

NATIONAL TRANSPORTATION SAFETY BOARD

Office of Aviation Safety
Washington, D.C.

SYSTEMS SPECIALIST REPORT – RECTIFIER DIODE

April 8, 2020

A. INCIDENT INFORMATION (WPR16LA127)

Location: Seattle, WA
Date: June 2, 2016
Airplane: Piper PA-46
Registration: N301DM

B. COMPONENT INFORMATION

Rectifier, part number (P/N) 154KR30A, is called out in Piper Aircraft Corp's drawing 89838 titled "Rectifier Assy – Main Power Bus". This P/N was made by International Rectifier. Vishay acquired this segment of International Rectifier around 2003. Rev E of drawing 89838, dated Jul 28, 2004, replaces this rectifier with P/N R5110415XXZU manufactured by Powerex. The reason for the change was that P/N 154KR30A was no longer available, and P/N 154KR30A was approved to be used until depletion.

The incident rectifier diode was marked as P/N 154KR30A. This component was not serialized. The word "MEXICO" and the date code "9915" were also marked on the rectifier, meaning that the component was manufactured in International Rectifier's Mexico facility in the 15th week of 1999. The component was found on the airplane with the flag terminal separated from the rectifier at the soldered joint (see NTSB Materials Laboratory Factual Report No. 19-011 for failure analysis). Original drawings were no longer available by Vishay; however, Vishay located a document titled "General schematic of ALLOY DIODE in STUD D08 PACKAGE" which called out for the solder material to be composed of lead/tin/silver. There were no composition percentages included in the document.

The forward voltage drop across the incident rectifier diode was measured to be approximately 0.43V using a digital multimeter with a diode test function. The reverse-biased reading was "OL".

Adam Huray
Mechanical Engineer