

AUTO TECH: DIESEL/2 (180 Hours)

Course No.: 79-90-57

COMPETENCY CHECKLIST

Student Name _____

Teacher Name _____ School Site _____

Start Date _____ Completion Date _____ Certificate Date _____

Teacher Signature _____ Student Signature _____

(Signatures verify completion of course competencies)

A. INTRODUCTION AND SAFETY (5 hrs)

- _____ 1. Review scope and purpose of course
- _____ 2. Classroom policies and procedures
- _____ 3. Class/workplace first aid and safety
- _____ 4. Occupations w/impact on diesel techs
- _____ 5. OSHA workplace safety for diesel techs
- _____ 6. EPA impact on industry sector
- _____ 7. ARB legislation and transportation industry
- _____ 8. BAR standards for safety and environment
- _____ 9. Use of MSDS as it applies to auto industry
- _____ 10. Safety items required by regulations
- _____ 11. Role of NATEF in auto technician training
- _____ 12. NATEF standard for protective clothing/gloves
- _____ 13. NATEF standard for protective respiratory gear
- _____ 14. NATEF standard for protective eye gear
- _____ 15. NATEF standard for proper shop ventilation
- _____ 16. Proper material handling, storage& disposal
- _____ 17. Pass safety exam

B. RESOURCE MANAGEMENT REVIEW (1 hr)

- _____ 1. Review definitions related to topic
- _____ 2. Review importance of resource management
- _____ 3. Specific examples of effective management
- _____ 4. Review benefits of effective management
- _____ 5. Economic/environmental benefits/liabilities

C. TRADE MATHEMATICS REVIEW (7 hrs)

- _____ 1. Review application of math in industry
- _____ 2. Review problem solving with whole numbers
- _____ 3. Review solving problems with fractions
- _____ 4. Review solving problems with decimals
- _____ 5. Review changing fractions to decimals
- _____ 6. Review changing decimals to fractions
- _____ 7. English system of measuring length
- _____ 8. English system of measuring weight

- _____ 9. English system of measuring volume/capacity
- _____ 10. English linear units of measurement
- _____ 11. English system units of volume/capacity
- _____ 12. Problem solving w/English measurements
- _____ 13. Measuring w/English system tools of trade
- _____ 14. Metric system of measuring length
- _____ 15. Metric system of measuring weight
- _____ 16. Metric system of measuring volume/capacity
- _____ 17. Metric system unit of liners measurement
- _____ 18. Metric system units of volume/capacity
- _____ 19. Problem solving w/metric measurements
- _____ 20. Measuring w/metric system tools of trade
- _____ 21. Solving geometric problems
- _____ 22. Solving algebraic problems
- _____ 23. Solving problems with percentages
- _____ 24. Reading and interpreting graphs
- _____ 25. Techniques for using a calculator

D. SERVICE MANUALS AND COMPUTER-BASED INFORMATION SYSTEMS REVIEW (1 hr)

- _____ 1. Review different types of service manuals
- _____ 2. Review types of info found in service manuals
- _____ 3. Review and demo use of service manuals
- _____ 4. Use of CD & web search to find auto tech info
- _____ 5. CD/web vs. service manuals for auto tech info

E. TOOLS AND EQUIPMENT REVIEW (10 hrs)

- _____ 1. Review/demo general shop hand tools
- _____ 2. Review/demo general shop equipment
- _____ 3. Review/demo listed specialty tools/equipment
- _____ 4. Specialty tools diesel preventative maintenance
- _____ 5. Engine diagnostic testing instruments

F. LUBRICATION SYSTEM (20 hrs)

- _____ 1. Engine oil pressure & gauge/sensor operation

- _____ 2. Check oil level, condition & consumption
- _____ 3. Oil pump, drives, inlet pipes, pick-up screens
- _____ 4. Oil pressure valves/thermostat/filters
- _____ 5. Oil cooler and components
- _____ 6. Turbocharger lubrication & cooling systems
- _____ 7. Determine proper lubricate/do oil change

G. COOLING SYSTEM (20 hrs)

- _____ 1. Coolant type, level, condition & consumption
- _____ 2. Test coolant temp & sensor/gauge operation
- _____ 3. Pulleys, tensioners and drive belts
- _____ 4. Thermostats, by-passes, housings and seals
- _____ 5. Recover, flush, refill & bleed cooling system
- _____ 6. Cooler condition and filter assembly for leaks
- _____ 7. Inspect water pump/hoses
- _____ 8. Radiator, pressure cap, tank & recovery system
- _____ 9. Thermostatic cooling fan system & shroud

H. AIR INDUCTION AND EXHAUST SYSTEMS (20 hrs)

- _____ 1. Air intake system restriction & leakage tests
- _____ 2. Intake manifold pressure test
- _____ 3. Exhaust back pressure test
- _____ 4. Turbochargers, wastegate & piping systems
- _____ 5. Inspect/test listed type of controls/actuators
- _____ 6. Check air induction system
- _____ 7. Remove/reinstall turbocharger/wastegate
- _____ 8. Inspect intake manifold, gaskets, connectors
- _____ 9. Air cooler assemblies; aftercooler assemblies
- _____ 10. Inspect exhaust manifold and components
- _____ 11. Inspect exhaust after treatment devices
- _____ 12. Preheater/inlet air heater/glow plug system
- _____ 13. EGR system and components

I. FUEL SYSTEM: FUEL SUPPLY SYSTEM (20 hrs)

- _____ 1. Check fluid level and condition
- _____ 2. Perform fuel supply and return tests
- _____ 3. Inspect parts/components of fuel system
- _____ 4. Inspect/clean/test listed parts/components
- _____ 5. Low pressure regulator systems
- _____ 6. Check fuel system for air; prime & bleed

J. FUEL SYSTEM: ELECTRONIC FUEL MANAGEMENT SYSTEM (35 hrs)

- _____ 1. Inspect/test listed system components
- _____ 2. Interface with vehicle's onboard computer
- _____ 3. Check/record electronic diagnostic codes
- _____ 4. Locate/use relevant service information
- _____ 5. Electrical connector terminals/seals/locks
- _____ 6. Switches/sensors/controls/components
- _____ 7. Access customer programmable parameters
- _____ 8. Inspect/test/adjust electronic unit injectors

- _____ 9. Remove/install EUI and recalibrate ECM
- _____ 10. Perform cylinder contribution test
- _____ 11. Perform listed on-engine inspections/tests
- _____ 12. Test hydraulic EUI high pressure oil supply
- _____ 13. Test common rail type injection systems
- _____ 14. Injection lines/hold downs/fittings & seals

K. ENGINE BRAKES (20 hrs)

- _____ 1. Inspect/adjust engine/exhaust brakes
- _____ 2. Inspect/test/adjust brake control circuits/parts
- _____ 3. Inspect/repair/replace brake housing/parts

L. PREVENTATIVE MAINTENANCE (15 hrs)

- _____ 1. Types of maintenance intervals for equipment
- _____ 2. Check engine compartment for leaks
- _____ 3. Inspect air intake system
- _____ 4. Listen and note unusual noises
- _____ 5. Check optional equipment
- _____ 6. Check AC condenser, radiator & after-coolers
- _____ 7. Inspect and repair/replace listed components
- _____ 8. Remove/replace differential carrier assembly

M. DIESEL ELECTRIC VEHICLE REVIEW (1 hr)

- _____ 1. Review definition of diesel electric vehicles
- _____ 2. Review differences in diesel electric/diesel

N. EMPLOYABILITY SKILLS REVIEW (3 hrs)

- _____ 1. Employer requirements in employees
- _____ 2. Update potential employer data
- _____ 3. Update sample resume
- _____ 4. Review importance of job application
- _____ 5. Complete job application correctly
- _____ 6. Review importance of enthusiasm on job
- _____ 7. Review appropriate appearance on job
- _____ 8. Review continuous upgrading of job skills
- _____ 9. Customer service as way to build business

O. ENTREPRENEURIAL SKILLS (2 hrs)

- _____ 1. Define entrepreneurship
- _____ 2. Common characteristics of entrepreneurs
- _____ 3. Contributions of entrepreneurs to industry
- _____ 4. Purpose and components of a business plan
- _____ 5. Personal goals prior to starting business
- _____ 6. Sources of monetary investment
- _____ 7. Licensing requirements in diesel repair
- _____ 8. Scenario w/student as business owner
- _____ 9. Sustainable vs standard business practices