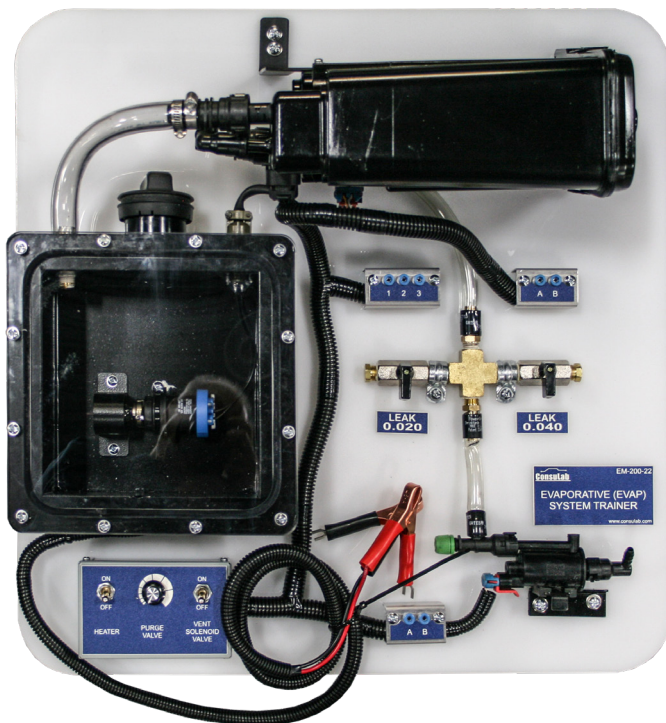




The EM-200-22 EVAP trainer is designed as a functional evaporative emissions system based on a Chevrolet Cobalt platform. It can be used to teach the operational functions of a typical evaporative emission system. It also has the capability of demonstrating the cause and effect of having a small and/or large system leak. Students are able to visualize the components of the system and can hookup test equipment to learn how system leaks will affect performance. The fuel tank contains an internal lamp heater for demonstration of internal pressure changes. Requires a 12 VDC power supply to operate.

### EDUCATIONAL ADVANTAGES

- Provides visualization of a typical EVAP system operation without vehicle access restrictions.
- Using manual control valves, both 0.020" and 0.040" leaks can be created and evaluated.
- Includes test points for DVOM hookup.
- Includes a fuel tank heater for pressure change demonstrations.
- Includes an adjustable PWM command (0-100%) feature for the Purge Solenoid.





### FEATURES

- Functional fuel tank with OEM fuel cap.
- Built-in internal fuel tank heater with control switch.
- Includes the following OEM parts :
  - Purge solenoid valve
  - Vent solenoid valve
  - Tank Pressure Sensor
  - Charcoal Canister
  - EVAP Pressure test port for "smoke testing"
  - Fuel Cap
- Electrical test points for :
  - Purge solenoid valve
  - Vent solenoid valve
  - Tank Pressure Sensor
- Control switch for vent solenoid valve.
- Adjustable PWM (pulse width modulated- 0-100%) control for purge solenoid valve.
- Manual control valves for creating .020" and .040" leaks.
- It can be stored on the EM-200-09 stand or in the EM-200-10 storage cabinet.

### PHYSICAL SPECIFICATIONS

- **Dimensions :** 22 x 8.5 x 22 inch (55.9 x 21.6 x 55.9 cm) / 24 x 13 x 24 inch (61 x 33 x 61 cm) with packaging.
- **Weight :** 26 lb (11.8 kg) / 34 lb (15.4 kg) with packaging.
- Requires a 12VDC power source using included power alligator clips.

EVAP Trainer: Ventilation Valve

**Introduction**

If the temperature or filling in the fuel tank increases, fuel vapor will form in the tank. This vapor must be discharged, otherwise the pressure will be too high in the fuel tank. To prevent the fuel vapor from entering the environment, the tank vent runs through a charcoal canister.

The ventilation valve makes a connection between the filter and the outside air. The valve is open at rest, allowing the system to "breathe." It is sometimes necessary to close the EVAP system, such as during a leak test for example. Then the engine control unit controls the valve, and the valve closes.

To perform this assignment correctly, you'll need the following items.

Click on the items that are present.

If items are missing, please see your instructor.

- EVAP Trainer
- power supply
- multimeter

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EVAP Trainer: Ventilation Valve

**Check with multimeter**

The ventilation valve is open at "rest" for the aeration/venting of the tank. The engine control unit controls the valve with 12 volts when required. The valve then closes.

Complete the following steps:

- Turn the switch of the ventilation valve to "OFF".
- Set the multimeter for measuring DC voltage (VDC).
- Connect the measuring probe to connection A.
- Connect the COM of the multimeter to connection B.

Enter your measured value here (V).

V

check

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EVAP Trainer: Large Leak Test

**Large Leak test: Leak-proof System**

When the engine is running, there is a negative pressure (vacuum) in the intake manifold. When the purge valve opens, a connection is created between the intake manifold and the EVAP system.

The large leak test is done while driving.

- The purge valve is opened. As a result, the engine "sucks" on the EVAP system.
- The ventilation valve is closed. The suction effect of the engine causes the pressure in the EVAP system to fall.
- The engine control unit measures the pressure drop with the EVAP pressure sensor.
- If the pressure does not drop (quickly enough) or rises again, the EVAP system is leaking.

In this part of the assignment you perform a large leak test by reducing the pressure in the system. At the same time you measure the signal from the EVAP pressure sensor.

With a vacuum clamp you mimic the suction effect of the engine.

Follow the steps below:

- Connect the vacuum clamp.
- Allow system pressure to drop smoothly.
- Measure the signal from the EVAP pressure sensor until it no longer changes.

Enter your measured value (V).

V

check

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# ELECTUDE

## THE CONSULAB EM-200-22 EVAP SYSTEM TRAINER IS NOW AVAILABLE WITH ELECTUDE COURSEWARE (SOLD SEPARATELY).

The Electude EVAP system courseware consists of a practical set-up and the associated E-learning. This practical set-up allows the participant to supplement previously acquired knowledge of the sensors with practical skills.

Through the preparatory theory and practical assignments the participant learns:

- What components make up the EVAP system.
- To explain the operation of the EVAP system.
- To check components and their controls of the EVAP system.
- To perform a small and large leak test.
- To detect various leaks in the EVAP system with a smoke tester.

**Includes 9 learning modules for a total of 9.5 hours of instruction.**