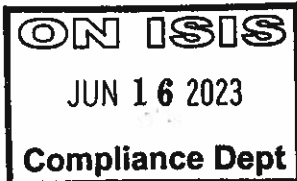


# ***SERVICE PROCEDURE***

23511  
June, 2023

**SUBJECT: SAFETY RECALL**  
**Brake Pressure Switch on certain 2017 thru 2023 International® CV™ Series trucks built 09/18/2017 thru 03/21/2023 with feature code 04240 or 04190 (brake system, hydraulic with Hydromax brake booster)**



## **CUSTOMER LETTER**

Print ready (PDF file) copy of the [Customer Letter](#)

## **DEFECT DESCRIPTION**

The brake pressure switch may allow brake fluid to seep past the diaphragm seal into the brake pressure switch electrical connector and associated fuse, which can short the switch and/or fuse. A shorted switch or fuse may cause the circuit to generate excessive heat, which can result in a fire, increasing the risk of property damage or personal injury to the operator.

## **MODELS INVOLVED**

This safety recall involves certain 2017 thru 2023 International® CV™ Series trucks built 09/18/2017 thru 03/21/2023 with feature code 04240 or 04190 (brake system, hydraulic with Hydromax brake booster).

## **ELIGIBILITY**

This procedure applies ONLY to vehicles marked in the International® Service Portal<sup>SM</sup> with Safety Recall 23511. Also complete any other open campaigns listed on the Service Portal at this time.

## TOOLS REQUIRED

**NOTE:** Reservoir Cap Adapter Kit will only be required for bleeding brakes of vehicles with feature code 04240.

Description	Tool Number
Adapter, Reservoir Cap Kit	11-101-01
Pressure Brake Bleeder ZTSE6087NAV	ZTSE6087NAV
15/16-inch Crowfoot Socket	N/A

Table 1 Tool Information

## PARTS INFORMATION

**NOTE:** Depending on the location of the brake pressure switch on the vehicle you are working on, there are two brake pressure switch jumper harnesses. Harness Part Number 3783602C95 is for vehicles built 11/30/2020 and prior. Harness Part Number 4137151C93 is for vehicles built 12/01/2020 and after.

Part Number	Part Description	Quantity
4052584C2	Switch, Brake Pressure	1
3783602C95	Harness, Brake Jumper; Built 11/30/2020 And Prior	1; If Needed
4137151C93	Harness, Brake Jumper; Built 12/01/2020 And After	1; If Needed
306132C1	Strap, Cable, 14-inch	As Needed
Source Locally	DOT 3 Brake Fluid	As Needed
476074C1	Nut, Battery Terminal 3/8" UNC	1; If Required
NANO2133005	Dielectric Grease Coating (BLUE)	If Required

Table 2 Parts Information

## 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 either direction.

**WARNING!** To prevent personal injury and / or death, or damage to property, if the vehicle must be raised, do not work under the vehicle supported only by jacks. Jacks can slip or fall over.

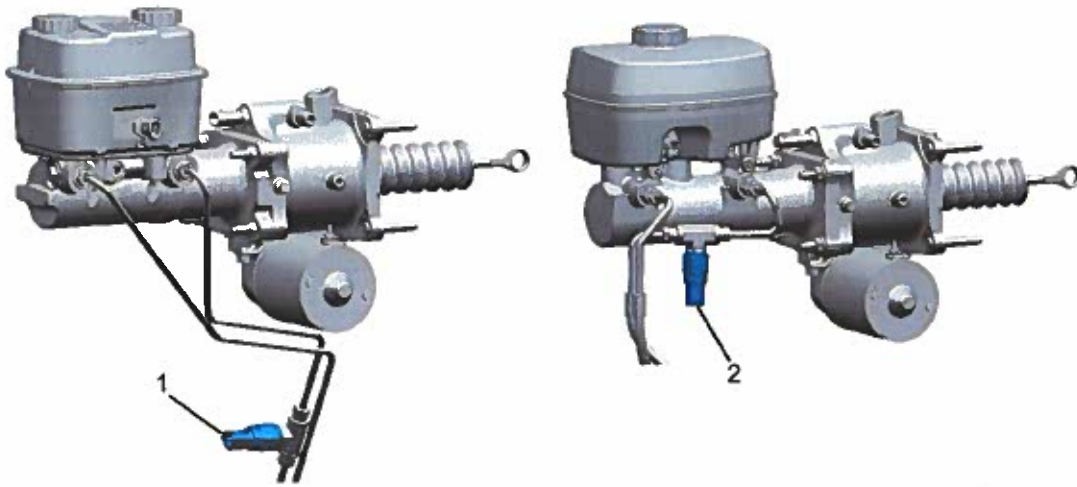
**WARNING!** To prevent personal injury and / or death, always wear safe eye protection when performing vehicle maintenance.

**WARNING!** To prevent personal injury and / or death, or damage to property, allow engine / vehicle components to cool before servicing engine or vehicle.

**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 box before disconnecting any electrical components. Always connect the ground cable last.

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. Unlatch and open hood.

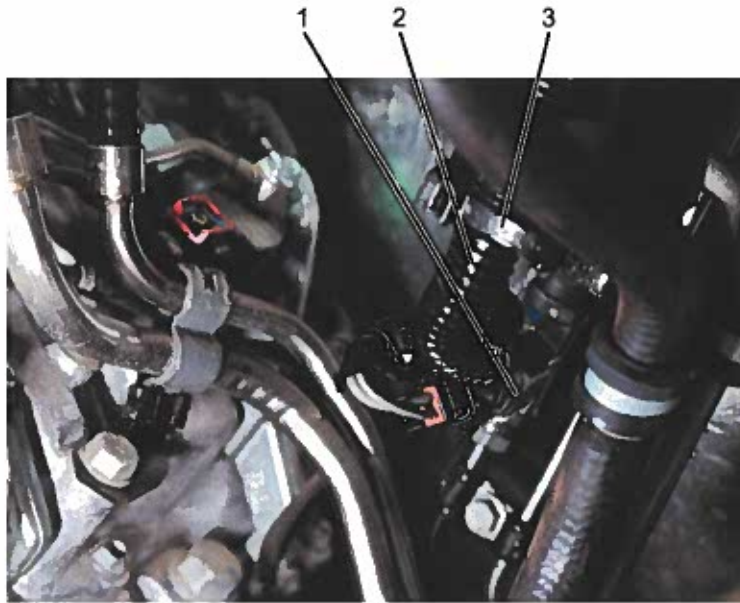


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**Figure 1. Brake Pressure Switch Placement**

1. Built 11/30/2020 and prior
2. Built 12/01/2020 and after

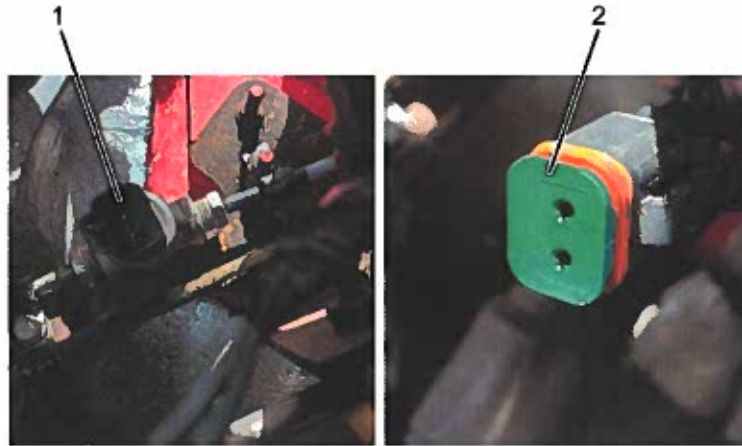
**NOTE: Placement of the brake pressure switch is different for vehicles built 11/30/2020 and prior and vehicles built 12/01/2020 and after (Figure 1, Items 1 and 2).**



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**Figure 2. Brake Pressure Switch Connector Location**

1. Brake pressure switch connector
  2. Harness
  3. Cable wire tie
6. Locate the brake booster pressure switch connector (Figure 2, Item 1) located near vehicle master cylinder.



**Figure 3. Harness Connector and Brake Pressure Switch**

1. Harness connector
2. Brake pressure switch

**NOTE: Some vehicles may have dielectric grease in the switch / connector; this should not be confused with brake fluid.**

7. Disconnect harness connector (Figure 2, Item 2) from the hydraulic brake pressure switch (Figure 2, Item 1). Inspect for presence of brake fluid at both the brake pressure switch terminals (Figure 3, Item 2) and harness connector (Figure 3, Item 1).
  - a. If there is no brake fluid in switch terminals or harness connector, proceed to Step 8.
  - b. If there is brake fluid present in switch terminals or harness connector, proceed to Step 9.



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**Figure 4. Amp Fuses and Cover**

1. Protective cover
2. 5-Amp fuse (2)
3. Fuse connector

8. Locate both 5-amp fuses (Figure 4, Item 2), remove protective cover (Figure 4, Item 1), and remove fuses. Inspect for presence of brake fluid in both fuse connectors (Figure 3, Item 3).
  - a. If no brake fluid is present in fuse connectors, reinstall fuses and protective covers. Proceed to Step 9.
  - b. If brake fluid is present in either fuse connector, perform Steps 9 through 29.

**NOTE: Before proceeding to the next step, you MUST have the new switch in your hand.**

**NOTE: Verify that the brake fluid level is above the “ADD” line on the master cylinder.**

9. Pour a few drops of NEW DOT 3 brake fluid into new hydraulic brake pressure switch.

**CAUTION!** To prevent damage to property, utilize a back-up style wrench to prevent brake line damage. Failure to do so can result in damage to the brake line.

**CAUTION!** To prevent damage to property, ensure brake pressure switch connector is shielded from fluids, debris, and other contaminants. Failure to do so can result in damage to property.

**NOTE:** If there was no brake fluid in the brake switch, harness, or in fuse holders, perform Step 11 and then proceed to Step 35.

10. Remove the existing hydraulic brake pressure switch and quickly install the new hydraulic brake pressure switch. Using a crowfoot socket and torque wrench, tighten sensor to 35 lb-ft (48 N·m).
11. If brake fluid was present in Steps 7 or 8, proceed to Step 12 and if NO brake fluid was present, proceed to Step 35.
12. Disconnect and isolate negative battery cable on main vehicle battery. Discard battery terminal nut.

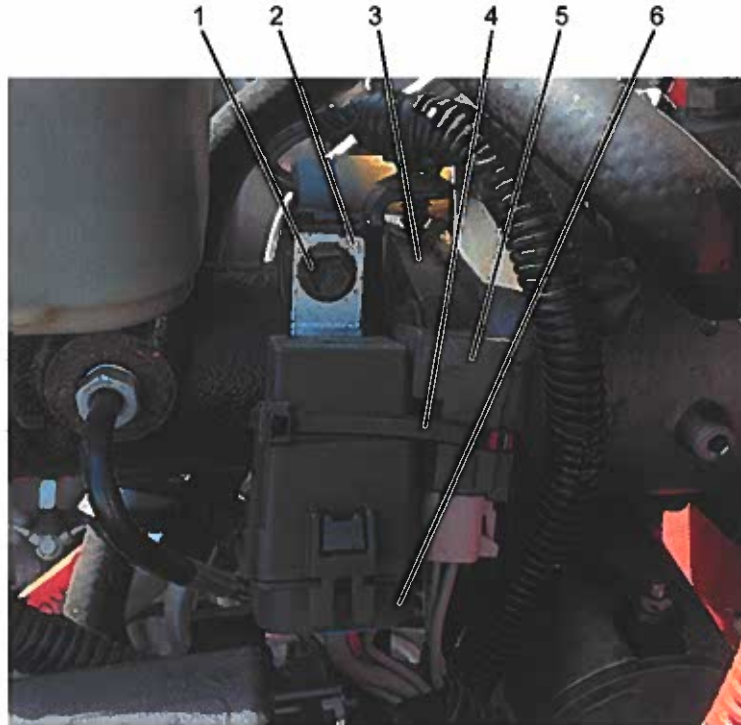


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**Figure 5. Booster Pump Motor Jumper Harness Connector**

1. Booster pump motor jumper harness connector
2. Center chassis harness connector

13. Disconnect the backup booster pump motor jumper harness connector (Figure 5, Item 1) from the center chassis harness connector (Figure 5, Item 2).



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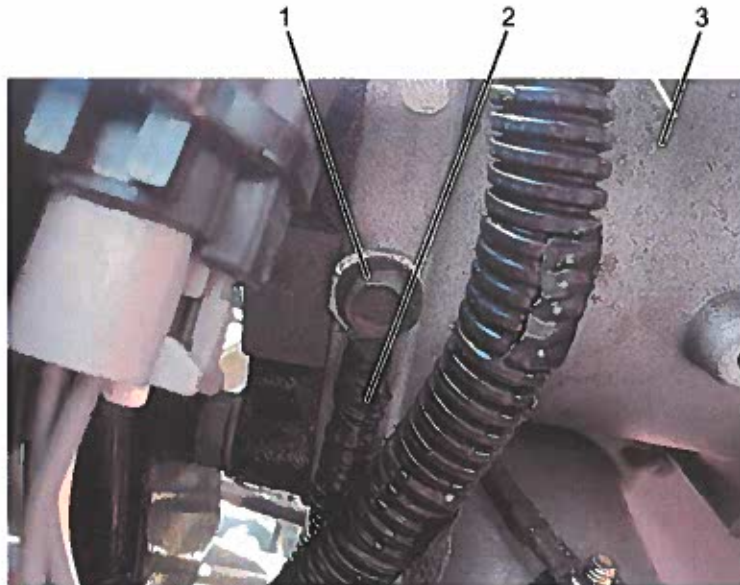
**Figure 6. Relay Mount**

1. Bolt
2. Relay mounting bracket
3. Master cylinder
4. Cable tie strap
5. Diode
6. Relay connector

14. Cut and discard cable tie strap (Figure 6, Item 4) connecting diode (Figure 6, Item 5) to relay mounting bracket (Figure 6, Item 2). Disconnect relay connector (Figure 6, Item 6).

15. If the vehicle you are working on was built 11/30/2020 and prior, perform Step 15a. If the vehicle you are working on was built 12/01/2020 and after perform Step 15b.

- a. Disconnect master cylinder fluid level sensor mounted on brake fluid reservoir, low-pressure brake switch connector mounted on master cylinder, and brake booster flow switch mounted on the Hydromax booster.
- b. Disconnect master cylinder fluid level sensor mounted on brake fluid reservoir and brake booster flow switch mounted on the Hydromax booster.



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**Figure 7. Hydromax Brake Booster**

1. Bolt
2. Ground wire
3. Hydromax brake booster

16. Remove bolt (Figure 7, Item 1) securing ground wire (Figure 7, Item 2) to the Hydromax brake booster (Figure 7, Item 3). Reposition ground wire and save bolt for reuse.

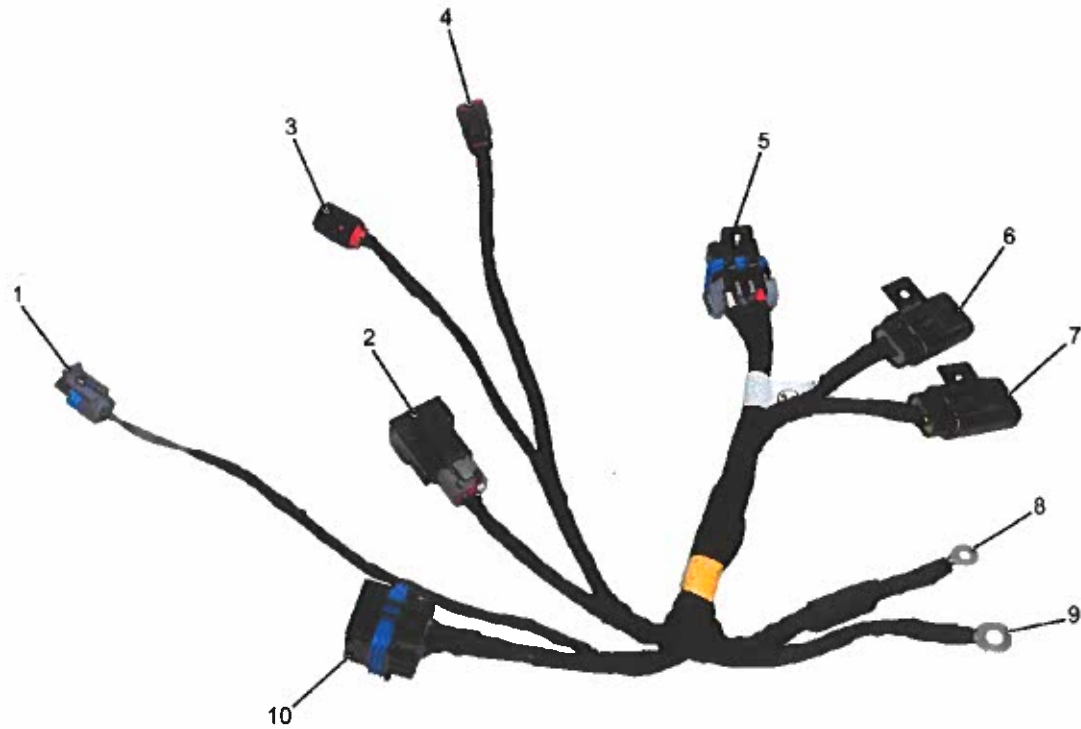


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**Figure 8. Booster Pump**

1. Power wire
2. Nut and lock washer
3. Booster pump motor terminal

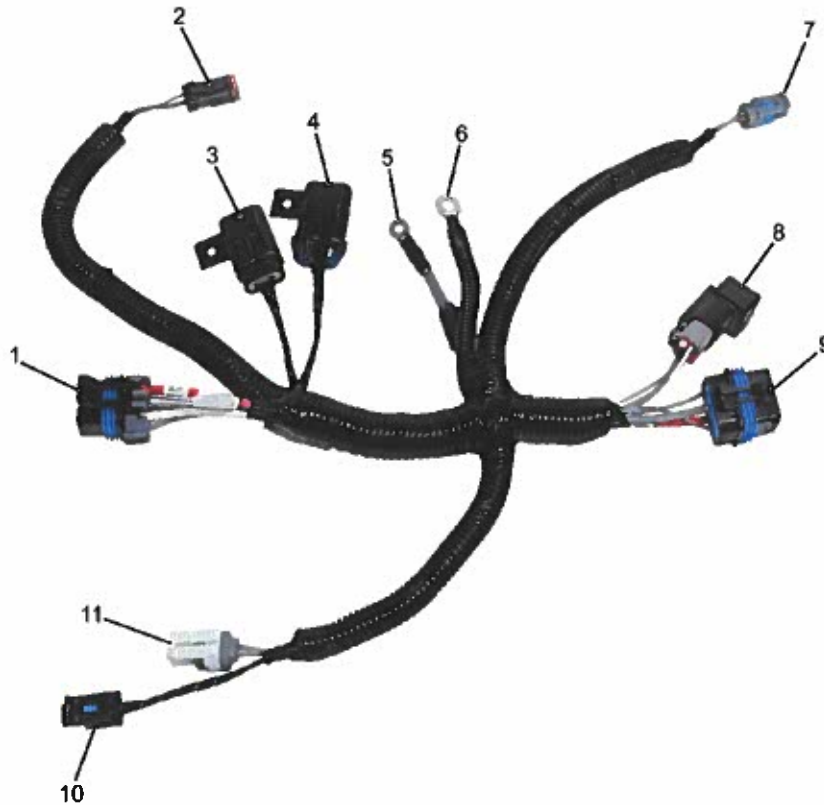
17. Remove nut and lock washer (Figure 8, Item 2) securing power wire (Figure 8, Item 1) to booster pump motor terminal (Figure 8, Item 3). Reposition power wire and save nut and lock washer for reuse.



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**Figure 9. Brake Jumper Harness for 12/01/2020 and later**

1. Brake booster flow switch connector
2. Diode
3. Brake fluid level sensor connector
4. Brake pressure switch connector
5. Booster pump motor jumper harness connector
6. 5-amp fuse
7. 5-amp fuse
8. Power terminal
9. Ground terminal
10. Relay connector



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**Figure 10. Brake Jumper Harness for 11/30/2020 and earlier**

1. Booster pump motor jumper harness connector
2. Brake pressure switch connector
3. 5-amp fuse
4. 5-amp fuse
5. Power terminal
6. Ground terminal
7. Brake booster flow switch connector
8. Diode
9. Relay connector
10. Master fluid level sensor
11. Low pressure flow switch connector

18. Record harness routing and location of cable wire ties and clipping saddles.

19. Cut and discard cable ties securing harness and remove harness from vehicle. Discard harness.

**CAUTION!** To prevent damage to property, use caution while routing harness. Failure to do so can lead to damage to harness.

20. Using previously recorded routing and clipping locations, route new harness as noted in Step 18.

21. Position ring terminal of power wire (Figure 8, Item 1) over booster pump motor terminal (Figure 8, Item 3). Install lock washer and nut removed in Step 17 (Figure 8, Item 2).
22. Using torque wrench, tighten booster pump motor terminal nut to 17 lb-in (2 N·m).

**CAUTION! To prevent damage to property, ensure even application of dielectric grease to backup pump power terminal nut and booster pump ground bolt. Failure to do so can result in damage to property.**

23. Evenly apply dielectric electric grease to top of backup pump power terminal nut.
24. Evenly apply dielectric grease to both sides of ground ring terminal eyelet.
25. Position ground bolt (Figure 7, Item 1) through ring terminal eyelet of the ground wire (Figure 7, Item 2) and into the Hydromax brake booster.
26. Using torque wrench, tighten ground bolt to 102 lb-in (11.5 N·m).
27. If the vehicle you are working on was built 11/30/2020 and prior, perform Step 27a. If the vehicle you are working on was built 12/01/2020 and after, perform Step 27b.
  - c. Connect master cylinder fluid level sensor mounted on brake fluid reservoir, low-pressure brake switch connector mounted on master cylinder, and brake booster flow switch mounted on the Hydromax booster.
  - d. Connect master cylinder fluid level sensor mounted on brake fluid reservoir and brake booster flow switch mounted on the Hydromax booster.
28. Connect relay connector (Figure 6, Item 6).
29. Connect booster pump motor jumper harness connector (Figure 5, Item 1) to center chassis harness connector (Figure 5, Item 2).
30. Route brake hydraulic pressure switch connector (Figure 3, Item 2) to the brake hydraulic switch (Figure 3, Item 1).
31. Using cable tie strap, secure both fuse holders to brake jumper harness.
32. Using a cable tie strap, secure diode (Figure 6, Item 5) to relay mounting bracket (Figure 6, Item 2).

33. If hydraulic brake pressure switch harness WAS replaced, proceed to next step. If hydraulic brake pressure switch harness was NOT replaced, proceed to Step 36.

**CAUTION!** To prevent damage to property, ensure brake fluid does not contact painted surfaces. Failure to do so can result in damage to property.

**NOTE:** Verify brake fluid level is filled to the “MAX” level with NEW DOT 3 brake fluid before performing brake bleeding procedure.

34. Bleed primary brake system (front brakes). For detailed instructions, refer to appropriate service manual.

35. Connect brake hydraulic switch connector to the brake hydraulic switch.

36. Using a cable tie strap (Figure 2, Item 2), secure brake hydraulic switch connector harness to its clipping point (Figure 2, Item 2).

**NOTE:** If battery cable was removed from the battery, you will need to perform Steps 37 through 40.

37. Using a wire brush, electronic contact cleaner, and compressed shop air, clean negative battery terminal components.

38. Apply BLUE dielectric grease to battery terminal stud, negative battery cable ring terminal, and threads of new battery stud nut.

39. Using new battery stud nut, reconnect negative battery cable to negative terminal on main vehicle battery and install new battery terminal nut.

40. Using torque wrench, tighten battery stud nut to 12-15 lb-ft (16-20 N·m).

41. Turn ignition switch to key ON, engine OFF position.

42. Depress brake pedal to verify backup booster pump motor operation.

43. Turn ignition to key OFF position.

44. Close and latch hood.

45. Remove wheel chocks.

## **END OF SERVICE PROCEDURE**

## **LABOR INFORMATION**

<b>Operation Number</b>	<b>Description</b>	<b>Time</b>
A40-23511-1	Inspect and Replace Brake Pressure Switch	0.4 hrs
A40-23511-2	Replace Brake Jumper Harness, If Required	0.4 hrs
A40-23511-3	Bleed Brake System, If Harness Replaced	0.4 hrs

**Table 3** Labor Information

## **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.



DO NOT REMOVE

**INTERNATIONAL**

Campaign No. \_\_\_\_\_

VIN \_\_\_\_\_  
Eng.# \_\_\_\_\_

**COMPLETED**

Service Location Code # \_\_\_\_\_

DO NOT REMOVE

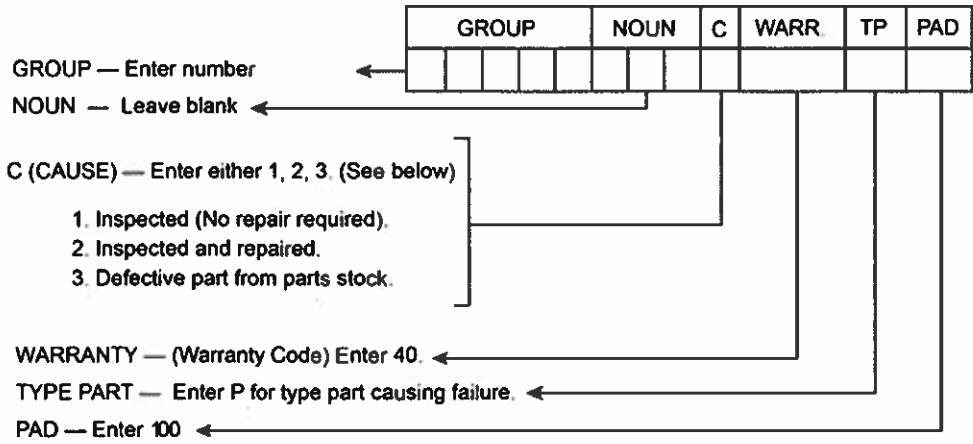
## **ADMINISTRATIVE / DEALER RESPONSIBILITIES**

### **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 23511.

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, barrel of oil, or 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. Federal law prohibits a dealer from delivering under a sale or lease, a new motor vehicle or any new or used item of motor vehicle equipment (including a tire) covered by the notification of a recall until the defect or noncompliance is remedied.

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.**