SPECIFICATIONS FOR
<u>ON BOARD DIAGNOSTICS II</u>
<u>(OBDII) ANALYZER</u>
FOR USE IN THE
TEXAS VEHICLE EMISSIONS TESTING
PROGRAM

Texas Natural Resource Conservation Commission
Technical Analysis Division

TNRCC

1.0   GENERAL

1.1   Design Goals

The OBDII analyzer software shall be designed for maximum operational simplicity. It shall also be capable of providing standardized On Board Diagnostics (OBDII) information , independent of the safety only inspection function..

This document contains the minimum requirements for analyzers performing OBDII tests in the Program.   Manufacturers may offer analyzers that meet the minimum requirements contained in this specification that can be easily upgraded to interact with systems that conduct tailpipe emission tests.

1.2   Useful Life

These requirements are identical to section 1.2a of the Specifications for Vehicle Exhaust Gas Analyzer Systems.

1.3   Nameplate Data

These requirements are identical to section 1.3a of the Specifications for Vehicle Exhaust Gas Analyzer Systems .

1.4   Manuals

These requirements are identical to section 1.4a of the Specifications for Vehicle Exhaust Gas Analyzer Systems .

1.5   Certification Documentation

These requirements are identical to section 1.5a of the Specifications for Vehicle Exhaust Gas Analyzer Systems .

1.6   Warranty Coverage/Mandatory Service Contract

These requirements are identical to section 1.6a of the Specifications for Vehicle Exhaust Gas Analyzer Systems .

1.7   Tampering Resistance

These requirements are identical to section 1.7a of the Specifications for Vehicle Exhaust Gas Analyzer Systems .

1.8 Manufacturer Provided Services

These requirements are identical to section 1.8a of the Specifications for Vehicle Exhaust Gas Analyzer Systems .

1.9 Certification Requirements

These requirements are identical to section 1.9a of the Specifications for Vehicle Exhaust Gas Analyzer Systems .

2.0 CONSTRUCTION DESIGN

2.1 Materials

These requirements are identical to section 2.1a of the Specifications for Vehicle Exhaust Gas Analyzer Systems .

2.2 Construction

The analyzer shall be complete and all necessary parts and equipment required for satisfactory operation shall be furnished.   All parts shall be manufactured and assembled to permit the replacement and/or adjustment of components and parts without requiring the modification of any parts or the basic equipment design. Where practical, components and/or subassemblies shall be modularized. The analyzer cabinet shall have a durable finish (i.e., baked enamel, powder paint, etc.).

2.3 Mobility

These requirements are identical to section 2.3a of the Specifications for Vehicle Exhaust Gas Analyzer Systems .

2.4 Electrical Materials/Construction

Unless otherwise specified, all electrical components and wiring shall conform to standards established by the Underwriters Laboratories, Standard for Electrical and Electronic Measuring and Testing Equipment (U.L.-1244).

2.4.1 Electromagnetic Isolation and Interference
1. Electromagnetic signals found in an automotive environment shall not cause malfunctions or changes in accuracy in the electronics of this specification. The analyzer design shall insure that readings do not vary as a result of electromagnetic radiation and induction devices normally found in the garage environment (including high energy vehicle ignition systems, radio frequency (RF) transmission radiation sources and building electrical systems.

2. In addition, the manufacturer shall ensure that the analyzer processor and memory components are sufficiently protected to prevent the loss of programs and test records.

2.5 <u>Storage Temperature</u>

These requirements are identical to section 2.6a of the Specifications for Vehicle Exhaust Gas Analyzer Systems .

2.6 <u>Operating Temperature</u>

These requirements are identical to section 2.7a of the Specifications for Vehicle Exhaust Gas Analyzer Systems .

2.7 <u>Humidity Conditions</u>

These requirements are identical to section 2.8a of the Specifications for Vehicle Exhaust Gas Analyzer Systems .

2.9 <u>Operational Design</u>

2.9a <u>OBDII Link Self-Diagnostic Tool</u>

OBDII-only analyzers shall be equipped with an OBD connector self-diagnostic tool. This self-diagnostic tool will be configured as a vehicle's diagnostic link connector, and will be used to test the integrity of the analyzer's OBD connector and communications link, whether it is a remote link or a conventional cable link. Integrity verification will be performed using a standard continuity test between the self-diagnostic tool and the analyzer's OBD connector as well as communication from the analyzer's OBD connector to the analyzer. Use of this self-diagnostic tool will be automatically initiated upon communication failure during an OBD inspection. The system will be acceptable, if it can retrieve and display generic OBDII information including, but not limited to: DTCs, readiness status, freeze frame information, MIL status, and the live data stream list for supported components (i.e., RPM, Throttle Position Sensor, etc.,) in a mode that is not related to the testing sequences.

2.9b <u>DLC Cord</u>

The analyzer must be equipped with a standard SAE J1978 OBD connector and communications link to allow an RPM signal, OBDII readiness codes, fault codes, and codes Malfunction Indicator Light (MIL) status, VIN number (when available), <u>Calibration ID and PCM-ID</u> to be downloaded from the on-board computer for applicable vehicles. The SAE J1978 OBD connector must be such to allow the inspector the ability to connect to a vehicle freely (either remotely with a 25 foot range or with a cord of sufficient length to allow analyzer access to a vehicle 25 feet away).The equipment design and operation must meet all Federal requirements (contained in 40CFR 85.2207-2231) and recommended SAE practices

(i.e., J1962, J1978 and J 1979) for OBDII system inspections. The OBDII interrogation process shall be fully integrated into the analyzer system. It must be automated and require no inspector intervention to collect and record the OBD data retrieved via the OBD diagnostic link

2.10 <u>Gas Cap Integrity Test</u>

These requirements are identical to section 2.11a subsection L of the Specifications for Vehicle Exhaust Gas Analyzer Systems .

2.11 <u>Microcomputer Specifications</u>

These requirements are identical to section 2.13a of the Specifications for Vehicle Exhaust Gas Analyzer Systems .

2.12 <u>Standard Hardware</u>: Minimum Required Configuration

1. <u>Operating System</u>

These requirements are identical to section 2.14a of the Specifications for Vehicle Exhaust Gas Analyzer Systems .

2. <u>Processor</u>

These requirements are identical to section 2.14a of the Specifications for Vehicle Exhaust Gas Analyzer Systems .

3. <u>RAM Memory</u>

These requirements are identical to section 2.14a of the Specifications for Vehicle Exhaust Gas Analyzer Systems .

4. <u>POWER UP SEQUENCE</u>

These requirements are identical to section 2.14a of the Specifications for Vehicle Exhaust Gas Analyzer Systems .

4a. <u>Bus or Equivalent</u>

These requirements are identical to section 2.14a of the Specifications for Vehicle Exhaust Gas Analyzer Systems .

4b. <u>Cache Memory</u>

These requirements are identical to section 2.14a of the Specifications for Vehicle Exhaust Gas Analyzer Systems .

5.   Monitor or Equivalent

These requirements are identical to section 2.14a of the Specifications for Vehicle Exhaust Gas Analyzer Systems .

6.   Floppy Disk or Equivalent

These requirements are identical to section 2.14a of the Specifications for Vehicle Exhaust Gas Analyzer Systems . Hand held devices must meet the intent of this section.

6a.   CD or Equivalent

These requirements are identical to section 2.14a of the Specifications for Vehicle Exhaust Gas Analyzer Systems .

7.   Hard Disk or Equivalent

These requirements are identical to section 2.14a of the Specifications for Vehicle Exhaust Gas Analyzer Systems .

7a.   Hard Disk Interface

These requirements are identical to section 2.14a of the Specifications for Vehicle Exhaust Gas Analyzer Systems .

8.   I/O Ports

These requirements are identical to section 2.14a of the Specifications for Vehicle Exhaust Gas Analyzer Systems . Handheld units must demonstrate the functionality of the additional I/O ports.

9.   Keyboard or Equivalent

These requirements are identical to section 2.14a of the Specifications for Vehicle Exhaust Gas Analyzer Systems .

10.   Bar Code Scanner

These requirements are identical to section 2.14a of the Specifications for Vehicle Exhaust Gas Analyzer Systems .

11.   Hard Disk Expansion or Equivalent

These requirements are identical to section 2.14a of the Specifications for Vehicle Exhaust Gas Analyzer Systems .

12. <u>Additional Storage</u>

These requirements are identical to section 2.14a of the Specifications for Vehicle Exhaust Gas Analyzer Systems .

13. <u>Communications/Modem</u>

These requirements are identical to section 2.14a of the Specifications for Vehicle Exhaust Gas Analyzer Systems .

2.13 **Required Printer**

<u>Vehicle Inspection Report Printer:</u>

These requirements are identical to section 2.15a of the Specifications for Vehicle Exhaust Gas Analyzer Systems .

<u>Running Changes</u>

These requirements are identical to section 2.15b of the Specifications for Vehicle Exhaust Gas Analyzer Systems .

2.14 **Clock/Calendar**

These requirements are identical to section 2.16a of the Specifications for Vehicle Exhaust Gas Analyzer Systems .

2.15 **Lockout Notification**

These requirements are identical to section 2.17a of the Specifications for Vehicle Exhaust Gas Analyzer Systems .

2.16 **Software Loading**

These requirements are identical to section 2.19a of the Specifications for Vehicle Exhaust Gas Analyzer Systems .

2.17 **Communications with** Texas Information Management System

These requirements are identical to section 2.20a of the Specifications for Vehicle Exhaust Gas Analyzer Systems .

3.0 **DISPLAY PROMPTS AND PROGRAMMING CRITERIA REQUIREMENTS**

This section describes the display prompts and programming criteria for the Emissions

Inspection/Test Sequence. These items shall be standardized to facilitate training of licensed inspectors. Manufacturers may propose alternative methodologies for the presentation of information and for data entry as long as the substance and the priority of the sequence is not significantly modified. Alternative methodologies shall be presented to the TNRCC for approval. The OBDII analyzer manufacturers shall utilize one or more of the following options to make the analyzer more user friendly:

A.   Direct cursor addressing a first letter selection versus a scrolling display;

B.   Displaying data entry error messages; and

C.   Help screens to assist inspectors with data entry and data verification.

Other options may be proposed for approval by the TNRCC. Data entry from one item to another shall not proceed until a valid entry has been made. During reinspection entry from the Main Menu, the analyzer shall display the appropriate fail records with no tampering information displayed. Where editing is allowed, the inspector shall have the ability to return to a previous display prompt. At that point, the inspector shall see the prior information and be permitted to insert and delete characters without having to retype the whole field.

Inspection Sequence

The microcomputer software shall control the inspection sequence and equipment process. This software shall, at a minimum, require the inspector to proceed in the following sequence when performing a vehicle inspection:

A.   Enter the inspector access code number.

B.   Enter VIN.

C.   Enter license plate number.

D.   Conduct the EPA approved OBDII test.

E.   Enter the emissions repair data, if applicable.

F.   Update data files, send data to Host/print vehicles inspection reports.

Aborting Inspections

If 'ABORT' is selected on an initial test, the vehicle information will be stored in the RECALL.DAT file for later recall by the inspector.

If the inspector selects one of the following abort codes, the analyzer shall:

1)   not fail the vehicle;

2)   set the EMISS _INSP_COST field to $0.00, because no fee is due;

3)   mark the test as an aborted inspection, and not count the inspection as an initial inspection or reinspection;

4)   prompt the inspector to indicate if safety related repairs were conducted. If no, set the SAFE_INSP_COST field to $0.00. Otherwise, allow the inspector to enter a value using the Safety Test Fee Prompt as shown in Section 3.1.22;

5)   prompt the inspector to indicate if emissions-related repairs were conducted. If no, set the REP_CST_YIS fields to $0.00. Otherwise, allow the inspector to enter a value using the Emissions Reinspection Repairs Prompt in Section 3.4.9; and

6)   include all entered safety and emissions related repair costs on the VIR.

     10   VEHICLE READINESS NOT COMPLETE

     99   OTHER (INDICATE REASON ON THE VEHICLE INSPECTION REPORT)

A maximum of two characters has been provided for this entry. The analyzer shall accept one two character abort code which shall be inputted by the inspector and saved to the test record. All of the inspection and test data collected up to the time abort is initiated shall be recorded in the VEHICLE.DAT and REINSPEC.DAT files, and on the vehicle inspection report. After the abort code confirmation has been made, the analyzer shall allow the inspector to enter or edit the applicable fees, (i.e., safety fee, emissions fee, or both).

The analyzer shall be designed so that the inspector is required to confirm the initial abort command after entering the applicable abort code. The inspector shall be allowed to edit the abort codes up until the confirmation is made. If the inspector wants to return to the test, and not continue with the abort sequence, the inspector shall be allowed to do so prior to the confirmation. The inspector shall be returned to the same place in the test sequence they are at when the abort was initiated. Unconfirmed aborts shall not be recorded on the test record. The abort code selected must be recorded to the VEHICLE.DAT file. The analyzer must then return to the main menu.

Data Entry Errors

Data entry errors will be displayed as the following message(s):

     NO VALUE HAS BEEN ENTERED - TRY AGAIN

     INVALID ABORT CODE - TRY AGAIN

Menus

     The following list contains the menus manufacturers are required to provide. Manufacturers may break the menus down further to increase user friendliness or expedite certain operations. Manufacturers may provide additional menus. The TNRCC/DPS reserves the right to require modification if any menu does not meet minimum requirements.

     Upon successful completion of the start-up diagnostics, the system shall display the main

menu containing the following options:

1. Safety and Emissions Inspection

2. Safety Only Inspection

3. Emissions Only Inspection/Test on Resale-Reciprocity

4. Reinspection

5. Reprint Vehicle Inspection Report

6. Vehicle Diagnosis

7. Training Mode

8. Audit Menu

9. Gas Cap Integrity Test

10. Missing, or Voided Certificates

11. Certificate Correction/Replacement

12. Technical Bulletins/Announcements

13. Communications Refresh

14. Communication Diagnostics (Loopback)

15. All data Communications

16. Inspection Log (VI-8B)

17. VI-30A Only

The inspector shall initiate an official emissions inspection by entering the number "1," the training mode by entering the number "7," and so forth.

Upon power-up of the analyzer, a full system check of all hardware components will be conducted.

The analyzer shall then check for station lockout flags in the LOCKOUT.DAT file. The analyzer shall check for a '1' or 'Y' in the STAT_CERT_SUSP, STAT_CERT_EXP, or STAT_CERT_REVOK fields of the LOCKOUT.DAT file

If a station lockout field equals "Y" or any power-up test fails, the analyzer shall disable all emissions test functions and display a message **"CALL SERVICE FOR REPAIRS OR YOUR LOCAL DPS OFFICE FOR STATION OR INSPECTOR LOCKOUT."**

Programming Criteria: **VEHICLE.DAT**   **TEST_TYPE**
                                                 EMISS_TEST_TYPE
                                               EMISS_INIT_TEST
                     REINSPECT.DAT   **TEST_TYPE**
                                                 EMISS_TEST_TYPE
                                               EMISS_INIT_TEST
                     RECALL.DAT   **TEST_TYPE**
                                                 EMISS_TEST_TYPE
                                               EMISS_INIT_TEST

The analyzer will set the EMISS_TEST_TYPE field to '3' for an OBD only test.

If the inspector selects one of the following choices from the main menu:
>   1 - Safety & Emission Inspection
>   2 - Safety Only
>   3 - Emissions Only
>   5 - Reprint

The system will set test_type field to the following:
>   1 - 'A'   5 - 'K'
>   2 - 'H'

If 3 - Emissions Only is selected, prompt the inspector to indicated if the test is a:
>   1 - required emission only test (decal)
>   2 - voluntary test
>   3 - test on resale (not displayed or used)
>   4 - remote sensing request

The system will set test_type field to the following:
>   1 - 'O'   3 - 'C'
>   2 - 'I'   4 - 'B'

Choice 'F' is reserved for 'minimum expenditure waiver tests,' and choice 'G' is reserved for 'federal tests'. Choice 'D' and choice 'E' are reserved for scrappage tests, and arbitration/dispute tests, respectively. The system will default/highlight selection number 1 in all of the scenarios.

NOTE: The tests and their corresponding letters are cross-referenced below:

A)	Emission & Safety Test	H)	Safety Only Test
B)	Remote Sensing Request	I)	Voluntary Emissions Test
C)	Test on Resale	J)	Waiver - Individual Vehicles

D)	Accelerated Vehicle Retirement Test	K)	Reprint
E)	Dispute Test	L)	Waiver - Low Income Time Extension
F)	Waiver - Minimum Expenditure	M)	Parts Availability Time Extension
G)	Federal Test	N)	Other (Special Test)
		O)	Required Emissions Only Test (Decal)

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3.1   Main Menu Selection '1' "Safety and Emissions Inspection"

3.1.1 Access Code Prompt: ENTER YOUR INSPECTOR'S ACCESS CODE

These requirements are identical to section 3.1.1 of the Specifications for Vehicle Exhaust Gas Analyzer Systems .

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3.1.2 PIN Number Prompt: ENTER YOUR INSPECTOR'S PIN NUMBER

These requirements are identical to section 3.1.1a of the Specifications for Vehicle Exhaust Gas Analyzer Systems .

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3.1.3 Date Expiration Prompt:

These requirements are identical to section 3.1.2 of the Specifications for Vehicle Exhaust Gas Analyzer Systems .

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3.1.4 Insurance Prompt:

These requirements are identical to section 3.1.3 of the Specifications for Vehicle Exhaust Gas Analyzer Systems .
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3.1.6 Fuel Type Prompt:

These requirements are identical to section 3.1.4 of the Specifications for Vehicle Exhaust Gas Analyzer Systems .
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3.1.7 Model Year Prompt:

These requirements are identical to section 3.1.5 of the Specifications for Vehicle Exhaust Gas Analyzer Systems .
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3.1.8 Bar Code Entry of License Plate Type, Number, and VIN Prompt:

These requirements are identical to section 3.1.5a of the Specifications for Vehicle Exhaust Gas Analyzer Systems .

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3.1.9 <u>License Type Prompt:</u>

These requirements are identical to section 3.1.6 of the Specifications for Vehicle Exhaust Gas Analyzer Systems .

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3.1.10 <u>License Prompt:</u>

= These requirements are identical to section 3.1.7 of the Specifications for Vehicle Exhaust Gas Analyzer Systems .

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3.1.11 <u>Texas Department of Transportation (TxDOT) Number Prompt:</u>

These requirements are identical to section 3.1.7a of the Specifications for Vehicle Exhaust Gas Analyzer Systems .

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3.1.12 <u>VIN Number Prompt:</u>

These requirements are identical to section 3.1.8 of the Specifications for Vehicle Exhaust Gas Analyzer Systems .

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3.1.13 <u>Texas Information Management System :</u>

These requirements are identical to section 3.1.8a of the Specifications for Vehicle Exhaust Gas Analyzer Systems .

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3.1.13a <u>Vehicle Type Prompt:</u>

These requirements are identical to section 3.1.3a of the Specifications for Vehicle Exhaust Gas Analyzer Systems .

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3.1.13b <u>Vehicle Body Type Prompt:</u>

These requirements are identical to section 3.1.11a of the Specifications for Vehicle Exhaust Gas Analyzer Systems .

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3.1.14 <u>Vehicle Make Prompt:</u>

These requirements are identical to section 3.1.10 of the Specifications for Vehicle Exhaust Gas Analyzer Systems .

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3.1.15 <u>Model Prompt:</u>

These requirements are identical to section 3.1.11 of the Specifications for Vehicle Exhaust Gas Analyzer Systems .

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3.1.16   <u>**Odometer Prompt:**</u>

These requirements are identical to section 3.1.12 of the Specifications for Vehicle Exhaust Gas Analyzer Systems .

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3.1.16a   <u>**Injection/Carburetion Prompt:**</u>

These requirements are identical to section 3.1.13 of the Specifications for Vehicle Exhaust Gas Analyzer Systems .

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3.1.16b   <u>**Cylinder Prompt:**</u>

These requirements are identical to section 3.1.16b of the Specifications for Vehicle Exhaust Gas Analyzer Systems .

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3.1.16c   <u>**Engine Units Prompt:**</u>

These requirements are identical to section 3.1.16 of the Specifications for Vehicle Exhaust Gas Analyzer Systems .

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3.1.16d   <u>**Engine Size Prompt:**</u>

These requirements are identical to section 3.1.16a of the Specifications for Vehicle Exhaust Gas Analyzer Systems .

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3.1.17   <u>**GVW Prompt:**</u>   **ENTER THE GVW OF THE VEHICLE.**

These requirements are identical to section 3.1.16c of the Specifications for Vehicle Exhaust Gas Analyzer Systems .

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3.1.17a   <u>**Transmission Prompt:**</u>

These requirements are identical to section 3.1.17 of the Specifications for Vehicle Exhaust Gas Analyzer Systems .

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3.1.17b   <u>**Ignition Prompt:**</u>

These requirements are identical to section 3.1.18 of the Specifications for Vehicle Exhaust Gas Analyzer Systems .

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3.1.17c   <u>**Exhaust Prompt:**</u>

These requirements are identical to section 3.1.19 of the Specifications for Vehicle Exhaust

Gas Analyzer Systems .

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3.1.17d   Vehicle 80" Width Prompt:

These requirements are identical to section 3.1.19a of the Specifications for Vehicle Exhaust Gas Analyzer Systems .

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3.1.17e   Drive Axle Prompt:

These requirements are identical to section 3.1.19b of the Specifications for Vehicle Exhaust Gas Analyzer Systems .

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3.1.17f   Vehicle Weight Prompt:

These requirements are identical to section 3.1.19.d of the Specifications for Vehicle Exhaust Gas Analyzer Systems .

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3.1.18   Test Type Prompt:

These requirements are identical to section 3.1.20 of the Specifications for Vehicle Exhaust Gas Analyzer Systems .

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3.1.19   Confirm Vehicle Info Display:

These requirements are identical to section 3.1.20a of the Specifications for Vehicle Exhaust Gas Analyzer Systems .

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3.1.20   Safety Inspection Items:

These requirements are identical to section 3.1.21 of the Specifications for Vehicle Exhaust Gas Analyzer Systems .

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3.1.21   Safety Inspection Items:

These requirements are identical to section 3.1.21 of the Specifications for Vehicle Exhaust Gas Analyzer Systems .

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3.1.22   Safety Test Fee Prompt:

These requirements are identical to section 3.1.22 of the Specifications for Vehicle Exhaust Gas Analyzer Systems .

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3.1.23   Pre-Tune Prompt:

These requirements are identical to section 3.1.23 of the Specifications for Vehicle Exhaust

Gas Analyzer Systems .

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3.1.24   Update Test Record:

These requirements are identical to section 3.1.23a of the Specifications for Vehicle Exhaust
Gas Analyzer Systems .

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3.1.25   OBDII Only Test Procedure

3.1.25a   OBD II Hookup:

The analyzer will prompt the inspector to conduct an OBD II check on all passenger
vehicles and light-duty trucks whose model year is equal to or newer than the vehicle
model year contained in the OBDII_Model_Year field of the SYSTEM table. The
analyzer should automatically search for vehicle-specific test parameters in the
TXVRT.DAT file when an OBD II check is conducted. If these test parameters are not
located in the TXVRT.DAT file, the analyzer shall use the default parameters in the
SYSTEM.DAT file. Unless otherwise stated, the analyzer shall compare vehicle make,
model, and model year in matching records with the vehicle being inspected.

The analyzer must be equipped with a standard SAE J1978 OBD connecter and
communications link to allow an RPM signal, readiness codes, fault codes, and
Malfunction Indicator Light (MIL) status to be downloaded from the on-board
computer for applicable vehicles.

The equipment design and operation must meet all Federal requirements (contained in
40 CFR 85.2207-2231) and recommended SAE practices (J1962, J1978 and J1979) for
OBDII system inspections.

The OBDII interrogation process shall be fully integrated into the TX96 analyzer
system. It must be automated and require no inspector intervention to collect and
record the OBD data retrieved via the OBD diagnostic link. An RPM signal, OBDII
readiness codes, failure codes, and MIL status shall be automatically retrieved through a
standard interface and vehicle connector. No hand-held unit or separate interface may
be used.

If the OBDII Port has previously been connected for the RPM signal, proceed to the
OBDII Readiness Evaluation Section. If not, proceed to the following prompt.

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3.1.25b   OBD II Connector Prompt:

TURN THE CAR OFF (I.E., PUT KEY IN "OFF/LOCK" POSITION)

LOCATE THE VEHICLE'S OBD DIAGNOSTIC LINK CONNECTOR.

ATTACH THE OBDII PORT TO THE VEHICLE CONNECTOR.

LEAVE CAR OFF FOR 12 SECONDS WITH CONNECTOR ATTACHED.

PRESS CONTINUE.

Programming Criteria:

The analyzer will prompt the inspector for an OBD II diagnostic link connection for all passenger vehicles and light-duty trucks whose model year is equal to or newer than the vehicle model year contained in the OBDII_Model_Year field of the SYSTEM table.

The analyzer will be designed to provide assistance to the inspector with OBD II connector locations using an OBD II connector look-up table.

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3.1.25c   **OBD II (Key On, Engine Off) Prompt:**

TURN THE IGNITION KEY TO THE 'ON' POSITION, BUT DON'T START THE ENGINE. LOCATE THE MIL (MALFUNCTION INDICATOR LIGHT) ON THE DASHBOARD.

DID THE MIL TURN ON? Note: MIL may stay on continuously or go out after only a few seconds. (CHOOSE THE CORRECT SENTENCE)

YES, the MIL did come on.

NO, the MIL did <u>NOT</u> come on at all.

The malfunction indicator light (mil) will either display "service engine soon," "check engine," the word "check" along with the international engine symbol, or some combination of these depending on the vehicle make.

Programming Criteria: The analyzer will ask the inspector to perform a key-on/engine-off check to see if the Malfunction Indicator Light/Check Engine Light (MIL) properly illuminates. The analyzer shall prompt the inspector to enter a No if the MIL does not properly illuminate. The analyzer software shall be designed so that the inspector can use the arrow keys to highlight his choice and press "continue" to select the appropriate sentence. The analyzer software shall not have a default entry for this screen. The inspector must be required press the arrow key at least once, followed by the "continue" key.

The help message for this screen shall contain the following text: "The Malfunction Indicator Light (MIL) is the official term for the warning light that is illuminated by the vehicle's OBD system when a malfunction occurs. Depending on the vehicle make, the MIL will either display "service Engine Soon," "Check Engine," the word "Check" along with the international engine symbol, or some combination of these . The MIL must come on when the ignition key is turned to the "key on, engine off" position. This is to allow inspectors to check that the MIL is capable of illuminating if a malfunction were to occur. On most vehicles, the MIL will stay illuminated as long as the key is in the position. However, on some vehicles, the MIL will illuminate very briefly when the key is turned to the "key on, engine off" position and then go out."

Error Message: 1.   **NO VALUES HAVE BEEN ENTERED--TRY AGAIN.**

Associated System File: **VEHICLE.DAT**   **OBD2_MIL_CHECK**

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3.1.25d **OBD II Engine Running Prompt:**

START THE ENGINE AND ALLOW IT TO IDLE FOR AT LEAST 20 SECONDS. (I.E., PUT KEY IN "RUN" POSITION)

PRESS CONTINUE.

Programming Criteria:

The analyzer shall require the inspector to confirm that the vehicle is started and idling, by pressing the "enter/continue" key. The analyzer may attempt to establish communications while displaying this prompt and accepting the response from the inspector.

- -

3.1.25e **OBD II Key On, Engine Running (KOER) Prompt:**

DID THE MIL TURN OFF? (CHOOSE THE CORRECT SENTENCE)

Yes, the MIL turned off.

No, the MIL stayed on.

Programming Criteria:

The analyzer will ask the inspector to see if the Malfunction Indicator Light/Check Engine Light (MIL) illuminates while the engine is running. The analyzer shall store a No, if the inspector indicates that the MIL does not illuminate while the engine is on.

The analyzer software shall be designed so that the inspector can use the arrow keys to highlight his choice and press "continue" to select the appropriate sentence. The analyzer software shall not have a default entry for this screen. The inspector must be required press the arrow key at least once, followed by the "continue" key. The analyzer may attempt to establish communications while displaying this prompt and accepting the response from the inspector.

If the previously entered GVWR is greater than 8500 pounds (i.e., >8500 lbs.), the analyzer shall only collect the data from the vehicle OBD system and not use the data in the pass/fail determination.

Error Message: 1.   NO VALUES HAVE BEEN ENTERED--TRY AGAIN.

Associated System File: **VEHICLE.DAT**   **OBD2_MIL_ON_RUN**

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3.1.25f   **OBD II Connection Prompt:**

COMMUNICATION IN PROGRESS, PLEASE WAIT.

Programming Criteria:

The analyzer system shall display this message while attempting to establish communications with the vehicle's OBD computer.

If the inspector has pressed continue and connection cannot be confirmed, the analyzer will proceed to the OBD II Connection Non Confirmed Prompt in Section 3.1.25g. If the inspector has pressed continue and connection is confirmed, the analyzer will proceed to the OBD II Malfunction Indicator Light (MIL) Status Check in Section 3.1.25i.

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3.1.25g   **OBD II Connection Not Confirmed Prompt:**

THE OBD II CONNECTION CANNOT BE CONFIRMED CHOOSE THE NEXT ACTION

1. TRY AGAIN

2. DO NOT TRY AGAIN - - (I.E., FAIL THE CAR)

Programming Criteria:

The analyzer shall display these choices and allow the inspector to use the arrow keys or

number keys to highlight the appropriate choice and press enter to select. The default is to phrase 1.

If the inspector selects phrase number 1, the analyzer will attempt to gain a confirmed OBDII connection. The analyzer must allow the inspector unlimited attempts to gain a confirmed OBDII connection.

If the inspector selects phrase number 2, then the analyzer shall proceed to the OBDII No Connection Reason Prompt in Section 3.1.25h.

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3.1.25h   <u>**OBD II No Connection Reason Prompt:**</u>

THE OBD II CONNECTION CANNOT BE CONFIRMED CHOOSE THE NEXT ACTION

1. BACK TO PREVIOUS SCREEN

2. CONNECTOR CANNOT BE LOCATED

3. CONNECTOR IS MISSING, DAMAGED, OR TAMPERED.

4. CONNECTOR IS OBSTRUCTED OR INACCESSIBLE AND CONNECTION IS NOT POSSIBLE.

5. COMMUNICATION FAILED, AND OBD II PORT IS ATTACHED TO CONNECTOR.

<u>Programming Criteria:</u>

The analyzer shall display all five choices and allow the inspector to use the arrow keys or number keys to highlight the appropriate choice and press enter to select. The default is to phrase 1.

If the inspector selects phrase number 1, the analyzer will return to the OBDII Connection Not Confirmed Prompt in Section 3.1.24g.

If the inspector selects phrase number 2, then the analyzer shall:
> 1.   store a 'L' in the OBD2_DLC_RES field indicating the connector cannot be located, and,
> 2.   proceed directly to the OBDII Test Evaluation and Messages Prompt in Section 3.1.25l.

If the inspector selects phrase number 3, then the analyzer shall:
> 1.   store a 'D' in the OBD2_DLC_RES field indicating the connector is missing,

damaged, or tampered, and,

2. proceed directly to the OBDII Test Evaluation and Messages Prompt in Section 3.1.25l.

If the inspector selects phrase number 4, then the analyzer shall:

1. store a 'I' in the OBD2_DLC_RES field indicating an inaccessible connector, and,
2. proceed directly to the OBDII Test Evaluation and Messages Prompt in Section 3.1.25l.

If the inspector selects phrase number 5, then the analyzer shall:

1. store a 'N' in the OBD2_DLC_RES field indicating failed to establish communication with vehicle, and,
2. proceed directly to the OBDII Test Evaluation and Messages Prompt in Section 3.1.25l.

If the test date is less than the date contained in the OBD2_FAIL_ST_DT field in the SYSTEM.DAT file, the analyzer shall:

1. Place a 'L,' 'D,' 'I,' or 'N,' in the OBD2_DLC_RES field in VEHICLE.DAT,
2. Place a blank in the OBD2_PF_FLAG field in VEHICLE.DAT,
3. Print 'FAIL' in the OBD section of the VIR,
4. A second page will be printed for the VIR indicating that the OBD failure is "**Advisory Only**", and that the vehicle's on-board diagnostic system could not be checked due to: unsuccessful communications if the OBD2_DLC_RES is set to 'N,' or a missing, damaged, or tampered connector if the OBD2_DLC_RES is set to 'D', or an unlocated connector if the OBD2_DLC_RES is set to 'L', or an inaccessible connector if the OBD2_DLC_RES is set to 'I,'and,
5. Proceed directly to the Preconditioned Two-Speed Idle Test Procedure Prompt.

The failure of the OBD portion of the test WILL NOT result in an overall test failure.

If the test date is equal to or greater than the date in the OBD2_FAIL_ST_DT field in the SYSTEM.DAT file, the analyzer will:

6. Place a 'L,' 'D,' 'I,' or 'N,' in the OBD2_DLC_RES field in VEHICLE.DAT,
7. Place an 'F' in the OBD2_PF_FLAG field (and later to the OVERALL_RESULTS field) in VEHICLE.DAT,
8. Print 'FAIL' in the OBD portion and the OVERALL TEST RESULT section of the VIR,
9. A second page will be printed for the VIR indicating that the vehicle's on-board diagnostic system could not be checked due to: unsuccessful communications if the OBD2_DLC_RES is set to 'N,' or a missing, damaged, or tampered connector if the OBD2_DLC_RES is set to 'D', or an unlocated connector if the OBD2_DLC_RES is set to 'L', or an inaccessible connector if the OBD2_DLC_RES is set to 'I,'and,

10. Proceed to the OBD Test Evaluation and Messagess Prompt in section 3.1.25l , and no tailpipe emissions inspection will be conducted.

The failure of the OBD portion of the test WILL result in an overall test failure.

Associated System File: **VEHICLE.DAT**   **OBD2_DLC_RES**
                                                         OBD2_PF_FLAG
                                                         OVERALL_RESULTS

- -

3.1.25i   OBD II Malfunction Indicator Light (MIL) Status Check:

Programming Criteria:

The analyzer will evaluate the MIL status based on the data returned via the OBD link from the vehicle's on-board diagnostic system. The Yes/No (Y/N) status of whether the MIL has been commanded to be illuminated will be recorded in the OBD2_MIL_STATUS field of the test record.

If the MIL status returned is NOT COMMANDED ON with the engine running (i.e., RPM is greater than zero), the analyzer shall:

1.   store a "P" in the OBD2_MIL_STATUS field, and
2.   proceed to the OBD Readiness Evaluation section.

If the MIL status returned is COMMANDED ON with the engine running (i.e., RPM is greater than zero), the analyzer shall:

1.   store an "F" in the OBD2_MIL_STATUS field, and
2.   proceed to the OBD Readiness Evaluation section.

- -

3.1.25j   OBD II Readiness Evaluation:

The analyzer shall communicate with the OBD system of the vehicle under inspection to determine if the OBD system has enough readiness monitors completed to allow an evaluation of the OBD system. In accordance with EPA guidance, the readiness of the OBD system for evaluation is dependant on the year of the vehicle, and in some instances, on the model as well. This step is to store the status of the READINESS MONITORS in the OBD system with the engine running to allow the program to evaluate the stored results. If the vehicle has multiple ECMs, the analyzer shall provide the summary of results all the readiness monitors received from the vehicle as the status of the readiness monitors.

Programming Criteria:

i   A request (in accordance with SAE J1979, e.g., Mode $01, PID $01) shall be transmitted to the on-board computer to determine the evaluation status of the OBD system, the number of emission-related trouble codes stored in memory, and the Malfunction Indicator Light (MIL) status.

ii   Based on the returned data, the analyzer shall determine which on-board monitors are supported by the OBD system and the readiness code status of the applicable monitors.

iii   Possible monitors include the following:
        (1)   Misfire (continuous)
        (2)   Fuel system (continuous)
        (3)   Comprehensive component (continuous)
        (4)   Catalyst (once/trip)
        (5)   Heated catalyst (once/trip)
        (6)   Evaporative system (once/trip)
        (7)   Secondary air system (once/trip)
        (8)   Air conditioning system (once/trip)
        (9)   Oxygen sensor (once/trip)
        (10) Oxygen sensor heater (once/trip)
        (11) EGR system (once/trip)

iv.   Continuous monitors are those in which the applicable system/condition is checked continuously during vehicle operation; once/trip monitors are only checked when the vehicle is driven in a certain manner (i.e., over a predefined driving cycle expected to occur in customer service). According to Federal regulation (40 CFR 86.099-17), a vehicle manufacturer is not required to store a readiness code for the continuous operating monitors; however, some may choose to do so.

v.   Possible readiness code responses include: completed/ready, not completed/not ready, and 'not supported/not enabled.' A response that a monitor is not supported or enabled means that, for this particular vehicle, that monitor is not applicable. Hence, when a 'not supported/not enabled' response is given, the analyzer will not fail the vehicle for that code.

vi.   All readiness code values will be written to the appropriate test record fields in the VEHICLE.DAT file for each inspection using the following format:
        i.   Not supported/enabled = 0,
        ii.   Completed = 1, and
        iii. Not completed = 2.

vii   If the value specified in the SYSTEM table for a particular readiness monitor is "Y", that code shall be used for the overall readiness determination. If the value specified for a readiness monitor in the SYSTEM table is "N", that code shall be ignored by the analyzer and not used for the overall readiness determination. Each readiness monitor field that contains a value of "Y" is an applicable readiness monitor.

        For information on how to set the OBD2_READY_RES field, refer to part (a) of the OBD II Test Evaluation and Messages Prompt below.

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3.1.25k   OBD II Diagnostic Trouble Code (DTC) Check:

Programming Criteria:

i.   The analyzer shall send a request (i.e., Mode $03) to the on-board computer to determine the stored emissions-related powertrain trouble codes. The analyzer will repeat this cycle until the number of codes reported equals the number expected based on the previous Mode $01 response. Any codes listed in the DTC table shall be recorded on the test record and the text fault code description shall be printed on the second page of the VIR.

ii.   If there are no DTCs:
    i.   A 'P' will be written to both the OBD2_FAULT_CD_RES and OBD2_PF_FLAG fields in VEHICLE.DAT,
    ii.   Two zeros ('00') will be stored in the DTC_STORED field of the VEHICLE. DAT file,
    iii. A PASS will be printed in the OBD section of the VIR, and
    iv.   The analyzer will proceed to the OBD Test Evaluation and Messages Prompt, no tailpipe emissions inspection will be conducted.

iii. If one or more DTC's is found, which cause the MIL to be commanded to be illuminated;
    i.   The analyzer will check the OBD2_FAIL_DT field in the SYSTEM table;
    ii.   If the test date is less than the date in the OBD2_FAIL_DT field and the MIL has been commanded to be illuminated:
        i.   An 'F' will be written to both the OBD2_FAULT_CD_RES and OBD2_PF_FLAG fields in VEHICLE.DAT.
        ii.   The first ten DTC(s), which cause the MIL to be illuminated, that was found will be written to the FAULT_CODES(DTCS) field in the VEHICLE.DAT table.

iv.   The analyzer shall store the total number of stored DTCs (not pending DTCs) causing the MIL to illuminate in the DTC_STORED field of the VEHICLE.DAT file. The analyzer shall also proceed to the OBD Test Evaluation and Messages Prompt in 3.1.25l.

- -

3.1.25l   OBD II Test Evaluation and Messages:

Programming Criteria:

The result of the OBD section of the test will be determined as follows:

- OBD2_MIL_CHECK is a manual entry
- OBD2_MIL_ON_RUN is a manual entry
- OBD2_DLC_RES is an automatic entry unless there is no communication between the vehicle and the analyzer
- OBD2_MIL_STATUS is an automatic entry
- OBD2_READY_RES is a field populated automatically.
- OBD2_FAULT_CD_RES depends if there are any stored DTCs causing the MIL to illuminate.

Note: If the previously entered GVWR is greater than 8500 pounds (i.e., >8500 lbs.), the analyzer shall only collect the data from the vehicle OBD system and not use the data in the pass/fail determination. The following fields of the VEHICLE.DAT must contain a "P" in order to pass the OBD test sequence: OBD2_MIL_CHECK, OBD2_MIL_ON_RUN.

(a) The OBD2_READY_RES field is determined by the following criteria: The Pass outcome requires that not more than a certain number of monitors return a value of not ready (example: value = 2 for 1996 to 2000 model year vehicles, and 1 for 2001 and newer model year vehicles). This number is found in the field called MAX_NUM_NOT_READY in the SYSTEM.DAT file and is the number of non-continuous monitors allowed not ready and still PASS the OBD test. This number changes as the vehicle model year changes. The applicable model years are contained in the MAX_NT_RDY_BGN_YR and MAX_NT_RDY_END_YR fields of the SYSTEM.DAT file. If the vehicle is deemed "not ready," the analyzer shall abort the inspection if the date of inspection is greater than the date contained in the OBDII_FAIL_ST_DT field of the SYSTEM.DAT. If the vehicle is deemed "not ready," the analyzer shall will default to a TSI inspection if the date of inspection is less than the date contained in the OBDII_FAIL_ST_DT field of the SYSTEM.DAT file. If any continuous monitors indicate "not ready", the vehicle shall NOT PASS the OBD test.

- If a continuous monitor returns a not-ready status the OBD2_READY_RES shall remain an "F", or

- If there are fewer than the maximum non-continuous monitors not ready (less than or equal to MAX_NUM_NOT_READY), then a "P" shall be stored in the OBD2_READY_RES field of the VEHICLE.DAT record, or

- If too many non-continuous monitors are not ready (greater than MAX_NUM_ NOT_READY) then the OBD2_READY_RES RESULT shall remain "F."

(b) The following fields of the VEHICLE.DAT must contain a "P" in order to pass the OBD test sequence: OBD2_MIL_CHECK, OBD2_MIL_ON_RUN, OBD2_DLC_RES, OBD2_MIL_STATUS, and OBD2_READY_RES.

1. If all the above fields contain a "P" then the program will store a "P" in the OBD2_PF_FLAG field of the VEHICLE.DAT file and print a PASS in the OBD Test Result section on the VIR,

2.   If any of the above fields contain a character other than a "P" then

(i) If the OBD2_DLC_RES field has a "D," "I," or an "N" stored in it then the analyzer shall write a "F" to OBD2_PF_FLAG of the VEHICLE.DAT and a "FAULT" should be written on the ADVISORY VIR:

(ii) If theOBD2_DLC_RES field does not have a "L" then the analyzer shall write a "F" to the OBD2_READY_RES field of the VEHICLE.DAT file and an "N/A" shall be printed on the ADVISORY OBD VIR.

(c) If the MY of the vehicle under test is equal to or greater thn the value contained in the OBDII_MODEL_YR   field in the SYSTEM.DAT and the test date is prior to the PASS/FAIL (P/F) start date of OBD testing as defined in the SYSTEM.DAT file, OBD failures will not cause the vehicle to have an OVERALL TEST FAILURE.. Motorist information messages shall be printed on an Advisory OBD VIR to be given to the motorist informing them of problems with their vehicle's OBD system. The analyzer shall proceed to perform a TSI emission test on failed OBD or aborted OBD tests during the advisory period.

NOTE: The Texas OBD advisory period starts when the OBD software is loaded on an analyzer and ends when the OBD mandatory P/F date flag is set in the SYSTEM.DAT file. Currently the start date of P/F OBD is May 1, 2002.

NOTE: The failing or aborted <u>OBD ADVISORY</u> VIR shall be printed prior to the tailpipe VIR.

1. If the value in the following fields is other than blank or "P" then the following message(s) shall be printed on the <u>Advisory OBD</u> VIR to inform the motorist of possible problems with their vehicle.

(i) If there is an "F" in the MIL KOEO or MIL KOER field the following shall be printed:
Based on the information received during the test, there may be a problem with your On-Board Diagnostic Computer Malfunction Indicator Light. Repairing any problems that exist will likely improve performance, fuel economy, and reduce pollution. This vehicle must have the On-Board Computer functioning properly to pass the vehicle inspection to register this vehicle next year. (Text subject to change)
<div align="right">OBD PRINT MESSAGE (2)</div>

(ii) If there is a "D" or an "N" in the OBD2_DLC_RES field the following message shall be printed on the <u>Advisory OBD</u> VIR indicating that the vehicle's on-board diagnostic system could not be checked due to a missing, inaccessible, damaged, or tampered connector.
Based on the information gathered during an attempt to perform an On- Board Diagnostic test your vehicle has a missing, tampered, or broken Diagnostic Connector. This vehicle must have the On-Board Computer functioning properly

to pass the vehicle inspection to register this vehicle next year. (Text subject to change)

<div align="right">OBD PRINT MESSAGE (3)</div>

(iii) If there is an "I" in the OBD2_DLC_RES field the following message shall be printed on the <u>ADVISORY OBD</u> VIR indicating that the vehicle's on-board diagnostic system could not be checked due to inaccessible connector,

Based on the information gathered during an attempt to perform an On-Board Diagnostic test your vehicle has an inaccessible Diagnostic Connector. This vehicle must have the Diagnostic Connector accessible to allow the check of the On Board Diagnostic computer system on the vehicle next year. (Text subject to change)

<div align="right">OBD PRINT MESSAGE (4)</div>

(iv) If there is an "F" in the OBD2_READY_RES field of the VEHICLE.DAT the vehicle will be failed and the following message shall be printed on the <u>Advisory OBD VIR</u>:

Based on the information obtained from the On-Board Computer in the vehicle, the system is not ready to make a determination regrading the pollution control system on the vehicle. This situation must be corrected before the OBD system can be evaluated and the reinspection made next year. See your owner's manual for information on "OBD/Readiness driving procedures" or contact your vehicle service advisor. (Text subject to change)

<div align="right">OBD PRINT MESSAGE (5)</div>

(v). If the OBD2_MIL_STATUS field has an **"F"** stored in it the following message shall be printed.

Based on the results of the On-Board Diagnostic test, your vehicle indicates there is a failure that is causing higher than allowed pollution levels to be emitted into the atmosphere. The problem(s) causing the failure, when fixed, will increase performance, fuel economy, and reduce pollution. Repair of the failure(s) will be required to pass the OBD test next year. (Text subject to change)

<div align="right">OBD PRINT MESSAGE (6)</div>

(d) If the model year of the vehicle being tested is equal to or greater than the value contained in the OBDII_MODEL_YR field in the SYSTEM.DAT and the test date is after the mandatory P/F start date as defined in the SYSTEM.DAT file, OBD test results will be used to evaluate the Overall PASS/FAIL result of the vehicle being tested. The vehicle will receive a PASS of the OBD system if the OBD2_PF_FLAG field contains a "P", or

    1.   If the OBD2_PF_FLAG is not "P" and

    (i) if the result in the OBD2_DLC_RES is an "L" (abort code 80) the following message shall be printed on the <u>P/F VIR</u>:

Based on the information gathered during an attempt to perform an On Board Diagnostic test your vehicle has a missing Diagnostic Connector, or a Diagnostic Connector that cannot be located by the inspector. This vehicle must have the On-Board Computer Diagnostic connector available to the inspector and functioning properly to pass the vehicle inspection. If you have questions regarding this test, ask the inspector who performed this test. (Text subject to change)

OBD PRINT MESSAGE (10)

(ii) if the result in the OBD2_DLC_RES is an "D," "I," or an "N" the following message shall be printed on the <u>P/F VIR</u>:

Based on the information gathered during an attempt to perform an On Board Diagnostic test your vehicle has a damaged or inaccessible Diagnostic Connector. This vehicle must have the On-Board Computer Diagnostic connector available to the inspector and functioning properly to pass the vehicle inspection. If you have questions regarding this test, ask the inspector who performed this test. (Text subject to change)

OBD PRINT MESSAGE (11)

(iii) the result n the OBD2_READY_RES field is an "F" the following message shall be printed on the VIR: a "FAIL" shall be printed in the OBD2_PF_FLAG section of the P/F VIR. A failed OBD vehicle shall receive a FUEL CAP TEST.

Based on information obtained from the On-Board Computer in the vehicle, the system is not ready to make a determination regarding the pollution control system on the vehicle. This situation must be corrected before the OBD system can be evaluated and the reinspection made which will allow this vehicle to be registered. See your owner's manual for information on "OBD/Readiness driving procedures" or contact your vehicle service advisor. (Text subject to change)

OBD PRINT MESSAGE (12)

2. If the value in the following fields is other than blank or "P" then the following message shall be printed on the <u>P/F</u> VIR to inform the motorist of possible problems with their vehicle.

(i) If there is an "F" in the OBD2_MIL_CHECK or the OBD2_MIL_ON_RUN field the following shall be printed on the <u>P/F</u> VIR:

Based on the information received during the test, there may be a problem with your On-Board Diagnostic Computer Malfunction Indicator Light. This vehicle must have the On-Board Computer system functioning properly to pass the vehicle inspection. (Text subject to change)

(iv) If the OBD2_MIL_STATUS field has an "F" stored in it the following message shall be printed on the <u>P/F VIR</u>:

Based on information obtained from the On-Board Computer in the vehicle, the system has made a determination that there is a problem regarding the pollution control system on the vehicle. This situation must be corrected before the OBD system can be reinspected. See your owner's manual for information on "OBD/Readiness driving procedures" or contact your vehicle service advisor.
(Text subject to change)

<div align="right">OBD PRINT MESSAGE (14)</div>

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3.1.25m   OBD II Engine Stop Prompt:

SHUT OFF THE ENGINE

> **Programming Criteria:**   The analyzer will prompt the inspector to turn off the engine, and proceed to the Gas Cap Missing Prompt in Section 3.1.26.

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3.1.26   Gas Cap Missing Prompt:

These requirements are identical to section 3.1.25 of the Specifications for Vehicle Exhaust Gas Analyzer Systems .

- -

3.1.27   Gas Cap Testable Prompt:

These requirements are identical to section 3.1.26 of the Specifications for Vehicle Exhaust Gas Analyzer Systems .

- -

3.1.28   Gas Cap Connect Prompt:

These requirements are identical to section 3.1.27 of the Specifications for Vehicle Exhaust Gas Analyzer Systems .

- -

3.1.29   Gas Cap Results Prompt:

These requirements are identical to section 3.1.28 of the Specifications for Vehicle Exhaust Gas Analyzer Systems .

- -

3.1.30   Second Gas Cap Prompt:

These requirements are identical to section 3.1.28a of the Specifications for Vehicle Exhaust Gas Analyzer Systems .

- -

3.1.31   End of Phase Logic:

These requirements are identical to section 3.1.28b of the Specifications for Vehicle Exhaust Gas Analyzer Systems .

- -

3.1.32   Second Gas Cap Missing Prompt:

These requirements are identical to section 3.1.28c of the Specifications for Vehicle Exhaust Gas Analyzer Systems .

- -

3.1.33   Second Gas Cap Testable Prompt:

These requirements are identical to section 3.1.28d of the Specifications for Vehicle Exhaust Gas Analyzer Systems .

- -

3.1.34   Second Gas Cap Connect Prompt:

These requirements are identical to section 3.1.28e of the Specifications for Vehicle Exhaust Gas Analyzer Systems .

- -

3.1.35   Second Gas Cap Results Prompt:

These requirements are identical to section 3.1.28f of the Specifications for Vehicle Exhaust Gas Analyzer Systems .

- -

3.1.36   End of Phase Logic:

These requirements are identical to section 3.1.28g of the Specifications for Vehicle Exhaust Gas Analyzer Systems .

- -

3.1.37   Emissions Test Fee Prompt:

These requirements are identical to section 3.1.29 of the Specifications for Vehicle Exhaust Gas Analyzer Systems .

- -

3.1.38   Certificate Number Prompt:

These requirements are identical to section 3.1.30 of the Specifications for Vehicle Exhaust Gas Analyzer Systems .

- -

3.1.39   Certificate Number Correction Prompt:

These requirements are identical to section 3.1.31 of the Specifications for Vehicle Exhaust Gas Analyzer Systems .

- -

3.1.40   VI 30A Selection Prompt:

These requirements are identical to section 3.1.32 of the Specifications for Vehicle Exhaust Gas Analyzer Systems .

- -

3.1.41   VI 30A Number Prompt:

These requirements are identical to section 3.1.33 of the Specifications for Vehicle Exhaust Gas Analyzer Systems .

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3.1.42   Rejection Receipt:

These requirements are identical to section 3.1.34 of the Specifications for Vehicle Exhaust Gas Analyzer Systems .

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3.1.43   Print Vehicle Repair Form (VRF):

These requirements are identical to section 3.1.34a of the Specifications for Vehicle Exhaust Gas Analyzer Systems .

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3.1.44   Print Public Awareness Statement:

These requirements are identical to section 3.1.34b of the Specifications for Vehicle Exhaust Gas Analyzer Systems .

- -

3.1.45   Print Vehicle Inspection Report:

After the system has stored the test record, the following prompt shall be displayed. **"READY TO PRINT VEHICLE INSPECTION REPORT? ENTER "Y" FOR YES OR "N" FOR NO."**

Depending upon the pass/fail status of the emissions phase of the inspection, the printer will provide additional information to the customer as outlined in Appendix B (refer to the Specifications for Vehicle Exhaust Gas Analyzer Systems). The customer report shall include, but not be limited to, the following information: Test Type (Initial or Reinspection), Test (OBDII only), Test Date, Test Time, Test Cost (differentiated by Emission and Safety),

Overall Cost, Inspector Name, Station Name, Vehicle License Number, VIN, Vehicle Make, Vehicle Model Year, Vehicle Type, Gross Vehicle Weight, Pollution Control System, Status of MIL Light, Fault Codes and Descriptions, Two Letter Special Test Designation where applicable, the Results of the Gas Cap Integrity Test, and the Overall Result of the Inspection. The subtitle of the report shall indicate that the test was a Safety and Emissions Inspection, Safety Only Inspection, Required Emission Only Decal Inspection or Emission Only Inspection, and whether or not the test was conducted as a Special Test. If the test was conducted as a Special Test, the Two Letter Designation (i.e., LI, ME, IV, AD, ST, PA, or OT) shall be placed on the same line as the Test Type separated by at least two spaces, or a slash, and the words 'Special Test' shall be in the subtitle. The system shall allow the inspector to print additional copies of the vehicle inspection report, after the initial report has been printed. The report shall indicate that the vehicle has failed. After the inspection has been completed, the analyzer shall contact the Texas Information Management System , and transmit all applicable vehicle information.

The analyzer shall print a bar code on the VIR which contains the VIN, license plate number of the vehicle, and the license type, make, year, and model name of the vehicle under inspection. The bar code shall be code 39 format and contain only the previously mentioned information and the start and stop characters. As a phrased that allows communications and printing of the VIR to be simultaneously. Also, make printouts, come customer first then the station copy.

Error Message: **NO VALUES ENTERED -- TRY AGAIN**

Associated System File: **VEHICLE.DAT**   **EMISS_INSP_COST**

                                             CERT_NUM

                                             OVERALL_RESULTS

- -

3.1.46   Texas Information Management System :

These requirements are identical to section 3.1.36 of the Specifications for Vehicle Exhaust Gas Analyzer Systems .

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3.2   Main Menu Selection '2' "Safety Only Inspection"

3.2.1 Access Code Prompt:

These requirements are identical to section 3.2.1 of the Specifications for Vehicle Exhaust Gas Analyzer Systems .

- -

3.2.2 Date Expiration Prompt:

These requirements are identical to section 3.2.2 of the Specifications for Vehicle Exhaust Gas Analyzer Systems .

- -

3.2.3 <u>Insurance Prompt:</u>

These requirements are identical to section 3.2.3 of the Specifications for Vehicle Exhaust Gas Analyzer Systems .

- -

3.2.5   <u>Model Year Prompt:</u>

These requirements are identical to section 3.2.4 of the Specifications for Vehicle Exhaust Gas Analyzer Systems .

- -

3.2.6 <u>License Type Prompt:</u>

These requirements are identical to section 3.2.5 of the Specifications for Vehicle Exhaust Gas Analyzer Systems .

- -

3.2.7 <u>License Prompt:</u>

These requirements are identical to section 3.2.6 of the Specifications for Vehicle Exhaust Gas Analyzer Systems .

- -

3.2.8 <u>TxDOT Number Prompt:</u>

These requirements are identical to section 3.2.6a of the Specifications for Vehicle Exhaust Gas Analyzer Systems .

- -

3.2.9 <u>VIN Number Prompt:</u>

These requirements are identical to section 3.2.7 of the Specifications for Vehicle Exhaust Gas Analyzer Systems .

- -

3.1.9a   <u>Fuel Type Prompt:</u>

These requirements are identical to section 3.1.4 of the Specifications for Vehicle Exhaust Gas Analyzer Systems .

- -

3.2.9b   <u>Vehicle Type Prompt:</u>

These requirements are identical to section 3.2.7b of the Specifications for Vehicle Exhaust Gas Analyzer Systems .

- -

3.2.10   Vehicle Make Prompt:

These requirements are identical to section 3.2.8 of the Specifications for Vehicle Exhaust Gas Analyzer Systems .

- -

3.2.11   Model Prompt:

These requirements are identical to section 3.2.9 of the Specifications for Vehicle Exhaust Gas Analyzer Systems .

- -

3.2.12   Odometer Prompt:

These requirements are identical to section 3.2.10 of the Specifications for Vehicle Exhaust Gas Analyzer Systems .

- -

3.2.12a   Vehicle 80" Width Prompt:

These requirements are identical to section 3.2.10a of the Specifications for Vehicle Exhaust Gas Analyzer Systems .

- -

3.2.13   Confirm Vehicle Info Display:

These requirements are identical to section 3.2.10a of the Specifications for Vehicle Exhaust Gas Analyzer Systems .

- -

3.2.14   Test Type Prompt:

These requirements are identical to section 3.2.11 of the Specifications for Vehicle Exhaust Gas Analyzer Systems .

- -

3.2.15   Safety Inspection Items:

These requirements are identical to section 3.2.12 of the Specifications for Vehicle Exhaust Gas Analyzer Systems .

- -

3.2.16   Safety Inspection Items:

These requirements are identical to section 3.2.12 of the Specifications for Vehicle Exhaust Gas Analyzer Systems .

- -

3.2.17   Gas Cap Missing Prompt:

These requirements are identical to section 3.2.12a of the Specifications for Vehicle Exhaust Gas Analyzer Systems .

- -

3.2.18   <u>**Gas Cap Testable Prompt:**</u>

These requirements are identical to section 3.2.12b of the Specifications for Vehicle Exhaust Gas Analyzer Systems .

- -

3.2.19   <u>**Gas Cap Connect Prompt:**</u>

These requirements are identical to section 3.2.12c of the Specifications for Vehicle Exhaust Gas Analyzer Systems .

- -

3.2.20   <u>**Gas Cap Results Prompt:**</u>

These requirements are identical to section 3.2.12d of the Specifications for Vehicle Exhaust Gas Analyzer Systems .

- -

3.2.21   <u>**Second Gas Cap Prompt:**</u>

These requirements are identical to section 3.2.12e of the Specifications for Vehicle Exhaust Gas Analyzer Systems .

- -

3.2.22   <u>**End of Phase Logic:**</u>

These requirements are identical to section 3.2.12f of the Specifications for Vehicle Exhaust Gas Analyzer Systems .

- -

3.2.23   <u>**Second Gas Cap Missing Prompt:**</u>

These requirements are identical to section 3.2.12g of the Specifications for Vehicle Exhaust Gas Analyzer Systems .

- -

3.2.24   <u>**Second Gas Cap Testable Prompt:**</u>

These requirements are identical to section 3.2.12h of the Specifications for Vehicle Exhaust Gas Analyzer Systems .

- -

3.2.25   <u>**Second Gas Cap Connect Prompt:**</u>

These requirements are identical to section 3.2.12i of the Specifications for Vehicle Exhaust Gas Analyzer Systems .

- -

3.2.26   Second Gas Cap Results Prompt:

These requirements are identical to section 3.2.12j of the Specifications for Vehicle Exhaust Gas Analyzer Systems .

- -

3.2.27   End of Phase Logic:

These requirements are identical to section 3.2.12k of the Specifications for Vehicle Exhaust Gas Analyzer Systems .

- -

3.2.28   End of Test Logic:

These requirements are identical to section 3.2.12l of the Specifications for Vehicle Exhaust Gas Analyzer Systems .

- -

3.2.29   Safety Test Fee Prompt:

These requirements are identical to section 3.2.13 of the Specifications for Vehicle Exhaust Gas Analyzer Systems .

- -

3.2.30   Rejection Receipt:

These requirements are identical to section 3.2.14 of the Specifications for Vehicle Exhaust Gas Analyzer Systems .

- -

3.2.31   Certificate Number Prompt:

These requirements are identical to section 3.2.15 of the Specifications for Vehicle Exhaust Gas Analyzer Systems .

- -

3.2.32   Certificate Number Correction Prompt:

These requirements are identical to section 3.2.16 of the Specifications for Vehicle Exhaust Gas Analyzer Systems .

- -

3.2.33   VI 30A Selection Prompt:

These requirements are identical to section 3.2.17 of the Specifications for Vehicle Exhaust Gas Analyzer Systems .

- -

3.2.34   VI 30A Number Prompt:

These requirements are identical to section 3.2.18 of the Specifications for Vehicle Exhaust Gas Analyzer Systems .

- -

3.2.35 Print Vehicle Inspection Report:

These requirements are identical to section 3.2.19 of the Specifications for Vehicle Exhaust Gas Analyzer Systems .

- -

3.3 Main Menu Selection '3' " Emissions Only Inspection"

3.3.1 Access Code Prompt:

These requirements are identical to section 3.3.1 of the Specifications for Vehicle Exhaust Gas Analyzer Systems .

- -

3.3.1 PIN Number Prompt:

These requirements are identical to section 3.3.1 of the Specifications for Vehicle Exhaust Gas Analyzer Systems .

- -

3.3.2 Date Expiration Prompt:

These requirements are identical to section 3.3.2 of the Specifications for Vehicle Exhaust Gas Analyzer Systems .

- -

3.3.3 Inspection Type Prompt:

These requirements are identical to section 3.3.2a of the Specifications for Vehicle Exhaust Gas Analyzer Systems .

- -

3.3.5 Fuel Type Prompt:

These requirements are identical to section 3.3.3 of the Specifications for Vehicle Exhaust Gas Analyzer Systems .

- -

3.3.6 Model Year Prompt:

These requirements are identical to section 3.3.4 of the Specifications for Vehicle Exhaust Gas Analyzer Systems .

- -

3.3.7 <u>Bar Code Entry of License Plate Type, Number, and VIN Prompt:</u>

These requirements are identical to section 3.3.4a of the Specifications for Vehicle Exhaust Gas Analyzer Systems .

- -

3.3.8 <u>License Type Prompt:</u>

These requirements are identical to section 3.3.5 of the Specifications for Vehicle Exhaust Gas Analyzer Systems .

- -

3.3.9 <u>License Prompt:</u>

These requirements are identical to section 3.3.6 of the Specifications for Vehicle Exhaust Gas Analyzer Systems .

- -

3.3.10 <u>TxDOT Number Prompt:</u>

These requirements are identical to section 3.3.6a of the Specifications for Vehicle Exhaust Gas Analyzer Systems .

- -

3.3.11 <u>VIN Number Prompt:</u>

These requirements are identical to section 3.3.7 of the Specifications for Vehicle Exhaust Gas Analyzer Systems .

- -

3.3.12 <u>Texas Information Management System :</u>

These requirements are identical to section 3.3.7a of the Specifications for Vehicle Exhaust Gas Analyzer Systems .

- -

3.3.13 <u>Vehicle Type Prompt:</u>

These requirements are identical to section 3.3.8 of the Specifications for Vehicle Exhaust Gas Analyzer Systems .

- -

3.3.13a <u>Vehicle Body Type Prompt:</u>

These requirements are identical to section 3.3.10a of the Specifications for Vehicle Exhaust Gas Analyzer Systems .

- -

3.3.13a <u>Vehicle Make Prompt:</u>

These requirements are identical to section 3.3.9 of the Specifications for Vehicle Exhaust Gas Analyzer Systems .

- -

3.3.14   Model Prompt:

These requirements are identical to section 3.3.10 of the Specifications for Vehicle Exhaust Gas Analyzer Systems .

- -

- -

3.3.15   Odometer Prompt:

These requirements are identical to section 3.3.11 of the Specifications for Vehicle Exhaust Gas Analyzer Systems .

- - - - - - - - - - - -- -

3.3.15a   Injection/Carburetion Prompt:

These requirements are identical to section 3.3.12 of the Specifications for Vehicle Exhaust Gas Analyzer Systems .

- -

3.3.15b   Cylinder Prompt:

These requirements are identical to section 3.1.15b of the Specifications for Vehicle Exhaust Gas Analyzer Systems .

- -

3.3.15c   Engine Units Prompt:

These requirements are identical to section 3.3.15 of the Specifications for Vehicle Exhaust Gas Analyzer Systems .

- -

3.3.15d   Engine Size Prompt:

These requirements are identical to section 3.1.15a of the Specifications for Vehicle Exhaust Gas Analyzer Systems .

- -

3.3.15e   GVW Prompt:

These requirements are identical to section 3.1.15c of the Specifications for Vehicle Exhaust Gas Analyzer Systems .

- -

3.3.15f   Transmission Prompt:

These requirements are identical to section 3.1.16 of the Specifications for Vehicle Exhaust Gas Analyzer Systems .

- -

3.3.15g   Ignition Prompt:

These requirements are identical to section 3.1.17 of the Specifications for Vehicle Exhaust Gas Analyzer Systems .

- -

3.3.15h   Exhaust Prompt:

These requirements are identical to section 3.1.18 of the Specifications for Vehicle Exhaust Gas Analyzer Systems .

- -

3.3.15i   Drive Axle Prompt:

These requirements are identical to section 3.1.18a of the Specifications for Vehicle Exhaust Gas Analyzer Systems .

- -

3.3.15j   Vehicle Weight Prompt:

These requirements are identical to section 3.1.18.c of the Specifications for Vehicle Exhaust Gas Analyzer Systems .

- -

3.3.17   Pre-Tune Prompt:

These requirements are identical to section 3.3.19 of the Specifications for Vehicle Exhaust Gas Analyzer Systems .

- -

3.3.18   Confirm Vehicle Info Display:

These requirements are identical to section 3.3.19a of the Specifications for Vehicle

Exhaust Gas Analyzer Systems .

- -

3.3.19   Update Test Record:

 These requirements are identical to section 3.3.19b of the Specifications for Vehicle Exhaust Gas Analyzer Systems .

- -

3.3.20   OBDII Only Test Procedure

3.3.20a   OBD II Hookup:

The analyzer must be equipped with a standard SAE J1978 OBD connecter and communications link to allow an RPM signal, readiness codes, fault codes, and Malfunction Indicator Light (MIL) status to be downloaded from the on-board computer for applicable vehicles.

The equipment design and operation must meet all Federal requirements (contained in 40 CFR 85.2207-2231) and recommended SAE practices (J1962, J1978 and J1979) for OBDII system inspections.

The OBDII interrogation process shall be fully integrated into the TX96 analyzer system. It must be automated and require no inspector intervention to collect and record the OBD data retrieved via the OBD diagnostic link. An RPM signal, OBDII readiness codes, failure codes, and MIL status shall be automatically retrieved through a standard interface and vehicle connector. No hand-held unit or separate interface may be used.

If the OBDII Port has previously been connected for the RPM signal, proceed to the OBDII Readiness Evaluation Section. If not, proceed to the following prompt.

- -

3.3.20b   OBD II Connector Prompt:

TURN THE CAR OFF (I.E., PUT KEY IN "OFF/LOCK" POSITION)

LOCATE THE VEHICLE'S OBD DIAGNOSTIC LINK CONNECTOR.

ATTACH THE OBDII PORT TO THE VEHICLE CONNECTOR.

LEAVE CAR OFF FOR 12 SECONDS WITH CONNECTOR ATTACHED.

PRESS CONTINUE.

Programming Criteria:

The analyzer will prompt the inspector for an OBD II diagnostic link connection for all passenger vehicles and light-duty trucks whose model year is equal to or newer than the vehicle model year contained in the OBDII_Model_Year field of the SYSTEM table.

The analyzer will be designed to provide assistance to the inspector with OBD II connector locations using an OBD II connector look-up table.

- -

3.3.20c   OBD II (Key On, Engine Off) Prompt:

TURN THE IGNITION KEY TO THE 'ON' POSITION, BUT DON'T START THE ENGINE. LOCATE THE MIL (MALFUNCTION INDICATOR LIGHT) ON THE DASHBOARD.

DID THE MIL TURN ON? Note: MIL may stay on continuously or go out after only a few seconds. (CHOOSE THE CORRECT SENTENCE)

YES, the MIL did come on.

NO, the MIL did <u>NOT</u> come on at all.

The malfunction indicator light (mil) will either display "service engine soon," "check engine," the word "check" along with the international engine symbol, or some combination of these depending on the vehicle make.

Programming Criteria: The analyzer will ask the inspector to perform a key-on/engine-off check to see if the Malfunction Indicator Light/Check Engine Light (MIL) properly illuminates. The analyzer shall prompt the inspector to enter a No if the MIL does not properly illuminate. The analyzer software shall be designed so that the inspector can use the arrow keys to highlight his choice and press "continue" to select the appropriate sentence. The analyzer software shall not have a default entry for this screen. The inspector must be required press the arrow key at least once, followed by the "continue" key.

The help message for this screen shall contain the following text: "The Malfunction Indicator Light (MIL) is the official term for the warning light that is illuminated by the vehicle's OBD system when a malfunction occurs. Depending on the vehicle make, the MIL will either display "service Engine Soon," "Check Engine," the word "Check" along with the international engine symbol, or some combination of these . The MIL must come on when the ignition key is turned to the "key on, engine off" position. This is to allow inspectors to check that the MIL is capable of illuminating if a malfunction were to occur. On most vehicles, the MIL will stay illuminated as long as the key is in the position. However, on some vehicles, the MIL will illuminate very briefly when the key is turned to the "key on, engine off" position and then go out."

Error Message: 1.   **NO VALUES HAVE BEEN ENTERED--TRY AGAIN.**

Associated System File: **VEHICLE.DAT**   **OBD2_MIL_CHECK**

- -

3.3.20d   **OBD II Engine Running Prompt:**

START THE ENGINE AND ALLOW IT TO IDLE FOR AT LEAST 20 SECONDS. (I.E., PUT KEY IN "RUN" POSITION)

PRESS CONTINUE.

Programming Criteria:

The analyzer shall require the inspector to confirm that the vehicle is started and idling, by pressing the "enter/continue" key. The analyzer may attempt to establish

communications while displaying this prompt and accepting the response from the inspector.

- -

3.3.20e **OBD II Key On, Engine Running (KOER) Prompt:**

DID THE MIL TURN OFF? (CHOOSE THE CORRECT SENTENCE)

Yes, the MIL turned off.

No, the MIL stayed on.

Programming Criteria:

The analyzer will ask the inspector to see if the Malfunction Indicator Light/Check Engine Light (MIL) illuminates while the engine is running. The analyzer shall store a No, if the inspector indicates that the MIL does not illuminate while the engine is on. The analyzer software shall be designed so that the inspector can use the arrow keys to highlight his choice and press "continue" to select the appropriate sentence. The analyzer software shall not have a default entry for this screen. The inspector must be required press the arrow key at least once, followed by the "continue" key. The analyzer may attempt to establish communications while displaying this prompt and accepting the response from the inspector.

Error Message: 1.   NO VALUES HAVE BEEN ENTERED--TRY AGAIN.

Associated System File: **VEHICLE.DAT**   **OBD2_MIL_ON_RUN**

- -

3.3.20f **OBD II Connection Prompt:**

COMMUNICATION IN PROGRESS, PLEASE WAIT.

Programming Criteria:

The analyzer system shall display this message while attempting to establish communications with the vehicle's OBD computer.

If the inspector has pressed continue and connection cannot be confirmed, the analyzer will proceed to the OBD II Connection Non Confirmed Prompt in Section 3.3.20g. If the inspector has pressed continue and connection is confirmed, the analyzer will proceed to the OBD II Malfunction Indicator Light (MIL) Status Check in Section 3.3.20i.

- -

3.3.20g OBD II Connection Not Confirmed Prompt:

THE OBD II CONNECTION CANNOT BE CONFIRMED CHOOSE THE NEXT ACTION

1. TRY AGAIN

2. DO NOT TRY AGAIN - - (I.E., FAIL THE CAR)

Programming Criteria:

The analyzer shall display these choices and allow the inspector to use the arrow keys or number keys to highlight the appropriate choice and press enter to select. The default is to phrase 1.

If the inspector selects phrase number 1, the analyzer will attempt to gain a confirmed OBDII connection. The analyzer must allow the inspector unlimited attempts to gain a confirmed OBDII connection.

If the inspector selects phrase number 2, then the analyzer shall proceed to the OBDII No Connection Reason Prompt in Section 3.3.20h.

- -

3.3.20h OBD II No Connection Reason Prompt:

THE OBD II CONNECTION CANNOT BE CONFIRMED CHOOSE THE NEXT ACTION

1. BACK TO PREVIOUS SCREEN

2. CONNECTOR CANNOT BE LOCATED

3. CONNECTOR IS MISSING, DAMAGED, OR TAMPERED.

4. CONNECTOR IS OBSTRUCTED OR INACCESSIBLE AND CONNECTION IS NOT POSSIBLE.

5. COMMUNICATION FAILED, AND OBD II PORT IS ATTACHED TO CONNECTOR.

Programming Criteria:

The analyzer shall display all five choices and allow the inspector to use the arrow keys or number keys to highlight the appropriate choice and press enter to select. The default is to phrase 1.

If the inspector selects phrase number 1, the analyzer will return to the OBDII Connection Not Confirmed Prompt in Section 3.1.24g.

If the inspector selects phrase number 2, then the analyzer shall:

1. store a 'L' in the OBD2_DLC_RES field indicating the connector cannot be located, and,

2. proceed directly to the OBDII Test Evaluation and Messages Prompt in Section 3.3.20l.

If the inspector selects phrase number 3, then the analyzer shall:

1. store a 'D' in the OBD2_DLC_RES field indicating the connector is missing, damaged, or tampered, and,

2. proceed directly to the OBDII Test Evaluation and Messages Prompt in Section 3.3.20l.

If the inspector selects phrase number 4, then the analyzer shall:

1. store a 'I' in the OBD2_DLC_RES field indicating an inaccessible connector, and,

2. proceed directly to the OBDII Test Evaluation and Messages Prompt in Section 3.3.20l.

If the inspector selects phrase number 5, then the analyzer shall:

1. store a 'N' in the OBD2_DLC_RES field indicating failed to establish communication with vehicle, and,

2. proceed directly to the OBDII Test Evaluation and Messages Prompt in Section 3.3.20l.

If the test date is less than the date contained in the OBD2_FAIL_ST_DT field in the SYSTEM.DAT file, the analyzer shall:

1. Place a 'L,' 'D,' 'I,' or 'N,' in the OBD2_DLC_RES field in VEHICLE.DAT,

2. Place an blank in the OBD2_PF_FLAG field in VEHICLE.DAT,

3. Print 'FAIL' in the OBD section of the VIR,

4. A second page will be printed for the VIR indicating that the OBD failure is "**Advisory Only**", and that the vehicle's on-board diagnostic system could not be checked due to: unsuccessful communications if the OBD2_DLC_RES is set to 'N,' or a missing, damaged, or tampered connector if the OBD2_DLC_RES is set to 'D', or an unlocated connector if the OBD2_DLC_RES is set to 'L', or an inaccessible connector if the OBD2_DLC_RES is set to 'I,'and,

5. Proceed directly to the Preconditioned Two-Speed Idle Test Procedure.

The failure of the OBD portion of the test WILL NOT result in an overall test failure.

If the test date is equal to or greater than the date in the OBD2_FAIL_ST_DT field in the SYSTEM.DAT file, the analyzer will:

6. Place a 'L,' 'D,' 'I,' or 'N,' in the OBD2_DLC_RES field in VEHICLE.DAT,

7. Place an 'F' in the OBD2_PF_FLAG field (and later to the OVERALL_RESULTS field) in VEHICLE.DAT,

8. Print 'FAIL' in the OBD portion and the OVERALL TEST RESULT section of the VIR,

9. A second page will be printed for the VIR indicating that the vehicle's on-board diagnostic system could not be checked due to: unsuccessful communications if the OBD2_DLC_RES is set to 'N,' or a missing, damaged, or tampered connector if the OBD2_DLC_RES is set to 'D', or an unlocated connector if the OBD2_DLC_RES is set to 'L', or an inaccessible connector if the OBD2_DLC_RES is set to 'I,'and,

10. Proceed to the proceed directly to the OBDII Test Evaluation and Messages Prompt in Section 3.3.20l, and no tailpipe emissions inspection will be conducted.

The failure of the OBD portion of the test WILL result in an overall test failure.

Associated System File: **VEHICLE.DAT** **OBD2_DLC_RES**

OBD2_PF_FLAG

OVERALL_RESULTS

- -

3.3.20i   OBD II Malfunction Indicator Light (MIL) Status Check:

Programming Criteria:

The analyzer will evaluate the MIL status based on the data returned via the OBD link from the vehicle's on-board diagnostic system. The Yes/No (Y/N) status of whether the MIL has been commanded to be illuminated will be recorded in the OBD2_MIL_STATUS field of the test record.

If the MIL status returned is NOT COMMANDED ON with the engine running (i.e., RPM is greater than zero), the analyzer shall:

• store a "P" in the OBD2_MIL_STATUS field, and

• proceed to the OBD Readiness Evaluation section.

If the MIL status returned is COMMANDED ON with the engine running (i.e., RPM is greater than zero), the analyzer shall:

1. store an "F" in the OBD2_MIL_STATUS field, and

2. proceed to the OBD Readiness Evaluation section.

- -

3.3.20j   OBD II Readiness Evaluation:

The analyzer shall communicate with the OBD system of the vehicle under inspection to determine if the OBD system has enough readiness monitors completed to allow an evaluation of the OBD system. In accordance with EPA guidance, the readiness of the OBD system for evaluation is dependant on the year of the vehicle, and in some instances, on the model as well. This step is to store the status of the READINESS MONITORS in the OBD system with the engine running to allow the program to evaluate the stored results. If the vehicle has multiple ECMs, the analyzer shall provide the summary of results all the readiness monitors received from the vehicle as the status of the readiness monitors.

Programming Criteria:

i   A request (in accordance with SAE J1979, e.g., Mode $01, PID $01) shall be transmitted to the on-board computer to determine the evaluation status of the OBD system, the number of emission-related trouble codes stored in memory, and the Malfunction Indicator Light (MIL) status.

ii   Based on the returned data, the analyzer shall determine which on-board monitors are supported by the OBD system and the readiness code status of the applicable monitors.

iii   Possible monitors include the following:

(1)   Misfire (continuous)

(2)   Fuel system (continuous)

(3)   Comprehensive component (continuous)

(4)   Catalyst (once/trip)

(5)   Heated catalyst (once/trip)

(6)   Evaporative system (once/trip)

(7)   Secondary air system (once/trip)

(8)   Air conditioning system (once/trip)

(9)   Oxygen sensor (once/trip)

(10) Oxygen sensor heater (once/trip)

(11) EGR system (once/trip)

iv. Continuous monitors are those in which the applicable system/condition is checked continuously during vehicle operation; once/trip monitors are only checked when the vehicle is driven in a certain manner (i.e., over a predefined driving cycle expected to occur in customer service). According to Federal regulation (40 CFR 86.099-17), a vehicle manufacturer is not required to store a readiness code for the continuous operating monitors; however, some may choose to do so.

v. Possible readiness code responses include: completed/ready, not completed/not ready, and 'not supported/not enabled.' A response that a monitor is not supported or enabled means that, for this particular vehicle, that monitor is not applicable. Hence, when a 'not supported/not enabled' response is given, the analyzer will not fail the vehicle for that code.

vi. All readiness code values will be written to the appropriate test record fields in the VEHICLE.DAT file for each inspection using the following format:

   i. Not supported/enabled = 0,

   ii. Completed = 1, and

   iii. Not completed = 2.

vii If the value specified in the SYSTEM table for a particular readiness monitor is "Y", that code shall be used for the overall readiness determination. If the value specified for a readiness monitor in the SYSTEM table is "N", that code shall be ignored by the analyzer and not used for the overall readiness determination. Each readiness monitor field that contains a value of "Y" is an applicable readiness monitor.

For information on how to set the OBD2_READY_RES field, refer to part (a) of the OBD II Test Evaluation and Messages Prompt below.

- -

3.3.20k   OBD II Diagnostic Trouble Code (DTC) Check:

Programming Criteria:

i. The analyzer shall send a request (i.e., Mode $03) to the on-board computer to determine the stored emissions-related powertrain trouble codes. The analyzer will repeat this cycle until the number of codes reported equals the number expected based on the previous Mode $01 response. Any codes listed in the DTC table shall be recorded on the test record and the text fault code description shall be printed on the second page of the VIR.

ii.   If there are no DTCs:

    i.   A 'P' will be written to both the OBD2_FAULT_CD_RES and OBD2_PF_FLAG fields in VEHICLE.DAT,

    ii.   Two zeros ('00') will be stored in the DTC_STORED field of the VEHICLE. DAT file,

    iii.   A PASS will be printed in the OBD section of the VIR, and

    iv.   The analyzer will proceed to proceed directly to the OBD Test Evaluation and Messages Prompt in Section 3.3.20l, no tailpipe emissions inspection will be conducted.

iii.   If one or more DTC's is found causing the MIL to be commanded to be illuminated;

    i.   The analyzer will check the OBD2_FAIL_DT field in the SYSTEM table;

    ii.   If the test date is less than the date in the OBD2_FAIL_DT field and the MIL has been commanded to be illuminated:

        i.   An 'F' will be written to both the OBD2_FAULT_CD_RES and OBD2_PF_FLAG fields in VEHICLE.DAT.

        ii.   The first ten DTC(s), which cause the MIL to be illuminated, that was found will be written to the FAULT_CODES(DTCS) field in the VEHICLE.DAT table.

iv.   The analyzer shall store the total number of stored DTCs (not pending DTCs) causing the MIL to illuminate in the DTC_STORED field of the VEHICLE.DAT file. The analyzer shall also proceed to the OBD Test Evaluation and Messages Prompt.

- -

3.3.20l   OBD II Test Evaluation and Messages:

Programming Criteria:

The result of the OBD section of the test will be determined as follows:

- OBD2_MIL_CHECK is a manual entry
- OBD2_MIL_ON_RUN is a manual entry
- OBD2_DLC_RES is an automatic entry unless there is no communication between the

vehicle and the analyzer

- OBD2_MIL_STATUS is an automatic entry

- OBD2_READY_RES is a field populated automatically.

- OBD2_FAULT_CD_RES depends if there are any stored DTCs causing the MIL to illuminate.

Note: If the previously entered GVWR is greater than 8500 pounds (i.e., >8500 lbs.), the analyzer shall only collect the data from the vehicle OBD system and not use the data in the pass/fail determination. The following fields of the VEHICLE.DAT must contain a "P" in order to pass the OBD test sequence: OBD2_MIL_CHECK, OBD2_MIL_ON_RUN.

(a) The OBD2_READY_RES field is determined by the following criteria: The Pass outcome requires that not more than a certain number of monitors return a value of not ready (example: value = 2 for 1996 to 2000 model year vehicles, and 1 for 2001 and newer model year vehicles). This number is found in the field called MAX_NUM_NOT_READY in the SYSTEM.DAT file and is the number of non-continuous monitors allowed not ready and still PASS the OBD test. This number changes as the vehicle model year changes. The applicable model years are contained in the MAX_NT_RDY_BGN_YR and MAX_NT_RDY_END_YR fields of the SYSTEM.DAT file. If the vehicle is deemed "not ready," the analyzer shall abort the inspection if the date of inspection is greater than the date contained in the OBDII_FAIL_ST_DT field of the SYSTEM.DAT. If the vehicle is deemed "not ready," the analyzer shall will default to a TSI inspection if the date of inspection is less than the date contained in the OBDII_FAIL_ST_DT field of the SYSTEM.DAT file. If any continuous monitors indicate "not ready", the vehicle shall NOT PASS the OBD test.

- If a continuous monitor returns a not-ready status the OBD2_READY_RES shall remain an "F", or

- If there are fewer than the maximum non-continuous monitors not ready (less than or equal to MAX_NUM_NOT_READY), then a "P" shall be stored in the OBD2_READY_RES field of the VEHICLE.DAT record, or

- If too many non-continuous monitors are not ready (greater than MAX_NUM_ NOT_READY) then the OBD2_READY_RES RESULT shall remain "F."

(b) The following fields of the VEHICLE.DAT must contain a "P" in order to pass the   OBD test sequence: OBD2_MIL_CHECK, OBD2_MIL_ON_RUN, OBD2_DLC_RES, OBD2_MIL_STATUS, and OBD2_READY_RES.

1. If all the above fields contain a "P" then the program will store a "P" in the OBD2_PF_FLAG field of the VEHICLE.DAT file and print a PASS in the OBD Test Result section on the VIR,

2.   If any of the above fields contain a character other than a "P" then

(i) If the OBD2_DLC_RES field has a "D," "I," or an "N" stored in it then the analyzer shall write a "F" to OBD2_PF_FLAG of the VEHICLE.DAT and a "FAULT" should be written on the ADVISORY VIR:

(ii) If theOBD2_DLC_RES field does not have a "L" then the analyzer shall write a "F" to the OBD2_READY_RES field of the VEHICLE.DAT file and an "N/A" shall be printed on the ADVISORY OBD VIR.

(c) If the MY of the vehicle under test is equal to or greater than the value contained in the OBDII_MODEL_YR field in the SYSTEM.DAT and the test date is prior to the PASS/FAIL (P/F) start date of OBD testing as defined in the SYSTEM.DAT file, OBD failures will not cause the vehicle to have an OVERALL TEST FAILURE.. Motorist information messages shall be printed on an Advisory OBD VIR to be given to the motorist informing them of problems with their vehicle's OBD system. The analyzer shall proceed to perform a TSI emission test on failed OBD or aborted OBD tests during the advisory period.

NOTE: The Texas OBD advisory period starts when the OBD software is loaded on an analyzer and ends when the OBD mandatory P/F date flag is set in the SYSTEM.DAT file. Currently the start date of P/F OBD is May 1, 2002.

NOTE: The failing or aborted <u>OBD ADVISORY</u> VIR shall be printed prior to the tailpipe VIR.

1. If the value in the following fields is other than blank or "P" then the following message(s) shall be printed on the <u>Advisory OBD</u> VIR to inform the motorist of possible problems with their vehicle.

(i) If there is an "F" in the MIL KOEO or MIL KOER field the following shall be printed:

Based on the information received during the test, there may be a problem with your On-Board Diagnostic Computer Malfunction Indicator Light. Repairing any problems that exist will likely improve performance, fuel economy, and reduce pollution. This vehicle must have the On-Board Computer functioning properly to pass the vehicle inspection to register this vehicle next year. (Text subject to change)

OBD PRINT MESSAGE (2)

(ii) If there is a "D" or an "N" in the OBD2_DLC_RES field the following message shall be printed on the <u>Advisory OBD</u> VIR indicating that the vehicle's on-board diagnostic system could not be checked due to a missing, inaccessible, damaged, or tampered connector.

Based on the information gathered during an attempt to perform an On- Board Diagnostic test your vehicle has a missing, tampered, or broken Diagnostic Connector. This vehicle must have the On-Board Computer functioning properly to pass the vehicle inspection to register this vehicle next year. (Text subject to change)

<div align="center">OBD PRINT MESSAGE (3)</div>

(iii) If there is an "I" in the OBD2_DLC_RES field the following message shall be printed on the <u>ADVISORY OBD</u> VIR indicating that the vehicle's on-board diagnostic system could not be checked due to inaccessible connector,

Based on the information gathered during an attempt to perform an On-Board Diagnostic test your vehicle has an inaccessible Diagnostic Connector. This vehicle must have the Diagnostic Connector accessible to allow the check of the On Board Diagnostic computer system on the vehicle next year. (Text subject to change)

<div align="center">OBD PRINT MESSAGE (4)</div>

(iv) If there is an "F" in the OBD2_READY_RES field of the VEHICLE.DAT the vehicle will be failed and the following message shall be printed on the <u>Advisory OBD</u> VIR:

Based on the information obtained from the On-Board Computer in the vehicle, the system is not ready to make a determination regrading the pollution control system on the vehicle. This situation must be corrected before the OBD system can be evaluated and the reinspection made next year. See your owner's manual for information on "OBD/Readiness driving procedures" or contact your vehicle service advisor. (Text subject to change)

<div align="center">OBD PRINT MESSAGE (5)</div>

(v). If the OBD2_MIL_STATUS field has an **"F"** stored in it the following message shall be printed.

Based on the results of the On-Board Diagnostic test, your vehicle indicates there is a failure that is causing higher than allowed pollution levels to be emitted into the atmosphere. The problem(s) causing the failure, when fixed, will increase performance, fuel economy, and reduce pollution. Repair of the failure(s) will be required to pass the OBD test next year. (Text subject to change)

(d) If the model year of the vehicle being tested is equal to or greater than the value contained MY in the OBDII_MODEL_YR field in the SYSTEM.DAT or newer and the test date is after the mandatory P/F start date as defined in the SYSTEM.DAT file, OBD test results will be used to evaluate the Overall PASS/FAIL result of the vehicle being tested. The vehicle will receive a PASS of the OBD system if the OBD2_PF_FLAG field contains a "P", or

1. If the OBD2_PF_FLAG is not "P" and

   (i) if the result in the OBD2_DLC_RES is an "L" (abort code 80) the following message shall be printed on the <u>P/F VIR</u>:

   Based on the information gathered during an attempt to perform an On Board Diagnostic test your vehicle has a missing Diagnostic Connector, or a Diagnostic Connector that cannot be located by the inspector. This vehicle must have the On-Board Computer Diagnostic connector available to the inspector and functioning properly to pass the vehicle inspection. If you have questions regarding this test, ask the inspector who performed this test. (Text subject to change)

   <div align="right">OBD PRINT MESSAGE (10)</div>

   (ii) if the result in the OBD2_DLC_RES is an "D," "I," or an "N" the following message shall be printed on the <u>P/F VIR</u>:

   Based on the information gathered during an attempt to perform an On Board Diagnostic test your vehicle has a damaged or inaccessible Diagnostic Connector. This vehicle must have the On-Board Computer Diagnostic connector available to the inspector and functioning properly to pass the vehicle inspection. If you have questions regarding this test, ask the inspector who performed this test. (Text subject to change)

   <div align="right">OBD PRINT MESSAGE (11)</div>

   (iii) the result n the OBD2_READY_RES field is an "F" the following message shall be printed on the VIR: a "FAIL" shall be printed in the OBD2_PF_FLAG section of the P/F VIR. A failed OBD vehicle shall receive a FUEL CAP TEST.

   Based on information obtained from the On-Board Computer in the vehicle, the system is not ready to make a determination regarding the pollution control system on the vehicle. This situation must be corrected before the OBD system can be evaluated and the reinspection made which will allow this vehicle to be registered. See your owner's manual for information on "OBD/Readiness driving procedures" or contact your vehicle service advisor. (Text subject to change)

OBD PRINT MESSAGE (12)

2. If the value in the following fields is other than blank or "P" then the following message shall be printed on the <u>P/F</u> VIR to inform the motorist of possible problems with their vehicle.

(i) If there is an "F" in the OBD2_MIL_CHECK or the OBD2_MIL_ON_RUN field the following shall be printed on the <u>P/F</u> VIR:

Based on the information received during the test, there may be a problem with your On-Board Diagnostic Computer Malfunction Indicator Light. This vehicle must have the On-Board Computer system functioning properly to pass the vehicle inspection. (Text subject to change)

OBD PRINT MESSAGE (13)

(iv) If the OBD2_MIL_STATUS field has an "F" stored in it the following message shall be printed on the <u>P/F VIR</u>:

Based on information obtained from the On-Board Computer in the vehicle, the system has made a determination that there is a problem regarding the pollution control system on the vehicle. This situation must be corrected before the OBD system can be reinspected. See your owner's manual for information on "OBD/Readiness driving procedures" or contact your vehicle service advisor. (Text subject to change)

OBD PRINT MESSAGE (14)

- -

3.3.20m   **OBD II Engine Stop Prompt:**

SHUT OFF THE ENGINE

Programming Criteria: The analyzer will prompt the inspector to turn off the engine, and proceed to the Gas Cap Missing Prompt in Section 3.3.21.

- -

3.3.21   **Gas Cap Missing Prompt:**

These requirements are identical to section 3.3.21 of the Specifications for Vehicle Exhaust Gas Analyzer Systems .

- -

3.3.22   **Gas Cap Testable Prompt:**

These requirements are identical to section 3.3.22 of the Specifications for Vehicle Exhaust

Gas Analyzer Systems .

- -

3.3.23　Gas Cap Connect Prompt:

These requirements are identical to section 3.3.23 of the Specifications for Vehicle Exhaust Gas Analyzer Systems .

- -

3.3.24　Gas Cap Results Prompt:

These requirements are identical to section 3.3.24 of the Specifications for Vehicle Exhaust Gas Analyzer Systems .

- -

3.3.25　Second Gas Cap Prompt:

These requirements are identical to section 3.3.24a of the Specifications for Vehicle Exhaust Gas Analyzer Systems .

- -

3.3.26　End of Phase Logic:

These requirements are identical to section 3.3.24b of the Specifications for Vehicle Exhaust Gas Analyzer Systems .

- -

3.3.27　Second Gas Cap Missing Prompt:

These requirements are identical to section 3.3.24c of the Specifications for Vehicle Exhaust Gas Analyzer Systems .

- -

3.3.28　Second Gas Cap Testable Prompt:

These requirements are identical to section 3.3.24d of the Specifications for Vehicle Exhaust Gas Analyzer Systems .

- -

3.3.29　Second Gas Cap Connect Prompt:

These requirements are identical to section 3.3.24e of the Specifications for Vehicle Exhaust Gas Analyzer Systems .

- -

3.3.30　Second Gas Cap Results Prompt:

These requirements are identical to section 3.3.24f of the Specifications for Vehicle Exhaust Gas Analyzer Systems .

- -

3.3.31   End of Phase Logic:

These requirements are identical to section 3.3.24g of the Specifications for Vehicle Exhaust Gas Analyzer Systems .

- -

3.3.32   Emissions Test Fee Prompt:

These requirements are identical to section 3.3.25 of the Specifications for Vehicle Exhaust Gas Analyzer Systems .

- -

3.3.33   Decal Number Prompt:

These requirements are identical to section 3.3.25a of the Specifications for Vehicle Exhaust Gas Analyzer Systems .

- -

3.3.34   Decal Number Correction Prompt:

These requirements are identical to section 3.3.25b of the Specifications for Vehicle Exhaust Gas Analyzer Systems .

- -

3.3.35   Rejection Receipt:

These requirements are identical to section 3.3.26 of the Specifications for Vehicle Exhaust Gas Analyzer Systems .

- -

3.3.36   Print Vehicle Repair Form (VRF):

These requirements are identical to section 3.3.26a of the Specifications for Vehicle Exhaust Gas Analyzer Systems .

- -

3.3.37   Print Public Awareness Statement:

These requirements are identical to section 3.3.26b of the Specifications for Vehicle Exhaust Gas Analyzer Systems .

- -

3.3.38   Print Vehicle Inspection Report:

After the system has stored the test record, the following prompt shall be displayed.
"READY TO PRINT VEHICLE INSPECTION REPORT? ENTER "Y" FOR YES OR "N" FOR NO."

Depending upon the pass/fail status of the emissions phase of the inspection, the printer will provide additional information to the customer as outlined in Appendix B. The customer report shall include, but not be limited to, the following information: Test Type (Initial or Reinspection), Test (OBDII only), Test Date, Test Time, Test Cost (differentiated by Emission and Safety), Overall Cost, Inspector Name, Station Name, Vehicle License Number, VIN, Vehicle Make, Vehicle Model Year, Vehicle Type, Gross Vehicle Weight, Pollution Control System, Status of MIL Light, Fault Codes and Descriptions, Two Letter Special Test Designation where applicable, the Results of the Gas Cap Integrity Test, and the Overall Result of the Inspection. The subtitle of the report shall indicate that the test was a Safety and Emissions Inspection, Safety Only Inspection, Required Emission Only Decal Inspection or Emission Only Inspection, and whether or not the test was conducted as a Special Test. If the test was conducted as a Special Test, the Two Letter Designation (i.e., LI, ME, IV, AD, ST, PA, or OT) shall be placed on the same line as the Test Type separated by at least two spaces, or a slash, and the words 'Special Test' shall be in the subtitle. The system shall allow the inspector to print additional copies of the vehicle inspection report, after the initial report has been printed. The report shall indicate that the vehicle has failed. After the inspection has been completed, the analyzer shall contact the Texas Information Management System   and transmit all applicable vehicle information.

The analyzer shall print a barcode on the VIR which contains the VIN, license plate number of the vehicle, and the license type, make, year, and model name of the vehicle under inspection.

When the analyzer has completed printing the reprinted VIR, and the inspector chooses not to print additional copies, the analyzer shall return to the Main Menu.

- -

3.3.39   Texas Information Management System :

These requirements are identical to section 3.3.28 of the Specifications for Vehicle Exhaust Gas Analyzer Systems .

- -

3.4   Main Menu Selection '4' "Re-inspection"

3.4.1 Access Code Prompt:

These requirements are identical to section 3.4.1 of the Specifications for Vehicle Exhaust Gas Analyzer Systems .

- -

3.4.2 Date Expiration Prompt:

These requirements are identical to section 3.4.2 of the Specifications for Vehicle Exhaust

Gas Analyzer Systems .

- -

3.4.3 <u>Texas Information Management System :</u>

 These requirements are identical to section 3.4.2a of the Specifications for Vehicle Exhaust Gas Analyzer Systems .

- -

3.4.4 <u>Texas Information Management System :</u>

These requirements are identical to section 3.4.2b of the Specifications for Vehicle Exhaust Gas Analyzer Systems .

- -

3.4.5 <u>Display/Select Reinspection Record</u>:

These requirements are identical to section 3.4.3 of the Specifications for Vehicle Exhaust Gas Analyzer Systems .

- -

3.4.6 <u>Safety Inspection Items:</u>

These requirements are identical to section 3.4.4 of the Specifications for Vehicle Exhaust Gas Analyzer Systems.

- -

3.4.7 <u>Safety Inspection Items:</u>

These requirements are identical to section 3.4.4 of the Specifications for Vehicle Exhaust Gas Analyzer Systems .

- -

3.4.8 <u>Safety Test Fee Prompt:</u>

These requirements are identical to section 3.4.5 of the Specifications for Vehicle Exhaust Gas Analyzer Systems .

- -

3.4.9 <u>Emissions Reinspection Repairs</u>

These requirements are identical to section 3.4.6 of the Specifications for Vehicle Exhaust Gas Analyzer Systems .

- -

3.4.10 <u>OBD II Test Procedure</u>

3.4.10a <u>OBD II Hookup:</u>

The analyzer must be equipped with a standard SAE J1978 OBD connecter and communications link to allow an RPM signal, readiness codes, fault codes, and Malfunction Indicator Light (MIL) status to be downloaded from the on-board computer for applicable vehicles.

The equipment design and operation must meet all Federal requirements (contained in 40 CFR 85.2207-2231) and recommended SAE practices (J1962, J1978 and J1979) for OBDII system inspections.

The OBDII interrogation process shall be fully integrated into the TX96 analyzer system. It must be automated and require no inspector intervention to collect and record the OBD data retrieved via the OBD diagnostic link. An RPM signal, OBDII readiness codes, failure codes, and MIL status shall be automatically retrieved through a standard interface and vehicle connector. No hand-held unit or separate interface may be used.

If the OBDII Port has previously been connected for the RPM signal, proceed to the OBDII Readiness Evaluation Section. If not, proceed to the following prompt.

- -

3.4.10b   **OBD II Connector Prompt:**

TURN THE CAR OFF (I.E., PUT KEY IN "OFF/LOCK" POSITION)

LOCATE THE VEHICLE'S OBD DIAGNOSTIC LINK CONNECTOR.

ATTACH THE OBDII PORT TO THE VEHICLE CONNECTOR.

LEAVE CAR OFF FOR 12 SECONDS WITH CONNECTOR ATTACHED.

PRESS CONTINUE.

Programming Criteria:

The analyzer will prompt the inspector for an OBD II diagnostic link connection for all passenger vehicles and light-duty trucks whose model year is equal to or newer than the vehicle model year contained in the OBDII_Model_Year field of the SYSTEM table.

The analyzer will be designed to provide assistance to the inspector with OBD II connector locations using an OBD II connector look-up table.

- -

3.4.10c OBD II (Key On, Engine Off) Prompt:

TURN THE IGNITION KEY TO THE 'ON' POSITION, BUT DON'T START THE ENGINE. LOCATE THE MIL (MALFUNCTION INDICATOR LIGHT) ON THE DASHBOARD.

DID THE MIL TURN ON? Note: MIL may stay on continuously or go out after only a few seconds. (CHOOSE THE CORRECT SENTENCE)

YES, the MIL did come on.

NO, the MIL did <u>NOT</u> come on at all.

The malfunction indicator light (mil) will either display "service engine soon," "check engine," the word "check" along with the international engine symbol, or some combination of these depending on the vehicle make.

Programming Criteria: The analyzer will ask the inspector to perform a key-on/engine-off check to see if the Malfunction Indicator Light/Check Engine Light (MIL) properly illuminates. The analyzer shall prompt the inspector to enter a No if the MIL does not properly illuminate. The analyzer software shall be designed so that the inspector can use the arrow keys to highlight his choice and press "continue" to select the appropriate sentence. The analyzer software shall not have a default entry for this screen. The inspector must be required press the arrow key at least once, followed by the "continue" key.

The help message for this screen shall contain the following text: "The Malfunction Indicator Light (MIL) is the official term for the warning light that is illuminated by the vehicle's OBD system when a malfunction occurs. Depending on the vehicle make, the MIL will either display "service Engine Soon," "Check Engine," the word "Check" along with the international engine symbol, or some combination of these . The MIL must come on when the ignition key is turned to the "key on, engine off" position. This is to allow inspectors to check that the MIL is capable of illuminating if a malfunction were to occur. On most vehicles, the MIL will stay illuminated as long as the key is in the position. However, on some vehicles, the MIL will illuminate very briefly when the key is turned to the "key on, engine off" position and then go out."

Error Message: 1.   **NO VALUES HAVE BEEN ENTERED--TRY AGAIN.**

Associated System File: **VEHICLE.DAT**   **OBD2_MIL_CHECK**

- -

3.4.10d   OBD II Engine Running Prompt:

START THE ENGINE AND ALLOW IT TO IDLE FOR AT LEAST 20 SECONDS. (I.E., PUT KEY IN "RUN" POSITION)

PRESS CONTINUE.

Programming Criteria:

The analyzer shall require the inspector to confirm that the vehicle is started and idling, by pressing the "enter/continue" key. The analyzer may attempt to establish communications while displaying this prompt and accepting the response from the inspector.

- -

3.4.10e   OBD II Key On, Engine Running (KOER) Prompt:

DID THE MIL TURN OFF? (CHOOSE THE CORRECT SENTENCE)

Yes, the MIL turned off.

No, the MIL stayed on.

Programming Criteria:

The analyzer will ask the inspector to see if the Malfunction Indicator Light/Check Engine Light (MIL) illuminates while the engine is running. The analyzer shall store a No, if the inspector indicates that the MIL does not illuminate while the engine is on. The analyzer software shall be designed so that the inspector can use the arrow keys to highlight his choice and press "continue" to select the appropriate sentence. The analyzer software shall not have a default entry for this screen. The inspector must be required press the arrow key at least once, followed by the "continue" key. The analyzer may attempt to establish communications while displaying this prompt and accepting the response from the inspector.

Error Message: 1.   NO VALUES HAVE BEEN ENTERED--TRY AGAIN.

Associated System File: VEHICLE.DAT   OBD2_MIL_ON_RUN

- -

3.4.10f   OBD II Connection Prompt:

COMMUNICATION IN PROGRESS, PLEASE WAIT.

Programming Criteria:

The analyzer system shall display this message while attempting to establish communications with the vehicle's OBD computer.

If the inspector has pressed continue and connection cannot be confirmed, the analyzer will proceed to the OBD II Connection Non Confirmed Prompt in Section 3.4.10g. If the inspector has pressed continue and connection is confirmed, the analyzer will proceed to the OBD II Malfunction Indicator Light (MIL) Status Check in Section

3.4.10i.

- -

3.4.10g   <u>**OBD II Connection Not Confirmed Prompt:**</u>

THE OBD II CONNECTION CANNOT BE CONFIRMED CHOOSE THE NEXT ACTION

1. TRY AGAIN

2. DO NOT TRY AGAIN - - (I.E., FAIL THE CAR)

<u>**Programming Criteria:**</u>

The analyzer shall display these choices and allow the inspector to use the arrow keys or number keys to highlight the appropriate choice and press enter to select. The default is to phrase 1.

If the inspector selects phrase number 1, the analyzer will attempt to gain a confirmed OBDII connection. The analyzer must allow the inspector unlimited attempts to gain a confirmed OBDII connection.

If the inspector selects phrase number 2, then the analyzer shall proceed to the OBDII No Connection Reason Prompt in Section 3.4.10h.

- -

3.4.10h   <u>**OBD II No Connection Reason Prompt:**</u>

THE OBD II CONNECTION CANNOT BE CONFIRMED CHOOSE THE NEXT ACTION

1. BACK TO PREVIOUS SCREEN

2. CONNECTOR CANNOT BE LOCATED

3. CONNECTOR IS MISSING, DAMAGED, OR TAMPERED.

4. CONNECTOR IS OBSTRUCTED OR INACCESSIBLE AND CONNECTION IS NOT POSSIBLE.

5. COMMUNICATION FAILED, AND OBD II PORT IS ATTACHED TO CONNECTOR.

<u>**Programming Criteria:**</u>

The analyzer shall display all five choices and allow the inspector to use the arrow keys or number keys to highlight the appropriate choice and press enter to select. The default is to phrase 1.

If the inspector selects phrase number 1, the analyzer will return to the OBDII Connection Not Confirmed Prompt in Section 3.1.24g.

If the inspector selects phrase number 2, then the analyzer shall:

1. store a 'L' in the OBD2_DLC_RES field indicating the connector cannot be located, and,

2. proceed directly to the OBDII Test Evaluation and Messages Prompt in Section 3.4.12.

If the inspector selects phrase number 3, then the analyzer shall:

1. store a 'D' in the OBD2_DLC_RES field indicating the connector is missing, damaged, or tampered, and,

2. proceed directly to the OBDII Test Evaluation and Messages Prompt in Section 3.4.12.

If the inspector selects phrase number 4, then the analyzer shall:

1. store a 'I' in the OBD2_DLC_RES field indicating an inaccessible connector, and,

2. proceed directly to the OBDII Test Evaluation and Messages Prompt in

Section 3.4.12.

If the inspector selects phrase number 5, then the analyzer shall:

1. store a 'N' in the OBD2_DLC_RES field indicating failed to establish communication with vehicle, and,

2. proceed directly to the OBDII Test Evaluation and Messages Prompt in Section 3.4.12.

If the test date is less than the date contained in the OBD2_FAIL_ST_DT field in the SYSTEM.DAT file, the analyzer shall:

1. Place a 'L,' 'D,' 'I,' or 'N,' in the OBD2_DLC_RES field in VEHICLE.DAT,

2. Place an blank in the OBD2_PF_FLAG field in VEHICLE.DAT,

3. Print 'FAIL' in the OBD section of the VIR,

4. A second page will be printed for the VIR indicating that the OBD failure is "**Advisory Only**", vehicle's on-board diagnostic system could not be checked due to: unsuccessful communications if the OBD2_DLC_RES is set to 'N,' or a missing, damaged, or tampered connector if the OBD2_DLC_RES is set to 'D', or an unlocated connector if the OBD2_DLC_RES is set to 'L', or an inaccessible connector if the OBD2_DLC_RES is set to 'I,'and,

5. Proceed directly to the Preconditioned Two-Speed Idle Test Procedure.

The failure of the OBD portion of the test WILL NOT result in an overall test failure.

If the test date is equal to or greater than the date in the OBD2_FAIL_ST_DT field in the SYSTEM.DAT file, the analyzer will:

6. Place a 'L,' 'D,' 'I,' or 'N,' in the OBD2_DLC_RES field in VEHICLE.DAT,

7. Place an 'F' in the OBD2_PF_FLAG field (and later to the OVERALL_RESULTS field) in VEHICLE.DAT,

8. Print 'FAIL' in the OBD portion and the OVERALL TEST RESULT section of the VIR,

9. A second page will be printed for the VIR indicating that the vehicle's on-board diagnostic system could not be checked due to: unsuccessful communications if the OBD2_DLC_RES is set to 'N,' or a missing, damaged, or tampered connector if the OBD2_DLC_RES is set to 'D', or an unlocated connector if the OBD2_DLC_RES is

set to 'L', or an inaccessible connector if the OBD2_DLC_RES is set to 'I,' and,

10. Proceed to the proceed directly to the OBDII Test Evaluation and Messages Prompt in Section 3.4.12, and no tailpipe emissions inspection will be conducted.

The failure of the OBD portion of the test WILL result in an overall test failure.

Associated System File: **VEHICLE.DAT** **OBD2_DLC_RES**

OBD2_PF_FLAG

OVERALL_RESULTS

- -

3.4.10i   OBD II Malfunction Indicator Light (MIL) Status Check:

Programming Criteria:

The analyzer will evaluate the MIL status based on the data returned via the OBD link from the vehicle's on-board diagnostic system. The Yes/No (Y/N) status of whether the MIL has been commanded to be illuminated will be recorded in the OBD2_MIL_STATUS field of the test record.

If the MIL status returned is NOT COMMANDED ON with the engine running (i.e., RPM is greater than zero), the analyzer shall:

- store a "P" in the OBD2_MIL_STATUS field, and

- proceed to the OBD Readiness Evaluation section.

If the MIL status returned is COMMANDED ON with the engine running (i.e., RPM is greater than zero), the analyzer shall:

1. store an "F" in the OBD2_MIL_STATUS field, and

2. proceed to the OBD Readiness Evaluation section.

- -

3.4.10j   OBD II Readiness Evaluation:

The analyzer shall communicate with the OBD system of the vehicle under inspection to determine if the OBD system has enough readiness monitors completed to allow an evaluation of the OBD system. In accordance with EPA guidance, the readiness of the OBD system for evaluation is dependant on the year of the vehicle, and in some instances, on the model as well. This step is to store the status of the READINESS MONITORS in the OBD system with the engine running to allow the program to evaluate the stored results. If the vehicle has multiple ECMs, the analyzer shall provide the summary of results all the readiness monitors received from the vehicle as the status of the readiness monitors.

Programming Criteria:

i   A request (in accordance with SAE J1979, e.g., Mode $01, PID $01) shall be transmitted to the on-board computer to determine the evaluation status of the OBD system, the number of emission-related trouble codes stored in memory, and the Malfunction Indicator Light (MIL) status.

ii   Based on the returned data, the analyzer shall determine which on-board monitors are supported by the OBD system and the readiness code status of the applicable monitors.

iii   Possible monitors include the following:

    (1)   Misfire (continuous)

    (2)   Fuel system (continuous)

    (3)   Comprehensive component (continuous)

    (4)   Catalyst (once/trip)

    (5)   Heated catalyst (once/trip)

    (6)   Evaporative system (once/trip)

    (7)   Secondary air system (once/trip)

    (8)   Air conditioning system (once/trip)

    (9)   Oxygen sensor (once/trip)

    (10) Oxygen sensor heater (once/trip)

    (11) EGR system (once/trip)

iv.   Continuous monitors are those in which the applicable system/condition is checked continuously during vehicle operation; once/trip monitors are only checked when the vehicle is driven in a certain manner (i.e., over a predefined driving cycle expected to occur in customer service). According to Federal regulation (40 CFR 86.099-17), a vehicle manufacturer is not required to store a readiness code for the continuous

operating monitors; however, some may choose to do so.

v.   Possible readiness code responses include: completed/ready, not completed/not ready, and 'not supported/not enabled.' A response that a monitor is not supported or enabled means that, for this particular vehicle, that monitor is not applicable. Hence, when a 'not supported/not enabled' response is given, the analyzer will not fail the vehicle for that code.

vi. All readiness code values will be written to the appropriate test record fields in the VEHICLE.DAT file for each inspection using the following format:

 i. Not supported/enabled = 0,

 ii. Completed = 1, and

 iii. Not completed = 2.

vii If the value specified in the SYSTEM table for a particular readiness monitor is "Y", that code shall be used for the overall readiness determination. If the value specified for a readiness monitor in the SYSTEM table is "N", that code shall be ignored by the analyzer and not used for the overall readiness determination. Each readiness monitor field that contains a value of "Y" is an applicable readiness monitor.

For information on how to set the OBD2_READY_RES field, refer to part (a) of the OBD II Test Evaluation and Messages Prompt below.

- -

3.4.10k   OBD II Diagnostic Trouble Code (DTC) Check:

Programming Criteria:

i.   The analyzer shall send a request (i.e., Mode $03) to the on-board computer to determine the stored emissions-related powertrain trouble codes. The analyzer will repeat this cycle until the number of codes reported equals the number expected based on the previous Mode $01 response. Any codes listed in the DTC table shall be recorded on the test record and the text fault code description shall be printed on the second page of the VIR.

ii. If there are no DTCs:

 i. A 'P' will be written to both the OBD2_FAULT_CD_RES and OBD2_PF_FLAG fields in VEHICLE.DAT,

 ii. Two zeros ('00') will be stored in the DTC_STORED field of the VEHICLE. DAT file,

iii.   A PASS will be printed in the OBD section of the VIR, and

iv.   The analyzer will proceed to proceed directly to the OBD Test Evaluation and Messages Prompt in Section 3.4.10l, no tailpipe emissions inspection will be conducted.

iii.   If one or more DTC's is found causing the MIL to be commanded to be illuminated;

    i.   The analyzer will check the OBD2_FAIL_DT field in the SYSTEM table;

    ii.   If the test date is less than the date in the OBD2_FAIL_DT field and the MIL has been commanded to be illuminated:

        i.   An 'F' will be written to both the OBD2_FAULT_CD_RES and OBD2_PF_FLAG fields in VEHICLE.DAT.

        ii.   The first ten DTC(s), which cause the MIL to be illuminated, that was found will be written to the FAULT_CODES(DTCS) field in the VEHICLE.DAT table.

iv.   The analyzer shall store the total number of stored DTCs (not pending DTCs) causing the MIL to illuminate in the DTC_STORED field of the VEHICLE.DAT file. The analyzer shall also proceed to the OBD Test Evaluation and Messages Prompt.

- -

3.4.10l   OBD II Test Evaluation and Messages:

Programming Criteria:

The result of the OBD section of the test will be determined as follows:

- OBD2_MIL_CHECK is a manual entry

- OBD2_MIL_ON_RUN is a manual entry

- OBD2_DLC_RES is an automatic entry unless there is no communication between the vehicle and the analyzer

- OBD2_MIL_STATUS is an automatic entry

- OBD2_READY_RES is a field populated automatically.

- OBD2_FAULT_CD_RES depends if there are any stored DTCs causing the MIL to illuminate.

Note: If the previously entered GVWR is greater than 8500 pounds (i.e., >8500 lbs.), the analyzer shall only collect the data from the vehicle OBD system and not use the data in the pass/fail determination. The following fields of the VEHICLE.DAT must contain a "P" in order to pass the   OBD test sequence: OBD2_MIL_CHECK, OBD2_MIL_ON_RUN.

(a) The OBD2_READY_RES field is determined by the following criteria: The Pass outcome requires that not more than a certain number of monitors return a value of not ready (example: value = 2 for 1996 to 2000 model year vehicles, and 1 for 2001 and newer model year vehicles). This number is found in the field called MAX_NUM_NOT_READY in the SYSTEM.DAT file and is the number of non-continuous monitors allowed not ready and still PASS the OBD test. This number changes as the vehicle model year changes. The applicable model years are contained in the MAX_NT_RDY_BGN_YR and MAX_NT_RDY_END_YR fields of the SYSTEM.DAT file. If the vehicle is deemed "not ready," the analyzer shall abort the inspection if the date of inspection is greater than the date contained in the OBDII_FAIL_ST_DT field of the SYSTEM.DAT. If the vehicle is deemed "not ready," the analyzer shall will default to a TSI inspection if the date of inspection is less than the date contained in the OBDII_FAIL_ST_DT field of the SYSTEM.DAT file. If any continuous monitors indicate "not ready", the vehicle shall NOT PASS the OBD test.

- If a continuous monitor returns a not-ready status the OBD2_READY_RES shall remain an "F", or

- If there are fewer than the maximum non-continuous monitors not ready (less than or equal to MAX_NUM_NOT_READY), then a "P" shall be stored in the OBD2_READY_RES field of the VEHICLE.DAT record, or

- If too many non-continuous monitors are not ready (greater than MAX_NUM_ NOT_READY) then the OBD2_READY_RES RESULT shall remain "F."

(b) The following fields of the VEHICLE.DAT must contain a "P" in order to pass the   OBD test sequence: OBD2_MIL_CHECK, OBD2_MIL_ON_RUN, OBD2_DLC_RES, OBD2_MIL_STATUS, and OBD2_READY_RES.

1. If all the above fields contain a "P" then the program will store a "P" in the OBD2_PF_FLAG field of the VEHICLE.DAT file and print a PASS in the OBD Test Result section on the VIR,

2.   If any of the above fields contain a character other than a "P" then

(i) If the OBD2_DLC_RES field has a "D," "I," or an "N" stored in it then the analyzer shall write a "F" to OBD2_PF_FLAG of the VEHICLE.DAT and a "FAULT" should be written on the ADVISORY VIR:

(ii) If theOBD2_DLC_RES field does not have a "L" then the analyzer shall write a "F" to the OBD2_READY_RES field of the VEHICLE.DAT file and an "N/A" shall be printed on the ADVISORY OBD VIR.

(c) If the MY of the vehicle under test is equal to greter than the value contained in the) OBDII_MODEL_YR field in the SYSTEM.DAT or newer and the test date is prior to the PASS/FAIL (P/F) start date of OBD testing as defined in the SYSTEM.DAT file, OBD failures will not cause the vehicle to have an OVERALL TEST FAILURE.. Motorist information messages shall be printed on an Advisory OBD VIR to be given to the motorist informing them of problems with their vehicle's OBD system. The analyzer shall proceed to perform a TSI emission test on failed OBD or aborted OBD tests during the advisory period.

NOTE: The Texas OBD advisory period starts when the OBD software is loaded on an analyzer and ends when the OBD mandatory P/F date flag is set in the SYSTEM.DAT file. Currently the start date of P/F OBD is May 1, 2002.

NOTE: The failing or aborted OBD ADVISORY VIR shall be printed prior to the tailpipe VIR.

1. If the value in the following fields is other than blank or "P" then the following message(s) shall be printed on the Advisory OBD VIR to inform the motorist of possible problems with their vehicle.

(i) If there is an "F" in the MIL KOEO or MIL KOER field the following shall be printed:

Based on the information received during the test, there may be a problem with your On-Board Diagnostic Computer Malfunction Indicator Light. Repairing any problems that exist will likely improve performance, fuel economy, and reduce pollution. This vehicle must have the On-Board Computer functioning properly to pass the vehicle inspection to register this vehicle next year. (Text subject to change)

OBD PRINT MESSAGE (2)

(ii) If there is a "D" or an "N" in the OBD2_DLC_RES field the following message shall be printed on the Advisory OBD VIR indicating that the vehicle's on-board diagnostic system could not be checked due to a missing, inaccessible, damaged, or tampered connector.

Based on the information gathered during an attempt to perform an On- Board Diagnostic test your vehicle has a missing, tampered, or broken Diagnostic Connector. This vehicle must have the On-Board Computer functioning properly

to pass the vehicle inspection to register this vehicle next year. (Text subject to change)

<div align="center">OBD PRINT MESSAGE (3)</div>

(iii) If there is an "I" in the OBD2_DLC_RES field the following message shall be printed on the <u>ADVISORY OBD</u> VIR indicating that the vehicle's on-board diagnostic system could not be checked due to inaccessible connector,

Based on the information gathered during an attempt to perform an On-Board Diagnostic test your vehicle has an inaccessible Diagnostic Connector. This vehicle must have the Diagnostic Connector accessible to allow the check of the On Board Diagnostic computer system on the vehicle next year. (Text subject to change)

<div align="center">OBD PRINT MESSAGE (4)</div>

(iv) If there is an "F" in the OBD2_READY_RES field of the VEHICLE.DAT the vehicle will be failed and the following message shall be printed on the <u>Advisory OBD</u> VIR:

Based on the information obtained from the On-Board Computer in the vehicle, the system is not ready to make a determination regrading the pollution control system on the vehicle. This situation must be corrected before the OBD system can be evaluated and the reinspection made next year. See your owner's manual for information on "OBD/Readiness driving procedures" or contact your vehicle service advisor. (Text subject to change)

<div align="center">OBD PRINT MESSAGE (5)</div>

(v). If the OBD2_MIL_STATUS field has an "F" stored in it the following message shall be printed.

Based on the results of the On-Board Diagnostic test, your vehicle indicates there is a failure that is causing higher than allowed pollution levels to be emitted into the atmosphere. The problem(s) causing the failure, when fixed, will increase performance, fuel economy, and reduce pollution. Repair of the failure(s) will be required to pass the OBD test next year. (Text subject to change)

<div align="center">OBD PRINT MESSAGE (6)</div>

(d) If the model year of the vehicle being tested is equal to or greater than the value contained in the OBDII_MODEL_YR field in SYSTEM.DAT or newer and the test date is after the mandatory P/F start date as defined in the SYSTEM.DAT file, OBD test results will be used to evaluate the Overall PASS/FAIL result of the vehicle being tested. The vehicle will receive a PASS of the OBD system if the OBD2_PF_FLAG field contains a "P", or

1. If the OBD2_PF_FLAG is not "P" and

   (i) if the result in the OBD2_DLC_RES is an "L" (abort code 80) the following message shall be printed on the P/F VIR:

   > **Based on the information gathered during an attempt to perform an On Board Diagnostic test your vehicle has a missing Diagnostic Connector, or a Diagnostic Connector that cannot be located by the inspector. This vehicle must have the On-Board Computer Diagnostic connector available to the inspector and functioning properly to pass the vehicle inspection. If you have questions regarding this test, ask the inspector who performed this test.**
   > (Text subject to change)

   <div align="center">OBD PRINT MESSAGE (10)</div>

   (ii) if the result in the OBD2_DLC_RES is an "D," "I," or an "N" the following message shall be printed on the P/F VIR:

   > **Based on the information gathered during an attempt to perform an On Board Diagnostic test your vehicle has a damaged or inaccessible Diagnostic Connector. This vehicle must have the On-Board Computer Diagnostic connector available to the inspector and functioning properly to pass the vehicle inspection. If you have questions regarding this test, ask the inspector who performed this test.** (Text subject to change)

   <div align="center">OBD PRINT MESSAGE (11)</div>

   (iii) the result n the OBD2_READY_RES field is an "F" the following message shall be printed on the VIR: a "FAIL" shall be printed in the OBD2_PF_FLAG section of the P/F VIR. A failed OBD vehicle shall receive a FUEL CAP TEST.

   > **Based on information obtained from the On-Board Computer in the vehicle, the system is not ready to make a determination regarding the pollution control system on the vehicle. This situation must be corrected before the OBD system can be evaluated and the reinspection made which will allow this vehicle to be registered. See your owner's manual for information on "OBD/Readiness driving procedures" or contact your vehicle service advisor.**
   > (Text subject to change)

   <div align="center">OBD PRINT MESSAGE (12)</div>

2. If the value in the following fields is other than blank or "P" then the following message shall be printed on the P/F VIR to inform the motorist of possible problems with their vehicle.

   (i) If there is an "F" in the OBD2_MIL_CHECK or the OBD2_MIL_ON_RUN field the following shall be printed on the P/F VIR:

   Based on the information received during the test, there may be a problem with

your On-Board Diagnostic Computer Malfunction Indicator Light. This vehicle must have the On-Board Computer system functioning properly to pass the vehicle inspection. (Text subject to change)

<div align="right">OBD PRINT MESSAGE (13)</div>

(iv) If the OBD2_MIL_STATUS field has an "F" stored in it the following message shall be printed on the <u>P/F VIR</u>:

Based on information obtained from the On-Board Computer in the vehicle, the system has made a determination that there is a problem regarding the pollution control system on the vehicle. This situation must be corrected before the OBD system can be reinspected. See your owner's manual for information on "OBD/Readiness driving procedures" or contact your vehicle service advisor. (Text subject to change)

<div align="right">OBD PRINT MESSAGE (14)</div>

- -

3.4.10m   OBD II Engine Stop Prompt:

SHUT OFF THE ENGINE

Programming Criteria: The analyzer will prompt the inspector to turn off the engine, and proceed to the Gas Cap Missing Prompt in Section 3.4.12.

- -

3.4.11   Reinspection Test Completion

These requirements are identical to section 3.4.7 of the Specifications for Vehicle Exhaust Gas Analyzer Systems .

- -

3.4.12   Gas Cap Missing Prompt:

These requirements are identical to section 3.4.8 of the Specifications for Vehicle Exhaust Gas Analyzer Systems .

- -

3.4.13   Gas Cap Testable Prompt:

These requirements are identical to section 3.4.9 of the Specifications for Vehicle Exhaust

Gas Analyzer Systems .

- -

3.4.14   Gas Cap Connect Prompt:

These requirements are identical to section 3.4.10 of the Specifications for Vehicle Exhaust Gas Analyzer Systems .

- -

3.4.15   Gas Cap Results Prompt:

These requirements are identical to section 3.4.11 of the Specifications for Vehicle Exhaust Gas Analyzer Systems .

- -

3.4.16   Second Gas Cap Prompt:

These requirements are identical to section 3.4.11a of the Specifications for Vehicle Exhaust Gas Analyzer Systems .

- -

3.4.17   End of Phase Logic:

These requirements are identical to section 3.4.11b of the Specifications for Vehicle Exhaust Gas Analyzer Systems .

- -

3.4.18   Second Gas Cap Missing Prompt:

These requirements are identical to section 3.4.11c of the Specifications for Vehicle Exhaust Gas Analyzer Systems .

- -

3.4.19   Second Gas Cap Testable Prompt:

These requirements are identical to section 3.4.11d of the Specifications for Vehicle Exhaust Gas Analyzer Systems .

- -

3.4.20   Second Gas Cap Connect Prompt:

These requirements are identical to section 3.4.11e of the Specifications for Vehicle Exhaust Gas Analyzer Systems .

- -

3.4.21   Second Gas Cap Results Prompt:

These requirements are identical to section 3.4.11f of the Specifications for Vehicle Exhaust Gas Analyzer Systems .

- -

3.4.22　End of Phase Logic:

These requirements are identical to section 3.4.11g of the Specifications for Vehicle Exhaust Gas Analyzer Systems .

- -

3.4.23　Emissions Test Fee Prompt:

These requirements are identical to section 3.4.12 of the Specifications for Vehicle Exhaust Gas Analyzer Systems .

- -

3.4.24　Certificate Number Prompt:

These requirements are identical to section 3.4.13 of the Specifications for Vehicle Exhaust Gas Analyzer Systems .

- -

3.4.25　Certificate Number Correction Prompt:

These requirements are identical to section 3.4.14 of the Specifications for Vehicle Exhaust Gas Analyzer Systems .

- -

3.4.26　VI 30A Selection Prompt:

These requirements are identical to section 3.4.15 of the Specifications for Vehicle Exhaust Gas Analyzer Systems .

- -

3.4.27　VI 30A Number Prompt:

These requirements are identical to section 3.4.16 of the Specifications for Vehicle Exhaust Gas Analyzer Systems .

- -

3.4.28　Rejection Receipt:

These requirements are identical to section 3.4.17 of the Specifications for Vehicle Exhaust Gas Analyzer Systems .

- -

3.4.29　Print Vehicle Repair Form (VRF):

 These requirements are identical to section 3.4.17a of the Specifications for Vehicle Exhaust Gas Analyzer Systems .

- -

3.4.30　Print Public Awareness Statement

- -

3.4.31   Print Vehicle Inspection Report:

After the system has stored the test record, the following prompt shall be displayed. **"READY TO PRINT VEHICLE INSPECTION REPORT? ENTER "Y" FOR YES OR "N" FOR NO."**

Depending upon the pass/fail status of the emissions phase of the inspection, the printer will provide additional information to the customer as outlined in Appendix B. The customer report shall include, but not be limited to, the following information: Test Type (Initial or Reinspection), Test (OBDII only), Test Date, Test Time, Test Cost (differentiated by Emission and Safety), Overall Cost, Inspector Name, Station Name, Vehicle License Number, VIN, Vehicle Make, Vehicle Model Year, Vehicle Type, Gross Vehicle Weight, Pollution Control System, Status of MIL Light, Fault Codes and Descriptions, Two Letter Special Test Designation where applicable, the Results of the Gas Cap Integrity Test, and the Overall Result of the Inspection. The subtitle of the report shall indicate that the test was a Safety and Emissions Inspection, Safety Only Inspection, Required Emission Only Decal Inspection or Emission Only Inspection, and whether or not the test was conducted as a Special Test. If the test was conducted as a Special Test, the Two Letter Designation (i.e., LI, ME, IV, AD, ST, PA, or OT) shall be placed on the same line as the Test Type separated by at least two spaces, or a slash, and the words 'Special Test' shall be in the subtitle. The system shall allow the inspector to print additional copies of the vehicle inspection report, after the initial report has been printed. The report shall indicate that the vehicle has failed. After the inspection has been completed, the analyzer shall contact the Texas Information Management System , and transmit all applicable vehicle information.

The analyzer shall print a bar code on the VIR which contains the VIN, license plate number of the vehicle, and the license type, make, year, and model name of the vehicle under inspection. The bar code shall be code 39 format and contain only the previously mentioned information and the start and stop characters. As a phrased that allows communications and printing of the VIR to be simultaneously. Also, make printouts, come customer first then the station copy.

Error Message: **NO VALUES ENTERED -- TRY AGAIN**

- -

3.5   Main Menu Selection '5' "Re-Print Vehicle Inspection Report" / "VIR"

There are no requirements to write a test record for reprinting a VIR. An analyzer that writes a test record for reprints shall not be deemed unacceptable.

- -

3.5.1 <u>Access Code Prompt:</u>

These requirements are identical to section 3.5.1 of the Specifications for Vehicle Exhaust Gas Analyzer Systems .

- -

3.5.2 <u>Date Expiration Prompt:</u>

These requirements are identical to section 3.5.2 of the Specifications for Vehicle Exhaust Gas Analyzer Systems .

- -

3.5.2a <u>Bar Code Entry of License Plate Type, Number, and VIN Prompt:</u>

These requirements are identical to section 3.1.5a of the Specifications for Vehicle Exhaust Gas Analyzer Systems .

- -

3.5.3 <u>Retrieve Previous Records Prompt:</u>

These requirements are identical to section 3.5.2a of the Specifications for Vehicle Exhaust Gas Analyzer Systems .

- -

3.5.4 <u>VIN Number Prompt:</u>

These requirements are identical to section 3.5.2b of the Specifications for Vehicle Exhaust Gas Analyzer Systems .

- -

3.5.5 <u>License Prompt:</u>

These requirements are identical to section 3.5.2c of the Specifications for Vehicle Exhaust Gas Analyzer Systems .

- -

3.5.6 <u>Texas Information Management System :</u>

The analyzer shall contact the Texas Information Management System , retrieve all applicable vehicle information, and enter the information into the appropriate fields.

- -

3.5.7 <u>Display/Select Pass Records</u>

These requirements are identical to section 3.5.3h of the Specifications for Vehicle Exhaust Gas Analyzer Systems .

- -

3.5.8 <u>Reprint Prompt:</u>

These requirements are identical to section 3.5.4 of the Specifications for Vehicle Exhaust Gas Analyzer Systems .

- -

3.5.9 <u>Print Vehicle Inspection Report:</u>

After the system has stored the test record, the following prompt shall be displayed.
"READY TO PRINT VEHICLE INSPECTION REPORT? ENTER "Y" FOR YES OR "N" FOR NO."

Depending upon the pass/fail status of the emissions phase of the inspection, the printer will provide additional information to the customer as outlined in Appendix B. The customer report shall include, but not be limited to, the following information: Test Type (Initial or Reinspection), Test (OBDII only), Test Date, Test Time, Test Cost (differentiated by Emission and Safety), Overall Cost, Inspector Name, Station Name, Vehicle License Number, VIN, Vehicle Make, Vehicle Model Year, Vehicle Type, Gross Vehicle Weight, Pollution Control System, Status of MIL Light, Fault Codes and Descriptions, Two Letter Special Test Designation where applicable, the Results of the Gas Cap Integrity Test, and the Overall Result of the Inspection. The subtitle of the report shall indicate that the test was a Safety and Emissions Inspection, Safety Only Inspection, Required Emission Only Decal Inspection or Emission Only Inspection, and whether or not the test was conducted as a Special Test. If the test was conducted as a Special Test, the Two Letter Designation (i.e., LI, ME, IV, AD, ST, PA, or OT) shall be placed on the same line as the Test Type separated by at least two spaces, or a slash, and the words 'Special Test' shall be in the subtitle. The system shall allow the inspector to print additional copies of the vehicle inspection report, after the initial report has been printed. The report shall indicate that the vehicle has failed. After the inspection has been completed, the analyzer shall contact the Texas Information Management System , and transmit all applicable vehicle information.

The analyzer shall print a barcode on the VIR which contains the VIN, license plate number of the vehicle, and the license type, make, year, and model name of the vehicle under inspection.

When the analyzer has completed printing the reprinted VIR, and the inspector chooses not to print additional copies, the analyzer shall return to the Main Menu.

- -

3.5.10   <u>Display/Select Pass Records</u>

These requirements are identical to section 3.5.3h of the Specifications for Vehicle Exhaust Gas Analyzer Systems .

- -

3.5.11   Reprint Prompt:

These requirements are identical to section 3.5.4 of the Specifications for Vehicle Exhaust
Gas Analyzer Systems .

- -

3.5.11a   Print Public Awareness Statement

The public awareness statement shall be printed only once, and the VIR shall be printed twice
based on the outcome of the emissions phase of the inspection. If the vehicle passes the
emissions phase of the inspection, the analyzer shall print the 'passing' public awareness
statement, and the 'failing' public awareness statement, if the vehicle fails the emissions phase
of the inspection.

- -

3.5.12   Print Vehicle Inspection Report:

After the system has stored the test record, the following prompt shall be displayed.
**"READY TO PRINT VEHICLE INSPECTION REPORT? ENTER "Y" FOR YES
OR "N" FOR NO."**

Depending upon the pass/fail status of the emissions phase of the inspection, the printer will
provide additional information to the customer as outlined in Appendix B. The customer
report shall include, but not be limited to, the following information: Test Type (Initial or
Reinspection), Test (OBDII only), Test Date, Test Time, Test Cost (differentiated by
Emission and Safety), Overall Cost, Inspector Name, Station Name, Vehicle License Number,
VIN, Vehicle Make, Vehicle Model Year, Vehicle Type, Gross Vehicle Weight, Pollution
Control System, Status of MIL Light, Fault Codes and Descriptions, Two Letter Special Test
Designation where applicable, the Results of the Gas Cap Integrity Test, and the Overall
Result of the Inspection. The subtitle of the report shall indicate that the test was a Safety and
Emissions Inspection, Safety Only Inspection, Required Emission Only Decal Inspection or
Emission Only Inspection, and whether or not the test was conducted as a Special Test. If the
test was conducted as a Special Test, the Two Letter Designation (i.e., LI, ME, IV, AD, ST,
PA, or OT) shall be placed on the same line as the Test Type separated by at least two spaces,
or a slash, and the words 'Special Test' shall be in the subtitle. The system shall allow the
inspector to print additional copies of the vehicle inspection report, after the initial report has

been printed. The report shall indicate that the vehicle has failed. After the inspection has been completed, the analyzer shall contact the Texas Information Management System , and transmit all applicable vehicle information.

The analyzer shall print a barcode on the VIR which contains the VIN, license plate number of the vehicle, and the license type, make, year, and model name of the vehicle under inspection.

When the analyzer has completed printing the reprinted VIR, and the inspector chooses not to print additional copies, the analyzer shall return to the Main Menu.

- -

3.6   Main Menu Selection '6' "Vehicle Diagnosis"

Refer to owner's manual for proper use of the OBDII Scan Tool.

- -

3.7   Main Menu Selection '7' "Training Mode"

These requirements are identical to section 3.7 of the Specifications for Vehicle Exhaust Gas Analyzer Systems .

- -

3.8   Main Menu Selection '8' "Analyzer Maintenance"

3.8.1 Gas Cap Integrity Tester Calibration

These requirements are identical to section 3.8.5 of the Specifications for Vehicle Exhaust Gas Analyzer Systems .

- -

3.8.2 Status Screen

When the Auditor has selected 4, the analyzer shall display the Status Screen. The analyzer shall use information stored in the CAL.DAT file and other sources to generate the Status Screen.

Station Number

Analyzer Number

Propane Equivalency Factor (PEF) Number

Span Gas Cylinder Valves

Date/time of last gas calibration & leak check

Remaining space will store approximately ___ test records (the analyzer should fill in the blank with a number.)

Date analyzer was last serviced

Current date and time

Software Version Number

The system shall post a recurring warning when sufficient space remains to store 200 records.

3.9   Main Menu Selection '9' "Audit Menu"

The information (e.g., test data files) from the analyzer in the station should be accessible to an auditor from a host computer for the purposes of conducting an audit. The auditor shall be able to conduct audit functions from the host as if he/she were in the station, with the exceptions of gas calibrations and leak checks. If an audit is conducted on-site, the auditor should encounter the following prompts.

If the Audit Menu (9) is selected from the Main Menu:

TNRCC/DPS Access Code Prompt: ENTER TNRCC/DPS ACCESS CODE

Programming Criteria:

The system will prompt the auditor to enter the TNRCC/DPS Access Code. The ACCESS CODE shall be changed by algorithm provided by the TNRCC/DPS on the first day of every month. The analyzer shall check the entered code against the TNRCC/DPS Access Code field of the STATION.DAT file.

If an invalid Access Code is entered, the system will write a record to the AUDITLOG.DAT file containing the date, time and "U" for unauthorized login attempt. The record should be written when the 'enter/continue' key is pressed after the access code is entered. The system shall then return to Main Menu.

If the Access Code is valid, the system will write a record to the AUDITLOG.DAT file containing the date, time and "A" for the authorized login attempt. The record should be written when the 'enter/continue' key is pressed after the access code is entered. If the Auditor selects the inspection log search under Section 3.9.13, the record for the

successful log on shall be appended with a 'Y' in the SEARCH field, and the time of the search in the TIME field when the Auditor presses 'continue/enter.' Otherwise, leave these fields blank.

Upon successful validation of the TNRCC/DPS access Code, the auditor shall be prompted to enter his 6-digit employee identification number. This is a required entry. The 6-digit employee identification number enter by the auditor must be compared to the DPS_ID field of the AUDITOR.DAT file. If the 6-digit employee identification number does not match a value in the AUDITOR.DAT file, the system shall place a 'U' in the BAD_DPS_ID field of the AUDITLOG.DAT file. If the 6-digit employee identification number does match a value in the auditor.dat file, the system shall place an 'A' in the BAD_DPS_ID field of the AUDITLOG.DAT file and display the Audit Menu. The system shall report this number to complete the Inspection log (VI-8B). Then, the Audit Menu will be displayed as follows:

1. Station Evaluation Report

2. Station Performance Report

3. Inspector Evaluation Report

4. Gas Cap Integrity Calibration Tester

5. Gas Audit (N/A for OBD analyzers)

6. Update Station and Inspector Information (Reset PIN)

7. Install New Data Disk

8. Reset Date, Time and Telephone Numbers

9. Analyzer Lockout/Station Lockout

10. Software Updates

11. Practical Test

12. Auditor's Notes

13. Search and Retrieve Test Records

14. Analyzer Tampering/Access Report

15. History Report

16. System Settings

17. Reprint VIR

18. Communications Refresh

19. Copy/Download Test Records

20. Missing, or Voided Certificates Function

21.   Certificate Correction/Replacement Function

22.   Status Screen

99.   Return to Main Menu

The analyzer shall store the entry and exit time of each time a selection is made from the the Audit Main Menu. These entries shall be stored in the AUDTMENU.DAT file and transmitted to the VID via the Texas Information Management System . Submenu selections will not be collected.

An example of the acceptable audit menu display is contained in Appendix (T). The auditor shall have the option of printing all reports and items displayed on the Audit Menu Options to the printer. The system will make provisions for the date and signature of the station manager and the I/M auditor at the end of every report. Upon exiting the State Menu, the analyzer shall store the changes made by the Auditor in the appropriate file structure. When the analyzer conducts and completes an emissions test, the state information and auditor changes shall be transmitted to the Texas Information Management System   along with the vehicle inspection information.

- -

3.9.1 **Audit Menu Selection '1' "Station Evaluation Report"**

This report is not required for the OBD only equipment.

- -

3.9.2 **Audit Menu Selection '2' "Station Performance Report"**

Audit Menu Selection "2," "STATION PERFORMANCE REPORT." The Station Performance Report sequence shall be initiated by the selection of "2" from the Audit Menu. The analyzer shall display the following four choices, and allow the auditor to use the arrow keys to highlight the appropriate choice and press "continue/enter" to select the type of station contact:

1.   Compliance Audit

2.   Administrative Contact

3.   Investigation

4.   Certification Contact

The analyzer shall display the Station Performance Report to the screen. The type of station contact shall appear as a subheading or hyphenated heading when the Station Performance Report is displayed to the screen. The analyzer shall complete the following fields

automatically: Station Name, Station Number, Analyzer Number, today's date, the date of the last report. The analyzer shall display the most recent auditor's notes entry, and allow the auditor to review and edit previous entries and create a new entry in the Auditor's notes window. The analyzer shall allow for auditor entry of "P" (pass) or "F" (fail) for each item on the station equipment checklist. The analyzer shall allow for auditor entry of "Y" (yes) or "N" (no) for each item on the Audit Procedures Checklist. The analyzer shall allow for free-form auditor's notes to be entered and reviewed.

The analyzer shall allow the free-form entry of at least 5 violation codes, corrective action codes, and ticket numbers, if issued. At the completion of the entries for the Audit Procedures Checklist, the analyzer shall display the following prompt: Do you wish to enter any Defieciency Information? (Yes or No). The default for this prompt shall be No. If no is selected, the analyzer shall display the report to the screen to allow the auditor to confirm that the entries are correct. The auditor shall be required to press the "continue/enter" to confirm the entries are correct. The analyzer shall prompt the auditor to highlight and select the number of copies to be printed "1," "2," or "3." If yes is selected, the analyzer shall prompt the auditor to enter the Violation Code.

If no code has been entered and the auditor pressed continue, the analyzer shall display a prompt asking the auditor to select one of the following actions: 1) Return to the Violation Code Entry Screen, 2) Violation Code Entry Completed, 3) Skip the Deficiency Information - Go to Confirmation Screen. The second action can only be displayed, when at least one deficiency code has been properly entered. The analyzer will go to the Action Code Entry Prompt. The analyzer will go back to the Violation Code Entry screen, if the auditor selects the first action. The analyzer shall go to the confirm screen if the last action is selected by the auditor.

If the entered code does not match a code contained in the DefLK.dat file, the analyzer shall display an error message indicating that the code is not acceptable and to try again. The analyzer shall display the list of codes in <u>numerical</u> order when the auditor presses the "F5" function key, display the list of codes in <u>alphabetical</u> order when the auditor presses the "F6" function key, or display the list of <u>top 20 most used</u> codes contained in the DefLK20.dat file. No matter what list is displayed, the analyzer shall allow the inspector to use the arrow keys to highlight the different choices, and use the "continue/enter" key to select the appropriate code.

Once the code is selected, the analyzer shall return to the prompt requesting the Auditor to enter the Violation Code. The 40 most used violation codes will be contained in the DEFLK.DAT file, which will be received by the analyzer via the Texas Information Management System . The format of the violation codes is alphanumeric of length 5.

The analyzer shall prompt the inspector to enter the Action Codes. The analyzer shall allow the inspector to highlight and select from the following list of action codes:

ENTER THE ACTION CODES: _ _

'C' - Citation Issued,

'W'- Warning Issued,

'S' - Suspension Recommended, and

'R' - Revocation Recommended.

The analyzer shall allow the auditor to enter the action codes by pressing the letters on the keyboard that correspond to the action codes listed above. If the inspector uses the arrow keys, and presses 'continue/enter' to select, the corresponding letter shall appear in the space provided. At least one entry must be made. If the auditor presses 'continue/enter' after the first successful entry is made, the analyzer shall display a confirmation screen which lists the entered action codes, as well as two action choices: 1) continue, 2) go back to make changes. The default shall be to continue. When the auditor selects 'continue,' the analyzer shall proceed to the Ticket Number prompt. Action codes are alphanumeric of length 2, and have expected values of 'C' - for Citation Issued, 'W' for Warning Issued, 'S' for Suspension Recommended, and 'R' for Revocation Recommended.

The analyzer shall prompt the auditor to enter the Ticket Number.

ENTER THE TICKER NUMBER: _ _ _ _ _ _ _ _ _ _ _ _ _ _

Press 'continue/enter' when done entering the ticket number.

The analyzer shall allow the free form entry of fourteen alphanumeric characters. The analyzer shall require the auditor to press 'continue/enter' when the entry of the ticket number is complete. When the auditor presses 'continue/enter' the analyzer shall display the entered number and two action choices: 1) continue, 2) go back to make changes. The default shall be to continue. When the auditor selects 'continue,' the analyzer shall display the completed report and prepare to print the necessary number of copies. The format of the ticket numbers is alphanumeric of length 14.

The report generated from this selection will be stored in the PERFORM.DAT. This is both a hard disk and floppy-based file accessed through the audit screen.

The Station Performance Report shall contain the following items:

A.   Station Name

B.   Station Number

C.   Analyzer Number

D.   Today's Date

E.   Date of the last Station Performance Report

F.   The Station Equipment Checklist

G.   The Audit Procedures Checklist

H.   The Auditor's Notes

Station Equipment: Entry of "P" or "F" required.

1.   Station Sign

2.   Certificate of Appointment

3.   Display Board

4.   Flex Probes (N/A for OBDII only Tests)

5.   Approved Bar 90 Gases (N/A for OBDII only Tests)

6.   Rules and Regulations Manual

7.   Brake Test Area

8.   Required Equipment (Laundry Marking Pen, Scraping Device, Tread Depth Gauge, Measuring Devices, ¼" Round-Hole Punch)

9.   Tachometer Lead

10.   Gas Cap Tester

11.   Inspector on Duty

12.   Inspection Bay

13.   Approved Window Tint meter

14.   Analyzer, Printer & Supplies

15.   Overall Result

Audit Procedures: Entry of "Y" or "N" required

1.   New data disk

2. Reset tamper

3. Software updates

4. Station lockout

5. Inspector lockout

6. Letter delivered

7. Technical Bulletins

Deficiencies: No entries required

1. Violation Code

2. Action Taken

3. Ticket #

Station Performance Report - Compliance Audit					
Station Name (e.g., FRIDAYS AUTOMOTIVE)					
Today's Date (e.g., 01/12/2000)					
Station Number, Analyzer Number			1P10753, TX123654		
Last Station Performance Report /			09/21/1999,		
Last Leak Check			12/20/1999		
Station Equipment	Pass	Fail	Audit Procedures	Pass	Fail

1. Station Sign			1. New data disk		
2. Certificate of Appointment			2. Reset tamper		
3. Display Board			3. Software updates		
4. Flex Probes			4. Station lockout		
5. Approved Bar 90 Gases(N/A)			5. Inspector lockout		
6. Rules and Regulations Manual			6. Letter delivered		
7. Brake Test Area			7. Technical Bulletins		
8. Required Equipment (Laundry Marking Pen, Scraping Device, Tread Depth Gauge, Measuring Devices, ¼" Round-Hole Punch)					
9. Tachometer Lead					
10. Fuel Cap Tester					
11. Inspector on Duty					
12. Inspection Bay					
13. Approved Window Tint meter					
14. Analyzer, Printer & Supplies					
15. Overall Result					

Auditor Notes	
01/12/2000	CA Cksheet - OK, Tint Meter - OK, Gas Cap Tester - OK, Analyzer Audit - Pass 1/2

Deficiencies						
Violation Code (5 Digits)					Action Taken	Ticket #

Station Manager: _____   Date: _____

DPS Auditor: _____   Date: _____

- -

3.9.3 <u>Audit Menu Selection '3' "Inspector Evaluation Report"</u>

These requirements are identical to section 3.9.3 of the Specifications for Vehicle Exhaust Gas Analyzer Systems .

- -

3.9.4 <u>Audit Menu Selection '4' "Gas Cap Integrity Tester Calibration"</u>

The Analyzer Maintenance Menu shall be activated by an entry of four (4) from the Audit Menu. This will present a set of maintenance functions that may be performed by the auditor. Upon selection of the Analyzer Maintenance the analyzer will display the following options:

      5)   Gas Cap Integrity Tester Calibration

    99)   Return to Audit Menu

A.   If the analyzer is not fully automatic, the final results of the daily gas cap tester calibration shall be entered by the inspector and recorded to the CAL.DAT file.

This option shall be available if the Gas Cap Integrity Tester is fully automatic. When the inspector has selected five (5), the analyzer shall initiate a gas cap tester calibration sequence.

1.   Selection of this item shall bring up a set of gas cap tester calibration procedures. The procedures shall be user friendly and shall indicate every step needed to properly perform the gas cap tester calibration (including when it is necessary to identify which the reference cap is being attached, and when to switch reference caps). TNRCC/DPS reserves the right to approve the procedures. Results of the gas cap tester calibration shall be displayed to the screen and recorded on the CAL.DAT. The affected fields are CAL_DATE, CAL_TIME, and GAS_CAP_CHECK_RSLT. The final results shall be entered by the inspector and recorded to the CAL.DAT file, if the analyzer is not fully automatic. The results shall be automatically written to CAL.DAT file, if the tester is fully automated. If the analyzer fails the gas cap tester calibration, a message shall be displayed indicating that it failed and instructing the inspector to call for repairs.

2.   When the gas cap calibration is completed, the analyzer shall return to the Audit Menu.

- -

3.9.6 <u>Audit Menu Selection '6' "Update Station and Inspector Information"</u>

These requirements are identical to section 3.9.6 of the Specifications for Vehicle Exhaust Gas Analyzer Systems .

- -

3.9.7 <u>Audit Menu Selection '7' "Install New Data Disk"</u>

These requirements are identical to section 3.9.7 of the Specifications for Vehicle Exhaust Gas Analyzer Systems .

- -

3.9.8 <u>Audit Menu Selection '8' "Reset Date, and Time"</u>

These requirements are identical to section 3.9.8 of the Specifications for Vehicle Exhaust Gas Analyzer Systems .

- -

3.9.9 <u>Audit Menu Selection '9' "Analyzer/Station Lockout"</u>

These requirements are identical to section 3.9.9 of the Specifications for Vehicle Exhaust Gas Analyzer Systems .

- -

3.9.10 <u>Audit Menu Selection '10' "Software Update"</u>

These requirements are identical to section 3.9.10 of the Specifications for Vehicle Exhaust Gas Analyzer Systems .

- -

3.9.11 <u>Audit Menu Selection '11' "Practical Test"</u>

These requirements are identical to section 3.9.11 of the Specifications for Vehicle Exhaust Gas Analyzer Systems .

- -

3.9.12 <u>Audit Menu Selection '12' "Auditor's Notes"</u>

These requirements are identical to section 3.9.12 of the Specifications for Vehicle Exhaust Gas Analyzer Systems .

- -

3.9.13 <u>Audit Menu Selection '13' "Search and Retrieve Test Records"</u>

These requirements are identical to section 3.9.13 of the Specifications for Vehicle Exhaust Gas Analyzer Systems .

- -

3.9.14 <u>Audit Menu Selection '14' "Analyzer Tampering/Access Report"</u>

These requirements are identical to section 3.9.14 of the Specifications for Vehicle Exhaust Gas Analyzer Systems .

- -

3.9.15   Audit Menu Selection '15' "History Report"

These requirements are identical to section 3.9.15 of the Specifications for Vehicle Exhaust Gas Analyzer Systems .

- -

3.9.16   Audit Menu Selection '16' "System Settings"

These requirements are identical to section 3.9.16 of the Specifications for Vehicle Exhaust Gas Analyzer Systems .

- -

3.9.17   Audit Menu Selection '17' "Reprint VIR"

These requirements are identical to section 3.9.17 of the Specifications for Vehicle Exhaust Gas Analyzer Systems .

- -

3.9.18   Audit Menu Selection '18' "Communications Refresh"

These requirements are identical to section 3.9.18 of the Specifications for Vehicle Exhaust Gas Analyzer Systems .

- -

3.9.19   Audit Menu Selection '19' "Copy/Download Test Records"

These requirements are identical to section 3.9.19 of the Specifications for Vehicle Exhaust Gas Analyzer Systems .

- -

3.9.20   Audit Menu Selection '20' "Missing, or Voided Certificates"

3.9.20a   Access Code Entry: ENTER YOUR INSPECTOR'S ACCESS CODE

These requirements are identical to section 3.9.20a of the Specifications for Vehicle Exhaust Gas Analyzer Systems .

- -

3.9.20b   Certificate Type Prompt:

These requirements are identical to section 3.9.20b of the Specifications for Vehicle Exhaust Gas Analyzer Systems .

- -

3.9.20c   Certificate Condition Prompt:

These requirements are identical to section 3.9.20c of the Specifications for Vehicle Exhaust Gas Analyzer Systems .

- -

3.9.20d   Number of Certificates Prompt:

These requirements are identical to section 3.9.20d of the Specifications for Vehicle Exhaust Gas Analyzer Systems .

- -

3.9.20e   Certificate Number Prompt:

These requirements are identical to section 3.9.20e of the Specifications for Vehicle Exhaust Gas Analyzer Systems .

- -

3.9.20f   Certificate Number Prompt:

These requirements are identical to section 3.9.20f of the Specifications for Vehicle Exhaust Gas Analyzer Systems .

3.9.21   Audit Menu Selection '21' "Certificate Correction/Replacement"

3.9.21a   Certificate Search Prompt:

These requirements are identical to section 3.9.21a of the Specifications for Vehicle Exhaust Gas Analyzer Systems .

- -

3.9.21b   Certificate Number Prompt:

These requirements are identical to section 3.9.21b of the Specifications for Vehicle Exhaust Gas Analyzer Systems .

- -

3.9.22   Audit Menu Selection '22' "Status Screen"

The Auditors would like to access one screen which will:

- display the station and analyzer number, and software version number
- display the status of each lockout,

- display the contact limit, and the value of the no-contact limit counter, and
- display the date of the last gas calibration, leak check, and gas cap tester calibration.

When the auditor has selected twenty-two (22), the analyzer shall display the Status Screen. The analyzer shall use information stored in the CAL.DAT file and other sources to generate the Status Screen.

Status Screen:

1. Station Number
2. Analyzer Number
3. Propane Equivalency Factor (PEF) Number (N/A for OBD analyzers)
4. Span Gas Cylinder Values (N/A for OBD analyzers)
5. Date/time of last gas calibration & leak check (N/A for OBD analyzers)
6. Remaining space will store approximately test records (the analyzer should fill in the blank with a number.)
7. Date analyzer was last serviced
8. Current date and time
9. Software Version Number

Lockout Status Screen

1. State Lockout	5. Station Certification Expired
2. Cabinet Tamper	6. Station Certification Suspended
3. Floppy Tamper	7. Station Certification Revoked
4. Communications Failure to Pay	8. Maximum Tests w/o Comm.

9. Maximum OBDII Tests (LOW_VOL_STATION)

No Contact Limit : XXX
Number of Test w/o Communications: XXX

The analyzer shall also display an appropriate error messages in the event of an error or a failure of the following components: Floppy Disk Failure, Gas Analyzer Tamper, Gas Calibration Failure, Hard Disk Failure, Gas Analyzer Failure, Leak Check Failure, Internal Clock Failure, and Warm-Up Failure.

- -

3.11 Gas Cap Integrity Test (if fully automatic)

These requirements are identical to section 3.11 of the Specifications for Vehicle Exhaust Gas

Analyzer Systems .

- -

3.11.1 Gas Cap Connect Prompt:

These requirements are identical to section 3.11.1 of the Specifications for Vehicle Exhaust Gas Analyzer Systems .

- -

3.12 Main Menu Selection '12' "Missing, or Voided Certificates"

This selection works better using two submenus to accommodate accounting for inspection certificates, and/or emissions only decals.

- -

3.12.1 Access Code Prompt:

These requirements are identical to section 3.12.1 of the Specifications for Vehicle Exhaust Gas Analyzer Systems .

- -

3.12.2 Date Expiration Prompt:

These requirements are identical to section 3.12.2 of the Specifications for Vehicle Exhaust Gas Analyzer Systems .

- -

3.12.2a Certificate Type Prompt:

These requirements are identical to section 3.12.2a of the Specifications for Vehicle Exhaust Gas Analyzer Systems .

- -

3.12.3 Certificate Condition Prompt:

These requirements are identical to section 3.12.3 of the Specifications for Vehicle Exhaust Gas Analyzer Systems .

- -

3.12.4 Number of Certificates Prompt:

These requirements are identical to section 3.12.4 of the Specifications for Vehicle Exhaust Gas Analyzer Systems .

- -

3.12.5 Certificate Number Prompt:

These requirements are identical to section 3.12.5 of the Specifications for Vehicle Exhaust Gas Analyzer Systems .

- -

3.12.6   Certificate Number Prompt:

These requirements are identical to section 3.12.6 of the Specifications for Vehicle Exhaust Gas Analyzer Systems .

- -

3.13 Main Menu Selection '13' "Certificate Correction/Replacement"

This selection works better using two submenus to accommodate replacing inspection certificates, and emissions only decals. VI30 Replacement is <u>not</u> and should <u>not</u> be included.

- -

3.13.1   Access Code Prompt:

These requirements are identical to section 3.13.1 of the Specifications for Vehicle Exhaust Gas Analyzer Systems .

- -

3.13.2   Date Expiration Prompt:

These requirements are identical to section 3.13.2 of the Specifications for Vehicle Exhaust Gas Analyzer Systems .

- -

3.13.3   Certificate Search Prompt:

These requirements are identical to section 3.13.3 of the Specifications for Vehicle Exhaust Gas Analyzer Systems .

- -

3.13.4   Certificate Number Prompt:

These requirements are identical to section 3.13.4 of the Specifications for Vehicle Exhaust Gas Analyzer Systems .

- -

3.14 Main Menu Selection '14' "Technical Bulletins/Announcements"

These requirements are identical to section 3.14 of the Specifications for Vehicle Exhaust Gas Analyzer Systems .

- -

3.15 Main Menu Selection '15' "Communications Refresh"

3.15.1   Access Code Prompt:

These requirements are identical to section 3.15.1 of the Specifications for Vehicle Exhaust Gas Analyzer Systems .

- -

3.15.2 <u>Date Expiration Prompt:</u>

These requirements are identical to section 3.15.2 of the Specifications for Vehicle Exhaust Gas Analyzer Systems .

- -

3.16 <u>Main Menu Selection '16' "Communications Diagnostics (Loopback)"</u>

These requirements are identical to section 3.16 of the Specifications for Vehicle Exhaust Gas Analyzer Systems .

- -

3.17 <u>Main Menu Selection '17' "ALLDATA Communications"</u>

These requirements are identical to section 3.17 of the Specifications for Vehicle Exhaust Gas Analyzer Systems .

- -

3.18 <u>Main Menu Selection '18' "Inspection Log (VI-8B)"</u>

These requirements are identical to section 3.18 of the Specifications for Vehicle Exhaust Gas Analyzer Systems .

- -

3.19 <u>Main Menu Selection '19' "VI-30A Only"</u>

3.19.1 <u>Access Code Prompt:</u>

These requirements are identical to section 3.19.1 of the Specifications for Vehicle Exhaust Gas Analyzer Systems .

- -

3.19.2 <u>Date Expiration Prompt:</u>

These requirements are identical to section 3.19.2 of the Specifications for Vehicle Exhaust Gas Analyzer Systems .

- -

3.19.3 <u>Model Year Prompt:</u>

These requirements are identical to section 3.19.3 of the Specifications for Vehicle Exhaust Gas Analyzer Systems .

- -

3.19.3a   Bar Code Entry of License Plate Type, Number, and VIN Prompt:

These requirements are identical to section 3.1.5a of the Specifications for Vehicle Exhaust Gas Analyzer Systems .

- -

3.19.4   License Type Prompt:

These requirements are identical to section 3.19.4 of the Specifications for Vehicle Exhaust Gas Analyzer Systems .

- -

3.19.5   License Prompt:

These requirements are identical to section 3.19.5 of the Specifications for Vehicle Exhaust Gas Analyzer Systems .

- -

3.19.5a   TxDOT Number Prompt:

These requirements are identical to section 3.19.5a of the Specifications for Vehicle Exhaust Gas Analyzer Systems .

- -

3.19.6   VIN Number Prompt:

These requirements are identical to section 3.19.6 of the Specifications for Vehicle Exhaust Gas Analyzer Systems .

- -

3.19.8   Vehicle Type Prompt:

These requirements are identical to section 3.19.7 of the Specifications for Vehicle Exhaust Gas Analyzer Systems .

- -

3.19.8a   Vehicle Make Prompt:

These requirements are identical to section 3.19.8 of the Specifications for Vehicle Exhaust Gas Analyzer Systems .

- -

3.19.9   Model Prompt:

These requirements are identical to section 3.19.9 of the Specifications for Vehicle Exhaust Gas Analyzer Systems .

- -

3.19.10   Odometer Prompt:

These requirements are identical to section 3.19.10 of the Specifications for Vehicle Exhaust Gas Analyzer Systems .

- -

3.19.11   Test Type Prompt:

These requirements are identical to section 3.19.11 of the Specifications for Vehicle Exhaust Gas Analyzer Systems .

- -

3.19.12   Certificate Number Prompt:

These requirements are identical to section 3.19.12 of the Specifications for Vehicle Exhaust Gas Analyzer Systems .

- -

3.19.13   VI 30A Number Prompt:

These requirements are identical to section 3.19.13 of the Specifications for Vehicle Exhaust Gas Analyzer Systems .

- -

3.19.14   Safety Test Fee Prompt:

These requirements are identical to section 3.19.14 of the Specifications for Vehicle Exhaust Gas Analyzer Systems .

- -

3.19.15   Confirm Vehicle Info Display:

These requirements are identical to section 3.19.15 of the Specifications for Vehicle Exhaust Gas Analyzer Systems .

- -

3.19.16   End of Test Logic:

These requirements are identical to section 3.19.16 of the Specifications for Vehicle Exhaust Gas Analyzer Systems .

- -

3.20 Main Menu Selection '20' "Test on Resale Inspection"

3.20.1   Access Code Prompt:

These requirements are identical to section 3.20.1 of the Specifications for Vehicle Exhaust Gas Analyzer Systems .

- -

3.20.2   PIN Number Prompt:

These requirements are identical to section 3.20.1a of the Specifications for Vehicle Exhaust Gas Analyzer Systems .

- -

3.20.3   Date Expiration Prompt:

These requirements are identical to section 3.20.2 of the Specifications for Vehicle Exhaust Gas Analyzer Systems .

- -

3.20.4   Test on Resale Exempt Prompt:

These requirements are identical to section 3.20.3 of the Specifications for Vehicle Exhaust Gas Analyzer Systems .

- -

3.20.5   Test on Resale Prompt:

These requirements are identical to section 3.20.4 of the Specifications for Vehicle Exhaust Gas Analyzer Systems .

- -

Appendix Q

Diagnostic Link Connector (DLC)

Mapping Diagram

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.

Preferred Location(s)

Location #1:

This location represents a DLC positioned on the underside of the 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, 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's side passenger door. Visualizing the underside of an IP divided into three equal parts from inside the passenger compartment, 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, 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 location #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 center line.

Location #7

This location represents a DLC positioned 300 mm right of the vehicle centerline either on the vertical section of the center console 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 center line. 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 an area other than those mentioned above (e.g., in the rear passenger area on the driver side armrest).

Appendix R

Safety Screen Lists
Entry Item Sequences

(HS represents "help screen,"
so HS - 5 = help screen #5.
FHS represents "FMCSR help screen,"
so FHS - 5 = FMCSR help screen #5)

INSPECTION PROCEDURE (Sequence #1)

PASSENGER CAR/MOTOR HOME/TRUCKS UNDER 80" WIDTH

Seat Belts (SAFE_5)(display HS - 5)

> Presence (Failed - A, Repaired - B)

> Cut or frayed (Failed - C, Repaired - D)

> Mounting (Failed - E, Repaired - G)

Parking Brake System (SAFE_6B)(display HS - 6B)

> Does not hold vehicle (Failed - A, Repaired - B)

> Missing/Broken parts (Failed - C, Repaired - D)

Horn (SAFE_1)(display HS - 1)

> Operation (Failed - A, Repaired - B)

Turn Signal Switch and Indicator Lamp (SAFE_16B) new

(display "For help with this item, please see the Texas Department of Public Safety Rules and Regulations Manual.")

> Switch accessible and locks in position (Failed - A, Repaired - B)

> Indicator lamp operation (Failed - C, Repaired - D)

Beam Indicator (SAFE_11)(display HS - 11)

> High beam indicator (Failed - A, Repaired - B)

> Switch mounting (Failed - C, Repaired - D)

Wipers (SAFE_2)(display HS - 2)

> Switch and Operation (Failed - C, Repaired - D)

> Blade condition (Failed - A, Repaired - B)

Rear view mirror (SAFE_3)(display HS - 3)

> Presence (Failed - A, Repaired - B)

Window Tinting and Sunscreening (SAFE_24)(display HS - 24)

> Light transmission (Failed - A, Repaired - B)

> Tint or Coating out of Specifications (Failed - C, Repaired - D)

Headlamps (SAFE_17)(display HS - 17)

> Mounting, operation, & approved type (Failed - A, Repaired - B)

> Lens cracked, broken, or discolored (Failed - C, Repaired - D)

Reflective material discolored or deteriorated (Failed - E, Repaired - G)

Lamp contaminated (Failed - H, Repaired - I)

Liquid (Failed - J, Repaired - K)

Turn Signals (SAFE_16A) new

(display "For help with this item, please see the Texas Department of Public Safety Rules and Regulations Manual.")

Mounting, operation and approved type (Failed - A, Repaired - B)

Color, condition of lens, visibility (Failed - C, Repaired - D)

Tail Lamps (SAFE_12)(display HS - 12)

Mounting, operation and approved type (Failed - A, Repaired - B)

Color, condition of lens, visibility (Failed - C, Repaired - D)

Stop Lamps (SAFE_13)(display HS - 13)

Mounting, operation and approved type (Failed - A, Repaired - B)

Color, condition of lens, visibility (Failed - C, Repaired - D)

Rear Reflectors (SAFE_15)(display HS - 15)

Mounting, operation and approved type (Failed - A, Repaired - B)

Color, condition of lens, visibility (Failed - C, Repaired - D)

License Plate Lamp (SAFE_14)(display HS - 14)

Operation (Failed - A, Repaired - B)

Lens cracked or broken (Failed - C, Repaired - D)

Tires (SAFE_7)(display HS - 7)

Cuts, tears, cord exposed, visible bulges (Failed - C, Repaired - D)

Excessive tire wear (Failed - A, Repaired - B)

Wheel Assembly (SAFE_8)(display HS - 8)

Bent, broken, cracked (Failed - C, Repaired - D)

Missing lugs or studs (Failed - A, Repaired - B)

Mud Flaps/Safety Guards (SAFE_23)

(display "For help with this item, please see the Texas Department of Public Safety Rules and Regulations Manual.")

Presence/condition (Failed - A, Repaired - B)

Mounting (Failed - C, Repaired - D)

Brake System (SAFE_6A)(display HS - 6A)

Leaks (Failed - E, Repaired - G)

Brake cables (Failed - J, Repaired - L)

Stopping distance (Failed - A, Repaired - B)

Pulling right or left (Failed - C, Repaired - D)

Metal on Metal (Failed - O, Repaired - Q)

Exhaust System (SAFE_9)(display HS - 9)

Required muffler, clamps and hangers (Failed - C, Repaired - D)

Leaks (Failed - A, Repaired - B)

Emission System (SAFE_10) new

(display "For help with this item, please see the Texas Department of Public Safety Rules and Regulations Manual.")

Components presence (Failed - A, Repaired - B)

Components disconnected/disabled (Failed - C, Repaired - D)

Power Steering System (SAFE_4)(display HS - 4)

Fluid level and belt condition (Failed - H, Repaired - I)

Fluid leaks (Failed - J, Repaired - K)

Excessive lash (Failed - A, Repaired - B)

Modification (Failed - C, Repaired - D)

Binding/jamming (Failed - E, Repaired - G)

Master Cylinder (SAFE_33) new

(display "For help with this item, please see the Texas Department of Public Safety Rules and Regulations Manual.")

Fluid level (Failed - J, Repaired - K)

Fluid leaks (Failed - E, Repaired - G)

INSPECTION PROCEDURE (Sequence #2)
MOTORCYCLE/MOTOR-DRIVEN CYCLE/MOPED

Horn (SAFE_1)(display HS - 1)

    Operation (Failed - A, Repaired - B)

Rear View Mirror (SAFE_3)(display HS - 3)

    Presence (Failed - A, Repaired - B)

Steering System (SAFE_4)(display HS - 4)

    Handlebar height (Failed - H, Repaired - I)

    Binding/jamming (Failed - E, Repaired - G)

Service Brake System (SAFE_6A)(display HS - 6A)

    Stopping Distance (Failed - A, Repaired - B)

    Missing/Broken parts (Failed - L, Repaired - M)

    Leaks (Failed - E, Repaired - G)

    Metal on Metal (Failed - O, Repaired - Q)

Tires (SAFE_7)(display HS - 7)

    Cuts/Tears (Failed - C, Repaired - D)

    Excessive tire wear (Failed - A, Repaired - B)

Wheel Assembly (SAFE_8)(display HS - 8)

    Bent, broken, cracked (Failed - C, Repaired - D)

    Missing lugs or studs (Failed - A, Repaired - B)

    Spokes (Failed - E, Repaired - G)

Exhaust System (SAFE_9)(display HS - 9)

    Required muffler, clamps and hangers (Failed - C, Repaired - D)

    Leaks (Failed - A, Repaired - B)

Tail Lamp (SAFE_12)(display HS - 12)

    Mounting, operation and approved type (Failed - A, Repaired - B)

    Color, condition of lens, visibility (Failed - C, Repaired - D)

Stop Lamp (SAFE_13)(display HS - 13)

    Mounting, operation and approved type (Failed - A, Repaired - B)

    Color, condition of lens, visibility (Failed - C, Repaired - D)

License Plate Lamp (SAFE_14)(display HS - 14)

Operation (Failed - A, Repaired - B)

Lens cracked or broken (Failed - C, Repaired - D)

Rear Reflectors (SAFE_15)(display HS - 15)

Mounting, operation and approved type (Failed - A, Repaired - B)

Color, condition of lens, visibility (Failed - C, Repaired - D)

Headlamps (SAFE_17)(display HS - 17)

Mounting, operation, & approved type (Failed - A, Repaired - B)

Lens cracked, broken, or discolored (Failed - C, Repaired - D)

Reflective material discolored or deteriorated (Failed - E, Repaired - G)

Lamp contaminated (Failed - H, Repaired - I)

Liquid (Failed - J, Repaired - K)

INSPECTION PROCEDURE (Sequence #3)
SCHOOL BUS-SAFETY INSPECTION

Horn (SAFE_1)(display HS - 1)

    Operation (Failed - A, Repaired - B)

Wipers (SAFE_2)(display HS - 2)

    Switch and Operation (Failed - C, Repaired - D)

    Blade condition (Failed - A, Repaired - B)

Rear View Mirror (SAFE_3)(display HS - 3)

    Presence (Failed - A, Repaired - B)

Steering System (SAFE_4)(display HS - 4)

    Modification (Failed - C, Repaired - D)

    Binding/jamming (Failed - E, Repaired - G)

    Excessive lash (Failed - A, Repaired - B)

    Fluid level and belt condition (Failed - H, Repaired - I)

    Fluid leaks (Failed - J, Repaired - K)

Seat Belts-Driver Only (SAFE_5)(display HS - 5)

    Presence (Failed - A, Repaired - B)

    Cut or frayed (Failed - C, Repaired - D)

    Mounting (Failed - E, Repaired - G)

Service Brake System (SAFE_6A)(display HS - 6A)

    Stopping distance (Failed - A, Repaired - B)

    Pull left or right (Failed - C, Repaired - D)

    Missing/Broken parts (Failed - L, Repaired - M)

    Leaks (Failed - E, Repaired - G)

    Metal to Metal (Failed - O, Repaired - Q)

Parking Brake System (SAFE_6B)(display HS - 6B)

    Does not hold vehicle (Failed - A, Repaired - B)

    Missing/Broken parts (Failed - C, Repaired - D)

Tires (SAFE_7)(display HS - 7)

    Cuts, tears, cord exposed, visible bulges (Failed - C, Repaired - D)

    Excessive wear (Failed - A, Repaired - B)

Approval type (Failed -E, Repaired - G)

Wheel Assembly (SAFE_8)(display HS - 8)

Bent, broken, cracked (Failed - C, Repaired - D)

Missing lugs/studs (Failed - A, Repaired - B)

Exhaust System (SAFE_9)(display HS - 9)

Required muffler, clamps, and hangers (Failed - C, Repaired - D)

Leaks (Failed - A, Repaired - B)

Emission System (SAFE_10)

(display "For help with this item, please see the Texas Department of Public Safety Rules and Regulations Manual.")

Components presence (Failed - A, Repaired - B)

Components disconnected or disabled (Failed - C, Repaired - D)

Beam Indicator (SAFE_11)(display HS - 11)

High beam indicator (Failed - A, Repaired - B)

Switch mounting (Failed - C, Repaired - D)

Headlamps (SAFE_17)(display HS - 17)

Mounting, operation, & approved type (Failed - A, Repaired - B)

Lens cracked, broken, or discolored (Failed - C, Repaired - D)

Reflective material discolored or deteriorated (Failed - E, Repaired - G)

Lamp contaminated (Failed - H, Repaired - I)

Liquid (Failed - J, Repaired - K)

Tail Lamps (SAFE_12)(display HS - 12)

Mounting, operation and approved type (Failed - A, Repaired - B)

Color, condition of lens, visibility (Failed - C, Repaired - D)

Stop Lamps (SAFE_13)(display HS - 13)

Mounting, operation and approved type (Failed - A, Repaired - B)

Color, condition of lens, visibility (Failed - C, Repaired - D)

License Plate Lamp (SAFE_14)(display HS - 14)

Operation (Failed - A, Repaired - B)

Lens cracked or broken (Failed - C, Repaired - D)

Rear Reflectors (SAFE_15)(display HS - 15)

Mounting, operation and approved type (Failed - A, Repaired - B)

Color, condition of lens, visibility (Failed - C, Repaired - D)

Turn Signals (SAFE_16A) new

(display "For help with this item, please see the Texas Department of Public Safety Rules and Regulations Manual.")

Mounting, operation and approved type (Failed - A, Repaired - B)

Color, condition of lens, visibility (Failed - C, Repaired - D)

Turn Signal Switch and Indicator Lamp (SAFE_16B) new

(display "For help with this item, please see the Texas Department of Public Safety Rules and Regulations Manual.")

Switch accessible and locks in position (Failed - A, Repaired - B)

Indicator lamp operation (Failed - C, Repaired - D)

Clearance Lamps (SAFE_18)(display HS - 18)

Mounting, operation and approved type (Failed - A, Repaired - B)

Color, condition of lens, visibility (Failed - C, Repaired - D)

Side Marker Lamps (SAFE_19)(display HS - 19)

Mounting, operation and approved type (Failed - A, Repaired - B)

Color, condition of lens, visibility (Failed - C, Repaired - D)

Side Reflectors (SAFE_21)(display HS - 21)

Mounting, operation and approved type (Failed - A, Repaired - B)

Color, condition of lens, visibility (Failed - C, Repaired - D)

School Bus Signs (SAFE_22A)(display HS - 22)

Size (Failed - A, Repaired - B)

Location (Failed - C, Repaired - D)

Hazard Warning Lighting (SAFE_35) new

(display "For help with this item, please see the Texas Department of Public Safety Rules and Regulations Manual.")

Mounting, operation, approved type (Failed - A, Repaired - B)

Color and condition of lens (Failed - C, Repaired - D)

Convex Mirror (SAFE_22D)(display HS - 22)

Mounting (Failed - A, Repaired - B)

Condition (Failed - C, Repaired - D)

Fire Extinguisher (SAFE_22B)(display HS - 22)

Presence (Failed - A, Repaired - B)

Approved type   (Failed -C, Repaired - D)

INSPECTION PROCEDURE (Sequence #4)
TRUCKS/MOTOR HOMES OVER 80" WIDTH

Seat Belts (SAFE_5)(display HS - 5)

Presence (Failed - A, Repaired - B)

Cut or frayed (Failed - C, Repaired - D)

Mounting (Failed - E, Repaired - G)

Service Brake System (SAFE_6A)(display HS - 6A)

Stopping distance (Failed - A, Repaired - B)

Pulling right or left (Failed - C, Repaired - D)

Metal on Metal (Failed - O, Repaired - Q)

Leaks (Failed - E, Repaired - G)

Parking Brake System (SAFE_6B)(display HS - 6B)

Does not hold vehicle (Failed - A, Repaired - B)

Missing/Broken parts (Failed - C, Repaired - D)

Horn (SAFE_1)(display HS - 1)

Operation (Failed - A, Repaired - B)

Turn Signal Switch and Indicator Lamp (SAFE_16B) new

(display "For help with this item, please see the Texas Department of Public Safety Rules and Regulations Manual.")

Switch accessible and locks in position (Failed - A, Repaired - B)

Indicator lamp operation (Failed - C, Repaired - D)

Beam Indicator (SAFE_11)(display HS - 11)

High beam indicator (Failed - A, Repaired - B)

Switch mounting (Failed - C, Repaired - D)

Wipers (SAFE_2)(display HS - 2)

Switch and Operation (Failed - C, Repaired - D)

Blade condition (Failed - A, Repaired - B)

Rear view mirror (SAFE_3)(display HS - 3)

Presence (Failed - A, Repaired - B)

Window Tinting and Sunscreening (SAFE_24)(display HS - 24)

Light transmission (Failed - A, Repaired - B)

Tint or Coating out of Specifications (Failed - C, Repaired - D)

Headlamps (SAFE_17)(display HS - 17)

Mounting, operation, & approved type (Failed - A, Repaired - B)

Lens cracked, broken, or discolored (Failed - C, Repaired - D)

Reflective material discolored or deteriorated (Failed - E, Repaired - G)

Lamp contaminated (Failed - H, Repaired - I)

Liquid (Failed - J, Repaired - K)

Turn Signals (SAFE_16A) new

(display "For help with this item, please see the Texas Department of Public Safety Rules and Regulations Manual.")

Mounting, operation and approved type (Failed - A, Repaired - B)

Color, condition of lens, visibility (Failed - C, Repaired - D)

Tail Lamps (SAFE_12)(display HS - 12)

Mounting, operation and approved type (Failed - A, Repaired - B)

Color, condition of lens, visibility (Failed - C, Repaired - D)

Stop Lamps (SAFE_13)(display HS - 13)

Mounting, operation and approved type (Failed - A, Repaired - B)

Color, condition of lens, visibility (Failed - C, Repaired - D)

Rear Reflectors (SAFE_15)(display HS - 15)

Mounting, operation and approved type (Failed - A, Repaired - B)

Color, condition of lens, visibility (Failed - C, Repaired - D)

Clearance Lamps (SAFE_18)(display HS - 18)

Mounting, operation and approved type (Failed - A, Repaired - B)

Color, condition of lens, visibility (Failed - C, Repaired - D)

Side Marker Lamps (SAFE_19)(display HS - 19)

Mounting, operation and approved type (Failed - A, Repaired - B)

Color, condition of lens, visibility (Failed - C, Repaired - D)

Cab Lamps (SAFE_20)(display HS - 20)

Operation (Failed - A, Repaired - B)

Presence (Failed - C, Repaired - D)

Side Reflectors (SAFE_21)(display HS - 21)

Mounting, operation and approved type (Failed - A, Repaired - B)

Color, condition of lens, visibility (Failed - C, Repaired - D)

Reflective Tape (SAFE_34) new

(display "For help with this item, please see the Texas Department of Public Safety Rules and Regulations Manual.")

Presence (Failed - A, Repaired - B)

Location (Failed - C, Repaired - D)

License Plate Lamp (SAFE_14)(display HS - 14)

Operation (Failed - A, Repaired - B)

Lens cracked or broken (Failed - C, Repaired - D)

Tires (SAFE_7)(display HS - 7)

Cuts, tears, cord exposed, visible bulges (Failed - C, Repaired - D)

Excessive tire wear (Failed - A, Repaired - B)

Wheel Assembly (SAFE_8)(display HS - 8)

Bent, broken, cracked (Failed - C, Repaired - D)

Missing lugs or studs (Failed - A, Repaired - B)

Mud Flaps/Safety Guards (SAFE_23)

(display "For help with this item, please see the Texas Department of Public Safety Rules and Regulations Manual.")

Presence/condition (Failed - A, Repaired - B)

Mounting (Failed - C, Repaired - D)

Exhaust System (SAFE_9)(display HS - 9)

Required muffler, clamps and hangers (Failed - C, Repaired - D)

Leaks (Failed - A, Repaired - B)

Emission System (SAFE_10) new

(display "For help with this item, please see the Texas Department of Public Safety Rules and Regulations Manual.")

Components presence (Failed - A, Repaired - B)

Components disconnected/disabled (Failed - C, Repaired - D)

Power Steering System (SAFE_4)(display HS - 4)

Fluid level and belt condition (Failed - H, Repaired - I)

Fluid leaks (Failed - J, Repaired - K)

Excessive lash (Failed - A, Repaired - B)

Modification (Failed - C, Repaired - D)

Binding/jamming (Failed - E, Repaired - G)

Master Cylinder (SAFE_33) new

(display "For help with this item, please see the Texas Department of Public Safety Rules and Regulations Manual.")

Fluid level (Failed - J, Repaired - K)

Fluid leaks (Failed - E, Repaired - G)

Horn (SAFE_1)(display HS - 1 or FHS - 1)

    Operation (Failed - A, Repaired - B)

Wipers (SAFE_2)(display HS - 2 or FHS - 2)

    Switch and Operation (Failed - C, Repaired - D)

    Blade condition (Failed - A, Repaired - B)

Rear View Mirrors (SAFE_3)(display HS - 3 or FHS - 3)

    Presence (Failed - A, Repaired - B)

Steering System (SAFE_4)(display HS - 4 or FHS - 4)

    Excessive lash (Failed - A, Repaired - B)

    Modification (Failed - C, Repaired - D)

    Binding/jamming (Failed - E, Repaired - G)

    Fluid level and belt condition (Failed - H, Repaired - I)

    Fluid leaks (Failed - J, Repaired - K)

Turn Signal Switch and Indicator Lamp (SAFE_16B) new

(display "For help with this item, please see the Texas Department of Public Safety Rules and Regulations Manual.")

    Switch accessible and locks in position (Failed - A, Repaired - B)

    Indicator lamp operation (Failed - C, Repaired - D)

Seat Belts - (SAFE_5)(display HS - 5 or FHS - 5)

    Presence (Failed - A, Repaired - B)

    Cut or frayed (Failed - C, Repaired - D)

    Mounting (Failed - E, Repaired - G)

Service Brake System (SAFE_6A)(display HS - 6A or FHS - 6A)

    Stopping distance (Failed - A, Repaired - B)

    Pulling right or left (Failed - C, Repaired - D)

    Metal on Metal (Failed - O, Repaired - Q)

    Leaks (Failed - E, Repaired - G)

Parking Brake System (SAFE_6B)(display HS - 6B or FHS -6B)

    Does not hold vehicle (Failed - A, Repaired - B)

Missing/Broken parts (Failed - C, Repaired - D)

Tires (SAFE_7)(display HS - 7 or, for FMCSR(Truck), either "For help with this item, please see the Texas Department of Public Safety Rules and Regulations Manual," or both FHS - 7A and FHS - 7B)   Cuts, Tears, Cord Exposed, Visible Bulges (Failed - C, Repaired - D)

Excessive Wear (Failed - A, Repaired - B)

Wheel Assembly (SAFE_8)(display HS - 8 or FHS - 8)

Bent, broken, cracked (Failed - C, Repaired - D)

Missing lugs or studs (Failed - A, Repaired - B)

Exhaust System (SAFE_9)(display HS - 9 or FHS - 9)

Required muffler, clamps and hangers (Failed - C, Repaired - D)

Leaks (Failed - A, Repaired - B)

Emission System (SAFE_10)

(display "For help with this item, please see the Texas Department of Public Safety Rules and Regulations Manual.")

Components presence (Failed - A, Repaired - B)

Components disconnected or disabled (Failed - C, Repaired - D)

Beam Indicator (SAFE_11)(display HS - 11 or FHS - 11)

High beam indicator (Failed - A, Repaired - B)

Switch mounting (Failed - C, Repaired - D)

Tail Lamps (SAFE_12)(display HS - 12 or FHS - 12)

Mounting, operation and approved type (Failed - A, Repaired - B)

Color, condition of lens, visibility (Failed - C, Repaired - D)

Stop Lamps (SAFE_13)(display HS - 13 or FHS - 13)

Mounting, operation and approved type (Failed - A, Repaired - B)

Color, condition of lens, visibility (Failed - C, Repaired - D)

Rear Reflectors (SAFE_15)(display HS - 15 or FHS - 15)

Mounting, operation and approved type (Failed - A, Repaired - B)

Color, condition of lens, visibility (Failed - C, Repaired - D)

Turn Signals (SAFE_16A) new

(display "For help with this item, please see the Texas Department of Public Safety Rules and Regulations Manual.")

Mounting, operation and approved type (Failed - A, Repaired - B)

Color, condition of lens, visibility (Failed - C, Repaired - D)

Cab Lamps (SAFE_20)(display HS - 20 or FHS - 20)

      Operation (Failed - A, Repaired - B)

      Color Condition of Lens (Failed - C, Repaired - D)

Headlamps (SAFE_17)(display HS - 17 or FHS - 17)

      Mounting, operation, & approved type (Failed - A, Repaired - B)

      Lens cracked, broken, or discolored (Failed - C, Repaired - D)

      Reflective material discolored or deteriorated (Failed - E, Repaired - G)

      Lamp contaminated (Failed - H, Repaired - I)

      Liquid (Failed - J, Repaired - K)

Hazard Warning Lighting (SAFE_35) new (display only if during a FMCSR (TRUCK) inspection)

(display "For help with this item, please see the Texas Department of Public Safety Rules and Regulations Manual.")

      Mounting, operation, approved type (Failed - A, Repaired - B)

      Color and condition of lens (Failed - C, Repaired - D)

Coupling Devices (SAFE_26)(display FHS - 26) (display only if during a FMCSR (TRUCK) inspection)

      Loose, cracked, excessive wear (Failed - A, Repaired - B)

Fuel System (SAFE_27)(display FHS - 27) (display only if during a FMCSR (TRUCK) inspection)

      Leaks (Failed - A, Repaired - B)

      Mounting (Failed - C, Repaired - D)

Suspension (SAFE_28)(display FHS - 28) (display only if during a FMCSR (TRUCK) inspection)

      Broken, loose, missing parts (Failed - A, Repaired - B)

Frame (SAFE_29)(display FHS - 29) (display only if during a FMCSR (TRUCK) inspection)

      Cracked, broken, loose, sagging (Failed - E, Repaired - G)

Window Tinting and Sunscreening (SAFE_24)(display HS - 24 or FHS - 24)

      Light transmission (Failed - A, Repaired - B)

      Tint or Coating out of Specifications (Failed - C, Repaired - D)

INSPECTION PROCEDURE (Sequence #6)
SAFETY TRAILER & MOBILE HOME

Service Brake System (SAFE_6A)(display HS - 6A)

    Stopping distance (Failed - A, Repaired - B)

    Leaks (Failed - E, Repaired - G)

    Wiring (Failed - H, Repaired - I)

    Metal on Metal (Failed - O, Repaired - Q)

Tires (SAFE_7)(display HS - 7)

    Cuts, Tears, Cord Exposed, Visible Bulges (Failed - C, Repaired - D)

    Excessive Wear (Failed - A, Repaired - B)

Wheel Assembly (SAFE_8)(display HS - 8)

    Bent, broken, cracked (Failed - C, Repaired - D)

    Missing lugs or studs (Failed - A, Repaired - B)

Mud Flaps/Safety Guards (SAFE_23)

(display "For help with this item, please see the Texas Department of Public Safety Rules and Regulations Manual.")

    Presence/condition (Failed - A, Repaired - B)

    Mounting (Failed - C, Repaired - D)

Tail Lamps (SAFE_12)(display HS - 12)

    Mounting, operation and approved type (Failed - A, Repaired - B)

    Color, condition of lens, visibility (Failed - C, Repaired - D)

Stop Lamps (SAFE_13)(display HS - 13)

    Mounting, operation and approved type (Failed - A, Repaired - B)

    Color, condition of lens, visibility (Failed - C, Repaired - D)

License Plate Lamp (SAFE_14)(display HS - 14)

    Operation (Failed - A, Repaired - B)

    Lens cracked or broken (Failed - C, Repaired - D)

Rear Reflectors (SAFE_15)(display HS - 15)

    Mounting, operation and approved type (Failed - A, Repaired - B)

    Color, condition of lens, visibility (Failed - C, Repaired - D)

Turn Signals (SAFE_16A) new

(display "For help with this item, please see the Texas Department of Public Safety Rules and Regulations Manual.")

Mounting, operation and approved type (Failed - A, Repaired - B)

Color, condition of lens, visibility (Failed - C, Repaired - D)

Clearance Lamps (SAFE_18)(display HS - 18)

Mounting, operation and approved type (Failed - A, Repaired - B)

Color, condition of lens, visibility (Failed - C, Repaired - D)

Side Marker Lamps (SAFE_19)(display HS - 19)

Mounting, operation and approved type (Failed - A, Repaired - B)

Color, condition of lens, visibility (Failed - C, Repaired - D)

INSPECTION PROCEDURE (Sequence #7)
SCHOOL BUS-F.M.C.S.R INSPECTION

Horn (SAFE_1)(display FHS - 1)

    Operation (Failed - A, Repaired - B)

Wipers (SAFE_2)(display FHS - 2)

    Switch and Operation (Failed - C, Repaired - D)

    Blade condition (Failed - A, Repaired - B)

Windshield (SAFE_30)(display FHS - 30)

    Excessive cracks (Failed - A, Repaired - B)

Rear View Mirror (SAFE_3)(display FHS - 3)

    Presence (Failed - A, Repaired - B)

Steering System (SAFE_4)(display FHS - 4)

    Modification (Failed - C, Repaired - D)

    Binding/jamming (Failed - E, Repaired - G)

    Excessive lash (Failed - A, Repaired - B)

    Fluid level and belt condition (Failed - H, Repaired - I)

    Fluid leaks (Failed - J, Repaired - K)

Seat Belts-Driver Only (SAFE_5)(display FHS - 5)

    Presence (Failed - A, Repaired - B)

    Cut or frayed (Failed - C, Repaired - D)

    Mounting (Failed - E, Repaired - G)

Service Brake System (SAFE_6A)(display FHS - 6A)

    Stopping distance (Failed - A, Repaired - B)

    Pull left or right (Failed - C, Repaired - D)

    Missing/Broken parts (Failed - L, Repaired - M)

    Leaks (Failed - E, Repaired - G)

    Metal to Metal (Failed - O, Repaired - Q)

    Low air warning device (Failed - S, Repaired - T)

    Wiring (Failed - H, Repaired - I)

Parking Brake System (SAFE_6B)(display FHS - 6B)

    Does not hold vehicle (Failed - A, Repaired - B)

Missing/Broken parts (Failed - C, Repaired - D)

Steering Axle Tires (SAFE_7A)(display FHS - 7A)

Cuts, tears, cord exposed, visible bulges (Failed - C, Repaired - D)

Excessive wear (Failed - A, Repaired - B)

Approval type (Failed -E, Repaired - G)

All Other Tires (SAFE_7B)(display FHS - 7B)

Cuts, tears, cord exposed, visible bulges (Failed - C, Repaired - D)

Excessive wear (Failed - A, Repaired - B)

Approval type (Failed -E, Repaired - G)

Wheel Assembly (SAFE_8)(display FHS - 8)

Bent, broken, cracked (Failed - C, Repaired - D)

Missing lugs or studs (Failed - A, Repaired - B)

Exhaust System (SAFE_9)(display FHS - 9)

Required muffler, clamps and hangers (Failed - C, Repaired - D)

Leaks (Failed - A, Repaired - B)

Emission System (SAFE_10)

(display "For help with this item, please see the Texas Department of Public Safety Rules and Regulations Manual.")

Components presence (Failed - A, Repaired - B)

Components disconnected or disabled (Failed - C, Repaired - D)

Beam Indicator (SAFE_11)(display FHS - 11)

High beam indicator (Failed - A, Repaired - B)

Switch mounting (Failed - C, Repaired - D)

Headlamps (SAFE_17)(display FHS - 17)

Mounting, operation, & approved type (Failed - A, Repaired - B)

Lens cracked, broken, or discolored (Failed - C, Repaired - D)

Reflective material discolored or deteriorated (Failed - E, Repaired - G)

Lamp contaminated (Failed - H, Repaired - I)

Liquid (Failed - J, Repaired - K)

Tail Lamps (SAFE_12)(display FHS - 12)

Mounting, operation and approved type (Failed - A, Repaired - B)

Color, condition of lens, visibility (Failed - C, Repaired - D)

Stop Lamps (SAFE_13)(display FHS - 13)

>Mounting, operation and approved type (Failed - A, Repaired - B)

>Color, condition of lens, visibility (Failed - C, Repaired - D)

License Plate Lamp (SAFE_14)(display FHS - 14)

>Operation (Failed - A, Repaired - B)

>Lens cracked or broken (Failed - C, Repaired - D)

Rear Reflectors (SAFE_15)(display FHS - 15)

>Mounting, operation and approved type (Failed - A, Repaired - B)

>Color, condition of lens, visibility (Failed - C, Repaired - D)

Turn Signals (SAFE_16A) new

(display "For help with this item, please see the Texas Department of Public Safety Rules and Regulations Manual.")

>Mounting, operation and approved type (Failed - A, Repaired - B)

>Color, condition of lens, visibility (Failed - C, Repaired - D)

Turn Signal Switch and Indicator Lamp (SAFE_16B) new

(display "For help with this item, please see the Texas Department of Public Safety Rules and Regulations Manual.")

>Switch accessible and locks in position (Failed - A, Repaired - B)

>Indicator lamp operation (Failed - C, Repaired - D)

Clearance Lamps (SAFE_18)(display FHS - 18)

>Mounting, operation and approved type (Failed - A, Repaired - B)

>Color, condition of lens, visibility (Failed - C, Repaired - D)

Side Marker Lamps (SAFE_19)(display FHS - 19)

>Mounting, operation and approved type (Failed - A, Repaired - B)

>Color, condition of lens, visibility (Failed - C, Repaired - D)

Side Reflectors (SAFE_21)(display FHS - 21)

>Mounting, operation and approved type (Failed - A, Repaired - B)

>Color, condition of lens, visibility (Failed - C, Repaired - D)

School Bus Signs (SAFE_22A)(display FHS - 22)

>Size (Failed - A, Repaired - B)

>Location (Failed - C, Repaired - D)

Hazard Warning Lighting (SAFE_35) new

(display "For help with this item, please see the Texas Department of Public Safety Rules and

Regulations Manual.")

Mounting, operation, approved type (Failed - A, Repaired - B)

Color and condition of lens (Failed - C, Repaired - D)

Back-up Lamps (SAFE_36) new

(display "For help with this item, please see the Texas Department of Public Safety Rules and Regulations Manual.")

Mounting, operation and approved type (Failed - A, Repaired - B)

Color, condition of lens, visibility (Failed - C, Repaired - D)

Fuel System (SAFE_27)(display FHS - 27)

Leaks (Failed - A, Repaired - B)

Mounting (Failed - C, Repaired - D)

Suspension (SAFE_28)(display FHS - 28)

Broken, loose, missing parts (Failed - A, Repaired - B)

Frame (SAFE_29)(display FHS - 29)

Cracked, broken, loose, sagging (Failed - E, Repaired - G)

Window Tinting and Sunscreening (SAFE_24)(display FHS - 24)

Light transmission (Failed - A, Repaired - B)

Tint or Coating out of Specifications (Failed - C, Repaired - D)

Convex Mirror (SAFE_22D)(display FHS - 22)

Mounting (Failed - A, Repaired - B)

Condition (Failed - C, Repaired - D)

Fire Extinguisher (SAFE_22B)(display FHS - 22)

Presence (Failed - A, Repaired - B)

Approved type   (Failed -C, Repaired - D)

Horn (SAFE_1)(display FHS - 1)

> Operation (Failed - A, Repaired - B)

Wipers (SAFE_2)(display FHS - 2)

> Switch and Operation (Failed - C, Repaired - D)

> Blade condition (Failed - A, Repaired - B)

Windshield (SAFE_30)(display FHS - 30)

> Excessive cracks (Failed - A, Repaired - B)

Rear View Mirror (SAFE_3)(display FHS - 3)

> Presence (Failed - A, Repaired - B)

Beam Indicator (SAFE_11)(display FHS - 11)

> High beam indicator (Failed - A, Repaired - B)

> Switch mounting (Failed - C, Repaired - D)

Seat Belts (SAFE_5)(display FHS - 5)

> Presence (Failed - A, Repaired - B)

> Cut or frayed (Failed - C, Repaired - D)

> Mounting (Failed - E, Repaired - G)

Steering System (SAFE_4)(display FHS - 4)

> Modification (Failed - C, Repaired - D)

> Binding/jamming (Failed - E, Repaired - G)

> Excessive lash (Failed - A, Repaired - B)

> Fluid level and belt condition (Failed - H, Repaired - I)

> Fluid leaks (Failed - J, Repaired - K)

Service Brake System (SAFE_6A)(display FHS - 6A)

> Stopping distance (Failed - A, Repaired - B)

> Pull left or right (Failed - C, Repaired - D)

> Missing/Broken parts (Failed - L, Repaired - M)

> Metal to Metal (Failed - O, Repaired - Q)

> Low air warning device (Failed - S, Repaired - T)

> Tractor protection device (Failed - U, Repaired - V)

Leaks (Failed - E, Repaired - G)

Wiring (Failed - H, Repaired - I)

Parking Brake System (SAFE_6B)(display FHS - 6B)

Does not hold vehicle (Failed - A, Repaired - B)

Missing/Broken parts (Failed - C, Repaired - D)

Steering Axle Tires (SAFE_7A)(display FHS - 7A)

Cuts, tears, cord exposed, visible bulges (Failed - C, Repaired - D)

Excessive wear (Failed - A, Repaired - B)

Approval type (Failed -E, Repaired - G)

All Other Tires (SAFE_7B)(display FHS - 7B)

Cuts, tears, cord exposed, visible bulges (Failed - C, Repaired - D)

Excessive wear (Failed - A, Repaired - B)

Approval type (Failed -E, Repaired - G)

Wheel Assembly (SAFE_8)(display FHS - 8)

Bent, broken, cracked (Failed - C, Repaired - D)

Missing, loose, lugs or studs (Failed - A, Repaired - B)

Mud Flaps/Safety Guards (SAFE_23)

(display "For help with this item, please see the Texas Department of Public Safety Rules and Regulations Manual.")

Presence/condition (Failed - A, Repaired - B)

Mounting (Failed - C, Repaired - D)

Exhaust System (SAFE_9)(display FHS - 9)

Required muffler, clamps and hangers (Failed - C, Repaired - D)

Leaks (Failed - A, Repaired - B)

Emission System (SAFE_10)

(display "For help with this item, please see the Texas Department of Public Safety Rules and Regulations Manual.")

Components presence (Failed - A, Repaired - B)

Components disconnected or disabled (Failed - C, Repaired - D)

Tail Lamps (SAFE_12)(display FHS - 12)

Mounting, operation and approved type (Failed - A, Repaired - B)

Color, condition of lens, visibility (Failed - C, Repaired - D)

Stop Lamps (SAFE_13)(display FHS - 13)

Mounting, operation and approved type (Failed - A, Repaired - B)

Color, condition of lens, visibility (Failed - C, Repaired - D)

License Plate Lamp (SAFE_14)(display FHS - 14)

Operation (Failed - A, Repaired - B)

Lens cracked or broken (Failed - C, Repaired - D)

Turn Signals (SAFE_16A) new

(display "For help with this item, please see the Texas Department of Public Safety Rules and Regulations Manual.")

Mounting, operation and approved type (Failed - A, Repaired - B)

Color, condition of lens, visibility (Failed - C, Repaired - D)

Turn Signal Switch and Indicator Lamp (SAFE_16B) new

(display "For help with this item, please see the Texas Department of Public Safety Rules and Regulations Manual.")

Switch accessible and locks in position (Failed - A, Repaired - B)

Indicator lamp operation (Failed - C, Repaired - D)

Rear Reflectors (SAFE_15)(display FHS - 15)

Mounting, operation and approved type (Failed - A, Repaired - B)

Color, condition of lens, visibility (Failed - C, Repaired - D)

Clearance Lamps (SAFE_18)(display FHS - 18)

Mounting, operation and approved type (Failed - A, Repaired - B)

Color, condition of lens, visibility (Failed - C, Repaired - D)

Side Marker Lamps (SAFE_19)(display FHS - 19)

Mounting, operation and approved type (Failed - A, Repaired - B)

Color, condition of lens, visibility (Failed - C, Repaired - D)

Cab Lamps (SAFE_20)(display FHS - 20)

Mounting, operation and approved type (Failed - A, Repaired - B)

Color, condition of lens, visibility (Failed - C, Repaired - D)

Side Reflectors (SAFE_21)(display FHS - 21)

Mounting, operation and approved type (Failed - A, Repaired - B)

Color, condition of lens, visibility (Failed - C, Repaired - D)

Headlamps (SAFE_17)(display FHS - 17)

Mounting, operation, & approved type (Failed - A, Repaired - B)

Lens cracked, broken, or discolored (Failed - C, Repaired - D)

Reflective material discolored or deteriorated (Failed - E, Repaired - G)

Lamp contaminated (Failed - H, Repaired - I)

Liquid (Failed - J, Repaired - K)

Hazard Warning Lighting (SAFE_35) new

(display "For help with this item, please see the Texas Department of Public Safety Rules and Regulations Manual.")

Mounting, operation, and approved type (Failed - A, Repaired - B)

Color and condition of lens (Failed - C, Repaired - D)

Back-up Lamps (SAFE_36) new

(display "For help with this item, please see the Texas Department of Public Safety Rules and Regulations Manual.")

Mounting, operation and approved type (Failed - A, Repaired - B)

Color, condition of lens, visibility (Failed - C, Repaired - D)

Coupling Devices (SAFE_26)(display FHS - 26)

Loose, cracked, excessive wear (Failed - A, Repaired - B)

Fuel System (SAFE_27)(display FHS - 27)

Leaks (Failed - A, Repaired - B)

Mounting (Failed - C, Repaired - D)

Suspension (SAFE_28)(display FHS - 28)

Broken, loose, missing parts (Failed - A, Repaired - B)

Frame (SAFE_29)(display FHS - 29)

Cracked, broken, loose, sagging (Failed - E, Repaired - G)

Window Tinting and Sunscreening (SAFE_24)(display FHS - 24)

Light transmission (Failed - A, Repaired - B)

Tint or Coating out of Specifications (Failed - C, Repaired - D)

COMMERCIAL TRAILER

Service Brake System (SAFE_6A)(display FHS - 6A)

     Stopping distance (Failed - A, Repaired - B)

     Leaks (Failed - E, Repaired - G)

     Wiring (Failed - H, Repaired - I)

     Metal on Metal (Failed - O, Repaired - Q)

Tires (SAFE_7)(display FHS - 7B)

     Cuts, Tears, Cord Exposed, Visible Bulges (Failed - C, Repaired - D)

     Excessive Wear (Failed - A, Repaired - B)

Wheel Assembly (SAFE_8)(display FHS - 8)

     Bent, broken, cracked (Failed - C, Repaired - D)

     Missing lugs or studs (Failed - A, Repaired - B)

Mud Flaps/Safety Guards (SAFE_23)

(display "For help with this item, please see the Texas Department of Public Safety Rules and Regulations Manual.")

     Presence/condition (Failed - A, Repaired - B)

     Mounting (Failed - C, Repaired - D)

Tail Lamps (SAFE_12)(display FHS - 12)

     Mounting, operation and approved type (Failed - A, Repaired - B)

     Color, condition of lens, visibility (Failed - C, Repaired - D)

Stop Lamps (SAFE_13)(display FHS - 13)

     Mounting, operation and approved type (Failed - A, Repaired - B)

     Color, condition of lens, visibility (Failed - C, Repaired - D)

License Plate Lamp (SAFE_14)(display FHS - 14)

     Operation (Failed - A, Repaired - B)

     Lens cracked or broken (Failed - C, Repaired - D)

Rear Reflectors (SAFE_15)(display FHS - 15)

     Mounting, operation and approved type (Failed - A, Repaired - B)

     Color, condition of lens, visibility (Failed - C, Repaired - D)

Turn Signals (SAFE_16A) new

(display "For help with this item, please see the Texas Department of Public Safety Rules and Regulations Manual.")

Mounting, operation and approved type (Failed - A, Repaired - B)

Color, condition of lens, visibility (Failed - C, Repaired - D)

Clearance Lamps (SAFE_18)(display FHS - 18)

Mounting, operation and approved type (Failed - A, Repaired - B)

Color, condition of lens, visibility (Failed - C, Repaired - D)

Side Marker Lamps (SAFE_19)(display FHS - 19)

Mounting, operation and approved type (Failed - A, Repaired - B)

Color, condition of lens, visibility (Failed - C, Repaired - D)

Side Reflectors (SAFE_21)(display FHS - 21)

Mounting, operation and approved type (Failed - A, Repaired - B)

Color, condition of lens, visibility (Failed - C, Repaired - D)

Reflective Tape (Vehicles Over 80" Width) (SAFE_34) new

(display "For help with this item, please see the Texas Department of Public Safety Rules and Regulations Manual.")

Presence (Failed - A, Repaired - B)

Location (Failed - C, Repaired - D)

Coupling Devices (SAFE_26)(display FHS - 26)

Loose, cracked, excessive wear (Failed - A, Repaired - B)

Suspension (SAFE_28)(display FHS - 28)

Broken, loose, missing parts (Failed - A, Repaired - B)

Frame (SAFE_29)(display FHS - 29)

Cracked, broken, loose, sagging (Failed - E, Repaired - G)