NATIONAL TRANSPORTATION SAFETY BOARD
Office of Aviation Safety-Eastern Region
Ashburn, Virginia 20147
June 24, 2015

ENGINE FUEL COMPONENT EXAMINATION FIELD NOTES

A. ACCIDENT:

Location:	Chamblee, Georgia
Date:	May 8, 2015
Time:	1010 EDT
Aircraft:	N5802V, Piper PA-32R-300

B. COMPONENT GROUP:

Chairman:	Timothy W. Monville National Transportation Safety Board (NTSB) Senior Air Safety Investigator, Office of Aviation Safety Ashburn, Virginia

C. SUMMARY

On May 8, 2015, about 1010 eastern daylight time, a Piper PA-32R-300, N5802V, collided with a highway barrier during a forced landing attempt near Chamblee, Georgia. The commercial pilot three passengers were fatally injured and the airplane was destroyed. The airplane was registered to and operated by TLT and GGBB LLC. as a personal flight. Day, visual meteorological conditions prevailed for the flight, which operated on an instrument flight rules flight plan. The flight originated from Peachtree DeKalb Airport (PDK), Chamblee, Georgia, about 1008 eastern daylight time and was destined for University-Oxford Airport (UOX), Oxford, Mississippi.

D. DETAILS OF THE INVESTIGATION

The engine was inspected on-scene the day of the accident and also the following day by the NTSB Investigator-In-Charge (IIC) at Atlanta Air Salvage, Griffin, Georgia. During those inspections the condition of the fuel injection servo and flow divider are depicted in Figures 1

and 2 below. Following inspection of the engine, the fuel injection servo and flow divider were removed, and shipped on May 14, 2015, to NTSB investigator Timothy W. Monville via FEDEX airbill 6366 1154 2284; they were delivered on May 16, 2015.

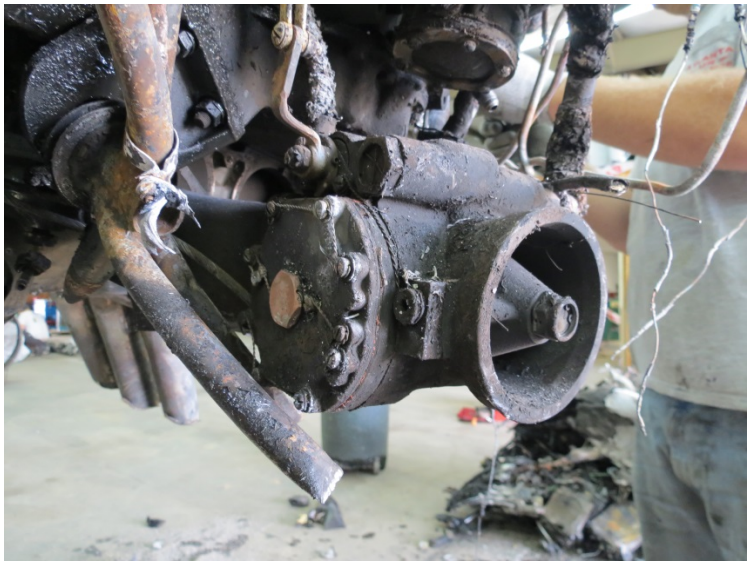

Figure 1: View of the fuel injection servo

Figure 2: View of the flow divider.

On June 24, 2015, the components were hand carried to a Federal Aviation Administration (FAA) certified repair station located in Jupiter, Florida. Also present for the testing and inspection was Ron Maynard of Piper Aircraft.

Component Details:

Precision Airmotive LLC (per data plate)	Flow Divider
Model RSA-10ED1	2524232-2
Parts List 2524273-12	78924 ASSY
S/N 25360	S/N A-385

The flow divider was removed from the plastic bag and there were no caps on any of the fittings. Visual inspection revealed some small debris inside the inlet fitting and evidence of black discoloration; the inlet fitting was removed for bench testing (see Figure 3). The unit was placed on a test bench and did not flow when tested up to 7 psi (normal test pressure is 4.5 psi). The unit was removed from the test bench and the bottom cover was removed. Following removal of the bottom cover, the gasket did not exhibit heat damage. The bottom portion of the movable portion of the body assembly was measured and found to be positioned 0.032 inch below the spool of the body assembly (normal closed position). The bottom of the movable portion of the body assembly was pushed by hand and some resistance was noted at first but it then moved. The bottom cover was reinstalled, and the 4 screws were torqued to the proper setting. The flow divider was placed on the test bench and debris was noted coming from the ports during initial flow (see Figure 4). The unit was flowed at 4.5 psi (normal) and it was found to flow equally from all ports at 132 pounds-per-hour (PPH); the minimum specification is 135 PPH. The flow divider was removed from the test bench, and the top cover which was safety wired was removed. Test bench fluid was noted on the top side of the diaphragm (air side) and some slivers of material were noted. The movable portion of the body assembly was removed and contamination/debris was noted (see Figure 5). Re-insertion of the movable portion of the body assembly into the body revealed slight binding. A 2 psi spring was installed (normal).

Figure 3: View of the slight debris inside the inlet fitting of the flow divider

Figure 4: Bench Test at 4.5 psi of Flow Divider

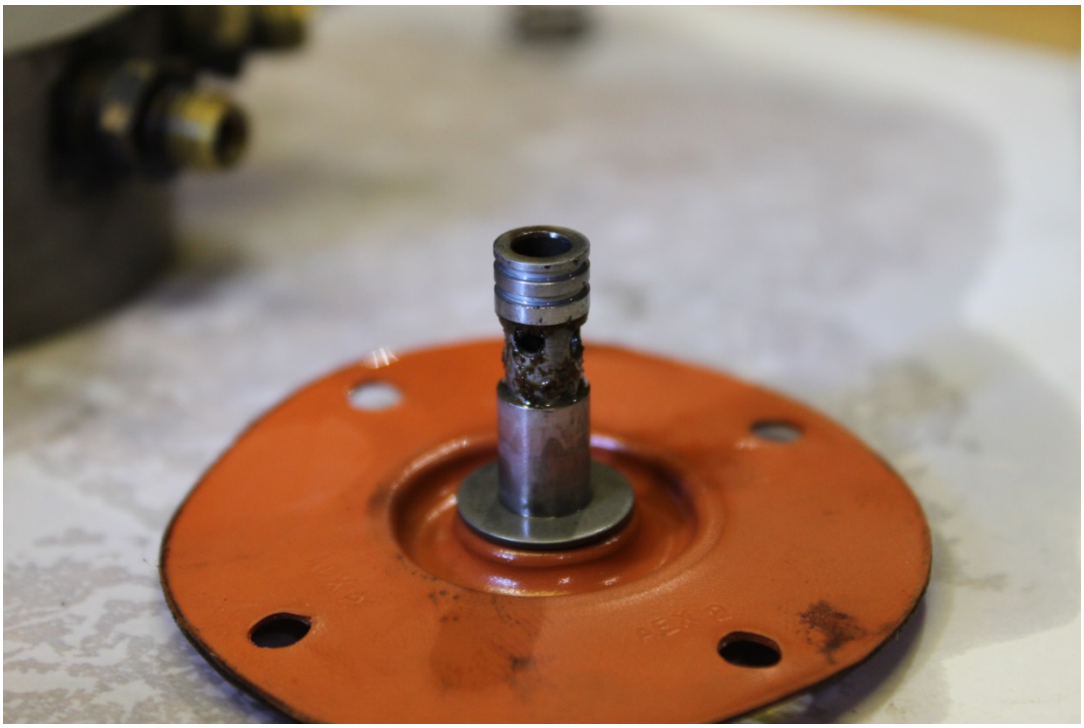

Figure 5: View of the contamination/debris on the movable portion of the Body Assembly.

The fuel injection servo was removed from the plastic bag and inspected; the exterior surface was noted to be black consistent with heat damage (see Figure 6). The body of the Precision Airmotive LLC dataplate was black in color. Visual inspection revealed the spacer was missing

from the mixture stop but the stop screw was safety wired. The mixture control as received was near the full rich position, and the serrated lever was tightly secured to the mixture control lever assembly. The throttle was also near the full open position and the serrated throttle stop was tightly secured to the throttle lever. The regulator cover was safety wired, but it could be moved with slight hand pressure. The regulator hex plug was safety wired to one of the regulator cover screws, and a lead seal with “4” impression was noted on the hex plug safety wire. The hex plug could also be moved by slight hand pressure. Because of the obvious heat damage to the diaphragms, the decision was made by NTSB not to flow test the unit. The hex plug was removed and inspected and it was not marked with ‘G”. Following removal of the hex plug, pieces of burned gasket material were noted on the machined surface of the regulator cover (see Figure 7). Inspection of the remains of the burned gasket material revealed it crumbled easily and did not appear to have any portion of aluminum construction. The nut on the end of the fuel diaphragm assembly was in-place (see Figure 8). The threads of the hex plug were measured with a calibrated dial caliper and the pitch of the threads measured 0.746 inch (per service bulletin specification is 0.7400 to 0.7500 inch). Inspection of the threads of the regulator cover and hex plug revealed no abnormal wear. The regulator cover was removed, and the air diaphragm assembly was destroyed (see Figure 9). The regulator body assembly was removed and the fuel diaphragm stem was not fractured and the fuel diaphragm exhibited extensive heat damage (see Figure 10). The regulator seat was also heat damaged; spacer rings were in-place. The fuel side of the regulator body was relatively clean. The fuel inlet screen was clean, but evidence of re-solidified solder was noted and melted packing was noted. The mixture control assembly was removed, and based on ghost signatures, was positioned to full rich (see Figure 11). The idle valve assembly was also removed and based on ghost signatures, was positioned in the wide open position (see Figure 12).

Figure 6: Fuel Injection Servo

Figure 7: View of gasket material following removal of hex plug.

Figure 8: View showing nut installed on end of fuel diaphragm stem.

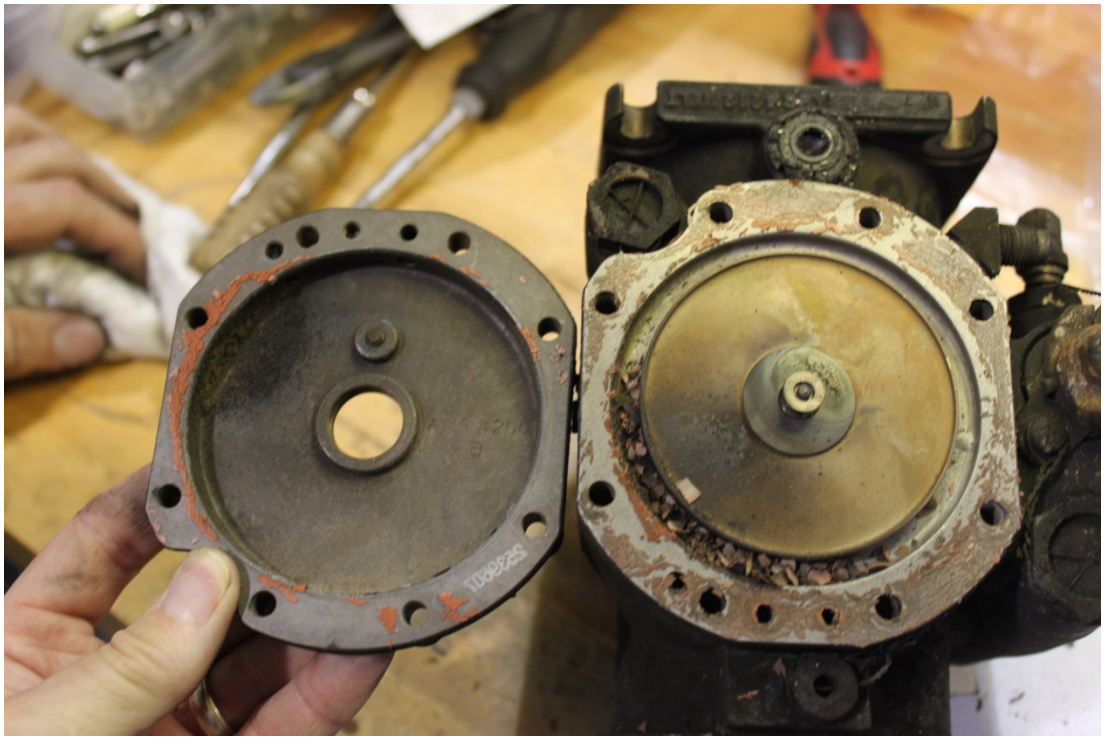

Figure 9: View of the remains of the diaphragm assembly.

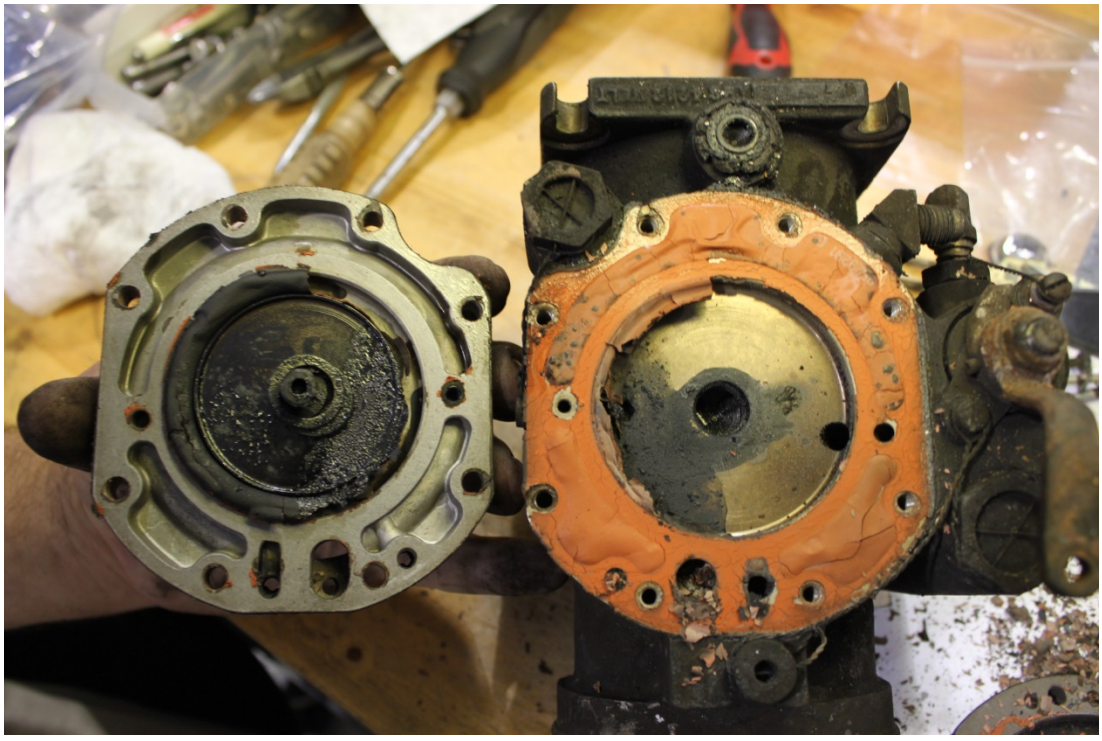

Figure 10: View of the regulator body and fuel diaphragm assembly.

Figure 11: View showing the position of the mixture control (nearly full rich).

Figure 12: View showing the position of the throttle based on the idle valve.

PARTS DISTRIBUTION

At the completion of the inspections, the fuel injection servo and flow divider will be returned to Atlanta Air Salvage, Griffin, Georgia.