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NTSB
Mitch Gallo
N727PC
Accident Number CEN22FA376
Engine Accessory Examination

On December 19th 2022 G&N Aircraft Inc inspected the following parts at the request of Mitch Gallo, NTSB Air Safety Investigator.

Magneto	10-349350-5	F08DA143
Magneto	BL-349350-5	F08CA182R
Flow Divider(Manifold Vale)	646508-15	C08EA03??
Fuel Pump	646212-23A7	B08EA033R
Fuel Metering Unit	639715A16	?8EA??3R
6 Fuel Injection Nozzle	GAMI NOZZLES	GAMI NOZZLES
6 Fuel Injection Lines	No Part Number on Parts	Non Serialized Part

- The magneto part number BL-349350-4, serial number F08CA182R function tested correctly on the test bench with no anomalies noted. All 6 locations fired. The mounting flange of the magneto was broken in two places corresponding to the magneto hold down locations on the engine.
- The magneto part number 10-349350-5, serial number F08DA143 function tested on the test bench. All 6 locations fired. This magneto was found to make a loud noise while running on the test bench. The castellated nut for the impulse coupling was found to not have a cotter pin installed on the rotor. The magneto would not rotate backwards and was found to be hard to turn in the direction of normal operation. A crack was noted moving across the magneto from left to right. Upon disassembly of the magneto it was found that the housing of the magneto was in contact with the rotor.
- The flow divider (manifold valve) 646508-15, serial number C08EA03?? was found to be disassembled upon receipt of the part. The inlet fitting was broken and unable to be removed. This made it not possible to test the unit for proper operation. All of the passages within the divider were open and clear. The diaphragm was distorted.



- The fuel pump part number 646212-23A7, having serial number B08EA033R was put on the flow bench and tested. The initial start-up of the pump was uneventful and indicated the fuel pump was working. The chart below in the testing of the fuel pump as received

Test Specifications			Initial Test Results		
RPM	Flow PPH	Pressure	RPM	Flow PPH	Pressure
600	6.5-7.0	10.5-11.5	600	6.6	9.8
1600	37.0-38.0	19.0-22.0	1600	37.5	21.5
2600	149.0-151.0	34	2600	150	51.5

- After the initial testing of the pump, the ejector, high end adjustment and bypass ball were all check for debris. No debris was noted. It was found that the low end relief valve plunger was stuck and sticky. The pump was reassembled and tested again. The chart below is the result of that test.

Test Specifications			Test Results after Inspection		
RPM	Flow PPH	Pressure	RPM	Flow PPH	Pressure
2600	149.0-151.0	34	2600	150	45

- The fuel injection nozzles are GAMI, Inc nozzles, no specifications were available. We did however test the nozzles by flowing 12 psi into the nozzle and recording pph out of the nozzle. Two of the nozzles are bent. They did however flow. Nozzle location was not recorded. Numbers one through six in the chart below are just an indication of the order the nozzle was tested in.

Test Order	PPH	Test Order	PPH
1	27.6	4	26.2
2	28.2	5	25.2
3	26.2	6	25
Inlet Pressure 12 psi			



- The stainless steel fuel injection lines were tested for flow and obstruction. There is not a specification for this test. It was tested with the same parameters as the fuel injections nozzles. Some of the lines did have a GAMI identification tag while other did not. The (*) after the order number is an indicator of no identification tag. As with the nozzles in the chart above the numbers one through 6 is just the order they were tested in not a location on the engine.

Test Order	PPH	Test Order	PPH
1*	160	4	184
2*	160	5*	160
3	172	6	162
Inlet Pressure 12 psi			

Any questions regarding the report can be directed to Dennis Wyman, G&N Aircraft, Inc.

Regards,

Dennis Wyman
G&N Aircraft, Inc

