



October 11, 2017

**IN REPLY REFER TO:
L-175-17-042**

Dan Boggs
National Transportation Safety Board
45065 Riverside Parkway
Ashburn, VA 20147

**RE: 1969 Cessna T337D; Serial number: 33701017; REG: N337J
Location: Greenwood, SC; D/A: 07-07-17
NTSB report number: ERA17LA235**

Dear Mr. Boggs,

The information below concerns the examination of the above referenced aircraft and the fuel system for that aircraft.

Fuel system description:

The accident model of aircraft is equipped with a main fuel tank in each wing and an auxiliary fuel tank in each wing. Each main fuel tank is made up of 2 metal tanks, one outboard of the other, connected with hoses. Fuel automatically flows from the outboard tank to the inboard tank through the hoses via gravity.

A fuel selector valve is located in the root of each wing. The valve is connected to a handle in the cockpit ceiling via a cable. When the pilot rotates the handle the valve is rotated. The valve in the left wing supplies fuel to the front engine and the valve in the right wing supplies fuel to the rear engine. Either valve can supply fuel from a main tank to its associated engine. The auxiliary fuel tank in the left wing can only supply fuel to the front engine and the auxiliary fuel tank in the right wing can only supply fuel to the rear engine.

Each main fuel tank is equipped with 2 fuel level sender units, one in the outboard tank and one in the inboard tank. The two sender units are connected electrically in parallel to a fuel quantity gage in the cockpit. The fuel senders are of a float type design. The float is connected to the sender via a rigid wire. As the fuel level rises when fuel is added to the tank, the float rises. As the float rises the resistance put out by the fuel sender increases which in turn changes the fuel quantity indication in the cockpit.

An electrically powered boost pump is located in the fuel system between the fuel selector valve and its associated engine. The boost pump is controlled by pilot activated switches in the cockpit in either a LOW or HI setting.

Fuel quantity indication system examination:

During the wreckage examination the 4 main fuel tank sender units were removed and tested with an ohm meter. In the empty position, the left outboard fuel sender had a resistance value equal to an approximately half tank reading. The left and right inboard fuel senders had a resistance value equal to an approximately full tank reading. The right outboard fuel sender unit displayed inconsistent resistance readings throughout its range of travel.

On November 29, 1999, Cessna Aircraft Company released mandatory Service Bulletin MEB99-21 covering 336 and early 337 and T337 aircraft, including the accident aircraft, equipped with a Stewart Warner manufactured fuel quantity indicating system. The purpose statement of the Service Bulletin was, "To inspect the Stewart Warner manufactured fuel quantity indicating system for verification that each fuel tank quantity gauge indicates empty when the fuel tank contains only unusable fuel and indicates full when the fuel tank is full. Non-compliance with this service bulletin may result in an incorrect fuel quantity indication. Failure to resolve incorrect fuel quantity indications as well as improper preflight inspections and in-flight planning by the pilot could allow depletion of the airplane fuel supply and subsequent loss of engine power." The Service Bulletin called for an initial inspection within 100 hours of operation or 12 months, whichever occurred first. It then stated the inspection should be reaccomplished every 12 months.

The Service Bulletin was revised on May 7, 2001 to include more aircraft and any fuel quantity indicating systems for the affected airplanes. The accident aircraft was equipped with a Stewart Warner system. A copy of the original Service Bulletin and the revision are attached to this letter.

Electric boost pump operation:

The following text is taken from the aircraft Owner's Manual:

The auxiliary fuel pumps are electrically operated and are located in the front and rear engine compartments. The pumps are controlled by two split rocker-type switches located on the lower left switch and control panel. The switches are labeled "AUX PUMPS" "FRONT ENGINE REAR." One side of each switch is red in color and is labeled "HI"; the other side is yellow in color and is labeled "LOW." The "LOW" side operates the pumps at low speed, providing sufficient fuel for priming and starting. The "HI" side operates the pumps at high speed, supplying sufficient fuel flow to maintain normal power in the event of engine-driven fuel pump failure. In all operations (including crossfeeding and operation on auxiliary tank) the left auxiliary fuel pump switch controls the pump for the front engine and the right auxiliary fuel pump switch controls the pump for the rear engine.

The auxiliary fuel pumps are not used while the engines are running smoothly and fuel flow is satisfactory. However, for vapor elimination or to restore sufficient fuel flow, the "HI" side of the auxiliary fuel pump switches may be used with the engines running for as long as required, provided the mixture control is adjusted to prevent an excessively rich mixture. The auxiliary fuel pumps should be turned off and mixtures reset prior to making a low power or idle let-down or

landing approach. In addition, the "HI" side may be used for engine restarts in hot or cold weather.

NOTE

The cylinder intake ports can be flooded if the "HI" side of the auxiliary fuel pump switch is accidentally turned on with the master switch on and the engine stopped.

During the aircraft examination, it was noted that the HI switch for both boost pumps was activated in the cockpit.

If further assistance is required, please contact me or another member of our Air Safety Investigations Department.

Sincerely,


Henry J. Soderlund
Senior Air Safety Investigator

Textron Aviation – Dept. 175

Office: 
