

SERVICE MANUAL

SERVICE MANUAL SECTION

Pre-Delivery Inspection Instruction Manual For ProStar Model

Model: ProStar

S10022

07/13/2007

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DESCRIPTION

GENERAL INFORMATION

IMPORTANT – Use these instructions along with Pre-Delivery Inspection Report Form S00125 when inspecting ProStar models.

These instructions explain how to inspect the vehicle to be sure it is ready for delivery to the customer. Each inspection operation on the report has a corresponding procedure on the following pages.

The original Pre-Delivery Inspection Report Form should be retained at the PDI Facility.

NOTE – Fill in the information block on the report after the vehicle is driven into the inspection area.

The instructions described in this manual follow the order of operations listed in the Pre-Delivery Inspection Report. If a question arises while performing an inspection, use the Pre-Delivery Inspection Report Form line item number as a reference to find the corresponding procedure instructions and specifications in this manual required to complete the inspection line item.

EXAMPLE: For a question about engine coolant level, refer to the operation on the report : number 18. Go to Step 18.

Non-Reimbursement Addendum

Adjustments which are a part of the PDI (**not reimbursable as PTD warranty expense**) are as follows:

- Fluid level adjustments - Labor
- Wire harness route and clip - Tie Strapping
- Tire inflation
- Re-torque operations
- Installation of loose shipped items (except air deflector)
- Chassis Lubrication

Consumables such as windshield washer solvent, diesel fuel, coolant additives, etc. will not be reimbursed as warranty expense.

Damage due to shipping should be claimed with the shipping carrier. All other repair operations should be claimed to PTD 03 warranty.

Table 1 Suggested PDI Tools

Grease Gun	Midtronics Smart Charger
Tire Pressure Gauge	Ultrasonic Leak Detector
Coolant Refractometer	Creeper
Wrenches	Axle Flange Nut Socket
1/2" Drive Ratchet	3/4" or 1/2" Drive, 12" Socket Extension
400 LB-Ft Torque Wrench	Flat Screwdriver
CD to Test CD Player	EZ Tech and Cable

Table 1 Suggested PDI Tools (cont.)

Watch with Second Hand	6" (150mm) Ruler/ Tape Measure
Shop Trouble Light	Flashlight (head-mounted is best)
Ball Joint Nuts Socket	Steering Intermediate Shaft Pinch Bolts Socket
Spare Cotter Pins	Transmission Bulk Oil Pump
Oil Drain Pan	Drive Axle Bulk Oil Pump
Channel Locks	Tape Measure
Fluid container with pour spout	
2594108C1 Female Compucheck fitting that can be used to air up the ProStar.	
Basic Tool Kit to install Dealer-Installed components and perform minor corrections.	
Pump-Spray Bottle with soapy water to check for air leaks.	

1. PROSTAR MODEL INSPECTION INSTRUCTIONS (REPORT S00125)

1. Prepare vehicle for PDI inspection — wheel chocks etc.



WARNING – To avoid property damage, personal injury or death, park the vehicle on a flat level surface, set the parking brake, chock the wheels and turn the engine off.

NOTE – PDI Inspection should take place in a well-lit location with a smooth level floor (a slight grade for water drainage is acceptable) to assure accurate fluid level checks.

- A. Assure vehicle has 120+ psi air pressure in the brake system per the dash gauges.
- B. Turn OFF key.
- C. Install wheel chocks.
- D. Indicate on Pre-Delivery Inspection Report the vehicle Model, Assembly Plant, PDI Facility Name and Location, VIN, R.O. No. (if applicable), Customer Name and Location.
- E. Cover seats (if uncovered) and floor mat with protective coverings to protect them from dirt during PDI.

NOTE – It is recommended that clean floor mats made of cloth material be placed on the shop floor just outside the vehicle's cab doors to reduce the amount of dirt tracked into the vehicle interior.

2. Batteries/Cables/Cover - routing, tight, supported

- A. Battery cable end connections in box should be tight and secure.
- B. Cables in and around box are routed and clipped to avoid rubbing when box moves.
- C. Batteries are securely fastened in box.
- D. Battery view eyes (if equipped) should not be blocked by cables or mounting hardware.

- E. Add or adjust tie-wraps as appropriate during PDI.
- F. Document items to be repaired on PDI Report.

3. *Connect to Midtronics Smart Charger and begin charging — 2 hour minimum*

- A. Carefully connect smart battery charger and charge batteries for a minimum of 2 hours.
- B. Turn charger ON at 12V automatic high rate of charge. Watch for Incorrect Hook-Up warning.
- C. Continue to charge the batteries until the green LED illuminates continuously. Continue charging after Road Test if necessary.

NOTE – If batteries are cool [less than 60 deg F (16 deg C)], moving vehicle into a heated facility will shorten charging time required. It may take up to 20 hours to achieve a full charge if the batteries are charged in a very cold [0 deg F (-17 deg C)] environment.

NOTE – For further details see the Smart Charger operator's manual on ISIS website at: <https://evaluate.internationaldelivers.com/service/spectools/PowerCharge.pdf>

4. *Driver Controls with Vehicle Stationary - function properly: Tilt, Dif-Iok, PDL, Dump, Mirrors, Radio, Wipe/wash, Horns, VID*

NOTE – Be sure the vehicle has 120 PSI air pressure or some optional equipment may not function.

- A. Features - Verify proper function:
 - 1. Steering/ optional Tilt-Telescopic Steering Wheel
 - 2. Differential Locks should lock and release properly as denoted by auditory engagement and disengagement.
 - 3. Power Divider should lock and release properly as denoted by auditory engagement and disengagement.
 - 4. In-cab controls for remote 5th wheel jaw release and or remote slider release should function properly.
 - 5. Rear Air Suspension Dump - rear frame lowers and raises as selected.
 - 6. Mirror adjustment, manual or motorized
 - 7. Radio/CD Player (optional) - Controls: Volume, AM FM, Station Change, CD Player, and Speakers function properly. **NOTE:** Remember to remove CD immediately so it will not be left behind.
 - 8. Vehicle Information Display (VID) turns on and buttons work.
 - 9. Windshield wipers work in all positions (HI/LO/Intermittent/OFF) and do not contact each other or window frames. **NOTE:** If windshield is exceptionally dirty, wipe off windshield with clean cloth prior to wiper test to avoid scratching the windshield.
 - 10. All washer fluid nozzles spray in acceptable pattern.

- B. Steering Wheel-mounted Switches - Verify proper function.
 - 1. Air horn
 - 2. Electric horn
 - 3. Radio/Cassette/CD Player (optional) — on/off switches, volume +/- switches
- C. Verify proper function of all other driver controls and accessories that might be present that do not require the vehicle to be moving.
- D. Document items to be repaired on PDI Report.

5. *Cab support block removed - Cab height valve linkage reconnected.*

NOTE – Vehicles equipped with cab air suspension that have been decked during transport are shipped with a block(s) installed between the cab and the chassis or between cab suspension components. The block(s) is held in position by the weight of the cab and a plastic stay strap. The shipping block is installed in this position to prevent the cab from bouncing during shipping. Before demonstrating or delivering vehicles equipped with cab air suspension, the shipping block MUST BE REMOVED.

- A. Assure there is at least 110 PSI air pressure on both air pressure gages on the dashboard. Start the engine and build up pressure if necessary, or air the truck up by connecting shop air hose to the quick-disconnect fitting found on the air compressor discharge line, air tanks, or elsewhere.
- B. Cut the plastic stay strap.
- C. Push up or down, as appropriate, on the cab height control valve arm until its linkage can be aligned with, and fastened to, its mounting location. **NOTE:** Resetting ride height is should not be necessary, as only the day cab height valve linkage is adjustable and its adjusting locknut should not have been loosened by the vehicle transportation service.
- D. If the day cab height valve linkage locknut has been loosened:
 - 1. Refer to service manual S16033 for cab air suspension to achieve the correct ride height.
 - 2. Contact Roger McClatchey at Active Transport via e-mail at: RMcClatchey@activetransport.com and inform him of this procedural error. The height valve linkage should not be disassembled or the locknut loosened. It should be merely disconnected at one of its mounting points thus maintaining its proper length set at the factory. **NOTE:** Measuring or resetting the cab height is not covered under PDI.

6. *Install loose components shipped for or with the vehicle*

A. These include:

1. Tailpipes/ Vertical exhaust stacks should be fully inserted into exhaust pipe
 - Exhaust stacks should be properly aligned if applicable
 - Clamps should be tight and secure, and installed in overlapping area between upper and lower stacks

- a. Torque Specifications:

- Aluminized band, bright hardware - 44 to 59 ft-lbs.
- 409 Stainless band, dull gray hardware - 35 to 46 ft-lbs.
- If in doubt, torque to 46 ft-lbs.

- b. Correct as needed.

NOTE: Vehicle transport personnel frequently install tailpipes. Therefore vehicles arriving with tailpipes installed should be inspected for proper tailpipe installation / bolt torques/ etc. Tailpipe installation and alignment labor is included in the PDI. Any damages to parts should be noted at the time of the receipt of the vehicle and charged to the vehicle transport service.

3. Trailer connections
4. CB antennas
5. Mud flaps
6. Cargo nets
7. Any other mounted/installed component shipped with the vehicle and not installed by the plant.

- B. Labor cost for air deflector installation and additional dealer added / installed components is not part of the PDI but is to be charged to the vehicle's cost via the assigned Stock Unit# / VIN / Tag# / Etc.

7. *2 Keys + 2 Fuel Cap Keys present, RKE functional*

- A. Verify two ignition keys are present
- B. Two Fuel Tank Locking Caps (optional) should be attached to vehicle keys. Test keys in fuel caps.
- C. Remote Keyless Entry (RKE) Fobs (optional) are present and functional

NOTE: If RKE Fobs are not initially functional, refer to TSI 07-08-03 for programming instructions.

- D. Document items to be repaired/ missing parts on PDI Report.

8. *Interior panels, trim, moldings and floor coverings - neat, clean, and secure.*

- A. Verify Interior components are neat and fit properly.
- B. Verify Interior components are clean.
- C. Verify Interior components are well secured.
- D. Document items to be repaired on PDI Report.

9. *Seats and seat belts - operation and anchorage.*

- A. Verify proper installation, condition, and operation of Seats and Seat Belts.
- B. Document items to be repaired on PDI Report.

10. *Sleeper Accessories/ Controls - clean/secure/function*

- A. Verify sleeper controls and accessories are neatly installed and secure.
- B. Verify sleeper controls and accessories are clean and undamaged.
- C. Verify sleeper controls and accessories (including, but not limited to the inverter, TV, appliances, etc.) function properly. Plug in a 120 volt light to assure inverter (if present) operation.
- D. Document items to be repaired on PDI Report.

11. *Lights - interior, instrument panel, dome, reading, sleeper, and exterior lights*

- A. Check interior lights, dome lights, sleeper lights (ceiling, reading, under bunk) and all exterior lights including steering wheel-mounted Headlight Interrupt Switch and Marker Light Interrupt Switch.
NOTE: Use of mirrors in inspection bay is recommended.
- B. Document items to be repaired on PDI Report.

12. *Paint, Exterior Components - in excellent condition, no body damage*

- A. Remove any protective coatings added for shipping
- B. External painted/unpainted and plated surfaces should be free from runs, scratches, scuffs, dents, bumps, holes, or other obvious defects.
- C. Trim pieces should be securely affixed and aligned, and in good condition.
- D. Chrome surfaces should be free from cracks, bubbles, scuffs, or other obvious defects.
- E. Mirrors, Bumper and Chassis Skirts should be securely mounted and in good condition.
- F. Document items to be corrected and any other body damage on PDI Report.

13. *Tires - proper inflation, valve stem caps are tight*

NOTE – Tires may come from the vendor inflated above the maximum pressure indicated on the sidewall.

- A. Tire pressure should be checked with a pressure gauge that is calibrated at least 4 times per year.
 - An air tire valve chuck with an integral dial pressure gage will speed up this process.
- B. All rear/ drive tires should be inflated to same pressure somewhere between 90 psi. and the maximum "dual tire pressure" listed on the sidewall, and all rear/ drive tires should be within 3 psi of each other.
- C. Front tires should be inflated to the max single tire pressure listed on the sidewall + 0 / -3 PSI.
- D. Correct tire pressure as needed during PDI
- E. If one or more tires of a like kind is more than 10 PSI lower in pressure than the other tires of like kind, document tire(s) to be inspected for slow leaks on PDI Report.
- F. Re-install metal (not plastic) valve stem caps tightly.

14. *Steering Intermediate Shaft Pinch Bolts - both torqued off*

- A. Pinch bolts should be twisted off at each end of steering intermediate shaft.
 - Feel or look to see that the top surface of the head of the pinch bolt is relatively smooth and that the 5/16" (8mm) hex head has been removed during the torquing process. A round raw steel fractured circle can be seen where the hex head fractured off.
- B. Re-torque if required (included in PDI labor).
- C. Document items to be repaired on PDI Report.

15. *Engine compartment routing / clipping - secured, meets specifications, connectors fully seated*

- A. Check the following items:
 - 1. Electrical wiring harnesses
 - 2. Battery cables
 - 3. Air hoses
 - 4. Fuel hoses
 - 5. Coolant/heater hoses
 - 6. Power steering hoses
 - 7. Transmission cooler
 - 8. Refrigerant hoses
 - 9. Add-on hydraulic hosing.

B. All cables, hoses, and wires should be:

1. Well supported every 24" or less
2. Free from tension
3. 5" (125 mm) from any heat source unless shielded
4. 3" (75 mm) from any heat source if shielded
5. Clear from any rub or pinch point
6. Free from kinking or pinching
7. Should NOT block access to any fluid fill, fluid drain, or inspection points
8. Compressor discharge line should be free from any low points, or "water traps"

C. Listen for audible air leaks using human ears (and optionally the Ultrasonic Leak Detector if desired). **Spray a liquid soap solution on all air connections.** Bubbles indicate a leak.

D. Correct minor routing and clipping problems using tie wraps as needed during PDI.

E. Document items to be corrected on PDI Report.

16. *Power Steering Fluid Level - between COLD MIN and COLD MAX marks*

A. Fluid level should register between COLD MIN and COLD MAX marks on reservoir or dipstick.

B. Add or drain appropriate fluid as needed to correct fluid level.

NOTE – To prevent a hot overfill, fluid must be drained from reservoir if fluid is cold and above COLD MAX line.

NOTE – If fluid level is in acceptable operating range, further fluid additions are not covered by PTD Warranty. Only fluid added, not labor, is covered by PTD Warranty.

17. *Engine Oil Level - between ADD and FULL marks*

A. Vehicle should be parked on a level surface.

B. Engine should be turned OFF for at least 5 minutes before checking level.

C. **Engine oil level in upper half of ADD-FULL range on dipstick is considered acceptable as-is.**

D. Add or drain oil as needed during PDI to put fluid level in acceptable range.

NOTE – If fluid level is in acceptable operating range, further fluid additions are not covered by PTD Warranty. Only fluid added, not labor, is covered by PTD Warranty.

18. *Proper Engine Coolant Level/Freeze Protection - between MIN COLD and MAX, good to -32 to -42F (-35 to -41C)*

A. If the coolant level is below the MIN COLD line, fill the surge tank to the MIN COLD line. If the coolant level is at or above the MIN COLD line and the freeze point is correct, **DO NOT adjust the level.**

B. Check coolant Freeze point (-32 F to -42 F; -35 C to -41 C) using a refractometer and adjust concentration as necessary to assure specified freeze point.

19. *Steering Cotter Keys / lock tabs present, spread*

- A. Verify cotter pins or lock tabs are present and spread.
- B. Document, on PDI Report, missing or damaged cotter keys or lock tabs to be corrected.

20. *Front Hub Oil Level (if equipped) - between indicators*

- A. Oil level on oil-filled front hubs should be at or above the "OIL LEVEL" / "MINIMUM LEVEL" line on the view window, and be below the vent plug opening. Oil should not pour out if the rubber cap is removed.
- B. Add or remove oil as needed during PDI to bring level to the proper range on the hub.

NOTE – If fluid level is in acceptable operating range, further fluid additions are not covered by PTD Warranty. Only fluid added, not labor, is covered by PTD Warranty.

21. *Open all coolant / heater valves before Road Test*

- A. Open all coolant valves on vehicle prior to Road Test so that coolant circulates through all possible systems.

NOTE – Some installations have two hand valves in the engine compartment.

22. *Rearmost Axle Flange Gaskets – replace axle flange gaskets only if removed during shipping / towing*

- A. Determine if the axle shaft has been removed from the rearmost drive axle during vehicle transport. Indications that an axle shaft has been removed may include:
 - The axle shaft flange and or its fasteners may have scratched or chipped paint.
 - The axle hub and or wheel rim may have evidence of axle lubricant that has dripped onto them.

NOTE: IF THE REARMOST AXLE SHOWS NO EVIDENCE OF HAVING ITS AXLE SHAFTS REMOVED, DO NOT REPLACE THE AXLE SHAFT GASKETS. ACCEPT AS-IS AND MOVE TO NEXT LINE ITEM.

- B. If an axle shaft has been removed, the dealer is to install a new axle shaft flange gasket using the following specific procedures:
1. Make sure the Dif-Lock (if present) has been engaged to avoid axle shaft-to-differential misalignment upon axle shaft reinsertion.
 2. Remove the right and left axle shafts on the suspect axle. Be sure not to allow the axle shaft to touch any dirty surfaces.
 3. Wipe clean and inspect the axle shaft flange and wheel hub machined mating surfaces for damage.
 - If damage is found, document items to be repaired on PDI Report.
 4. If any studs come loose from the hub, be sure to use a thread-locker liquid on the inserted section of the threads before reinstallation.
 5. Place the new axle flange gasket over the hub studs and fully seat it against the hub.
 6. Carefully reinstall the axle shaft, and make sure not to nick the new gasket. If damage occurs, install a new gasket.
 7. Snug the axle flange fasteners with a hand operated wrench. **DO NOT USE AN IMPACT WRENCH AS IT CAN DAMAGE THE GASKET AND CAUSE A LEAK!**
 8. Tighten the nuts in steps in a star pattern with a torque wrench to the specified torque. Refer to the Table below.
- C. Wipe off any visible axle lubricant.

Table 2 Axle Flange Nut and Bolt Torque Chart

Size	Grade/Type	Torque: Ft-Lbs.	Torque: Nm
5/8-18	8/Washer	145-175	197-237
5/8-18	5/Nylok	106-125	143-170
9/16-18	8/Washer	105-125	143-170
9/16-18	5/Nylok	96-116	129-156
3/4-16	8/Washer	250-300	340-410
3/4-16	5/Nylok	219-240	294-325
3/4-10	8/Washer	250-300	340-410
3/4-10	5/Nylok	219-240	294-325

23. Transmission fluid level full / cooler hose connectors fully engaged

- A. Verify vehicle is on level ground.
- B. Verify that oil level in transmission is at the bottom of the fill plug opening.
- C. Allow an overfilled transmission to drain excess fluid.
- D. Fluid level is acceptable if fluid level is not more than 1/8 inch (3 mm) below the bottom of the fill hole opening, further fluid additions are not covered by PTD Warranty.
- E. If the fluid is more than 1/8 inch (3 mm) below the bottom of the fill plug opening add more fluid (Labor covered within PDI. Fluid covered under PTD Warranty.).

- F. Verify that transmission drain plug is snug and leak-free after installation.
- G. Verify that all (up to four) Snap-To-Connect (STC) fittings on each end of the two Transmission Oil Cooler hose sections are fully latched by grasping the tubing on each side of the connections and forcefully pushing the connectors together. Then pull forcefully on each side of the connection and attempt to pull the connectors apart to assure that the connection will not detach during use.

CAUTION – Failure to fully latch the STC fittings can allow the fittings to come apart during use resulting in transmission failure due to oil loss.

NOTE – Be sure to top-off with the correct fluid type (synthetic/ conventional mineral oil) per Lineset Ticket, Job Information Sheet, or label on plug.

24. Drive Axle Oil Level full / adjust (all drive axles)

- A. Verify vehicle is on level ground. If not, move vehicle to level ground.
- B. Verify that oil level in Drive Axle is at the bottom of the fill plug opening.
- C. Allow an overfilled Drive Axle to drain excess fluid.
- D. Fluid level is acceptable if fluid level is not more than 1/8 inch (3 mm) below the bottom of the fill hole opening, further fluid additions are not covered by PTD Warranty.
- E. If the fluid is more than 1/8 inch (3 mm) below the bottom of the fill plug opening, add more fluid (Labor covered within PDI. Fluid covered under PTD Warranty.).
- F. Verify that Drive Axle drain plug is snug and leak-free after installation.

NOTE – Be sure to top-off with the correct fluid type (synthetic/ conventional mineral oil) per Lineset Ticket, Job Information Sheet, or label on plug.

25. Routing/clipping under vehicle - secure/ meets specs

- A. Check the following items:
 - 1. Electrical wiring harnesses
 - 2. Battery cables
 - 3. Air hoses
 - 4. Fuel hoses
 - 5. Coolant/heater hoses
 - 6. Power steering hoses
 - 7. Transmission cooler
 - 8. Refrigerant hoses
 - 9. Add-on hydraulic hosing.

B. All cables, hoses, and wires should be:

1. Well supported every 24" or less
2. Free from tension
3. 5" (125 mm) from any heat source unless shielded
4. 3" (75 mm) from any heat source if shielded
5. Clear from any rub or pinch point
6. Free from kinking or pinching
7. Should NOT block access to any fluid fill, fluid drain, or inspection points
8. Compressor discharge line should be free from any low points, or "water traps"

C. Listen for audible air leaks using human ears (and optionally the Ultrasonic Leak Detector if desired). **Spray a liquid soap solution on all air connections.** Bubbles indicate a leak.

D. Correct minor routing and clipping problems using tie wraps as needed during PDI.

E. Document items to be corrected on PDI Report.

26. Lubricate Vehicle - zerks, door hinges, hood supports

A. Lubricate all grease zerks (typically a quantity of 33 total zerks) including:

- King Pins (4 zerks) and King Pin Thrust Bearings (2) with vehicle weight on tires
- Tie Rod Ends (2)
- Drag Link Ends (2)
- Steering Intermediate Shaft (2) U-Joints and (1) Slip Joint
- Steering Gear Dust Seal (1) (Not present on some steering gears.)

CAUTION: Only use a hand-operated grease gun on Steering Gear Dust Seal grease zerk (if present)! Using a power grease gun will blow out the seal!

- Brake Cam Shafts (6) on 6x4, (4) on 4x2
- Brake Slack Adjusters (6) on 6x4, (4) on 4x2
- Drive Shaft U-Joints (2 to 5) (10-Series Drive Shafts Only!)
- Drive Shaft Slip Joints (2) on 6x4, (1) on 4x2 (10-Series Drive Shafts Only!)

NOTE: DO NOT add grease to SPL XL Drive Shaft (easily identified by having a plastic bellows covering the slip joints). It has synthetic lube from the factory. The zerks are covered with plastic caps which should be left in place. Only grease "10-Series" Drive Shafts.

- Transmission Clutch Cross Shaft Bushings (2)
- Transmission Clutch Throw-out Bearing (1)
- 5th Wheel Pivot Pins (0 to 4)
- 5th Wheel Slider Mechanism (0 to 4)
- 5th Wheel Top Plate and Locking Jaw (additional details covered in separate 5th Wheel line item)

- B. Grease Door Hinges and Door Check-Links with spray white Lithium grease.
- C. Grease Bumper hinges with spray white Lithium grease.

27. *Fifth Wheel - lubed, functions, secured*

- A. Refer to the correct operator's manual for proper lubrication procedures.
- B. Lubricate 5th Wheel Top Plate and Locking Jaw, if applicable. On Fontaine 5th wheels, close the jaw by pushing forward on the lower section of the jaw with a long shaft and then separate the locking jaw from the wedge with a screwdriver and install grease into the gap so that the contact surface between the two parts is well lubricated. This will keep the two parts from sticking together and locking-up the jaw mechanism later.
- C. Fifth wheel should lock / unlock smoothly and fully.
- D. Activate hand-operated Jaw Release (and electrically operated feature if present).
- E. Sliding fifth wheel should be secure and tight in locked position.
- F. Document major component defects to be repaired on PDI Report.

28. *Clutch pedal free play - 1-1/4 to 1-3/4" (32 - 44mm)*

- A. Measure the clutch pedal distance traveled while depressing the pedal until resistance is felt. Measure at the midpoint (not lower or upper edge) of the side of the pedal pad.
 - Free play should be 1-1/4 to 1-3/4" (32 - 44mm).
- B. Correct as needed by performing an internal clutch (not linkage) adjustment during PDI.
 - Adjust finger to bearing gap to 1/8" (3mm)
 - Adjust bearing to clutch brake gap to 1/2" (13mm)
 - Re-measure the clutch pedal distance traveled while depressing the pedal until resistance is felt.
- C. If internal clutch adjustment does not provide proper free play, clutch linkage adjustment is then necessary during PDI.

29. *Clear inactive Fault Codes*

- A. Observe as-received fault codes.
- B. Clear inactive fault codes using in-cab method, or Vehicle Information Display, EZ Tech, or applicable device.
- C. Document active fault codes on PDI Report and complete associated repairs prior to Road Test if necessary.

30. *Starter only activates with clutch depressed - Manual Transmission only*

- A. **Manual Transmission:**
 - 1. Starter MUST NOT ACTIVATE except when clutch pedal is depressed.
 - 2. Start Vehicle.
- B. Document items to be repaired on PDI Report.

31. ROAD TEST 20 minutes - Achieve 55 mph (90 kph)

- A. Pre-Planned Road Test Course should be nominally 6 miles (10km) and should include
 - 1. Reverse operation.
 - 2. Full-lock turns in right and left directions.
 - 3. Road speed of 55 mph/ 90 kph or higher.
 - 4. A section of rough pavement to evaluate squeaks, rattles, ride, etc.
- B. Before starting the Road Test:
 - 1. Be sure the Battery Charger has been disconnected and the Battery Box Cover and Chassis Skirts have been reinstalled.
 - 2. Be sure the Bumper, Hood, Luggage Doors, Passenger Door, Trailer connections, etc. are securely fastened/ closed.
 - 3. Be sure the vehicle has enough fuel to complete the test.
 - 4. Be sure the vehicle is adequately licensed and insured.
 - 5. Be sure the Driver has a valid Commercial Driver's License.

31a. Air Brake Test - perform, verify

- A. Engine OFF, Key OFF, Cycle brake pedal until at least one air system pressure gage registers below 55 PSI.
- B. Turn the key switch to the ON position. The buzzer and light must activate when either gage registers below 55 PSI.
- C. Start the engine and let it run. The light and buzzer must turn off when the gage with the lowest reading is at some point between 55 and 75 PSI.
- D. Pressure Build - Timed
 - 1. Rev engine to max RPM. Pressure in the gauge with the lowest reading should build from 85 to 100 PSI in 45 seconds or less.
 - 2. Governor should cut-out at 125 to 135 PSI.
- E. Pressure Bleed - Timed
 - 1. Turn off engine, switch key to Accessory position.
 - 2. Assure vehicle will not roll, and then release Park Brake and Service Brakes.
 - 3. After gauges stabilize, air pressure should drop no more than 2 PSI in one minute.
 - 4. Fully apply and hold Service Brake Pedal.
 - 5. After gauges stabilize, pressure in either gauge should drop no more than 3 PSI in one minute.
- F. Low Pressure Alarm
 - 1. Cycle service brake pedal to deplete air pressure.
 - 2. Alarm must sound before either gauge drops to 55 PSI.

G. Automatic Park Brake Application

1. Continue cycling service brake pedal to deplete air pressure
2. Park brake must automatically apply when the highest gage reading is somewhere between 20 and 40 PSI.

H. Document items to be corrected on PDI Report.

31b. *Park Brake Function - holds and rolls when it should*

- A. With Park Brake set and engine at idle and transmission in 1st gear attempt to move vehicle. Vehicle must not move.
- B. With area clear, Park Brake released, engine at idle, and transmission in 1st gear, attempt to move vehicle. Vehicle should move.
- C. Document items to be repaired on PDI Report.

31c. *Gages, Dash Warning Lights, Secondary Display - functional*

- A. With engine off and key moved from OFF to RUN position, gauges (except air pressure) will reset by moving counter clockwise against internal stop and then to actual reading position.
- B. If any gauge goes to 6 o'clock position, data is out of range or not available.
- C. Verify operation of all warning lamps - With engine off and key moved from OFF to RUN position, warning lights will illuminate momentarily.
- D. Observe function of all gages, displays, dash lights and warning lights with vehicle in motion.
 1. Speedometer
 2. Tachometer
 3. Oil Pressure
 4. Water Temperature
 5. Voltmeter
 6. Air Pressure
 7. Fuel Level
 8. Any optional gauges
 9. Odometer Display
- E. Document component defects to be repaired on PDI Report.

31d. *Windshield and Glass - no damage*

- A. Windshield and other glass should be free from cracks, stars, chips, or other obvious defects.
- B. Document items to be corrected on PDI Report.

31e. *Driver Controls with vehicle moving - function properly: Engine-brake and Cruise switches*

A. Features - Verify proper function:

Steering Wheel-mounted Switches

1. Engine/Exhaust Brake ON/OFF Switch - Verify proper function.
 - Brake activates at all 3 power levels
 - Brake deactivates when steering wheel switch or dash mounted switch are turned off
2. Cruise Control Switches [operable over 35 mph (55kph)]: - ON/OFF, SET/CRUISE, RESUME/ACCEL, deactivates after brake apply - Verify proper function.

B. Verify proper function of all other driver controls and accessories that might be present.

C. Document items to be repaired on PDI Report.

31f. *Engine, Transmission, Brakes, Steering - performance*

A. The following characteristics should be considered:

1. Idle quality - smooth
2. Acceleration - smooth and powerful; Accelerator Pedal operates smoothly.
3. Shifts:

Manual Trans - Smooth quiet operation of clutch and gear shift lever

Automated Manual Trans - Smooth quiet operation of clutch, auto-shifts crisp but not harsh

4. NVH (Noise, Vibration, and Harshness) - smooth and quiet, no shuddering, squeaking, buzzing, hissing, whining.
5. Braking (Service Brakes and Engine/ Exhaust Brake) - smooth and powerful
6. Steering - Tight and straight, no pull or vibration
7. Oil Pressure - 25 - 50 psi, engine warm
8. Water Temperature - 225 F max, engine hot
9. Volts - 13.0 - 15.0 Volts

B. Each parameter should be within an acceptable range per vehicle type and class.

C. Document items to be repaired on PDI Report.

31g. *Gear Selector Function - correct gear in each position; Switches on Steering Wheel and Console, or Lever*

Manual Transmission

- A. Verify that all gears are selected and achieved.
- B. Verify Range Selector Lever and Splitter Switch operate smoothly.
- C. Document items to be repaired on PDI Report.

Automated – Manual Transmission

- A. Verify clutch or service brake (as applicable) must be depressed to move from Neutral to Drive or Reverse.
- B. Verify that all gears are selected and achieved.
 - 1. Verify the 3 Steering Wheel-mounted Automated Manual Transmission Shift Switches are functional - MANUAL/AUTO override, Upshift, Downshift, shift switches
 - 2. Verify the Console-mounted Automated Manual Transmission Shift Switches are functional - Neutral, Drive, Reverse, Hold, Upshift, Downshift, MANUAL/AUTO override shift switches
- C. Document items to be repaired on PDI Report.

31h. *Steering Wheel Alignment - straight +/- 3/4" (18mm)*

- A. Determine if the vehicle axles are out of alignment or if the steering wheel just needs to be repositioned using the following instructions:
 - When driving straight ahead on a road with very little road crown, such as a limited-access highway, determine if the vehicle tracks straight ahead.
 - If the vehicle pulls significantly to the left or right, the axles are out of alignment.

Do not attempt to reposition an off-center steering wheel until axle alignment is deemed to be proper.
- B. If the axle alignment is acceptable and the top center of the steering wheel rim is within 3/4 inch (18 mm) of straight ahead do not attempt to improve the steering wheel alignment. Re-indexing the steering wheel on the steering column splines will move the rim of the steering wheel 3/4 inch (18 mm) per spline.

NOTE: The steering wheel mounts to the steering column shaft by a 72 tooth spline. The steering wheel cannot be adjusted in less than 5 degree (3/4 inch, 18mm) increments.
- C. If necessary, **adjust steering wheel to shaft alignment during PDI.**
- D. Document items to be repaired (including axle alignment) on PDI Report.

31i. *Wind noise - no leaking body seals*

- A. Verify there is no unusually excessive wind noise.
- B. Document items to be corrected on PDI Report.

31j. *Heat/AC/Fans - Cab (for Sleeper: @idle-parked) functional*

A. Verify proper operation of:

1. Heater
2. Defroster
3. A/C
4. Blower Fans
5. Adjustable Vents
6. Auxiliary Heaters
7. Auxiliary A/C

NOTE: If sleeper equipped, apply the parking Brake with Engine ON be sure to leave the driver's seat and operate the controls in the sleeper.

B. Document items to be corrected on PDI Report.

32. *Fluid, Air, or Exhaust Leaks - Cab / Engine Compartment / Chassis - none*

- A. With Vehicle running inspect exhaust connections for audible or visible leakage.
- B. Return vehicle to a quiet inspection bay where small air leaks can be heard.
- C. Install wheel chocks.
- D. Turn OFF key.
- E. Release parking brake. (This pressurizes additional air hoses)
- F. Apply Service Brakes during the inspection using a prop-rod between the driver's seat and the brake pedal.

- G. Verify there are no visible fluid, exhaust, or audible air leaks anywhere on the vehicle. Items included in check: (HVAC condensate (water) is not included as that is desirable)

1. CAC hosing
2. Refrigerant hoses - as evidenced by localized oil mist on hose, sender, or fitting
3. Air hoses

NOTE: It is recommended that the appropriate detector (ultrasonic leak detector (required tool) or refrigerant sniffer) is used in addition to the human ear, sprayed-on soap solution, or visual signs of leakage.

4. Fuel hoses, Fuel Tank, Fuel Delivery System
5. Radiator
6. Coolant / heater/ in-transit heat hoses
7. Power steering reservoir and hoses
8. Transmission cooler and hoses
9. Engine
10. Transmission
11. Drive Axles
12. Wheel Seals
13. Add-on hydraulic hosing.

- H. Verify manual operation of air tank drain valves.

- I. Check that muffler / tailpipe assembly is still clamped and positioned correctly.

- J. Document items to be corrected on PDI Report.

33. *Engine Coolant Level - Hot - Engine Off — near MAX line +/- 2 inch (50mm)*

- A. Check HOT coolant level after road test. The coolant level should be approximately 2 inches above the MIN COLD line due to expansion.
- B. Add coolant only if outside this range.



WARNING – To avoid being scalded by hot coolant, wait until engine cools and then slowly unscrew surge tank cap.

34. Axle U-bolts and Front Wheels - re-torque *after* Road Test

NOTE – Spring clamp group components will settle-in during Road Test and Axle Spring U-bolt re-torque will be more effective when performed after Road Test. DO NOT re-torque prior to Road Test.

- A. Refer to the Torque Chart for specifications.

Table 3 U-Bolt Nut Torque Chart

U-Bolt Dia. (Nominal)	Torque: Ft-lbs.	Torque: Nm
5/8 Inch Flanged Lock Nut	130-160	176-217
3/4 Inch Flanged Lock Nut	200-240	271-325
7/8 Inch Hex Head With Washer	260-300	350-380
1 Inch Hex Head With Washer	325-400	441-543

Front Wheel Lug Nuts - retorque

NOTE – Re-torque is required on Front Wheels only since some front wheels are removed during vehicle transport. Re-torque of rear wheels is not included in PDI.

- Turn front wheels slightly to the right to provide clearance between the torque wrench handle and the side of the vehicle to reduce the chances of scratching the vehicle bodywork.
- Determine nut size, type, and torque specification.
- Re-torque all wheel rim nuts following the proper tightening sequence.
- Refer to the Wheels, Rims, and Tires section in GROUP 17 of the Master Service Manual for additional information.

Table 4 Disc Wheel Torque Chart

Size	Nut Mounting	Torque	
		lbf – ft	N.m
22mm	Flange: Motor Wheel - 37.5mm Across Flats	450-500	610-678
22mm	Flange: International/Budd - 33mm Across Flats	450-500	610-678
NOTE – Do not use lubrication on dry threads.			

35. Fault Codes - check

- Check for fault codes using in-cab method, or Vehicle Information Display, EZ Tech, or applicable device.
- Document on PDI Report, active or inactive fault codes and any associated symptoms that appeared during Road Test.

36. *All Additional Accessories as equipped - perf., programming*

- A. Verify proper function of all other interior controls and accessories that might be present, including but not limited to:
 - 1. Programming AWARE
 - 2. Programming Theft Deterrent System password
 - 3. Calibrate optional Compass (readout is in odometer in instrument cluster)
 - 4. Ambient Temperature Thermometer (must be present with Compass option)
 - 5. No-Idle solutions - Heaters, AC, Charging
 - 6. Cummins ICON
 - 7. Vehicle Information Display (VID)
 - 8. Etc.
- B. Verify proper function of all other exterior controls and accessories that might be present, including but not limited to:
 - 1. Block Heaters
 - 2. Shore Power
 - 3. Auxiliary Generator Set
 - 4. Chassis Auto-Lube Greasing System programming and functionality
 - 5. Etc.
- C. Document items to be corrected on PDI Report.

37. *Complete: PDI "COMMENTS" and Repairs, Affix CTS-1122 sticker (optional), Instruction Stickers (if applicable)*

- A. Complete PDI Comments Section
 - 1. Document details of problems/corrections made during PDI
 - 2. Document details of repairs to be made.
 - 3. Complete needed repairs.
 - 4. Affix additional Instruction Stickers (if applicable) (possibly found in vehicle Operator's Manual)
- B. Complete inspector signature box
- C. Submit PDI Report to applicable technician, secondary inspector, or shop manager for further processing/repairs or sign-off.
- D. Complete any applicable repairs.
- E. Complete technician signature box
- F. Re-inspect repaired items and complete additional inspector sign-off or send back to repair until successfully inspected and signed-off by inspector.
- G. Submit fully completed PDI Report to service lead person for a final approval sign-off and filing or return to the "Complete any applicable repairs" step.

- H. Affix CTS-1122 sticker (optional)

38. *Operator's Manual, required documents are in vehicle*

Documents potentially required by law including:

- A. Truck Chassis Operator's Manual
- B. Engine Operator's Manual
- C. Seat Belt Installation, Usage and Maintenance Guide
- D. Fifth Wheel Instructions Handbook
- E. Special Equipment/ options Operator's Manuals
- F. Incomplete vehicle document (only if vehicle is shipped incomplete: No 5th wheel or Body installed)
- G. Etc.

Other documents that may be present:

- A. Radio Owner's Manual
- B. Full Features List/Line Setting Ticket
- C. Vehicle Electronics Programming Station Electronics Parameter Report
- D. ABS Brake Test Sheet
- E. Etc.

NOTE – Not all documents on these lists may necessarily be classified as required documents. Check your local laws for details.

39. *PDI Location Code, Date - add to Veh. Identification. Label*

- A. Using a permanent felt or roller ball style pen with black ink, write the PDI Location Code, and PDI Date on the Vehicle Identification Label.
- B. Cover the written PDI Location Code and PDI Date with high-quality transparent tape to preserve the writing.

40. *Wash, Vacuum, and Dry Vehicle - look for interior leaks*

CAUTION – Do not wipe dirt off the vehicle when it is dry as that can scratch the finish.

A. Assure the vehicle is clean inside and out and no dirt is visible.

1. Wash vehicle with mild soap solution and cloth or soft clean brush.

NOTE: Give extra attention to wheels that have had axle oil on them due to the axle being removed during delivery.

2. Rinse thoroughly with fresh water.
3. Starting with the windows, dry the vehicle fully with a soft clean towel to prevent water spots and soap etching.
4. With mild soap, remove any dirt that has entered the cab.
5. Clean inside of windows with glass cleaner.
6. Clean floor mat using a vacuum. Clean floor mat with soap, sponge, brush, and towel if necessary to eliminate all signs of dirt.
7. Remove any protective coverings from interior unless the final customer desires them to remain.

B. Verify there are no water leaks into the interior.

C. Document items to be corrected on PDI Report.

NOTE: Remember to remove any Dealer-owned, temporary License Plates from the vehicle. Check to make sure all tools and supplies have been removed from the vehicle.