



# Air Safety Investigations

## ENGINE FIELD INSPECTION REPORT

**FINAL**


ENGINE MODEL: O-470

ENGINE SERIAL: Unknown

AIRCRAFT MODEL: Cessna 182P

SERIAL NUMBER: 182-63934

REGISTRATION: N222CG

Examiner	Signature	Date
Andrew L. Swick		02-09-2010

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GENERAL INFORMATION			
EXAMINATION		ACCIDENT DATA	
Date	02-09-2011	NTSB Accident #:	WPR10FA324
Facility	Aircraft Recovery Services	NTSB Investigator:	Tealeye Cornejo
Address		FAA Inspector:	Unknown
City	Pearblossom	Law Enforcement:	Los Angeles County
State and Zip	California	Coroner/Medical Examiner:	Los Angeles County
ENGINE INFORMATION			
Make	Teledyne Continental Motors		
Model	O-470		
Serial No.	No Data Tag		
Engine Position	Forward		
Total Time	Unknown		
Time SOH	Unknown		
Tachometer	Undetermined		
Assembled Date			
Shipped Date			
Customer Name			
In Service Date			
TopCare Date			
AIRCRAFT / ACCIDENT INFORMATION			
Aircraft Make	Cessna		
Aircraft Model	182P		
Aircraft Serial No.	182-63934		
Registration No.	N222CG		
Accident Date	07-01-2010		
Accident Location	Avalon, California		

Report Summary:

Search Code:

The engine and its components had extensive thermal damage. The inspection of this engine did not reveal any other abnormalities that would have prevented normal operation and production of rated horsepower.

Disposition of engine following exam: Awaiting disposition.

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

Inspection Witnesses			
Name	Howard Plagens	Name	Henry Soderlund
Address	1515 West 190 <sup>th</sup> Street Suite 555 Gardena, California 90248	Address	██████████ Wichita, Kansas 67277
Organization	N.T.S.B.	Organization	Cessna Aircraft Company
Phone No	██████████	Phone No	██████████
Name	Andrew L. Swick	Name	
Address	██████████ Rancho Cordova, California 95742-6532	Address	
Organization	Teledyne Continental Motors	Organization	
Phone No	██████████	Phone No	

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#### EXTERNAL INSPECTION OF ENGINE:

The engine inspection took place at Aircraft Recovery Services in Pearblossom, California on 09-08-2011. The engine separated from the main wreckage and remained attached to the firewall. The engine mount legs had impact damage and the engine mount assembly was cut away to facilitate the removal of the firewall. The propeller assembly had impact and thermal damage and remained attached to the engine. The engine had varying degrees of thermal damage. The top of the crankcase had thermal damaged and large openings revealed the crankcase interior components. The interior components were dry of oil and corroded. The cylinders had thermal damage to all cylinder heads. A small amount of the number 5 cylinder head remained attached to the cylinder barrel. The number 5 valve assemblies were found in the firewall area during the inspection. The number 3 and 5 pistons were visible through the thermally damaged heads. Several cylinder deck stud nuts and through-bolt nuts were missing or loose. The magnetos had thermal damage and the majority of the right magneto was missing. The exhaust assembly remained attached to the engine and had impact damage. The induction assembly from the risers to the carburetor was missing. The carburetor throttle valve and linkage remained intact to its control cable. The oil sump had thermal damage and large holes revealed the pickup tube mounting legs. The oil pickup screen was not visible. The oil pump cover could not be removed due to thermal deformation. The oil cap had thermal and impact damage and remained attached to the oil filler neck. The propeller governor remained attached to the engine and had thermal damage. The oil filter and adapter had thermal and impact damage and were not removed from the engine. The starter had impact and thermal damage. The starter adapter drive pulley had thermal damage and the alternator was missing. The inspection of the wreckage was under direct supervision of the NTSB investigator in charge.





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## ENGINE TEARDOWN AND COMPONENT EXAMINATION

### Exhaust assembly

Condition: The exhaust assembly remained attached to the engine and had impact damage.



### Induction assembly

Condition: The induction assembly had thermal damage and missing components. The carburetor throttle valve and linkage were found and remained attached to the control cable. The induction filter assembly was not found during the inspection.



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## IGNITION SYSTEM:

R/H Magneto Manufacturer: No Data Tag

L/H Magneto Manufacturer: No Data Tag

Condition: The magnetos remained attached to the engine and had extensive thermal damage. The magnetos were not removed during the inspection.



Ignition Harness Manufacturer: Not Legible.

Condition: The ignition leads had thermal damage and only small portions were found and attached to the magnetos.

Spark Plugs Manufacturer: Champion Part No.: RHM-40E

Condition: The upper positioned spark plugs were removed from the engine prior to the inspection. The electrodes were undamaged and the electrode areas had melted aluminum and foreign deposits.





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## FUEL SYSTEM:

### Carburetor

Manufacturer: Unknown

Condition: The carburetor throttle valve and linkage remained intact to its control cable. The carburetor was not found during the inspection.



## LUBRICATION SYSTEM:

### Oil Pump

The oil pump cover could not be removed from the engine.



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#### Oil Sump

Condition: The oil sump had thermal damage and large holes revealed the pickup tube mounting legs. The oil pickup screen was not visible.



#### Oil Filter

The oil filter and adapter had thermal discoloration and impact damage. The oil filter was not removed during the inspection.





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## CYLINDERS:

Cylinders Part No.: Unknown

Condition: The cylinders had thermal damage to all cylinder heads. A small amount of the number 5 cylinder head remained attached to the cylinder barrel. The number 5 valve assemblies were found in the firewall area during the inspection. The number 3 and 5 pistons were visible through the thermally damaged heads. Several cylinder deck stud nuts and through-bolt nuts were missing or loose.





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## CRANKCASE ASSEMBLY:

Crankcase Casting No. 1-3-5 Side: Not checked 2-4-6 Side: Not checked Serial No.:

Condition: The top of the crankcase had thermal damaged and large openings revealed the crankcase interior components.



## CRANKSHAFT ASSEMBLY:

Crankshaft Forging No.: Unknown

Condition: The crankshaft was visible through the crankcase damage. The crankshaft was dry of oil and had corrosion deposits covering its surface. No mechanical damage was noted.



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## ACCESSORIES:

**Accessory Gears** Condition: The accessory gears were not visible during the inspection.

**Starter** Manufacturer: Unknown

Condition: The starter motor separated from the starter mounting flange. The mounting flange remained attached to the starter adapter.



**Alternator** Manufacturer: Unknown

Condition: The alternator was not available during the inspection.

**Vacuum Pump** Part No.: Not Legible

Condition: The vacuum pump was removed from the engine and the drive coupler had thermal damage. The vacuum pump was disassembled and the rotor was cracked in several sections.





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#### Propeller Governor

Model No.: (McCauley) C200D 3K/T-1

Serial No.: 750774A

Condition: The propeller governor remained attached to the engine and had thermal damage.



#### Propeller:

MFG/Model No.: Not checked.

Serial No.:

HUB S/N:

#### Condition:

The propeller assembly remained attached to the engine. The propeller hub was undamaged and portions of the spinner remained attached to the aft side of the hub. Blade A was loose in the hub and had missing material from the mid-section to the tip. The remaining blade material had thermal deformation. Blade B was bent aft near the shank and had a decreased pitch twist from the mid-section to the tip. The cambered face had chord-wise scratches and gouging.

