NATIONAL TRANSPORTATION SAFETY BOARD{PRIVATE **}**
Office of Aviation Safety
Washington, D.C. 20594

April 12, 2000

POWERPLANT FACTUAL

A. ACCIDENT DCA00MA030

Location : Burbank, California

Date : March 5, 2000

Time : 1811 Pacific Standard Time

Airplane : Southwest Airlines Flight 1455, Boeing 737-3T5, N668SW

B. SUMMARY

On Sunday, March 5, 2000, at 6:11 PST, a Southwest Airlines Boeing 737-300, N668SW, operating as flight 1455 from Las Vegas, Nevada, overran the departure end of runway 08 following a landing at Burbank-Glendale-Pasadena Airport, Burbank, California. The airplane traveled through a fence at the end of the runway and came to rest on a highway outside the airport perimeter. There were no fatalities to the 137 passengers and 5 crew aboard. The flight was on an IFR flight plan and was cleared for a visual approach to land. VFR weather conditions prevailed at the time. No pre-existing engine defects or anomalies were found that would have contributed to accident

C. DETAILS OF THE INVESTIGATION

1.0 ENGINE INFORMATION

1.1 ENGINE HISTORY

The left engine is a CFM International (CFMI) CFM56-3-B1 engine, SN 720957, that had accumulated 31,732 hours time since new (TSN), 16,496 cycles since new (CSN), 5,604 hours time since overhaul (TSO), and 2,771 cycles since overhaul (CSO) at the time of the incident. The last maintenance visit for the engine was at General Electric (GE) Engine Services Inc. Strother, Kansas (subsequently referred to as GE Strother) from July - October 1997. The engine was removed by Continental on July 27, 1997, and was sent to GE Strother because of damage to the high pressure compressor 6^{th}-stage compressor blades (Attachment 1). The engine had accumulated 26,128 hours TSN, 13,725, CSN, 1,901 hours time since repair (TSR), and 964

cycles since repair (CSR) at the previous shop visit. The engine was returned to service on October 27, 1997. A copy of the Federal Aviation Administration (FAA) form 8130-3 Airworthiness Approval Tag and form 337 Major Repair and Alteration for engine SN 720957 are attached (Attachments 2 and 3). Prior to the 1997 shop visit, the engine was overhauled by GE Strother in September 1996.

1.2 ENGINE DESCRIPTION

The CFM56-3 engine is a high bypass, dual rotor, axial flow turbofan engine that features a four-stage integrated fan and low pressure compressor (LPC - booster) driven by a four-stage low pressure turbine (LPT), a nine-stage high pressure compressor (HPC) driven by a single-stage high pressure turbine (HPT), and an annular combustion chamber. The CFM56-3 turbofan has a maximum standard day sea level thrust rating of 20,000 pounds. The CFM56 turbofan engine is a product of CFM International (CFMI) and the company is jointly owned by General Electric Aircraft Engines (GEAE) of the United States and Société Nationale d'Etude et de Construction de Moteurs d'Aviation (SNECMA) of France.

2.0 ENGINE INSPECTION AND DOCUMENTATION

On March 8, 2000, the engines were borescoped by Southwest Airlines CFM56 powerplant engineers while the engines were still installed on the airplane. The National Transportation Safety Board did not participate in the inspection of the engines and all the information describing the condition of the engines was provided by the Southwest Airlines.

The fan blades and outlet guide vanes on both engines exhibited impact damage, tears and gouges. The No. 1 engine fan blades were described as corn -cobbed which is a failure condition where the disk shreds most or all of its blades. Both engines exhibited considerable blade and vane damage throughout the compressor. The compressor blades and vanes exhibited impact marks, tears, gouging and material loss core (No.1 engine - Photos 1 and 2 and No. 2 engine - Photos 3 and 4). The turbine sections of both engines were in satisfactory condition and were undamaged. The combustion chamber of the No. 1 engine (Photo 5) was free of debris and undamaged. The combustion chamber of the No. 2 engine (Photo 6) exhibited material deposits.

Photo 1: No. 1 engine compressor blade and vane damage

Photo 2: No. 1 engine compressor blade and vane damage

Photo 3: No. 2 engine compressor blade and vane damage

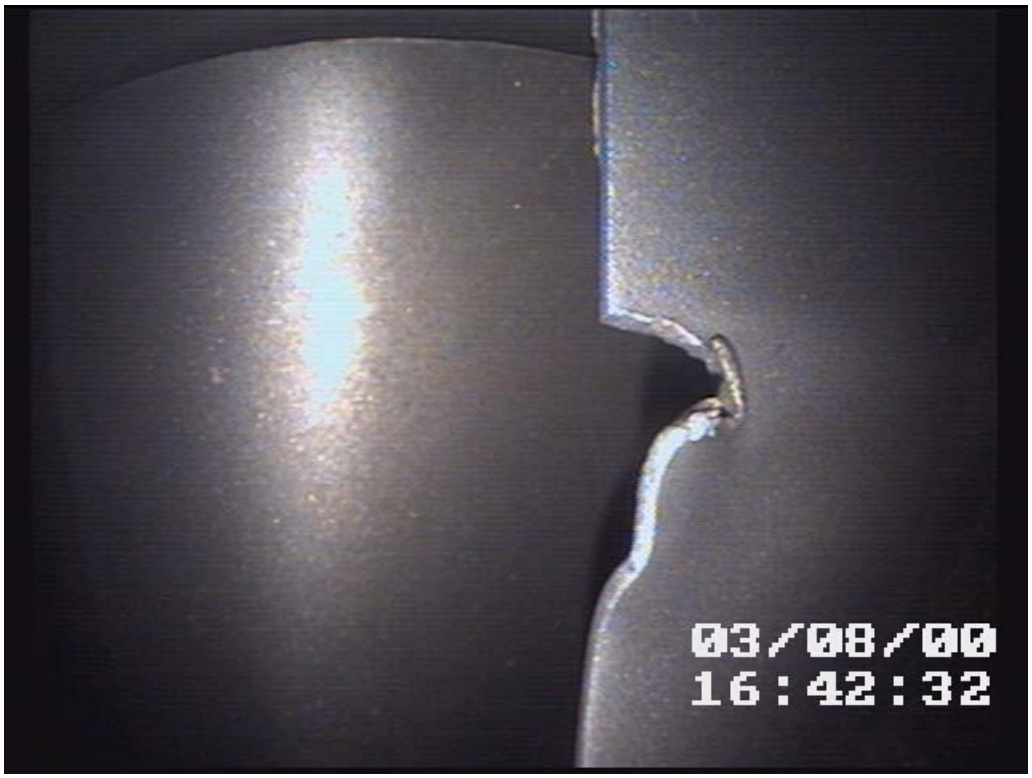

Photo 4: No. 2 engine compressor blade and vane damage

Photo 5: No. 1 engine combustion chamber

Photo 6: No. 2 engine combustion chamber with material deposits