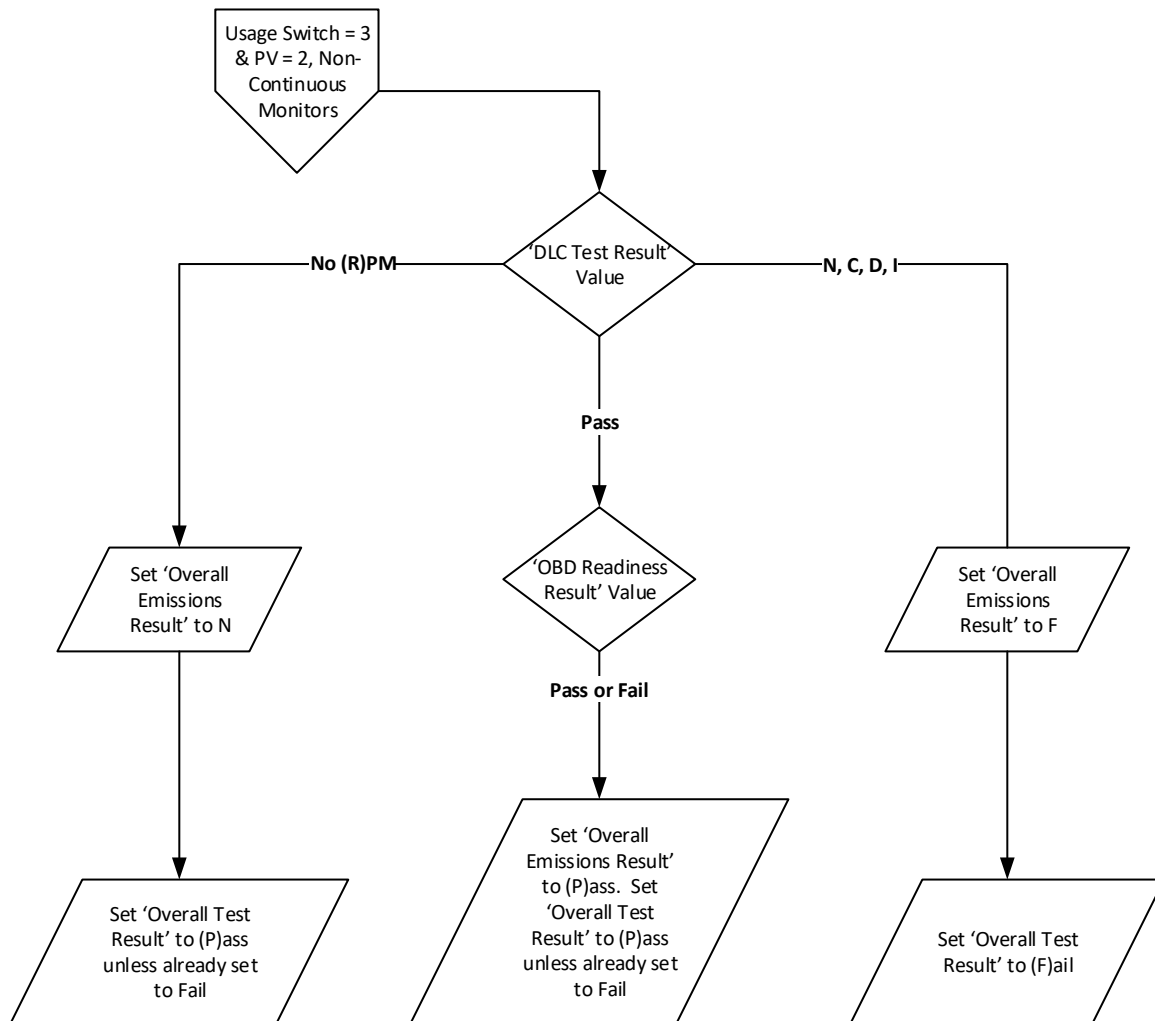


---

- 1) **Based on the information gathered during an attempt to perform an On Board Diagnostic test, your vehicle has a missing, tampered, or broken Data Link Connector. This vehicle should have the Onboard Computer Data Link Connector functioning properly to pass the vehicle inspection.**
- c. If the DLC TEST RESULT field has a “I” stored in it then the following message will be printed on the OBD-I/M Check Result section on the VIR: (See Section 5 Exhibit A4 for sample VIR)
  - 1) **Based on the information gathered during an attempt to perform an On Board Diagnostic test, your vehicle has an inaccessible Data Link Connector. This vehicle should have the Data Link Connector accessible to allow the check of the On Board Diagnostic computer system.**
- d. If the DLC TEST RESULT field is “N” the program will print the following message on the OBD-I/M Check Result section on the VIR (See Section 5 Exhibit A5 for sample VIR)
  - 1) **Based on the information gathered during an attempt to perform an On Board Diagnostic test, NO Signal was available from the On Board Diagnostic computer system. This vehicle should produce a signal from the On Board Diagnostic computer system.**
2. If the DLC TEST RESULT field has an ‘R’ the program will store an “N” in the OVERALL EMISSIONS RESULT field of the EIS.DAT record and will store an “P” in the OVERALL TEST RESULT field of the EIS.DAT record unless the fields are already set to ‘F’ by the Fuel Cap, KOEO, KOER, or MIL CMD results. The program will print the following message on the OBD-I/M Check Result section on the VIR (See Section 5 Exhibit B6 for sample VIR).
  - a. **Based on the information gathered during an attempt to perform an On Board Diagnostic test, NO RPM Signal was available from the On Board Diagnostic computer system. This vehicle should produce an RPM signal from the On Board Diagnostic computer system. This vehicle needs to have the above problem corrected prior to next year’s emissions inspection.**
3. If the DLC TEST RESULT field has a ‘P’ and OBD Readiness Result has a ‘P’ program will store an “P” in the OVERALL EMISSIONS RESULT field of the EIS.DAT record and will store an “P” in the OVERALL TEST RESULT field of the EIS.DAT record unless the fields are already set to ‘F’ by the Fuel Cap, KOEO, KOER, or MIL CMD results (See Section 5 Exhibit B1 for sample VIR).
4. If the DLC TEST RESULT field has a ‘P’ and OBD Readiness Result has a ‘F’ program will store an “N” in the OVERALL EMISSIONS RESULT field of the EIS.DAT record and will store an “N” in the OVERALL TEST RESULT field of the EIS.DAT record unless the fields are already set to ‘F’ by the Fuel Cap, KOEO, KOER, or MIL CMD results. The program will print on the VIR in the “Overall Test Result” area “NOT READY FOR TESTING” and the following message will be printed on the OBD-I/M Check Result section on the VIR (See Section 5 Exhibit A7 for sample VIR).
  - a. **Based on the information obtained from the On Board Diagnostic System in your vehicle, the system is not ready to make a determination regarding the pollution control system on the vehicle. This situation should be corrected before the OBD system can be evaluated. Contact your vehicle service advisor.**

## Pennsylvania Analytical System (PAS) – OBD (Stand Alone) Display and Program Requirements

### 3.24.12 OBD Usage Switch '3' & Problem Vehicle '2'



#### A. Programming Criteria:

1. If the DLC TEST RESULT field has a 'N', 'C', 'D' or 'I' the program will store an "F" in the OVERALL EMISSIONS RESULT field of the EIS.DAT record and will store an "F" in the OVERALL TEST RESULT field of the EIS.DAT record,
  - a. If the DLC TEST RESULT field has a "C" stored in it then the following message will be printed on the OBD-I/M Check Result section on the VIR: (See Section 5 Exhibit A2 for sample VIR)
    - 1) **Based on the information gathered during an attempt to perform an On Board Diagnostic test, your vehicle has a Data Link Connector that cannot be located by the inspector. This vehicle should have the Onboard Computer Data Link Connector available to the inspector and functioning properly to pass the vehicle inspection.**
  - b. If the DLC TEST RESULT field has a "D" stored in it then the following message will be printed on the OBD-I/M Check Result section on the VIR: (See Section 5 Exhibit A3 for sample VIR)



## Pennsylvania Analytical System (PAS) – OBD (Stand Alone) Display and Program Requirements

---

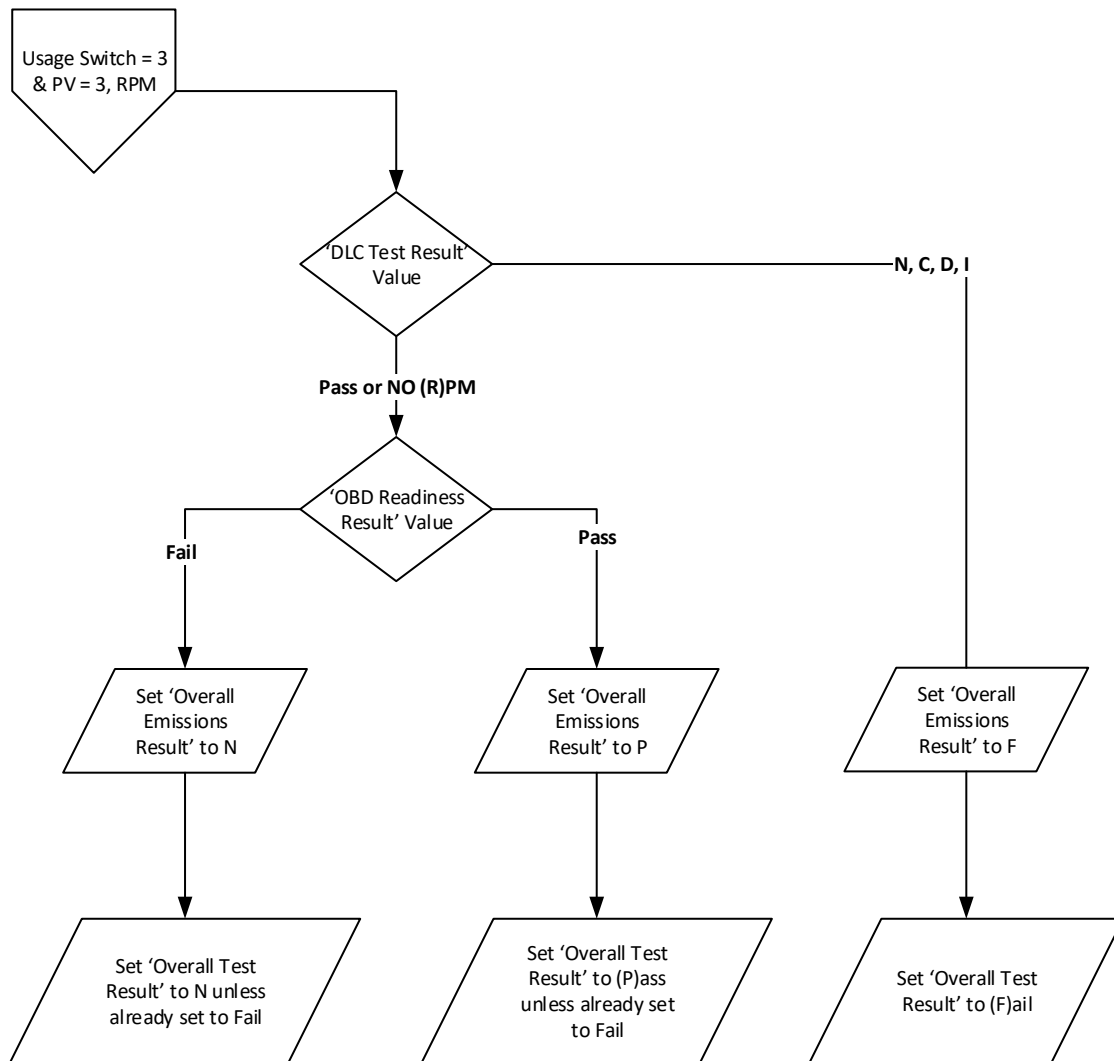


---

- 1) **Based on the information gathered during an attempt to perform an On Board Diagnostic test, your vehicle has a missing, tampered, or broken Data Link Connector. This vehicle should have the Onboard Computer Data Link Connector functioning properly to pass the vehicle inspection.**
- c. If the DLC TEST RESULT field has a “I” stored in it then the following message will be printed on the OBD-I/M Check Result section on the VIR: (See Section 5 Exhibit A4 for sample VIR)
  - 1) **Based on the information gathered during an attempt to perform an On Board Diagnostic test, your vehicle has an inaccessible Data Link Connector. This vehicle should have the Data Link Connector accessible to allow the check of the On Board Diagnostic computer system.**
- d. If the DLC TEST RESULT field is “N” the program will print the following message on the OBD-I/M Check Result section on the VIR (See Section 5 Exhibit A5 for sample VIR)
  - 1) **Based on the information gathered during an attempt to perform an On Board Diagnostic test, NO Signal was available from the On Board Diagnostic computer system. This vehicle should produce a signal from the On Board Diagnostic computer system.**
2. If the DLC TEST RESULT field has a ‘R’ the program will store an “N” in the OVERALL EMISSIONS RESULT field of the EIS.DAT record and will store an “P” in the OVERALL TEST RESULT field of the EIS.DAT record unless the fields are already set to ‘F’ by the Fuel Cap, KOEO, KOER, or MIL CMD results. The program will print the following message on the OBD-I/M Check Result section on the VIR (See Section 5 Exhibit B6 for sample VIR).
  - a. **Based on the information gathered during an attempt to perform an On Board Diagnostic test, NO RPM Signal was available from the On Board Diagnostic computer system. This vehicle should produce an RPM signal from the On Board Diagnostic computer system. This vehicle needs to have the above problem corrected prior to next year’s emissions inspection.**
3. If the DLC TEST RESULT field has a ‘P’ and OBD Readiness Result has a ‘P’ program will store an “P” in the OVERALL EMISSIONS RESULT field of the EIS.DAT record and will store an “P” in the OVERALL TEST RESULT field of the EIS.DAT record unless the fields are already set to ‘F’ by the Fuel Cap, KOEO, KOER, or MIL CMD results (See Section 5 Exhibit B1 for sample VIR).
4. If the DLC TEST RESULT field has a ‘P’ and OBD Readiness Result has a ‘F’, the program will store a “P” in the OVERALL EMISSIONS RESULT field of the EIS.DAT record and will store an “P” in the OVERALL TEST RESULT field of the EIS.DAT record unless the fields are already set to ‘F’ by the Fuel Cap, KOEO, KOER, or MIL CMD results (See Section 5 Exhibit C1 for sample VIR).

## Pennsylvania Analytical System (PAS) – OBD (Stand Alone) Display and Program Requirements

### 3.24.13 OBD Usage Switch '3' & Problem Vehicle '3'



#### A. Programming Criteria:

1. If the DLC TEST RESULT field has a 'N', 'C', 'D' or 'I' the program will store an "F" in the OVERALL EMISSIONS RESULT field of the EIS.DAT record and will store an "F" in the OVERALL TEST RESULT field of the EIS.DAT record.
  - a. If the DLC TEST RESULT field has a "C" stored in it then the following message will be printed on the OBD-I/M Check Result section on the VIR: (See Section 5 Exhibit A2 for sample VIR)
    - 1) **Based on the information gathered during an attempt to perform an On Board Diagnostic test, your vehicle has a Data Link Connector that cannot be located by the inspector. This vehicle should have the Onboard Computer Data Link Connector available to the inspector and functioning properly to pass the vehicle inspection.**
  - b. If the DLC TEST RESULT field has a "D" stored in it then the following message will be printed on the OBD-I/M Check Result section on the VIR: (See Section 5 Exhibit A3 for sample VIR)

**Pennsylvania Analytical System (PAS) – OBD (Stand Alone) Display and Program Requirements**

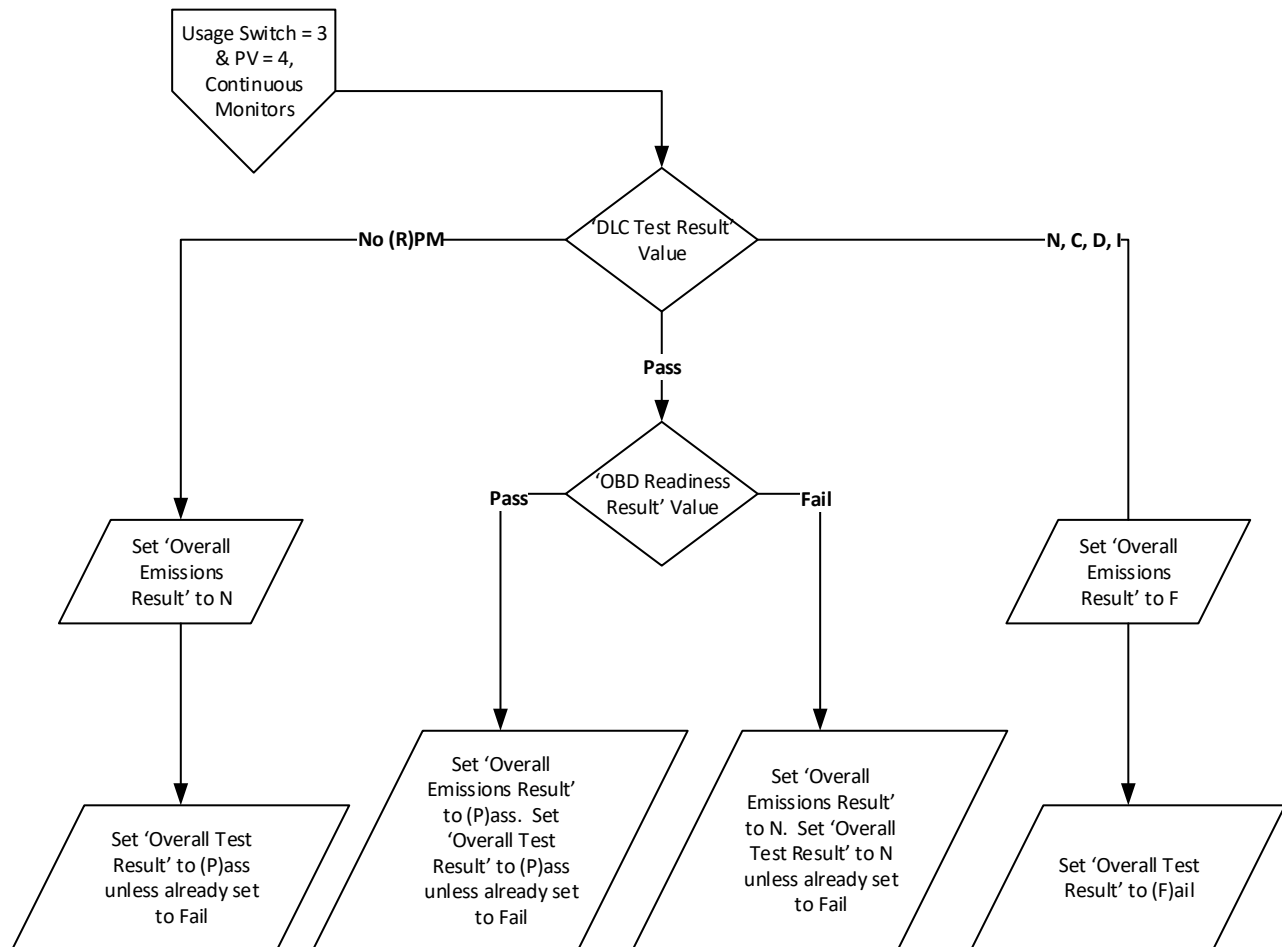
---

---

- 1) **Based on the information gathered during an attempt to perform an On Board Diagnostic test, your vehicle has a missing, tampered, or broken Data Link Connector. This vehicle should have the Onboard Computer Data Link Connector functioning properly to pass the vehicle inspection.**
- c. If the DLC TEST RESULT field has a "I" stored in it then the following message will be printed on the OBD-I/M Check Result section on the VIR: (See Section 5 Exhibit A4 for sample VIR)
  - 1) **Based on the information gathered during an attempt to perform an On Board Diagnostic test, your vehicle has an inaccessible Data Link Connector. This vehicle should have the Data Link Connector accessible to allow the check of the On Board Diagnostic computer system.**
- d. If the DLC TEST RESULT field is "N" the program will print the following message on the OBD-I/M Check Result section on the VIR (See Section 5 Exhibit A5 for sample VIR)
  - 1) **Based on the information gathered during an attempt to perform an On Board Diagnostic test, NO Signal was available from the On Board Diagnostic computer system. This vehicle should produce a signal from the On Board Diagnostic computer system.**
2. If the DLC TEST RESULT field has an 'R' or 'P' and OBD Readiness Result has a 'P' the program will store an "P" in the OVERALL EMISSIONS RESULT field of the EIS.DAT record and will store an "P" in the OVERALL TEST RESULT field of the EIS.DAT record unless the fields are already set to 'F' by the Fuel Cap, KOEO, KOER, or MIL CMD results (See Section 5 Exhibit B1 for sample VIR).
3. If the DLC TEST RESULT field has an 'R' or 'P' and OBD Readiness Result has a 'F', the program will store an "N" in the OVERALL EMISSIONS RESULT field of the EIS.DAT record and will store an "N" in the OVERALL TEST RESULT field of the EIS.DAT record unless the fields are already set to 'F' by the Fuel Cap, KOEO, KOER, or MIL CMD results. The program will print on the VIR in the "Overall Test Result" area "NOT READY FOR TESTING" and the following message will be printed on the OBD-I/M Check Result section on the VIR (See Section 5 Exhibit A7 for sample VIR).
  - a. **Based on the information obtained from the On Board Diagnostic System in your vehicle, the system is not ready to make a determination regarding the pollution control system on the vehicle. This situation should be corrected before the OBD system can be evaluated. Contact your vehicle service advisor.**

## Pennsylvania Analytical System (PAS) – OBD (Stand Alone) Display and Program Requirements

### 3.24.14 OBD Usage Switch '3' & Problem Vehicle '4'



#### A. Programming Criteria:

1. If the DLC TEST RESULT field has an 'R', the program will store an "N" in the OVERALL EMISSIONS RESULT field of the EIS.DAT record and will store an "P" in the OVERALL TEST RESULT field of the EIS.DAT record unless the fields are already set to 'F' by the Fuel Cap, KOEO, KOER, or MIL CMD results. The program will print the following message on the OBD-I/M Check Result section on the VIR (See Section 5 Exhibit B6 for sample VIR).
  - a. **Based on the information gathered during an attempt to perform an On Board Diagnostic test, NO RPM Signal was available from the On Board Diagnostic computer system. This vehicle should produce an RPM signal from the On Board Diagnostic computer system. This vehicle needs to have the above problem corrected prior to next year's emissions inspection.**
2. If the DLC TEST RESULT field has a 'N', 'C', 'D' or 'I' the program will store an "F" in the OVERALL EMISSIONS RESULT field of the EIS.DAT record and will store an "F" in the OVERALL TEST RESULT field of the EIS.DAT record.
  - a. If the DLC TEST RESULT field is "N", the program will print the following message on the OBD-I/M Check Result section on the VIR (See Section 5 Exhibit A5 for sample VIR)

## Pennsylvania Analytical System (PAS) – OBD (Stand Alone) Display and Program Requirements

---

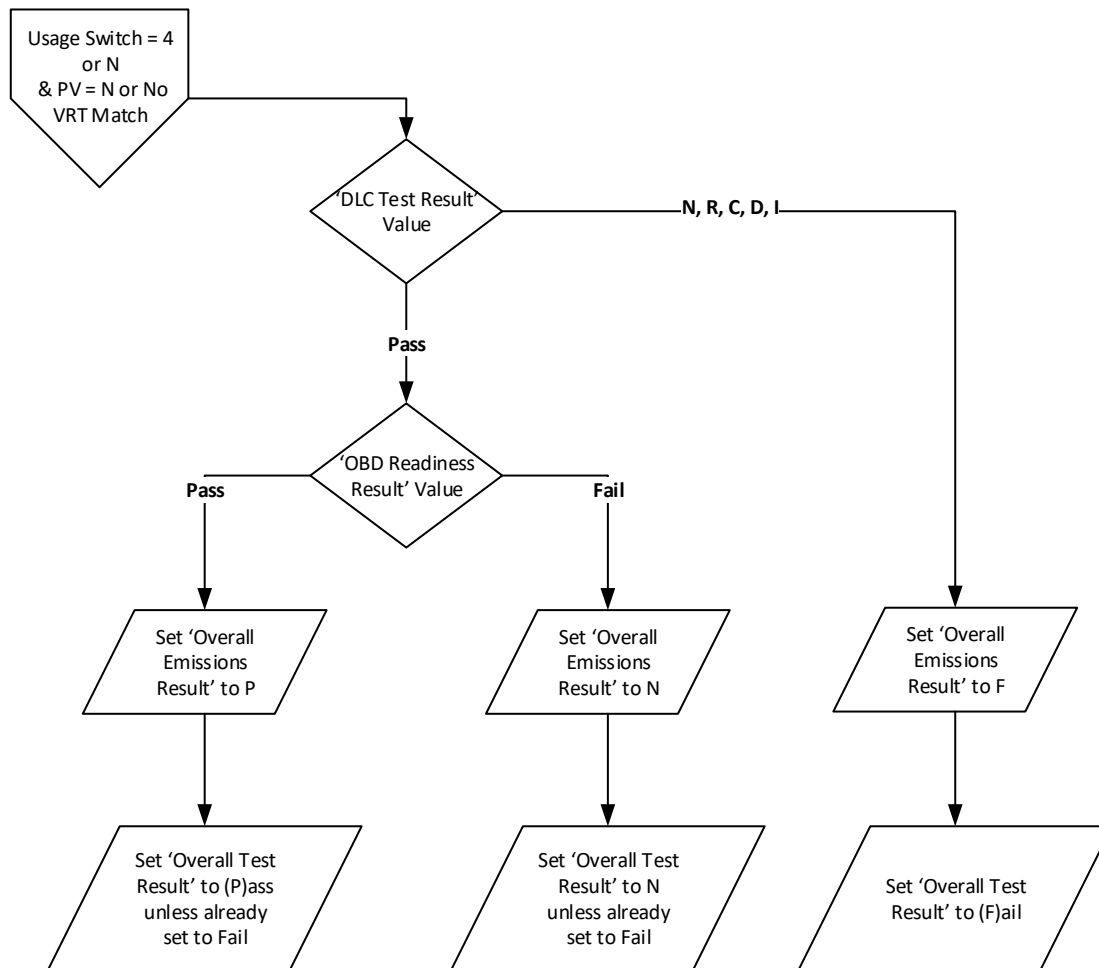


---

- 1) **Based on the information gathered during an attempt to perform an On Board Diagnostic test, NO Signal was available from the On Board Diagnostic computer system. This vehicle should produce a signal from the On Board Diagnostic computer system.**
- b. If the DLC TEST RESULT field has a “C” stored in it then the following message will be printed on the OBD-I/M Check Result section on the VIR: (See Section 5 Exhibit A2 for sample VIR)
  - 1) **Based on the information gathered during an attempt to perform an On Board Diagnostic test, your vehicle has a Data Link Connector that cannot be located by the inspector. This vehicle should have the Onboard Computer Data Link Connector available to the inspector and functioning properly to pass the vehicle inspection.**
- c. If the DLC TEST RESULT field has a “D” stored in it then the following message will be printed on the OBD-I/M Check Result section on the VIR: (See Section 5 Exhibit A3 for sample VIR)
  - 1) **Based on the information gathered during an attempt to perform an On Board Diagnostic test, your vehicle has a missing, tampered, or broken Data Link Connector. This vehicle should have the Onboard Computer Data Link Connector functioning properly to pass the vehicle inspection.**
- d. If the DLC TEST RESULT field has a “I” stored in it then the following message will be printed on the OBD-I/M Check Result section on the VIR: (See Section 5 Exhibit A4 for sample VIR)
  - 1) **Based on the information gathered during an attempt to perform an On Board Diagnostic test, your vehicle has an inaccessible Data Link Connector. This vehicle should have the Data Link Connector accessible to allow the check of the On Board Diagnostic computer system.**
3. If the DLC TEST RESULT field has a ‘P’ and OBD Readiness Result has a ‘P’ program will store an “P” in the OVERALL EMISSIONS RESULT field of the EIS.DAT record and will store an “P” in the OVERALL TEST RESULT field of the EIS.DAT record unless the fields are already set to ‘F’ by the Fuel Cap, KOEO, KOER, or MIL CMD results (See Section 5 Exhibit B1 for sample VIR).
4. If the DLC TEST RESULT field has a ‘P’ and OBD Readiness Result has an ‘F’, the program will store an “N” in the OVERALL EMISSIONS RESULT field of the EIS.DAT record and will store an “N” in the OVERALL TEST RESULT field of the EIS.DAT record unless the fields are already set to ‘F’ by the Fuel Cap, KOEO, KOER, or MIL CMD results. The program will print on the VIR in the “Overall Test Result” area “NOT READY FOR TESTING” and then the following message will be printed on the OBD-I/M Check Result section on the VIR (See Section 5 Exhibit A7 for sample VIR).
  - a. **Based on the information obtained from the On Board Diagnostic System in your vehicle, the system is not ready to make a determination regarding the pollution control system on the vehicle. This situation should be corrected before the OBD system can be evaluated. Contact your vehicle service advisor.**

## Pennsylvania Analytical System (PAS) – OBD (Stand Alone) Display and Program Requirements

### 3.24.15 OBD Usage Switch '4' or 'N' & Problem Vehicle 'N' or No VRT Match



#### A. Programming Criteria:

1. If the DLC TEST RESULT field has a 'N', 'R', 'C', 'D' or 'I' the program will store an "F" in the OVERALL EMISSIONS RESULT field of the EIS.DAT record and will store an "F" in the OVERALL TEST RESULT field of the EIS.DAT record.
  - a. If the DLC TEST RESULT field has a "C" stored in it then the following message will be printed on the OBD-I/M Check Result section on the VIR: (See Section 5 Exhibit A2 for sample VIR)
    - 1) **Based on the information gathered during an attempt to perform an On Board Diagnostic test, your vehicle has a Data Link Connector that cannot be located by the inspector. This vehicle should have the Onboard Computer Data Link Connector available to the inspector and functioning properly to pass the vehicle inspection.**
  - b. If the DLC TEST RESULT field has a "D" stored in it then the following message will be printed on the OBD-I/M Check Result section on the VIR: (See Section 5 Exhibit A3 for sample VIR)
    - 1) **Based on the information gathered during an attempt to perform an On Board Diagnostic test, your vehicle has a missing, tampered, or broken Data Link Connector. This vehicle should have the Onboard Computer Data Link Connector functioning properly to pass the vehicle inspection.**

**Pennsylvania Analytical System (PAS) – OBD (Stand Alone) Display and Program Requirements**

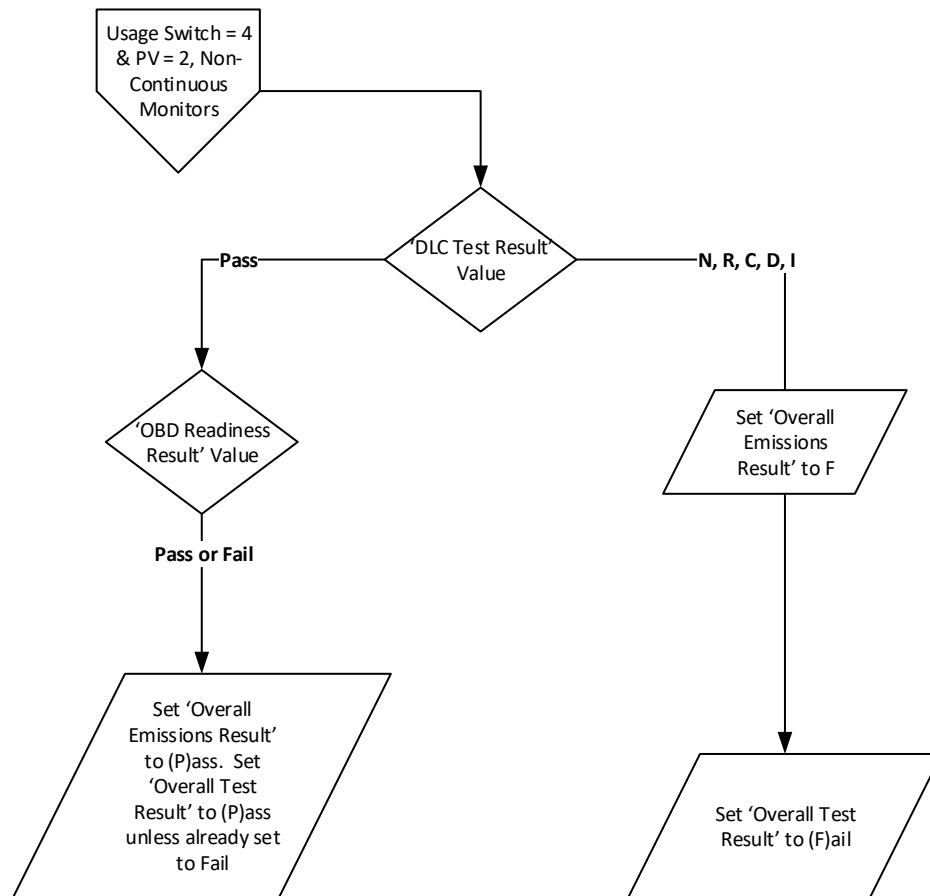
---

---

- c. If the DLC TEST RESULT field has a “I” stored in it then the following message will be printed on the OBD-I/M Check Result section on the VIR: (See Section 5 Exhibit A4 for sample VIR)
  - 1) **Based on the information gathered during an attempt to perform an On Board Diagnostic test, your vehicle has an inaccessible Data Link Connector. This vehicle should have the Data Link Connector accessible to allow the check of the On Board Diagnostic computer system.**
- d. If the DLC TEST RESULT field is “R” the program will print the following message on the OBD-I/M Check Result section on the VIR (See Section 5 Exhibit A6 for sample VIR).
  - 1) **Based on the information gathered during an attempt to perform an On Board Diagnostic test, NO RPM Signal was available from the On Board Diagnostic computer system. This vehicle should produce an RPM signal from the On Board Diagnostic computer system.**
- e. If the DLC TEST RESULT field is “N” the program will print the following message on the OBD-I/M Check Result section on the VIR (See Section 5 Exhibit A5 for sample VIR)
  - 1) **Based on the information gathered during an attempt to perform an On Board Diagnostic test, NO Signal was available from the On Board Diagnostic computer system. This vehicle should produce a signal from the On Board Diagnostic computer system.**
- 2. If the DLC TEST RESULT field has a ‘P’ and OBD Readiness Result has a ‘P’, the program will store an “P” in the OVERALL EMISSIONS RESULT field of the EIS.DAT record and will store an “P” in the OVERALL TEST RESULT field of the EIS.DAT record the fields are already set to ‘F’ by the Fuel Cap, KOEO, KOER, or MIL CMD results (See Section 5 Exhibit B1 for sample VIR).
- 3. If the DLC TEST RESULT field has a ‘P’ and OBD Readiness Result has a ‘F’, the program will store an “N” in the OVERALL EMISSIONS RESULT field of the EIS.DAT record and will store an “N” in the OVERALL TEST RESULT field of the EIS.DAT record unless the fields are already set to ‘F’ by the Fuel Cap, KOEO, KOER, or MIL CMD results. The program will print on the VIR in the “Overall Test Result” area “NOT READY FOR TESTING” and then the following message will be printed on the OBD-I/M Check Result section on the VIR (See Section 5 Exhibit A7 for sample VIR).
  - a. **Based on the information obtained from the On Board Diagnostic System in your vehicle, the system is not ready to make a determination regarding the pollution control system on the vehicle. This situation should be corrected before the OBD system can be evaluated. Contact your vehicle service advisor.**

## Pennsylvania Analytical System (PAS) – OBD (Stand Alone) Display and Program Requirements

### 3.24.16 OBD Usage Switch '4' & Problem Vehicle '2'



#### A. Programming Criteria:

1. If the DLC TEST RESULT field has a 'N', 'R', 'C', 'D' or 'I' the program will store an "F" in the OVERALL EMISSIONS RESULT field of the EIS.DAT record and will store an "F" in the OVERALL TEST RESULT field of the EIS.DAT record,
  - a. If the DLC TEST RESULT field has a "C" stored in it then the following message will be printed on the OBD-I/M Check Result section on the VIR: (See Section 5 Exhibit A2 for sample VIR)
    - 1) **Based on the information gathered during an attempt to perform an On Board Diagnostic test, your vehicle has a Data Link Connector that cannot be located by the inspector. This vehicle should have the Onboard Computer Data Link Connector available to the inspector and functioning properly to pass the vehicle inspection.**
  - b. If the DLC TEST RESULT field has a "D" stored in it then the following message will be printed on the OBD-I/M Check Result section on the VIR: (See Section 5 Exhibit A3 for sample VIR)
    - 1) **Based on the information gathered during an attempt to perform an On Board Diagnostic test, your vehicle has a missing, tampered, or broken Data Link Connector. This vehicle should have the Onboard Computer Data Link Connector functioning properly to pass the vehicle inspection.**



**Pennsylvania Analytical System (PAS) – OBD (Stand Alone) Display and Program Requirements**

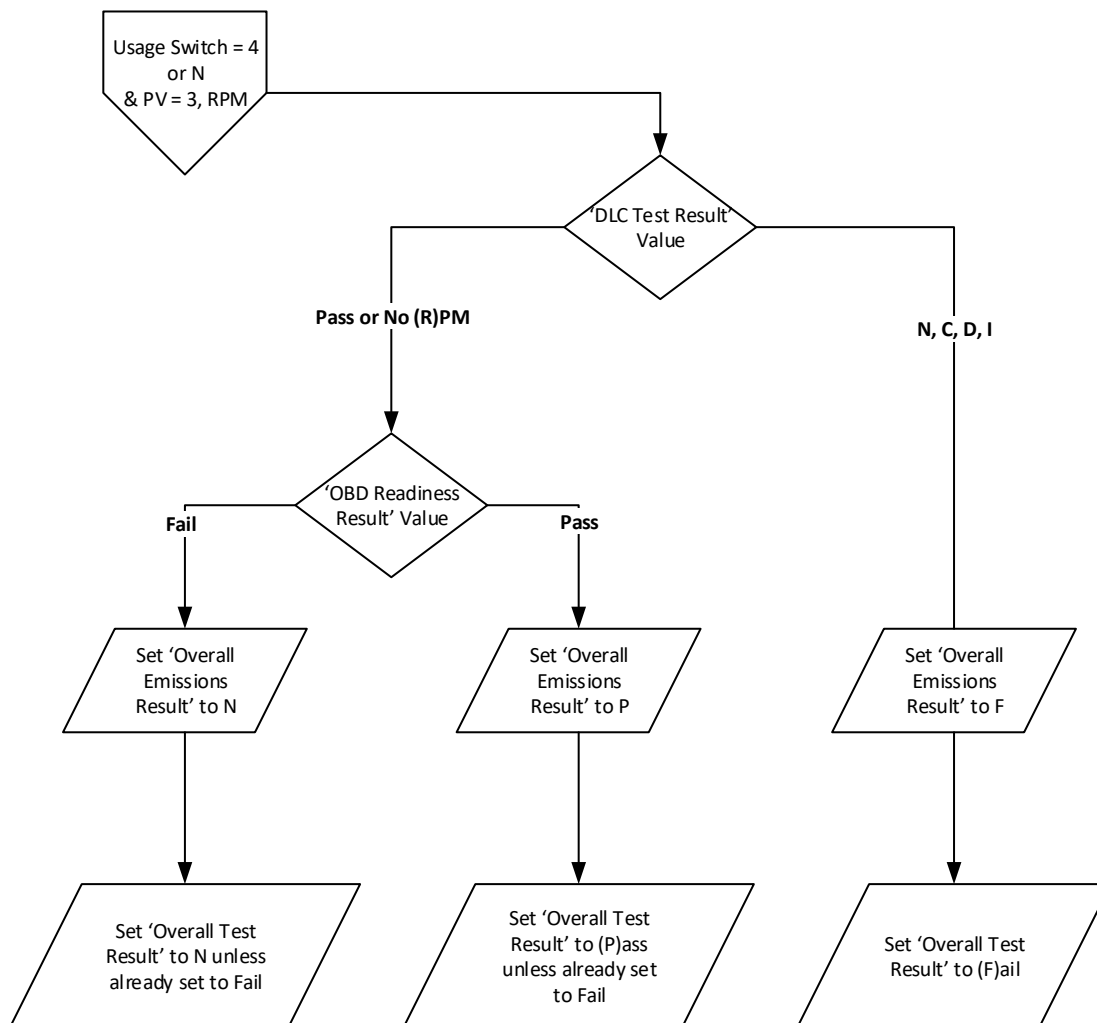
---

---

- c. If the DLC TEST RESULT field has a “I” stored in it then the following message will be printed on the OBD-I/M Check Result section on the VIR: (See Section 5 Exhibit A4 for sample VIR)
  - 1) **Based on the information gathered during an attempt to perform an On Board Diagnostic test, your vehicle has an inaccessible Data Link Connector. This vehicle should have the Data Link Connector accessible to allow the check of the On Board Diagnostic computer system.**
- d. If the DLC TEST RESULT field is “R” the program will print the following message on the OBD-I/M Check Result section on the VIR (See Section 5 Exhibit A6 for sample VIR).
  - 1) **Based on the information gathered during an attempt to perform an On Board Diagnostic test, NO RPM Signal was available from the On Board Diagnostic computer system. This vehicle should produce an RPM signal from the On Board Diagnostic computer system.**
- e. If the DLC TEST RESULT field is “N” the program will print the following message on the OBD-I/M Check Result section on the VIR (See Section 5 Exhibit A5 for sample VIR)
  - 1) **Based on the information gathered during an attempt to perform an On Board Diagnostic test, NO Signal was available from the On Board Diagnostic computer system. This vehicle should produce a signal from the On Board Diagnostic computer system.**
- 2. If the DLC TEST RESULT field has a ‘P’ and OBD Readiness Result has a ‘P’ program will store an “P” in the OVERALL EMISSIONS RESULT field of the EIS.DAT record and will store an “P” in the OVERALL TEST RESULT field of the EIS.DAT record unless the fields are already set to ‘F’ by the Fuel Cap, KOEO, KOER, or MIL CMD results (See Section 5 Exhibit B1 for sample VIR).
- 3. If the DLC TEST RESULT field has a ‘P’ and OBD Readiness Result has an ‘F’, the program will store a “P” in the OVERALL EMISSIONS RESULT field of the EIS.DAT record and will store a “P” in the OVERALL TEST RESULT field of the EIS.DAT record unless the fields are already set to ‘F’ by the Fuel Cap, KOEO, KOER, or MIL CMD results (See Section 5 Exhibit C1 for sample VIR).

## Pennsylvania Analytical System (PAS) – OBD (Stand Alone) Display and Program Requirements

### 3.24.17 OBD Usage Switch '4' or 'N' & Problem Vehicle '3'



#### A. Programming Criteria:

1. If the DLC TEST RESULT field has a 'N', 'C', 'D' or 'I' the program will store an "F" in the OVERALL EMISSIONS RESULT field of the EIS.DAT record and will store an "F" in the OVERALL TEST RESULT field of the EIS.DAT record.
  - a. If the DLC TEST RESULT field has a "C" stored in it then the following message will be printed on the OBD-I/M Check Result section on the VIR: (See Section 5 Exhibit A2 for sample VIR)
    - 1) **Based on the information gathered during an attempt to perform an On Board Diagnostic test, your vehicle has a Data Link Connector that cannot be located by the inspector. This vehicle should have the Onboard Computer Data Link Connector available to the inspector and functioning properly to pass the vehicle inspection.**
  - b. If the DLC TEST RESULT field has a "D" stored in it then the following message will be printed on the OBD-I/M Check Result section on the VIR: (See Section 5 Exhibit A3 for sample VIR)

**Pennsylvania Analytical System (PAS) – OBD (Stand Alone) Display and Program Requirements**

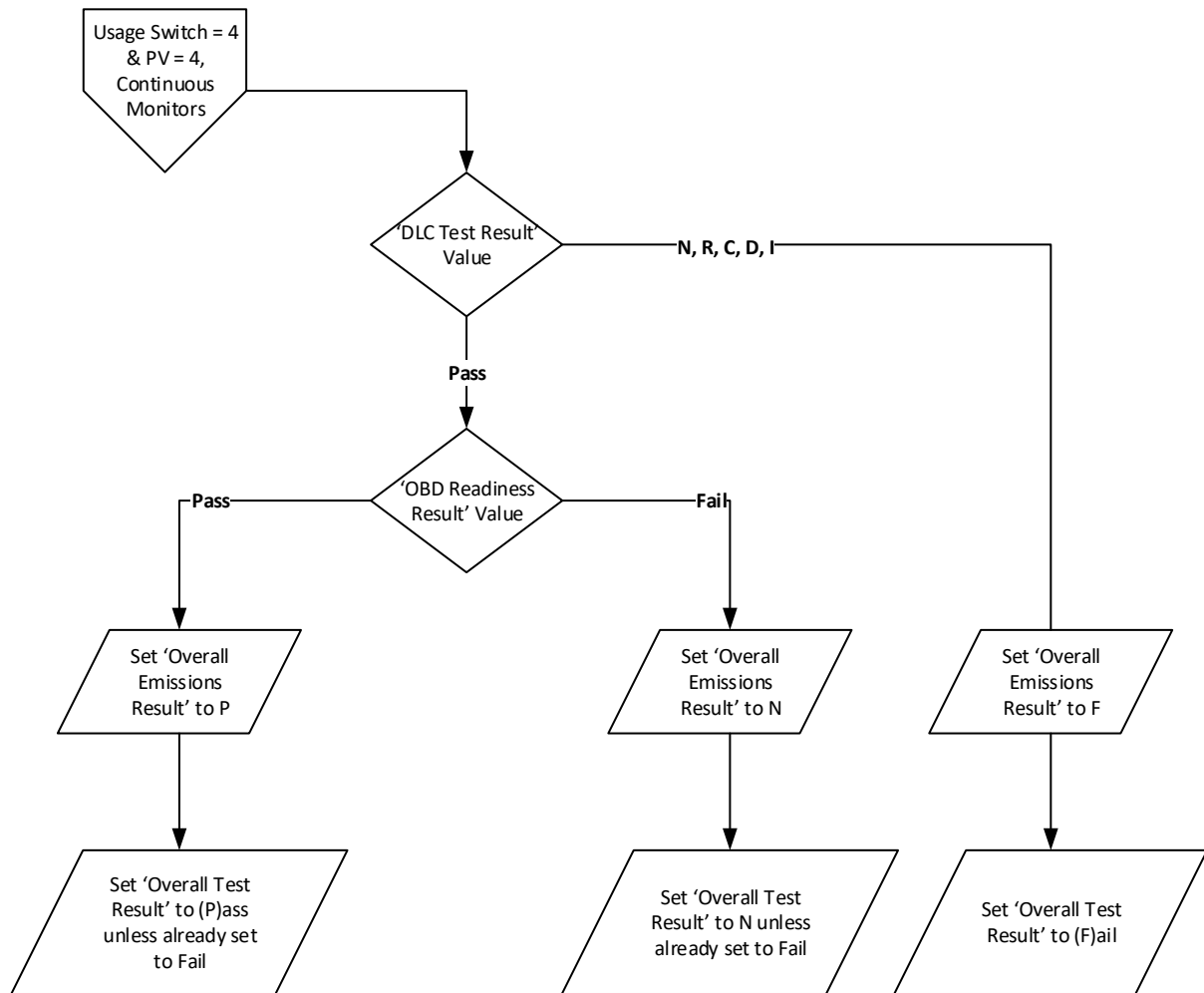
---

---

- 1) **Based on the information gathered during an attempt to perform an On Board Diagnostic test, your vehicle has a missing, tampered, or broken Data Link Connector. This vehicle should have the Onboard Computer Data Link Connector functioning properly to pass the vehicle inspection.**
- c. If the DLC TEST RESULT field has a "I" stored in it then the following message will be printed on the OBD-I/M Check Result section on the VIR: (See Section 5 Exhibit A4 for sample VIR)
  - 1) **Based on the information gathered during an attempt to perform an On Board Diagnostic test, your vehicle has an inaccessible Data Link Connector. This vehicle should have the Data Link Connector accessible to allow the check of the On Board Diagnostic computer system.**
- d. If the DLC TEST RESULT field is "N" the program will print the following message on the OBD-I/M Check Result section on the VIR (See Section 5 Exhibit A5 for sample VIR)
  - 1) **Based on the information gathered during an attempt to perform an On Board Diagnostic test, NO Signal was available from the On Board Diagnostic computer system. This vehicle should produce a signal from the On Board Diagnostic computer system.**
2. If the DLC TEST RESULT field has an 'R' or 'P' and OBD Readiness Result has a 'P' then the program will store an "P" in the OVERALL EMISSIONS RESULT field of the EIS.DAT record and will store an "P" in the OVERALL TEST RESULT field of the EIS.DAT record unless the fields are already set to 'F' by the Fuel Cap, KOEO, KOER, or MIL CMD results (See Section 5 Exhibit B1 for sample VIR).
3. If the DLC TEST RESULT field has an 'R' or 'P' and OBD Readiness Result is 'F' then the program will store an "N" in the OVERALL EMISSIONS RESULT field of the EIS.DAT record and will store an "N" in the OVERALL TEST RESULT field of the EIS.DAT record unless the fields are already set to 'F' by the Fuel Cap, KOEO, KOER, or MIL CMD results. The program will print on the VIR in the "Overall Test Result" area "NOT READY FOR TESTING" and will print the following message on the OBD-I/M Check Result section on the VIR (See Section 5 Exhibit A7 for sample VIR).
  - a. **Based on the information obtained from the On Board Diagnostic System in your vehicle, the system is not ready to make a determination regarding the pollution control system on the vehicle. This situation should be corrected before the OBD system can be evaluated. Contact your vehicle service advisor.**

## Pennsylvania Analytical System (PAS) – OBD (Stand Alone) Display and Program Requirements

### 3.24.18 OBD Usage Switch '4' & Problem Vehicle '4'



#### A. Programming Criteria:

1. If the DLC TEST RESULT field has a 'N', 'R', 'C', 'D' or 'I' the program will store an "F" in the OVERALL EMISSIONS RESULT field of the EIS.DAT record and will store an "F" in the OVERALL TEST RESULT field of the EIS.DAT record.
  - a. If the DLC TEST RESULT field has a "C" stored in it then the following message will be printed on the OBD-I/M Check Result section on the VIR: (See Section 5 Exhibit A2 for sample VIR)
    - 1) **Based on the information gathered during an attempt to perform an On Board Diagnostic test, your vehicle has a Data Link Connector that cannot be located by the inspector. This vehicle should have the Onboard Computer Data Link Connector available to the inspector and functioning properly to pass the vehicle inspection.**
  - b. If the DLC TEST RESULT field has a "D" stored in it then the following message will be printed on the OBD-I/M Check Result section on the VIR: (See Section 5 Exhibit A3 for sample VIR)
    - 1) **Based on the information gathered during an attempt to perform an On Board Diagnostic test, your vehicle has a missing, tampered, or broken Data Link Connector. This vehicle should have the Onboard Computer Data Link Connector functioning properly to pass the vehicle inspection.**

**Pennsylvania Analytical System (PAS) – OBD (Stand Alone) Display and Program Requirements**

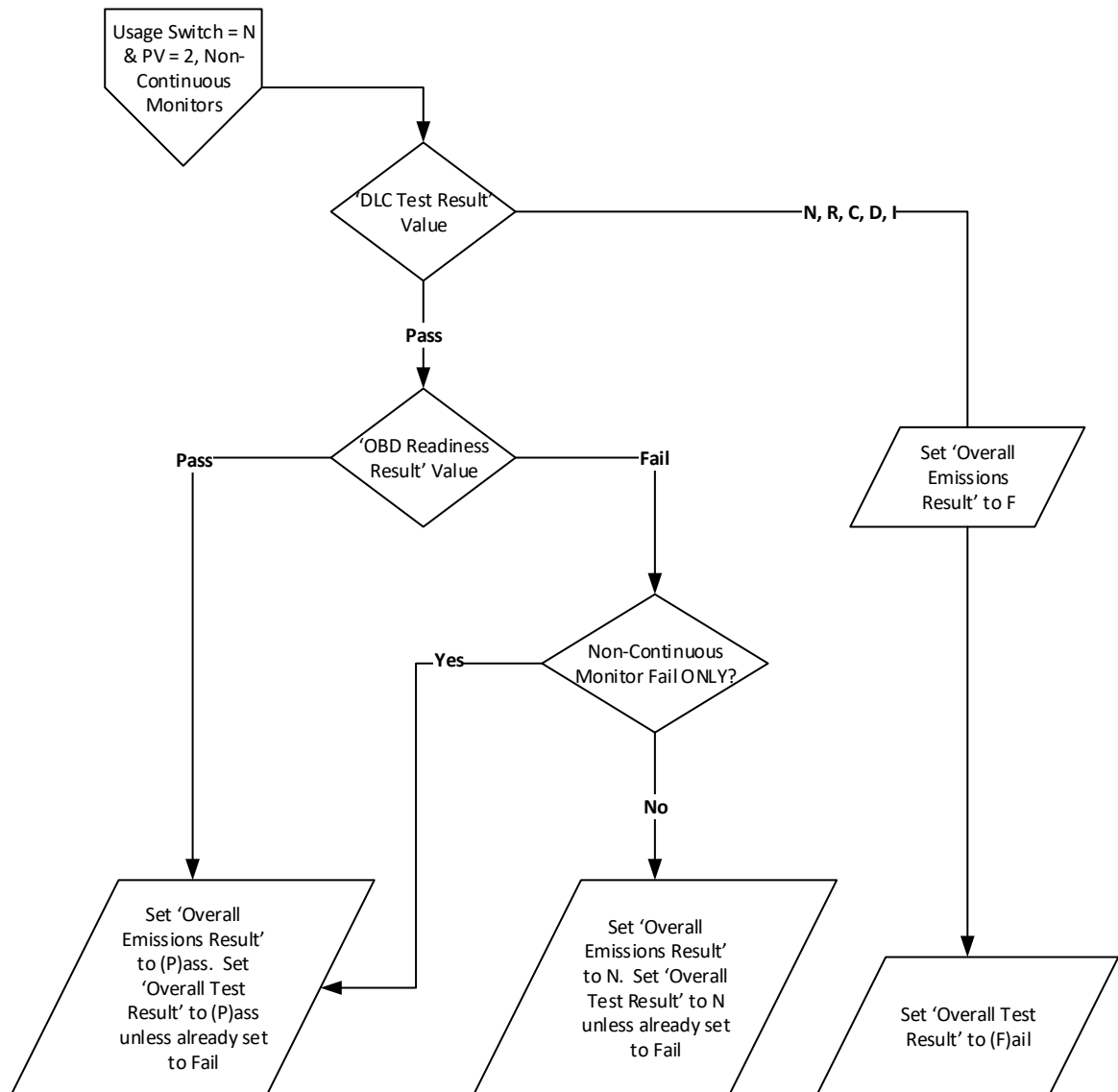
---

---

- c. If the DLC TEST RESULT field has a “I” stored in it then the following message will be printed on the OBD-I/M Check Result section on the VIR: (See Section 5 Exhibit A4 for sample VIR)
  - 1) **Based on the information gathered during an attempt to perform an On Board Diagnostic test, your vehicle has an inaccessible Data Link Connector. This vehicle should have the Data Link Connector accessible to allow the check of the On Board Diagnostic computer system.**
- d. If the DLC TEST RESULT field is “R” the program will print the following message on the OBD-I/M Check Result section on the VIR (See Section 5 Exhibit A6 for sample VIR).
  - 1) **Based on the information gathered during an attempt to perform an On Board Diagnostic test, NO RPM Signal was available from the On Board Diagnostic computer system. This vehicle should produce an RPM signal from the On Board Diagnostic computer system.**
- e. If the DLC TEST RESULT field is “N” the program will print the following message on the OBD-I/M Check Result section on the VIR (See Section 5 Exhibit A5 for sample VIR)
  - 1) **Based on the information gathered during an attempt to perform an On Board Diagnostic test, NO Signal was available from the On Board Diagnostic computer system. This vehicle should produce a signal from the On Board Diagnostic computer system.**
- 2. If the DLC TEST RESULT field has a ‘P’ and OBD Readiness Result has a ‘P’ program will store an “P” in the OVERALL EMISSIONS RESULT field of the EIS.DAT record and will store an “P” in the OVERALL TEST RESULT field of the EIS.DAT record unless the fields are already set to ‘F’ by the Fuel Cap, KOEO, KOER, or MIL CMD results (See Section 5 Exhibit B1 for sample VIR).
- 3. If the DLC TEST RESULT field has a ‘P’ and OBD Readiness Result has an ‘F’, the program will store an “N” in the OVERALL EMISSIONS RESULT field of the EIS.DAT record and will store an “N” in the OVERALL TEST RESULT field of the EIS.DAT record unless the fields are already set to ‘F’ by the Fuel Cap, KOEO, KOER, or MIL CMD results. The program will print on the VIR in the “Overall Test Result” area “NOT READY FOR TESTING” and the following message will be printed on the OBD-I/M Check Result section on the VIR (See Section 5 Exhibit A7 for sample VIR).
  - a. **Based on the information obtained from the On Board Diagnostic System in your vehicle, the system is not ready to make a determination regarding the pollution control system on the vehicle. This situation should be corrected before the OBD system can be evaluated. Contact your vehicle service advisor.**

## Pennsylvania Analytical System (PAS) – OBD (Stand Alone) Display and Program Requirements

### 3.24.19 OBD Usage Switch 'N' & Problem Vehicle '2'



#### A. Programming Criteria:

1. If the DLC TEST RESULT field has a 'N', 'R', 'C', 'D' or 'I' the program will store an "F" in the OVERALL EMISSIONS RESULT field of the EIS.DAT record and will store an "F" in the OVERALL TEST RESULT field of the EIS.DAT record,
  - a. If the DLC TEST RESULT field has a "C" stored in it then the following message will be printed on the OBD-I/M Check Result section on the VIR: (See Section 5 Exhibit A2 for sample VIR)
    - 1) **Based on the information gathered during an attempt to perform an On Board Diagnostic test, your vehicle has a Data Link Connector that cannot be located by the inspector. This vehicle should have the Onboard Computer Data Link Connector available to the inspector and functioning properly to pass the vehicle inspection.**

## Pennsylvania Analytical System (PAS) – OBD (Stand Alone) Display and Program Requirements

---

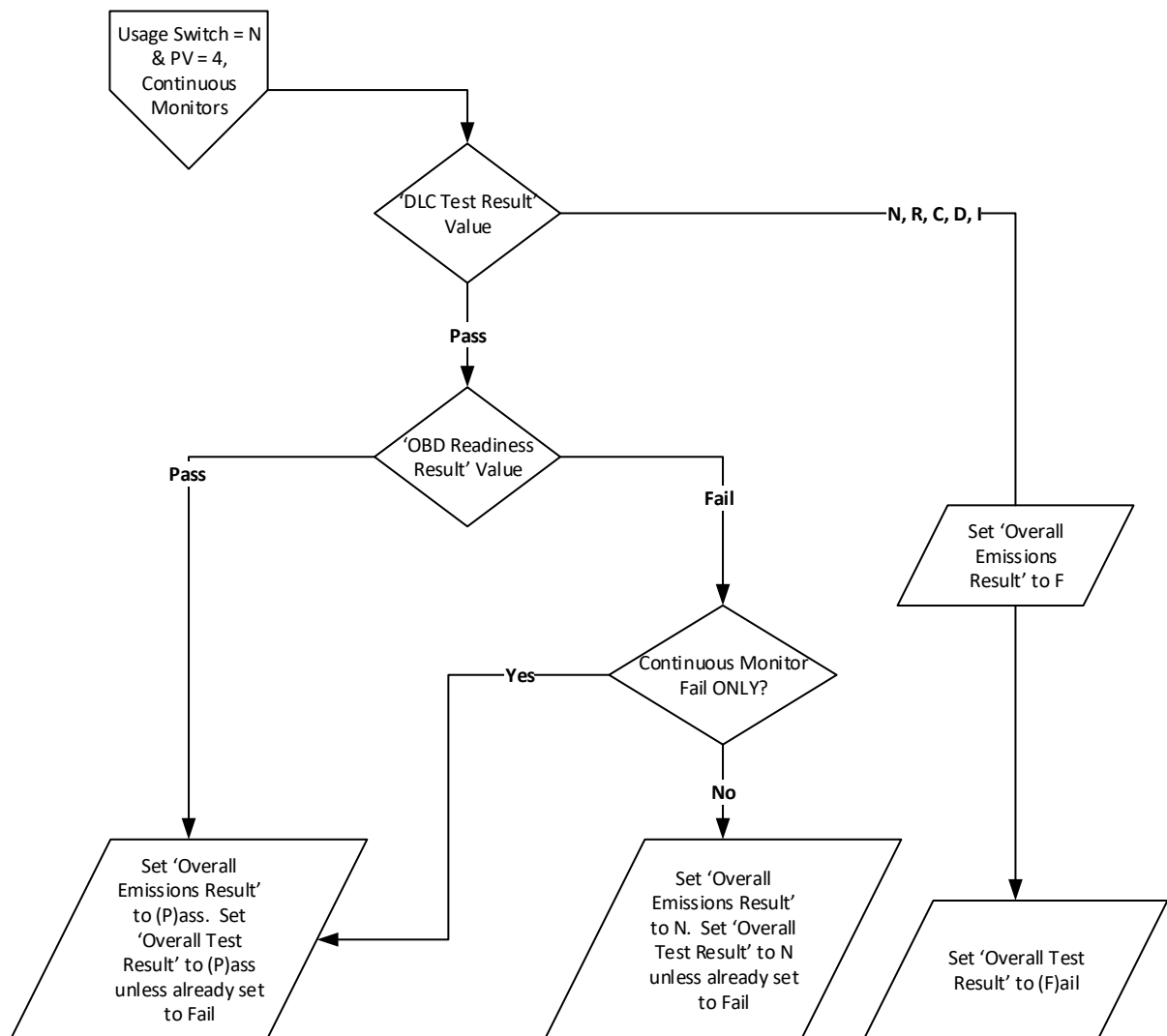


---

- b. If the DLC TEST RESULT field has a “D” stored in it then the following message will be printed on the OBD-I/M Check Result section on the VIR: (See Section 5 Exhibit A3 for sample VIR)
  - 1) **Based on the information gathered during an attempt to perform an On Board Diagnostic test, your vehicle has a missing, tampered, or broken Data Link Connector. This vehicle should have the Onboard Computer Data Link Connector functioning properly to pass the vehicle inspection.**
- c. If the DLC TEST RESULT field has a “I” stored in it then the following message will be printed on the OBD-I/M Check Result section on the VIR: (See Section 5 Exhibit A4 for sample VIR)
  - 1) **Based on the information gathered during an attempt to perform an On Board Diagnostic test, your vehicle has an inaccessible Data Link Connector. This vehicle should have the Data Link Connector accessible to allow the check of the On Board Diagnostic computer system.**
- d. If the DLC TEST RESULT field is “R” the program will print the following message on the OBD-I/M Check Result section on the VIR (See Section 5 Exhibit A6 for sample VIR).
  - 1) **Based on the information gathered during an attempt to perform an On Board Diagnostic test, NO RPM Signal was available from the On Board Diagnostic computer system. This vehicle should produce an RPM signal from the On Board Diagnostic computer system.**
- e. If the DLC TEST RESULT field is “N” the program will print the following message on the OBD-I/M Check Result section on the VIR (See Section 5 Exhibit A5 for sample VIR)
  - 1) **Based on the information gathered during an attempt to perform an On Board Diagnostic test, NO Signal was available from the On Board Diagnostic computer system. This vehicle should produce a signal from the On Board Diagnostic computer system.**
- 2. If the DLC TEST RESULT field has a ‘P’ and OBD Readiness Result has a ‘P’ program will store an “P” in the OVERALL EMISSIONS RESULT field of the EIS.DAT record and will store an “P” in the OVERALL TEST RESULT field of the EIS.DAT record unless the fields are already set to ‘F’ by the Fuel Cap, KOEO, KOER, or MIL CMD results (See Section 5 Exhibit B1 for sample VIR).
- 3. If the DLC TEST RESULT field has a ‘P’ and OBD Readiness Result has a ‘F’ and any of the three Continuous Monitor fields (Misfire, Fuel System, and Comprehensive Component) have value other than ‘1’, then the program will store an “N” in the OVERALL EMISSIONS RESULT field of the EIS.DAT record and will store an “N” in the OVERALL TEST RESULT field of the EIS.DAT record unless the OVERALL TEST RESULT field is already set to ‘F’ by the Fuel Cap, KOEO, KOER, or MIL CMD results. The program will print on the VIR in the “Overall Test Result” area “NOT READY FOR TESTING” and then the following message will be printed on the OBD-I/M Check Result section on the VIR (See Section 4 Exhibit A7 for sample VIR).
  - a. **Based on the information obtained from the On Board Diagnostic System in your vehicle, the system is not ready to make a determination regarding the pollution control system on the vehicle. This situation should be corrected before the OBD system can be evaluated. Contact your vehicle service advisor.**
- 4. If the DLC TEST RESULT field has a ‘P’ and OBD Readiness Result has an ‘F’, and all of the three Continuous Monitor fields (Misfire, Fuel System, and Comprehensive Component) have value of ‘1’, then the program will store a “P” in the OVERALL EMISSIONS RESULT field of the EIS.DAT record and will store a “P” in the OVERALL TEST RESULT field of the EIS.DAT record unless the fields are already set to ‘F’ by the Fuel Cap, KOEO, KOER, or MIL CMD results (See Section 5 Exhibit C1 or C2 for sample VIRs).

## Pennsylvania Analytical System (PAS) – OBD (Stand Alone) Display and Program Requirements

### 3.24.20 OBD Usage Switch 'N' & Problem Vehicle '4'



#### A. Programming Criteria:

1. If the DLC TEST RESULT field has a 'N', 'R', 'C', 'D' or 'I' the program will store an "F" in the OVERALL EMISSIONS RESULT field of the EIS.DAT record and will store an "F" in the OVERALL TEST RESULT field of the EIS.DAT record.
  - a. If the DLC TEST RESULT field has a "C" stored in it then the following message will be printed on the OBD-I/M Check Result section on the VIR: (See Section 5 Exhibit A2 for sample VIR)
    - 1) **Based on the information gathered during an attempt to perform an On Board Diagnostic test, your vehicle has a Data Link Connector that cannot be located by the inspector. This vehicle should have the Onboard Computer Data Link Connector available to the inspector and functioning properly to pass the vehicle inspection.**
  - b. If the DLC TEST RESULT field has a "D" stored in it then the following message will be printed on the OBD-I/M Check Result section on the VIR: (See Section 5 Exhibit A3 for sample VIR)



## Pennsylvania Analytical System (PAS) – OBD (Stand Alone) Display and Program Requirements

---

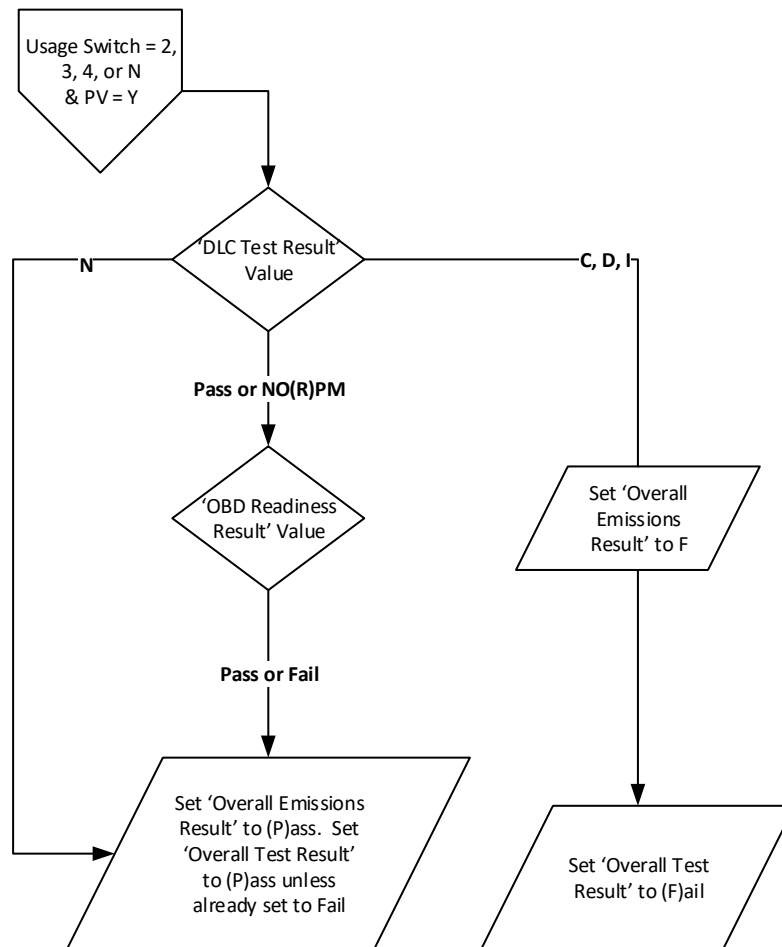


---

- 1) **Based on the information gathered during an attempt to perform an On Board Diagnostic test, your vehicle has a missing, tampered, or broken Data Link Connector. This vehicle should have the Onboard Computer Data Link Connector functioning properly to pass the vehicle inspection.**
- c. If the DLC TEST RESULT field has a “I” stored in it then the following message will be printed on the OBD-I/M Check Result section on the VIR: (See Section 5 Exhibit A4 for sample VIR)
  - 1) **Based on the information gathered during an attempt to perform an On Board Diagnostic test, your vehicle has an inaccessible Data Link Connector. This vehicle should have the Data Link Connector accessible to allow the check of the On Board Diagnostic computer system.**
- d. If the DLC TEST RESULT field is “R” the program will print the following message on the OBD-I/M Check Result section on the VIR (See Section 5 Exhibit A6 for sample VIR).
  - 1) **Based on the information gathered during an attempt to perform an On Board Diagnostic test, NO RPM Signal was available from the On Board Diagnostic computer system. This vehicle should produce an RPM signal from the On Board Diagnostic computer system.**
- e. If the DLC TEST RESULT field is “N” the program will print the following message on the OBD-I/M Check Result section on the VIR (See Section 5 Exhibit A5 for sample VIR)
  - 1) **Based on the information gathered during an attempt to perform an On Board Diagnostic test, NO Signal was available from the On Board Diagnostic computer system. This vehicle should produce a signal from the On Board Diagnostic computer system.**
2. If the DLC TEST RESULT field has a ‘P’ and OBD Readiness Result has a ‘P’ program will store an “P” in the OVERALL EMISSIONS RESULT field of the EIS.DAT record and will store an “P” in the OVERALL TEST RESULT field of the EIS.DAT record unless the fields are already set to ‘F’ by the Fuel Cap, KOEO, KOER, or MIL CMD results (See Section 5 Exhibit B1 for sample VIR).
3. If the DLC TEST RESULT field has a ‘P’ and OBD Readiness Result has a ‘F’ and any of the three Continuous Monitor fields (Misfire, Fuel System, and Comprehensive Component) have value other than ‘1’, and all non-continuous monitors have values of ‘0’ or ‘1’, then the program will store a “P” in the OVERALL EMISSIONS RESULT field of the EIS.DAT record and will store an “P” in the OVERALL TEST RESULT field of the EIS.DAT record unless the OVERALL TEST RESULT field is already set to ‘F’ by the Fuel Cap, KOEO, KOER, or MIL CMD results (See Section 4 Exhibit C1 or C2 for sample VIRs).
4. If the DLC TEST RESULT field has a ‘P’ and OBD Readiness Result has an ‘F’ and the number of non-continuous monitors set to ‘2’ exceeds MCOUNT, then the program will store an “N” in the OVERALL EMISSIONS RESULT field of the EIS.DAT record and will store an “N” in the OVERALL TEST RESULT field of the EIS.DAT record unless the fields are already set to ‘F’ by the Fuel Cap, KOEO, KOER, or MIL CMD results. The program will print on the VIR in the “Overall Test Result” area “NOT READY FOR TESTING” and the following message will be printed on the OBD-I/M Check Result section on the VIR (See Section 5 Exhibit A7 for sample VIR).
  - a. **Based on the information obtained from the On Board Diagnostic System in your vehicle, the system is not ready to make a determination regarding the pollution control system on the vehicle. This situation should be corrected before the OBD system can be evaluated. Contact your vehicle service advisor.**

## Pennsylvania Analytical System (PAS) – OBD (Stand Alone) Display and Program Requirements

### 3.24.21 OBD Usage Switch '2', '3', '4' or 'N' & Problem Vehicle 'Y'



#### A. Programming Criteria:

1. If the DLC TEST RESULT field has a 'C', 'D' or 'I' the program will store an "F" in the OVERALL EMISSIONS RESULT field of the EIS.DAT record and will store an "F" in the OVERALL TEST RESULT field of the EIS.DAT record.
- f. If the DLC TEST RESULT field has a "C" stored in it then the following message will be printed on the OBD-I/M Check Result section on the VIR: (See Section 5 Exhibit A2 for sample VIR)
  - 2) **Based on the information gathered during an attempt to perform an On Board Diagnostic test, your vehicle has a Data Link Connector that cannot be located by the inspector. This vehicle should have the Onboard Computer Data Link Connector available to the inspector and functioning properly to pass the vehicle inspection.**
- g. If the DLC TEST RESULT field has a "D" stored in it then the following message will be printed on the OBD-I/M Check Result section on the VIR: (See Section 5 Exhibit A3 for sample VIR)
  - 2) **Based on the information gathered during an attempt to perform an On Board Diagnostic test, your vehicle has a missing, tampered, or broken Data Link Connector. This vehicle should have the Onboard Computer Data Link Connector functioning properly to pass the vehicle inspection.**

## Pennsylvania Analytical System (PAS) – OBD (Stand Alone) Display and Program Requirements

---



---

- h. If the DLC TEST RESULT field has a “I” stored in it then the following message will be printed on the OBD-I/M Check Result section on the VIR: (See Section 5 Exhibit A4 for sample VIR)
  - 2) **Based on the information gathered during an attempt to perform an On Board Diagnostic test, your vehicle has an inaccessible Data Link Connector. This vehicle should have the Data Link Connector accessible to allow the check of the On Board Diagnostic computer system.**
2. If the DLC TEST RESULT field has an ‘N’ the program will store an “P” in the OVERALL EMISSIONS RESULT field of the EIS.DAT record and will store an “P” in the OVERALL TEST RESULT field of the EIS.DAT record unless the fields are already set to ‘F’ by the Fuel Cap, KOEO, KOER, or MIL CMD results (See Section 5 Exhibit C4 for sample VIR).
3. If the DLC TEST RESULT field has a ‘P’ or ‘R’ and OBD Readiness Result has a ‘P’, the program will store a “P” in the OVERALL EMISSIONS RESULT field of the EIS.DAT record and will store a “P” in the OVERALL TEST RESULT field of the EIS.DAT record unless the fields are already set to ‘F’ by the Fuel Cap, KOEO, KOER, or MIL CMD results (See Section 5 Exhibit B1 for sample VIR).
4. If the DLC TEST RESULT field has a ‘P’ or ‘R’ and OBD Readiness Result has an ‘F’, the program will store a “P” in the OVERALL EMISSIONS RESULT field of the EIS.DAT record and will store a “P” in the OVERALL TEST RESULT field of the EIS.DAT record unless the the fields are already set to ‘F’ by the Fuel Cap, KOEO, KOER, or MIL CMD results (See Section 5 Exhibit C1 for sample VIR).

### 3.25 Repair Entry Procedure

- A. The Repair Entry Data Procedure is to be considered a separate logical module. This module will be used at the completion of the after repair “R” test or called from the Replacement/Missing/Waiver/Exemption Sticker Module for Waiver sticker issuance.
- B. If the inspector indicates that this is a retest the following procedure will be performed. The inspector will be prompted that this is a retest and asked for the repair data.
  1. Display Prompts:
    - a. **Does the customer have receipts for repair work performed or a valid Emissions Repair Data Form? Yes or No Please obtain the Emissions Repair Data Form from the customer.**
  2. If the answer is NO, perform the following:
    - a. Display Prompts:
      - 1) **Please inform the customer that a Waiver cannot be obtained without receipts for repair work.**
      - 2) **Please verify that the customer has made the required repairs.**
    - b. Programming Criteria:
      - 1) The OBD PAS SOFTWARE will evaluate the TEST ROUTINE PERFORMED field of the EIS.DAT to determine which display prompt is displayed. If the TEST ROUTINE PERFORMED field is ‘O’ then display prompt 1 is displayed. If the TEST ROUTINE PERFORMED field is ‘V’ then display prompt 2 is displayed.
      - 2) End the Repair Entry Procedure.
  3. If the answer is YES, perform the following sequence:
    - a. Display Prompts:
      - 1) **Please enter the date the repair work was performed:**

---



---

**Pennsylvania Analytical System (PAS) – OBD (Stand Alone) Display and Program Requirements**


---



---

- 2) Were the repairs made at this station? YES or NO
- 3) Did the owner make these repairs? YES or NO
- 4) If known, enter the Repair Facility Number from the Emissions Repair Data Form or Work Order.
- 5) If the Repair Facility Number is not known, change response to "Repair by Owner".
- 6) Please enter the Inspector's Identification Number who performed the repairs.
- 7) If known, enter the Work Order Number from the Emissions Repair Data Form or Work Order.
- 8) Please enter the Parts costs.
- 9) Please enter the Labor costs.
- 10) Please enter "S" (Service Performed), "R" (Recommended, but not performed), or "D" (Diagnosed and Recommended, but not performed) beside as many categories that best describe the type(s) of emissions related repair work that was performed.
- 11) Categories:

1		Spark Plugs/Wires
2		Other Ignition
3		Timing/Spark Advance
4		Air/Fuel Mixture Adjustment
5		Idle Speed Adjustment
6		Choke System
7		Other Carburetor Repairs
8		Vacuum Leaks
9		Fuel Injection System
10		Other Induction System
11		Air Filter
12		Oil Change
13		Thermostatic Air Cleaner
14		PCV System
15		Air Injection/Reaction System
16		EGR System
17		Fuel Evaporative System
18		Catalytic Converter(s)
19		Oxygen (O2) Sensor(s)
20		MAP Sensor
21		Mass Air Flow Sensor
22		Coolant Temp Sensor
23		Throttle Position Sensor
24		Other Sensors/Switches
25		Computer/PROM
26		Internal Engine Repair
27		Other Repairs/Unknown

- 12) Does the customer have an additional Emissions Repair Data Form or other repair data to enter?  
YES or NO

b. Error Messages:

## Pennsylvania Analytical System (PAS) – OBD (Stand Alone) Display and Program Requirements

---



---

- 1) **An entry is required in at least one repair category.**
- 2) **Invalid entry – only valid entries are “R”, “S”, or “D”.**
- c. Programming Criteria:
  - 1) All data entry fields must use proper data validation for the type of entry required.
  - 2) Show display prompts 1 and 2.
  - 3) If the answer to prompt 2 is YES, use the PAS Unit Station Number for the Repair Facility Number field in REPAIR.DAT and go to step 7.
  - 4) If the answer to prompt 2 is NO, show prompt 3.
  - 5) If the answer to prompt 3 is YES, go to step 9.
  - 6) If the answer to prompt 3 is NO, show prompts 4 and 5.
  - 7) Show prompt 6.
  - 8) Show prompt 7.
  - 9) Show prompt 8. The entry format must be “NNNN.NN”.
  - 10) Show prompt 9 if Owner Repair is NO. The entry format must be “NNNN.NN”.
  - 11) Show prompt 10 and prompt 11, the list of repair categories.
    - a) If no entry is made for any repair category, display error message 1.
    - b) If entry for any repair category is incorrect, display error message 2.
    - c) If any of the repair entries are “R”, then a “Y” will be stored in the Recommended Repairs Not Made field of the REPAIR.DAT file record. Otherwise an “N” will be stored in the Recommended Repairs Not Made field of the REPAIR.DAT file record.
  - 12) Each repair data entry process will write a record to the REPAIR.DAT file.
  - 13) After repair category entry in prompt 11, show prompt 12.
    - a) If the answer to prompt 12 is YES, repeat Repair Entry Procedure.
    - b) If the answer to prompt 12 is NO, end the Repair Entry Procedure.
- C. If the inspector aborts the Repair Entry Procedure at any time, they will end the Repair Entry Procedure, not the vehicle inspection as a whole.

### 3.26 Sticker Number, Sticker Expiration and Test Fee Charged to Motorist

- A. If the test result is a Pass:
  1. Display Prompts:
    - a. **Enter Emissions Sticker Number Issued:**
    - b. **Enter Month of Sticker Expiration: MM**
    - c. **Enter Year of Sticker Expiration: YYYY**
  2. Error Messages:
    - a. **Invalid Emissions Sticker Number.**

- ### 3.27 Final Results and Printing of VIR

- Version 3.2  
October 13, 2016

## Pennsylvania Analytical System (PAS) – OBD (Stand Alone) Display and Program Requirements

3. The equipment must be designed to increment the TEST COMPLETED counter field, in the file INCOMPLT.DAT, for the inspector and the proper month if an inspection is completed.
4. The equipment will show the display prompt (1) and attempt to initiate a contact with the VIID. If no contact is made or the equipment does not receive confirmation of a successful transmission from the VIID, the equipment will show error message (1).
  - a. If the inspection record is successfully transmitted to the VIID, it will be deleted from EIS.DAT and moved into EIS.HST.
  - b. All stored CAL.DAT records; REPAIR.DAT records and STICKER.DAT records will be transmitted to the VIID during this VIID contact.
5. The equipment will show display prompt (2) and will then attempt to print the VIR.
6. If the equipment finds any problem during the printing process, the equipment will show the appropriate error message and will await entry from the keyboard to retry. The equipment will not continue until the printer problem is corrected. The equipment will prompt the inspector to inform the motorist of the results of the emissions test and if the data has been transmitted to PENNDOT.
7. If the vehicle failed the emissions portion of the test a second report will be printed. This Repair Data Form report will be used by the repair facility to record the types of emissions related repairs that were performed on this vehicle. A sample of this report is located in Section 5 Exhibit G.
8. If the vehicle passes the inspection, write a record in the USED\_S.DAT file, with issued code of “E” for emissions inspection.
9. The equipment will then return the inspector to the Vehicle Emissions Inspection Menu.

### 3.28 Equipment Maintenance Menu

- A. Equipment Maintenance Menu will be activated by an entry from the Vehicle Emissions Inspection Menu. This will present a set of maintenance functions that may be performed by the inspector.
  1. Display prompt one (1) will be displayed to the screen. The inspector will select from the options listed, the maintenance function to be performed. Display prompt one (1):

	<b>Equipment Maintenance Menu</b>
<b>1</b>	<b>Status Screen</b>
<b>2</b>	<b>PAS Unit Calibration</b>
<b>3</b>	<b>Fuel Cap Pressure Test Calibration</b>
<b>4</b>	<b>OBD Module Self Check</b>
<b>99</b>	<b>Return to Main Menu</b>

2. When the inspector has selected one “1” at display prompt one (1), the equipment will display the Status Screen. The equipment will use information stored in the CAL.DAT file and other sources to generate the Status Screen.
  - a. The structure of the Status Screen:

**Pennsylvania Analytical System (PAS) – OBD (Stand Alone) Display and Program Requirements**

---

---

**Equipment Status Screen****Station Number: XXXXX****Equipment Number: XXXX****Date and Time of the last calibration: MM/DD/YYYY HH:MM:SS****Number of test records stored on system: XXXX****Total Number of Inspections Since the Last Data Transfer: NNNN****Date equipment was last serviced: MM/DD/YYYY****Current Date and time: MM/DD/YYYY HH:MM:SS****Software Version Number: XXXX****OBD Firmware Version: XXXXXXXXXXXX****Press the *Enter* key when ready to continue.**

- b. The number of tests is computed by adding the records stored in EIS.DAT and EIS.HST)
- c. After the inspector has pressed the Enter key, the equipment will return to the Equipment Maintenance Menu.
3. When the inspector selects two “2” from the Equipment Maintenance menu the Fuel Cap Pressure Test calibration procedure will begin followed by the OBD Module Self Check. The inspector will first be required to enter their inspector id prior to starting the calibration procedures. The system will be required to pass a calibration within the time period defined by the Calibration Frequency field in SYSTEM.DAT. The specific procedures for the tests will be determined by the manufacturer but subject to the approval of PENNDOT. (NOTE: The calibration frequency will be adjustable by PENNDOT)
4. When the inspector selects two “3” from the Equipment Maintenance menu the Fuel Cap Pressure Test calibration procedure will begin. The inspector will first be required to enter their inspector id prior to starting the calibration procedures. The system will be required to pass a calibration within the time period defined by the Calibration Frequency field in SYSTEM.DAT. The specific procedures for the tests will be determined by the manufacturer but subject to the approval of PENNDOT. (NOTE: The calibration frequency will be adjustable by PENNDOT)
5. When the inspector selects two “4” from the Equipment Maintenance menu the OBD Module Self Check procedure will begin. The inspector will first be required to enter their inspector id prior to starting the self-check procedures. The system will be required to pass a self-check within the time period defined by the Calibration Frequency field in SYSTEM.DAT. The specific procedures for the tests will be determined by the manufacturer but subject to the approval of PENNDOT. (NOTE: The self-check frequency will be adjustable by PENNDOT)
6. When the inspector selects “99” from the Equipment Maintenance Menu, the equipment will return to the Main Menu.



## Pennsylvania Analytical System (PAS) – OBD (Stand Alone) Display and Program Requirements

---

### 3.29 VIR Reprint and Test Record Search and Retrieval

- A. Item from the Vehicle Emissions Inspection Menu. The equipment will list all inspections available in the EIS.DAT and EIS.HST files within the last 240 days of inspections in order by date/begin time of inspection.
- B. The list to select from will display the date, begin time, VIN, vehicle license, year, make, model, and Inspector ID from the EIS.DAT or EIS.HST.
- C. The software will permit the user to scroll the list and select a single vehicle inspection record for display.
- D. The user will be allowed to review the selected vehicle inspection record and given the option to print the record using the VIR printer.
  - 1. Both the on-screen and printed information will be presented in an easy to read format with clearly labeled field identifiers for all data fields.
  - 2. The equipment will also be capable of printing a replacement VIR from the selected test record.
    - a. The replacement VIR must clearly be labeled “REPLACEMENT VIR”
    - b. If any data is not available to be printed on VIR, the field must print “Data not available”
- E. A function key or other entry method will return the user to the previous menu.

### 3.30 Training Mode

- A. The Training Mode function will be activated by an entry from the Vehicle Emissions Inspection Menu.
- B. The Training Mode function will allow the operator to conduct training and to generate a “training” VIR that is a voided VIR. The choice of inspections will be the same as for regular Emissions inspection. The VIR will have the words, “Training Mode,” instead of inspection results at the top of the form. The word “VOID” will be printed in large letters on the face of the VIR. In addition, the TIN field of the VIR will be printed with the word “VOID”. The operator may select any inspection listed in the Emissions Inspection Menu.
  - 1. The equipment will not record the training record and will not initiate a connection to the VIID. The equipment will print a TEST VIR without any emissions readings or test results.
  - 2. When the Training Mode inspection is complete, the equipment will return to the Vehicle Emissions Inspection Menu.

### 3.31 Replacement/Missing/Waiver/Exemption/Exception Sticker Numbers

- A. The Replacement/Missing/Waiver/Exemption/Exception Sticker Numbers function will be activated by an entry from the Vehicle Emissions Inspection Menu.
- B. Check for Lockouts
  - 1. Programming Criteria:

The PAS will also confirm that no lockout indicators have been set. If a lockout indicator is present the lockout message will be displayed, the procedure will be aborted and the system will return to the Vehicle Emissions Inspection Menu.
  - 2. Suggested Error Messages:
    - a. **You Are Locked Out From Emissions Functions. A State Installed Lockout Has Been Set. Contact PENNDOT or Technical Support for Further Instructions.**

## Pennsylvania Analytical System (PAS) – OBD (Stand Alone) Display and Program Requirements

---



---

- b. **You Are Locked Out From Emissions Functions. The Station License Has Expired. Contact PENNDOT or Technical Support for Further Instructions.**
- c. **You Are Locked Out From Emissions Functions. The Station License Has Been Revoked or Suspended. Contact PENNDOT or Technical Support for Further Instructions.**
- d. **You Are Locked Out From Emissions Functions. A Lockout Has Been Set Due To Failure To Pay For Communications Services. Contact PARSONS Customer Service for Further Instructions.**
- e. **You Are Locked Out From Emissions Functions. A Lockout Has Been Set Due To Failure To Communicate With The Host Computer. This Equipment Has Exceeded The Allowed Number Of Inspections Without Connection to the VIID. Attempt A Data Refresh To Restore Communications With The Host. If This Procedure Fails Contact Technical Support For Further Instructions.**
- f. **You Are Locked Out From Emissions Functions. A Lockout Has Been Set Due To A Corrupt Data File Or Other Equipment Problem. Check The Equipment Status Screen For Details. You May Need To Contact The Manufacturer For Service.**

### C. Inspector ID

1. When the Replacement/Missing/Waiver/Exemption/Exception Sticker Numbers Option is selected from the Vehicle Emissions Inspection Menu, the operator will then be prompted to scan or enter from the keyboard their:
  - a. Emissions Inspector License Number; and
  - b. Enter from the keyboard their five (5) digit Access Code.
2. The equipment will search the file TECH.DAT using the Emissions Inspector License Number for an authorized Inspector. If the following conditions are met the test can proceed:
  - a. A valid emissions inspector license if found matching the entered license number;
  - b. The Identification Number entered and the Access Code must match;
  - c. Inspector Emissions Lockout flag must not be set;
  - d. The system date will not be greater than the inspector license expiration date; and
  - e. The Access Code cannot be the default '11111'.
3. After any failed attempt to scan and enter the proper identification number with matching access code, the equipment will display the appropriate error message and then will return to the Main Menu.
4. If the Access Code is the default "11111", error message f., below, will be displayed. When the inspector selects OK, the procedure will abort and the software will execute the Change Technician Password procedure as detailed under section 3.34.
5. Display Prompts:
  - a. **Please Scan or Enter your Inspector License ID Number**
  - b. **Please Enter your access code**
6. Error Messages:
  - a. **This license number is not found on file – Try Again or Contact the Helpline**
  - b. **This license is not valid to issue inspection stickers**
  - c. **Your access code is incorrect**

## Pennsylvania Analytical System (PAS) – OBD (Stand Alone) Display and Program Requirements

- d. **Your license has expired**
- e. **Your license has been suspended or revoked – Contact PENNDOT**
- f. **Your access code needs to be updated – press OK to change your access code.**

### D. Menu Display Prompt:

	<b>Select Action Type From List Below</b>
<b>1</b>	<b>Issue Waiver Sticker</b>
<b>2</b>	<b>Vehicle Operated Less Than 5000 Miles This Year</b>
<b>3</b>	<b>New Vehicle Exemption</b>
<b>4</b>	<b>Issue Replacement Sticker</b>
<b>5</b>	<b>Record a Sticker that is Voided or Damaged</b>
<b>6</b>	<b>Record a Sticker that is Missing or Has Been Stolen</b>
<b>7</b>	<b>Issue a Diagnostic Exception</b>
<b>8</b>	<b>Exit</b>

### 1. Programming Criteria:

- a. If “Issue Waiver Sticker” is selected the inspector license must have an emissions license classification in the TECH.DAT file of “CO”, “CI”, “MO” or “MI” to access the waiver issuance section of this procedure. If the inspector license classification is not valid, then display the below error message. Please note that inspector license classifications “CV” and “MV” are **not** allowed to deliver a waiver even though they are allowed to do a visual inspection.
- b. Error Message for Waivers:
  - 1) **Your Inspector license is not classified with the “Repair” status required to issue Waivers.**
- c. Menu choice number 7, Issue a Diagnostic Exception will be enabled via Field #10 - Inspector Hardship Waiver of the SYSTEM.DAT file.
- d. In addition, access to the Diagnostic Exception software routine/option will always be active from the State Menu, as it is normally a Referee procedure.
- e. At no point in time will the Inspector’s Classification be a determining factor in rejection or consideration of a Diagnostic Exception.

### E. If Issue Waiver Sticker, Less Than 5000 Mile exemption, New Vehicle Exemption, Diagnostic Exception, or Replacement Sticker menu items are selected get VIN, Title and License Plate data.

#### 1. VIN, Title and License Plate

- a. The VIN must either be scanned from the BMV Registration Credential or manually entered twice by the emissions inspector. The VIN and Title number will be the primary means of tracking the inspection history of a vehicle.

**Pennsylvania Analytical System (PAS) – OBD (Stand Alone) Display and Program Requirements**

---

---

## b. Display Prompts:

- 1) **Please ask the customer for their BMV Registration Credential or VIR.**
- 2) **Please scan the Bar Code on the BMV Registration Credential, or VIR, or enter the VIN, Title number and License Plate using the keyboard.**
- 3) **Please re-enter the VIN using the keyboard.**
- 4) **Please enter the vehicle Title Number**
- 5) **Please re-enter the Title Number using the keyboard.**
- 6) **Please enter the vehicle License Plate**
- 7) **Please re-enter the vehicle License Plate using the keyboard.**
- 8) **Is this vehicle information correct? YES or NO**

## c. Error Messages:

- 1) **Scan could not be read – Please enter from the keyboard**
- 2) **Both entries of the VIN do not match.**
- 3) **Both entries of the Title Number do not match.**
- 4) **Both entries of the License Plate do not match.**
- 5) **VIN exceeds 17 characters in length – please recheck the VIN**
- 6) **VIN less than 17 characters in length – please recheck the VIN**

## d. Programming Criteria:

- 1) The equipment will show display prompt 1 on the screen.
  - a) The equipment will show display prompts 2, 4, & 6 and accept input from the bar code scanner or the keyboard.
  - b) If the equipment receives proper input from the bar code scanner or keyboard the inspector will be shown display prompt 8.
  - c) Manual entry from the keyboard will require a second entry of the VIN, title number, and vehicle license plate in the double blind manner described in Section 1.18 above and will require use of prompt 3, 5, & 7. If the second entry does not match the first error message 2 or 3 or 4 will be displayed depending on which field is not matching and the VIN, Title, and License Plate process will start again from the beginning.
  - d) When error message 5 is displayed the equipment will prompt the inspector with the question: **Is the VIN greater than 17 characters? Yes or No.** If the VIN is greater than 17 characters then proceed to display prompt 4. If the VIN is not greater than 17 characters then restart the VIN process from the beginning.
  - e) When error message 6 is displayed the equipment will prompt the inspector with the question: **Is the VIN less than 17 characters? Yes or No.** If the VIN is less than 17 characters then proceed to display prompt 4. If the VIN is not less than 17 characters then restart the VIN process from the beginning.

## Pennsylvania Analytical System (PAS) – OBD (Stand Alone) Display and Program Requirements

---



---

- f) The equipment will not proceed until proper entry is obtained or the procedure escaped. If after 3 attempts no match is made, the equipment will escape/abort the sticker procedure. No record will be written and nothing will print.
- F. If **Waiver Sticker** process, gather County of Registration, Model Year of vehicle, GVWR, Odometer and additional repair data.
  1. Model Year Display Prompts:
    - a. **Enter the vehicle Model Year**
  2. Model Year Error Messages:
    - a. **This vehicle's model year is prior to 1975 and requires no waiver.**
    - b. **Re-Enter a valid Model Year**
  3. Model Year Programming Criteria:
    - a. Verify that the current vehicle needs waiver.
    - b. Vehicles older than 1975 do not need a waiver.
    - c. Allow entry of model year equal to current year plus one (e.g. in 2001: 2001+1 = 2002 as maximum model year).
  4. County Display Prompts:
    - a. **Enter the vehicle County of Registration.**
    - b. **Select the appropriate County from the list below.**
  5. County Error Messages:
    - a. **No County has been selected – Try Again**
  6. County Programming Criteria:
    - a. County of Registration will be entered by a method, approved by PENNDOT, which maximizes user friendliness, preferably via direct cursor selection or the County Code.
    - b. A list, from the COUNTY.DAT file, will be displayed of all County Codes & County names contained in the file.
      - 1) In addition to the list of PA counties in the file there are four additional file entries which will be treated as any other county:
        - a) Selection of "96" will make the Emissions Test Required equal to Visual only.
        - b) Selection of "97" will make the Emissions Test Required equal to OBD only.
        - c) Selection of "98" will make the Emissions Test Required equal to OBD for vehicles with a model year greater than 1995 or TSI for vehicles with a model year prior to 1996.
        - d) Selection of "99" will make the Emissions Test Required equal to OBD for vehicles with a model year greater than 1995 or ASM for vehicles with a model year prior to 1996.
      - 2) For example, the inspector should be able to enter the numeric County Code which would cause the cursor to go to the appropriate County name on the list which would also be highlighted.
      - 3) If the correct County was highlighted, the "enter" key would be pressed otherwise, the inspector would be able to move the cursor to the right one.

## Pennsylvania Analytical System (PAS) – OBD (Stand Alone) Display and Program Requirements

---



---

- c. The Emissions Test required will be taken from the COUNTY.DAT file for the selected County.
  - 1) If the Emissions Test required is blank (no emissions test required), the vehicle is still eligible for a waiver.
7. GVWR Display Prompts:
  - a. **If this vehicle is a TRUCK please enter the vehicle's Gross Vehicle Weight Rating (GVWR) as indicated on the vehicle's permanent identification plate.**
  - b. **DO NOT INCLUDE DECIMAL POINTS OR COMMAS.**
  - c. **REFER TO THE VEHICLE'S GVWR PLATE FOR THE CORRECT VALUE IF THE VEHICLE IS A SMALL PICKUP, SPORT/UTILITY VEHICLE, MINIVAN, FULL-SIZE PICKUP OR FULL-SIZE VAN.**
8. GVWR Error Messages:
  - a. **Too Many Characters Have Been Entered - Try Again**
  - b. **Gross Vehicle Weight Rating Must Be At Least 2500 lbs - Try Again**
  - c. **The GVWR of this vehicle is greater than 9,000 pounds. The current emissions program does not inspect vehicles in this weight class. NO WAIVER REQUIRED.**
9. GVWR Programming Criteria:
  - a. If no GVWR is entered the vehicle is not a truck
  - b. If GVWR of this vehicle is greater than 9,000 pounds, the program will display error message and then return to the vehicle emissions inspection menu.
10. Odometer and Repair Data Display Prompts:
  - a. Enter Odometer Reading
  - b. **Were Repairs performed on this vehicle, which were not recorded during an emissions inspection? YES or NO**
  - c. **Is this a request for a Waiver? YES or NO**
11. Waiver Programming Criteria:
  - a. The vehicle is registered in an OBD county and the Model Year is greater than or equal to 1975 and is prior to 1996. The program will display error message ***"Waiver Cannot Be Issued"*** and then return to the vehicle emissions inspection menu.
  - b. The vehicle is registered in a Visual county. The program will display error message ***"Waiver Cannot Be Issued"*** and then return to the vehicle emissions inspection menu.
  - c. The vehicle is registered in an ASM or TSI county and the model year is less than the current year minus 25. The program will display error message ***"Waiver Cannot Be Issued"*** and then return to the vehicle emissions inspection menu.
  - d. The vehicle is registered in an OBD county and the GVWR is equal to or greater than 8501 and less than or equal to 9000 pounds. The program will display error message ***"Waiver Cannot Be Issued"*** and then return to the vehicle emissions inspection menu.
  - e. If the response to **"Were Repairs performed on this vehicle, which were not recorded during an emissions inspection?"** is **"Yes"** then perform Repair Logic as shown in the emissions inspection

**Pennsylvania Analytical System (PAS) – OBD (Stand Alone) Display and Program Requirements**

---

sequence above. When the Repair Data Entry is complete, proceed to the next step. If the response is “No”, evaluate the next display prompt.

- f. If the response to “**Is this a request for a Waiver?**” is “**Yes**” then contact VIID for Waiver Authorization below. If “No”, then return to the Vehicle Emissions Inspection Menu.

12. Waiver Authorization Programming Criteria:

- a. Once the equipment has received the proper responses to the prompts above, the equipment will format a waiver/exemption authorization request and initiate a VIID connection.
  - 1) For Authorization type use “W” for standard Waiver and “D” for Diagnostic Exception
  - 2) Data to be sent to the VIID
    - a) VIN
    - b) Plate
    - c) Title
    - d) Inspector ID
    - e) Authorization Type = “W” or “D”
- b. During the communications session with the VIID, any REPAIR.DAT data will be sent to the VIID.
- c. The VIID will make a determination of the vehicle waiver eligibility and will return an authorization approval or denial. The VIID will always transmit a transaction number along with the approval or denial.
  - 1) Data to be sent from the VIID
    - a) VIN
    - b) Plate
    - c) Title
    - d) Authorization Y/N
    - e) Authorization ID
    - f) Refusal Transaction Message
  - d. Denial transactions from the VIID will have associated logic to explain reason(s) for denial.
  - e. If contact with the VIID is unsuccessful, the software will display **Failure Contacting the Main Host Computer – Waiver Cannot Be Issued**. Return to the Sticker Menu.
  - f. If authorization is denied, then display message regarding denial.
    - 1) **WAIVER ISSUANCE DENIED**
    - 2) Display text of error messages returned from the VIID.
  - g. If authorization is received, then complete sticker issuance.
    - 1) Display Prompts:
      - a) **WAIVER ISSUANCE IS AUTHORIZED**
      - b) **Enter Sticker Number Issued For Waiver:**

## Pennsylvania Analytical System (PAS) – OBD (Stand Alone) Display and Program Requirements

---



---

- c) **Enter Month of Sticker Expiration: MM**
  - d) **Enter Year of Sticker Expiration: YYYY**
  - e) **Record Sticker Issuance? Yes or No**
- 2) Error Messages:
  - a) ***Invalid Emissions Sticker Number.***
  - b) ***Sticker Expiration is less than six months or greater than 15 months, please adjust expiration date.***
- 3) Programming Criteria:
  - a) The Emissions Sticker Number is required to be in the format 2 alphabetic characters followed by 8 numbers.
  - b) The Expiration Date of the sticker cannot be less than six months from the system date or greater than fifteen months from the system date.
  - c) If the reply to 'Record Sticker Issuance' is 'Yes' then print the Sticker Issuance Report (Exhibit H). If "No", then return to the Vehicle Emissions Inspection Menu.
  - d) In all cases if the response to Record Sticker Issuance is "Yes", then write a new STICKER.DAT record for transmission to the VIID. Also write a record in the USED\_S.DAT file.

### G. If Less Than 5000 Mile Exemption selected

- 1. Display Prompts:
  - a. **Enter Odometer Reading**
  - b. **This vehicle is eligible for this exemption only if it has been operated less than 5,000 miles in the past year.**
  - c. **If vehicle is eligible enter the Exemption Sticker number:**
  - d. **Enter Month of Sticker Expiration: MM**
  - e. **Enter Year of Sticker Expiration: YYYY**
  - f. **Record Sticker Issuance? YES or NO**
- 2. Error Messages:
  - a. ***Invalid Emissions Sticker Number.***
  - b. ***Sticker Expiration is less than six months or greater than 15 months, please adjust expiration date.***
- 3. Programming Criteria:
  - a. The Emissions Sticker Number is required to be in the format 2 alphabetic characters followed by 8 numbers.
  - b. The Expiration Date of the sticker cannot be less than six months from the system date or greater than fifteen months from the system date.
  - c. If the reply to 'Record Sticker Issuance' is 'Yes' then print the Sticker Issuance Report (Exhibit H). If "No", then return to the Vehicle Emissions Inspection Menu.
  - d. In all cases if the response to Record Sticker Issuance is "Yes", then write a new STICKER.DAT record for transmission to the VIID. Also write a record in the USED\_S.DAT file.



**Pennsylvania Analytical System (PAS) – OBD (Stand Alone) Display and Program Requirements**

---

---

**H. If New Vehicle Exemption selected**

1. Display Prompts:
  - a. **Enter Odometer Reading**
  - b. **This vehicle is eligible for this exemption only if it has never been registered anywhere before and has less than 5,000 miles on the odometer.**
  - c. **If vehicle is eligible enter the Exemption Sticker number:**
  - d. **Enter Month of Sticker Expiration: MM**
  - e. **Enter Year of Sticker Expiration: YYYY**
  - f. **Record Sticker Issuance? YES or NO**
2. Error Messages:
  - a. **Invalid Emissions Sticker Number.**
  - b. **Sticker Expiration is less than six months or greater than 15 months, please adjust expiration date.**
3. Programming Criteria:
  - a. The Emissions Sticker Number is required to be in the format 2 alphabetic characters followed by 8 numbers.
  - b. The Expiration Date of the sticker cannot be less than six months from the system date or greater than fifteen months from the system date.
  - c. If the reply to 'Record Sticker Issuance' is 'Yes' then print the Sticker Issuance Report (Exhibit H). If "No", then return to the Vehicle Emissions Inspection Menu.
  - d. In all cases if the response to Record Sticker Issuance is "Yes", then write a new STICKER.DAT record for transmission to the VIID. Also write a record in the USED\_S.DAT file.

**I. If Replacement Sticker selected**

1. Display Prompts:
  - a. **Enter Odometer Reading**
  - b. **This vehicle is eligible for a Replacement Sticker only if the old Sticker is physically present and can be verified as requiring replacement on the vehicle it was originally issued to.**
  - c. **Enter the Sticker number of the OLD Sticker, the one that is being replaced:**
  - d. **Enter the number of the NEW Replacement Sticker:**
  - e. **Enter Month of Sticker Expiration: MM**
  - f. **Enter Year of Sticker Expiration: YYYY**
  - g. **Record Sticker Issuance? YES or NO**
2. Error Messages:
  - a. **Invalid Emissions Sticker Number.**
  - b. **Sticker Expiration is greater than 15 months, please adjust expiration date.**
3. Programming Criteria:

---

**Pennsylvania Analytical System (PAS) – OBD (Stand Alone) Display and Program Requirements**

---

- a. The Emissions Sticker Number is required to be in the format 2 alphabetic characters followed by 8 numbers.
  - b. The Expiration Date of the sticker cannot be greater than fifteen months from the system date.
  - c. If the reply to 'Record Sticker Issuance' is 'Yes' then print the Sticker Issuance Report (Exhibit H). If "No", then return to the Vehicle Emissions Inspection Menu.
  - d. In all cases if the response to Record Sticker Issuance is "Yes", then write a new STICKER.DAT record for transmission to the VIID. Also write a record in the USED\_S.DAT file.
- J. If Voided or Damaged Sticker selected
1. Display Prompts:
    - a. **Record the number of the Voided or Damaged Sticker and retain the sticker for audit purposes.**
    - b. **Enter the Voided or Damaged Sticker number:**
    - c. **Record Sticker? YES or NO**
  2. Error Message:
    - a. **Invalid Emissions Sticker Number.**
  3. Programming Criteria:
    - a. The Emissions Sticker Number is required to be in the format 2 alphabetic characters followed by 8 numbers.
    - b. If the reply to 'Record Sticker' is 'Yes' then print the Sticker Issuance Report (Exhibit H). If "No", then return to the Vehicle Emissions Inspection Menu.
    - c. In all cases if the response to Record Sticker Issuance is "Yes", then write a new STICKER.DAT record for transmission to the VIID. Also write a record in the USED\_S.DAT file.
- K. If Missing or Stolen Sticker selected
1. Display Prompts:
    - a. **Record the number of the Missing or Stolen Sticker for audit purposes.**
    - b. **Enter the Missing or Stolen Sticker number:**
    - c. **Record Sticker? YES or NO**
  2. Error Message:
    - a. **Invalid Emissions Sticker Number.**
  3. Programming Criteria:
    - a. The Emissions Sticker Number is required to be in the format 2 alphabetic characters followed by 8 numbers.
    - b. If the reply to 'Record Sticker' is 'Yes' then print the Sticker Issuance Report (Exhibit H). If "No", then return to the Vehicle Emissions Inspection Menu.
    - c. In all cases if the response to Record Sticker Issuance is "Yes", then write a new STICKER.DAT record for transmission to the VIID. Also write a record in the USED\_S.DAT file.

## Pennsylvania Analytical System (PAS) – OBD (Stand Alone) Display and Program Requirements

---



---

- L. If Diagnostic Exception process selected, gather Odometer reading and contact VIID or VIID representative for authorization.
  1. Display Prompts:
    - a. **Enter Odometer Reading**
    - b. **Request a previously authorized Diagnostc Exception? YES or NO**
  2. Diagnostic Exception Programming Criteria:
    - a. Diagnostic Exceptions require specific authorization.
    - b. If the response is “Yes” then perform contact VIID for Diagnostic Exception Authorization below. If “No”, then return to the Vehicle Emissions Inspection Menu.
  3. Diagnostic Exception Authorization Programming Criteria:
    - a. Once the equipment has received the proper responses to its prompts, the equipment will format a waiver/exemption/exception authorization request and the inspector will initiate a VIID connection.
    - b. The VIID will make a determination of the vehicle eligibility and will return an authorization approval or denial. The VIID will always transmit a transaction number along with the approval or denial.
    - c. For Authorization type use “D” for Diagnostic Exception
      - 1) Data to be sent to the VIID
        - a) VIN
        - b) Plate
        - c) Title
        - d) Inspector ID
        - e) Authorization Type = “D”
      - d. The VIID will make a determination of the vehicle exception eligibility and will return an authorization approval or denial. The VIID will always transmit a transaction number along with the approval or denial.
        - 1) Data to be sent from the VIID
          - a) VIN
          - b) Plate
          - c) Title
          - d) Authorization Y/N
          - e) Authorization ID
          - f) Refusal Reason Message
      - e. Denial transactions from the VIID will have associated logic to explain reason(s) for denial.
      - f. If contact with the VIID is unsuccessful, the software will display **Failure Contacting the Main Host Computer – Diagnostic Exception Cannot Be Issued**. Return to the Sticker Menu.
      - g. If authorization is denied, then display message regarding denial.
        - 1) **DIAGNOSTIC EXCEPTION ISSUANCE DENIED**

## Pennsylvania Analytical System (PAS) – OBD (Stand Alone) Display and Program Requirements

---



---

- 2) Display text of error messages returned from the VIID.
- h. If authorization is received, then complete sticker issuance.
  - 1) Display Prompts:
    - a) **WAIVER ISSUANCE IS AUTHORIZED**
    - b) **Enter Sticker Number Issued For Waiver:**
    - c) **Enter Month of Sticker Expiration: MM**
    - d) **Enter Year of Sticker Expiration: YYYY**
    - e) **Record Sticker Issuance? YES or NO**
  - 2) Error Messages:
    - a) **Invalid Emissions Sticker Number.**
    - b) **Sticker Expiration is less than six months or greater than 15 months, please adjust expiration date.**
  - 3) Programming Criteria:
    - a) The Emissions Sticker Number is required to be in the format 2 alphabetic characters followed by 8 numbers.
    - b) The Expiration Date of the sticker cannot be less than six months from the system date or greater than fifteen months from the system date.
    - c) If the reply to 'Record Sticker Issuance' is 'Yes' then print the Sticker Issuance Report (Exhibit H). If "No", then return to the Vehicle Emissions Inspection Menu.
    - d) In all cases if the response to Record Sticker Issuance is "Yes", then write a new STICKER.DAT record for transmission to the VIID. Also write a record in the USED\_S.DAT file.
- M. Return to the Main Menu as described in section (2) when "99" is selected from the menu.

### 3.32 Sticker Issuance Report Reprint

- A. The Sticker Issuance Report Reprint function will be activated by an entry from the Vehicle Emissions Inspection Menu.
- B. The equipment will list all sticker issuances available in the USED\_S.DAT file within the last 240 days, except those with a reason code of "E".
- C. The list will be in order by date and inspection sticker number.
- D. The list to select from will display:
  - 1. Sticker Number
  - 2. Issuance Date
  - 3. VIN
  - 4. License Plate
  - 5. Reason Issued (based on reason code)

## Pennsylvania Analytical System (PAS) – OBD (Stand Alone) Display and Program Requirements

- E. The software will permit the user to scroll through the list and select a single sticker issuance record to review or print.
- F. When the user selects a sticker issuance to review, they will be given the option to print the record using the VIR printer.
  - 1. Both the on-screen and printed information will be presented in an easy to read format with clearly labeled field identifiers for all data fields (refer to Exhibit H).
    - a. The replacement sticker issuance report must clearly be labeled “DUPLICATE STICKER ISSUANCE REPORT”
- G. A function key or other entry method will return the user to the previous menu.

### 3.33 Technician Menu

- A. The Technician Menu function will be accessed by an entry from the Main Menu.
- B. Menu Display Prompt:

	<b>Select Action Type From List Below</b>
<b>1</b>	<b>Change Technician Password</b>
<b>2</b>	<b>Exit</b>

- C. The Technician Menu may also contain access to view or print User Manuals or tutorials that are resident on the PAS Unit hard drive.
- D. Change Technician Password will be performed when 1 is selected from the Technician Menu.
  - 1. Display Prompts:
    - a. **Please Enter the Inspector License ID Number**
    - b. **Please Enter Current Access Code**
    - c. **Enter New Access Code**
    - d. **Re-enter New Access Code**
  - 2. Error Messages:
    - a. **The License Number is not found on file – Try Again or Contact the Helpline.**
    - b. **Your Current Access Code is Incorrect.**
    - c. **Both entries of New Access Code do not match.**
  - 3. Programming Criteria:
    - a. Display prompts a., b., c., and d. above. After the Emissions Inspector License Number is entered, the inspector is required to enter their existing five (5) digit Access Code from the keyboard, and then enter a new five (5) digit Access Code twice from the keyboard.
    - b. The existing and new Access Codes must not be displayed in clear text.
    - c. Entry of the new Access Code must be in double-blind fashion.

## Pennsylvania Analytical System (PAS) – OBD (Stand Alone) Display and Program Requirements

- d. The equipment will search the file TECH.DAT containing the authorized Inspectors for a matching identification number. If the following conditions are met the password change can proceed:
    - 1) A valid emissions inspector license is found matching the entered license number;
    - 2) The Identification Number and the Current Access Code must match'
    - 3) The New Access Code cannot be equal to the default access code of '11111'; and
    - 4) Both entries of the New Access Code must match.
  - e. After a failed attempt to enter the proper identification number with matching access code, the equipment will display the appropriate error message (a or b) and allow the inspector to re-enter the information. After the second failed attempt, the equipment will display the appropriate error message (a or b) and then will return to the Technician Menu.
  - f. After a failed attempt to enter a New Access Code twice correctly, the equipment will display error message c. and allow the inspector to re-enter the New Access Code. After the second failed attempt, the equipment will display error message c. and return to the Technician Menu.
  - g. If the process is successful, the equipment will display, "**The Technician Access Code has been successfully updated.**" The new access code will be updated in the TECH.DAT file, the corresponding Access Code Updated flag will be set "Y" and the updated Technician information will be transmitted to the VIID at the completion of this process via an automatically initiated Data File Refresh.
- E. The software will return to the Main Menu when 2 is selected from the Technician Menu.

### 3.34 Station Menu

- A. The Technician Menu function will be accessed by an entry from the Main Menu.
- B. Menu Display Prompt:

	<b>Station Menu</b>
<b>1</b>	<b>Print Used Sticker Report</b>
<b>2</b>	<b>Network Communications Diagnostics</b>
<b>3</b>	<b>Data File Refresh</b>
<b>4</b>	<b>Previous Inspection History Report for a Vehicle</b>
<b>5</b>	<b>Print a Communications Log</b>
<b>6</b>	<b>Test Record Search and Retrieval</b>
<b>7</b>	<b>Request Lockout Status</b>
<b>8</b>	<b>Technician Password Reset</b>
<b>9</b>	<b>Change Station Authority Password</b>
<b>10</b>	<b>Exit</b>

**Pennsylvania Analytical System (PAS) – OBD (Stand Alone) Display and Program Requirements**

---

---

- C. Station Menu Choice: **Print Used Sticker Report** will be performed when one (1) is selected from the Station Menu.
1. This selection will display and provide the ability to print a report of stickers issued by the equipment for a minimum of the past 240 days. The user will have an option of changing the date range for the report. If the default date ranges are not changed by the user, all stickers issued within the last 240 days will be displayed. The user must also have the ability to print the report based on the date range selected. See Section 5 Exhibit I for a sample report.
  2. Data will be displayed and printed from the USED\_S.DAT file in sticker number order. Data can also be used from the manufacturer's PAS software, as long as the requirements are met.
  3. 240 days is the minimum required storage period for sticker data. The manufacturer may choose to store more data than this requirement for the station user to search, display and print.
  4. Display Prompt:
    - a. **Enter date range for Station Used Sticker Report (default is 240 days): MM/DD/YYYY to MM/DD/YYYY**
    - b. **Print the report? Yes or No**
  5. Programming Criteria:
    - a. Default date range field entries will cover the previous 240 days, ending with the current date.
    - b. Report will display the following (See Section 5 Exhibit I for a sample report):
      - 1) Date of Report
      - 2) Station License
      - 3) Station Name, Address, and Telephone Number
      - 4) Equipment ID
      - 5) Sticker Details
        - a) Date of Issue
        - b) Sticker Number
        - c) Vehicle Data
        - d) Reason for Issuance (Emissions Inspection, Waiver, Replacement, Missing, etc.)
        - e) Use all details in sticker file.
    - c. A function key or other entry method will return the user to the Station Menu.
- D. Station Menu Choice: **Network Communications Diagnostics** will be performed when two (2) is selected from the Station Menu.
1. "Network Communications Diagnostics" will be used to diagnose communication-related problems. The following diagnostic tests will be provided:
    - a. **NETWORK DIAGNOSTICS**
  2. It is the responsibility of each PAS manufacturer to work with the PENNDOT's vendor to ensure that the communication strings are set up automatically and correctly.
  3. The communication strings will be set up in a data file (refer to the communications Protocol) for the vendor's software.

## Pennsylvania Analytical System (PAS) – OBD (Stand Alone) Display and Program Requirements

---



---

4. The equipment will provide the data needed to conduct network diagnostics. Each individual equipment manufacturer creates this data. During the network diagnostics routine, the equipment will transmit the data to the VIID and subsequently the same data will be transmitted back from the VIID to the equipment. The data on the sent and received files should be identical upon completion of the network diagnostics routine for this test to pass. The equipment will display the following message:
  - a. **TRANSMITTING DATA, PLEASE WAIT**
5. Programming Criteria:
  - a. If, upon completion of VIID access, the data transmitted by the equipment to the VIID is the same as the data received by the equipment from the VIID, then display the following message:
    - 1) **NETWORK COMMUNICATIONS PASSED.**
  - b. If, upon completion of VIID access, the data transmitted by the equipment to the VIID is not the same as the data received by the equipment from the VIID, then display the following message:
    - 1) **NETWORK COMMUNICATIONS FAILED.**
  - c. If VIID communications access is not achieved display the following message:
    - 1) **CANNOT ACCESS NETWORK. CALL TECHNICAL SUPORT.**
  - d. A function key or other entry method will return the user to the Station Menu.
- E. Station Menu choice: **Data File Refresh** will be performed when three (3) is selected from the Station Menu.
  1. This feature will allow station personnel to place a request to the VIID to update key equipment data files, such as reference tables, inspector information, lockout status, and program data
  2. The equipment will overwrite the existing tables with the refreshed data received from the VIID.
  3. The equipment will transmit the following data:
    - a. Stored emissions test (EIS.DAT) records, if any.
    - b. Stored repair information (REPAIR.DAT) records, if any.
    - c. Stored sticker issuance information (STICKER.DAT) records, if any.
    - d. Calibration (CAL.DAT) records, if any.
    - e. Stored technicians (TECH.DAT) records, if updated.
    - f. Lockout (LOCKOUT.DAT) record.
    - g. Audit information (AUDIT.DAT), if any.
    - h. Incomplete (INCOMPLT.DAT) records, if applicable.
  4. The equipment will overwrite the existing tables with the refreshed data received from the VIID after transmitting all required data.
  5. Programming Criteria
    - a. The equipment will use the communications software to contact the VIID with a data file refresh request.
    - b. Upon completion of the “Data File Refresh” procedure the equipment will display the following message:



## Pennsylvania Analytical System (PAS) – OBD (Stand Alone) Display and Program Requirements

---



---

- 1) **THE INSPECTOR LICENSE NUMBERS AND ACCESS CODES HAVE BEEN UPDATED BY THE VIID. IN CASE THERE ARE PROBLEMS CONTACT PENNDOT OR TECHNICAL SUPPORT.**
  - c. The equipment will display or print the updated list, including the Station name, address, station license number, and date of report as well as each inspector's license number and full name. See Section 5 Exhibit J for a sample report.
  - d. During screen display or printing of the inspector information the equipment will never display the inspector license numbers or access codes.
  - e. If, access to the VIID is not achieved display the following message:
    - 1) **CANNOT ACCESS NETWORK**
  - f. A function key or other entry method will return the user to the Station Menu.
- F. Station Menu choice: **Previous Inspection History Report For a Vehicle** will be performed when four (4) is selected from the Station Menu.
  1. Upon selection and after gathering vehicle information, VIID access will be attempted and, if successful, the equipment will request the production of a report.
  2. Display Prompts:
    - a. **A Previous Inspection History Report for a Vehicle Has Been Started.**
    - b. **This report will list previous emissions inspections, waivers, exemptions and emissions related repairs on file in the central host computer for this vehicle. There will be a charge to the station equivalent to an emissions inspection communications charge for this report. You may exit at any time prior to connecting to the main host computer.**
    - c. **Do you wish to proceed? Yes or No**
    - d. **GATHERING VEHICLE DATA FOR A PREVIOUS INSPECTION HISTORY REPORT**
    - e. **Please ask the customer for the vehicle BMV Registration Credential.**
    - f. **Please scan the Bar Code on the BMV Registration Credential or enter the VIN, Title number and License Plate using the keyboard.**
    - g. **Please enter the VIN (required)**
    - h. **Please enter the vehicle Title Number (optional)**
    - i. **Please enter the vehicle license plate number (optional)**
    - j. **Is this vehicle information correct? Yes or No**
  3. Error Messages:
    - a. **Scan could not be read – Please enter from the keyboard**
    - b. **Both entries of the VIN do not match.**
    - c. **VIN exceeds 17 characters in length – please recheck the VIN**
    - d. **VIN less than 17 characters in length – please recheck the VIN**
    - e. **(If entered) Title must be 10 characters long – please recheck the Title**
  4. Programming Criteria:

## Pennsylvania Analytical System (PAS) – OBD (Stand Alone) Display and Program Requirements

---



---

- a. The software shall display prompts a., b., and c. above. If the user selects Yes, proceed to the next step. If the user selects No, return to the Station Menu.
  - b. The software shall display prompts d. through j. above.
  - c. The VIN must either be scanned from the BMV Registration Credential or manually entered twice by the emissions inspector. The VIN and Title number are the primary means of tracking the inspection history of a vehicle.
  - d. The equipment will not proceed until proper entry is obtained.
  - e. The equipment will allow escape from this process prior to VIID connection attempt and return to the Station Menu.
  - f. VIN must be entered to proceed, title and plate are optional.
  - g. When error message c. is displayed, the equipment will prompt the inspector with the question: **Is the VIN greater than 17 characters? Yes or No.** If the VIN is greater than 17 characters then proceed to display prompt h. If the VIN is not greater than 17 characters then restart the VIN process from the beginning.
  - h. When error message d. is displayed, the equipment will prompt the inspector with the question: **Is the VIN less than 17 characters? Yes or No.** If the VIN is less than 17 characters then proceed to display prompt h. If the VIN is not less than 17 characters then restart the VIN process from the beginning.
  - i. The equipment will use the communications software to contact the VIID with the report request.
  - j. The VIID will return the report as mail and will display and print in the normal manner for received mail.
  - k. If access to the VIID is not achieved, display the following message:
    - 1) **CANNOT ACCESS NETWORK**
  - l. A function key or other entry method will return the user to the Station Menu.
- G. Station Menu choice: **Print a Communications Log** will be performed when five (5) is selected from the Station Menu.
1. Selection of this menu item will allow viewing and printing individual or all communications session logs recorded by the equipment for a minimum of the past 100 communication sessions.
  2. The equipment will provide a method to list and print each communication session.
  3. The minimum method is to ask the user how many sessions should be viewed or printed. Sessions to be printed should be calculated from the most recent going backwards in time.
  4. A function key or other entry method will return the user to the Station Menu.
- H. Station Menu choice: **Test Record Search and Retrieval** will be performed when six (6) is selected from the Station Menu.
1. The equipment will list all inspections available on the EIS.DAT and EIS.HST files within a minimum of the last 240 days of inspections in order by date/begin time of inspection. Data can also be used from the manufacturer's PAS software, as long as the requirements are met.
    - a. The list will display the date, begin time, VIN, vehicle license, year, make, and model from the EIS.DAT or EIS.HST.
  2. The software will permit the user to scroll the list and select a single vehicle inspection record for display.

---

**Pennsylvania Analytical System (PAS) – OBD (Stand Alone) Display and Program Requirements**

---

3. Once a record is located, the user will be allowed to review the complete vehicle inspection record, including all fields in EIS.DAT, and print an individual record using the VIR printer.
  - a. Both the on-screen and printed report will be the same, an easily read formatted report of the data. Field identifiers will be clear labels of the data fields.
  - b. A function key or other entry method will return the user to the Station Menu.
- I. Station Menu choice: **Request Lockout Status** will be performed when seven (7) is selected from the Station Menu
  1. Upon selection, VIID access will be attempted and, if successful, the VIID will return the revised lockout status even though a lockout might not have been removed.
  2. Programming Criteria:
    - a. The equipment will use the communications software to contact the VIID with a lockout update request.
    - b. The VIID will return the lockout status in the normal manner and the equipment will apply the received lockout status.
    - c. Upon completion of VIID access, the equipment will display current lockout status, which can be done by displaying the status page.
    - d. If access to the VIID is not achieved display the following message:
      - 1) **CANNOT ACCESS NETWORK**
    - e. A function key or other entry method will return the user to the Station Menu.
- J. Station Menu choice: **Reset Technician Password** will be performed when eight (8) is selected from the Station Menu.
  1. Display Prompts:
    - a. **Please Enter the Station Authority ID**
    - b. **Please Enter the Station Authority Password**
    - c. **Please Enter the Inspector License ID Number for Access Code Reset**
  2. Error Messages:
    - a. **Invalid Station Authority ID**
    - b. **Invalid Station Authority Password**
    - c. **This Inspector License Number is not found on file – Try Again or Contact the Helpline**
  3. Programming Criteria:
    - a. The software shall display prompts a., b., and c.
    - b. The Station Authority user ID and password are required to be entered from the keyboard.
    - c. The station authority password will be compared to the value maintained on the PAS unit.
      - 1) If the Station Authority ID does not match what is on file, show error message a. above.
      - 2) If the Station Authority Password does not match what is on file, show error message b. above.
      - 3) If the Station Authority user ID or Password do not match after three attempts, return to the Station Menu.

## Pennsylvania Analytical System (PAS) – OBD (Stand Alone) Display and Program Requirements

---



---

- d. Next the Emissions Inspector License Number is entered.
  - e. The equipment will search the file TECH.DAT containing the authorized Inspectors for a matching identification number. If no match is found for the Inspector License Number, show error message c. above. If the following conditions are met the process can proceed:
    - 1) A valid emissions inspector license is found matching the entered license number.
  - f. The technician's access code is reset to the default of '11111' and the TECH.DAT is updated.
  - g. Upon successful resetting of the access code, the software will display, "**The Selected Inspector License ID Password has been Reset**" and then execute the Change Technician Password function in the Technician Menu.
  - h. A function key or other entry method will return the user to the Station Menu if the process is aborted before completion.
- K. Station Menu choice: **Change Station Authority Password** will be performed when nine (9) is selected from the Station Menu.
1. Display Prompts:
    - a. **Please Enter the Station Authority ID**
    - b. **Please Enter Current Station Authority Password**
    - c. **Enter New Station Authority Password**
    - d. **Please Re-enter New Station Authority Password**
  2. Error Messages:
    - a. **Invalid Station Authority ID**
    - b. **Invalid Station Authority Password**
    - c. **Both entries of New Password do not match**
  3. Programming Criteria:
    - a. The Station Authority Username and Password must be managed by the equipment software. If the Station Authority is also an inspector listed in TECH.DAT, the Station Authority username and passcode must be different from their inspector ID and passcode used for inspection purposes. The manufacturer must provide a method to create and edit the Station Authority username and passcode when the equipment is setup or serviced via a utility in the Manufacturer's Technician Menu.
    - b. The Station Authority Username must be 6-8 characters and contain both letters and numbers.
    - c. The Station Authority Passcode must be at least seven (7) characters and contain upper- and lower-case letters as well as numbers.
      - 1) If the Station Authority forgets this ID and/or password, they will be required to contact the equipment manufacturer to have them reset.
    - d. The software shall display prompts a., b., c., and d. above. After the Station Authority ID is entered, the user is required to enter the existing Station Authority Password from the keyboard, and then enter a new Station Authority Password twice from the keyboard.
    - e. The existing and new Passwords must not be displayed in clear text.
    - f. Entry of the new Password must be in double-blind fashion.

## Pennsylvania Analytical System (PAS) – OBD (Stand Alone) Display and Program Requirements

- g. The Station Authority user ID and password will be compared to the value maintained on the PAS unit. If the following conditions are met, the password change can proceed:
  - 1) The Station Authority ID matches what is on file.
  - 2) The Station Authority Password matches what is on file.
  - 3) Both entries of the New Password must match.
- h. After a failed attempt to enter the proper Station Authority ID with matching Password, the equipment will display the appropriate error message (a or b) and allow the Station Authority to re-enter the information. After the second failed attempt, the equipment will display the appropriate error message (a or b) and then will return to the Station Menu.
- i. After a failed attempt to enter a New Password twice correctly, the equipment will display error message c. and allow the Station Authority to re-enter the New Password. After the second failed attempt, the equipment will display error message c. and return to the Station Menu.
- j. If the process is successful, the equipment will display, **“The Station Authority Password has been successfully updated.”** The new password will be saved by the software.
- k. A function key or other entry method will return the user to the Station Menu.
- L. Station Menu Choice: **Exit** will return the user to the Main Menu.

### 3.35 State Menu

- A. When the State Menu is selected from the Main Menu, the operator will be prompted to enter via the keyboard their License Number and PENNDOT daily access code. After the third failed attempt to scan and enter a valid access code, the equipment will return to the Main Menu. The daily access code software for PENNDOT is PARSONS property. Proprietary PARSONS documentation and daily access code software will be provided to an authorized equipment manufacturer.
- B. When the equipment has accepted a valid license number, a record will be written to PENNDOT Audit File containing all fields. The equipment will then display the following prompt:

	<b>State Menu</b>
<b>1</b>	<b>State Equipment Maintenance</b>
<b>2</b>	<b>Update Station Information</b>
<b>3</b>	<b>Install New Encrypted Removable Medium/USB Drive</b>
<b>4</b>	<b>Practical/Demo Test Record</b>
<b>5</b>	<b>Lockout Functions</b>
<b>6</b>	<b>Perform Emergency Software Update</b>
<b>7</b>	<b>Test Record Search and Retrieval</b>
<b>8</b>	<b>Referee Inspection</b>

## Pennsylvania Analytical System (PAS) – OBD (Stand Alone) Display and Program Requirements

9	Issue a Diagnostic Exemption
99	Return to Main Menu

- When PENNDOT inspector has entered a valid menu option number, the equipment will initiate the associated procedure. If the value entered is not a valid number, an error message will be displayed to the screen. After three (3) successive invalid entries are made, the equipment will automatically return to the Main Menu.

- C. State Menu Choice: **State Equipment Maintenance Menu** will be activated when one (1) is selected from the State Menu.

- This will present a set of maintenance functions that may be performed by the operator:

	<b>State Equipment Maintenance Menu</b>
1	<b>Status Screen</b>
2	<b>PAS Unit Calibration</b>
3	<b>Fuel Cap Pressure Test Calibration</b>
4	<b>OBD Module Self Check</b>
99	<b>Return to State Menu</b>

- The operation of the menu items in the State Equipment Maintenance Menu is the same as the Equipment Maintenance Menu detailed in section 3.28. Refer to 3.28 for requirements.
- When the inspector selects 99 from the State Equipment Maintenance Menu, the equipment will return to the State Menu.

- D. State Menu Choice: **Update Station Information** will be initiated when two (2) is selected from the State Menu.

- A screen will be displayed and will allow all the values in STATION.DAT to be changed, except Max Number of Days, Max Number of Tests and Last Test Number.

- E. State Menu Choice: **Install New Encrypted Removable Medium/USB Drive** will be initiated when three (3) is selected from the State Menu.

- The equipment will display instructions, on a single screen, for changing the encrypted removable medium/USB drive. This procedure will properly format and encrypt the new removable medium, and transfer all the files from the old removable medium. The instructions must be approved by PENNDOT.
- When the change is complete and the equipment is secure, the equipment will return to the State Menu.

- F. State Menu Choice: **Practical/Demo Test** will be initiated when four (4) is selected from the State Menu.

- The Training Mode function will allow the operator to conduct training and to generate a “training” VIR that is a voided VIR. The choice of inspections will be the same as for regular Emissions inspection. The PAS test record will indicate an Overall Test Result of ‘T’ and the VIR will have the words, “Training Mode,” instead of

## Pennsylvania Analytical System (PAS) – OBD (Stand Alone) Display and Program Requirements

inspection results at the top of the form. The word “VOID” will be printed in large letters on the face of the VIR. In addition, the TIN field of the VIR will be printed with the word “VOID”.

2. The equipment will not record the training record and will not initiate a connection to PENNDOT. The equipment will print a TEST VIR without any emissions readings or test results.
  3. When the Practical/Demo Test is complete, the equipment will then return to the State Menu.
- G. State Menu Choice: **Lockout Functions** will be initiated when five (5) is selected from the State Menu.
1. The equipment manufacturer will devise a method to allow the inspection operations, sticker issuances, and vehicle inspection history requests to be disabled and still allow all other options to work normally. The equipment will display a message if it is locked out.
  2. The equipment software will allow PENNDOT to set or clear the lockouts on a particular unit from the VIID, using the full time internet connection.
  3. The equipment will allow a State representative to set or clear only the State Lockout from the keyboard. All other lockout status can be viewed only.
  4. The file storing the lockout codes (either a Y or N) is named LOCKOUT.DAT. The current lockout status will be displayed as follows. When the status is “Y”, display “ON” and when “N”, display “OFF”.
  5. The Lockout screen:

Lockout Type	Current Lockout Status	Update Lockout Status
State PAS Lockout	ON	Y or N

Continue with list of lockouts and statuses from LOCKOUT.DAT

6. After viewing or updating, a function key will return the user to the State Menu.
- H. State Menu Choice: **Emergency Software Functions** will be initiated when six (6) is selected from the State Menu.
1. When emergency software updates are required between software updates, the manufacturer is responsible to develop the update and provide the update to PENNDOT on removable storage/USB drive, CD ROM/DVD ROM, or downloadable. PENNDOT may install the update, but reserves the right to have it done by the manufacturer. If PENNDOT performs the update, multiple copies may be required.
  2. The update will be made as simple as possible for the operator by using display driven instructions, batch files, etc. This update may be distributed by the full time internet connection.
  3. Emergency Software or Firmware Updates will cause the software and/or firmware version number to change.
  4. When the update is complete, the equipment will return to the State Menu and/or restart the equipment.
- I. State Menu Choice: **Test Record Search and Retrieval** will be initiated when seven (7) is selected from the State Menu.
1. The functionality of this item is the same as section 3.29, VIR Reprint and Test Record Search and Retrieval. Refer to 3.29 for requirements.
  2. A function key or other entry method will return the user to the State Menu.

**Pennsylvania Analytical System (PAS) – OBD (Stand Alone) Display and Program Requirements**

---

- J. State Menu Choice: **Referee Inspection** will be initiated when eight (8) is selected from the State Menu.
1. The equipment will ask the operator to verify that they do want to conduct a Referee Emissions Inspection.
    - a. Display Prompt:
      - 1) **Perform a Referee Emissions Inspection? YES or NO**
    - b. If the user responds “Yes”, the procedure will continue. If the user responds “No”, the software will return to the State Menu.
  2. This function allows the operator to have an inspector perform an inspection. The inspection process will be the same as a standard Emissions inspection as detailed starting in section 3.4, but the test record will indicate a Record Inspection Disposition of “R”. The inspection will follow the entire emissions inspection process from the beginning, except that no access code is required for the inspector ID to be accepted.
    - a. Test type can be either Initial or After Repairs.
    - b. The VIR will indicate an Overall Test Result of “P” or “F”.
  3. The equipment will record the Inspector Number, the VIN and the date and time to the test record.
  4. At the completion of the test, the equipment will indicate the test result and then prompt the operator for the final test result of a “P” for pass, or “F” for fail. The result entered by the operator will override all other results.
    - a. Display Prompt:
      - 1) **Overall Test Result is:**
      - 2) **If required, override is allowed. Enter (P)ass or (F)ail.**
    - b. Programming Criteria:
      - 1) If ‘F’ for fail is entered, then print VIR.
      - 2) If ‘P’ for pass is entered, then print VIR with the modifications described above and follow the procedures described in the Sticker Number, Sticker Expiration and Test Fee Charged to Motorist section.
      - 3) The equipment will record the test record to EIS.DAT and EIS.HST and will initiate a connection to the VIID.
      - 4) When the Test Record is complete, the equipment will return to the State Menu.
- K. State Menu Choice: **Issue a Diagnostic Exemption** will be initiated when nine (9) is selected from the State Menu.
1. When selected the equipment will perform a Diagnostic Sticker authorization routine as described in section 3.31.L. and will be performed as though it had been selected directly from that submenu.
  2. This option will always be active.
- L. State Menu Choice: **Exit** will return the user to the Main Menu.



**Pennsylvania Analytical System (PAS) – OBD (Stand Alone) Display and Program Requirements**

---

---

**3.36 Manufacturer's Technician Menu**

- A. When the Manufacturer's Technician Menu is selected from the Main Menu, the operator will be prompted to enter via the keyboard their access code. The manufacturer will provide to PENNDOT a written description of the technique that will be used to secure this menu option and this method must be approved by PENNDOT.
- B. When the equipment has accepted a valid identification number, a record will be written to AUDIT.DAT containing all fields. AUDIT.DAT is designed to allow easy tracking of who entered the system and when. The equipment will then display the Manufacturer's Technician Menu. The PAS manufacturer will define the functionality of this menu with the exception of Station Authority Password reset.
- C. The Manufacturer's Technician Menu must include a process that will allow for the defining and resetting of the Station Authority Username and Password by a Manufacturer's representative.
- D. The Manufacturer's Technician Menu must include a process that allows entering an ATP/Test Mode as described in section 1.2.G.
- E. All tests and calibrations will be recorded to the appropriate files for PENNDOT review.

---

**Pennsylvania Analytical System (PAS) – OBD (Stand Alone) Display and Program Requirements**

---

---

## **4.0 Section Four – VIR and Printer Function Specifications**

---

- A. This section describes the VIR and printer functions for the PAS.
- B. VIR Format
  - 1. The completed VIR must be identical to the format described in this section and as shown in section 5.0, Exhibit A 1 to 11 or Exhibits B 1 to 6 or Exhibits C 1 to 4 or Exhibits D or Exhibit E or Exhibit F below.
  - 2. The size of the completed report will be eight and one-half by eleven inches (8 ½" x 11"). Final layout is subject to approval by PENNDOT. The appropriate report will be automatically printed by the PAS at the conclusion of each Emissions inspection, regardless of the inspection disposition. These are not pre-printed forms.
  - 3. Report Field Format.
    - a. The date and time recorded on the VIR will be the date and time of the start time of the inspection as stored on the record.
    - b. The disposition (PASS, FAIL, NOT READY FOR TESTING or INCOMPLETE INSPECTION) will be printed in capital letters.
    - c. If PAS Menu Item to Reprint VIR Report, is selected, the title of the report will include the word DUPLICATE in all capital letters. The word DUPLICATE will be prominently displayed, to PENNDOT's satisfaction, on the front of each reprinted VIR in the upper left corner.
  - 4. The station number and vehicle information will be retrieved from the test record. The vehicle model will be spelled out completely up to the maximum number of characters available.
  - 5. The emissions inspection summary will list all emissions inspection results and emissions inspection standards.
  - 6. Each report page will include a line for the inspector's signature with his / her name printed below the line.
  - 7. The VIR will present the information as shown on the sample Report form contained in this specification. The software version number of the software and the OBD firmware version, which generated the Report, will also be presented on the form.
  - 8. The "Report Number" as presented on the form is the PAS Record Number from the PAS test record.
  - 9. The TIN will be printed only if the vehicle passes the emissions test. The formula for creating the TIN is a confidential document and will be delivered, on request, only to PENNDOT certified test equipment manufacturers.
  - 10. The following message will be printed at the bottom of the VIR:
    - a. ***VEHICLE EMISSIONS INSPECTION QUESTIONS: For additional information, please contact the Customer Hotline at (800) 265-0921.***
- C. VIR Messages
  - 1. This section describes the informational messages that will be printed in the message area of the VIR depending on the test result, possible warranty conditions, retest possibilities, and if the test results have been transmitted to BMV.
  - 2. If the vehicle passes the emissions test the following message will be printed.
    - a. **RETAIN THIS DOCUMENT FOR YOUR RECORDS**

## Pennsylvania Analytical System (PAS) – OBD (Stand Alone) Display and Program Requirements

---



---

3. If the vehicle fails the emissions inspection or is issued a failed/invalid inspection, the following messages will be printed.
  - a. **RETAIN THIS DOCUMENT FOR USE ON REINSPECTION.**
  - b. If this is the initial inspection performed on the vehicle, print the following message: **RETURN THE VEHICLE TO THE SAME STATION WITHIN THIRTY (30) DAYS FOR ONE (1) FREE RETEST.**
  - c. If the vehicle meets the requirements for possible warranty repairs, the following messages will be printed for model year vehicles eight (8) years old and newer:
    - 1) **Vehicles that fail the emissions inspection may be eligible for warranty coverage for the required repairs. Check with your service provider on your vehicles' Emissions Warranty.**
  - d. If the vehicle fails the emissions inspection for either inability to locate the DLC connector or the vehicle's drive cycles are not ready to test, the following message will be printed:
    - 1) **Contact your vehicle service advisor.**
  - e. If the vehicle fails the emissions inspection and the Test Routine Performed field on the EIS.DAT file is set to OBD, the following messages will be printed.
    - 1) **This vehicle has failed the emissions inspection. REPAIRS SHOULD BE MADE TO EITHER PASS REINSPECTION OR QUALIFY FOR A WAIVER. All emissions related repairs performed must be documented by the inspection station. This inspection report, the Emissions Related Repair Data form, and copies of the repair receipts must be made available to the inspection station at the time of re-inspection.**
    - 2) **In order for a vehicle to receive a 'WAIVER', the following requirements must be met.**
    - 3) **REPAIR WORK MUST BE APPROVED BY A CERTIFIED REPAIR TECHNICIAN OR OTHER COMMONWEALTH APPROVED INSPECTOR.**
    - 4) **Emissions related repair expenditures must have been at least \$XXX.XX.**
      - a) The PAS must use the Waiver Limit value from SYSTEM.DAT for the dollar amount.
    - 5) **Copies of the repair receipts for emissions related repairs must be provided to the inspection station.**
    - 6) **Repairs were performed no earlier than 60 days prior to the initial inspection.**
    - 7) **Repairs must be appropriate and related to the cause of failure.**
  - f. If the vehicle fails the emissions inspection and the Test Routine Performed field on the EIS.DAT file is set to visual, the following messages will be printed.
    - 1) **This vehicle has failed the emissions inspection. REPAIRS SHOULD BE MADE TO PASS REINSPECTION. All emissions related repairs performed must be documented by the inspection station. This inspection report, the Emissions Related Repair Data form, and copies of the repair receipts must be made available to the inspection station at the time of re-inspection. THIS VEHICLE IS NOT ELIGIBLE FOR A WAIVER.**
  - g. If the vehicle fails the emissions inspection and the Test Routine Performed field on the EIS.DAT file is set to OBD, and OBD Fault Code Result field on the EIS.DAT file is 'F' the following messages will be printed on the second page of the VIR after the first sentence.
    - 1) **Your vehicle's On-Board Diagnostic (OBD) system registered the fault(s) listed on the previous page. This fault(s) is probably an indication of a malfunction of an emission component.**

**Pennsylvania Analytical System (PAS) – OBD (Stand Alone) Display and Program Requirements**

---

---

**However, multiple and/or seemingly unrelated faults may be an indication of an emission-related problem that occurred previously but upon further evaluation by the OBD system was determined to be only temporary. Therefore, proper diagnosis by a qualified technician is required to positively determine the source of any emission-related problem.**

**D. Emissions Related Repair Data Form**

1. If the inspection disposition is Fail or Failed/Invalid, the PAS will print an Emissions Related Repair Data form. The form must be identical to the format shown at Exhibit G. The form will be automatically printed by the PAS immediately following the printing of the VIR.
2. The equipment will print bar codes and vehicle data in the appropriate places on the form.

**E. Printer Functions and Specifications**

1. The PAS will be equipped with a laser printer to print VIRs. This printer will accept eight and one-half by eleven-inch (8 ½" x 11") 20 lb bond paper. The printer will be able to print the VIR as shown in section 5.0, Exhibits A 1 to 11 and Exhibits B 1 to 6 and Exhibits C 1 to 4 and Exhibits D and Exhibit E and Exhibit F.

**F. VIR and Repair Form Bar Code Requirements****1. General Symbology Specifications**

- a. Code 39 Symbology. The VIN bar code conforms to Bar Code Symbology for 3 of 9 Bar Codes published by the Automotive Industry Action Group (AIAG B-1). All aspects of the bar-code symbology codes follow this specification except as described in the following sections.
- b. Code Density and Dimensions (Reference AIAG B-2 Appendix A). The average width of the narrow element is within the range of 0.19 mm (0.0075 inches) and 0.317 mm (0.0125 inches). The ratio is three to one (3:1) with an allowable range of 2.8 to 3.2. The minimum bar height is 9.5 mm (0.375 inches) or fifteen percent (15%) of the bar code length.
- c. No check digit will be used.
- d. The documents will have two different bar codes printed on them in 3 of 9 symbology (1D).
- e. The VIN will be printed as the top bar code with a leading identifier of '+' followed by the VIN
- f. The Title Number bar code will be printed below the VIN bar code (with appropriate white space)
- g. The Title number bar code will be printed with the leading identifier of "%" followed by the title number
- h. Human readable characters will be printed immediately below each of the bar codes; the leading identifier characters will not be printed as part of the human readable string.

## Pennsylvania Analytical System (PAS) – OBD (Stand Alone) Display and Program Requirements

### 5.0 Section Five - Exhibits

#### 5.1 Exhibit A1 – Vehicle Inspection Report (Failed, MIL CMD & DTCs)

COMMONWEALTH OF PENNSYLVANIA VEHICLE EMISSIONS INSPECTION REPORT Test Date/Time: 06/22/2016 @ 08:50				BAR CODE HERE VIN TITLE	
<b>VEHICLE INFORMATION</b>					
Year:	1998	Make:	XXXXXXXXXX	Model:	XXXXXXXXXXXX
VIN:	A1234567890B12345	Engine Size:	5.0L	Cylinders:	8
Odometer:	100000	GVWR:	6500	Estimated Test	
License:	XXX1234	Inspection Type:	INITIAL	Weight:	4500
County:	Philadelphia			Record Number:	123456
<b>EMISSIONS CONTROL SYSTEMS VISUAL/FUNCTIONAL INSPECTION</b>					
Air In. System:	NA	Catalytic Converter:	NA	Fuel Cap Integrity:	PASS
EGR System:	NA	Evaporative Control System:	NA		
PCV System:	NA	Fuel Inlet Restrictor:	NA		
<b>OBD EMISSIONS INSPECTION</b>					
MIL BULB KOEO:	PASS	OBD FAULT CODE RESULT:	FAIL		
MIL BULB KOER:	PASS	OBD READINESS RESULT:	PASS		
MIL COMMAND STATUS:	FAIL	OBD I/M CHECK RESULT:	FAIL		
DTC(s) P0500 P0507 P0510 P0722 P0725 Only the first five DTCs will print. Check the OBD for additional DTCs.					
<b>OVERALL TEST RESULTS: FAILED</b>					
Emissions Control Systems Visual/Functional Inspection: <b>PASS</b>					
OBD Emissions Inspection: <b>FAIL</b>					
TIN:					
<b>RETAIN THIS DOCUMENT FOR USE ON RE-INSPECTION.</b>					
<b>RETURN THE VEHICLE TO THE SAME STATION WITHIN THIRTY (30) DAYS FOR ONE (1) FREE RETEST.</b>					
This vehicle has failed the emissions inspection. <b>REPAIRS SHOULD BE MADE TO EITHER PASS RE-INSPECTION OR QUALIFY FOR A WAIVER.</b> All emissions related repairs performed must be documented by the inspection station. <u>This inspection report, Emissions Related Repair Data form and copies of the repair receipts must be made available to the inspection station at the time of re-inspection.</u> Vehicles that fail the emissions inspection may be eligible for warranty coverage for the required repairs. Check with your service providers on your vehicle's Emissions Warranty.					
In order for a vehicle to receive a 'WAIVER', the following requirements must be met.					
<ol style="list-style-type: none"> <li>1. <b>REPAIR WORK MUST BE APPROVED BY A CERTIFIED REPAIR TECHNICIAN OR OTHER COMMONWEALTH APPROVED INSPECTOR.</b></li> <li>2. Emissions related repair expenditures must have been at least \$XXX.XX.</li> <li>3. Copies of the repair receipts for emissions related repairs must be provided to the inspection station.</li> <li>4. Repairs were performed no earlier than 60 days prior to the initial inspection.</li> <li>5. Repairs must be appropriate and related to the cause of failure.</li> </ol>					
Vehicle tested in accordance with Pa. Code Title 67, Chapter 177					
<b>EMISSIONS INSPECTION STATION</b>					
STATION #:	123456	INSPECTOR NAME:	JOHN T. SMITH		
STATION NAME:	I/M Quality Inspection	SOFTWARE VERSION:	0211		
ADDRESS:	13901 CROWN COURT, ANYTOWN 12345	FIRMWARE VERSION:	AB11001-01		
PHONE:	215-123-4567	EQUIPMENT #:	XX123456		
VEHICLE EMISSIONS INSPECTION QUESTIONS: For additional information, please contact the Customer Hotline at (800) 265-0921.			Inspector's Signature: _____		

## Pennsylvania Analytical System (PAS) – OBD (Stand Alone) Display and Program Requirements

### Exhibit A1 –Page 2

### Possible Causes For Emissions Test Failures

Since your vehicle did not pass the emissions inspection, it is producing more pollution than was intended for your car or truck's model year. Your vehicle's On-Board Diagnostic (OBD) system registered the fault(s) listed on the previous page. This fault(s) is probably an indication of a malfunction of an emission component. However, multiple and/or seemingly unrelated faults may be an indication of an emission-related problem that occurred previously but upon further evaluation by the OBD system was determined to be only temporary. Therefore, proper diagnosis by a qualified technician is required to positively determine the source of any emission-related problem.

You have been given a copy of the Motor Vehicle Emissions Inspection Report (VIR) indicating which item(s) your vehicle failed, and an Emissions Related Repair Data Form, which will be completed by the repair technician describing which items were repaired. These reports will help your repair technician in recommending possible repairs. The list below provides information on what malfunctions may have caused your vehicle to fail. In order to qualify for an emissions inspection waiver, repairs may be performed at a recognized repair facility by a recognized repair technician. Cost of repairs and labor by a recognized repair technician may be applied toward a waiver. Repairs performed by any other person may only include repair part costs; cost of labor cannot be applied toward a waiver.

The Emissions Related Repair Data form, along with the Motor Vehicle Emissions Inspection Report (VIR), should be presented to the repair facility. The repair invoice(s) or work order(s) must then accompany the Emissions Related Repair Data form and the VIR upon return to the emissions inspection station for a retest. ONLY ITEMS ACTUALLY SERVICED OR REPLACED, AND THE ASSOCIATED DIAGNOSIS AND LABOR CHARGES, MAY BE USED AS EMISSIONS RELATED REPAIR COSTS AND APPLIED TOWARDS AN EMISSIONS INSPECTION WAIVER.

**Note: Some malfunctioning equipment may cause more than one type of failure.**

SPARK PLUGS/WIRES	OTHER INDUCTION SYSTEM	OXYGEN (O2) SENSOR(S)
OTHER IGNITION	AIR FILTER	MAP SENSOR
TIMING/SPARK ADVANCE	OIL CHANGE	MASS AIR FLOW SENSOR
AIR/FUEL MIX ADJUSTMENT	THERMOSTATIC AIR CLEANER	COOLANT TEMP SENSOR
IDLE SPEED ADJUSTMENT	PCV SYSTEM	THROTTLE POSITION SENSOR
CHOKE SYSTEM	AIR INJECTION/REACTION SYSTEM	OTHER SENSORS/SWITCHES
OTHER CARBURETOR REPAIR	EGR SYSTEM	COMPUTER/PROM
VACUUM LEAKS	FUEL EVAPORATIVE SYSTEM	INTERNAL ENGINE REPAIR
FUEL INJECTION SYSTEM	CATALYTIC CONVERTER(S)	OTHER REPAIRS/UNKNOWN

## Pennsylvania Analytical System (PAS) – OBD (Stand Alone) Display and Program Requirements

### 5.2 Exhibit A2 – Vehicle Inspection Report (Failed – Cannot Locate DLC)

COMMONWEALTH OF PENNSYLVANIA VEHICLE EMISSIONS INSPECTION REPORT Test Date/Time: 06/22/2016 @ 08:50				BAR CODE HERE VIN TITLE	
<b>VEHICLE INFORMATION</b>					
Year:	1998	Make:	XXXXXXXXXX	Model:	XXXXXXXXXXXX
VIN:	A1234567890B12345	Engine Size:	5.0L	Cylinders:	8
Odometer:	100000	GVWR:	6500	Estimated Test	
License:	XXX1234	Inspection Type:	INITIAL	Weight:	4500
County:	Philadelphia			Record Number:	123456
<b>EMISSIONS CONTROL SYSTEMS VISUAL/FUNCTIONAL INSPECTION</b>					
Air In. System:	NA	Catalytic Converter:	NA	Fuel Cap Integrity:	PASS
EGR System:	NA	Evaporative Control System:	NA		
PCV System:	NA	Fuel Inlet Restrictor:	NA		
<b>OBD EMISSIONS INSPECTION</b>					
MIL BULB KOEO:	PASS	OBD FAULT CODE RESULT:	NA		
MIL BULB KOER:	PASS	OBD READINESS RESULT:	NA		
MIL COMMAND STATUS:	NA	OBD I/M CHECK RESULT:	FAIL		
<b>OVERALL TEST RESULTS: FAILED</b>					
Emissions Control Systems Visual/Functional Inspection: <b>PASS</b>					
OBD Emissions Inspection: <b>FAIL</b>					
TIN:					
<p><b>Based on the information gathered during an attempt to perform an On Board Diagnostic test, your vehicle has a Data Link Connector that cannot be located by the inspector. This vehicle should have the Onboard Computer Data Link Connector available to the inspector and functioning properly to pass the vehicle inspection. Contact your vehicle service advisor.</b></p>					
<b>RETAIN THIS DOCUMENT FOR USE ON RE-INSPECTION.</b>					
<b>RETURN THE VEHICLE TO THE SAME STATION WITHIN THIRTY (30) DAYS FOR ONE (1) FREE RETEST.</b>					
<p>This vehicle has failed the emissions inspection. <b>REPAIRS SHOULD BE MADE TO EITHER PASS RE-INSPECTION OR QUALIFY FOR A WAIVER.</b> All emissions related repairs performed must be documented by the inspection station. <u>This inspection report, Emissions Related Repair Data form and copies of the repair receipts must be made available to the inspection station at the time of re-inspection.</u> Vehicles that fail the emissions inspection may be eligible for warranty coverage for the required repairs. Check with your service providers on your vehicle's Emissions Warranty.</p>					
<p>In order for a vehicle to receive a '<u>WAIVER</u>', the following requirements must be met.</p> <ol style="list-style-type: none"> <li>1. <b>REPAIR WORK MUST BE APPROVED BY A CERTIFIED REPAIR TECHNICIAN OR OTHER COMMONWEALTH APPROVED INSPECTOR.</b></li> <li>2. Emissions related repair expenditures must have been at least \$XXX.XX.</li> <li>3. Copies of the repair receipts for emissions related repairs must be provided to the inspection station.</li> <li>4. Repairs were performed no earlier than 60 days prior to the initial inspection.</li> <li>5. Repairs must be appropriate and related to the cause of failure.</li> </ol>					
Vehicle tested in accordance with Pa. Code Title 67, Chapter 177					
<b>EMISSIONS INSPECTION STATION</b>					
STATION #:	123456	INSPECTOR NAME:	JOHN T. SMITH		
STATION NAME:	I/M Quality Inspection	SOFTWARE VERSION:	0211		
ADDRESS:	13901 CROWN COURT, ANYTOWN 12345	FIRMWARE VERSION:	AB11001-01		
PHONE:	215-123-4567	EQUIPMENT #:	XX123456		
VEHICLE EMISSIONS INSPECTION QUESTIONS: For additional information, please contact the Customer Hotline at (800) 265-0921.			Inspector's Signature: _____		

## Pennsylvania Analytical System (PAS) – OBD (Stand Alone) Display and Program Requirements

### Exhibit A2 –Page 2

### Possible Causes For Emissions Test Failures

Since your vehicle did not pass the emissions inspection, it is producing more pollution than was intended for your car or truck's model year. You have been given a copy of the Motor Vehicle Emissions Inspection Report (VIR) indicating which item(s) your vehicle failed, and an Emissions Related Repair Data Form, which will be completed by the repair technician describing which items were repaired. These reports will help your repair technician in recommending possible repairs. The list below provides information on what malfunctions may have caused your vehicle to fail. In order to qualify for an emissions inspection waiver, repairs may be performed at a recognized repair facility by a recognized repair technician. Cost of repairs and labor by a recognized repair technician may be applied toward a waiver. Repairs performed by any other person may only include repair part costs; cost of labor cannot be applied toward a waiver.

The Emissions Related Repair Data form, along with the Motor Vehicle Emissions Inspection Report (VIR), should be presented to the repair facility. The repair invoice(s) or work order(s) must then accompany the Emissions Related Repair Data form and the VIR upon return to the emissions inspection station for a retest. ONLY ITEMS ACTUALLY SERVICED OR REPLACED, AND THE ASSOCIATED DIAGNOSIS AND LABOR CHARGES, MAY BE USED AS EMISSIONS RELATED REPAIR COSTS AND APPLIED TOWARDS AN EMISSIONS INSPECTION WAIVER.

**Note: Some malfunctioning equipment may cause more than one type of failure.**

SPARK PLUGS/WIRES	OTHER INDUCTION SYSTEM	OXYGEN (O2) SENSOR(S)
OTHER IGNITION	AIR FILTER	MAP SENSOR
TIMING/SPARK ADVANCE	OIL CHANGE	MASS AIR FLOW SENSOR
AIR/FUEL MIX ADJUSTMENT	THERMOSTATIC AIR CLEANER	COOLANT TEMP SENSOR
IDLE SPEED ADJUSTMENT	PCV SYSTEM	THROTTLE POSITION SENSOR
CHOKE SYSTEM	AIR INJECTION/REACTION SYSTEM	OTHER SENSORS/SWITCHES
OTHER CARBURETOR REPAIR	EGR SYSTEM	COMPUTER/PROM
VACUUM LEAKS	FUEL EVAPORATIVE SYSTEM	INTERNAL ENGINE REPAIR
FUEL INJECTION SYSTEM	CATALYTIC CONVERTER(S)	OTHER REPAIRS/UNKNOWN



## Pennsylvania Analytical System (PAS) – OBD (Stand Alone) Display and Program Requirements

### 5.3 Exhibit A3 – Vehicle Inspection Report (Failed – Damaged DLC)

COMMONWEALTH OF PENNSYLVANIA VEHICLE EMISSIONS INSPECTION REPORT Test Date/Time: 06/22/2016 @ 08:50				BAR CODE HERE VIN TITLE	
<b>VEHICLE INFORMATION</b>					
Year:	1998	Make:	XXXXXXXXXX	Model:	XXXXXXXXXXXX
VIN:	A1234567890B12345	Engine Size:	5.0L	Cylinders:	8
Odometer:	100000	GVWR:	6500	Estimated Test	
License:	XXX1234	Inspection Type:	INITIAL	Weight:	4500
County:	Philadelphia			Record Number:	123456
<b>EMISSIONS CONTROL SYSTEMS VISUAL/FUNCTIONAL INSPECTION</b>					
Air In. System:	NA	Catalytic Converter:	NA	Fuel Cap Integrity:	PASS
EGR System:	NA	Evaporative Control System:	NA		
PCV System:	NA	Fuel Inlet Restrictor:	NA		
<b>OBD EMISSIONS INSPECTION</b>					
MIL BULB KOEO:	PASS	OBD FAULT CODE RESULT:	NA		
MIL BULB KOER:	PASS	OBD READINESS RESULT:	NA		
MIL COMMAND STATUS:	NA	OBD I/M CHECK RESULT:	FAIL		
<b>OVERALL TEST RESULTS: FAILED</b>					
Emissions Control Systems Visual/Functional Inspection: <b>PASS</b>					
OBD Emissions Inspection: <b>FAIL</b>					
TIN:					
<b>Based on the information gathered during an attempt to perform an On Board Diagnostic test, your vehicle has a missing, tampered, or broken Data Link Connector. This vehicle should have the Onboard Computer Data Link Connector functioning properly to pass the vehicle inspection.</b>					
<b>RETAIN THIS DOCUMENT FOR USE ON RE-INSPECTION.</b>					
<b>RETURN THE VEHICLE TO THE SAME STATION WITHIN THIRTY (30) DAYS FOR ONE (1) FREE RETEST.</b>					
This vehicle has failed the emissions inspection. <b>REPAIRS SHOULD BE MADE TO EITHER PASS RE-INSPECTION OR QUALIFY FOR A WAIVER.</b> All emissions related repairs performed must be documented by the inspection station. This inspection report, Emissions Related Repair Data form and copies of the repair receipts must be made available to the inspection station at the time of re-inspection.					
Vehicles that fail the emissions inspection may be eligible for warranty coverage for the required repairs. Check with your service providers on your vehicle's Emissions Warranty.					
In order for a vehicle to receive a 'WAIVER', the following requirements must be met.					
1. <b>REPAIR WORK MUST BE APPROVED BY A CERTIFIED REPAIR TECHNICIAN OR OTHER COMMONWEALTH APPROVED INSPECTOR.</b>					
2. Emissions related repair expenditures must have been at least \$XXX.XX.					
3. Copies of the repair receipts for emissions related repairs must be provided to the inspection station.					
4. Repairs were performed no earlier than 60 days prior to the initial inspection.					
5. Repairs must be appropriate and related to the cause of failure.					
<b>Vehicle tested in accordance with Pa. Code Title 67, Chapter 177</b>					
<b>EMISSIONS INSPECTION STATION</b>					
STATION #:	123456	INSPECTOR NAME:	JOHN T. SMITH		
STATION NAME:	I/M Quality Inspection	SOFTWARE VERSION:	0211		
ADDRESS:	13901 CROWN COURT, ANYTOWN 12345	FIRMWARE VERSION:	AB11001-01		
PHONE:	215-123-4567	EQUIPMENT #:	XX123456		
VEHICLE EMISSIONS INSPECTION QUESTIONS: For additional information, please contact the Customer Hotline at (800) 265-0921.			Inspector's Signature: _____		

## Pennsylvania Analytical System (PAS) – OBD (Stand Alone) Display and Program Requirements

### Exhibit A3 –Page 2

### Possible Causes For Emissions Test Failures

Since your vehicle did not pass the emissions inspection, it is producing more pollution than was intended for your car or truck's model year. You have been given a copy of the Motor Vehicle Emissions Inspection Report (VIR) indicating which item(s) your vehicle failed, and an Emissions Related Repair Data Form, which will be completed by the repair technician describing which items were repaired. These reports will help your repair technician in recommending possible repairs. The list below provides information on what malfunctions may have caused your vehicle to fail. In order to qualify for an emissions inspection waiver, repairs may be performed at a recognized repair facility by a recognized repair technician. Cost of repairs and labor by a recognized repair technician may be applied toward a waiver. Repairs performed by any other person may only include repair part costs; cost of labor cannot be applied toward a waiver.

The Emissions Related Repair Data form, along with the Motor Vehicle Emissions Inspection Report (VIR), should be presented to the repair facility. The repair invoice(s) or work order(s) must then accompany the Emissions Related Repair Data form and the VIR upon return to the emissions inspection station for a retest. ONLY ITEMS ACTUALLY SERVICED OR REPLACED, AND THE ASSOCIATED DIAGNOSIS AND LABOR CHARGES, MAY BE USED AS EMISSIONS RELATED REPAIR COSTS AND APPLIED TOWARDS AN EMISSIONS INSPECTION WAIVER.

**Note: Some malfunctioning equipment may cause more than one type of failure.**

SPARK PLUGS/WIRES	OTHER INDUCTION SYSTEM	OXYGEN (O2) SENSOR(S)
OTHER IGNITION	AIR FILTER	MAP SENSOR
TIMING/SPARK ADVANCE	OIL CHANGE	MASS AIR FLOW SENSOR
AIR/FUEL MIX ADJUSTMENT	THERMOSTATIC AIR CLEANER	COOLANT TEMP SENSOR
IDLE SPEED ADJUSTMENT	PCV SYSTEM	THROTTLE POSITION SENSOR
CHOKE SYSTEM	AIR INJECTION/REACTION SYSTEM	OTHER SENSORS/SWITCHES
OTHER CARBURETOR REPAIR	EGR SYSTEM	COMPUTER/PROM
VACUUM LEAKS	FUEL EVAPORATIVE SYSTEM	INTERNAL ENGINE REPAIR
FUEL INJECTION SYSTEM	CATALYTIC CONVERTER(S)	OTHER REPAIRS/UNKNOWN

# Pennsylvania Analytical System (PAS) – OBD (Stand Alone) Display and Program Requirements

## 5.4 Exhibit A4 – Vehicle Inspection Report (Failed – Inaccessible DLC)

COMMONWEALTH OF PENNSYLVANIA VEHICLE EMISSIONS INSPECTION REPORT Test Date/Time: 06/22/2016 @ 08:50				BAR CODE HERE VIN TITLE	
<b>VEHICLE INFORMATION</b>					
Year:	1998	Make:	XXXXXXXXXX	Model:	XXXXXXXXXXXX
VIN:	A1234567890B12345	Engine Size:	5.0L	Cylinders:	8
Odometer:	100000	GVWR:	6500	Estimated Test	
License:	XXX1234	Inspection Type:	INITIAL	Weight:	4500
County:	Philadelphia			Record Number:	123456
<b>EMISSIONS CONTROL SYSTEMS VISUAL/FUNCTIONAL INSPECTION</b>					
Air In. System:	NA	Catalytic Converter:	NA	Fuel Cap Integrity:	PASS
EGR System:	NA	Evaporative Control System:	NA		
PCV System:	NA	Fuel Inlet Restrictor:	NA		
<b>OBD EMISSIONS INSPECTION</b>					
MIL BULB KOEO:	PASS	OBD FAULT CODE RESULT:	NA		
MIL BULB KOER:	PASS	OBD READINESS RESULT:	NA		
MIL COMMAND STATUS:	NA	OBD I/M CHECK RESULT:	FAIL		
<b>OVERALL TEST RESULTS: FAILED</b>					
Emissions Control Systems Visual/Functional Inspection: <b>PASS</b>					
OBD Emissions Inspection: <b>FAIL</b>					
TIN:					
<b>Based on the information gathered during an attempt to perform an On Board Diagnostic test, your vehicle has an inaccessible Data Link Connector. This vehicle should have the Data Link Connector accessible to allow the check of the On Board Diagnostic computer system.</b>					
<b>RETAIN THIS DOCUMENT FOR USE ON RE-INSPECTION.</b>					
<b>RETURN THE VEHICLE TO THE SAME STATION WITHIN THIRTY (30) DAYS FOR ONE (1) FREE RETEST.</b>					
This vehicle has failed the emissions inspection. <b>REPAIRS SHOULD BE MADE TO EITHER PASS RE-INSPECTION OR QUALIFY FOR A WAIVER.</b> All emissions related repairs performed must be documented by the inspection station. This inspection report, Emissions Related Repair Data form and copies of the repair receipts must be made available to the inspection station at the time of re-inspection.					
Vehicles that fail the emissions inspection may be eligible for warranty coverage for the required repairs. Check with your service providers on your vehicle's Emissions Warranty.					
In order for a vehicle to receive a 'WAIVER', the following requirements must be met.					
1. <b>REPAIR WORK MUST BE APPROVED BY A CERTIFIED REPAIR TECHNICIAN OR OTHER COMMONWEALTH APPROVED INSPECTOR.</b>					
2. Emissions related repair expenditures must have been at least \$XXX.XX.					
3. Copies of the repair receipts for emissions related repairs must be provided to the inspection station.					
4. Repairs were performed no earlier than 60 days prior to the initial inspection.					
5. Repairs must be appropriate and related to the cause of failure.					
<b>Vehicle tested in accordance with Pa. Code Title 67, Chapter 177</b>					
<b>EMISSIONS INSPECTION STATION</b>					
STATION #:	123456	INSPECTOR NAME:	JOHN T. SMITH		
STATION NAME:	I/M Quality Inspection	SOFTWARE VERSION:	0211		
ADDRESS:	13901 CROWN COURT, ANYTOWN 12345	FIRMWARE VERSION:	AB11001-01		
PHONE:	215-123-4567	EQUIPMENT #:	XX123456		
VEHICLE EMISSIONS INSPECTION QUESTIONS: For additional information, please contact the Customer Hotline at (800) 265-0921.			Inspector's Signature: _____		

## Pennsylvania Analytical System (PAS) – OBD (Stand Alone) Display and Program Requirements

### Exhibit A4 –Page 2

### Possible Causes For Emissions Test Failures

Since your vehicle did not pass the emissions inspection, it is producing more pollution than was intended for your car or truck's model year. You have been given a copy of the Motor Vehicle Emissions Inspection Report (VIR) indicating which item(s) your vehicle failed, and an Emissions Related Repair Data Form, which will be completed by the repair technician describing which items were repaired. These reports will help your repair technician in recommending possible repairs. The list below provides information on what malfunctions may have caused your vehicle to fail. In order to qualify for an emissions inspection waiver, repairs may be performed at a recognized repair facility by a recognized repair technician. Cost of repairs and labor by a recognized repair technician may be applied toward a waiver. Repairs performed by any other person may only include repair part costs; cost of labor cannot be applied toward a waiver.

The Emissions Related Repair Data form, along with the Motor Vehicle Emissions Inspection Report (VIR), should be presented to the repair facility. The repair invoice(s) or work order(s) must then accompany the Emissions Related Repair Data form and the VIR upon return to the emissions inspection station for a retest. ONLY ITEMS ACTUALLY SERVICED OR REPLACED, AND THE ASSOCIATED DIAGNOSIS AND LABOR CHARGES, MAY BE USED AS EMISSIONS RELATED REPAIR COSTS AND APPLIED TOWARDS AN EMISSIONS INSPECTION WAIVER.

**Note: Some malfunctioning equipment may cause more than one type of failure.**

SPARK PLUGS/WIRES	OTHER INDUCTION SYSTEM	OXYGEN (O2) SENSOR(S)
OTHER IGNITION	AIR FILTER	MAP SENSOR
TIMING/SPARK ADVANCE	OIL CHANGE	MASS AIR FLOW SENSOR
AIR/FUEL MIX ADJUSTMENT	THERMOSTATIC AIR CLEANER	COOLANT TEMP SENSOR
IDLE SPEED ADJUSTMENT	PCV SYSTEM	THROTTLE POSITION SENSOR
CHOKE SYSTEM	AIR INJECTION/REACTION SYSTEM	OTHER SENSORS/SWITCHES
OTHER CARBURETOR REPAIR	EGR SYSTEM	COMPUTER/PROM
VACUUM LEAKS	FUEL EVAPORATIVE SYSTEM	INTERNAL ENGINE REPAIR
FUEL INJECTION SYSTEM	CATALYTIC CONVERTER(S)	OTHER REPAIRS/UNKNOWN

# Pennsylvania Analytical System (PAS) – OBD (Stand Alone) Display and Program Requirements

## 5.5 Exhibit A5 – Vehicle Inspection Report (Failed – No OBD Communications)

COMMONWEALTH OF PENNSYLVANIA VEHICLE EMISSIONS INSPECTION REPORT Test Date/Time: 06/22/2016 @ 08:50				BAR CODE HERE VIN TITLE	
<b>VEHICLE INFORMATION</b>					
Year:	1998	Make:	XXXXXXXXXX	Model:	XXXXXXXXXXXX
VIN:	A1234567890B12345	Engine Size:	5.0L	Cylinders:	8
Odometer:	100000	GVWR:	6500	Estimated Test	
License:	XXX1234	Inspection Type:	INITIAL	Weight:	4500
County:	Philadelphia			Record Number:	123456
<b>EMISSIONS CONTROL SYSTEMS VISUAL/FUNCTIONAL INSPECTION</b>					
Air In. System:	NA	Catalytic Converter:	NA	Fuel Cap Integrity:	PASS
EGR System:	NA	Evaporative Control System:	NA		
PCV System:	NA	Fuel Inlet Restrictor:	NA		
<b>OBD EMISSIONS INSPECTION</b>					
MIL BULB KOEO:	PASS	OBD FAULT CODE RESULT:	NA		
MIL BULB KOER:	PASS	OBD READINESS RESULT:	NA		
MIL COMMAND STATUS:	NA	OBD I/M CHECK RESULT:	FAIL		
<b>OVERALL TEST RESULTS: FAILED</b>					
Emissions Control Systems Visual/Functional Inspection: <b>PASS</b>					
OBD Emissions Inspection: <b>FAIL</b>					
TIN:					
<b>Based on the information gathered during an attempt to perform an On Board Diagnostic test, NO Signal was available from the On Board Diagnostic computer system. This vehicle should produce a signal from the On Board Diagnostic computer system.</b>					
<b>RETAIN THIS DOCUMENT FOR USE ON RE-INSPECTION.</b>					
<b>RETURN THE VEHICLE TO THE SAME STATION WITHIN THIRTY (30) DAYS FOR ONE (1) FREE RETEST.</b>					
This vehicle has failed the emissions inspection. <b>REPAIRS SHOULD BE MADE TO EITHER PASS RE-INSPECTION OR QUALIFY FOR A WAIVER.</b> All emissions related repairs performed must be documented by the inspection station. This inspection report, Emissions Related Repair Data form and copies of the repair receipts must be made available to the inspection station at the time of re-inspection.					
Vehicles that fail the emissions inspection may be eligible for warranty coverage for the required repairs. Check with your service providers on your vehicle's Emissions Warranty.					
In order for a vehicle to receive a 'WAIVER', the following requirements must be met.					
1. <b>REPAIR WORK MUST BE APPROVED BY A CERTIFIED REPAIR TECHNICIAN OR OTHER COMMONWEALTH APPROVED INSPECTOR.</b>					
2. Emissions related repair expenditures must have been at least \$XXX.XX.					
3. Copies of the repair receipts for emissions related repairs must be provided to the inspection station.					
4. Repairs were performed no earlier than 60 days prior to the initial inspection.					
5. Repairs must be appropriate and related to the cause of failure.					
<b>Vehicle tested in accordance with Pa. Code Title 67, Chapter 177</b>					
<b>EMISSIONS INSPECTION STATION</b>					
STATION #:	123456	INSPECTOR NAME:	JOHN T. SMITH		
STATION NAME:	I/M Quality Inspection	SOFTWARE VERSION:	0211		
ADDRESS:	13901 CROWN COURT, ANYTOWN 12345	FIRMWARE VERSION:	AB11001-01		
PHONE:	215-123-4567	EQUIPMENT #:	XX123456		
VEHICLE EMISSIONS INSPECTION QUESTIONS: For additional information, please contact the Customer Hotline at (800) 265-0921.			Inspector's Signature: _____		

## Pennsylvania Analytical System (PAS) – OBD (Stand Alone) Display and Program Requirements

### Exhibit A5 –Page 2

### Possible Causes For Emissions Test Failures

Since your vehicle did not pass the emissions inspection, it is producing more pollution than was intended for your car or truck's model year. You have been given a copy of the Motor Vehicle Emissions Inspection Report (VIR) indicating which item(s) your vehicle failed, and an Emissions Related Repair Data Form, which will be completed by the repair technician describing which items were repaired. These reports will help your repair technician in recommending possible repairs. The list below provides information on what malfunctions may have caused your vehicle to fail. In order to qualify for an emissions inspection waiver, repairs may be performed at a recognized repair facility by a recognized repair technician. Cost of repairs and labor by a recognized repair technician may be applied toward a waiver. Repairs performed by any other person may only include repair part costs; cost of labor cannot be applied toward a waiver.

The Emissions Related Repair Data form, along with the Motor Vehicle Emissions Inspection Report (VIR), should be presented to the repair facility. The repair invoice(s) or work order(s) must then accompany the Emissions Related Repair Data form and the VIR upon return to the emissions inspection station for a retest. ONLY ITEMS ACTUALLY SERVICED OR REPLACED, AND THE ASSOCIATED DIAGNOSIS AND LABOR CHARGES, MAY BE USED AS EMISSIONS RELATED REPAIR COSTS AND APPLIED TOWARDS AN EMISSIONS INSPECTION WAIVER.

**Note: Some malfunctioning equipment may cause more than one type of failure.**

SPARK PLUGS/WIRES	OTHER INDUCTION SYSTEM	OXYGEN (O2) SENSOR(S)
OTHER IGNITION	AIR FILTER	MAP SENSOR
TIMING/SPARK ADVANCE	OIL CHANGE	MASS AIR FLOW SENSOR
AIR/FUEL MIX ADJUSTMENT	THERMOSTATIC AIR CLEANER	COOLANT TEMP SENSOR
IDLE SPEED ADJUSTMENT	PCV SYSTEM	THROTTLE POSITION SENSOR
CHOKE SYSTEM	AIR INJECTION/REACTION SYSTEM	OTHER SENSORS/SWITCHES
OTHER CARBURETOR REPAIR	EGR SYSTEM	COMPUTER/PROM
VACUUM LEAKS	FUEL EVAPORATIVE SYSTEM	INTERNAL ENGINE REPAIR
FUEL INJECTION SYSTEM	CATALYTIC CONVERTER(S)	OTHER REPAIRS/UNKNOWN

## Pennsylvania Analytical System (PAS) – OBD (Stand Alone) Display and Program Requirements

### 5.6 Exhibit A6 – Vehicle Inspection Report (Failed – No RPM Signal)

COMMONWEALTH OF PENNSYLVANIA VEHICLE EMISSIONS INSPECTION REPORT Test Date/Time: 06/22/2016 @ 08:50				BAR CODE HERE VIN TITLE	
<b>VEHICLE INFORMATION</b>					
Year:	1998	Make:	XXXXXXXXXX	Model:	XXXXXXXXXXXX
VIN:	A1234567890B12345	Engine Size:	5.0L	Cylinders:	8
Odometer:	100000	GVWR:	6500	Estimated Test	
License:	XXX1234	Inspection Type:	INITIAL	Weight:	4500
County:	Philadelphia			Record Number:	123456
<b>EMISSIONS CONTROL SYSTEMS VISUAL/FUNCTIONAL INSPECTION</b>					
Air In. System:	NA	Catalytic Converter:	NA	Fuel Cap Integrity:	PASS
EGR System:	NA	Evaporative Control System:	NA		
PCV System:	NA	Fuel Inlet Restrictor:	NA		
<b>OBD EMISSIONS INSPECTION</b>					
MIL BULB KOEO:	PASS	OBD FAULT CODE RESULT:	NA		
MIL BULB KOER:	PASS	OBD READINESS RESULT:	NA		
MIL COMMAND STATUS:	NA	OBD I/M CHECK RESULT:	FAIL		
<b>OVERALL TEST RESULTS: FAILED</b>					
Emissions Control Systems Visual/Functional Inspection: <b>PASS</b>					
OBD Emissions Inspection: <b>FAIL</b>					
TIN:					
<b>Based on the information gathered during an attempt to perform an On Board Diagnostic test, NO RPM Signal was available from the On Board Diagnostic computer system. This vehicle should produce an RPM signal from the On Board Diagnostic computer system.</b>					
<b>RETAIN THIS DOCUMENT FOR USE ON RE-INSPECTION.</b>					
<b>RETURN THE VEHICLE TO THE SAME STATION WITHIN THIRTY (30) DAYS FOR ONE (1) FREE RETEST.</b>					
This vehicle has failed the emissions inspection. <b>REPAIRS SHOULD BE MADE TO EITHER PASS RE-INSPECTION OR QUALIFY FOR A WAIVER.</b> All emissions related repairs performed must be documented by the inspection station. This inspection report, Emissions Related Repair Data form and copies of the repair receipts must be made available to the inspection station at the time of re-inspection.					
Vehicles that fail the emissions inspection may be eligible for warranty coverage for the required repairs. Check with your service providers on your vehicle's Emissions Warranty.					
In order for a vehicle to receive a 'WAIVER', the following requirements must be met.					
1. <b>REPAIR WORK MUST BE APPROVED BY A CERTIFIED REPAIR TECHNICIAN OR OTHER COMMONWEALTH APPROVED INSPECTOR.</b>					
2. Emissions related repair expenditures must have been at least \$XXX.XX.					
3. Copies of the repair receipts for emissions related repairs must be provided to the inspection station.					
4. Repairs were performed no earlier than 60 days prior to the initial inspection.					
5. Repairs must be appropriate and related to the cause of failure.					
<b>Vehicle tested in accordance with Pa. Code Title 67, Chapter 177</b>					
<b>EMISSIONS INSPECTION STATION</b>					
STATION #:	123456	INSPECTOR NAME:	JOHN T. SMITH		
STATION NAME:	I/M Quality Inspection	SOFTWARE VERSION:	0211		
ADDRESS:	13901 CROWN COURT, ANYTOWN 12345	FIRMWARE VERSION:	AB11001-01		
PHONE:	215-123-4567	EQUIPMENT #:	XX123456		
VEHICLE EMISSIONS INSPECTION QUESTIONS: For additional information, please contact the Customer Hotline at (800) 265-0921.			Inspector's Signature: _____		

## Pennsylvania Analytical System (PAS) – OBD (Stand Alone) Display and Program Requirements

### Exhibit A6 –Page 2

### Possible Causes For Emissions Test Failures

Since your vehicle did not pass the emissions inspection, it is producing more pollution than was intended for your car or truck's model year. You have been given a copy of the Motor Vehicle Emissions Inspection Report (VIR) indicating which item(s) your vehicle failed, and an Emissions Related Repair Data Form, which will be completed by the repair technician describing which items were repaired. These reports will help your repair technician in recommending possible repairs. The list below provides information on what malfunctions may have caused your vehicle to fail. In order to qualify for an emissions inspection waiver, repairs may be performed at a recognized repair facility by a recognized repair technician. Cost of repairs and labor by a recognized repair technician may be applied toward a waiver. Repairs performed by any other person may only include repair part costs; cost of labor cannot be applied toward a waiver.

The Emissions Related Repair Data form, along with the Motor Vehicle Emissions Inspection Report (VIR), should be presented to the repair facility. The repair invoice(s) or work order(s) must then accompany the Emissions Related Repair Data form and the VIR upon return to the emissions inspection station for a retest. ONLY ITEMS ACTUALLY SERVICED OR REPLACED, AND THE ASSOCIATED DIAGNOSIS AND LABOR CHARGES, MAY BE USED AS EMISSIONS RELATED REPAIR COSTS AND APPLIED TOWARDS AN EMISSIONS INSPECTION WAIVER.

**Note: Some malfunctioning equipment may cause more than one type of failure.**

SPARK PLUGS/WIRES	OTHER INDUCTION SYSTEM	OXYGEN (O2) SENSOR(S)
OTHER IGNITION	AIR FILTER	MAP SENSOR
TIMING/SPARK ADVANCE	OIL CHANGE	MASS AIR FLOW SENSOR
AIR/FUEL MIX ADJUSTMENT	THERMOSTATIC AIR CLEANER	COOLANT TEMP SENSOR
IDLE SPEED ADJUSTMENT	PCV SYSTEM	THROTTLE POSITION SENSOR
CHOKE SYSTEM	AIR INJECTION/REACTION SYSTEM	OTHER SENSORS/SWITCHES
OTHER CARBURETOR REPAIR	EGR SYSTEM	COMPUTER/PROM
VACUUM LEAKS	FUEL EVAPORATIVE SYSTEM	INTERNAL ENGINE REPAIR
FUEL INJECTION SYSTEM	CATALYTIC CONVERTER(S)	OTHER REPAIRS/UNKNOWN



# Pennsylvania Analytical System (PAS) – OBD (Stand Alone) Display and Program Requirements

## 5.7 Exhibit A7 – Vehicle Inspection Report (Not Ready for Testing)

COMMONWEALTH OF PENNSYLVANIA VEHICLE EMISSIONS INSPECTION REPORT Test Date/Time: 06/22/2016 @ 08:50		BAR CODE HERE VIN TITLE	
<b>VEHICLE INFORMATION</b>			
Year:	1998	Make:	XXXXXXXXXX
VIN:	A1234567890B12345	Engine Size:	5.0L
Odometer:	100000	GVWR:	6500
License:	XXX1234	Inspection Type:	INITIAL
County:	Philadelphia	Weight:	4500
		Record Number:	123456
<b>EMISSIONS CONTROL SYSTEMS VISUAL/FUNCTIONAL INSPECTION</b>			
Air In. System:	NA	Catalytic Converter:	NA
EGR System:	NA	Evaporative Control System:	NA
PCV System:	NA	Fuel Inlet Restrictor:	NA
<b>OBD EMISSIONS INSPECTION</b>			
MIL BULB KOEO:	PASS	OBD FAULT CODE RESULT:	NA
MIL BULB KOER:	PASS	OBD READINESS RESULT:	FAIL
MIL COMMAND STATUS:	NA	OBD I/M CHECK RESULT:	NA
<b>OVERALL TEST RESULTS: NOT READY FOR TESTING</b>			
Emissions Control Systems Visual/Functional Inspection: <b>PASS</b>			
OBD Emissions Inspection: <b>NA</b>			
TIN:			
<b>Based on the information obtained from the On Board Diagnostic System in your vehicle, the system is not ready to make a determination regarding the pollution control system on the vehicle. This situation should be corrected before the OBD system can be evaluated. Contact your vehicle service advisor.</b>			
<b>RETAIN THIS DOCUMENT FOR USE ON RE-INSPECTION. RETURN THE VEHICLE TO THE SAME STATION WITHIN THIRTY (30) DAYS FOR ONE (1) FREE RETEST.</b>			
Vehicle tested in accordance with Pa. Code Title 67, Chapter 177			
<b>EMISSIONS INSPECTION STATION</b>			
STATION #:	123456	INSPECTOR NAME:	JOHN T. SMITH
STATION NAME:	I/M Quality Inspection	SOFTWARE VERSION:	0211
ADDRESS:	13901 CROWN COURT, ANYTOWN 12345	FIRMWARE VERSION:	AB11001-01
PHONE:	215-123-4567	EQUIPMENT #:	XX123456
VEHICLE EMISSIONS INSPECTION QUESTIONS: For additional information, please contact the Customer Hotline at (800) 265-0921.		Inspector's Signature: _____	

# Pennsylvania Analytical System (PAS) – OBD (Stand Alone) Display and Program Requirements

## 5.8 Exhibit A8 – Vehicle Inspection Report (Fuel Cap Fail, OBD Pass)

COMMONWEALTH OF PENNSYLVANIA VEHICLE EMISSIONS INSPECTION REPORT Test Date/Time: 06/22/2016 @ 08:50				BAR CODE HERE VIN TITLE	
<b>VEHICLE INFORMATION</b>					
Year:	1998	Make:	XXXXXXXXXX	Model:	XXXXXXXXXXXX
VIN:	A1234567890B12345	Engine Size:	5.0L	Cylinders:	8
Odometer:	100000	GVWR:	6500	Estimated Test	
License:	XXX1234	Inspection Type:	INITIAL	Weight:	4500
County:	Philadelphia			Record Number:	123456
<b>EMISSIONS CONTROL SYSTEMS VISUAL/FUNCTIONAL INSPECTION</b>					
Air In. System:	NA	Catalytic Converter:	NA	Fuel Cap Integrity:	FAIL
EGR System:	NA	Evaporative Control System:	NA		
PCV System:	NA	Fuel Inlet Restrictor:	NA		
<b>OBD EMISSIONS INSPECTION</b>					
MIL BULB KOEO:	PASS	OBD FAULT CODE RESULT:	PASS		
MIL BULB KOER:	PASS	OBD READINESS RESULT:	PASS		
MIL COMMAND STATUS:	PASS	OBD I/M CHECK RESULT:	PASS		
<b>OVERALL TEST RESULTS: FAILED</b>					
Emissions Control Systems Visual/Functional Inspection: <b>FAIL</b>					
OBD Emissions Inspection: <b>PASS</b>					
TIN:					
<b>RETAIN THIS DOCUMENT FOR USE ON RE-INSPECTION.</b>					
<b>RETURN THE VEHICLE TO THE SAME STATION WITHIN THIRTY (30) DAYS FOR ONE (1) FREE RETEST.</b>					
This vehicle has failed the emissions inspection. <b>REPAIRS SHOULD BE MADE TO PASS RE-INSPECTION.</b> All emissions related repairs performed must be documented by the inspection station. <u>This inspection report, Emissions Related Repair Data form and copies of the repair receipts must be made available to the inspection station at the time of re-inspection. THIS VEHICLE IS NOT ELIGIBLE FOR A WAIVER.</u>					
Vehicles that fail the emissions inspection may be eligible for warranty coverage for the required repairs. Check with your service providers on your vehicle's Emissions Warranty.					
Vehicle tested in accordance with Pa. Code Title 67, Chapter 177					
<b>EMISSIONS INSPECTION STATION</b>					
STATION #:	123456	INSPECTOR NAME:	JOHN T. SMITH		
STATION NAME:	I/M Quality Inspection	SOFTWARE VERSION:	0211		
ADDRESS:	13901 CROWN COURT, ANYTOWN 12345	FIRMWARE VERSION:	AB11001-01		
PHONE:	215-123-4567	EQUIPMENT #:	XX123456		
VEHICLE EMISSIONS INSPECTION QUESTIONS: For additional information, please contact the Customer Hotline at (800) 265-0921.			Inspector's Signature: _____		

## Pennsylvania Analytical System (PAS) – OBD (Stand Alone) Display and Program Requirements

### Exhibit A8 –Page 2

### Possible Causes For Emissions Test Failures

Since your vehicle did not pass the emissions inspection, it is producing more pollution than was intended for your car or truck's model year. You have been given a copy of the Motor Vehicle Emissions Inspection Report (VIR) indicating which item(s) your vehicle failed, and an Emissions Related Repair Data Form, which will be completed by the repair technician describing which items were repaired. These reports will help your repair technician in recommending possible repairs. The list below provides information on what malfunctions may have caused your vehicle to fail. In order to qualify for an emissions inspection waiver, repairs may be performed at a recognized repair facility by a recognized repair technician. Cost of repairs and labor by a recognized repair technician may be applied toward a waiver. Repairs performed by any other person may only include repair part costs; cost of labor cannot be applied toward a waiver.

The Emissions Related Repair Data form, along with the Motor Vehicle Emissions Inspection Report (VIR), should be presented to the repair facility. The repair invoice(s) or work order(s) must then accompany the Emissions Related Repair Data form and the VIR upon return to the emissions inspection station for a retest. ONLY ITEMS ACTUALLY SERVICED OR REPLACED, AND THE ASSOCIATED DIAGNOSIS AND LABOR CHARGES, MAY BE USED AS EMISSIONS RELATED REPAIR COSTS AND APPLIED TOWARDS AN EMISSIONS INSPECTION WAIVER.

**Note: Some malfunctioning equipment may cause more than one type of failure.**

SPARK PLUGS/WIRES	OTHER INDUCTION SYSTEM	OXYGEN (O2) SENSOR(S)
OTHER IGNITION	AIR FILTER	MAP SENSOR
TIMING/SPARK ADVANCE	OIL CHANGE	MASS AIR FLOW SENSOR
AIR/FUEL MIX ADJUSTMENT	THERMOSTATIC AIR CLEANER	COOLANT TEMP SENSOR
IDLE SPEED ADJUSTMENT	PCV SYSTEM	THROTTLE POSITION SENSOR
CHOKE SYSTEM	AIR INJECTION/REACTION SYSTEM	OTHER SENSORS/SWITCHES
OTHER CARBURETOR REPAIR	EGR SYSTEM	COMPUTER/PROM
VACUUM LEAKS	FUEL EVAPORATIVE SYSTEM	INTERNAL ENGINE REPAIR
FUEL INJECTION SYSTEM	CATALYTIC CONVERTER(S)	OTHER REPAIRS/UNKNOWN

# Pennsylvania Analytical System (PAS) – OBD (Stand Alone) Display and Program Requirements

## 5.9 Exhibit A9 – Vehicle Inspection Report (Failed – Fuel Cap and MIL CMD)

COMMONWEALTH OF PENNSYLVANIA VEHICLE EMISSIONS INSPECTION REPORT Test Date/Time: 06/22/2016 @ 08:50				BAR CODE HERE VIN TITLE	
<b>VEHICLE INFORMATION</b>					
Year:	1998	Make:	XXXXXXXXXX	Model:	XXXXXXXXXXXX
VIN:	A1234567890B12345	Engine Size:	5.0L	Cylinders:	8
Odometer:	100000	GVWR:	6500	Estimated Test	
License:	XXX1234	Inspection Type:	INITIAL	Weight:	4500
County:	Philadelphia			Record Number:	123456
<b>EMISSIONS CONTROL SYSTEMS VISUAL/FUNCTIONAL INSPECTION</b>					
Air In. System:	NA	Catalytic Converter:	NA	Fuel Cap Integrity:	FAIL
EGR System:	NA	Evaporative Control System:	NA		
PCV System:	NA	Fuel Inlet Restrictor:	NA		
<b>OBD EMISSIONS INSPECTION</b>					
MIL BULB KOEO:	PASS	OBD FAULT CODE RESULT:	FAIL		
MIL BULB KOER:	PASS	OBD READINESS RESULT:	PASS		
MIL COMMAND STATUS:	FAIL	OBD I/M CHECK RESULT:	FAIL		
DTC(s) P0500 P0507 P0510 P0722 P0725					
Only the first five DTCs will print. Check the OBD for additional DTCs.					
<b>OVERALL TEST RESULTS: FAILED</b>					
Emissions Control Systems Visual/Functional Inspection: <b>FAIL</b>					
OBD Emissions Inspection: <b>FAIL</b>					
TIN:					
<b>RETAIN THIS DOCUMENT FOR USE ON RE-INSPECTION.</b>					
<b>RETURN THE VEHICLE TO THE SAME STATION WITHIN THIRTY (30) DAYS FOR ONE (1) FREE RETEST.</b>					
This vehicle has failed the emissions inspection. <b>REPAIRS SHOULD BE MADE TO EITHER PASS RE-INSPECTION OR QUALIFY FOR A WAIVER.</b>					
All emissions related repairs performed must be documented by the inspection station. <u>This inspection report, Emissions Related Repair Data form and copies of the repair receipts must be made available to the inspection station at the time of re-inspection.</u>					
Vehicles that fail the emissions inspection may be eligible for warranty coverage for the required repairs. Check with your service providers on your vehicle's Emissions Warranty.					
In order for a vehicle to receive a 'WAIVER', the following requirements must be met.					
1. <b>REPAIR WORK MUST BE APPROVED BY A CERTIFIED REPAIR TECHNICIAN OR OTHER COMMONWEALTH APPROVED INSPECTOR.</b>					
2. Emissions related repair expenditures must have been at least \$XXX.XX.					
3. Copies of the repair receipts for emissions related repairs must be provided to the inspection station.					
4. Repairs were performed no earlier than 60 days prior to the initial inspection.					
5. Repairs must be appropriate and related to the cause of failure.					
Vehicle tested in accordance with Pa. Code Title 67, Chapter 177					
<b>EMISSIONS INSPECTION STATION</b>					
STATION #:	123456	INSPECTOR NAME:	JOHN T. SMITH		
STATION NAME:	I/M Quality Inspection	SOFTWARE VERSION:	0211		
ADDRESS:	13901 CROWN COURT, ANYTOWN 12345	FIRMWARE VERSION:	AB11001-01		
PHONE:	215-123-4567	EQUIPMENT #:	XX123456		
VEHICLE EMISSIONS INSPECTION QUESTIONS: For additional information, please contact the Customer Hotline at (800) 265-0921.			Inspector's Signature: _____		

## Pennsylvania Analytical System (PAS) – OBD (Stand Alone) Display and Program Requirements

### Exhibit A9 –Page 2

### Possible Causes For Emissions Test Failures

Since your vehicle did not pass the emissions inspection, it is producing more pollution than was intended for your car or truck's model year. Your vehicle's On-Board Diagnostic (OBD) system registered the fault(s) listed on the previous page. This fault(s) is probably an indication of a malfunction of an emission component. However, multiple and/or seemingly unrelated faults may be an indication of an emission-related problem that occurred previously but upon further evaluation by the OBD system was determined to be only temporary. Therefore, proper diagnosis by a qualified technician is required to positively determine the source of any emission-related problem.

You have been given a copy of the Motor Vehicle Emissions Inspection Report (VIR) indicating which item(s) your vehicle failed, and an Emissions Related Repair Data Form, which will be completed by the repair technician describing which items were repaired. These reports will help your repair technician in recommending possible repairs. The list below provides information on what malfunctions may have caused your vehicle to fail. In order to qualify for an emissions inspection waiver, repairs may be performed at a recognized repair facility by a recognized repair technician. Cost of repairs and labor by a recognized repair technician may be applied toward a waiver. Repairs performed by any other person may only include repair part costs; cost of labor cannot be applied toward a waiver.

The Emissions Related Repair Data form, along with the Motor Vehicle Emissions Inspection Report (VIR), should be presented to the repair facility. The repair invoice(s) or work order(s) must then accompany the Emissions Related Repair Data form and the VIR upon return to the emissions inspection station for a retest. ONLY ITEMS ACTUALLY SERVICED OR REPLACED, AND THE ASSOCIATED DIAGNOSIS AND LABOR CHARGES, MAY BE USED AS EMISSIONS RELATED REPAIR COSTS AND APPLIED TOWARDS AN EMISSIONS INSPECTION WAIVER.

**Note: Some malfunctioning equipment may cause more than one type of failure.**

SPARK PLUGS/WIRES	OTHER INDUCTION SYSTEM	OXYGEN (O2) SENSOR(S)
OTHER IGNITION	AIR FILTER	MAP SENSOR
TIMING/SPARK ADVANCE	OIL CHANGE	MASS AIR FLOW SENSOR
AIR/FUEL MIX ADJUSTMENT	THERMOSTATIC AIR CLEANER	COOLANT TEMP SENSOR
IDLE SPEED ADJUSTMENT	PCV SYSTEM	THROTTLE POSITION SENSOR
CHOKE SYSTEM	AIR INJECTION/REACTION SYSTEM	OTHER SENSORS/SWITCHES
OTHER CARBURETOR REPAIR	EGR SYSTEM	COMPUTER/PROM
VACUUM LEAKS	FUEL EVAPORATIVE SYSTEM	INTERNAL ENGINE REPAIR
FUEL INJECTION SYSTEM	CATALYTIC CONVERTER(S)	OTHER REPAIRS/UNKNOWN

# Pennsylvania Analytical System (PAS) – OBD (Stand Alone) Display and Program Requirements

## 5.10 Exhibit A10 – Vehicle Inspection Report (Failed – Readiness and MIL CMD)

COMMONWEALTH OF PENNSYLVANIA  
VEHICLE EMISSIONS INSPECTION REPORT  
Test Date/Time: 06/22/2016 @ 08:50

BAR CODE HERE  
VIN  
TITLE

VEHICLE INFORMATION			
Year:	1998	Make:	XXXXXXXXXX
VIN:	A1234567890B12345	Engine Size:	5.0L
Odometer:	100000	GVWR:	6500
License:	XXX1234	Inspection Type:	INITIAL
County:	Philadelphia	Weight:	4500
		Record Number:	123456
EMISSIONS CONTROL SYSTEMS VISUAL/FUNCTIONAL INSPECTION			
Air In. System:	NA	Catalytic Converter:	NA
EGR System:	NA	Evaporative Control System:	NA
PCV System:	NA	Fuel Inlet Restrictor:	NA
Fuel Cap Integrity:	PASS		
OBD EMISSIONS INSPECTION			
MIL BULB KOEO:	PASS	OBD FAULT CODE RESULT:	FAIL
MIL BULB KOER:	PASS	OBD READINESS RESULT:	FAIL
MIL COMMAND STATUS:	FAIL	OBD I/M CHECK RESULT:	FAIL
DTC(s) P0500 P0507 P0510 P0722 P0725			
Only the first five DTCs will print. Check the OBD for additional DTCs.			
OVERALL TEST RESULTS: FAILED			
Emissions Control Systems Visual/Functional Inspection: PASS			
OBD Emissions Inspection: FAIL			
TIN:			
RETAIN THIS DOCUMENT FOR USE ON RE-INSPECTION.			
RETURN THE VEHICLE TO THE SAME STATION WITHIN THIRTY (30) DAYS FOR ONE (1) FREE RETEST.			
This vehicle has failed the emissions inspection. REPAIRS SHOULD BE MADE TO EITHER PASS RE-INSPECTION OR QUALIFY FOR A WAIVER. All emissions related repairs performed must be documented by the inspection station. <u>This inspection report, Emissions Related Repair Data form and copies of the repair receipts must be made available to the inspection station at the time of re-inspection.</u> Vehicles that fail the emissions inspection may be eligible for warranty coverage for the required repairs. Check with your service providers on your vehicle's Emissions Warranty.			
In order for a vehicle to receive a 'WAIVER', the following requirements must be met.			
<ol style="list-style-type: none"> <li>1. REPAIR WORK MUST BE APPROVED BY A CERTIFIED REPAIR TECHNICIAN OR OTHER COMMONWEALTH APPROVED INSPECTOR.</li> <li>2. Emissions related repair expenditures must have been at least \$XXX.XX.</li> <li>3. Copies of the repair receipts for emissions related repairs must be provided to the inspection station.</li> <li>4. Repairs were performed no earlier than 60 days prior to the initial inspection.</li> <li>5. Repairs must be appropriate and related to the cause of failure.</li> </ol>			
Vehicle tested in accordance with Pa. Code Title 67, Chapter 177			
EMISSIONS INSPECTION STATION			
STATION #:	123456	INSPECTOR NAME:	JOHN T. SMITH
STATION NAME:	I/M Quality Inspection	SOFTWARE VERSION:	0211
ADDRESS:	13901 CROWN COURT, ANYTOWN 12345	FIRMWARE VERSION:	AB11001-01
PHONE:	215-123-4567	EQUIPMENT #:	XX123456
VEHICLE EMISSIONS INSPECTION QUESTIONS: For additional information, please contact the Customer Hotline at (800) 265-0921.		Inspector's Signature: _____	

## Pennsylvania Analytical System (PAS) – OBD (Stand Alone) Display and Program Requirements

### Exhibit A10 –Page 2

### Possible Causes For Emissions Test Failures

Since your vehicle did not pass the emissions inspection, it is producing more pollution than was intended for your car or truck's model year. Your vehicle's On-Board Diagnostic (OBD) system registered the fault(s) listed on the previous page. This fault(s) is probably an indication of a malfunction of an emission component. However, multiple and/or seemingly unrelated faults may be an indication of an emission-related problem that occurred previously but upon further evaluation by the OBD system was determined to be only temporary. Therefore, proper diagnosis by a qualified technician is required to positively determine the source of any emission-related problem.

You have been given a copy of the Motor Vehicle Emissions Inspection Report (VIR) indicating which item(s) your vehicle failed, and an Emissions Related Repair Data Form, which will be completed by the repair technician describing which items were repaired. These reports will help your repair technician in recommending possible repairs. The list below provides information on what malfunctions may have caused your vehicle to fail. In order to qualify for an emissions inspection waiver, repairs may be performed at a recognized repair facility by a recognized repair technician. Cost of repairs and labor by a recognized repair technician may be applied toward a waiver. Repairs performed by any other person may only include repair part costs; cost of labor cannot be applied toward a waiver.

The Emissions Related Repair Data form, along with the Motor Vehicle Emissions Inspection Report (VIR), should be presented to the repair facility. The repair invoice(s) or work order(s) must then accompany the Emissions Related Repair Data form and the VIR upon return to the emissions inspection station for a retest. ONLY ITEMS ACTUALLY SERVICED OR REPLACED, AND THE ASSOCIATED DIAGNOSIS AND LABOR CHARGES, MAY BE USED AS EMISSIONS RELATED REPAIR COSTS AND APPLIED TOWARDS AN EMISSIONS INSPECTION WAIVER.

**Note: Some malfunctioning equipment may cause more than one type of failure.**

SPARK PLUGS/WIRES	OTHER INDUCTION SYSTEM	OXYGEN (O2) SENSOR(S)
OTHER IGNITION	AIR FILTER	MAP SENSOR
TIMING/SPARK ADVANCE	OIL CHANGE	MASS AIR FLOW SENSOR
AIR/FUEL MIX ADJUSTMENT	THERMOSTATIC AIR CLEANER	COOLANT TEMP SENSOR
IDLE SPEED ADJUSTMENT	PCV SYSTEM	THROTTLE POSITION SENSOR
CHOKE SYSTEM	AIR INJECTION/REACTION SYSTEM	OTHER SENSORS/SWITCHES
OTHER CARBURETOR REPAIR	EGR SYSTEM	COMPUTER/PROM
VACUUM LEAKS	FUEL EVAPORATIVE SYSTEM	INTERNAL ENGINE REPAIR
FUEL INJECTION SYSTEM	CATALYTIC CONVERTER(S)	OTHER REPAIRS/UNKNOWN

# Pennsylvania Analytical System (PAS) – OBD (Stand Alone) Display and Program Requirements

## 5.11 Exhibit A11 – Vehicle Inspection Report (Failed – Fuel Cap, Readiness)

COMMONWEALTH OF PENNSYLVANIA VEHICLE EMISSIONS INSPECTION REPORT Test Date/Time: 06/22/2016 @ 08:50				BAR CODE HERE VIN TITLE	
<b>VEHICLE INFORMATION</b>					
Year:	1998	Make:	XXXXXXXXXX	Model:	XXXXXXXXXXXX
VIN:	A1234567890B12345	Engine Size:	5.0L	Cylinders:	8
Odometer:	100000	GVWR:	6500	Estimated Test	
License:	XXX1234	Inspection Type:	INITIAL	Weight:	4500
County:	Philadelphia			Record Number:	123456
<b>EMISSIONS CONTROL SYSTEMS VISUAL/FUNCTIONAL INSPECTION</b>					
Air In. System:	NA	Catalytic Converter:	NA	Fuel Cap Integrity:	FAIL
EGR System:	NA	Evaporative Control System:	NA		
PCV System:	NA	Fuel Inlet Restrictor:	NA		
<b>OBD EMISSIONS INSPECTION</b>					
MIL BULB KOEO:	PASS	OBD FAULT CODE RESULT:	NA		
MIL BULB KOER:	PASS	OBD READINESS RESULT:	FAIL		
MIL COMMAND STATUS:	NA	OBD I/M CHECK RESULT:	NA		
<b>OVERALL TEST RESULTS: FAIL</b>					
Emissions Control Systems Visual/Functional Inspection: <b>FAIL</b>					
OBD Emissions Inspection: <b>NA</b>					
TIN:					
<b>Based on the information obtained from the On Board Diagnostic System in your vehicle, the system is not ready to make a determination regarding the pollution control system on the vehicle. This situation should be corrected before the OBD system can be evaluated. Contact your vehicle service advisor.</b>					
<b>RETAIN THIS DOCUMENT FOR USE ON RE-INSPECTION.</b>					
<b>RETURN THE VEHICLE TO THE SAME STATION WITHIN THIRTY (30) DAYS FOR ONE (1) FREE RETEST.</b>					
This vehicle has failed the emissions inspection. <b>REPAIRS SHOULD BE MADE TO PASS RE-INSPECTION.</b> All emissions related repairs performed must be documented by the inspection station. This inspection report, Emissions Related Repair Data form and <b>copies of the repair receipts</b> must be made available to the inspection station at the time of re-inspection. <b>THIS VEHICLE IS NOT ELIGIBLE FOR A WAIVER.</b>					
Vehicles that fail the emissions inspection may be eligible for warranty coverage for the required repairs. Check with your service providers on your vehicle's Emissions Warranty.					
Vehicle tested in accordance with Pa. Code Title 67, Chapter 177					
<b>EMISSIONS INSPECTION STATION</b>					
STATION #:	123456	INSPECTOR NAME:	JOHN T. SMITH		
STATION NAME:	I/M Quality Inspection	SOFTWARE VERSION:	0211		
ADDRESS:	13901 CROWN COURT, ANYTOWN 12345	FIRMWARE VERSION:	AB11001-01		
PHONE:	215-123-4567	EQUIPMENT #:	XX123456		
VEHICLE EMISSIONS INSPECTION QUESTIONS: For additional information, please contact the Customer Hotline at (800) 265-0921.			Inspector's Signature: _____		



## Pennsylvania Analytical System (PAS) – OBD (Stand Alone) Display and Program Requirements

### Exhibit A11 –Page 2

### Possible Causes For Emissions Test Failures

Since your vehicle did not pass the emissions inspection, it is producing more pollution than was intended for your car or truck's model year. You have been given a copy of the Motor Vehicle Emissions Inspection Report (VIR) indicating which item(s) your vehicle failed, and an Emissions Related Repair Data Form, which will be completed by the repair technician describing which items were repaired. These reports will help your repair technician in recommending possible repairs. The list below provides information on what malfunctions may have caused your vehicle to fail. In order to qualify for an emissions inspection waiver, repairs may be performed at a recognized repair facility by a recognized repair technician. Cost of repairs and labor by a recognized repair technician may be applied toward a waiver. Repairs performed by any other person may only include repair part costs; cost of labor cannot be applied toward a waiver.

The Emissions Related Repair Data form, along with the Motor Vehicle Emissions Inspection Report (VIR), should be presented to the repair facility. The repair invoice(s) or work order(s) must then accompany the Emissions Related Repair Data form and the VIR upon return to the emissions inspection station for a retest. ONLY ITEMS ACTUALLY SERVICED OR REPLACED, AND THE ASSOCIATED DIAGNOSIS AND LABOR CHARGES, MAY BE USED AS EMISSIONS RELATED REPAIR COSTS AND APPLIED TOWARDS AN EMISSIONS INSPECTION WAIVER.

**Note: Some malfunctioning equipment may cause more than one type of failure.**

SPARK PLUGS/WIRES	OTHER INDUCTION SYSTEM	OXYGEN (O2) SENSOR(S)
OTHER IGNITION	AIR FILTER	MAP SENSOR
TIMING/SPARK ADVANCE	OIL CHANGE	MASS AIR FLOW SENSOR
AIR/FUEL MIX ADJUSTMENT	THERMOSTATIC AIR CLEANER	COOLANT TEMP SENSOR
IDLE SPEED ADJUSTMENT	PCV SYSTEM	THROTTLE POSITION SENSOR
CHOKE SYSTEM	AIR INJECTION/REACTION SYSTEM	OTHER SENSORS/SWITCHES
OTHER CARBURETOR REPAIR	EGR SYSTEM	COMPUTER/PROM
VACUUM LEAKS	FUEL EVAPORATIVE SYSTEM	INTERNAL ENGINE REPAIR
FUEL INJECTION SYSTEM	CATALYTIC CONVERTER(S)	OTHER REPAIRS/UNKNOWN

## Pennsylvania Analytical System (PAS) – OBD (Stand Alone) Display and Program Requirements

### 5.12 Exhibit B1 – Vehicle Inspection Report (Passed – All Tests)

COMMONWEALTH OF PENNSYLVANIA VEHICLE EMISSIONS INSPECTION REPORT Test Date/Time: 06/22/2016 @ 08:50		BAR CODE HERE VIN TITLE	
<b>VEHICLE INFORMATION</b>			
Year:	1998	Make:	XXXXXXXXXX
VIN:	A1234567890B12345	Engine Size:	5.0L
Odometer:	100000	GVWR:	6500
License:	XXX1234	Inspection Type:	INITIAL
County:	Philadelphia	Weight:	4500
		Record Number:	123456
<b>EMISSIONS CONTROL SYSTEMS VISUAL/FUNCTIONAL INSPECTION</b>			
Air In. System:	NA	Catalytic Converter:	NA
EGR System:	NA	Evaporative Control System:	NA
PCV System:	NA	Fuel Inlet Restrictor:	NA
<b>OBD EMISSIONS INSPECTION</b>			
MIL BULB KOEO:	PASS	OBD FAULT CODE RESULT:	PASS
MIL BULB KOER:	PASS	OBD READINESS RESULT:	PASS
MIL COMMAND STATUS:	PASS	OBD I/M CHECK RESULT:	PASS
<b>OVERALL TEST RESULTS: PASS</b>			
Emissions Control Systems Visual/Functional Inspection: <b>PASS</b>			
OBD Emissions Inspection: <b>PASS</b>			
Sticker: <b>AA12345678</b>			
TIN: <b>123456789012</b>			
<b>RETAIN THIS DOCUMENT FOR YOUR RECORDS.</b>			
Vehicle tested in accordance with Pa. Code Title 67, Chapter 177			
<b>EMISSIONS INSPECTION STATION</b>			
STATION #:	123456	INSPECTOR NAME:	JOHN T. SMITH
STATION NAME:	I/M Quality Inspection	SOFTWARE VERSION:	0211
ADDRESS:	13901 CROWN COURT, ANYTOWN 12345	FIRMWARE VERSION:	AB11001-01
PHONE:	215-123-4567	EQUIPMENT #:	XX123456
VEHICLE EMISSIONS INSPECTION QUESTIONS: For additional information, please contact the Customer Hotline at (800) 265-0921.		Inspector's Signature: _____	

# Pennsylvania Analytical System (PAS) – OBD (Stand Alone) Display and Program Requirements

## 5.14 Exhibit B2 – Vehicle Inspection Report (Passed – Cannot Locate DLC)

COMMONWEALTH OF PENNSYLVANIA VEHICLE EMISSIONS INSPECTION REPORT Test Date/Time: 06/22/2016 @ 08:50				BAR CODE HERE VIN TITLE	
<b>VEHICLE INFORMATION</b>					
Year:	1998	Make:	XXXXXXXXXX	Model:	XXXXXXXXXXXX
VIN:	A1234567890B12345	Engine Size:	5.0L	Cylinders:	8
Odometer:	100000	GVWR:	6500	Estimated Test	
License:	XXX1234	Inspection Type:	INITIAL	Weight:	4500
County:	Philadelphia			Record Number:	123456
<b>EMISSIONS CONTROL SYSTEMS VISUAL/FUNCTIONAL INSPECTION</b>					
Air In. System:	NA	Catalytic Converter:	NA	Fuel Cap Integrity:	PASS
EGR System:	NA	Evaporative Control System:	NA		
PCV System:	NA	Fuel Inlet Restrictor:	NA		
<b>OBD EMISSIONS INSPECTION</b>					
MIL BULB KOEO:	PASS	OBD FAULT CODE RESULT:	NA		
MIL BULB KOER:	PASS	OBD READINESS RESULT:	NA		
MIL COMMAND STATUS:	NA	OBD I/M CHECK RESULT:	NA		
<b>OVERALL TEST RESULTS: PASSED</b>					
Emissions Control Systems Visual/Functional Inspection: <b>PASS</b>					
OBD Emissions Inspection: <b>NA</b>					
Sticker: <b>AA12345678</b>					
TIN: <b>123456789012</b>					
<p><b>Based on the information gathered during an attempt to perform an On Board Diagnostic test, your vehicle has a Data Link Connector that cannot be located by the inspector. This vehicle should have the Onboard Computer Data Link Connector available to the inspector and functioning properly to pass the vehicle inspection.</b></p> <p><b><u>This vehicle needs to have the above problem corrected prior to next year's emissions inspection.</u></b></p>					
<b>RETAIN THIS DOCUMENT FOR YOUR RECORDS.</b>					
<p>Vehicle tested in accordance with Pa. Code Title 67, Chapter 177</p>					
<b>EMISSIONS INSPECTION STATION</b>					
STATION #:	123456	INSPECTOR NAME:	JOHN T. SMITH		
STATION NAME:	I/M Quality Inspection	SOFTWARE VERSION:	0211		
ADDRESS:	13901 CROWN COURT, ANYTOWN 12345	FIRMWARE VERSION:	AB11001-01		
PHONE:	215-123-4567	EQUIPMENT #:	XX123456		
VEHICLE EMISSIONS INSPECTION QUESTIONS: For additional information, please contact the Customer Hotline at (800) 265-0921.			Inspector's Signature: _____		

**COMMONWEALTH OF PENNSYLVANIA**  
**VEHICLE EMISSIONS INSPECTION REPORT**  
Test Date/Time: 06/22/2016 @ 08:50

VEHICLE INFORMATION					
Year:	1998	Make:	XXXXXXXXXX	Model:	XXXXXXXXXXXX
VIN:	A1234567890B12345	Engine Size:	5.0L	Cylinders:	8
Odometer:	100000	GVWR:	6500	Estimated Test	
License:	XXX1234	Inspection Type:	INITIAL	Weight:	4500
County:	Philadelphia			Record Number:	123456
EMISSIONS CONTROL SYSTEMS VISUAL/FUNCTIONAL INSPECTION					
Air In. System:	NA	Catalytic Converter:	NA	Fuel Cap Integrity:	PASS
EGR System:	NA	Evaporative Control System:	NA		
PCV System:	NA	Fuel Inlet Restrictor:	NA		
OBD EMISSIONS INSPECTION					
MIL BULB KOEO:	PASS	OBD FAULT CODE RESULT:	NA		
MIL BULB KOER:	PASS	OBD READINESS RESULT:	NA		
MIL COMMAND STATUS:	NA	OBD I/M CHECK RESULT:	NA		
OVERALL TEST RESULTS: PASSED					
Emissions Control Systems Visual/Functional Inspection: PASS					
OBD Emissions Inspection: NA					
Sticker: AA12345678					
TIN: 123456789012					
Based on the information gathered during an attempt to perform an On Board Diagnostic test, your vehicle has a missing, tampered, or broken Data Link Connector. This vehicle should have the Onboard Computer Data Link Connector functioning properly to pass the vehicle inspection.					
This vehicle needs to have the above problem corrected prior to next year's emissions inspection.					
RETAIN THIS DOCUMENT FOR YOUR RECORDS.					
Vehicle tested in accordance with Pa. Code Title 67, Chapter 177					
EMISSIONS INSPECTION STATION					
STATION #:	123456	INSPECTOR NAME:	JOHN T. SMITH		
STATION NAME:	I/M Quality Inspection	SOFTWARE VERSION:	0211		
ADDRESS:	13901 CROWN COURT, ANYTOWN 12345	FIRMWARE VERSION:	AB11001-01		
PHONE:	215-123-4567	EQUIPMENT #:	XX123456		
VEHICLE EMISSIONS INSPECTION QUESTIONS: For additional information, please contact the Customer Hotline at (800) 265-0921.			Inspector's Signature: _____		

**COMMONWEALTH OF PENNSYLVANIA**  
**VEHICLE EMISSIONS INSPECTION REPORT**  
Test Date/Time: 06/22/2016 @ 08:50

VEHICLE INFORMATION					
Year:	1998	Make:	XXXXXXXXXX	Model:	XXXXXXXXXXXX
VIN:	A1234567890B12345	Engine Size:	5.0L	Cylinders:	8
Odometer:	100000	GVWR:	6500	Estimated Test	
License:	XXX1234	Inspection Type:	INITIAL	Weight:	4500
County:	Philadelphia			Record Number:	123456
EMISSIONS CONTROL SYSTEMS VISUAL/FUNCTIONAL INSPECTION					
Air In. System:	NA	Catalytic Converter:	NA	Fuel Cap Integrity:	PASS
EGR System:	NA	Evaporative Control System:	NA		
PCV System:	NA	Fuel Inlet Restrictor:	NA		
OBD EMISSIONS INSPECTION					
MIL BULB KOEO:	PASS	OBD FAULT CODE RESULT:	NA		
MIL BULB KOER:	PASS	OBD READINESS RESULT:	NA		
MIL COMMAND STATUS:	NA	OBD I/M CHECK RESULT:	NA		
OVERALL TEST RESULTS: PASSED					
Emissions Control Systems Visual/Functional Inspection: PASS					
OBD Emissions Inspection: NA					
Sticker: AA12345678					
TIN: 123456789012					
Based on the information gathered during an attempt to perform an On Board Diagnostic test, your vehicle has an inaccessible Data Link Connector. This vehicle should have the Data Link Connector accessible to allow the check of the On Board Diagnostic computer system.					
This vehicle needs to have the above problem corrected prior to next year's emissions inspection.					
RETAIN THIS DOCUMENT FOR YOUR RECORDS.					
Vehicle tested in accordance with Pa. Code Title 67, Chapter 177					
EMISSIONS INSPECTION STATION					
STATION #:	123456	INSPECTOR NAME:	JOHN T. SMITH		
STATION NAME:	I/M Quality Inspection	SOFTWARE VERSION:	0211		
ADDRESS:	13901 CROWN COURT, ANYTOWN 12345	FIRMWARE VERSION:	AB11001-01		
PHONE:	215-123-4567	EQUIPMENT #:	XX123456		
VEHICLE EMISSIONS INSPECTION QUESTIONS: For additional information, please contact the Customer Hotline at (800) 265-0921.			Inspector's Signature: _____		

# Pennsylvania Analytical System (PAS) – OBD (Stand Alone) Display and Program Requirements

## 5.17 Exhibit B5 – Vehicle Inspection Report (Passed – No OBD Communications)

COMMONWEALTH OF PENNSYLVANIA VEHICLE EMISSIONS INSPECTION REPORT Test Date/Time: 06/22/2016 @ 08:50		BAR CODE HERE VIN TITLE	
<b>VEHICLE INFORMATION</b>			
Year:	1998	Make:	XXXXXXXXXX
VIN:	A1234567890B12345	Engine Size:	5.0L
Odometer:	100000	GVWR:	6500
License:	XXX1234	Inspection Type:	INITIAL
County:	Philadelphia	Weight:	4500
		Record Number:	123456
<b>EMISSIONS CONTROL SYSTEMS VISUAL/FUNCTIONAL INSPECTION</b>			
Air In. System:	NA	Catalytic Converter:	NA
EGR System:	NA	Evaporative Control System:	NA
PCV System:	NA	Fuel Inlet Restrictor:	NA
<b>OBD EMISSIONS INSPECTION</b>			
MIL BULB KOEO:	PASS	OBD FAULT CODE RESULT:	NA
MIL BULB KOER:	PASS	OBD READINESS RESULT:	NA
MIL COMMAND STATUS:	NA	OBD I/M CHECK RESULT:	NA
<b>OVERALL TEST RESULTS: PASSED</b>			
Emissions Control Systems Visual/Functional Inspection: <b>PASS</b>			
OBD Emissions Inspection: <b>NA</b>			
Sticker: <b>AA12345678</b>			
TIN: <b>123456789012</b>			
Based on the information gathered during an attempt to perform an On Board Diagnostic test, NO Signal was available from the On Board Diagnostic computer system. This vehicle should produce a signal from the On Board Diagnostic computer system.			
<b><u>This vehicle needs to have the above problem corrected prior to next year's emissions inspection.</u></b>			
<b>RETAIN THIS DOCUMENT FOR YOUR RECORDS.</b>			
Vehicle tested in accordance with Pa. Code Title 67, Chapter 177			
<b>EMISSIONS INSPECTION STATION</b>			
STATION #:	123456	INSPECTOR NAME:	JOHN T. SMITH
STATION NAME:	I/M Quality Inspection	SOFTWARE VERSION:	0211
ADDRESS:	13901 CROWN COURT, ANYTOWN 12345	FIRMWARE VERSION:	AB11001-01
PHONE:	215-123-4567	EQUIPMENT #:	XX123456
VEHICLE EMISSIONS INSPECTION QUESTIONS: For additional information, please contact the Customer Hotline at (800) 265-0921.		Inspector's Signature: _____	

# Pennsylvania Analytical System (PAS) – OBD (Stand Alone) Display and Program Requirements

## 5.18 Exhibit B6 – Vehicle Inspection Report (Passed – No RPM Signal)

COMMONWEALTH OF PENNSYLVANIA VEHICLE EMISSIONS INSPECTION REPORT Test Date/Time: 06/22/2016 @ 08:50		BAR CODE HERE VIN TITLE
<b>VEHICLE INFORMATION</b>		
Year: 1998	Make: XXXXXXXXX	Model: XXXXXXXXXXXX
VIN: A1234567890B12345	Engine Size: 5.0L	Cylinders: 8
Odometer: 100000	GVWR: 6500	Estimated Test
License: XXX1234	Inspection Type: INITIAL	Weight: 4500
County: Philadelphia		Record Number: 123456
<b>EMISSIONS CONTROL SYSTEMS VISUAL/FUNCTIONAL INSPECTION</b>		
Air In. System: <b>NA</b>	Catalytic Converter: <b>NA</b>	Fuel Cap Integrity: <b>PASS</b>
EGR System: <b>NA</b>	Evaporative Control System: <b>NA</b>	
PCV System: <b>NA</b>	Fuel Inlet Restrictor: <b>NA</b>	
<b>OBD EMISSIONS INSPECTION</b>		
MIL BULB KOEO: <b>PASS</b>	OBD FAULT CODE RESULT: <b>NA</b>	
MIL BULB KOER: <b>PASS</b>	OBD READINESS RESULT: <b>NA</b>	
MIL COMMAND STATUS: <b>NA</b>	OBD I/M CHECK RESULT: <b>NA</b>	
<b>OVERALL TEST RESULTS: PASSED</b>		
Emissions Control Systems Visual/Functional Inspection: <b>PASS</b>		
OBD Emissions Inspection: <b>NA</b>		
Sticker: <b>AA12345678</b>		
TIN: <b>123456789012</b>		
<p><b>Based on the information gathered during an attempt to perform an On Board Diagnostic test, NO RPM Signal was available from the On Board Diagnostic computer system. This vehicle should produce an RPM signal from the On Board Diagnostic computer system.</b></p> <p><b><u>This vehicle needs to have the above problem corrected prior to next year's emissions inspection.</u></b></p>		
<b>RETAIN THIS DOCUMENT FOR YOUR RECORDS.</b>		
<p>Vehicle tested in accordance with Pa. Code Title 67, Chapter 177</p>		
<b>EMISSIONS INSPECTION STATION</b>		
STATION #: 123456	INSPECTOR NAME: JOHN T. SMITH	
STATION NAME: I/M Quality Inspection	SOFTWARE VERSION: 0211	
ADDRESS: 13901 CROWN COURT, ANYTOWN 12345	FIRMWARE VERSION: AB11001-01	
PHONE: 215-123-4567	EQUIPMENT #: XX123456	
VEHICLE EMISSIONS INSPECTION QUESTIONS: For additional information, please contact the Customer Hotline at (800) 265-0921.		Inspector's Signature: _____

# Pennsylvania Analytical System (PAS) – OBD (Stand Alone) Display and Program Requirements

## 5.19 Exhibit C1 – Vehicle Inspection Report (Problem Vehicle – Pass – Not Ready)

COMMONWEALTH OF PENNSYLVANIA VEHICLE EMISSIONS INSPECTION REPORT Test Date/Time: 06/22/2016 @ 08:50		BAR CODE HERE VIN TITLE	
<b>VEHICLE INFORMATION</b>			
Year:	1998	Make:	XXXXXXXXXX
VIN:	A1234567890B12345	Engine Size:	5.0L
Odometer:	100000	GVWR:	6500
License:	XXX1234	Inspection Type:	INITIAL
County:	Philadelphia	Weight:	4500
		Record Number:	123456
<b>EMISSIONS CONTROL SYSTEMS VISUAL/FUNCTIONAL INSPECTION</b>			
Air In. System:	NA	Catalytic Converter:	NA
EGR System:	NA	Evaporative Control System:	NA
PCV System:	NA	Fuel Inlet Restrictor:	NA
Fuel Cap Integrity:	PASS		
<b>OBD EMISSIONS INSPECTION</b>			
MIL BULB KOEO:	PASS	OBD FAULT CODE RESULT:	PASS
MIL BULB KOER:	PASS	OBD READINESS RESULT:	NA
MIL COMMAND STATUS:	PASS	OBD I/M CHECK RESULT:	PASS
<b>OVERALL TEST RESULTS: PASSED</b>			
Emissions Control Systems Visual/Functional Inspection: <b>PASS</b>			
OBD Emissions Inspection: <b>PASS</b>			
Sticker: <b>AA12345678</b>			
TIN: <b>123456789012</b>			
<b>RETAIN THIS DOCUMENT FOR YOUR RECORDS.</b>			
Vehicle tested in accordance with Pa. Code Title 67, Chapter 177			
<b>EMISSIONS INSPECTION STATION</b>			
STATION #:	123456	INSPECTOR NAME:	JOHN T. SMITH
STATION NAME:	I/M Quality Inspection	SOFTWARE VERSION:	0211
ADDRESS:	13901 CROWN COURT, ANYTOWN 12345	FIRMWARE VERSION:	AB11001-01
PHONE:	215-123-4567	EQUIPMENT #:	XX123456
VEHICLE EMISSIONS INSPECTION QUESTIONS: For additional information, please contact the Customer Hotline at (800) 265-0921.		Inspector's Signature: _____	



## Pennsylvania Analytical System (PAS) – OBD (Stand Alone) Display and Program Requirements

### 5.20 Exhibit C2 - Vehicle Inspection Report (Problem Vehicle – Fail – Not Ready, MIL CMD, DTC)

COMMONWEALTH OF PENNSYLVANIA VEHICLE EMISSIONS INSPECTION REPORT Test Date/Time: 06/22/2016 @ 08:50				BAR CODE HERE VIN TITLE	
<b>VEHICLE INFORMATION</b>					
Year:	1998	Make:	XXXXXXXXXX	Model:	XXXXXXXXXX
VIN:	A1234567890B12345	Engine Size:	5.0L	Cylinders:	8
Odometer:	100000	GVWR:	6500	Estimated Test	
License:	XXX1234	Inspection Type:	INITIAL	Weight:	4500
County:	Philadelphia			Record Number:	123456
<b>EMISSIONS CONTROL SYSTEMS VISUAL/FUNCTIONAL INSPECTION</b>					
Air In. System:	NA	Catalytic Converter:	NA	Fuel Cap Integrity:	PASS
EGR System:	NA	Evaporative Control System:	NA		
PCV System:	NA	Fuel Inlet Restrictor:	NA		
<b>OBD EMISSIONS INSPECTION</b>					
MIL BULB KOEO:	PASS	OBD FAULT CODE RESULT:	FAIL		
MIL BULB KOER:	PASS	OBD READINESS RESULT:	NA		
MIL COMMAND STATUS:	FAIL	OBD I/M CHECK RESULT:	FAIL		
DTC(s) P0500 P0507 P0510 P0722 P0725 Only the first five DTCs will print. Check the OBD for additional DTCs.					
<b>OVERALL TEST RESULTS: FAILED</b>					
Emissions Control Systems Visual/Functional Inspection: <b>PASS</b>					
OBD Emissions Inspection: <b>FAIL</b>					
TIN:					
<b>RETAIN THIS DOCUMENT FOR USE ON RE-INSPECTION.</b>					
<b>RETURN THE VEHICLE TO THE SAME STATION WITHIN THIRTY (30) DAYS FOR ONE (1) FREE RETEST.</b>					
This vehicle has failed the emissions inspection. <b>REPAIRS SHOULD BE MADE TO EITHER PASS RE-INSPECTION OR QUALIFY FOR A WAIVER.</b> All emissions related repairs performed must be documented by the inspection station. <u>This inspection report, Emissions Related Repair Data form and copies of the repair receipts must be made available to the inspection station at the time of re-inspection.</u> Vehicles that fail the emissions inspection may be eligible for warranty coverage for the required repairs. Check with your service providers on your vehicle's Emissions Warranty.					
In order for a vehicle to receive a 'WAIVER', the following requirements must be met.					
1. <b>REPAIR WORK MUST BE APPROVED BY A CERTIFIED REPAIR TECHNICIAN OR OTHER COMMONWEALTH APPROVED INSPECTOR.</b>					
2. Emissions related repair expenditures must have been at least \$XXX.XX.					
3. Copies of the repair receipts for emissions related repairs must be provided to the inspection station.					
4. Repairs were performed no earlier than 60 days prior to the initial inspection.					
5. Repairs must be appropriate and related to the cause of failure.					
<b>Vehicle tested in accordance with Pa. Code Title 67, Chapter 177</b>					
<b>EMISSIONS INSPECTION STATION</b>					
STATION #:	123456	INSPECTOR NAME:	JOHN T. SMITH		
STATION NAME:	I/M Quality Inspection	SOFTWARE VERSION:	0211		
ADDRESS:	13901 CROWN COURT, ANYTOWN 12345	FIRMWARE VERSION:	AB11001-01		
PHONE:	215-123-4567	EQUIPMENT #:	XX123456		
VEHICLE EMISSIONS INSPECTION QUESTIONS: For additional information, please contact the Customer Hotline at (800) 265-0921.			Inspector's Signature: _____		

## Pennsylvania Analytical System (PAS) – OBD (Stand Alone) Display and Program Requirements

### Exhibit C2 –Page 2

### Possible Causes For Emissions Test Failures

Since your vehicle did not pass the emissions inspection, it is producing more pollution than was intended for your car or truck's model year. Your vehicle's On-Board Diagnostic (OBD) system registered the fault(s) listed on the previous page. This fault(s) is probably an indication of a malfunction of an emission component. However, multiple and/or seemingly unrelated faults may be an indication of an emission-related problem that occurred previously but upon further evaluation by the OBD system was determined to be only temporary. Therefore, proper diagnosis by a qualified technician is required to positively determine the source of any emission-related problem.

You have been given a copy of the Motor Vehicle Emissions Inspection Report (VIR) indicating which item(s) your vehicle failed, and an Emissions Related Repair Data Form, which will be completed by the repair technician describing which items were repaired. These reports will help your repair technician in recommending possible repairs. The list below provides information on what malfunctions may have caused your vehicle to fail. In order to qualify for an emissions inspection waiver, repairs may be performed at a recognized repair facility by a recognized repair technician. Cost of repairs and labor by a recognized repair technician may be applied toward a waiver. Repairs performed by any other person may only include repair part costs; cost of labor cannot be applied toward a waiver.

The Emissions Related Repair Data form, along with the Motor Vehicle Emissions Inspection Report (VIR), should be presented to the repair facility. The repair invoice(s) or work order(s) must then accompany the Emissions Related Repair Data form and the VIR upon return to the emissions inspection station for a retest. ONLY ITEMS ACTUALLY SERVICED OR REPLACED, AND THE ASSOCIATED DIAGNOSIS AND LABOR CHARGES, MAY BE USED AS EMISSIONS RELATED REPAIR COSTS AND APPLIED TOWARDS AN EMISSIONS INSPECTION WAIVER.

**Note: Some malfunctioning equipment may cause more than one type of failure.**

SPARK PLUGS/WIRES	OTHER INDUCTION SYSTEM	OXYGEN (O2) SENSOR(S)
OTHER IGNITION	AIR FILTER	MAP SENSOR
TIMING/SPARK ADVANCE	OIL CHANGE	MASS AIR FLOW SENSOR
AIR/FUEL MIX ADJUSTMENT	THERMOSTATIC AIR CLEANER	COOLANT TEMP SENSOR
IDLE SPEED ADJUSTMENT	PCV SYSTEM	THROTTLE POSITION SENSOR
CHOKE SYSTEM	AIR INJECTION/REACTION SYSTEM	OTHER SENSORS/SWITCHES
OTHER CARBURETOR REPAIR	EGR SYSTEM	COMPUTER/PROM
VACUUM LEAKS	FUEL EVAPORATIVE SYSTEM	INTERNAL ENGINE REPAIR
FUEL INJECTION SYSTEM	CATALYTIC CONVERTER(S)	OTHER REPAIRS/UNKNOWN

## Pennsylvania Analytical System (PAS) – OBD (Stand Alone) Display and Program Requirements

### 5.21 Exhibit C3 – Vehicle Inspection Report (Problem Vehicle – Fail – No Comm, KOER)

COMMONWEALTH OF PENNSYLVANIA VEHICLE EMISSIONS INSPECTION REPORT Test Date/Time: 06/22/2016 @ 08:50				BAR CODE HERE VIN TITLE	
<b>VEHICLE INFORMATION</b>					
Year:	1998	Make:	XXXXXXXXXX	Model:	XXXXXXXXXX
VIN:	A1234567890B12345	Engine Size:	5.0L	Cylinders:	8
Odometer:	100000	GVWR:	6500	Estimated Test	
License:	XXX1234	Inspection Type:	INITIAL	Weight:	4500
County:	Philadelphia			Record Number:	123456
<b>EMISSIONS CONTROL SYSTEMS VISUAL/FUNCTIONAL INSPECTION</b>					
Air In. System:	NA	Catalytic Converter:	NA	Fuel Cap Integrity:	PASS
EGR System:	NA	Evaporative Control System:	NA		
PCV System:	NA	Fuel Inlet Restrictor:	NA		
<b>OBD EMISSIONS INSPECTION</b>					
MIL BULB KOEO:	PASS	OBD FAULT CODE RESULT:	NA		
MIL BULB KOER:	FAIL	OBD READINESS RESULT:	NA		
MIL COMMAND STATUS:	NA	OBD I/M CHECK RESULT:	FAIL		
DTC(s) Only the first five DTCs will print. Check the OBD for additional DTCs.					
<b>OVERALL TEST RESULTS: FAILED</b>					
Emissions Control Systems Visual/Functional Inspection: <b>PASS</b>					
OBD Emissions Inspection: <b>FAIL</b>					
TIN:					
<b>RETAIN THIS DOCUMENT FOR USE ON RE-INSPECTION.</b>					
<b>RETURN THE VEHICLE TO THE SAME STATION WITHIN THIRTY (30) DAYS FOR ONE (1) FREE RETEST.</b>					
This vehicle has failed the emissions inspection. <b>REPAIRS SHOULD BE MADE TO EITHER PASS RE-INSPECTION OR QUALIFY FOR A WAIVER.</b> All emissions related repairs performed must be documented by the inspection station. <u>This inspection report, Emissions Related Repair Data form and copies of the repair receipts must be made available to the inspection station at the time of re-inspection.</u> Vehicles that fail the emissions inspection may be eligible for warranty coverage for the required repairs. Check with your service providers on your vehicle's Emissions Warranty.					
In order for a vehicle to receive a 'WAIVER', the following requirements must be met. <ol style="list-style-type: none"> <li>1. <b>REPAIR WORK MUST BE APPROVED BY A CERTIFIED REPAIR TECHNICIAN OR OTHER COMMONWEALTH APPROVED INSPECTOR.</b></li> <li>2. Emissions related repair expenditures must have been at least \$XXX.XX.</li> <li>3. Copies of the repair receipts for emissions related repairs must be provided to the inspection station.</li> <li>4. Repairs were performed no earlier than 60 days prior to the initial inspection.</li> <li>5. Repairs must be appropriate and related to the cause of failure.</li> </ol>					
Vehicle tested in accordance with Pa. Code Title 67, Chapter 177					
<b>EMISSIONS INSPECTION STATION</b>					
STATION #:	123456	INSPECTOR NAME:	JOHN T. SMITH		
STATION NAME:	I/M Quality Inspection	SOFTWARE VERSION:	0211		
ADDRESS:	13901 CROWN COURT, ANYTOWN 12345	FIRMWARE VERSION:	AB11001-01		
PHONE:	215-123-4567	EQUIPMENT #:	XX123456		
VEHICLE EMISSIONS INSPECTION QUESTIONS: For additional information, please contact the Customer Hotline at (800) 265-0921.			Inspector's Signature: _____		

## Pennsylvania Analytical System (PAS) – OBD (Stand Alone) Display and Program Requirements

### Exhibit C3 –Page 2

### Possible Causes For Emissions Test Failures

Since your vehicle did not pass the emissions inspection, it is producing more pollution than was intended for your car or truck's model year. Your vehicle's On-Board Diagnostic (OBD) system registered the fault(s) listed on the previous page. This fault(s) is probably an indication of a malfunction of an emission component. However, multiple and/or seemingly unrelated faults may be an indication of an emission-related problem that occurred previously but upon further evaluation by the OBD system was determined to be only temporary. Therefore, proper diagnosis by a qualified technician is required to positively determine the source of any emission-related problem.

You have been given a copy of the Motor Vehicle Emissions Inspection Report (VIR) indicating which item(s) your vehicle failed, and an Emissions Related Repair Data Form, which will be completed by the repair technician describing which items were repaired. These reports will help your repair technician in recommending possible repairs. The list below provides information on what malfunctions may have caused your vehicle to fail. In order to qualify for an emissions inspection waiver, repairs may be performed at a recognized repair facility by a recognized repair technician. Cost of repairs and labor by a recognized repair technician may be applied toward a waiver. Repairs performed by any other person may only include repair part costs; cost of labor cannot be applied toward a waiver.

The Emissions Related Repair Data form, along with the Motor Vehicle Emissions Inspection Report (VIR), should be presented to the repair facility. The repair invoice(s) or work order(s) must then accompany the Emissions Related Repair Data form and the VIR upon return to the emissions inspection station for a retest. ONLY ITEMS ACTUALLY SERVICED OR REPLACED, AND THE ASSOCIATED DIAGNOSIS AND LABOR CHARGES, MAY BE USED AS EMISSIONS RELATED REPAIR COSTS AND APPLIED TOWARDS AN EMISSIONS INSPECTION WAIVER.

**Note: Some malfunctioning equipment may cause more than one type of failure.**

SPARK PLUGS/WIRES	OTHER INDUCTION SYSTEM	OXYGEN (O2) SENSOR(S)
OTHER IGNITION	AIR FILTER	MAP SENSOR
TIMING/SPARK ADVANCE	OIL CHANGE	MASS AIR FLOW SENSOR
AIR/FUEL MIX ADJUSTMENT	THERMOSTATIC AIR CLEANER	COOLANT TEMP SENSOR
IDLE SPEED ADJUSTMENT	PCV SYSTEM	THROTTLE POSITION SENSOR
CHOKE SYSTEM	AIR INJECTION/REACTION SYSTEM	OTHER SENSORS/SWITCHES
OTHER CARBURETOR REPAIR	EGR SYSTEM	COMPUTER/PROM
VACUUM LEAKS	FUEL EVAPORATIVE SYSTEM	INTERNAL ENGINE REPAIR
FUEL INJECTION SYSTEM	CATALYTIC CONVERTER(S)	OTHER REPAIRS/UNKNOWN

## Pennsylvania Analytical System (PAS) – OBD (Stand Alone) Display and Program Requirements

### 5.22 Exhibit C4 – Vehicle Inspection Report (Problem Vehicle – Pass – No OBD Communications)

COMMONWEALTH OF PENNSYLVANIA VEHICLE EMISSIONS INSPECTION REPORT Test Date/Time: 06/22/2016 @ 08:50		BAR CODE HERE VIN TITLE	
<b>VEHICLE INFORMATION</b>			
Year:	1998	Make:	XXXXXXXXXX
VIN:	A1234567890B12345	Engine Size:	5.0L
Odometer:	100000	GVWR:	6500
License:	XXX1234	Inspection Type:	INITIAL
County:	Philadelphia	Model:	XXXXXXXXXX
		Cylinders:	8
		Estimated Test	
		Weight:	4500
		Record Number:	123456
<b>EMISSIONS CONTROL SYSTEMS VISUAL/FUNCTIONAL INSPECTION</b>			
Air In. System:	NA	Catalytic Converter:	NA
EGR System:	NA	Fuel Cap Integrity:	PASS
PCV System:	NA	Evaporative Control System:	NA
		Fuel Inlet Restrictor:	NA
<b>OBD EMISSIONS INSPECTION</b>			
MIL BULB KOEO:	PASS	OBD FAULT CODE RESULT:	NA
MIL BULB KOER:	PASS	OBD READINESS RESULT:	NA
MIL COMMAND STATUS:	NA	OBD I/M CHECK RESULT:	PASS
<b>OVERALL TEST RESULTS: PASSED</b>			
Emissions Control Systems Visual/Functional Inspection: <b>PASS</b>			
OBD Emissions Inspection: <b>PASS</b>			
Sticker: <b>AA12345678</b>			
TIN: <b>123456789012</b>			
<b>RETAIN THIS DOCUMENT FOR YOUR RECORDS.</b>			
Vehicle tested in accordance with Pa. Code Title 67, Chapter 177			
<b>EMISSIONS INSPECTION STATION</b>			
STATION #:	123456	INSPECTOR NAME:	JOHN T. SMITH
STATION NAME:	I/M Quality Inspection	SOFTWARE VERSION:	0211
ADDRESS:	13901 CROWN COURT, ANYTOWN 12345	FIRMWARE VERSION:	AB11001-01
PHONE:	215-123-4567	EQUIPMENT #:	XX123456
VEHICLE EMISSIONS INSPECTION QUESTIONS: For additional information, please contact the Customer Hotline at (800) 265-0921.		Inspector's Signature: _____	

## Pennsylvania Analytical System (PAS) – OBD (Stand Alone) Display and Program Requirements

### 5.23 Exhibit D – Vehicle Inspection Report (Aborted/Incomplete Inspection)

COMMONWEALTH OF PENNSYLVANIA VEHICLE EMISSIONS INSPECTION REPORT Test Date/Time: 06/22/2016 @ 08:50		BAR CODE HERE VIN TITLE	
<b>VEHICLE INFORMATION</b>			
Year:	1998	Make:	XXXXXXXXXX
VIN:	A1234567890B12345	Engine Size:	5.0L
Odometer:	100000	GVWR:	6500
License:	XXX1234	Inspection Type:	INITIAL
County:	Philadelphia	Weight:	4500
		Record Number:	123456
<b>EMISSIONS CONTROL SYSTEMS VISUAL/FUNCTIONAL INSPECTION</b>			
Air In. System:	<b>INVALID</b>	Catalytic Converter:	<b>INVALID</b>
EGR System:	<b>INVALID</b>	Evaporative Control System:	<b>INVALID</b>
PCV System:	<b>INVALID</b>	Fuel Inlet Restrictor:	<b>INVALID</b>
<b>OBD EMISSIONS INSPECTION</b>			
MIL BULB KOEO:	<b>INVALID</b>	OBD FAULT CODE RESULT:	<b>INVALID</b>
MIL BULB KOER:	<b>INVALID</b>	OBD READINESS RESULT:	<b>INVALID</b>
MIL COMMAND STATUS:	<b>INVALID</b>	OBD I/M CHECK RESULT:	<b>INVALID</b>
<b>OVERALL TEST RESULTS: INCOMPLETE INSPECTION</b>			
Emissions Control Systems Visual/Functional Inspection: <b>INVALID</b>			
OBD Emissions Inspection: <b>INVALID</b>			
TIN: <b>INVALID</b>			
<b>THIS INSPECTION WAS ABORTED BY THE INSPECTOR</b>			
<b>EMISSIONS INSPECTION STATION</b>			
STATION #:	123456	INSPECTOR NAME:	JOHN T. SMITH
STATION NAME:	I/M Quality Inspection	SOFTWARE VERSION:	0211
ADDRESS:	13901 CROWN COURT, ANYTOWN 12345	FIRMWARE VERSION:	AB11001-01
PHONE:	215-123-4567	EQUIPMENT #:	XX123456
VEHICLE EMISSIONS INSPECTION QUESTIONS: For additional information, please contact the Customer Hotline at (800) 265-0921.		Inspector's Signature: _____	

## Pennsylvania Analytical System (PAS) – OBD (Stand Alone) Display and Program Requirements

### 5.24 Exhibit E – Vehicle Inspection Report (Failed – Visual Only)

COMMONWEALTH OF PENNSYLVANIA VEHICLE EMISSIONS INSPECTION REPORT Test Date/Time: 06/22/2016 @ 08:50				BAR CODE HERE VIN TITLE	
<b>VEHICLE INFORMATION</b>					
Year:	1998	Make:	XXXXXXXXXX	Model:	XXXXXXXXXXXX
VIN:	A1234567890B12345	Engine Size:	5.0L	Cylinders:	8
Odometer:	100000	GVWR:	6500	Estimated Test	
License:	XXX1234	Inspection Type:	INITIAL	Weight:	4500
County:	Philadelphia			Record Number:	123456
<b>EMISSIONS CONTROL SYSTEMS VISUAL/FUNCTIONAL INSPECTION</b>					
Air In. System:	<b>PASS</b>	Catalytic Converter:	<b>PASS</b>	Fuel Cap Integrity:	<b>PASS</b>
EGR System:	<b>PASS</b>	Evaporative Control System:	<b>PASS</b>		
PCV System:	<b>PASS</b>	Fuel Inlet Restrictor:	<b>FAILED</b>		
<b>OBD EMISSIONS INSPECTION</b>					
MIL BULB KOEO:	<b>NA</b>	OBD FAULT CODE RESULT:	<b>NA</b>		
MIL BULB KOER:	<b>NA</b>	OBD READINESS RESULT:	<b>NA</b>		
MIL COMMAND STATUS:	<b>NA</b>	OBD I/M CHECK RESULT:	<b>NA</b>		
<b>OVERALL TEST RESULTS: FAILED</b>					
Emissions Control Systems Visual/Functional Inspection: <b>FAILED</b>					
OBD Emissions Inspection: <b>NA</b>					
TIN:					
<b>RETAIN THIS DOCUMENT FOR USE ON RE-INSPECTION.</b>					
<b>RETURN THE VEHICLE TO THE SAME STATION WITHIN THIRTY (30) DAYS FOR ONE (1) FREE RETEST.</b>					
This vehicle has failed the emissions inspection. <b>REPAIRS SHOULD BE MADE TO PASS RE-INSPECTION.</b> All emissions related repairs performed must be documented by the inspection station. <u>This inspection report and copies of the repair receipts must be made available to the inspection station at the time of re-inspection.</u>					
<b>THIS VEHICLE IS NOT ELIGIBLE FOR A WAIVER.</b>					
Vehicles that fail the emissions inspection may be eligible for warranty coverage for the required repairs. Check with your service providers on your vehicle's Emissions Warranty.					
Vehicle tested in accordance with Pa. Code Title 67, Chapter 177					
<b>EMISSIONS INSPECTION STATION</b>					
STATION #:	123456	INSPECTOR NAME:	JOHN T. SMITH		
STATION NAME:	I/M Quality Inspection	SOFTWARE VERSION:	0211		
ADDRESS:	13901 CROWN COURT, ANYTOWN 12345	FIRMWARE VERSION:	AB11001-01		
PHONE:	215-123-4567	EQUIPMENT #:	XX123456		
VEHICLE EMISSIONS INSPECTION QUESTIONS: For additional information, please contact the Customer Hotline at (800) 265-0921.			Inspector's Signature: _____		

**Pennsylvania Analytical System (PAS) – OBD (Stand Alone) Display and Program Requirements****Exhibit E –Page 2****Possible Causes For Emissions Test Failures**

Since your vehicle did not pass the emissions inspection, it is producing more pollution than was intended for your car or truck's model year. You have been given a copy of the Motor Vehicle Emissions Inspection Report (VIR) indicating which item(s) your vehicle failed, and an Emissions Related Repair Data Form, which will be completed by the repair technician describing which items were repaired. These reports will help your repair technician in recommending possible repairs. The list below provides information on what malfunctions may have caused your vehicle to fail.

The Emissions Related Repair Data form, along with the Motor Vehicle Emissions Inspection Report (VIR), should be presented to the repair facility. The repair invoice(s) or work order(s) must then accompany the Emissions Related Repair Data form and the VIR upon return to the emissions inspection station for a retest.

**Note: Some malfunctioning equipment may cause more than one type of failure.**

EGR SYSTEM

CATALYTIC CONVERTER

AIR INJECTION SYSTEM

PCV SYSTEM

EVAPORATIVE CONTROL SYSTEM

FUEL INLET RESTRICTOR

FUEL CAP



## Pennsylvania Analytical System (PAS) – OBD (Stand Alone) Display and Program Requirements

### 5.25 Exhibit F – Vehicle Inspection Report (Passed – Visual Only)

COMMONWEALTH OF PENNSYLVANIA VEHICLE EMISSIONS INSPECTION REPORT Test Date/Time: 06/22/2016 @ 08:50		BAR CODE HERE VIN TITLE	
<b>VEHICLE INFORMATION</b>			
Year:	1998	Make:	XXXXXXXXXX
VIN:	A1234567890B12345	Engine Size:	5.0L
Odometer:	100000	GVWR:	6500
License:	XXX1234	Inspection Type:	INITIAL
County:	Philadelphia	Weight:	4500
		Record Number:	123456
<b>EMISSIONS CONTROL SYSTEMS VISUAL/FUNCTIONAL INSPECTION</b>			
Air In. System:	<b>PASS</b>	Catalytic Converter:	<b>PASS</b>
EGR System:	<b>PASS</b>	Evaporative Control System:	<b>PASS</b>
PCV System:	<b>PASS</b>	Fuel Inlet Restrictor:	<b>PASS</b>
<b>OBD EMISSIONS INSPECTION</b>			
MIL BULB KOEO:	<b>NA</b>	OBD FAULT CODE RESULT:	<b>NA</b>
MIL BULB KOER:	<b>NA</b>	OBD READINESS RESULT:	<b>NA</b>
MIL COMMAND STATUS:	<b>NA</b>	OBD I/M CHECK RESULT:	<b>NA</b>
<b>OVERALL TEST RESULTS: PASSED</b>			
Emissions Control Systems Visual/Functional Inspection: <b>PASS</b>			
OBD Emissions Inspection: <b>NA</b>			
Sticker: <b>AA12345678</b>			
TIN: <b>123456789012</b>			
<b>RETAIN THIS DOCUMENT FOR YOUR RECORDS.</b>			
Vehicle tested in accordance with Pa. Code Title 67, Chapter 177			
<b>EMISSIONS INSPECTION STATION</b>			
STATION #:	123456	INSPECTOR NAME:	JOHN T. SMITH
STATION NAME:	I/M Quality Inspection	SOFTWARE VERSION:	0211
ADDRESS:	13901 CROWN COURT, ANYTOWN 12345	FIRMWARE VERSION:	AB11001-01
PHONE:	215-123-4567	EQUIPMENT #:	XX123456
VEHICLE EMISSIONS INSPECTION QUESTIONS: For additional information, please contact the Customer Hotline at (800) 265-0921.		Inspector's Signature: _____	

## Pennsylvania Analytical System (PAS) – OBD (Stand Alone) Display and Program Requirements

### 5.27 Exhibit G – Emissions Related Repair Data Form

#### Emissions Related Repair Data

BAR CODE HERE

VIN

TITLE

PLEASE READ THESE INSTRUCTIONS CAREFULLY:

In order to qualify for an emissions inspection waiver, repairs may be performed at a recognized repair facility by a recognized repair technician. Cost of repairs and labor by a recognized repair technician may be applied toward a waiver. Repairs performed by any other person may only include repair part costs; cost of labor cannot be applied toward a waiver. This form, along with the Motor Vehicle Emissions Inspection Report (VIR), should be presented to the repair facility of your choice. The repair invoice(s) or work order(s) must then accompany this form and your VIR upon return to the emissions inspection station for a retest. This form must be completed in its entirety by the repair technician. ONLY ITEMS ACTUALLY SERVICED OR REPLACED, AND THE ASSOCIATED DIAGNOSIS AND LABOR CHARGES, MAY BE USED AS EMISSIONS RELATED REPAIR COSTS AND APPLIED TOWARDS AN EMISSIONS INSPECTION WAIVER. A Certified Repair Technician or other Commonwealth approved inspector is required to inspect for and confirm all repairs.

Note to Repair Technician: It is important to complete this form accurately so that repairs may be properly credited and to accumulate repair data for program evaluation. Your signature below certifies that all repairs and recommendations were necessary and appropriate to the cause of the emissions inspection failure, and that you either performed or supervised the diagnosis & repair of the vehicle.

#### REPAIR FACILITY INFORMATION (PLEASE PRINT):

STATION ID (IF APPLICABLE)	
STATION NAME	
STATION ADDRESS	

#### EMISSIONS REPAIR INFORMATION: INDICATE ITEMS SERVICED (S) OR RECOMMENDED FOR SERVICE (R) OR DIAGNOSED FOR SERVICE (D)

Note: Some malfunctioning equipment may cause more than one type of failure.

CODE/DESCRIPTION		CODE/DESCRIPTION		CODE/DESCRIPTION	
01 SPARK PLUGS/WIRES		10 OTHER INDUCTION SYSTEM		19 OXYGEN (O2) SENSOR	
02 OTHER IGNITION		11 AIR FILTER		20 MAP SENSOR	
03 TIMING/SPARK ADVANCE		12 OIL CHANGE		21 MASS AIR FLOW SENSOR	
04 AIR/FUEL MIX ADJUSTMENT		13 THERMOSTATIC AIR CLEANER		22 COOLANT TEMP. SENSOR	
05 IDLE SPEED ADJUSTMENT		14 PCV SYSTEM		23 THROTTLE POSITION SENSOR	
06 CHOKE SYSTEM		15 AIR INJECTION/REACTION SYS.		24 OTHER SENSORS/SWITCHES	
07 OTHER CARBURETOR REPAIR		16 EGR SYSTEM		25 COMPUTER/PROM	
08 VACUUM LEAKS		17 FUEL EVAPORATIVE SYSTEM		26 INTERNAL ENGINE REPAIR	
09 FUEL INJECTION SYSTEM		18 CATALYTIC CONVERTER(S)		27 OTHER REPAIRS/UNKNOWN	

VEHICLE IDENTIFICATION #	EMISSIONS REPAIRS PARTS COSTS
VEHICLE YEAR	EMISSIONS REPAIRS LABOR COSTS
VEHICLE MAKE/MODEL	TOTAL EMISSIONS RELATED REPAIR COSTS (Include Sales Tax*)
WORK ORDER #	DATE OF REPAIRS
TECHNICIAN'S NAME	
TECHNICIAN'S SIGNATURE	DATE

\*Sales tax should be calculated to include emissions related parts only. Do NOT include any charges for shop fees, environmental fees, disposal fees, or any other similar charge that is not separately itemized as emissions related. Electronic diagnostic charges may be included.

**Pennsylvania Analytical System (PAS) – OBD (Stand Alone) Display and Program Requirements****5.28 Exhibit H – Sticker Issuance Report****STICKER ISSUANCE REPORT**

BAR CODE HERE

VIN

TITLE

**Date:** MM/DD/YYYY**Model Year:** YYYY**Make:** XXXXXXXXXXXXX**Model:** XXXXXXXXXXXXXXXX**VIN:** A1234567890123456**Plate:** XXX1234**Title:** 1234567890**Odometer Reading:** 000000**Sticker Number:** IM12345678**Sticker Expiration:** MM/YYYY**Reason Sticker was Issued:****Previous Sticker Number:** (If appropriate)**Waiver Approval Number:** (If appropriate)**STATION #:** 123456**STATION NAME:** I/M Quality Inspection**ADDRESS:** 13902 Crown Court, Anytown 12345**PHONE:** 215-123-4567**INSPECTOR NAME:** JOHN T. SMITH**EQUIPMENT #:** XX123456**SOFTWARE VERSION:** 1601**FIRMWARE VERSION:** AB11001-01**Inspector Signature:** \_\_\_\_\_

---



---

**Pennsylvania Analytical System (PAS) – OBD (Stand Alone) Display and Program Requirements**


---



---

## 5.29 Exhibit I – Station Used Sticker Report

### STATION USED STICKER REPORT

Report Date: **MM/DD/YYYY**  
 Station #: **123456**  
 Station Name: **I/M Quality Inspection**  
 Address: **13901 CROWN COURT, ANYTOWN 12345**  
 Phone: **(215) 123-4567**  
 Equipment ID#: **XX123456**

This report covers the dates from MM/DD/YYYY to MM/DD/YYYY, a period of XXX days.

Sticker No	Date Issued	Reason	VIN	Plate	Title
IM00123456	07/01/05	Emission	12345678901234567	456EOMD	1234567890
IM00123457	07/01/05	Emission	12345678901234567	456EOMD	1234567890
IM00123458	07/02/05	Emission	12345678901234567	456EOMD	1234567890
IM00123459	07/04/05	Replacement	12345678901234567	456EOMD	1234567890
IM00123460	07/04/05	5000 Exempt	12345678901234567	456EOMD	1234567890
IM00123461	07/05/05	Waiver	12345678901234567	456EOMD	1234567890
IM00123462	07/08/05	Waiver	12345678901234567	456EOMD	1234567890
IM00123463	07/10/05	New Car Exempt	12345678901234567	456EOMD	1234567890
IM00123464	07/15/05	Emission	12345678901234567	456EOMD	1234567890
IM00123465	07/15/05	Emission	12345678901234567	456EOMD	1234567890
IM00123466	07/30/05	Emission	12345678901234567	456EOMD	1234567890
IM00123467	08/01/05	Emission	12345678901234567	456EOMD	1234567890

**Pennsylvania Analytical System (PAS) – OBD (Stand Alone) Display and Program Requirements**

---

---

**5.30 Exhibit J – Station and Inspector Information Report****STATION and INSPECTOR INFORMATION****Report Date: MM/DD/YYYY**

Station #: **123456**  
Station Name: **I/M Quality Inspection**  
Address: **13901 CROWN COURT, ANYTOWN 12345**  
Phone: **(215) 123-4567**  
Equipment ID#: **XX123456**

<b>Name</b>	<b>Emissions Certification</b>	<b>Expiration</b>
John Smith	EI	09/04/2016
Kamish Heminey	CO	01/23/2017

This report must be posted in a place in the station where the public can easily view it.

VEHICLE INSPECTION QUESTIONS: If the station cannot answer your questions, please contact the Department of Transportation, Vehicle Inspection Division at (717) 783-5842 or the Customer Hotline at (800) 265-0921.

**Pennsylvania Analytical System (PAS) – OBD (Stand Alone) Display and Program Requirements****5.31 Exhibit K – Rejection from Inspection Form****Rejection from Inspection Form**

<b>VIN:</b>	A1234567890B12345	<b>Make:</b>	XXXXXXXXXX	<b>Station ID:</b>	123456
<b>License:</b>	XXX1234	<b>Model:</b>	XXXXXXXXXXXX	<b>Station Name:</b>	I/M Quality Inspection
<b>County:</b>	Philadelphia	<b>Year:</b>	YYYY	<b>Station Phone:</b>	215-123-4567
<b>Date:</b>	MM/DD/YYYY			<b>Inspector Name:</b>	John Smith

Your vehicle has been rejected for inspection for the following reason(s):



	<b>1. This 1995 or older vehicle is registered in a county that requires either an ASM test or Two Speed Idle test.</b>  Please take the vehicle to a station that can conduct the required test.
	<b>2. Other (explain below)</b>

**Comments:**

---

---

---

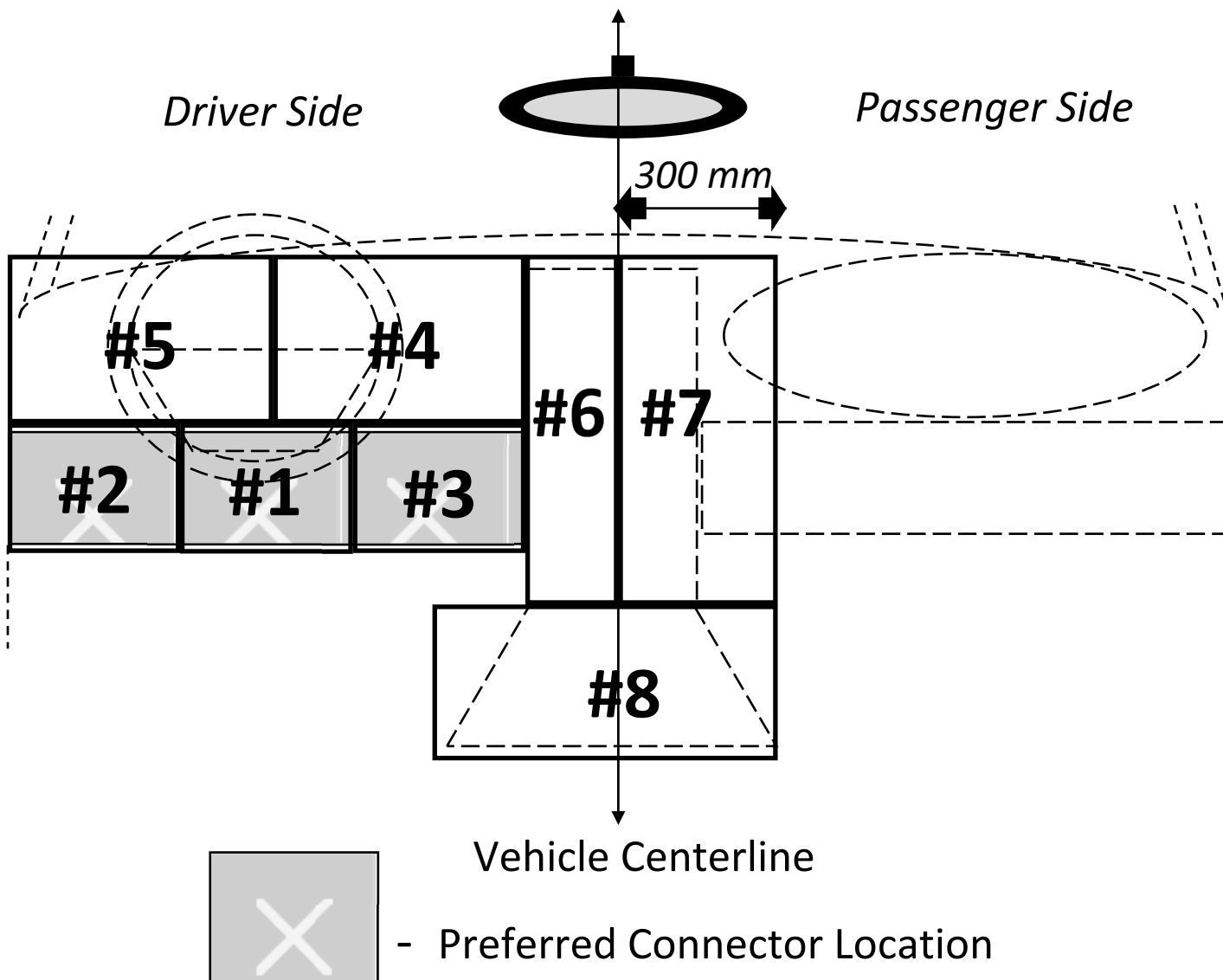
---

**Signed:**

---

## 6.0 Section Six – Appendices

### 6.1 Appendix A – OBD Location Mapping



#### Diagnostic Link Connector (DLC) Mapping Diagram Explanation

The mapping diagram of DLC locations contains a divided instrument panel (IP) with numbered areas. Each numbered area represents specific sections of the IP where manufacturers may have located DLCs. This document briefly clarifies the numbered locations on the mapping diagram. We will use this mapping diagram to catalog manufacturer responses to the recent 208 letter requesting OBD DLC locations for 96MY and future vehicles. Areas 1-3 fall within the preferred DLC location while the remaining areas, 4-8, fall into the allowable DLC location according to EPA requirements. Areas 4-8 require that manufacturers label the vehicle in the preferred location to notify parties of the alternate connector location.

## Pennsylvania Analytical System (PAS) – OBD (Stand Alone) Display and Program Requirements

---

---

### Preferred Location(s)

**Location #1:** This location represents a DLC on the underside of the Instrument Panel (IP) directly under the steering column (or approximately 150mm left or right of the steering column). Visualizing the underside of an IP divided into three equal parts from inside the passenger compartment on the driver's side, this represents the center section.

**Location #2:** This location represents a DLC positioned on the underside of the IP between the steering column and the driver side passenger door. Visualizing the underside of an IP divided into three equal parts from inside the passenger compartment on the driver's side, this represents the left section.

**Location #3:** This location represents a DLC positioned on the underside of the IP between the steering column and the center console. Visualizing the underside of an IP divided into three equal parts from inside the passenger compartment on the driver side, this represents the right section.

### Allowable Location(s)

**Location #4:** This location represents a DLC positioned on the upper part of the IP between the steering column and the center console (but not on the center console see #6).

**Location #5:** This location represents a DLC positioned on the upper part of the IP between the steering column and the driver side passenger door.

**Location #6:** This location represents a DLC positioned on the vertical section of the center console and left of the vehicle centerline.

**Location #7:** This location represents a DLC positioned on the vertical section of the center console and up to 300mm to the right of the vehicle centerline or on the passenger side of the vehicle.

**Location #8:** This location represents a DLC positioned on the horizontal section of the center console either left or right of the vehicle centerline. This does not include the horizontal section of the center console that extends into the rear passenger area (see location #9).

**Location #9:** This location, not shown, represents any DLC positioned in a location other than those mentioned above (e.g., in the rear passenger area on the driver side arm rest).



## **6.2 Appendix B – OBD II Diagnostic Trouble Codes**

Typical OBD codes, as defined by SAE J2012

- (1) Any PX1XX Fuel and Air Metering codes.
- (2) Any PX2XX Fuel and Air Metering codes.
- (3) Any PX3XX Ignition System or Misfire codes.
- (4) Any PX4XX Auxiliary Emissions Controls codes.
- (5) P0500 Vehicle Speed Sensor Malfunction.
- (6) P0501 Vehicle Speed Sensor Range/Malfunction.
- (7) P0502 Vehicle Speed Sensor Circuit Low Input.
- (8) P0503 Vehicle Speed Sensor Intermittent/Erratic/High.
- (9) P0505 Idle Control System Malfunction.
- (10) P0506 Idle Control System RPM Lower Than Expected.
- (11) P0507 Idle Control System RPM Higher Than Expected.
- (12) P0510 Closed Throttle Position Switch Malfunction.
- (13) P0550 Power Steering Pressure Sensor Circuit Malfunction.
- (14) P0551 Power Steering Pressure Sensor Circuit Malfunction.
- (15) P0552 Power Steering Pressure Sensor Circuit Low Input.
- (16) P0553 Power Steering Pressure Sensor Circuit Intermittent.
- (17) P0554 Power Steering Pressure Sensor Circuit Intermittent.
- (18) P0560 System Voltage Malfunction.
- (19) P0561 System Voltage Unstable.
- (20) P0562 System Voltage Low.
- (21) P0563 System Voltage High.
- (22) Any PX6XX Computer and Output Circuits codes.
- (23) P0703 Brake Switch Input Malfunction.
- (24) P0705 Transmission Range Sensor Circuit Malfunction (PRNDL Input).
- (25) P0706 Transmission Range Sensor Circuit. Range/Performance.
- (26) P0707 Transmission Range Sensor Circuit Low Input.
- (27) P0708 Transmission Range Sensor Circuit High Input.
- (28) P0709 Transmission Range Sensor Circuit Intermittent.
- (29) P0719 Torque Converter/Brake Switch ``B”“ Circuit Low.
- (30) P0720 Output Speed Sensor Circuit Malfunction.
- (31) P0721 Output Speed Sensor Circuit Range/Performance.
- (32) P0722 Output Speed Sensor Circuit No Signal.

## **Pennsylvania Analytical System (PAS) – OBD (Stand Alone) Display and Program Requirements**

---

---

- (33) P0723 Output Speed Sensor Circuit Intermittent.
- (34) P0724 Torque Converter/Brake Switch ``B” Circuit High.
- (35) P0725 Engine Speed Input Circuit Malfunction.
- (36) P0726 Engine Speed Input Circuit Range/Performance.
- (37) P0727 Engine Speed Input Circuit No Signal.
- (38) P0728 Engine Speed Input Circuit Intermittent.
- (39) P0740 Torque Converter Clutch System Malfunction.
- (40) P0741 Torque Converter System Performance or Stuck Off.
- (41) P0742 Torque Converter Clutch System Stuck On.
- (42) P0743 Torque Converter Clutch System Electrical.
- (43) P0744 Torque Converter Clutch Circuit Intermittent.

The list of codes will be updated with future revisions of this specifications, in conjunction with changes to 40 CFR 86.094-17(h) (3)

## Pennsylvania Analytical System (PAS) – OBD (Stand Alone) Display and Program Requirements

### 6.3 Appendix C – File Structure & Information

**NOTE:** Unless otherwise noted, all data types classified as 'N' (Numeric) will be Right Justified with leading zero's and all data types classified as 'AN' (Alpha-Numeric) will be Left-Justified with trailing spaces.

**AUDIT.DAT**

Field #	Description	Offset	Length	Data Type	Format
1	Station Number	0	8	AN	Left Justified with trailing spaces
2	Equipment Number	8	8	AN	Left Justified with trailing spaces
3	Representative ID Number	16	9	AN	Left Justified with trailing spaces
4	Audit Date	25	10	AN	MM/DD/YYYY
5	Audit Time	35	8	AN	HH:MM:SS
6	Accessed Function	43	1	AN	1= FSR Menu, 2=State Menu, 3=Tech Password Reset, 4=Station Authority Password Change
7	Spare	44	24		Blank
8	<CR><LF>	68	2		
	Total Length		70		

**CAL.DAT**

Field #	Description	Offset	Length	Data Type	Format
1	Equipment Number	0	8	AN	Left Justified with trailing spaces
2	Fuel Cap tester Serial Number	8	12	AN	Left Justified with trailing spaces
3	Station Number	20	8	AN	Left Justified with trailing spaces
4	Inspector number	28	9	AN	Left Justified with trailing spaces
5	Calibration Date	37	10	AN	MM/DD/YYYY
6	OBD Software Version	47	4	N	Right justified, leading zeros
7	OBD Firmware Version	51	16	AN	Left justified, trailing spaces
8	OBD Interface Hardware Check	67	1	A	P=Pass, F=Fail
9	OBD Interface Cable Check	68	1	A	P=Pass, F=Fail
10	Pin 16 Voltage	69	1	A	P=Pass, F=Fail
11	SAE J1850 VPW	70	1	A	P=Pass, F=Fail
12	SAE J1850 PWM	71	1	A	P=Pass, F=Fail
13	ISO 9141-2	72	1	A	P=Pass, F=Fail

## Pennsylvania Analytical System (PAS) – OBD (Stand Alone) Display and Program Requirements

14	ISO 14230-4 (Keyword 2000)	73	1	A	P=Pass, F=Fail
15	ISO 15765-4 CAN 500K (11 bit header)	74	1	A	P=Pass, F=Fail
16	ISO 15765-4 CAN 500K (29 bit header)	75	1	A	P=Pass, F=Fail
17	ISO 15765-4 CAN 250K (11 bit header)	76	1	A	P=Pass, F=Fail
18	ISO 15765-4 CAN 250K (19 bit header)	77	1	A	P=Pass, F=Fail
19	OBD Interface Self Check Overall Result	78	1	A	P=Pass, F=Fail, determined by values in fields 8 through 18. If any of those fields are F, the Overall Result is F.
20	Spare	79	20		Blank
21	Fuel Cap Calibration	99	1	A	P=Pass or F=Fail
22	Calibration Start Time	100	8	A	HH:MM:SS
23	Calibration End Time	108	8	A	HH:MM:SS
24	Overall Calibration Result	116	1	A	P=Pass or F=Fail
25	Spare	117	27		Blank
26	<CR><LF>	144	2		
	Total Length		146		

### COUNTY.DAT

Field #	Description	Offset	Length	Data Type	Format
1	County ID	0	2	N	99 - Right Justified leading zeros
2	County Name	2	25	A	
3	Emissions Test Required	27	1	A	A = ASM or OBD, T = TSI or OBD, O = OBD or VISUAL, V = VISUAL only
4	<CR><LF>	28	2		
	Total Length		30		

### EIS.DAT

Field #	Description	Offset	Length	Data Type	Format
1	Test Record Number	0	6	N	999999 - Right Justified leading zeros
2	Station License Number	6	8	AN	Left Justified with trailing spaces
3	Equipment Number	14	8	AN	Left Justified with trailing spaces
4	Inspector License Number	22	9	AN	Left Justified with trailing spaces
5	Inspector License Input Source	31	1	A	B = bar code, M = manual, blank = default

## Pennsylvania Analytical System (PAS) – OBD (Stand Alone) Display and Program Requirements

6	VIN	32	22	AN	Left Justified with trailing spaces
7	VIN Input Source	54	1	A	B = bar code, M = manual, blank = default
8	Title Number	55	10	AN	Scanned or manual entry - Left Justified with trailing spaces
9	License Plate Number	65	7	AN	Left Justified with trailing spaces
10	Plate Type	72	6	AN	Left Justified with trailing spaces
11	Plate Input Source	78	1	A	B = bar code, M = manual, blank = default
12	Vehicle Standards Type	79	1	A	P = passenger, T = truck,
13	Vehicle Body Type	80	1	N	1 = SEDAN, 2 = STATION WAGON, 3 = PICKUP, 4 = SPORT/UTILITY VEHICLE, 5 = MINIVAN, 6 = FULL-SIZE VAN
14	Spare	81	12	N	Not used in PA defaulted to spaces
15	Registration County ID	93	2	N	From County table - Right Justified leading zeros
16	Spare	95	22	AN	Not used in PA defaulted to space
17	Empty Weight	117	5	N	99999 not used in PA defaulted to zeros
18	Pervious Test Date	122	10	AN	MM/DD/YYYY
19	Previous Test Routine	132	1	A	I = initial, R = after repairs
20	Previous Visual Insp. Result	133	1	A	P = Pass, F = Fail
21	Previous Fuel Cap Result	134	1	A	P = Pass, F = Fail
22	Spare	135	1	AN	Not used in PA defaulted to space
23	Previous Emissions Result	136	1	A	P = Pass, F = Fail, N = NA
24	Previous Overall Test Result	137	1	A	P = Pass, F = Fail, N= Not ready for testing
25	Previous Inspection Station Number	138	8	AN	Left Justified with trailing spaces
26	Previous DLC Test Result	146	1	A	P = Pass, C = Connector, D = Damaged/Tampered, I = Inaccessible/Obstructed, N = No Signal, R = No RPM signal
27	Test Type	147	1	A	I = initial, R = after repairs
28	Paid Test	148	1	A	Y = Yes, N = No
29	Test Date	149	10	AN	MM/DD/YYYY
30	Test Start Time (24 hour time)	159	8	TIME	HH:MM:SS
31	Test End Time (24 hour time)	167	8	TIME	HH:MM:SS
32	TIN Number	175	12	AN	Calculated for passing inspections, default = blank
33	Software Version	187	4	N	9999 - Right Justified leading zeros
34	GVWR	191	5	N	99999 - Right Justified leading zeros
35	Vehicle Test Lbs - ASM - ETW	196	4	N	9999 - Right Justified leading zeros
36	Test Lbs Source	200	1	AN	Not used in PA defaulted to space
37	Vehicle Model Year	201	4	N	9999 in YYYY format
38	Make	205	17	AN	Left Justified with trailing spaces
39	Model	222	23	AN	Left Justified with trailing spaces
40	Engine Make	245	17	AN	Left Justified with trailing spaces
41	Engine Year	262	4	N	9999 in YYYY format
42	Number of Cylinders	266	2	AN	1 – 16, R=Rotary, Left Justified with trailing spaces
43	Engine Size (cc)	268	4	N	9999 - Right Justified leading zeros

## Pennsylvania Analytical System (PAS) – OBD (Stand Alone) Display and Program Requirements

44	Transmission Type	272	1	A	M=Manual, A=Automatic
45	Dual Exhaust	273	1	A	Default = N, Y=Yes, N=No
46	Odometer Reading	274	7	N	9999999 - Right Justified leading zeros
47	Mileage Exemption Code	281	1	N	0 = default, 1 = Mileage Exemption, 2 = New Vehicle Exemption
48	Fuel Type	282	1	A	G=GASOLINE B=BI-FUELED (alternate fuel and gasoline) P=LIQUID PROPANE GAS (LPG) N=LIQUID/COMPRESSED NATURAL GAS (LNG/CNG) M=METHANOL (greater than 20%) E=ETHANOL (greater than 20%) A=BI-FUELED (alternate fuel only) D=DIESEL L=ELECTRIC
49	Fuel Code	283	4	AN	Not used in PA defaulted to space
50	Test Routine Performed	287	1	A	A=ASM, T = TSI, O=OBD, V=Visual
51	VRT Record ID Number	288	8	N	99999999 - Right Justified leading zeros
52	Problem Vehicle Status	296	1	AN	Populated with Problem Vehicle value in VRT for VRT Record ID Number. If no VRT match, default is N.
53	System Flag Status	297	1	AN	Populated with System Usage Flag value in SYSTEM.DAT at time of test.
54	Emissions Standards Category	298	5	N	99999 - Right Justified leading zeros
55	AWD or 4WD Vehicle	303	1	A	Y = Yes, blank is default
56	Record Inspection Disposition	304	1	A	R if Referee Test, default is blank
57	Fuel Cap Status	305	1	N	1=Cap Missing, 2=Not Accessible, 3=Cannot be Removed, 4=Does Not Fit , 5=Capless Filler System, 9=Testable fuel cap
58	Fuel Cap replaced prior to test	306	1	A	Y = Yes, N = No
59	Fuel Cap replaced during test	307	1	A	Y = Yes, N = No
60	Fuel Cap configuration	308	1	A	A,B,C,E,F,G,H,Z,U,N
61	Overall Fuel Cap Test Result	309	1	A	P = Pass, F = Fail, N = NA
62	Spare	310	5		Blank
63	OBD Interface Firmware Version	315	16	AN	Left justified, trailing spaces
64	MIL Bulb KOEO	331	1	A	P = Pass, F = Fail
65	MIL Bulb KOER	332	1	A	P = Pass, F = Fail
66	MIL Command Status	333	1	A	P = Pass, F = Fail
67	OBD Fault Code Result	334	1	A	P = Pass, F = Fail
68	DLC Test Result	335	1	A	P = Pass, C = Cannot Locate, D = Damaged/Tampered, I = Inaccessible/Obstructed, N = No Communications, R = No RPM signal
69	OBD Readiness Result	336	1	A	P = Pass, F = Fail
70	Readiness Code 1 (Misfire)	337	1	N	0 = Not Enabled, 1 = Ready, 2 = Not Ready
71	Readiness Code 2 (Fuel system)	338	1	N	0 = Not Enabled, 1 = Ready, 2 = Not Ready

## Pennsylvania Analytical System (PAS) – OBD (Stand Alone) Display and Program Requirements

72	Readiness Code 3 (Comprehensive component)	339	1	N	0 = Not Enabled, 1 = Ready, 2 = Not Ready
73	Readiness Code 4 (Catalyst)	340	1	N	0 = Not Enabled, 1 = Ready, 2 = Not Ready
74	Readiness Code 5 (Heated catalyst)	341	1	N	0 = Not Enabled, 1 = Ready, 2 = Not Ready
75	Readiness Code 6 (Evaporative system)	342	1	N	0 = Not Enabled, 1 = Ready, 2 = Not Ready
76	Readiness Code 7 (Secondary air system)	343	1	N	0 = Not Enabled, 1 = Ready, 2 = Not Ready
77	Readiness Code 8 (Air conditioning system)	344	1	N	0 = Not Enabled, 1 = Ready, 2 = Not Ready
78	Readiness Code 9 (Oxygen sensor)	345	1	N	0 = Not Enabled, 1 = Ready, 2 = Not Ready
79	Readiness Code 10 (Oxygen sensor heated)	346	1	N	0 = Not Enabled, 1 = Ready, 2 = Not Ready
80	Readiness Code 11 (EGR system)	347	1	N	0 = Not Enabled, 1 = Ready, 2 = Not Ready
81	Readiness Code 12 (future use)	348	1	N	0 = Not Enabled, 1 = Ready, 2 = Not Ready
82	Readiness Code 13 (future use)	349	1	N	0 = Not Enabled, 1 = Ready, 2 = Not Ready
83	Readiness not Set	350	2	N	99 value between 00 – 13 - Right Justified leading zeros
84	DTC Stored	352	2	N	99 - Right Justified leading zeros
85	DTC 1	354	5	AN	A9999 - numeric portion is right justified leading zeros
86	DTC 2	359	5	AN	A9999 - numeric portion is right justified leading zeros
87	DTC 3	364	5	AN	A9999 - numeric portion is right justified leading zeros
88	DTC 4	369	5	AN	A9999 - numeric portion is right justified leading zeros
89	DTC 5	374	5	AN	A9999 - numeric portion is right justified leading zeros
90	PCM ID (Module ID 1)	379	2	AN	Left Justified with trailing spaces
91	PID Count	381	3	N	999 - Right justified leading zeros. Sum of all individual PIDs supported.
92	OBD VIN	384	22	AN	The first 17 characters of non binary data - Left Justified with trailing spaces. Leading/trailing pad characters (\$00) must be removed.
93	Spare	406	5	AN	Not used in PA defaulted to space
94	Module ID 2	411	2	AN	Left Justified with trailing spaces
95	Module ID 3	413	2	AN	Left Justified with trailing spaces
96	OBD PID00	415	11	AN	Left Justified with trailing spaces
97	OBD PID20	426	11	AN	Left Justified with trailing spaces
98	OBD PID40	437	11	AN	Left Justified with trailing spaces
99	OBD Protocol Code	448	1	N	Default is blank
100	OBD CAL ID	449	16	AN	Left Justified with trailing spaces
101	OBD CVN	465	30	AN	Left justified with trailing spaces
102	MIL ON Distance	495	5	N	00000 – 40723 (m) - Right justified leading zeros
103	Warmup CNT DTC Cleared	500	3	N	000-255 - Right justified leading zeros
104	Distance Driven DTC Cleared	503	5	N	00000 – 40723 (m) - Right justified leading zeros

## Pennsylvania Analytical System (PAS) – OBD (Stand Alone) Display and Program Requirements

105	Time With MIL ON	508	5	N	00000 – 65535 (min) - Right justified leading zeros
106	Time DTC Cleared	513	5	N	00000 – 65535 (min) - Right justified leading zeros
107	MAF Reading	518	6	N	000.00 - 655.35(g/s) - Right justified leading zeros
108	Fuel Level Signal	524	3	N	000 – 100 (%) - Right justified leading zeros
109	Vehicle Speed Sensor Signal	527	3	N	000 - 158 (m/h) - Right justified leading zeros
110	Throttle Position Signal	530	3	N	000 – 100 (%) - Right justified leading zeros
111	KOER PIN 16 Voltage	533	5	N	00.00 - 99.99 (volts) - Right justified leading zeros
112	Engine Load KOER	538	3	N	000 – 100 (%) - Right justified leading zeros
113	OBD TYPE	541	2	AN	Left Justified with trailing spaces
114	RPM 1 KOER	543	4	N	9999 - Right justified leading zeros
115	RPM 2 DTC	547	4	N	9999 - Right justified leading zeros
116	RPM 3 Vehicle Info	551	4	N	9999 - Right justified leading zeros
117	Coolant Temp Vehicle Info	555	3	N	999 - Right justified leading zeros
118	VIN_OBDVIN Mismatch-Correct Vehicle?	558	1	AN	Y=Yes, N=No, Default is Null
119	OBDVIN_OBDVIN Match-Correct Vehicle?	559	1	AN	Y=Yes, N=No, Default is Null
120	Overall Emissions Result	560	1	A	P = Pass, F = Fail, N= NA
121	Spare	561	20	AN	Not used in PA defaulted to spaces
122	Air Injection System	581	1	A	P = Pass, F = Fail, N = NA
123	PCV System	582	1	A	P = Pass, F = Fail, N = NA
124	Spare	583	1	AN	Not used in PA defaulted to space
125	Catalyst	584	1	A	P = Pass, F = Fail, N = NA
126	EGR	585	1	A	P = Pass, F = Fail, N = NA
127	Fuel Inlet Restrictor	586	1	A	P = Pass, F = Fail, N = NA
128	Evaporative System Components	587	1	A	P = Pass, F = Fail, N = NA
129	Overall Visual Inspection Results	588	1	A	P = Pass, F = Fail required field
130	Spare	589	20	AN	Not used in PA defaulted to space
131	Overall Test Result	609	1	A	P = Pass, F = Fail, N= Not ready for testing
132	Manufacturer's Recall	610	1	A	Y=Yes, N=No
133	Manufacturer's Recall Date	611	10	AN	MM/DD/YYYY
134	RPM Bypass	621	1	A	Y=Yes, N=No
135	VID ID	622	11	AN	Data is VID assigned and returned in field 6 of VIN.REC. Left Justified with trailing spaces. Default is blank
136	Inspection Fee Charged	633	5	N	99.99 - Right Justified leading zeros
137	Sticker Number Issued	638	10	AN	AA99999999 - numeric portion is right justified leading zeros
138	Spare	648	20	AN	Not used in PA defaulted to space
139	<CR><LF>	668	2	AN	Carriage Control Line Feed characters
	Total Length		670		



## Pennsylvania Analytical System (PAS) – OBD (Stand Alone) Display and Program Requirements

### INCOMPLT.DAT

Field #	Description	Offset	Length	Data Type	Format
1	Station License Number	0	8	AN	Left Justified with trailing spaces
2	Equipment Number	8	8	AN	Left Justified with trailing spaces
3	Inspector License Number	16	9	AN	Left Justified with trailing spaces
4	Month	25	2	N	MM (01 - 12)
5	Year	27	4	N	YYYY
6	Test Started	31	3	N	999 - Right Justified leading zeros
7	Test Aborted	34	3	N	999- Right Justified leading zeros
8	Test Completed	37	3	N	999- Right Justified leading zeros
9	<CR><LF>	40	2		
	Total Length		42		
	One record each month for each inspector using the equipment. A new record is created at the start of an emissions inspection if no record is found for the inspector for the current month/year. Record is incremented each time an emissions inspection is started, aborted or completed.				

### LOCKOUT.DAT

Field #	Description	Offset	Length	Data Type	Format
1	QA/State PAS lockout	0	1	A	Y=Yes, N=No
2	QA/State ASM Lockout (not used on OBD equipment)	1	1	A	Y=Yes, N=No
3	Cabinet tampering (not used on OBD equipment)	2	1	A	Y=Yes, N=No
4	Data Backup Drive Missing/Corrupt	3	1	A	Y=Yes, N=No
5	State Safety Lockout (not used on OBD equipment)	4	1	A	Y=Yes, N=No
6	Station license has been suspended	5	1	A	Y=Yes, N=No
7	Station license has been revoked	6	1	A	Y=Yes, N=No
8	Station license has expired	7	1	A	Y=Yes, N=No
9	Spare	8	1	A	Y=Yes, N=No
10	Failure to pay for communications services	9	1	A	Y=Yes, N=No
11	Spare	10	1	A	Y=Yes, N=No

## Pennsylvania Analytical System (PAS) – OBD (Stand Alone) Display and Program Requirements

12	nnn (TBD) Emissions tests performed without communications within XXX day period	11	1	A	Y=Yes, N=No
13	VRT.DAT Corrupt	12	1	A	Y=Yes, N=No
14	ESC_ASM.DAT Corrupt (not used on OBD equipment)	13	1	A	Y=Yes, N=No
15	<CR><LF>	14	2	Control Chars.	
	TOTAL		16		

### REC\_LIST.DAT

Field #	Description	Offset	Length	Data Type	Format
1	Table name	0	8	A	VRT = Vehicle Reference Table
2	Record date	8	14	N	YYYYMMDDHHMMSS
3	Record count (i.e. number of records in table)	22	6	N	999999 - Right Justified leading zeros
	Total Length		28		

### REPAIR.DAT

Field #	Description	Offset	Length	Data Type	Format
1	Test Record Number	0	6	N	999999 - Right Justified leading zeros
2	Record Date	6	10	AN	MM/DD/YYYY
3	Record Time (24 hours)	16	8	AN	HH:MM:SS
4	Station License Number	24	8	AN	Left Justified with trailing spaces
5	Equipment Number	32	8	AN	Left Justified with trailing spaces
6	Inspector License Number	40	9	AN	Left Justified with trailing spaces
7	VIN	49	22	AN	Scanned or manual entry, Left Justified with trailing spaces
8	Title Number	71	10	AN	Scanned or manual entry, Left Justified with trailing spaces
9	License Plate Number	81	7	AN	Scanned or manual entry, Left Justified with trailing spaces
10	Repair Date	88	10	AN	MM/DD/YYYY
11	Repair Codes	98	27	A	Default = blank, each byte position represents a repair item and contains an S = Serviced or R = Recommended for Service or D = Diagnosed for Service
12	Repair this station	125	1	A	Y=Yes, N=No
13	Owner Repair	126	1	A	Y=Yes, N=No
14	Recommended Repairs not made	127	1	A	Y=Yes, N=No
15	Spare	128	24	AN	Not used in PA defaulted to spaces
16	Repair Technician License #	152	9	AN	Left Justified with trailing spaces
17	Repair Facility Number	161	5	AN	Left Justified with trailing spaces
18	Parts Cost	166	7	N	9999.99 - Right Justified leading zeros
19	Labor Cost	173	7	N	9999.99 - Right Justified leading zeros

## Pennsylvania Analytical System (PAS) – OBD (Stand Alone) Display and Program Requirements

20	Work Order Number	180	8	AN	Left Justified with trailing spaces
21	VID ID	188	11	AN	Data is VID assigned and returned in field 6 of VIN.REC. Left Justified with trailing spaces. Default is blank
22	<CR><LF>	199	2	AN	Carriage Control Line Feed characters
	Total Length		201		

### STATION.DAT

Field #	Description	Offset	Length	Data Type	Format
1	Equipment Number	0	8	AN	Left Justified with trailing spaces
2	Emissions Inspection Station Number	8	8	AN	Left Justified with trailing spaces
3	Emissions Inspection Station Name	16	50	AN	Left Justified with trailing spaces
4	Emissions Inspection Station Address 1	66	50	AN	Left Justified with trailing spaces
5	Emissions Inspection Station Address 2	116	35	AN	Left Justified with trailing spaces
6	Emissions Inspection Station City	151	35	AN	Left Justified with trailing spaces
7	Emissions Inspection Station State	186	2	AN	Left Justified with trailing spaces
8	Emissions Inspection Station Zip	188	10	AN	99999-9999 Left Justified with trailing spaces
9	Emissions Inspection Station Phone	198	14	AN	(999) 999-9999 Left Justified with trailing spaces
10	Communications phone number	212	14	AN	(999) 999-9999 Left Justified with trailing spaces
11	Max # of tests in # of day with no VIID contact	226	3	N	999 - Right Justified leading zeros
12	Max # of days for # of tests with no VIID contact	229	3	N	999 - Right Justified leading zeros
13	Last Test Number Used	232	6	N	999999 from equipment - Right Justified leading zeros
14	<CR><LF>	238	2		
	Total Length		240		

### STICKER.DAT

Field #	Description	Offset	Length	Data Type	Format	Required for Reason Code
1	Date	0	10	AN	MM/DD/YYYY	all
2	Station License Number	10	8	AN	Left Justified with trailing spaces	all
3	Inspector License Number	18	9	AN	Left Justified with trailing spaces	all
4	Sticker Number	27	10	AN	AA99999999 numeric portion is right justified leading zeros	all
5	Reason Code	37	1	AN	1 - 8 (see list below)	
6	VIN	38	22	AN	Scanned or manual entry - Left Justified with trailing spaces	1,2,3,4,7,8
7	Title Number	60	10	AN	Scanned or manual entry- Left Justified with trailing spaces	1,2,3,4,7,8

## Pennsylvania Analytical System (PAS) – OBD (Stand Alone) Display and Program Requirements

8	Plate	70	7	AN	Scanned or manual entry- Left Justified with trailing spaces	1,2,3,4,7,8
9	Waiver Approval Number	77	11	AN	Generated by VIID - Left Justified with trailing spaces	1,7,8
10	Previous Sticker (if known)	88	10	AN	AA99999999 numeric portion is right justified leading zeros	4
11	Odometer Reading	98	6	N	Right Justified leading zeros	1,2,3,4,7,8
12	Sticker Expiration Month	104	2	N	MM 01-12 - - Right Justified leading zeros	1,2,3,4,7,8
13	Sticker Expiration Year	106	4	N	YYYY 2006 -2100 - - Right Justified leading zeros	1,2,3,4,7,8
14	Spare	110	20	A	Spaces	
15	<CR><LF>	130	2			
	Total Length		132			
					REASON CODES	
					1 = Waiver	
					2 = Operated Less 5000 Miles Exemption	
					3 = New Vehicle Exemption	
					4 = Sticker replacement	
					5 = Damaged/Voided	
					6 = Stolen	
					7 = Diagnostic Waiver	
					8 = Hardship Exemption	

### SYSTEM.DAT

Field #	Description	Offset	Length	Data Type	Format
1	Calibration Frequency (hours)	0	3	N	default = 72 - Right Justified leading zeros
2	Maximum duration of Idle Test	3	2	N	default = 30 - Right Justified leading zeros
3	Maximum duration of 2500 Test	5	2	N	default = 30 - Right Justified leading zeros
4	Waiver Cut Point	7	4	N	9999 - Right Justified leading zeros
5	ASM Preconditioning time (seconds)	11	3	N	default = 30 - Right Justified leading zeros
6	Speed Tolerance Limit (mph)	14	1	N	default = +/- 1
7	TSI Preconditioning time	15	3	N	default = 180 - Right Justified leading zeros
8	Dilution Threshold	18	4	N	default is 6.00% - Right Justified leading zeros
9	HC Hangup Limit	22	2	N	default is 7 ppm - Right Justified leading zeros
10	Inspector Hardship Waiver Menu	24	1	N	1 = Menu Item Active, 0 = Not Active
11	OBD Usage Switch 1	25	1	A	Y=Bypass all problems, 2= Bypass Communication, RPM

## Pennsylvania Analytical System (PAS) – OBD (Stand Alone) Display and Program Requirements

					and Continuous Monitors, 3=Bypass RPM and Continuous Monitors, 4=Bypass Continuous Monitors or N=No Bypass
12	Spare	26	9	A	
13	Date last updated	35	10	AN	MM/DD/YYYY
14	<CR><LF>	45	2		
	Total Length		47		

### TECH.DAT

Field #	Description	Offset	Length	Data Type	Format
1	Inspector License	0	9	AN	Left Justified with trailing spaces
2	Inspector Last Name	9	30	A	
3	Inspector First Name	39	15	A	
4	Inspector Middle Initial	54	1	A	
5	Access Code	55	5	N	99999 - Right Justified leading zeros
6	Emissions Lock Out Flag	60	1	A	Y=Yes, N=No
7	Emissions License Classification	61	2	AN	*see list below
8	Emissions License Expiration Date	63	10	AN	MM/DD/YYYY
9	Safety Lockout Flag	73	1	A	Y=Yes, N=No
10	Safety License Classification	74	2	AN	S1 to S7
11	Safety License Expiration Date	76	10	AN	MM/DD/YYYY
12	Access Code Updated	86	1	AN	Y=Yes, N=No, Default is N
13	Spare	87	9		Blank
14	<CR><LF>	96	2		
	Total Length		98		
	*Emissions License Types EI = Emissions only - ASM ,TSI, Visual, or OBD EO = Emissions only - Visual, or OBD EV = Emissions only – Visual CR = Certified Repair only - no testing CI = Certified Repair with emissions testing (all tests) CO = Certified Repair with emissions testing (OBD and Visual tests) CV = Certified Repair with emissions testing (Visual tests)MR = Master Repair only - no testing MI = Master Repair with emissions testing (all tests) MO = Master Repair with emissions testing (OBD and Visual tests) MV = Master Repair with emissions testing (Visual tests)				

### USED\_S.DAT

## Pennsylvania Analytical System (PAS) – OBD (Stand Alone) Display and Program Requirements

Field #	Description	Offset	Length	Data Type	Format	Required for Reason Code
1	Date	0	10	AN	MM/DD/YYYY	all
2	Station License Number	10	8	AN	Left Justified with trailing spaces	all
3	Inspector License Number	18	9	AN	Left Justified with trailing spaces	all
4	Sticker Number	27	10	AN	AA99999999 numeric portion is right justified leading zeros	all
5	Reason Code	37	1	AN	1 - 8, and "E" (see list below)	
6	VIN	38	22	AN	Scanned or manual entry - Left Justified with trailing spaces	1,2,3,4,7,8,E
7	Title Number	60	10	AN	Scanned or manual entry - Left Justified with trailing spaces	1,2,3,4,7,8,E
8	Plate	70	7	AN	Scanned or manual entry - Left Justified with trailing spaces	1,2,3,4,7,8,E
9	Waiver Approval Number	77	11	AN	Generated by VIID - Left Justified with trailing spaces	1,7,8
15	<CR><LF>	88	2			
	Total Length		90			
					REASON CODES	
					1 = Waiver	
					2 = Operated Less 5000 Miles Exemption	
					3 = New Vehicle Exemption	
					4 = Sticker replacement	
					5 = Damaged/Voided	
					6 = Stolen	
					7 = Diagnostic Waiver	
					8 = Hardship Exemption	
					E = Emissions Inspection	

### VIN.DAT

Field #	Description	Offset	Length	Data Type	Format
1	VIN	0	22	AN	Left Justified with trailing spaces
2	VIN source	22	1	A	B = Bar-code, M = Manual entry
3	Title number	23	10	AN	Left Justified with trailing spaces
4	License plate number	33	7	AN	Left Justified with trailing spaces
5	License plate number source	40	1	A	B = Bar-code, M = Manual entry
6	Inspector license number	41	9	AN	Left Justified with trailing spaces
7	Test equipment type	50	1	A	A = PAS can perform ASM and TSI tests B = PAS can perform TSI test only C = PAS can perform OBD and VISUAL tests D = PAS can perform VISUAL test only

## Pennsylvania Analytical System (PAS) – OBD (Stand Alone) Display and Program Requirements

8	VIN/title/license match attempt	51	1	N	1 = first attempt to match VIN/title/license plate
					2 = second attempt to match VIN/title/license plate
9	Authorization type	52	1	A	W = Waiver
					D = Diagnostic waiver
					H = Hardship exemption <b>(Can only be used on an ASM or TSI test)</b>
					S = Safety sticker issuance after a t-dot <b>(Can only be used on an ASM or TSI test)</b>
					R = Previous inspection history report
					T = Vehicle Emissions Inspection
	Total Length		53		

### VIN.REC

Field #	Description	Offset	Length	Data Type	Format
1	Match Flag	0	1	A	O = OK N = No Match I = Invalid VIN
2	Technician Error	1	1	A	Blank = OK X = License expired R = License Revoked N = Not authorized for enhanced area I = Invalid Technician ID
3	Station Error	2	1	A	Blank = OK L = Locked Out N = Test type incompatible with Station type
4	Paid Test	3	1	A	P = Paid F = Free U = Unknown
5	Valid Vehicle	4	1	A	Y = Yes N = No
6	VID ID	5	11	AN	Data is VID assigned. Default is blank - Left Justified with trailing spaces
	Total Length		16		

### VRT.DAT

Field #	Description	Offset	Length	Data Type	Format
1	VRT record id	0	5	N	Numeric - Right Justified leading zeros
2	Model year	5	4	N	YYYY
3	Vehicle body type	9	1	N	1 = SEDAN, 2 = STATION WAGON, 3 = PICKUP, 4 = SPORT/UTILITY VEHICLE, 5 = MINIVAN, 6 = FULL-SIZE VAN

## Pennsylvania Analytical System (PAS) – OBD (Stand Alone) Display and Program Requirements

4	Vehicle standards type	10	1	A	P = passenger, T = truck
5	Vehicle make	11	17	A	
6	Vehicle model name	28	23	AN	Left Justified with trailing spaces
7	Num cylinders	51	2	AN	1 – 16, R=Rotary Left Justified with trailing spaces
8	Engine size	53	4	N	Engine size in cubic centimeters (cc) - Right Justified leading zeros
9	Transmission	57	1	A	A=Auto, M=Manual, E=Either
10	Vehicle Reference Number	58	8	AN	Row source reference - Left Justified with trailing spaces
11	GVWR	66	5	N	nnnnn - Right Justified leading zeros
12	Vehicle Test Weight	71	4	N	nnnn - Right Justified leading zeros
13	ASM5015 HP 8.65	75	4	N	99.9 - Right Justified leading zeros
14	ASM5015 HP 20.0	79	4	N	99.9 - Right Justified leading zeros
15	ASM2525 HP 8.65	83	4	N	Not used in PA
16	ASM2525 HP 20.0	87	4	N	Not used in PA
17	Dyno testing possible?	91	1	A	Y = Yes, M = Maybe
18	Cap Adapter	92	1	A	A = BLUE, B = YELLOW, C = RED, E = GREEN, F = BLACK, G = GRAY, H = THREADED, Z = VARIES, U = UNTESTABLE, N = unknown or no adapter required
19	ASM Cutpoint Row ID	93	5	N	Right Justified leading zeros
20	OBD Problem Vehicle	98	1	A	2=Readiness Monitors, 3=RPM Signal, 4=Continuous Monitors, Y=Any/all 2-4, or N=not a problem vehicle
21	MCount	99	1	N	
22	Date last update	100	8	AN	MMDDYYYY
23	<CR><LF>	108	2		Control Chars.
			110		



---



---

**Pennsylvania Analytical System (PAS) – OBD (Stand Alone) Display and Program Requirements**


---



---

## 6.4 Appendix D – OBD Protocol Codes and OBD Types

### 6.4.1 OBD Protocol Codes, EIS.DAT Field 99

OBD Protocol	Integer Value	Description
None	0	None or invalid protocol.
NotYetEstablished	1	Initialization requested, not yet established
SAEJ1850VPW	2	SAE J1850 VPW (variable pulse width - 10.4K)
SAEJ1850PWM	3	SAE J1850 PWM (pulse-width modulation - 41.6K)
ISO91412	4	ISO 9141-2
ISO142304	5	ISO 14230-4 (Keyword 2000)
ISO157654CAN500K11	6	ISO 15765-4 CAN 500K (11 bit header)
ISO157654CAN500K29	7	ISO 15765-4 CAN 500K (29 bit header)
ISO157654CAN250K11	8	ISO 15765-4 CAN 250K (11 bit header)
ISO157654CAN250K29	9	ISO 15765-4 CAN 250K (19 bit header)

### 6.4.2 OBD Type Codes, EIS.DAT Field 113

OBD Type	Hex Value	Description
OBDII	0x01	OBD-II
OBD	0x02	OBD
OBDandOBDII	0x03	OBD and OBD-II
OBDI	0x04	OBD-I
None	0x05	Not intended to comply with any OBD standard.
EOBD	0x06	EOBD

**Pennsylvania Analytical System (PAS) – OBD (Stand Alone) Display and Program Requirements**

---

**6.5 Appendix E – Overview of an AAMVA Compliant PDF417 Symbology**

An AAMVA compliant PDF417 symbol is made up of a HEADER and at least one SUBFILE. The HEADER is made of two parts: the HEADER and one or more SUBFILE DESIGNATORS. Each SUBFILE DESIGNATORS defines a related SUBFILE.

SUBFILES can contain collections of related text data or they can contain Binary Large Objects (BLOBs). BLOBs by their nature must be understood by the application using them and are likely to appear as a long string of ASCII data until presented to an interpretive routine. In the AAMVA community's use of BLOBs the data therein is likely to be a data stream which when interpreted correctly will provide a facial image, a signature image or perhaps a biometric data stream. Other uses may evolve.

Text data will have some relationship to the "document" that contains the AAMVA PDF417 symbol. On a TITLE DOCUMENT a PDF417 symbol is likely to contain information about the document itself, the owner(s) of the vehicle, etc.

There are only a few rules, but the few that exist need to be followed by all if they wish other public and private user to be able to read their coded documents.

**RULES:**

The first DATA ELEMENT IDENTIFIER in any SUBFILE will always follow the two byte SUBFILE IDENTIFIER. A DATA ELEMENT SEPARATOR is not required prior to the first data field.

Notwithstanding the above, the first DATA ELEMENT IDENTIFIER in a SUBFILE will not be considered invalid if it is preceded by a DATA ELEMENT SEPARATOR.

When a RECORD SEPARATOR is used, it serves both the function of a RECORD SEPARATOR and a DATA ELEMENT SEPARATOR. Stated differently, there is no need to follow a RECORD SEPARATOR with a DATA ELEMENT SEPARATOR.

The RECORD SEPARATOR character is used to distinguish multiple occurrences of similar data in any given SUBFILE.

By inference, the first occurrence of a data element in a SUBFILE is considered to be the primary occurrence, the next secondary and so on.

If text data is being carried in a SUBFILE, which also contains a string of non-text data, the text data must precede any non-text string.

The SEGMENT TERMINATOR is always used as the last character in any SUBFILE.