



## Diesel Equipment Technology

### Available Certifications:

Section 609 Cert for Refrigerant Recycling and Recovery    OSHA Certification  
 Certified Emissions Inspector    Fork Lift Operator  
 Automotive Service Excellence Certification (ASE)    Certified Safety Inspector, CAT III  
 S/P2 Safety and Pollution Prevention

### Complete Task List:

Task Number	Description	Hours	Level
<i>*State Approved Program of Study</i>			
100	Orientation and Safety		
101	RESERVED		
102	Research diesel occupations and certification programs.		
103	Identify truck classifications and configurations.		
104	Use service manuals and online service information.		
105	Follow safety procedures and safe equipment operation.		
106	RESERVED		
107	Follow Environmental Protection Agency (EPA) standards for cleaning and disposal of waste and fluids.		
108	Exhibit professional and personal standards and work habits and ethics in a diesel shop.		
109	Comply with Occupational Safety and Health Administration (OSHA) regulations.		
200	Tools and Fasteners/Hardware		
201	Use basic hand tools and power tools.		
202	Use fasteners, fittings, and hardware.		
203	Drill and use threading tools and extractors.		
204	Use precision measuring tools.		
205	RESERVED		
206	Set up/Shut down, cut, and heat with an oxy-acetylene torch.		
300	Suspension and Steering Systems		
301	Inspect and repair or replace steering linkage.		
302	Inspect and adjust basic wheel alignment and inspect tires.		
303	RESERVED		
304	Inspect and test/service a power steering system.		
305	Service wheel bearings and hubs according to Transportation Motor Control (TMC) guidelines.		
306	Inspect and replace shock absorbers.		
307	Inspect and replace king pins.		
308	Inspect and replace leaf springs.		
309	Inspect and repair or replace air suspension components.		
310	Inspect and service wheel assemblies.		
400	Preventive Maintenance		
401	Determine preventative maintenance intervals and procedures.		
402	Perform preventive maintenance inspection.		
403	RESERVED		

<b>Task Number</b>	<b>Description</b>	<b>Hours</b>	<b>Level</b>
500	Brake System		
501	Inspect and repair or replace hydraulic disc brake components.		
502	RESERVED		
503	Inspect and repair or replace S-cam drum brake components.		
504	RESERVED		
505	RESERVED		
506	Inspect and replace or adjust air governors.		
507	Replace hydraulic brake lines and bleed brakes.		
508	Inspect and repair or replace air brake lines.		
509	Inspect and diagnose and replace air brake chambers.		
510	Inspect and diagnose and replace master cylinder and hydraulic system components.		
511	Diagnose and repair or replace anti-lock brake system (ABS) components.		
512	Inspect and repair or replace air brake valves.		
513	Inspect and repair or replace air dryers.		
514	Inspect and repair or replace air disc brake components.		
515	RESERVED		
516	RESERVED		
517	Inspect and replace and adjust slack adjusters.		
600	Diesel Engines		
601	Explain diesel engine operation and identify parts.		
602	Remove, inspect, and install camshaft and valve train components.		
603	Remove, inspect, and install piston, connecting rod, and liner.		
604	Remove, inspect, and install crankshaft and bearings (mains and rods).		
605	Replace engine oil seal.		
606	Perform diesel tune-up (set overhead).		
607	Remove, inspect, and install cylinder head and gasket.		
608	Remove, inspect, and install oil pump.		
609	Remove, inspect, and install vibration dampener and flywheel.		
700	Air Intake and Exhaust Systems		
701	Inspect and repair or replace air induction system components.		
702	Inspect and repair or replace exhaust system and components.		
703	Inspect and replace charge air coolers and after coolers.		
704	Inspect and repair or replace turbocharger.		
800	Cooling Systems		
801	Inspect and replace belts and pulleys.		
802	Inspect and replace hoses and clamps.		
803	Test and replace thermostat.		
804	Drain, flush, refill, and bleed cooling system.		
805	Test anti-freeze and supplemental coolant additives.		
806	RESERVE		
807	Inspect and replace water pump.		

Task Number	Description	Hours	Level
808	Inspect fan drives.		
809	Inspect and pressure test cooling system components.		
900	Fuel System		
901	Replace fuel filters and strainers.		
902	Inspect and replace fuel lines, tank, cap, and fittings.		
903	Prime and bleed fuel system.		
904	RESERVE		
905	Perform fuel supply and return system tests.		
906	Remove and install injector/nozzle.		
1000	Electrical/Electronic System		
1001	Test and service battery.		
1002	Test, replace and adjust bulbs and lamps.		
1003	Diagnose and repair or replace electrical circuits and components.		
1004	Test starting system and replace component assemblies.		
1005	Test charging system output and replace component assemblies.		
1006	Analyze and interpret wiring diagrams.		
1007	Perform computer systems tests and analyze codes.		
1100	Drive Line		
1101	Diagnose, replace, and adjust drive-line components.		
1102	Perform clutch/clutch brake maintenance and adjustment.		
1103	Remove and install clutch assembly.		
1104	RESERVED		
<b>*Local Task List</b>			
VA3513	13.2.11.A- Apply effective speaking and listening skills used in a job interview.		
VA3514	13.2.11.B- Apply research skills in searching for a job. (CareerLink, O-NET, Networking, Newspapers, Professional Associations, Resource Books (OOH), etc.		
VA3515	13.2.11.C-Develop and assemble, for career portfolio placement, career acquisition documents, such as, but not limited to: job application, letter of appreciation, Cover Letter, Resume, Post-Secondary Application, etc.		
VA3516	13.2.11.E- Demonstrate, in the career acquisition process, the application of essential workplace skills/knowledge, such as, but not limited to: Communication, Health and Safety, Resilience, Integrity, Problem Solving, Teamwork and Communication.		
VA3517	13.3.11.A- Evaluate personal attitudes and work habits that support career retention and advancement, with focus on Resilience, Integrity, Problem Solving, Communication, Teamwork.		
VA3518	13.3.11.B-Evaluate team member roles and describe and illustrate active listening techniques: clarifying, encouraging, reflecting, restating, and summarizing.		
VA3519	13.3.11.C- Evaluate conflict resolution skills as they related to the workplace.: constructive criticism, group dynamics, managing leaderships, mediation, negotiation, problem solving.		
VA3520	13.3.11.D- Develop a personal budget based on career choice, such as but not limited to : fixed/variable expenses, gross pay, net pay, saving, taxes.		

Task Number	Description	Hours	Level
NT30000	SUSPENSION AND STEERING		
NT30050	STEERING SYSTEM		
NT30100	STEERING COLUMN		
NT30101	Identify causes of fixed and driver adjustable steering column and shaft noise, looseness, and binding problems; determine needed action.		
NT30102	Inspect and service steering shaft U-joint(s), slip joints, bearings, bushings, and seals; phase shaft.		
NT30103	Check cab mounting and adjust ride height.		
NT30104	Remove the steering wheel (includes steering wheels equipped with electrical/electronic controls and components); install and center the steering wheel. Inspect, test, replace and calibrate steering angle sensor.		
NT30105	Disable and enable supplemental restraint system (SRS) in accordance with manufacturers' procedures.		
NT30110	STEERING UNITS		
NT30111	Identify causes of power steering system noise, steering binding, darting/oversteer, reduced wheel cut, steering wheel kick, pulling, non-recovery, turning effort, looseness, hard steering, overheating, fluid leakage, and fluid aeration problems; determine needed action.		
NT30112	Determine recommended type of power steering fluid; check level and condition; determine needed action.		
NT30113	Flush and refill power steering system; purge air from system.		
NT30114	Perform power steering system pressure, temperature, and flow tests; determine needed action.		
NT30115	Inspect, service, or replace power steering reservoir including filter, seals, and gaskets.		
NT30116	Inspect power steering pump drive gear and coupling; replace as needed.		
NT30117	Inspect, adjust, or replace power steering pump, mountings, and brackets.		
NT30118	Inspect and replace power steering system cooler, lines, hoses, clamps/mountings, hose routings, and fittings.		
NT30119	Inspect, adjust, repair, or replace integral type power steering gear(s) (single and/or dual) and mountings.		
NT30120	STEERING LINKAGE		
NT30121	Inspect and align pitman arm; replace as needed.		
NT30122	Check and adjust steering (wheel) stops; verify relief pressures.		
NT30123	Inspect and lubricate steering components		
NT30200	SUSPENSION SYSTEM		
NT30201	Inspect front axles and attaching hardware; determine needed action.		
NT30202	Inspect and service kingpins, steering knuckle bushings, locks, bearings, seals, and covers; determine needed action.		
NT30203	Inspect shock absorbers, bushings, brackets, and mounts; replace as needed.		
NT30204	Inspect leaf springs, center bolts, clips, pins and bushings, shackles, U-bolts, insulators, brackets, and mounts; determine needed action.		
NT30205	Inspect axle aligning devices such as radius rods, track bars, stabilizer bars, torque arms, related bushings, mounts, shims, and cams; determine needed action.		

<b>Task Number</b>	<b>Description</b>	<b>Hours</b>	<b>Level</b>
NT30206	Inspect tandem suspension equalizer components; determine needed action.		
NT30207	Inspect and test air suspension pressure regulator and height control valves, lines, hoses, dump valves, and fittings; adjust, repair or replace as needed.		
NT30208	Inspect air springs, mounting plates, springs, suspension arms, and bushings; replace as needed.		
NT30209	Measure and adjust ride height; determine needed action.		
NT30210	Identify rough ride problems; determine needed action.		
NT30300	WHEEL ALIGNMENT DIAGNOSIS, ADJUSTMENT AND REPAIR		
NT30301	Identify causes of vehicle wandering, pulling, shimmy, hard steering, and off-center steering wheel problems; adjust or repair as needed.		
NT30302	Check camber; determine needed action.		
NT30303	Check caster; adjust as needed.		
NT30304	Check and adjust toe settings.		
NT30305	Check rear axle(s) alignment (thrustline/centerline) and tracking; adjust or repair as needed.		
NT30306	Identify turning/Ackerman angle (toe-out-on-turns) problems; determine needed action		
NT30307	Check front axle alignment (centerline); adjust or repair as needed.		
NT30400	WHEELS AND TIRES		
NT30401	Identify tire wear patterns; check tread depth and pressure determine needed action.		
NT30402	Identify wheel/tire vibration, shimmy, pounding, hop (tramp) problems; determine needed action.		
NT30403	Remove and install steering and drive axle wheel/tire assemblies; torque mounting hardware to specifications with torque wrench.		
NT30404	Inspect tire for proper application, (size, load range, position, and tread design); determine needed action.		
NT30405	Inspect wheel/rims for proper application, load range, size, and design; determine needed action.		
NT30406	Check operation of tire pressure monitoring system (TPMS); determine needed action if applicable.		
NT30500	FRAME AND COUPLING DEVICES		
NT30501	Inspect, service, and/or adjust fifth wheel, pivot pins, bushings, locking mechanisms, and mounting hardware.		
NT30502	Inspect and service sliding fifth wheel, tracks, stops, locking systems, air cylinders, springs, lines, hoses, and controls.		
NT30503	Inspect frame and frame members for cracks, breaks, corrosion, distortion, elongated holes, looseness, and damage; determine needed repairs.		
NT30504	Inspect, install, or repair frame hangers, brackets, and cross members in accordance with manufacturers' recommended procedures.		
NT30505	Inspect, repair, or replace pintle hooks and draw bars, if applicable.		
NT40000	PREVENTIVE MAINTENANCE AND INSPECTION		
NT40100	ENGINE SYSTEM		
NT40101	ENGINE		
NT40102	Check engine starting/operation (including unusual noises, vibrations, exhaust smoke, etc.); record idle and governed rpm.		

<b>Task Number</b>	<b>Description</b>	<b>Hours</b>	<b>Level</b>
NT40103	Inspect vibration damper.		
NT40104	Inspect belts, tensioners, and pulleys; check and adjust belt tension; check belt alignment.		
NT40105	Check engine oil level and condition; check dipstick seal.		
NT40106	Inspect engine mounts for looseness and deterioration.		
NT40107	Check engine for oil, coolant, air, fuel, and exhaust leaks (Engine Off and Running).		
NT40108	Check engine compartment wiring harnesses, connectors, and seals for damage and proper routing		
NT40110	FUEL SYSTEM		
NT40111	Check fuel tanks, mountings, lines, caps, and vents.		
NT40112	Drain water from fuel system.		
NT40113	Service water separator/fuel heater; replace fuel filter(s); prime and bleed fuel system.		
NT40120	AIR INDUCTION AND EXHAUST SYSTEM		
NT40121	Check exhaust system mountings for looseness and damage.		
NT40122	Check engine exhaust system for leaks, proper routing, and damaged or missing components to include exhaust gas recirculation (EGR) system and after treatment devices, if equipped.		
NT40123	Check air induction system: piping, charge air cooler, hoses, clamps, and mountings; check for air restrictions and leaks.		
NT40124	Inspect turbocharger for leaks; check mountings and connections.		
NT40125	Check operation of engine compression/exhaust brake.		
NT40126	Service or replace air filter as needed; check and reset air filter restriction indicator.		
NT40127	Inspect and service crankcase ventilation system.		
NT40128	Inspect diesel exhaust fluid (DEF) system, to include tanks, lines, gauge pump, and filter.		
NT40129	Inspect selective catalyst reduction (SCR) system; including diesel exhaust fluid (DEF) for proper levels, leaks, mounting and connections.		
NT40130	COOLING SYSTEM		
NT40131	Check operation of fan clutch.		
NT40132	Inspect radiator (including air flow restriction, leaks, and damage) and mountings.		
NT40133	Inspect fan assembly and shroud.		
NT40134	Pressure test cooling system and radiator cap.		
NT40135	Inspect coolant hoses and clamps.		
NT40136	Inspect coolant recovery system.		
NT40137	Check coolant for contamination, additive package concentration, aeration, and protection level (freeze point).		
NT40138	Service coolant filter.		
NT40139	Inspect water pump.		
NT40140	LUBRICATION SYSTEM		
NT40141	Change engine oil and filters; visually check oil for coolant or fuel contamination; inspect and clean magnetic drain plugs.		
NT40142	Take an engine oil sample for analysis.		

<b>Task Number</b>	<b>Description</b>	<b>Hours</b>	<b>Level</b>
NT40200	CAB AND HOOD		
NT40210	INSTRUMENTS AND CONTROLS		
NT40211	Inspect key condition and operation of ignition switch		
NT40212	Check warning indicators.		
NT40213	Check instruments; record oil pressure and system voltage.		
NT40214	Check operation of electronic power take off (PTO) and engine idle speed controls (if applicable).		
NT40215	Check HVAC controls.		
NT40216	Check operation of all accessories.		
NT40217	Using electronic service tool(s) or on-board diagnostic system; retrieve engine monitoring information; check and record diagnostic codes and trip/operational data (including engine, transmission, ABS, and other systems).		
NT40220	SAFETY EQUIPMENT		
NT40221	Check operation of electric/air horns and reverse warning devices.		
NT40222	Check condition of spare fuses, safety triangles, fire extinguisher, and all required decals.		
NT40223	Inspect seat belts and sleeper restraints.		
NT40224	Inspect wiper blades and arms.		
NT40230	HARDWARE		
NT40231	Check operation of wiper and washer.		
NT40232	Inspect windshield glass for cracks or discoloration; check sun visor.		
NT40233	Check seat condition, operation, and mounting.		
NT40234	Check door glass and window operation.		
NT40235	Inspect steps and grab handles.		
NT40236	Inspect mirrors, mountings, brackets, and glass.		
NT40237	Record all observed physical damage.		
NT40238	Lubricate all cab and hood grease fittings.		
NT40239	Inspect and lubricate door and hood hinges, latches, strikers, lock cylinders, safety latches, linkages, and cables.		
NT40240	Inspect cab mountings, hinges, latches, linkages and ride height; service as needed.		
NT40250	HEATING, VENTILATION AND AIR CONDITIONING (HVAC)		
NT40251	Inspect A/C condenser and lines for condition and visible leaks; check mountings.		
NT40252	Inspect A/C compressor and lines for condition and visible leaks; check mountings.		
NT40253	Check A/C system condition and operation; check A/C monitoring system, if applicable.		
NT40254	Check HVAC air inlet filters and ducts; service as needed.		
NT40300	ELECTRICAL / ELECTRONICS		
NT40301	BATTERY AND STARTING SYSTEMS		
NT40302	Inspect battery box(es), cover(s), and mountings.		
NT40303	Inspect battery hold-downs, connections, cables, and cable routing; service as needed.		

<b>Task Number</b>	<b>Description</b>	<b>Hours</b>	<b>Level</b>
NT40304	Check/record battery state-of-charge (open circuit voltage) and condition.		
NT40305	Perform battery test (load and/or capacitance).		
NT40306	Inspect starter, mounting, and connections.		
NT40307	Engage starter; check for unusual noises, starter drag, and starting difficulty.		
NT40310	CHARGING SYSTEM		
NT40311	Inspect alternator, mountings, cable, wiring, and wiring routing; determine needed action.		
NT40312	Perform alternator output tests.		
NT40320	LIGHTING SYSTEM		
NT40321	Check operation of interior lights; determine needed action.		
NT40332	Check all exterior lights, lenses, reflectors, and conspicuity tape; check headlight alignment; determine needed action.		
NT40333	Inspect and test tractor-to-trailer multi-wire connector(s), cable(s), and holder(s); determine needed action.		
NT40400	FRAME AND CHASSIS		
NT40401	AIR BRAKES		
NT40402	Check operation of parking brake.		
NT40403	Record air governor cut-in and cut-out setting (psi).		
NT40404	Check operation of air reservoir/tank drain valves.		
NT40405	Check air system for leaks (brakes released).		
NT40406	Check air system for leaks (brakes applied).		
NT40407	Test one-way and double-check valves.		
NT40408	Check low air pressure warning devices.		
NT40409	Check emergency (spring) brake control/modulator valve, if applicable.		
NT40410	Check tractor protection valve.		
NT40411	Test air pressure build-up time.		
NT40412	Inspect coupling air lines, holders, and gladhands.		
NT40413	Check brake chambers and air lines for secure mounting and damage.		
NT40414	Check operation of air drier.		
NT40415	Inspect and record brake shoe/pad condition, thickness, and contamination.		
NT40416	Inspect and record condition of brake drums/rotors.		
NT40417	Check antilock brake system wiring, connectors, seals, and harnesses for damage and proper routing.		
NT40418	Check operation and adjustment of brake automatic slack adjusters (ASA); check and record push rod stroke.		
NT40419	Lubricate all brake component grease fittings.		
NT40420	Check condition and operation of hand brake (trailer) control valve, if applicable.		
NT40421	Perform antilock brake system (ABS) operational system self-test.		
NT40422	Drain air tanks and check for contamination.		
NT40423	Check condition of pressure relief (safety) valves.		
NT40430	HYDRAULIC BRAKES		
NT40431	Check master cylinder fluid level and condition.		



<b>Task Number</b>	<b>Description</b>	<b>Hours</b>	<b>Level</b>
NT40432	Inspect brake lines, fittings, flexible hoses, and valves for leaks and damage.		
NT40433	Check parking brake operation; inspect parking brake application and holding devices; adjust as needed.		
NT40434	Check operation of hydraulic system: pedal travel, pedal effort, pedal feel.		
NT40435	Inspect calipers for leakage, binding and damage.		
NT40436	Inspect brake assist system (booster), hoses and control valves; check reservoir fluid level and condition.		
NT40437	Inspect and record brake lining/pad condition, thickness, and contamination.		
NT40438	Inspect and record condition of brake rotors.		
NT40439	Check antilock brake system wiring, connectors, seals, and harnesses for damage and proper routing.		
NT40440	DRIVE TRAIN		
NT40441	Check operation of clutch, clutch brake, and gearshift.		
NT40442	Check clutch linkage/cable for looseness or binding, if applicable.		
NT40443	Check hydraulic clutch slave and master cylinders, lines, fittings, and hoses, if applicable.		
NT40444	Check clutch adjustment; adjust as needed.		
NT40445	Check transmission case, seals, filter, hoses, lines and cooler for cracks and leaks.		
NT40446	Inspect transmission breather.		
NT40447	Inspect transmission mounts.		
NT40448	Check transmission oil level, type, and condition.		
NT40449	Inspect U-joints, yokes, driveshafts, boots/seals, center bearings, and mounting hardware for looseness, damage, and proper phasing.		
NT40450	Inspect axle housing(s) for cracks and leaks.		
NT40451	Inspect axle breather(s).		
NT40452	Lubricate all drive train grease fittings		
NT40453	Check drive axle(s) oil level, type, and condition.		
NT40454	Change drive axle(s) oil and filter/screen, if applicable; check and clean magnetic plugs.		
NT40455	Check transmission wiring, connectors, seals, and harnesses for damage and proper routing.		
NT40456	Change transmission oil and filter, if applicable; check and clean magnetic plugs.		
NT40457	Check interaxle differential lock operation.		
NT40458	Check transmission range shift operation.		
NT40460	SUSPENSION AND STEERING SYSTEMS		
NT40461	Check steering wheel operation for free play and binding.		
NT40462	Check power steering pump, mounting, and hoses for leaks, condition, and routing; check fluid level.		
NT40463	Change power steering fluid and filter.		
NT40464	Inspect steering gear for leaks and secure mounting.		
NT40465	Inspect steering shaft U-joints, pinch bolts, splines, pitman arm-to-steering sector shaft, tie rod ends, and linkages.		
NT40466	Check kingpins for wear.		

<b>Task Number</b>	<b>Description</b>	<b>Hours</b>	<b>Level</b>
NT40467	Check wheel bearings for looseness and noise.		
NT40468	Check oil level and condition in all non-drive hubs; check for leaks.		
NT40469	Inspect springs, pins, hangers, shackles, spring U-bolts, and insulators.		
NT40470	Inspect shock absorbers for leaks and secure mounting.		
NT40471	Inspect air suspension springs, mounts, hoses, valves, linkage, and fittings for leaks and damage.		
NT40472	Check and record suspension ride height.		
NT40473	Lubricate all suspension and steering grease fittings.		
NT40474	Check axle locating components (radius, torque, and/or track rods).		
NT40480	<b>TIRES AND WHEELS</b>		
NT40481	Inspect tires for wear patterns and proper mounting.		
NT40482	Inspect tires for cuts, cracks, bulges, and sidewall damage.		
NT40483	Inspect valve caps and stems; determine needed action.		
NT40484	Measure and record tread depth; probe for imbedded debris.		
NT40485	Check and record air pressure; adjust air pressure in accordance with manufacturers' specifications.		
NT40486	Check wheel mounting hardware; determine needed action.		
NT40487	Inspect wheels for cracks, damage and proper hand hold alignment.		
NT40488	Check tire matching (diameter and tread) on single and dual tire applications.		
NT40490	<b>FRAME AND FIFTH WHEEL</b>		
NT40491	Inspect fifth wheel mounting, bolts, air lines, and locks.		
NT40492	Test operation of fifth wheel locking device; adjust if necessary.		
NT40493	Check quarter fenders, mud flaps, and brackets.		
NT40494	Check pintle hook assembly and mounting, if applicable.		
NT40495	Lubricate all fifth wheel grease fittings and plate, of applicable.		
NT40496	Inspect frame and frame members for cracks and damage.		
NT50000	<b>BRAKES</b>		
NT50050	<b>AIR BRAKES</b>		
NT50100	<b>AIR SUPPLY AND SERVICE SYSTEMS</b>		
NT50101	Identify poor stopping, air leaks, premature wear, pulling, grabbing, dragging, or balance problems caused by supply and service system malfunctions; determine needed action.		
NT50102	Check air system build-up time; determine needed action.		
NT50103	Drain air reservoir/tanks; check for oil, water, and foreign material; determine needed action.		
NT50104	Inspect air compressor drive gear, belts and coupling; adjust or replace as needed.		
NT50105	Inspect air compressor inlet;; inspect oil supply and coolant lines, fittings, and mounting brackets; repair or replace as needed.		
NT50106	Inspect and test air system pressure controls: governor, unloader assembly valves, filters, lines, hoses, and fittings; adjust or replace as needed.		
NT50107	Inspect air system lines, hoses, fittings, and couplings; repair or replace as needed.		

<b>Task Number</b>	<b>Description</b>	<b>Hours</b>	<b>Level</b>
NT50108	Inspect and test air tank relief (safety) valves, one-way (single) check valves, two-way (double) check valves, manual and automatic drain valves; replace as needed.		
NT50109	Inspect and clean air drier systems, filters, valves, heaters, wiring, and connectors; repair or replace as needed.		
NT50110	Inspect and test brake application (foot/treadle) valve, fittings, and mounts; check pedal operation; replace as needed.		
NT50111	Inspect and test stop light circuit switches, wiring, and connectors; repair or replace as needed.		
NT50112	Inspect and test hand brake (trailer) control valve, lines, fittings, and mountings; repair or replace as needed.		
NT50113	Inspect and test brake relay valves; replace as needed.		
NT50114	Inspect and test quick release valves; replace as needed.		
NT50115	Inspect and test tractor protection valve; replace as needed.		
NT50116	Inspect and test emergency (spring) brake control/modulator valve(s); replace as needed.		
NT50117	Inspect and test low pressure warning devices, wiring, and connectors; repair or replace as needed.		
NT50118	Inspect and test air pressure gauges, lines, and fittings; replace as needed.		
NT50120	MECHANICAL / FOUNDATION BRAKES		
NT50121	Identify poor stopping, brake noise, premature wear, pulling, grabbing, or dragging problems caused by the foundation brake, slack adjuster, and brake chamber problems; determine needed action.		
NT50122	Inspect and test service brake chambers, diaphragm, clamp, spring, pushrod, clevis, and mounting brackets; repair or replace as needed.		
NT50123	Identify type, inspect and service slack adjusters; perform needed action.		
NT50124	Inspect camshafts, tubes, rollers, bushings, seals, spacers, retainers, brake spiders, shields, anchor pins, and springs; replace as needed.		
NT50125	Inspect, clean, and adjust air disc brake caliper assemblies; determine needed repairs.		
NT50126	Inspect and measure brake shoes or pads; perform needed action.		
NT50127	Inspect and measure brake drums or rotors; perform needed action.		
NT50130	PARKING BRAKES		
NT50131	Inspect and test parking (spring) brake chamber diaphragm and seals; replace parking (spring) brake chamber; dispose of removed chambers in accordance with local regulations.		
NT50132	Inspect and test parking (spring) brake check valves, lines, hoses, and fittings; replace as needed.		
NT50133	Inspect and test parking (spring) brake application and release valve; replace as needed.		
NT50134	Manually release (cage) and reset (uncage) parking (spring) brakes in accordance with manufacturers' recommendations.		
NT50135	Identify and test anti compounding brake function.		
NT50200	HYDRAULIC BRAKES		
NT50201	HYDRAULIC SYSTEM		
NT50202	Identify poor stopping, premature wear, pulling, dragging, balance, or pedal feel problems caused by the hydraulic system; determine needed action.		

<b>Task Number</b>	<b>Description</b>	<b>Hours</b>	<b>Level</b>
NT50203	Inspect and test master cylinder for internal/external leaks and damage; replace as needed.		
NT50204	Inspect hydraulic system brake lines, flexible hoses, and fittings for leaks and damage; replace as needed.		
NT50205	Inspect and test metering (hold-off), load sensing/proportioning, proportioning, and combination valves; replace as needed.		
NT50206	Inspect and test brake pressure differential valve and warning light circuit switch, bulbs/LEDs, wiring, and connectors; repair or replace as needed.		
NT50207	Inspect disc brake caliper assemblies; replace as needed.		
NT50208	Inspect/test brake fluid; bleed and/or flush system; determine proper fluid type.		
NT50210	MECHANICAL / FOUNDATION BRAKES		
NT50211	Identify poor stopping, brake noise, premature wear, pulling, grabbing, dragging, or pedal feel problems caused by mechanical components; determine needed action.		
NT50212	Inspect and measure rotors; perform needed action.		
NT50213	Inspect and measure disc brake pads; inspect mounting hardware; perform needed action.		
NT50214	Check parking brake operation; inspect parking brake application and holding devices; adjust and replace as needed.		
NT50220	POWER ASSIST UNITS		
NT50221	Identify stopping problems caused by the brake assist (booster) system; determine needed action.		
NT50222	Inspect, test, repair, or replace hydraulic brake assist (booster), hoses, and control valves; determine proper fluid type.		
NT50223	Check emergency (back-up, reserve) brake assist system.		
NT50300	AIR AND HYDRAULIC ANTOLOCK BRAKE SYSTEMS(ABS) AND AUTOMATIC TRACTION CONTROL(ATC)		
NT50301	Observe antilock brake system (ABS) warning light operation (includes trailer and dash mounted trailer ABS warning light); determine needed action.		
NT50302	Diagnose antilock brake system (ABS) electronic control(s) and components using self-diagnosis and/or electronic service tool(s); determine needed action.		
NT50303	Identify poor stopping and wheel lock-up problems caused by failure of the antilock brake system (ABS); determine needed action.		
NT50304	Test and check operation of antilock brake system (ABS) air, hydraulic, electrical, and mechanical components; perform needed action.		
NT50305	Test antilock brake system (ABS) wheel speed sensors and circuits ; adjust or replace as needed.		
NT50306	Bleed the ABS hydraulic circuits.		
NT50307	Observe automatic traction control (ATC) warning light operation; determine needed action		
NT50308	Diagnose automatic traction control (ATC) electronic control(s) and components using self-diagnosis and/or specified test equipment (scan tool, PC computer); determine needed action.		
NT50309	Verify power line carrier (PLC) operations.		
NT50400	WHEEL BEARINGS		

<b>Task Number</b>	<b>Description</b>	<b>Hours</b>	<b>Level</b>
NT50401	Clean, inspect, lubricate and replace wheel bearings and races/cups; replace seals and wear rings; inspect spindle/tube; inspect and replace retaining hardware; adjust wheel bearings. Verify end play with dial indicator method.		
NT50402	Identify, inspect or replace unitized/preset hub bearing assemblies.		
NT60000	DIESEL ENGINES		
NT60100	GENERAL		
NT60101	Inspect fuel, oil, Diesel Exhaust Fluid (DEF) and coolant levels, and condition; determine needed action.		
NT60102	Identify engine fuel, oil, coolant, air, and other leaks; determine needed action.		
NT60103	Listen for engine noises; determine needed action.		
NT60104	Observe engine exhaust smoke color and quantity; determine needed action.		
NT60105	Check engine no cranking, cranks but fails to start, hard starting, and starts but does not continue to run problems; determine needed action.		
NT60106	Identify engine surging, rough operation, misfiring, low power, slow deceleration, slow acceleration, and shutdown problems; determine needed action.		
NT60107	Identify engine vibration problems.		
NT60108	Check and record electronic diagnostic codes.		
NT60200	CYLINDER HEAD AND VALVE TRAIN		
NT60201	Inspect cylinder head for cracks/damage; check mating surfaces for warpage; check condition of passages; inspect core/expansion and gallery plugs; determine needed action		
NT60202	Disassemble head and inspect valves, guides, seats, springs, retainers, rotators, locks, and seals; determine needed action		
NT60203	Measure valve head height relative to deck and valve face-to-seat contact; determine needed action.		
NT60204	Inspect injector sleeves and seals; measure injector tip or nozzle protrusion; determine needed action.		
NT60205	Inspect valve train components; determine needed action.		
NT60206	Reassemble cylinder head.		
NT60207	Inspect, measure, and replace/reinstall overhead camshaft; measure/adjust end play and backlash.		
NT60208	Inspect electronic wiring harness and brackets for wear, bending, cracks, and looseness; determine needed action.		
NT60209	Adjust valve bridges (crossheads); adjust valve clearances and injector settings.		
NT60300	ENGINE BLOCK		
NT60301	Perform crankcase pressure test; determine needed action		
NT60302	Remove, inspect, service, and install pans, covers, gaskets, seals, wear rings, and crankcase ventilation components.		
NT60303	Disassemble, clean, and inspect engine block for cracks/damage; measure mating surfaces for warpage; check condition of passages, core/expansion and gallery plugs; inspect threaded holes, studs, dowel pins, and bolts for serviceability; determine needed action		

<b>Task Number</b>	<b>Description</b>	<b>Hours</b>	<b>Level</b>
NT60304	Inspect cylinder sleeve counter bore and lower bore; check bore distortion; determine needed action.		
NT60305	Clean, inspect, and measure cylinder walls or liners for wear and damage; determine needed action.		
NT60306	Replace/reinstall cylinder liners and seals; check and adjust liner height (protrusion).		
NT60307	Inspect in-block camshaft bearings for wear and damage; determine needed action.		
NT60308	Inspect, measure, and replace/reinstall in-block camshaft; measure/adjust end play.		
NT60309	Clean and inspect crankshaft for surface cracks and journal damage; check condition of oil passages; check passage plugs; measure journal diameter; determine needed action.		
NT60310	Inspect main bearings for wear patterns and damage; replace as needed; check bearing clearances; check and correct crankshaft end play.		
NT60311	Inspect, install, and time gear train; measure gear backlash; determine needed action.		
NT60312	Inspect connecting rod and bearings for wear patterns; measure pistons, pins, retainers, and bushings; perform needed action.		
NT60313	Determine piston-to-cylinder wall clearance; check ring-to-groove fit and end gap; install rings on pistons.		
NT60314	Assemble pistons and connecting rods; install in block; install rod bearings and check clearances.		
NT60315	Check condition of piston cooling jets (nozzles); determine needed action.		
NT60316	Inspect crankshaft vibration damper; determine needed action.		
NT60317	Install and align flywheel housing; inspect flywheel housing(s) to transmission housing/engine mating surface(s) and measure flywheel housing face and bore runout; determine needed action.		
NT60318	Inspect flywheel/flexplate (including ring gear) and mounting surfaces for cracks and wear; measure runout; determine needed action.		
NT60400	LUBRICATION SYSTEMS		
NT60401	Test engine oil pressure and check operation of pressure sensor, gauge, and/or sending unit; test engine oil temperature and check operation of temperature sensor; determine needed action.		
NT60402	Check engine oil level, condition, and consumption; determine needed action.		
NT60403	Inspect and measure oil pump, drives, inlet pipes, and pick-up screens; check drive gear clearances; determine needed action.		
NT60404	Inspect oil pressure regulator valve(s), by-pass and pressure relief valve(s), oil thermostat, and filters; determine needed action.		
NT60405	Inspect, clean, and test oil cooler and components; determine needed action.		
NT60406	Inspect turbocharger lubrication systems; determine needed action.		
NT60407	Determine proper lubricant and perform oil and filter change.		
NT60500	COOLING SYSTEM		
NT60501	Check engine coolant type, level, condition, and consumption; test coolant for freeze protection and additive package concentration; determine needed action.		

<b>Task Number</b>	<b>Description</b>	<b>Hours</b>	<b>Level</b>
NT60502	Test coolant temperature and check operation of temperature and level sensors, gauge, and/or sending unit; determine needed action.		
NT60503	Inspect and reinstall/replace pulleys, tensioners and drive belts; adjust drive belts and check alignment.		
NT60504	Inspect thermostat(s), by-passes, housing(s), and seals; replace as needed.		
NT60505	Recover coolant, flush, and refill with recommended coolant/additive package; bleed cooling system.		
NT60506	Inspect coolant conditioner/filter assembly for leaks; inspect valves, lines, and fittings; replace as needed.		
NT60507	Inspect water pump and hoses; replace as needed.		
NT60508	Inspect, clean, and pressure test radiator. Pressure test cap, tank(s), and recovery systems; determine needed action.		
NT60509	Inspect thermostatic cooling fan system (hydraulic, pneumatic, and electronic) and fan shroud; replace as needed.		
NT60510	Inspect turbo charger cooling systems; determine needed action.		
NT60600	AIR INDUCTION AND EXHAUST SYSTEMS		
NT60601	Perform air intake system restriction and leakage tests; determine needed action.		
NT60602	Perform intake manifold pressure (boost) test; determine needed action.		
NT60603	Check exhaust back pressure; determine needed action.		
NT60604	Inspect turbocharger(s), wastegate, and piping systems; determine needed action.		
NT60605	Inspect turbocharger(s) (variable ratio/geometry VGT), pneumatic, hydraulic, electronic controls, and actuators.		
NT60606	Check air induction system: piping , hoses, clamps, and mounting; service or replace air filter as needed.		
NT60607	Remove and reinstall turbocharger/wastegate assembly.		
NT60608	Inspect intake manifold, gaskets, and connections; replace as needed.		
NT60609	Inspect, clean, and test charge air cooler assemblies; replace as needed.		
NT60610	Inspect exhaust manifold, piping, mufflers, and mounting hardware; repair or replace as needed.		
NT60611	Inspect exhaust after treatment devices; determine necessary action.		
NT60612	Inspect and test preheater/inlet air heater, or glow plug system and controls; perform needed action.		
NT60613	Inspect exhaust gas recirculation (EGR) system including EGR valve, cooler, piping, filter, electronic sensors, controls, and wiring; determine needed action.		
NT60700	FUEL SYSTEM		
NT60701	FUEL SUPPLY SYSTEM		
NT60702	Check fuel level, and condition; determine needed action.		
NT60703	Perform fuel supply and return system tests; determine needed action.		
NT60704	Inspect fuel tanks, vents, caps, mounts, valves, screens, crossover system, supply and return lines and fittings; determine needed action.		
NT60705	Inspect, clean, and test fuel transfer (lift) pump, pump drives, screens, fuel/water separators/indicators, filters, heaters, coolers, ECM cooling plates, and mounting hardware; determine needed action.		

<b>Task Number</b>	<b>Description</b>	<b>Hours</b>	<b>Level</b>
NT60706	Inspect and test pressure regulator systems (check valves, pressure regulator valves, and restrictive fittings); determine needed action.		
NT60707	Check fuel system for air; determine needed action; prime and bleed fuel system; check primer pump.		
NT60710	ELECTRONIC FUEL MANAGEMENT SYSTEM		
NT60711	Inspect and test power and ground circuits and connections; measure and interpret voltage, voltage drop, amperage, and resistance readings using a digital multimeter (DMM); determine needed action.		
NT60712	Interface with vehicle's on-board computer; perform diagnostic procedures using electronic service tool(s) (to include PC based software and/or data scan tools); determine needed action.		
NT60713	Check and record electronic diagnostic codes and trip/operational data; monitor electronic data; clear codes; determine further diagnosis.		
NT60714	Locate and use relevant service information (to include diagnostic procedures, flow charts, and wiring diagrams).		
NT60715	Inspect and replace electrical connector terminals, seals, and locks.		
NT60716	Inspect and test switches, sensors, controls, actuator components, and circuits; adjust or replace as needed.		
NT60717	Using electronic service tool(s) access and interpret customer programmable parameters.		
NT60718	Perform on-engine inspections, tests and adjustments on electronic unit injectors (EUI); determine needed action.		
NT60719	Remove and install electronic unit injectors (EUI) and related components; recalibrate ECM (if applicable).		
NT60720	Perform cylinder contribution test utilizing electronic service tool(s)		
NT60721	Perform on-engine inspections and tests on hydraulic electronic unit injectors (HEUI) and system electronic controls; determine needed action.		
NT60722	Perform on-engine inspections and tests on hydraulic electronic unit injector (HEUI) high pressure oil supply and control systems; determine needed action.		
NT60723	Perform on-engine inspections and tests on high pressure common rail (HPCR) type injection systems; determine needed action.		
NT60724	Inspect high pressure injection lines, hold downs, fittings and seals; determine needed action.		
NT60800	ENGINE BRAKES		
NT60801	Inspect and adjust engine compression/exhaust brakes; determine needed action.		
NT60802	Inspect, test, and adjust engine compression/exhaust brake control circuits, switches, and solenoids; determine needed action.		
NT60803	Inspect engine compression/exhaust brake housing, valves, seals, lines, and fittings; determine necessary action.		
NT100000	ELECTRICAL / ELECTRONIC SYSTEMS		
NT100100	GENERAL ELECTRICAL SYSTEMS		
NT100101	Read and interpret electrical/electronic circuits using wiring diagrams.		
NT100102	Check continuity in electrical/electronic circuits using appropriate test equipment		
NT100103	Check applied voltages, circuit voltages, and voltage drops in electrical/electronic circuits using appropriate test equipment.		



<b>Task Number</b>	<b>Description</b>	<b>Hours</b>	<b>Level</b>
NT100104	Check current flow in electrical/electronic circuits and components using appropriate test equipment.		
NT100105	Check resistance in electrical/electronic circuits and components using appropriate test equipment.		
NT100106	Locate shorts, grounds, and opens in electrical/electronic circuits.		
NT100107	Identify parasitic (key-off) battery drain problems; perform tests; determine needed action.		
NT100108	Inspect and test spike suppression devices; replace as needed.		
NT100109	Check frequency and pulse width signal in electrical/electronic circuits using appropriate test equipment.		
NT100200	<b>BATTERY</b>		
NT100201	Identify battery type; perform appropriate battery load test; determine needed action.		
NT100202	Determine battery state of charge using an open circuit voltage test.		
NT100203	Inspect, clean, and service battery; replace as needed.		
NT100204	Inspect and clean battery boxes, mounts, and hold downs; repair or replace as needed.		
NT100205	Charge battery using appropriate method for battery type.		
NT100206	Inspect, test, and clean battery cables and connectors; repair or replace as needed.		
NT100207	Jump start a vehicle using jumper cables and a booster battery or appropriate auxiliary power supply using proper safety procedures.		
NT100208	Perform battery capacitance test; determine needed action.		
NT100209	Identify and test low voltage disconnect (LVD) systems; determine needed repair.		
NT100300	<b>STARTING SYSTEM</b>		
NT100301	Perform starter circuit cranking voltage and voltage drop tests; determine needed action.		
NT100302	Inspect and test components (key switch, push button and/or magnetic switch) and wires and harnesses in the starter control circuit; replace as needed.		
NT100303	Inspect and test, starter relays and solenoids/switches; replace as needed.		
NT100304	Remove and replace starter; inspect flywheel ring gear or flex plate.		
NT100400	<b>CHARGING SYSTEM DIAGNOSIS AND REPAIR</b>		
NT100401	Test instrument panel mounted volt meters and/or indicator lamps; determine needed action.		
NT100402	Identify causes of a no charge, low charge, or overcharge problems; determine needed action.		
NT100403	Inspect and replace alternator drive belts, pulleys, fans, tensioners, and mounting brackets; adjust drive belts and check alignment.		
NT100404	Perform charging system voltage and amperage output tests; perform AC ripple test; determine needed action.		
NT100405	Perform charging circuit voltage drop tests; determine needed action.		
NT100406	Remove and replace alternator.		
NT100407	Inspect, repair, or replace cables, wires, and connectors in the charging circuit.		
NT100500	<b>LIGHTING SYSTEMS</b>		

<b>Task Number</b>	<b>Description</b>	<b>Hours</b>	<b>Level</b>
NT100501	Interface with vehicle's on-board computer; perform diagnostic procedures using recommended electronic service tool(s) (including PC based software and/or data scan tools); determine needed action.		
NT100502	Identify causes of brighter than normal, intermittent, dim, or no headlight and daytime running light (DRL) operation.		
NT100503	Test, aim, and replace headlights.		
NT100504	Test headlight and dimmer circuit switches, relays, wires, terminals, connectors, sockets, and control components/modules; repair or replace as needed.		
NT100505	Inspect and test switches, bulbs/LEDs, sockets, connectors, terminals, relays, wires, and control components/modules of parking, clearance, and taillight circuits; repair or replace as needed.		
NT100506	Inspect and test instrument panel light circuit switches, relays, bulbs/LEDs, sockets, connectors, terminals, wires, and printed circuits/control modules; repair or replace as needed.		
NT100507	Inspect and test interior cab light circuit switches, bulbs/LEDs, sockets, low voltage disconnect (LVD), connectors, terminals, wires, and control components/modules; repair or replace as needed.		
NT100508	Inspect and test tractor-to-trailer multi-wire connector(s); repair or replace as needed.		
NT100509	Inspect, test, and adjust stoplight circuit switches, bulbs/LEDs, sockets, connectors, terminals, wires and control components/modules; repair or replace as needed		
NT100510	Inspect and test turn signal and hazard circuit flasher(s), switches, relays, bulbs/LEDs, sockets, connectors, terminals, wires and control components/modules; repair or replace as needed.		
NT100511	Inspect and test reverse lights and warning device circuit switches, bulbs/LEDs, sockets, horns, buzzers, connectors, terminals, wires and control components/modules; repair or replace as needed.		
NT100600	<b>GAUGES AND WARNING DEVICES</b>		
NT100601	Interface with vehicle's on-board computer; perform diagnostic procedure, verify instrument cluster operations using recommended electronic service tool(s) (including PC based software and/or data scan tools); determine needed action.		
NT100602	Identify causes of intermittent, high, low, or no gauge readings; determine needed action.		
NT100603	Identify causes of data bus-driven gauge malfunctions; determine needed action.		
NT100604	Inspect and test gauge circuit sensor/sending units, gauges, connectors, terminals, and wires; repair or replace as needed.		
NT100605	Inspect and test warning devices (lights and audible) circuit sensor/sending units, bulbs/LEDs, sockets, connectors, wires, and control components/modules; repair or replace as needed		
NT100606	Inspect, test, replace, and calibrate (if applicable) electronic speedometer, odometer, and tachometer systems.		
NT100700	<b>RELATED ELECTRICAL SYSTEMS</b>		
NT100701	Interface with vehicle's on-board computer; perform diagnostic procedures using recommended electronic service tool(s) (including PC based software and/or data scan tools); determine needed action.		
NT100702	Identify causes of constant, intermittent, or no horn operation; determine needed action.		

<b>Task Number</b>	<b>Description</b>	<b>Hours</b>	<b>Level</b>
NT100703	Inspect and test horn circuit relays, horns, switches, connectors, wires, clock springs, and control components/modules; repair or replace as needed.		
NT100704	Identify causes of constant, intermittent, or no wiper operation; diagnose the cause of wiper speed control and/or park problems; determine needed action.		
NT100705	Inspect and test wiper motor, resistors, park switch, relays, switches, connectors, wires and control components/modules; repair or replace as needed.		
NT100706	Inspect wiper motor transmission linkage, arms, and blades; adjust or replace as needed.		
NT100707	Inspect and test windshield washer motor or pump/relay assembly, switches, connectors, terminals, wires, and control components/modules; repair or replace as needed.		
NT100708	Inspect and test side view mirror motors, heater circuit grids, relays, switches, connectors, terminals, wires and control components/modules; repair or replace as needed.		
NT100709	Inspect and test heater and A/C electrical components including: A/C clutches, motors, resistors, relays, switches, connectors, terminals, wires, and control components/modules; repair or replace as needed.		
NT100710	Inspect and test auxiliary power outlet, integral fuse, connectors, terminals, wires, and control components/modules; repair or replace as needed.		
NT100711	Identify causes of slow, intermittent, or no power window operation; determine needed action.		
NT100712	Inspect and test motors, switches, relays, connectors, terminals, wires, and control components/modules of power window circuits; repair or replace as needed.		
NT100713	Inspect and test block heaters; determine needed repairs.		
NT100714	Inspect and test cruise control electrical components; repair or replace as needed.		
NT100715	Inspect and test switches, relays, controllers, actuator/solenoids, connectors, terminals, and wires of electric door lock circuits.		
NT100716	Check operation of keyless and remote lock/unlock devices; determine needed action.		
NT100717	Inspect and test engine cooling fan electrical control components/modules, wiring; repair or replace as needed.		
NT100718	Identify causes of data bus communication problems; determine needed action.		