



## **NATIONAL TRANSPORTATION SAFETY BOARD**

Office of Aviation Safety  
Western Pacific Region

Date: May 28, 2019

### **SUMMARY OF ENGINE EXAMINATION**

**(WPR19LA140)**

#### **A. ACCIDENT**

|                             |                     |
|-----------------------------|---------------------|
| Location:                   | Red Rock, Arizona   |
| Date:                       | May 5, 2019         |
| Aircraft:                   | Cessna 172 / N8887U |
| NTSB Investigator-in-Charge | Jack Vanover        |

## **B. EXAMINATION PARTICIPANTS**

Jackie Vanover  
Aviation Accident Investigator  
National Transportation Safety Board  
Federal Way, WA 98003

Daniel W. Meeker  
Aviation Safety Inspector-Operations  
Federal Aviation Administration  
Scottsdale, AZ 85255

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Aviation Safety Inspector-Operations  
Federal Aviation Administration  
Scottsdale, AZ 85255

## **C. HISTORY OF FLIGHT**

On May 5, 2019, about 1756 mountain standard time, a Cessna 172F airplane, N8887U, was substantially damaged during a forced landing following a partial loss of engine power near Red Rock, Arizona. The commercial pilot and the three passengers did not sustain injuries. The airplane was registered to AVRA Valley Flyers LLC and operated by the pilot as a Title 14 *Code of Federal Regulations* Part 91 cross country personal flight. Visual meteorological conditions prevailed at the accident site about the time of the accident, and no flight plan had been filed. The flight originated from Mc Clellan-Palomar Airport (CRQ), Carlsbad, California about 1445 Pacific daylight time, and was destined for Marana Regional Airport (AVQ) Marana, Arizona.

The pilot reported that, about 15 miles northwest of AVQ, while in a descent from 5,500 ft, the engine RPM dropped from 2,600 RPM to 1,300 RPM, then dropped to 1,000 RPM where it remained throughout the duration of the accident. The pilot was unable to maintain altitude and executed a forced landing onto a dirt road.

The pilot stated that the landing touchdown was soft, however during the landing roll the left wing clipped a bush and spun the airplane to the left.

## **D. AIRCRAFT INFORMATION**

1965 Cessna 172F, serial number 17252806, was an externally braced high-wing, propeller-driven, fixed landing gear, semi-monocoque design, four-seat airplane. A 145-horsepower, six-cylinder, air-cooled, horizontally opposed, carbureted, Continental O-300-D, serial number 29754-D-5-D, engine, powered the airplane. The propeller was a two-bladed, all-metal, fixed pitch, McCauley model 1C172.

A copy of an excerpt from the airplane's logbooks showed that an annual inspection was completed on May 4, 2018. The airplane had accumulated 4,067.07 hours of total time at the date

of the annual inspection. The logbooks listed a tachometer time 1,999.13 hours at that inspection and a time since major engine overhaul of 1,484.53 hours.

N8887U  
Cessna 172F S/N 17252806  
Continental O-300-D S/N 29754-D-5-D TSN: 4067.07 TSO: 1484.53  
McCauley ICI72 S/N E-6793 TSN: UNK  
Actt: 4067.07 Tach: 1999.13 Hobbs: 5013.0  
TUCSON AEROSERVICE CENTER

Complied with an Annual Inspection per the Tucson Aeroservice Center Checklist and FAR, Part 43, Appendix D.

Complied with the following AD's:

2011-10-09 Seat and Seat Track Inspection. Next due: 2099.13 or 5/19

94-05-05 Rocker shaft boss. Next due: Cylinder removal or overhaul.

ELT inop. Ameri-King ELT model AK-451 S/N 18580 removed IAW 14 CFR part 91.207 para. (f)(10)(i). ELT replacement due no later than 3 Aug. 2018. Replaced induction air filter P/N BA-6108. Replaced instrument air filter AAD9-14-5. One crack noted on pilot outboard seat rail at aft pin hole, serviceable per AD 2011 10-09 Fig. 5. Replaced LH & RH elevator trim pulleys (far aft). Replaced upper & lower elevator trim pulleys (far aft). Replaced LH & RH elevator/elevator trim pulleys under center floor. Stop drilled cracks on L&R elevator tips. Stop drilled cracks on L&R wing tips. Blended damaged areas of LH flap cove attach brackets. Replaced #2 cylinder with serviceable cylinder, model 626687 S/N TM641617D. Replaced LH MLG brake disc. Replaced LH wheel outbd. wheel bearing. Replaced seals in fuel selector valve, ops check good, no leaks noted. Installed new muffler on RH side P/N A0550176-59-I S/N 65488. All work performed IAW applicable maintenance manuals and current Federal Aviation Regulations. I certify that the aircraft and/or component identified above has received an Annual Inspection in accordance with FAR, Part 43, Appendix D and was determined to be in airworthy condition and is approved for return to service. Pertinent details are on file with Tucson Aeroservice Center. W.O. MA-18-5833

Date: May 4, 2018

Don Hart FAA-CRS YXCR399X

N8887U  
Cessna 172F S/N 17252806  
Continental O 300-D S/N 29754-D-5-D TSN: 4067.07 TSO: 1484.53  
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TUCSON AEROSERVICE CENTER

Complied with an Annual Inspection per the Tucson Aeroservice Center Checklist and FAR, Part 43, Appendix D.

Complied with the following AD's:

94-05-05 Rocker shaft boss. Next due: Cylinder removal or overhaul.

Compression Test Results: #1) 76/80 #2) 68/80 #3) 68/80 #4) 76/80 #5) 76/80 #6) 76/80.

Changed engine oil. Engine serviced with Phillips 20W-50 XC oil. Replaced induction air filter P/N BA 6108. Replaced #2 cylinder with serviceable cylinder, model 626687 S/N TM641617D. Installed new muffler on RH side P/N A0550176 59-I S/N 65488. All work performed IAW applicable maintenance manuals and current Federal Aviation Regulations. I certify that the aircraft and/or component identified above has received an Annual Inspection in accordance with FAR, Part 43, Appendix D and was determined to be in airworthy condition and is approved for return to service. Pertinent details are on file with Tucson Aeroservice Center. W.O. MA 18-5833

Date: May 4, 2018

Signed: Don Hart FAA CRS YXCR399X

The aircraft's most recent maintenance record was recorded as follows: replacement of the Nos 2 and 3 cylinders, dated April 30, 2019, at a recorded tachometer time of 2,265.3 hours.

# AIRCRAFT MAINTENANCE RECORD

Page No. .

N8887U

Cessna 172F

Continental O-300-D

McCauley ICI72

S/N 17252806

S/N 29754-D-5-D

S/N E-6793

Tach: 2265.3

Hobbs: 5682.2

Replaced #2 and #3 cylinder assemblies with new Superior complete assemblies pn SA10200-A20P. Replaced lower, forward crankcase thru bolt and hardware. Drained engine oil and cleaned and inspected pressure screen. Serviced with 8 qts Aeroshell 100 mineral oil. Ran engine and leak check good. All work performed IAW applicable maintenance manuals and current Federal Aviation Regulations and is approved for return to service.

Date: April 30, 2019

Signed: \_\_\_\_\_

Ron Anders \_\_\_\_\_

## ENGINE EXAMINATION

Examination of the engine took place on May 28, 2019, at the facilities of Air Transport in Phoenix Arizona.

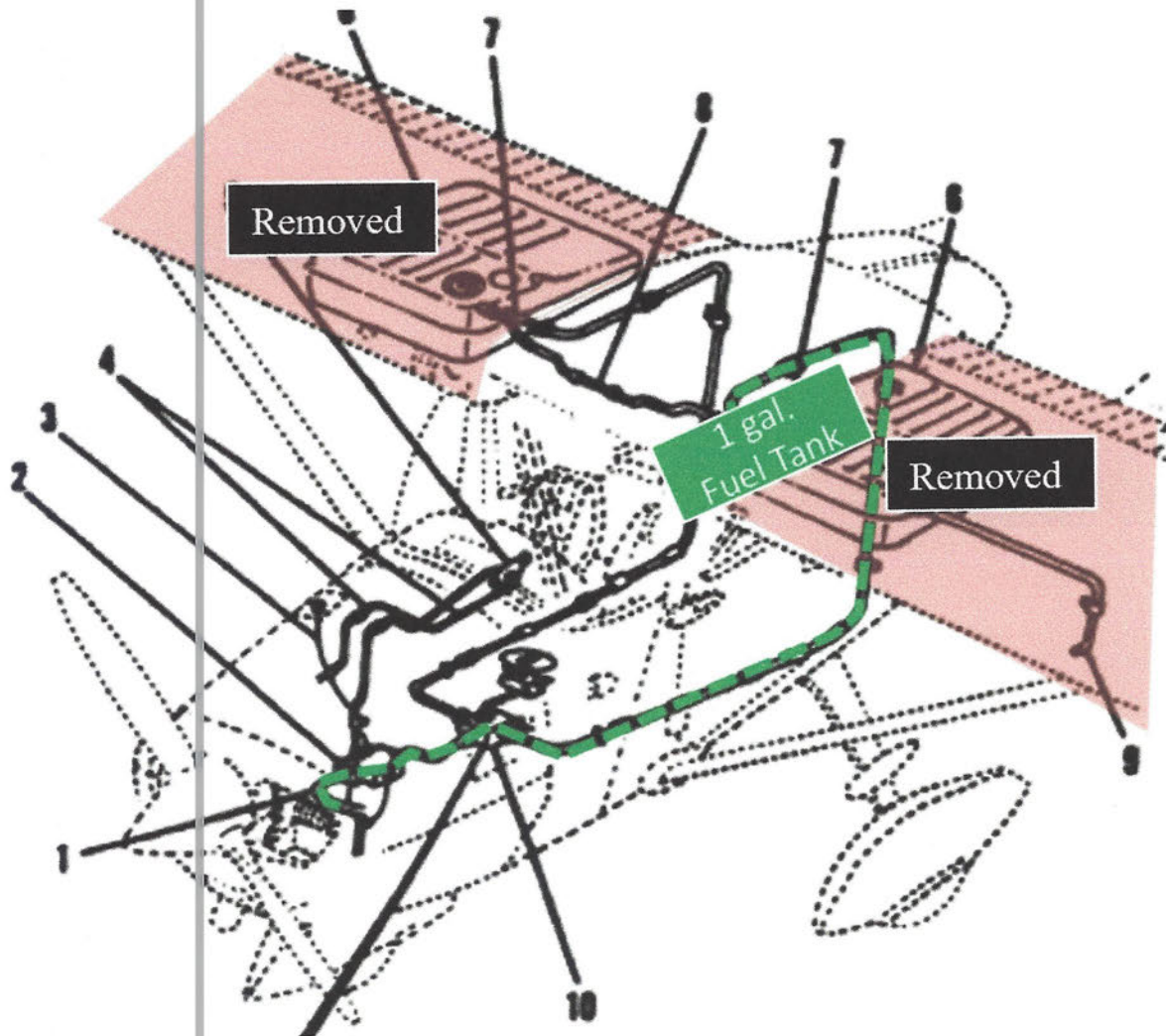
## PRIOR TO ENGINE RUN

The top spark plugs were removed from all six cylinders. A lighted borescope was used in each cylinder. No debris was noted. The rocker box covers were removed, and no anomalies were noted. The rocker box covers, and spark plugs were reinstalled. About an ounce of fuel was drained from the fuel strainer and tested with SAR-GEL<sup>1</sup> for water contamination. The fuel sample was free of debris and tested negative for water contamination.

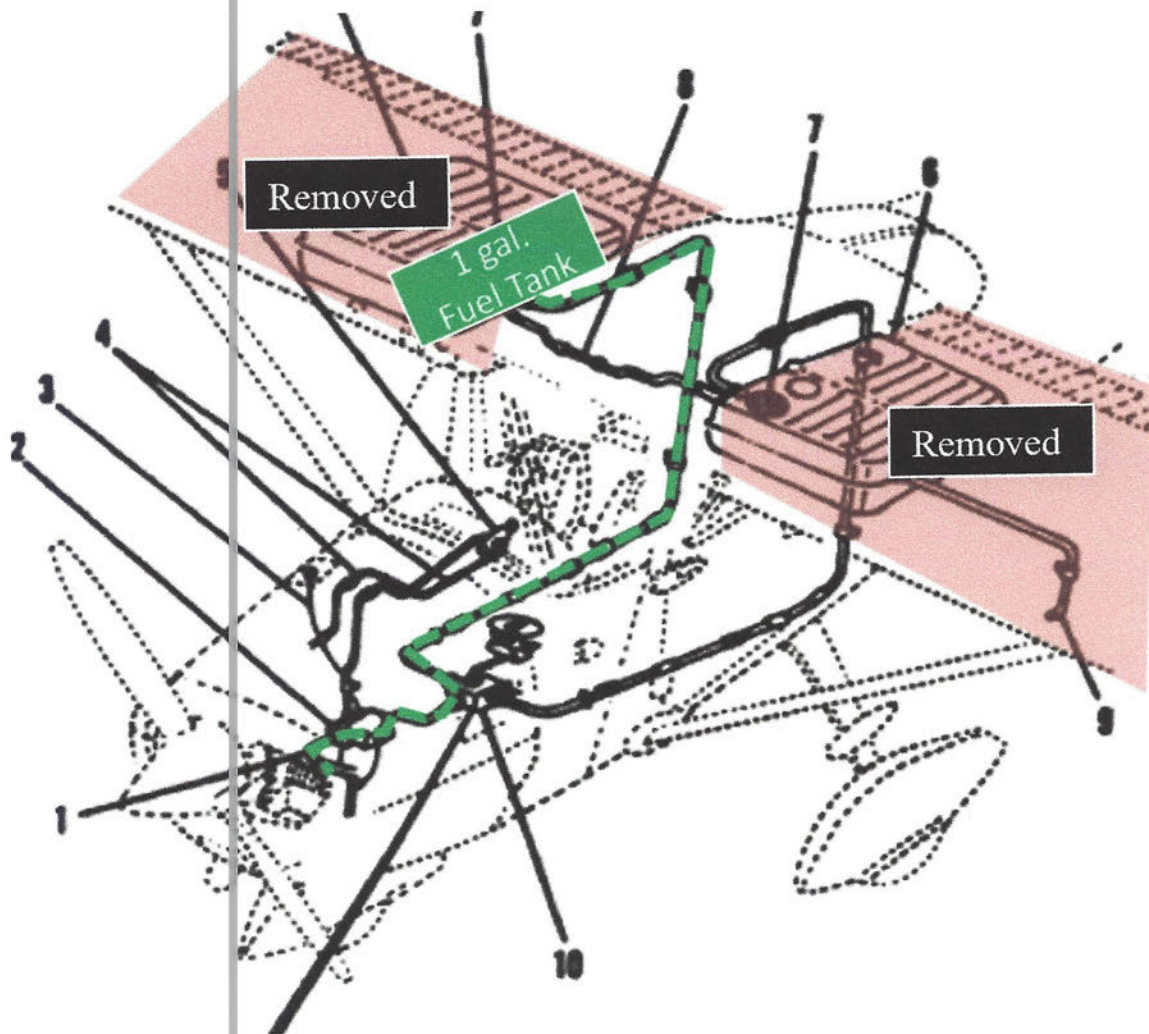
Cockpit observations: The left fuel gauge read full and the right read empty. According to the JPI Fuel Scan 450, 20.1 gal. of fuel was used, and 16.9 gal. remained.

A one-gallon external fuel tank was plumbed into the fuel system and the engine was run.

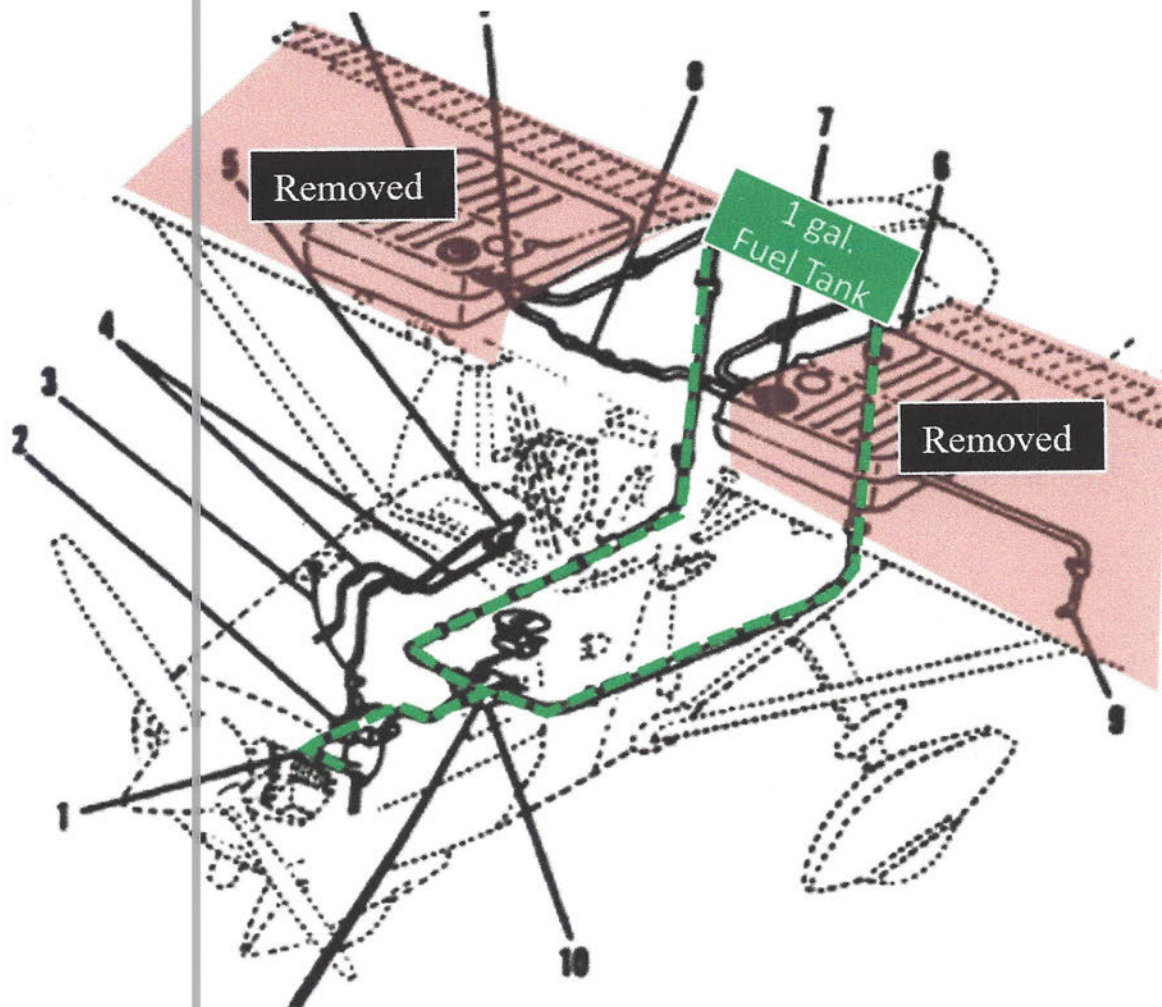
<sup>1</sup> SAR-GEL is a white/pink paste that detects water in fuel. Upon contact with water, the paste will turn deep scarlet.



The fuel selector was set to *LEFT*, the master was turned on, the mixture was advanced full forward, and the engine started successfully. During the engine run, about 2230 RPM, the mixture was leaned with no anomalies noted—then advanced full forward. The carburetor heat was opened, the RPM dropped about 50 RPM and then returned once the carburetor heat was closed. The fuel selector was moved to right and then off, both times the engine stopped. The engine was successfully ran on the *LEFT* and *BOTH* fuel selector positions with the left fuel line plumbed in.



The fuel selector was set to *RIGHT*, the master was turned on, the mixture was advanced full forward, and the engine started successfully. The engine was advanced forward to about 2,280 RPM. The engine was successfully ran on the *RIGHT* and *BOTH* fuel selector positions with the right fuel line plumbed in. (Note: The first time the engine run was attempted, the engine lost power due to a lack of fuel in the 1 gal. external fuel tank. The fuel tank was refueled, and the engine run was completed without further incident).



The fuel selector was set to *BOTH*, the master was turned on, the mixture was advanced full forward, and the engine started successfully. The engine was advanced forward to about 2,280 RPM. The engine was successfully ran on the *RIGHT*, *LEFT* and *BOTH* fuel selector positions with the right and left fuel line plumbed in.