

Equipment Mechanic Task List (2022)

1. Identifies engine misfires by starting the engine and listening and then diagnosing the source of the problem, using tools such as stethoscopes, cylinder balance testers, and other diagnostic equipment in order to determine the engine issue.
2. Tests wiring, ignition circuits, and electrical components, such as coils, starters, generators, sensors, and alternators, using tools such as digital volt ohmmeters, battery-starter testers, on-board computer systems, and scan tools, in order to determine electrical malfunction issues on equipment.
3. Inspects and tests mechanical, hydraulic, and anti-lock brake systems (ABS), including shoes, springs, rotors, drums, valves, wheel and master cylinders, linkage, vacuum boosters, hydraulic lines, using tools such as micrometers, dial indicators, pressure, vacuum, and feeler gauges, ultra-sonic leak detectors, and basic hand tools, in order to diagnose issues in the brake system.
4. Inspects and test gasoline fuel systems, including carburetor, pumps, filters, lines, fittings, and fuel injection systems, using tools and techniques such as pressure and vacuum gauges, volume containers, and road tests in order to determine what repairs are needed.
5. Inspects clutch assemblies, transmissions, drive shafts, drive chains, and rear-axle assemblies, using tools such as pressure gauges, stethoscopes, and/or other diagnostic tools in order to identify and diagnose issues.
6. Inspects air conditioning and heating system components, using tools (e.g., infrared thermometers, hydrometers, system pressure testers, chemical/block testers, scan tools, recovery machines, air conditioning manifold gauges, leak detectors, hand vacuum pumps, test lights, volt meters, visual inspections, sight glasses, system pressure testers, coolant mixture hydrometer, litmus paper, belt tension gauge, multimeter) in order to identify malfunctions within the system (e.g., leaks, radiator air flow restriction, damaged fan belt, worn radiator cap, broken fan clutch or electric fans, restricted water flow) and to ensure that the engine operates at the proper temperature.
7. Inspects tires, steering, and suspension components for wear or damage and proper inflation, using tools such as tread depth and tire pressure gauges, in order to identify and diagnose issues with equipment tires.
8. Tests batteries and charging system components, using digital battery analyzers and multi-meters, in order to identify and diagnose issues with the battery, starting, and/or charging systems.
9. Inspects the interior and exterior of vehicles for damage to mirrors, doors, locks, seats, seat belts, pedal pads, door handles, window locks, instruments, knobs, windshield, water leaks, warning, washer fluid tank, bumper, fenders, paint, glass, head and tail lights, door handles, side mirror, tires, dash, gauges, mirrors, decals, and body surfaces, in order to identify necessary repairs and ensure that the vehicle is properly maintained and ready for issue.

10. Inspects, adjusts, and/or replaces lubricants, fluid levels, or coolants, using tools such as hydrometers, hand or pneumatic lubricant guns and pumps, and/or hand tools in order to ensure that equipment is in good working condition.
11. Diagnoses computer-controlled ignition and fuel systems, such as Ford, GM, and Chrysler computer command controls (CC3, C4), using tools including scopes, digital volt ohmmeters, scanners, breakout boxes, test lights, shop manuals, hand operated vacuum pumps, and exhaust gas analyzers in order to determine drivability (14.7 to 1 air fuel ratio) and optimum efficiency of the engine.
12. Diagnoses gas and diesel engines using scan tools, compression gauge, scope, vacuum gauge, cylinder leak down tester, combustion exhaust analyzer, oil pressure, fuel pressure gauge, fuel pump and ignition tester, dynamometer, and manometer in order to determine mechanical problem in the engine.
13. Inspects hydraulic brake systems and components, such as drum, shoes, pad, rotor, caliper, cylinder, hose, hydraulic fluid, proportioning valve, warning light, parking brake cables, backing plates, star wheel adjuster, self-adjusting cable, and springs using micrometers and safety procedures in order to ensure that the vehicle stops properly.
14. Inspects pneumatic, semi-pneumatic and solid tires and wheels visually and by using tire air gauge, depth gauge, and tire caliper, in order to determine the condition of the tire and ensure vehicle safety.
15. Inspects wheel alignment and steering system (manual, power, steering gear, and rack and pinion) and components (stocks, steering damper, ram, hydraulic hose, belts, pumps idler arm, pitman arm, drag link, center link, control valve, upper/lower control arm bushing, tie rod assembly, column coupler, and ball joints) such as axle bearing wear, alignment, tire pressure, tire wear, damaged hose, and broken belts using mirror, flashlight, pry bar, shop manual, and jack in order to ensure proper steering and vehicle safety.
16. Inspects vehicles such as automobiles, trucks, cars, buses, and motorcycles using standard checklist and road test in order to ensure safety of vehicle before being assigned to department or personnel.
17. Inspects diesel and gasoline fuel systems for leaks, restrictions, damaged hoses, injectors, filters, pressure and vacuum lines, contaminated fuel, or broken or corroded fuel tank using vacuum and pressure gauge, float level gauge, volume of fuel flow bottle, flashlight, mirror, and basic hand tools in order to determine proper amount of fuel delivered to engine at operating ranges.
18. Inspects drive shaft for phasing, damage, bends, "U" joint play, tightness, center support bearing, slip yoke play, proper balance, and proper alignment using dial indicator, protractor, straight edge, and pry bar in order to determine improper wear and vibration.
19. Inspects exhaust system components for fumes, leaks, loud sounds, loose mounting hardware, and muffler pipes; cracks in manifold, turbo charger, particulate trap and catalytic converter; and back pressure by visual inspection, listening, and road testing

using vacuum gauge, and monometer gauge (pressure gauge) in order to determine whether exhaust flow is causing engine problems.

20. Inspects undercarriage for wear and damage on ball joints, control arms, struts, springs, tie rod, bushing, shock, anti-sway bar, frame (cross member and rails), and other structures (i.e., gas tank, oil pan, transmission, rear end) using creeper, vehicle hoist, flashlight, mirror, pry bar, and dial indicators in order to determine vehicle drivability.
21. Inspects battery for low fluid levels, corroded cables or connectors, leaks, cracks, loose post, low specific gravity, low voltage, gassing and wrong type of battery (e.g. cold cranking amps, amp hours, wattage, voltage) using hydrometer, multimeter, test light, load tester, baking soda, and terminal brush in order to determine that the proper amount of power is available to crank the engine and operate the electronic components and accessories.
22. Diagnoses charging system components such as battery, alternator, cable, connectors, voltage regulators, and belts using multimeter, load tester, digital tester, belt tension, gauges, hydrometer, amp meter, test light, jumper cables, and hand tools in order to ensure the vehicle has the proper cranking power.
23. Inspects and tests for faulty emergency equipment (e.g., red and amber lights, spotlights, sirens, power converters road hazardous vehicle signs, emergency flasher, fire extinguishing bottle, flares) using a checklist and tools such as a test light and multimeter in order to ensure the vehicle meets legal requirements.
24. Tests wiring such as ignition cable, primary ignition system, light bar, head and tail light, turn signals, fuse block, and switches using a multimeter in order to determine proper resistance, voltage and amperes for the circuit.
25. Road tests vehicles such as trucks, automobiles, and small equipment using troubleshooting guide, manual, sight, smell, hearing, and touch in order to determine any malfunction and to ensure that the vehicle is operating in a safe manner.
26. Repairs faulty electrical circuits using multimeter, electrical solderless connector, soldering gun, and hand tools.
27. Removes and replaces engine by disconnecting battery and electrical connectors, draining fluids, disconnecting fuel systems and capping lines, disconnecting or removing accessories, disconnecting transmission, disconnecting motor mounts, exhaust system, linkage, hoses, drive shaft, hood and radiator using chain hoist, engine stand, hand tools, and specialized tools in order to return engine to manufacturer's specification in a safe and timely manner.
28. Tunes up and adjusts engines by replacing or repairing defective diesel and gasoline fuel system components, ignition system components, and emission system components using timing light, tach and dwell meter, vacuum gauge, infrared analyzer, pressure gauge, oscilloscope, diagnostic equipment, volume container, hand vacuum pump, feeler gauge and basic hand tools in order to eliminate possible failure on the road and keep to the vehicle under a preventative maintenance schedule.

29. Removes and replaces faulty internal and external fuel pumps (i.e., leaking fuel, leaking oil, broken diaphragm, not enough volume or pressure), using basic hand tools in order to ensure proper fuel flow to the engine.
30. Reviews operator's written trouble reports, inspector's shop order report, memos, and verbal reports of vehicle mechanical and electrical problems.
31. Reads vehicle work history file or access information from the section's computer terminal by typing in appropriate codes in order to determine the previous work history of the vehicle and other background information.
32. Maintains repair records such as parts used, repairs done, time expended, cost, and problem write ups; using paper, pencil, computer, and forms in order to evaluate past problems and upkeep cost of the vehicle.
33. Reads written reports such as trouble report from operator or inspector, shop order, modification directive, service bulletin and preventative maintenance sheet, and asks questions confirming that the discrepancy or modification exists on the vehicle by using operator, inspector, and mechanic input, and vehicle history folder in order to ensure that a problem or change exists and to prioritize the assignment.
34. Practices shop and field safety procedures such as maintaining hand tools and equipment clear from grease, dirt and other substances, keeps work spaces and floors clean from greases, harmful solvents, and chemicals, ensures shop equipment is in safe operating condition, and uses OSHA regulation, and departmental procedures in order to ensure a safe and secure working environment.
35. Operates service vehicle such as tow truck, preventative maintenance service truck, tire truck, and emergency service truck, in order to perform emergency repairs, replace defective equipment, or to recover disabled vehicles.