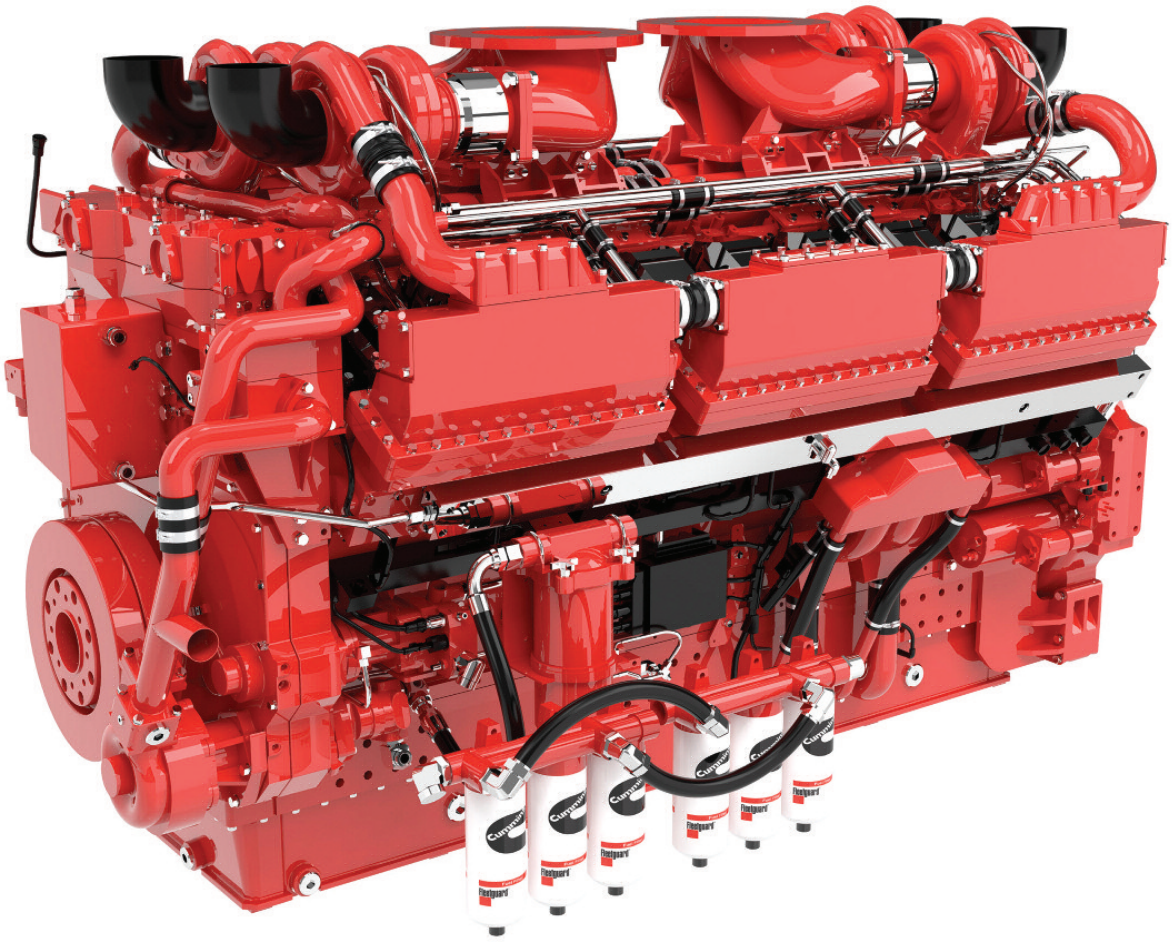
# Every Training Solution 2012

## Cummins Training and Education Centre, Daventry, England



www.cumminsengine.co.uk

# Cummins Daventry Training courses Step by step guide

## 1 CHOOSE A COURSE

See our range of courses – pages 6 to 34

## 2 CHOOSE COURSE LEVEL

- Familiarisation – No Cummins Virtual College CD rom pre-requisites – no written and no practical test.
- Maintenance and Repair – Cummins Virtual College CD rom pre-requisites mandatory – no written and no practical test.
- Qualification - Cummins Virtual College CD rom pre-requisites mandatory – written and practical examination.

## 3 COURSE REQUIREMENTS

- Obtain a unique Cummins Virtual College ID number – Click here for Form.
- Purchase a Cummins Virtual College Library pre-requisite CD roms from your local Cummins Distributor – see course details for individual course requirements.

## 4 TO MAKE A BOOKING

- Complete Request Form - Click here for Form.
- Contact us for course dates and to register on a course.

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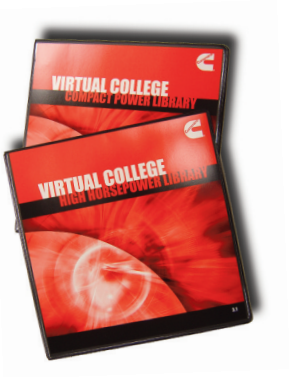


**2012 CUMMINS DAVENTRY TRAINING COURSE DETAILS CAN BE VIEWED AT:-**

www.cumminsengine.co.uk

# Index

# To view course details click on course title

# Distance Learning

## Cummins Virtual College

### INTRODUCTION

All of the CD-ROMs listed are mandatory pre-requisites to the Cummins Qualification courses set out in this booklet and ensure that those attending have a similar level of knowledge in the identified product in advance of course attendance. CD-ROM programmes are available to purchase through your local Cummins Distributor at your cost.

### SMART PROGRAM GUIDE

The Smart Program Guide (SPG) is the ideal mode to completing the Virtual training. However, for this option you must have an internet connection along with individual user account for Quick Serve Online (QSOL). To obtain a SPG, log on to quickserve.cummins.com. QSOL also provides a link to Service Training on the left hand side of the screen. You may then select the qualification program that "you" wish to complete.

The Smart Program guide looks at the current training requirements and subtracts any Virtual College training that has previously been completed.

The advantage of having the SPG is that it will be less time consuming, meaning the student will not have to repeat what they have done previously, and will allow you to focus only on topics which apply to them.

*NOTE: The user will need to have a Promotion ID number to complete the training on the Virtual College Library. Without the Promotion ID user number the student will not be able to save any of their progress and therefore not gain credit for their work.*

### CD-ROM – BASIC INSTRUCTION

- Insert the CVC disc and double click on the icon.
- You will be required to enter your personal Cummins Virtual College Promotion ID number, which can be obtained from MAVIS LAMB by completing the Database Registration Form.
- You will need to ensure that the computer speakers are switched on to listen to the important verbal instructions.

### CD-ROM – HELP DESK ONLY

*If you have any problems with the CD-ROM's program please contact the USA Help Desk which is available Monday to Friday 08.00 hours to 17.00 hours Eastern Standard Time by Email or phone:-*

*Email address cvcsupport@techcom.com Telephone number 001 800 239 5930 (Calls to this number will be charged at standard rate)*

### CD-ROM – MARKING PROCEDURE

To enable you to be accredited for your CD-ROM work please attach your answers to an email to include the VIRTUAL.ROM file (old CD-ROMs) or the "_UL.cvc" file (new CD-ROMs)

These files are located by default in the CVC directory on the C or D drive.

(DO NOT open the file as it corrupts the data)
Send the files (on separate emails please) to mavis.y.lamb@cummins.com

The deadline for completion of the mandatory CD-ROMs is TWO weeks before beginning the in-house Qualification course. This will give us time to mark and contact you if there are any queries.

### QUICKSERVE ONLINE

Access your training data on QSOL, to enable you to view your training records to date, print off your own smart program guide and upload your own CVC CD-ROM results (this takes 24 hours to update) for this we will require your QSOL username.

# Distance Learning



| BULLETIN NUMBER | NEW VIRTUAL COLLEGE LIBRARY CD ROMS - MANDATORY PRE-REQUISITES |
|---|---|
| 4091834 | Diesel Exhaust Aftertreatment - ISC/ISL CM850 (1 CD) |
| 4091841 | Virtual College – Marine Vessel Performance |
| 4091983 | Virtual College -- Alternative Fuels Library 3.2 |
| 4091851 | Update 1 for Midrange Virtual College Library (5 CDs) |
| 4091858 | Virtual College – Midrange Library 3.5 |
| 4091876 | Virtual College - Heavy Duty Library 3.3 |
| 4091880 | Virtual College – High Horsepower Library 3.2 (14 CDs) |
| 4091891 | Virtual College – Compact Power Library ( 13 CDs) |
| 4091966 | Virtual College - Warranty (1 CD) |
| **BULLETIN NUMBER** | **OLD VIRTUAL COLLEGE LIBRARY CD ROMS - MANDATORY PRE-REQUISITES** (Requires operating system of Windows XP or older) **STANDARD LEARNING TIME** |
| 3898577 | QST30 Engine (2 CDs) |
| 3898587 | C8.3 250G Engine (5 CDs) |
| 3898597 | L10 280/300G Engine (5 CDs) |
| 3898617 | CENSE System (1 CD) |
| 3898627 | Natural Gas Familiarization (1 CD) |
| 3898777 | QSK 45/60 Engines (9 CDs) |
| 3898847 | QST30 Industrial Engine (5 CDs) |
| 3898887 | QSX15 Engines & ISX Update (2 CDs) |
| 3898917 | QSX15/QSM11 Industrial Features & Controls (3 CDs) |
| 3898997 | EGR Air Handling Familiarization - Virtual Classroom Training & Wrottem Assessment (1 CD) |
| 4091821 | ISB CM850 Engine – Virtual Classroom Training, Written Assessment and Virtual Hands-On Assessment (7 CDs) |
| 4091822 | QSK78 Engine - Virtual Classroom Training (6 CDs) |
| 4091823 | B6.7s & B4.5s Structural Block Engines (1 CD) |
| 4091824 | Fundamentals of Natural Gas for Stationary Power (1 CD) |
| 4091825 | High Horsepower Natural Gas Lean Burn Control Systems (For Power Generation) (1 CD) |
| 4091826 | QSV 81/91 Natural Gas Engines (2 CDs) |
| 4091827 | QSK45/60 G Natural Gas Engines (2 CDs) |
| 4091828 | A1400, A1700, A2000, A2300, & A2300T Engines -- Virtual Classroom Training and Written Assessment (4 CDs) |
| 4091829 | QSK23 Engine -- Virtual Classroom Training and Written Assessment ( 2 CDs) |
| 4091831 | CAPS Fuel System Review and Update |
| 4091990 | INSITE 7 updated (3 cds) |
| 4091840 | BETT (Basic Electronics Theory and Troubleshooting) Update (4 CDs) |

CD ROMS RELEVANT TO YOUR COURSE ARE LISTED UNDER YOUR COURSE AGENDA IN THIS BROCHURE.

CD ROM PROGRAMES ARE AVAILABLE TO PURCHASE THROUGH YOUR LOCAL CUMMINS DISTRIBUTOR AT YOUR COST.CD ROM PRE-REQUISITES MUST BE COMPLETED 2 WEEKS BEFORE COURSE START DATE.

TIMES MAY VARY FOR CD ROM COMPLETION.

# Automotive

## Midrange

### ISF ENGINE- QUALIFICATION- (2009-45Q / 2009-17Q) 5 DAYS

**COURSE OVERVIEW:**

This Course will provide participants with an understanding of the ISF2.8 AND 3.8 Engines management and EGR/ SCR aftertreatment systems. The participants will also have the ability to confidently converse with operators / owners, which will enable them to carry out efficient fault finding of the Engine management and EGR/ SCR system.

**WHO SHOULD ATTEND?**

A good knowledge of automotive electrical systems is desirable to gain the most from this course.

**COURSE OBJECTIVES:**

Participants will Become familiar with the design, functions, and operation of the ISF CM2220 engines and aftertreatment systems. Be capable of troubleshooting and repair of the engine and aftertreatment system using approved tools and service procedures. Demonstrate competency in locating the latest diagnostic and repair procedures on QuickServe Online. Demonstrating proper engine and exhaust aftertreatment system maintenance procedures. Demonstrating knowledge of engine and fuel system clean care practices.

**COURSE CONTENT:**

- ISF2.8 CM2220 & ISF3.8 CM2220 Engine Qualification Course Introductions:
- Course Objectives:
- Completion of prerequisites
- Participation in hands on activities
- Passing score on written examination
- Base engine
- Fuel system
- Exhaust aftertreatment (EGR/DOC & SCR) Control System
- ISF2.8/3.8 CM2220 Combination PowerPoint Presentation:
- ISF2.8 & ISF3.8 Engine Introductions
- Base Engine
- Lubrication System
- Cooling System
- Air handling Systems
- ISF Fuel Systems
- Clean Care Review
- Fuel System Test Procedures
- Perform Test Procedures
- CM2220 Control System
- Fault Code Troubleshooting Manual
- Wiring Diagram
- Wiring Harness Repair Kit
- INSITE
- Exhaust Aftertreatment
- Exhaust Gas Recirculation
- Diesel Oxidation Catalyst
- Airless SCR systems
- Component locations
- Component functions
- Aftertreatment Controls
- Aftertreatment System Troubleshooting
- Assessments:
- Written Assessment, Review scoring document
- Individual Hands-on Assessments, Passing score on hands-on assessment

- The Mandatory Cummins Virtual College CD ROM Pre- requisites are: Compact Power Library.

## ISL$^{e}$ 04 CM850 QUALIFICATION 5 DAYS (2007-06Q)

### COURSE OVERVIEW:

This course will allow participants to gain a confident understanding of the ISLe4 Engine management and SCR Aftertreatment system. (The course does not cover basic engine operation, construction and maintenance). The participants will also have the ability to confidently converse with operators / owners, which will enable them to carry out efficient fault finding of the Engine management and SCR system.

### WHO SHOULD ATTEND?

A good knowledge of automotive electrical systems is desirable to gain the most from this course.

### COURSE OBJECTIVES:

The participants will learn about the ISLe4 Engine management, Common rail fuel system and the SCR (Adblue/def) Aftertreatment system. The participants will gain understanding of the engine electronic management system and relevant diagnostic tooling.

### COURSE CONTENT:

- ECM operations and Fault Code behavior
- SCR (Ad blue / DEF) Air driven Aftertreatment system operation and integration
- Live engine diagnostic and trouble shooting
- Written test on engine, fuel system and Aftertreatment
- Practical assessment including trouble shooting with Insite
- High Pressure Common Rail Fuel System, mechanical and electrical operation

The Mandatory Cummins Virtual College CD ROM
Pre- requisites are: Midrange Library.

## ISL8.9 CM2150 SN (EURO 5) QUALIFICATION 5 DAYS (2009-16Q)

### COURSE OVERVIEW:

This course will allow participants to gain a confident understanding of the ISL CM2150 SN Engine management and SCR / DEF air assisted Aftertreatment system. (The course does not cover basic engine operation, construction and maintenance). The participants will gain the ability to confidently converse with operators / owners, which will enable them to carry out efficient fault finding of the SCR system.

### WHO SHOULD ATTEND?

A good knowledge of automotive electrical systems is desirable to gain the most from this course.

### COURSE OBJECTIVES:

The participants will learn about the ISL CM2150 SN Engine management / SCR (Adblue/DEF) Aftertreatment system. The participants will also gain an understanding of the engine electronic management system self diagnosis and relevant diagnostic tooling.

### COURSE CONTENT:

- ECM operations and Fault Code behavior
- SCR (Adblue / DEF) Aftertreatment system operation and integration
- Live engine diagnostic and trouble shooting
- Written test on engine, fuel system and Aftertreatment
- Practical assessment including trouble shooting with Insite

The Mandatory Cummins Virtual College CD ROM
Pre- requisites are: Midrange Library.

# Automotive

## ISB$^{e}$4+ CM850 QUALIFICATION 5 DAYS (2007-29Q)

### COURSE OVERVIEW:

This course will allow participants to gain a confident understanding of the ISBe4+ Engine management and SCR Aftertreatment system. (The course does not cover basic engine operation, construction and maintenance). The participants will also have the ability to confidently converse with operators / owners, which will enable them to carry out efficient fault finding of the Engine management and SCR system.

### WHO SHOULD ATTEND?

A good knowledge of automotive electrical systems is desirable to gain the most from this course.

### COURSE OBJECTIVES:

The participants will learn about the ISBe4+ Engine management, Common rail fuel system and the SCR (Adblue/def) Aftertreatment system. The participants will gain understanding of the engine electronic management system and relevant diagnostic tooling.

### COURSE CONTENT:

- High Pressure Common Rail Fuel System, mechanical and electrical operation
- ECM operations and Fault Code behavior
- SCR (Adblue / DEF) Aftertreatment system operation and integration
- Live engine diagnostic and trouble shooting
- Written test on engine, fuel system and Aftertreatment
- Practical assessment including trouble shooting with Insite

The Mandatory Cummins Virtual College CD ROM
Pre- requisites are: Midrange Library.

## ISB4.5 & ISB6.7 CM2150 SN (EURO 5) QUALIFICATION 5 DAYS (2009-15Q)

### COURSE OVERVIEW:

This course will allow participants to gain a confident understanding of the ISB4.5 CM2150 & ISB6.7 CM2150 SN Engine management and SCR/DEF air assisted Aftertreatment system. (The course does not cover basic engine operation, construction and maintenance). The participants will gain the ability to confidently converse with operators / owners, which will enable them to carry out efficient fault finding of the SCR system.

### WHO SHOULD ATTEND?

A good knowledge of automotive electrical systems is desirable to gain the most from this course.

### COURSE OBJECTIVES:

The participants will learn about the ISB4.5 CM2150 & ISB6.7 CM2150 SN Engine management / SCR (Adblue/def) air assisted Aftertreatment systems. The participants will gain understanding of the engine electronic management system self diagnosis and relevant diagnostic tooling.

### COURSE CONTENT:

- High Pressure Common Rail Fuel System, mechanical and electrical operation
- ECM operations and Fault Code behaviour
- SCR (Adblue / DEF) Air assisted Aftertreatment system operation and integration
- Live engine diagnostic and trouble shooting
- Written test on engine, fuel system and Aftertreatment
- Practical assessment including trouble shooting with Insite

The Mandatory Cummins Virtual College CD ROM
Pre- requisites are: Midrange Library.

## B&C GAS PLUS (CNG) QUALIFICATION 5 DAYS (2006-06/07Q)

**COURSE OVERVIEW:**

This Course will provide participants with a further insight into the specific Gas 'Plus' Fuel System and electronics. The use of INSITE diagnostic tool, along with the technicians experience will be used to monitor and troubleshoot performance issues. The practical end test is styled to mirror potential failure modes found in the field.

**WHO SHOULD ATTEND?**

Experienced technicians with a good knowledge of Cummins Engines.

**COURSE OBJECTIVES:**

Upon Completion of the Qualification course, the participants will have achieved the level of competency in maintenance, repair and troubleshooting, conducting failure analysis and repair practices relating to the B & C Gas Plus (Compressed Natural Gas) Engine systems to the standard required by Cummins Ltd.

**COURSE CONTENT:**

- NG Familiarisation
- Engine Data, Views Flows (Oil, Air, Exhausts, Gas and Coolant)
- Engine Maintenance
- Tools (Gas specific)
- Engine Ignition and Adaptive Learn

The Mandatory Cummins Virtual College CD ROM
Pre- requisites are: Alternative Fuels Library inc. BETT, INSITE.

## ISB 5.9 GAS CM2180 ENGINE QUALIFICATION 5 DAYS (2010-25Q)

**COURSE OVERVIEW:**

This Course will provide participants with a further insight into the specific Gas Fuel System and electronics. The use of INSITE diagnostic tool, along with the technicians experience will be used to monitor and troubleshoot performance issues. The practical end test is styled to mirror potential failure modes found in the field.

**WHO SHOULD ATTEND?**

Experienced technicians with a good knowledge of Cummins Engines.

**COURSE OBJECTIVES:**

Upon Completion of the Qualification course, the participants will have achieved the level of competency in maintenance, repair and troubleshooting, conducting failure analysis and repair practices relating to the ISB 5.9 Gas (Compressed Natural Gas & Liquefied Natural Gas ) Engine systems to the standard required by Cummins Ltd.

**COURSE CONTENT:**

- NG Familiarization
- Engine Data, Views Flows (Oil, Air, Exhausts, Gas and Coolant)
- Engine Maintenance
- Tools (Gas specific)
- Engine Ignition and Adaptive Learn.

The Mandatory Cummins Virtual College CD ROM
Pre- requisites are: Alternative Fuels.

# Automotive

## ISL G CM2180 QUALIFICATION 5 DAYS (2007-28Q)

**COURSE OVERVIEW:**

This Course will provide participants with a further insight into the specific Gas Fuel System and electronics. The use of INSITE diagnostic tool, along with the technicians experience will be used to monitor and troubleshoot performance issues. The practical end test is styled to mirror potential failure modes found in the field.

**WHO SHOULD ATTEND?**

Experienced technicians with a good knowledge of Cummins Engines.

**COURSE OBJECTIVES:**

Upon Completion of the Qualification course, the participants will have achieved the level of competency in maintenance, repair and troubleshooting, conducting failure analysis and repair practices relating to the ISL Gas (Compressed Natural Gas & Liquefied Natural Gas ) Engine systems to the standard required by Cummins Ltd.

**COURSE CONTENT:**

- NG Familiarisation
- Engine Data, Views Flows (Oil, Air, Exhausts, Gas and Coolant)
- Engine Maintenance
- Tools (Gas specific)
- Engine Ignition and Adaptive Learn

The Mandatory Cummins Virtual College CD ROM
Pre- requisites are: Alternative Fuels Library

# Heavy Duty

## ISM$^{e}$ QUALIFICATION 5 DAYS (2004-09Q)

**COURSE OVERVIEW:**

This Course aims to instruct participants to a level where they will be able to identify engine system components, both new and original. To enable the participants at the end of the training to show and describe the components of the ISMe electrical and mechanical systems.

**WHO SHOULD ATTEND?**

This course suits all technicians with some engine knowledge.

**COURSE OBJECTIVES:**

Upon completion of the Qualification training the participants will be able to apply new found knowledge and skills to perform practical and written tests to a skill level set by Cummins Limited. During the Qualification the participants will achieve a level of competence in the use of Insite and Troubleshooting (ISMe) engine systems through the use of written and practical testing.

**COURSE CONTENT:**

- Introduction to the M family
- Fuel, lube, and coolant system
- Engine strip and rebuild
- Electrics/electronics
- Use of Insite and troubleshooting
- RSL testing
- Written and practical assessment

The Mandatory Cummins Virtual College CD ROM
Pre- requisites are: Heavy Duty Library.

# Automotive

## ISMCM876/ISX CM871 ENGINE/EPA 07 QUALIFICATION 5 DAYS (2006-30Q)

**COURSE OVERVIEW:**

This course will provide participants with a good knowledge of aftertreatment system and electronics/electrics as well as a foundation to Tier 4.

**WHO SHOULD ATTEND?**

Experienced technicians with very good knowledge of the M&X Series family electrics and Insite.

**COURSE OBJECTIVES:**

Participants will be able to outline theory operation and maintenance as well as fault find the Aftertreatment system, sensors and CAN BUS system. The students will be able to apply correct fault finding procedure.

**COURSE CONTENT:**

- Engine changes, practical work aftertreatment filters
- Aftertreatment systems and chemical processes
- Clean care and practical work on aftertreatment
- Sensors and electrics
- Faultfinding Aftertreatment system
- Written and Practical assessment

The Mandatory Cummins Virtual College CD ROM Pre-requisites are Midrange Library

## ISX CM871 ENGINE QUALIFICATION 5 DAYS (2006-30Q)

**COURSE OVERVIEW:**

This Course will provide participants with a good knowledge of the X family Aftertreatment system and electrics/electronics

**WHO SHOULD ATTEND?**

Experienced engine technicians with a good knowledge of the ISX/QSX engine, electrics and Insite.

**COURSE OBJECTIVES:**

Participants will be able to outline theory operation and maintenance as well as fault find the Aftertreatment system, sensors and CAN BUS system. The students will be able to apply correct fault finding procedure.

**COURSE CONTENT:**

- Engine Changes, Practical Work Aftertreatment filters
- Aftertreatment Systems and Chemical Processes
- Clean care and Practical work on aftertreatment
- Road Speed Limiter Testing
- Sensors and electrics
- Faultfinding Aftertreatment system
- Written and Practical assessment

The Mandatory Cummins Virtual College CD ROM Pre- requisites are: Heavy Duty Library.

# Industrial

## Midrange

### B3.3/QSB3.3 QUALIFICATION 3 DAYS (2007-05Q)

**COURSE OVERVIEW:**

This Course will ensure participants are able to recognise the B3.3 & QSB3.3 engine, its components, system flow paths, operation procedures and correct rebuild practices with reference to the shop manual.

**WHO SHOULD ATTEND?**

- External Customers
- Internal customers
- Experienced Technicians
- Technicians with less than 4 years experience
- Apprentices or participants new to Cummins engines

**COURSE OBJECTIVES:**

Consolidate delegates understanding of:-

- System flows
- Troubleshooting methods
- INSITE functionality
- Mechanical components and functionality
- B3.3 rebuild practices

**COURSE CONTENT:**

**PRACTICAL:-**

- Engine teardown and rebuild (Teardown engine B3.3)
- Identification of components and there function (Running engine QSB3.3)
- QSB3.3 Fuel leakage testing using INSITE
- Troubleshooting tasks (B3.3 & QSB3.3)

**THEORY:-**

- Written test encompassing course content and CVC material
- Technical presentation covering engine systems and features

The Mandatory Cummins Virtual College CD ROM pre requisites to be completed for this course are: Compact Power Library.

### QSB4.5 & QSB6.7 CM850 QUALIFICATION 5 DAYS (2005-03Q)

**COURSE OVERVIEW:**

This course aims to give the participants knowledge of the structure and function of the engine and its components. Particular and detailed reference will be made to the operation of the fuel system. An understanding of the features of the electronic control system and the use of the INSITE service tool when used in this application.

**WHO SHOULD ATTEND?**

This course will suit all technicians with some engine knowledge.

**COURSE OBJECTIVES:**

On satisfactory completion of the final Qualification element, the participants will have been provided with skills and knowledge to assist in maintenance, fault finding and repair on this product.

**COURSE CONTENT:**

- Engine familiarization and component location
- Lube, coolant and air system
- HPCR fuel system
- Strip and rebuilding engine
- Electrics/electronics
- Basic faultfinding and troubleshooting
- Written and practical assessment

The Mandatory Cummins Virtual College CD ROM Pre- requisites are: Midrange Library.

## QSC8.3 & QSL9 CM850 QUALIFICATION 5 DAYS (2006-35Q)

**COURSE OVERVIEW:**
This five day course aims to give the participants knowledge of the structure and function of the engine and its components. Particular and detailed reference will be made to the operation of the fuel system and its modular repair. An understanding of the features of the electronic controls system and use of the INSITE service tool when used in this application.

**WHO SHOULD ATTEND?**
This course will suit all technicians with some engine knowledge.

**COURSE OBJECTIVES:**
On Satisfactory completion of the final Qualification element, the participants will have been provided with skills and knowledge to assist in maintenance, fault finding and repair of the fuel system and engine.

**COURSE CONTENT:**
- Engine familiarization and component location
- Lube, coolant and air system
- HPCR fuel system
- Strip and rebuilding engine
- Electrics/electronics
- Basic faultfinding and troubleshooting
- Written and practical assessment

The Mandatory Cummins Virtual College CD ROM Pre- requisites are: Midrange Library.

## QSB6.7/QSL9 CM2250 TIER 4 QUALIFICATION 5 DAYS (2010-17Q, 2010-16Q, 2005-03Q, 2006-35Q)

**COURSE OVERVIEW:**
This course will provide participants with a good knowledge of aftertreatment system and electronics/electrics as well as changes from Tier 3.

**WHO SHOULD ATTEND?**
Experienced technicians with very good knowledge of B/C & L engines, electrics and Insite.

**COURSE OBJECTIVES:**
Participants will be able to outline theory operation and maintenance as well as fault find the Aftertreatment system, sensors and CAN BUS system. The students will be able to apply correct fault finding procedure.

**COURSE CONTENT:**
- Engine changes, practical work aftertreatment filters
- Aftertreatment systems and chemical processes
- Clean care and practical work on aftertreatment
- CM2250
- Sensors and electrics
- Faultfinding Aftertreatment system
- Written and Practical assessment

The Mandatory Cummins Virtual College CD ROM Pre-requisites are Midrange Library
Tier 3 course (2005-03Q, 2006-35Q) is a mandatory pre-requisite for this Tier 4 course (2010-17Q, 2010-16Q).

# Industrial

## Heavy Duty

### NH/NT855 QUALIFICATION 5 DAYS (2008-09Q)

**COURSE OVERVIEW:**

This Course includes an-depth study of the proven product line covering the NH/NT855 Engine. Theory and practical will focus on a full strip down and re-build of an NH/NT855 engine. The four main systems- Lube, Cool, air and fuel- will be covered, along with useful tips and hints for the service technician, as well as some time being devoted to operation and maintenance, troubleshooting.

**WHO SHOULD ATTEND?**

This course suits all technicians.

**COURSE CONTENT:**

- Engine familiarization and component location
- Engine parts and systems
- Engine strip and rebuild
- Basic faultfinding and troubleshooting

There are no mandatory pre requisites for this course.

### QSM11 CM570 QUALIFICATION 5 DAYS (2000-55Q)

**COURSE OVERVIEW:**

This Course will instruct participants to a level where they will be able to identify engine system components, both new and original. To enable the participants at the end of the training to be able to show and describe the components of the QSM electrical and mechanical systems.

**WHO SHOULD ATTEND?**

This course suits all technicians with some engine knowledge

**COURSE OBJECTIVES:**

Upon completion of the Qualification training the participants will be able to apply new found knowledge and skills to perform practical and written tests to a skill level set by Cummins Limited. During the Qualification the participants will achieve a level of competence in the use of Insite and Troubleshooting (ISMe) engine systems through the use of written and practical testing.

**COURSE CONTENT:**

- Introduction to the M family
- Fuel, lube, and coolant system
- Engine strip and rebuild
- Electrics/electronics
- Use of Insite and troubleshooting
- Written and practical assessment

The Mandatory Cummins Virtual College CD ROM pre requisites for this course are: Heavy Duty Library & QSX15/QSM11 Industrial Features & Controls C.V.C Course (**B/N 3898917**).

## QSX15 TIER 3 QUALIFICATION 5 DAYS (2006-04Q)

**COURSE OVERVIEW:**

This Course will allow the participants to gain a level of understanding whereby they will be able to identify engine system components. To enable the participants at the end of the training to show and describe the components of the QSX electrical and mechanical Systems.

**WHO SHOULD ATTEND?**

This course suits all technicians with some engine knowledge.

**COURSE OBJECTIVES:**

Upon completion of the Qualification the participants will be able to apply new found knowledge and skills to perform practical and written examinations to a skill level set by Cummins Limited. During the Qualification the participants will achieve competence in the use of Insite in the troubleshooting of QSX problems together with the skills required for the assembly and timing of the new hardware features of the engine.

**COURSE CONTENT:**

- Introduction to the X family
- Fuel, lube, and coolant system
- Disassembly and assembly of engine
- Electrics and electronics
- Use of Insite and troubleshooting
- Written and practical assessment

The Mandatory Cummins Virtual College CD ROM pre requisites for this course are: Heavy Duty Library & QSX15/QSM11 Industrial Features & Controls C.V.C Course (**B/N 3898917**).

# High Horse Power

## K19 QUALIFICATION 5 DAYS (2008-10Q)

**COURSE OVERVIEW:**

TThis Course will ensure participants will be able to recognise the K19 engine, its components, system flow paths, operation procedures and correct rebuild practices with reference to the shop manual. The participants will understand correct troubleshooting and maintenance procedures.

**WHO SHOULD ATTEND?**

- Internal Customers
- External Customers
- Experienced Technicians

**COURSE OBJECTIVES:**

The participants will be able to follow correct rebuild practices for the K19 engine. Participants will be capable of conducting operation and maintenance procedures to Cummins R&M standards, and be able to diagnose and repair engine system faults. They will also have the capability to communicate with end users in order to correctly assess failure modes.

**COURSE CONTENT:**

- Engine Features and component location
- Practical work on the engine including Cylinder head, piston, liner and timing gears remove and re-fit. Fuel pump and injector remove and refit, all technical settings and adjustments
- Injector Cam timing
- Identification and function of the PT fuel system.
- Written & Practical Testing

There are no mandatory pre requisites for this course.

# Industrial

## QSK19 QUALIFICATION 5 DAYS (1995-15Q)

**COURSE OVERVIEW:**

This Course will ensure participants will be able to recognise the QSK19 Engine, its components, system flow paths, operation procedures and correct rebuild practices with reference to the shop manual. The participants will understand correct troubleshooting and maintenance procedures.

**WHO SHOULD ATTEND?**

Experienced Technicians who have a good knowledge of Cummins Engines.

**COURSE OBJECTIVES:**

The participants will be able to follow correct rebuild practices for the QSK19 engine, will be capable of conducting operation and maintenance procedures to Cummins R&M standards and be able diagnose and repair engine system faults. They will also have the capability to communicate with end users in order to correctly assess failure modes.

**COURSE CONTENT:**

- Engine Features and component location
- Practical work on the engine including Cylinder head, piston, liner and timing gears remove and re-fit, fuel pump and injector remove and refit, all technical settings and adjustments
- Injector Cam timing
- Identification and function of the HPI Fuel System
- Practical work in fault finding and diagnosis of engine management system

The Mandatory Cummins Virtual College CD ROM Pre- requisites are: High Horse Power Library inc. BETT, INSITE.

## QSK19 CM850 MCRS QUALIFICATION 4 DAYS (2005-02Q)

**COURSE OVERVIEW:**

The participants will competently troubleshoot and repair all engine systems on the new QSK19 CM850 engine.

**WHO SHOULD ATTEND?**

Experienced technicians with a good knowledge of the QSK19 Engine and Basic Electrics.

**COURSE OBJECTIVES:**

Participants will be able to describe the four QSK19 CM850 engine systems. Identify QSK19 engine components. Outline QSK19 Theory operation and maintenance. Apply correct troubleshooting procedures.

**COURSE CONTENT:**

- Engine Familiarization and Component location
- Fuel System MCRS
- Operation and maintenance of QSK19 MCRS
- Trouble shooting and repair of the fuel system
- Assemble & Disassemble of Injector and Fuel Pump
- Practical Fault finding
- Trouble shooting, Engine Testing and repair of engine faults using Insite
- Written and Practical Assessment

The Mandatory pre requisites are: High Horsepower Library.

## K38/50 QUALIFICATION 5 DAYS (2008-11Q)

### COURSE OVERVIEW:

This Course will ensure participants are able to recognise the K38/50 engine, its components, system flow paths, operation procedures and correct rebuild practices with reference to the shop manual. Attention to the correct troubleshooting, repair and maintenance procedures.

### WHO SHOULD ATTEND?

- External Customers
- Internal customers
- Experienced Technicians
- Technicians with less than 4 years experience
- Apprentices or participants new to Cummins engines

### COURSE OBJECTIVES:

The participants at the end of the training will be able to confidently identify all aspects of the K38/50 engine, including engine systems, engine rebuild procedures according to QSOL and the PT fuel system. The participants will be able to prove their understanding of the K38/50 package by passing both written and practical tests to a level of competency as required by Cummins Limited.

### COURSE CONTENT:

- Engine Systems, Features and components
- Engine Teardown including, Cylinder Head and Top set, Piston and Liner and Timing case and Gear train R & R
- PT Fuel System, Injector Cam timing and fuel pump and injector R&R
- Fault finding and diagnostic

There are no mandatory pre requisites for this course.

## QSK23 QUALIFICATION 5 DAYS (2002-63Q)

### COURSE OVERVIEW:

This Course will allow participants to recognize the QSK23 engines, their components flow paths and operation procedures. Use of the correct rebuild procedures with reference to the QSK23 Manuals. Outline the QSK23 operation and maintenance schedules. A Thorough understanding of the HPI Fuel system. Use of the INSITE or Inpower tool.

### WHO SHOULD ATTEND?

This course suits all technicians with some engine knowledge.

### COURSE OBJECTIVES:

Participants will be able to demonstrate correct rebuild procedures and be capable of conducting operation and maintenance to Cummins standards. Participants will demonstrate a clear understanding of either the Insite or Inpower service tool.

### COURSE CONTENT:

- Engine familiarization and component location
- Engine strip and rebuild
- Air, fuel, coolant and lube system
- Electrics/electronics

The Mandatory Cummins Virtual College CD ROM pre requisites are: BETT (Basic Electronics Theory & Troubleshooting), INSITE 6 update, QSK23 Engine C.V.C (**B/N 4091829**) & QSK45/60 Engines (**B/N 3898777**).

# Industrial

## QSK45/60 QUALIFICATION 5 DAYS (1999-01Q)

**COURSE OVERVIEW:**

This Course will provide participants with an understanding of the QSK45/60 engines, their components, flow paths and operation procedures. The student will understand correct troubleshooting and maintenance procedures with and without the use of the INSITE service tool. The participant will also be able to use correct rebuild procedures with reference to QSK45/60 shop Manual.

**WHO SHOULD ATTEND?**

Internal Customers, External Customers, Experienced Technicians

**COURSE OBJECTIVES:**

Participants will be able to demonstrate correct rebuild procedures as outlined in the QSK45/60 shop Manual. Participants will be capable of conducting operation and maintenance procedures to Cummins R&M standards and have the capability to communicate with end users in order to correctly access failure modes. Participants will also demonstrate a clear understanding of the INSITE service tool.

**COURSE CONTENT:**

- Engine Systems, Features and Components
- Engine Teardown including, Cylinder Head and Top set, Piston and Liner and Timing case and Gear train R & R
- Function and components of the HPI Fuel System
- Injector Static timing procedure and injector R&R
- Using INSITE on running Test engine, fault finding and diagnostic

The Mandatory Cummins Virtual College CD ROM Pre Requisites are: High Horsepower Library & QSK45/60 Engines C.V.C (**B/N 3898777**).

## QSK38/50 CM850/CM2150 MCRS QUALIFICATION 5 DAYS (2006-11Q)

**COURSE OVERVIEW:**

This Course will provide participants with an understanding of the QSK38/50 MCRS engines, their components, flow paths and operation procedures. The student will understand correct troubleshooting and maintenance procedures with and without the use of the INSITE service tool. The participant will also be able to use correct rebuild procedures with reference to QSK38/50 MCRS shop Manual.

**WHO SHOULD ATTEND?**

Internal Customers, External Customers, Experienced Technicians

**COURSE OBJECTIVES:**

The participants at the end of the training will be able to confidently identify all aspects of the QSK 38/50 package, including engine systems, electronic engine management systems, marine control systems and the Insite diagnostic tooling. The participants will be able to prove their understanding of the QSK38/50 MCRS package by passing both written and practical tests to a level of competency as required by Cummins Limited.

**COURSE CONTENT:**

- QSK38/50 engine familiarisation, architecture and flows.
- QSK38/50 engine strip and rebuild: Service tooling and Repair procedures
- CM850/CM2150 MCRS Fuel system function, operation and components.
- QSK38/50 on-engine electrical and electronic systems.
- Use of Insite.
- ED3 digital system plus Main and Second Station arrangements.
- Practical test out and written test.

The Mandatory Cummins Virtual College CD ROM Pre Requisites are: High Horsepower Library.

# QSK60 CM850/CM2150 MCRS QUALIFICATION 5 DAYS (2006-12Q)

**COURSE OVERVIEW:**

This Course will provide participants with an understanding of the QSK60 MCRS engines, the components, flow paths and operation procedures. The student will understand correct troubleshooting and maintenance procedures with and without the use of the INSITE service tool. The participant will also be able to use correct rebuild procedures with reference to QSK60 MCRS shop Manual.

**WHO SHOULD ATTEND?**

Internal Customers, External Customers, Experienced Technicians

**COURSE OBJECTIVES:**

The participants at the end of the training will be able to confidently identify all aspects of the QSK 60 MCRS CM850/CM2150, including engine systems, electronic engine management systems, control systems and the Insite diagnostic tooling. The participants will be able to prove their understanding of the QSK60 MCRS/CM850/CM2150 package by passing both written and practical tests to a level of competency as required by Cummins Limited.

**COURSE CONTENT:**

- QSK60 engine familiarisation, architecture and flows.
- QSK60 engine strip and rebuild: Service tooling and Repair procedures.
- CM850/CM2150 MCRS Fuel system function, operation and components.
- QSK60 on-engine electrical and electronic systems.
- Use of Insite.

The Mandatory Cummins Virtual College CD ROM Pre Requisites are: High Horsepower Library & QSK45/60 Engines C.V.C (**B/N 3898777**).

# Marine

## Midrange

### B & C MARINE QUALIFICATION (QMT1) 4 DAYS (2006-47Q)

**COURSE OVERVIEW:**
This Course will ensure participants have a working understanding of the B & C Series Marine Midrange engines.

**WHO SHOULD ATTEND?**
Internal Customers, External Customers, Experienced Technicians.

**COURSE OBJECTIVES:**
The Participants at the conclusion of this training will be able to confidently identify all aspects of the marine package, including engine systems, engine marine controls systems and associated equipment. The participants will be able to prove their understanding of the B & C Series Marine Midrange engines by passing both written and practical tests to a level of competency as required by Cummins Limited.

**COURSE CONTENT:**
- B / C engine familiarisation, architecture and flows.
- B / C engine strip and rebuild: Service tooling and Repair procedures
- B / C on-engine electrical systems

The Mandatory Cummins Virtual College CD ROM
Pre- requisites are: Midrange Library.

### QMTV1 MARINE QUALIFICATION 5 DAYS (2006-48Q)

**COURSE OVERVIEW:**
This Course will ensure participants have a working understanding of the QMTVI Marine engines (QSB and QSC/QSL).

**WHO SHOULD ATTEND?**
Internal Customers, External Customers, Experienced Technicians.

**COURSE OBJECTIVES:**
The participants at the end of the training will be able to confidently identify all aspects of the Marine package, including engine systems, electronic engine management systems, marine control systems and the Insite diagnostic tooling. The participants will be able to prove their understanding of the QMTVI Marine package by passing both written and practical tests to a level of competency as required by Cummins Limited.

**COURSE CONTENT:**
- QSB/C/L engine familiarisation, architecture and flows
- QSB/C/L on-engine electrical and electronic systems. ETS throttle systems
- Use of Insite electronic service tool. Sub-system testing and troubleshooting trees
- Smartcraft vessel system architecture and troubleshooting
- Practical test out and written test

The Mandatory Cummins Virtual College CD ROM
Pre- requisites are: Midrange Library & Web Distance Learning Course (7004) Vessei Electronics

## QMTVIII MARINE ENGINE QUALIFICATION 5 DAYS (2003-28Q)

**COURSE OVERVIEW:**

This Course will ensure participants have a working understanding of the QMTVIII Marine engines (1.7L, 2.8L and 4.2 MerCruiser Products).

**WHO SHOULD ATTEND?**

Internal Customers, External Customers, Experienced Technicians

**COURSE OBJECTIVES:**

The participants at the end of the training will be able to confidently identify all aspects of the Marine packages, including engine systems, electronic engine management systems, marine control systems and the electronic diagnostic tooling. The participants will be able to prove their understanding of the QMTVIII Marine packages by passing both written and practical tests to a level of competency as required by Cummins Limited.

**COURSE CONTENT:**

- Engine familiarization for 1.7, 2.8 and 4.2 engines, architecture and flows
- 4.2L engine strip and rebuild: Service tooling and Repair procedures
- On-engine electrical and electronic systems.
- Use of Rinda electronic tooling
- Smartcraft system plus Main and Second Station arrangements
- Practical test out and written test

The Mandatory Cummins Virtual College CD ROM
Pre- Requisites are: Basic Electrics (BETT).

## QSD MARINE QUALIFICATION 5 DAYS (2007-01Q)

**COURSE OVERVIEW:**

This Course will ensure participants have a working understanding of the QSD Marine engines. (Cummins MerCrusier Diesel Products).

**WHO SHOULD ATTEND?**

Internal Customers, External Customers, Experienced Technicians

**COURSE OBJECTIVES:**

The participants at the end of the training will be able to confidently identify all aspects of the Marine packages, including engine systems, electronic engine management systems, marine control systems and the electronic diagnostic tooling. The participants will be able to prove their understanding of the QSD Marine package by passing both written and practical tests to a level of competency as required by Cummins Limited.

**COURSE CONTENT:**

- QSD 2.0, 2.8 and 4.2 engine familiarisation, architecture and flows
- QSD 2.0 engine strip and rebuild: Service tooling and Repair procedures
- QSD family on-engine electrical and electronic systems
- Use of CDS electronic tooling
- Smartcraft V2.0, 2.1 and 2.2 system architecture. CDS capability for settings and diagnostic procedures. ETS and DTS throttle systems and integration
- Practical test out and written test

The Mandatory Cummins Virtual College CD ROM
Pre- requisites are: Midrange Library & Web Distance Learning Course (**7004**) Vessel Electronics

# Marine

## QMTX MARINE STERNDRIVE QUALIFICATION 5 DAYS (2002-50Q)

**COURSE OVERVIEW:**

This Course will ensure participants have a working understanding of the QMTX Marine engine Drives (MerCruiser Alpha I, Bravo 1, 2 and 3 Sterndrives and transom assemblies).

**WHO SHOULD ATTEND?**

Internal Customers, External Customers, Experienced Technicians.

**COURSE OBJECTIVES:**

The participants will at the end of the training be able to confidently identify all aspects of the Marine drive packages, and be able to disassemble and reassemble drives following correct procedures. The participants will be able to prove their understanding of the QMTX Marine drives by passing both written and practical tests to a level of competency as required by Cummins Limited.

**COURSE CONTENT:**

- Stern Drive generic architecture and flows
- Alpha, Alpha Counter Rotation, Bravo 1 and Bravo 3 drives strip and rebuild: Service tooling and Repair procedures. Bravo 2 process included if necessary
- Drive removal, installation and control set up. Trim sensing and control considerations
- Transom removal, installation, set up and repair
- Practical test out and written test

The Mandatory Cummins Virtual College CD ROM Pre- Requisites are: Basic Electrics (BETT).

# Heavy Duty

## QSMII MARINE QUALIFICATION (QSMIII) 5 DAYS (2006-57Q)

**COURSE OVERVIEW:**

This Course will ensure participants have a working understanding of the QSM Marine engine.

**WHO SHOULD ATTEND?**

Internal Customers, External Customers, Experienced Technicians.

**COURSE OBJECTIVES:**

The participants at the end of the training will be able to confidently identify all aspects of the Marine package, including engine systems, electronic engine management systems, marine control systems and the Insite diagnostic tooling. The participants will be able to prove their understanding of the QSMIII Marine package by passing both written and practical tests to a level of competency as required by Cummins Limited.

**COURSE CONTENT:**

- QSM11 engine familiarisation, architecture and flows.
- QSM11 engine strip and rebuild: Service tooling and Repair procedures
- QSM11 on-engine electrical and electronic systems.
- Use of Insite
- ED3 digital system plus Main and Second Station arrangements
- Practical test out and written test

The Mandatory Cummins Virtual College CD ROM Pre- Requisites are: Heavy Duty Library, Marine Vessel Performance (**B/N 4091841**), Quick Serve On-Line Tests HD-1, HD-2 & HD-3 & WEB distance Learning course (**7004**) Vessel Electronics.

# High Horse Power

## QSK19 MARINE QUALIFICATION 5 DAYS (2006-51Q)

**COURSE OVERVIEW:**

This Course will ensure participants have a working understanding of the QSK19 Marine engine.

**WHO SHOULD ATTEND?**

- Internal Customers
- External Customers
- Experienced Technicians

**COURSE OBJECTIVES:**

The participants at the end of the training will be able to confidently identify all aspects of the QSK 19 Marine package, including engine systems, electronic engine management systems, marine control systems and the Insite diagnostic tooling. The participants will be able to prove their understanding of the QSK19 Marine package by passing both written and practical tests to a level of competency as required by Cummins Limited.

**COURSE CONTENT:**

- QSK19 engine familiarisation, architecture and flows.
- QSK19 engine strip and rebuild: Service tooling and Repair procedures
- Function, operation and components of the HPI fuel system.
- QSK19 on-engine electrical and electronic systems
- Use of Insite
- ED3 digital system plus Main and Second Station arrangements
- Practical test out and written test

The Mandatory Cummins Virtual College CD ROM Pre-requisites are: High Horse Power.

## QSK19 CM850 MCRS QUALIFICATION 5 DAYS (2008-02Q)

**COURSE OVERVIEW:**

This Course will provide participants with an understanding of the QSK19 MCRS engines, their components, flow paths and operation procedures. The student will understand correct troubleshooting and maintenance procedures with and without the use of the INSITE service tool. The participant will also be able to use correct rebuild procedures with reference to QSK19 MCRS shop Manual.

**WHO SHOULD ATTEND?**

Internal Customers, External Customers, Experienced Technicians.

**COURSE OBJECTIVES:**

The participants at the end of the training will be able to confidently identify all aspects of the Marine package, including engine systems, electronic engine management systems, marine control systems and the Insite diagnostic tooling. The participants will be able to prove their understanding of the QSK19 MCRS Marine package by passing both written and practical tests to a level of competency as required by Cummins Limited.

**COURSE CONTENT:**

- QSK19 engine familiarisation, architecture and flows.
- QSK19 engine strip and rebuild: Service tooling and Repair procedures
- CM850 MCRS Fuel system function, operation and components
- QSK19 on-engine electrical and electronic systems
- Use of Insite
- ED3 digital system plus Main and Second Station arrangements.
- Practical test out and written test

The Mandatory Cummins Virtual College CD ROM pre requisites are: High Horsepower Library & Marine Vessel Performance (**B/N 4091841**).

# Marine

## MARINE QSK60 HPI ENGINE QUALIFICATION 5 DAYS (2006- 55Q)

### COURSE OVERVIEW:

This Course will ensure participants have a working understanding of the Marine QSK60 HPI engine for maintenance, trouble shooting and diagnosis.

### WHO SHOULD ATTEND?

Internal Customers, External Customers, Experienced Technicians

### COURSE OBJECTIVES:

The participants at the end of the training will be able to confidently identify, describe, trouble shoot and diagnose all aspects of the Marine QSK60 package including the HPI Fuel system, cooling systems, electronic engine management systems, marine control systems and panels and Insite/Inpower diagnostic tooling. The participants will be able to prove their understanding of the Marine QSK60 package by passing both written and practical tests to a level of competency as required by Cummins Limited.

### COURSE CONTENT:

- Marine QSK60 engine HPI Fuel system, architecture and flows.
- Auxiliary and propulsion adaptations.
- Function and operation of the ECM500 and Dominium Controller.
- Auxiliary and Propulsion control panels.
- Alarm and Safety system function and settings.
- Marine QSK60 Cooling system options.
- Trouble shooting and diagnosis of Marine QSK60 package.
- Practical test out and written test.

The Mandatory Cummins Virtual College CD Rom pre-requisites are Midrange Library and QSK45/60 engine CVC (B/N 3898777).

## ZEUS MARINE QUALIFICATION 5 DAYS (2007-30Q)

### COURSE OVERVIEW:

This Course will provide participants with an understanding of the Zeus Marine package (MerCruiser Products).

### WHO SHOULD ATTEND?

Aimed at Internal and External customers along with existing Cummins technicians.

### COURSE OBJECTIVES:

The Participants at the end of the training will be able to confidently identify all aspects of the marine packages, including engine systems, electronic engine management systems, marine control systems and the electronic diagnostic tooling.

### COURSE CONTENT:

- Installation of transmission and engine, commissioning, sea trial
- Servicing intervals and content
- Electronic architecture, assembly and operation
- Electronic troubleshooting, approved repairs and available tooling

The Mandatory pre requisites for this course are: Midrange Library part number, Marine Vessel Performance (**B/N 4091841**) & WEB Distance learning Course Zeus (**7001**).

## QSK60 CM850/CM2150 MCRS MARINE QUALIFICATION 5 DAYS (2008-04Q)

**COURSE OVERVIEW:**

This Course will provide participants with an understanding of the QSK60 MCRS engines, their components, flow paths and operation procedures. The student will understand correct troubleshooting and maintenance procedures with and without the use of the INSITE service tool. The participant will also be able to use correct rebuild procedures with reference to QSK60 MCRS shop Manual.

**WHO SHOULD ATTEND?**

Internal Customers, External Customers, Experienced Technicians

**COURSE OBJECTIVES:**

The participants at the end of the training will be able to confidently identify all aspects of the QSK 60 Marine package, including engine systems, electronic engine management systems, marine control systems and the Insite diagnostic tooling. The participants will be able to prove their understanding of the QSK60 MCRS Marine package by passing both written and practical tests to a level of competency as required by Cummins Limited.

**COURSE CONTENT:**

- QSK60 engine familiarisation, architecture and flows.
- QSK60 engine strip and rebuild: Service tooling and Repair procedures.
- CM2150/CM850 MCRS Fuel system function, operation and components.
- QSK60 on-engine electrical and electronic systems.
- Use of Insite.
- ED3 digital system plus Main and Second Station arrangements.
- Practical test out and written test.

The Mandatory Cummins Virtual College CD Rom pre-requisites are Midrange Library and QSK45/60 engine CVC (B/N 3898777).

## QSK38/50 CM850/CM2150 MCRS MARINE QUALIFICATION 5 DAYS (2008-03Q)

**COURSE OVERVIEW:**

This Course will provide participants with an understanding of the QSK38/50 MCRS engines, their components, flow paths and operation procedures. The student will understand correct troubleshooting and maintenance procedures with and without the use of the INSITE service tool. The participant will also be able to use correct rebuild procedures with reference to QSK38/50 MCRS shop Manual.

**WHO SHOULD ATTEND?**

Internal Customers, External Customers, Experienced Technicians

**COURSE OBJECTIVES:**

The participants at the end of the training will be able to confidently identify all aspects of the QSK 38/50 Marine package, including engine systems, electronic engine management systems, marine control systems and the Insite diagnostic tooling. The participants will be able to prove their understanding of the QSK38/50 MCRS Marine package by passing both written and practical tests to a level of competency as required by Cummins Limited.

**COURSE CONTENT:**

- QSK38/50 engine familiarisation, architecture and flows.
- QSK38/50 engine strip and rebuild: Service tooling and Repair procedures
- CM850/CM2150 MCRS Fuel system function, operation and components.
- QSK38/50 on-engine electrical and electronic systems.
- Use of Insite.
- ED3 digital system plus Main and Second Station arrangements.
- Practical test out and written test.

The Mandatory Cummins Virtual College CD Rom pre-requisites are Midrange Library.

# Powergen

## Midrange

### QSB4.5 & QSB6.7 CM850 QUALIFICATION 5 DAYS (2005-03Q)

**COURSE OVERVIEW:**
This course aims to give the participants knowledge of the structure and function of the engine and its components. Particular and detailed reference will be made to the operation of the fuel system. An understanding of the features of the electronic control system and the use of the INSITE service tool when used in this application.

**WHO SHOULD ATTEND?**
This course will suit all technicians with some engine knowledge.

**COURSE OBJECTIVES:**
On satisfactory completion of the final Qualification element, the participants will have been provided with skills and knowledge to assist in maintenance, fault finding and repair on this product.

**COURSE CONTENT:**
- Engine familiarization and component location
- Lube, coolant and air system
- HPCR fuel system
- Strip and rebuilding engine
- Electrics/electronics
- Basic faultfinding and troubleshooting
- Written and practical assessment

The Mandatory Cummins Virtual College CD ROM
Pre- requisites are: Midrange Library.

### QSC8.3 & QSL9 CM850 QUALIFICATION 5 DAYS (2006-35Q)

**COURSE OVERVIEW:**
This five day course aims to give the participants knowledge of the structure and function of the engine and its components. Particular and detailed reference will be made to the operation of the fuel system and its modular repair. An understanding of the features of the electronic controls system and use of the INSITE service tool when used in this application.

**WHO SHOULD ATTEND?**
This course will suit all technicians with some engine knowledge.

**COURSE OBJECTIVES:**
On Satisfactory completion of the final Qualification element, the participants will have been provided with skills and knowledge to assist in maintenance, fault finding and repair of the fuel system and engine.

**COURSE CONTENT:**
- Engine familiarization and component location
- Lube, coolant and air system
- HPCR fuel system
- Strip and rebuilding engine
- Electrics/electronics
- Basic faultfinding and troubleshooting
- Written and practical assessment

The Mandatory Cummins Virtual College CD ROM
Pre- requisites are: Midrange Library.

# Heavy Duty

## QSM11 CM570 QUALIFICATION 5 DAYS (2000-55Q)

**COURSE OVERVIEW:**

This Course will instruct participants to a level where they will be able to identify engine system components, both new and original. To enable the participants at the end of the training to be able to show and describe the components of the QSM electrical and mechanical systems.

**WHO SHOULD ATTEND?**

This course suits all technicians with some engine knowledge

**COURSE OBJECTIVES:**

Upon completion of the Qualification training the participants will be able to apply new found knowledge and skills to perform practical and written tests to a skill level set by Cummins Limited. During the Qualification the participants will achieve a level of competence in the use of Insite and Troubleshooting (ISMe) engine systems through the use of written and practical testing.

**COURSE CONTENT:**

- Introduction to the M family
- Fuel, lube, and coolant system
- Engine strip and rebuild
- Electrics/electronics
- Use of Insite and troubleshooting
- Written and practical assessment

The Mandatory Cummins Virtual College CD ROM pre requisites for this course are: Heavy Duty Library & QSX15/QSM11 Industrial Features & Controls C.V.C Course (**B/N 3898917**).

## QSX15 TIER 3 QUALIFICATION 5 DAYS (2006-40Q)

**COURSE OVERVIEW:**

This Course will allow the participants to gain a level of understanding whereby they will be able to identify engine system components. To enable the participants at the end of the training to show and describe the components of the QSX electrical and mechanical Systems.

**WHO SHOULD ATTEND?**

This course suits all technicians with some engine knowledge.

**COURSE OBJECTIVES:**

Upon completion of the Qualification the participants will be able to apply new found knowledge and skills to perform practical and written examinations to a skill level set by Cummins Limited. During the Qualification the participants will achieve competence in the use of Insite in the troubleshooting of QSX problems together with the skills required for the assembly and timing of the new hardware features of the engine.

**COURSE CONTENT:**

- Introduction to the X family
- Fuel, lube, and coolant system
- Disassembly and assembly of engine
- Electrics and electronics
- Use of Insite and troubleshooting
- Written and practical assessment

The Mandatory Cummins Virtual College CD ROM pre requisites for this course are: Heavy Duty Library & QSX15/QSM11 Industrial Features & Controls C.V.C Course (**B/N 3898917**).

# Powergen

## High Horse Power

### QSK19 GAS ENGINE - QUALIFICATION 5 DAYS (2003-12Q)

**COURSE OVERVIEW:**

This Course will ensure the participants will be able to recognise the QSK19 Gas Engine, Its components, Flow Paths and operation, servicing and repair procedures. The student will understand correct troubleshooting and maintenance procedures with and without the use of the approved Cummins electronic service tool.

**WHO SHOULD ATTEND?**

Cummins Authorised Distributors and OEM's

**COURSE OBJECTIVES:**

On Completion, the participants will have been provided with the knowledge and skills to assist in the basic maintenance, fault finding and repair of this Genset.

**COURSE CONTENT:**

- Theory sessions with emphasis on the Control System, on/off engine gas components and co-generation
- Practical Sessions including Hands-on removal and refitting of major components using service tooling and literature. Highlighting maintenance methods and procedures
- Practical Hands-on Insite, troubleshooting and fault diagnostics
- Written and Practical Assessments

The Mandatory Cummins Virtual College CD ROM pre requisites for this course are: High Horse Power Library & Fundamentals of Natural Gas C.V.C (**B/N 4091824**).

### QST30 G DRIVE QUALIFICATION & GCS 5 DAYS (1996-04Q)

**COURSE OVERVIEW:**

This Course will ensure participants have a good working knowledge of the structure and operation of the QST30 engine and its components. Emphasis will be placed on the fuel system and the GCS electronic management system. Once qualified the participants will be able to confidently troubleshoot the mechanical and electronic QST30 systems using the INPOWER diagnostic tool.

**WHO SHOULD ATTEND?**

- Internal Customers
- External Customers
- Experienced technicians

**COURSE OBJECTIVES:**

Participants will be able to demonstrate correct rebuild procedures as outlined in the QST30 shop manual. Participants will be capable of conducting operation and maintenance procedures to Cummins standards and have the capability to communicate with end users in order to correctly assess failure modes. Participants will also demonstrate a clear understanding of the INPOWER service tool.

**COURSE CONTENT:**

- Engine Features including; Construction, Cooling, Lubrication and Air systems
- Engine Tear down including Cylinder head and top set 'Remove and Re-fit', Piston and Liner 'R&R' and Timing case and Gear Train 'R&R'
- Fuel System
- Cam shaft and fuel pump timing
- Fuel Pump and Injector 'R&R'
- Practical diagnostic exercise using INPOWER

The Mandatory Cummins Virtual College CD ROM pre requisites are: BETT, QST30 Gen-Set Engine C.V.C Course (B/N **3898577**) & Cummins Learning Centre PCC3100 Course **CMT0309** & PCC3100 Assessment **CMT0551**.

## QSK60 GAS ENGINE QUALIFICATION 5 DAYS (2003-10Q)

**COURSE OVERVIEW:**

This Course will ensure the participants will be able to recognise the QSKV45/60 Gas Engines, Their components, flow paths and operation procedures. To use correct rebuild procedures with reference to the QSKV45/60 shop manual. The participants will understand correct troubleshooting and maintenance procedures with and without the use of the electronic service tool.

**WHO SHOULD ATTEND?**

Cummins Authorised Distributors and OEM's.

**COURSE OBJECTIVES:**

Participants will be able to demonstrate correct rebuild procedures to Cummins Limited standards and have the capability to communicate with end users in order to correctly assess failure modes. Participants will also demonstrate a clear understanding of the electronic service tool.

**COURSE CONTENT:**

- Practical Sessions covering routine and major maintenance tasks, using specialist tooling and literature
- Removal and refitting key engine components using the unique tools and techniques

The Mandatory Cummins Virtual College CD ROM pre requisites are: High Horse Power Library, Fundamentals of Natural Gas C.V.C (**B/N 4091825**) & High Horspower Natural Gas C.V.C (**B/N 4091825**), QSK45/60 Natural Gas Engine C.V.C (**B/N 4091827**) & QSK45/50 Engines C.V.C (**B/N 3898777**).

## QSV GAS ENGINE QUALIFICATION 5 DAYS (2004-04Q)

**COURSE OVERVIEW:**

This course will allow participants to build on the knowledge obtained from the Cummins Virtual College 'Self-Study' Training programs 4091824 and 4091826, by practicing QSV unique engine repair procedures, using the required special tools and available service literature.

**WHO SHOULD ATTEND?**

Cummins Authorised distributors and OEM's.

**COURSE OBJECTIVES:**

Participants will be able to demonstrate their knowledge of QSV81 and 91 Engine Service and Repair techniques by completing a number of QSV unique practical tasks to procedure. Upon successful completion, participants will be qualified to service and repair QSV81 and 91 natural gas engines.

**COURSE CONTENT:**

- Practical Session covering routine and major maintenance tasks, using notes and service literature
- Removing key components and performing maintenance tasks
- Gearbox (60Hz regions only)
- Phase II 2Mw Overview (as required)

The Mandatory pre requisites are: High Horse Power Library, Fundamentals of Natural Gas for Stationary Power CD-ROM number (**B/N 4091824**) and QSV81/91 Natural Gas for Stationary Power CD-ROM number (**B/N 4091826**).

# Powergen

## HHP LEAN BURN GAS CONTROLS (GCP1 WITH PCS3100) SYNERGY QUALIFICATION 5 DAYS (2004-02Q)

**COURSE OVERVIEW:**

This Course will allow participants to build on the knowledge obtained from the Cummins Virtual College 'Self-Study' Training programs, by discussing in detail the QSK19G, QSK60G and QSV Gas Engine and Generator Control Systems, including the Generator Control Panel fitted with PowerCommand Supervisor 3100. Technicians will also carry out practical tests and checks, using the required special tools, service software and service literature.

**WHO SHOULD ATTEND?**

Cummins Authorised distributors and OEM's

**COURSE OBJECTIVES:**

Participants will demonstrate their knowledge of Cummins HHP Natural Gas Control Systems by undertaking a number of practical tasks.
To achieve full Certification in the service and repair of Cummins HHP Lean Burn Gas Control Systems technicians will be required to successfully complete this course and gain on-site experience.

**COURSE CONTENT:**

- Practical session investigating Fuel systems, Engine Ignition systems and Genset control Systems including the functions, layout and flow of the various engine systems and their control modules
- Practical session carrying out system troubleshooting checks using the correct test procedures with reference to notes and service literature
- Written and Practical Test

The Mandatory Cummins Virtual College CD ROM pre requisites are: High Horse Power Library, Fundamentals of Natural Gas C.V.C (**B/N 4091824**), High Horsepower Natural Gas C.V.C (**B/N 4091825**) & Cummins Learning Centre Element Inpower Familiarisation **CMT6058**.

## HHP LEAN BURN 'V' ENGINE GAS STELLAR CONTROLS (GIB WITH PCC3300) QUALIFICATION 5 DAYS (2010-12Q)

**COURSE OVERVIEW:**

This Course will allow participants to build on the knowledge obtained from the Cummins Virtual College 'Self-Study' Training programs, by discussing in detail the QSK60G and QSV Gas Engine and Generator Control Systems, including the Generator Interface Box fitted with PowerCommand Control 3300. Technicians will also carry out practical tests and checks, using the required special tools, service software and service literature.

**WHO SHOULD ATTEND?**

Cummins Authorised distributors and OEM's.

**COURSE OBJECTIVES:**

Participants will demonstrate their knowledge of Cummins HHP Natural Gas Control Systems by undertaking a number of practical tasks.
To achieve full Certification in the service and repair of Cummins HHP Lean Burn Gas Control Systems technicians will be required to successfully complete this course and gain on-site experience

**COURSE CONTENT:**

- Practical session investigating Fuel systems, Engine Ignition systems and Genset control Systems including the functions, layout and flow of the various engine systems and their control modules
- Practical session carrying out system troubleshooting checks using the correct test procedures with reference to notes and service literature
- Written and Practical Test

The Mandatory Cummins Virtual College CD ROM pre requisites are: High Horse Power Library, Fundamentals of Natural Gas C.V.C (**B/N 4091824**), High Horsepower Natural Gas C.V.C (**B/N 4091825**) & Cummins Learning Centre Element Inpower Familiarisation **CMT6058**.

## HHP LEARN BURN GAS CONTROLS (GCP2 WITH PCS3100) SYNERGY QUALIFICATION 5 DAYS (2010-13Q)

**COURSE OVERVIEW:**

This Course will allow participants to build on the knoledge obtained from the Cummins Virtual College 'Self-Study' Training programs, by discussing in detail the QSK19G, QSK60G and QSK Gas Engine and Generator Control Systems, including the Generating Control Panel fitted with PowerCommand Supervisor 3100. Technicians also carry out practical test and checks, using the required special tools, service software and Service literature.

**WHO SHOULD ATTEND?**

Cummins Authorised distributors and OEM's.

**COURSE OBJECTIVES:**

Participants will demonstrate their knowledge of Cummins HHP Natural Gas Control Systems by undertaking a number of practical tasks to procedure. To achieve full Certification in the service and repair of Cummins HHP Lean Burn Gas Control Systems technicians will be required to successfully complete this course and gain on-site experience.

**COURSE CONTENT:**

- Practical session investigating Fuel systems, Engine Ignition systems and Genset control Systems including the functions, layout and flow of the various engine systems and their control modules.
- Practical session carrying out system troubleshooting checks using the correct test procedures with reference to notes and service literature
- Written and Practical Test

The Mandatory Cummins Virtual College CD ROM pre requisites are: High Horse Power Library, Fundamentals of Natural Gas C.V.C (**B/N 4091824**) & High Horsepower Natural Gas C.V.C (**B/N 4091825**).

## QSV91 PHASE II GAS ENGINE QUALIFICATION 5 DAYS (2006-59Q)

**COURSE OVERVIEW:**

This Course will aim to build on the knowledge obtained from the Cummins Virtual College 'Self Study' training programs by practicing QSV unique engine repair procedures, using the required special tools and available service literature.

**WHO SHOULD ATTEND?**

Cummins Authorised Distributors and OEM's.

**COURSE OBJECTIVES:**

Participants will be able to demonstrate their knowledge of QSV91 Engine service and repair techniques by completing a number of QSV unique practical tasks to procedure. Upon successful completion, participants will be qualified to service and repair QSV91 Natural gas engines.

**COURSE CONTENT:**

- Practical Sessions covering routine and major maintenance tasks, using specialist tooling and literature
- Removal and refitting key engine components using the unique tools and techniques
- Gearbox overview for 60Hz QSV 91 Phase II (as required)

The Mandatory Cummins Virtual College CD ROM pre requisites are: High Horse Power Library & Fundamentals of Natural Gas C.V.C (**B/N 4091824**).

# G Drive

## Midrange

### S & X SERIES ENGINE

**COURSES AVAILABLE THROUGH 2012**

## Heavy Duty

### NH/NT855 QUALIFICATION 5 DAYS (2008-09Q)

**COURSE OVERVIEW:**

This Course includes an-depth study of the proven product line covering the NH/NT855 Engine. Theory and practical will focus on a full strip down and re-build of an NH/NT855 engine. The four main systems- Lube, Cool, air and fuel- will be covered, along with useful tips and hints for the service technician, as well as some time being devoted to operation and maintenance, troubleshooting.

**WHO SHOULD ATTEND?**

This course suits all technicians

**COURSE CONTENT:**

- Engine familiarization and component location
- Engine parts and systems
- Engine strip and rebuild
- Basic faultfinding and troubleshooting

There are no Mandatory Cummins Virtual College pre Requisits for this Course.

### QSX15 TIER 3 QUALIFICATION 5 DAYS (2006-04Q)

**COURSE OVERVIEW:**

This Course will allow the participants to gain a level of understanding whereby they will be able to identify engine system components. To enable the participants at the end of the training to show and describe the components of the QSX electrical and mechanical Systems.

**WHO SHOULD ATTEND?**

This course suits all technicians with some engine knowledge.

**COURSE OBJECTIVES:**

Upon completion of the Qualification the participants will be able to apply new found knowledge and skills to perform practical and written examinations to a skill level set by Cummins Limited. During the Qualification the participants will achieve competence in the use of Insite in the troubleshooting of QSX problems together with the skills required for the assembly and timing of the new hardware features of the engine.

**COURSE CONTENT:**

- Introduction to the X family
- Fuel, lube, and coolant system
- Disassembly and assembly of engine
- Electrics and electronics
- Use of Insite and troubleshooting
- Written and practical assessment

The Mandatory Cummins Virtual College CD ROM pre requisites are: Heavy Duty Library & QSK15/QSM11 Industrial Features & Controls C.V.C Course (**B/N 3898917**).

# High Horse Power

## QSK19 CM850 MCRS QUALIFICATION 4 DAYS (2005-02Q)

**COURSE OVERVIEW:**

The participants will competently troubleshoot and repair all engine systems on the new QSK19 CM850 engine.

**WHO SHOULD ATTEND?**

Experienced technicians with a good knowledge of the QSK19 Engine and Basic Electrics.

**COURSE OBJECTIVES:**

Participants will be able to describe the four QSK19 CM850 engine systems. Identify QSK19 engine components. Outline QSK19 Theory operation and maintenance. Apply correct troubleshooting procedures.

**COURSE CONTENT:**

- Engine Familiarization and Component location
- Fuel System MCRS
- Operation and maintenance of QSK19
- Trouble shooting and repair of the fuel system
- Assemble & Disassemble of Injector and Fuel Pump
- Practical Fault finding
- Trouble shooting, Engine Testing and repair of engine faults using Insite
- Written and Practical Assessment

The Mandatory pre requisites are: High Horsepower Library (**B/N 4091880**)

## QSK23 QUALIFICATION 5 DAYS (2002-63Q)

**COURSE OVERVIEW:**

This Course will allow participants to recognize the QSK23 engines, their components flow paths and operation procedures. Use of the correct rebuild procedures with reference to the QSK23 Manuals. Outline the QSK23 operation and maintenance schedules. A Thorough understanding of the HPI Fuel system. Use of the INSITE or Inpower tool.

**WHO SHOULD ATTEND?**

This course suits all technicians with some engine knowledge.

**COURSE OBJECTIVES:**

Participants will be able to demonstrate correct rebuild procedures and be capable of conducting operation and maintenance to Cummins standards. Participants will demonstrate a clear understanding of either the Insite or Inpower service tool.

**COURSE CONTENT:**

- Engine familiarization and component location
- Engine strip and rebuild
- Air, fuel, coolant and lube system
- Electrics/electronics

The Mandatory Cummins Virtual College CD ROM pre requisites are: BETT (Basic Electronics Theory & Troubleshooting) (B/N **4091840**), INSITE 6 update (B/N **4091839**), QSK23, Engine C.V.C (B/N **4091829**) & QSK45/60 Engine (B/N **3898777**).

# G Drive

## QST30 G DRIVE QUALIFICATION & GCS
## 5 DAYS (1996-04Q)

**COURSE OVERVIEW:**

This Course will ensure participants have a good working knowledge of the structure and operation of the QST30 engine and its components. Emphasis will be placed on the fuel system and the GCS electronic management system. Once qualified the participants will be able to confidently troubleshoot the mechanical and electronic QST30 systems using the INPOWER diagnostic tool.

**WHO SHOULD ATTEND?**

- Internal Customers
- External Customers
- Experienced technicians

**COURSE OBJECTIVES:**

Participants will be able to demonstrate correct rebuild procedures as outlined in the QST30 shop manual. Participants will be capable of conducting operation and maintenance procedures to Cummins standards and have the capability to communicate with end users in order to correctly assess failure modes. Participants will also demonstrate a clear understanding of the INPOWER service tool.

**COURSE CONTENT:**

- Engine Features including; Construction, Cooling, Lubrication and Air systems
- Engine Tear down including Cylinder head and top set 'Remove and Re-fit', Piston and Liner 'R&R' and Timing case and Gear Train 'R&R'
- Fuel System
- Cam shaft and fuel pump timing.
- Fuel Pump and Injector 'R&R'
- Practical diagnostic exercise using INPOWER

The Mandatory Cummins Virtual College CD ROM pre requisites are: BETT, QST30 Gen-Set Engine C.V.C Course (B/N **3898577**) & Cummins Learning Centre PCC3100 Course **CMT0309** & PCC3100 Assessment **CMT0551**.

## K38/50 QUALIFICATION
## 5 DAYS (2008-11Q)

**COURSE OVERVIEW:**

This Course will ensure participants are able to recognise the K38/50 engine, its components, system flow paths, operation procedures, correct rebuild practices with reference to the shop manual and attention to the correct troubleshooting, repair and maintenance procedures.

**WHO SHOULD ATTEND?**

- External Customers
- Internal customers
- Experienced Technicians
- Technicians with less than 4 years experience
- Apprentices or participants new to Cummins engines

**COURSE OBJECTIVES:**

The participants at the end of the training will be able to confidently identify all aspects of the K38/50 engine, including engine systems, engine rebuild procedures according to QSOL and the PT fuel system. The participants will be able to prove their understanding of the K38/50 package by passing both written and practical tests to a level of competency as required by Cummins Limited.

**COURSE CONTENT:**

- Engine Systems, Features and components
- Engine Teardown including, cylinder head and top set, piston and liner and timing case and gear train R & R.
- PT fuel system, injector cam timing and fuel pump and injector R&R
- Fault finding and diagnostic

There are no mandatory pre requisites for this course.

# QSK45/60 QUALIFICATION 5 DAYS (1999-01Q)

**COURSE OVERVIEW:**

This Course will provide participants with an understanding of the QSK45/60 engines, their components, flow paths and operation procedures. The student will understand correct troubleshooting and maintenance procedures with and without the use of the INSITE service tool. The participant will also be able to use correct rebuild procedures with reference to QSK45/60 shop Manual.

**WHO SHOULD ATTEND?**

Internal Customers, External Customers, Experienced Technicians.

**COURSE OBJECTIVES:**

Participants will be able to demonstrate correct rebuild procedures as outlined in the QSK45/60 shop Manual. Participants will be capable of conducting operation and maintenance procedures to Cummins R&M standards and have the capability to communicate with end users in order to correctly access failure modes. Participants will also demonstrate a clear understanding of the INSITE service tool.

**COURSE CONTENT:**

- Engine Systems, Features and Components
- Engine Teardown including, Cylinder Head and Top set, Piston and Liner and Timing case and Gear train R & R
- Function and components of the HPI Fuel System,
- Injector Static timing procedure and injector R & R
- Using INSITE on running Test engine, fault finding and diagnostic

The Mandatory Cummins Virtual College CD ROM pre requisites are: & QSK45/60 Engines C.V.C (B/N 3898777).

# General Coures

## ENGINE ELECTRICAL DIAGNOSIS 5 DAYS (1995-16Q)

**COURSE OVERVIEW:**

The focus of this course is engine electrical diagnosis and repair; there is a very strong bias to using the multimeter and other tools to find faults. The course begins by covering basic theory building up to lots of hands on practice that can be applied each day in the workshop.

The course is ideal for the experienced technician who needs or wants to refresh their electrical skills, and learn new methods of fault finding which will not damage the electronic systems now employed.

The course will provide an excellent foundation for technicians who have had little or no formal electrical training, giving them the confidence to tackle electrical diagnosis in the workplace.

**WHO SHOULD ATTEND?**

All who are tasked with the repair of modern Diesel Engines featuring electronic control systems.

**COURSE OBJECTIVES:**

The participants will learn about basic electrical principles (low voltage DC). The participants will gain understanding of the trouble shooting methods and correct usage of tools such as multimeters. The participants will be required to pass both written and practical tests to a level of understanding and competency required by Cummins Engine Company Limited.

**COURSE CONTENT:**

- Basic theory of Volts, Amps, Ohms, circuit design and layouts, Ohms law, Watts law
- Fault finding of power supply circuits and basic systems such as engine starter motors and alternators using volt drop testing
- Operation and diagnosis of common engine sensors
- Operation of and diagnosis of Can bus systems
- Written and practical tests

The Mandatory Cummins Virtual College CD ROM pre requisites are: Basic Electrics.

## PRODUCT KNOWLEDGE FAMILIARISATION LEVEL 1 - 1 DAY

**COURSE OVERVIEW:**

This Course has been designed as an introduction to the range of Cummins Engines.

**WHO SHOULD ATTEND?**

- Internal Customers
- External Customers
- New employees

**COURSE OBJECTIVES:**

Participants will be able to recognise and confidently describe the various engine models and components within the Cummins Engine range. Participants will gain a reasonable understanding of diesel engines and their theory of operation.

**COURSE CONTENT:**

- Introduction to Cummins Engine Range
- Fundamentals of a Diesel Engine
- Engine Component Exercises
- Overview of past and current Cummins product Range
- Question and Answer session

There are no mandatory pre requisites for this course.

## PRODUCT KNOWLEDGE FAMILIARISATION LEVEL 2 – 3 DAYS

**COURSE OVERVIEW:**
This Course has been designed as an introduction to the range of Cummins Engines.

**WHO SHOULD ATTEND?**
This course is recommended as a follow on from our 'Product Knowledge' Level One training.

**COURSE OBJECTIVES:**
Participants will be able to recognise engine components, both internal and external, operation and purpose of the components, and will be made familiar with basic engine application differences, engine subsystems, and emissions reduction strategies. Hands-on practice will provide the participant with the approved repair procedures available to technicians for engines and components, and also enable the participants to use the technician electronic tooling and look at fault finding techniques.

**COURSE CONTENT:**
- Engine Strip and re-assemble
- Application specifics
- Insite Electronic Tooling
- Subsystems
- PCC Powergen Controller

The course is recommended as a follow on from our 'Product Knoledge' Level One training.

## PT FUEL SYSTEM CALIBRATION (1992-21Q) 5 DAYS

**COURSE OVERVIEW:**
This Course will provide participants with an understanding of the requirements and calibration procedures of the PT Fuel system.

**WHO SHOULD ATTEND?**
A good knowledge of PT fuel engine systems is desirable to gain the most from this course.

**COURSE OBJECTIVES:**
Participants will :

- Become familiar with the design, functions, and operation of the Hartridge Cummins PT pump test stand.
- Become familiar with the design, functions, and operation of the Hartridge Cummins Injector test equipment.
- Be capable of troubleshooting and repair of the PT fuel system using approved tools and service procedures.
- Demonstrating knowledge of fuel system clean care practices.

**COURSE CONTENT:**
- PT Fuel System Calibration Qualification Course
- Introductions:

- Course Objectives:
- Completion of prerequisites
- Participation in hands on activities
- Passing score on written examination
- PT Fuel Systems
- Clean Care Review
- Fuel System Test Procedures
- Perform Test Procedures
- Individual Hands-on Assessments, Passing score on hands-on assessment.

There are no mandatory pre requisites for this course.

# General Coures

## Available on request

MARINE APPLICATION ENGINEERING (MAE001) FAMILIARISATION

CUMMINS BASIC ELECTRICS 3 DAYS (1995-18Q)

ROAD SPEED LIMITER CALIBRATION & SEALING QUALIFICATION CERTIFICATE

CUMMINS POWER GENERATION COURSES (CPG)

NON - TECHNICAL TRAINING FOR CUMMINS DISTRIBUTORS

**Warranty training**

**Parts WEB Based Training for distributor parts personnel.**

**IF YOU DO NOT FIND WHAT YOU ARE LOOKING FOR IN OUR BROCHURE WE CAN RUN INDIVIDUALLY DESIGNED COURSES TO SUIT YOUR NEEDS. PLEASE CONTACT US FOR MORE INFORMATION.**

# Cummins Training and Education Centres - 2012

Cummins Training Courses are also available at the following Cummins Certified Training locations. Please contact them directly for their details.

## ENGLAND (UK)

| | |
|---|---|
| Contact name | Patrick Dowsett |
| Contact address | Cummins Limited, Royal Oak Way South, Daventry, Northants, NN11 8NU, England |
| Telephone number | 00 44 1327 886448 |
| Fax number | 00 44 1327 886033 |
| Email addresss | Patrick.j.dowsett@cummins.com |

## FRANCE

| | |
|---|---|
| Contact name | Christophe Lamard |
| Contact address | Cummins France SA, 39 rue Ampere – BP 190, 69686 Chassieu Cedex, France |
| Telephone number | 00 33 472 229 264 |
| Fax number | 00 33 472 229 239 |
| Email address | c.lamard@cummins.fr |

## CENTRAL AND EASTERN EUROPE

| | |
|---|---|
| Contact name | Louis Pagan/Christine Esch |
| Contact address | Cummins Deutschland GmbH, Peter-Traiser-Strasse 1, 64521 Gross-Gerau, Germany |
| Telephone number | 00 49 6152 174145 |
| Fax number | 00 49 6152 174141 |
| Email address | louis.pagan@cummins.com<br>Christine.esch@cummins.com |

## ITALY / SPAIN

| | |
|---|---|
| Contact name | Miguel Criado Altozano |
| Contact address | Cummins Italia SpA, Via Einaudi 5, 20068 Peschiera, Borromeo, Milan, Italy |
| Telephone number | 00 39 02 5165581 |
| Fax number | 00 39 02 51655852 |
| Email addresss | miguel.criado.altozano@cummins.com |

## SCANDINAVIA BENELUX

| | |
|---|---|
| Contract name | Paul Louwe |
| Contact address | Cummins Belgium nv, Egide Walschaertsstraat 2, 2800 Mechelen, Belgium |
| Telephone number | 00 32 15 479 100 |
| Fax number | 00 32 15 275 686 |
| Email address | paul.louwe@cummins.com |

## SOUTH AFRICA

| | |
|---|---|
| Contact name | Wim Jansen |
| Contact address | Cummins South Africa (Pty) Ltd, Private Bag X7, Wendywood 2144, South Africa |
| Telephone number | 00 27 11 257 3815 |
| Fax number | 00 27 11 804 2194 |
| Email address | wim.jansen@cummins.com |

## RUSSIA

| | |
|---|---|
| Contact name | Denis Toropov |
| Contact address | OOO Cummins, 1G Klyazma Khimki, Moscow Region, Russia 141402 |
| Telephone number | 007 495 926 8624/25 |
| Fax number | 007 495 926 8699 |
| Email address | Dmitry.zhuravlev@cummins.com |

# Terms and Conditions

### FOR FURTHER INFORMATION, ADVICE AND COURSE AVAILABILITY

If you would like any further information, course dates, course agendas or advice as to the suitability of any of our courses, please contact MAVIS LAMB on 01327 886400.

### PAYMENT

All applications must be made in writing on the official 2012 Registration Form (or on a photocopy) and once completed attach a purchase order and post/email details to the below. Course fees for 2012 are £170.00 UK pounds per person per day plus VAT. Course fees include: course notes, lunch, coffee morning and afternoon. Full payment is required prior to course start date. We accept payment by BACS, cheque or credit card (Bank details available on request).


MAVIS LAMB
SERVICE TRAINING CENTRE
CUMMINS LIMITED
ROYAL OAK WAY SOUTH
DAVENTRY
NORTHANTS
NN11 8NU
ENGLAND

TEL: 00 44 (0) 1327 886400
**OR** 00 44 (0) 1327 886561
FAX: 00 44 (0) 1327 886033
E-MAIL: mavis.y.lamb@cummins.com


### CANCELLATIONS AND TRANSFERS

Cancellations and requests to transfer to an alternative course must be made in writing.

When cancellations are received within 6 working weeks before the course start date, the full course fees are payable.

One request to transfer to an alternative date can be made without charge provided written notification is received earlier than 6 working weeks before course start date. Transfer requests received within 6 working weeks before the start date of the course full course fees are payable. However a suitable substitute delegate will be accepted once Cummins Service Training Centre notified to avoid cancellation fees.

### NOTES

Programmes are correct at the time of going to press. However, alterations may occasionally be necessary due to circumstances beyond our control.

All courses conducted in English unless specified.

### START AND FINISH TIMES

Most courses start at 09.00 hours and finish at 16.30 hours. However, start and finish times may vary for Qualification courses.

### TRANSPORT/ACCOMMODATION

The booking and payment of transport and accommodation are the applicant's responsibility.

### COURSE PRE-REQUISITES

It is the applicants responsibility to order in good time and pay for the CD-ROM's, available from your local Cummins distributor, which are due in for marking two weeks before course start date.

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## VISA REFUSAL

IF A STUDENT VISA IS REFUSED CUMMINS WILL STILL TAKE PAYMENT OF FULL TRAINING FEES.

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## HEALTH AND SAFETY REQUIREMENTS

PLEASE NOTE THAT CUMMINS DAVENTRY IS A NO SMOKING SITE.
CLEAN SAFETY SHOES ARE MANDATORY ON ALL CUMMINS COURSES.
MORE INFORMATION ON 2012 COURSES IS AVAILABLE IN OUR TRAINING BROCHURE AND OUR WEBSITE:
HTTP://WWW.CUMMINSENGINE.CO.UK

The Cummins Training and Education Centre at Daventry in the UK is equipped to provide the most up to date training for all levels of students, from those unfamiliar with Cummins products to those who wish to build upon and enhance their knowledge of the latest diesel engine technology.

The Training Advisors have a wide range of expertise covering all Cummins products.  They are here to help you provide a better and more efficient service to your customers, the operators and end users of Cummins engines, in a competitive world where the quality of service support is vital for future sales success.

Facilities include dedicated training classroom/workshops where both theoretical and practical training is carried out across the full range of Cummins products.

**Cummins Training and Education**

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