

# DACUM Research Chart for Heavy Truck Technician

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Duties

← Tasks →

<b>A</b>	<b>Perform Prevention Maintenance On Tractors</b>	A-1 Inspect tractor body mud flaps	A-2 Inspect tractor lights	A-3 Inspect tractor glass	A-4 Inspect operation of motorized and heated mirrors	A-5 Check AC operation
		A-13 Inspect hydro-pack	A-14 Inspect battery cables	A-15 Inspect emergency and service hoses and connectors	A-16 Change oil, oil filter, and fuel filter	A-17 Check clutch adjustment
		A-25 Inspect engine compartment	A-26 Inspect engine belts and hoses	A-27 Check coolant chemistry	A-28 Check air intake filters	
<b>B</b>	<b>Perform Preventive Maintenance On Trailers</b>	B-1 Inspect trailer body for damage/inspect trailer lights	B-2 Inspect trailer air brake connections	B-3 Inspect trailer tires	B-4 Inspect undercarriage	B-5 Inspect props
<b>C</b>	<b>Repair Heavy Truck Engines</b>	C-1 Troubleshoot intake air system	C-2 Replace intake air ducting	C-3 Inspect turbo charger	C-4 Replace turbo charger	C-5 Troubleshoot air-to-air cooler
		C-13 Troubleshoot water pump	C-14 Replace water pump	C-15 Troubleshoot coolant thermostats	C-16 Replace coolant thermostats	C-17 Inspect fan hub
		C-25 Inspect fan and fan shroud	C-26 Replace fan and fan shroud	C-27 Diagnose radiator	C-28 Replace radiator	C-29 Inspect coolant surge tank
		C-37 Replace fuel tanks	C-38 Inspect shut-off valves	C-39 Replace cam shaft bearings/bushings	C-40 Inspect cam follower/rollers	C-41 Replace cam follower/rollers
		C-49 Replace fuel injectors	C-50 Troubleshoot lube and oil system	C-51 Replace oil pump	C-52 Replace oil pump	C-53 Replace oil pressure relief valve
		C-61 Inspect rocker assembly	C-62 Replace rocker assembly	C-63 Adjust valve injectors	C-64 Replace engine block	C-65 Inspect oil pan
		C-73 Inspect connecting rods	C-74 Replace connecting rods	C-75 Inspect piston assembly	C-76 Replace piston assembly	C-77 Inspect cylinder liners
		C-85 Adjust engine brakes	C-86 Inspect valve covers	C-87 Replace valve covers	C-88 Inspect front gear housing assembly	C-89 Replace front gear housing assembly

A-6 Check dash gauge operation	A-7 Check city and air-horn operation	A-8 Check operation of radio	A-9 Inspect windshield wipers/motors	A-10 Inspect tractor tires	A-11 Check operation of fifth wheel	A-12 Check air ride suspension height
A-19 Check fluid levels	A-19 Inspect brake components	A-20 Inspect drive line	A-21 Inspect steering components	A-22 Lube tractor chassis	A-23 Inspect exhaust system	A-24 Check for air leaks
B-6 Inspect kingpin	B-7 Inspect crossmembers	B-8 Inspect trailer brake components	B-9 Lube trailer chassis	B-10 Inspect ICC bumpers	B-11 Inspect door hardware	B-12 Inspect inside header roof B-13 Inspect scuff liners
C-6 Replace air-to-air cooler	C-7 Inspect intake manifold	C-8 Replace intake manifold	C-9 Inspect exhaust manifold	C-10 Replace exhaust manifold	C-11 Troubleshoot exhaust components	C-12 Replace exhaust components
C-18 Replace injector sleeves	C-19 Inspect cam shaft	C-20 Replace cam shaft	C-21 Inspect cam shaft bearings/bushings	C-22 Replace fan hub	C-23 Troubleshoot fan clutch	C-24 Replace fan clutch
C-30 Replace coolant surge tank	C-31 Troubleshoot fuel system	C-32 Troubleshoot injection pump	C-33 Replace injection pump	C-34 Troubleshoot fuel transfer pump	C-35 Replace fuel transfer pump	C-36 Inspect fuel tanks
C-42 Inspect push rods/tubes	C-43 Replace shut-off valves	C-44 Inspect fuel supply and return lines	C-45 Replace fuel supply and return lines	C-46 Diagnose fuel/water/separator/heater	C-47 Replace fuel/water/separator/heater	C-48 Troubleshoot fuel injectors
C-54 Replace oil filter head	C-55 Replace oil cooler	C-56 Replace oil thermostat	C-57 Replace bypass valve	C-58 Replace piston cooling nozzles	C-59 Inspect engine block	C-60 Replace push rods/tubes
C-66 Replace oil pan	C-67 Inspect crank shaft	C-68 Replace crank shaft	C-69 Inspect main bearings	C-70 Replace main bearings	C-71 Inspect connecting rod bearings	C-72 Replace connecting rod bearings
C-78 Replace cylinder liners	C-79 Diagnose cylinder head gasket	C-80 Replace cylinder head gasket	C-81 Diagnose cylinder head	C-82 Replace cylinder head	C-83 Diagnose engine brakes	C-84 Replace engine brakes
C-90 Inspect front gear train	C-91 Replace front gear train	C-92 Inspect rear gear housing assembly	C-93 Replace rear gear housing assembly	C-94 Inspect fly wheel housing	C-95 Replace fly wheel housing	

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## General Knowledge and Skills

Brake inspector certification  
Refrigerant recovery certification  
Hazardous materials knowledge  
Air conditioning recovery machine operation  
OSHA wheel/rim safety class  
Alignments (front and rear)

Basic electricity  
Digital multimeter  
Computer operation  
Digital operation  
Welding, torch operator  
Commercial drivers license/B classification  
Problem solving skills  
Follow instructions

## Worker Behaviors

Punctuality  
Team player  
Cooperative  
Work ethic  
Respectful  
Adaptable  
Drug free  
Dependable  
Good listener  
Flexible

## Tools, Equipment, Supplies and Materials

Rocker lift tool  
Head lift tool  
Cam gear holding tool  
Pressure vacuum gauges  
Hydraulic press  
M16 welder  
Arc welder  
Torch  
Assorted driveline sockets  
Cherry picker  
Pressure regulators  
Heat oven  
Liner puller/installer  
Coolant pressure tester  
Test ECM/s  
Injector height gauge  
Feeler gauge  
Digital multimeter  
Alternator tester  
Battery tester  
Assorted size impacts ¼ through 1”  
Precision measuring equipment

Jack stands  
Wheel dollies  
Parts washer  
Seal drivers  
Transmission jack  
Clutch caddy  
Piston ring compressor  
Engine timing tools  
Special hand tools  
Air compressor/hose  
Ejector puller  
General purpose hand tools  
Engine stands  
AC recovery machine  
One-inch tire and impact gun  
Pro-link reader  
Laptop computer  
Wireless keyboard  
Detroit, Cummins, CAT, mentor programs  
Torque wrenches  
Air jacks  
Bumper jacks

## Future Trends and Concerns

Recruiting technicians

# DACUM Research Chart for Heavy Truck Technician

Duties		← Tasks →				
<b>D</b>	<b>Repair Brake System</b>	D-1 Replace air compressor	D-2 Diagnose air governor	D-3 Replace air governor	D-4 Diagnose air dryer	D-5 Replace air dryer
		D-13 Replace MV3 valve	D-14 Diagnose tractor protection valve	D-15 Replace tractor protection valve	D-16 Inspect quick release valves	D-17 Replace quick release valves
		D-25 Replace foundation brakes (e.g., slack adjusters, cams and brakes)	D-26 Inspect air lines	D-27 Replace air lines	D-28 Remove wheel speed sensor	D-29 Replace wheel speed sensor
<b>E</b>	<b>Repair Drive Train</b>	E-1 Diagnose clutch problems	E-2 Adjust clutch	E-3 Replace clutch	E-4 Diagnose transmission electronics	E-5 Diagnose mechanical transmission components
		E-13 Inspect bearings and races	E-14 Replace bearings and races	E-15 Replace wheel seals	E-16 Diagnose power divider	E-17 Replace power divider
<b>F</b>	<b>Repair HVAC System</b>	F-1 Diagnose refrigeration system	F-2 Diagnose A/C compressor	F-3 Replace A/C compressor	F-4 Diagnose A/C clutch	F-5 Replace A/C clutch
		F-13 Replace A/C evaporation	F-14 Diagnose A/C refrigerant pressure switches	F-15 Replace A/C refrigerant pressure switches	F-16 Inspect refrigerant lines	F-17 Replace refrigerant lines
		F-25 Inspect HVAC heater hoses	F-26 Replace HVAC heater hoses	F-27 Evacuate refrigerant from A/C system	F-28 Perform leak test and recharge A/C system	F-29 Purge A/C system
<b>G</b>	<b>Perform Tractor Cab and Body Repair</b>	G-1 Remove/replace front bumper	G-2 Remove/replace fuel tank skirt	G-3 Remove/replace cab extenders	G-4 Remove/replace hood	G-5 Remove/replace mirrors and brackets
<b>H</b>	<b>Perform Tire Maintenance</b>	H-1 Remove tire wheel assembly	H-2 Troubleshoot tire pattern wear	H-3 Identify tire types and applications	H-4 Identify wheel rim type	H-5 Dismount tires
<b>I</b>	<b>Perform Trailer Repair</b>	I-1 Repair trailer lighting system	I-2 Repair/replace landing gear	I-3 Repair sliding tandems	I-4 Repair ABS system	I-5 Replace/repair doors
<b>J</b>	<b>Repair Heavy Truck Electronics</b>	J-1 Perform data bus operations	J-2 Perform ECM diagnostic checks	J-3 Troubleshoot sensors and switches	J-4 Troubleshoot/remove/replace radio	J-5 Troubleshoot/repair accessory circuit

D-6 Inspect air tanks	D-7 Replace air tanks	D-8 Diagnose check valves	D-9 Replace check valves	D-10 Diagnose foot valve	D-11 Replace foot valve	D-12 Diagnose MV3 valve
D-18 Diagnose parking brake chamber	D-19 Replace parking brake chamber	D-20 Diagnose relay valve	D-21 Replace relay valve	D-22 Diagnose service brake chamber	D-23 Replace service brake chamber	D-24 Diagnose foundation brakes (e.g., slack adjusters, cams and brakes)
D-30 Diagnose air pressure modulator	D-31 Replace air pressure modulator	D-32 Inspect tone ring	D-33 Remove tone ring	D-34 Replace tone ring		
E-6 Diagnose automatic transmission	E-7 Replace transmission	E-8 Replace u-joints	E-9 Check drive line angle	E-10 Check drive line phasing	E-11 Replace input/output seals	E-12 Replace spindle nut locking devices
E-18 Diagnose differential	E-19 Replace differential					
F-6 Diagnose A/C condensor	F-7 Replace A/C condensor	F-8 Diagnose receiver/dryer	F-9 Replace A/C receiver/dryer	F-10 Diagnose expansion valve	F-11 Replace expansion valve	F-12 Diagnose A/C evaporation
F-18 Diagnose dual evaporator system	F-19 Diagnose HVAC blower motors	F-20 Replace HVAC blower motors	F-21 Diagnose heater control valves	F-22 Replace heater control valves	F-23 Inspect HVAC heater core	F-24 Replace HVAC heater core
F-30 Diagnose HVAC duct system	F-31 Repair HVAC duct system	F-32 Diagnose HVAC control system	F-33 Repair HVAC control system			
G-6 Remove/replace windshield wiper motor, arms and blades	G-7 Repair/replace seats	G-8 Perform glass replacement	G-9 Repair/replace doors			
H-6 Repair tires	H-7 Mount tires	H-8 Balance tires	H-9 Install tire wheel assembly			

**K****Repair Heavy Truck Electrical System**

K-1 Trouble/shoot charging system	K-2 Repair charging system	K-3 Trouble-shoot/repair starting system	K-4 Trouble-shoot/repair lighting system	K-5 Trouble-shoot/repair accessory circuit
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**L****Repair Suspension (Front and Rear) and Steering**

K-6 Perform wiring/connector repairs	K-7 Read wiring diagrams and schematics			
L-1 Diagnose steering problems	L-2 Remove power steering pump	L-3 Replace power steering pump	L-4 Remove power steering box	L-5 Repair power steering box
L-6 Remove pitman arm	L-7 Replace pitman arm	L-8 Remove drag link	L-9 Replace drag link	L-10 Remove steer knuckles
L-11 Replace steer knuckles	L-12 Remove king pin	L-13 Replace king pin	L-14 Remove tie rod ends	L-15 Replace tie rod ends
L-16 Adjust toe in	L-17 Inspect shaft u-joints	L-18 Remove shaft u-joints	L-19 Replace shaft u-joints	L-20 Remove spring hangers front and rear
L-21 Replace spring hangers front and rear	L-22 Remove springs front and rear	L-23 Replace springs front and rear	L-24 Remove spring pins and bushings	L-25 Replace spring pins and bushings
L-26 Remove air cab suspension springs	L-27 Replace air cab suspension springs	L-28 Diagnose height control valve	L-29 Adjust height control valve	L-30 Remove height control valve
L-31 Replace height control valve	L-32 Diagnose shock absorbers (e.g., drive shocks, steer shocks)	L-33 Remove shock absorbers, drive shocks	L-34 Replace shock absorbers, drive shocks, and cab shocks	L-35 Adjust leveling valve

**M****Perform Tractor Trailer Coupler Repair**

M-1 Identify fifth wheel type	M-2 Inspect fifth wheel type	M-3 Adjust fifth wheel	M-4 Rebuild fifth wheel	M-5 Replace fifth wheel
M-6 Diagnose slider assembly	M-7 Repair slider assembly			