



VEHICLE RECALL

G-02505 REVISION A
OCTOBER 2002

SUBJECT: VEHICLE SAFETY RECALL (U.S., EXPORT)

Installing a repair kit to eliminate the air brake fitting that connects the double check valve to the relay valve on 3000 series, FE, RE and IC buses built from 3/01/98 through 2/07/02

REASONS FOR THIS REVISION:

- 1. This letter replaces the original G-02505 letter dated September 2002.**
- 2. PARTS:** A new bracket-kit 8900083R91 was created **TO BE USED IN PLACE** of the valve-kit 8900082R91. The new bracket-kit has different parts and requires the new installation instructions included in this letter. There is no relay valve in the new bracket-kit. This revision letter contains the instructions for both kits because the valve kit inventory should be used to depletion for this bus recall.
- 3. SOME OWNERS WERE NOTIFIED FOR THIS RECALL THAT SHOULD NOT HAVE BEEN NOTIFIED:** We changed the start date for the build date range from 8/12/97 to 3/01/98. All the vehicles built in this time frame were built at the Springfield Assembly Plant and do not need to have this recall performed. They have a different relay valve configuration and do not have the subject fitting as shown in Figure 1. As of 10/24/02, we unmarked the VIN records for those that had not already been inspected for this recall. If a customer has a card for this recall but the VIN record does not now show marked with the campaign, the recall does not need to be performed. A quick visual inspection of the relay valve on the vehicle and comparing it to Figure 1 can easily confirm this.

DEFECT DESCRIPTION

The straight fitting (Figure 1, item 6), that connects the double check valve to the rear axle brake relay valve, may break. With certain forces placed upon the vehicle, the weight of the check valve on the fitting can cause the assembly to resonate. The subsequent vibration can cause excessive strain levels in the fitting, which could eventually cause a fatigue failure.

RISK TO MOTOR VEHICLE SAFETY

If the fitting breaks, the rear service brakes will cease to operate without warning, resulting in an extended stopping distance. This situation could cause a vehicular accident, possibly resulting in property damage, personal injury or death.

DESCRIPTION OF VEHICLES INVOLVED

3000 series, FE, RE and IC buses built from 3/01/98 through 2/07/02 with air brakes are included in this recall (02505). All vehicles built with the external double check valve and fitting as shown in Figure 1 are being recalled.

OWNER NOTIFICATION

International Truck and Engine Corporation notified owners of these vehicles about this campaign in September 2002. A copy of the owner letter was attached to the original G-02505 letter and is also available on ISIS. During the recall process, a listing of owner names and addresses was furnished to the involved dealers to enable dealers to follow up with owners and have the vehicles corrected. You must limit the use of this listing 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.

SERVICE PROCEDURES (PROVIDED FOR EACH KIT NUMBER)

DESCRIPTION: The vehicles that need this recall repair **WILL HAVE** the fitting (item 6 in Figure 1) and the external double check valve (item 5 in Figure 1) and must have one of the two recall repair kits installed. **If a vehicle DOES NOT have items 5 and 6 shown in Figure 1, DO NOT complete the service procedure, report the vehicle as inspected and no corrections necessary (disposition or cause of 1).** This revision introduces a second repair kit, which requires different repair instructions. The correct instructions are identifiable by kit number. Be sure to follow the correct service procedure for the kit being installed.

Kit 8900082R91 (valve kit): This was the original kit released for this recall and contains a new air brake relay valve with an internal double check valve, and new ECU mounting screws and fittings (see Figure 2). When these kit parts are installed, the external double check valve and the subject fitting, items 5 and 6 in Figure 1, are eliminated. Figure 2 shows a representation of the new relay valve and the location of the air line control ports.

Kit 8900083R91 (bracket kit): This is the new kit that is designed to replace the original kit as your inventory is depleted. This kit contains brackets and hardware designed to replace the subject fitting with a short flexible air line (Figures 3 & 4).

BEFORE PERFORMING THE APPROPRIATE SERVICE, PLEASE READ AND UNDERSTAND THE INSTRUCTIONS COMPLETELY.

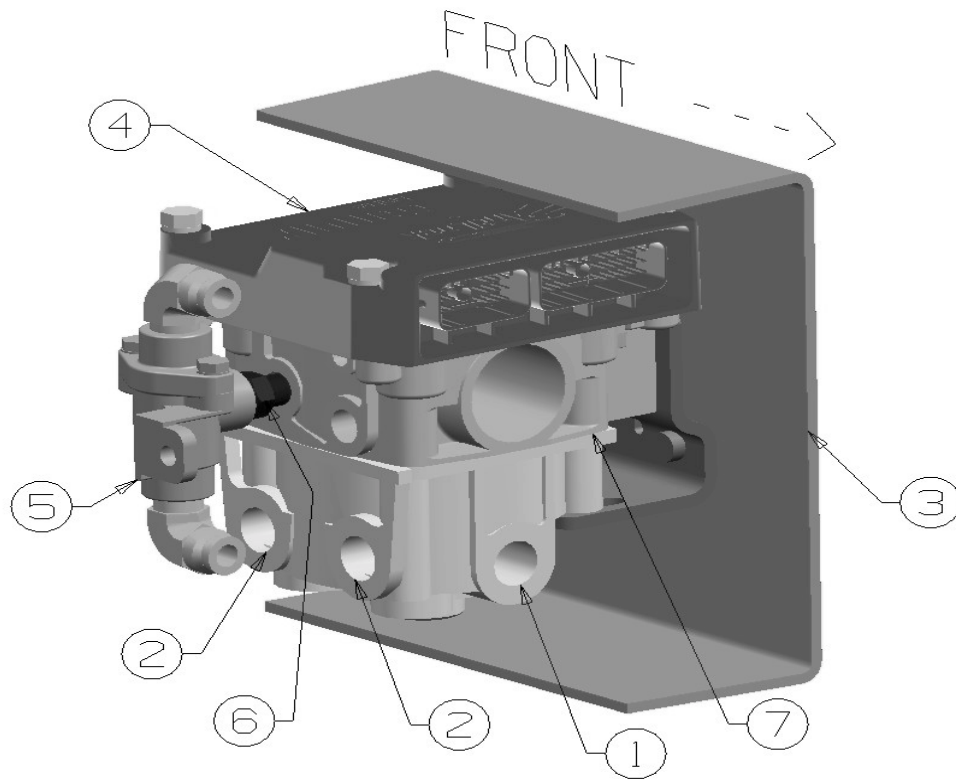


Figure 1: Original Relay Valve and Double Check Valve Assembly With the Subject Fitting

Note: If the vehicle DOES NOT have items 5 and 6 above, it does NOT need the recall procedure performed.

- Item:**
- 1 - Supply port
 - 2 - Delivery ports
 - 3 - Frame rail
 - 4 - ABS ECU
 - 5 - External double check valve
 - 6 - Subject fitting
 - 7 - Relay valve

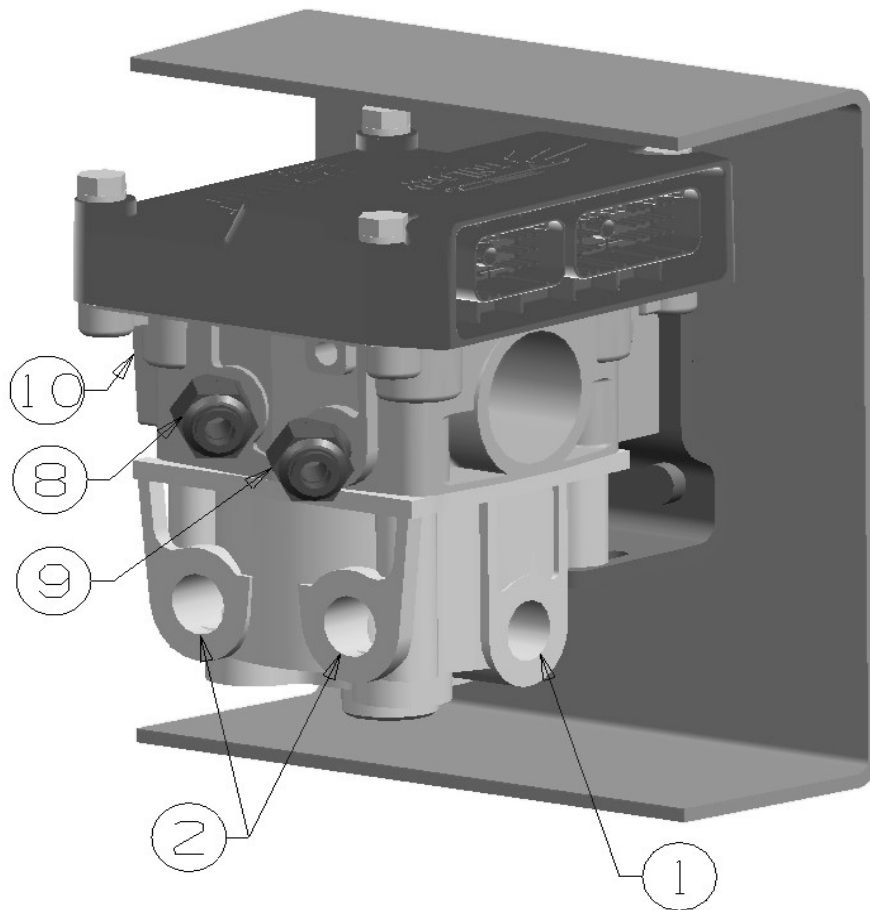


Figure 2: Kit 8900082R91 (Valve Kit) Contains a New Relay Valve with an Internal Double Check Valve, Existing ABS ECU Mounts on Top of the Valve as Shown

- Item:**
- 1 - Primary supply port, 5/8" Green air line, connects the air tank to the relay valve forward supply port
 - 2 - Primary Delivery ports (2), 5/8" Green air line, connect the delivery ports to the ABS modulators
 - 8 - Primary control port #41, 3/8" Green air line, for the internal double-check valve, 45 Degree elbow
 - 9 - Secondary control port #42, 3/8" Orange air line, for the internal double check valve, 45 Degree elbow
 - 10- Relay valve with internal double check valve

SERVICE PROCEDURE

FOR KIT 8900082R91 (Valve Kit)

FOR THIS PROCEDURE REFERENCE FIGURES 1 AND 2

WARNING: To prevent serious eye injury, always wear appropriate eye protection when you perform vehicle maintenance or service.

1. Shut off the engine, apply the parking brake and put the transmission in neutral.
2. **WARNING:** Block the wheels to prevent the vehicle from moving. If a vehicle moves unexpectedly or suddenly, the result could be serious personal injury or death.
3. **WARNING:** Raise the rear axle(s) if necessary. Do not work under a vehicle supported only by jacks. Jacks can slip or fall over, potentially resulting in serious personal injury or death.
4. Drain the air tanks.
5. Make note of the supply and delivery air line positions because they must be reinstalled in the same relay valve ports as they were originally (Figure 2).
6. Disconnect the air lines from the relay valve and the double check valve.
7. Remove & save the relay valve mounting nuts on the outside of the frame rail and remove the air brake relay valve from the frame rail as an assembly with the frame bracket, ABS ECU, wiring and the external double check valve attached.
8. Disconnect the ABS ECU wiring. **DO NOT USE AIR TOOLS.**
9. Remove the ABS ECU from the relay valve assembly but **DO NOT USE AIR TOOLS.** To prevent screw breakage, use penetrating oil on the ECU mounting screws if necessary. Make note of its orientation because it must be mounted in the same position on the new relay valve.
10. Note the fitting orientation for the supply and delivery fittings on the old relay valve assembly. Transfer the fittings from the old relay valve to the new internal double check relay valve and apply an approved thread sealant to the fittings (**DO NOT USE TEFLON TAPE**). Tighten the fittings on the new relay valve so that the fittings are oriented in the same position as they were on the old relay valve. Also transfer and seal the plug from the rear supply port to the new relay valve. **FITTING NOTE:** Kit 8900082R91 contains quality connect fittings. If the vehicle has the old style compression (spherical sleeve) fittings, the nut, the sleeve, and the insert must be removed from the 3/8 control lines to change to the quality connect fittings. If the tubing needs to be cut, make sure it is cut square so the quality connect fittings can be used.
11. Install the new 45° fittings, from the kit, into the two control ports on the new relay valve assembly. Orient the fittings to face toward the front of the vehicle as shown in Figure 2.
12. Mount the ABS ECU to the new relay valve assembly, in the original orientation, using the new screws in the kit. Tighten the mounting bolts to 100 Lbf-IN (11.3 NM). **DO NOT USE AIR TOOLS.**
13. Connect the ECU wiring and tighten the connector bolts to 15-20 Lbf-IN (1.7-2.4 NM). **DO NOT USE AIR TOOLS.**

14. Mount the relay valve assembly to the frame rail and torque the three mounting nuts to 12.5-15 Lb-FT (17-20 NM). **DO NOT USE AIR TOOLS.**
15. Reconnect the air lines to the relay valve, reference Figure 2 and Table 1.
16. Lower the vehicle if raised in step 3.
17. Fill the air tanks to cut-out pressure.
18. Check for air leaks and proper brake operation.
19. Remove the wheel chocks.
20. Scrap the removed parts.

SERVICE PROCEDURE

FOR KIT 8900083R91 (Bracket Kit)

FOR THIS PROCEDURE REFERENCE FIGURES 1, 3 AND 4

WARNING: To prevent serious eye injury, always wear appropriate eye protection when you perform vehicle maintenance or service.

1. Shut off the engine, apply the parking brake and put the transmission in neutral.
2. **WARNING:** Block the wheels to prevent the vehicle from moving. If a vehicle moves unexpectedly or suddenly, the result could be serious personal injury or death.
3. **WARNING:** Raise the rear axle(s) if necessary. Do not work under a vehicle supported only by jacks. Jacks can slip or fall over, potentially resulting in serious personal injury or death.
4. Drain the air tanks.
5. Disconnect both air lines from the double check valve shown in Figure 1.
6. Remove the double check valve and the straight fitting (items 5 & 6) from the relay valve, reference Figure 1.
7. Remove and save the relay valve mounting nuts on the outside of the frame rail and remove the air brake relay valve from the frame rail as an assembly with the frame bracket, ABS ECU and wiring attached. Position the assembly for access to the ECU mounting screws.
8. Note and mark the mounting position of the ABS ECU on the valve. **DO NOT USE AIR TOOLS** to remove the ECU mounting screws. It is very important to lightly tap on the heads of the ECU mounting screws with a small ball peen hammer before removing the screws. This will help eliminate the risk of the screws breaking off in the valve. Use penetrating oil on ECU mounting screws if necessary. Remove the ECU mounting bolts and the ECU from the relay valve. Leave the electrical connector attached to the ECU and position the ECU out of the way. Discard the 4 mounting bolts. Longer bolts, supplied in the bracket kit, will be installed.
9. Install the 90-degree elbow (item 15, Figure 3) into the relay valve port that had the straight fitting and point the fitting straight rearward as shown in Figure 3. Apply an approved thread sealant to the fitting (**DO NOT USE TEFLON TAPE**).
10. Using an air line sleeve and compression fitting, attach one end of the new air line from the kit to the new 90-degree elbow on the relay valve (Figure 3, item 15).

11. Remove and save the air line elbows from the double check valve.
12. Remove and discard the two machine screws from the cap on the double check valve. Do not disassemble the double check valve.
13. Mount the small support bracket (Figure 3, item 11) to the double check valve, using the two new longer machine screws and plain washers in the kit. Hand tighten the machine screws enough to hold the double check valve on the small support bracket. Make sure the small support bracket is flush against the surface of the double check valve-mounting tab.
14. Mount the double check valve, with the small support bracket to the large bracket (Figure 3, item 13), as shown in Figures 3 and 4. Use the M8 bolt and nut to mount the double check valve and support bracket to the large bracket. Tighten the M8 hardware until it is snug. Take care to orient the small support bracket on the large bracket so the M6 bolt and nut can also be installed and tightened to a snug condition.
15. With all of the mounting hardware from steps 13 and 14 snug, begin to tighten the hardware in the following order. Torque the two double check valve machine screws to 100 Lbf-IN (11 NM), the M8 hardware (Figure 3, item 14) to 14 – 17 Lbf-FT (19.6-24 N-m), and the M6 hardware (Figure 3, item 16) to 72 – 96 Lbf-IN (8.7-10.7 N-m).
16. Install the double check valve elbows that were previously removed in step 11 and position them to point in a forward direction as shown in Figures 3 and 4. Use an approved thread sealant during installation (**DO NOT USE TEFLON TAPE**).
17. Remove and discard the straight fitting from the double check valve delivery port. Install the new 90-degree elbow, from the kit, onto the double check valve and position it to point towards the rear as shown in Figures 3 and 4. Apply an approved thread sealant to the fitting (**DO NOT USE TEFLON TAPE**).
18. Install the complete bracket assembly and ECU onto the top of the relay valve as shown in Figures 3 and 4. Tighten the four mounting bolts to 100 Lbf-IN (11.3 NM). **DO NOT USE AIR TOOLS.**
19. Install the complete valve assembly to the frame rail and tighten the frame mounting nuts to 12.5-15 Lb-FT (17-20 NM). **DO NOT USE AIR TOOLS.**
20. Connect the new short air line to the double check valve as shown in Figure 4. **DO NOT KINK AIR LINE.** Air line will require shortening to approximately 9-inches. Check line routing and cut to appropriate length.
21. Connect the two control lines (3/8" green & 3/8" orange) to the double check valve making sure the green line is connected to the upper fitting.
22. Lower the vehicle if raised in step 3.
23. Fill the air tanks.
24. Check for air leaks and proper brake operation.
25. Remove the wheel chocks.
26. Scrap the removed parts.

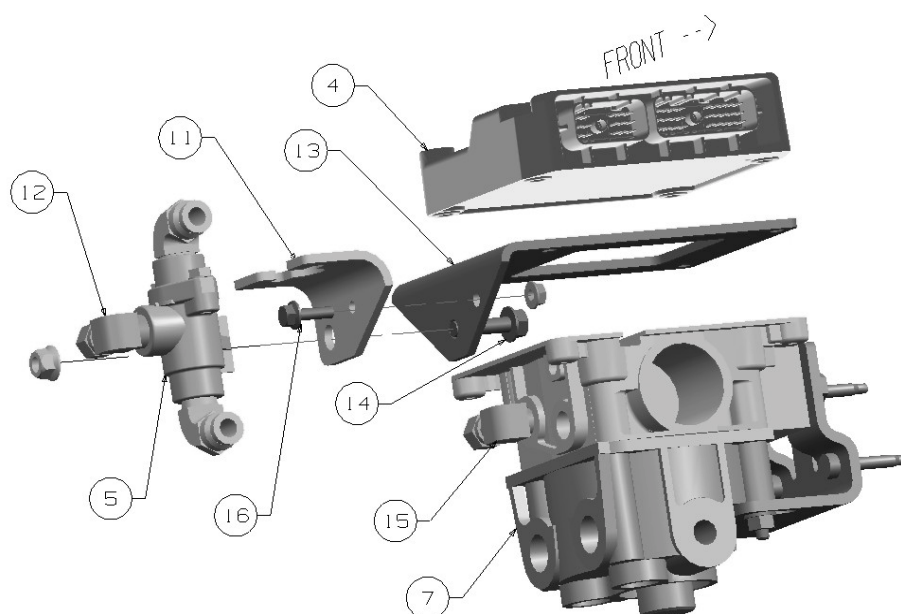


Figure 3: Exploded View of Valve Assembly With the Bracket Kit

8900083R91 Kit Items:

- 4. ABS ECU
- 5. External double check valve
- 7. Relay valve with external double check valve
- 11. Small support bracket
- 12. 90-degree elbow to replace straight fitting
- 13. Large support bracket
- 14. M8 Bolt through large bracket, small support bracket and double check valve
- 15. 90 –degree elbow to replace straight fitting
- 16. M6 Bolt through large bracket and small support bracket

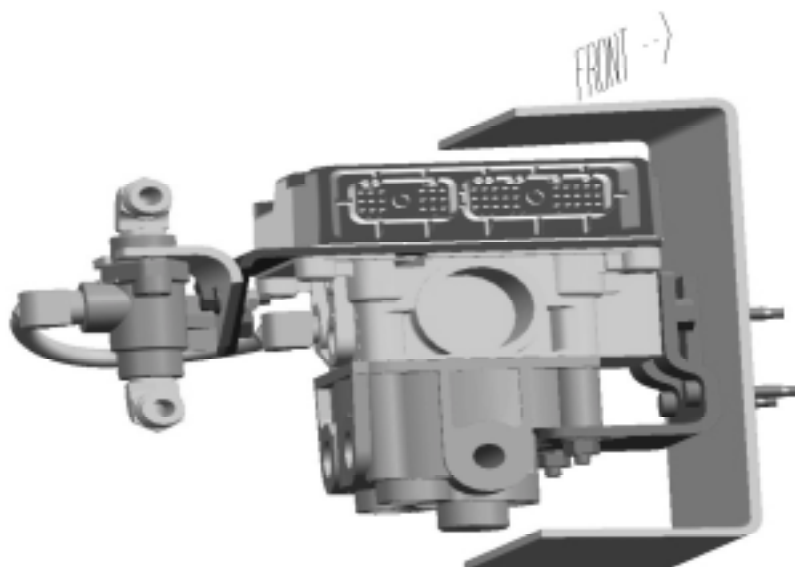


Figure 4: View of Assembly with Bracket Kit Installed (8900083R91)

PART INFORMATION

All vehicles in this campaign that have the fitting and double check valve as shown in Figure 1 must have kit #8900082R91 **OR** #8900083R91 installed. See Table 2 for kit contents. These kits are interchangeable for all vehicles in this recall. A limited number of the 8900082R91 kit was produced and when inventory is depleted, the 8900083R91 kit will replace it.

RETURNING PARTS: **Scrap the removed parts locally.**
Do not return these parts.

Table 1: KIT CONTENTS

KIT NUMBER	PART NUMBER	DESCRIPTION	QUANTITY
8900082R91 (Bendix # 801337)	Bendix # 5005139	Relay Valve	1
	Bendix # 294481	1/4 Machine Screw	4
	Int'l # 3507066C1	45 deg elbow, 1/4NPT x 3/8QC	2
8900083R91 (Bendix # 801338)	2509468C1	Large Bracket	1
	2509607C1	1/4-20 x 2.25 " Machine Screw, ECU	4
	3561048C1	M8 x 30 Bolt	1
	3544379C1	M8 Nut	1
	30761VX	90 deg elbow, 1/4 NPT x 3/8 Tube Compression	1
	BX205829	90 deg elbow, 3/8NPT x 3/8 Tube Compression	1
	2643440R1 GREEN	3/8" Nylon Tube	12"
	414505C1	Tubing Insert	2
	2585067C1	Small Bracket	1
	3552155C1	M6 x 20 Bolt	1
	3544378C1	M6 Nut	1
	25707R1	1/4" Plain Washer	2
	2585068C1	1/4-20 x 1.125" Machine Screw	2

LABOR INFORMATION

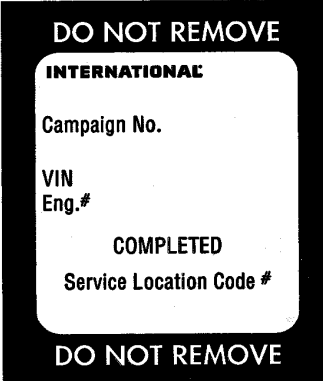
NOTE: Only one of the two labor operations can be used. All vehicles that have the double check valve and fitting shown in Figure 1 must have one of the two recall kits installed.

<u>Operation No.</u>	<u>Description</u>	<u>Time</u>
A40-02505-1	Install recall repair kit 8900082R91 (valve kit)	1.0 Hrs.
A40-02505-2	Install recall repair kit 8900083R91 (bracket kit)	0.8 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.

A rectangular label form with a black border. At the top and bottom, it says "DO NOT REMOVE" in white capital letters. In the center, there is a white rectangular area with black text. The text includes "INTERNATIONAL" in bold, "Campaign No." followed by a line, "VIN" followed by a line, "Eng.#" followed by a line, "COMPLETED" in bold, and "Service Location Code #" followed by a line.

ADMINISTRATIVE/DEALER RESPONSIBILITIES (U.S. & POSSESSIONS)

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 the customer must be notified **IMMEDIATELY** from your dealer location.

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.

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.

However, consistent with the customer notification, dealers are expected to complete the repairs on the mutually agreed upon service date.

To avoid having to replace a vehicle or refund the purchase price less a reasonable allowance for depreciation, every effort must be made to promptly schedule an appointment with each owner to repair his or her vehicle as soon as possible.

WARRANTY CLAIMS

Special Note: Most claims should use cause number 2 below.

Refer to Dealer Warranty Manual for procedures to conduct Recall Campaigns.

It is important that the Recall Coding be completed properly to assist in processing the warranty claim. Complete instructions will be found in the Warranty Manual, Section 7-1. Special attention should be given to Items 39 through 44:

GROUP	NOUN	C	WARR.	TP	PAD
GROUP: Enter The Recall Number	NOUN: Leave Blank.	C: (CAUSE) Enter number 1 or 2.	WARRANTY: (Warranty Code) Enter 40.	TYPE PART: Enter P for type part causing failure.	PAD: Enter 100.

1. Inspected (No Repair Required).

2. Inspected and repaired.

ADMINISTRATIVE/DISTRIBUTOR RESPONSIBILITY (EXPORT)

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 the customer must be notified from your distributor location.

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

We ask for your full cooperation and follow-up to this important subject matter. If you have any questions or need further assistance, please contact your Regional Service Manager.

INTERNATIONAL TRUCK AND ENGINE CORPORATION