

DACUM Research Chart for Automotive Technology

(e.g., Automotive Technician, Automotive
Apprentice, Automotive Mechanic)

DACUM Panel

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Duties		← Tasks →					
A	Complete Documentation Requirements	A-1 Document work time	A-2 Prepare work order (e.g., vehicle vitals)	A-3 Verify customer complaint	A-4 Diagnose customer concern	A-5 Prepare work estimate	
	Perform Preventative Maintenance	B-1 Verify vehicle specific maintenance schedule		B-2 Conduct vehicle walk around inspection (e.g., tire pressure, tread, body damage)		B-3 Conduct under hood inspection (e.g., hoses, belts, wiring, air cleaner, filters, fluid leaks)	
C	Maintain Brake Systems	B-10 Service transfer case fluid system	B-11 Service brake fluid system	B-12 Service transmission fluid system	B-13 Service power steering fluid system	B-14 Service coolant fluid system	
		C-1 Road test to verify brake function(s)	C-2 Perform brake inspection & diagnosis (hands-on & visual)		C-3 Verify brake specifications	C-4 Rebuild/replace master cylinder	C-5 Service boosters
		C-13 Service proportioning valves	C-14 Service metering valves	C-15 Service pressure differential valve	C-16 Service brake warning system (tail lights)	C-17 Service brake warning system (dash indicator)	
D	Maintain Engine	D-1 Diagnose engine problems (e.g., leaks, cracks, compression, unusual noises)		D-2 Service engine gaskets (e.g., head, manifold)	D-3 Service engine seals (rear main)	D-4 Service engine cooling system (e.g., water pump, radiator, coolant flush)	
E	Maintain Fuel Systems	E-1 Diagnose fuel system problems	E-2 Test fuel quality	E-3 Road test to determine fuel system problem(s)	E-4 Inspect for fuel system leaks (e.g., evaporation, liquid, air leaks)		
		E-11 Service water separators/filter systems	E-12 Service fuel level sensors				
F	Perform Ignition Systems Service	F-1 Diagnose ignition system problems (e.g., scan tool, scope)		F-2 Verify ignition system function/operation	F-3 Service battery	F-4 Service ignition signaling systems	
		F-11 Service ignition coil(s)	F-12 Service spark plugs & wires	F-13 Service distributor rotor systems	F-14 Service emission control systems	F-15 Perform ignition road test	
		G-1 Diagnose affected electrical/electronic system malfunction(s)		G-2 Service alternator/generator charging system		G-3 Service exterior lighting (e.g., headlight, dimming, turn signal indicators)	
G	Maintain Electrical/Electronic Systems	G-10 Service cooling fan systems	G-11 Service horn systems	G-12 Service SIR systems (e.g., air bags, seat belts)	G-13 Service cruise control systems	G-14 Service entertainment systems	

A-6 Request needed parts	A-7 Perform required services	A-8 Verify customer concern was corrected	A-9 Document work performed	A-10 Track work orders	A-11 Complete special reports (e.g., accident, vendor/brand)	
B-4 Conduct under vehicle inspection (e.g., exhaust system, fluid leaks)		B-5 Perform full service oil change (lube, oil, filter)	B-6 Check tire air pressure & tire condition	B-7 Inspect brakes	B-8 Conduct road test (fleet vehicles)	B-9 Rotate tires
B-15 Top off all fluids (e.g., power steering, brake)						
C-6 Rebuild/replace wheel cylinders	C-7 Rebuild/replace calipers	C-8 Machine rotors/drums	C-9 Service caliper hardware	C-10 Service brake shoes/hardware/self-adjusters	C-11 Service parking brake system	C-12 Service brake lines
C-18 Bleed brake system	C-19 Retrieve ABS codes	C-20 Clear ABS codes	C-21 Diagnose ABS fault codes	C-22 Service ABS system components	C-23 Service traction control system	C-24 Road test vehicle to verify repair
D-5 Service cam timing system	D-6 Service engine lubrication system (e.g., oil pump)		D-7 Service fly wheel & harmonic balancer	D-8 Service valve train components	D-9 Service short block components (e.g., machining, measurements, parts replacement)	
E-5 Service fuel filters	E-6 Service fuel metering systems (e.g., injectors, regulators, switching valves)		E-7 Service fuel & transfer pumps	E-8 Service evaporation system	E-9 Service fuel heaters/coolers	E-10 Service fuel tanks/lines
F-5 Service starter	F-6 Service starter solenoid	F-7 Service power train control modules & inputs		F-8 Service points & condensers	F-9 Service ignition modules	F-10 Service pickup coils
G-4 Service interior lighting	G-5 Service bussed/electrical controls (e.g., fuses, relays)		G-6 Perform diagnostics for Body Control Module (BCM)	G-7 Diagnose & repair wiring harness/trailer	G-8 Service instrument clusters & displays	G-9 Service wiper/washer systems
G-15 Service remote start controls	G-16 Service heated glass systems	G-17 Service seats, heated & power	G-18 Service navigation/phone systems	G-19 Service power mirrors & power windows	G-20 Service back-up alarm systems	G-21 Service power outlets

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Duties		← Tasks →				
G	Maintain Electrical/Electronic Systems (cont.)	G-22 Service power steering columns	G-23 Service remote keyless entry/security systems	G-24 Service power roof panel/window systems	G-25 Service vehicle release actuators (power window/door locks)	
	H	Maintain Suspension/Steering Systems	H-1 Diagnose steering and/or suspension concerns	H-2 Service steering column	H-3 Service suspension components (e.g., ball joints, bushings, control arms)	H-4 Service steering linkages (e.g., drag link, tie rods, pitman rods)
H-11 Service air/air ride suspension (e.g., leveling sensors, pumps, electronic suspension controls)			H-12 Service shocks & struts (e.g., air, spring, & electronic)		H-13 Service tires & wheels	
I	Maintain Drive Line Systems	I-1 Diagnose drive line concerns	I-2 Conduct visual drive line check (e.g., leaks, failed components)		I-3 Service clutch systems (e.g., mechanical & hydraulic, main linkages)	
		I-10 Service manual transmissions				
J	Maintain HVAC Systems	J-1 Test HVAC system performance	J-2 Diagnose HVAC system failure	J-3 Conduct refrigerant leak/dye test	J-4 Conduct refrigerant pressure system test	J-5 Service climate control systems (e.g., Heppa filters, ducts)
		J-11 Service heater core	J-12 Service engine coolant systems (e.g., thermostats, valves, & sensors)			
K	Perform Trim Repair	K-1 Verify owner complaint(s)	K-2 Service doors (e.g., regulators, latches, locks)	K-3 Replace moldings, emblems, pinstriping)	K-4 Service mechanical seat controls	K-5 Replace seat covers
		K-13 Replace head liners	K-14 Replace dashboards			
L	Pursue Professional Development	L-1 Obtain automotive technician certification (ASE & state licensing)		L-2 Maintain licensing	L-3 Participate in factory offered training courses	L-4 Attend college courses in automotive technology

Acronyms

DVOM = digital volt ohm meter
 ABS = Antilock Braking System
 ASE = Automotive Service Excellence

G-26 Service power adjustable pedals	G-27 Service power antenna	G-28 Service theft disable system	G-29 Service vehicle speed sensor system	G-30 Service rear defogger		
H-5 Service steering gear boxes (power/non-power)	H-6 Service steering rack & pinion	H-7 Service power steering assist system	H-8 Service coil spring, leaf springs, & torsion bars	H-9 Service stabilizer/sway bar control systems	H-10 Service power steering system (e.g., pump, cooler, pressure switch, hoses, and & electronic controls)	
H-14 Service low pressure tire system	H-15 Service rear wheel steering	H-16 Align front and/or rear vehicle suspension				
I-4 Service drive shaft	I-5 Service wheel/hub bearings	I-6 Service shift link controls	I-7 Service transfer case (e.g., manual control systems or electronic control system)	I-8 Service front/rear drive axle	I-9 Service automatic transmissions	
J-6 Service refrigerant (identify, evacuate, recover/recycle, recharge)		J-7 Flush AC system	J-8 Service AC components (e.g., compressor, condenser, evaporator, dryer)		J-9 Retrofit AC systems	J-10 Service blower motor controls
K-6 Service interior water/air leaks	K-7 Adjust body panel fits	K-8 Fit interior trim panels	K-9 Replace weather strips/seals	K-10 Replace door glass	K-11 Replace hood/deck lift struts	K-12 Replace carpets
L-5 Obtain Associate Degree in Auto Technology	L-6 Attend seminars & workshops	L-7 Read current technical literature	L-8 Participate in Service Technicians organization		L-9 Mentor new staff	

General Knowledge and Skills

Basic computer skills
Mechanical knowledge
Mechanical aptitude
Math skills
Drill tap extract skills
Evaluate/diagnose skills
Replacement parts
Written & verbal skills
Proper use of tools
Electrical theory
Valid drivers license
Comprehension skills
Electrical skills
Time management skills
Basic welding skills
Product knowledge

Communication skills: written & verbal, reading & comprehension
Battery charging methods
Splice, cut wires, & tube skills
Safety rules/regulations
Federal/state vehicle legislation (e.g., clean air, fuel, economy, Federal Safety standards, lemon laws)
Dealership/technician license & liability practices/laws
Organizational skills
Theory/concepts of vehicle system operation
Principles of auto repair
Reading & comprehension skills

Worker Behaviors

Motivated
Good common sense
Self confident
Task oriented
Honest
Customer focused
Energetic
Able to work independently
Maintain high level of integrity
Strong moral character
Personal hygiene/grooming
Time management
Open minded
Organized
Maintain health

Positive work ethics
Gender sensitivity
Flexible
Problem solver
Strong desire to excel
Punctual/reliable
Attentive to detail
Polite
Pass drug screening
Able to learn
Team focused

Tools, Equipment, Supplies and Materials

Scan tools
Basic shop tools
Tech II service manual
Torque wrenches
Dial indicator
Self powered test light
Transmission fluids
Adhesives
Hoist
Tool box
Sander disk
Fender skirts
Glue gun
Rigid carbon scrapers
Oil filter wrenches
Tire thread depth gauge
Antifreeze tester
A/C charger/recharger
Small scope
Welding tools
DVOM
PC
Measuring tools
Battery testers
Micrometers & dial calipers
Measuring tools
Oils
Lubricants
Lifts
Cleaning tools

Parts cleaning stations
Cleaning supplies
Gauges-compression-cylinder leaks
Towels
Jack stands
Hammer, mallet
Torque wrench
Air guns, air wrenches, air hoses, air chucks, air chisel forks
Standard set of hand tools, wrenches, screw drivers, impact sockets
Pry bars
Accessory to "J tools"
Welder
Cooling system press tester
Temp gauges
PSI gauge
Fuel filter removal tool
Puller set
Remote mic set
Coolant reclaim
Jacks & lifts
Multimeters
Calipers
Test lights
Trim removal tool
Air compressor
Alignment rack/machine
Grinder
Heat gun

Micrometers & dial calipers
Measuring tools
Safety glasses
Impact gun
Personal protection/safety gear
VAT battery load tester
Gun tester
Static strap

Future Trends and Concerns

Work on hybrid cars
Vehicles technical harder to work on
Work with alternative fuel systems
Employee retention
Government/emission standards
Small potential employee pool
Satellite communications
Technician pay increasing
Higher environmental standards
More electronics/gimics
More specialization
Fewer automotive training programs
More exotic materials used
Higher customer expectations
Paperless service manuals
More complicated repair skills required