



INSTRUCTION TO SERVICE

ITS:6362

SECTION:	219 Engine and Transmission
WRITTEN BY:	Mike Pearson
SUBJECT:	Rework Heat Exchanger Cabin Loop Line and Routing

ITS6362

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PROCEDURE:

1. Turn the main battery disconnect switch to the "OFF" position.
2. Open the surge tank fill door.
3. Relieve the cooling system pressure by lifting the vent lever on the cabin heat surge tank pressure relief cap. See Figure 1.

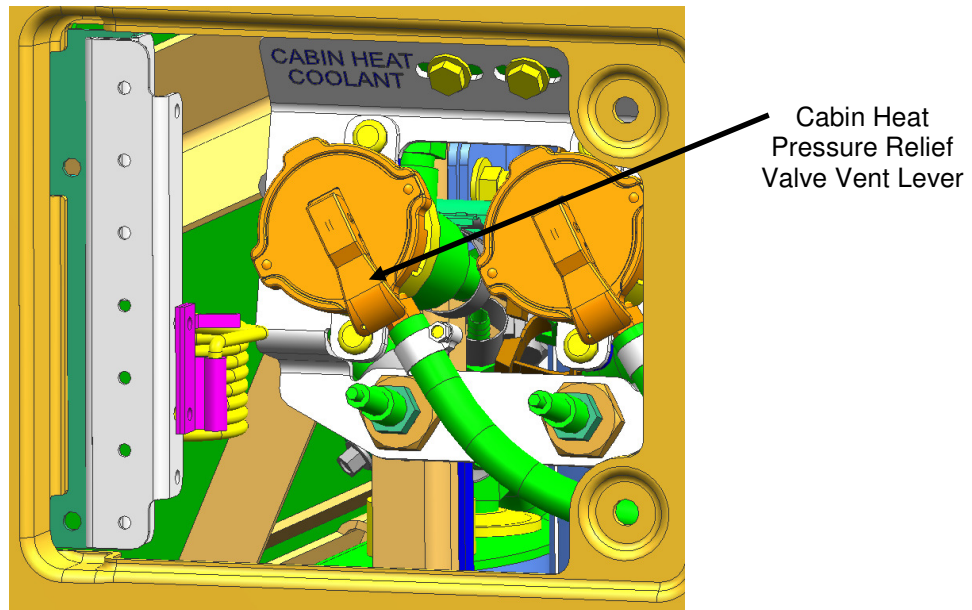


Figure 1: Cabin Heat Surge Tank Pressure Relief

 **NOTE:** If coolant is to be recovered, make sure container is clean and chemical free. If not, used coolant must be recycled or disposed of in accordance with municipal, state and federal government regulations.

4. Place a suitable container under the heat exchanger cabin loop drain plug. Remove and save the drain plug and drain cabin heat coolant circuit. See Figure 2.
5. If necessary, raise the coach in accordance with the New Flyer Service Manual.
6. Remove and discard the existing tube clamp and mounting hardware supporting the heat exchanger cabin loop SST tube to the de-gas frame as shown in Figure 2.
7. Remove and discard the existing tube clamp and mounting hardware supporting the heat exchanger cabin loop SST tube to the clamp mounting bracket (bracket may vary in appearance) as shown in Figure 2 and 3.
8. Remove and save the existing hose clamp from the silicone elbow on the booster pump line to the SST cabin loop tube, see Figure 2.
9. Remove and save the existing hose clamps from the silicone hose connecting the heat exchanger 90° SST elbow to the SST tube to the booster pump, see Figure 2.
10. Remove and discard the existing silicone hose and SST cabin loop tube, see Figure 2.

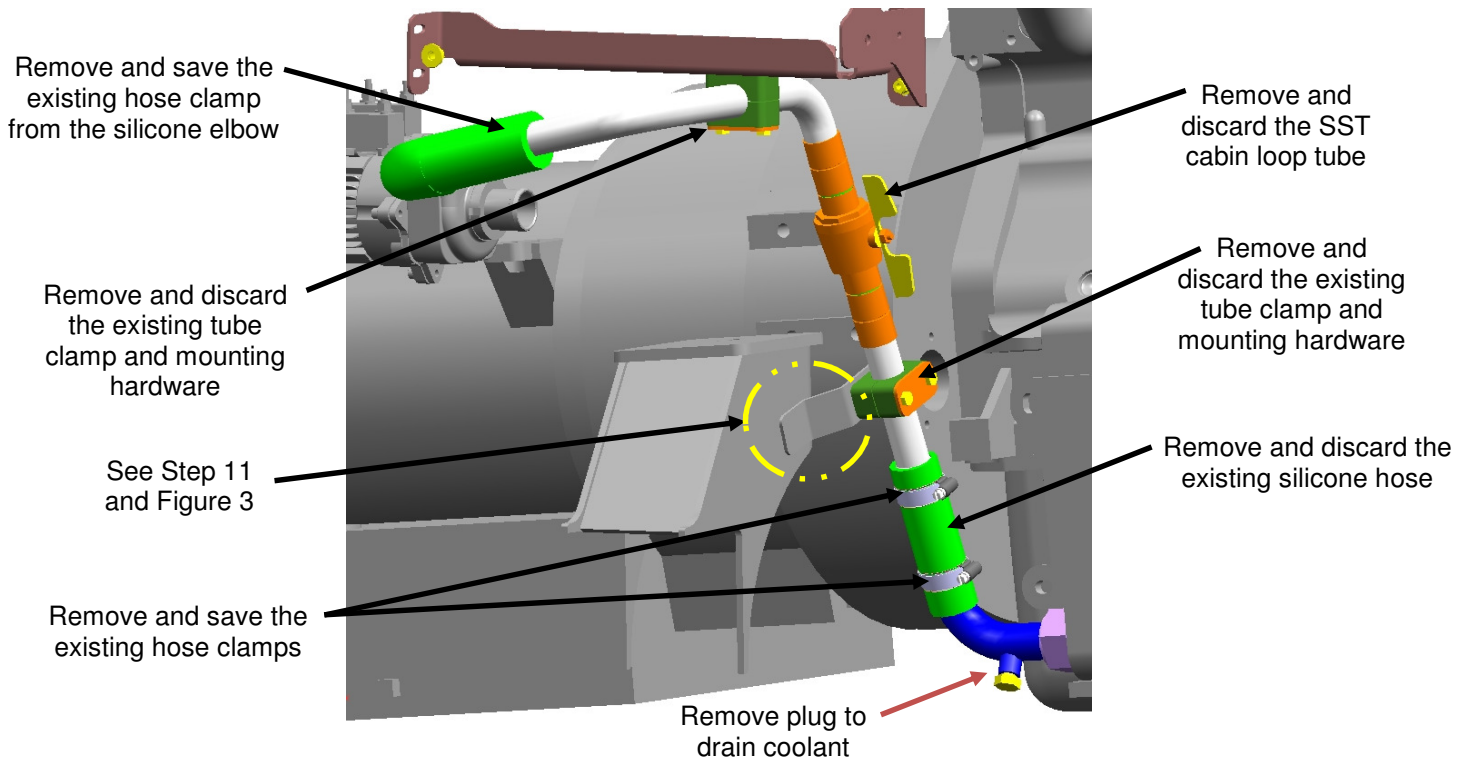


Figure 2: Cabin Heat Coolant Tube Removal

11. The cabin heat coolant tube support clamp mounting bracket may vary in appearance;
- If the existing support bracket is welded to structure, grind off the bracket flush with frame and apply zinc primer to the exposed metal left by the grinding process to prevent corrosion, see Figure 3.
 - If the existing support bracket is bolted to the frame, remove the bolts from the forward lower radiator tube mounting bracket, remove and discard existing coolant tube bracket and re-install the lower radiator tube mounting bracket bolts. Torque bolt (x2) to 40-70 in*lbs dry, see Figure 3.

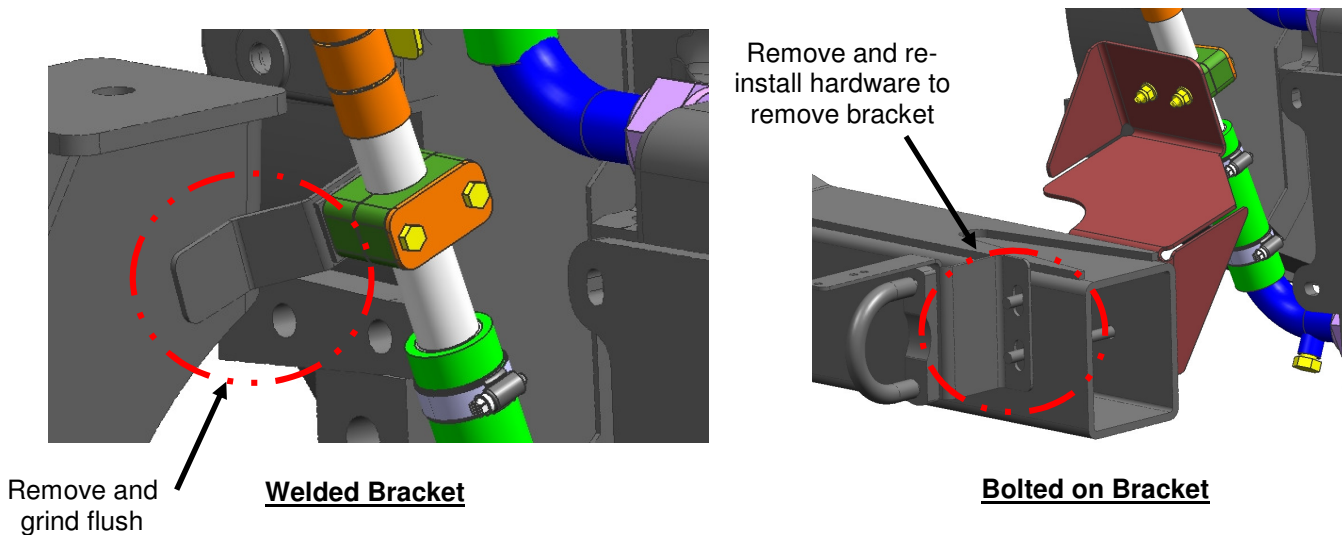


Figure 3: Booster Pump Supply Line Clamp Support Bracket Removal

12. Using the same mounting holes as the removed tube clamp from Step 6 install the new tube support bracket p/n 647853 to the de-gas support bracket using new bolts p/n 10B04012 (x2), washers p/n 50W04000 (x4) and lock nuts p/n 40N04000 (x2), torque hardware to 12 ft*lbs dry. See Figure 4.
13. Loosely install the new tube assy p/n 648046 to the newly installed bracket from Step 12 using p-clips p/n 247230 (x2), washer p/n 50W04000 (x4) and lock nuts p/n 40N04000 (x2). See Figure 4.
14. When installing the new tube assy to the newly installed bracket, the end to the booster pump is to be loosely installed into the existing silicone elbow at the pump using existing clamp from Step 8. If existing silicone elbow is worn or does not fit correctly to the new tube assy it should be replaced with a new elbow p/n 606473. New elbow it to be trimmed to fit.

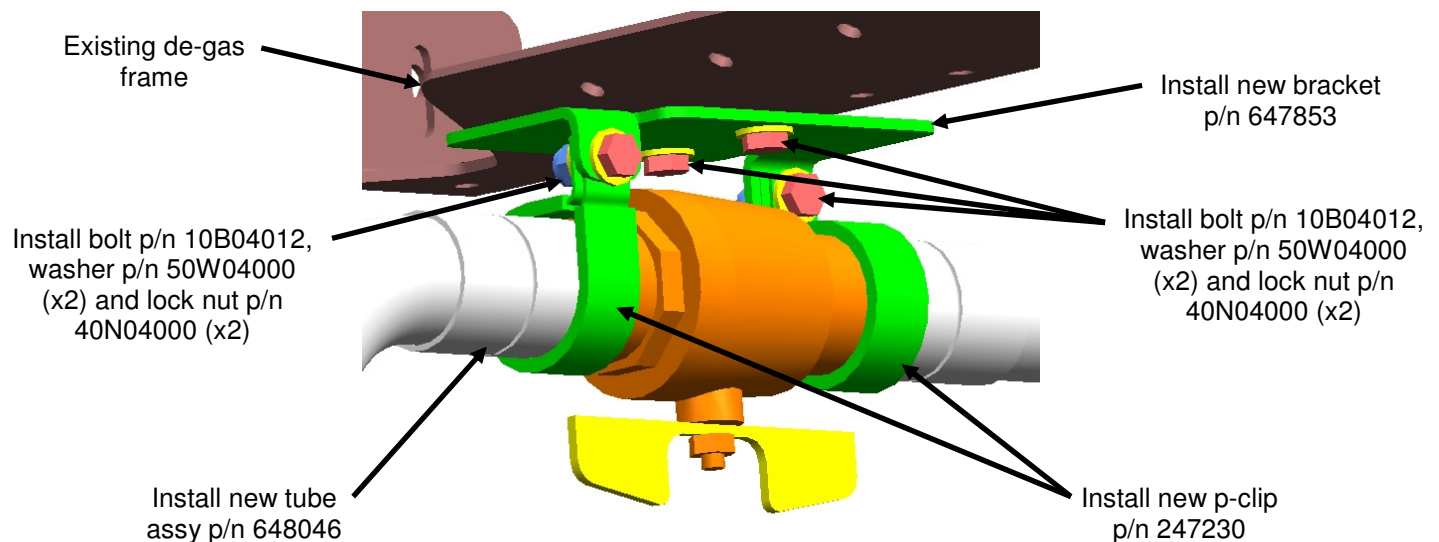


Figure 4: Tube Assembly Installation

15. Loosely install approx. 14" of new Venair hose p/n 555447 (trim hose to fit) between existing heat exchanger cabin heat SST elbow and newly installed tube assy from Step 13 using existing hose clamps removed in Steps 8 and 9, qty's of clamps may vary depending on the install.
16. Ensure the silicone hose, silicone elbow and tube assy are free of kinks and the routed in a relaxed state and tighten clamps as follows.
 - a. Tighten existing tube assy p-clip hardware installed in Step 13 to 12 ft*lbs dry.
 - b. Tighten the existing silicone elbow clamp from Step 14 to 80 in*lbs. Dry. Tighten at 75 rpm or less, re-torque to 80 in*lbs. at 75 rpm or less after 30 mins.
 - c. Tighten the existing silicone hose clamps from Step 15 to 80 in*lbs. Dry. Tighten at 75 rpm or less, re-torque to 80 in*lbs. at 75 rpm or less after 30 mins.
17. Install the coolant drain plug removed in Step 4 as per Step 18.
18. Fitting installation:
 - a. Inspect the threads to be sure they are not damaged or contain slivers, burrs, dirt or other contaminants.
 - b. Apply thread sealant p/n 8110442 evenly, without air pockets, around the circumference of the thread, leaving the first 1/2 to 1 1/2 threads unpasted and extend to completely cover a minimum of the next three threads. Ensure that orifices remain unblocked. **Note: Threads supplied with Vibra-Seal coating (red dry seal) do not require additional thread sealant.**



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- c. Install the fitting finger tight.
- d. Apply two full turns past finger-tight.

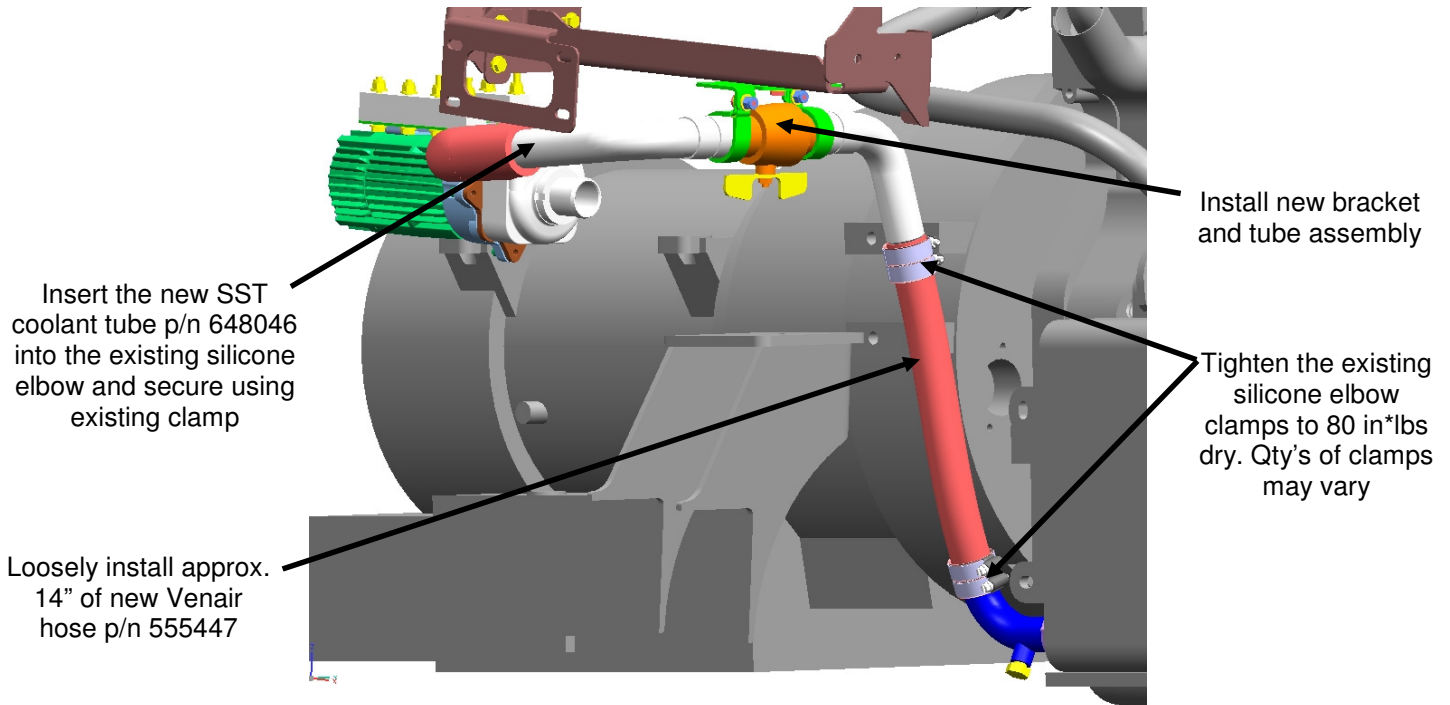


Figure 3: Cabin Heat Coolant Tube Installation

- 19. If necessary, lower coach in accordance with the New Flyer Service Manual.
- 20. Remove all tools and debris and return the bus to service condition.
- 21. Close the surge tank access door.
- 22. Turn the main battery disconnect switch to the "ON" position.

NOTE: It will be necessary to perform a cooling system deaeration procedure prior to starting the engine if any other maintenance activity is performed on the heating system that could have introduced a significant amount of air into the cooling system. Refer to New Flyer Drawing p/n 608544 "Cabin System Coolant Fill Procedure" or Section 2.4.4. Filling and Deaeration in the New Flyer Service Manual.



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LABOUR ESTIMATE

	Operation	Men	Hours	Labour Time M X HR
1	Rework Heat Exchanger Cabin Loop Line and Routing	1	2	2

PARTS REQUIRED

Item	Part Number	Description	Qty. per Coach	Units	Notes
1	648046	Assembly-Booster Pump Supply	1	EA	
2	555447	Hose-Venair 31 mm ID	0.33	EA	
3	081034	Loctite 243-Medium 10 ml	0.01	EA	
4	247230	Clamp-P 1.500	2	EA	
5	647853	Bracket-Booster Pump Line Support	1	EA	
6	10B04012	Bolt-Hex 1/4 UNC x 0.75"	4	EA	
7	50W04000	Washer-Flat 1/4" NOM	8	EA	
8	40N04000	Nut-Hex Lock 1/4"	4	EA	
9	553158	Clamp-Ideal Waves seal .5625-1.57	2	EA	