



Memorandum For Record

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Date: 12/13/2023
NTSB Accident Number: ERA22LA333

Following recovery of the airplane to the pilot/owner's hangar, examination of the engine was performed by an airframe and powerplant mechanic with inspection authorization (A&P/IA) with oversight from a Federal Aviation Administration inspector. The examination determined there was no valve train continuity with rotation of the crankshaft. The engine was removed from the airframe and transported to a secure facility for partial disassembly examination.

On April 19, 2023, at 1000 hours EDT, a Zoom call was made. In attendance were NTSB (Tim Monville) and from AMF Aviation David Bliss (Maintenance Director) and Chris Ferraraccio (President).

At the start of the ZOOM call, the Franklin 6A4-165-B3 engine with engine mount, serial number 31227 was bolted vertically by the crankshaft flange to a stand (Figure 1). To facilitate inspection of the crankshaft and camshaft gears, the starter and magnetos were removed from the accessory case. Following removal of the accessory case it was noted that the crankshaft gear was fractured (Figure 2). It was also noted that one "tab" of the "tab washer" was separated and the washer was fractured (Figure 3). One woodruff key which was intact was found in the core of the crankshaft, while portions of a fractured woodruff key were also found in the core of the crankshaft. Additionally, a piece of the fractured woodruff key was found in the oil sump. Inspection of the floating oil suction tube revealed the screen was clean.

As part of the investigation, the fractured crankshaft gear, fractured flat tab washer, 1 intact woodruff key, and multiple pieces of the fractured woodruff key (Figure 4) were retained for examination by the NTSB Materials Laboratory.



Figure 1: AMF Aviation Digital Photograph. View of the Engine Before Examination.



Figure 2: AMF Aviation Digital Photograph. View of the Fractured Crankshaft Gear. Adjacent large gear is Camshaft Gear.



Figure 3: AMF Aviation Digital Photograph. View of the tab Washer.



Figure 4: MF Aviation Digital Photograph. View of the Parts Sent to NTSB Materials Laboratory for Examination.