

TEPS Dealer Classes

3126/C7/C9 Engines **CC 40**

Length: 32 hours (4 days)

Prerequisite(s): CC 53

Instructor(s): Steve Stripling, Josh Sykes, Dan Price

Course Description:

This course provides technicians with the knowledge and skills required to diagnose and repair 3126, C7, and C9 HEUI (hydraulic electronic unit injected) truck engines using systems operation, testing, adjusting, troubleshooting, and service training material. Students are also introduced to Caterpillar common rail fuel system used on 2007 C7 and C9 ACERT engines. This course is a mix of classroom lecture and hands-on lab sessions. There is a pre-assessment and a final that requires a passing score of 70% to receive a certificate of completion for this training course.

Course Objectives:

- Explain the basic design features of the 3126, C7, and C9 engines
- Understand electronic, fuel, lube, air, and cooling systems on 3126, C7, and C9 engines
- Use ET to perform basic troubleshooting for 3126, C7, and C9 engines

OPT Overhaul **CC 48**

Length: 32 hours (4 days)

Prerequisite(s): CC 53

Instructor(s): Steve Stripling, Josh Sykes, Dan Price

Course Description:

This course is part of the Heavy Duty Truck Technician Certification training modules and covers basic engine principles and the use of hand tools. Also covered are OPT (overhaul protection for trucks) procedures and lab exercises in engine D & A on a 3406E or C15 engine. Lab includes cylinder head R & R, cam removal, removal and installation of cylinder packs, checking liner protrusion, reassembly, cam idler gear backlash adjustment, and overhead adjustment. There is a pre-assessment and a final that requires a passing score of 70% to receive a certificate of completion for this training course.

Course Objectives:

- Understand diesel engine operation and design
- Know the proper use and operation of hand tools, torques, fasteners, seals and gaskets, and bearings
- Properly disassemble and assemble an engine for overhaul according to OPT guidelines

TEPS Dealer Classes

Medium Engine Fuel Systems

CC 49

Length: 32 hours (4 days)

Prerequisite(s): CC 53

Instructor(s): Steve Stripling, Josh Sykes, Dan Price

Course Description:

The intent of this class is to familiarize technicians with current Caterpillar medium engine fuel systems. This class covers diesel fuels and improving fuel system durability. Also covered are current scroll, new scroll, and EUI fuel systems and timing graphs. Reusability guidelines are discussed. Labs include 3406B injection pumps R & I, governor D & A, and fuel settings. There is a pre-assessment and a final that requires a passing score of 70% to receive a certificate of completion for this training course.

Course Objectives:

- Understand diesel engine fuels and maintenance
- Medium engine fuel system operation
- Governor operation
- Disassembly and assembly of new scroll governor
- Fuel setting for 3306 and 3406 new scroll
- Disassembly, assembly, and adjustment of automatic timing advance

Engine Diagnostics

CC 50

Length: 32 hours (4 days)

Prerequisite(s): CC 53, CC 48 (or one year experience on Caterpillar engine overhaul), CC 49, CC 51, CC 71

Instructor(s): Steve Stripling, Dan Price

Course Description:

This course is the final part of the Heavy Duty Truck Technician Certification training modules. The intent of this class is to familiarize technicians with engine diagnostics including the mechanical segment of Caterpillar engines. Diagnostics of the cooling system, intake and exhaust system, lube system, and fuel system are covered as well as how these systems effect performance and work together for total engine performance. Participants conduct lab exercises in fuel settings, timing, and troubleshooting. The main lab in this class will be conducted on a chassis dynamometer, if possible, and tie all previous training together. There is a pre-assessment and a final that requires a passing score of 70% to receive a certificate of completion for this training course.

Course Objectives:

- Understand mechanical systems on Caterpillar engines
- Troubleshoot fuel systems, air systems, lube systems, and cooling systems
- Understand the effects these systems will have on engine performance and durability

Truck Engine Sensors and Control Logic CC 51

Length: 32 hours (4 days)

Prerequisite(s): CC 53

Instructor(s): Steve Stripling, Josh Sykes, Dan Price

Course Description:

This course is part of the Heavy Duty Truck Technician Certification training modules. The intent of this course is to bring technicians up to date with the electronics used in Caterpillar on-highway engines. Instruction will consist of both classroom and lab sessions. System operation, testing, and troubleshooting procedures will be covered. Also covered are electronics, from PEEC to current Caterpillar ACERT engines. There is a pre-assessment and a final that requires a passing score of 70% to receive a certificate of completion for this training course.

Course Objectives:

- Understand on-highway electronic engine controls
- Understand the effects of electronics on engine operation
- Gain practical knowledge by troubleshooting electronic engines
- Understand and be able to use test ECM mode
- Have practical experience using ET (Electronic Technician)

Truck Engine Service Information CC 53

Length: 16 hours (2 days)

Prerequisite(s): None

Instructor(s): Steve Stripling, Dan Price

Course Description:

This course is a prerequisite for most of the TEPS engine training courses offered. Students may test out of this class by passing a 40 question exam with at least 70% efficiency. This course establishes a foundation for accessing service information data as well as some basics for using Caterpillar electronic service tools. The intent of this course is to familiarize technicians with the Caterpillar service literature that is available on the Web and how to find and access information using truck.cat.com, TMI web, and SIS. This is a hands-on class where students spend two full days on the computer learning the Caterpillar web literature system. Specifics include looking up and downloading of flash and trim code files. The course starts with a pre-assessment for evaluation and ends with a final, which must be passed with a score of 70% or better to receive a certificate of completion.

Note: Everyone attending this class needs to have or be set up with a CWS log in ID (please contact your TEPS Program Manager if you need assistance with this).

Course Objectives:

- Use SIS Web and other Caterpillar information sites
- Find materials necessary to work on Caterpillar product
- Use ET or Workbench to access component based troubleshooting
- Locate and download flash and trim files

TEPS Dealer Classes

Truck Engine Parameters

CC 71

Length: 32 hours (4 days)

Prerequisite(s): CC 53, CC 51

Instructor(s): Steve Stripling, Josh Sykes, Dan Price

Course Description:

This course is an in-depth study of on-highway truck engine parameters and their operational effects on engines and vehicles. The class is a balance of classroom lecture and hands-on lab. The lecture covers most early electronics as well as current electronic engines. Emphasis is placed on labs and lab discussion.

Course Objectives:

- Recognize the various on-highway truck engine parameters and their contact headings
- Identify and properly program on-highway truck engine parameters for a variety of vehicle applications
- Effectively diagnose probable causes of improperly programmed parameters
- Effectively use Caterpillar Electronic Technician (ET), Service Technician Workbench (STW), Engine Performance Estimator (EPE), and Caterpillar Design Pro
- Have a basic understanding of the flash software process

2007 On-Highway ACERT Engines

CC 79

Length: 16 hours (2 days)

Prerequisite(s): CC 53

Instructor(s): Steve Stripling, Josh Sykes, Dan Price

Course Description:

The intent of this training is to provide technicians with a basic understanding of the 2007 Caterpillar on-highway truck engine product with enough information to be able to pass the online Operation Readiness final exam which is required by Caterpillar. It is highly recommended that all people attending this training be current with WebEx training and online tests, as well as Tech Tips training and online tests. Air system, fuel system, electronics, and after treatment for 2007 product are discussed. This class has little, to no hands-on training, due to the availability and cost of a training engine with current emission devices. There is a pre-assessment and final for evaluation purposes, which requires a score of 70% to receive credit.

Note: Caterpillar requires TEPS and Dealer personnel to pass an Operation Readiness test online for 2007 product in addition to this training (the Operation Readiness online test requires 90% to pass).

Course Objectives:

- Understand 2007 air systems operation
- Understand 2007 fuel systems operation
- Understand 2007 emission devices
- Understand 2007 electronics and how it all ties together

Caterpillar On-Highway Engine Update CC 105

Length: 8 hours (1 day)

Prerequisite(s): CC 53, CC 79 (or successful completion of the Operation Readiness online test).

Instructor(s): Steve Stripling, Dan Price

Course Description:

This course is designed to provide updated information for the current Caterpillar product specific to on-highway ACERT engines. As much as is possible will be tailored to each customer's needs at the time of the training. This course may vary in content and length according to the need to cover service issues for the current product line.

Note: Students should view and complete online tests for all current Tech Tips and WebEx broadcasts for on-highway ACERT engines before attending this class.

Course Objectives:

- Understand basic overview of the Caterpillar engines concerned
- Understand service information that is available and current service procedures
- Understand basic functions of ET on the above engines if needed