

2022 ASE Correlation Chart

Suspension and Steering (A4)

MLR- Maintenance & Light Repair

AST- Auto Service Technology

MAST- Master Auto Service Technology

	Task	MLR	AST	MAST	Text Page #	Task Page #
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	P-1	P-1	2-4	2, 3, 4
2.	Identify suspension and steering system components and configurations.	P-1	P-1	P-1	401-422; 483-496	70, 84, 88
3.	Retrieve and record DTCs, OBD monitor status, and freeze frame data; clear codes and data when directed.	P-1	P-1	P-1	305-309; 548	82, 97
4.	Disable and enable supplemental restraint system (SRS); verify indicator lamp operation.	P-2	P-1	P-1	483-484	83
5.	Identify and interpret suspension and steering system concerns; determine needed action.		P-1	P-1	428, 431, 505-509	72, 73, 82, 84, 86, 90
B. Steering Systems						
1.	Inspect rack and pinion steering gear inner tie rod ends (sockets) and bellows boots; repair or replace as needed.	P-1 Inspect only	P-1	P-1	506-507, 513-514	87

	Task	MLR	AST	MAST	Text Page #	Task Page #
2.	Inspect power steering fluid level and condition.	P-2	P-2	P-2	532	91
3.	Drain and replace power steering system fluid; use proper fluid type per manufacturer specification.	P-2	P-2	P-2	532-533	91
4.	Inspect for power steering fluid leakage; determine needed action.	P-2 Inspect only	P-2	P-2	532	92
5.	Remove, inspect, replace, and/or adjust power steering pump drive belt.	P-2	P-2	P-2	531	93
6.	Inspect, remove and/or replace power steering hoses and fittings.	P-2	P-2	P-2	533-534	95
7.	Inspect, remove and/or replace pitman arm, relay (centerlink/intermediate) rod, idler arm and mountings, and steering linkage damper.	P-2 Inspect only	P-2	P-2	508-513	88
8.	Inspect, replace, and/or adjust tie rod ends (sockets), tie rod sleeves, and clamps (non-rack and pinion).	P-2 Inspect only	P-2	P-2	510-513	89
9.	Inspect and test electric power steering system; determine needed action.	P2 Inspect only	P-2	P-2	548	97, 98
10.	Remove and replace steering wheel; center/time supplemental restraint system (SRS) coil (clock spring).		P-1	P-1	484	83
11.	Diagnose steering column noises, looseness, and binding concerns (including tilt/telescoping mechanisms); determine needed action.		P-2	P-2	486-489	84
12.	Diagnose power steering gear (non-rack and pinion) binding, uneven turning effort, looseness, hard steering, and noise concerns; determine needed action.		P-3	P-3	531-534	90

	Task	MLR	AST	MAST	Text Page #	Task Page #
13.	Diagnose power steering gear (rack and pinion) binding, uneven turning effort, looseness, hard steering, and noise concerns; determine needed action.		P-2	P-1	531-534	90
14.	Inspect steering shaft universal-joint(s), flexible coupling(s), collapsible column, lock cylinder mechanism, and steering wheel; perform needed action.		P-2	P-2	485-486	84
15.	Remove and replace rack and pinion steering gear; inspect mounting bushings and brackets.		P-2	P-2	538-540	85
16.	Remove and reinstall power steering pump.		P-2	P-2	535-536	94
17.	Remove and reinstall press fit power steering pump pulley; check pulley and belt alignment.		P-2	P-2	535-536	94
18.	Test power steering system pressure; determine needed action.			P-3	533-535	96
C. Suspension Systems						
1.	Inspect, remove, and/or replace upper and/or lower control arms, bushings, and shafts.	P-2 Inspect only	P-2	P-2	428-431; 446-447	74
2.	Inspect and replace rebound/jounce bumpers.	P-2 Inspect only			438	74
3.	Inspect, remove, and/or replace track bar, strut rods/radius arms, and related mounts and bushings.	P-2	P-2	P-2	442-443	81
4.	Inspect, remove, and/or replace upper and/or lower ball joints (with or without wear indicators).	P-2 Inspect only	P-3	P-2	432-437	74

	Task	MLR	AST	MAST	Text Page #	Task Page #
5.	Inspect, remove, and/or replace suspension system coil springs and spring insulators.	P-2 Inspect only	P-2	P-2	443-445	74
6.	Inspect, remove and/or replace torsion bars and mounts.	P-3 Inspect only	P-3	P-3	446	75
7.	Inspect, remove and/or replace front/rear stabilizer bar (sway bar) bushings, brackets, and links.	P-2 Inspect only	P-2	P-2	442	76
8.	Inspect, remove, and/or replace strut assembly, strut coil spring, insulators, and upper strut bearing mount.	P-2 Inspect only	P-2	P-2	440-442	77, 79
9.	Inspect, remove, and/or replace components of suspension systems (Coil, Leaf, and Torsion).	P-1 Inspect only	P-1	P-1	431-435	74, 75, 76, 77, 80, 81
10.	Inspect, remove, and/or replace components of electronically controlled suspension systems.	P-2 Inspect only	P-2	P-1	1450-1464	82
11.	Inspect, remove and/or replace steering knuckle assemblies.		P-2	P-1	445	74, 88
12.	Diagnose suspension system noises, body sway, and uneven ride height concerns; determine needed action.		P-1	P-1	425-432	72, 73
D. Related Suspension and Steering Service						
1.	Inspect, remove, and/or replace shock absorbers; inspect mounts and bushings.	P-2	P-2	P-2	438-439; 459-461	78
2.	Inspect, service, and/or replace front and rear wheel bearings.	P-1 Inspect only	P-1	P-1	134-144	29, 30, 31, 33
3.	Describe the function of electronically controlled suspension and steering systems and components, (i.e., active suspension and stability control).	P-2	P-2	P-2	315-316; 466-468;	60, 82

	Task	MLR	AST	MAST	Text Page #	Task Page #
E. Wheel Alignment						
1.	Perform pre-alignment inspection, measure vehicle ride height; determine needed action.	P-2 Inspect only	P-1	P-1	592-594	104
2.	Describe four-wheel alignment angles (camber, caster, and toe) and effects on vehicle handling/tire wear.	P-1	P-1	P-1	590; 602-603	103, 105
3.	Prepare vehicle for wheel alignment on alignment machine; perform four-wheel alignment by checking and adjusting front and rear wheel caster, camber; and toe as required; center steering wheel.		P-1	P-1	598-599	106, 108
4.	Check toe-out-on-turns (turning radius); determine needed action.		P-2	P-2	599	107
5.	Check steering axis inclination (SAI) and included angle; determine needed action.		P-2	P-2	599	107
6.	Check rear wheel thrust angle; determine needed action.		P-1	P-1	589; 603; 606	108
7.	Check for front wheel setback; determine needed action.		P-2	P-2	589	109
8.	Identify front and/or rear cradle (subframe) misalignment; determine needed action.		P-2	P-2	589	109
9.	Reset steering angle sensor		P-1	P-1	616-617	108
10.	Diagnose vehicle wander, drift, pull, hard steering, bump steer, memory steer, torque steer, and steering return concerns; determine needed action.		P-1	P-1	592-597	105

	Task	MLR	AST	MAST	Text Page #	Task Page #
F. Wheels and Tires						
1.	Inspect tire condition; identify tire wear patterns; check for correct tire size, application (load and speed ratings) and air pressure as listed on the tire information placard/label.	P-1	P-1	P-1	374-377	62, 64
2.	Rotate tires according to manufacturer's recommendations including vehicles equipped with tire pressure monitoring systems (TPMS).	P-1	P-1	P-1	379-380	66
3.	Dismount, inspect, and remount tire on wheel (with/without TPMS); balance wheel and tire assembly.	P-1	P-1	P-1	382-385; 392-394	63, 68
4.	Inspect tire and wheel assembly for air loss; perform needed action.	P-1	P-1	P-1	374	64
5.	Repair tire following vehicle manufacturer approved procedure.	P-1	P-1	P-1	389-391	69
6.	Identify indirect and direct tire pressure monitoring systems (TPMS); calibrate/relearn system; verify operation of instrument panel lamps.	P-1	P-1	P-1	362-364	63
7.	Demonstrate knowledge of steps required to remove and replace sensors (per OEM/sensor manufacturer) in a tire pressure monitoring system (TPMS).	P-1	P-1	P-1	369-370	63
8.	Perform Road Force balance/match mounting.	P-3	P-2	P-1	388-389	-
9.	Diagnose wheel/tire vibration, shimmy, and noise; determine needed action.		P-1	P-1	381; 385	64, 65

	Task	MLR	AST	MAST	Text Page #	Task Page #
10.	Measure wheel, tire, axle flange, and hub runout; determine needed action.		P-2	P-2	380-381	67
11.	Diagnose tire pull problems; determine needed action.		P-1	P-1	380	65

2021 ASE Correlation Chart

Brakes (A5)

	Task	MLR	AST	MAST	Text Page #	Task Page #
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	P-1	P-1	2-4	2, 3, 4, 16, 34, 38
2.	Identify brake system components and configurations.	P-1	P-1	P-1	53-56	16
3.	Retrieve and record DTCs, OBD monitor status, and freeze frame data; clear codes and data when directed.	P-1	P-1	P-1	305-309	55
4.	Describe procedure for performing a road test to check brake system operation, including an anti-lock brake system (ABS).	P-1	P-1	P-1	165; 196; 304	35, 39, 55
5.	Install wheel and torque lug nuts.	P-1	P-1	P-1	377-379	37
6.	Identify and interpret brake system concerns; determine needed action.		P-1	P-1	90-101; 118; 165; 196; 279; 303-305	15, 35, 40

	Task	MLR	AST	MAST	Text Page #	Task Page #
B. Hydraulic System						
1.	Demonstrate understanding of hydraulic principals; diagnose pressure concerns in the brake system using hydraulic principles (Pascal’s Law).	P-1 Under- standing only	P-1	P-1	72-78	19
2.	Describe and measure brake pedal height, travel, and free play (as applicable); determine needed action.	P-1 Describe only	P-1	P-1	84-85	20
3.	Check master cylinder for internal/external leaks and proper operation; determine needed action.	P-1 Check only	P-1	P-1	84-88	21
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 Inspect only	P-1	P-1	110- 116	26
5.	Select, handle, store, and fill brake fluids to proper level; use proper fluid type per manufacturer specification.	P-1	P-1	P-1	104- 107	27
6.	Identify components of hydraulic brake warning light system.	P-3	P-2	P-1	90-92	24
7.	Bleed and/or flush brake system.	P-1	P-1	P-1	120- 125; 127- 128	28
8.	Test brake fluid for contamination.	P-2	P-2	P-2	107- 108	27
9.	Remove, bench bleed, and reinstall master cylinder.		P-1	P-1	86- 87; 118- 119	21

	Task	MLR	AST	MAST	Text Page #	Task Page #
10.	Diagnose poor stopping, pulling or dragging concerns caused by malfunctions in the hydraulic system; determine needed action.		P-2	P-1	82-86	22, 23
11.	Replace brake lines, hoses, fittings, and supports.		P-2	P-2	110; 116	26
12.	Fabricate brake lines using proper material and flaring procedures.		P-2	P-2	113-114	26
13.	Inspect, test, and/or replace components of brake warning light system.		P-3	P-3	90-92	24
C. Drum Brakes						
1.	Remove, clean, and inspect brake drum; measure brake drum diameter; determine serviceability.	P-2	P-2	P-2	166-167; 235	36, 46
2.	Refinish brake drum and measure final drum diameter; compare with specifications.	P-3	P-2	P-2	235-236; 251-256	46
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-3	P-2	P-2	167-174	36
4.	Inspect wheel cylinders for leaks and proper operation; remove and replace as needed.	P-3	P-2	P-2	170-171	36
5.	Pre-adjust brake shoes and parking brake; install brake drums or drum/hub assemblies and wheel bearings; perform final checks and adjustments.	P-3	P-2	P-2	174; 225-226	36

	Task	MLR	AST	MAST	Text Page #	Task Page #
6.	Diagnose poor stopping, noise, vibration, pulling, grabbing, dragging or pedal pulsation concerns; determine needed action.		P-2	P-2	165; 175	35
D. Disc Brakes						
1.	Remove and clean caliper assembly; inspect for leaks, damage, wear; determine needed action.	P-1 Remove and inspect only	P-1	P-1	198-200	40
2.	Inspect caliper mounting and slides/pins for proper operation, wear, and damage; determine needed action.	P-1 Inspect only	P-1	P-1	203-205	40
3.	Remove, inspect, and/or replace brake pads and retaining hardware; determine needed action.	P-1 Remove and inspect only	P-1	P-1	206-207	40
4.	Lubricate and reinstall caliper, brake pads, and related hardware; seat brake pads, inspect for leaks.	P-1	P-1	P-1	206-207	40
5.	Clean and inspect rotor and mounting surface; measure rotor thickness, thickness variation, and lateral runout; determine needed action.	P-1 Clean and inspect only	P-1	P-1	238-242; 249	40
6.	Remove and reinstall/replace rotor.	P-1	P-1	P-1	236-238	40, 47
7.	Refinish rotor on vehicle; measure final rotor thickness and compare with specifications.	P-3	P-2	P-1	249-250	47
8.	Refinish rotor off vehicle; measure final rotor thickness and compare with specifications.	P-3	P-2	P-2	244-247	47
9.	Retract and re-adjust caliper piston on an integrated parking brake system.	P-2	P-1	P-1	205	43

	Task	MLR	AST	MAST	Text Page #	Task Page #
10.	Describe importance of operating vehicle to burnish/break-in replacement brake pads according to manufacturer's recommendations.	P-2	P-2	P-2	206	42
11.	Diagnose poor stopping, noise, vibration, pulling, grabbing, dragging, or pulsation concerns; determine needed action.		P-1	P-1	196-197; 238-241	40
E. Power-Assist Units						
1.	Check brake pedal travel with, and without, engine running to verify proper power booster operation.	P-2	P-2	P-2	278-279	48
2.	Identify components of the brake power assist system (vacuum/ hydraulic/electric).	P-2	P-2	P-2	275-284	49, 50, 51
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	P-2	273-275; 279	50
4.	Inspect and test hydraulically assisted power brake system for leaks and proper operation; determine needed action.		P-2	P-2	281-285	51
5.	Inspect electric power booster unit; determine needed action.			P-3	-	-
F. Related (i.e., Wheel Bearings, Parking Brakes, Electrical)						
1.	Remove, clean, inspect, repack, and install wheel bearings; replace seals; install hub and adjust bearings.	P-3	P-2	P-2	135-139	30, 31
2.	Check parking system and components for wear, binding, and corrosion; clean, lubricate, adjust and/or replace as needed.	P-2	P-2	P-2	217; 225-228	44

	Task	MLR	AST	MAST	Text Page #	Task Page #
3.	Check parking brake operation (including electric parking brakes); check parking brake indicator light system operation; determine needed action.	P-2 Check only	P-2	P-2	225-226	45
4.	Check operation of brake stop light system.	P-1	P-1	P-1	101	25
5.	Inspect and replace wheel studs.	P-2	P-2	P-2	250	32
6.	Remove, reinstall, and /or replace sealed wheel bearing assembly.		P-2	P-1	139	33
7.	Diagnose wheel bearing noises, wheel shimmy, and vibration concerns; determine needed action.		P-2	P-1	134-135; 142-144	29, 30
G. Electronic Brake Control Systems: Antilock Brake (ABS), Traction Control (TCS), and Electronic Stability Control Systems (ESC)						
1.	Identify and inspect electronic brake control system components (ABS, TCS, ESC); determine needed action.	P-2	P-1	P-1	289-290; 318-321	53, 54, 60
2.	Describe the operation of a regenerative braking system.	P-3	P-2	P-2	324-332	61
3.	Bleed the electronic brake control system hydraulic circuits.		P-2	P-1	311-312	57
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	303-312	55

	Task	MLR	AST	MAST	Text Page #	Task Page #
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	305-308	55
6.	Depressurize high-pressure components of an electronic brake control system.			P-2	312	56
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	309-311	58
8.	Diagnose electronic brake control system braking concerns caused by vehicle modifications (tire size, curb height, final drive ratio, etc.).			P-2	313	59