ENGINE TEARDOWN/RUN REPORT
INSPECTOR STATEMENT

Engine Model: Continental IO-550-N (7)
Engine Serial Number: 686307

Aircraft Make: Cirrus Design Corporation
Aircraft Model: SR22
Aircraft Serial Number: 0311
Registration Number: N678Z

Date of Examination: August 17-18, 2016

Requesting FAA Office: ASO-FSDO-SO-09
FAA IIC: Joseph T. Walsh
NTSB: Edward Malinowski

Accident/Incident Number: CEN 16 LA 223

Investigation Party:
Jack Clark----Birmingham, Al. FSDO SO-09
Phillip Grice---Continental Motors, Mobile, Al.

Description of Engine:
550 cubic inch displacement six cylinder, horizontally opposed, air cooled, fuel injected engine, developing 310 horsepower at 2700 RPM (continuous) and 240 horsepower at 2500 RPM (recommended cruise).

An externally mounted supercharger has been installed using Supplemental Type Certificate (STC) #SA10925SC. This installation allows the engine to operate at altitude, maintaining 29.5 inches manifold pressure at 2700 RPM.

Initial Inspection:
Aircraft engine was located in the Analytical Department at Continental Motors, Mobile, Alabama. The engine was removed from a shipping container and placed on an engine stand. This engine was received with the magnetos, harness, spark plugs, fuel system, starter, alternator, auxiliary alternator, propeller governor, supercharger, altitude control valve, overboost valve, exhaust system & engine baffle was received with the engine.

Initial examination revealed the following broken/damaged parts (impact damage): front left and right engine mounts, oil sump, exhaust system and propeller governor.

Engine Disassembly:

- Engine prepared for test run; removing required baffling and replacing front engine mounts.

- No disassembly required for the crankcase and power section.
- Magneto timing was checked—both magnetos 22 degrees BTC.
- Crankshaft—end play .010, runout .020, deflection .030.

Engine Test:

- Reference Continental Motors Engine Operational Test Log, dated August 18, 2016.
- This engine test run was performed throughout specified manufactures and STC Holders (STC # SA10925SC) power ranges.

Accessory Testing:
No accessories were tested during this observation.

Installed Accessories:

Left Magneto:	p/n 10-500556-1 S6RSC-25	s/n D02FA019
Right Magneto:	p/n 10-500556-1 S6RSC-25	s/n D02FA012
Magneto Harness:	p/n not recorded	s/n not recorded
Starter:	p/n 656181 B24V	s/n 03 3490044
Alternator:	p/n 646843	s/n 008JA034
Auxiliary Alternator:	p/n BC 410-1	s/n 0521247
Prop Governor:	p/n D210760	s/n 00086
Throttle Body:	p/n 65335305A1	s/n A02FA083
Fuel Pump:	p/n 655921-1A5	s/n B02FA079
Fuel Manifold:	p/n 646433-5A2	s/n C02FA079
Spark Plugs:	p/n URHB-32-E	
Oil Filter:	p/n not recorded	
Supercharger:	p/n Sr22CW-20	s/n 2032
Altitude Valve:	p/n 424105-1	s/n 0028
Overboost Valve:	p/n 470930-9016	s/n ME00029

Added Information/Other:
First Compression (cold)--#1 44/80, #2 71/80, #3 41/80, #4 60/80, #5 18/80, #6 69/80.
Final Compression (hot)--#1 55/80, #2 66/80, #3 70/80, #4 65/80, #5 65/80, #6 66/80.

Causal Factor/ Observations:
Initial engine test observed indicated 35 inches manifold pressure @ 2700 RPM. Electrical repairs were made to the altitude control valve; engine test run was performed throughout specified manufactures and STC Holders (STC # SA10925SC) power ranges with no abnormalities noted.

Jack E. Clark
Aviation Safety Inspector, FSDO SO-09
August 30, 2016

Enclosures: Continental Motors Engine Run Report, dated August 18, 2016.

ENGINE RUN PARAMETERS IO550N7B S/N 686307

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	15.07/	30	211	20.6		14.61	87	89	267	295	319	256	246	205
2	5	1600	18.06/	32	192	30.8	3.83	19.53	87	90	280	317	333	269	265	220
3	5	2100	22.09/	40	186	63.5	6.36	28.78	88	91	302	340	366	289	294	239
4	5	2450	29.85/	36	216	112.2		37.00	88	90	355	392	429	337	355	279
5	5	F/T	35.09/	38	222	149.5		40.25	89	91	372	416	484	355	391	306
6	5	Idle	15.30/	20	235	13.8	4.73	11.27	89	90	294	301	373	267	276	224
7	5		/													

Ambient Air Temperature °F	Ambient Air Pressure	Transfer Collar D P		Maximum Rated Power Engine Operational Parameters				
		IN	OUT	RPM	" Hg MP	Fuel Flow Lbs/Hr	Metered PSI	Unmetered PSI
88.5	29.20	30	32					

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
2036	1988	48	1980	56

Lisa Jersild
Product Field Performance Analyst
Continental Motors