



Title:

Investigation Report

Number:

VSE MFG010

DETAILS OF INVESTIGATION

Unit Type	Fuel Control Unit
Part Number	3244777-6-5
Serial Number	A85159
Engine S/N	PH0869
Investigation Date	10 Sep 2024



Title:

Investigation Report

Number:

VSE MFG010

SUMMARY



Aviation Investigation Preliminary Report

Location:	Covert, KS	Accident Number:	CEN24LA193
Date & Time:	May 18, 2024, 20:15 Local	Registration:	N15189
Aircraft:	AIR TRACTOR INC AT-502	Injuries:	1 None
Flight Conducted Under:	Part 137: Agricultural		

On May 18, 2024, about 2015 central daylight time, an Air Tractor AT-502, N15189 was substantially damaged when it was involved in an accident near Covert, Kansas. The pilot was not injured. The airplane was operated as a Title 14 Code of Federal Regulations Part 137 agricultural flight.

According to the pilot, during the turnaround after his second swath run, he felt the tail drop and noticed that all the engine gauges, except the Interstage Turbine Temperature (ITT) gauge, were past redline. He attempted to reduce engine power but found the engine unresponsive to changes of the power lever. He conducted an off-field landing to a nearby gravel road. During the landing, the airplane impacted tree branches and ground looped into a roadside ditch which resulted in substantial damage to both wings. The pilot was only able to reduce engine power after coming to rest when the Start Control Lever was moved to the Fuel Cut-Off "C" position.

The wreckage was retained for further examination.

Aircraft and Owner/Operator Information

Aircraft Make:	AIR TRACTOR INC	Registration:	N15189
Model/Serial:	AT-502	Aircraft Category:	Airplane
Amateur Built:			
Operator:	TRI ROTOR SPRAY & CHEMICAL	Operating Certificate(s) Held:	Agricultural aircraft (137)
Operator Designator Code:			

Page 1 of 2

CEN24LA193

This information is preliminary and subject to change.

Meteorological Information and Flight Plan

Conditions at Accident Site:	VMC	Condition of Light:	Day
Observation Facility, Elevation:	KRSL 1864 ft msl	Observation Time:	19:53 Local
Distance from Accident Site:	22 Nautical Miles	Temperature/Dew Point:	25°C /11°C
Lowest Cloud Condition:	Clear	Wind Speed/Gusts, Direction:	9 knots / , 40°
Lowest Ceiling:	None	Visibility:	10 miles
Altimeter Setting:	29.89 inches Hg	Type of Flight Plan Filed:	
Departure Point:	Osborne, KS (K75)	Destination:	Osborne, KS (K75)

Wreckage and Impact Information

Crew Injuries:	1 None	Aircraft Damage:	Substantial
Passenger Injuries:	N/A	Aircraft Fire:	None
Ground Injuries:		Aircraft Explosion:	None
Total Injuries:	1 None	Latitude, Longitude:	39.234419,-98.701146 (est)

Administrative Information

Investigator in Charge (IIC):	Finn, Andrew
Additional Participating Persons:	Gobbie, David; FAA-FSDO, Wichita, KS Lowe, Dakota; Air Tractor, Inc, Olney, TX Harvey, Beverley; Transportation Safety Board of Canada, Guelph, ON
Investigation Class:	Class 3
Note:	The NTSB did not travel to the scene of this accident.

Page 2 of 2

CEN24LA193

This information is preliminary and subject to change.

PARTICIPANTS

FAA FSDO Wichita, Kansas
FAA FSDO Wichita, Kansas
Aviation OEM Investigator VSE Aviation
Aviation OEM Investigator VSE Aviation
SR. Product Support Engineer
Tech



Title:

Investigation Report

Number:

VSE MFG010**INSPECTION RESULTS**

1. Boxed unit was removed from secure cabinet and visually inspected for damage to box prior to opening. No damage noted. Reference Photos 1A, 1B.
2. Box was opened, packaging material removed. Unit was observed to be in a plastic bag with an absorbent cloth partially wrapped around the unit. Unit was removed from the bag and photographed. Reference Photos 2A, 2B, 2C, 2D.
3. A manila tag was wired to the idle speed screw safety cable (IR2402 written on one side, 502 on the back side of the tag). Data Plate present, all fittings capped, protective sleeve was present on the drive shaft. Reference Photos 3A, 3B, 3C, 3D, 3E.
4. Unit was processed and photographed.
5. The following were observed prior to unit tested.
 - A. The drive shaft moved freely (no binding) with no visible damage. Reference Photos 4A, 4B.
 - B. Fuel by pass adjustment screw, idle adjustment screw, maximum throttle stop screw photographed. Reference Photos 5A, 5B, 5C, 5D.
 - C. Idle adjustment screw and maximum throttle stop screw are cable wired. Both are field adjustable. Reference Photos 6A, 6B.
 - D. Throttle linkage attachment hardware was present and removed to facilitate flow bench testing. Reference Photo 6B.
 - E. The PC adapter loose. No visible gap noted. Technician was able to move the adapter with light finger pressure.
 - F. Visually inspected fuel and air fittings, found to be clear, no debris.
 - G. Photographed Safety wire and Seal Arrangement. Reference Photos 7A, 7B, 7C, 7D, 7E, 7F, 7G, 7H, 7I, 7J, 7K, 7L, 7M, 7N, 7O, 7P, 7Q, 7R.
 - H. Removed Lever Assembly (Bellows) cover, visually checked for debris, none present. Reference Photos 8A, 8B.
 - I. Removed Lever Assembly (Metering Valve) cover, visually checked for debris, none present. Reference Photos 8C, 8D.
6. Unit was tested on Test Stand VSETS-007 (Independence, Kansas). Reference Attachment 1.

Post visual (as received) observations of photos:

- A. Screw Adjustment (Maximum Flow) Nut does not appear to be safety wired IAW CMM Reference Figure 1006. Reference Photos 9A, 9B, 9C, 9D.
- B. Stop, Throttle and Stop, Trim appears to be safety cabled. Reference Photos 10A, 10B.
- C. Px pressure port fitting appears to have a concentric ring around the cone portion of the fitting. Reference Photos 11A, 11B.



Title:

Investigation Report

Number:

VSE MFG010**INSPECTION RESULTS****Additional Information:**

- A. Per Pratt and Whitney, Fuel Control Unit (S/N A85159) is not the unit installed at new production.
- B. Per VSE data, VSE has not serviced the unit.

Summary of Test:

Installed unit on Test Stand VSETS 007, configured stand and unit IAW Test Specification AETS 48182 paragraphs A,B,C,D,E,F,G,I,J.

Paragraph K, External air leakage check. Excessive leakage was observed at the PC Adapter and Drive Body attachment. No other leakage noted. Px-Py measured at 15" Hg. (Spec. +/- 1.2" Hg. Max.)

In reference to Px-Py measured at 15" Hg in the Summary of Test section:

This leakage condition is likely the result of the observation that the air adapter was loose. During this check the test operator noted air leaking from the interface between the air adapter, gasket, and housing. This condition is not consistent with inability to reduce power and as a result is believed to be unrelated to the incident. After this check, the unit was prepared for running the remainder of the testing. This involved connecting pneumatic lines to the air adapter which is believed to have caused the leak to drop significantly as indicated by the Px-Py data recorded at paragraph 2.03. The remainder of the testing shows no condition which would explain the reported inability to reduce power.

Test Point 2.02 Nozzle Flow, PPH 9.5 lbs. rich.

Test Point 4.01 Nozzle Flow, PPH 5.0 lbs. rich, Pc-Px 4.6" Hg below minimum.

Test Point 5.01 Nozzle Flow, PPH 36 lbs. lean.

Test Point 6.02 Throttle Cam Pick Up Angle 0.5 degrees above maximum.

Reference sheet 6 (Test Specification AETS 48182) External Leak Check, no leakage noted. Technician rejected unit based on other tests points out of limits during the test, no fuel leakage was observed on Sheet 6 of Test Specification. Technician misinterpreted the OK/Reject portion of the Test Specification.

Remaining Test Points within limits.



Title:

Investigation Report

Number:

VSE MFG010

IMAGES



Photo 1A



Photo 1B

IMAGES



Photo 2A



Photo 2B



Photo 2C



Photo 2D

IMAGES

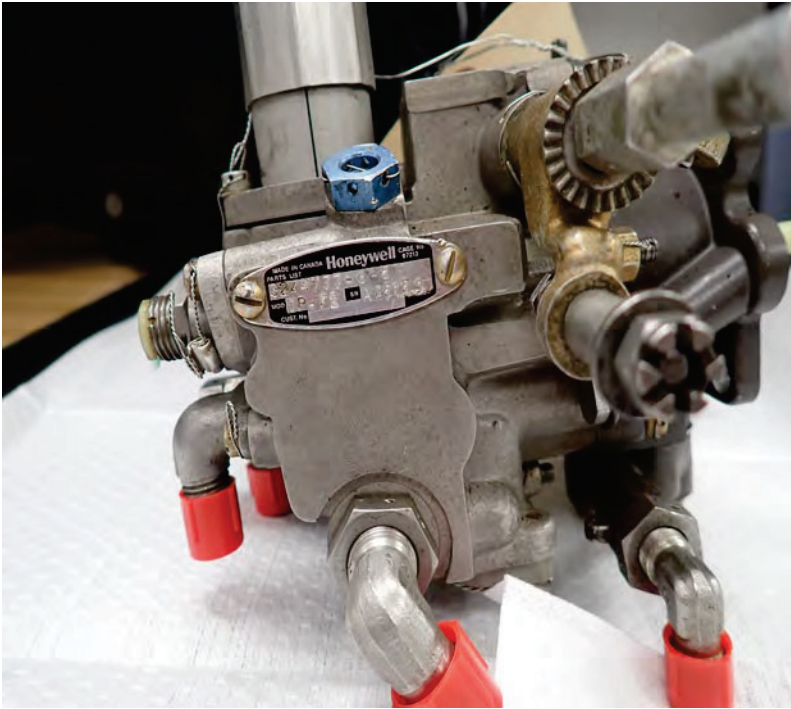


Photo 3A



Photo 3B

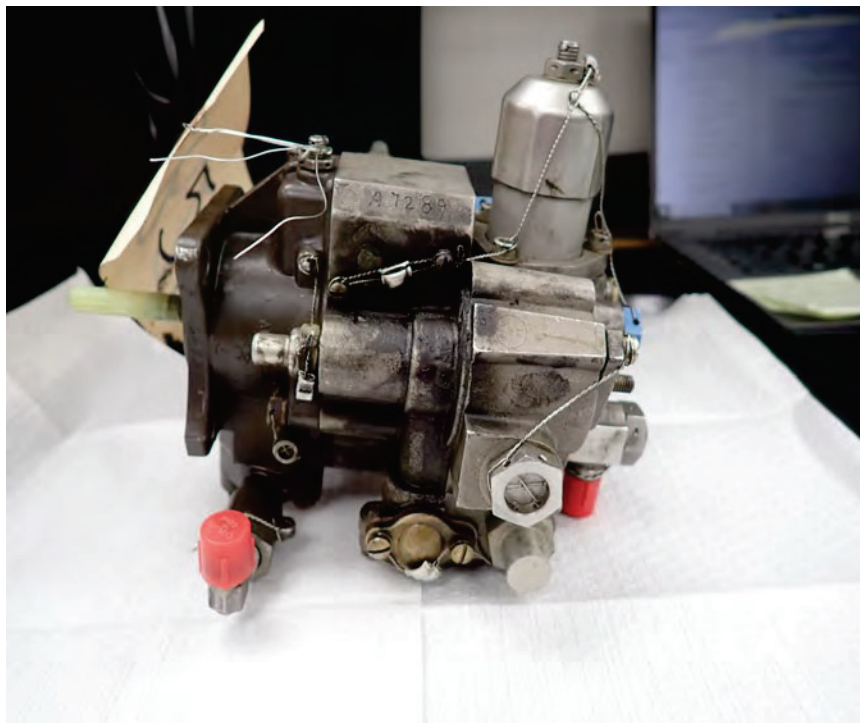


Photo 3C

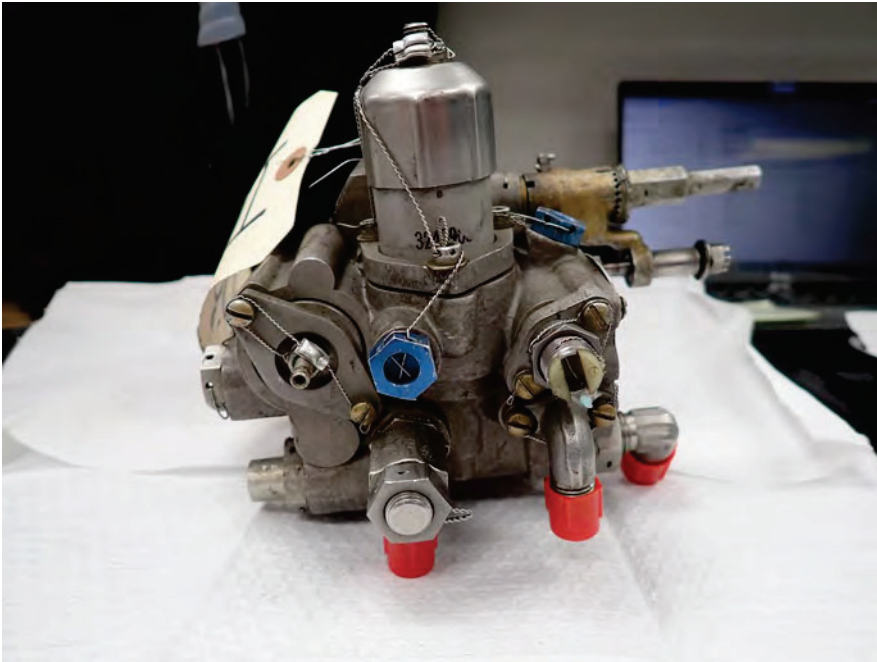
IMAGES

Photo 3D

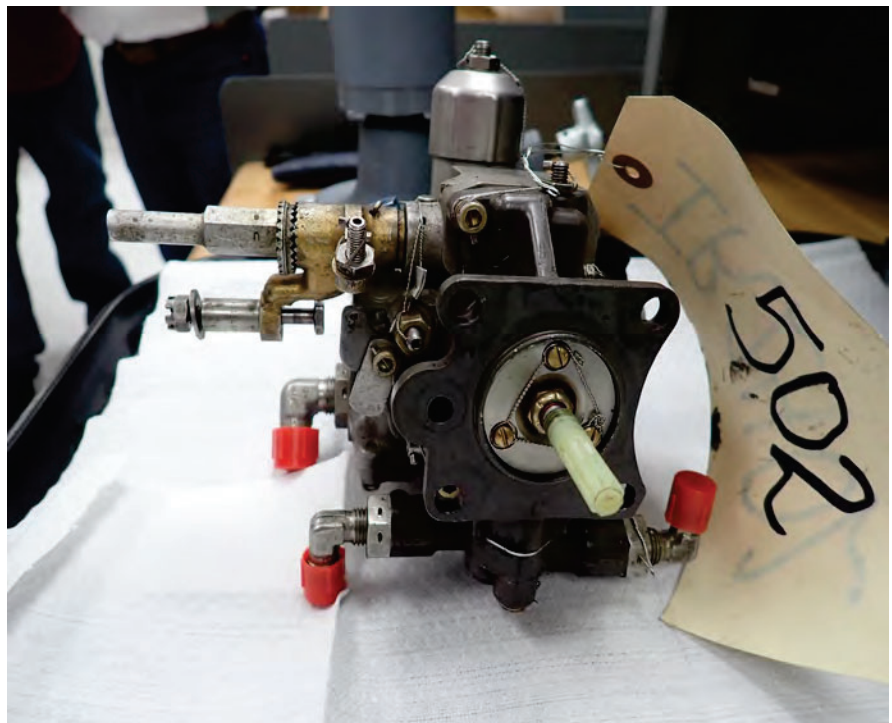


Photo 3E

IMAGES

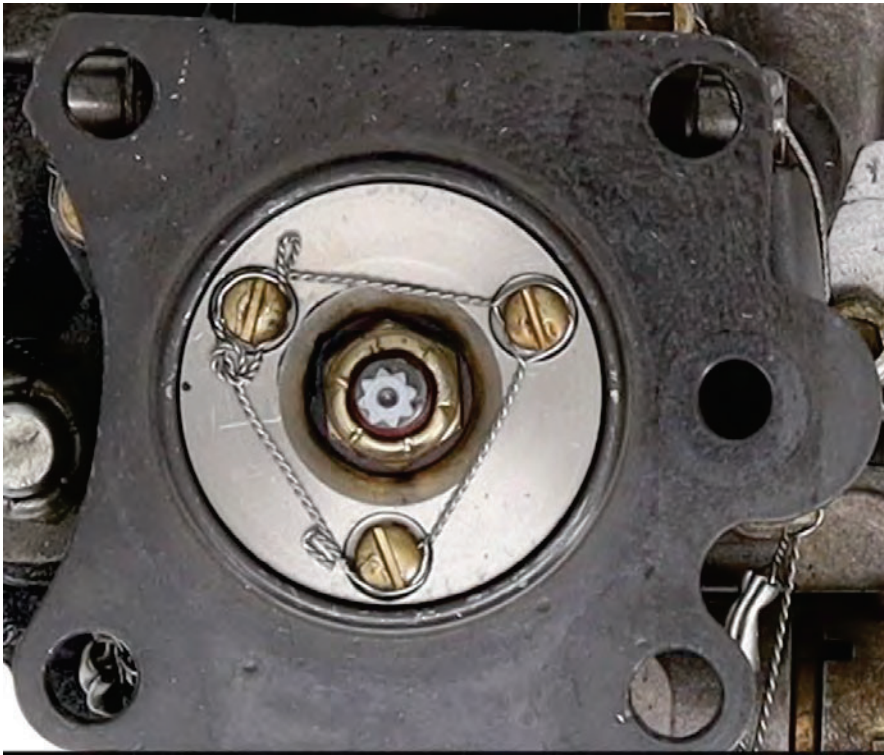


Photo 4A

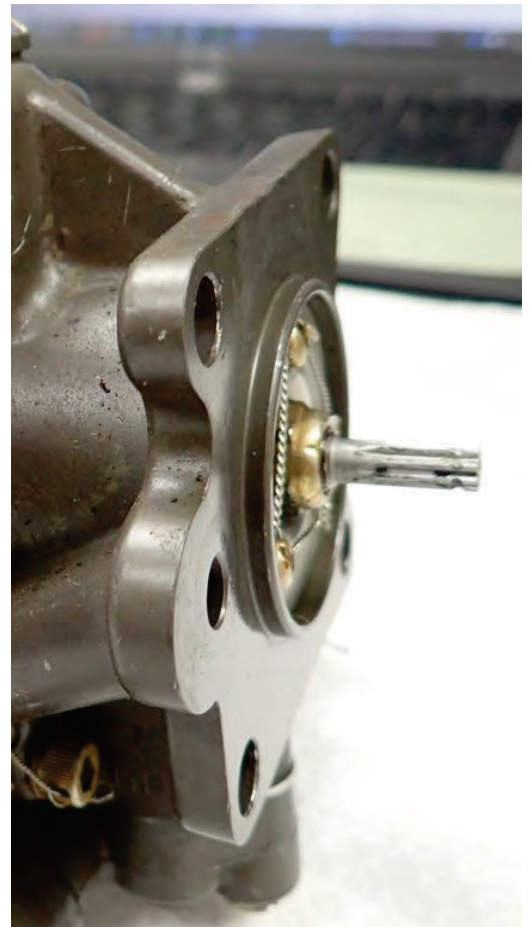


Photo 4B

IMAGES



Photo 5B



Photo 5C

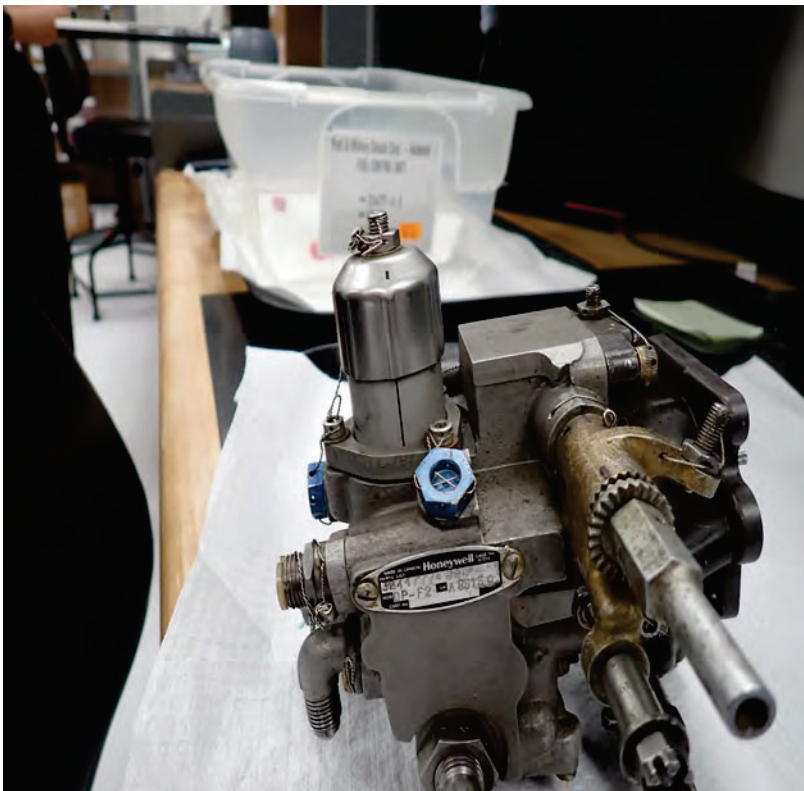


Photo 5A

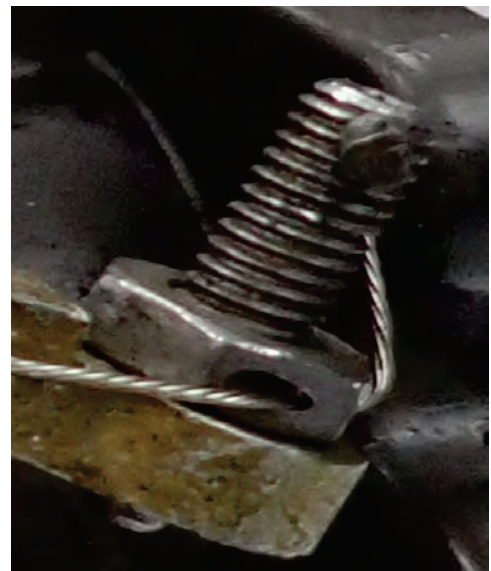


Photo 5D

IMAGES



Photo 6A



Photo 6B

IMAGES



Photo 7A

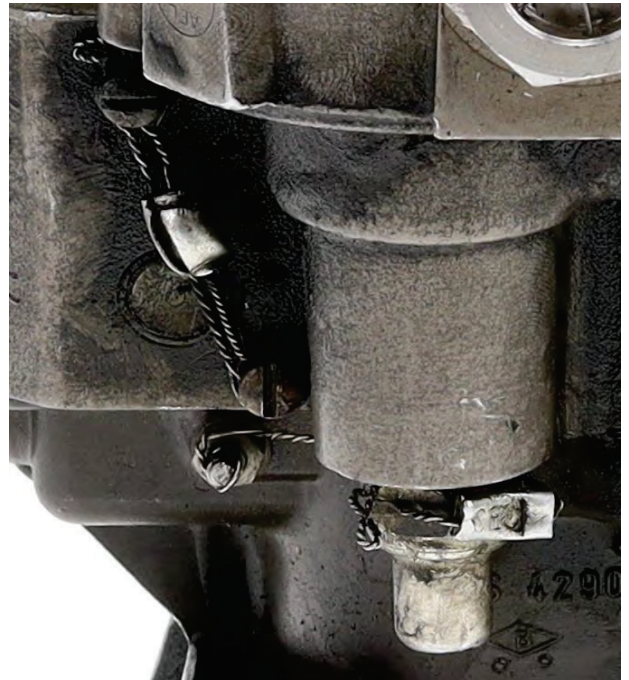


Photo 7B

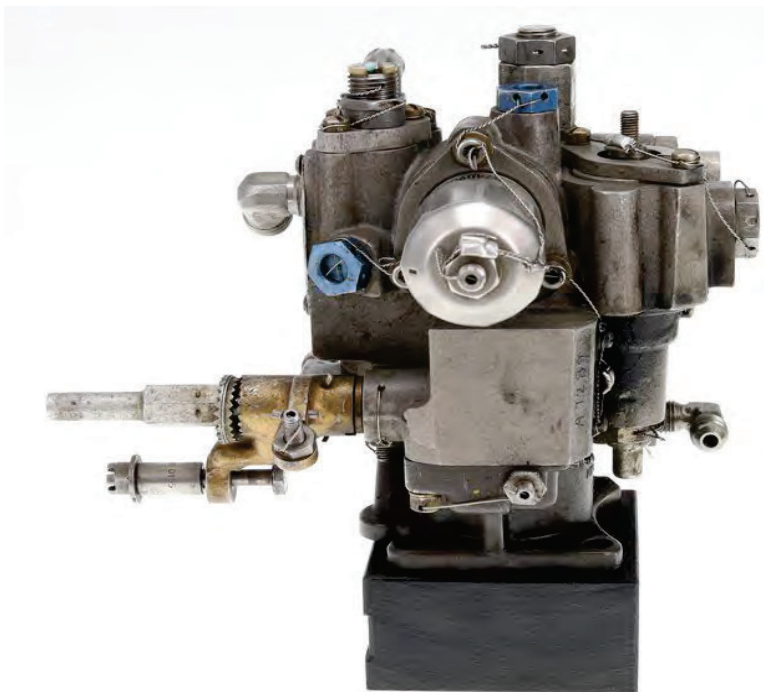


Photo 7C



Photo 7D

IMAGES

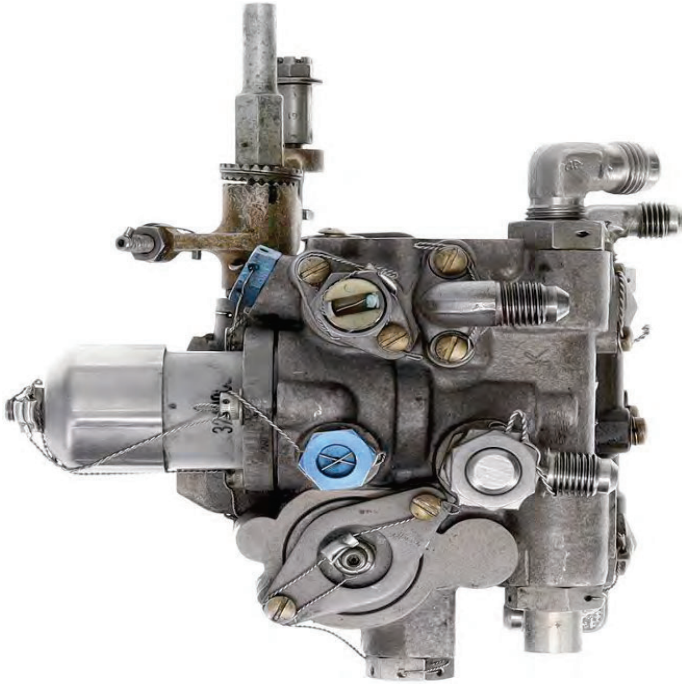


Photo 7E

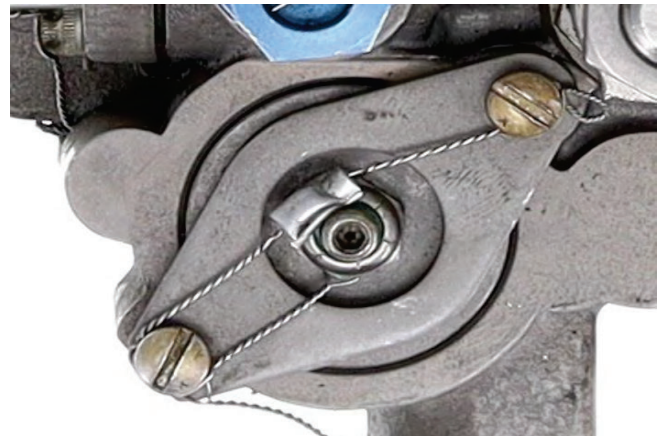


Photo 7F

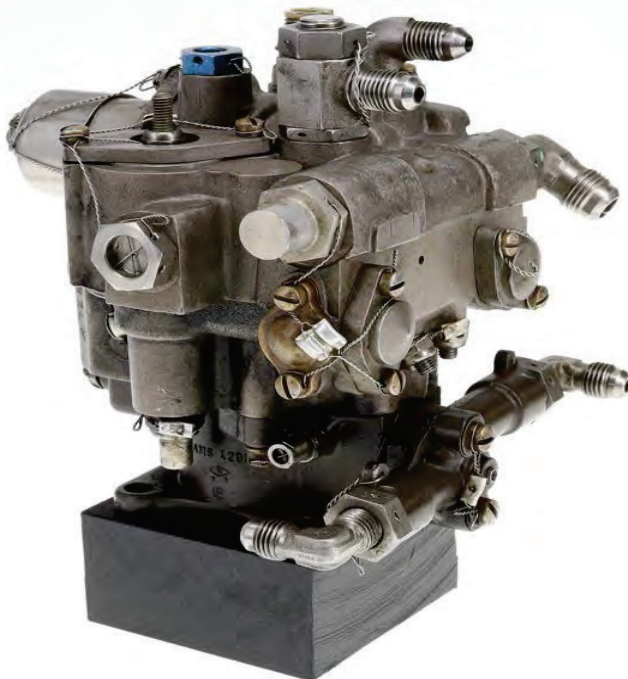


Photo 7G



Photo 7H

IMAGES

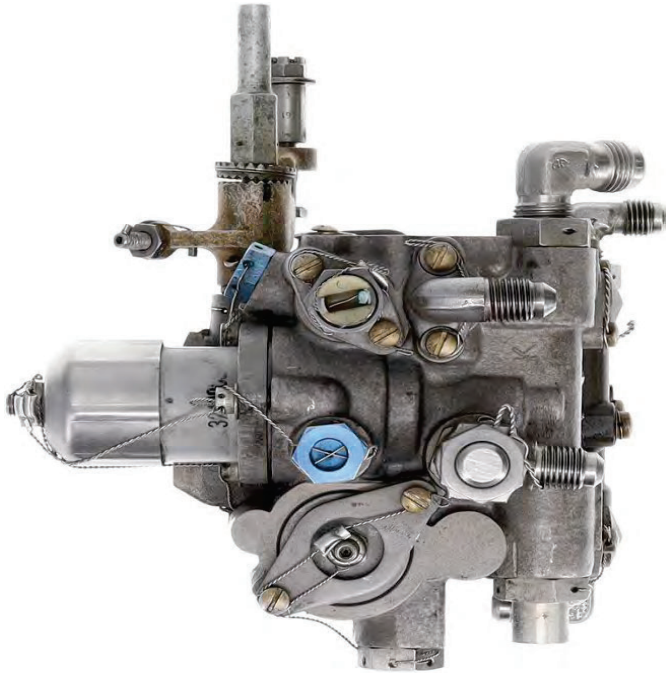


Photo 7I



Photo 7J



Photo 7K

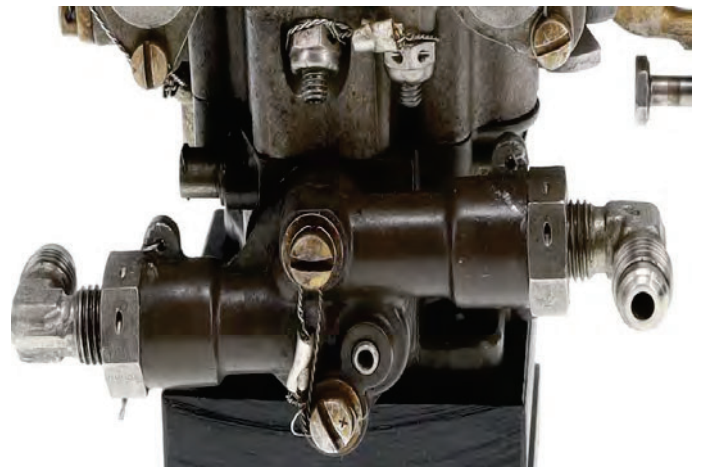


Photo 7L

IMAGES



Photo 7M

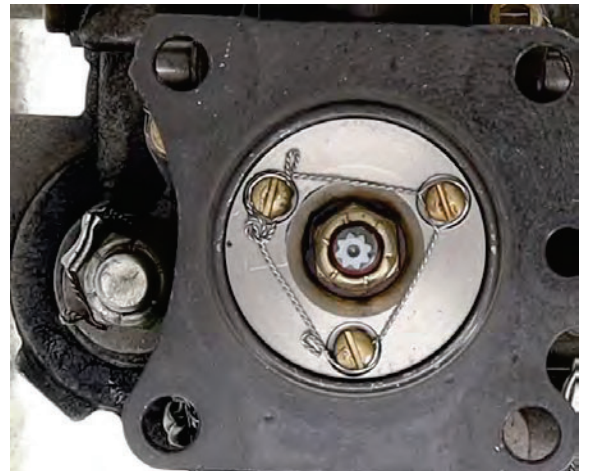


Photo 7N

IMAGES



Photo 7O

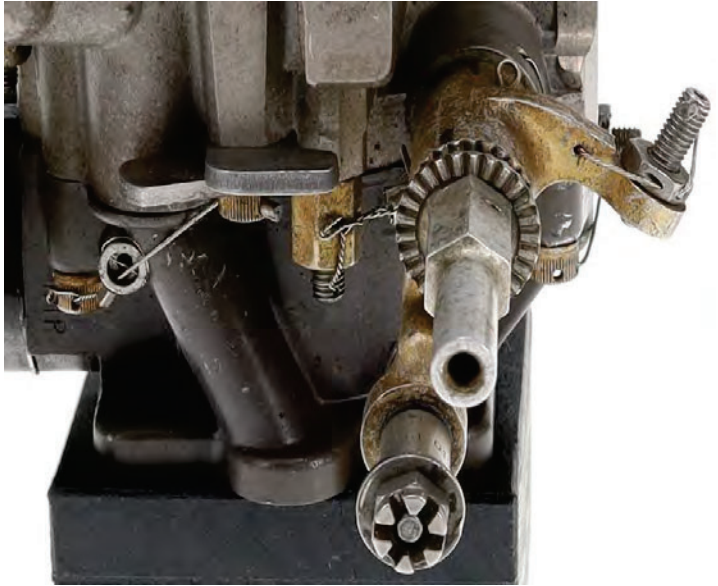


Photo 7P



Photo 7Q

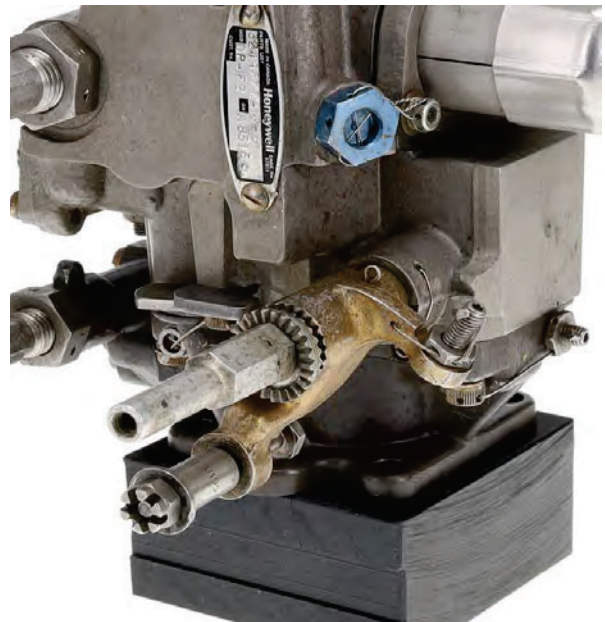


Photo 7R

IMAGES



Photo 8A

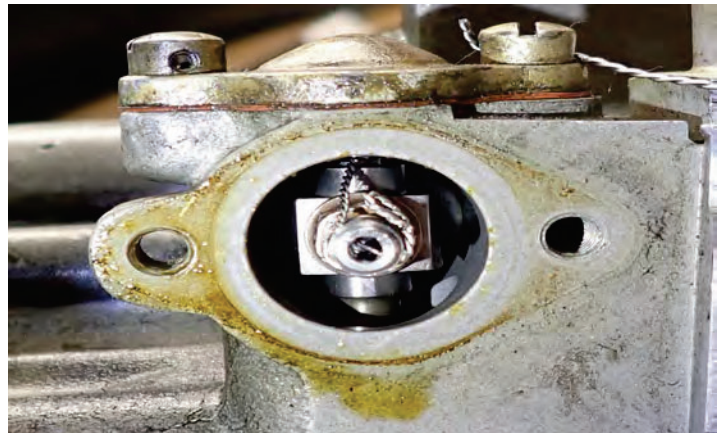


Photo 8B

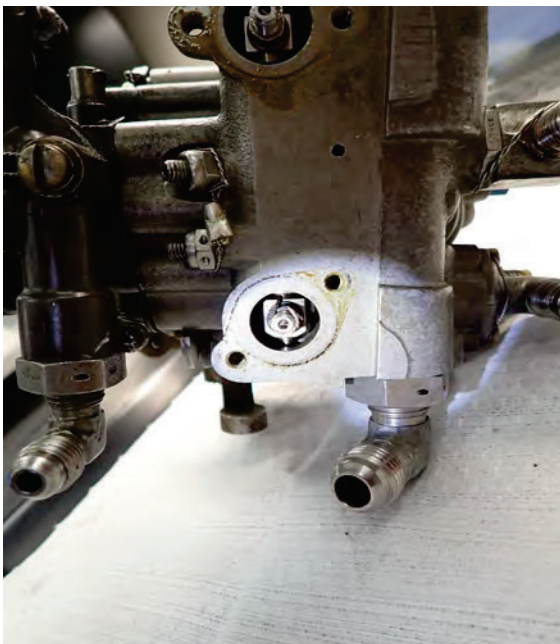


Photo 8C



Photo 7D

IMAGES

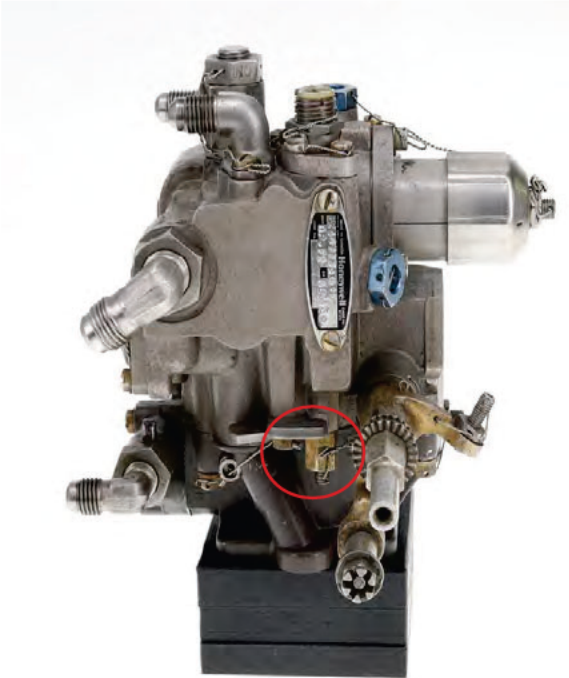


Photo 9A



Photo 9B

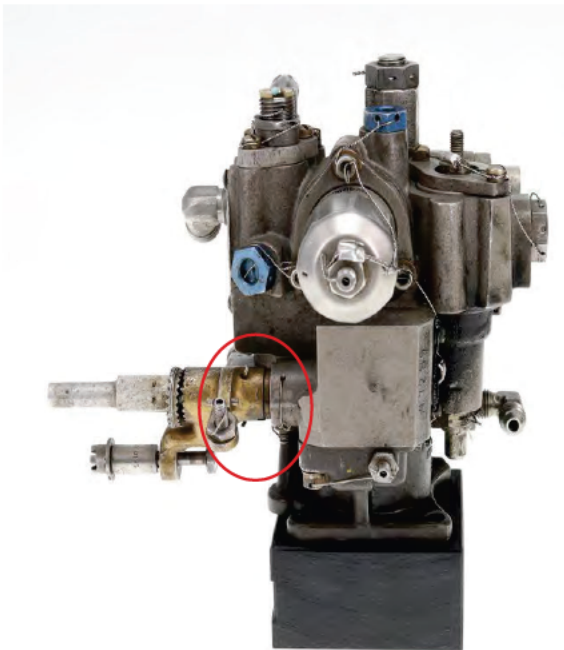


Photo 9C

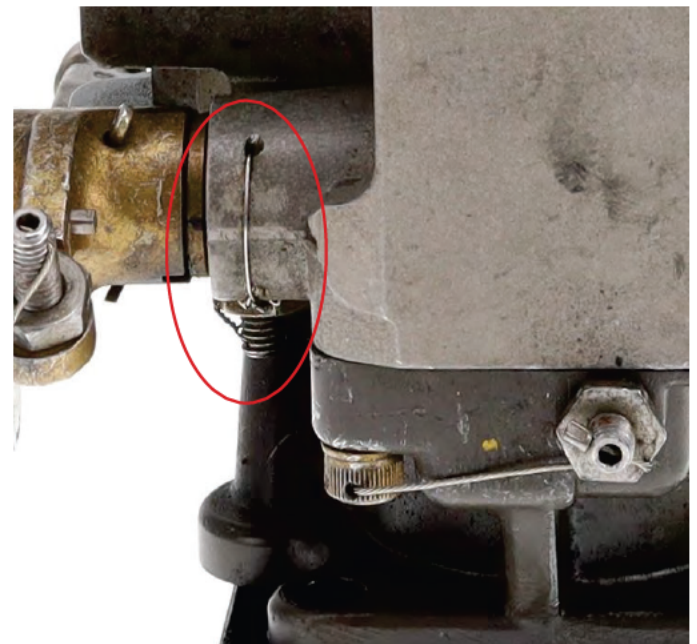


Photo 9D

IMAGES



Photo 10A

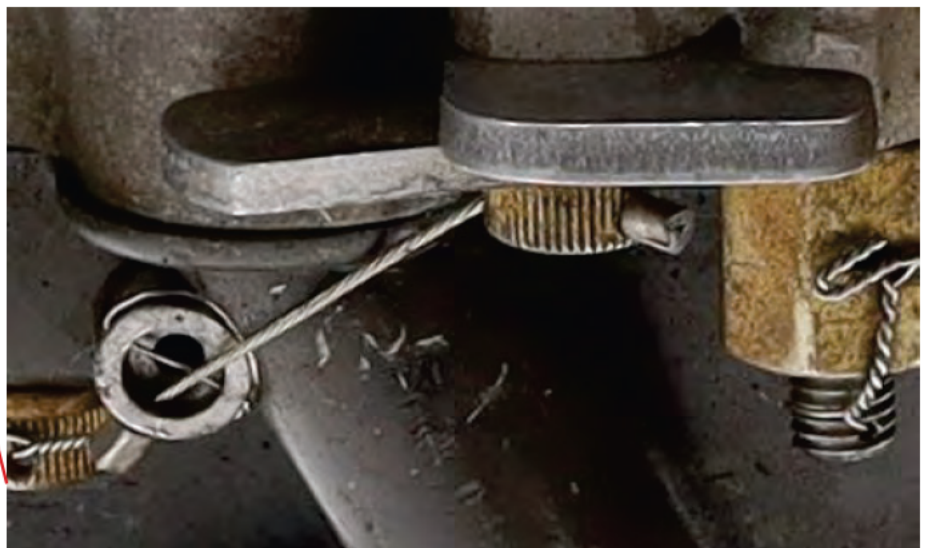


Photo 10B

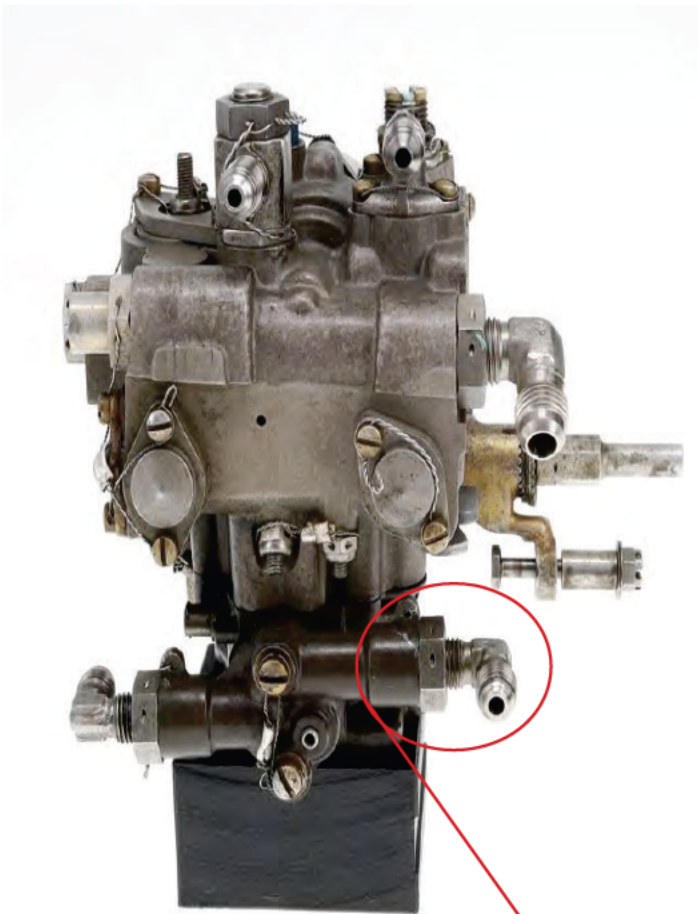
IMAGES

Photo 11A

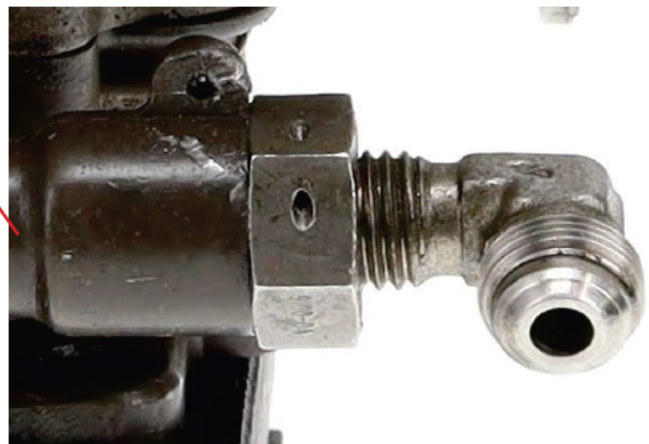


Photo 11B



Title:

Investigation Report

Number:

VSE MFG010

REPORT GENERATED BY

Aviation OEM Investigator VSE Aviation

Digitally signed by

Date: 2025.05.21
09:43:19 -05'00'