MEMORANDOM

Daniel P. Boggs
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National Transportation Safety Board
Office of Aviation Safety - Eastern Region

Date: October 30, 2018
NTSB Case Number: ERA18LA265

Bob,
Per your request, I looked at the engine on N4592X. It was Lycoming IO-540-KIAS, S/N L-8234-48. The engine overall looked clean and well maintained. The No. 3 cylinder, piston, and rod were missing. The crankshaft lobe was clean and did not show any signs of overheating. Visual observation of the case halves showed that the cylinder must have fractured off and beat against the case. Cylinder sleeve gouge marks could be seen on the mount flange for the cylinder. All cylinder bolts were fractured off. Pictures sent in a separate email.

Torque values were reviewed on the remaining cylinders by checking the run-on torque value of each nut. On cylinder No. 1, the four large corner nuts were all below the 50 ft/lb requirement. Some were well below 40 ft/lbs, but could not be exactly verified. The No. 2 cylinder bolts were loose, and the No. 4 cylinder bolts were loose. The No. 5 cylinder bolts were all tight and the No. 6 cylinder bolts were tight.

Under torqued cylinder bolts can separate the bolt heads and force the cylinder off the case half.

Dan Boggs
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NTSB