



INSTRUCTION TO SERVICE

ITS: 5387	
SECTION:	219 Engine and Transmission
WRITTEN BY:	Michael Rooney
SUBJECT:	UCAP Fire Bottle Relocation (Legacy)

ITS5387

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PROCEDURE:

1. Turn the main battery disconnect switch to the “OFF” position.

⚠ WARNING: ALWAYS discharge the Ultra Capacitors (UCAP) before performing high voltage system maintenance on this vehicle. Refer to Section 5 of the Service Manual under *2.17 Discharging The Ultra Capacitors* for the discharge procedure.

2. RELOCATION

- a. Open the clam shell doors on top of the bus to access the UCAP assembly. See Fig 1

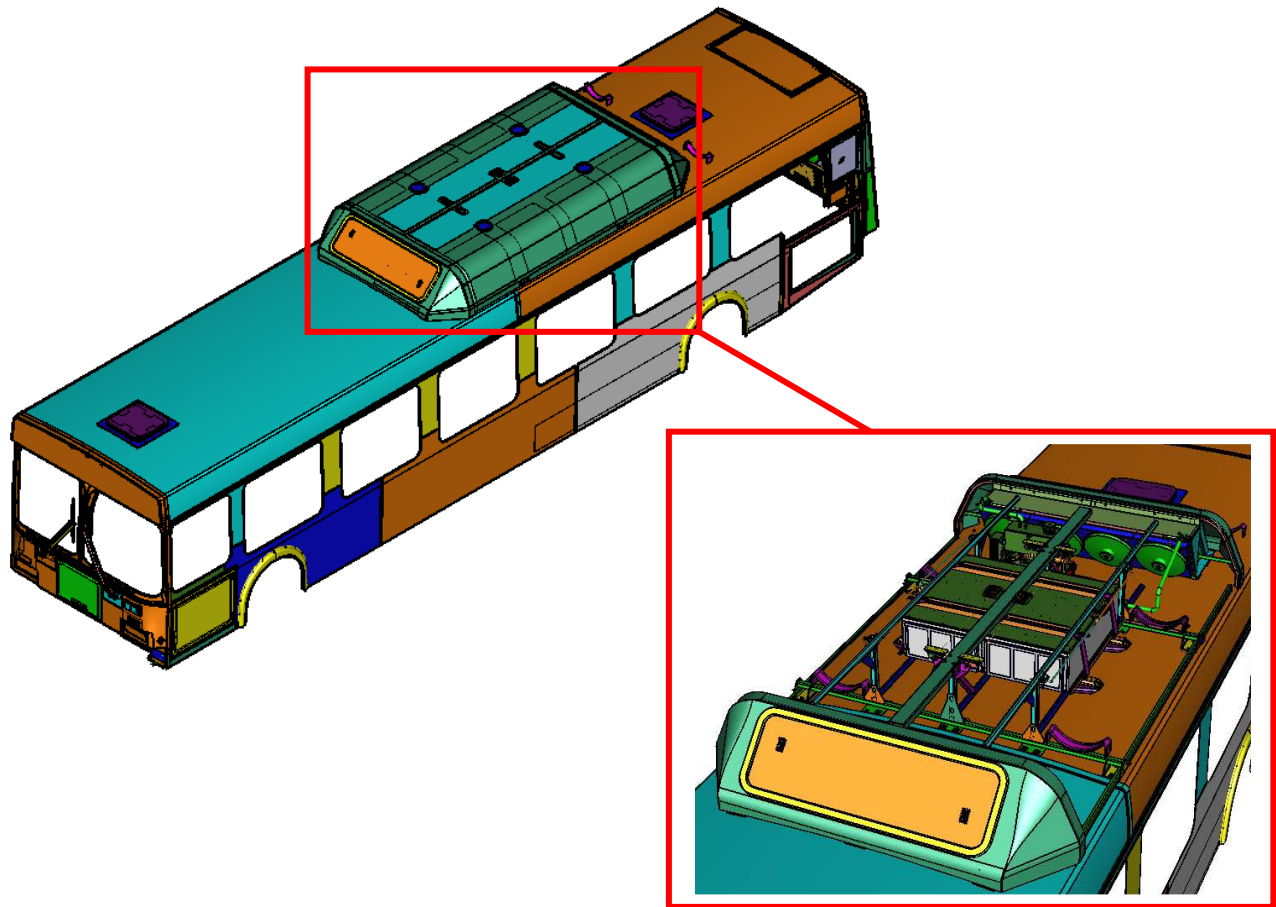


Fig 1 – Legacy UCAP Location (doors removed for clarity)



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- b. Remove cabinet cover and all existing perimeter hardware (16x screws, washers, and lock washers per UCAP) securing the UCAP lid to UCAP box. Fig 2.

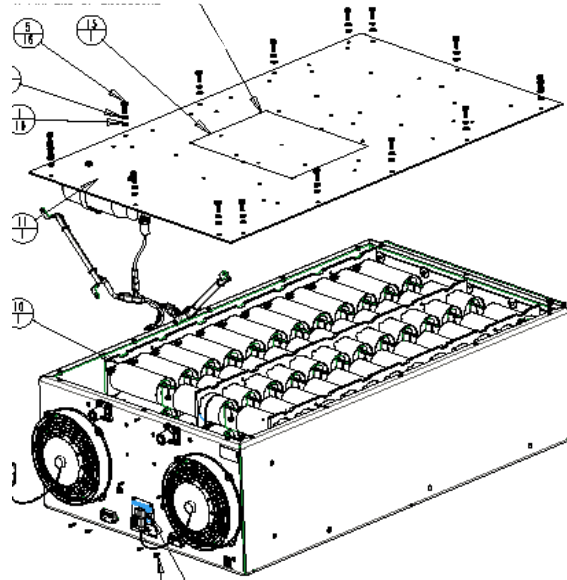


Fig 2 – UCAP Lid

- c. Deactivate (refer to orientation sticker on bottle) the bottle valve using a flat head screw driver and disconnect the fire bottle harness connection before fully opening lid and setting aside. Fig 3

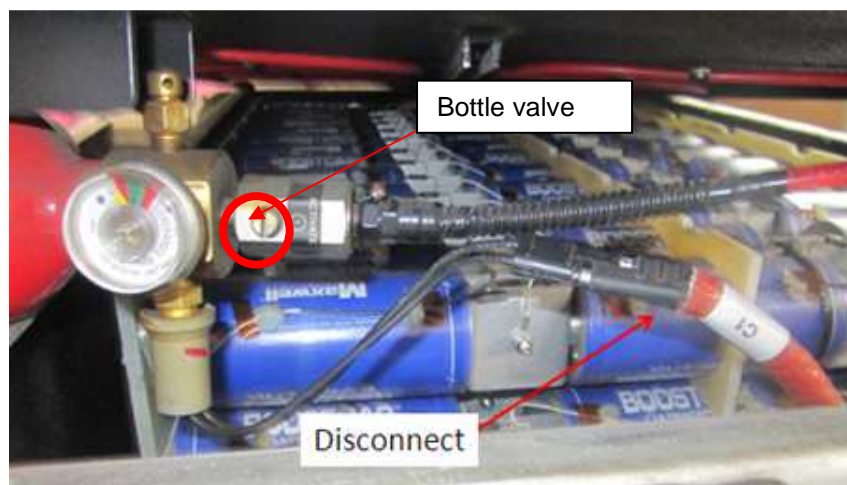


Fig 3 – Fire bottle harness

- d. Place both UCAP lids on bench to allow convenience during modifications.

NOTE: The Ultra Capacitors located on the curbside (master pack) require you to reroute the fire suppression line. Do not perform this procedure on streetside (slave pack) lid.

- e. Using a 1/8 drill bit, drill out all the rivets holding the clamps supporting the fire suppression hose under the UCAP lid on master pack, save the washers and reuse on relocating the red fire line. Fig 4.

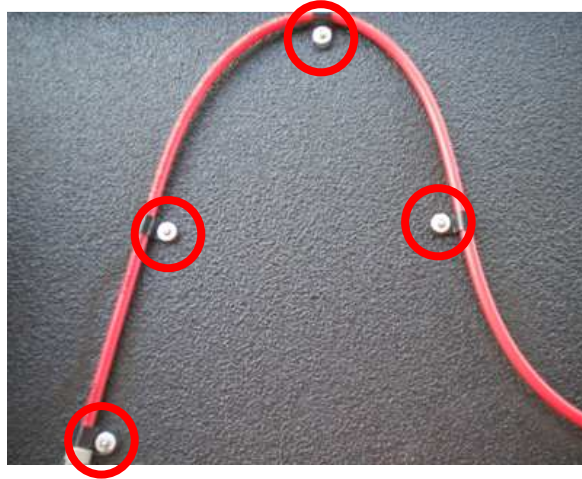


Fig 4 – Fire suppression hose

- f. Loosen clamp for fire suppression bottle and slide out of bracket. Remove hardware securing fire suppression bottle bracket to the lid. Fig 5.

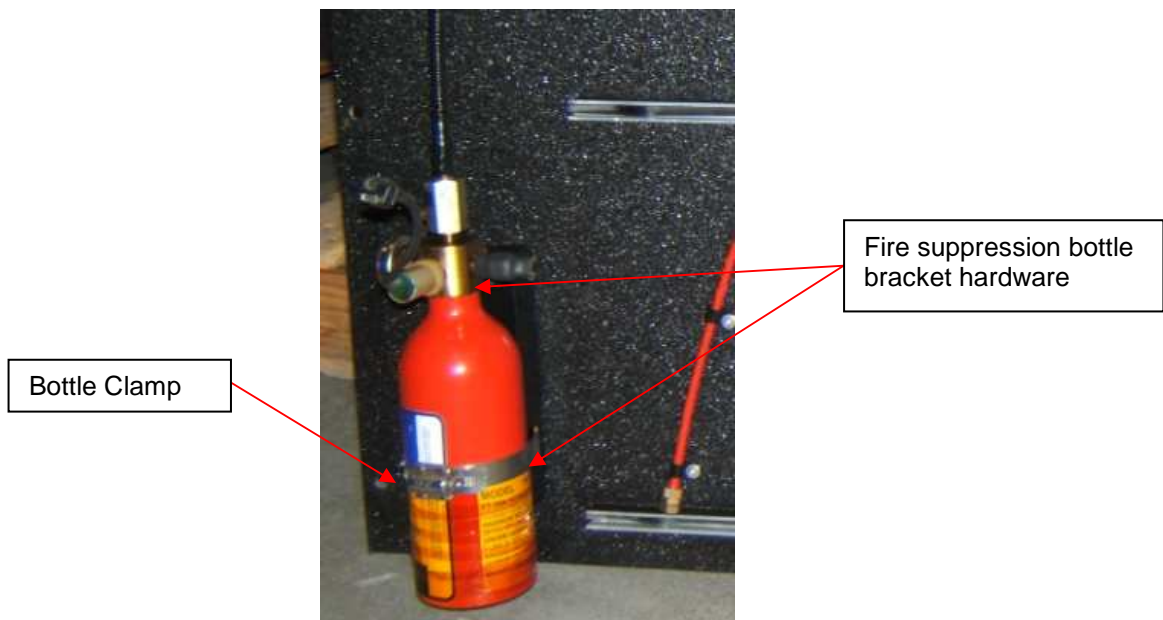


Fig 5 – Fire suppression bottle assembly

NOTE: The Ultra Capacitors lid for streetside (slave pack) requires fire bottle bracket to be relocated to opposite side. Perform step below on streetside lid only.



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- g. Drill out old holes to 5/16" diameter, add caps (**NFI PN 6409106**) and silicone (**NFI PN 401722**) to the old holes to ensure they're sealed from any water intrusion.
- h. Mark the location of the .9" deep notch for the suppression lines/harness. After cutting out the notch, ensure edges are smooth and free of burrs and add rubber channel (**NFI PN 483401**). Fig 6.

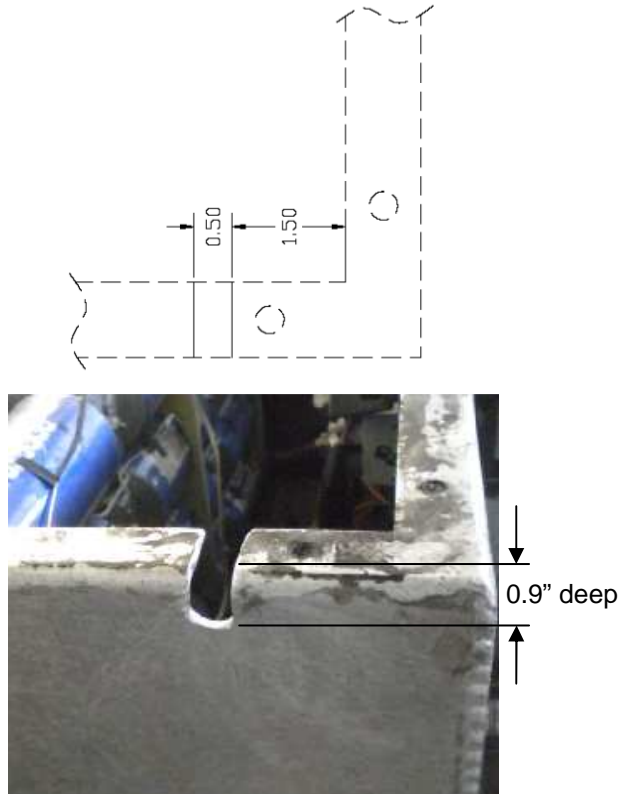


Fig 6 – Fire suppression notch

- i. Add high temperature loom (**NFI PN 198159**) to the fire suppression extension harness (**NFI PN 6409056**) and plug assembly into the circuit board harness. Leave the fire suppression bottle disconnected. Fig 7.



Fig 7 – Extension Harness Assembly

- j. Route the fire suppression line back on master pack lid using twenty two 1/8" x .31 aluminum rivets (NFL PN 60R02007) and the flat washers you have saved to secure clamps to the lid. Ensure the harness going to the fire bottle exits through the new notch made on the UCAP box. Make sure to follow the same pattern of original route, basically the fire suppression hose end will be on opposite side as original configuration. Place a small amount of silicone (NFI PN 401722) over the rivets to ensure a water tight seal. Fig 8.

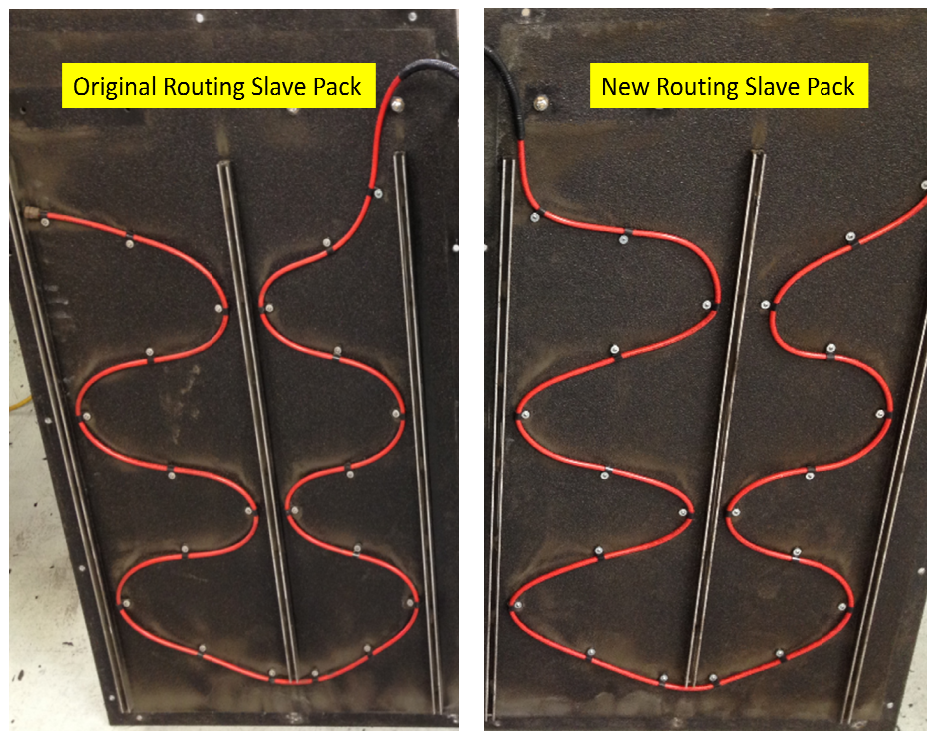


Fig 8 – Fire suppression routing

- k. Drill holes using a 1/8" drill bit. Secure with two 1/8" x .31 aluminum rivets (**NFI PN 60R02007**) and two #6 flat washers (**NFI PN 10W96000**). Ensure a small amount of silicone (**NFI PN 401722**) is placed over the rivets to ensure a water tight seal. This is to ensure the new fire suppression line exits through the new notch on the UCAP box.
- l. Using high temp loom (**NFI PN 198159**), cover the suppressor line from the bottle to the lid.
- m. Activate bottle assembly by turning the valve in the ACTIVATE position (see label on bottle). Fig 9.



Fig 9 – Fire Bottle Activated

- n. Ensure the mating surface of the UCAP lid is clean and free of dirt. Place a bead of silicone around perimeter of UCAP and secure lid with existing hardware. Place silicone around all rivet heads to prevent any water intrusion. Fig 10.

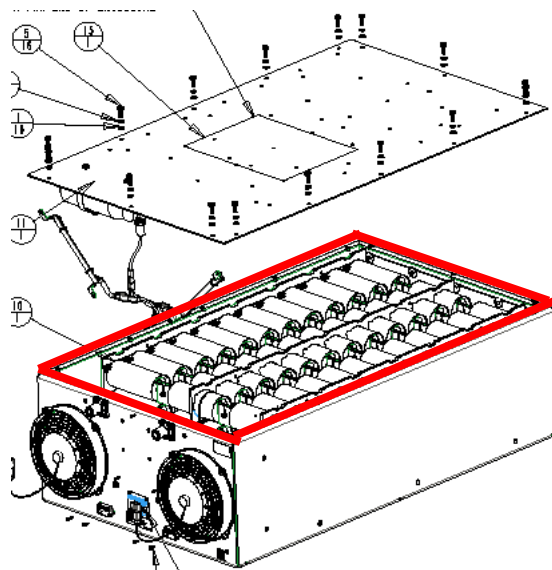
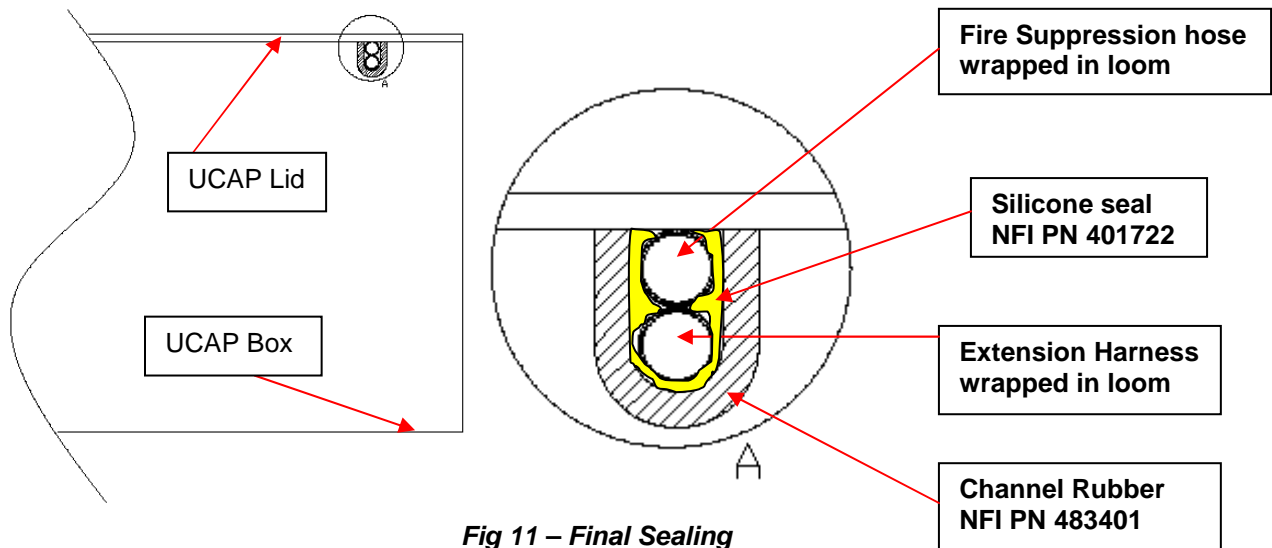


Fig 10 – UCAP Sealing



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- o. Plug the extension harness into the fire bottle harness, use 4 Ty-wraps (**NFL PN 5958112**) each U-cap.
- p. Seal around harness opening to prevent water intrusion, using electrical tape, finish off the ends of each loom. Fig 11.



- q. Secure new Fire Bottle Brackets (**NFI PN 492376 and 495022**) to the existing UCAP Cabinet lid by drilling two 3/16" diameter holes and using two 3/16 rivets (**NFI PN 60R03007**) to hold the brackets down. Add silicone (**NFL PN 401722**) to the bottom of the bracket and rivet to ensure no leaks. Re-secure cabinet cover to frame afterward.
- r. Secure the existing fire bottle bracket assemblies using the existing hardware. Drill an additional hole in the new bracket to secure the fire bottle bracket.



LABOUR ESTIMATE				
	Operation	Men	Hours	Labour Time M X HR
1	Fire Bottle Relocation	2	5.5	11.0

PARTS REQUIRED					
Item	Part Number	Description	Qty. per Coach	Units	Notes
1	6409106	CAP-5/16 ID PUSH PLUG	4	EA	
2	401722	SEALANT-PROFLEX CLEAR	2	EA	
3	483401	TRIM-GARD BLACK	.5	FT	
4	198159	LOOM-CONVOL HIGH TEMP SPLIT .40"	1	EA	4 FT
5	6409056	HRNS-2PIN TRAILER CONN	2	EA	
6	60R02007	RIVET AL 1/8 GRP 12-.31	24	EA	
7	10W96000	WASHER FLAT # 6	4	EA	
8	5958112	TYRAP-7.0 BLACK	8	EA	
9	492376	BRKT-FIRE EXTINGUISHER LT-SIDE	1	EA	
10	495022	BRKT-FIRE EXTINGUISHER RT-SIDE	1	EA	
11	60R03007	RIVET ALUM 3/16"X.062/.250	4	EA	