

## AER 0599 - Automotive Brake Systems

2013 NATEF JOB TASKS COMPLETION REQUIREMENT: **P1 - 95% P2 - 80% P3 - 50%**

Student Name: \_\_\_\_\_

### DETAILED COURSE CONTENT

#### AUTOMOTIVE BRAKE TECHNICIAN

#### DEMONSTRATE PROFICIENCY IN GENERAL: BRAKE SYSTEM DIAGNOSIS –

The student will be able to:

		P1	P2	P3	Level	Date	Textbook Ch CDX Task
V-A-1	Identify and interpret brake system concerns; determine necessary action.						32: C229
V-A-2	Research applicable vehicle and service information, vehicle service history, service precautions, and technical service bulletins.						30: C230
V-A-3	Describe procedure for performing a road test to check brake system operation; including an anti-lock brake system (ABS).						32: C944
V-A-4	Install wheel and torque lug nuts.						32, 33: C251

#### DEMONSTRATE PROFICIENCY IN HYDRAULIC SYSTEM DIAGNOSIS AND REPAIR -

The student will be able to:

V-B-1	Diagnose pressure concerns in the brake system using hydraulic principles (Pascal's Law).						31: C894
V-B-2	Measure brake pedal height, travel, and free play (as applicable); determine necessary action.						31: C622
V-B-3	Check master cylinder for internal/external leaks and proper operation; determine necessary action.						31: C946
V-B-4	Remove, bench bleed, and reinstall master cylinder.						31: C235
V-B-5	Diagnose poor stopping, pulling or dragging concerns caused by malfunctions in the hydraulic system; determine necessary action.						32: C236
V-B-6	Inspect brake lines, flexible hoses, and fittings for leaks, dents, kinks, rust, cracks, bulging, and wear; check for loose fittings and supports; determine necessary action.						31: C237
V-B-7	Replace brake lines, hoses, fittings, and supports.						31: C623
V-B-8	Fabricate brake lines using proper material and flaring procedures (double flare and ISO types);						31: C624
V-B-9	Select, handle, store, and fill brake fluids to proper level						31: C239

## AER 0599 - Automotive Brake Systems

### DEMONSTRATE PROFICIENCY IN HYDRAULIC SYSTEM DIAGNOSIS AND REPAIR -

continued

		P1	P2	P3	Level	Date	Textbook Ch CDX Task
V-B-10	Inspect, test, and/or replace components of brake warning light system.						31: C242
V-B-11	Identify components of brake warning light system.						31: C947
V-B-12	Bleed and/or flush brake system.						31: C705
V-B-13	Test brake fluid for contamination.						31: C625

### DEMONSTRATE PROFICIENCY IN DRUM BRAKE DIAGNOSIS AND REPAIR –

The student will be able to:

V-C-1	Diagnose poor stopping, noise, vibration, pulling, grabbing, dragging, or pulsation concerns; determine necessary action.						33: C706
V-C-2	Remove, clean, inspect, and measure brake drum diameter; determine necessary action.						33: C800
V-C-3	Refinish brake drum; measure final drum diameter; compare with specifications.						33: C626
V-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.						33: C248
V-C-5	Inspect wheel cylinders for leaks and proper operation; remove and replace as needed.						33: C707
V-C-6	Pre-adjust brake shoes and parking brake; install brake drums or drum/hub assemblies and wheel bearings; perform final checks and adjustments.						33: C801

### DEMONSTRATE PROFICIENCY IN DISC BRAKE DIAGNOSIS AND REPAIR –

The student will be able to:

V-D-1	Diagnose poor stopping, noise, vibration, pulling, grabbing, dragging, or pulsation concerns; determine necessary action.						32: C708
V-D-2	Remove and clean caliper assembly; inspect for leaks and damage/wear to caliper housing; determine necessary action.						32: C802

## AER 0599 - Automotive Brake Systems

### DEMONSTRATE PROFICIENCY IN DISC BRAKE DIAGNOSIS AND REPAIR – continued

		P1	P2	P3	Level	Date	Textbook Ch CDX Task
V-D-3	Clean and inspect caliper mounting and slides/pins for proper operation, wear, and damage; determine necessary action.						32: C803
V-D-4	Remove, inspect and replace pads and retaining hardware; determine necessary action.						32: C627
V-D-5	Lubricate and reinstall caliper, pads, and related hardware; seat pads, and inspect for leaks.						32: C805
V-D-6	Clean and inspect rotor; measure rotor thickness, thickness variation, and lateral runout; determine necessary action.						32: C628
V-D-7	Remove and reinstall rotor.						32: C806
V-D-8	Refinish rotor on vehicle: measure final rotor thickness and compare with specifications.						32: C629
V-D-9	Refinish rotor off vehicle: measure final rotor thickness and compare with specifications.						32: C630
V-D-10	Retract and re-adjust caliper piston on an integrated parking brake system.						32: C631
V-D-11	Check brake pad wear indicator; determine necessary action.						32: C632
V-D-12	Describe importance of operating vehicle to burnish/break-in replacement brake pads according to manufacturer's recommendations.						32: C948

### DEMONSTRATE PROFICIENCY IN POWER ASSIST UNITS DIAGNOSIS AND REPAIR –

The student will be able to:

V-E-1	Check brake pedal travel with, and without, engine running to verify proper power booster operation.						31: C807
V-E-2	Check vacuum supply (manifold or auxiliary pump) to vacuum-type power booster.						31: C808
V-E-3	Inspect vacuum-type power booster unit for leaks; inspect the check valve for proper operation; determine necessary action.						31: C809
V-E-4	Inspect and test hydraulically-assisted power brake system for leaks and proper operation; determine necessary action.						31: C581
V-E-5	Measure and adjust master cylinder pushrod length.						31: C556

## AER 0599 - Automotive Brake Systems

### DEMONSTRATE PROFICIENCY IN MISCELLANEOUS (WHEEL BEARINGS, PARKING BRAKES, ELECTRICAL, ETC.) DIAGNOSIS AND REPAIR -

The student will be able to:

		P1	P2	P3	Level	Date	Textbook Ch CDX Task
V-F-1	Diagnose wheel bearing noises, wheel shimmy, and vibration concerns; determine necessary action.						34: C267
V-F-2	Remove, clean, inspect, repack, and install wheel bearings; replace seals; install hub and adjust bearings.						34: C810
V-F-3	Check parking brake cables and components for wear, binding, and corrosion; clean, lubricate, adjust or replace as needed.						31: C811
V-F-4	Check parking brake operation and parking brake indicator light system operation; determine necessary action.						31: C633
V-F-5	Check operation of brake stop light system.						31: C272
V-F-6	Replace wheel bearing and race.						34: C273
V-F-7	Inspect and replace wheel studs.						32: C274
V-F-8	Remove and reinstall sealed wheel bearing assembly.						34: C275

### DEMONSTRATE PROFICIENCY IN ELECTRONIC BRAKE, TRACTION AND STABILITY CONTROL SYSTEMS DIAGNOSIS AND REPAIR -

The student will be able to:

V-G-1	Identify and inspect electronic brake control system components; determine necessary action.						35: C634
V-G-2	Identify traction control/vehicle stability control system components.						35: C857
V-G-3	Describe the operation of a regenerative braking system.						30: C950

	P1	P2	P3
Tasks Completed	0	0	0
Total Tasks	33	10	8
% of Total Tasks	0	0	0