



Service Bulletin No. 385

MODEL E / J Series Coaches	TYPE Field Change Program	SECTION/GROUP 8 – Engine	DATE May 30, 2012
SUBJECT DIESEL EXHAUST FLUID TANK LEVEL SENSOR AND FOCUS TUBE			
CONDITIONS			

Customer Complaint:

Shaw Development has informed Motor Coach Industries (MCI) that the diesel exhaust fluid (DEF) tank level sensor may exhibit an erroneous fluid level on the instrument panel gauge. It has also been reported the DEF tank level gauge may bounce, which may result in the sensor's internal warmer to remain engaged (locked on).

Cause:

The cause is due to vendor defective sensor software and hardware.

Corrective Action:

MCI strongly encourages owners of the E / J model coaches listed in the table below to replace the DEF tank level sensor and focus tube by implementing the steps in this procedure as soon as possible.

65758	65782	65783	65791	65792
65801 to 65806	65877	65917 to 65919	65923	

Parts

Qty.	Old P/N	New P/N	Description
1	08-20-2086		Level Sensor, DEF Tank, E / J Coach, 1st, 2nd or 3rd Generation
1		08-20-2205	Level Sensor, DEF Tank, E / J Coach, 4th Generation, w/ Focus Tube
a/r			Diesel Exhaust Fluid
			5/8 inch ID piece of hose securely plugged at one end (shop supply)

Service Procedure:

! WARNING

Read this entire procedure before beginning work.

Use Safe Shop Practices At All Times.

! WARNING

To avoid personal injury, never enter or perform work in the engine compartment prior to positioning the ENGINE RUN and ENGINE START switches on the engine compartment remote control box to the OFF position. Allow enough time for components to cool down prior to working in the engine compartment.

1. Activate the disconnect feature of the main battery disconnect (MDS) system by pressing (for one second only) the momentary toggle switch on the MDS module to OFF. An audible click can be heard from the main solenoids in the MDS module. Position the rotary switch to the DOWN (OFF) position.
2. Chock both sides of the tires.

3. Locate and open the DEF tank and diesel fuel tank filler doors on the fuel panel (refer to Figure 1).



Figure 1.

4. Locate the front fuel panel brackets (refer to Figure 2). Remove and retain the mounting hardware shown in Figure 2 to unsecure the fuel panel from the coach frame.

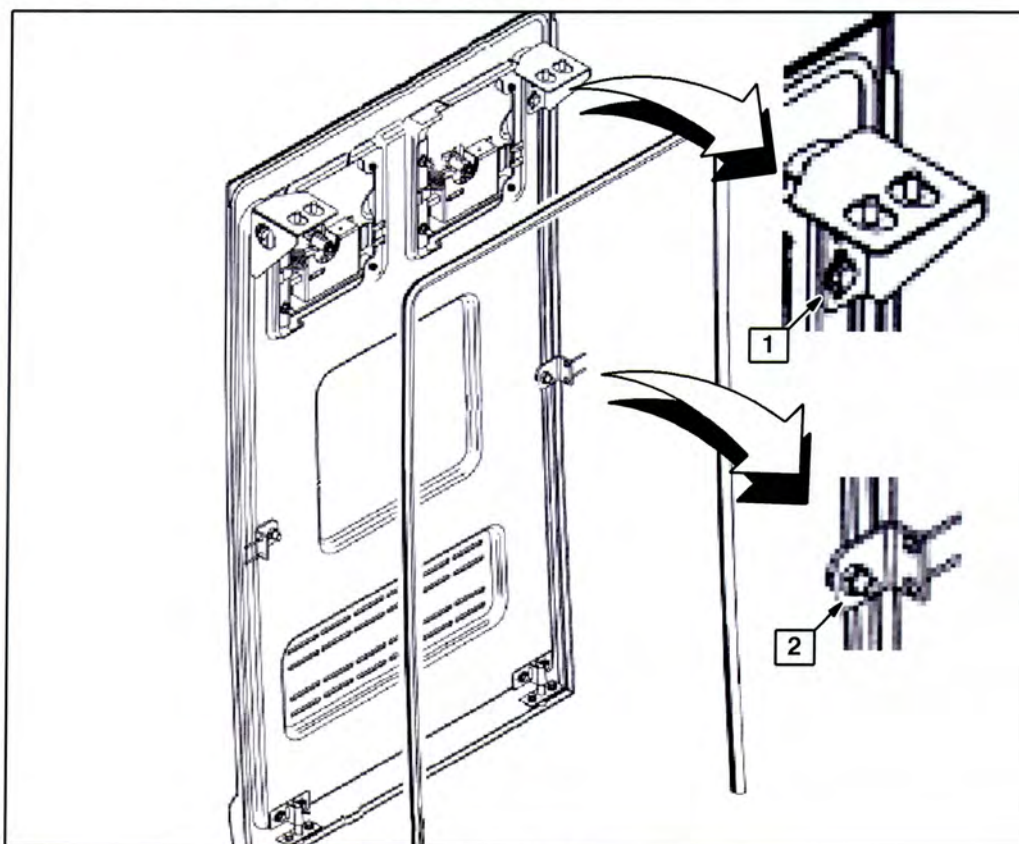


Figure 2. Fuel panel.

ITEM	DESCRIPTION
1	Remove and retain mounting hardware (x 2)
2	Remove and retain mounting hardware (x 2)

5. Carefully pull the fuel panel away from the coach 1 – 2 inches, then lift fuel panel upwards to release the two (2) retention pins from the holes in the lower tube (refer to Figure 3). Place fuel panel and mounting hardware aside to be re-installed at a later step in this procedure.

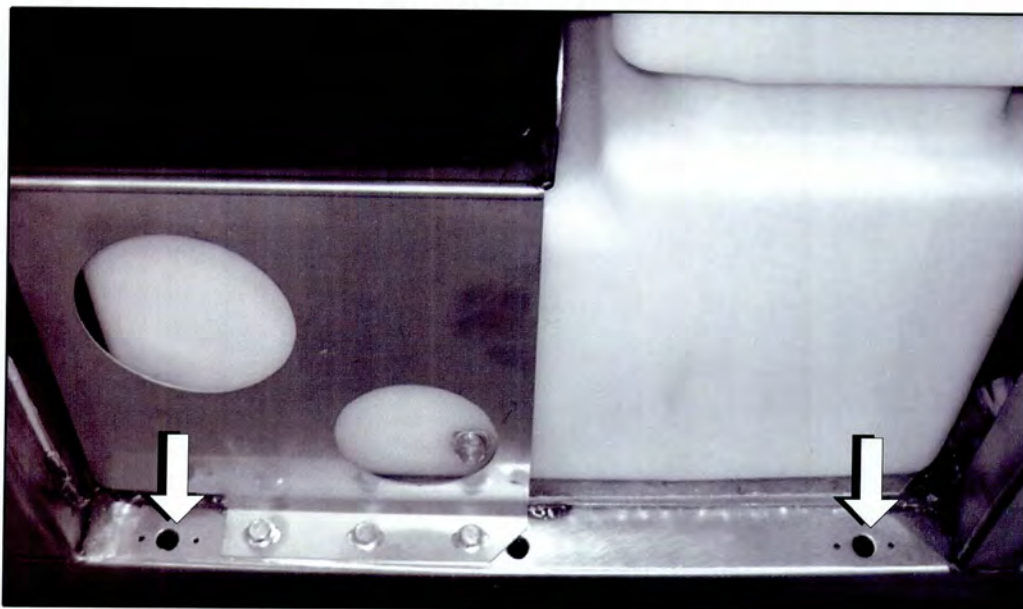


Figure 3.

6. Locate the two (2) fuel tank retention brackets (upper and front) shown in Figure 4. Remove and retain the mounting hardware to release the retention brackets from the coach frame. Place retention brackets and mounting hardware aside to be re-installed at a later step in this procedure. If required, remove and retain the rubber panel bumper mounted on the side compartment wall next to the DEF tank.

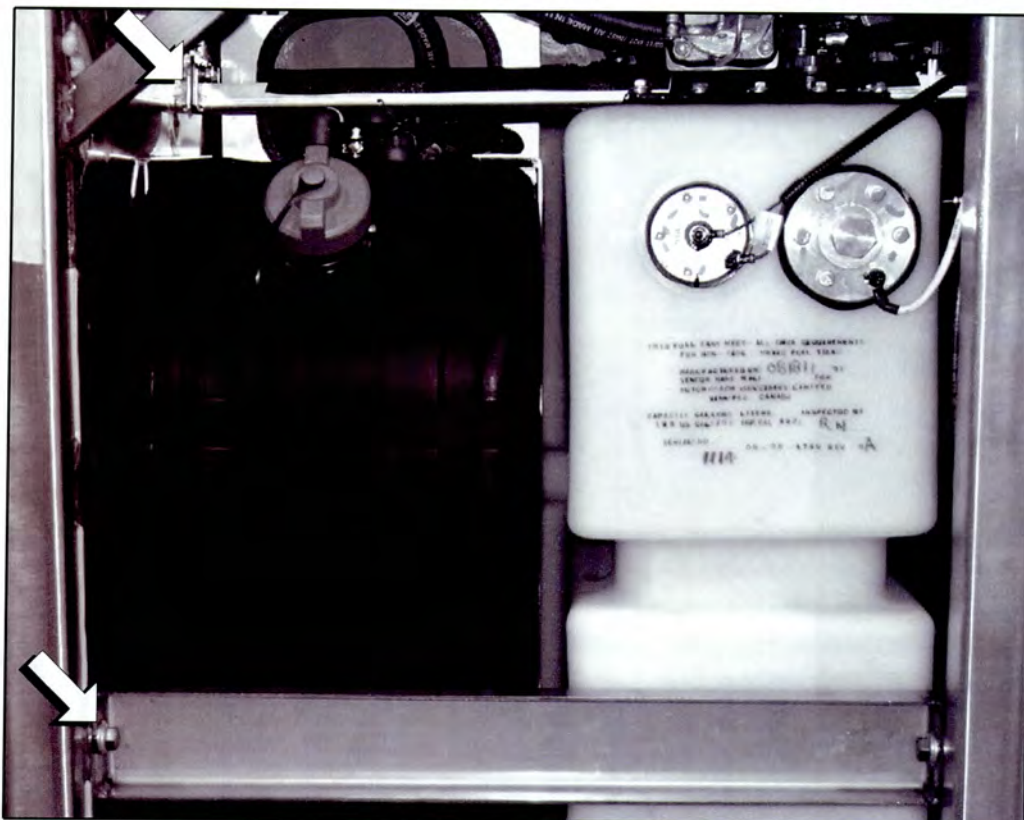


Figure 4.

7. Using a marker, clearly mark to identify all four (4) lines and ports as well as two (2) grey electrical connectors from the DEF head unit to ensure correct re-installation later in this procedure.
8. Locate and disconnect the two (2) grey electrical connectors from the DEF head unit (cut existing tyrraps if necessary).

CAUTION

Cover the exposed areas to prevent dirt and debris from contaminating the connectors.

9. Using a small pocket flathead screwdriver, carefully depress the two (2) black rectangle button (release prongs) shown in Figure 5 to release and remove the DEF suction and throttle hoses from the DEF head unit.

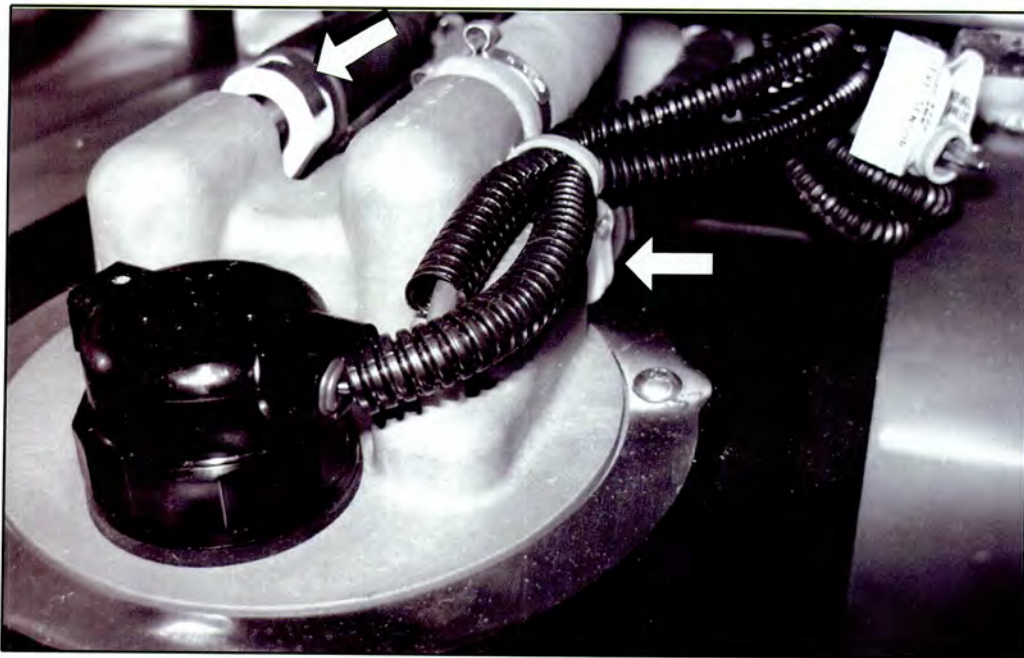


Figure 5.

NOTICE

DO NOT use a clamp to isolate the coolant lines. Crimping or clamping of these coolant lines will result in damage to the interior spiral re-inforced wire and the wire piercing the hose wall.

10. Locate the two (2) coolant lines attached to the DEF tank head unit (refer to Figure 6).

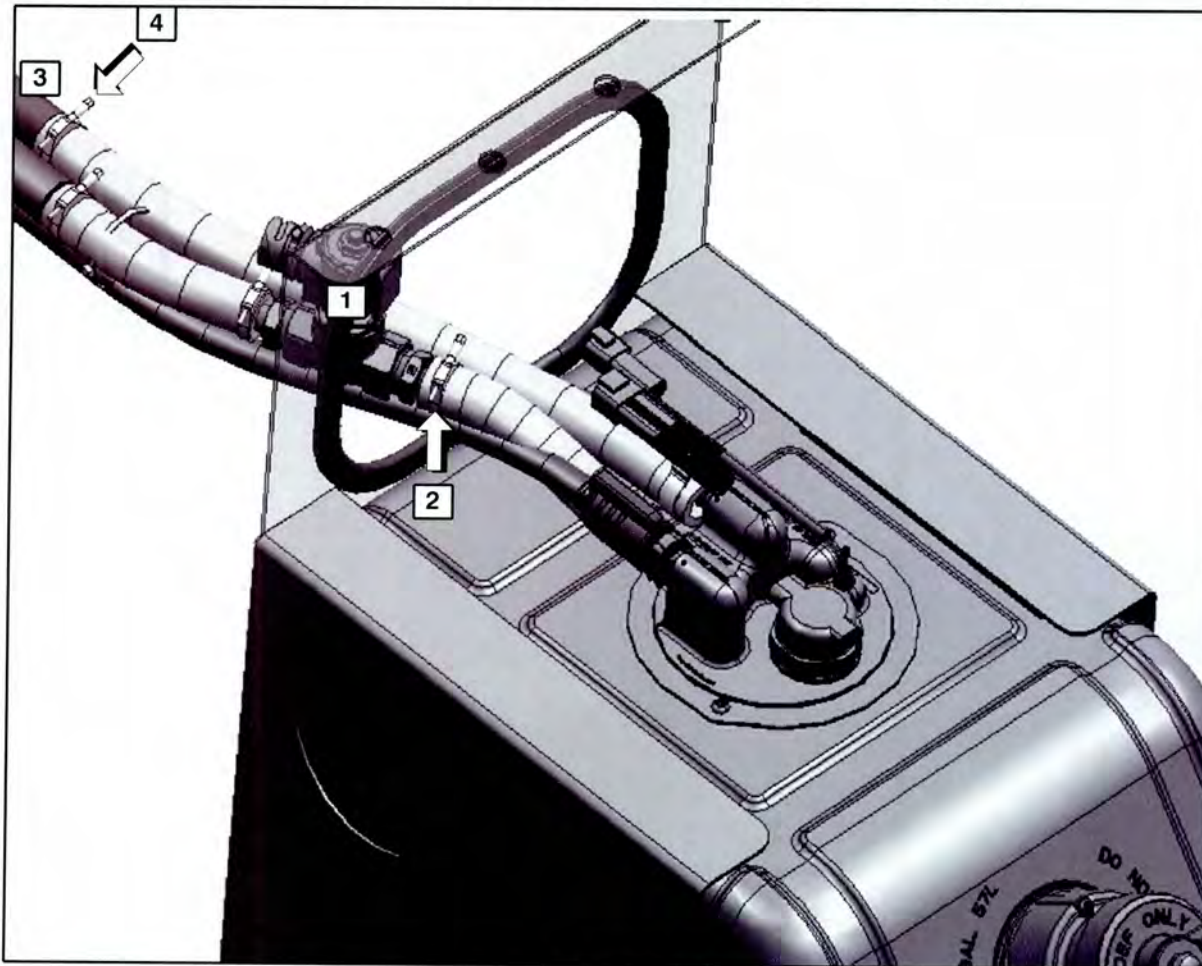


Figure 6. Top of DEF tank.

ITEM	DESCRIPTION
1	Coolant control isolation valve on coolant line A
2	Hose clamp
3	Copper fitting connection on coolant line B
4	Hose clamp

11. Locate coolant line A, equipped with the coolant control isolation valve (Item 1 in Figure 6). Locate and twist to disconnect the connector on the control isolation valve harness (refer to Figure 7), closing the valve.
12. Using a screwdriver, loosen the hose clamp directly below the isolation valve (hose clamp between the valve and the DEF head unit). Carefully remove the coolant hose from the "closed" coolant control isolation valve.
13. Locate a shop supply piece of 5/8 inch ID hose and securely plug one end. Using a screwdriver, loosen the hose clamp at the intersection with the copper fitting (Item 3 in Figure 6). Carefully remove the coolant hose from the copper fitting and immediately replace with the "one-end plugged" shop supply piece of 5/8 inch ID hose on the copper fitting to stop the coolant from draining.

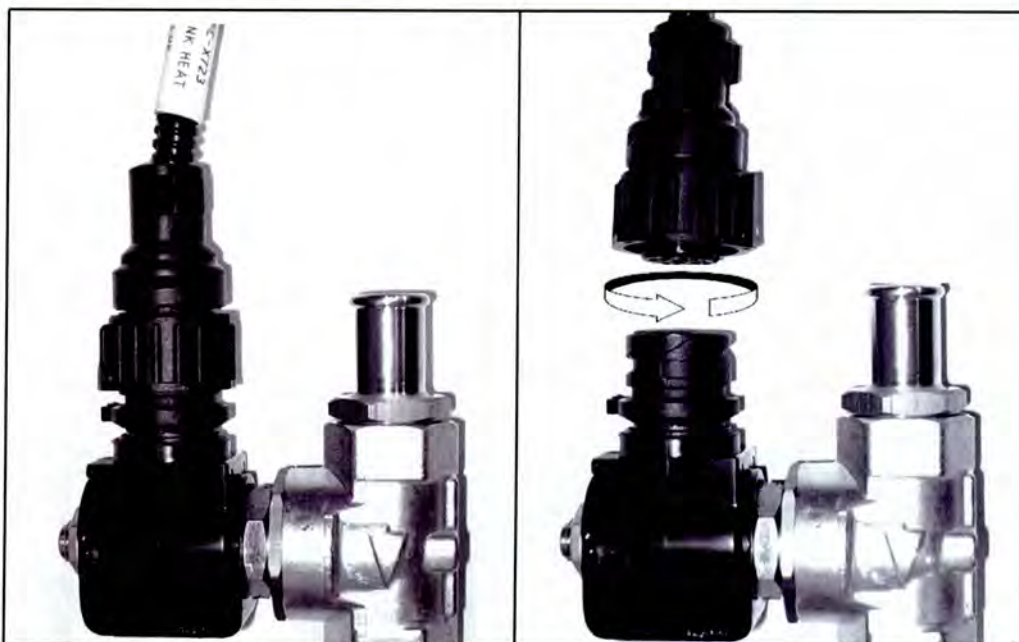


Figure 7. Coolant control isolation valve power harness.

NOTICE

Dispose of the siphoned and / or spilled DEF per your local state and federal regulations.

14. Twist to remove the blue cap from the DEF tank. Siphon the DEF into an appropriate sized clean container.
15. Carefully guide the empty DEF tank forward, out of the fuel tank compartment.
16. Using a clean rag, wipe up any coolant that discharged when releasing and isolating the coolant lines from DEF head unit.
17. Follow the steps and instructions in the attached Shaw Development Technical Bulletin TB2362, including observing all warnings and cautions contained therein.

NOTICE

Ensure to retain the existing DEF Tank Level Sensor to receive the labor allowance credited to your MCI Fleet Support Parts Account.

18. Upon completion of the Shaw Development Technical Bulletin, carefully guide the empty DEF tank rearward, into the fuel tank compartment.
19. Carefully remove the shop supply piece of hose from the copper fitting and immediately re-install the existing coolant hose on the copper fitting (reference Step 13.). Orient the hose clamp and torque to 12–14 in-lbs.
20. Orient and re-install the coolant hose to the coolant control isolation valve (reference Step 12.). Orient the hose clamp and torque to 12–14 in-lbs.
21. Orient and twist to re-connect the connector on the coolant control isolation valve harness, opening the valve.

CAUTION

Prior to re-installation, inspect the connector ends for dirt and debris to prevent contamination.

22. Utilizing the identification marks made in Step 7, orient the DEF fluid hoses to the DEF head unit. Re-connect the two (2) DEF fluid hoses (black rectangle button on the collar) removed in Step 9.
23. Re-connect the two (2) grey electrical connectors, disconnected in Step 8. Tyrap the harnesses together.

CAUTION

DO NOT re-use drained or removed DEF due to possible contamination issues and purity degradation.

24. Using new DEF, insert the spout of the DEF container into the fill port of the DEF tank. Continue pouring until DEF tank is visibly full. Twist to secure the blue cap on the DEF tank.
25. Following the Special Coolant Fill Instructions on the decal located in the engine compartment, add coolant to system as required (refer to Figure 8).



Figure 8. Reference photo of roadside, upper corner of engine compartment.

26. Position the ENGINE RUN and ENGINE START switches on the engine compartment remote control box to the ON position.
27. Start the coach. Check the DEF gauge level indicator on the instrument panel, to ensure proper retrofit installation. Inspect the DEF head unit and retrofit area to ensure there are no DEF or coolant leaks.
28. Shut down the engine. Position the ENGINE RUN and ENGINE START switches on the engine compartment remote control box to the OFF position.
29. Orient and re-install both fuel tank upper and front retention brackets using the mounting hardware removed in Step 6. Tighten capscrews to ensure secure installation. If removed earlier in this procedure, re-install the rubber panel bumper mounted on the side compartment wall next to the DEF tank.
30. Align the fuel panel retention pins to the holes in the lower tube (refer to Figure 3). Lower retention pins into holes to secure the bottom of the fuel panel.
31. Orient and secure the fuel panel to the coach frame using the mounting hardware removed in Step 4. Tighten capscrews to ensure secure installation.
32. Close the DEF tank and diesel fuel tank filler doors on the fuel panel (refer to Figure 1).

Procedure complete.

Mail or fax the completed limited warranty claim form and verification form to MCI's warranty department, or photocopy and mail to:

MCI Fleet Support
Attn: Warranty Department
7001 Universal Coach Drive
Louisville, KY 40258
Fax Number 1-800-360-8886

to receive credit for the hours used to complete this task. Contact the MCI Fleet Support Technical Center at 1-800-241-2947 for any further information.

Field Change Program Conditions:

The parts required for this change will be supplied without charge.

A labor allowance of 1.5 hours will be granted, for the procedure of installing the specified part(s) in this bulletin on E4500 and J4500 Series coaches. ***NO PAYMENT WILL BE ISSUED BY MOTOR COACH INDUSTRIES UNTIL BOTH THE COMPLETED LIMITED WARRANTY CLAIM FORM AND THE EXISTING DEF TANK LEVEL SENSOR HAVE BEEN RECEIVED BY MCI.***

This labor allowance will be credited to your MCI Fleet Support Parts Account on receipt of the existing DEF tank level sensor, a "MCI Field Change Program Verification Form" and a "Warranty Claim Form" as detailed in your Owner Warranty manual to MCI's Warranty department. A "MCI Field Change Program Verification Form" needs to be submitted for each VIN affected. Photocopy the attached "MCI Field Change Program Verification Form" as required for the number of affected coaches in your fleet.

This program will end on December 14, 2012.

Motor Coach apologizes for any inconvenience resulting from this campaign, but urges you to implement this change as soon as possible.

Sincerely,

Motor Coach Industries



Reliability Driven™

MCI FIELD CHANGE PROGRAM (FCP) VERIFICATION

CONTACT INFORMATION	
CUSTOMER NAME: _____ (PLEASE PRINT)	
FCP INFORMATION – ONE FORM PER UNIT	
FCP#: _____	Coach Model _____ Model Year _____
COACH SERIAL #: (At least the last 5 digits)	DATE COMPLETED ____ / ____ / ____
MILEAGE:	
IMPORTANT: TO RECEIVE CREDIT FOR ANY ALLOWABLE LABOR CHARGES, THIS VERIFICATION FORM MUST BE RETURNED TO MCI UPON COMPLETION OF THE FCP.	
SUBMITTED BY: (Please Print) _____ DATE ____ / ____ / ____	
TITLE: (Please Print) _____	
SIGNATURE: _____	
COMMENTS: 	

FAX TO: 800-360-8886

MAILING ADDRESS:

MOTOR COACH INDUSTRIES
ATTN: WARRANTY DEPT.
7001 UNIVERSAL COACH DRIVE
LOUISVILLE, KY 40258

MCI part # 03-15-7738C

TB-2362 REV A

REMOVAL OF OLD SENSOR AND FOCUS TUBE FROM HEAD UNIT AND INSTALLATION OF NEW SENSOR WITH FOCUS TUBE

DEF RESERVOIR UNITS

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APPROVAL SUMMARY

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INDEX OF REVISIONS

REVISION	DESCRIPTION	APPROVED BY/ DATE
-	Initial Release	CKM 6/24/2010
A	Update Torque Specification for retaining ring. WAS 50 $\pm$ 10 in-lbs IS 20-30 in-lbs.	NCD 9/22/2010

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1.0 INTRODUCTION:

1.1 PURPOSE:

The purpose of this document is to show the proper steps for the removal of the sensor from a head unit and the installation of a new sensor with a focus tube attached and equipped to the head unit located on DEF Reservoir tanks.

1.2 APPLICABLE UNITS:

DEF Reservoirs with head units and level sensors attached.

Level Sensor unit P/N 960-0111-00 (Last two digits coincide with the final digits of the sensor being removed).

Focus Tube P/N 908-0245-00 (Last two digits coincide with the final digits of the sensor being removed).

2.0 PROCEDURE:

Suggested instruments that can be used (do not have to be exact; can be interchanged with what is available in the field).

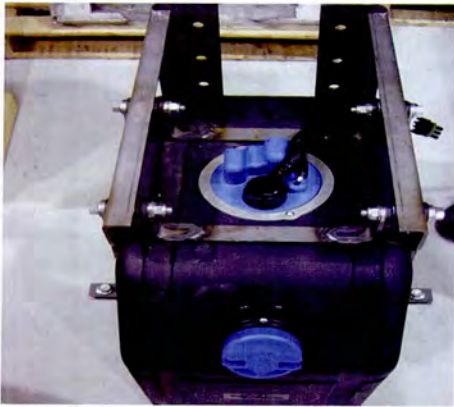


Required Equipment: Loctite 242 and Parker O-Lube or equivalent DEF compatible petroleum jelly

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DEF Reservoir Assembly fitted with old sensor (Note: Fittings have been removed from head unit for clarity purposes):



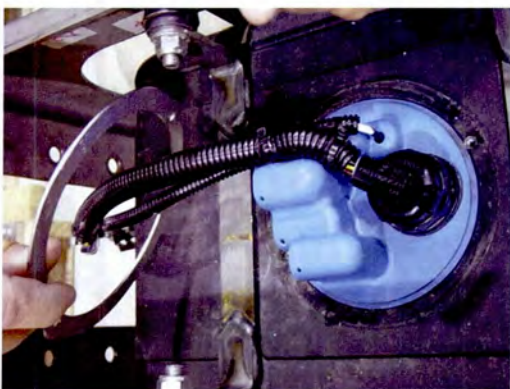
1. Using a 1/8" Allen wrench/hex key, unscrew the Allen screws holding the retaining ring to the reservoir from the unit and place safely aside to be used at a later time.



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2. Remove retaining ring from unit.



3. Using a flathead screwdriver, gently pry around where the head unit is connected to the reservoir while pulling on the top of the unit to remove. Do NOT pull on the wires or fittings for removal.



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4. Once loosened from the DEF reservoir, pull the head unit out of the tank, angling the head unit towards the flange at the end so that it will fit through the opening, and drain the head unit of any coolant still inside. Place the head unit upside-down on a soft, clean surface, this helps prevent against the introduction of contaminants upon re-installation.



5. Grip the Focus Tube and hand loosen counter-clockwise until it becomes unattached from the head unit (Focus Tube colors vary). Set aside for use at a later time.



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6. Place the head unit upright on a clean surface, so as to help prevent contaminants from being introduced into the reservoir upon re-installation.



7. Snip off the zip ties to remove the split wire loom from the wires connected to the sensor.



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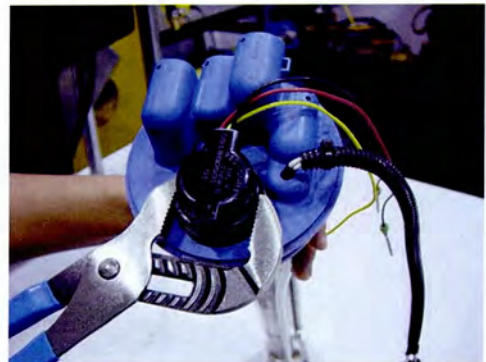
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8. Remove split wire loom from around the wires connected to the sensor unit.



9. Use groove lock pliers or a wrench to firmly grip the base of the sensor and turn it counter clockwise to loosen it from the head unit.



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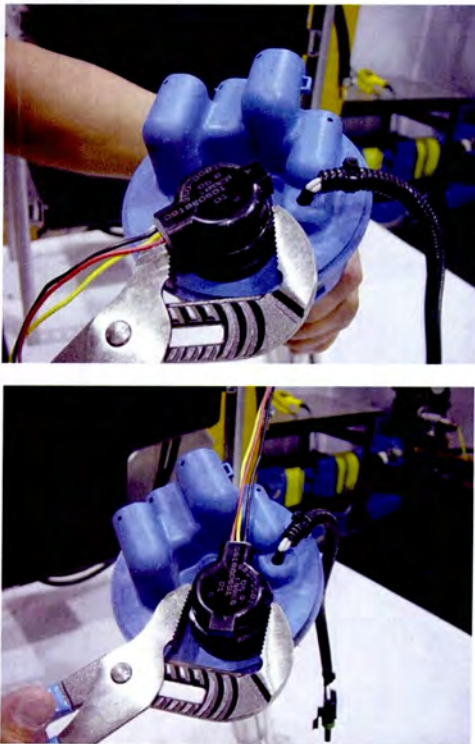
10. The gasket of the new sensor should be lubricated with a thin layer of DEF compatible petroleum jelly or oil, and then screwed into place until the bottom lip of the sensor is touching the top of the head unit.



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11. Use the groove lock pliers or wrench to tighten so that the wires are in the original position (shown in second image below).

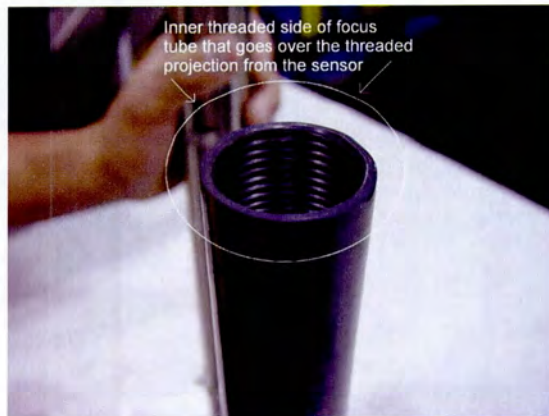


12. Locate where the focus tube will be positioned on the underside of the head unit. Situate the focus tube so that the inner threaded side of the tube will be tightened over top of the threaded projection from the sensor on the underside of the head unit (Focus Tube colors vary).



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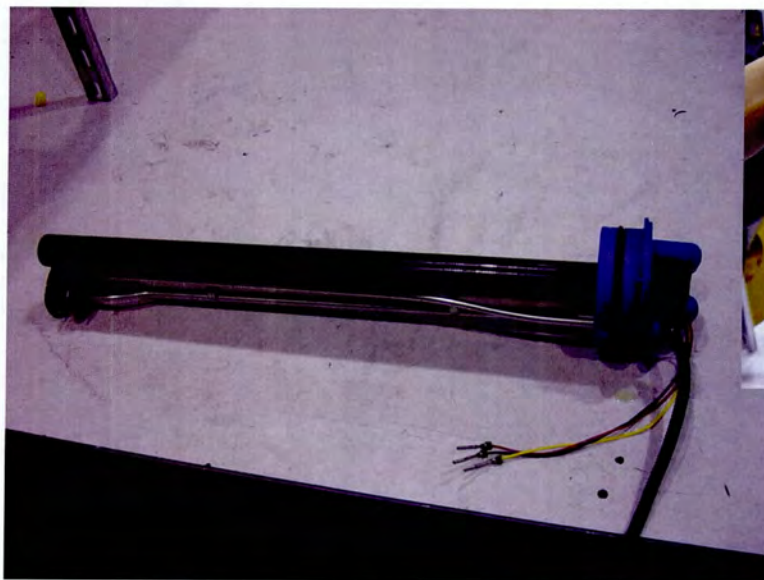


13. Tighten the focus tube by hand until it feels snug.



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14. Pull the split wire loom over the wires of the new sensor unit and attach zip ties, making sure that the second tie connects both wire looms and goes through the connector located on the DEF head unit itself (shown below). Snip any excess threading from the zip ties.

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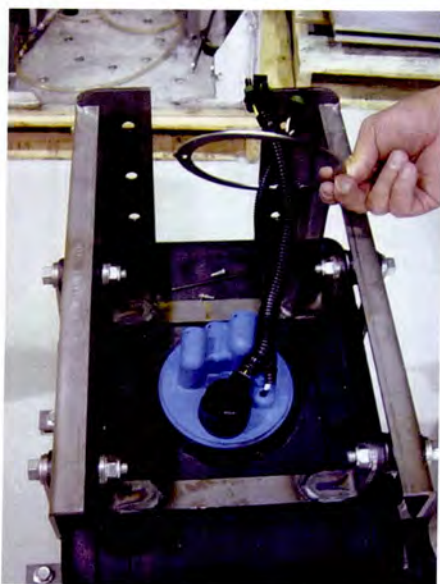
15. Position DEF head unit with new sensor and focus tube over reservoir tank. Angle the head unit so that it will fit through the opening, then straighten the head unit and slide it the rest of the way through.



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16. Push the head unit back into place, facing the original or desired location to ensure proper hose connection. Parker O-Lube or equivalent petroleum jelly may need to be applied to the O-ring on the head unit for easier insertion. Apply Loctite 242 to the screw holes on the reservoir, and then slide the retaining ring over the split wire loom coverings and onto the head unit, ensuring the screw holes of the retaining ring match up with the holes in the tank.

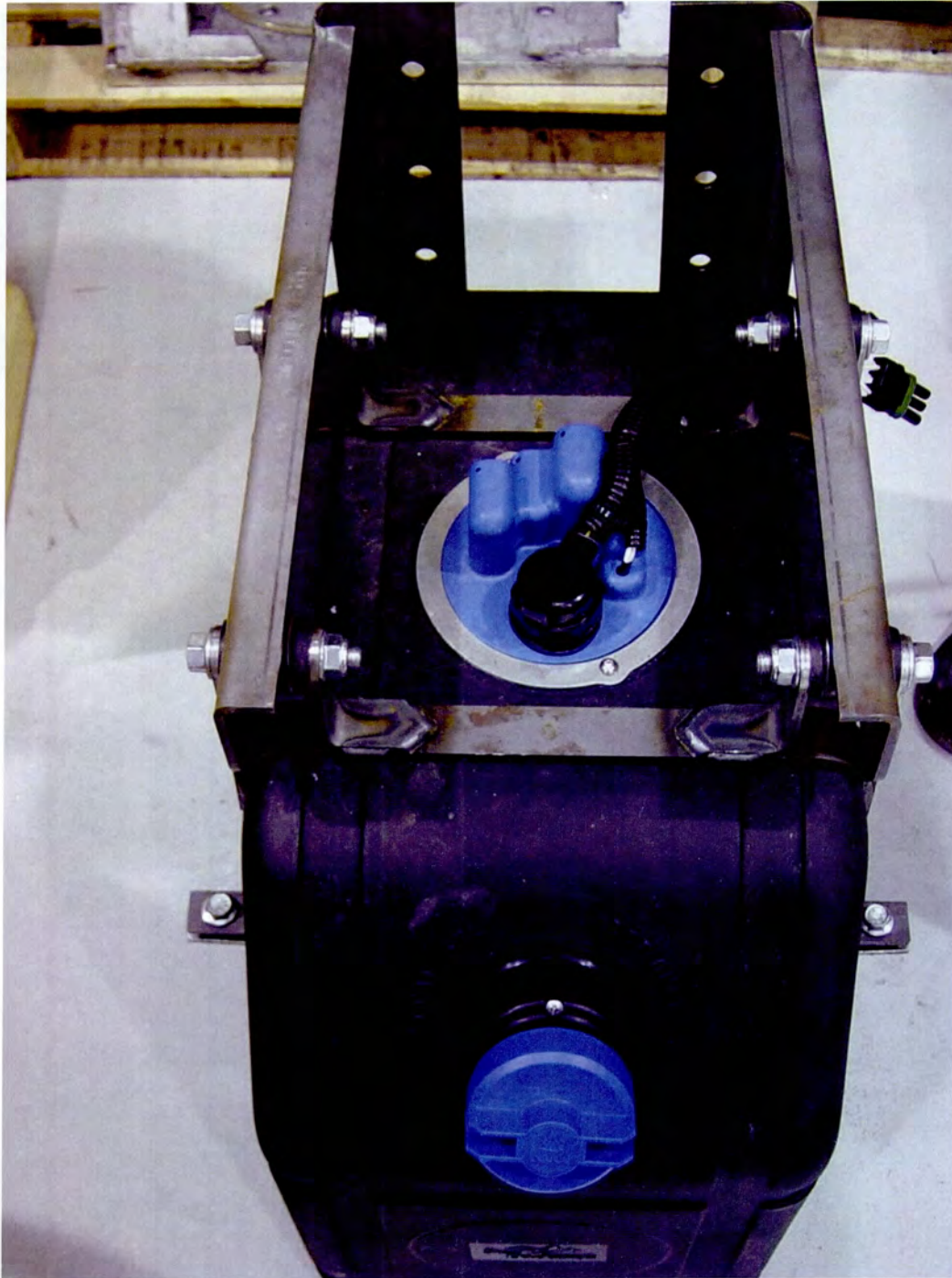


17. Using the Allen Wrench/Hex Key, screw the Allen screws back into place and installation is complete. Recommended torque installation is 20-30 in-lbs.



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