

**NATEF AUTOMOTIVE TASK LIST**  
**AUT 112 – BRAKING SYSTEMS**

TERM: \_\_\_\_\_

SID: \_\_\_\_\_

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

NAME: \_\_\_\_\_

**For every task in Braking Systems, the following safety requirement must be strictly enforced:  
Comply with personal and environmental safety practices associated with clothing; eye protection; hand tools; power equipment; proper ventilation; and the handling, storage, and disposal of chemicals/materials in accordance with local, state, and federal safety and environmental regulations.**

<b><u>Task Code</u></b>	<b><u>Task</u></b>	<b><u>Priority</u></b>
<b><u>A. General Brake Systems Diagnosis</u></b>		
5A.1	Identify and interpret brake system concern; determine necessary action.	P-1
5.A.2	Research applicable vehicle and service information, vehicle service history, service precautions, and technical service bulletins.	P-1
5.A.3	Describe procedure for performing a road test to check brake system operation; including an anti-lock brake system (ABS).	P-1
5.A.4	Install wheel and torque lug nuts.	P-1
<b><u>B. Hydraulic System Diagnosis and Repair</u></b>		
5.B.1	Diagnose pressure concerns in the brake system using hydraulic principles (Pascal's Law).	P-1
5.B.2	Measure brake pedal height, travel and free play (as applicable); determine necessary action.	P-1
5.B.3	Check master cylinder for internal/external leaks and proper operation; determine necessary action.	P-1
5.B.4	Remove, bench bleed, and replace master cylinder	P-1
5.B.5	Diagnose poor stopping, pulling, or dragging concerns caused by malfunctions in the hydraulic system; determine necessary action..	P-3
5.B.6	Inspect brake lines, flexible hoses, and fittings for leaks, dents, kinks, rust, cracks, bulging, or wear; tighten loose fittings and supports; determine necessary action.	P-1
5.B.7	Replace brake lines, hoses, fittings, and supports.	P-2
5.B.8	Fabricate brake lines using proper material and flaring procedures (double flare and ISO types).	P-2
5.B.9	Select, handle, store and install brake fluids to proper level	P-1
5.B.10	Inspect, test, and replace components of brake warning light system.	P-3
5.B.11	Identify components of brake warning light system.	P-2
5.B.12	Bleed and/or flush brake system.	P-1

5.B.13 Test brake fluid for contamination. P-1

**C. Drum Brake Diagnosis and Repair**

5.C.1 Diagnose poor stopping, noise, vibration, pulling, grabbing, dragging or pedal pulsation concerns: determine necessary action. P-1

5.C.2 Remove, clean (using proper safety procedures), inspect, and measure brake drums; determine necessary action. P-1

5.C.3 Refinish brake drum and measure final drum diameter; compare with specifications. P-1

5.C.4 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

5.C.5 Inspect wheel cylinders for leaks and proper operation; remove and replace as needed. P-2

5.C.6 Pre-adjust brake shoes and parking brake; install brake drums or drum/hub assemblies and wheel bearings; perform final checks and adjustments. P-2

**D. Disc Brake Diagnosis and Repair**

5.D.1 Diagnose poor stopping, noise, vibration, pulling, grabbing, dragging, or pedal pulsation concerns: determine necessary action.. P-1

5.D.2 Remove and clean caliper assembly; inspect for leaks and damage/wear to caliper housing; determine necessary action. P-1

5.D.3 Clean and inspect caliper mounting and slides/pins for proper operation, wear, and damage; determine necessary action. P-1

5.D.4 Remove, inspect, and replace pads and retaining hardware; determine necessary action. P-1

5.D.5 Lubricate and reinstall caliper, pads, and related hardware; seat pads and inspect for leaks. P-1

5.D.6 Clean and inspect rotor; measure rotor thickness, thickness variation, and lateral runout; determine necessary action. P-1

5.D.7 Remove and reinstall rotor. P-1

5.D.8 Refinish rotor on vehicle; measure final rotor thickness and compare with specifications. P-1

5.D.9 Refinish rotor off vehicle; measure final rotor thickness and compare with specifications. P-1

5.D.10 Retract and re-adjust caliper piston on an integrated parking brake system. P-3

5.D.11 Check brake pad wear indicator; determine necessary action. P-2

5.D.12 Describe importance of operating vehicle to burnish/break-in replacement brake pads according to manufacturer's recommendations. P-1

**E. Power Assist Units Diagnosis and Repair**

5.E.1 Check brake pedal travel with, and without, engine running to verify proper power booster operation. P-2

5.E.2	Check vacuum supply (manifold or auxiliary pump) to vacuum-type power booster.	P-1
5.E.3	Inspect the vacuum-type power booster unit for leaks; inspect the check valve for proper operation; determine necessary action.	P-1
5.E.4	Inspect and test hydraulically assisted power brake system for leaks and proper operation; determine necessary action.	P-3
5.E.5	Measure and adjust master cylinder pushrod length.	P-3

#### **F .Miscellaneous (Wheel Bearings, Parking Brakes, Electrical, etc.) Diagnosis and Repair**

5.F.1	Diagnose wheel bearing noises, wheel shimmy, and vibration concerns; determine necessary action.	P-1
5.F.2	Remove, clean, inspect, repack and install wheel bearings and replace seals; install hub and adjust wheel bearings.	P1
5.F.3	Check parking brake cables and components for wear, rusting, binding and corrosion; clean, lubricate, adjust or replace as needed.	P-2
5.F.4	Check parking brake operation and parking brake indicator light system operation; determine necessary action.	P-1
5.F.5	Check operation of brake stop light system.	P-1
5.F.6	Replace wheel bearing and race.	P-1
5.F.7	Remove and reinstall sealed wheel bearing assembly.	P-2
5.F.8	Inspect and replace wheel studs.	P-1

#### **G. Electronic Brake, Traction and Stability Control Systems Diagnosis and Repair**

5.G.1	Identify and inspect antilock brake system (ABS) components; determine necessary action.	P-1
5.G.2	Identify traction control/vehicle stability control system components.	P-3
5.G.3	Describe the operation of a regenerative braking system.	P-3
5.G.4	Diagnosis poor stopping, wheel lock-up, abnormal pedal feel, unwanted application and noise concerns caused by the electronic brake control system; determine necessary action.	P-2
5.G.5	Diagnose electronic brake control system electronic control(s) and components by retrieving diagnostic trouble codes and/or using recommended test equipment; determine necessary action.	P-2
5.G.6	Depressurize high-pressure components of an electronic brake control system.	P-3
5.G.7	Bleed the electronic brake control system hydraulic circuits.	P-1
5.G.8	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-3

5.G.9

Diagnose electronic brake control system braking concerns caused by vehicle modifications (tire size, curb height, final drive ratio, etc.).

P-3