

SERVICE MANUAL

SERVICE MANUAL SECTION

PRE-DELIVERY/QUALITY INSPECTION INSTRUCTION MANUAL FOR 3200, 3200 IM, HC, and LC MODELS

Model: 3200

Model: 3200 IM

Model: HC

Model: LC

S10016

07/12/2007

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DESCRIPTION

GENERAL INFORMATION

IMPORTANT – Use these instructions along with the Form (S00022) when inspecting these 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.

Original 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/Quality Inspection Report. If, while performing an inspection a question comes up, use the form as a guide to help find the correct reference information inside this manual.

EXAMPLE: For a question about engine coolant level, refer to the operation on the report : number 32. Go to Step 32.

1. 3200, 3200 IM, HC, LC MODEL INSPECTION INSTRUCTIONS (REPORT S00022)

1. *Prepare vehicle for PDI inspection — see instruction manual*



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.

- A. PDI Inspection area should take place in a well-lit location with a level floor.
- B. Install wheel chocks.
- C. Turn OFF key.
- D. On air brake vehicles, release parking brake.
- E. Indicate on Inspection Report the vehicle Model, Plant, PDI Facility, VIN, Service Invoice No., and Customer.

2. *Check Build Sheet — correct configuration!*

- A. Verify presence of all appropriate features as specified on vehicle build sheet.
- B. Correct as required.

3. Routing and clipping under vehicle — secure, meets specifications**A. All cables, hoses, and wires should be:**

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

B. Items included in this check:

1. Electrical wiring harnesses
2. Battery cables
3. Air hoses
4. Fuel hoses
5. Coolant / heater hoses
6. Power steering hoses
7. Transmission cooler / retarder lines
8. Hydraulic brake hoses
9. Add-on hydraulic hosing

C. Listen for audible air leaks.

There should be no audible air leaks.

D. If problems are found with routing and clipping or air leaks, correct as needed.**4. Center Bearing Alignment - square and tight**

- A. Verify that center bearing isolator is not out of carrier alignment.
- B. Verify that center bearing assembly mounting bolts are tight.
- C. Correct as needed.

5. Exhaust System - secure, tight, position, extends beyond body

- A. Check that muffler / tailpipe hangers are tight.
- B. Check that muffler / tailpipe clamps are tight.
- C. Check that muffler / tailpipe assembly is positioned correctly.
- D. Check that tailpipe extends beyond body.
- E. Correct as needed.

6. *Drive Axle Oil Level - full (ALL applicable drive axles)*

- A. Verify that drive axle oil level is filled level with fill port. Add fluid as needed.
- B. Verify that rear axle drain plug is snug and leak-free.

7. *Wheel Hub Gear Case Oil Level — all wheel hub gear cases (IM, LC Option Only)*

- A. Verify that oil level is filled level with fill port. Add fluid as needed.
- B. Verify that drain plug is snug and leak-free.

8. *Drop Box Oil Level — full (IM, LC Option Only)*

- A. Verify that oil level is filled level with fill port. Add fluid as needed.
- B. Verify that drain plug is snug and leak-free.

9. *Lubricate chassis — all grease zerks*

- A. Lubricate all grease zerks

10. *Spring U-bolts - retorque*

- A. Refer to the Torque Chart for specifications.

Table 1 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

11. *Shock Absorbers / Bump Stops — securely installed*

- A. Verify that shock absorbers are securely installed.
- B. Verify that bump stops are securely installed.
- C. Correct as needed.

12. *Slack adjusters — properly adjusted*

- A. Slack adjusters should be within the following adjustment ranges:
 - 1. Free Stroke — 0.5 to 0.75 inch
 - 2. 85 psi application — 1.5 to 1.75 inches
- B. Standard stroke chambers are out of range at 2.0" total stroke.
- C. Long stroke chambers are out of range at 2.5" total stroke.
- D. Correct as needed.

13. Wheel Lug Nuts - retorque

- A. Determine nut size, type, and torque specification.
- B. Re-torque all wheel rim nuts following the proper tightening sequence.
- C. Refer to the Wheels, Rims, and Tires section in GROUP 17 of the Master Service Manual for additional information.

14. Axle Flange Nuts - retorque

- A. Make sure new gaskets have been installed on each axle removed by the transport carrier.
- B. Tighten the nuts in a star pattern to the specified torque to ensure that axle flanges are properly seated. Refer to the Table below.

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

15. Tires - proper inflation, valve stem caps are tight

- A. Tire pressure should be checked with a pressure gauge.
- B. Tires may come from the vendor inflated above the maximum pressure indicated on the sidewall.
- C. If tires are inflated beyond the maximum pressure indicated on the sidewall, they should be left at that pressure.
- D. Rear tires should be inflated to 90 +/- 5 psi, at minimum.
- E. Front tires should be inflated to the maximum pressure indicated on the sidewall, at minimum.
- F. Tire pressure should be equal for all tires on an axle.
- G. Correct as needed.
- H. Re-install valve stem caps properly.

16. *Batteries/ Cables/ Cover — routing, tight, secure, greased, view eyes; Battery state of charge: 12.6 volts minimum*

- A. Battery cable end connections should be tight and secure.
- B. Battery cable end connections should be protected by a dielectric grease.
- C. Cables are not crimped or rubbing when box moves.
- D. Batteries should be securely fastened in box.
- E. Battery view eyes should not be obscured by cables or mounting hardware.
- F. Correct as needed.
- G. Charge batteries to 12.6 volts.

17. *Tow hooks — secure*

- A. Tow hooks should be securely mounted to the frame.
- B. If tow hooks are removable, frame mount must be securely mounted to frame.
- C. If tow hooks are removable, tow hooks must be secure in their storage area.
- D. Correct as needed.

18. *External Paint, Trim, Chrome, Mirrors — condition*

- A. External painted surfaces should be free from runs, scratches, scuffs, dents, orange peel, bumps, holes, or other obvious defects.
- B. Trim pieces should be securely affixed and aligned, and in good condition.
- C. Chrome surfaces should be free from cracks, bubbles, scuffs, or other obvious defects.
- D. Mirrors should be securely mounted and in good condition.
- E. Correct as needed.

19. *Storage Compartments — latches, hinges, lights, condition*

- A. Check function of all latches
- B. Check function of all hinges
- C. Check function of all compartment lights
- D. Check overall condition of hardware
- E. Correct as needed.

20. *Windshield and glass — no damage*

- A. Windshield and other glass should be free from cracks, stars, chips, or other obvious defects.
- B. Correct as needed.

21. Shore power / Block Heater connections — secure, function

- A. Shore power connection should be mounted securely.
- B. Shore power connection should function properly.
- C. Block heater connection should be mounted securely.
- D. Block heater connection should show continuity.
- E. Correct as needed.

22. Hood Fit — secure, good alignment

- A. Hood should be properly aligned with cab, lower fender extensions, and bumper.
- B. Hood latches should be easily operated.
- C. Correct as needed.

23. Fuel Tank — locking caps have keys

- A. Fuel tank locking caps should have keys present with vehicle keys.
- B. Correct as needed.

24. Mudflaps — secure, will not hit exhaust

- A. Mudflaps should be securely mounted.
- B. Mudflaps should not hit exhaust tailpipe.
- C. Correct as needed.

25. Turbo downpipe - tight and secure, no contact with other hardware

- A. Verify turbo to downpipe connection is secure and well positioned.
- B. Downpipe makes no contact with other vehicle hardware.
- C. Correct as needed.

26. Air Filter Element — present, secure

- A. Air filter element should be present.
- B. Air filter should be securely installed.
- C. Correct as needed.

27. Starter / Alternator / Ground Connections - tight, secure, greased

- A. Inspect cable end tightness. Connections should be tight and coated with dielectric grease.
- B. Cable ends make no contact with other vehicle hardware.
- C. Correct as needed.

28. Engine compartment routing / clipping - secure, meets specifications

- A. All cables, hoses, and wires should be:
 - 1. Well supported every 24" or less.
 - 2. Free from tension.
 - 3. 5" from any heat source unless shielded.
 - 4. 3" from any heat source if shielded.
 - 5. Clear from any rub or pinch point.
 - 6. Free from crimping.
 - 7. Should NOT block access to any fluid fill point.
 - 8. Compressor discharge line should be free from any low points, or "traps".
- B. Items included in this check:
 - 1. Electrical wiring harnesses.
 - 2. Battery cables.
 - 3. Air hoses.
 - 4. Fuel hoses.
 - 5. Coolant / heater hoses.
 - 6. Power steering hoses.
 - 7. Transmission cooler lines.
 - 8. Hydraulic brake lines.
 - 9. Add-on hydraulic hosing.
- C. Listen for audible air leaks.
 - 1. There should be no audible air leaks.
- D. If problems are found with routing and clipping or air leaks, correct as needed.

29. Engine compartment wire harness connections - fully latched / seated

- A. Verify all wire harness electrical connections are securely latched.
- B. Correct as needed.

30. Engine accessory drive belt(s) — properly installed

- A. Drive belt should be properly aligned with pulleys.
- B. Correct as needed.

31. Engine Oil Level - between ADD and FULL marks

- A. Vehicle should be parked on a level surface.
- B. Engine oil level should register between half-full and full on dipstick. Add proper oil as needed to correct fluid level.

32. Engine Coolant Level - above half full in range (or above lower view eye)

- A. Coolant level should register between midpoint of MIN-MAX indicators and MAX indicator on transparent surge tank.
- B. Add proper coolant as needed.

33. Engine Freeze Level — good to -40F / -40C

- A. Check engine coolant level.
- B. Should be good to -40F (-40C)
- C. Correct as needed.

34. Hydraulic Brake Fluid Level - between ADD and FULL marks

- A. Turn key ON if engine is not already running. Pump brake pedal quickly five times. Wait until pump motors stop running.
- B. Hydraulic Brake fluid level should register between midpoint of MIN-MAX indicators and MAX indicator on transparent reservoir.
- C. DO NOT OVERFILL. Reservoir can appear to be overfilled when key is in OFF position. Add appropriate fluid as needed to correct fluid level.
- D. Correct as needed.

35. Automatic Transmission Fluid Level full/cooler hose connectors fully engaged

- A. With vehicle running and in neutral or park position, check transmission fluid level. Fluid level should register between midpoint and Full mark in Cold range. Add appropriate fluid as needed to correct fluid level.
- B. 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.

36. Power Steering Fluid Level - between ADD and FULL marks

- A. Power steering fluid level should register between half-full and full range. Add appropriate fluid as needed to correct fluid level.

37. Washer Fluid Level - between ADD and FULL marks

- A. Washer fluid level should be half-full or higher. Add fluid as required.

38. Cotter keys / lock tabs present, properly spread - steering / brakes

- A. Replace missing or damaged cotter keys or lock tabs.

39. Engine compartment hose clamps - tightness, position

- A. Verify clamp orientation allows good access.
- B. For hose clamps:
 - 1. Aluminum pipe, re-tighten to 50 - 60 in-lb.
 - 2. Steel pipe, re-tighten to 70 - 75 in-lb.

40. Steering Intermediate Shaft Pinch Bolts, Both Ends - torqued off

- A. Pinch bolts should be twisted off at both ends of steering intermediate shaft.
- B. Correct as needed.

41. OPEN ALL COOLANT VALVES BEFORE ROAD TEST

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

42. Interior panels, trim, molding, and floor coverings — neat, clean, secure..

- A. Interior components should be neat and square.
- B. Interior components should be clean.
- C. Interior components should be well secured.
- D. Correct as needed.

43. Windows — open and close properly.

- A. Windows should open and close properly without binding, chattering, or excessive effort.
- B. Correct as needed.

44. Auxiliary Heater — functions, secure (IM, HC, LC Option Only).

- A. Auxiliary heater should function.
- B. Auxiliary heater should be well secured.
- C. Correct as needed.

45. Gauges and Dash Warning Lights - function properly.

- A. With engine off and key in RUN position, warning lights will illuminate.
- B. With engine off and key in RUN position, gauges will self test.

46. *Neutral Safety Switch — starter activates in Neutral or Park position only*

- A. Select all gear ranges and turn key to START position. Starter MUST NOT ACTIVATE except in NEUTRAL or PARK position.
- B. Start vehicle.

47. *Lights — exterior, interior, and dome*

- A. Check interior lights, dome lights, and all exterior lights. Use of mirrors in inspection bay is recommended.
- B. Correct as needed.

48. *Doors — adjusted and work properly*

- A. Includes
 - 1. Entry Doors
 - 2. Emergency Exits
- B. Includes
 - 1. Latches
 - 2. Locks
 - 3. Hinges
 - 4. Stops
 - 5. Air or Electrical Actuators

49. *Horn and Windshield Wiper / Washer — function and adjustment*

- A. Press center of steering wheel to operate electric horn.
- B. Verify wipers work in all positions and do not contact each other or window frames.
- C. Verify all washer nozzles' spray

50. *Body Switches — function properly (IM, HC, LC Option Only)*

- A. Verify that all body switches operate accessories as labeled.
- B. Correct as needed.

51. *Passenger Area condition - restraints, seat, controls, windows (IM, HC, LC Option Only)*

- A. Verify proper installation, condition, and operation of Passenger's Area.
- B. Included Items:
 - 1. Restraints
 - 2. Seat (including air seat)
 - 3. Controls
 - 4. Windows
- C. Correct as needed.

52. *Driver's Area condition - restraints, seat, controls, windows, mirrors*

- A. Verify proper installation, condition, and operation of Driver's Area.
- B. Included Items:
 - 1. Restraints
 - 2. Seat (including air seat)
 - 3. Steering wheel
 - 4. Controls
 - 5. Windows
 - 6. Mirror adjustment
- C. Correct as needed.

53. *Clear inactive fault codes*

- A. Hook up Electronic Service Tool (EST). Clear inactive fault codes.

54. *Gear Selector Function - each position selects correct gear*

- A. Gear selector should select correct gear in each gear selector position.
- B. Correct as needed.

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

- A. With Park Brake set and vehicle in drive gear, release service brake. Vehicle must not move. Park Brake indicator must be lit.
- B. With Park Brake released, Park Brake light must not be visible.

56. *Driver Controls - function properly***A. Check for proper function of systems:**

1. Service brake
2. Accelerator
3. Steering
4. Retarder (Do NOT engage retarder on slick road surfaces)
5. Cruise Control / Hand Throttle
6. Self-Canceling Turn Signal

B. Correct as needed.**57. *Gauges and Warning Lamps - function properly*****A. Check for proper function of gauges:**

1. Speedometer
2. Tachometer
3. Oil Pressure
4. Water Temperature
5. Voltmeter
6. Air Pressure
7. Fuel Level

B. Verify operation of all warning lamps**C. If any gauge goes to 6:00 position, data is out of range or not available.****58. *Climate controls - function properly*****A. Check for proper operation of:**

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

59. Engine, Transmission, Brakes, Steering - performance

- A. The following characteristics should be considered:
 - 1. Idle quality - smooth
 - 2. Acceleration - smooth and powerful
 - 3. Shifts - crisp but not harsh
 - 4. NVH (Noise, Vibration, and Harshness) - smooth and quiet, no shuddering, squeaking, buzzing, hissing, whining
 - 5. Braking / Retarder - smooth and powerful
 - 6. Steering - Tight and straight, no pull or vibration
 - 7. Oil Pressure - 25 - 40 psi, engine warm
 - 8. Water Temperature - 235 F max, engine hot
 - 9. Volts - 12.5 - 15.5V with engine at idle and low electrical accessory load.
- B. Each parameter should be within an acceptable range per vehicle type and class.
- C. Road test course should be nominally 6 miles and should include reverse operation and full-lock turns in right and left directions. Road test should include road speed of 50 mph or higher.

60. Rear Air Suspension Dump — dumps, lifts (IM, LC Option Only)

- A. Rear air suspension should dump, if so equipped, in 30 seconds or less.
- B. Rear air suspension should lift, if so equipped, in 30 seconds or less.

61. Front Air Suspension Dump — dumps, lifts (IM, LC Option Only)

- A. Front air suspension should dump, if so equipped, in 10 seconds or less.
- B. Front air suspension should lift, if so equipped, in 10 seconds or less.

62. Steering Wheel Alignment — +/- 6 degrees

- A. The steering wheel mounts to the steering column shaft by a 72 tooth spline. This spline mounting makes it impossible to perfectly align the steering wheel. Each spline represents 5 degrees. This means the steering wheel cannot be adjusted in less than 5 degree increments. If you have a 20 inch steering wheel, the 5 degrees represent 7/8 inch distance as measured at the outside edge of the wheel. If you have an 18 inch steering wheel, the 5 degrees represent 3/4 inch distance.

63. All Accessories as equipped — performance

- A. All accessories should function properly.
- B. Includes Keyless Entry systems.
- C. Includes wheelchair lift (IM, LC option only).
- D. Correct as needed.

64. *Wind noise — no leaking body seals*

- A. Excessive wind noise indicates air intrusion into cab.
- B. Correct as needed.

65. *Fault Codes - check*

- A. Check for fault codes.
- B. Check for Hadley air system fault codes (IM, LC option only). Refer to Service Manual S10018.
- C. Correct as needed.

66. *Engine Coolant Level - between ADD and FULL marks*

- A. Coolant level should register between midpoint of MIN-MAX indicators and MAX indicator on transparent surge tank when engine is warm.
- B. Add proper coolant as needed.

67. *Fluid or Air Leaks - Cab/Engine Compartment/Chassis - none*

- A. There should be no visible fluid or audible air leaks.
- B. Items included in check:
 - 1. CAC hosing
 - 2. Air hoses
 - 3. Fuel hoses
 - 4. Coolant/heater hoses
 - 5. Power steering hoses
 - 6. Transmission cooler / retarder lines
 - 7. Hydraulic brake hoses
 - 8. Add-on hydraulic hosing
- C. Locate and correct if needed.

68. *Bottom Side Air/Fluid Leaks - none*

- A. Check gaskets, seals, hoses, connections, and low points on housings on components that contain fluids.

B. Included components:

1. Engine
2. Transmission
3. Radiator
4. Transmission Cooler
5. Transmission Retarder
6. Drive Axle
7. Fuel Tank / Fuel Delivery System
8. Chassis Power Steering lines
9. Hydraulic Brake tubing
10. Add-on Hydraulic Equipment
11. Exhaust connections

C. Verify manual operation of drain valves if equipped with air tank(s).

D. Correct as needed.

69. *Air Tank Drain Valves — function properly*

A. All air tank drain valves must function properly

70. *PDI Location Code, Date - ADD to Vehicle Identification Label*

71. *Vehicle Certification Label - ADD - See NEW VEHICLE PROCESSING MANUAL*

72. *Operator's Manual is in vehicle*

73. *Pre-Delivery Service Identity Sticker (CTS-1122) - affix to windshield*

PRE-DELIVERY SERVICE	
MODEL	VEHICLE IDENTIFICATION NO.
SERVICING LOCATION	INVOICE NO.

Pre-delivery Service Performed By: _____ Date _____

CTS-1122D

(Front Side)



Figure 1 Pre-Delivery Service Identity Sticker (CTS-1122)

74. *COMMENTS - complete*

75. *Remove interior protective coverings, tags, tape*

76. *Wash Vehicle — look for interior leaks*