

# ENGINE TRAINING IS YOUR CREW UP TO DATE?

To meet your specific training requirements we offer standard courses that teach you and your crew the use and maintenance of your Cat products.

As technology continues to enhance our world, we are, together with Caterpillar, constantly developing and refining advanced technologies. These products, along with the extensive training offered, provide everything you need to maximize the performance of your engines, reduce costly downtime, increase your ROI, improve safety in your workplace, and much more.

## CAT MARINE ENGINE ELECTRONIC DIAGNOSTIC AND TROUBLESHOOTING TRAINING

### AFTER COMPLETION, THE PARTICIPANT WILL BE ABLE TO:

- Recognize engine electronic components and describe their function.
- Have an understanding of basic electrical fundamentals, including Ohm's law, serial and parallel circuits.
- Describe the troubleshooting process and correctly use diagnostic tools to solve electronic sensor failures.
- Properly read, analyze and comprehend a Caterpillar schematic.
- Explain the purpose and operation of how pull-up voltage is used in Caterpillar.

### PRACTICAL TRAINING:

- Perform lab troubleshooting procedures on a 3500 engine.
- Be able to perform a solenoid clack test, cylinder cutout test.
- Use Electronic Technician (ET) to diagnose problems.

### PARAMETERS AND MONITORING SYSTEM:

- Calibrate and adjust electronic engine components, including timing calibration and electronic sensors.
- Diagnose, troubleshoot and repair problems in the diesel engine electrical and electronic systems, differentiating electrical hardware and harness problems from electronic problems. Diagnose and repair intermittent electrical problems.

WE USE A CAT 3512 AS TRAINING ENGINE, BUT THE COMPONENTS ARE COMPLIANT WITH OTHER CAT ENGINE MODELS.

## CAT C-18/C-32 TRAINING

### THEORETICAL GOALS:

- Being familiar with the main characteristics of the C-18/C-32 engines.
- Knowing the terms of warranty on engines, spare parts and services done by authorised mechanics.
- Characteristics for one- and two- circuit cooling systems.
- Preventive maintenance.
- How the engine lubrication system is constructed and how it works.

- The fuel system, sensors and injectors on the C-18/C-32 engines.
- Troubleshooting on the engine using Electronic Technician (ET).

### PRACTICAL EXPERIENCE AND SKILLS:

- C18 / C32 - Remove and install injectors
- Adjustments of inlet valves, exhaust valves and fuel injectors.
- Using the Electronic Technician (ET) as a tool for troubleshooting

## CAT 3500 TRAINING - ELECTRONIC ENGINES

### THEORETICAL GOALS:

- Being familiar with the main characteristics of the 3500 engines.
- Knowing the terms of warranty on engines, spare parts and services done by authorised mechanics.
- Characteristics for one- and two- circuit cooling systems.
- Preventive maintenance.
- How the engine lubrication system is constructed and how it works.

- The fuel system, sensors and injectors on the 3500-engines.
- Remove and install injectors
- Troubleshooting on the engine using Electronic Technician (ET).

### PRACTICAL EXPERIENCE AND SKILLS:

- Disassembly and assembly of the cylinder top on the 3500-engine.
- Adjustments of inlet valves, exhaust valves and fuel injectors.
- Using the Electronic Technician (ET) as a tool for troubleshooting

## C280 & D3600 BASIC DIESEL ENGINE COURSE

This course will cover systems operation and teach service procedures unique to the C280 & 3600 diesel engines. Special tooling, which includes hydraulic tensioning equipment, will be used to disassemble, assemble and adjust various engine components.

### PRACTICAL EXPERIENCE AND SKILLS:

- Understand the basic operating principles of the 3600 diesel engine's mechanical systems.
- Remove and install a cylinder head.

- Remove and install injectors
- Adjust the valves and valve bridges.
- Synchronize and time the unit injectors and install E-Trim Code.
- Explain the internal and external flow of engine coolant and lube oil.
- Service the main and centrifugal oil filters.

## OPTIONAL SERVICE FROM US FOR THE TRAINING COURSES CONDUCTED IN OSLO

### LOCATIONS & RESERVATION:

Training location:

Pon Power AS, Bølerveien 60  
2020 Skedsmokorset, Norway

Postboks 64, 2021 Skedsmokorset, Norway

**Phone : +47 23 17 05 00**

### This 3-days package includes:

- Training course.
- 3 nights at hotel.
- 3 breakfasts at hotel.
- 3 lunches at Pon Power's canteen.
- 1 coverall.
- Course material.

We will make the necessary reservations at the hotel.  
Please make sure to inform us on (e-mail adr) if you do not want a hotel room.  
course.scandinavia@pon-cat.com

### CONTACT INFO:

To sign up for one of our courses, please contact our Course Coordinator Line Kallstad:

E-mail: [course.scandinavia@pon-cat.com](mailto:course.scandinavia@pon-cat.com)

or visit our web page: [www.pon-cat.com](http://www.pon-cat.com)

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