PREVENTIVE MAINTENANCE SERVICE
Course Syllabus

Course Number: TRUK-0057
OHLAP Credit: No
OCAS Code: None
Course Length: 75 Hours
Career Cluster: Transportation, Distribution, and Logistics
Career Pathway: Medium/Heavy Diesel Truck Repair
Career Major(s): Diesel Service Technician

Pre-requisite(s):
In this course, students will perform preventative maintenance on the electrical/electronic systems, brake system, drive train, suspension and steering system, tires and wheels.

Textbooks/Materials:
PTTTS Truck Web-Bases Training Online Courses

Course Objectives:

A. Listen to and verify the operator’s concern, review past maintenance and repair documents, and determine necessary action. (Preventative Maintenance Inspection – VII)

1. Inspect battery box(es), cover(s), and mountings. (P1-VII.C.1.1)
2. Inspect battery hold-downs, connections, cables, and cable routing; service as needed. (P1-VII.C.1.2)
3. Check/record battery state of charge (open circuit voltage) and condition. (P1-VII.C.1.3)
4. Inspect starter, mounting, and connections. (P1-VII.C.1.5)
5. Engage starter; check for unusual noises, starter drag, and starting difficulty. (P1-VII.C.1.6)
6. Inspect alternator, mountings, wiring and wire routing; determine needed action. (P1-VII.C.2.1)
7. Check operation of interior lamps and/or displays.
8. Check all exterior lamps, lenses, and reflectors; check headlamp alignment.
9. Inspect and test trailer connector, cable, and holder.
10. Perform battery test (load and/or capacitance). (P1-VII.C.1.4)

C. Perform Preventive Maintenance on Brakes (Air/Hydraulic).
1. Check parking brake operation. (P1-VII.D.1.1)
2. Record air governor cut-out setting (psi). (P1-VII.D.1.2)
3. Check air drier drain valve operation. (P1-VII.D.1.3)
4. Check air system for leaks (brakes released). (P1-VII.D.1.4)
5. Check air system for leaks (brakes applied). (P1-VII.D.1.5)
6. Test one-way and double-check valves. (P1-VII.D.1.6)  
7. Check low air pressure warning devices. (P1-VII.D.1.7)  
8. Check air governor cut-in pressure. (P1-VII.D.1.8)  
9. Check tractor protection valve. (P1-VII.D.1.10)  
10. Test air pressure build-up time. (P1-VII.D.1.11)  
11. Inspect coupling air lines, holders, and gladhands. (P1-VII.D.1.12)  
12. Check brake chambers and air lines for secure mountings and damage. (P1-VII.D.1.13)  
13. Service air drier. (P1-VII.D.1.14)  
14. Inspect and record brake lining/pad condition, thickness, and contamination. (P1-VII.D.1.15)  
15. Inspect and record condition of brake drums/rotors. (P1-VII.D.1.16)  
16. Check operation of brake manual slack adjusters; adjust as needed. (P1-VII.D.1.17)  
17. Check operation and adjustment of brake automatic slack adjusters. (P1-VII.D.1.18)  
18. Lubricate all brake component grease fittings. (P1-VII.D.1.19)  
19. Check master cylinder fluid level and condition. (P1-VII.D.2.1)  
20. Inspect brake lines, fittings, flexible hoses, and valves for leaks and damage. (P1-VII.D.2.2)  
21. Check parking brake operation, inspect parking brake application and holding devices; adjust as needed. (P1-VII.D.2.3)  
22. Check operation of hydraulic system; pedal travel, pedal effort, pedal feel (drift). (P1-VII.D.2.4)  
23. Inspect wheel cylinders/calipers for leakage and damage. (P1-VII.D.2.5)  
24. Inspect power brake booster(s), hoses and check/control valves; check power brake booster, reservoir fluid level and condition. (P1-VII.D.2.6)  
25. Inspect and record brake lining/pad condition, thickness, and contamination. (P1-VII.D.2.7)  
26. Inspect and record condition of brake drums/rotors. (P1-VII.D.2.8)  
27. Check brake drum adjustment; adjust as needed. (P1-VII.D.2.9)  
28. Check emergency (spring) brake control/modulator valve, if applicable. (P1-VII.D.1.9)  
29. Check condition and operation of hand brake (trailer) control valve. (P1-VII.D.1.20)  
30. Perform antilock brake system (ABS) operational system self-test. (P1-VII.D.1.21)  
31. Drain air tanks and check for contamination. (P1-VII.D.1.22)  
32. Check condition of pressure relief (safety) valves. (P1-VII.D.1.22)  

D. Perform Preventive Maintenance on the Drive Train.  
1. Check operation of clutch, clutch brake, and gearshift. (P1-VII.D.3.1)  
2. Check clutch linkage/cable for looseness or binding, if applicable. (P1-VII.D.3.2)  
3. Check clutch adjustment; adjust as needed. (P1-VII.D.3.4)  
4. Check transmission case, seals, filter, hoses, and cooler for crack and leaks. (P1-VII.D.3.5)  
5. Inspect transmission breather. (P1-VII.D.3.6)  
6. Inspect transmission mounts. (P1-VII.D.3.7)  
7. Check transmission oil level and condition. (P1-VII.D.3.8)  
8. Inspect U-joints, yokes, drive lines, and center bearings for looseness, damage, and proper phasing. (P1-VII.D.3.9)  
9. Inspect axle housing(s) for cracks and lube leaks. (P1-VII.D.3.10)  
10. Inspect axle breather(s). (P1-VII.D.3.11)
11. Lubricate all drive train grease fittings. (P1-VII.D.3.12)
12. Check drive axle(s) oil level, type, and condition. (P1-VII.D.3.13)
13. Change drive axle(s) oil and filter; check and clean magnetic plugs. (P1-VII.D.3.14)
14. Check two-speed axle unit operation and oil level. (P1-VII.D.3.15)
15. Change transmission oil and filter; check and clean magnetic plugs. (P1-VII.D.3.16)
16. Check hydraulic clutch slave and master cylinders, lines, fittings, and hoses, if applicable. (P1-VII.D.3.3)
17. Check interaxle differential lock operation. (P1-VII.D.3.17)
18. Check range shift operation. (P1-VII.D.3.18)

E. Perform Preventive Maintenance on the Suspension and Steering Systems.
1. Check steering wheel operation for free play or binding. (P1-VII.D.4.1)
2. Check power steering pump, mounting, and hoses for leaks, condition, and routing; check fluid level. (P1-VII.D.4.2)
3. Change power steering fluid and filter. (P1-VII.D.4.3)
4. Inspect steering gear for leaks and secure mounting. (P1-VII.D.4.4)
5. Inspect steering shaft U-joints, pinch bolts, splines, pitman arm-to-steering sector shaft, tie rod ends, linkage, and linkage assist power steering cylinders. (P1-VII.D.4.5)
6. Check king pin wear. (P1-VII.D.4.6)
7. Check wheel bearings for looseness and noise. (P1-VII.D.4.7)
8. Check oil level and condition in all non-drive hubs; check for leaks. (P1-VII.D.4.8)
9. Remove and inspect wheel bearings; reassemble and adjust. (P1-VII.D.4.9)
10. Inspect springs, hangers, shackles, spring U-bolts, and insulators. (P1-VII.D.4.10)
11. Inspect shock absorbers for leaks and secure mounting. (P1-VII.D.4.11)
12. Inspect air suspension springs, mounts, hoses, valves, linkage, and fittings for leaks and damage. (P1-VII.D.4.12)
13. Check and record suspension ride height. (P1-VII.D.4.13)
14. Lubricate all suspension and steering grease fittings. (P1-VII.D.4.14)
15. Check toe adjustment. (P1-VII.D.4.15)
16. Check tandem axle alignment spacing. (P1-VII.D.4.16)
17. Check axle locating components (radius, torque, and/or track rods). (P1-VII.D.4.17)

F. Perform Preventive Maintenance on Tires, Wheels, Frame & 5th Wheel.
1. Inspect tires for irregular wear patterns and proper mounting of directional tires. (P1-VII.D.5.1)
2. Inspect tires for cuts, cracks, bulges, and sidewall damage. (P1-VII.D.5.2)
3. Inspect valve caps and stems; replace as needed. (P1-VII.D.5.3)
4. Measure and record tread depth; probe for imbedded debris. (P1-VII.D.5.4)
5. Check and record air pressure; adjust air pressure in accordance with manufacturers’ specifications. (P1-VII.D.5.5)
6. Check for loose lugs and/or slipped wheels; check mounting hardware condition; service as needed. (P1-VII.D.5.6)
7. Inspect wheels and spacers for cracks or damage. (P1-VII.D.5.8)
8. Check tire matching (diameter and tread) on dual tire installations. (P1-VII.D.5.9)
9. Inspect fifth wheel mounting bolts, air lines, and locks. (P1-VII.D.6.1)
10. Test operation of fifth wheel locking device; adjust if necessary. (P1-VII.D.6.2)
11. Check mud flaps and brackets. (P1-VII.D.6.3)
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12. Check pintle hook assembly and mounting. (P1-VII.D.6.4)
13. Lubricate all fifth wheel grease fittings and plate. (P1-VII.D.6.5)
14. Inspect frame and frame members for cracks & damage. (P1-VII.D.6.6)
15. Retorque lugs in accordance with manufacturers specifications. (P1-VII.D.5.7)

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.

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 seventy (70%) percent or better.