

AUTO TECH: EMISSION CONTROL/2 (90 Hours)

Course No.: 79-90-67

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 (4 hrs)

- _____ 1. Review scope and purpose of course
- _____ 2. Review classroom policies and procedures
- _____ 3. Review class/work emergency procedures
- _____ 4. Occupations that impact auto technicians
- _____ 5. OSHA workplace requirements for auto techs
- _____ 6. EPA legislation for transportation industry
- _____ 7. ARB legislation for transportation industry
- _____ 8. BAR standards for safety and environment
- _____ 9. MSDS in automotive industry
- _____ 10. Safety items required by feds/state/local
- _____ 11. Safety test

B. RESOURCE MANAGEMENT REVIEW (1 hr)

- _____ 1. Review components of resource management
- _____ 2. Review importance of resource management
- _____ 3. Review examples of effective management
- _____ 4. Review benefits of effective management
- _____ 5. Review economic benefits/liabilities

C. TRADE MATHEMATICS REVIEW (7 hrs)

- _____ 1. Practical applications of math in industry
- _____ 2. Whole number problems
- _____ 3. Various fraction problems
- _____ 4. Various decimal problems
- _____ 5. Changing fractions to decimals
- _____ 6. Changing decimals to fractions
- _____ 7. English system of measuring length
- _____ 8. English system of measuring weight
- _____ 9. English measuring of volume/capacity
- _____ 10. English system of linear units
- _____ 11. English system of units of volume/capacity
- _____ 12. Solving English system measuring problems
- _____ 13. Measuring techniques using tools of trade
- _____ 14. Metric system of measuring length

- _____ 15. Metric system of measuring weight
- _____ 16. Metric system of measuring volume/capacity
- _____ 17. Various metric systems of linear units
- _____ 18. Various metric systems of units of weight
- _____ 19. Solving metric systems measuring problems
- _____ 20. Metric measuring using tools of trade
- _____ 21. Solving techniques for geometric problems
- _____ 22. Solving techniques for algebraic problems
- _____ 23. Problem-solving techniques using percentages
- _____ 24. Review reading and interpreting graphs
- _____ 25. Review using a calculator

D. SERVICE MANUALS AND COMPUTER-BASED INFORMATION SYSTEMS REVIEW (2 hrs)

- _____ 1. Review types of service manuals
- _____ 2. Review info that can be found in service manuals
- _____ 3. Review use of service manuals
- _____ 4. Use of CD/web in finding auto tech info
- _____ 5. CD/web search vs. service manuals

E. NITROGEN OXIDE (NOx) EMISSIONS (5 hrs)

- _____ 1. Discuss properties of NOx
- _____ 2. Causes of excessive NOx emissions

F. DIGITAL STORAGE OSCILLOSCOPE (DSO) (10 hrs)

- _____ 1. Different parts of the DSO & oxygen sensor
- _____ 2. Set-up & operational techniques for the DSO
- _____ 3. Analyze oxygen sensor waveform patterns
- _____ 4. Techniques for forming diagnostic approach

G. BAR'S DIAGNOSTIC FLOWCHART (5 hrs)

- _____ 1. BAR'S diagnostic flowchart worksheet
- _____ 2. Proper documentation of diagnostic information
- _____ 3. Evaluation techniques for collected test data

H. LOADED MODE EMISSIONS (15 hrs)

- _____ 1. Possible system component failures
- _____ 2. Inspection of major performance systems
- _____ 3. Baseline emissions test using the BAR-97 EIS
- _____ 4. After-repair emission test to confirm repairs

I. CATALYTIC CONVERTER (15 hrs)

- _____ 1. Oxidation & reduction-type catalytic conversion
- _____ 2. Effects of air/fuel mixture on system
- _____ 3. Operational techniques for converters
- _____ 4. Testing techniques to determine efficiency

J. BAR-97 EIS FOR ENHANCED AREA PROGRAM

(20 hrs)

- _____ 1. Review related components/procedures
- _____ 2. Features & functions of BAR-97 EIS parts
- _____ 3. Operational techniques for the BAR-97 EIS
- _____ 4. NOx test techniques for the ASM
- _____ 5. Vehicle exceptions to BAR-97 ASM tests
- _____ 6. ASE A6/A8/L1 competencies for Bar-97 EIS
- _____ 7. Importance of BAR-97 EIS as diagnostic tool

K. EMPLOYABILITY SKILLS REVIEW (3 hrs)

- _____ 1. Employer requirements in an employee
- _____ 2. Update potential employer data/list
- _____ 3. Finalize sample résumés
- _____ 4. Accurate, legible & complete application
- _____ 5. Complete sample job applications
- _____ 6. Review enthusiasm on the job
- _____ 7. Review appropriate appearance on a job
- _____ 8. Review upgrading of skills on a job
- _____ 9. Customer service to build relationships

L. ENTREPRENEURIAL SKILLS (3 hrs)

- _____ 1. Define entrepreneurship
- _____ 2. Characteristics in successful entrepreneurs
- _____ 3. Contributions of entrepreneurs to auto industry
- _____ 4. Purpose & components of a business plan
- _____ 5. Personal goals prior to starting a business
- _____ 6. Monetary investment in business opportunity
- _____ 7. Various licensing requirements in industry
- _____ 8. Student as auto repair business owner
- _____ 9. Sustainable/green vs. standard practices