

# ***SERVICE PROCEDURE***

**G-11511  
January 2012**

**SUBJECT: SAFETY RECALL  
BATTERY CABLES on certain RE model school buses built 2/4/10 thru 6/16/11 with a 2010 exhaust emissions engine feature code 510974.**

## **DEFECT DESCRIPTION**

The battery cables may rub on the hydraulic cooler reservoir mounting bracket possibly resulting in an electrical short. An electrical short may cause a fire possibly resulting in property damage, personal injury, or death.

## **MODELS INVOLVED**

This Safety Recall involves certain RE model school buses built 2/4/10 thru 6/16/11 with a 2010 exhaust emissions engine feature code 510974.

## **PARTS INFORMATION**

<b>Part Number</b>	<b>Part Description</b>	<b>Quantity</b>
8900221R91	Kit, SR11510 & 11, Group 8D Battery Pkg	1
8900222R91	Kit, SR11510 & 11, Group 31 Battery Pkg	1

The repair kits contain the following parts:

Part Number	Part Description	Quantity	
		8900221R91	8900222R91
3547776C1	BOLT, M8X20 FINISH PER TMS-4518 TYPE I	1	1
934309R1	WASHER, LOCK M8	1	1
3554554C1	GUIDE,BRK HOSE & CABLE, DUALSWIVELSADDLESPACERSIZE5 INSERTMOLDED	4	3
1677372C1	CLAMP,PIPE, SGL-CUSHIONED 2 1/2 I.D. W/.406 MTG HOL	1	1
2041341C1	SADDLE,CLAMP, CABLE LOCK MOUNT 1/4" HARDWARE	2	2
3627806C2	EXTENSION, CLIP	1	1
250537C1	EXTENSION, CLIP	3	2
3516934C1	STRAP,CABLE LOCK, 20 IN 250LB	28	22
2002176C2	EXTENSION, CLIP	1	1
3553742C1	GUIDE,BRK HOSE & CABLE, 2-WAY SADDLE MOUNT FOR 6MM HEX HD BOLTS	9	7
2012155C1	CLIP, SPRING TYPE* 5/16"	1	1
454541C1	EXTENSION, CLIP	2	0
431193C1	EXTENSION, EXTENSION,CLIP	0	1
9413979	NUT, 3/8-16 UNC	1	1
24841R1	BOLT, HH 3/8-16UNC X 1 1/2,PHC GRADE	1	1
25709R1	WASHER, HARDENED 3/8" - .406 ID X .812 OD ZND	1	1
2212199C1	GROMMET, 3 INCH	2	0
2212509C1	PLATE, BATTERY GROMMET	2	0
456107C1	SCREW, SELF-DRILLING PAN HD CR #10-16 X 1/2	8	0
25483R1	BOLT 1/4" X 1"	15	10
120380	WASHER, LOCK 1/4"	15	10
25519R1	NUT, HEX TYPE 8 1/4" UNC	15	10
3932762C1	SUPPORT, ASSY, RADIATOR/HYDRAULIC LINES	1	1

## **SERVICE PROCEDURE**

**WARNING!** PARK VEHICLE ON HARD FLAT SURFACE, TURN THE ENGINE OFF, SET THE PARKING BRAKE AND BLOCK THE WHEELS TO PREVENT THE VEHICLE FROM MOVING IN BOTH DIRECTIONS. FAILURE TO DO SO MAY RESULT IN PROPERTY DAMAGE, PERSONAL INJURY AND/OR DEATH.

**WARNING!** IF THE VEHICLE MUST BE RAISED, DO NOT WORK UNDER THE VEHICLE SUPPORTED ONLY BY JACKS. JACKS CAN SLIP OR FALL OVER, POTENTIALLY RESULTING IN PROPERTY DAMAGE, PERSONAL INJURY AND/OR DEATH.

**WARNING!** ALWAYS WEAR SAFE EYE PROTECTION WHEN PERFORMING VEHICLE MAINTENANCE. FAILURE TO DO SO MAY RESULT IN SERIOUS EYE INJURY.

**WARNING!** ALLOW COMPONENTS IN ENGINE COMPARTMENT TO COOL BEFORE SERVICING ENGINE OR VEHICLE. FAILURE TO DO SO MAY RESULT IN PROPERTY DAMAGE, PERSONAL INJURY AND/OR DEATH.

**WARNING!** KEEP FLAMES OR SPARKS AWAY FROM VEHICLE AND DO NOT SMOKE WHILE SERVICING THE VEHICLE'S BATTERIES. BATTERIES EXPEL EXPLOSIVE GASES. FAILURE TO DO SO MAY RESULT IN PROPERTY DAMAGE, PERSONAL INJURY, AND/OR DEATH.

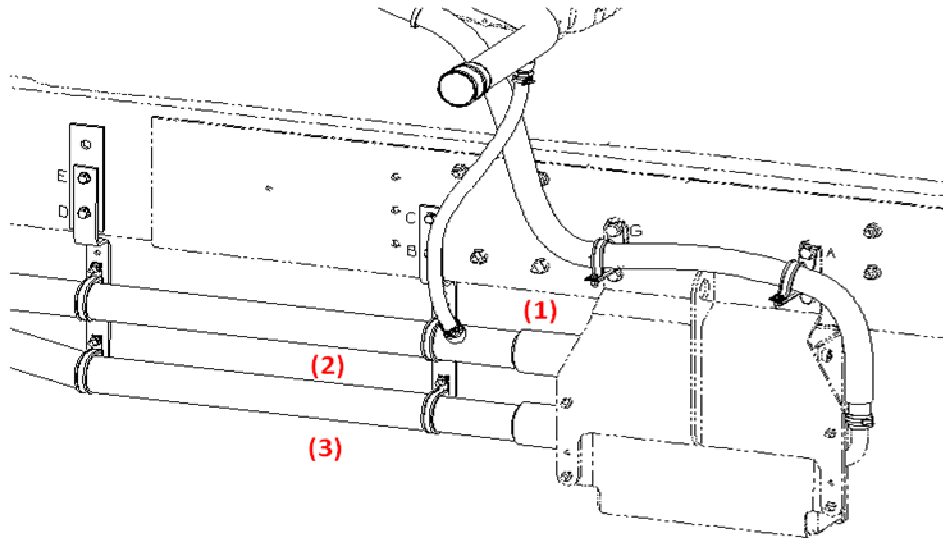
**WARNING!** REMOVE THE GROUND CABLE FROM THE NEGATIVE TERMINAL OF THE BATTERY BOX BEFORE DISCONNECTING ANY ELECTRICAL COMPONENTS. ALWAYS CONNECT THE GROUND CABLE LAST. FAILURE TO DO SO MAY RESULT IN PROPERTY DAMAGE, PERSONAL INJURY, AND/OR DEATH.

### **FOR VEHICLE WITH GROUP 31 BATTERIES:**

(For 8d Battery Procedure See Page 11)

1. Open battery compartment and disconnect frame and starter negative battery cable and clean power harness connector.

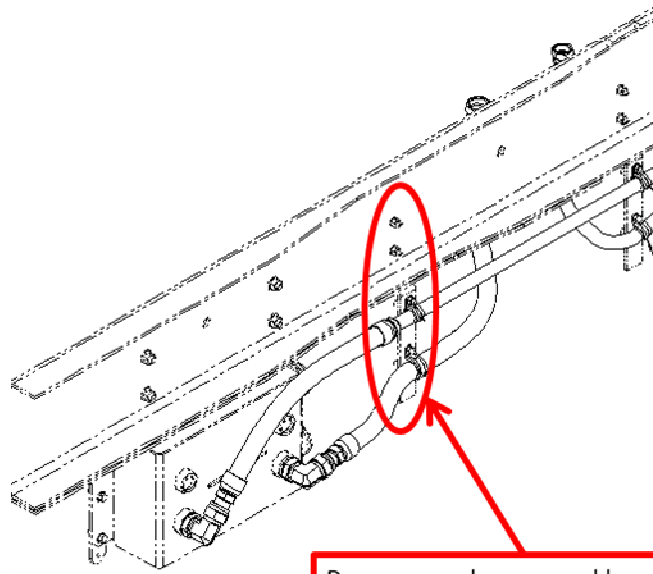
2. Inspect negative and positive battery cable routing path from the rear of the battery box to the starter. Cables that are routed over or between the coolant pipes will require removal from the starter to allow routing per the following steps. Cables that are routed under (3) the coolant pipes will not require removal from the starter attachment points. (Figure 1)



Possible battery cable routing, over (1), between (2) or under (3) coolant pipes.

**Figure 1**

3. Remove all clipping points currently in place on the negative and positive battery cables from the exit point of the battery box to the starter.
  - a. NOTE: If unit is equipped with an ammeter sensor on the negative battery cable, clip points may need to be removed to complete the following process and reinstalled at conclusion of repairs.
4. Remove negative and positive battery cables from the starter if cable(s) are routed over or between the coolant pipes as outlined in step 2.
5. Remove coolant pipe and hydraulic hose p-clamps from frame mounted bracket rearward of the hydraulic fluid reservoir. Remove bracket from frame rail mounting points (3/8" hardware). Reinstall replacement bracket (3932762C1) and p-clamps. (Figure 2) Install a large dual saddle (3553742C1, hardware 25483R1, 120380 and 25519R1) to the top of the lower bracket. Saddle will be tightened in step 13. (Figure 2a)
  - a. NOTE: Bracket installation can be performed by placing the bracket lengthwise between the frame and upper coolant pipe then rotate the bracket into final position.



Remove p-clamps and bracket,  
reinstall bracket and p-clamps

Figure 2



Figure 2a

6. Loosely install single saddle (2041341C1, hardware 25483R1, 120380 and 25519R1) on extension clip (2002176C2) and install assembly to side of engine block using M8 bolt (3547776C1) and lock washer (934309R1). Saddle will be tightened in step 13. (Figure 3)



**Figure 3**

7. Install p-clamp (1677372C1) around lower coolant pipe approximately 8"-10" rearward of the frame mounted bracket replaced in step 5 and loosely install large dual saddle (3553742C1, hardware 25483R1, 120380 and 25519R1). Final location of p-clamp will be determined during final clipping of the battery cables. Saddle will be tightened in step 13. (Figure 4)



**Figure 4**

8. Remove upper rear hydraulic fluid reservoir mounting bolt (located between coolant pipes) and discard. Loosely install large dual saddle (3553742C1, hardware 25483R1, 120380 and 25519R1) on extension clip (3627806C2) and install assembly with new mounting hardware (9413979, 24841R1 and 25709R1). Saddle will be tightened in step 13. (Figure 5)



Figure 5

9. Assemble a single saddle (2041341C1) and large dual saddle (3553742C1, hardware 25483R1, 120380 and 25519R1) to spring clip (2012155C1) and install assembly on the rear upper slanted edge of the reservoir mounting bracket. Single saddle clamp is to be installed on the top, large dual saddle on the lower side of the spring clip. In the event edge trim was installed on the intended mounting surface, remove edge trim and discard. Tighten saddles in the position as shown in the below figure. (Figure 6)



Figure 6

10. Loosely install large dual saddle (3553742C1, hardware 25483R1, 120380 and 25519R1) on extension clip (431193C1). Remove 12mm nut located above the hydraulic reservoir mounting bracket, install extension clip assembly as shown below and reinstall nut. Saddle will be tightened in step 13. (Figure 7)

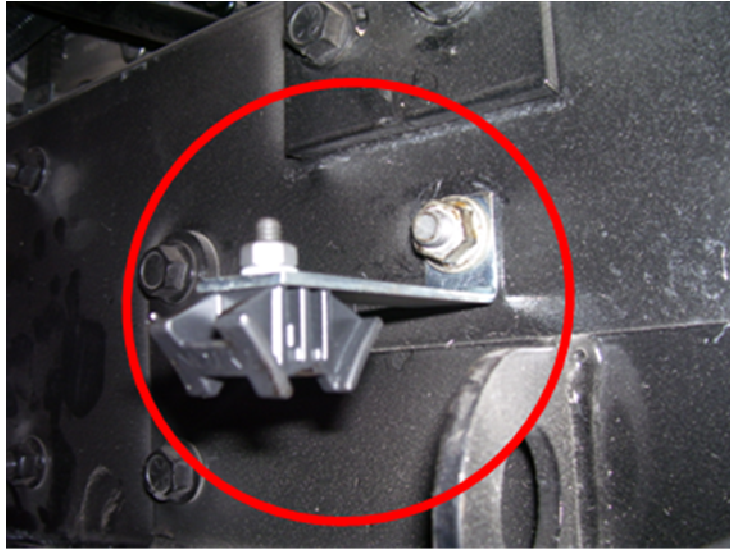


Figure 7

If unit is equipped with battery box mounted disconnect switch, option code 49BVD, complete the following steps, If unit is not equipped with the disconnect switch, proceed to step 11.

- a) Mark and drill extension clip mounting point. Inboard reinforcement leg, from rear of box, 6" forward and 3/4" down from the bottom of the box drill a 5/16" hole. (Figure 7a)
- b) Loosely install large dual saddle (3553742C1, hardware 25483R1, 120380 and 25519R1) on extension clip (250537C1, hardware 25483R1, 120380 and 25519R1) and install assembly in the hole drilled in step 10. Saddle will be tightened in step 13. (Figure 7a)

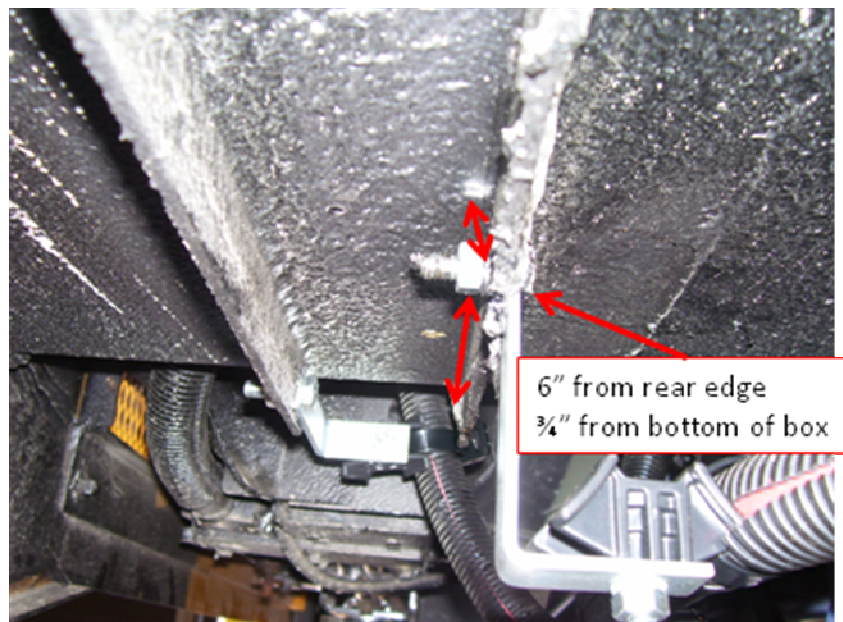


Figure 7a

- c) Mark and drill extension clip mounting point. Outboard reinforcement leg, from rear of box, 1" forward and 3/4" down from the bottom of the box drill a 5/16" hole. (Figure 7b)
- d) Loosely install large dual saddle (3553742C1, hardware 25483R1, 120380 and 25519R1) on extension clip (250537C1, hardware 25483R1, 120380 and 25519R1) and install assembly in the hole drilled in step 10c. Saddle will be tightened in step 13. (Figure 7b)

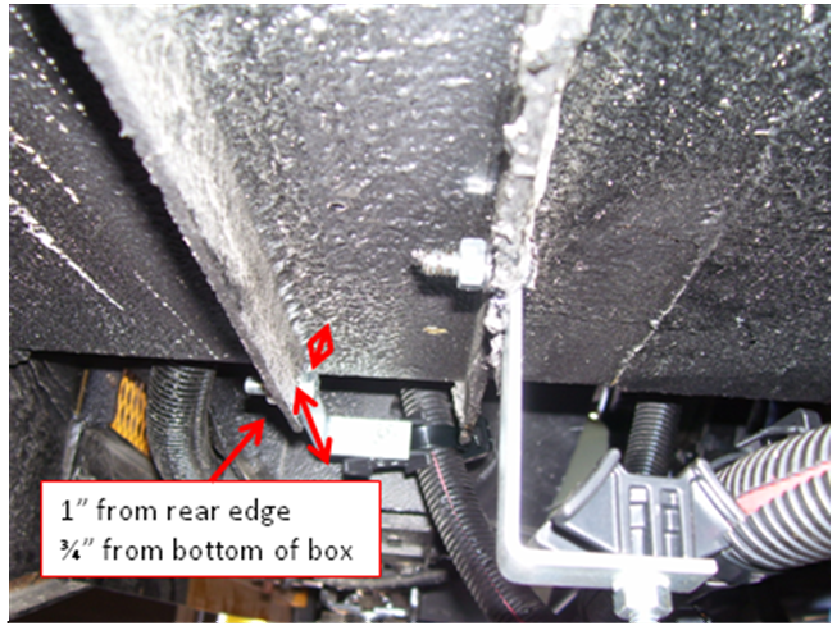
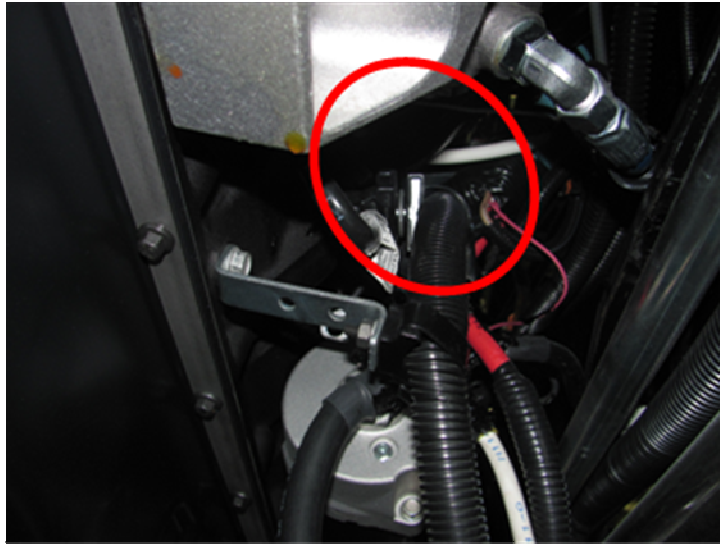


Figure 7b

- 11. Inspect negative and positive battery cable to determine if any abrasion point caused insulation chafe requiring repair.
  - a. If no insulation chafe is found proceed to step 12.
  - b. If insulation chafe is found, use dual wall heat shrink (8900214R91) on the affected cable to repair the chafe. Installation can be completed by removing the protective conduit cover, slide the heat shrink to the affected area and heat as required.
  - c. If insulation chafe is found resulting in a condition requiring cable replacement (copper damage), open a case file and attach pictures of the affected area for repair instructions.

- 12. With the battery box tray fully extended and battery cables positioned for connection, install tie-straps at all clipping points beginning at the starter. All tie-straps used are 1/2", part number 3516934C1, unless otherwise stated. During installation of the remaining saddle clamp and tie-straps, ensure the cables are positioned eliminating contact to abrasion points and contact between the negative and positive cable. Prior to final tightening of the tie-straps, ensure cables are correctly positioned, and no abrasion points exist. Battery cables should make contact with clip point hardware only.

- a. Reconnect battery cable to starter connection points.
- b. Install a double swivel saddle (3554553C1) between the negative and positive cable near the rear of the starter. (Figure 8)



**Figure 8**

- c. Install tie-strap to positive cable to the engine block mounted extension clip and saddle. (Re: Item 6, Figure 3)
- d. Install tie straps to negative and positive cables to the lower coolant pipe p-clamp. Position p-clamp to allow consistent routing of the battery cables to eliminate any abrasion points prior to final tightening. (Re: Item 7, Figure 4)
- e. Install tie-strap to the negative and positive cables to the frame mounted coolant pipe bracket. (Re: Item 5, Figure 2a)
- f. Install tie-straps to the negative and positive cables to the reservoir mounted extension clip. (Re: Item 8, Figure 5)
- g. Install tie-straps to the negative and positive cables to the spring clip. (Re: Item 9, Figure 6)
- h. Install tie strap to clean power harness to the single saddle mounted on the spring clip. (Re: Item 9, Figure 6.)
- i. Install tie-strap to clean power harness to positive cable between rear of the battery box and spring clip.
- j. Install tie-straps to the negative cable to the frame mounted extension clip. (Re: Item 10, Figure 7)
- k. If unit was equipped with disconnect switch, install tie-straps to the negative and positive cables to the additional bottom of battery box saddles. (Re: Item 10, Figure 7a and 7b). Inspect overall battery cable routing and add additional double swivel saddle (3554554C1) to eliminate any potential contact between battery cables. (Figure 9)

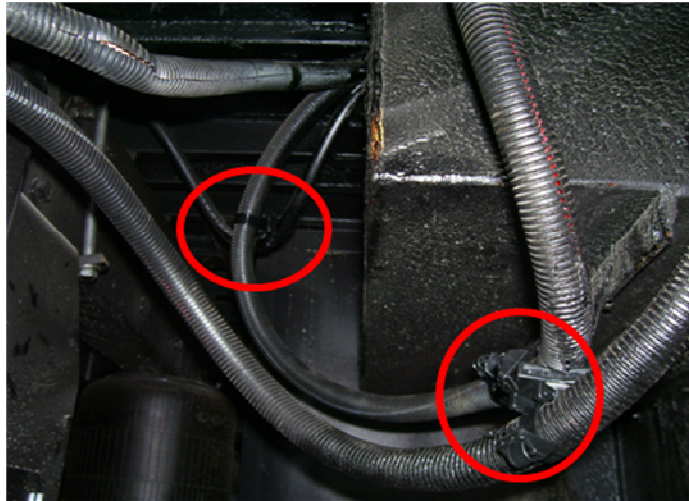


Figure 9

13. Verify all tie-straps and mounting hardware are tight and all tie-straps have been trimmed.
14. Reconnect battery cables and clean power harness.
15. Reapply grafo grease to the battery and starter connections.

**FOR VEHICLES WITH 8D BATTERIES:**

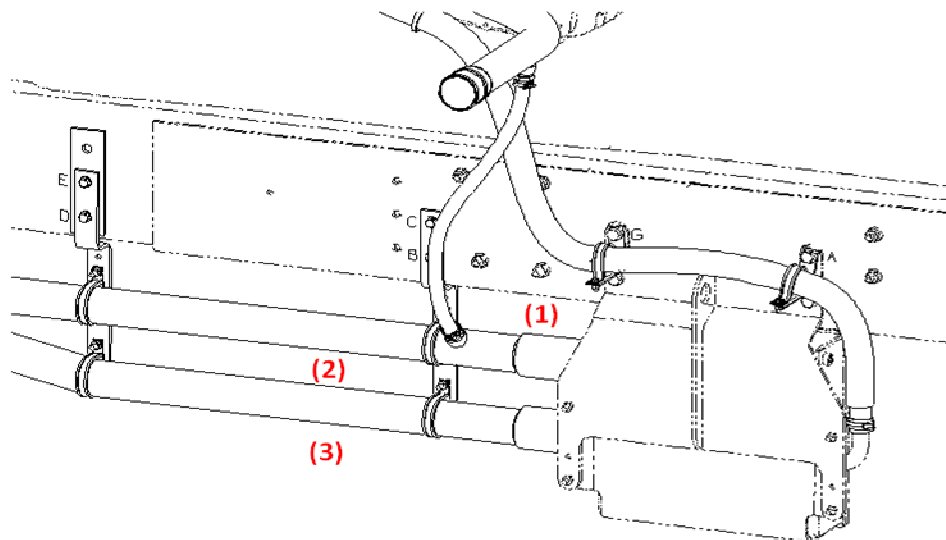
(For Group 31 Battery Procedure See Page 3)

1. Open battery compartment and disconnect negative and positive battery cable and negative clean power harness connector.
2. Loosen the battery tray stop bolts and remove the battery tray and battery assembly. *NOTE: If proper lifting equipment or assistance is not available, individual battery removal should be performed to eliminate possible injury.*
3. Remove clean power harness and starter negative and positive battery cables from the battery box. The negative frame ground cable will remain routed through the rear of the battery box. (Figure 1)



Figure 1

4. Remove all clipping points currently in place on the negative and positive battery cables from the battery box to the starter.
  - a. NOTE: If unit is equipped with an ammeter sensor on the negative battery cable, clip points may need to be removed to complete the following process and reinstalled at conclusion of repairs.
5. Battery cables will be routed under the coolant pipes. If the cables are currently routed over (1) or between (2) the coolant pipes, pull the cables out, toward the rear of the unit, to allow proper routing per the following instructions. (Figure 2)



Possible battery cable routing, over (1), between (2) or under (3) coolant pipes.

Figure 2

6. Remove coolant pipe and hydraulic hose p-clamps from frame mounted bracket rearward of the hydraulic fluid reservoir. Remove bracket from frame rail mounting points. Reinstall replacement bracket (3932762C1) and p-clamps. (Figure 3) Install a large dual saddle (3553742C1, hardware 25483R1, 120380 and 25519R1) to the top of the lower bracket. Saddle will be tightened in step 20. (Figure 3a)
  - a. NOTE: Bracket installation can be performed by placing the bracket lengthwise between the frame and upper coolant pipe then rotate the bracket into final position.

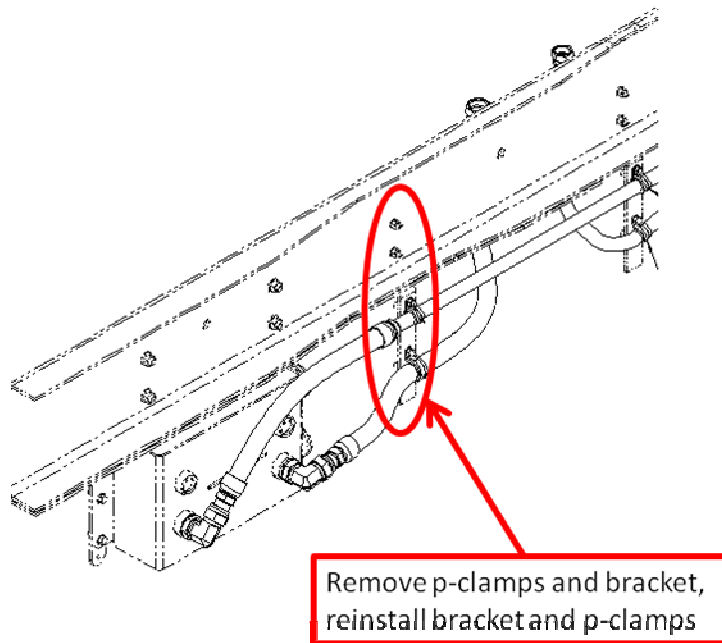


Figure 3



Figure 3a

7. Loosely install single saddle (2041341C1, hardware 25483R1, 120380 and 25519R1) on extension clip (2002176C2) and install assembly to side of engine block using M8 bolt (3547776C1) and lock washer (934309R1). Saddle will be tightened in step 20. (Figure 4)



Figure 4

8. Install p-clamp (1677372C1) around lower coolant pipe approximately 8"-10" rearward of the frame mounted bracket replaced in step 6 and loosely install large dual saddle (3553742C1, hardware 25483R1, 120380 and 25519R1). Final location of p-clamp will be determined during final clipping of the battery cables. Saddle will be tightened in step 20. (Figure 5)



Figure 5

9. Remove upper rear hydraulic fluid reservoir mounting bolt (located between coolant pipes) and discard. Loosely install large dual saddle (3553742C1, hardware 25483R1, 120380 and 25519R1) on extension clip (3627806C2, hardware 9413979, 24841R1 and 25709R1) and install assembly. Saddle will be tightened in step 20. (Figure 6)



10. Assemble a single saddle (2041341C1) and large dual saddle (3553742C1, hardware 25483R1, 120380 and 25519R1) to the spring clip (2012155C1) and install assembly on the rear upper slanted edge of the reservoir mounting bracket. Single saddle clamp is to be installed on the top, large dual saddle on the lower side of the spring clip. In the event edge trim was installed on the intended mounting surface, remove edge trim and discard. Tighten saddles in the position as shown in the below figure. (Figure 7)



Figure 7

11. Mark and drill two (2) - 3" and two (2) - 5/16" holes in the aft side of the battery box. Holes are to be drilled in the upper rear corner of the aft side of the battery box. (Figure 8)

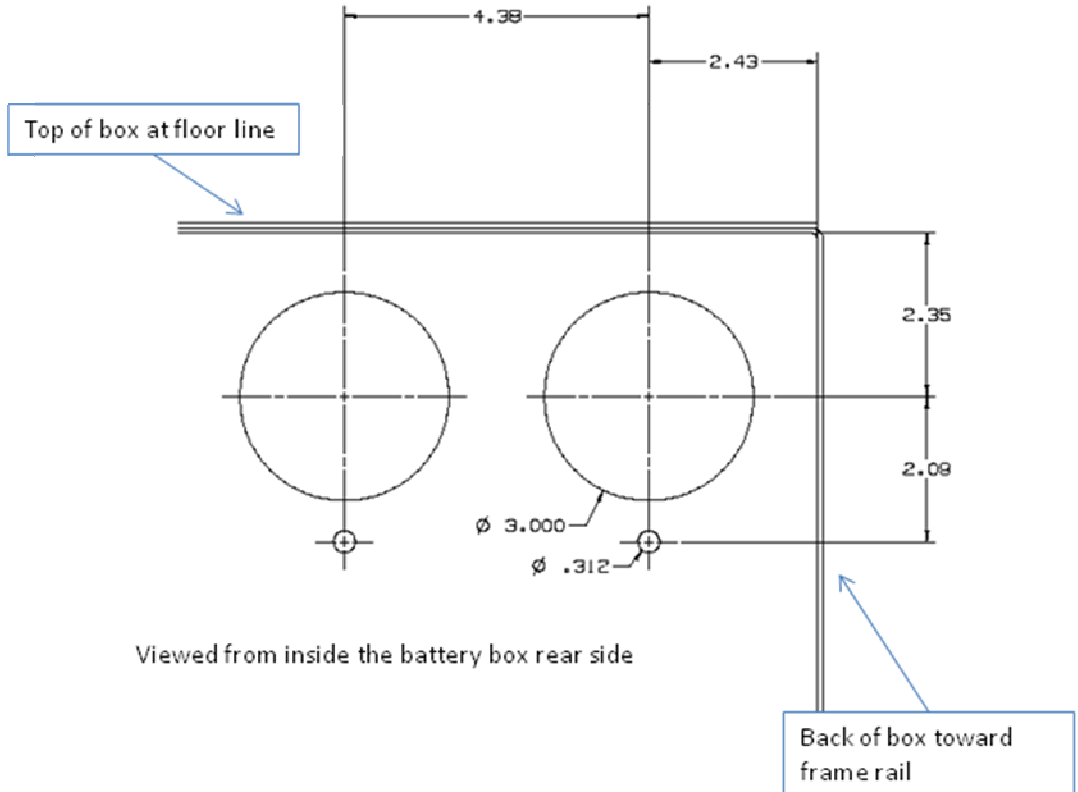


Figure 8

12. Position and install routing grommet and mounting plate (Qty 2 - 2212199C1 and 2212509C1) with self drilling screw (Qty 8 - 456107C1). (Figure 9)

- a. NOTE: Grommets and plates MUST be installed from the inside of the battery box.



**Figure 9**

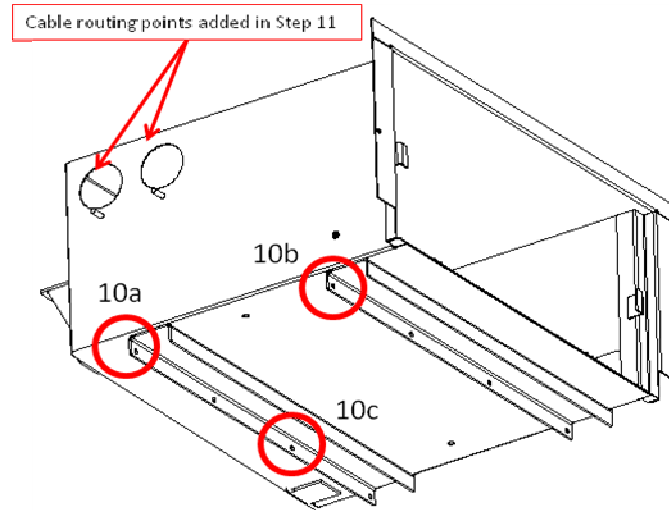
- 13.** Install two (2) saddles (3553742C1, hardware 25483R1, 120380 and 25519R1) on extension clip (454541C1). Install extension clip assembly (hardware 25483R1, 120380 and 25519R1) on the outside of the battery box using the holes drilled below the cable routing points. This step will require assistance from a second Technician. (Figure 10)



**Figure 10**

If unit is equipped with the battery box mounted disconnect switch, option code 49BVD, complete the following steps. If unit is not equipped with the disconnect switch, proceed to step 14.

- a) Loosely install large saddle (Qty 3 - 3553742C1, hardware 25483R1, 120380 and 25519R1) on extension clip (Qty 3 - 250537C1, hardware 25483R1, 120380 and 25519R1) and install assembly in holes 10a, 10b and 10c. Saddle will be tightened in step 20. (Figure 10a)



**Figure 10a**

- 14.** Clean battery box area of all shavings and debris.
- 15.** Inspect negative and positive battery cable to determine if any abrasion point caused insulation chafe requiring repair.
- a. If no insulation chafe is found proceed to step 16.
  - b. If insulation chafe is found, use dual wall heat shrink (8900214R91) on the affected cable to repair the chafe. Installation can be completed by removing the protective conduit cover, slide the heat shrink to the affected area and heat as required.
  - c. If insulation chafe is found resulting in a condition requiring cable replacement (copper damage), open a case file and attach pictures of the affected area for repair instructions.
- 16.** Place positive battery cable and clean power harness into the battery box using the inboard routing point. Place the starter negative battery cable into the battery box using the outboard routing point.
- 17.** Reinstall the battery tray/batteries and secure the tray stop bolts/hold down hardware.
- 18.** Reconnect all battery cable connections and clean power harness connections.

19. With the battery box extended approximately half-way, install tie-straps at all clipping points beginning at the starter. All tie-straps used are ½", part number 3516934C1, unless otherwise stated. During installation of the remaining saddle clamp and tie-straps, ensure the cables are positioned eliminating contact to abrasion points and contact between the negative and positive cable. Prior to final tightening of the tie-straps, ensure battery tray can be extended approximately half way, cables are correctly positioned, and no abrasion points exist. Battery cables should make contact with clip point hardware only.
- a. Install a double swivel saddle (3554554C1) between the negative and positive cable near the front of the starter. (Figure 11)

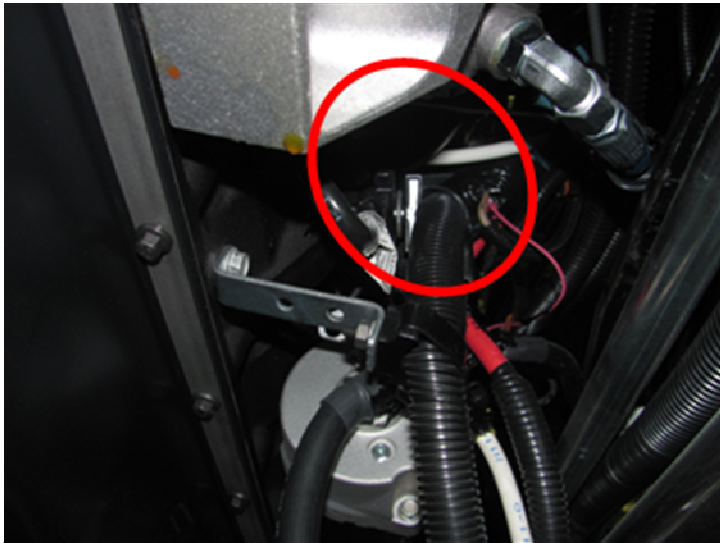


Figure 11

- b. Install tie-strap to positive cable to the engine block mounted extension clip and saddle. (Re: Item 7, Figure 4)
- c. Install tie straps to negative and positive cables to the lower coolant pipe p-clamp. Position p-clamp to allow consistent routing of the battery cables to eliminate any abrasion points prior to final tightening. (Re: Item 8, Figure 5)
- d. Install tie-strap to the negative and positive cables to the frame mounted coolant pipe bracket. (Re: Item 6, Figure 3, 3a)
- e. Install tie-straps to the negative and positive cables to the reservoir mounted extension clip. (Re: Item 9, Figure 6)
- f. Install tie strap to clean power harness to the single saddle mounted on the spring clip. (Re: Item 9, Figure 6.)
- g. Install tie-straps to the negative and positive cables to the spring clip. (Re: Item 10, Figure 7)

- h. Install tie-straps to negative and positive cables and clean power harness to the battery box mounted saddles. (Re: Item 13, Figure 10) If unit was equipped with disconnect switch, install tie-straps to the negative and positive cables to the additional bottom of battery box saddles. (Re: Item 13, Figure 10a)
- i. Install tie-strap to clean power harness to positive cable between rear of the battery box and spring clip. Inspect overall battery cable routing and add additional double swivel saddle (3554554C1) to eliminate any potential contact between battery cables. (Figure 12)

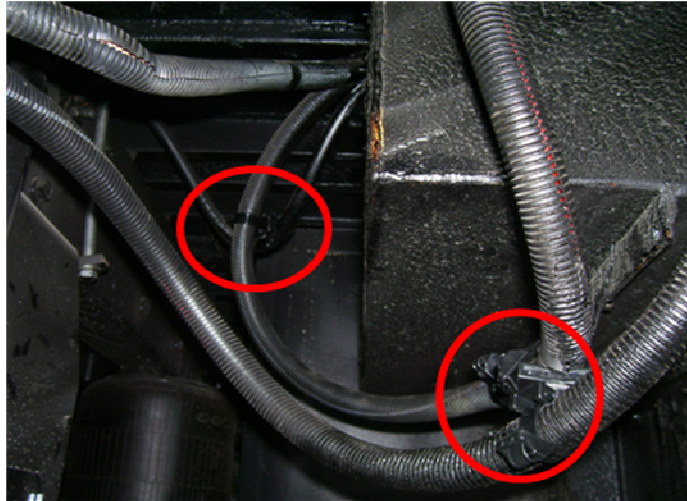


Figure 12

- 20. Verify all tie-straps and mounting hardware are tight and all tie-straps have been trimmed.
- 21. Reapply grafo grease to battery connections.

## END OF SERVICE PROCEDURE

### LABOR INFORMATION

Operation Number	Description	Time
A40-11510-1	Vehicle Equipped With Group 31 Battery	1.4
A40-11510-2	Vehicle Equipped With 8D Battery	1.9
A40-11510-3	Add On: Vehicle Equipped With Battery Box Mounted Disconnect Switch	0.2

## 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.

<b>DO NOT REMOVE</b>
<b>INTERNATIONAL</b>
Campaign No.
VIN
Eng.#
<b>COMPLETED</b>
Service Location Code #
<b>DO NOT REMOVE</b>

## ADMINISTRATIVE/DEALER RESPONSIBILITIES

### WARRANTY CLAIMS

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 number G—						
NOUN Leave blank						
C (CAUSE) Enter either 1, 2, 3. (see below)						
1. Inspected (No repair required).						
2. Inspected and repaired.						
3. Defective part from parts stock.						
WARRANTY (Warranty Code) Enter 40.						
TYPE PART Enter P for type part causing failure.						
PAD Enter 100						

### 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**