



Air Safety Investigations

ENGINE FIELD INSPECTION REPORT

FINAL

ENGINE MODEL: IO-550-N (2)

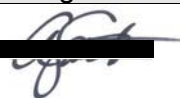
ENGINE

SERIAL: 688043

AIRCRAFT MODEL: Velocity Super XLRG5

SERIAL NUMBER: 3RX124

REGISTRATION: N444YP

Examiner	Signature	Date
Andrew L. Swick		08-18-2010

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GENERAL INFORMATION			
EXAMINATION		ACCIDENT DATA	
Date	08-18-2010	NTSB Accident #:	WPR10LA381
Facility	Aircraft Recovery Services	NTSB Investigator:	Tom Little Mike Huhn
Address	[REDACTED]	FAA Inspector:	Unknown
City	Pearblossom	Law Enforcement:	
State and Zip	California 93553	Coroner/Medical Examiner:	
ENGINE INFORMATION			
Make	Teledyne Continental Motors		
Model	IO-550-N (2)		
Serial No.	688043		
Engine Position	Forward		
Total Time	Unknown		
Time SOH	N/A		
Build Date	08-20-2004		
Shipped Date	08-29-2004		
Customer	Velocity, Inc.		
In Service Date	Not Reported		
TopCare Date	Not Reported		
*the logbooks were not available during the investigation.			
AIRCRAFT / ACCIDENT INFORMATION			
Aircraft Make	Velocity		
Aircraft Model	Super XLRG5		
Aircraft Serial No.	3RX124		
Registration No.	N444YP		
Accident Date	August 2, 2010		
Accident Location	San Diego, California		

Report Summary:

Search Code:

The top side of the number 5 cylinder cooling fins had damage. The 1, 3 and 5 upper deck reference line from the supercharger separated from a fitting. The supercharger to throttle body coupling band clamps overlapped each other. Both forward and aft drive belts separated from the engine.

The inspection of this engine did not reveal any other anomalies that would have prevented normal operation and production of rated horsepower.

Disposition of engine following exam:

Aircraft Recovery Services, Pearblossom, California

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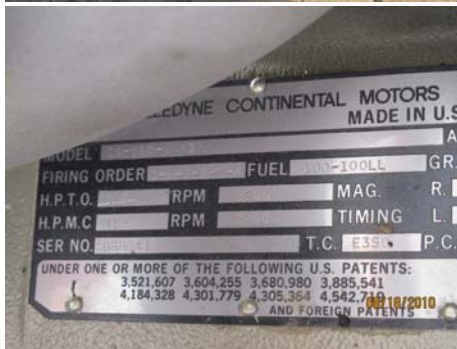
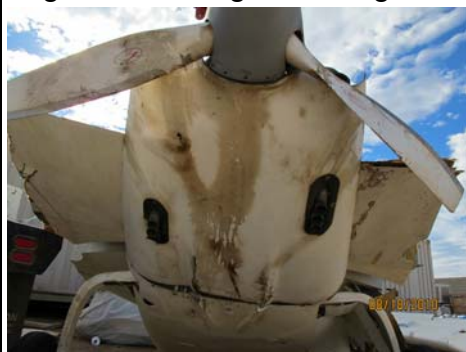
LOGBOOK ENTRIES (MOST RECENT INSPECTION)			
LOGBOOKS ATTACHED:		Yes: ()	No: (X)
Engine s/n: 688043			
Date: TT:		TSMOH:	TSTOH:
Airframe			
Date:	TT:	TSMOH:	TSTOH:
Propeller			
Date:	TT:	TSMOH:	TSTOH:
REMARKS:	The logbooks were not available during the inspecton.		

Inspection Witnesses			
Name Tom	Little	Name Mike	Huhn
Address	<div style="background-color: black; width: 150px; height: 1.2em; margin-bottom: 2px;"></div> Suite 201 Seattle, Washington 98188	Address	<div style="background-color: black; width: 150px; height: 1.2em; margin-bottom: 2px;"></div> Redwood City, California 94075
Organization N.T.	S.B.	Organization	
Phone No		Phone No	
Name	Andrew L. Swick	Name	
Address	<div style="background-color: black; width: 150px; height: 1.2em; margin-bottom: 2px;"></div> Rancho Cordova, California 95742-6532	Address	
Organization	Teledyne Continental Motors	Organization	
Phone No	<div style="background-color: black; width: 100px; height: 1.2em;"></div>	Phone No	

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EXTERNAL INSPECTION OF ENGINE:

The engine inspection took place at Aircraft Recover Services in Pearblossom, California on 08-18-2010. The carbon fiber cooling shroud was removed from the top of the engine. The engine was removed from the airframe. The propeller assembly had impact damage and remained attached during the inspection. The cooling air exhaust ports and the propeller assembly including the extension shaft had black rubber marks. The aft positioned supercharger drive belt was missing from the engine. The forward drive belt separated from the engine and was found near the firewall area. The forward belt was intact and had damage. The supercharger upper deck reference line was loose at the supercharger and separated near a T-fitting. The number 5 cylinder upper cooling fins had impact damage and the T-fittings brass cap was in contact with the cylinder in that area. The throttlebody connection tube band clamps overlapped each other. The number 4 induction tube had rubbing marks near the oil filler cap area. The number 5 induction tube top side had wear marks. The number 3, 4 and 6 cylinder rocker covers had impact damage. The starter adapter drive pulley outer edge had damage. A belt guard was attached to the firewall and had rotational scoring.



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ENGINE TEARDOWN AND COMPONENT EXAMINATION

Exhaust assembly

Condition: The exhaust assembly was undamaged.



Induction assembly

Condition: The induction assembly was intact and had wear marks and scoring on two tubes. Wear marks were visible under paint near the wear mark on the number 5 induction tube. Two band clamps overlapped each other at the supercharger to throttle-body rubber coupling.



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IGNITION SYSTEM:

R/H Magneto Manufacturer: TCM Type/Part Number: S6RSC-25/10-500556-1 Serial No.: DO4HA217

L/H Magneto Manufacturer: TCM Type/Part Number: S6RSC-25/10-500556-1 Serial No.: DO4HA222

Condition: The magnetos were not removed during the inspection. The crankshaft was rotated by hand and impulse couplings engaged. Spark was visible from the ignition lead ends.



Ignition Harness Manufacturer: TCM

Condition: The ignition leads had impact damage at the lower positions of cylinders 4 and 6.



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Spark Plugs Manufacturer: Champion Part number: RHB32E

Condition: The spark plugs had (normal) wear signatures in accordance with the Champion AV-27 chart. The spark plug electrode areas had light gray deposits.



FUEL SYSTEM:

Fuel Pump Manufacturer: TCM Part Number: 655921-1A4 Serial #: B04HA055

Condition: The fuel pump was removed from the engine and rotated freely by hand. Fuel was found in the pump and the fuel pump drive was intact and undamaged. Cabin control cable continuity was obtained to the mixture lever. The fuel pump was disassembled and no anomalies noted.



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Fuel Manifold Valve Manufacturer: TCM Part Number: 646433-3A1 Serial #: C04HA049

Condition: The fuel manifold valve was undamaged and not disassembled as designated by the NTSB.



Throttle Body Fuel Control Manufacturer: TCM Part Number: 653353-6A1 Serial #: A04HA047

Condition: The throttle body fuel control linkage was undamaged and moved freely by hand. Cabin control cable continuity was obtained to the throttle valve linkage. The supercharger to throttlebody coupling band clamps overlapped each other.



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LUBRICATION SYSTEM:

Oil Pump The oil pump was not disassembled during the inspection.

Oil Sump Condition: The oil sump was undamaged and not removed during the inspection. Approximately 8 quarts of oil was removed from the sump. The oil was dark in color.



Oil Filter Condition: The oil filter was undamaged and safety wired. The filter was not removed during the inspection as designated by the NTSB.



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CYLINDERS:

Cylinders Part Number: 655465 Head Date: Not legible Barrel Surface: Steel

Condition: The cylinders were boroscoped and the piston heads and combustion areas had a light layer of gray deposits. The valves were undamaged and had no signs of abnormal thermal discoloration. The crankshaft was rotated by hand and cylinder compression and valve continuity was obtained. The cylinder overhead components were lubricated and undamaged.



CRANKCASE ASSEMBLY:

Crankcase Casting No.: 1-3-5 Side: R04HA074 2-4-6 Side: R04HA121 Serial number: Unknown

Condition: The crankcase was undamaged.

CRANKSHAFT ASSEMBLY:

Crankshaft Forging number: Unknown Serial number: Unknown Heat code: Unknown

Condition: The crankshaft was rotated by hand and gear continuity was obtained from the propeller assembly to the magneto drive gears and starter adapter drive pulley.

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ACCESSORIES:

Starter

Condition: The starter was undamaged and not removed from the engine.



Alternator/Generator

Condition: The alternator was undamaged and was not removed from the engine during the inspection. The drive belt separated from the starter adapter drive pulley and alternator drive pulley and was found near the firewall area.



Accessory Gears

Condition: The crankshaft was rotated by hand and continuity was obtained from the accessory gears, forward camshaft drive gear and starter drive pulley.

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Supercharger

Part number: Unknown

Serial Number: Unknown

Condition: The supercharger was undamaged and not removed during the inspection. The drive belt was missing from the wreckage.



Propeller Governor

Condition: The propeller governor was not removed from the engine during the inspection.



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Propeller: MFG/Model: Aero Composites Inc./Unknown

Condition: The propeller assembly had impact damage and remained attached to the engine during the inspection. The cambered surfaces of the blades had rubber impact marks. One of the blades had approximately 8 inches missing from the tip. The spinner was undamaged.

