

NAME \_\_\_\_\_

SEMESTER \_\_\_\_\_ YEAR \_\_\_\_\_

## CERRITOS COLLEGE AUTOMOTIVE TECHNOLOGY

### BRAKES TASK LIST

	<b>V. BRAKES A. GENERAL</b>	<b>LIVE WORK</b>	<b>DATE COMPLETED</b>	<b>INSTRUCTOR</b>
1.	Research vehicle service information such as fluid type, system design (hydraulic, electronic, etc.), vehicle service history, service precautions, technical service bulletins, and recalls including xEVs and vehicles equipped with advanced driver assistance systems (ADAS). P-1			
2.	Identify brake system components and configurations. P-1			
3.	Retrieve and record on-board diagnostics, DTCs, monitor status, and freeze frame data; clear codes and data when directed. P-1			
4.	Place a vehicle in service mode as needed before servicing the brake system. P-1			
5.	Perform calibration/recalibration, initialization, or relearn procedures as required. P-1			
6.	Describe procedure for performing a road test to check brake system operation, including an anti-lock brake system (ABS). P-1			
7.	Install wheel and torque lug nuts/wheel fasteners. P-1			
8.	Identify and interpret brake system concerns; determine needed action. P-1			
	<b>V. BRAKES B. HYDRAULIC SYSTEM</b>	<b>LIVE WORK</b>	<b>DATE COMPLETED</b>	<b>INSTRUCTOR</b>
1.	Diagnose pressure concerns in the brake system using hydraulic principles (Pascal's Law). P-1			
2.	Measure brake pedal height, travel, and free play (as applicable); determine necessary action. P-1			
3.	Check primary cylinder for internal/external leaks and proper operation; determine needed action. P-1			
4.	Inspect brake lines, flexible hoses, and fittings for leaks, dents, kinks, rust, cracks, bulging, wear, and loose fittings/supports; determine needed action. P-1			

5.	Select, handle, store, and fill brake fluids to proper level; use proper fluid type per manufacturer specification. P-1			
6.	Bleed and/or replace fluid in the brake system. P-1			
7.	Test brake fluid for contamination. P-2			
8.	Remove, bench bleed, and reinstall primary cylinder. P-1			
9.	Diagnose poor stopping, pulling, or dragging concerns caused by malfunctions in the hydraulic system; determine needed action. P-1			
10.	Replace brake lines, hoses, fittings, and supports. P-2			
11.	Fabricate brake lines using proper material and flaring procedures. P-2			
12.	Identify, inspect, test, and/or replace components of brake warning light system. P-2			
	<b>V. BRAKES</b> <b>C. DRUM BRAKES</b>	<b>LIVE WORK</b>	<b>DATE COMPLETED</b>	<b>INSTRUCTOR</b>
1.	Remove, clean, and inspect brake drum; measure brake drum diameter; determine serviceability. P-2			
2.	Refinish brake drum and measure final drum diameter; compare with specification. P-2			
3.	Remove, clean, inspect, and/or replace brake shoes, springs, pins, clips, levers, adjusters/self-adjusters, other related brake hardware, and backing support plates; lubricate and reassemble. P-2			
4.	Inspect wheel cylinders for leaks and proper operation; remove and replace as needed. P-2			
5.	Pre-adjust brake shoes and parking brake; install brake drums or drum/hub assemblies and wheel bearings; perform final checks and adjustments. P-2			
6.	Diagnose poor stopping, noise, vibration, pulling, grabbing, dragging, or pedal pulsation concerns; determine needed action. P-2			
	<b>V. BRAKES</b> <b>D. DISK BRAKES</b>	<b>LIVE WORK</b>	<b>DATE COMPLETED</b>	<b>INSTRUCTOR</b>
1.	Remove and clean caliper assembly; inspect for leaks, damage, and wear; determine needed action. P-1			

2.	Inspect caliper mounting and slides/pins for proper operation, wear, and damage; determine needed action. P-1			
3.	Remove, inspect, and/or replace brake pads and retaining hardware; determine needed action. P-1			
4.	Lubricate and reinstall caliper, brake pads, and related hardware; seat brake pads against rotor; inspect for leaks. P-1			
5.	Clean and inspect rotor and mounting surface; measure rotor thickness, thickness variation, and lateral runout; determine needed action. P-1			
6.	Remove and reinstall/replace rotor. P-1			
7.	Refinish rotor on vehicle; measure final rotor thickness and compare with specification. P-1			
8.	Refinish rotor off vehicle; measure final rotor thickness and compare with specification. P-2			
9.	Retract and re-adjust caliper piston on an integrated parking brake system. P-1			
10.	Describe importance of operating vehicle to burnish/break-in replacement brake pads according to manufacturer's recommendation. P-1			
11.	Diagnose poor stopping, noise, vibration, pulling, grabbing, dragging, or pulsation concerns; determine needed action. P-1			
	<b>V. BRAKES</b> <b>E. POWER-ASSIST UNITS</b>	<b>LIVE WORK</b>	<b>DATE COMPLETED</b>	<b>INSTRUCTOR</b>
1.	Check brake pedal travel with and without engine running to verify proper power booster operation. P-2			
2.	Identify components of the brake power assist system (vacuum/hydraulic/electric). P-2			
3.	Inspect vacuum-type power booster unit for leaks; inspect the check-valve for proper operation; check vacuum supply (manifold or auxiliary pump) to vacuum-type power booster; determine needed action. P-2			
4.	Inspect and test hydraulically assisted power brake system for leaks and proper operation; determine needed action. P-2			
5.	Inspect electric power booster unit; determine needed action. P-3			
	<b>V. BRAKES</b> <b>F. RELATED SYSTEMS (i.e., WHEEL BEARINGS, PARKING BRAKES, ELECTRICAL)</b>	<b>LIVE WORK</b>	<b>DATE COMPLETED</b>	<b>INSTRUCTOR</b>

1.	Remove, clean, inspect, repack/replace, and install wheel bearings; remove and install bearing races; replace seals; install hub and adjust bearings. P-3			
2.	Check parking brake system components for wear, binding, and corrosion; clean, lubricate, adjust and/or replace as needed. P-2			
3.	Check parking brake operation (including electric parking brakes); check parking brake indicator light system operation; determine needed action. P-2			
4.	Check operation of brake stop light system. P-1			
5.	Inspect and replace wheel studs/wheel fasteners. P-2			
6.	Remove, reinstall, and/or replace sealed wheel bearing assembly. P-1			
7.	Diagnose wheel bearing noises, wheel shimmy, and vibration concerns; determine needed action. P-1			
	<b>V. BRAKES G. ELECTRONIC BRAKE CONTROL SYSTEMS: ANTILOCK BRAKE (ABS), TRACTION CONTROL (TCS), AND ELECTRONIC STABILITY CONTROL (ESC) SYSTEMS</b>	<b>LIVE WORK</b>	<b>DATE COMPLETED</b>	<b>INSTRUCTOR</b>
1.	Identify and inspect electronic brake control system components and describe function (ABS, TCS, ESC); determine needed action. P-1			
2.	Describe the operation of a regenerative braking system. P-2			
3.	Bleed the electronic brake control system hydraulic circuits. P-1			
4.	Diagnose poor stopping, wheel lock-up, abnormal pedal feel, unwanted application, and noise concerns associated with the electronic brake control system; determine needed action. P-2			
5.	Diagnose electronic brake control system electronic control(s) and components using recommended test equipment; determine needed action. P-2			
6.	Depressurize high-pressure components of an electronic brake control system. P-2			
7.	Test, diagnose, and service electronic brake control system speed sensors (digital and analog), toothed ring (tone wheel), and circuits using a graphing multimeter (GMM)/digital storage oscilloscope (DSO) (includes output signal, resistance, shorts to voltage/ground, and frequency data). P-2			
8.	Diagnose electronic brake control system braking concerns caused by vehicle modifications (tire size, curb height, final drive ratio, etc.) P-2			