

**Correlation of
Auto Brakes, Johanson, Stockel
(Goodheart-Willcox Publisher ©2021)
to the
2022 ASE Education Foundation Master Automobile Service Technology (MAST) Task
List**

The following chart correlates the *Auto Brakes* textbook and Shop Manual (©2021) to the 2022 ASE Education Foundation Master Automobile Service Technology (MAST) Task List.

The correlation below lists the ASE Education Foundation Master Automobile Service Technology Tasks, priority levels, corresponding page numbers from the *Auto Brakes* textbook and corresponding job numbers from the *Auto Brakes Shop Manual*.

For more information on the ASE Education Foundation standards, please visit www.aseeducationfoundation.org.



BRAKES

For every task in Brakes, 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.

Task Number and Description	Priority	G-W Content
V. BRAKES		
A. General		
1. Research vehicle service information such as fluid type, vehicle service history, service precautions, technical service bulletins, and recalls including vehicles equipped with advanced driver assistance systems (ADAS).	P-1	Textbook: pgs. 44–47, 57, 398, 409 Shop Manual: Jobs 3, 23
2. Identify brake system components and configurations.	P-1	Textbook: pgs. 4-11, 53-54, 62-76, 102-113, 134-143, 164-170, 175-189, 211-227, 289, 303, 348-368

Task Number and Description	Priority	G-W Content
3. Retrieve and record DTCs, OBD monitor status, and freeze frame data; clear codes and data when directed.	P-1	Textbook: pgs. 38-40, 371-379 Shop Manual: Job 4
4. Describe procedure for performing a road test to check brake system operation, including an anti-lock brake system (ABS).	P-1	Textbook: pg. 192–193, 207–208, 232, 248, 374–375, 401-403 Shop Manual: Jobs 5, 11, 23, 24
5. Install wheel and torque lug nuts.	P-1	Textbook: pg. 207, 248 Shop Manual: Jobs 17, 20
6. Identify and interpret brake system concerns; determine needed action.	P-1	Textbook: pg. 192–193, 233-237, 374–375, 398–411 Shop Manual: Jobs 5, 6, 7, 8
V. BRAKES		
B. Hydraulic System		
1. Diagnose pressure concerns in the brake system using hydraulic principles (Pascal’s law).	P-1	Textbook: pg. 52–56, 62-76, 82, 87, 92, 126-130, 148-150 Shop Manual: Job 5
2. Measure brake pedal height, travel, and free play (as applicable); determine needed action.	P-1	Textbook: pg. 82, 86–87, 120 Shop Manual: Jobs 5, 6
3. Check master cylinder for internal/external leaks and proper operation; determine needed action.	P-1	Textbook: pg. 82, 84 92–96 Shop Manual: Jobs 5, 6
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	Textbook: pg. 155-159 Shop Manual: Jobs 6, 12
5. Select, handle, store, and fill brake fluids to proper level; use proper fluid type per manufacturer specification.	P-1	Textbook: pg. 56–59, 86, 95–97, 376 Shop Manual: Jobs 5, 13, 16
6. Identify components of hydraulic brake warning light system.	P-2	Textbook: pg. 137-140, Shop Manual: Job 8
7. Bleed and/or replace fluid in the brake system.	P-1	Textbook: pg. 95–97, 393–395 Shop Manual: Jobs 13, 16, 26
8. Test brake fluid for contamination.	P-2	Textbook: pg. 56–59 Shop Manual: Job 16
9. Remove, bench bleed, and reinstall master cylinder.	P-1	Textbook: pg. 82–87 Shop Manual: Jobs 13, 16
10. Diagnose poor stopping, pulling, or dragging concerns caused by malfunctions in the hydraulic system; determine needed action.	P-1	Textbook: pg. 82, 87, 92, 148 Shop Manual: Job 6
11. Replace brake lines, hoses, fittings, and supports.	P-2	Textbook: pg. 155–159 Shop Manual: Job 12
12. Fabricate brake lines using proper material and flaring procedures.	P-2	Textbook: pg. 155–158 Shop Manual: Job 12

Task Number and Description	Priority	G-W Content
13. Inspect, test, and/or replace components of brake warning light system.	P-3	Textbook: pg. 152–155 Shop Manual: Jobs 8, 25
V. BRAKES C. Drum Brakes		
1. Remove, clean, and inspect brake drum; measure brake drum diameter; determine serviceability.	P-2	Textbook: pg. 233–235, 237, 240–241 Shop Manual: Jobs 5, 17
2. Refinish brake drum and measure final drum diameter; compare with specification.	P-2	Textbook: pg. 243–245 Shop Manual: Job 19
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	Textbook: pg. 235–243 Shop Manual: Job 17
4. Inspect wheel cylinders for leaks and proper operation; remove and replace as needed.	P-2	Textbook: pg. 92–95, 237, 241 Shop Manual: Jobs 5, 6, 17, 18
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	Textbook: pg. 246–248, 310–319 Shop Manual: Job 10, 17
6. Diagnose poor stopping, noise, vibration, pulling, grabbing, dragging, or pedal pulsation concerns; determine needed action.	P-2	Textbook: pg. 232–236, 410–411 Shop Manual: Job 5
V. BRAKES D. Disc Brakes		
1. Remove and clean caliper assembly; inspect for leaks, damage, and wear; determine needed action.	P-1	Textbook: pg. 87–92, 193–202 Shop Manual: Jobs 5, 20
2. Inspect caliper mounting and slides/pins for proper operation, wear, and damage; determine needed action	P-1	Textbook: pg. 87–88, 192 Shop Manual: Job 20
3. Remove, inspect, and/or replace brake pads and retaining hardware; determine needed action.	P-1	Textbook: pg. 196–202 Shop Manual: Job 20
4. Lubricate and reinstall caliper, brake pads, and related hardware; seat brake pads against rotor; inspect for leaks.	P-1	Textbook: pg. 198–202, 207–208 Shop Manual: Job 20
5. Clean and inspect rotor and mounting surface; measure rotor thickness, thickness variation, and lateral runout; determine needed action.	P-1	Textbook: pg. 202–204 Shop Manual: Job 20
6. Remove and reinstall/replace rotor.	P-1	Textbook: pg. 204, 207 Shop Manual: Job 20
7. Refinish rotor on vehicle; measure final rotor thickness and compare with specification.	P-1	Textbook: pg. 206–207 Shop Manual: Job 22

Task Number and Description	Priority	G-W Content
8. Refinish rotor off vehicle; measure final rotor thickness and compare with specification.	P-2	Textbook: pg. 205–207 Shop Manual: Job 22
9. Retract and readjust caliper piston on an integrated parking brake system.	P-1	Textbook: pg. 92, 312-313 Shop Manual: Job 11
10. Describe importance of operating vehicle to burnish/break-in replacement brake pads according to manufacturer’s recommendation.	P-2	Textbook: pg. 208 Shop Manual: Job 20
11. Diagnose poor stopping, noise, vibration, pulling, grabbing, dragging, or pulsation concerns; determine needed action.	P-1	Textbook: pg. 192–193, 410–411 Shop Manual: Job 5
V. BRAKES		
E. Power-Assist Units		
1. Check brake pedal travel with and without engine running to verify proper power booster operation.	P-2	Textbook: pg. 118-120 Shop Manual: Job 7
2. Identify components of the brake power assist system (vacuum and hydraulic).	P-2	Textbook: pg. 5, 102–113 Shop Manual: Job 7
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	Textbook: pg. 118–120 Shop Manual: Job 7
4. Inspect and test hydraulically assisted power brake system for leaks and proper operation; determine needed action.	P-2	Textbook: pg. 126-127 Shop Manual: Job 7
5. Inspect electric power booster unit; determine needed action.	P-3	—
V. BRAKES		
F. Related Systems (i.e., Wheel Bearings, Parking Brakes, Electrical)		
1. Remove, clean, inspect, repack/replace, and install wheel bearings; remove and install bearing races; replace seals; install hub and adjust bearings.	P-2	Textbook: pg. 267–285 Shop Manual: Job 10
2. Check parking brake system components for wear, binding, and corrosion; clean, lubricate, adjust and/or replace as needed.	P-2	Textbook: pg. 308–319 Shop Manual: Job 11
3. Check parking brake operation (including electric parking brakes); check parking brake indicator light system operation; determine needed action.	P-2	Textbook: pg. 308–309, 334–338 Shop Manual: Jobs 8, 11
4. Check operation of brake stop light system.	P-1	Textbook: pg. 308, 334–338 Shop Manual: Job 8
5. Inspect and replace wheel studs.	P-2	Textbook: pg. 285-286 Shop Manual: Job 9

Task Number and Description	Priority	G-W Content
6. Remove, reinstall, and/or replace sealed wheel bearing assembly.	P-1	Textbook: pg. 273-278 Shop Manual: Job 10
7. Diagnose wheel bearing noises, wheel shimmy, and vibration concerns; determine needed action.	P-1	Textbook: pg. 266-267, 410-411 Shop Manual: Job 10
V. BRAKES		
G. Electronic Brake Control Systems: Anti-lock Brake (ABS), Traction Control (TCS), and Electronic Stability Control (ESC) Systems		
1. Identify and inspect electronic brake control system components and describe function (ABS, TCS, ESC); determine needed action.	P-1	Textbook: pg. 354-369, 372-388 Shop Manual: Jobs 23, 24, 25
2. Describe the operation of regenerative braking system.	P-2	Textbook: pg. 11 Shop Manual: Job 28
3. Bleed the electronic brake control system hydraulic circuits.	P-1	Textbook: pg. 393-395 Shop Manual: Jobs 25, 26
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	Textbook: pg. 373-388 Shop Manual: Jobs 23, 24
5. Diagnose electronic brake control system electronic control(s) and components by retrieving diagnostic trouble codes, and/or using recommended test equipment; determine needed action.	P-2	Textbook: pg. 377-388 Shop Manual: Jobs 4, 24
6. Depressurize high-pressure components of an electronic brake control system.	P-2	Textbook: pg. 372, 384, 390 Shop Manual: Job 25
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	Textbook: pg. 381-386, 388-390 Shop Manual: Jobs 24, 25, 27
8. Diagnose electronic brake control system braking concerns caused by vehicle modifications (tire size, curb height, final drive ratio, etc.).	P-2	Textbook: pg. 376 Shop Manual: Job 24