

SERVICE PROCEDURE

**21501R1
MAY 2021**

SUBJECT: SAFETY RECALL
Battery Ground Cable on certain International® LT® Series trucks built 18 May 2016 thru 12 January 2021 and LoneStar® Series trucks built 21 July 2017 thru 16 December 2020 with an 08XHK or 08XHL left side under cab Battery Box, a Cummins® X15 or ISX engine, and 6 x 2 or 6 x 4 chassis configuration.

DEFECT DESCRIPTION

The battery ground cable may break at the frame connection resulting in loss of electrical power and unintended engine shut down without warning. Unintended engine shut down without warning may result in a vehicle being stalled on the side of the roadway which could increase the risk of a vehicle crash.

MODELS INVOLVED

This safety recall involves certain International® LT® Series trucks built 18 May 2016 thru 12 January 2021 and LoneStar® Series trucks built 21 July 2017 thru 16 December 2020 with an 08XHK or 08XHL left side under cab Battery Box, Cummins® X15 or ISX engine, and 6 x 2 or 6 x 4 chassis configuration.

REVISION STATEMENT

Changes have been made to parts section. Special tools table has been added. Additional instructions for trucks with RED sealant paint have been added. Additional SRTs have been added.

ELIGIBILITY

This procedure applies ONLY to vehicles marked in the International® Service PortalSM with safety recall 21501. Also complete any other open campaigns listed on the Service Portal at this time.

PARTS INFORMATION

NOTE: Do not preorder kits or standalone cables for inventory. Only order additional battery cable kits and/or standalone battery cables after a confirmed appointment has been made and according to vehicle build date.

NOTE: There are two populations of vehicles. The population number / vehicle build date will determine the steps to be performed. All vehicles need to perform Steps 1 through 5 and steps 48 through 54. After Steps 1 through 5 are completed, proceed to the correct service procedures.

- **Population 1 – Vehicles built from 18 May 2016 - 10 November 2019**
- **Population 2 – Vehicles built from 11 November 2019 - 03 March 2021**

Part Number	Part Description	Quantity
K2H2212035	Cable, Battery, Negative 00 Gauge	1
3626607C1	Strap, Cable Lock - 14 inch	1
N/A	M10 X 45mm Bolt, Tin Zinc Plated	Reuse
N/A	Nut, Special M10 x 1.50 Hexagon, Keps Electrical Ground	Reuse
N/A	Nut, Battery Terminal 3/8 Inch UNC	Reuse
BBISGQTEANDT1 (qt.) BBISG1GEANDT1 (gal.)	Blue Bear 600GL Coating Softener / Remover	Tools Catalog
NANO2133005	Dielectric Grease Coating (BLUE)	Direct Ship
NANO4311832	Paint, Type Electrical Sealant (RED)	Direct Ship

Parts Table 1 – Population 1

NOTE: Only 10 percent (3,308) out of total population of 33,082 will require 8900291R1.

Part Number	Part Description	Quantity
8900291R91	Kit, Ground Battery Cable	1
N/A	M10 X 45mm Bolt, Tin Zinc Plated	Reuse
N/A	Nut Special M10X1.50 Hexagon Keps Electrical Ground	Reuse
N/A	Nut, Battery Terminal 3/8 Inch UNC	Reuse
BBISGQTEANDT1 (qt.) BBISG1GEANDT1 (gal.)	Blue Bear 600GL Coating Softener / Remover	Tools Catalog
NANO2133005	Dielectric Grease Coating (BLUE)	Direct Ship
NANO4311832	Paint, Type Electrical Sealant (RED)	Direct Ship

Parts Table 2 – Population 2

8900291R91 contains the following parts:

Part Description	Quantity
Cable, Battery, Negative 00 Gauge	1
Clamp, Saddle	1
Bolt 1/4 Inch X 3/4 Inch	1
Washer, Lock, 1/4 Inch Reg Steel / ZNC 1/4 Inch	1
Nut, Hexagon Type 8 1/4 Inch UNC	1
Extension, Clip	1
Guide, Brake Hose and Cable Spacer / Swivel Saddle	3
Strap, Cable Lock	10

Parts Table 3 – 8900291R1 Contents

TOOLS INFORMATION

Part Number	Tool Description	Quantity
N/A	Standard Wire Brush	Source Locally
N/A	Small Scraper	Source Locally
N/A	Small Paint Brush	Source Locally
N/A	Small Metal Container	Source Locally

SERVICE PROCEDURE

WARNING! To prevent personal injury and / or death, or damage to property, park vehicle on hard flat surface, turn the engine off, set the parking brake and install wheel chocks to prevent the vehicle from moving in both directions.

WARNING! To prevent personal injury and / or death, always wear safe eye protection when performing vehicle maintenance.

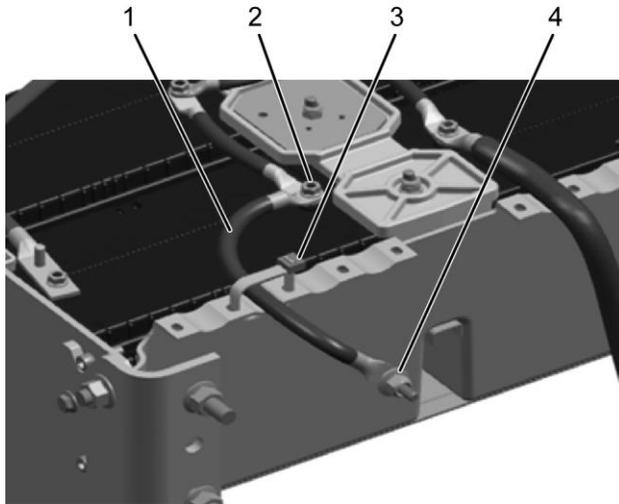
WARNING! To prevent personal injury and / or death, or damage to property, keep flames or sparks away from vehicle and do not smoke while servicing the vehicle's batteries. batteries expel explosive gases.

WARNING! To prevent personal injury and / or death, or damage to property, remove the ground cable from the negative terminal of the battery batteries before disconnecting any electrical components. always connect the ground cable last.

NOTE: There are two populations of vehicles. The population number / vehicle build date will determine the steps to be performed. All vehicles need to perform Steps 1 through 5. After Steps 1 through 5 are completed, proceed to the correct service procedures.

1. Park vehicle on flat surface.
2. Shift transmission to Park or Neutral and set parking brake.
3. Turn vehicle ignition to Key OFF position.
4. Install wheel chocks.
5. Remove aerodynamic skirt, if necessary, to gain access.

Population 1 – Service Instructions for Vehicles Built 18 May 2016 thru 10 November 2019



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Figure 1. Routing of New Battery Cable for Population 1

1. Battery ground cable
 2. Battery stud nut
 3. Cable tie strap
 4. Battery cable frame bolt and nut
-
6. Remove battery ground cable from main battery. Save nut for reuse.
 7. Is the truck you are working on built with RED sealant paint on the frame bolt and nut?
 - a. Yes - continue with Step 8.
 - b. No - proceed to Step 12.

CAUTION! To prevent damage to property or vehicle components, RED sealant paint must be thoroughly softened and fully removed from bolt and threads. Avoid drip onto unwanted surfaces. DO NOT apply to rubber, wire insulation and the like, only metallic surfaces.

8. Shake Blue Bear Gel Softener container to homogenize contents. Slowly open container.

9. Pour needed amount of softener into small metal container. Using paint brush, apply liberally to RED coated threads, nut, and bolt (metal surfaces).
10. Let softener sit for 10-15 minutes. Longer set time will yield better results.
11. Using scraper, wire brush, and rag, remove as much coating as possible. Second application of softener chemical may be required; use discretion prior to loosening nut and bolt.
12. Using abrasive pad or cloth dipped in odorless mineral spirits, remove remaining finish or residues.
13. Disconnect battery ground cable at frame. Save bolt and nut for reuse. Discard battery ground cable only.
14. Clean negative battery cable connection point on frame.
15. Clean battery terminal with wire brush, then clean with electrical contact cleaner and dry with shop air.
16. Thoroughly clean frame bolt, nut, and battery terminal nut with mineral spirits. Then clean with electrical contact cleaner and dry with air.
17. Route new battery ground cable to frame and under all other harnesses that may be in battery box, as shown in Figure 1.
18. Install battery cable frame bolt (Figure 1, Item 4), install ground cable and nut (Figure 1, Item 2). Using torque wrench, tighten cable frame nut to 31 lb-ft (42 N•m).
19. Apply RED sealant paint and thoroughly coat frame bolt, bolt threads, nut, battery ground cable terminal ring, and frame.
20. Apply BLUE dielectric grease to battery terminal stud, negative battery cable ring terminal, and threads of battery terminal nut.
21. Connect negative battery cable to battery stud.
22. Install battery terminal nut. Using a torque wrench, tighten battery terminal nut to 12 to 15 lb-ft (16.3 to 20.3 N•m).
23. Inspect and apply BLUE dielectric grease to bare spots of battery terminal nut, stud, and ring terminal.

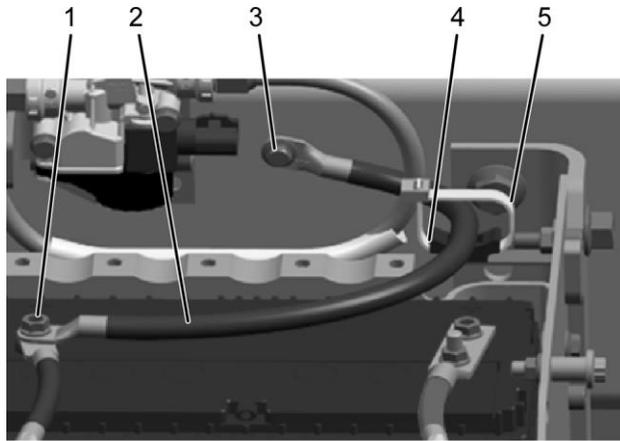
24. Secure battery ground cable with cable tie strap (Figure 1, Item 3), tighten cable tie strap. Remove excess material from cable tie strap.
25. Does truck being serviced have additional wiring in battery box?
 - a. Yes - there is additional wiring, proceed to Step 46.
 - b. No - proceed to Step 50.

Population 2 – Service Instructions for Vehicles Built 11 November 2019 thru 03 March 2021

26. Disconnect battery ground cable from main battery. Save nut for reuse.

CAUTION! To prevent damage to property or vehicle components, the RED sealant paint must be thoroughly softened and fully removed from bolt and threads. Avoid drip onto unwanted surfaces. DO NOT apply to rubber, wire insulation and the like, only metallic surfaces.

27. Shake Blue Bear Gel Softener container to homogenize contents. Slowly open container.
28. Pour needed amount of softener into small metal container. Using a paint brush, apply liberally on to RED coated threads, nuts and studs (metal surfaces).
29. Let softener sit for 10-15 minutes. Longer set time will yield better results.
30. Using scraper, wire brush, and rag, remove as much coating as possible. Second application of softener may be required; use discretion prior to loosening nut and bolt.
31. Using abrasive pad or cloth dipped in odorless mineral spirits, remove remaining finish or residue.
32. Disconnect battery ground cable at frame. Save bolt and nut for reuse. Discard battery ground cable only.
33. Clean negative battery cable connection point on frame.



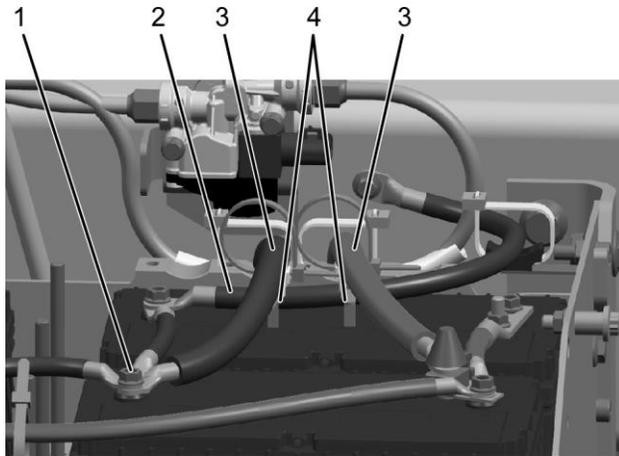
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Figure 2. Routing for Truck for Population 2

1. Battery stud nut
2. Negative battery cable
3. Battery cable frame bolt and nut
4. Saddle clamp
5. Extension clip

34. Route new negative battery ground cable to frame (Figure 2, Item 2) and under all other harnesses that may be in battery box.
35. Clean battery terminal with wire brush. Then clean with electrical contact cleaner and dry with shop air.
36. Thoroughly clean frame bolt, nut, and battery terminal nut with mineral spirits. Then clean with electrical contact cleaner and dry with shop air.
37. Install battery cable frame bolt (Figure 1, Item 3); install new ground cable and nut previously removed in Step 32 (Figure 1, Item 23). Using torque wrench, tighten cable frame nut to 31 lb-ft (42 N•m).
38. Apply RED sealant paint and thoroughly coat frame bolt, bolt threads, nut, battery ground cable terminal ring and frame.
39. Apply BLUE dielectric grease to battery terminal stud, negative battery cable ring terminal and threads of battery terminal nut.
40. Connect negative battery cable to battery stud.
41. Install battery terminal nut. Using a torque wrench, tighten battery terminal nut to 12 to 15 lb-ft (16.3 to 20.3 N•m).

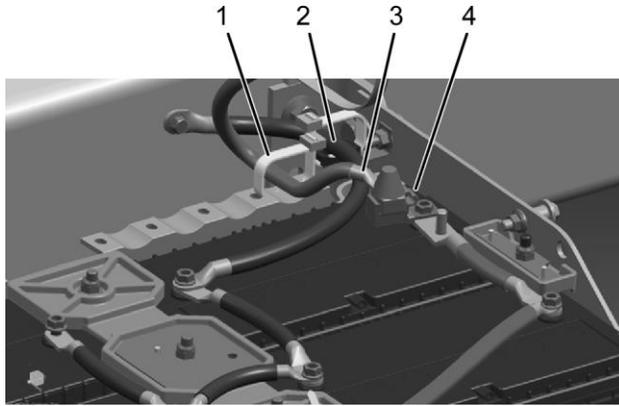
42. Inspect and apply BLUE dielectric grease to bare spots of battery terminal nut, stud and ring terminal.
43. Assemble saddle clamp (Figure 2, Item 4) to extension clip (Figure 2, Item 5) from kit.
44. Remove existing bolt and nut from battery box and install extension clip and tighten fastener (Figure 2, Item 5).
45. Secure negative battery cable to saddle clamp (Figure 2, Item 4), tighten cable tie strap. Remove excess material from cable tie strap.
46. Check if vehicle is equipped with additional wiring in battery box in location of newly installed negative battery cable.
 - a. No - proceed to Step 50.
 - b. Yes - there is additional wiring and clipping required. Perform all additional steps for all additional options the truck you are working on is equipped with. Once all necessary additional steps have been completed, proceed to Step 50.
 - i. Inverter system wiring: 0008XDM, 0008XLD
 - Refer to Step 47
 - ii. Lift gate wiring
 - Refer to Step 48
 - iii. No-idle system
 - Refer to Step 49



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Figure 3. Routing for Truck with Inverter Systems

1. Battery stud nut
 2. Negative battery cable
 3. Inverter power and ground cable (2)
 4. Swivel saddle
47. Inverter Cable Wiring:
- a. Install swivel saddle (Figure 3, Item 4) between negative battery cable and both inverter cables. Secure both swivel saddles in place with cable tie straps. Tighten cable tie straps and remove excess material from cable tie strap.



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Figure 4. Routing for Truck with Lift Gate Wiring

1. Cable tie strap
2. Negative battery cable
3. Lift gate wiring
4. Cube fuse for lift gate wiring

NOTE: If Step 48 b and c are performed, remove, clean and reuse battery stud nut. Reapply BLUE dielectric grease.

48. Lift Gate Wiring:

- a. Inspect for clearance between newly installed negative battery cable and wiring for lift gate wiring (Figure 4, Items 2 and 3).
- b. If little to no clearance, loosen cable on cube fuse and battery nut.
- c. Rotate cube fuse to gain clearance, apply dielectric grease to battery stud and threads of nut. Install nut. Using torque wrench, tighten battery terminal nut to 12 to 15 lb-ft (16.3 to 20.3 N•m).
- d. Install swivel saddle between negative battery cable and lift gate wiring (Figure 4, Items 2 and 3) (swivel clamp NOT shown). Secure in place with cable tie straps. Tighten cable tie straps and remove excess material from cable tie strap.

No-Idle HVAC Cabling

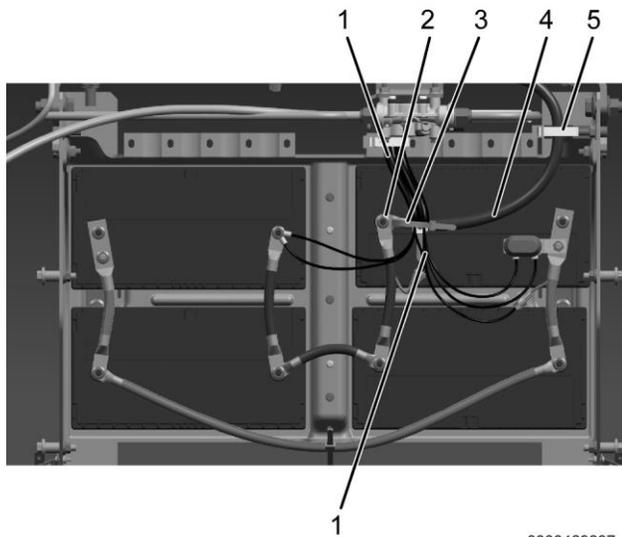


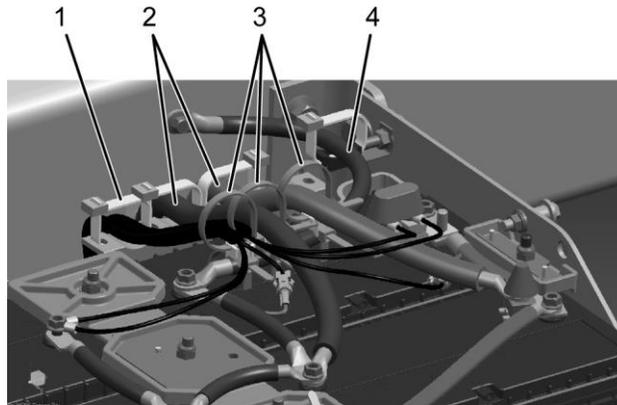
Figure 5. Routing for Truck with No-Idle HVAC

1. No-idle HVAC cabling
2. Battery stud nut
3. Swivel saddle
4. Negative battery cable
5. Saddle clamp

49. No-Idle HVAC Wiring

- a. Install swivel saddle (Figure 5, Item 3) between negative battery cable and no-idle HVAC cabling and secure in place with cable tie straps. Tighten cable tie straps and remove excess material from cable tie strap.

Inverter Wiring and No-Idle HVAC Wiring



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Figure 6. Cable Routing: When Equipped with Inverter Wiring and No-Idle HVAC

1. No-idle HVAC wiring
2. Inverter power and ground cable (2)
3. Swivel saddle (3)
4. Negative battery cable

NOTE: Figure 6 illustrates battery box when equipped with both inverter wiring and no-idle HVAC.

50. Inspect all cables to verify there is clearance and no rub points. Adjust as required.
51. Reinstall aerodynamic skirt if removed in Step 5.
52. Remove wheel chocks.

END OF SERVICE PROCEDURE

LABOR INFORMATION

Operation Number	Description	Time
A40-21501-1	Replace Battery Cable using K2H2212035	0.4 hrs
A40-21501-2	Replace Battery Cable using 8900291R91	0.5 hrs
A40-21501-3	Soften / Remove Red Sealant Paint; If Necessary	0.2 hrs
A40-21501-4	Remove and Install Skirt; If Necessary	0.2 hrs

CAMPAIGN IDENTIFICATION LABEL

Each vehicle corrected in accordance with this campaign must be marked with a CTS-1075 Campaign Identification Label.

Complete the label and attach on a clean surface next to the vehicle identification number (VIN) plate.

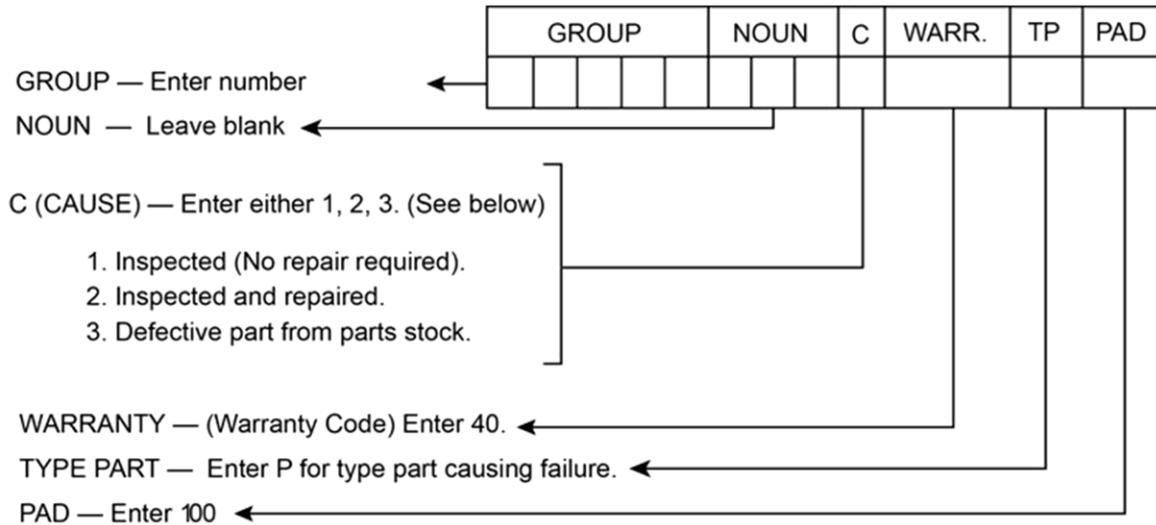


The image shows a black rectangular label with white text. At the top, it says "DO NOT REMOVE". Below that, in a white rounded rectangle, it says "INTERNATIONAL". Underneath, there are fields for "Campaign No.", "VIN", "Eng.#", "COMPLETED", and "Service Location Code #". At the bottom, it says "DO NOT REMOVE".

ADMINISTRATIVE / DEALER RESPONSIBILITIES

WARRANTY CLAIMS

Warranty claim expense is to be charged to Warranty. Claims are to be submitted in the normal manner, making reference to Safety Recall 21501. Section 7 of the Warranty Policy and Procedures manual contains further information related to the submission and processing of AFC/Recall claims. As with all claim submissions, items acquired locally must be submitted in the "Other Charges" tab. The cost of any bulk items (such as a bag of cable tie straps, roll of wire, a barrel of oil, or a tube of silicone) should be prorated for the cost of the individual pieces / amount used during each repair.



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UNITED STATES AND POSSESSIONS

The National Traffic and Motor Vehicle Safety Act, as amended, provides that each vehicle that is subject to a vehicle recall campaign must be adequately repaired within a reasonable time after the owner has tendered it for repair. A failure to adequately repair within 60 days after a tender of a vehicle is prima facie evidence of failure to repair within a reasonable time. If the condition is not adequately repaired within 60 days, the owner may be entitled to replacement with an identical or reasonable equivalent vehicle at no charge, or to a refund of the purchase price less a reasonable allowance for depreciation.

Dealers must correct all vehicles subject to this campaign at no charge to the owner, regardless of mileage, age of vehicle, or ownership, from this time forward.

Dealers should proceed immediately to make necessary correction to units in inventory. All inventory vehicles subject to this recall campaign must be corrected prior to sale, transfer or delivery. If vehicles have been sold or transferred and you are in receipt of Customer Notification Letters and Authorization for Recall Service cards for those vehicles, the transfer location or customer must be notified immediately from your dealer location.

Dealers must make every effort to promptly schedule an appointment with each owner to repair his or her vehicle as soon as possible. However, consistent with the customer notification, dealers are expected to complete the repairs on the mutually agreed upon service date.

Dealers involved in the recall process will be furnished a listing of owner names and addresses to enable them to follow up with owners and have the vehicles corrected. Use of this listing must be limited to this campaign because the list may contain information obtained from state motor vehicle registration records, and the use of such motor vehicle registration data for purposes other than this campaign is a violation of law in several states.

CANADA

Dealers must correct all vehicles subject to this campaign at no charge to the owner, regardless of mileage, age of vehicle, or ownership, from this time forward.

Dealers should proceed immediately to make necessary correction to units in inventory. All inventory vehicles subject to this recall campaign must be corrected prior to sale, transfer or delivery. If vehicles have been sold or transferred and you are in receipt of Customer Notification Letters and Authorization for Recall Service cards for those vehicles, the transfer location or customer must be notified immediately from your dealer location.

Dealers must make every effort to promptly schedule an appointment with each owner to repair his or her vehicle as soon as possible. However, consistent with the customer notification, dealers are expected to complete the repairs on the mutually agreed upon service date.

Dealers involved in the recall process will be furnished a listing of owner names and addresses to enable them to follow up with owners and have the vehicles corrected. Use of this listing must be limited to this campaign because the list may contain information obtained from state motor vehicle registration records, and the use of such motor vehicle registration data for purposes other than this campaign is a violation of law in several states.

EXPORT

Export Distributors should proceed immediately to make necessary correction to units in inventory. All inventory vehicles subject to this recall campaign must be corrected prior to sale, transfer or delivery. If vehicles have been sold or transferred and you are in receipt of Customer Notification Letters and Authorization for Recall Service cards for those vehicles, the transfer location or customer must be notified immediately from your distributor location.

Export Distributors are to submit warranty claims in the usual manner making reference to this recall number.

Export Distributors are expected to provide full cooperation and follow-up with respect to this important subject matter. If you have any questions or need further assistance, please contact the Regional Service Manager at your regional office.

NAVISTAR, INC.