



Memorandum For Record

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NTSB Accident Number: ERA22LA064

During a Virtual engine examination on December 17, 2021, at 1400 EST, with Matt Bartle of Florida Air Recovery and Storage (FAR), he reassembled the diaphragm, spring, and cover to the manifold valve that were disassembled during the previous engine examination by the Federal Aviation Administration inspector. He also placed the engine-driven fuel pump in the engine compartment and tightly connected the inlet and outlet flexible fuel hoses. In addition, he installed the inlet screen into the servo fuel injector. He confirmed that the loose b-nut at the inlet of the manifold valve (Figure 1) was not found during their previous engine inspection. He only noticed it when taking pictures for NTSB.

A 12-volt auxiliary fuel pump was utilized to pressurize the fuel system components in the engine compartment.¹ For testing 100 low lead fuel was used and the mixture control was full rich, and the throttle control was slightly out for testing (Figure 2).

During testing, fuel leakage was noted at the loose b-nut at the inlet of the manifold valve (Figure 3). The leakage varied with movement of the line. No other leakage was noted in the fuel system components. The b-nut was determined to be 7.5 flats from being finger tight against the fitting and 15 flats from being completely separated. There was no provision to safety wire the b-nut and there was no torque stripe material on the b-nut or portion of the adjacent fitting like there was for each fuel injector line attached to each fitting of the manifold valve (Figure 2). The threads of the b-nut and inlet fitting were inspected and there was no damage noted. The b-nut was tightened, and the fuel system was pressure testing again with no leaks noted. Leakage began to occur when the b-nut was 7 flats loose.

¹ A 24-volt auxiliary fuel pump or power supply was not available; the aircraft's batteries were too badly damaged to be used for powering the aircraft's auxiliary fuel pump.

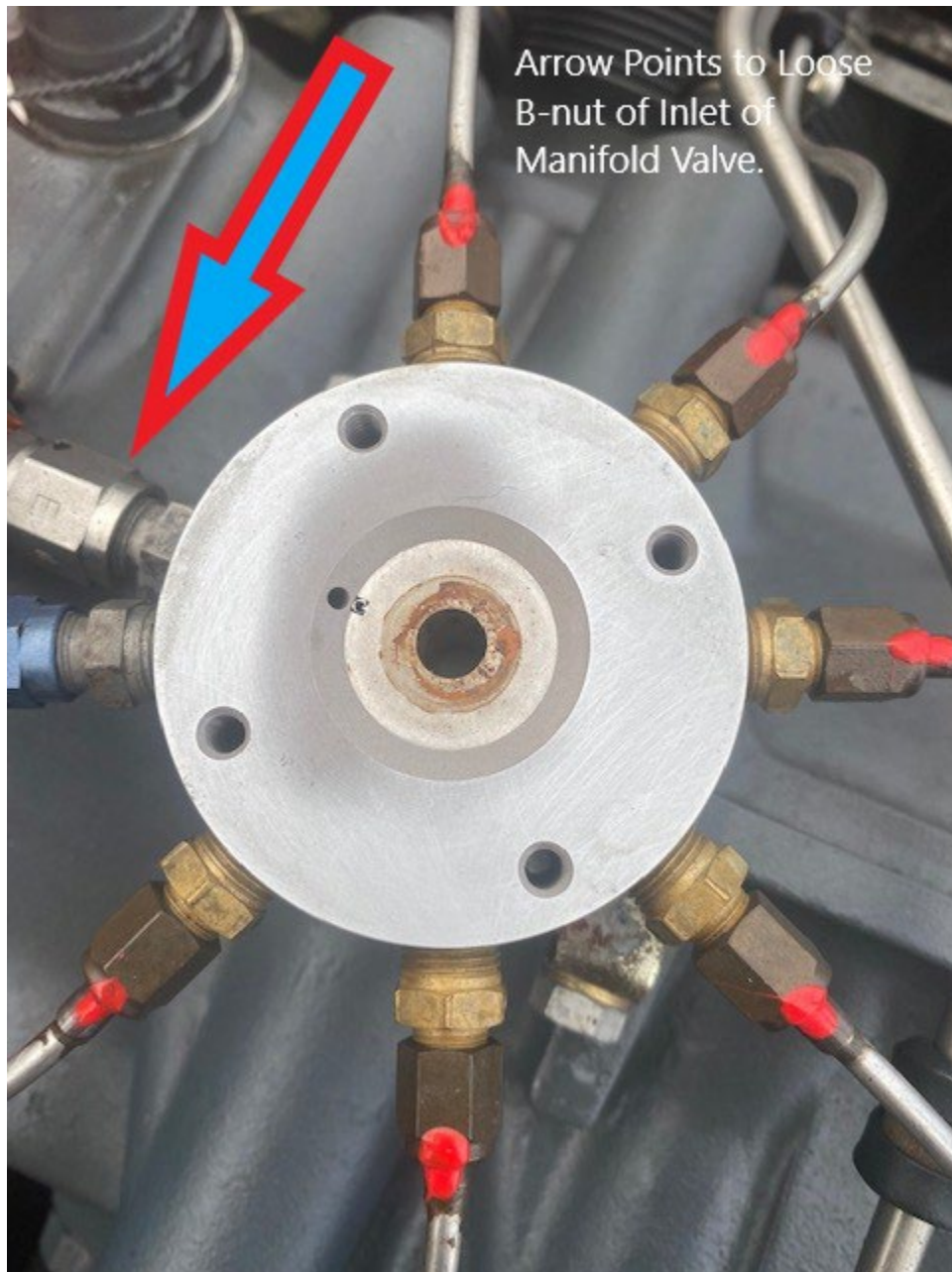


Figure 1: FAR Digital photograph. Arrow Pointed to Loose fuel supply line B-nut at the Manifold Valve inlet.



Figure 2: View of the positions of the throttle and mixture Controls for pressure testing the engine compartment fuel System Components.

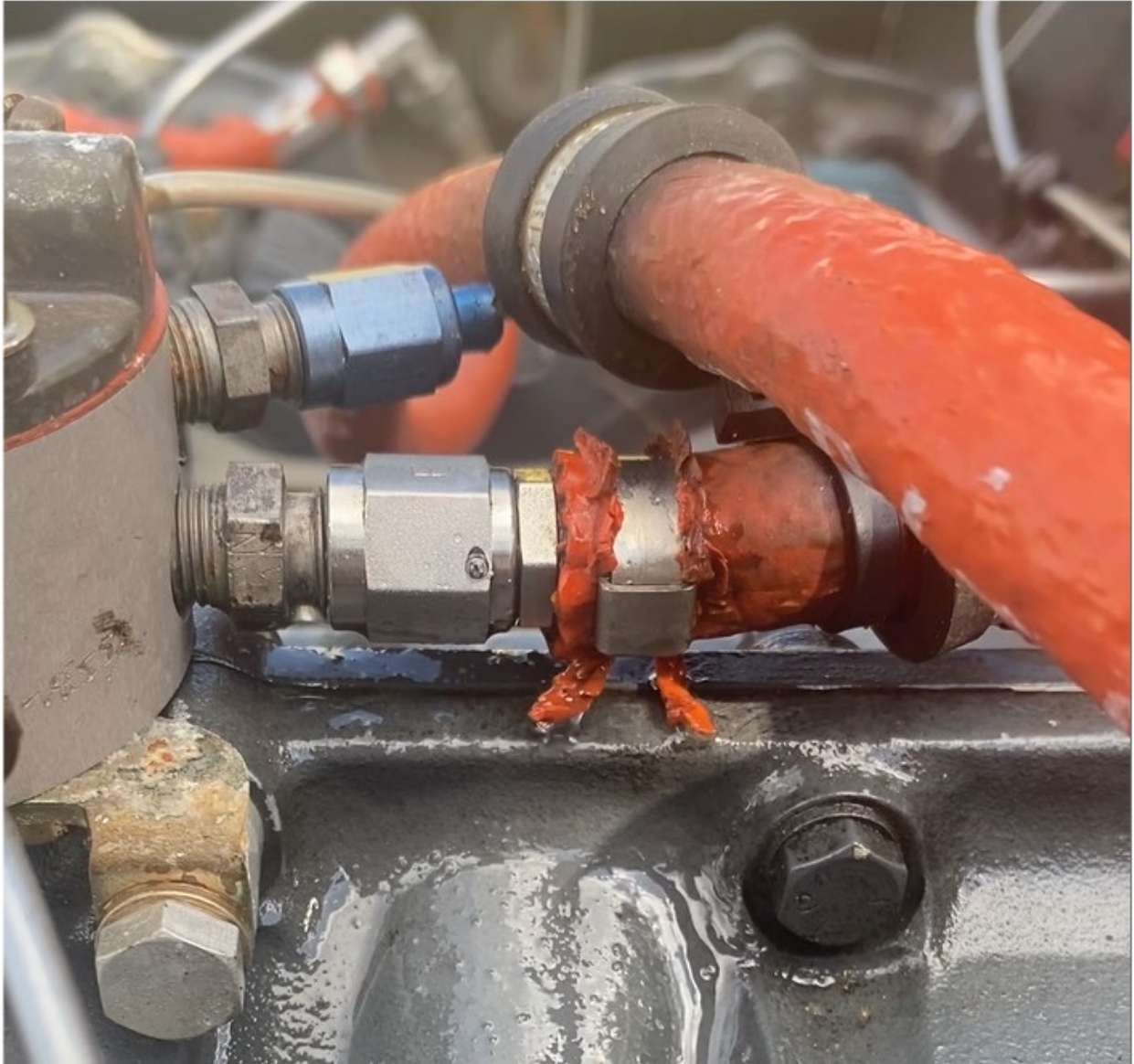


Figure 3: Photo Depicting Fuel Leakage at Loose B-nut at Inlet of Manifold Valve During Pressure Testing