

**United States
Environmental Protection Agency
Office of Transportation and Air Quality
National Vehicle and Fuel Emissions Laboratory
2565 Plymouth Road
Ann Arbor, MI 48105**

Engine Setup

This procedure is written for the Environmental Protection Agency, National Vehicle and Fuel Emissions Laboratory (NVFEL) internal use. The use of specific brand names by NVFEL in this procedure are for reference only and are not an endorsement of those products. This document may be used for guidance by other laboratories.

NVFEL Reference Number

040

Implementation Approval

Original Procedure Authorized by EPCN # 249 on 11-01-2002

Revision Description

Table of Contents

1. Purpose.....	3
2. Test Procedure.....	3
3. Quality Control Provisions.....	8

1. Purpose

The purpose of this procedure is to describe the equipment and actions necessary to setup an engine for testing in the Environmental Protection Agency (EPA), Laboratory Operations Division (LOD), Advanced Testing Group (ATG) test cell.

2. Test Procedure

Equipment and parts necessary to setup the engine are available in the National Vehicle and Fuel Emission Laboratory West Soak area. Only trained operators using appropriate engineering controls and personal protective equipment should attempt perform this procedure.

101 Obtain a steel palette suitable for the engine to be tested. See Figure 1.



Figure 1
Steel Palette

- 102 Select four of the same size mounting feet (Arrow 1 in Figure 2) and T-Bolts (Arrow 2 in Figure 2). Mount the feet to the steel palette using the T-Bolts. Ensure the connections are tight and secure.

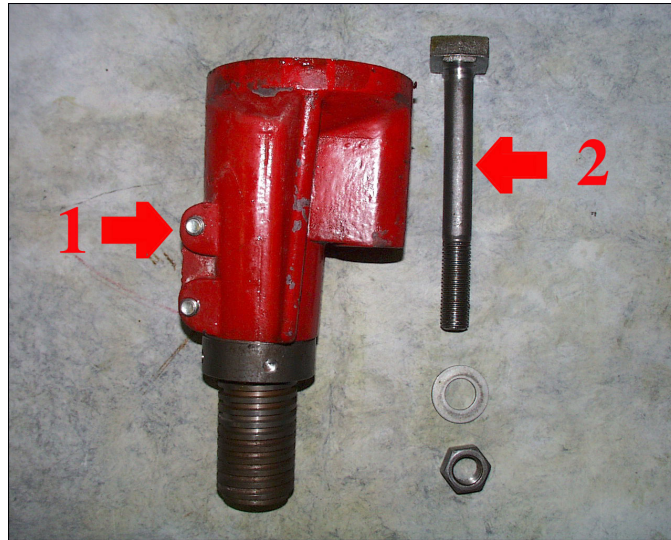


Figure 2
Mounting Feet and T-Bolts

- 103 Select four support bars (Arrow 1 in Figure 3), rubber bushings (Arrow 2 in Figure 3), and mounting bolts (Arrow 3 in Figure 3).

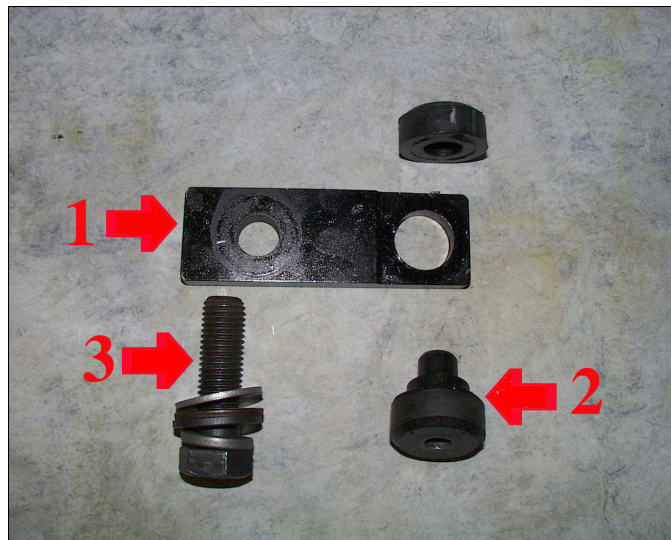


Figure 3
Support Bars, Rubber Bushings, and Mounting Bolts

- 104 Assemble the items described in Step 103 to the four mounting feet. Ensure the connections are tight and secure. See Figure 4.



Figure 4
Mounting Feet Assembly

- 105 Inspect the engine palette with the four mounting foot assemblies installed. The configuration should resemble the assembly in Figure 5.



Figure 5
Engine Palette Assembly

- 106 Use an engine lift to install an engine cradle (Arrow in Figure 6) to the engine using the appropriate mounting bolts.

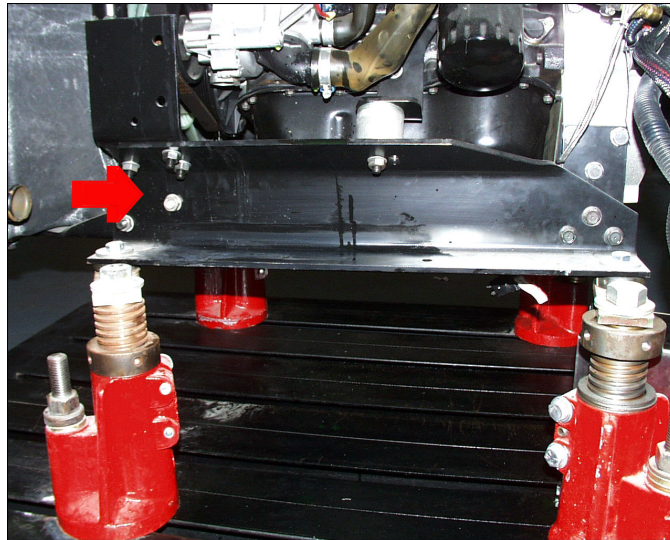


Figure 6
Engine Cradle

- 107 Inspect the engine palette with the four mounting foot assemblies installed. The configuration should resemble the assembly in Figure 7. . Ensure the connections are tight and secure.



Figure 7
Mounting Feet Assembly

- 108 Use the engine lift to position the engine and cradle assembly (Arrow 1 in Figure 8) on the support bars and bolt the cradle to the support bars (Arrow 2 in Figure 8). The mounting feet are shown attached to the steel palette (Arrow 3 in Figure 8).

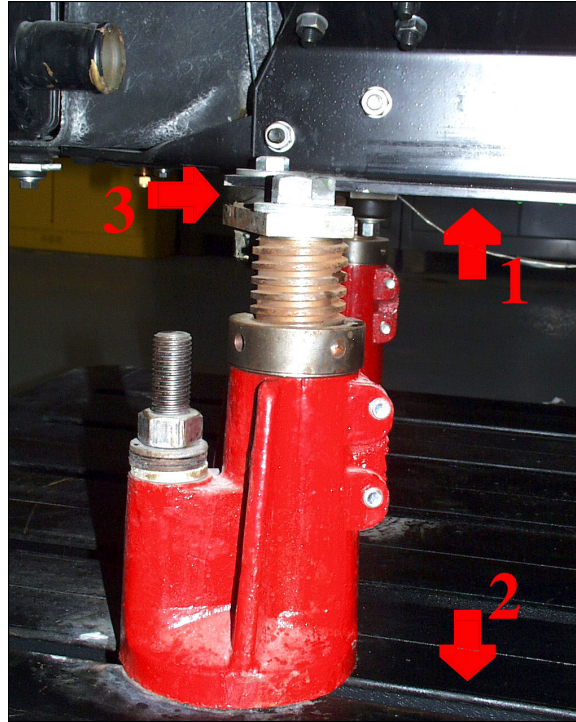


Figure 8
Engine Cradle Bolted to Support Bars

- 109 Use the mounting assemblies (arrow in Figure 9), to adjust the engine to the appropriate height and angle for attachment to the dyno.

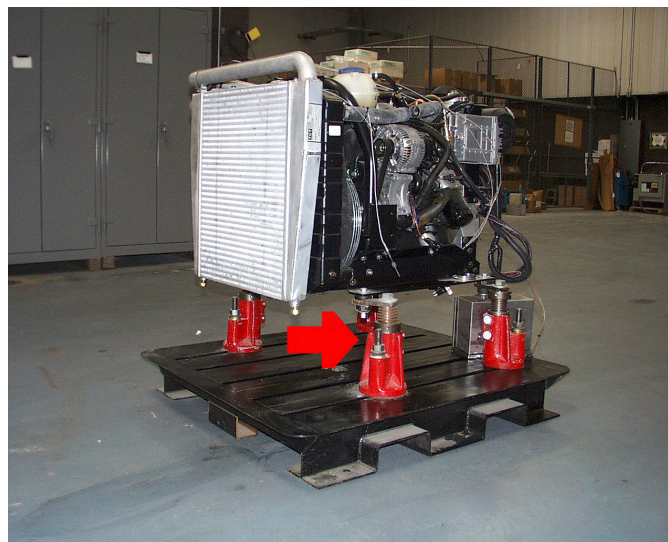


Figure 9
Mounting Feet Assembly

110 Ensure the engine contains the proper type and quantity of oil.

3. Acceptance Criteria

- 3.1 The four mounting feet must be mounted securely to the steel palette.
- 3.2 The four support bars must be mounted securely to the cradle and mount feet.
- 3.3 The proper configuration of the engine palette and four mounting feet must be ensured before the engine is installed.
- 3.4 The engine must be adjusted to the appropriate height and angle for attachment to the dynamometer.
- 3.5 The engine must be checked for the proper type and quantity of oil.