

AUTO TECH: DRIVE TRAIN (DIESEL) (180 Hours)

Course No.: 79-90-59

COMPETENCY CHECKLIST

Student Name _____

Teacher Name _____ School Site _____

Start Date _____ Completion Date _____ Certificate Date _____

Teacher Signature _____ Student Signature _____

(Signature verifies completion of course competencies)

A. ORIENTATION AND SAFETY (5 hrs)

- _____ 1. Describe scope and purpose of course
- _____ 2. Describe classroom policies and procedures
- _____ 3. Class/work first aid/emergency procedures
- _____ 4. Occupations w/impact on auto technician
- _____ 5. Cal/OSHA requirements for auto technicians
- _____ 6. Impact of EPA legislation on industry sector
- _____ 7. Impact of CA ARB legislation on industry
- _____ 8. BAR standards for safety/environmental
- _____ 9. Demo use of MSDS as applied to industry
- _____ 10. Safety items required by regulations
- _____ 11. Role of NATEF in auto technician training
- _____ 12. NATEF standards: protective clothing/gloves
- _____ 13. NATEF standards: use of protective gear
- _____ 14. NATEF standards: use of protective eye gear
- _____ 15. NATEF standards: proper ventilation in shop
- _____ 16. NATEF standards: shop chemicals/materials
- _____ 17. Pass safety exam w/100% accuracy

B. RESOURCE MANAGEMENT (1 hr)

- _____ 1. Define listed terms related to topic
- _____ 2. Management of resources in auto repair
- _____ 3. Examples of effective management
- _____ 4. Benefits of effective resource management
- _____ 5. Economic/environmental benefits/liabilities

C. TRADE MATHEMATICS (10 hrs)

- _____ 1. Applications of math in drive train repair
- _____ 2. Demo problem-solving w/whole numbers
- _____ 3. Demo problem-solving w/fractions
- _____ 4. Demo problem-solving w/decimals
- _____ 5. Changing fractions to decimals
- _____ 6. Changing decimals to fractions
- _____ 7. English system of measuring length
- _____ 8. English system of measuring weight

- _____ 9. English system of measuring volume/capacity
- _____ 10. Relationship of English system linear units
- _____ 11. Relationship of English system units of volume
- _____ 12. Solving English system measuring problems
- _____ 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. Relationship of metric system linear units
- _____ 18. Relationship of metric system units of weight
- _____ 19. Solving metric system measuring problems
- _____ 20. Measuring w/metric system tools of trade
- _____ 21. Demo solving geometric problems
- _____ 22. Demo solving algebraic problems
- _____ 23. Demo problem-solving for percentages
- _____ 24. Reading and interpreting graphs
- _____ 25. Describe/demo techniques for using calculator

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

- _____ 1. Describe different types of service manuals
- _____ 2. Types of info found in service manuals
- _____ 3. Demo use of service manuals
- _____ 4. Use of CD-ROM/web in finding auto info
- _____ 5. CD-ROM/web vs service manuals

E. TOOLS AND EQUIPMENT (10 hrs)

- _____ 1. Identify/demo use: general shop hand tools
- _____ 2. Identify/demo use; general shop equipment
- _____ 3. Identify/demo; specialty tools & equipment

F. CLUTCH (35 hrs)

- _____ 1. Identify problems; determine action P1
- _____ 2. Perform listed tasks P1
- _____ 3. Inspect/adjust/repair/replace items P2

- _____ 4. Bearing/bushings/springs/shafts, etc P1
- _____ 5. Single-disc clutch pressure plate/disc P1
- _____ 6. Two-plate clutch pressure plate & parts P1
- _____ 7. Clutch brake assembly; needed action P1
- _____ 8. Types of adjusting clutch mechanisms P1
- _____ 9. Inspect and replace pilot bearing P2
- _____ 10. Flywheel mounting area; needed action P2
- _____ 11. Inspect flywheel components; action P2
- _____ 12. Inspect flywheel housing; needed action P2
- _____ 13. Inspect/test listed operations P3
- _____ 14. Use tools/procedures to diagnose; action P3

G. TRANSMISSION (35 hrs)

- _____ 1. Identify problems; determine action P1
- _____ 2. Inspect/test/repair/replace items P2
- _____ 3. Inspect /replace transmission parts P1
- _____ 4. Inspect/replace listed items; repair P1
- _____ 5. Check fluid level/condition; service P1
- _____ 6. Lever/cover/rails/forks/levers, etc P2
- _____ 7. Remove and reinstall transmission P1
- _____ 8. Inspect listed items; determine action P3
- _____ 9. Inspect/replace oil filters/coolers P2
- _____ 10. Speedometer components; needed action P2
- _____ 11. Inspect/adjust P.T.O.; determine action P3
- _____ 12. Inspect/test function of items; action P1
- _____ 13. Transmission temperature gauge/unit P2
- _____ 14. Inspect/test listed transmission items P2
- _____ 15. Shift selector/switches/displays/indicator P2
- _____ 16. Use tools to diagnose problems; action P1
- _____ 17. Inspect and test operation of items P3

H. DRIVESHAFT AND UNIVERSAL JOINTS (25 hrs)

- _____ 1. Identify problem causes; needed action P1
- _____ 2. Inspect/service/replace listed parts P1
- _____ 3. Inspect bearings/mounts; needed action P1
- _____ 4. Driveline angles; determine action P2

I. DRIVE AXLE (35 hrs)

- _____ 1. Identify problems; determine action P2
- _____ 2. Check/repair/inspect/replace parts P1
- _____ 3. Check fluid level/condition; service P1
- _____ 4. Remove/replace differential assembly P2
- _____ 5. Case assembly w/components P3
- _____ 6. Locking differential case assembly P3
- _____ 7. Carrier housing and components P3
- _____ 8. Measure ring gear runout; needed action P3
- _____ 9. Inspect/replace ring & drive pinion gears P3
- _____ 10. Drive pinion bearing preload P3
- _____ 11. Measure and adjust drive pinion depth P3
- _____ 12. Measure and adjust listed items P3
- _____ 13. Check/interpret listed components P3

- _____ 14. Ring gear thrust block/screw P3
- _____ 15. Inspect power divider assembly; action P3
- _____ 16. Air operated power divider and parts P2
- _____ 17. Drive axle lubrication system P3
- _____ 18. Inspect and replace drive axle shafts P1
- _____ 19. Remove and replace wheel assembly P1
- _____ 20. Identify causes noise/damage; action P1
- _____ 21. Drive axle temperature gauge/sensor P2
- _____ 22. Perform listed tasks for wheel bearings P1

J. PREVENTATIVE MAINTENANCE (15 hrs)

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

K. EMPLOYABILITY SKILLS (4 hrs)

- _____ 1. Employer requirements for employees
- _____ 2. Identify potential employers
- _____ 3. Finalize sample résumés
- _____ 4. Importance of filling out job application
- _____ 5. Complete sample job application forms
- _____ 6. Importance of enthusiasm on job
- _____ 7. Appropriate appearance on a job
- _____ 8. Continuous upgrading job skills
- _____ 9. Customer service as way to build business

L. ENTREPRENEURIAL SKILLS (3 hrs)

- _____ 1. Define entrepreneurship
- _____ 2. Characteristics of successful entrepreneurs
- _____ 3. Contributions of entrepreneurs to industry
- _____ 4. Purpose and components of business plan
- _____ 5. Examine personal goals prior to start up
- _____ 6. Evaluate sources of monetary investment
- _____ 7. Licensing requirements in auto repair
- _____ 8. Scenario w/student as business owner
- _____ 9. Sustainable vs standard business practices