

NATIONAL TRANSPORTATION SAFETY BOARD

Vehicle Recorder Division

Washington, D.C. 20594

October 23, 2019

Engine Data Monitor (EDM)

Specialist's Factual Report

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1. EVENT SUMMARY

Location: Monroe, Wisconsin
Date: August 27, 2019
Aircraft: Beech V35
Registration: N6245V
Operator: Private
NTSB Number: CEN19LA290

On August 27, 2019, about 1200 central daylight time, a Beech V35 Bonanza airplane, N6245V, experienced a total loss of engine power in cruise flight and made a forced landing in a field near Monroe Municipal Airport (EFT), Monroe, Wisconsin. The private pilot sustained minor injuries and the passenger sustained serious injuries. The airplane sustained substantial damage. The airplane was registered to and operated by the pilot under the provisions of Title 14 *Code of Federal Regulations* Part 91 as a personal flight. Visual meteorological conditions prevailed at the time of the accident and the flight was operated on a visual flight rules (VFR) flight plan. The flight departed Rochester International Airport (RST), Rochester, Minnesota, and was en route to Chicago Midway International Airport (MDW), Chicago, Illinois.

2. GROUP

A group was not convened.

3. DETAILS OF INVESTIGATION

The National Transportation Safety Board (NTSB) Vehicle Recorder Division received the following engine data monitor device:

Device Manufacturer/Model: J.P. Instrument EDM 830
Serial Number: 33557

3.1. Device Description

The J.P. Instrument (JPI) EDM 830 is a panel-mounted gauge with color display that allows the operator to monitor and record up to 24 parameters related to engine operations. Depending on the installation, engine parameters monitored can include: Exhaust Gas Temperature (EGT), Cylinder Head Temperature (CHT), Oil Pressure and Temperature, Manifold Pressure, Outside Air Temperature, Turbine Inlet Temperature, Engine Revolutions Per Minute (RPM), Fuel Flow, Amperage Load and Bus Voltage etc..

The unit can also calculate in real time, percent of maximum horsepower, fuel used, shock cooling rate, and EGT differentials between highest and lowest cylinder temperatures. The calculations are also based on the aircraft installation.

The unit includes a GPS interface to any GPS device.

The unit contains non-volatile memory¹ for data storage of the parameters recorded and calculated. The rate at which the data is stored is selectable by the operator from 1 to 500 seconds per sample. The memory can store up to 30 hours of data at a 6 second-per-sample rate. The data can then be downloaded by the operator using the J.P. Instruments software.

3.2. Data Recovery

Upon arrival at the Vehicle Recorder Division, an exterior examination revealed the unit had no damage, as shown in Figure 1. The device powered up normally but with a system error message. The message stated that the device failed to make backup copy of configuration data, as shown in Figure 2. By following the manufacture suggested procedure, all stored data were downloaded using a USB memory stick, as shown in Figure 3. The download only transferred one 14 Kbytes JPI file, which contained no engine monitor data at all. The download procedure was repeated with a smaller storage size USB memory stick, as shown in Figure 4, but yielded the same result. No data were recovered from the device.

¹ Non-volatile memory (NVM) is semiconductor memory that does not require external power for data retention.



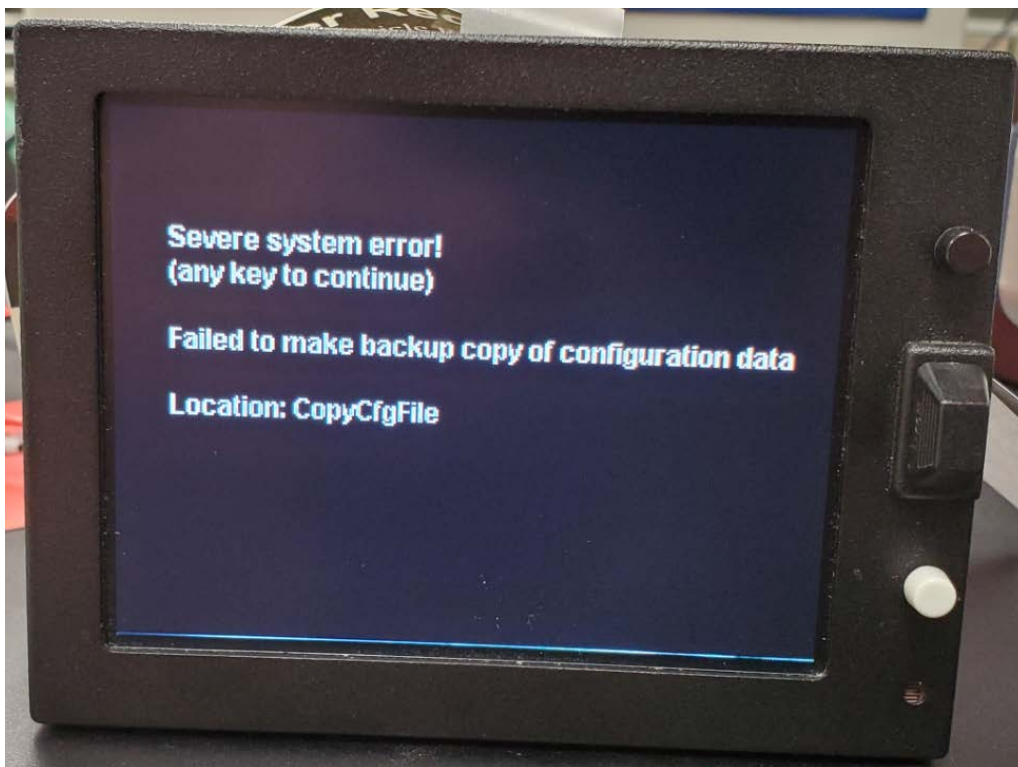


Figure 2: JPI EDM 830 showed a system error when powering up



Figure 3: All data downloaded with a USB memory stick

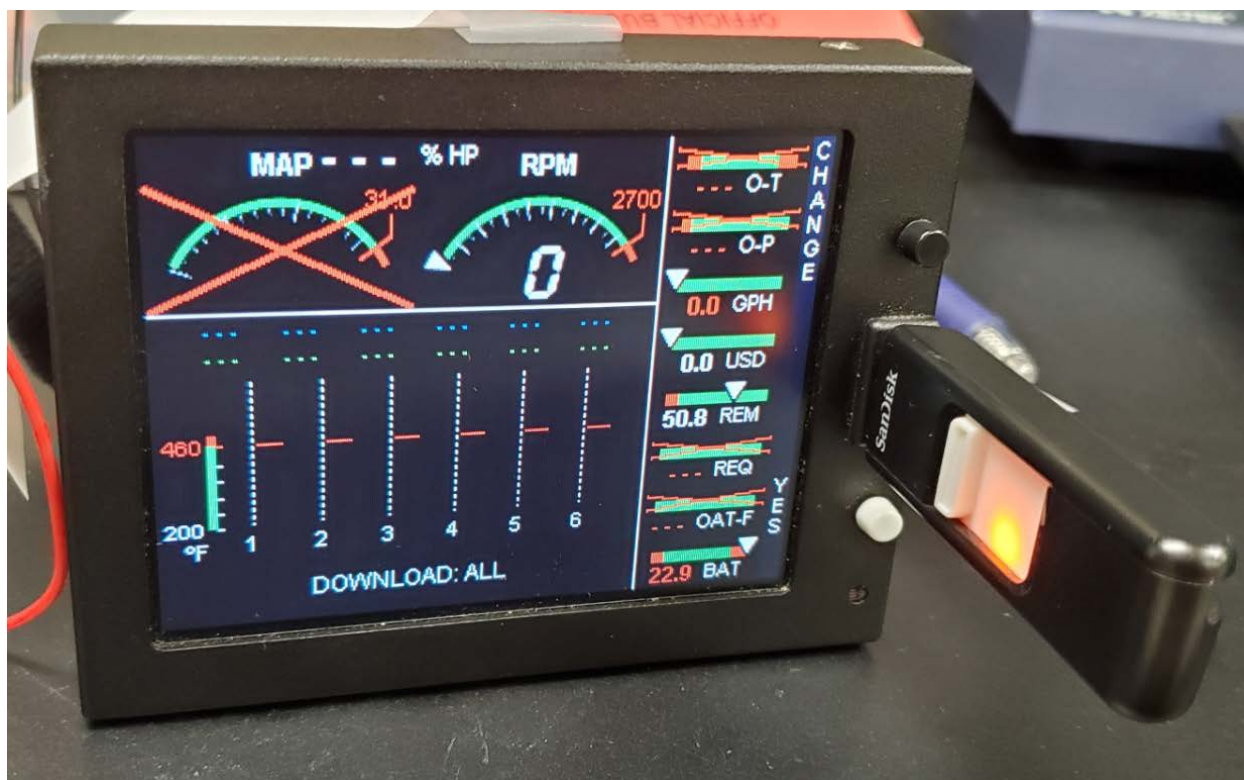


Figure 4: Download procedure repeated with a smaller storage size USB memory stick