Aviation Investigation Final Report

Location:	San Diego, California	**Accident Number:**	LAX05LA218
Date & Time:	June 27, 2005, 18:18 Local	**Registration:**	N357KP
Aircraft:	Boeing 727-230	**Aircraft Damage:**	Substantial
Defining Event:		**Injuries:**	3 None
Flight Conducted Under:	Part 121: Air carrier - Non-scheduled		

Analysis

The airplane surged forward and impacted a tug when the number 2 engine went to full power during engine start. According to the flight crew's written statements, the captain had written up the number 2 thrust reverser following the previous flight because it required extra effort and movement to reach normal reverse thrust. Maintenance personnel adjusted the rigging and released the aircraft for service. The flight crew informed maintenance that they would verify the rigging after engine start. The airplane was pushed back and the flight crew started the number 1 and 2 engines with no anomalies noted. They were in the process of starting the number 3 engine, when they heard a loud roar of an engine and felt the airplane lunge forward. The flight engineer announced the number 2 throttle was open and pulled the throttle lever to idle. The captain applied brake pressure and called for engine shutdown. According to the captain, he did not notice the number 2 throttle move forward because he was looking at the ground crew for a brake signal. The copilot did not observe the number 2 throttle move forward because he was concentrating on starting the number 3 engine and examining the oil pressure gauges for the number 1 and 2 engines. The flight engineer indicated that he had not noticed the number 2 throttle movement because he was looking at his panel to confirm that the number 2 start valve had closed and the number 3 start valve had opened. He then monitored the oil pressure when he heard the engine spooling up to high power followed by the movement of the airplane. A cockpit voice recorder was installed on the accident airplane, but review of the recording revealed that the engine start and accident had been recorded over. Mechanics examined the engine and throttle control rigging after the accident under the supervision of a Federal Aviation Administration airworthiness inspector. According to the mechanics and the airworthiness inspector, no anomalies were noted with the throttle's rigging. Subsequent engine runs were unsuccessful in duplicating the engine surge. The airplane was not equipped with an autothrottle system.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: the inadvertent throttle movement by one of the flight crew and the captain's inadequate supervision during the engine start sequence.

Findings

Occurrence #1: ON GROUND/WATER COLLISION WITH OBJECT
Phase of Operation: STANDING - STARTING ENGINE(S)

Findings
1. OBJECT - VEHICLE
2. (C) THROTTLE/POWER CONTROL - INADVERTENT ACTIVATION - FLIGHTCREW
3. (C) SUPERVISION - INADEQUATE - PILOT IN COMMAND

Factual Information

On June 27, 2005, at 1818 Pacific daylight time a Boeing 727-230 transport category airplane, N357KP, lunged into a tug during engine start at the San Diego International Airport, San Diego, California. The airplane was operated by Capital Cargo International, Orlando, Florida, under the provisions of CFR Part 121 as a nonscheduled cargo flight. The captain, first officer, and flight engineer were uninjured, and there were no injuries sustained by ground crewmembers. The airplane was substantially damaged. The flight was originating at the time of the accident and was scheduled to stop in Denver, Colorado, before continuing to Toledo, Ohio. Visual meteorological conditions prevailed, and an instrument flight rules flight plan was filed for the flight.

According to written statements obtained from the flight crew, the captain had written up the number 2 thrust reverser following the flight to San Diego because it required extra effort and movement to reach normal reverse thrust. Prior to the accident flight, the captain noticed that the number 2 throttle would not reach the full forward position and was approximately 2 inches aft of the number 1 and number 3 forward throttle positions. The captain called for maintenance to examine the throttle. The captain was informed that some final rigging steps had not been accomplished from the thrust reverser maintenance. The maintenance was completed and the aircraft was released for service. The flight crew informed maintenance that they would check the engines themselves after engine start, to which the maintenance personnel agreed.

Prior to engine start, the captain checked the throttle movement again, and noted that all of the levers reached the full forward position. When the captain moved the throttle levers back to idle, he thought he noticed the number 2 throttle spring forward a little, but after rechecking its movement, he was satisfied that the problem had been corrected.

The airplane was pushed back and the flight crew started the number 1 and 2 engines with no anomalies noted. They were in the process of starting the number 3 engine, when they heard a loud roar of an engine and felt the airplane lunge forward. The flight engineer announced the number 2 throttle was open and pulled the throttle lever to idle. The captain applied brake pressure and called for engine shutdown.

According to the captain, he did not notice the number 2 throttle move forward because he was looking at the ground crew for a brake signal. The copilot did not observe the number 2 throttle move forward because he was concentrating on starting the number 3 engine and examining the oil pressure gauges for the number 1 and 2 engines. The flight engineer indicated that he had not noticed the number 2 throttle movement because he was looking at his panel to confirm that the number 2 start valve had closed and the number 3 start valve had opened. He then monitored the oil pressure when he heard the engine spooling up to high

power followed by the movement of the airplane.

According to a report provided by the San Diego Harbor Police Department, the flight crew would not provide a statement following the event. The flight crewmembers were tested for drugs and alcohol; all with negative results.

Mechanics examined the entire engine and throttle control rigging after the accident under the supervision of a Federal Aviation Administration San Diego Flight Standards District Office airworthiness inspector. The mechanics utilized the aircraft's maintenance manual to test the engine thrust control system. According to the mechanics and the airworthiness inspector, no anomalies were noted with the throttle's rigging. Subsequent engine runs were unsuccessful in duplicating the engine surge. The airplane was not equipped with an autothrottle system.

The cockpit voice recorder (CVR) and flight data recorder (FDR) were removed from the airplane and shipped to the NTSB's Vehicle Recorder Laboratory in Washington, D.C. for further examination.

A Fairchild model A-100A CVR, s/n 57927, was delivered to the audio laboratory of the National Transportation Safety Board on July 1, 2005. The recorder was in good condition and the audio information was extracted from the recorder normally, without difficulty. A CVR group was not convened and a detailed verbatim transcript was not prepared as it was determined that a summary of the event contained on the CVR recording was insufficient to support the investigation. The 32:18-minute recording consisted of four channels of good quality audio information. The recording did not contain any information during the pushback or ground collision. The recording started at an unknown time after the event and engines had been shut down. The voices heard were two crewmembers discussing the securing of the aircraft. During the recording, there were several interruptions in aircraft power. Later in the recording, several mechanics were performing some operational checks.

Pilot Information

Certificate:	Airline transport; Flight engineer; Flight instructor	**Age:**	46,Male
Airplane Rating(s):	Single-engine land; Single-engine sea; Multi-engine land	**Seat Occupied:**	Left
Other Aircraft Rating(s):	None	**Restraint Used:**	
Instrument Rating(s):	Airplane	**Second Pilot Present:**	Yes
Instructor Rating(s):	Airplane multi-engine; Airplane single-engine; Instrument airplane	**Toxicology Performed:**	Yes
Medical Certification:	Class 1 With waivers/limitations	**Last FAA Medical Exam:**	February 1, 2005
Occupational Pilot:	Yes	**Last Flight Review or Equivalent:**	March 1, 2005
Flight Time:	6515 hours (Total, all aircraft), 2443 hours (Total, this make and model), 3664 hours (Pilot In Command, all aircraft), 106 hours (Last 90 days, all aircraft), 26 hours (Last 30 days, all aircraft)		

Co-pilot Information

Certificate:	Airline transport; Commercial; Flight instructor	**Age:**	42,Male
Airplane Rating(s):	Single-engine land; Multi-engine land	**Seat Occupied:**	Right
Other Aircraft Rating(s):	Helicopter	**Restraint Used:**	
Instrument Rating(s):	Airplane; Helicopter	**Second Pilot Present:**	Yes
Instructor Rating(s):	Airplane multi-engine; Airplane single-engine; Instrument airplane	**Toxicology Performed:**	Yes
Medical Certification:	Class 1 Without waivers/limitations	**Last FAA Medical Exam:**	
Occupational Pilot:	Yes	**Last Flight Review or Equivalent:**	
Flight Time:	4300 hours (Total, all aircraft), 352 hours (Total, this make and model), 3500 hours (Pilot In Command, all aircraft), 115 hours (Last 90 days, all aircraft), 45 hours (Last 30 days, all aircraft)		

Flight engineer Information

Certificate:	Flight engineer	**Age:**	47,Male
Airplane Rating(s):	None	**Seat Occupied:**	Center
Other Aircraft Rating(s):	None	**Restraint Used:**	
Instrument Rating(s):	None	**Second Pilot Present:**	Yes
Instructor Rating(s):	None	**Toxicology Performed:**	Yes
Medical Certification:		**Last FAA Medical Exam:**	
Occupational Pilot:	Yes	**Last Flight Review or Equivalent:**	
Flight Time:	2612 hours (Total, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Boeing	**Registration:**	N357KP
Model/Series:	727-230	**Aircraft Category:**	Airplane
Year of Manufacture:		**Amateur Built:**	
Airworthiness Certificate:	Transport	**Serial Number:**	20675
Landing Gear Type:	Retractable - Tricycle	**Seats:**	4
Date/Type of Last Inspection:	June 1, 2005 Continuous airworthiness	**Certified Max Gross Wt.:**	191000 lbs
Time Since Last Inspection:	0 Hrs	**Engines:**	3 Turbo fan
Airframe Total Time:	65697 Hrs at time of accident	**Engine Manufacturer:**	Pratt & Whitney
ELT:	Not installed	**Engine Model/Series:**	JT8D-15
Registered Owner:	727 Aircraft One, Inc.	**Rated Power:**	15500 Lbs thrust
Operator:	Capital Cargo International	**Operating Certificate(s) Held:**	Flag carrier (121)
Operator Does Business As:	Capital Cargo	**Operator Designator Code:**	C8GA

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	**Condition of Light:**	Day
Observation Facility, Elevation:	SAN,15 ft msl	**Distance from Accident Site:**	
Observation Time:	17:51 Local	**Direction from Accident Site:**	
Lowest Cloud Condition:	Scattered / 2300 ft AGL	**Visibility**	10 miles
Lowest Ceiling:	None	**Visibility (RVR):**	
Wind Speed/Gusts:	7 knots /	**Turbulence Type Forecast/Actual:**	/
Wind Direction:	270°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	29.9 inches Hg	**Temperature/Dew Point:**	19°C / 12°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	San Diego, CA (SAN)	**Type of Flight Plan Filed:**	IFR
Destination:	Denver, CO (DEN)	**Type of Clearance:**	None
Departure Time:	18:25 Local	**Type of Airspace:**	

Airport Information

Airport:	San Diego International SAN	**Runway Surface Type:**	
Airport Elevation:		**Runway Surface Condition:**	
Runway Used:		**IFR Approach:**	None
Runway Length/Width:		**VFR Approach/Landing:**	None

Wreckage and Impact Information

Crew Injuries:	3 None	**Aircraft Damage:**	Substantial
Passenger Injuries:		**Aircraft Fire:**	None
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	3 None	**Latitude, Longitude:**	32.733612,-117.18972

Administrative Information

Investigator In Charge (IIC):	Charnon, Nicole
Additional Participating Persons:	Gary Glenn; Federal Aviation Administration; San Diego, CA
Original Publish Date:	February 26, 2007
Last Revision Date:	
Investigation Class:	Class
Note:	
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=61889