



NATEF Task List - Medium/Heavy Duty Truck Drive Train

Name: _____

Date: _____

For every task in *Drive Train* the following safety requirements must be strictly enforced: Comply with personal and environmental safety practices associated with clothing and the use of gloves; respiratory protection; eye protection; hand tools; power equipment; proper ventilation; and the handling, storage, and disposal of chemicals/materials in accordance with local, state, and federal safety and environmental regulations.

The first task in Drive Train is to listen to and verify the operator's concern, review past maintenance and repair documents, and determine necessary action.

II. DRIVE TRAIN A. Clutch		Week											
		1	2	3	4	5	6	7	8	9	10	11	12
P-1	1. Identify causes of clutch noise, binding, slippage, pulsation, vibration, grabbing, dragging, and chatter problems; determine needed action.												
P-1	2. Inspect and adjust clutch linkage, cables, levers, brackets, bushings, pivots, springs, and clutch safety switch (includes push and pull-type assemblies); check pedal height and travel; perform needed action.												
P-2	3. Inspect, adjust, repair, and replace hydraulic clutch slave and master cylinders, lines, and hoses; bleed system.												
P-1	4. Inspect, adjust, lubricate, or replace release (throw-out) bearing, sleeve, bushings, springs, housing, levers, release fork, fork pads, rollers, shafts, and seals.												
P-1	5. Inspect, adjust, and replace single-disc clutch pressure plate and clutch disc.												
P-1	6. Inspect, adjust, and replace two-plate clutch pressure plate, clutch discs, intermediate plate, and drive pins/lugs.												
P-1	7. Inspect and/or replace clutch brake assembly; inspect input shaft and bearing retainer; perform needed action.												



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II. DRIVE TRAIN A. Clutch (continued)		Week											
		1	2	3	4	5	6	7	8	9	10	11	12
P-1	8. Inspect, adjust, and replace self-adjusting/continuous-adjusting clutch mechanisms.												
P-1	9. Inspect and replace pilot bearing.												
P-1	10. Remove and reinstall flywheel, inspect mounting area on crankshaft, rear main oil seal, and measure crankshaft end play; determine needed action.												
P-1	11. Inspect flywheel, starter ring gear and measure flywheel face and pilot bore runout; determine needed action.												
P-2	12. Inspect flywheel housing(s) to transmission housing/engine mating surface(s) and measure flywheel housing face and bore runout; determine needed action.												
II. DRIVE TRAIN B. Transmission		Week											
		1	2	3	4	5	6	7	8	9	10	11	12
P-1	1. Identify causes of transmission noise, shifting concerns, lockup, jumping-out-of-gear, overheating, and vibration problems; determine needed action.												
P-2	2. Inspect, test, repair, or replace air shift controls, lines, hoses, valves, regulators, filters, and cylinder assemblies.												
P-1	3. Inspect and replace transmission mounts, insulators, and mounting bolts.												



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II. DRIVE TRAIN B. Transmission (continued)		Week												
		1	2	3	4	5	6	7	8	9	10	11	12	
P-1	4. Inspect for leakage and replace transmission cover plates, gaskets, seals, and cap bolts; inspect seal surfaces and vents; repair as needed.													
P-1	5. Check transmission fluid level and condition; determine needed service; add proper type of lubricant.													
P-2	6. Inspect, adjust, and replace transmission shift lever, cover, rails, forks, levers, bushings, sleeves, detents, interlocks, springs, and lock bolts/safety wires.													
P-1	7. Remove and reinstall transmission.													
P-3	8. Inspect input shaft, gear, spacers, bearings, retainers, and slingers; determine needed action.													
P-2	9. Inspect transmission oil filters, coolers and related components; replace as needed.													
P-2	10. Inspect speedometer components; determine needed action.													
P-3	11. Inspect and adjust power take-off (P.T.O.) assemblies, controls, and shafts; determine needed action.													
P-1	12. Inspect and test function of reverse light, neutral start, and warning device circuits; determine needed action.													
P-2	13. Inspect and test transmission temperature gauge, wiring harnesses and sensor/sending unit; determine needed action.													



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II. DRIVE TRAIN B. Transmission (continued)		Week												
		1	2	3	4	5	6	7	8	9	10	11	12	
P-2	14. Inspect and test operation of automated mechanical transmission and manual electronic shift controls, shift, range and splitter solenoids, shift motors, indicators, speed and range sensors, electronic/transmission control units (ECU/TCU), neutral/in gear and reverse switches, and wiring harnesses; determine needed action.													
P-2	15. Inspect and test operation of automated mechanical transmission electronic shift selectors, air and electrical switches, displays and indicators, wiring harnesses, and air lines; determine needed action													
P-1	16. Use appropriate electronic service tool(s) and procedures to diagnose automated mechanical transmission problems; check and record diagnostic codes, clear codes, and interpret digital multimeter (DMM) readings; determine needed action.													
P-2	17. Inspect and test operation of automatic transmission electronic shift controls, shift solenoids, shift motors, indicators, speed and range sensors, electronic/transmission control units (ECU/TCU), neutral/in gear and reverse switches, and wiring harnesses.													
P-2	18. Inspect and test operation of automatic transmission electronic shift selectors, switches, displays, indicators, and wiring harnesses.													
P-3	19. Use appropriate electronic service tool(s) and procedures to diagnose automatic transmission problems; check and record diagnostic codes, clear codes, and interpret digital multimeter (DMM) readings; determine needed action.													



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C. Driveshaft and Universal Joint		Week											
		1	2	3	4	5	6	7	8	9	10	11	12
P-1	1. Identify causes of driveshaft and universal joint noise and vibration problems; determine needed action.												
P-1	2. Inspect, service, or replace driveshaft, slip joints, yokes, drive flanges, and universal joints, driveshaft boots and seals, and retaining hardware; check phasing of all shafts.												
P-1	3. Inspect driveshaft center support bearings and mounts; determine needed action.												
P-1	4. Measure driveline angles; determine needed action.												

II. DRIVE TRAIN D. Drive Axle		Week											
		1	2	3	4	5	6	7	8	9	10	11	12
P-2	1. Identify causes of drive axle(s) drive unit noise and overheating problems; determine needed action.												
P-1	2. Check and repair fluid leaks; inspect and replace drive axle housing cover plates, gaskets, sealants, vents, magnetic plugs, and seals.												
P-1	3. Check drive axle fluid level and condition; determine needed service; add proper type of lubricant.												
P-2	4. Remove and replace differential carrier assembly.												
P-3	5. Inspect and replace differential case assembly including spider gears, cross shaft, side gears, thrust washers, case halves, and bearings.												



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II. DRIVE TRAIN D. Drive Axle (continued)		Week											
		1	2	3	4	5	6	7	8	9	10	11	12
P-3	6. Inspect and replace components of locking differential case assembly.												
P-3	7. Inspect differential carrier housing and caps, side bearing bores, and pilot (spigot, pocket) bearing bore; determine needed action.												
P-2	8. Measure ring gear runout; determine needed action.												
P-3	9. Inspect and replace ring and drive pinion gears, spacers, sleeves, bearing cages, and bearings.												
P-3	10. Measure and adjust drive pinion bearing preload.												
P-3	11. Measure and adjust drive pinion depth.												
P-2	12. Measure and adjust side bearing preload and ring gear backlash.												
P-2	13. Check and interpret ring gear and pinion tooth contact pattern; determine needed action.												
P-3	14. Inspect, adjust, or replace ring gear thrust block/screw.												
P-3	15. Inspect power divider (inter-axle differential) assembly; determine needed action.												
P-2	16. Inspect, adjust, repair, or replace air operated power divider (inter-axle differential) lockout assembly including diaphragms, seals, springs, yokes, pins, lines, hoses, fittings, and controls.												



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II. DRIVE TRAIN D. Drive Axle (continued)		Week											
		1	2	3	4	5	6	7	8	9	10	11	12
P-3	17. Inspect, repair, or replace drive axle lubrication system: pump, troughs, collectors, slingers, tubes, and filters.												
P-1	18. Inspect and replace drive axle shafts.												
P-1	19. Remove and replace wheel assembly; check rear wheel seal and axle flange gasket for leaks; perform needed action.												
P-1	20. Identify causes of drive axle wheel bearing noise and check for damage; perform needed action.												
P-2	21. Inspect and test drive axle temperature gauge, wiring harnesses, and sending unit/sensor; determine needed action.												
P-1	22. Clean, inspect, lubricate and replace wheel bearings; replace seals and wear rings; inspect and replace retaining hardware; adjust drive axle wheel bearings. Verify end play with dial indicator method.												