

APPENDIX 3

2017 ASE Correlation Chart

Electrical/Electronic (A6)

MLR- Maintenance & Light Repair

AST- Auto Service Technology (Includes MLR)

MAST- Master Auto Service Technology (Includes MLR and AST)

	Task	Priority	MLR	AST	MAST	Text Page #	Task Page #
A. General: Electrical Systems Diagnosis							
1.	Research vehicle service information including vehicle service history, service precautions, and technical service bulletins.	P-1	✓	✓	✓	2-4	4-9,34, 42,51, 57
2.	Demonstrate knowledge of electrical/electronic series, parallel, and series-parallel circuits using principles of electricity (Ohm's Law).	P-1	✓	✓	✓	64-69; 72-81	16-24
3.	Demonstrate proper use of a digital multimeter (DMM) when measuring source voltage, voltage drop (including grounds), current flow and resistance	P-1	✓	✓	✓	87-103	25
4.	Demonstrate knowledge of the causes and effects from shorts, grounds, opens, and resistance problems in electrical/electronic circuits.	P-1	✓	✓	✓	118-103	36
5.	Demonstrate proper use of a test light on an electrical circuit.	P-1	(P-2)	✓	✓	85-86	26
6.	Use fused jumper wires to check operation of electrical circuits.	P-1	(P-2)	✓	✓	85	27

7.	Use wiring diagrams during the diagnosis (troubleshooting) of electrical/electronic circuit problems.	P-1			✓	131-147	35
8.	Diagnose the cause(s) of excessive key-off battery drain (parasitic draw); determine needed action.	P-1	✓	✓	✓	241-243	43
9.	Inspect and test fusible links, circuit breakers, and fuses; determine needed action.	P-1	✓	✓	✓	118-123	29
10.	Inspect, test, repair, and/or replace components, connectors, terminals, harnesses, and wiring in electrical/electronic systems (including solder repairs)	P-1		✓	✓	123-128	30-33
11.	Check electrical/electronic circuit waveforms; interpret readings and determine needed repairs.	P-2			✓	106-112	28
12.	Repair data bus wiring harness.	P-1			✓	123-128	33
B. Battery Diagnosis and Service							
1.	Perform battery state-of-charge test; determine needed action.	P-1	✓	✓	✓	234-235	44
2.	Confirm proper battery capacity for vehicle application; perform battery capacity and load test; determine needed action.	P-1	✓	✓	✓	235-237	44
3.	Maintain or restore electronic memory functions.	P-1	✓	✓	✓	243-244	45
4.	Inspect and clean battery; fill battery cells; check battery cables, connectors, clamps, and hold-downs.	P-1	✓	✓	✓	233	46
5.	Perform slow/fast battery charge according to manufacturer's recommendations.	P-1	✓	✓	✓	238-239	47
6.	Jump-start vehicle using jumper cables and a booster battery or an auxiliary power supply.	P-1	✓	✓	✓	240	48

7.	Identify safety precautions for high voltage systems on hybrid electric, hybrid electric, and diesel vehicles.	P-2	✓	✓	✓	699-705	10,11,130-132
8.	Identify electrical/electronic modules, security systems, radios, and other accessories that require reinitialization or code entry after reconnecting vehicle battery.	P-1	✓	✓	✓	342-343	49
9.	Identify hybrid vehicle auxiliary (12v) battery service, repair, and test procedures.	P-3	✓	✓	✓	705	50
C. Starting System Diagnosis and Repair							
1.	Perform starter current draw tests; determine needed action.	P-1	✓	✓	✓	266-267	54
2.	Perform starter circuit voltage drop tests; determine needed action.	P-1	✓	✓	✓	264-265	54
3.	Inspect and test starter relays and solenoids; determine needed action.	P-2	✓	✓	✓	266-267	55
4.	Remove and install starter in a vehicle.	P-1	✓	✓	✓	267; 270	56
5.	Inspect and test switches, connectors, and wires of starter control circuits; determine needed action.	P-2	✓	✓	✓	263; 266	55
6.	Differentiate between electrical and engine mechanical problems that cause a slow-crank or a no-crank condition	P-2		✓	✓	266-267	54
7.	Demonstrate knowledge of an automatic idle-stop/start-stop system.	P-2	✓	✓	✓	258-260	-
D. Charging System Diagnosis and Repair							
1.	Perform charging system output test; determine needed action.	P-1	✓	✓	✓	298	62
2.	Diagnose (troubleshoot) charging system for causes of undercharge, no-charge, or overcharge conditions.	P-1		✓	✓	292-298	63

3.	Inspect, adjust, and/or replace generator (alternator) drive belts; check pulleys and tensioners for wear; check pulley and belt alignment	P-1	✓	✓	✓	293-296; 299; 304	64
4.	Remove, inspect, and/or replace generator (alternator).	P-1	(P-2)	✓	✓	299; 304	64
5.	Perform charging circuit voltage drop tests; determine needed action.	P-1	✓	✓	✓	296-297	65
E. Lighting Systems Diagnosis and Repair							
1.	Diagnose (troubleshoot) the causes of brighter-than-normal, intermittent, dim, or no light operation; determine needed action.	P-1	✓	✓	✓	314-327	66
2.	Inspect interior and exterior lamps and sockets including headlights and auxiliary lights (fog lights/driving lights); replace as needed.	P-1		✓	✓	326; 328-330	38,66
3.	Aim headlights.	P-2	✓	✓	✓	328	68
4.	Identify system voltage and safety precautions associated with high-intensity discharge headlights	P-2	✓	✓	✓	322-324	67
F. Instrument Cluster and Driver Information Systems Diagnosis and Repair							
1.	Inspect and test gauges and gauge sending units for causes of abnormal readings; determine needed action.	P-2		✓	✓	337-338; 344	69
2.	Diagnose (troubleshoot) the causes of incorrect operation of warning devices and other driver information systems; determine needed action.	P-2		✓	✓	335-336; 343-344	70
3.	Reset maintenance indicators as required.	P-2	✓	✓	✓	337	71
G. Repair Body Electrical Systems Diagnosis and Repair							
1.	Diagnose operation of comfort and convenience accessories and related circuits (such as: power window, power seats, pedal height, power locks, truck locks, remote start, moon roof,	P-2		✓	✓	336; 344-345; 365-378	37,75, 79

	sun roof, sun shade, remote keyless entry, voice activation, steering wheel controls, back-up camera, park assist, cruise control, and auto dimming headlamps); determine needed repairs						
2.	Diagnose operation of security/anti-theft systems and related circuits (such as: theft deterrent, door locks, remote keyless entry, remote start, and starter/fuel disable); determine needed repairs.	P-2		✓	✓	375-379; 395-402	81
3.	Diagnose operation of entertainment and related circuits (such as: radio, DVD, remote CD changer, navigation, amplifiers, speakers, antennas, and voice-activated accessories); determine needed repairs.	P-3		✓	✓	336; 346-348; 421-436	84
4.	Diagnose operation of safety systems and related circuits (such as: horn, airbags, seat belt pretensioners, occupancy classification, wipers, washers, speed control/collision avoidance, heads-up display, park assist, and back-up camera); determine needed repairs	P-1		✓	✓	338; 344; 353-365	72-74
5.	Diagnose body electronic systems circuits using a scan tool; check for module communication errors (data bus systems); determine needed action.	P-2		✓	✓	400-402	76
6.	Describe the process for software transfer, software updates, or reprogramming of electronic modules	P-2		✓	✓	693-696	76