

# DACUM Validation: Entry Technician (Apprentice Automotive Technician)

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## Expert Worker (DACUM) Panel

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Technician  
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## FACILITATORS

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# DACUM Validation for Entry Technician (Apprentice Automotive Technician)

## Duties

<b>A Complete Documentation Requirements</b>	A1 Document work time 1 4	A2 Verify customer complaint 5 5	A3 Diagnose customer concern 1 3 5 1	A4 Prepare work estimate 2	A5 Request needed parts 3	A6 Verify customer concern was corrected 3 3 2
<b>B Perform Preventative Maintenance</b>	B1 Perform mileage interval services 2 1	B2 Conduct vehicle walk around inspection (e.g., tire pressure, tread, body damage) 1 2 2	B3 Conduct under hood inspection (e.g., hoses, belts, wiring, air cleaner, filters, fluid leaks) 4 5 4	B4 Conduct under vehicle inspection (e.g., exhaust system, fluid leaks) 3 4 2	B5 Perform full service oil change (lube, oil, filter) 2 6 3	B6 Check tire air pressure & tire condition 1
<b>C Maintain Brake Systems</b>	C1 Road test to verify brake function 1	C2 Perform basic brake inspection (hands-on & visual) 2	C3 Verify brake specifications 2 3 1	C4 Machine brake rotors/drums 2 2	C5 Service drum brake systems (except hydraulics) 3	C6 Service disk brake systems (except hydraulics) 1
<b>D Service Cooling System</b>	D1 Pressure test cooling system 1	D2 Replace external water pump 4 1	D3 Replace cooling thermostat 2	D4 Replace cooling hoses & belts 2	D5 Replace cooling radiator 4	D6 Replace cooling fan systems 2
<b>E Service Fuel Systems</b>	E1 Inspect for fuel system leaks (e.g. liquid, air leaks) 1	E2 Service fuel filters	E3	E4	E5	D6
<b>F Perform Ignition Systems Service</b>	F1 Service vehicle battery 1	F2 Replace engine starter 2	F3 Replace starter solenoid 3	F4 Replace ignition coil(s) 1	F5 Replace spark plugs & wires 1	F6 Replace distributor cap & rotor
<b>G Maintain Electrical/Electronic Systems</b>	G1 Replace electrical alternator/generator 2	G2 Service exterior lighting (e.g., headlight, dimming, turn signal indicators)	G3 Service interior lighting	G4 Replace electrical fuses, relays, switches & resistors 1	G5 Install electrical accessories (e.g. entertainment systems) 3	G6 Service wiper/washer systems
<b>H Maintain Suspension/Steering Systems</b>	H1 Inspect steering & suspension components 2 1	H2 Replace steering & suspension components 2 2	H3 Service vehicle tires & wheels 1 2 1	H4 Service low pressure tire system 1 1 1	H5 Align front/rear vehicle suspension 1 3 2 1	H6
<b>I Maintain Drive Line Systems</b>	I1 Conduct visual drive line check (e.g., leaks, failed components) 3	I2 Service drive shaft components (i.e., lube/replace drive shaft)	I3 Service wheel/hub bearing assemblies 1	I4	I5	I6
<b>J Maintain HVAC Systems</b>	J1 Test HVAC system performance 1 1 2	J2 Conduct refrigerant leak/dye test 1 2 1	J3 Replace HVAC Filters	J4 Replace blower motor controls	J5	J6
<b>K Perform Trim Repair</b>	K1 Replace moldings & emblems 1	K2 Service mechanical seat controls 1	K3 Replace interior trim panels 1	K4 Replace weather strips/seals 1	K5 Replace door glass 1	K6 Replace hood/deck lift struts
<b>L Maintain Shop</b>	L1 Clean shop floors 1 1	L2 Empty waste oil 1 1 1	L3	L4	L5	L6
<b>Maintain Safe Work Environment</b>	K1 Clean up spills ASAP 1 1	K2 Report broken/worn tools equipment 1 1	K3	K4	K5	K6
<b>Pursue Professional Development</b>	L1 Obtain automotive technician certification (ASE & state licensing) 5	L2 Participate in factory offered training 3 1 1	L3 Participate in service technicians organization (e.g. unions)	L4	L5	L6

## Tasks

A7 Document work performed 5 5 1	A8	A9	A10	A11	A12	A13	A14
B7 Inspect vehicle brakes 2 4 2	B8 Rotate vehicle tires 2	B9 Service transfer case fluid system	B10 Service brake fluid system	B11 Service automatic & manual transmission fluid system 1 1	B12 Service power steering fluid system	B13 Service coolant fluid system 1	B14 Top off all fluids (e.g., power steering, brake, clutch) 2
C7 Service parking brake system	C8 Bleed brake system 1	C9	C10	C11	C12	C13	C14
D7	D8	D9	D10	D11	D12	D13	D14
E7	E8	E9	E10	E11	E12	E13	E14
F7	F8	F9	F10	F11	F12	F13	F14
G7 Service horn systems	G8 Perform unit replacements (power windows, power locks, door locks, antenna) 2 1 2	G9 Service power outlets	G10 Service remote keyless entry/security systems 1 1	G11	G12	G13	G14
H7	H8	H9	H10	H11	H12	H13	H14
I7	I8	I9	I10	I11	I12	I13	I14
J7	J8	J9	J10	J11	J12	J13	J14
K7	K8	K9	K10	<b>Legend</b>  ..... Critical task  ..... Most frequent task  ..... Training required by New Workers  ..... Training required by Veteran workers  Note: Numbers represent total votes from 6 panel members. Tasks that are highlighted light yellow are Lube/Hood Technicians perform.			
L7	L8	L9	L10				
K7	K8	K9	K10				
L7	L8	L9	L10				

# DACUM Validation Profile: Entry Technician/Apprentice Automotive Technician

**Occupational Definition:** An entry-level automotive technician performs limited diagnosis and entry-level repair to gasoline powered cars and light trucks under supervision in order to maximize profit for the shop.

## Tools, Equipment & Materials

- Air compressor
- Air guns, air wrenches, air hoses, air chucks, air chisel forks
- Alignment machine
- Antifreeze tester
- Basic shop tools
- Battery testers
- Bearing removers and installers
- Brake depth gauge
- Brake lathe
- Bungee cords
- Caliper depressor
- Charging systems tester
- Cleaning tools
- Coil spring compressor
- Coolant reclaim
- Cooling system press tester
- Dial calipers
- Dial indicator
- Drill
- Drill bits
- Fender cover
- Flashlight
- Fuel filter removal tool
- Grinder
- Heat gun
- Jack stands
- Jacks
- Lubricants
- Measuring tools
- Micrometer
- Mirror
- Multimeter
- Oil Drain
- Oil filter wrenches
- Oils
- Parts cleaning stations
- PC
- Pen
- Personal protection/safety gear/glasses
- Pressure tester
- Pry bars
- PSI gauge
- Race installers
- Sander disk
- Seat covers/floor mats
- Self powered test light
- Standard set of hand tools, wrenches, screw drivers, impact sockets, hammer
- Telescoping Magnet
- Temp gauges
- Test light
- Tire machine
- Tire Thread depth gauge
- Tool box
- Torque wrenches
- Towels
- Transmission fluids
- Trim removal tool
- Wheel Balancer

## Traits & Behaviors

- Able to learn
- Able to work independently
- Attentive to detail
- Aware of surroundings
- Buys tools he is borrowing frequently
- Can pass drug screening
- Comfortable around cars
- Cooperative
- Courteous
- Customer focused
- Desires to learn
- Discrete
- Eager
- Energetic
- Flexible
- Good common sense
- Good work ethics
- Honest
- Maintains health
- Maintains high level of integrity
- Mechanical aptitude
- Motivated
- Open minded
- Operates within scope of practice
- Organized
- Patient
- Polite
- Problem Solver
- Professional
- Punctual
- Reliable
- Respects common tools
- Respects owner's vehicles (leaves car clean, and radio/ac controls untouched)
- Self confident
- Sense of humor
- Strong desire to excel
- Strong moral character
- Task oriented
- Team focused
- Wear appropriate attire
- Wear appropriate safety gear
- Willing to do what's needed
- Willing to get hands dirty

## Skills

- Basic computer skills: fill out forms, key information, open attachments, research issues using proprietary tools
- "Communication skills: Written- fill out forms, document repairs to vehicles Verbal- communicate clearly"
- Dealership/technician license & liability practices & laws
- Diagnostic/evaluation skills
- Drill tap extract skills
- Drive stick
- Electrical skills, including diagnosing electrical issues, splicing wire, cutting wire, and tube skills
- Follow instructions
- Follow safety rules
- Following diagnostic tree
- Identifying/replacing blown fuses
- maintain own tools
- Math skills: units of measure, calculating volume, converting weight, measuring voltage
- Organize work & work area
- Performing road tests
- Reading & comprehension: must be able to read and comprehend manuals, service bulletins, technical information written in English
- Research & find technical information
- Retrieve & clear diagnostic codes
- Time management skills

## Knowledge

- Technicians need to "know a little bit about a lot of things."
- AC components
- Automotive Theory
- Awareness of federal/state legislation (e.g. clean air act, fuel, economy, federal safety standards, lemon laws)
- Battery charging methods
- Be able to pass ASE written exam
- Body panel fits
- Brake systems
- Brake systems
- Electrical theory
- Electrical wiring
- Emerging theory for new technologies
- Ignition systems
- Mechanical knowledge
- MSDS sheets
- Product knowledge
- Proper use of tools
- Replacement parts
- Safety rules & regulations
- Steering rack & pin
- Theory/concepts of vehicle operation
- Types of accessories: entertainment systems, navigation systems, roof racks, spoilers
- Vehicle electrical systems
- Wireless technologies

## Physical Attributes

- Worker must be able to:
- lift at least 50 lbs.
  - stand for long hours
  - work in non-climate controlled environments
  - work with arms above head to extended periods

## Appearance

- Free of facial piercings
- Wear clean uniforms
- Clean
- Well groomed
- Professional
- No tennis shoes

## Future Trends & Concerns

- Increasing level of diagnostic skill will be needed
- Increasing technical skills required to service vehicles
- Electric cars/zero-emission cars becoming more prevalent
- More advanced technology
- Increasingly complex
- More specialization
- More stringent government controls/licensing
- Repairs will decrease
- Materials used in vehicles lasting longer
- Companies being billed for training
- Job is becoming increasingly technical

## Dying Trends

- Cap and Rotor Wire Systems

## Certifications

**Mandatory:** Driver's license

**Helpful:** ASE

**Degrees vs. Certificates:** Several panelists felt that associates degrees "focused too much on skills not useful for this job." All were underwhelmed with the students graduating from proprietary schools, stating that what is being taught is antiquated, and that students aren't being adequately prepared to work.