

AUTO TECH: SUSPENSION AND STEERING (180 Hours)

Course No.: 79-90-79

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. Scope and purpose of course
- _____ 2. Classroom policies and procedures
- _____ 3. Class/workplace emergency procedures
- _____ 4. Occupations in industry for auto technicians
- _____ 5. OSHA work requirements for auto techs
- _____ 6. EPA legislation for transportation industry
- _____ 7. ARB legislation for transportation industry
- _____ 8. BAR standards for safety/environment
- _____ 9. MSDS in automotive industry
- _____ 10. Safety items required by feds/state/local
- _____ 11. NATEF in auto technician training
- _____ 12. NATEF standard: protective clothing/gloves
- _____ 13. NATEF standard: protective respiratory gear
- _____ 14. NATEF standard for protective eye gear
- _____ 15. NATEF standard for proper ventilation
- _____ 16. NATEF standard: chemical/material disposal
- _____ 17. Safety test

B. RESOURCE MANAGEMENT (2 hrs)

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

C. TRADE MATHEMATICS (10 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 system of measuring volume/capacity
- _____ 10. Relationship between English linear units
- _____ 11. Relationship: English units of volume/capacity
- _____ 12. English system measuring problems
- _____ 13. Measuring objects with tools of the trade
- _____ 14. Metric system of measuring length
- _____ 15. Metric system of measuring weight
- _____ 16. Metric system of measuring volume/capacity
- _____ 17. Relationship between metric linear units
- _____ 18. Relationship between metric units of weight
- _____ 19. Metric system measuring problems
- _____ 20. Metric system measuring with tools of trade
- _____ 21. Geometric problems related to auto industry
- _____ 22. Algebraic problems related to auto industry
- _____ 23. Problem-solving techniques using percentages
- _____ 24. Reading and interpreting graphs
- _____ 25. Using a calculator

D. TOOLS AND EQUIPMENT (10 hrs)

- _____ 1. Use/maintenance/storage of shop hand tools
- _____ 2. Use/maintenance/storage of shop equipment
- _____ 3. Use/maintenance/storage of specialty tools

E. SERVICE MANUALS AND COMPUTER-BASED INFORMATION SYSTEMS (3 hrs)

- _____ 1. Types of service manuals
- _____ 2. Information found in service manuals
- _____ 3. Demo use of service manuals
- _____ 4. Use of CD-ROM & web search in finding info
- _____ 5. CD-ROM/web vs. service manuals

F. GENERAL SUSPENSIONS AND STEERING SYSTEMS DIAGNOSIS (15 hrs)

- _____ 1. Complete work order
- _____ 2. Identify/interpret concerns, determine action

- _____ 3. Research applicable vehicle and service info
- _____ 4. Vehicle/major component ID numbers

G. STEERING SYSTEMS DIAGNOSIS AND REPAIR

(40 hrs)

- _____ 1. Disable and enable SRS
- _____ 2. Remove and replace steering wheel; SRS coil
- _____ 3. Diagnose steering column concerns
- _____ 4. Diagnose power steering concerns
- _____ 5. Diagnose power steering gear concerns
- _____ 6. Inspect steering system components
- _____ 7. Adjust non-rack and pinion
- _____ 8. Remove/replace listed steering gear
- _____ 9. Inspect /replace listed steering gear
- _____ 10. Identify power steering fluid type; inspect
- _____ 11. Flush, fill, & bleed power steering system
- _____ 12. Diagnose power steering fluid leakage
- _____ 13. Remove/inspect/replace/adjust pump belt
- _____ 14. Remove & reinstall power steering pump
- _____ 15. Remove/reinstall pump pulley; adjust
- _____ 16. Inspect & replace power steering hoses & fittings
- _____ 17. Inspect & replace listed system components
- _____ 18. Inspect, replace, & adjust tie rod ends, etc.
- _____ 19. Test & diagnose components using a scan tool
- _____ 20. Inspect & test electric power assist steering
- _____ 21. Hybrid vehicle power steering system circuits

H. SUSPENSION SYSTEMS DIAGNOSIS AND REPAIR

(40 hrs)

- _____ 1. Suspension system noises and ride issues
- _____ 2. Strut suspension system noises & ride issues
- _____ 3. Remove, inspect, & install listed components
- _____ 4. Remove, inspect, & install strut rods & bushings
- _____ 5. Remove, inspect & install ball joints
- _____ 6. Steering knuckle assemblies
- _____ 7. Short/long arm coil springs & insulators
- _____ 8. Suspension system torsion bars
- _____ 9. Stabilizer bar bushings, brackets, links
- _____ 10. Strut cartridge/assembly, coil spring, etc.
- _____ 11. Leaf springs and components

I. RELATED SUSPENSION AND STEERING SERVICE

(15 hrs)

- _____ 1. Inspect, remove, & replace shock absorbers
- _____ 2. Front and rear wheel bearings
- _____ 3. Test /diagnose components using a scan tool
- _____ 4. Electrically controlled system components
- _____ 5. Function of idle speed compensation switch
- _____ 6. Lubricate suspension and steering systems

J. WHEEL ALIGNMENT DIAGNOSIS, ADJUSTMENT, AND REPAIR (15 hrs)

- _____ 1. Diagnose alignment concerns
- _____ 2. Pre-alignment inspection & measure height
- _____ 3. Wheel alignment on the alignment machine
- _____ 4. Check toe-out-on-turns (turning radius)
- _____ 5. Check SAI & included angle
- _____ 6. Check rear wheel trust angle
- _____ 7. Check front wheel setback
- _____ 8. Check front &/or rear cradle

K. WHEEL AND TIRE DIAGNOSIS AND REPAIR (15 hrs)

- _____ 1. Inspect tire condition; tire wear patterns, etc.
- _____ 2. Diagnose wheel tire vibration, shimmy & noise
- _____ 3. Rotate tires according to recommendations
- _____ 4. Measure wheel, tire, axle flange, & hub runout
- _____ 5. Diagnose tire pull problems
- _____ 6. Dismount/inspect/remount tire; balance wheel
- _____ 7. Tire pressure monitoring system sensor
- _____ 8. Reinstall wheel; torque lug nuts
- _____ 9. Inspect tire and wheel assembly for air loss
- _____ 10. Repair tire using internal patch
- _____ 11. Calibrate tire pressure monitoring system

L. EMPLOYABILITY SKILLS (7 hrs)

- _____ 1. Employer requirements in an employee
- _____ 2. Identify potential employers thru job search
- _____ 3. Sample résumé/cover letters
- _____ 4. Accurate, legible application
- _____ 5. Sample job applications
- _____ 6. Enthusiasm on the job
- _____ 7. Appropriate appearance on a job
- _____ 8. Upgrading of skills on a job
- _____ 9. Customer service to build relationships

M. ENTREPRENEURIAL SKILLS (3 hrs)

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