



Continental Motors

Component Examination Report

N/R = Not Reported / N/A = Not Applicable

Date Received:	01/26/2016	Analytical Date:	03/15/2016		
NTSB Number:	WPR16LA048	Air Safety File:	15-357		
Engine Model:	IO-470-K	Engine S/N:	092964		
Component P/N:	646212-12	Component S/N:	E229521BR		
Component P/N:	625219-1	Component S/N:	E229521AR		
Component P/N:	631427A26	Component S/N:	E229523CR		
Engine:	Component:	☒ New:	☒ Rebuilt:	☒ Overhaul:	
Aircraft Make/Model:	Beech 35-C33	Aircraft S/N:	CD-1083	Reg. #:	N20XY
Engine Position:	Single:	☒ Left:	☐ Right:	Front:	Rear:
Engine Build Date:	06/16/1995	Date in Service:	Unknown	Date Removed:	N/A
Occurrence Date:	01/07/2016				
Occurrence Location:	Henderson, Nevada				
Reason for Exam:	Pilot reported a loss of engine power. Fuel system sent to CMI for bench testing.				
Inspection Performed By:	Phillip Grice	Search Code:			
Analytical Report:	All components were tested without adjustment. It is not uncommon to find individual components out of production test specifications, after installation on the engine as a system. These components are further adjusted when the engine is installed in the airframe.				
Comments:	No anomalies were noted that would have prevented these components from operating normally on the engine.				

FUEL SYSTEM

*** - Fuel System Component(s) Flow/Pressure Test:** The "Observed" values (fuel flows and/or pressures) are recorded without adjustment (unless noted) of the fuel system component. The other values in each table are engineering specifications for the original calibration of the component to insure desired performance within the full range of operation. These tests and adjustments are carried out in an environment of controlled fuel supply pressures and calibrated test equipment. When engines are installed in aircraft, they are subjected to a different induction system, fuel supply system and operating environment and may require further adjustments to compensate for these differences. It is these differences that may be present in the following test bench recorded values and CMI flow/pressure specifications. These tests are conducted to confirm that the fuel system components will function adequately within its' designed limitations.

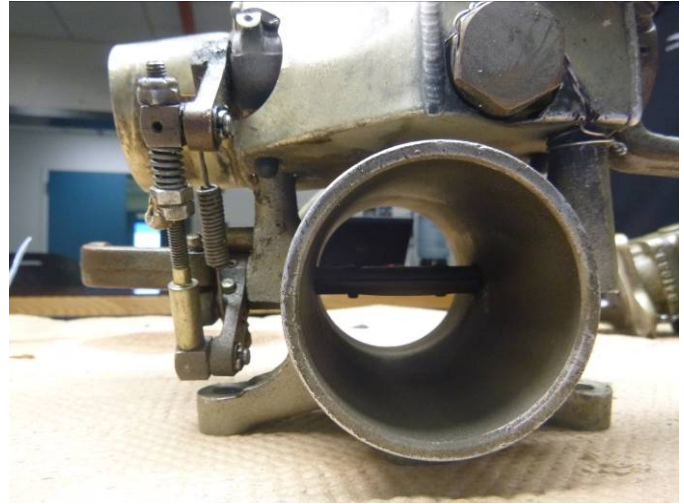
FUEL PUMP	Manufacturer: CMI	P/N: 646212-12	S/N: E229521BR
Condition:	The fuel pump was intact and undamaged. It was noted that the fuel pump drive coupling remaining intact and the fuel pump drive coupling gear was undamaged. The fuel pump was placed on a test bench and was put through a production test cycle. The fuel pump operated normally and there were no anomalies noted.		



Fuel Pump Assembly Flow vs. Pressure Test

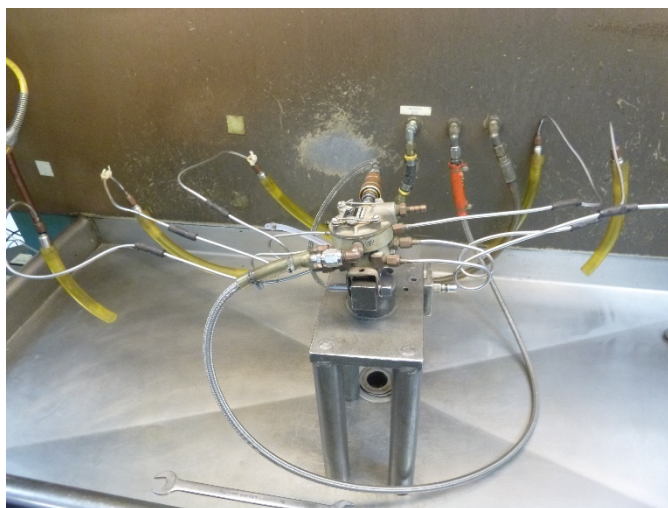
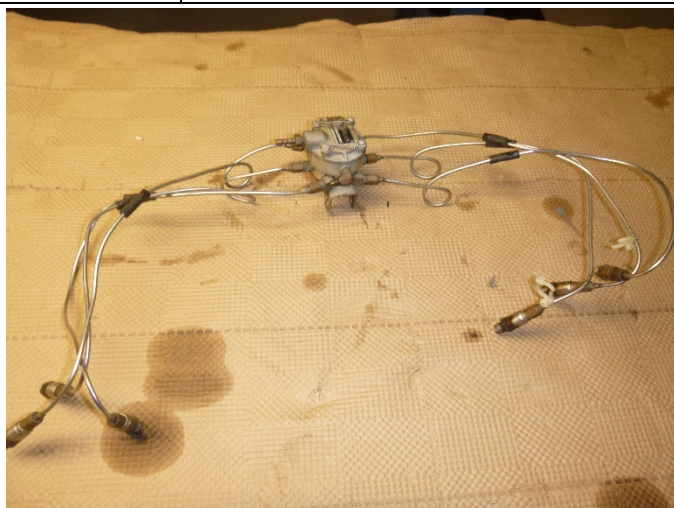
RPM	Specified Pressure (PSI)	Specified Fuel Flow (PPH)	*Observed PPH @ PSI
600.3	6.5 – 7.5	6.5 – 7.0	6.79 PPH @ 7.78 PSI
2599.7	28.71 – 29.29	149.0 – 151.0	150.86 PPH @ 33.37PSI
1600.9	15.0 – 18.0	37.0 – 38.0	37.63 PPH @ 16.57 PSI
599.9	6.5 – 7.5	6.5 – 7.0	6.88 PPH @ 8.0 PSI

THROTTLE BODY METERING UNIT	Manufacturer: CMI	P/N: 625219-1	S/N: E229521AR
Condition:	The fuel metering assembly remained intact and displayed impact damage to the heat shielding. The metering assembly was placed on a production test bench; no adjustments were made to the fuel metering assembly. It was noted that the observed flow at the 2.0° was set significantly higher than specifications for a new component. It was noted that the metering assembly was capable of flowing fluid at all throttle angles.		



Throttle and Metering Unit Flow vs. Pressure Test			
Throttle Angle	Inlet Pressure (PSI) Specified: XX PSI +/- XX PSI	Specified Fuel Flow (min – max) (PPH)	*Observed Flow (PPH)
2.0	7.95 (target: 8.0)	6.6 – 6.9	19.23
8	13.7 (target: 13.7)	30.6 – 36.7	43.25
16	15.11 (target: 15.2)	57.3 – 68.8	60.43
21	15.94 (target: 16.0)	72.8 – 80.1	74.27
28	15.57 (target: 15.65)	94.0 – 103.4	93.44
36	13.5 (target: 13.5)	106.2 – 116.8	110.91
73	10.36 (target: 10.4)	130.0 – 136.5	124.72

FUEL MANIFOLD VALVE	Manufacturer: CMI	P/N: 631427A26	S/N: E229523CR
Condition:	The fuel manifold valve remained intact and undamaged. The manifold valve was installed on a production test bench with all of the fuel nozzles installed. The fuel manifold valve operated normally on the test bench and was capable of flowing fluid normally.		
FUEL NOZZLES AND LINES	Manufacturer: CMI		
Condition:	All of the nozzles were installed on their fuel lines going to the fuel manifold valve. The nozzles were used during the fuel manifold valve production test cycle and all of the nozzles operated normally.		



Fuel Manifold Valve, Lines and Nozzle Assembly Flow vs. Pressure Test		
Specified Fuel Flow (PPH)	Specified Pressure (PSI)	*Observed Pressure (PSI)
10	2.060 – 2.860	2.551
50	4.370 – 5.170	4.966
100	10.030 – 10.830	11.217
150	19.030 – 19.430	19.692

Engine / Component Disposition

Release for core salvage:		Date:	
Release to Repair Station:		Date:	
Scrap:		Date:	
Return to salvage yard:	X	Date:	03/15/2016
Customer Name/Company:	Air Transport		
Address:	 Phoenix, AZ 85009		