Heavy-Duty NGV Maintenance and Diagnostics Training

Centre Area Transportation Authority (CATA)
2081 W. Whitehall Road, State College, PA 16801

Option One:	**Option Two:**
March 13, 2018 – 10 AM to 5 PM	March 15, 2018 – 10 AM to 5 PM
March 14, 2018 – 8 AM to 5 PM	March 16, 2018 – 8 AM to 5 PM

Lodging: Courtyard by Marriott (1730 University Drive, State College, PA 16801) $99/night plus taxes. Reservations: (814) 238-1881. Room block is for March 12 to March 15. Rooms will be released February 26 (or when sold out).

Course Registration: Email Sara Bowden, PennTRAIN Coordinator, at sara@ppta.net. Please provide attendee name, title, organization, email address, phone number, and name & email address of agency contact.
Note: We will work with agencies and the CNG implementation schedule to ensure the training opportunities available complement the schedule to the maximum extent possible, which in some cases could mean this registration does not follow our typical "first-come, first-served" approach. We thank you in advance for your understanding in light of the special circumstances.

Attire: Casual.
Note: Some of the training will be in a classroom. Some will be in the maintenance shop. Please dress accordingly.

Meals: Breakfast will be provided at the Courtyard by Marriott. Breaks and lunch will be provided at CATA during the training. Dinner is "on your own."

Fee: $190 per person. **Cancellation Policy for PennTRAIN.**

Course Description

Training will begin with breakfast each morning at the Courtyard by Marriott State College. From there, attendees will carpool together to CATA for the class for the majority of the day.

The number one challenge facing heavy-duty NGV technicians is how to distinguish between a fuel quality problem, a fuel system problem or an engine problem. This course treats these

three elements as a system and helps technicians understand how they are interrelated. Emphasis is placed on the safety knowledge and repair practices that are unique for heavy-duty natural gas engines. The course covers the components of all CNG fuel systems (regardless of manufacturer), as well as the Cummins ISL G and ISX12 G engines.

The course includes operational theory with more than a dozen hands-on exercises. It is a perfect prerequisite to fuel system or engine manufacturer training. This course also helps prepare technicians for the ASE Hl exam.

The learning objectives for this course include:

- Identify and compare the properties and characteristics of CNG and LNG to diesel
- Describe the safety procedures necessary to maintain and repair CNG and LNG vehicles
- Identify and describe the operation, maintenance, diagnostics, and repair of the low- and high-pressure components of a CNG fuel system
- Properly assemble and re-assemble high-pressure tube fittings following safe procedures
- Identify the unique components and operation of the Cummins ISL G and 1SX12 G engines and emissions control system
- Identify and describe fuel system and engine component maintenance intervals and procedures
- unique to Cummins powered NGVs
- Describe basic diagnostic procedures for Cummins ISL G and ISX12 G engines
- Identify diagnostic procedures and interpret data for electrical related issues, sensors and solenoids using wiring diagrams and other tools
- Diagnose hard starting and/or poor drivability issues
- Identify unique components and operation of LNG (saturated) and HPDI (unsaturated) LNG fuel systems; and
- Increase the technician's knowledge and preparation for successful completion of the Cummins ISL G and ISX12 G engine certification and/or the ASE Hl Alternative Fuels certification exam