National Transportation Safety Board
Office of Research and Engineering
Washington, DC 20594

WPR22FA094

FLIGHT DATA RECORDER

Specialist's Factual Report

January 12, 2024

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A. ACCIDENT

Location: Glendale, AZ
Date: February 10, 2022
Time: 1105 am Mountain Standard Time (MST)
Airplane: Dassault Aviation Mirage F1, N633AX

B. FLIGHT DATA RECORDER SPECIALIST

Specialist Charles Cates
Mechanical Engineer/Recorder Specialist
National Transportation Safety Board (NTSB)

C. FEDERAL CARRIAGE REQUIREMENTS

The event aircraft, N633AX, was operating under Title 14 *Code of Federal Regulations* (CFR) Part 91. The event aircraft was manufactured in 1985 and was operating such that it was not required to be equipped with a flight data recorder (FDR).

D. DETAILS OF THE INVESTIGATION

An FDR group was not convened. The NTSB Vehicle Recorder Division received the following FDR:

Recorder Manufacturer/Model: Enertec
Part Number: PE6010-5A
Recorder Serial Number: 215

1.0 Enertec PE6010-5A Description

The Enertec PE6010-5A recorder is a tape-based recorder developed for use in early Dassault Mirage F1 aircraft. The recording medium is a ½" magnetic tape, 63 meters in length, capable of storing up to 16 hours of flight data in Harvard biphase format across 12 tracks.

1.1 Enertec PE6010-5A Recorder Condition

The recorder was received intact in good condition. The date of manufacture engraved on the data plate was 04-75, corresponding to April 1975. The recorder had an analog Hobbs meter that reported 5693 hours.

The recorder was disassembled and the ½" tape was found to be intact within the drive mechanism. The magnetic oxide coating was generally in good condition but showed stressed witness marks where the tape was in contact with the capstan drive mechanisms and the recorder tape head.

The NTSB is unaware of any ½" tape-based recorders in commercial service in the United States and does not maintain equipment for the readout of ½" magnetic tape. The Bureau of Enquiry and Analysis for state owned aircraft (BEA-E) in France reported that they have some experience with the Enertec recorder, and that a specific readout bench is required to recover data from it. The BEA-E also reported that the recorder requires regular maintenance, and unless the tape is regularly changed recovery is unlikely.

It was determined that due to the age of the recorder and the lack of documented continued airworthiness maintenance on the recorder, the likelihood of recovering valid data was low. Because of the low probability of recovery and the logistics of working with the specific readout bench it was determined that no further attempts to recover the data from the FDR would be made.

Submitted by:

Charles Cates
Mechanical Engineer/Recorder Specialist