

2021 ASE Correlation Chart

Manual Drivetrains and Axles (A3)

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	127-133	24; 25; 27; 30; 387; 398
2.	Identify manual drive train and axles components and configurations.	P-1	P-1	P-1	1582-1592	
3.	Retrieve and record DTCs, OBD monitor status, and freeze frame data; clear codes and data when directed.	P-1	P-1	P-1	1034-1036	275 389
4.	Check fluid condition; check for leaks; determine needed action.	P-2 Check only	P-1	P-1	154; 1597	386
5.	Drain and refill manual transmission/transaxle and final drive unit; use proper fluid type per manufacturer specification.	P-1	P-1	P-1	154, 1597	387
6.	Diagnose drive train concerns; determine needed action.		P-1	P-1	1574-1576	390

	Task	MLR	AST	MAST	Text Page #	Task Page #
B. Clutch						
1.	Check and adjust clutch master cylinder fluid level; check for leaks; use proper fluid type per manufacturer specification.	P-3	P-2	P-2	1576-1577	382
2.	Diagnose clutch noise, binding, slippage, pulsation, and chatter; determine needed action.		P-2	P-2	1574	378
3.	Inspect clutch pedal linkage, cables, automatic adjuster mechanisms, brackets, bushings, pivots, and springs; perform needed action.		P-2	P-2	1575-1576	379
4.	Inspect and/or replace clutch pressure plate assembly, clutch disc, release (throw-out) bearing/ linkage, and pilot bearing/bushing (as applicable).		P-2	P-2	1574	380
5.	Bleed clutch hydraulic system.		P-2	P-2	1576	381
6.	Inspect flywheel and ring gear for wear, cracks, and discoloration; determine needed action.		P-2	P-2	1570; 1574	383
7.	Measure flywheel runout and crankshaft end play; determine needed action.		P-2	P-2	1570	384
8.	Describe the operation and service of a system that uses a dual mass flywheel.		P-3	P-3	1570	385
C. Transmission/Transaxle						
1.	Describe the operational characteristics of an electronically controlled manual transmission/transaxle.	P-2	P-2	P-2	1689-1690	389
2.	Inspect, adjust, lubricate and/or replace shift linkages, brackets, bushings, cables, pivots, and levers.		P-2	P-2	1593; 1595	388

	Task	MLR	AST	MAST	Text Page #	Task Page #
3.	Diagnose noise concerns through the application of transmission/transaxle powerflow principles.			P-2	1584-1596	390
4.	Diagnose hard shifting and jumping out of gear concerns; determine needed action.			P-2	1595	391
5.	Diagnose transaxle final drive assembly noise and vibration concerns; determine needed action.			P-2	1593-1595	392
6.	Disassemble, inspect clean, and reassemble internal transmission/transaxle components.			P-3	1594-1595	393
D. Drive Shaft and Half Shaft, Universal and Constant-Velocity (CV) Joints (Front, Rear, All wheel drive, 4-wheel drive)						
1.	Inspect, remove, and/or replace bearings, hubs, and seals.	P-2	P-1	P-1	1619-1623	306
2.	Inspect, service, and/or replace shafts, yokes, boots, and universal/CV joints.	P-2	P-1	P-1	1619-1623	396
3.	Check for leaks at drive assembly and transfer case seals; check vents; check fluid level; use proper fluid type per manufacturer specification.		P-2	P-2	154	386; 398
4.	Diagnose constant-velocity (CV) joint noise and vibration concerns; determine needed action.		P-1	P-1	1619	394
5.	Diagnose universal joint noise and vibration concerns; determine needed action.		P-1	P-1	1614-1616	394
6.	Check shaft balance and phasing; measure shaft runout; measure and adjust driveline angles; determine needed action.		P-2	P-2	1669-1671	394; 419

	Task	MLR	AST	MAST	Text Page #	Task Page #
E. Differential and Drive Axle						
E.1 Ring and Pinion Gears and Differential Case Assembly						
1.	Inspect differential housing; check for leaks; inspect housing vent.	P-1	P-1	P-1	1618; 1635- 1636	398; 400
2.	Check and adjust differential case fluid level; use proper fluid type per manufacturer specification.	P-1	P-1	P-1	1642- 1643	398
3.	Drain and refill differential case; use proper fluid type per manufacturer specification.	P-1	P-1	P-1	1642- 1643	398
4.	Inspect and replace companion flange and/or pinion seal; measure companion flange runout.		P-2	P-2	1633- 1634	401
5.	Demonstrate knowledge of drive pinion and ring gear service and set up including depth, preload, backlash and gear tooth contact. (AST only)		P-2		1635- 1637	402
5.	Inspect ring gear and measure runout; determine needed action. (MAST only)			P-2	1635- 1637	402
6.	Diagnose noise and vibration concerns; determine needed action.			P-2	1665- 1671	399
7.	Remove, inspect, reinstall and/or replace drive pinion and ring gear, spacers, sleeves, and bearings.			P-2	1634- 1643	403
8.	Measure and adjust drive pinion depth.			P-2	1636- 1641	404
9.	Measure and adjust drive pinion bearing preload.			P-2	1639	405

	Task	MLR	AST	MAST	Text Page #	Task Page #
10.	Measure and adjust side bearing preload and ring and pinion gear total backlash and backlash variation on a differential carrier assembly (threaded cup or shim types).			P-2	1641	406
11.	Check ring and pinion tooth contact patterns; perform needed action.			P-2	1636-1638	407
12.	Disassemble, inspect, measure, adjust and/or replace differential pinion gears (spiders), shaft, side gears, side bearings, thrust washers, and case.			P-2	1641-1642	408
13.	Reassemble and reinstall differential case assembly; measure runout; determine needed action.			P-2	1641-1642	409
E.2 Drive Axles						
1.	Inspect and replace drive axle wheel studs.	P-2	P-2	P-2		397
2.	Remove and replace drive axle shafts.		P-1	P-1	1619	395
3.	Inspect and replace drive axle shaft seals, bearings, and retainers.		P-2	P-2	1619-1625	395
4.	Measure drive axle flange runout and shaft end play; determine needed action.		P-2	P2	1667-1668	395
5.	Diagnose drive axle shafts, bearings, and seals for noise, vibration, and fluid leakage concerns; determine needed action.			P-2	1619; 1671-1673	412
E.3 Limited Slip Differential						
1.	Diagnose noise, slippage, and chatter concerns; determine needed action.			P-3	1630-1633	410

	Task	MLR	AST	MAST	Text Page #	Task Page #
2.	Measure rotating torque; determine needed action.			P-3	1639-1640	411
F. Four-Wheel Drive/All-Wheel Drive						
1.	Identify concerns related to variations in tire circumference and/or final drive ratios.	P-3	P-2	P-1	1646-1647	415
2.	Inspect, adjust, and repair shifting controls (mechanical, electrical, and vacuum), bushings, mounts, levers, and brackets.		P-2	P-2	1650-1653	412
3.	Inspect axle locking mechanisms; determine needed action(s).		P-3	P-3	1646	413
4.	Check for leaks at drive assembly and transfer case seals; check vents; check fluid level; use proper fluid type per manufacturer specification.		P-2	P-2	1653-1654	414
5.	Diagnose noise, vibration, and unusual steering concerns; determine needed action.			P-2	1662-1673	415
6.	Diagnose, test, adjust, and replace electrical/electronic components of four-wheel drive systems.			P-2	1648-1654	417
7.	Disassemble, service, and reassemble transfer case and components.			P-3	1657-1660	418