



Continental Motors

ENGINE RUN REPORT

ENGINE MODEL	IO240B1B
ENGINE SERIAL NUMBER	650107
AIRCRAFT MAKE & MODEL	DA20C1
AIRCRAFT SERIAL NUMBER	C0153
AIRCRAFT REGISTRATION	N653DC
FILE NUMBER	18-269

NAME	SIGNATURE	DATE
Phillip Grice		09/04/2019

ENGINE RUN REPORT			
FILE NUMBER:	18-269	ENGINE S/N:	650107
			PAGE 2 of 10

GENERAL INFORMATION			
EXAMINATION		ACCIDENT DATA	
DATE	12/04/2018	NTSB ACCIDENT #	ERA19LA029
FACILITY	Continental Motors	NTSB INVESTIGATOR	Brian Rayner
ADDRESS	Mobile, Alabama 36615	FAA INVESTIGATOR	
		ACCIDENT DATE	10/28/2018
		ACCIDENT LOCATION	Mountain Rest, SC
ENGINE INFORMATION			
ENGINE POSITION	Single		
TOTAL TIME	Unknown		
TIME SOH	490.8 at Annual.		
TYPE & TIME SLI	Annual Inspection 7/31/2018		
BUILD DATE	12/22/2004		
IN SERVICE DATE	Not reported		
Significant logbook information: Log books were not returned with the engine			
Report Summary:		Search Code(s):	
The engine was mounted to a stand and prepped for the engine run. The magneto to engine timing could not be verified. The engine was placed on the run stand and start was attempted the engine ran rough and would not run continuously. Both mags and harnesses were replaced with slave units and the engine ran well in the test cell. The right magneto was disassembled and exhibited extreme wear on the distributor gear and the support bushing. Contact was made between the traveling electrode with the spark towers in the distributor. The bushing was worn to the point of the gear being able to wobble during rotation causing the contact. The left magneto was inspected, and the points cleaned, and bench tested and produced a spark across a 7mm gap. The ignition leads were tested with high tension tester and exhibited leaks where attach clamps were located along the wire length. See photos in the body of this report of the damaged components.			
Disposition of engine following exam: The engine was returned to Atlanta Air Recovery 12/10/2018 on shipper number AD01114.			

ENGINE RUN REPORT**FILE NUMBER:**

18-269

ENGINE S/N:

650107

PAGE 3 of 10**INSPECTION WITNESSES**

NAME	Phillip Grice	NAME	Randy Bryant
ADDRESS	Mobile Alabama	ADDRESS	Mobile Alabama
ORGANIZATION	Continental Motors	ORGANIZATION	Continental Motors
PHONE	██████████	PHONE	██████████
NAME	Lisa Jersild	NAME	Brian Rayner
ADDRESS	Mobile Alabama	ADDRESS	Ashburn Va.
ORGANIZATION	Continental Motors	ORGANIZATION	NTSB
PHONE	██████████	PHONE	██████████

EXTERNAL INSPECTION OF ENGINE

ENGINE RUN REPORT

FILE NUMBER:

18-269

ENGINE S/N:

650107

PAGE 4 of 10



ENGINE RUN REPORT

FILE NUMBER:

18-269

ENGINE S/N:

650107

PAGE 5 of 10



ENGINE RUN REPORT			
FILE NUMBER:	18-269	ENGINE S/N:	650107
			PAGE 6 of 10

ENGINE PREPARATION PRIOR TO RUN

There were several airframe related items removed in preparation for operation on the CMI test bed.

Items removed: Vacuum pump, exhaust system, cooling baffles, engine mount.

The following substitute or repaired parts were required for engine operation: Both Magnetos and Harness.

The magneto-to-engine timing was checked and with the following results:

Magneto-to-Engine Timing (Specified):	Left Magneto:	Right Magneto:
26°BTDC	Unknown	Unknown

A cylinder leakage test was performed prior to the test run in accordance with the latest revision of Continental Motors M-0 Maintenance Manual with the engine at room temperature with the following results (master orifice reading – 43 PSI):

Cylinder #1 - 72/80 PSI (rings)

Cylinder #2 - 57/80 PSI (rings)

Cylinder #3 - 68/80 PSI (rings)

Cylinder #4 - 58/80 PSI (rings)

(*) – Leakage Source

The engine was not disassembled prior to the engine run. The crankshaft end-play measured 0.016” and the run-out was 0.01”.

The engine was then prepared for operation by installing the appropriate thermocouples, pressure lines and test pads for monitoring purposes. The engine was then moved to CMI test cell number 43 and mounted for operation. The engine was fitted with a test club propeller for the IO240B engine model.

ENGINE RUN REPORT

FILE NUMBER:

18-269

ENGINE S/N:

650107

PAGE 7 of 10

DESCRIPTION OF RUN

The engine experienced an abnormal start on the first attempt and would not continue to run. Both magnetos and harnesses were replaced with slave units. and the engine run was resumed.

The engine experienced a normal start on the first attempt without hesitation or stumbling in observed RPM. The engine RPM was advanced in steps for warm-up in preparation for full power operation. The engine throttle was advanced to 1200 RPM and held for five (5) minutes to stabilize. The engine throttle was advanced to 1600 RPM and held for five (5) minutes to stabilize. The engine throttle was advanced to 2450 RPM and held for five (5) minutes to stabilize. The engine throttle was advanced to full open position and held for five (5) minutes to stabilize. The engine throttle was rapidly advanced from idle to full throttle five times where it performed normally without any hesitation, stumbling or interruption in power.

Throughout the test phase, the engine accelerated normally without any hesitation, stumbling or interruption in power and demonstrated the ability to produce rated horsepower.



ENGINE RUN REPORT

FILE NUMBER:

18-269

ENGINE S/N:

650107

PAGE 8 of 10



ENGINE RUN REPORT

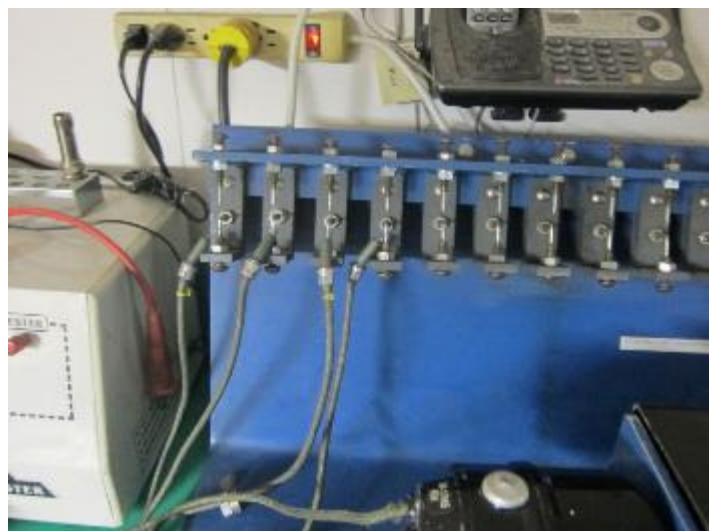
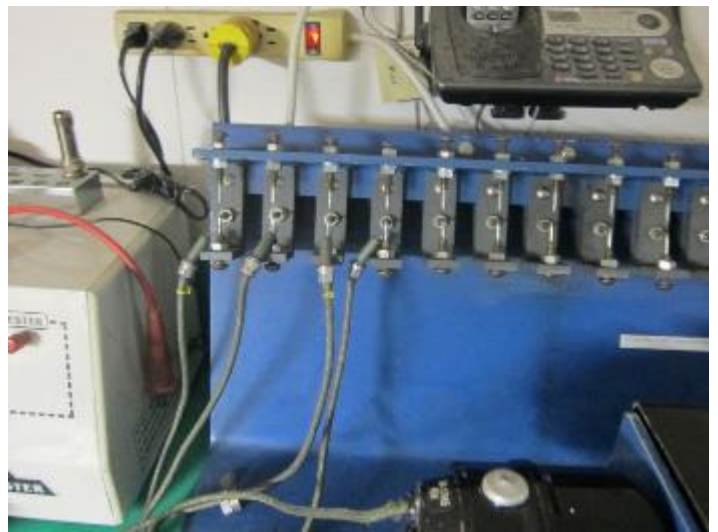
FILE NUMBER:

18-269

ENGINE S/N:

650107

PAGE 9 of 10



ENGINE RUN PARAMETERS

Time		RPM	MP / TDP " Hg	Oil		Fuel				Cell °F	Cylinder Head Temperature °F					
Reading	Minutes			PSI	°F	Lbs/Hr	Nozzle PSI	Pump PSI	Fuel °F		# 1	# 2	# 3	# 4	# 5	# 6
1	5	1200	16.7	72	86	12.0	4.6	10.7	60	54	287	170	206	173		
2	5	1600	21.2	71	139	21.5	5.5	13.6	61	53	193	193	254	195		
3	5	2100	23.6	46	176	44.7	9.21	18.4	62	53	241	241	265	235		
4	5	2450	25.2	50	175	35.8	7.5	25.9	63	53	210	210	247	200		
5	5	F/T 2816	27.8	52	184	49.0	8.8	34.0	67	53	407	233	275	231		
6	5	Idle 1004	13.1	38	186	10.0	4.9	9.8	60	53	305	201	232	187		
Ambient Air Temperature °F		Ambient Air Pressure		Transfer Collar Δ P		Maximum Rated Power Engine Operational Parameters										
52		29.96		IN	OUT	RPM		" Hg MP		Fuel Flow Lbs/Hr		Metered PSI		Unmetered PSI		
				N/A	N/A	2800		N/A		65-70		Not recorded		Not recorded		

Notes: Operator – Lisa Jersild. Transfer collar pressure delta measured at full throttle power setting.

Engine Performance Test				
Test RPM	Left Magneto	Left Magneto	Right Magneto	Right Magneto
	RPM	RPM Drop	RPM	RPM Drop
2040	2032	8	2028	12

Cylinder Number one temps taken at spark plug.