

NATIONAL TRANSPORTATION SAFETY BOARD
Vehicle Recorder Division
Washington, D.C. 20594

November 28, 2018

Engine Data Monitor (EDM)

Specialist's Factual Report
By Joe Gregor

1. EVENT SUMMARY

Location: Leshara, Nebraska
Date: July 24, 2016
Aircraft: Beech 95-B55
Registration: N55NE
Operator: LeMay Aero Club
NTSB Number: CEN16FA282

On July 24, 2016, about 1500 central daylight time, a Beech 95-B55 airplane, N55NE, impacted terrain near Leshara, Nebraska. The airplane was owned by the United States Air Force and operated by the LeMay Aero Club under the provisions of Title *14 Code of Federal Regulations* (CFR) Part 91 as an airline transport pilot (ATP) check-ride. The local flight departed from the Millard Airport (KMLE), Omaha, Nebraska, about 1430.

2. ENGINE DATA MONITOR GROUP

An Engine Data Monitor (EDM) group was not convened.

3. DETAILS OF INVESTIGATION

The National Transportation Safety Board (NTSB) Vehicle Recorder Division received the following EDM:

Recorder Manufacturer/Model: **JPI EDM**
Recorder Serial Number: **Unknown**

3.1. JPI EDM Description

The J. P. Instruments EDM is a panel mounted gauge that the operator can use to monitor and record multiple parameters related to engine operation. Depending on the installation, parameters can include: Exhaust Gas Temperature (EGT), Cylinder Head Temperature (CHT), Oil Pressure and Temperature, Manifold Pressure, Outside Air Temperature (OAT), Turbine Inlet Temperature, Engine Revolutions per Minute, Compressor Discharge Temperature, Fuel Flow Carburetor Temperature, and Battery Voltage.

3.1.1. Data Recovery

The recorder was catastrophically damaged due to fire (see figure 1). X-ray examination of the integrated circuit memory 'chips' used to store parametric data recorded by the unit showed evidence of catastrophic heat damage including melting of the gold wire-bond

connections between the internal silicon die and the pins of the integrated circuit packaging (see figure 2). The packaging itself was rendered extremely friable and portions of many of the pins used to interface the integrated circuit to the external circuitry were consumed by fire (see figure 3).

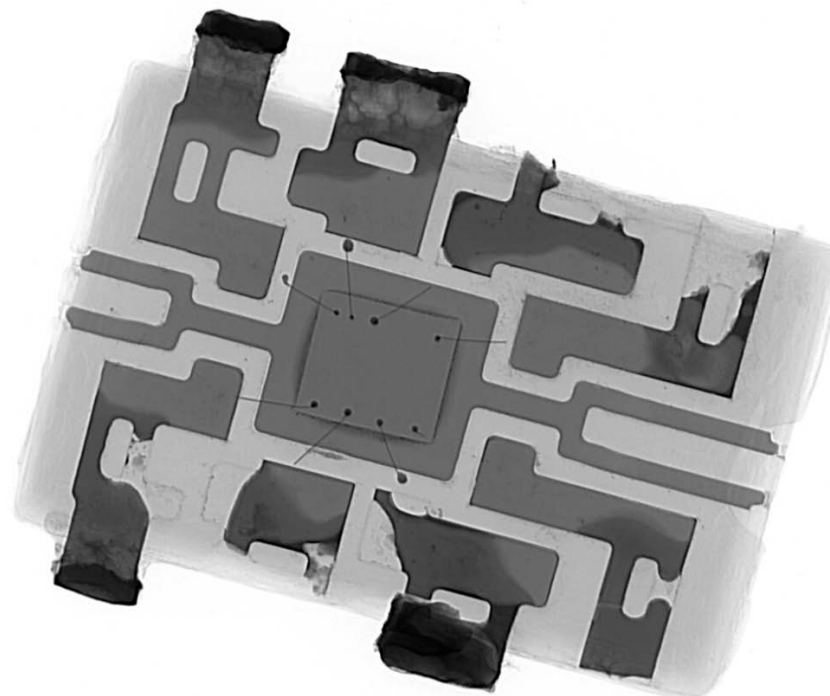
3.1.2. Data Description

No data was recovered from the EDM.

Figure 1. Image of the main printed circuit board showing effects of catastrophic fire damage.



Figure 2. X-ray image of FLASH memory integrated circuit showing melting of the gold bond wires.



50 mil

120 kV 150 μ A Z0

NTSB

Figure 3. Image of FLASH memory integrated circuit showing fire damage to leads and packaging

