

CAMBRIAN COLLEGE
SCHOOL OF SKILLS TRAINING/SKY TECH
COURSE OUTLINE

Course Name: DDEC Engine Electronic Controls Training
Course No: DIE 1020
Credit Value: N/A
Duration: 2 days

Program Name: DDEC Electronic Engine Training

Course Description:

This module will deliver the DDEC electronic engine training in a 2-day session consisting of 1 day of electronic engine theory on DDEC electronics training with 1 day of practical training. After the completion of this course the technician will be able to perform basic diagnostics procedures using the recommended diagnostic tools as well as perform injector replacement procedures. The course is designed to accommodate 6 journeymen at one time. This will allow each participant ample hands on time on the electronic simulators and engines.



Date: March 2006

Prepared by: Bob Huzij

Approved by: _____

PREREQUISITES:

HDET (Heavy Duty Equipment Technician) or T & C (Truck & Coach Technician)
Journeyman Status

EQUIVALENCIES:

N/A

RESOURCES REQUIRED:

- DDEC handouts

COURSE OBJECTIVES/LEARNING OUTCOMES:

Upon successful completion of this module the technician will be able to:

Identification of the electronic components that make up engine management systems including the location of the sensors.

Introduction to electronic troubleshooting using manufactures diagnostic software.

Perform diagnostic fault code retrieval on DDEC electronic engine simulators.

Perform repairs based on fault code identification on both DDEC electronic engines.

Identify injector diagnostic procedures and explain how to correct abnormal conditions.

Identify the testing protocol used to test electronic sensors

Identify the injector replacement procedure on DDEC engines

Perform injector replacement on DDEC engine.

Perform a fuel pressure, flow and fuel temperature assessment on a diesel engine.

Course Outline:

Define the fundamentals of DDEC diesel fuel injection full-authority engine management systems.

- applications
- types
- strategy
- emission legislation

Describe the construction features of DDEC full-authority electronic control diesel fuel injection systems and components.

- sensors
- electronic unit injectors
- hydraulic electronic unit injector
- common rail
- injector drivers

- status switches
- electronic control module

Explain the principles of operation of DDEC full-authority electronic control diesel fuel injection systems and components.

- sensors
- electronic unit injectors
- injector drivers
- hydraulic electronic unit injector
- common rail
- electronic control module

Perform inspection and diagnostic procedures following manufacturers' recommendations on DDEC engines and perform assigned operations for full-authority electronically controlled diesel fuel injection systems.

- identify components and locations
- perform troubleshooting techniques
- interpret electronic flow charts
- perform the application with the reader/programmer and personal computer diagnostics
- perform a demonstration of downloading reprogramming and uploading processes using a personal computer
- confirm electronic diagnosis with multimeter testing

Recommend reconditioning or repair procedures following manufacturers' recommendations and perform assigned operations for DDEC full-authority engine management systems.

- describe connector seal assembly procedures
- outline checking procedures for electrical ground connection integrity

Fieldwork /Placement: **None**

Delivery Mode: A combination of theory and practical (50 / 50)

PLA/Transfer Credit: N/A

General Education Designation: N/A

EVALUATION METHODS:

1. 25 question multiple choice test at the end of the module
2. The participant will be able to demonstrate diagnostic codes and troubleshoot codes retrieval procedures using the DDEC Prolink diagnostic scan tool and troubleshooting manual.

Grading

A	80 - 100
B	70 - 79
C	60 - 69
F Below 60%	Fail