

## NATEF TASK LIST (2006)

TASK	NATEF	PRIORITY	DEFINITION
ATAF		T	INTRODUCTION TO AUTOMOTIVE SERVICE
ATAFA		T	INTRODUCTION TO AUTOMOTIVE SERVICE: SAFETY
ATAFA01		A	Prepare a presentation which deals with some of safety in the auto shop and present it to the class
ATAFA02		A	Complete the safety test with a score of 100%
ATAFB		T	INTRODUCTION TO AUTOMOTIVE SERVICE: TOOLS AND EQUIPMENT
ATAFB1		A	GENERAL TOOL KNOWLEDGE
ATAFB101		A	Take the hand tool test and pass with 90%.
ATAFB102		A	Prepare a lesson which demonstrates the safe and proper use of a tool or piece of equipment and present it to the class.
ATAFB2		A	EQUIPMENT SKILL AND KNOWLEDGE
ATAFB201		A	Demonstrate proper and safe procedures for using the tire changer.
ATAFB202		A	Demonstrate proper and safe procedures for using the tire balancer.
ATAFB203		A	Demonstrate proper and safe procedures for using the drill press.
ATAFB204		A	Demonstrate proper and safe procedures for using the milling machine.
ATAFB205		A	Demonstrate proper and safe procedures for using the metal lathe.
ATAFB206		A	Demonstrate proper and safe procedures for using the glass bead blaster.
ATAFB207		A	Demonstrate proper and safe procedures for using the parts wash cabinet.
ATAFB208		A	Demonstrate proper and safe procedures for using the solvent tank.
ATAFB209		A	Demonstrate proper and safe procedures for using the caustic parts washer.
ATAFB210		A	Demonstrate proper and safe procedures for using the aqueous brake washer.
ATAFB211		A	Demonstrate proper and safe procedures for using the four post ramp hoist.
ATAFB212		A	Demonstrate proper and safe procedures for using the two post frame contact hoists.
ATAFB213		A	Demonstrate proper and safe procedures for using floor jacks and jack stands.
ATAFB214		A	Demonstrate proper and safe procedures for using the hydraulic press.
ATAFB215		A	Demonstrate proper and safe procedures for using the grinders.
ATAFB216		A	Demonstrate proper and safe procedures for using the gas welding equipment.
ATAFB217		A	Demonstrate proper and safe procedures for using the arc welding equipment.
ATAFB218		A	Demonstrate proper and safe procedures for using the engine performance analyzers including exhaust gas analyzers.
ATAFB219		A	Demonstrate proper and safe procedures for running vehicles in the shop.
ATAFB220		A	Demonstrate proper and safe procedures for using hand tools.
ATAFB3		A	MEASUREMENT
ATAFB301		A	Measure the distance between two points using a ruler in fractions, decimals and the metric system
ATAFB302		A	Measure the diameter of an object using a micrometer in both inches and the metric system
ATAFB303		A	Use a depth mic to measure a shoulder depth in both inches and the metric systems
ATAFB304		A	Use an inside micrometer to measure the diameter of a cylinder in both inches and the metric system
ATAFB305		A	Use "V" blocks and a dial indicator to check the runout of a shaft
ATAFB306		A	Use a micrometer to measure the thickness of shims or thrust washers in both inches and the metric system
ATAFB307		A	Use feeler gauges to measure clearances
ATAFB4		A	HAND TOOL SKILLS
ATAFB401		A	Drill and tap a hole using the proper tap drill.
ATAFB402		A	Thread a rod using a die.
ATAFB403		A	Properly use a hack saw to saw metal.
ATAFB404		A	Correctly sharpen a twist drill
ATAFB405		A	Correctly sharpen and recondition a cold chisel
ATAFB406		A	Correctly sharpen and recondition a center punch
ATAFB407		A	Correctly use a file to draw file a metal surface
ATAFB408		A	Correctly sharpen a gasket scraper (a single bevel tool)
ATAFB5		A	FASTENERS
ATAFB501		A	Correctly identify the size of both metric and SAE bolts and nuts
ATAFB502		A	Correctly install a Helicoil
ATAFB503		A	Correctly install a thread repair insert

ATAFB504	A	Determine the correct torque for a fastener, chose the correct torque wrench, and apply the correct torque to the fastener.
ATAFB6	A	GAS WELDING EQUIPMENT
ATAFB601	A	Correctly install regulators onto tanks and turn on the gas welding equipment and adjust pressures for welding sheet metal.
ATAFB602	A	Correctly turn off the gas welding equipment bleeding down the gas pressures.
ATAFB603	A	Run a bead using gas welding equipment on sheet metal in the flat position
ATAFB604	A	Correctly complete a fillet weld on sheet metal in the flat position using gas welding equipment
ATAFB605	A	Correctly complete a but weld on sheet metal in the flat position using gas welding equipment
ATAFB7	T	INFORMATION SYSTEMS
ATAFB701	A	Look up specific information of the Alldata information system
ATAFC	T	INTRODUCTION TO AUTOMOTIVE SERVICE: MAINTENANCE AND SAFETY INSPECTION
ATAFC1	T	MAINTENANCE AND SAFETY INSPECTION: LEVEL 1 MAINTENANCE AND SAFETY INSPECTION
ATAFC101	A	Inspect all fluids for level and condition and record findings on the inspection report.
ATAFC102	A	Inspect accessory equipment for condition and record findings on the inspection report.
ATAFC103	A	Inspect tires for wear conditions and tread depth and recorded findings in the inspection report.
ATAFC104	A	Inspect vehicle externally and record findings on the inspection report.
ATAFC105	A	Inspect all lights for proper operation and record findings on the inspection report.
ATAFC2	T	MAINTENANCE AND SAFETY INSPECTION: LEVEL 2 MAINTENANCE AND SAFETY INSPECTION
ATAFC201	A	Raise and support vehicle according to manufacturer's specifications and inspect suspension and steering components and record findings on the inspection record.
ATAFC202	A	Raise and support vehicle according to manufacturer's specifications and inspect brake system components and record findings on the inspection report.
ATAFC203	A	Raise and support vehicle according to manufacturer's specifications and inspect exhaust system components and record findings on the inspection report.
ATAFC204	A	Raise and support vehicle according to manufacturer's specifications and inspect drive axle components and record findings on the inspection report.
ATAFD	T	INTRODUCTION TO AUTOMOTIVE SERVICE: BASIC ELECTRICITY/ELECTRONICS
ATAFD01	A	Complete the resistance job sheet.
ATAFD02	A	Complete the voltage/current job sheet.
ATAFD03	A	Using the VAT 40, test for voltage drop in the starting circuit on a vehicle.
ATAFD04	A	Using a DVOM, Measure the voltage across two different light bulbs on a vehicle, the current through each light bulb and calculate the resistance of the light bulbs using Ohms. also calculate the wattage of the bulb using the power law equation.
ATAFD05	A	Measure the resistance of two different spark plug wires on the same vehicle and record on the work order.
ATAFD06	A	Measure the resistance of the primary winding of the ignition coil on a vehicle and record here.
ATAFD07	A	Use a crimp type solderless connector to join two wires or to install a terminal end on a wire.
ATAFD08	A	Use the mini soldering iron or a soldering gun, with appropriate solder, to make a connection between two wires or a wire and terminal end.
ATAFE	T	INTRODUCTION TO AUTOMOTIVE SERVICE: BASIC TUNE-UP
ATAFE01	A	Verify customer complaint.
ATAFE02	A	Connect vehicle to engine analyzer and evaluate test results.
ATAFE03	A	Check for spark.
ATAFE04	A	Check for the presence of fuel on carburetor equipped vehicles by checking accelerator pump function, KOEO
ATAFE05	A	Check fuel pressure and flow rate.
ATAFE06	A	Remove, inspect, and replace spark plugs as necessary.
ATAFE07	A	Remove, inspect, and replace distributor cap and rotor as necessary.
ATAFE08	A	Remove, inspect, and replace ignition points and condenser as necessary.
ATAFE09	A	Inspect spark plug wires and replace as necessary.
ATAFE10	A	Check for the presence of fuel on fuel injected engines by checking fuel pressure and injector firing
ATAFE10	A	Remove, inspect, and replace ignition coil as necessary.
ATAFE12	A	Check ignition timing and adjust as necessary.

ATAFE13		A	Remove, inspect, and replace air filter and vent filter as necessary.
ATAFE14		A	Remove, inspect, and replace fuel filter and as necessary.
ATAFE15		A	Adjust fuel mixture at idle
ATAFE16		A	Adjust idle RPM.
ATAFJ		T	RELATED SHOP SKILLS
ATAFJ1		T	SMAC (Shielded Metal Arc Welding)
ATAFJ103		A	Properly use the SMAC welding process to correctly compete a fillet weld in 1/4" steel in the flat position
ATAFJ104		A	Properly use the MIG welding process to run a bead in the flat position
ATAFJ105		A	Properly use the MIG welding process to produce a build up pad in the flat position
ATAFJ106		A	Properly use the MIG welding process to correctly complete a fillet weld with 1/4" steel in the flat position
ATAFJ2		T	METAL LATHE
ATAFJ203		A	Bore a hole to a specific diameter.
ATAFJ205		A	Drill Stock clamped in the three jaw universal chuck using a drill chuck in the tail stock
ATAFJ206		A	Turn stock to a specific diameter.
ATAFJ207		A	Create a knurled surface.
ATAFJ209		A	Turn a chamfer using the compound.
ATAT	II	T	AUTOMATIC TRANSMISSION AND TRANSAXLES
ATATA	IIA	T	AUTOMATIC TRANSMISSION AND TRANSAXLE GENERAL TRANSMISSION AND TRANSAXLE DIAGNOSIS
ATATA01	IIA01	P1	Complete work order to include customer information, vehicle identifying information, customer concern, related service history, cause, and correction.
ATATA02	IIA02	P1	Identify and interpret transmission/transaxle concern; assure proper engine operation; determine necessary action.
ATATA03	IIA03	P1	Research applicable vehicle and service information, such as transmission/transaxle system operation, vehicle history, service precautions, and technical service bulletins
ATATA04	IIA04	P1	Locate and interpret vehicle and major component identification numbers (VIN, vehicle certification labels and calibration decals).
ATATA05	IIA05	P1	Diagnose fluid usage, level, and condition concerns; determine necessary action.
ATATA06	IIA06	P1	Perform pressure test; determine necessary action.
ATATA07	IIA07	P2	Perform stall test; determine necessary action.
ATATA08	IIA08	P1	Perform lock-up converter system tests; determine necessary action.
ATATA09	IIA09	P1	Diagnose electronic, mechanical, hydraulic, and vacuum control system concerns; determine necessary action.
ATATA10	IIA10	P2	Diagnose noise and vibration concerns; necessary action.
ATATA11	IIA11	P1	Diagnose transmission/transaxle gear reduction/multiplication concerns using driving, driven, and held member (power flow) principles.
ATATA12	IIA12	P2	Diagnose pressure concerns in the transmission using hydraulic principles (Pascal's Law).
ATATA13	IIA13	P2	Diagnose electrical/electronic concerns using principals of electricity (Ohm's Law).
ATATB	IIB	T	AUTOMATIC TRANSMISSION & TRANSAXLE: TRANSMISSION AND TRANSAXLE MAINTENANCE AND ADJUSTMENT.
ATATB01	IIB01	P1	Inspect, adjust or replace throttle valve (TV) linkages or cables; manual shift linkages or cables; check gear select indicator (as applicable).
ATATB02	IIB02	P1	Service transmission; perform visual inspection; replace fluids and filters.
ATATB03	IIB03	A	Flush fluid from transmission and torque converter
ATATB04	IIB04	A	Inspect and adjust bands
ATATC	IIC	T	AUTOMATIC TRANSMISSION & TRANSAXLE: IN-VEHICLE TRANSMISSION AND TRANSAXLE REPAIR
ATATC01	IIC01	P3	Inspect, adjust or replace (as applicable) vacuum modulator; inspect and repair or replace lines and hoses.
ATATC02	IIC02	P3	Inspect, repair, and replace governor assembly.
ATATC03	IIC03	P2	Inspect and replace external seals and gaskets.
ATATC04	IIC04	P3	Inspect extension housing, bushings and seals perform necessary action.
ATATC05	IIC05	P2	Inspect and replace speedometer drive gear, driven gear, vehicle speed sensor (VSS), and retainers.
ATATC06	IIC06	P1	Diagnose electronic transmission control systems using a scan tool; determine necessary action.
ATATC07	IIC07	P2	Inspect, replace, and align power train mounts.
ATATD	IID	T	AUTOMATIC TRANSMISSION & TRANSAXLE: OFF-VEHICLE TRANSMISSION AND TRANSAXLE REPAIRS

ATATD1	IID1	T	OFF-VEHICLE TRANSMISSION AND TRANSAXLE REPAIRS: REMOVAL, DISASSEMBLY, AND REINSTALL
ATATD101	IID101	P2	Remove and reinstall transmission and torque converter (rear-wheel drive).
ATATD102	IID102	P1	Remove and reinstall transaxle and torque converter assembly.
ATATD103	IID103	P1	Disassemble, clean, and inspect transmission/transaxle.
ATATD104	IID104	P2	Inspect, measure, clean, and replace valve body (includes surfaces, bores, springs, valves, sleeves, retainers, brackets, check-balls, screens, spacers, and gaskets).
ATATD105	IID105	P3	Inspect servo bore, piston, seals, pin, spring, and retainers; determine necessary action.
ATATD106	IID106	P3	Inspect accumulator bore, piston, seals, spring, and retainer; determine necessary action.
ATATD107	IID107	P1	Assemble transmission/transaxle.
ATATD108	IID108	P1	Inspect, leak test, and flush cooler, lines, and fittings.
ATATD2	IID2	T	OFF-VEHICLE TRANSMISSION AND TRANSAXLE REPAIRS: OIL PUMP & CONVERTER
ATATD201	IID201	P2	Inspect converter flex plate, attaching parts, pilot and pump drive, and seal areas.
ATATD202	IID202	P2	Measure torque converter end play, and check for interference; check stator clutch.
ATATD203	IID203	P1	Inspect, measure, and replace oil pump assembly and components.
ATATD3	IID3	T	OFF-VEHICLE TRANSMISSION AND TRANSAXLE REPAIRS: GEAR TRAIN, SHAFTS, BUSHINGS, AND CASE
ATATD301	IID301	P1	Measure end play or preload; determine necessary action.
ATATD302	IID302	P2	Inspect, measure, and replace thrust washers and bearings.
ATATD303	IID303	P2	Inspect oil delivery seal rings, ring grooves, and sealing surface areas.
ATATD304	IID304	P2	Inspect bushings; determine necessary action.
ATATD305	IID305	P2	Inspect and measure planetary gear assembly (includes sun, ring gear, thrust washers, planetary gears, and carrier assembly); determine necessary action.
ATATD306	IID306	P2	Inspect cases, bores, passages, bushings, vents, and mating surfaces; determine necessary action.
ATATD307	IID307	P2	Inspect transaxle drive, link chains, sprockets, gears, bearings, and bushings; perform necessary action.
ATATD308	IID308	P2	Inspect, measure, repair, adjust or replace transaxle final drive components.
ATATD309	IID309	P3	Inspect and reinstall parking pawl, shaft, spring, and retainer; determine necessary action.
ATATD4	IID4	T	OFF-VEHICLE TRANSMISSION AND TRANSAXLE REPAIRS: FRICTION AND REACTION UNITS
ATATD401	IID401	P2	Inspect clutch drum, piston, check-balls, springs, retainers, seals, and friction and pressure plates; determine necessary action.
ATATD402	IID402	P1	Measure clutch pack clearance; determine necessary action.
ATATD403	IID403	P1	Air test the operation of clutch and servo assemblies.
ATATD404	IID404	P1	Inspect roller and sprag clutch, races, rollers, sprags, springs, cages, and retainers; determine necessary action.
ATATD405	IID405	P2	Inspect bands and drums; determine necessary action.
ATBR	V	T	BRAKES
ATBRA	VA	T	BRAKES: GENERAL BRAKE SYSTEM DIAGNOSIS
ATBRA01	VA01	P1	Complete work order to include customer information, vehicle identifying information customer concern, related service history, cause, and correction.
ATBRA02	VA01	P1	Identify and interpret brake system concern; determine necessary action.
ATBRA03	VA02	P1	Research applicable vehicle service information, such as brake system operation, vehicle service history, service precautions, and technical service bulletins
ATBRA04	VA03	P1	Locate and interpret vehicle and major component identification numbers (VIN, vehicle certification labels, calibration decals).
ATBRB	VB	T	BRAKES: HYDRAULIC SYSTEM DIAGNOSIS AND REPAIR
ATBRB01	VB01	P1	Diagnose pressure concerns in the brake system using hydraulic principles (Pascal's Law).
ATBRB02	VB02	P2	Measure brake pedal height; determine necessary action
ATBRB03	VB03	P2	Check master cylinder for internal and external leaks and proper operation; determine necessary action.
ATBRB04	VB04	P1	Remove, bench bleed, and reinstall master cylinder.
ATBRB05	VB05	P1	Diagnose poor stopping, pulling or dragging concerns caused by malfunctions in the hydraulic system; determine necessary action.
ATBRB06	VB06	P2	Inspect brake lines, flexible hoses, and fittings for leaks, dents, kinks, rust, cracks, bulging, or wear; tighten loose fittings and supports; determine necessary action.
ATBRB07	VB07	P2	Fabricate and install brake lines (double flare or ISO types); replace hoses, fittings, and supports as needed.
ATBRB08	VIB08	P3	Identify high voltage circuits of electrical or hybrid electric vehicle and related safety precautions.
ATBRB08	VB08	P1	Select, handle, store, and install brake fluids to proper level.

ATBRB09	VIB09	P2	Identify electronic modules, security systems and/or radios that require reinitialization of code entry following battery disconnect.
ATBRB09	VB09	P2	Inspect, test, and replace metering (hold-off), proportioning (balance), pressure differential, and combination valves.
ATBRB10	VB10	P3	Inspect, test, replace, and adjust height sensing (load) sensing proportioning valve.
ATBRB10	VIB10	P3	Identify hybrid vehicle auxiliary (12v) battery service, repair and test procedures.
ATBRB11	VB11	P3	Inspect, test, and replace components of brake warning light system.
ATBRB12	VB12	P1	Bleed (manual, pressure, vacuum or surge) brake system.
ATBRB13	VB13	P3	Flush hydraulic systems.
ATBRC	VC	T	<b>BRAKES: DRUM BRAKE DIAGNOSIS AND REPAIR</b>
ATBRC01	VC01	P1	Diagnose poor stopping, noise, vibration, pulling, grabbing, dragging or pedal pulsation concerns; determine necessary action.
ATBRC02	VC02	P1	Remove, clean (using proper safety procedures), inspect, and measure brake drums; determine necessary action.
ATBRC03	VC03	P1	Refinish brake drum.
ATBRC04	VC04	P1	Remove, clean, and inspect brake shoes, springs, pins, clips, levers, adjusters/self-adjusters, other related brake hardware, and backing support plates; lubricate reassemble.
ATBRC05	VC05	P2	Remove, inspect, and install wheel cylinders.
ATBRC06	VC06	P1	Pre-adjust brake shoes and parking brake before installing brake drums or drum/hub assemblies and wheel bearings.
ATBRC07	VC07	P1	Install wheel, torque lug nuts, and make final checks and adjustments.
ATBRD	VD	T	<b>BRAKES: DISC BRAKE DIAGNOSIS AND REPAIR</b>
ATBRD01	VD01	P1	Diagnose poor stopping, noise, vibration, pulling, grabbing, dragging or pedal pulsation concerns; determine necessary action.
ATBRD02	VD02	P1	Remove caliper assembly from mountings, clean and inspect for leaks and damage to caliper housing; determine necessary action.
ATBRD03	VD03	P1	Clean and inspect caliper mounting and slides for wear damage; determine necessary action.
ATBRD04	VD04	P1	Remove, clean, and inspect pads and retaining hardware; determine necessary action.
ATBRD05	VD05	P2	Disassemble and clean caliper assembly; inspect parts for wear, rust, scoring, and damage; replace seal, boot, and damaged or worn parts.
ATBRD06	VD06	P1	Reassemble, lubricate, and reinstall caliper, pads, and related hardware; seat pads and inspect for leaks.
ATBRD07	VD07	P1	Clean inspect and measure rotor with a dial indicator and a micrometer; follow manufacturer's recommendations in determining need to machine or replace.
ATBRD08	VD08	P1	Remove and reinstall rotor.
ATBRD09	VD09	P1	Refinish rotor on vehicle.
ATBRD10	VB10	P1	Refinish rotors off vehicle.
ATBRD11	VD11	P3	Adjust calipers with an integrated parking brake system.
ATBRD12	VD11	P1	Install wheel; torque lug nuts and make final checks and adjustments.
ATBRE	VE	T	<b>BRAKES: POWER ASSIST UNITS DIAGNOSIS AND REPAIR</b>
ATBRE01	VE01	P2	Test pedal free travel with and without engine running; check power assist operation.
ATBRE02	VE02	P2	Check vacuum supply (manifold or auxiliary pump) to vacuum-type power booster.
ATBRE03	VE03	P2	Inspect the vacuum-type power booster unit for vacuum leaks; inspect the check valve for proper operation; necessary action.
ATBRE04	VE04	P3	Inspect and test hydraulic assist power brake system for leaks and proper operation; determine necessary action.
ATBRE05	VE05	P3	Measure and adjust master cylinder push rod length.
ATBRF	VF	T	<b>BRAKES: MISCELLANEOUS (WHEELBEARINGS, PARK BRAKE, ELECTRICAL, ETC...) DIAGNOSIS AND REPAIR</b>
ATBRF01	VF01	P1	Diagnose wheel bearing noises, wheel shimmy, and vibration concerns; determine necessary action.
ATBRF02	VF02	P1	Remove, clean, inspect, repack and reinstall wheel bearings and replace seals; reinstall hub and adjust wheel bearings.
ATBRF03	VF03	P2	Check parking brake cables and components for wear, rusting, binding, and corrosion; clean, lubricate, and replace as needed.
ATBRF04	VF04	P1	Check parking brake operation; determine necessary action.
ATBRF05	VF05	P3	Check operation of parking brake indicator light system.
ATBRF06	VF06	P1	Check operation of brake stop light system; adjust and service as needed.
ATBRF07	VF07	P1	Replace wheel bearing and race.
ATBRF08	VF08	P1	Inspect and replace wheel studs
ATBRF09	VF09	P2	Remove and install sealed wheel bearing assembly.

ATBRG	VG	T	<b>BRAKES: ANTI-LOCK BRAKE SYSTEMS</b>
ATBRG01	VG01	P1	Identify and inspect anti-lock brake system (ABS) components; determine necessary action.
ATBRG02	VG02	P2	Diagnose poor stopping, wheel lock-up, abnormal pedal feel or pulsation, and noise concerns caused by the anti-lock brake system (ABS); determine necessary action.
ATBRG03	VG03	P1	Diagnose anti-lock brake system (ABS) electronic control (s) and components using self diagnosis and/or recommended test equipment; determine necessary action.
ATBRG04	VG04	P3	Depressurize high pressure components of the anti-lock brake system (ABS).
ATBRG05	VG05	P2	Bleed the anti-lock brake system's (ABS) front and rear hydraulic circuits.
ATBRG06	VG06	P3	Remove and install anti-lock brake system (ABS) electrical/electronic and hydraulic components.
ATBRG07	VG07	P1	Test, diagnose and service ABS speed sensor, 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).
ATBRG08	VG08	P3	Diagnose anti-lock brake system (ABS) braking concerns caused by vehicle modifications (tire size, curb height, final drive ratio, etc.).
ATBRG09	VG09	P3	Identify traction control/vehicle stability control system components.
A TEL	VI	T	<b>ELECTRICAL/ELECTRONICS SYSTEMS</b>
A TELA	VIA	T	<b>ELECTRICAL/ELECTRONIC SYSTEMS: GENERAL ELECTRICAL SYSTEM DIAGNOSIS</b>
A TELA01	VIA01	P1	Complete work order to include customer information, vehicle identifying information, customer concern, related service history, cause, and correction
A TELA02	VIA02	P1	Identify and interpret electrical/ electronic system concerns; determine necessary action.
A TELA03	VIA03	P1	Research application vehicle and service information, such as electrical/electronic system operation, vehicle service history, service precautions, and technical bulletins.
A TELA04	VIA04	P1	Locate and interpret vehicle and major component identification numbers (VIN, vehicle certification labels, and calibration decals).
A TELA05	VIA05	P1	Diagnose electrical/electronic integrity of series, parallel and series-parallel circuits using principles of electricity (Ohm's Law).
A TELA06	VIA06	P1	Use wiring diagrams during diagnosis of electrical circuit problems.
A TELA07	VIA07	P1	Demonstrate the proper use of a digital multimeter (DMM0 during diagnosis of electrical circuit problems.
A TELA08	VIA08	P2	Check electrical circuits with a test light; determine necessary action.
A TELA09	VIA09	P1	Measure source voltage and perform voltage drop tests in electrical/electronic circuits using a voltmeter; determine necessary action.
A TELA10	VIA10	P1	Measure current flow in electrical/electronic circuits and components using an ammeter; determine necessary action.
A TELA11	VIA11	P1	Check continuity and resistances in electrical/electronic circuits and components using an ammeter; determine necessary action.
A TELA12	VIA12	P2	Check electrical circuits using fused jumper wires; determine necessary action.
A TELA13	VIA13	P1	Find shorts, grounds, opens, and resistance problems in electrical/electronic circuits; determine necessary action.
A TELA14	VIA14	P1	Measure and diagnose the cause(s) of excessive key-off battery drain (parasitic draw); determine necessary action.
A TELA15	VIA15	P1	Inspect and test fusible links, circuit breakers, and fuses; determine necessary action.
A TELA16	VIA16	P1	Inspect and test switches, connectors, relays, solenoid solid state devices, and wires of electrical/electronic circuits; perform necessary action.
A TELA17	VIA17	P1	Remove and replace terminal end from connector
A TELA18	VIA18	P1	Repair connectors and terminal ends.
A TELA19	VIA19	P1	Repair wiring harness (including CAN/BUS systems).
A TELA20	VIA20	P1	Perform solder repair of electrical wiring.
A TELA21	VIA21	P3	Identify location of hybrid vehicle high voltage circuit disconnect (service plug) location and safety procedures.
A TELB	VIB	T	<b>ELECTRICAL/ELECTRONIC SYSTEMS: BATTERY DIAGNOSIS AND SERVICE</b>
A TELB01	VIB01	P1	Perform battery state-of-charge test; determine needed service.
A TELB02	VIB02	P1	Perform battery capacity test; confirm proper battery capacity for vehicle application; determine needed service.
A TELB03	VIB03	P1	Maintain or restore electronic memory functions.
A TELB04	VIB04	P1	Inspect, clean, fill and replace battery.
A TELB05	VIB05	P2	Perform slow/fast battery charge.
A TELB06	VIB06	P1	Inspect and clean battery cables, connectors, clamps, and hold-downs; repair or replace as needed.
A TELB07	VIB07	P1	Start a vehicle using jumper cables and a battery or auxiliary power supply.

ATELB08		A	Answer the questions and complete the activities provided in the Starting and Charging Systems (SCS) Technical Training Manual
ATELC	VIC	T	ELECTRICAL SYSTEM: STARTING SYSTEM DIAGNOSIS AND REPAIR
ATELC01	VIC01	P1	Perform starter current draw test; determine necessary action.
ATELC02	VIC02	P1	Perform starter circuit voltage drop tests; determine necessary action.
ATELC03	VIC03	P2	Inspect and test starter relays and solenoids; determine necessary action.
ATELC04	VIC04	P1	Remove and reinstall starter.
ATELC05	VIC05	P2	Inspect and test switches, connectors, and wires of starter control circuits; perform necessary action.
ATELC06	VIC06	P2	Differentiate between electrical and engine mechanical problems that cause a slow crank or no crank condition.
ATELC07	VIC07	A	Perform starter bench test; determine necessary action.
ATELC08		A	OH starter motor; clean, inspect, and test components; then bench test the starter.
ATELD	VID	T	ELECTRICAL/ELECTRONIC SYSTEMS: CHARGING SYSTEM DIAGNOSIS AND REPAIR
ATELD01	VID01	P1	Perform charging system output test; determine necessary action.
ATELD02	VID02	P1	Diagnose charging system for the cause of undercharge, a no-charge or an overcharge conditions.
ATELD03	VID03	P1	Inspect, adjust, or replace generator (alternator) drive belts, pulleys, and tensioners; check pulley and belt alignment.
ATELD04	VID04	P1	Remove, inspect, and install generator (alternator).
ATELD05	VID05	P1	Perform charging circuit voltage drop tests; determine necessary action.
ATELD06	VID06	A	Disassemble generator (alternator), clean, inspect, and test components; determine necessary action.
ATELE	VIE	T	ELECTRICAL/ELECTRONIC SYSTEMS: LIGHTING SYSTEM DIAGNOSIS AND REPAIR
ATELE01	VIE01	P1	Diagnose the cause of brighter than normal, intermittent, dim or no light operation; determine necessary action.
ATELE02	VIE02	P2	Inspect, replace, and aim headlights and bulbs.
ATELE03	VIE03	P2	Inspect and diagnose incorrect turn signal or hazard light operation; perform necessary action.
ATELF	VIF	T	ELECTRICAL/ELECTRONIC SYSTEMS: GAUGES, WARNING DEVICES AND DRIVER INFORMATION SYSTEMS DIAGNOSIS AND REPAIR
ATELF01	VIF01	P1	Inspect and test gauges and gauge sending units for cause of intermittent high, low, or no gauge readings; determine necessary action.
ATELF02	VIF02	P3	Inspect and test connectors, wires and printed circuit boards of gauge circuits; determine necessary action.
ATELF03	VIF03	P1	Diagnose the cause of incorrect operation of warning devices and other driver information systems; determine necessary action.
ATELF04	VIF04	P3	Inspect and test sensors, connectors, and wires of electronic instrument circuits; determine necessary action.
ATELG	VIG	T	ELECTRICAL/ELECTRONIC SYSTEMS: HORN AND WIPER/WASHER DIAGNOSIS AND REPAIR
ATELG01	VIG01	P2	Diagnose incorrect horn operation; perform necessary action.
ATELG02	VIG02	P2	Diagnose incorrect wiper operation; diagnose wiper speed control and park problems; perform necessary action.
ATELG03	VIG03	P2	Diagnose incorrect windshield washer operation; perform necessary action.
ATELH	VIH	T	ELECTRICAL/ELECTRONIC SYSTEMS: ACCESSORIES DIAGNOSIS AND REPAIR Accessories Diagnosis and Repair
ATELH01	VIH01	P2	Diagnose incorrect operation of motor-driven accessory circuits; determine necessary action.
ATELH02	VIH02	P2	Diagnose incorrect heated glass operation; determine necessary action.
ATELH03	VIH03	P2	Diagnose incorrect electric door and hatch/trunk lock operation; determine necessary action.
ATELH04	VIH04	P3	Diagnose incorrect operation of cruise control systems; repair as needed.
ATELH05	VIH05	P2	Diagnose supplemental restraint system (SRS) concerns; determine necessary action. (Note: Follow manufacturer's safety procedures to prevent accidental deployment.)
ATELH06	VIH06	P1	Disarm and enable the airbag system for vehicle service.
ATELH07	VIH07	P3	Diagnose radio static and weak, intermittent or no radio reception; determine necessary action.
ATELH08	VIH08	P1	Remove and reinstall door panel
ATELH09	VIH09	P2	Diagnose body electronic system circuits using a scan tool; determine necessary action.
ATELH10	VIH10	P3	Check for module communication (CAN/BUS) error using scan tool
ATELH11	VIH11	P2	Diagnose the cause of false, intermittent, or no operation of anti-theft system
ATEP	VIII	T	ENGINE PERFORMANCE
ATEPA	VIIIA	T	ENGINE PERFORMANCE: GENERAL ENGINE DIAGNOSIS

ATEPA01	VIIIA01	P1	Complete workorder to include customer information, vehicle identifying information, customer concern, related service history, cause, and correction.
ATEPA02	VIIIA02	P1	Identify an interpret engine performance concern; determine necessary action.
ATEPA03	VIIIA03	P1	Research applicable vehicle and service information, such as engine management system operation, vehicle service history, service precautions, and technical service bulletins.
ATEPA04	VIIIA04	P1	Locate and interpret vehicle and major component identification numbers (VIN, vehicle certification labels and calibration decals).
ATEPA05	VIIIA05	P2	Inspect engine assembly for fuel, oil, coolant, and other leaks; determine necessary action.
ATEPA06	VIIIA05	P2	Diagnose unusual engine noise or vibration concerns; determine needed repairs.
ATEPA07	VIIIA07	P2	Diagnose unusual exhaust color, odor, and sound; determine necessary action.
ATEPA08	VIIIA08	P1	Perform engine absolute (vacuum/boost) manifold pressure tests; determine necessary action.
ATEPA09	VIIIA09	P1	Perform cylinder power balance test; determine necessary action.
ATEPA10	VIIIA10	P1	Perform cylinder compression test; determine necessary action.
ATEPA11	VIIIA11	P2	Performcylinder cranking compression tests; determine necessary action
ATEPA12	VIIIA12	P1	Perform cylinder leakage test; determine necessary action.
ATEPA13	VIIIA13	P1	Diagnose engine mechanical, electrical, electronic, fuel, and ignition concerns with an ignition oscilloscope and engine analyzer; determine necessary action..
ATEPA14	VIIIA14	P1	Prepare 4 or 5-gas analyzer; inspect and prepare vehicle for test and obtain exhaust readings; interpret readings and determine necessary action.
ATEPA15	VIIIA15	P1	Verify engine operating temperature; determine necessary action
ATEPA16	VIIIA16	P1	Perform cooling system pressure tests; check coolant condition; inspect and test radiator, pressure cap, coolant recovery tank, and hoses; perform necessary action
ATEPA17	VIIIA17	P1	Verify correct camshaft timing.
ATEPA18		A	Check exhaust system back pressure
ATEPB	VIIIB	T	ENGINE PERFORMANCE: COMPUTERIZED ENGINE CONTROLS DIAGNOSIS AND REPAIR
ATEPB01	VIIIB01	P3	Retrieve and record stored OBD I diagnosis trouble codes; clear codes.
ATEPB02	VIIIB02	P1	Retrieve and record stored OBD II diagnosis trouble codes; clear codes.
ATEPB03	VIIIB03	P1	Diagnose the causes of emissions or drivability concerns resulting from malfunctions in the computerized engine control system with stored diagnostic trouble codes.
ATEPB04	VIIIB04	P1	Diagnose emissions or drivability concerns results from malfunctions in the computerized engine control system with no stored diagnostic trouble codes; determine necessary action.
ATEPB05	VIIIB05	P2	Check for module communication errors using a scan tool.
ATEPB06	VIIIB06	P1	Inspect and test computerized engine control system sensors, power train control module (PCM), actuators, and circuits using a graphing multimeter (GMM)/digital storage oscilloscope (DSO); perform necessary action.
ATEPB07	VIIIB07	P3	Obtain and interpret scan tool data.
ATEPB08	VIIIB08	P1	Access and use service information to perform step-by-step diagnosis.
ATEPB09	VIIIB09	P3	Diagnose drivability and emissions problems resulting from malfunctions of interrelated systems (cruise control, security alarms, suspension controls, traction controls, A/C, automatic transmissions, non-OEM-installed accessories. Or similar systems); determine necessary action.
ATEPC	VIIIC	T	ENGINE PERFORMANCE: INGNITION SYSTEM DIAGNOSIS AND REPAIR
ATEPC01	VIIIC01	P1	Diagnose ignition related problems such as no-start, hard start, engine misfire, poor drivability, spark knock, power loss, poor mileage, and emissions concerns on vehicles with electronic ignition (distributor less) systems; determine necessary action
ATEPC02	VIIIC02	P1	Diagnose ignition related problems such as no-start, hard start, engine misfire, poor drivability, spark knock, power loss, poor mileage, and emissions concerns on vehicles with distributor ignition (DI) systems; determine necessary action
ATEPC03	VIIIC03	P2	Inspect and test ignition primary circuit wiring and solid state components; perform necessary action..
ATEPC04	VIIIC04	P3	Inspect, test and service distributor.
ATEPC05	VIIIC05	P2	Inspect and test ignition system secondary circuit wiring and components; perform necessary action.
ATEPC06	VIIIC06	P1	Inspect and test ignition coil(s); perform necessary action.
ATEPC07	VIIIC07	P3	Check and adjust ignition system timing and timing advance/retard (where applicable).
ATEPC08	VIIIC08	P1	Inspect and test ignition system pick-up sensor or trigger devices; replace as needed.
ATEPC09	VIIIC09	A	Remove and replace spark plug wires.
ATEPD	VIIID	T	ENGINE PERFORMANCE: FUEL, AIR INDUCTION, AND EXHAUST SYSTEMS DIAGNOSIS AND REPAIR

ATEPD01	VIIID01	P1	Diagnose hot or cold no-starting, hard starting, poor drivability, incorrect idle speed, poor idle, flooding, hesitation, surging, engine misfire, power loss, stalling, poor mileage, dieseling, and emissions problems on vehicles with injection-type fuel systems; determine necessary action.
ATEPD02	VIIID02	P3	Check fuel for contaminants and quality; determine necessary action.
ATEPD03	VIIID03	P1	Inspect and test mechanical and electrical fuel pumps and pump control systems for pressure, regulation and volume; perform necessary action.
ATEPD04	VIIID04	P1	Replace fuel filters.
ATEPD05	VIIID05	P3	Inspect and test cold enrichment system components; perform necessary action.
ATEPD06	VIIID06	P2	Inspect throttle body, air induction system, intake manifold and gaskets for vacuum leaks and /or un-metered air.
ATEPD07	VIIID07	P2	Inspect and test fuel injectors.
ATEPD08	VIIID08	P2	Check idle speed.
ATEPD09	VIIID09	P2	Inspect the integrity of the exhaust manifold, exhaust pipes, muffler(s), catalytic converter(s) resonator(s), tail pipe(s), and heat shield(s); perform necessary action.
ATEPD10	VIIID10	P1	Perform exhaust system back-pressure test; determine necessary action.
ATEPD11	VIIID11	P3	Test the operation of turbocharger/supercharger systems; determine necessary action.
ATEPD12		A	Diagnose hot or cold no-starting, hard starting, poor drivability, incorrect idle speed, poor idle, flooding, hesitation, surging, engine misfire, power loss, stalling, poor mileage, dieseling, and emissions problems on vehicles with carburetor-type fuel systems; determine necessary action.
ATEPD13		A	Adjust idle speed and fuel mixture.
ATEPD14		A	Inspect fuel tank and fuel cap, fuel lines, fittings, and hoses; perform necessary action.
ATEPD15		A	Remove, service and install throttle body; adjust related linkages.
ATEPD16		A	Remove, inspect, and test vacuum and electrical circuits and components and connections of fuel system; perform necessary action.
ATEPD17		A	Remove and replace carburetor
ATEPD18		A	Adjust carburetor on the vehicle for idle and emissions
ATEPD19		A	Perform fuel system flush/cleaning with appropriate equipment
ATEPE	VIIIE	T	ENGINE PERFORMANCE: EMISSIONS CONTROL SYSTEMS DIAGNOSIS AND REPAIR
ATEPE1	VIIIE1	T	EMISSIONS CONTROL SYSTEMS DIAGNOSIS AND REPAIR: POSITIVE CRANKCASE VENTILATION
ATEPE101	VIIIE10 1	P2	Diagnose oil leaks, emissions, and drivability problems resulting from malfunctions in the positive crankcase ventilation (PCV) system; determine necessary action.
ATEPE102	VIIIE10 2	P1	Inspect, test and service positive crankcase ventilation (PCV) filter/breather cap, valve, tubes, orifices, and hoses; perform necessary action.
ATEPE2	VIIIE2		EMISSIONS CONTROL SYSTEMS DIAGNOSIS AND REPAIR: EXHAUST GAS RECIRCULATION
ATEPE201	VIIIE20 1	P1	Diagnose emissions and drivability problems caused by malfunctions in the exhaust gas recirculation (EGR) system; determine necessary action.
ATEPE202	VIIIE20 2	P2	Inspect, test, service, and replace components of the EGR system, including EGR tube, exhaust passages, vacuum,/pressure controls, filters and hoses; determine necessary action.
ATEPE203	VIIIE20 3	P2	Inspect and test electrical/electronic sensors, controls, and wiring of exhaust gas recirculation (EGR) systems; perform necessary action.
ATEPE3	VIIIE3	T	EMISSIONS CONTROL SYSTEMS DIAGNOSIS AND REPAIR: EXHAUST GAS TREATMENT
ATEPE301	VIIIE30 1	P2	Diagnose emissions and drivability problems resulting from malfunctions in the secondary air injection and catalytic converter systems; perform necessary action.
ATEPE302	VIIIE30 2	P3	Inspect and test mechanical components of secondary air injection systems; perform necessary action.
ATEPE303	VIIIE30 3	P3	Inspect and test electrical/electronically operated components and circuits of air injection systems; perform necessary action.
ATEPE304	VIIIE30 4	P1	Inspect and test catalytic converter performance .
ATEPE4	VIIIE4	T	EMISSIONS CONTROL SYSTEMS DIAGNOSIS AND REPAIR: EVAPORATIVE EMISSIONS CONTROLS
ATEPE401	VIIIE40 1	P1	Diagnose emissions and drivability problems resulting from malfunctions in the evaporative emissions control system; determine necessary action.
ATEPE402	VIIIE40 2	P2	Inspect and test components and hoses of evaporative emissions control systems; perform necessary action.
ATEPE403	VIIIE40 3	P1	Interpret evaporative emission related diagnosis trouble codes (DTC's); determine necessary action.

ATEPF	VIIIF	T	ENGINE PERFORMANCE: ENGINE RELATED SERVICE
ATEPF01	VIIIF01	P1	Adjust valves on engines with mechanical or hydraulic lifters.
ATEPF02	VIIIF02	P1	Remove and replace timing belt; verify correct camshaft timing.
ATEPF03	VIIIF03	P2	Remove and replace thermostat and gasket.
ATEPF04	VIIIF04	P1	Inspect and test mechanical/electrical fans, fan clutch, fan shroud/ducting, air dams, and fan control devices; perform necessary action.
ATEPF05	VIIIF05	P1	Perform common fastener and thread repair to include broken bolt, restore internal and external threads, and repair internal threads with thread insert.
ATEPF06	VIIIF06	P1	Perform oil and filter changes.
ATEPF07	VIIIF07	P1	Demonstrate proficiency in using oxy-acetylene torch to heat and cut metal.
ATEPF08	VIIIF08	P3	Identify hybrid vehicle internal combustion engine service precautions.
ATER	I	T	ENGINE REPAIR
ATERA	IA	T	GENERAL ENGINE DIAGNOSIS; REMOVAL AND REINSTALLATION (R & R)
ATERA01	IA01	P1	Complete work order to include customer information, vehicle identifying information, customer concern, related service history, cause, and correction.
ATERA02	IA02	P1	Identify and interpret engine concerns; determine necessary action.
ATERA03	IA03	P1	Research applicable vehicle and service information, such as internal engine operation, vehicle service history, service precautions, and technical service bulletins.
ATERA04	IA04	P1	Locate and interpret vehicle and major component identification numbers (VIN, vehicle certification labels, and calibration decals).
ATERA05	IA05	P1	Inspect engine assembly for fuel, oil, coolant, and other leaks; determine necessary action
ATERA06	IA06	P2	Diagnose engine noise and vibrations; determine necessary action
ATERA07	IA07	P2	Diagnose the cause of excessive oil consumption, unusual engine exhaust color, odor, and sound; determine necessary action
ATERA08	IA08	P2	Perform engine vacuum tests; determine necessary action.
ATERA09	IA09	P2	Perform cylinder power balance tests; determine necessary action.
ATERA10	IA10	P1	Perform cylinder compression tests; determine necessary action.
ATERA11	IA11	P1	Perform cylinder leakage tests; determine necessary action.
ATERA12	IA12	P2	Remove and reinstall engine in a late model front-wheel or rear wheel drive vehicle (OBDI or newer); reconnect all attached components and restore the vehicle to running condition.
ATERA13	IA13	P1	Install engine covers using gaskets, seals and sealers as required
ATERB	IB	T	ENGINE REPAIR: CYLINDER HEAD AND VALVE TRAIN DIAGNOSIS AND REPAIR
ATERB01	IB1	P1	Remove and reinstall cylinder heads and gaskets; tighten according to manufacturer's specifications and procedures.
ATERB02	IB2	P2	Visually inspect cylinder head(s) for cracks; check gasket surface areas for warpage and leakage; check passage condition.
ATERB03	IB3	P3	Inspect valve springs for squareness and free height comparison; determine necessary action
ATERB04	IB4	P2	Replace valve stem seals on an assembled engine; inspect valve spring retainers, locks, and valve grooves; determine necessary action.
ATERB05	IB5	P3	Inspect valve guides for wear; check valve stem-to-guide clearance; determine necessary action.
ATERB06	IB6	P3	Inspect valves and valve seats; determine necessary action.
ATERB07	IB7	P3	Check valve face-to-seat contact and valve seat concentricity (runout); determine necessary action.
ATERB08	IB8	P3	Check valve spring assembled height and valve stem height; determine necessary action.
ATERB09	IB9	P2	Inspect pushrods, rocker arms, rocker arm pivots and shafts for wear, bending, cracks, looseness, and blocked oil passages (orifices); determine necessary action.
ATERB10	IB10	P2	Inspect hydraulic or mechanical lifters; determine necessary action.
ATERB11	IB11	P1	Adjust valves (mechanical or hydraulic lifters).
ATERB12	IB12	P2	Inspect camshaft drives (including gear wear and backlash, sprocket and chain wear); determine necessary action.
ATERB13	IB13	P1	Inspect and replace timing belts (chains) overhead cam drive sprocket, and tensioners; check belt/chain tension; adjust as necessary.
ATERB14	IB14	P2	Inspect camshaft for runout, journal wear and lobe wear.
ATERB15	IB15	P3	Inspect camshaft bearing surface for wear, damage, out of round, and alignment; determine necessary action.
ATERB16	IB16	P1	Establish camshaft(s) timing and cam sensor indexing according to manufacturer's specifications and procedures.
ATERC	IC	T	ENGINE REPAIR: ENGINE BLOCK DIAGNOSIS AND REPAIR
ATERC01	IC01	P2	Disassemble engine block; clean and prepare components for inspection and reassembly.

ATERC02	IC02	P2	Inspect engine block for visible cracks, passage condition, core and gallery plug condition, and surface warpage; determine necessary action.
ATERC03	IC03	P2	Perform common fastener and thread repair to include, remove broken bolt, restore internal and external threads, and repair internal threads with thread inserts.
ATERC04	IC04	P2	Inspect and measure cylinder walls for damage, wear, and ridges; determine necessary action.
ATERC05	IC05	P2	Deglaze and clean cylinder walls.
ATERC06	IC06	P3	Inspect and measure camshaft bearings for wear damage, out-of-round, and alignment; determine necessary action.
ATERC07	IC07	P2	Inspect crankshaft for end play, straightness, and journal damage, keyway damage, thrust flange and sealing surface condition, and visual surface cracks; check oil passage condition; measure journal wear; check crankshaft sensor reluctor ring (where applicable); determine necessary action.
ATERC08	IC08	P2	Inspect main and connecting rod bearings for damage and wear; determine necessary action.
ATERC09	IC09	P3	Identify piston and bearing wear patterns that indicate connecting rod alignment and main bearing bore problems; determine necessary action.
ATERC10	IC10	P2	Inspect and measure pistons; determine necessary action.
ATERC11	IC11	P3	Remove and replace piston pin.
ATERC12	IC12	P2	Inspect, measure, and install piston rings.
ATERC13	IC13	P2	Inspect auxiliary (balance, intermediate, idler, counterbalance or silencer) shaft(s); inspect shaft(s) and support bearings for damage and wear; determine necessary action; reinstall and time.
ATERC14	IC14	P3	Inspect, repair or replace crankshaft vibration damper (harmonic balancer).
ATERC15	IC15	P1	Assemble engine block assembly.
ATERC16		A	Prime engine lubrication system.
ATERD	ID	T	ENGINE REPAIR: LUBRICATION AND COOLING SYSTEMS DIAGNOSIS AND REPAIR.
ATERD01	ID01	P1	Perform oil pressure tests; determine necessary action.
ATERD02	ID02	P2	Inspect oil pump gears or rotors, housing, pressure relief devices, and pump drive; perform necessary action.
ATERD03	ID03	P1	Perform cooling system pressure tests; check coolant condition; inspect and test radiator, pressure cap, coolant recovery tank and hoses; determine necessary action.
ATERD04	ID04	P1	Inspect, replace, and adjust drive belts, tensioners, and pulleys; check pulley and belt alignment.
ATERD05	ID05	P1	Inspect and replace engine cooling and heater system hoses.
ATERD06	ID06	P1	Inspect, test, and replace thermostat and gasket.
ATERD07	ID07	P1	Test coolant; drain, and recover coolant; flush and refill cooling system with recommended coolant and bleed air as required.
ATERD08	ID08	P1	Inspect, test, remove and replace water pump
ATERD09	ID09	P2	Remove and replace radiator.
ATERD10	ID10	P1	Inspect, and test, fan(s) (electrical or mechanical), fan clutch, and fan shroud and air dams.
ATERD11	ID11	P3	Inspect auxiliary oil coolers; determine necessary action.
ATERD12	ID12	P2	Inspect, test, and replace oil temperature and pressure switches and sensors.
ATERD13	ID13	P1	Perform oil and filter change.
ATERE		T	ON-VEHICLE ENGINE REPAIR
ATERE01		A	Remove engine oil pan and replace pan gasket or sealer and reinstall the oil pan according to manufacturer's specifications
ATERE02		A	Remove and replace rear main seal
ATERE03		A	Remove and replace front main seal
ATELE04	VIE04	P3	Identify system voltage and safety precautions associated with high intensity discharge headlights.
ATERE04		A	Remove and replace intake manifold gasket
ATERE05		A	Remove and replace exhaust manifold gasket
ATERE06		A	Remove and replace valve cover gasket.
ATHA	VII	T	HEATING AND AIR CONDITIONING
ATHAA	VIIA	T	HEATING AND AIR CONDITIONING: A/C SYSTEM DIAGNOSIS AND REPAIR
ATHAA01	VIIA01	P1	Complete work order to include customer information, vehicle identifying information, customer concern, related service history
ATHAA02	VIIA02	P1	Identify and interpret heating and air conditioning concern; determine necessary action.
ATHAA03	VIIA03	P1	Research applicable vehicle and service information, such as heating and air conditioning system operation, vehicle service history, service precautions, and technical service bulletins.

ATHAA04	VIIA04	P1	Locate and interpret vehicle and major component identification numbers (VIN, vehicle certification labels, calibration decals).
ATHAA05	VIIA05	P1	Performance test A/C system; diagnose A/C system malfunctions using principles of refrigeration
ATHAA06	VIIA06	P2	Diagnose unusual operating noises in the A/C system; determine necessary action.
ATHAA07	VIIA07	P1	Identify refrigerant type; select and connect proper gauge set; record pressure readings.
ATHAA08	VIIA08	P1	Leak test A/C system; determine necessary action.
ATHAA09	VIIA09	P2	Inspect the condition of the discharge oil; determine necessary action.
ATHAA10	VIIA10	P1	Determine recommended oil for system application.
ATHAA11	VIIA11	P1	Using scan tool, observe and record related data and trouble codes.
ATHAB	VIIB	T	HEATING AND AIR CONDITIONING : REFRIGERATION SYSTEMS COMPONENT DIAGNOSIS AND REPAIR
ATHAB1	VIIB1	T	REFRIGERATION SYSTEM COMPONENT DIAGNOSIS AND REPAIR: COMPRESSOR AND CLUTCH
ATHAB101	VIIB101	P2	Diagnose A/C system conditions that cause protection devices (pressure, thermal, and PCM) to interrupt system operation; determine necessary action.
ATHAB102	VIIB102	P1	Inspect A/C compressor drive belts; Determine necessary action.
ATHAB103	VIIB103	P2	Inspect, test, and/or replace A/C compressor clutch components and/or assembly.
ATHAB104	VIIB104	P1	Remove and reinstall A/C compressor and mountings; determine required oil quantity.
ATHAB105	VIIB105	P3	Identify hybrid vehicle AC system electrical circuits, service and safety precautions.
ATHAB2	VIIB2	T	REFRIGERATION SYSTEM COMPONENT DIAGNOSIS AND REPAIR: EVAPORATOR, CONDENSER, AND RELATED COMPONENTS
ATHAB201	VIIB201	P3	Determine need for an additional A/C system filter; perform necessary action.
ATHAB202	VIIB202	P2	Remove and inspect A/C system mufflers, hoses, lines, fittings, o-rings, seals, and service valves; perform necessary action.
ATHAB203	VIIB203	P1	Inspect A/C condenser for air flow restrictions; perform necessary action.
ATHAB204	VIIB204	P1	Remove, inspect, and reinstall receiver/drier or accumulator/drier; determine required oil quantity.
ATHAB205	VIIB205	P1	Remove and install expansion valve or orifice (expansion) tube.
ATHAB206	VIIB206	P3	Inspect evaporator housing water drain; perform necessary action.
ATHAB207	VIIB207	P3	Remove, inspect, and reinstall evaporator, determine required oil quantity.
ATHAB208	VIIB208	P3	Remove, inspect, and reinstall condenser; determine required oil quantity.
ATHAC	VIIC	T	HEATING AND AIR CONDITIONING: HEATING, VENTILATION, AND ENGINE COOLING SYSTEMS DIAGNOSIS AND REPAIR
ATHAC01	VIIC01	P2	Diagnose temperature control problems in the heater/ventilation system; determine necessary action.
ATHAC02	VIIC02	P1	Perform cooling system pressure tests; check coolant condition, inspect and test radiator, pressure cap coolant recovery tank, and hoses; perform necessary action.
ATHAC03	VIIC03	P1	Inspect engine cooling and heater system hoses and belts; perform necessary action.
ATHAC04	VIIC04	P1	Inspect, test, and replace thermostat and housing.
ATHAC05	VIIC05	P1	Determine coolant condition and coolant type for vehicle application; drain and recover coolant.
ATHAC06	VIIC06	P1	Flush system; refill with recommended coolant; bleed system.
ATHAC07	VIIC07	P1	Inspect, and test fan, fan clutch (electrical and mechanical), fan shroud, and air dams; perform necessary action.
ATHAC08	VIIC08	P1	Inspect and test electric cooling fan, fan control system and circuits; determine necessary action.
ATHAC09	VIIC09	P2	Inspect and test heater control valve(s); perform necessary action.
ATHAC10	VIIC101	P3	Remove, inspect, and reinstall heater core.
ATHAD	VIID	T	HEATING AND AIR CONDITIONING: OPERATION SYSTEMS AND RELATED CONTROLS DIAGNOSIS AND REPAIR
ATHAD01	VIID01	P2	Diagnose failures in the electrical controls of heating, ventilation, and A/C (HVAC) systems; determine necessary action.
ATHAD02	VIID02	P1	Inspect and test A/C-heater blower, motors, resistors, switches, relays, wiring, and protection devices; perform necessary action.
ATHAD03	VIID03	P1	Test A/C compressor load cut-off systems; determine necessary action.
ATHAD04	VIID04	P2	Diagnose malfunctions in the vacuum, mechanical, and electrical components of the heating and A/C (HVAC) system; determine necessary action.
ATHAD05	VIID05	P3	Inspect and test A/C-heater control panel assembly; determine necessary action.
ATHAD06	VIID06	P3	Inspect and test A/C-heater control cables, motors, and linkages; perform necessary action.
ATHAD07	VIID07	P3	Inspect and test A/C-heater ducts, doors, hoses, and outlets; perform necessary action.

ATHAD08	VIID08	P3	Check operation of automatic and semi-automatic heating, ventilation, and air-conditioning (HVAC) control systems; determine necessary action.
ATHAE	VIIIE	T	HEATING AND AIR CONDITIONING: REFRIGERANT RECOVERY, RECYCLING AND HANDLING
ATHAE01	VIIIE01	P1	Perform correct use and maintenance of refrigerant handling equipment.
ATHAE02	VIIIE02	P1	Identify (by label application or use of refrigerant identifier) and recover A/C system refrigerant.
ATHAE03	VIIIE03	P1	Recycle refrigerant.
ATHAE04	VIIIE04	P1	Label and store refrigerant.
ATHAE05	VIIIE05	P1	Test recycled refrigerant for non-condensable gases.
ATHAE06	VIIIE06	P1	Evacuate and charge A/C system.
ATMD	III	T	MANUAL DRIVE TRAINS AND AXLES
ATMDA	IIIA	T	MANUAL DRIVE TRAIN AND AXLES: GENERAL DRIVE TRAIN DIAGNOSIS
ATMDA01	IIIA01	P1	Complete work order to include customer information, vehicle identifying information, customer concern, related service history, cause, and correction.
ATMDA02	IIIA02	P1	Identify and interpret drive train concern; determine necessary action.
ATMDA03	IIIA03	P1	Research applicable vehicle service information, such as drive train system operation, vehicle service history, service precautions, and technical service bulletins.
ATMDA04	IIIA04	P1	Locate and interpret vehicle and major component identification numbers (VIN, vehicle certification labels calibration decals).
ATMDA05	IIIA05	P1	Diagnose fluid usage, level, and condition concerns; determine necessary action.
ATMDA06	IIIA06	P1	Drain and fill manual transmission/transaxle and final drive unit.
ATMDB	IIIB	T	MANUAL DRIVE TRAIN AND AXLES: CLUTCH DIAGNOSIS AND REPAIR
ATMDB01	IIIB01	P1	Diagnose clutch noise, binding, slippage, pulsation, and chatter problems; determine necessary action.
ATMDB02	IIIB02	P1	Inspect clutch pedal linkage, cables, automatic adjuster mechanisms, brackets, bushings, pivots, and springs; perform necessary action
ATMDB03	IIIB03	P1	Inspect, adjust hydraulic clutch slave and master cylinders, lines, and hoses; perform necessary action.
ATMDB04	IIIB04	P2	Inspect release (throw-out) bearing, lever, and pivot; determine necessary action.
ATMDB05	IIIB05	P2	Inspect and replace clutch pressure plate assembly and clutch disc.
ATMDB06	IIIB06	P1	Bleed clutch hydraulic system.
ATMDB07	IIIB07	P1	Inspect, remove or replace pilot bearing or bushing (as applicable).
ATMDB08	IIIB08	P1	Inspect flywheel and ring gear for wear and cracks; determine necessary action.
ATMDB09	IIIB09	P3	Inspect engine block, clutch (bell) housing, and transmission/transaxle case mating surfaces, and alignment dowels; determine necessary action.
ATMDB10	IIIB10	P2	Measure flywheel run-out and crankshaft endplay; determine necessary action.
ATMDC	IIIC	T	MANUAL DRIVE TRAIN AND AXLES: TRANSMISSION/TRANSAXLE DIAGNOSIS AND REPAIR
ATMDC01	IIIC01	P1	Remove and install transmission/transaxle.
ATMDC02	IIIC02	P1	Disassemble, clean, and reassemble transmission/transaxle components.
ATMDC03	IIIC03	P3	Inspect transmission/transaxle case, extension housing, case mating surfaces, bores, bushings, and vents; perform necessary action.
ATMDC04	IIIC04	P2	Diagnose noise, hard shifting jumping out of gear, and fluid leakage concerns; determine necessary action.
ATMDC05	IIIC05	P2	Inspect, adjust, and reinstall shift linkages, brackets, bushings, cables, pivots, and levers.
ATMDC06	IIIC06	P2	Inspect and reinstall power train mounts.
ATMDC07	IIIC07	P2	Inspect and replace gaskets, seals and sealants; inspect sealing surfaces.
ATMDC08	IIIC08	P3	Remove and replace transaxle final drive.
ATMDC09	IIIC09	P2	Inspect, adjust, and reinstall shift cover, forks, levers, grommets, shafts, sleeves, detent mechanism, interlocks, and springs
ATMDC10	IIIC10	P2	Measure end play or preload (shim or spacer selection procedure) on transmission/transaxle shafts; perform necessary action.
ATMDC11	IIIC11	P1	Inspect and reinstall synchronizer hub, sleeve, keys (inserts), springs, and blocking rings.
ATMDC12	IIIC12	P2	Inspect and reinstall speedometer drive gear, driven gear, vehicle speed sensor (VSS), and retainers.
ATMDC13	IIIC13	P3	Diagnose transaxle final drive assembly noise and vibration concerns; determine necessary action.
ATMDC14	IIIC14	P2	Remove, inspect, measure, adjust, and reinstall transaxle final drive pinion gears (spiders), shaft, side gears, side bearings, thrust washers, and case assembly.
ATMDC15	IIIC15	P3	Inspect lubrication devices (oil pump or slingers); perform necessary action.
ATMDC16	IIIC16	P1	Inspect, test, and replace transmission/transaxle sensors and switches.

ATMDD	IIID	T	MANUAL DRIVE TRAIN AND AXLES: DRIVE SHAFT AND HALF SHAFT UNIVERSAL AND CONSTANT-VELOCITY (CV) JOINT DIAGNOSIS AND REPAIR
ATMDD01	IIID01	P1	Diagnose constant-velocity (CV) joint noise and vibration concerns; determine necessary action.
ATMDD02	IIID02	P1	Diagnose universal joint noise and vibration problems; perform necessary action.
ATMDD03	IIID03	P1	Remove and replace front wheel drive( FWD) front wheel bearings
ATMDD04	IIID04	P1	Inspect, service, and replace shafts, yokes, boots, and CV joints
ATMDD05	IIID05	P3	Inspect, service, and replace shaft center support bearings.
ATMDD06	IIID06	P2	Check shaft balance and phasing; measure shaft runout; measure and adjust driveline angles.
ATMDE	IIIE	T	MANUAL DRIVE TRAIN AND AXLES: DRIVE AXLE DIAGNOSIS AND REPAIR
ATMDE1	IIIE1	T	DRIVE AXLE DIAGNOSIS AND REPAIR: RING AND PINION GEARS AND DIFFERENTIAL CASE ASSEMBLY
ATMDE101	IIIE101	P2	Diagnose noise and vibration concerns; determine necessary action.
ATMDE102	IIIE102	P1	Diagnose fluid leakage concerns; determine necessary action.
ATMDE103	IIIE103	P2	Inspect and replace companion flange and pinion seal; measure companion flange runout.
ATMDE104	IIIE104	P2	Inspect ring gear and measure runout; determine necessary action.
ATMDE105	IIIE105	P2	Remove, inspect and reinstall drive pinion and ring gear, spacers, sleeves, and bearings.
ATMDE106	IIIE106	P2	Measure and adjust drive pinion depth.
ATMDE107	IIIE107	P2	Measure and adjust drive pinion bearing preload.
ATMDE108	IIIE108	P2	Measure and adjust side bearing preload and ring and pinion gear total backlash and backlash variation on a differential carrier assembly (threaded cup and shim types).
ATMDE109	IIIE109	P2	Check ring and pinion tooth contact patterns; perform necessary action.
ATMDE110	IIIE110	P2	Disassemble, inspect, measure, and adjust or replace differential pinion gears (spiders), shaft, side gears, side bearings, thrust washers, and case.
ATMDE111	IIIE111	P2	Reassemble and reinstall differential case assembly; measure runout; determine necessary action.
ATMDE2	IIIE2	T	DRIVE AXLE DIAGNOSIS AND REPAIR: LIMITED SLIP DIFFERENTIAL
ATMDE201	IIIE201	P3	Diagnose noise, slippage, and chatter concerns; determine necessary action.
ATMDE202	IIIE202	P2	Clean and inspect differential housing; refill with correct lubricant.
ATMDE203	IIIE203	P3	Inspect and reinstall clutch (cone or plate) components.
ATMDE204	IIIE204	P3	Measure rotating torque; determine necessary action.
ATMDE3	IIIE3	T	DRIVE AXLE DIAGNOSIS AND REPAIR: DRIVE AXLE SHAFT
ATMDE301	IIIE301	P2	Diagnose drive axle shafts, bearings and seals for noise, vibration, and fluid leakage concerns; determine necessary action.
ATMDE302	IIIE302	P1	Inspect and replace drive axle shaft wheel studs.
ATMDE303	IIIE303	P1	Remove and replace drive axle shafts.
ATMDE304	IIIE304	P2	Inspect and replace drive axle shaft seals, bearings, and retainers.
ATMDE305	IIIE305	P2	Measure drive axle flange runout and shaft endplay; determine necessary action.
ATMDF	IIIF	T	MANUAL DRIVE TRAIN AND AXLES: FOUR-WHEEL DRIVE/ALL WHEEL DRIVE COMPONENT DIAGNOSIS AND REPAIR
ATMDF01	IIIF01	P3	Diagnose noise, vibration, and unusual steering problems; determine necessary action.
ATMDF02	IIIF02	P2	Inspect, adjust, and repair shifting controls (mechanical, electrical, and vacuum), bushings, mounts, levers, and brackets.
ATMDF03	IIIF03	P3	Remove and reinstall transfer case.
ATMDF04	IIIF04	P3	Disassemble, service, and reassemble transfer case and components.
ATMDF05	IIIF05	P3	Inspect front-wheel bearings and locking hubs; perform necessary action.
ATMDF06	IIIF06	P3	Check drive assembly seals and vents; check lube level.
ATMDF07	IIIF07	P3	Diagnose, test, adjust, and replace electrical/electronic components of four-wheel drive systems.
ATSS	IV	T	SUSPENSION AND STEERING
ATSSA	IVA	T	SUSPENSION AND STEERING; GENERAL SUSPENSION AND TEERING SYSTEM DIAGNOSIS
ATSSA01	IVA01	P1	Complete workorder to include customer information, vehicle identifying information, customer concern, related service history, cause, and correction.
ATSSA02	IVA02	P1	Identify and interpret suspension and steering concerns; determine necessary action.
ATSSA03	IVAO3	P1	Research applicable vehicle and service information, such as suspension and steering system operation, vehicle service history, service precautions, and technical service bulletins.
ATSSA04	IVA04	P1	Locate and interpret vehicle and major component identification numbers (VIN, vehicle certification labels, calibration decals)
ATSSB	IVB	T	SUSPENSION AND STEERING: STEERING SYSTEM DIAGNOSIS AND REPAIR

ATSSB01	IVB01	P1	Disable and enable supplemental restraint systems (SRS).
ATSSB02	IVB02	P1	Remove and replace steering wheel; center/time supplemental restraint system (SRS) coil in accordance with manufacturer's procedure.
ATSSB03	IVB03	P2	Diagnose steering column noises, looseness, and binding concerns (including tilt mechanism); determine necessary action.
ATSSB04	IVB04	P3	Diagnose power steering gear (non-rack and pinion) binding, uneven turning effort, looseness, hard steering, noise, and fluid leakage concerns; determine necessary action.
ATSSB05	IVB05	P3	Diagnose power steering gear (rack and pinion) binding, uneven turning effort, looseness, hard steering, noise, and fluid leakage concerns; determine necessary action.
ATSSB06	IVB06	P2	Inspect and replace steering shaft universal-joint(s), flexible coupling(s), collapsible column, lock cylinder mechanism, and steering wheel; perform necessary action.
ATSSB07	IVB07	P3	Adjust manual or power non-rack and pinion worm bearing preload and sector lash.
ATSSB08	IVB08	P1	Remove and replace manual or power rack and pinion steering gear; inspect mounting bushings and brackets.
ATSSB09	IVB09	P1	Inspect and replace manual or power rack and pinion steering gear inner tie rod ends (sockets) and bellows boots.
ATSSB10	IVB10	P1	Determine proper power steering fluid type; inspect fluid level and condition.
ATSSB11	IVB11	P2	Flush, fill, and bleed power steering system.
ATSSB12	IVB12	P2	Diagnose power steering fluid leakage; determine necessary action.
ATSSB13	IVB13	P1	Remove, inspect, replace and adjust power steering pump belt.
ATSSB14	IVB14	P3	Remove, and reinstall power steering pump.
ATSSB15	IVB15	P3	Remove, and reinstall power steering pump pulley; check pulley and belt alignment.
ATSSB16	IVB16	P2	Inspect and replace power steering hoses and fittings.
ATSSB17	IVB17	P2	Inspect and replace pitman arm, relay (center link/intermediate) rod, idler arm and mountings, and steering linkage damper.
ATSSB18	IVB18	P1	Inspect, replace, and adjust tie rod ends (sockets), tie rod sleeves, and clamps.
ATSSB19	IVB19	P3	Test and diagnose components of electronically controlled steering systems using a scan tool; determine necessary action
ATSSB20	IVB20	P3	Inspect and test non-hydraulic electric-power assist steering.
ATSSB20	A		Pressure test power steering pump
ATSSB21	IVB21	P3	Identify hybrid vehicle power steering system electrical circuits, service and safety precautions
ATSSB21	A		R & R, disassemble, clean and inspect non-rack-and-pinion, manual and power steering gear boxes
ATSSB22	A		Disassemble, clean, inspect and adjust rack-and-pinion manual and power steering gears
ATSSC	IVC	T	SUSPENSION AND STEERING: SUSPENSION SYSTEM DIAGNOSIS AND REPAIR
ATSSC1	IVC1	T	SUSPENSION SYSTEM DIAGNOSIS AND REPAIR: FRONT SUSPENSION
ATSSC101	IVC101	P1	Diagnose short and long arm suspension system noises, body sway, and uneven riding height problems; determine necessary action.
ATSSC102	IVC102	P1	Diagnose strut suspension system noises, body sway, and uneven riding height concerns; determine necessary action.
ATSSC103	IVC103	P3	Remove, inspect, and replace upper and lower control arms, bushings, shafts, and rebound bumpers.
ATSSC104	IVC104	P2	Remove, inspect, and install strut rods (compression/tension) and bushings.
ATSSC105	IVC105	P1	Remove, inspect, and install upper and lower ball joints.
ATSSC106	IVC106	P2	Remove, inspect, and install steering knuckle assemblies.
ATSSC107	IVC107	P3	Remove, inspect, and install short and long arm suspension system coil springs and spring insulators.
ATSSC108	IVC108	P3	Remove, inspect, and install suspension system torsion bars; inspect mounts.
ATSSC109	IVB109	P3	Remove, inspect, and install stabilizer bar bushings, brackets, and links.
ATSSC110	IVB110	P1	Remove, inspect, and install strut cartridge or assembly, strut coil spring, and insulators (silencers), and upper strut bearing mount.
ATSSC111	IVC111	P2	Lubricate suspension and steering systems.
ATSSC2	IVC2	T	SUSPENSION SYSTEMS DIAGNOSIS AND REPAIR: REAR SUSPENSION
ATSSC201	IVC201	P2	Remove, inspect, and install coil springs and spring insulators.
ATSSC202	IVC202	P2	Remove, inspect, and install transverse links, control arms, bushings, and mounts.
ATSSC203	IVC203	P3	Remove, inspect, and install leaf springs, leaf spring insulators (silencers), shackles, brackets, bushings, and mounts.
ATSSC204	IVC204	P2	Remove, inspect, and install strut cartridge or assembly, strut coil spring, and insulators (silencers).
ATSSC3	IVC3	T	SUSPENSION SYSTEM DIAGNOSIS AND REPAIR: MISCELLANEOUS SERVICE
ATSSC301	IVC301	P2	Inspect, remove, and replace shock absorbers.

ATSSC302	IVC302	P1	Remove, inspect, and service or replace front or rear wheel bearings.
ATSSC303	IVC303	P3	Test and diagnose components of electronically controlled suspension systems using a scan tool; determine necessary action.
ATSSD	IVD	T	SUSPENSION AND STEERING: WHEEL ALIGNMENT DIAGNOSIS, ADJUSTMENT AND REPAIR
ATSSD01	IVD01	P1	Diagnose vehicle wander, drift, pull hard steering, bump steering, memory steering, torque steer, and steering return concerns; determine necessary action.
ATSSD02	IVD02	P1	Perform prealignment inspection; perform necessary action.
ATSSD03	IVD03	P1	Measure vehicle riding height; determine necessary action.
ATSSD04	IVD04	P1	Check and adjust front and rear wheel camber; perform necessary action.
ATSSD05	IVD05	P1	Check and adjust caster; perform necessary action.
ATSSD06	IVD06	P1	Check and adjust front wheel toe; and center steering wheel.
ATSSD07	IVD07	P2	Check toe-out-on-turns (turning radius); determine necessary action.
ATSSD08	IVD08	P2	Check SAI (steering axis inclination) and included angle; determine necessary action.
ATSSD09	IVD09	P1	Check and adjust rear wheel toe.
ATSSD10	IVD10	P1	Check rear wheel thrust angle; determine necessary action.
ATSSD11	IVD11	P2	Check for front wheel setback; determine necessary action.
ATSSD12	IVD12	P3	Check front cradle (sub frame) alignment; determine necessary action.
ATSSE	IVE	T	SUSPENSION AND STEERING: WHEEL AND TIRE DIAGNOSIS AND REPAIR
ATSSE01	IVE01	P1	Diagnose tire wear patterns; determine necessary action.
ATSSE02	IVE02	P1	Inspect tires; check and adjust air pressure.
ATSSE03	IVE03	P2	Diagnose wheel/tire vibration, shimmy and noise; determine necessary action.
ATSSE04	IVE04	P1	Rotate tires according to manufacturer's recommendations.
ATSSE05	IVE05	P2	Measure wheel, tire, axle, and hub run-out; determine necessary action.
ATSSE06	IVE06	P2	Diagnose tire pull (lead) problem; determine necessary action.
ATSSE07	IVE07	P1	Balance wheel and tire assembly (static and dynamic).
ATSSE08	IVE08	P2	Dismount, inspect, and remount tire on wheel.
ATSSE09	IVE09	P3	Dismount, inspect and remount tire on wheel equipped with tire pressure sensor.
ATSSE10	IVE10	P1	Reinstall wheel; torque lug nuts.
ATSSE11	IVE11	P1	Inspect tire and wheel assembly for air loss; perform necessary action.
ATSSE12	IVE12	P1	Repair tire using internal patch.
ATSSE13	IVE13	P3	Inspect, diagnose, and calibrate tire pressure monitoring system.