

**Competency Task List – Secondary Component**  
**Automobile/Automotive Mechanics Technology/Technician CIP 47.0604**  
**High School Graduation Years 2022, 2023, 2024**

**100 Orientation**

- 101 Explain and follow all lab rules.
- 102 Participate in basic shop management.
- 103 Participate in parts ordering.
- 104 Demonstrate auto shop safety and hygiene.
- 105 Demonstrate the use of service information.
- 106 Demonstrate proper telephone courtesy.
- 107 Identify a vehicle by sight, vehicle identification number (VIN) and ID tag.
- 108 Identify career paths within the automotive technology profession.
- 109 Complete a work order to include customer information, vehicle identifying information, customer concern, related service history, cause, and correction.
- 110 Research applicable vehicle and service information, vehicle service history, service precautions, and technical service bulletins.
- 111 Locate and interpret vehicle and major component identification numbers.
- 112 Follow employee handbook rules(i.e.,cell phone use, taking directions from supervisors,attendance)
- 113 Ensure clean vehicle following service work.
- 114 Develop a resume.
- 115 Develop a cover letter.
- 116 Participate in a mock job interview.
- 117 Complete employee forms.
- 118 Demonstrate a good work ethic.
- 119 Demonstrate proficient use of a computer, laptop or tablet.

**200 Safety**

- 201 Identify and follow all safety rules.
- 202 Demonstrate the ability to secure vehicles on jack stands and hydraulic lifts.
- 203 Demonstrate the ability to set-up/shut-down oxygen acetylene welding equipment.
- 204 Identify chemical safety, Right-To-Know laws and Safety Data Sheets (SDS).
- 205 Identify and use hand tools.
- 206 Identify and use power tools.
- 207 Wear personal protective equipment (PPE).
- 208 Follow guidelines for use of fire protection equipment.
- 209 RESERVED
- 210 Follow EPA and OSHA regulations.
- 211 Identify unsafe practices regarding cell phone use while driving.
- 212 Complete SP/2 safety certifications (i.e., Mechanical Safety, Pollution Prevention, Blood Borne Pathogens..)
- 213 Complete first aid training.
- 214 Identify and follow hybrid or electric vehicle safety rules.

**300 Tools/Fasteners**

- 301 Identify and use fasteners and bolts.
- 302 Drill and use re-threading tools.
- 303 Read and interpret precision automotive measuring tools.
- 304 Identify and use automotive specialty tools.
- 305 Perform common fastener and thread repairs, including remove broken bolt, restore internal and external threads, and repair internal threads with a threaded insert.
- 306 Utilize inductive heating for loosening fasteners.

**400 Certifications**

- 401 Prepare to obtain PA Safety Inspection Certification.
- 402 Prepare to obtain EPA 609 Refrigerant Recovery and Recycling Certification.
- 403 Prepare to obtain Emission Inspection Certification.
- 404 Obtain a Pennsylvania driver's license
- 405 Prepare to obtain an ASE certification.

## **500 Suspension and Steering**

- 501 RESERVED
- 502 Identify and interpret suspension and steering system concerns and determine necessary actions.
- 503 RESERVED
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- 507 Inspect rack and pinion steering gear and mounting bushings and brackets.
- 508 Inspect rack and pinion steering gear inner tie rod ends (sockets) and bellows boots.
- 509 Determine proper power steering fluid type and inspect fluid level and condition.
- 510 Flush, fill, and bleed power steering system.
- 511 Diagnose power steering fluid leakage and determine necessary actions.
- 512 RESERVED
- 513 Remove and reinstall power steering pump.
- 514 Remove and reinstall press fit power steering pump pulley and check pulley and belt alignment.
- 515 Inspect and replace power steering hoses and fittings.
- 516 Inspect and replace pitman arm, relay (centerlink/intermediate) rod, idler arm and mountings, and steering linkage damper.
- 517 Inspect, replace, and adjust tie rod ends (sockets), tie rod sleeves, and clamps.
- 518 RESERVED
- 519 Inspect, and replace upper and lower control arms, bushings, shafts, and rebound bumpers.
- 520 Inspect and replace strut rods and bushings.
- 521 Inspect and replace upper and lower ball joints.
- 522 Inspect and replace steering knuckle assemblies.
- 523 Inspect and replace short and long arm suspension system coil springs and spring insulators.
- 524 Inspect, replace, and adjust suspension system torsion bars and inspect mounts.
- 525 Inspect and replace stabilizer bar bushings, brackets, and links.
- 526 Inspect and replace strut cartridge or assembly, strut coil spring, insulators (silencers), and upper strut bearing mount.
- 527 Inspect, remove, and replace shock absorbers.
- 528 RESERVED
- 529 Lubricate suspension and steering systems.
- 530 Perform pre-alignment inspection and measure vehicle ride height and; perform necessary actions.
- 531 Perform four-wheel alignment.
- 532 RESERVED
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- 535 Check front and rear cradle (subframe) alignment.
- 536 Inspect tire condition, identify tire wear patterns, and check and adjust air pressure.
- 537 Diagnose wheel/tire vibration, shimmy, and noise.
- 538 Rotate tires according to manufacturer's recommendations.
- 539 Measure wheel, tire, axle flange, and hub runout.
- 540 RESERVED
- 541 Dismount, inspect, and remount tire on wheel and balance wheel and tire assembly (static and dynamic).
- 542 Dismount, inspect, and remount tire on wheel equipped with tire pressure monitoring system sensor.
- 543 RESERVED
- 544 Inspect tire and wheel assembly for air loss.
- 545 Repair tire using internal patch.
- 546 Identify indirect and direct tire pressure monitoring systems (TPMS), calibrate system, and verify operation of instrument panel lamps.
- 547 Identify steps required to remove and replace sensors in a tire pressure monitoring system (TPMS) including relearn procedure.
- 548 Identify the need for reset procedures post wheel alignment.

## **600 Brakes**

- 601 RESERVED
- 602 Identify and interpret brake system concerns.
- 603 RESERVED
- 604 RESERVED
- 605 Measure brake pedal height, travel, and free play as applicable.

- 606 Check master cylinder for internal/external leaks and proper operation.
- 607 Remove, bench bleed, and reinstall master cylinder.
- 608 Inspect brake lines, flexible hoses, and fittings for leaks, dents, kinks, rust, cracks, bulging or wear; tighten loose fittings and supports; and determine necessary actions.
- 609 Replace brake lines, hoses, fittings, and supports.
- 610 Fabricate brake lines using proper material and flaring procedures (double flare and ISO types).
- 611 Select, handle, store, and test brake fluid for contamination and fill to proper level.
- 612 Inspect, test, and replace components of brake warning light system.
- 613 Bleed and flush brake system.
- 614 Diagnose poor stopping, noise, vibration, pulling, grabbing, dragging, or pedal pulsation concerns.
- 615 Remove, clean, inspect, and measure brake drums.
- 616 Refinish brake drum and measure final drum diameter.
- 617 Remove, clean, and inspect brake shoes, springs, pins, clips, levers, adjusters/self-adjusters, other related brake hardware, and backing support plates then lubricate and reassemble.
- 618 Inspect and install wheel cylinders.
- 619 Pre-adjust brake shoes and parking brake, install brake drums or drum/hub assemblies, and wheel bearings.
- 620 Install wheel, torque lug nuts, and make final checks and adjustments.
- 621 RESERVED
- 622 Remove caliper assembly, inspect for leaks, and damage to caliper housing.
- 623 Clean and inspect caliper mounting and slides/pins for operation, wear, and damage.
- 624 Reassemble, lubricate, and reinstall caliper, pads, and related hardware; seat pads; and inspect for leaks.
- 625 Clean, inspect, and measure rotor thickness, lateral runout, and thickness variation.
- 626 Remove and reinstall rotor.
- 627 Refinish rotor on vehicle and measure final rotor thickness.
- 628 Refinish rotor off vehicle and measure final rotor thickness.
- 629 RESERVED
- 630 Check brake pad wear indicator system operation.
- 631 RESERVED
- 632 Check vacuum supply to vacuum-type power booster and check power assist operation.
- 633 Remove, clean, inspect, repack, and install wheel bearings, RACES and replace seals; install hub; and adjust bearings.
- 634 Check parking brake cables and components including integral parking brake system for wear, binding, and corrosion then clean, lubricate, adjust, or replace as needed.
- 635 Check parking brake and indicator light system operation.
- 636 Check operation of brake stop light system.
- 637 RESERVED
- 638 Inspect and replace wheel studs.
- 639 Remove and reinstall sealed wheel bearing assembly.
- 640 Identify and inspect electronic brake control system components.
- 641 Diagnose electronic brake control system, electronic control(s), and components by retrieving diagnostic trouble codes and using recommended test equipment.
- 642 RESERVED
- 643 Bleed the electronic brake control system hydraulic circuits.
- 644 Identify traction control/vehicle stability control system components.
- 645 Describe the operation of a regenerative braking system.

#### **700 Electrical/Electronic Systems**

- 701 RESERVED
- 702 Identify and interpret electrical/electronic system concerns.
- 703 RESERVED
- 704 RESERVED
- 705 Use wiring diagrams during diagnosis of electrical circuit problems.
- 706 Check electrical circuits with a test light.
- 707 Check electrical circuits using fused jumper wires.
- 708 Locate shorts, grounds, opens, and resistance problems in electrical/electronic circuits.
- 709 Measure and diagnose the cause(s) of excessive parasitic draw.
- 710 Inspect and test fusible links, circuit breakers, and fuses.
- 711 Inspect and test switches, connectors, relays, solenoid solid state devices, and wires of electrical/electronic circuits.
- 712 Remove and replace terminal end from connector, replace connectors, and terminal ends.
- 713 Repair wiring harness and solder repair.
- 714 RESERVED

- 715 Identify location of electric hybrid vehicle high voltage circuit disconnect (service plug) location and safety procedures.
- 716 Perform battery state-of-charge test.
- 717 Perform battery capacity test and confirm proper battery capacity for vehicle application.
- 718 Maintain and restore electronic memory functions.
- 719 Inspect, clean, fill, and replace battery, battery cables, connectors, clamps, and hold-downs.
- 720 Perform battery charge.
- 721 Start a vehicle using jumper cables or an auxiliary power supply.
- 722 Identify electronic modules, security systems, radios, and other accessories that require reinitialization or code entry following battery disconnect.
- 723 Perform starter current draw tests.
- 724 Perform starter circuit voltage drop tests.
- 725 Inspect and test starter relays and solenoids.
- 726 Remove and install starter in a vehicle.
- 727 Inspect and test switches, connectors, and wires of starter control circuits and perform necessary action.
- 728 Differentiate between electrical and engine mechanical problems that cause a slow-crank or no-crank condition.
- 729 Perform charging system output test and determine necessary action.
- 730 Diagnose charging system for the cause of undercharge, no-charge, and overcharge conditions.
- 731 RESERVED
- 732 Remove, inspect, and install generator (alternator).
- 733 RESERVED
- 734 RESERVED
- 735 Inspect, replace, and aim headlights and bulbs.
- 736 RESERVED
- 737 RESERVED
- 738 RESERVED
- 739 Diagnose the cause of incorrect operation of warning devices and other driver information systems.
- 740 Diagnose incorrect horn operation.
- 741 Diagnose incorrect wiper operation and diagnose wiper speed control and park problems.
- 742 Diagnose incorrect washer operation.
- 743 Diagnose incorrect operation of motor-driven accessory circuits.
- 745 RESERVED
- 746 Remove and reinstall door panel.
- 747 Use a digital multimeter (DMM).
- 748 Demonstrate knowledge of an automatic idle start/stop system.

#### **800 Engine Performance**

- 801 RESERVED
- 802 Identify and interpret engine performance concern.
- 803 RESERVED
- 804 RESERVED
- 805 RESERVED
- 806 Diagnose abnormal engine noise or vibration concerns.
- 807 Diagnose abnormal exhaust color, odor, and sound.
- 808 Perform engine absolute (vacuum/boost) manifold pressure tests.
- 809 Perform cylinder power balance test.
- 810 Perform cylinder cranking and running compression tests.
- 811 Perform cylinder leakage test.
- 812 Diagnose engine mechanical, electrical, electronic, fuel, and ignition concerns.
- 813 Verify engine operating temperature.
- 814 RESERVED
- 815 RESERVED
- 816 Retrieve and record diagnostic trouble codes, OBD monitor status, and freeze frame data and clear codes when applicable.
- 817 Diagnose the causes of emissions or drivability concerns with stored or active diagnostic trouble codes and obtain, graph, and interpret scan tool data.
- 818 Access and use service information to perform step-by-step diagnosis.
- 819 Perform active tests of actuators using a scan tool.
- 820 Describe the importance of running all OBDII monitors for repair verification.
- 821 RESERVED

- 822 Inspect and test ignition primary and secondary circuit wiring and solid-state components and test ignition coil(s).
- 823 Inspect and test crankshaft and camshaft position sensor(s).
- 824 Inspect, test, and replace ignition control module and powertrain/engine control module and reprogram as necessary.
- 825 Diagnose hot or cold no-starting, hard starting, poor drivability, incorrect idle speed, poor idle, flooding, hesitation, surging, engine misfire, power loss, stalling, poor mileage, dieseling, and emissions problems.
- 826 Inspect and test fuel pumps and pump control systems for pressure, regulation, and volume.
- 827 Replace fuel filters.
- 828 Inspect throttle body, air induction system, intake manifold, and gaskets for vacuum leaks and unmetered air.
- 829 Inspect and test fuel injectors.
- 830 Verify idle control operation.
- 831 Inspect the integrity of the exhaust manifold, exhaust pipes, muffler(s), catalytic converter(s), resonator(s), tail pipe(s), and heat shield(s).
- 832 RESERVED
- 833 Inspect, test, and service positive crankcase ventilation (PCV) filter/breather cap, valve, tubes, orifices, and hoses.
- 834 RESERVED
- 835 Inspect, test, service, and replace components of the EGR system, including electrical/electronic sensors, controls, and wiring, EGR tubing, exhaust passages, vacuum/pressure controls, filters, and hoses.
- 836 RESERVED
- 837 Inspect and test mechanical components of secondary air injection systems.
- 838 Inspect and test electrical/electronically operated components and circuits of air injection systems.
- 839 Inspect and test catalytic converter efficiency.
- 840 RESERVED
- 841 Inspect and test components and hoses of the evaporative emissions control system.
- 842 Interpret diagnostic trouble codes (DTCs) and scan tool data related to the emissions control systems.
- 843 RESERVED
- 844 RESERVED
- 845 RESERVED
- 846 RESERVED
- 847 Preview GDI (Gas Directed Injection)**

#### **900 Engine Repair**

- 901 RESERVED
- 902 Verify operation of the instrument panel engine warning indicators.
- 903 Install engine covers using gaskets, seals, and sealers.
- 904 RESERVED
- 905 Adjust valves (mechanical or hydraulic lifters).
- 906 Inspect, replace, and adjust drive belts, tensioners, and pulleys and check pulley and belt alignment.
- 907 Inspect and test coolant, drain and recover coolant, and flush and refill cooling system with recommended coolant.
- 908 Perform cooling system pressure tests; check coolant condition; inspect and test radiator, pressure cap, coolant recovery tank, and hoses.
- 909 Identify components and inspect engine assembly for fuel, oil, coolant, and other leaks.
- 910 Remove and replace timing belt and verify correct camshaft timing.
- 911 Remove and replace thermostat and gasket/seal.
- 912 Inspect and test mechanical/electrical fans, fan clutch, fan shroud/ducting, air dams, and fan control devices.
- 913 Perform engine oil and filter change.
  - Bleed cooling system.

#### **1000 Automatic Transmission and Transaxle**

- 1001 RESERVED
- 1002 Check fluid level and fluid condition in a transmission or a transaxle equipped with a dip-stick.
- 1003 Check fluid level and fluid condition in a transmission or a transaxle not equipped with a dip-stick.
- 1004 Drain, replace, and exchange fluid and filter(s).
- 1005 Identify drivetrain components and configuration.
- 1006 Inspect, adjust, and replace external manual valve shift linkage, transmission range sensor/switch, and park/neutral switch.
- 1007 Inspect for leakage at external seals, gaskets, and bushings.
- 1008 Inspect, replace, and align powertrain mounts.

#### **1100 Manual Drive Train and Axles**

- 1101 RESERVED
- 1102 Drain and refill manual transmission/transaxle and final drive unit.

- 1103 Check and adjust clutch master cylinder fluid level.
- 1104 Check for system leaks.
- 1105 Check and adjust differential housing fluid level.
- 1106 Drain and refill differential housing.
- 1107 Identify, inspect, and replace manual drivetrain and axle components and configuration.

**1200 Heating and Air Conditioning**

1201 RESERVED

1202 RESERVED

1203 Inspect air conditioning (A/C) condenser for airflow restrictions.

1204 Inspect engine cooling and heating systems hoses.

1205 Inspect A/C heating ducts, doors, hoses, cabin filters, and outlets.

1206 Check for A/C leaks.

Identify A/C refrigerants.

1300 **Additional Areas Recommended by Local Industry Reps**

1301 **Perform MIG Welding**

1302 **Perform Work on Drive Train /Section 1000 and 1100 have been added since last DACUM**

1303 **Perform Work on Differentials/ Section 1000 and 1100 have been added since last DACUM**