Service Training
Course Catalogue
About Cummins Generator Technologies

Cummins Generator Technologies manufactures the world’s broadest range of AC Generators from 4 to 11,200 kVA under the STAMFORD and AvK brands. Internationally renowned for built-in quality, our AC generators set the standard for ruggedness, reliability and versatility.

For nearly a century, our experience and knowledge gathered from a large and diverse number of applications of synchronous generator installations help our customers operate with greater efficiency, making it possible for them to compete more successfully throughout the world.

To best support our customers, Cummins Generator Technologies strives to develop and maintain the highest level of service capability possible. Continuous education, available through cutting-edge instruction, helps to make this possible.

For registration information on any of the courses shown here, please contact our Service Training department at:

stamford-avkservicetraining@cummins.com

Cummins Generator Technologies:
There for you™
Course Description
This course is intended for service technicians seeking qualification for the Cummins Generator Technologies brand family of AC Generators. Completion of this course satisfies one of the Pre-requisites for attending Fundamentals of alternators classroom training. Participants who successfully complete this training will have a basic understanding and knowledge of the construction and operation of alternators.

Timing & Delivery
4 hours
Online or Classroom

Pre-requisite Knowledge
None

Products Covered
Basic AC Generator Theory

Topics
- Background and Overview
- Generator Construction
- Component Features
- Operation and Excitation
- Generator Output

For registration information on this course, please contact our Service Training department at: stamford-avkservicetraining@cummins.com
Course Description

The Fundamentals of AC Generators training course is a comprehensive introduction to the inner workings of alternators manufactured by Cummins Generator Technologies. The course material expands on basic AC electricity and magnetism theory to provide a complete understanding of alternator operation. Topics include alternator design and build, theory of operation, excitation processes, troubleshooting, and components testing.

Timing & Delivery
4 days
Classroom

Pre-requisite Knowledge
Basics of AC Generators

Products Covered
STAMFORD and AvK; All Frames Basic Theory

Topics
- Generator Overview
- Generator Build
- Main Alternator – Rotor and Stator
- Excitation Systems
- AVR Systems
- Wiring and Reconnections
- Accessory Components
- Operation
- 5-Step Troubleshooting Approach
- Troubleshooting Exercises
- Bearings

For registration information on this course, please contact our Service Training department at: stamford-avkservicetraining@cummins.com
Course Description

**STAMFORD** product ranges from HC6 to P80 and **AvK** ranges from DSG 62-125 and DIG 110-156 are offered with differing bearing types. The Bearings I course covers antifriction bearing theory, regreasing procedures and bearing maintenance. It also covers a basic understanding of fault analysis and service procedures focusing on bearing removal and installation. Ball bearing and roller bearing types are covered, excluding special configurations for DIG 142 machines which are covered in Bearings II.

**Timing & Delivery**

3 days
Classroom

**Pre-requisite Knowledge**
Basics of AC Generators
Fundamentals of AC Generators

**Products Covered**
HC6 to P80, DSG 62-125, and DIG 110-156

**Topics**
- Identification and Operation
- Regreaseable Bearing Maintenance
- Bearing Removal
- Bearing Failures
- Troubleshooting
- Bearing Installation

For registration information on this course, please contact our Service Training department at: [stamford-avkservicetraining@cummins.com](mailto:stamford-avkservicetraining@cummins.com)
Course Description

AvK model DIG 142 machines are manufactured with a clamped ball and roller bearing design. The Bearings II course covers the justification for a clamped bearing arrangement, maintenance procedures focusing on regreasing procedures, and service procedures focusing on bearing removal and installation. The unique bearing arrangement and specialised tools used for installation make this an advanced course for experienced technicians.

Timing & Delivery

4 days
Classroom

Pre-requisite Knowledge

Basics of AC Generators
Fundamentals of Alternators
Bearings I

Products Covered

AvK DIG 142

Topics

- Identification and Operation
- Regreasable Bearing Maintenance
- Bearing Removal
- Bearing Installation
- Bearing Failures and Troubleshooting

For registration information on this course, please contact our Service Training department at: stamford-avkservicetraining@cummins.com
Course Description
This course provides theory of operation of sleeve bearings along with maintenance, troubleshooting, servicing procedures and techniques to provide the participant adequate knowledge to service sleeve bearings used on machines manufactured by Cummins Generator Technologies. Course instruction includes inspection, cleaning and sealing techniques along with complete disassembly and assembly of a sleeve bearing.

Timing & Delivery
3 days
Classroom

Pre-requisite Knowledge
Basics of AC Generators
Fundamentals of AC Generators

Products Covered
DSG and DIG Generators

Topics
- Theory of Operation
- Troubleshooting
- Lubrication Systems
- Assembly
- Disassembly
- Maintenance
- Construction

For registration information on this course, please contact our Service Training department at: stamford-avkservicetraining@cummins.com
AVR Adjustments

Course Description
This course is intended to be a pre-requisite for service technicians seeking qualification on any STAMFORD, Basler, or ABB Unitrol Automatic Voltage Regulator courses. AVR Adjustments course will cover the theory of analog AVR’s, their adjustments and trim settings, and effects of adjustments. All AVR qualification courses will build upon this course.

Timing & Delivery
2-4 hours
Online or Classroom

Pre-requisite Knowledge
Basics of AC Generators
Fundamentals of AC Generators

Products Covered
All principle voltage regulator settings.

Topics
- Theory of Operation
- Adjustments
- Overview of Types and Models
- Installation and Set-up
- Troubleshooting
- Troubleshooting Exercises

For registration information on this course, please contact our Service Training department at: stamford-avkservicetraining@cummins.com
Course Description
This course provides technical and practical understanding of the STAMFORD family of analog AVR models. The course material identifies the various connecting terminals and adjustment potentiometers, then provides hands-on experience with connecting and tuning the AVR.

Timing & Delivery
2 days
Classroom

Pre-requisite Knowledge
Basics of AC Generators
Fundamentals of AC Generators
AVR Adjustments

Products Covered
MX321, SX460, AS440, AS480, SX421, MX341, MA330, MVR

Topics:
- Theory of Operation
- Adjustments
- Overview of Types and Models
- Installation and Set-up
- Troubleshooting
- Troubleshooting Exercises

For registration information on this course, please contact our Service Training department at: stamford-avkservicetraining@cummins.com
AVR Paralleling

Course Description
This course trains paralleling theory at the most fundamental level. The course material expands on a prior knowledge of AC electrical and alternator excitation theory. Course topics include synchronization, the droop circuit, power factor, power sharing, and reactive load sharing. Demonstrations of synchronisation, setting of a droop circuit, and live paralleling using STAMFORD AVR’s are included.

Timing & Delivery
2 days
Classroom course at limited global venues.
Course to be placed online in the future.

Pre-requisite Knowledge
Basics of AC Generators
Fundamentals of AC Generators
AVR Adjustments

Products Covered
Paralleling Theory

Topics:
- Parallel Operation
- Synchronization of Alternators
- Load Sharing
- Droop
- Reverse Power
- Parallel Operation with Utility
- Troubleshooting

For registration information on this course, please contact our Service Training department at: stamford-avservice@cummins.com
Course Description

This course provides a fundamental understanding of the Basler DECS 100, 200 and newer DECS 150, 250 digital AVR models as well as covering the STAMFORD DM110 digital AVR. The course material provides exposure to the digital interface software for AVR Set-up and monitoring in addition to hands-on practice with connecting and troubleshooting these digital AVR models.

Timing & Delivery

3 days
Classroom

Pre-requisite Knowledge

Basics of AC Generators
Fundamentals of AC Generators
AVR Adjustments

Products Covered

DECS 100, 200 150, 250 and DM110

Topics

- Theory of Operation
- Adjustments
- Overview of Types and Models
- Installation and Set-up
- Troubleshooting
- Troubleshooting Exercises

For registration information on this course, please contact our Service Training department at: stamford-avkservicetraining@cummins.com
Course Description

This course provides technical understanding of the ABB Unitrol 1010 and 1020 digital AVR models. The course material provides exposure to the digital interface software for AVR Set-up and monitoring in addition to hands-on practice with connecting and troubleshooting these digital AVR models.

Timing & Delivery
3 days
Classroom

Pre-requisite Knowledge
Basics of AC Generators
Fundamentals of AC Generators
AVR Adjustments

Products Covered
ABB Unitrol 1010 and 1020

Topics
- Theory of Operation
- Adjustments
- Overview of Types and Models
- Installation and Set-up
- Troubleshooting
- Troubleshooting Exercises

For registration information on this course, please contact our Service Training department at: stamford-avkservicetraining@cummins.com
PFC3 Power Factor Controller

Course Description
This course covers the purpose of using a power factor controller, followed by the layout, function, and interconnection of the STAMFORD PFC3 with other support equipment. Topics include operating theory, PFC3 connections, interaction with the AVR, remote control interface, voltage matching, and excitation loss module.

Timing & Delivery
2-4 hours
Online or Classroom

Pre-requisite Knowledge
Basics of AC Generators
Fundamentals of AC Generators
AVR Adjustments
Paralleling

Products Covered
DECS 100, 200, and DM110

Topics
- Background and Configurations
- Protection Systems
- Basic Systems
- PFC3 Features

For registration information on this course, please contact our Service Training department at: stamford-avkservicetraining@cummins.com
Course Description
This course is a familiarisation training course meant to give the participant a clear understanding of how the Excitation Boost System works and how to troubleshoot it. This course is designed for service technicians seeking qualification on the P0/P1 range of STAMFORD AC Generators.

Timing & Delivery
1 hour
Online or Classroom

Pre-requisite Knowledge
Basics of AC Generators
Fundamentals of AC Generators

Products Covered
STAMFORD P0/P1

Topics
- Background and Theory
- Troubleshooting

For registration information on this course, please contact our Service Training department at: stamford-avkservicetraining@cummins.com
Course Description

This course will offer an awareness of Grid Code Compliance and give participants a greater knowledge of how alternators produced specifically for grid applications differ from the standard equipment.

Timing & Delivery

1-2 hours
Online or Classroom

Pre-requisite Knowledge

Basics of AC Generators
Fundamentals of AC Generators

Products Covered

STAMFORD and AvK All Frames

Topics

- Introduction
- Grid Codes
- Product Changes

For registration information on this course, please contact our Service Training department at: stamford-avkservicetraining@cummins.com
Application Training

Cummins Generator Technologies offers a wide range of alternator application training courses to help our customers in the design and operation of our products. Training is personally delivered by our own Application Engineering team members who have a wealth of alternator application and design experience, and training can be customised to meet your needs.

Some of the training courses offered include:

- Electrical Principles
- Alternator fundamentals
- STAMFORD products
- AvK Products
- Automatic Voltage Regulators (AVRs)
- Alternator Ratings & Duty
- Alternator Performance Data
- Parallel Operation
- Mechanical Design
- Environmental
- Alternator Sizing
- Alternator Protection
- Alternator Testing
- Codes & Standards
- Marine Applications
- Grid Code Compliance

Email: applications@cummins.com

*Application Engineering Training Courses are not a qualification.