VEHICLE RECALL

G-02506
NOVEMBER 2002

SUBJECT: VEHICLE SAFETY RECALL (U.S., EXPORT)
Installing a repair kit on straight trucks to eliminate the air brake fitting that connects the double check valve to the relay valve on certain 2000, 4700, 4800, 4900, 5000, 8000, 9000 series built from 12/16/97 through 03/04/02

DEFECT DESCRIPTION

The straight fitting (shown as item 6 in Figure 1 and Figure 2) 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 axle 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

SPECIAL NOTE: Some customers were mistakenly notified for this campaign with interim notices. Their vehicles were built before the subject fitting was introduced and they are not involved. A letter of explanation will be mailed to those customers in early December 2002.

NOTE: NO TRACTOR MODELS ARE INVOLVED. This recall covers straight trucks only. Brake code 04091 identifies straight trucks.

TABLE 1: MODELS INVOLVED BY PLANT AND BUILD DATE

MODELS	ASSEMBLY PLANTS	BUILD DATE RANGE
2000	Springfield, OH	03/01/98 through 01/28/02
4000	Springfield, OH	02/02/98 through 01/28/02
	Escobedo, Mexico	02/12/98 through 01/22/02
5000	Garland, TX	12/16/97 through 01/20/02
8000	Garland, TX	03/01/98 through 01/28/02
9000	Chatham, Canada	03/01/98 through 03/04/02
	Garland, TX	02/02/98 through 12/20/01
	Escobedo, Mexico	03/01/98 through 02/25/02

OWNER NOTIFICATION

SPECIAL NOTE: Some customers were mistakenly notified for this campaign with interim notices. Their vehicles were built before this issue was introduced and they are not involved. Their VINS were never marked for this recall. A letter of explanation will be mailed to those customers in early December 2002.

International Truck and Engine Corporation notified owners of these vehicles about this campaign with an interim notice in June 2002, a second interim notice in September 2002, and the official notification of a final corrective action in late November 2002. A copy of the latest owner letter is attached 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 BY KIT NUMBER)

DESCRIPTION: The vehicles that need this recall repair **WILL HAVE** the fitting (item 6 in Figure 1 or Figure 2) and the external double check valve (item 5 in Figure 1 or Figure 2) 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 or Figure 2, DO NOT complete the service procedure, report the vehicle as inspected and no corrections necessary (disposition or cause of 1).** The correct instructions are identifiable by kit number. Be sure to follow the correct service procedure for the kit being installed.

Kit 8900083R91 (bracket kit): 98% of the vehicles in this recall will use this kit. The kit contains brackets and hardware designed to replace the subject fitting with a short flexible air line (see Figures 3 & 4). Some vehicles may require additional bolts to be ordered with this kit. The number of vehicles requiring these special bolts is very small (see the PART INFORMATION section of this letter).

Kit 8900084R91 (valve kit): Only 2% of the vehicles in this recall will use this kit. The valve kit contains a new air brake relay valve (R12DC) with an internal double check valve, and new fittings (see Figure 5). When these kit parts are installed, the external double check valve and the subject fitting, items 5 and 6 in Figure 2, are eliminated. Figure 5 shows a representation of the new relay valve and the location of the air line control ports.

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

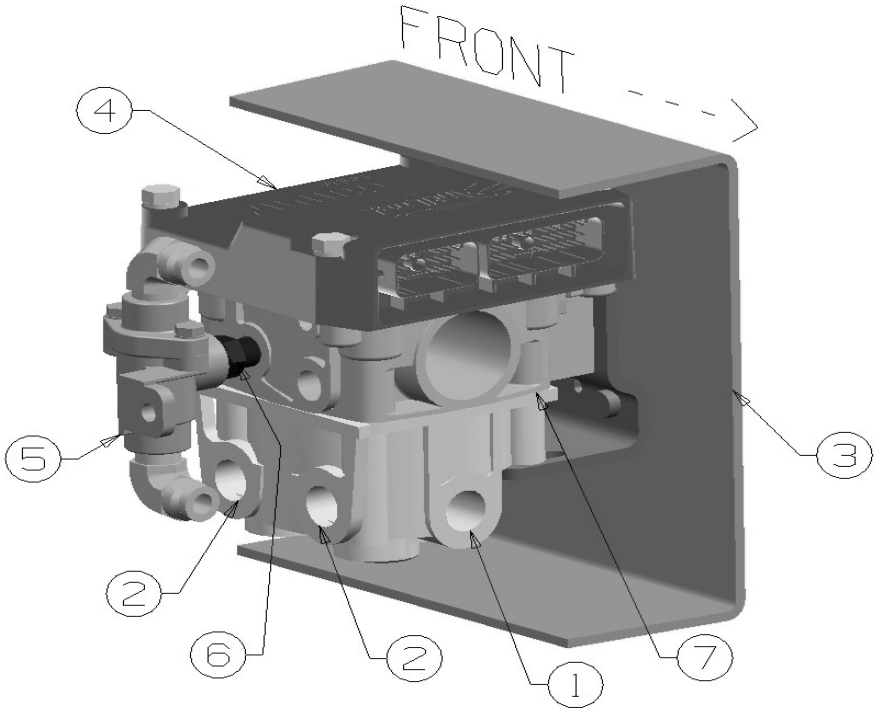


Figure 1: Most Common Original Relay Valve and Double Check Valve Assembly With the Subject Fitting

NOTES:

- If the vehicle rear axle relay valve **DOES NOT** have items 5 and 6 above, it **DOES NOT** need the recall procedure performed.
- A few vehicles will have remote mounted ECU's. In this case, the relay valve will have a plate mounted on top of the valve instead of an ECU.

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

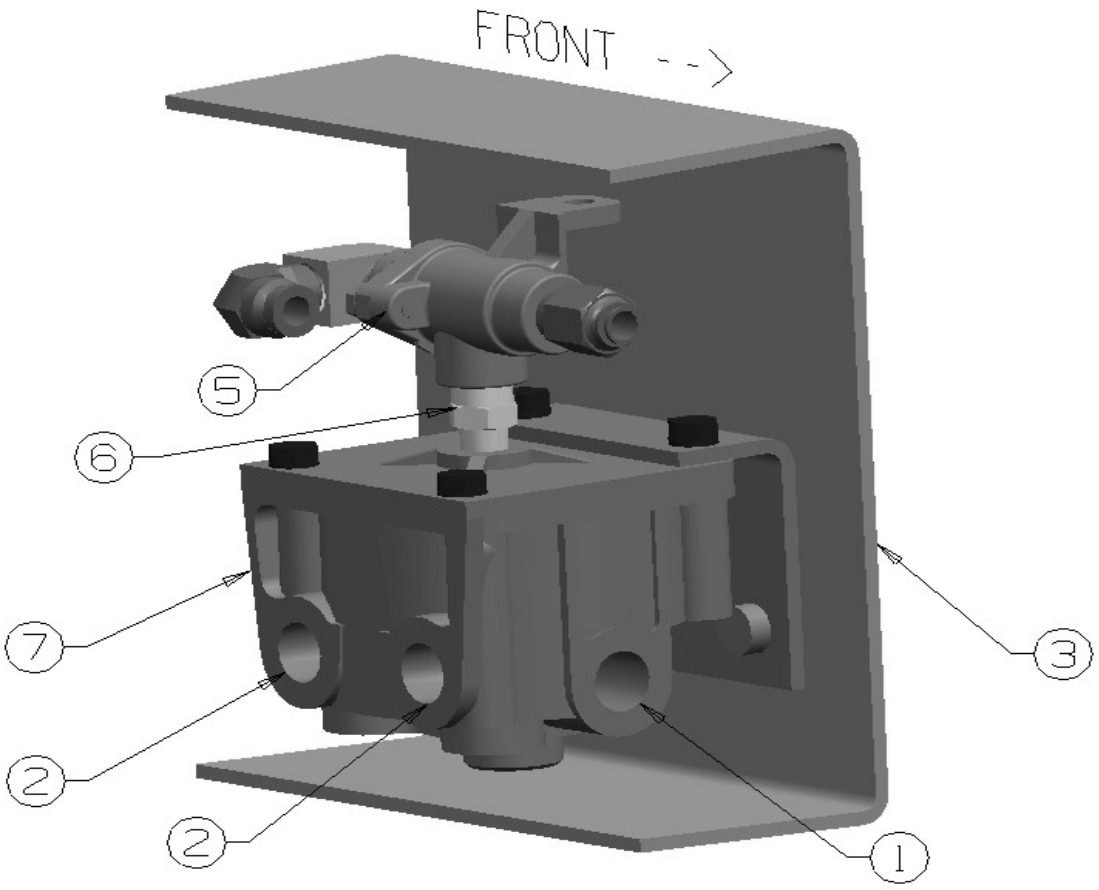


Figure 2: **Alternate Original Relay Valve and Double Check Valve Assembly with the Subject Fitting**

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

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.

Note: Before beginning this procedure, identify which valve style is used on the vehicle and if the ABS ECU is mounted on top of the valve. Reference the PARTS INFORMATION section of this letter to make sure you have the correct parts.

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 or plate and wiring attached. Position the assembly for access to the ECU or plate mounting screws.
8. Note and mark the mounting position of the ABS ECU or plate on the valve. **DO NOT USE AIR TOOLS** to remove the ECU or plate mounting screws. It is very important to lightly tap on the heads of the ECU or plate 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 the ECU or plate mounting screws, if necessary. Remove the ECU or plate mounting bolts and the ECU or plate 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 used to install the ECU. If there is a plate in place of the ECU, four new and longer mounting bolts will be required, not supplied in this kit (see the PARTS INFORMATION section of this letter). If the mounting bolts break off in the valve, do not heat the valve to remove bolts, reference the PART INFORMATION section of this letter for the service valve part number.
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 (item 13, Figure 3), 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 Lb-IN (11 NM), the M8 hardware (Figure 3, item 14) to 14 – 17 Lb-FT (19.6-24 N-m), and the M6 hardware (Figure 3, item 16) to 72 – 96 Lb-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 or plate onto the top of the relay valve as shown in Figures 3 and 4. Tighten the four mounting bolts to 100 Lb-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.

SERVICE PROCEDURE
FOR KIT 8900084R91 (Valve Kit)

FOR THIS PROCEDURE REFERENCE FIGURES 2 AND 5

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 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 and the external double check valve attached.
8. 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 or the pressure protection valve (with air suspension) from the rear supply port to the new relay valve. **FITTING NOTE:** Kit 8900084R91 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 and make sure to leave enough length.
9. Install the new fittings from the kit into the two control ports on the new relay valve assembly. Put the 90° fitting into the primary control port (41) and the straight fitting into the secondary control port (42). Orient the fittings to face toward the front of the vehicle as shown in Figure 5.
10. Mount the relay valve assembly to the frame rail and torque the mounting nuts to 12.5-15 Lb-FT (17-20 NM). **DO NOT USE AIR TOOLS.**
11. Reconnect the air lines to the relay valve, reference Figure 5 and Table 3.
12. Lower the vehicle if raised in step 3.
13. Fill the air tanks to cut-out pressure.
14. Check for air leaks and proper brake operation.
15. Remove the wheel chocks.
16. Scrap the removed parts.

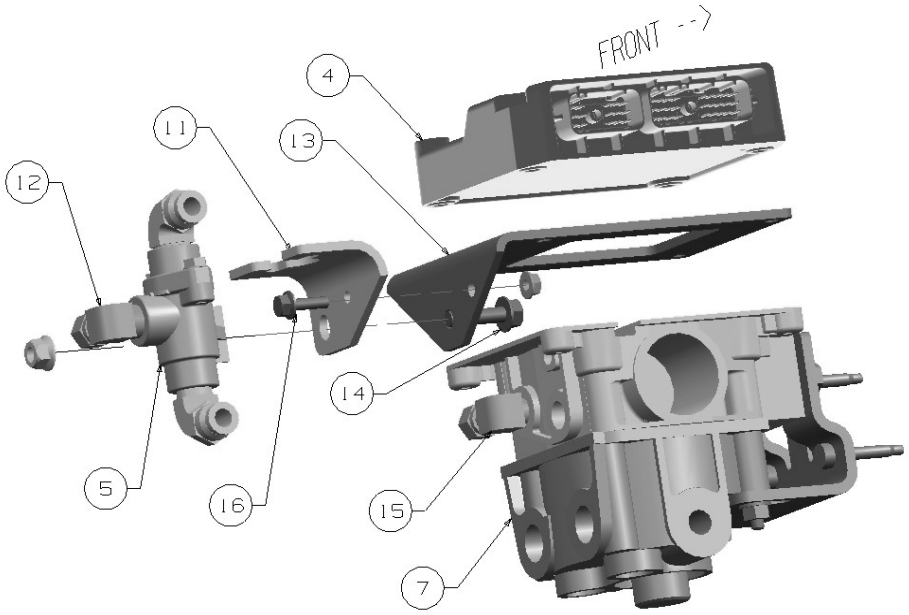


Figure 3: Exploded View of Valve Assembly With the Bracket Kit, In Some Cases, Item 4 May be a Plate Instead of an ABS ECU

8900083R91 Kit Items:

4. Will be an ABS ECU or a plate
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

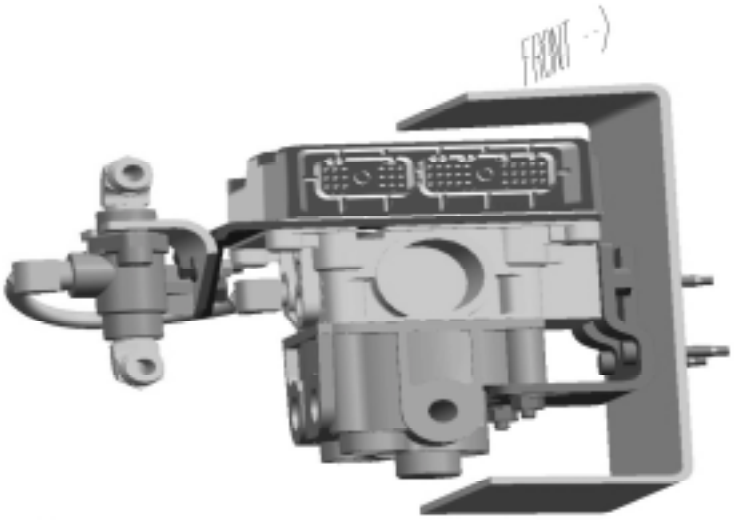


Figure 4: View of Assembly with Bracket Kit Installed (8900083R91)

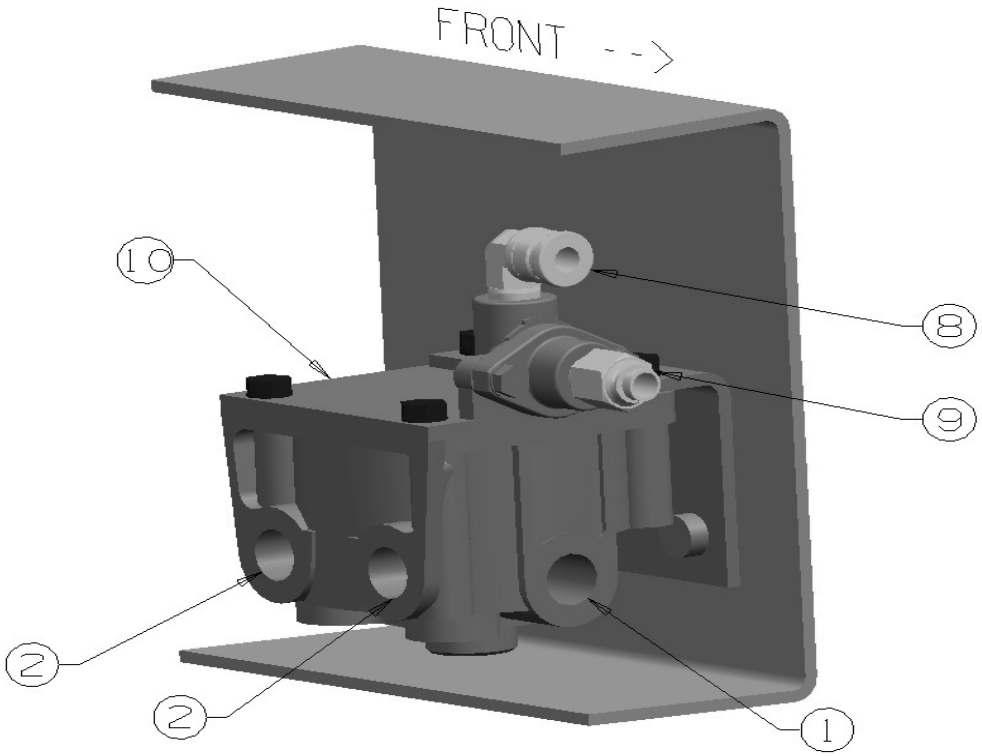


Figure 5: **Kit 8900084R91 (Valve Kit) Contains a New Relay Valve with an Internal Double Check Valve**

Item: 1 - Primary supply port, 5/8" or ¾" 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, 90 Degree elbow
9 - Secondary control port #42, 3/8" Orange air line, for the internal double check valve, straight fitting
10- Relay valve with internal double check valve

PART INFORMATION

There are two kits that will be used to repair vehicles for this recall. 98% of the vehicles will use kit 8900083R91 (bracket kit) and only 2% of the vehicles can use kit 8900084R91 (valve kit). Because only 2% of the population must use kit 8900084R91 (valve kit), supply is limited, so please do not order any of the valve kits until you reference the PART INFORMATION section of this letter and verify which is the correct kit for the vehicle.

SPECIAL NOTE FOR KIT 8900083R91 (bracket kit): Some of the vehicles that use this kit have a traction control relay valve and there are about 130 vehicles in this recall that have a plate on top of the valve and do not have the ECU mounted on top of them. For these vehicles, four new special bolts must be ordered. Please verify the need before ordering these bolts, because there is a limited supply. Four bolts per vehicle with the top plate, PN: 2509606C1.

REPLACEMENT RELAY VALVE SERVICE PARTS

If the bolts break off that hold the ABS ECU or the plate on top of the relay valve (as seen in Figure 3, Item 7), do not use heat on the relay valve to remove bolts, replace the valve with the correct service part number. The non-traction control relay valve service part number is 2501272C91 (valve only for use with external double check valve) and the service part number for traction control is 2507312C91 (valve only for use with external double check valve).

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

Table 2: KIT CONTENTS for 8900083R91 (bracket kit)

INTERNATIONAL KIT NUMBER	CONTENTS	DESCRIPTION	QUANTITY
8900083R91 (Bendix # 801338)	2509468C1	Large Bracket	1
	2509607C1	¼-20 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	¼" Plain Washer	2
	2585068C1	¼-20 x 1.125" Machine Screw	2

Table 3: KIT CONTENTS for 8900084R91 (valve kit)
Only 2% of the vehicles can use this kit.
This kit MUST be used only on vehicles that have the Relay Valve Assembly that is shown in Figure 2 and Figure 5.
Reference Table 4 for applications.

<u>Note:</u> There are both 9000 and 5000 model vehicles that were built prior to 9/1/00 that may require the use of Kit 8900084R91. Please check vehicle.

INTERNATIONAL KIT NUMBER	CONTENTS	DESCRIPTION	QUANTITY
8900084R91 (Bendix # 801339)	Bendix # 5010998	Relay Valve (4.0 Crack pressure)	1
	Bendix # 113165	5/16 Hex/Torx	2
	Int'l # 2017511C1	90 deg elbow, 1/4MPT x 3/8QC	1
	Int'l # 2017484C1	Connector, 1/4MPT x 3/8QC	1

Table 4: Application Table for Kit 8900084R91

MODEL	BUILD DATE RANGE	BRAKE CODE
2000	03/01/98-01/28/02	04AZE
4000	**DO NOT USE THIS KIT**	
5000	09/01/00 - 01/20/02	04AZA
8000	03/01/98 - 01/28/02	04AZE
9000	09/01/00 - 03/04/02	04AZA or 04AZE or 04AZH

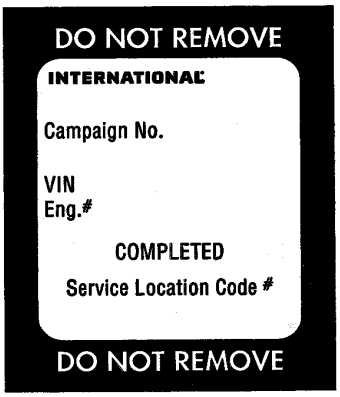
<u>LABOR INFORMATION</u>

NOTES: All vehicles that have the double check valve and fitting shown in Figure 1 and Figure 2 must have one of the two recall kits installed. Only one labor operation can be used per vehicle. The percentage of vehicles needing each labor operation is as follows.

Operation 1: 73% of the vehicles will need this repair.
Operation 2: 25% of the vehicles will use this repair.
Operation 3: Only 2% of the vehicles will use this kit.

Operation No.	Description	Time
A40-02506-1	Install **8900083R91** on vehicles without Hendrickson walking beam suspension	0.8 Hrs.
A40-02506-2	Install **8900083R91** on vehicles with Hendrickson walking beam suspension	1.0 Hrs.
A40-02506-3	Install recall repair kit 8900084R91 (R12DC Valve)	0.6 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.

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.

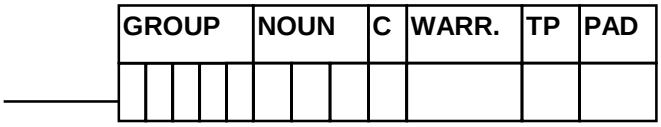
To avoid having to replace a vehicle or refund the purchase price less a reasonable allowance for depreciation, every effort must be made to promptly schedule an appointment with each owner to repair his or her vehicle as soon as possible.

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: Enter The Recall Number

NOUN: Leave Blank.

C: (CAUSE) Enter number 1 or 2.

1. Inspected (No Repair Required).
2. Inspected and repaired.

WARRANTY: (Warranty Code) Enter 40.

TYPE PART: Enter P for type part causing failure.

PAD: Enter 100.

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