

Inspector Statement

N335JT Powerplant Inspection on July 13, 2017

On or about 1030 hours July 13, 2017 myself; Aviation Safety Inspector (ASI) David M. Gutowski and accompanied by ASI Tom H. Whitten both of the Baton Rouge Flight Standards District Office (BTR FSDO) conducted an inspection of the powerplant for aircraft N335JT. This inspection was requested through Wyatt Seeger, Front Line Manager (FLM) for support in the accident investigation for which this aircraft was involved.

After gaining access to the engine by removal of the cowling, the powerplant setup can be described as follows:

- 1) Engine is originally a Volkswagen Type 1, air cooled, four-cylinder horizontally opposed with a normally aspirated induction system.
- 2) The engine as installed has been converted to a Volkswagen Type 4 variant with displacement enlarged from 1600 cc to 1915 cc based on the owner/builder's description.
- 3) The propulsion system consists of a fixed 3 blade propeller attached to a belt-driven reduction pulley mounted to the front of the crankcase and powered from the engine crankshaft.
- 4) Fuel delivery was accomplished through an progressive type Dual 38 mm carburetor manufactured by "EMPI". A filter element was attached directly to the top intake ports of the carburetor assembly. This setup was equipped with a pre-set mixture adjustment which would not allow for mixture changes from the cockpit.
- 5) The lubrication system has an added external sump attached beneath the oil drain with steel braided hoses circulating through a "Spin-on" type oil filter mounted to the firewall.
- 6) The ignition system was of original Volkswagen design. This included a single Battery, Ignition Coil, Centrifugal advance distributor, points, condenser and one spark plug per cylinder (4 total). This engine was not equipped with a redundant or backup ignition source.
- 7) Recharging of the aircraft battery was accomplished through a magneto type generator housed in the accessory box affixed to the rear of the engine.

A post-accident visual examination of the powerplant revealed the following observations:

- 1) Molten plastic material was found between the distributor rotor and the distributor drive shaft. Notably, proper indexing of the rotor to the driveshaft was difficult to positively establish during reinstallation after the inspection.
- 2) Condition of the Spark plugs was consistent with typical Lean Fuel Mixture/High Temperature operation.
- 3) The crankshaft was free to turn by hand via the propeller indicating that the engine was not seized.

A telephone conference was accomplished with the Owner/builder/pilot David Thompson on July 17, 2017. Mr. Thompson reported the following:

- 1) The powerplant had approximately 47 hours of operation since assembly and installation.
- 2) The conversion kit was purchased from "Great Planes Aviation Supply".
- 3) The powerplant had lubrication and cooling problems upon initial installation. Although many of these discrepancies had been reportedly remedied, he still considered the situation as a "Work in progress".
- 4) The powerplant had abnormally high cylinder head temperature indications during ground operations and at cruise power settings.
- 5) The engine made popping noises prior to the inflight shutdown.

In conclusion, the reported high engine operating temperatures may have likely contributed to a breakdown of the distributor rotor indexing component(s). As a result, the proper indexing of the rotor to the driveshaft may not have been maintained during engine operation leading to an ignition "Out of timing" condition and subsequent untimely shutdown of the engine. This possible scenario is consistent with Mr. Thompson's description of the timeline of events.

The above information is true to the best of my knowledge.



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