MEDIUM/HEAVY DIESEL TRUCK HEAT/AIR INTRODUCTION
Course Syllabus

Course Number: TRUK-0021       OHLAP Credit: No
OCAS Code: None
Course Length: 45 Hours
Career Cluster: Transportation, Distribution, and Logistics
Career Pathway: Medium/Heavy Diesel Truck Repair
Career Major(s): Diesel Service Technician

Pre-requisite(s): This course will include general A/C systems, compressor and clutches, evaporator, condenser and related components. Students will learn to verify the need for service, to inspect and change out major system components, and check and adjust lubricant levels. Students will learn to handle, store and identify refrigerant and operate a reclaiming/charging station.

PTTTS Truck Web-Bases Training Online Courses

Course Objectives: A. General A/C System and Component Diagnosis, Service, and Repair.
1. Diagnose the cause of temperature control problems in the A/C system; determine needed action. (P1-VI.B.1.1)
2. Identify refrigerant type and check for contamination; determine needed action. (P2-VI.B.1.2)
3. Diagnose A/C system problems indicated by pressure gauge and temperature readings; determine needed action. (P1-VI.B.1.3)
4. Diagnose A/C system problems indicated by visual, audible, smell, and touch procedures; determine needed action. (P1-VI.B.1.4)
5. Perform A/C system leak test; determine needed action. (P1-VI.B.1.5)
6. Evacuate A/C system using appropriate equipment. (P1-VI.B.1.6)
7. Internally clean contaminated A/C system components and hoses. (P2-VI.B.1.7)
8. Charge A/C system with refrigerant. (P1-VI.B.1.8)
9. Identify lubricant type needed for system application. (P1-VI.B.1.9)

B. A/C System and Component Diagnosis, Service, and Repair for Compressors and Clutches.
1. Diagnose A/C system problems that cause protection devices (pressure, thermal, and electronic) to interrupt system operation; determine needed action. (P1-VI.B.2.1)
2. Inspect, test, and replace A/C system pressure, thermal, and electronic protection devices. (P2-VI.B.2.2)
3. Inspect and replace A/C compressor drive belts, pulleys, and
tensioners; adjust belt tension and check alignment. (P1-VI.B.2.3)
4. Inspect, test, service, and replace A/C compressor clutch components or assembly. (P3-VI.B.2.4)
5. Inspect and correct A/C compressor lubricant level (if applicable). (P2-VI.B.2.5)
6. Inspect, test, and replace A/C compressor. (P2-VI.B.2.6)
7. Inspect, repair, or replace A/C compressor mountings and hardware. (P2-VI.B.2.7)

C. A/C System and Component Diagnosis, Service, and Repair for Evaporators, Condensers, and Related Components.
1. Correct system lubricant level when replacing the evaporator, condenser, receiver/drier or accumulator/drier, and hoses. (P1-VI.B.3.1)
2. Inspect A/C system hoses, lines, filters, fittings, and seals; determine needed action. (P1-VI.B.3.2)
3. Inspect A/C condenser for proper air flow. (P1-VI.B.3.3)
4. Inspect and test A/C system condenser and mountings; determine needed action. (P2-VI.B.3.4)
5. Inspect and replace receiver/drier or accumulator/drier. (P1-VI.B.3.5)
6. Inspect and test cab/sleeper refrigerant solenoid, expansion valve(s); check placement of thermal bulb (capillary tube); determine needed action. (P1-VI.B.3.6)
7. Inspect and replace orifice tube. (P1-VI.B.3.7)
8. Inspect and test cab/sleeper evaporator core; determine needed action. (P3-VI.B.3.8)
9. Inspect, clean, and repair evaporator housing and water drain; inspect and service/replace evaporator air filter. (P1-VI.B.3.9)
10. Identify and inspect A/C system service ports (gauge connections); determine needed action. (P1-VI.B.3.10)
11. Diagnose system failures resulting in refrigerant loss from the A/C system high pressure relief device; determine needed action. (P2-VI.B.3.11)

D. Refrigerant Recovery, Recycling, and Handling
1. Maintain and verify correct operation of certified equipment. (P1-VI.E.1)
2. Identify (by label application or use of a refrigerant identifier) and recover A/C system refrigerant. (P1-VI.E.2)
3. Recycle refrigerant. (P1-VI.E.3)
4. Handle, label, and store refrigerant. (P1-VI.E.4)
5. Test recycled refrigerant for non-condensable gases. (P1-VI.E.5)

1 ODCTE Objective
Coding indicates NATEF alignment.
All unmarked objectives are TTC instructor developed.

Teaching Methods: The class will primarily be taught by the lecture and demonstration method and supported by various media materials to address various learning styles. There will be question and answer sessions over material covered in lecture and media presentations. Supervised lab time is provided for students to complete required projects.
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Grading Procedures:  
1. Students are graded on theory and shop practice and performance.  
2. Each course must be passed with seventy (70%) percent or better.  
3. Grading scale: A=90-100%, B=80-89%, C=70-79%, D=60-69%, F=50-59%.

Description of Classroom, Laboratories, and Equipment:  
Tulsa Technology Center campuses are owned and operated by Tulsa Technology Center School District No. 18. All programs provide students the opportunity to work with professionally certified instructors in modern, well-equipped facilities.

Available Certifications/College Credit:  
The student may be eligible to take state, national or industry exam after completion of the program. College credit may be issued from Oklahoma State University-Okmulgee or Tulsa Community College. See program counselor for additional information.

College Credit Eligibility:  
The student must maintain a grade point average of 2.0 or better.