

## Maintenance and Light Repair Section C: Competency List

STUDENT NAME: \_\_\_\_\_ DATE: \_\_\_\_\_

INSTRUCTOR: \_\_\_\_\_

### Required Supplemental Tasks

<b>Task</b>	<b>Competency</b>
Identify general shop safety rules and procedures.	
Utilize safe procedures for handling of tools and equipment.	
Identify and use proper placement of floor jacks and jack stands.	
Identify and use proper procedures for safe lift operation.	
Utilize proper ventilation procedures for working within the lab/shop area.	
Identify marked safety areas.	

Identify the location and the types of fire extinguishers and other fire safety equipment; demonstrate knowledge of the procedures for using fire extinguishers and other fire safety equipment.	
Identify the location and use of eye wash stations.	
Identify the location of the posted evacuation routes.	
Comply with the required use of safety glasses, ear protection, gloves, and shoes during lab/shop activities.	
Identify and wear appropriate clothing for lab/shop activities.	
Secure hair and jewelry for lab/shop activities.	
Demonstrate awareness of the safety aspects of supplemental restraint systems (SRS), electronic brake control systems, and hybrid vehicle high voltage circuits.	
Demonstrate awareness of the safety aspects of high voltage circuits (such as high intensity discharge (HID) lamps, ignition systems, injection systems, etc.).	
Locate and demonstrate knowledge of material safety data sheets (MSDS).	
Identify tools and their usage in automotive applications.	
Identify standard and metric designation.	
Demonstrate safe handling and use of appropriate tools.	
Demonstrate proper cleaning, storage, and maintenance of tools and equipment.	

Demonstrate proper use of precision measuring tools (i.e. micrometer, dial-indicator, dial-caliper).	
Identify information needed and the service requested on a repair order.	
Identify purpose and demonstrate proper use of fender covers, mats.	
Demonstrate use of the three C's (concern, cause, and correction).	
Review vehicle service history.	
Complete work order to include customer information, vehicle identifying information, customer concern, related service history, cause, and correction.	
Ensure vehicle is prepared to return to customer per school/company policy (floor mats, steering wheel cover, etc.).	

TASK	PRIORITY	COMPETENCY
<b><u>Drum Brakes</u></b>		
Remove, clean, inspect, and measure brake drum diameter; determine necessary action.	P-1	
Refinish brake drum and measure final drum diameter; compare with specifications.	P-1	
Remove, clean, and inspect brake shoes, springs, pins, clips, levers, adjusters/self-adjusters, other related brake hardware, and backing support plates; lubricate and reassemble.	P-1	

Inspect wheel cylinders for leaks and proper operation; remove and replace as needed.	P-2	
Pre-adjust brake shoes and parking brake; install brake drums or drum/hub assemblies and	P-2	
wheel bearings; make final checks and adjustments.		
Install wheel and torque lug nuts.	P-1	
<b><u>Disc Brakes</u></b>		
Remove and clean caliper assembly; inspect for leaks and damage/wear to caliper housing; determine necessary action.	P-1	
Clean and inspect caliper mounting and slides/pins for proper operation, wear, and damage;	P-1	
determine necessary action.		
Remove, inspect, and replace pads and retaining hardware; determine necessary action.	P-1	
Lubricate and reinstall caliper, pads, and related hardware; seat pads and	P-1	
inspect for leaks.		
Clean and inspect rotor, measure rotor thickness, thickness variation, and lateral runout; determine necessary action.	P-1	
Remove and reinstall rotor.	P-1	
Refinish rotor on vehicle; measure final rotor thickness and compare with specifications.	P-1	
Refinish rotor off vehicle; measure final rotor thickness and compare with specifications.	P-1	
Retract and re-adjust caliper piston on an integral parking brake system.	P-3	

Check brake pad wear indicator; determine necessary action.	P-2	
Describe importance of operating vehicle to burnish/break-in replacement brake pads according to manufacturer's recommendations.	P-1	
<b><u>Power-Assist Units</u></b>		
Check brake pedal travel with, and without, engine running to verify proper power booster operation.	P-2	
Check vacuum supply (manifold or auxiliary pump) to vacuum-type power booster.	P-1	
<b><u>Miscellaneous (Wheel Bearings, Parking Brakes, Electrical, Etc.)</u></b>		
Remove, clean, inspect, repack, and install wheel bearings; replace seals; install hub and adjust bearings.	P-1	
Check parking brake cables and components for wear, binding, and corrosion; clean, lubricate, adjust or replace as needed.	P-2	
Check parking brake operation and parking brake indicator light system operation; determine necessary action.	P-1	
Check operation of brake stop light system.	P-1	
Replace wheel bearing and race.	P-2	
<b><u>Electronic Brakes, and Traction and Stability Control Systems</u></b>		
Identify traction control/vehicle stability control system components.	P-3	

Describe the operation of a regenerative braking system.	P-3	
<b>ELECTRICAL/ELECTRONIC SYSTEMS</b>		
<b><u>General</u></b>		
Research applicable vehicle and service information, vehicle service history, service precautions, and technical service bulletins.	P-1	
Demonstrate knowledge of electrical/electronic series, parallel, and series-parallel circuits	P-1	
using principles of electricity (Ohm's Law).		
Use wiring diagrams to trace electrical/electronic circuits.	P-1	
Demonstrate proper use of a digital multimeter (DMM) when measuring source voltage, voltage drop (including grounds), current flow, and resistance.	P-1	
Demonstrate knowledge of the causes and effects from shorts, grounds, opens, and resistance problems in electrical/electronic circuits.	P-2	
Check operation of electrical circuits with a test light.	P-2	
Check operation of electrical circuits with fused jumper wires.	P-2	
Measure key-off battery drain (parasitic draw).	P-1	
Inspect and test fusible links, circuit breakers, and fuses; determine necessary action.	P-1	
Perform solder repair of electrical wiring.	P-1	

Replace electrical connectors and terminal ends.	P-1	
<b><u>Battery Service</u></b>		
Perform battery state-of-charge test; determine necessary action.	P-1	
Confirm proper battery capacity for vehicle application; perform battery capacity test; determine necessary action.	P-1	
Maintain or restore electronic memory functions.	P-1	
Inspect and clean battery; fill battery cells; check battery cables, connectors, clamps, and hold-downs.	P-1	
Perform slow/fast battery charge according to manufacturer's recommendations.	P-1	
Jump-start vehicle using jumper cables and a booster battery or an auxiliary power supply.	P-1	
Identify high-voltage circuits of electric or hybrid electric vehicle and related safety precautions.	P-3	
Identify electronic modules, security systems, radios, and other accessories that require reinitialization or code entry after reconnecting vehicle battery.	P-1	
Identify hybrid vehicle auxiliary (12v) battery service, repair, and test procedures.	P-3	