Aviation Investigation Final Report

Location:	San Clemente Island, California	**Accident Number:**	WPR23FA185
Date & Time:	May 10, 2023, 07:49 Local	**Registration:**	N56PA
Aircraft:	GATES LEAR JET 36A	**Aircraft Damage:**	Destroyed
Defining Event:	Fire/smoke (non-impact)	**Injuries:**	3 Fatal
Flight Conducted Under:	Part 91: General aviation - Other work use		

Analysis

The accident airplane took off as the lead airplane in formation with a second Lear Jet airplane flying as wingman in a close formation position. The purpose of the flight was to participate in an exercise with the United States Navy in an over-water training area.

Shortly after entering the training area at 15,000 ft mean sea level (msl) the wingman positioned on the right side of the accident airplane, observed the flaps on the accident airplane were partially extended. They notified the pilot of the accident airplane who acknowledged the radio call. The wingman then observed the flaps retract and observed white or gray colored “smoke or gas” coming from the left aft side of the airplane. The pilot in the accident airplane then radioed that they detected an odor in the cabin. Seconds later, the wingman observed red fluid on the underside of the tail cone followed by flames coming from around the aft equipment bay (tail cone) access door. They informed the accident pilots that their airplane was on fire and the accident pilot declared an emergency along with their intentions to land at a nearby airfield on the island.

The wingman took over leading the formation and maneuvered in front of the accident airplane. The wingman last observed and heard radio transmissions from the accident airplane a short time later as they descended through about 7000 ft msl. The flight was above an overcast cloud layer that obstructed the view of the island at that time.

Recorded ADS-B data showed that the accident airplane subsequently made a series of descending turns before the data ended.

The airplane wreckage was located underwater about 4 miles northwest of the last ADS-B data point. The wreckage was highly fragmented, and the debris field extended several hundred feet

along the ocean floor. Salvage operations were able to recover about 40 percent of the airplane wreckage.

Examination of the wreckage showed areas of smoke and fire damage in portions of the airplane from the center wing fuselage outboard through the left- and right-wing roots and aft throughout the empennage. The aft equipment bay forward bulkhead, which also served as the fuselage fuel tank aft bulkhead, exhibited damage on the upper left side consistent with exposure to a focused heat source such as a fire from a leak in a pressurized fuel or hydraulic line. Additional evidence of focused fire damage was identified in the left engine pylon, which was located outboard and adjacent to the aft equipment bay. The effected area of the pylon contained engine fire detection circuits.

Examination of the hydraulic shutoff valves attached to the hydraulic reservoir found that the left hydraulic shutoff valve was closed and the right valve was in the open position. The position of the left hydraulic shutoff valve indicates the aircrew likely shut down the left engine due to a fire indication (A hydraulic valve will close if the FIRE PULL tee-handle switch is activated by the flight crew in the event an engine fire is detected). Investigators were unable to determine if the witnessed flap extension and retraction was initiated by activation of the flap selector switch or induced by fire damage.

The aft equipment bay houses electrical equipment capable of providing an ignition source for a fire, and hydraulic and fuel system components capable of providing fuel for a fire in the event of a leak. The left fuel motive flow line was intact from the fuel pump up to the fuselage fitting, where the line passes through the fuselage skin into the aft equipment bay near the aft left engine mount. The fuselage fitting had the stainless-steel fuel line and b-nut attached on the outboard, engine side. The inboard, aft equipment bay side of the fitting did not have an aluminum b-nut attached or the line that connects the fitting to the motive flow valve. The left engine hydraulic pressure line and PT2 line, which pass through the fuselage into the aft equipment bay adjacent to the motive fuel line, each had aluminum b-nuts present on the interior side of their respective fuselage fittings and the interior lines for each was sheared at the fitting.

The left fuel motive flow fuselage fitting and the hydraulic fluid return fitting were examined. No thermal damage was observed on the outboard nuts and attached portions of tubing. Examination of the threads on the inboard side of the motive flow fitting did not exhibit evidence of thread stripping and comparison between the two fittings did not reveal any physical differences to explain why one nut remained attached and the other did not. The reason the motive flow nut was missing from the fitting could not be determined.

Observed fire and heat damage patterns indicate the fire likely started in proximity to the where the pressurized fuel motive flow line connected to the firewall fitting where the missing b-nut was located. A leak from the pressurized motive flow line would have sustained and allowed an uncontrollable fire to develop. The sustained fire likely affected controllability of the airplane and resulted in the pilots' loss of control of the airplane.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be:

The pilots' loss of airplane control following a catastrophic fire that started on the left side of the aft equipment bay (tail cone). The fire likely initiated from a leak from the left fuel motive flow line due to a b-nut that loosened for reasons that could not be determined based on available evidence.

Findings

Aircraft	(general) - Failure
Not determined	(general) - Unknown/Not determined
Aircraft	(general) - Attain/maintain not possible

Factual Information

History of Flight

Enroute	Unknown or undetermined
Enroute	Fire/smoke (non-impact) (Defining event)
Emergency descent	Loss of control in flight
Emergency descent	Collision with terr/obj (non-CFIT)

On May 10, 2023, at 0749 Pacific daylight time, a Gates Lear Jet 36A, N56PA, was destroyed when it was involved in an accident near San Clemente Island, California. Both pilots and the additional crewmember were fatally injured. The airplane was operating as a Title 14 *Code of Federal Regulations* Part 91, other work use flight.

Witness interviews, ADS-B data, Air Traffic Control Transcripts, and flight data from the accident airplane's left engine Digital Electronic Engine Control (DEEC) Incident Recorder were compared and correlated to establish a sequence of events and an approximate timeline (figure 1).

The airplane departed Point Mugu Naval Air Station (NTD), Oxnard, California about 0723 as the lead airplane in formation with a second Lear Jet utilizing the callsigns FENIX01 (N56PA) and FENIX02 (N544PA). The purpose of the flight was to participate in training exercises with the United States Navy in Warning Area 291 (W291). The flight proceeded south towards San Clemente Island with FENIX02 flying in formation with FENIX01.

About 0740, after entering W291 at 15,000 ft msl, FENIX02 (positioned on the right side of FENIX01) observed FENIX01's flaps partially deploy. They asked the pilots of FENIX01 if they had deployed flaps, and they replied that they didn't think so. FENIX02 then observed the flaps retract and seconds later observed white or gray colored smoke coming from the left, aft side of the airplane.

FENIX02 notified FENIX01 of the smoke and FENIX01 responded that they detected an odor in the cabin. At this point the aircrew of FENIX02 believed FENIX01 was no longer flying on autopilot because the airplane was "lightly rocking and pitching." FENIX02 then observed pink fluid coming from the tail section of the airplane and informed FENIX01 that they had a hydraulic leak.

FENIX02 then observed flames coming from around the aft equipment bay access door and told FENIX01 that they were on fire. At 0740:30 FENIX01 started a left, descending turn and declared an emergency with the Navy area controller at 0741:00. They stated their intentions to land at San Clemente Island Naval Auxiliary Landing Field (NUC), which was about 32 miles

north of their position. Shortly thereafter FENIX02 observed the drag chute, mounted on the aft equipment bay access door, depart from FENIX01. FENIX02 then took over as the lead airplane for the formation and maneuvered in front of FENIX01. FENIX01 was last observed passing underneath FENIX02 from the left to right side as they descended between 9,000 and 7,000 feet msl. No additional radio transmissions were heard from FENIX01 from that point. According to the captain of FENIX02 there was an overcast marine layer of clouds below them from about 2,000 ft to 4,000 ft msl that obscured most of San Clemente Island and NUC.

FENIX01 subsequently made a series of right-hand descending turns, during which the DEEC recorded several additional faults between about 0745:43 and when the DEEC data ended about 0746:32 following indications of a loss of power to the DEEC. The last recorded ABS-B data point at 0749:11 showed the airplane at 1,338 ft and heading northwest about ½ mile off the southwest side of San Clemente Island (figure 1) and was about 4 miles southeast of where the airplane's wreckage was later located.

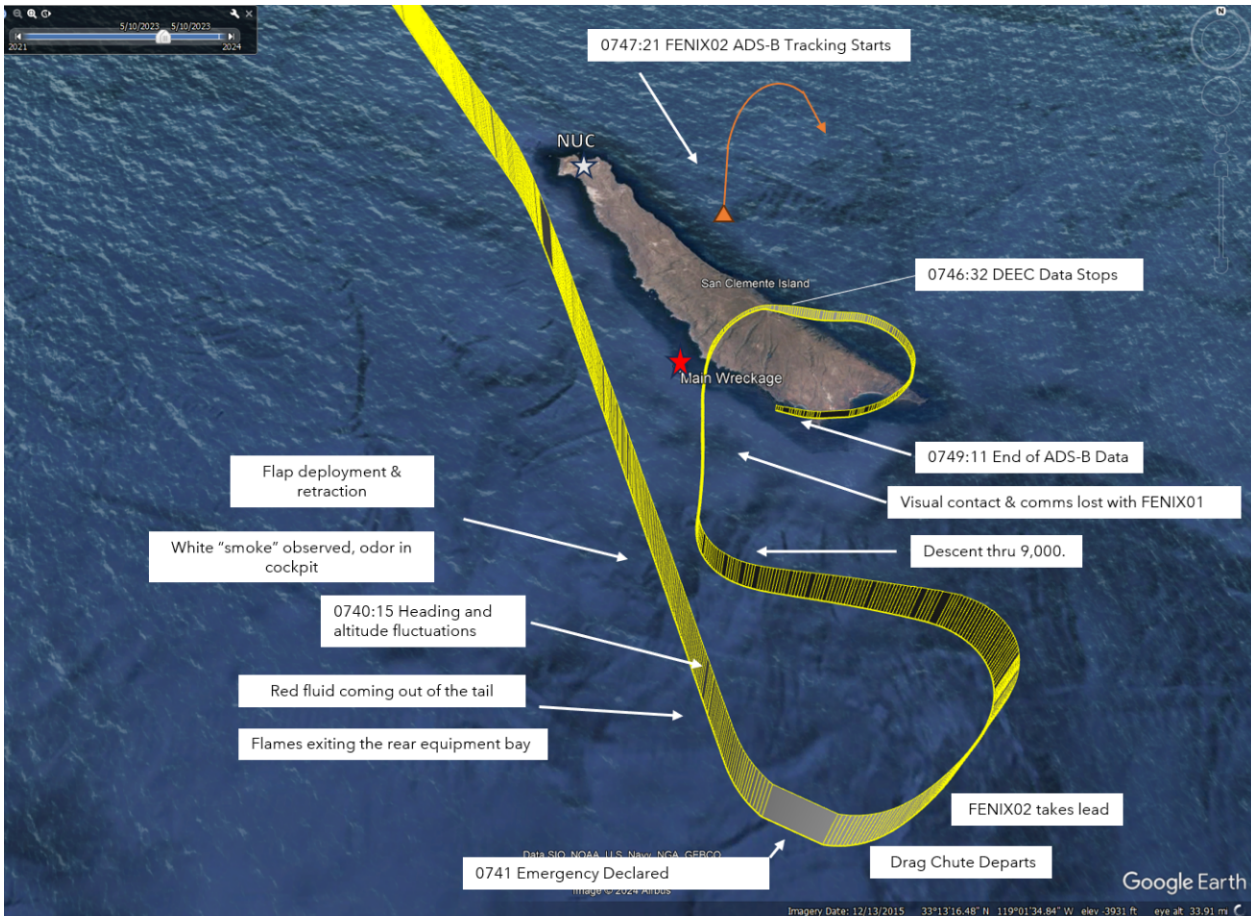

Figure 1 – Flight Path and Sequence of Events

Pilot Information

Certificate:	Airline transport	**Age:**	48,Male
Airplane Rating(s):	Single-engine land; Single-engine sea	**Seat Occupied:**	Left
Other Aircraft Rating(s):	None	**Restraint Used:**	Unknown
Instrument Rating(s):	Airplane	**Second Pilot Present:**	Yes
Instructor Rating(s):	None	**Toxicology Performed:**	No
Medical Certification:	Class 1 With waivers/limitations	**Last FAA Medical Exam:**	January 10, 2023
Occupational Pilot:	Yes	**Last Flight Review or Equivalent:**	February 14, 2023
Flight Time:	10300 hours (Total, all aircraft), 5700 hours (Total, this make and model), 9900 hours (Pilot In Command, all aircraft), 127 hours (Last 90 days, all aircraft), 14 hours (Last 30 days, all aircraft), 5 hours (Last 24 hours, all aircraft)		

Co-pilot Information

Certificate:	Commercial	**Age:**	28,Male
Airplane Rating(s):	Single-engine land; Multi-engine land	**Seat Occupied:**	Right
Other Aircraft Rating(s):	None	**Restraint Used:**	Unknown
Instrument Rating(s):	Airplane	**Second Pilot Present:**	Yes
Instructor Rating(s):	None	**Toxicology Performed:**	
Medical Certification:	Class 1 None	**Last FAA Medical Exam:**	September 27, 2022
Occupational Pilot:	Yes	**Last Flight Review or Equivalent:**	October 17, 2022
Flight Time:	1013 hours (Total, all aircraft), 844 hours (Pilot In Command, all aircraft), 104 hours (Last 90 days, all aircraft), 22 hours (Last 30 days, all aircraft), 5 hours (Last 24 hours, all aircraft)		

Passenger Information

Certificate:		**Age:**	55,Male
Airplane Rating(s):		**Seat Occupied:**	Rear
Other Aircraft Rating(s):		**Restraint Used:**	Unknown
Instrument Rating(s):		**Second Pilot Present:**	Yes
Instructor Rating(s):		**Toxicology Performed:**	
Medical Certification:		**Last FAA Medical Exam:**	
Occupational Pilot:	No	**Last Flight Review or Equivalent:**	
Flight Time:			

Aircraft and Owner/Operator Information

Aircraft Make:	GATES LEAR JET	**Registration:**	N56PA
Model/Series:	36A	**Aircraft Category:**	Airplane
Year of Manufacture:	1976	**Amateur Built:**	
Airworthiness Certificate:	Restricted (Special)	**Serial Number:**	023
Landing Gear Type:	Retractable - Tricycle	**Seats:**	10
Date/Type of Last Inspection:	August 31, 2022 Continuous airworthiness	**Certified Max Gross Wt.:**	18500 lbs
Time Since Last Inspection:	187 Hrs	**Engines:**	2 Turbo fan
Airframe Total Time:	18807 Hrs as of last inspection	**Engine Manufacturer:**	GARRETT
ELT:	C126 installed, activated, aided in locating accident	**Engine Model/Series:**	TFE731 SERIES
Registered Owner:	PHOENIX AIR GROUP INC	**Rated Power:**	3500 Lbs thrust
Operator:	PHOENIX AIR GROUP INC	**Operating Certificate(s) Held:**	On-demand air taxi (135)

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	**Condition of Light:**	Day
Observation Facility, Elevation:	KNUC,182 ft msl	**Distance from Accident Site:**	12 Nautical Miles
Observation Time:	07:56 Local	**Direction from Accident Site:**	341°
Lowest Cloud Condition:	Scattered / 1600 ft AGL	**Visibility**	10 miles
Lowest Ceiling:	Overcast / 2400 ft AGL	**Visibility (RVR):**	
Wind Speed/Gusts:	13 knots / None	**Turbulence Type Forecast/Actual:**	/
Wind Direction:	300°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	30.07 inches Hg	**Temperature/Dew Point:**	13°C / 10°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Oxnard, CA (KNTD)	**Type of Flight Plan Filed:**	IFR
Destination:	Oxnard, CA (KNTD)	**Type of Clearance:**	IFR
Departure Time:	07:23 Local	**Type of Airspace:**	Warning area

Wreckage and Impact Information

Crew Injuries:	3 Fatal	**Aircraft Damage:**	Destroyed
Passenger Injuries:	N/A	**Aircraft Fire:**	In-flight
Ground Injuries:		**Aircraft Explosion:**	Unknown
Total Injuries:	3 Fatal	**Latitude, Longitude:**	32.839382,-118.51568

The airplane wreckage was located in the Pacific Ocean about 13 miles south of NUC and about 1.5 miles west of San Clemente Island at a depth of about 300 ft. The identified wreckage debris field was surveyed using sonar equipment and remotely operated vehicles (ROV). The debris field extended several hundred feet along the ocean floor in a northwest direction. A portion of the airplane was able to be recovered in October, 2023.

Investigators examined the wreckage two different times. The wreckage was fragmented and exhibited corrosion consistent with saltwater immersion. It was estimated that about 40% of the airplane was recovered (figure 2). The identifiable wreckage included portions of the nose cone, cockpit instrument panel, cabin floorboard, portions of both wings, both engines and nacelles, some components from the aft equipment bay, and the vertical stabilizer and left horizontal stabilizer.

Impact damage and a lack of complete wreckage prevented verification of flight control continuity.

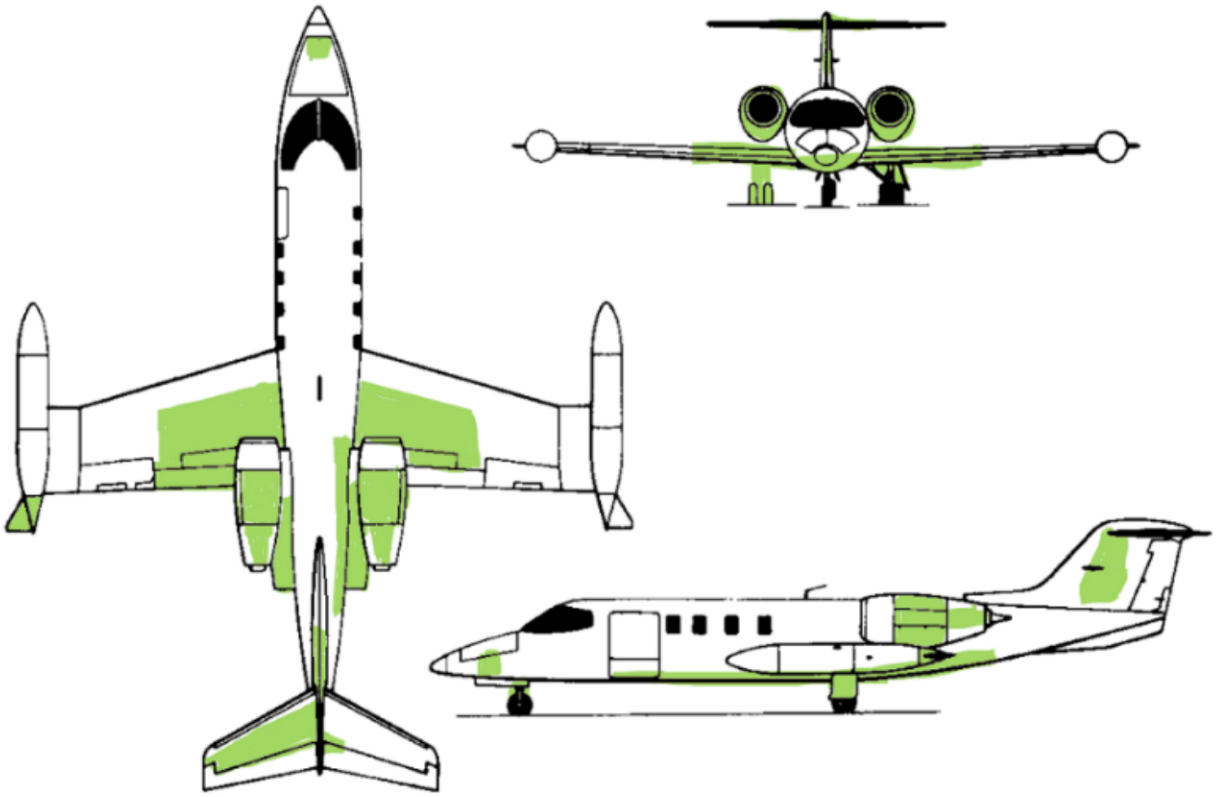

Figure 2 –Portions of the Airplane Recovered (Highlighted in Green)

Main hydraulic system components consisting of the hydraulic reservoir, accumulator, pressure filter, return filter, and auxiliary hydraulic pump were identified and examined. The input ports of both left and right hydraulic shut off valves that were attached to the hydraulic reservoir were probed and found that the left valve was in the closed position and the right valve was in the open position. The flap control valve was not located.

Both engines were separated from the airplane structure when examined. Both engines' fan blades and first stage compressor blades exhibited bending opposite of rotation. Neither engine was able to rotate to verify internal continuity and both engines exhibited corrosion degradation. No mechanical anomalies were noted with either engine during examination.

The left fuel motive flow line was intact from the fuel pump up to the fuselage fitting, where the line normally passes through the fuselage skin into the aft equipment bay near the aft left engine mount. The fuselage fitting on the aft equipment bay side did not have a b-nut attached nor the line that should connect the fitting to the motive flow valve. The left engine hydraulic pressure line and inlet total pressure (PT2) line, which pass through the fuselage into the aft equipment bay adjacent to the motive fuel line, each had aluminum b-nuts present on the

interior side of their respective fuselage fittings and the interior lines for each was sheared at the fitting (figure 3).

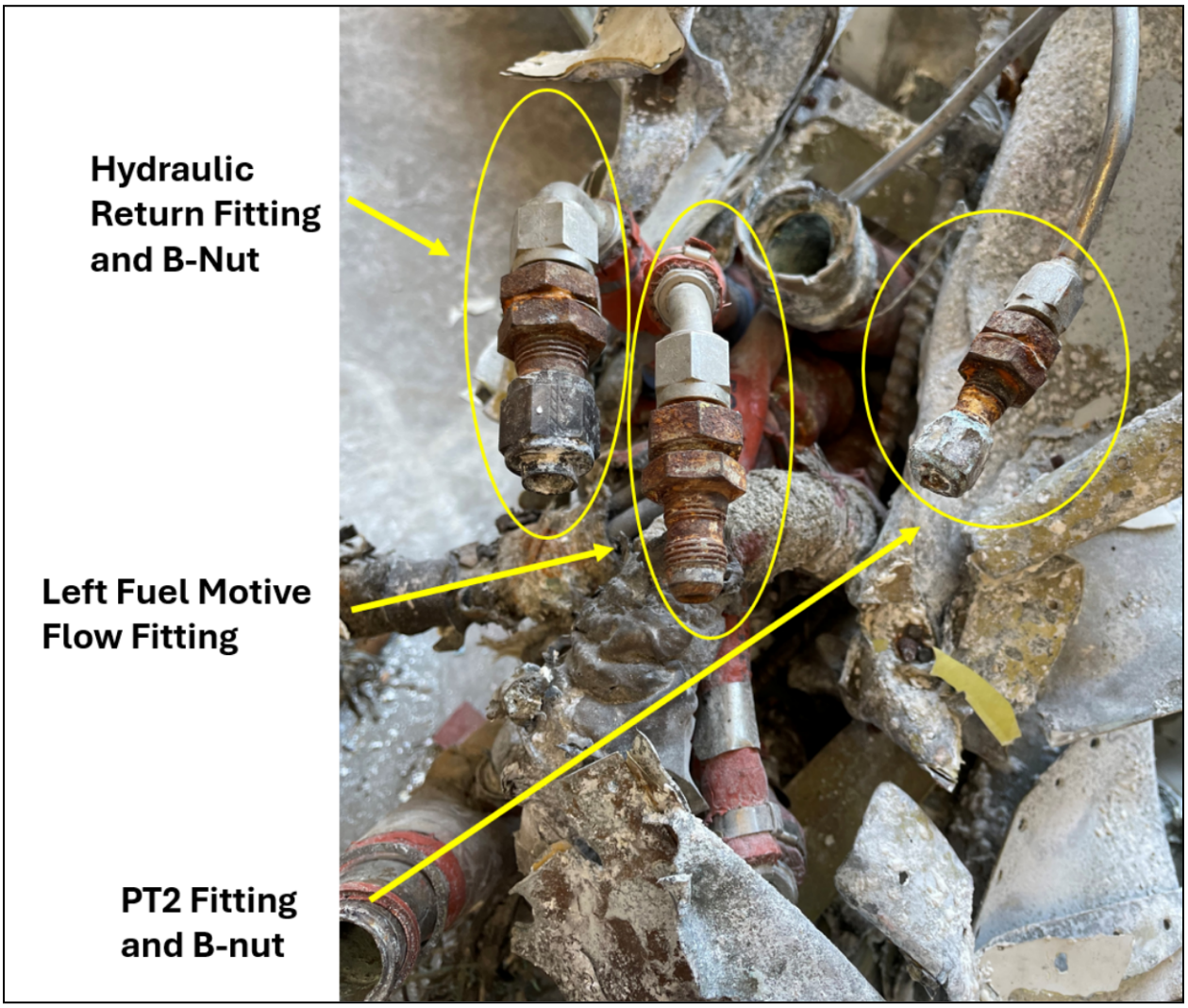

Figure 3 – Left Fuselage Fittings and B-Nuts

The left fuel motive flow fuselage fitting and the hydraulic fluid return fitting were examined. Both were steel bulkhead type fittings, and both fittings were corroded. No thermal damage was observed on the outboard nuts and attached portions of tubing. On the inboard side, the motive flow fitting was missing the aluminum nut and tubing. Examination of the threads on the inboard side of the motive flow fitting did not exhibit evidence of thread stripping. The hydraulic fluid return fitting still had the aluminum nut attached on the inboard side and the aluminum tubing had sheared at the nut face. According to the operator, there was no record of maintenance being performed on the motive flow fitting and b-nut since the airplane had been assembled.

Portions of the wreckage exhibited exposure to heat and fire. See the Fire section of this report for a detailed description of those findings.

Medical and Pathological Information

Autopsies of the crewmembers were performed by the County of Los Angeles Department of the Medical Examiner, Los Angeles, California. The cause of death for both pilots was determined to be blunt force trauma. Toxicological testing was not performed.

Fire

Fire and heat damage was concentrated in the vicinity of the aft equipment bay (tail cone), aft portion of the fuselage fuel tank, both wheel-well areas and the inboard section of both flaps (figure 4). The right side of the aft equipment bay fuselage structure had heat/fire damage. The left side of the equipment bay and the entire fuselage structure aft of the avionics bay was not recovered.

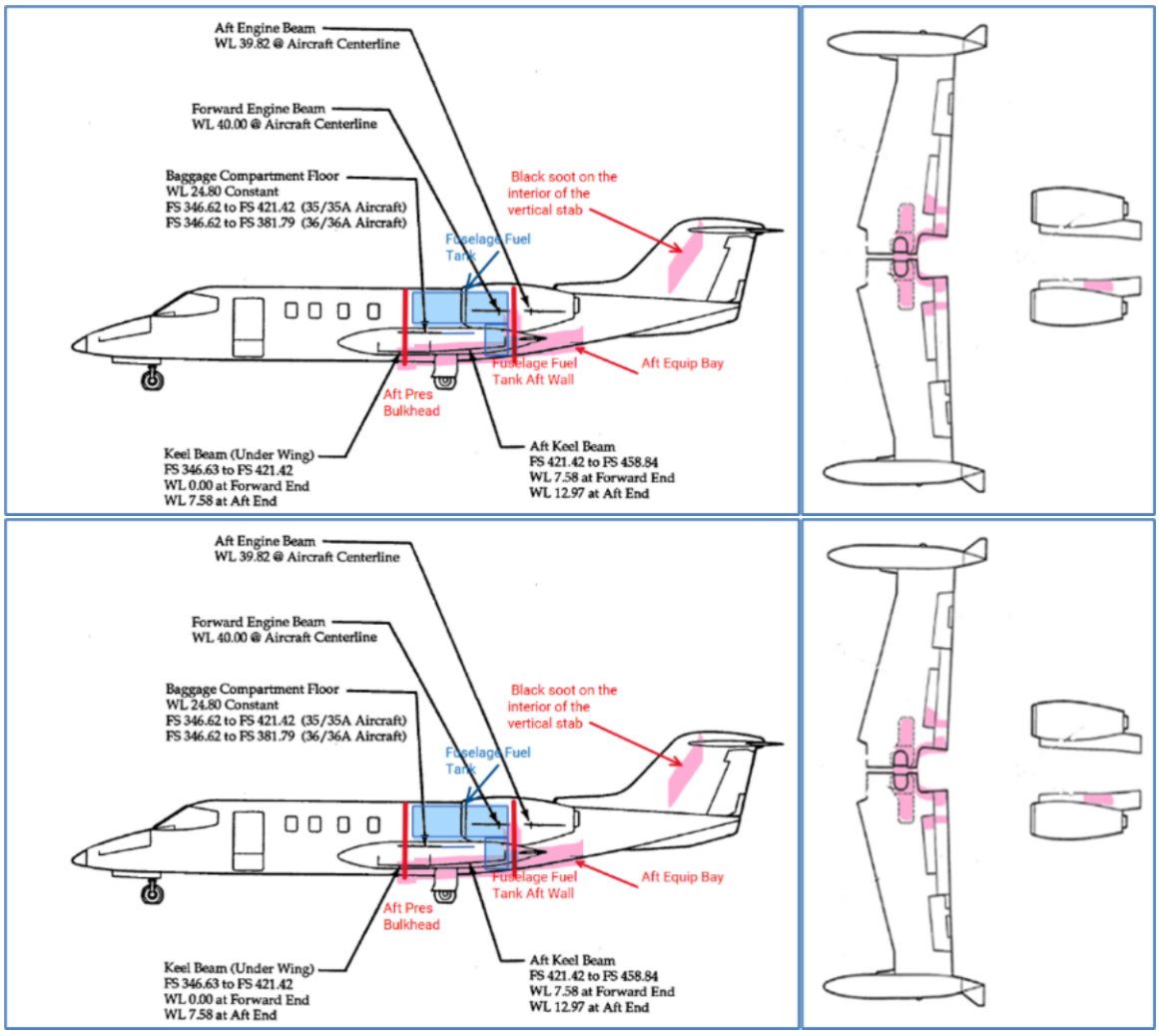

Figure 4. Diagram showing areas of fire/heat damage. (Diagram source: Learjet 20/30 Series Structural Repair Manual)

The upper left side of the fuselage fuel tank aft bulkhead exhibited a region of damage that was different than what was observed throughout the rest of the bulkhead (figures 5 and 6). This region of damage was mostly devoid of any remaining charred primer paint and the aluminum substrate was eroded. In some areas within this region, the erosion was all the way through the thickness of the aluminum bulkhead panel. Other areas throughout the entire fuselage fuel tank aft bulkhead that exhibited charred, or missing paint did not exhibit the erosion.

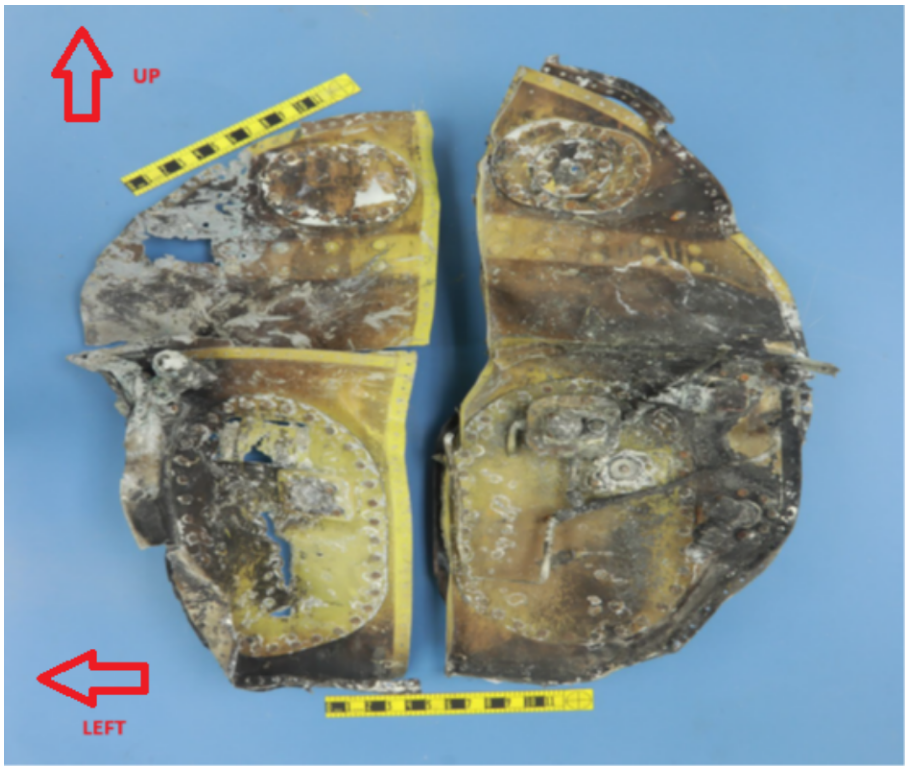

Figure 5 - Fuselage Fuel Tank Aft Bulkhead (Aft Facing Side)

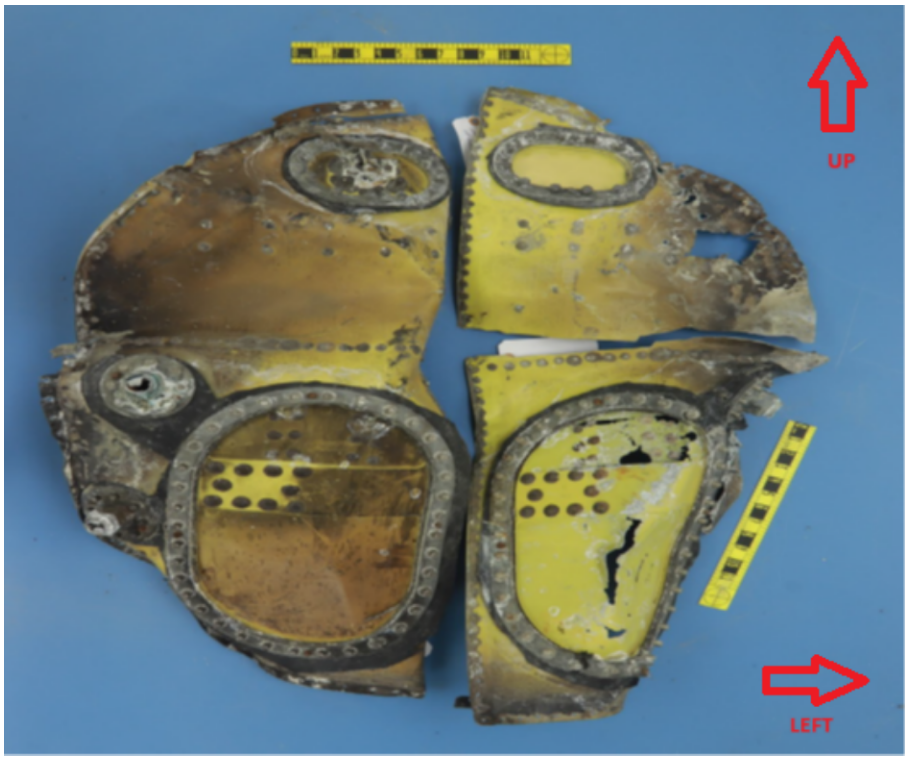

Figure 6 – Fuselage Fuel Tank Bay Aft Bulkhead (Forward Facing Side)

The fuselage fuel tank was fragmented, with portions of the fuel bladder material attached to the aft pressure bulkhead, fuel tank divider panels, and fuel tank aft bulkhead. The fuselage fuel tank aft area bladder portions exhibited heat damage. The forward section of the fuselage fuel tank that contacted the pressure bulkhead had no heat damage. Soot deposits were found on the fuselage fuel tank fuel quantity indicator tube. The fuel tank quantity indicator tube would normally be in the fuel tank and submerged in fuel.

Examination of the left and right rear engine beams showed an asymmetric material condition between the two. The left engine beam exhibited beam deformation, extreme thinning of the upper beam plate, moderate thinning of the forward plate, and unpainted surfaces with corrosive deposits. The thinning of the left engine beam plates presented an eroded appearance with similar characteristics as to what was observed on the upper left portion of the fuselage fuel tank aft bulkhead. The left and right engine service connections, which include the pressurized motive flow line, hydraulic pressure and return lines, and engine harnesses, enter the aircraft fuselage in the upper left and right quadrants of the aft equipment bay. Engine wire circuitry associated with the left engine pylon was found to have some wires that exhibited beads of resolidified molten copper. No such beads were found on other wiring.

The hydraulic reservoir tank is mounted on the forward, right interior side of the aft equipment bay. The quadrant of the tank that faced inward to the equipment bay compartment exhibited substantial heat damage, while the side that was up against the fuselage and the quadrant that faced aft was undamaged by heat.

The generator control panel, which would have been installed on the left side of the aft equipment bay adjacent to the access door, exhibited thermal damage and charring. More severe thermal damage was evident on the forward section of the panel.

The airplane was equipped with under wing external stores hardpoints, a Reeling Machine Target Tow System, and other underwing stores (Mission Equipment). Power for the Mission Equipment originates from the airplane generator control box in the aft equipment bay through two (left and right) current limiters (also in the aft equipment bay) and flows to the J-box, located immediately forward of the aft pressure bulkhead. The contactor is controlled by the crew. When in the engaged (ON) position, power is routed to the J-Box in the main cabin. When in the open (OFF) position, power stops at the contactor.

The mission equipment power cables were traced from the J-Box to a location in the aft equipment bay (tail cone) a few inches from the contactor. There was no evidence of arcing or melting of the power cables that would be indicative of them being energized. The equipment and wire bundles in the J-box were undamaged by fire and exhibited no evidence of arcing. Wire bundles from the J-box are routed out to each wing.

There was evidence of fire damage to portions of airframe and mission wire bundles that were outside the pressurized fuselage in the wheel well area. The entire wheel well area, including the main landing gear tires and wheels, had evidence of fire damage with black soot, heat

deformed metal, and burned and melted wiring insulation. The current limiter, contactor, and the mission wiring that connects the generator control box to the current limiter and the contactor was not located within the wreckage.

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Additional Information

Digital Electronic Engine Control (DEEC) Incident Recorder

The left and right engine DEECs are installed adjacent to each other in the upper, left side of the aft equipment bay, aft of the left engine pylon. A single DEEC, from the left engine, was recovered during examination of the wreckage. The DEEC included an incident recorder which collects the following parameters in non-volatile memory (NVM): N1 (Low Pressure spool % speed), N2 (High Pressure spool % speed), ITT (inter-turbine temperature), WOW (weight-on-wheels), Mach, PLA (power lever angle), ALT (pressure altitude), TR (thrust reverser deploy), Control Mode (auto / manual), and Buffer Location Pointer. Data from the accident flight was recovered. For this particular version of the DEEC, the values for weight on wheels (WOW), Mach number, altitude, and thrust reverser (TR) deployment are internally calculated values and are not directly obtained from the aircraft.

The data recorded 5,120 seconds of data (about 85 minutes). The data includes the cruise, descent, and landing from the flight before the accident and the full data recorded from the accident flight. The accident flight dataset appears to start at about time stamp 1,980 seconds, determined by comparison with the Data File Chronology. At time stamp 50 seconds through the remainder of the dataset, the N2 and PLA parameters indicate N2 Signal Fail and No Valid Data respectively. This coincides with faults indicating a failure of the FCU PLA circuit and the N2 Monopole Circuit being open or shorted consistent with damaged wiring. Per system design the DEEC reverted to manual mode.

Data recovered from the incident recorder associated with the accident flight is displayed in figure 7. For purposes of determining the actual time of the events, there is a PLA increase beginning at about 1430 seconds correlating to the throttles being advanced for takeoff. Six seconds later N1 stabilizes at 101 percent and Mach data begins indicating an increasing trend from zero, consistent with the start of the takeoff roll. The DEEC data was correlated with

ADS-B data for the airplane, which showed the takeoff roll began about 0722:48. The DEEC recorded the first fault about 0741:46 and the incident recorder data subsequently ends about 0746:32.

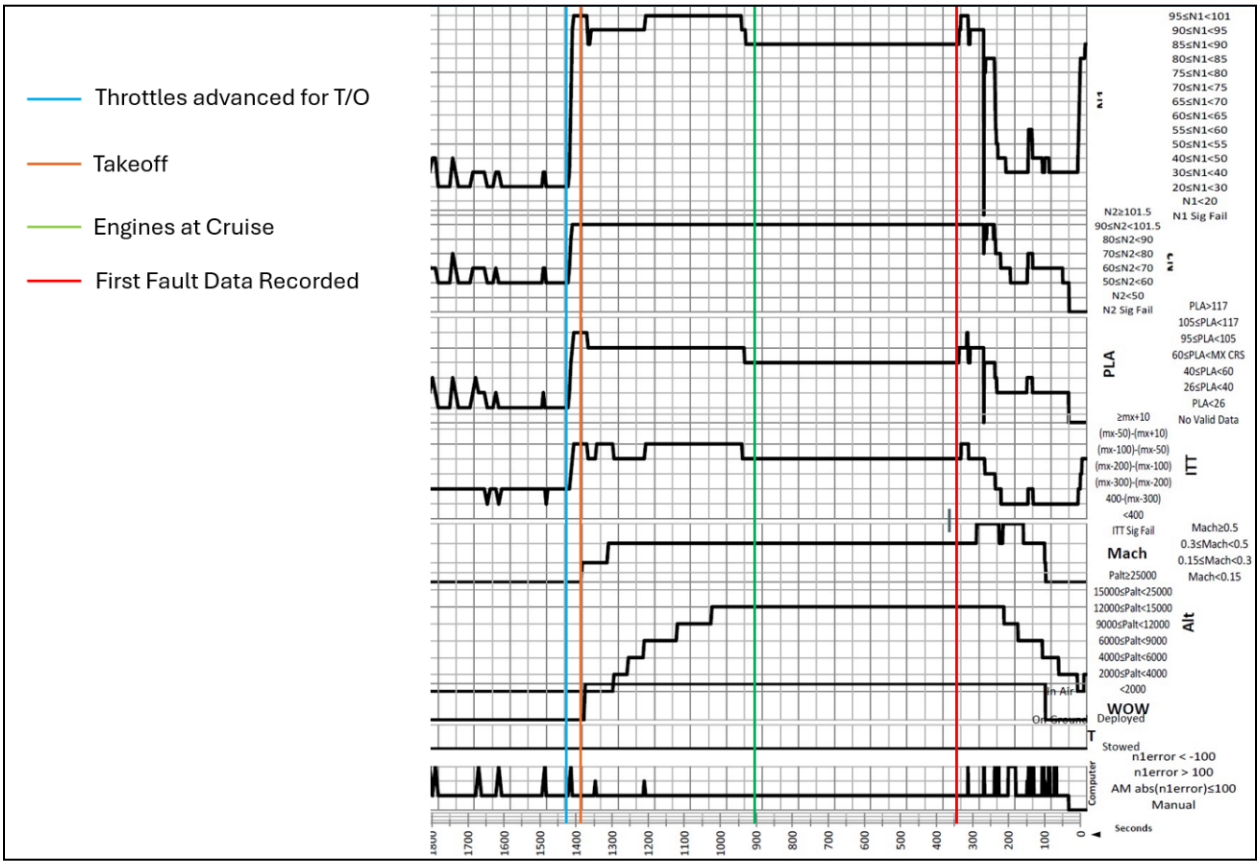

Figure 7 – DEEC Incident Recorder Data

Systems Descriptions

The following system descriptions were extracted from the Learjet 35/35A/36/36A Maintenance Manual.

Hydraulic System

The hydraulic system supplies military standard hydraulic fluid (MIL-H-5606) under pressure of approximately 1,450 psi to the brake, landing gear, flap, and spoiler systems.

Hydraulic fluid for systems operation is supplied from a reservoir through hydraulic supply shutoff valves to the engine-driven hydraulic pumps. The hydraulic reservoir is pressurized to approximately 20 psi by a pressure regulator. The pressure regulator is installed in a line from the bleed air duct to the reservoir. The engine-driven hydraulic pumps supply hydraulic fluid under pressure through check valves and a filter to the hydraulically operated systems upon demand.

Fuel System

The fuel distribution system consists of two independent systems, one for each engine. Each distribution system consists of a jet pump, an electric standby pump, a fuel filter, a shutoff valve, a motive flow valve, a pressure switch, a relief valve, relays in the fuel control relay panel, and fuel supply line check valves.

When the Jet Pump Switch is set to ON, the motive flow valve opens and high pressure fuel from the engine-driven fuel pump is directed through a nozzle in the jet pump, drawing fuel from the tank. The motive flow pressure ranges from approximately 300 psi during high fuel flow rates at 45,000 feet altitude to approximately 250 psi at low fuel flow rates at sea level when the engine rpm is at idle.

The left motive flow valve controls the fuel flow from the left engine-driven fuel pump to the left tip tank jet pump and left jet pump. The right motive flow valve controls the fuel flow from the right engine-driven fuel pump to the right tip tank jet pump and right jet pump.

Flap System

The flap system is electrically controlled and hydraulically operated. A flap switch is located on the cockpit center pedestal and a flap position indicator is located on the center instrument panel. Setting the Flap Switch on the center pedestal to the DN position energizes a solenoid which positions the flap control valve to direct hydraulic fluid to the down port of the flaps actuators. When the Flap Switch is returned to the off position, the solenoid is de-energized and the flap control valve returns to neutral. This cuts off all hydraulic flow to the actuators and stops the flaps at the desired position. Setting the Flap Switch to UP energizes the solenoid and positions the flap control valve selector to direct hydraulic fluid to the up port of the flap actuators. This rotates the flap sectors which retract the flaps. An aural warning system is electrically connected to the flaps and landing gear. With the flaps extended beyond 25 degrees, an aural warning horn will sound until the landing gear is fully extended and locked. A 1650 psi pressure relief valve, installed in the flap down line, relieves pressure to prevent excessive structural loads. See Figure 8 for a schematic of the flap system.

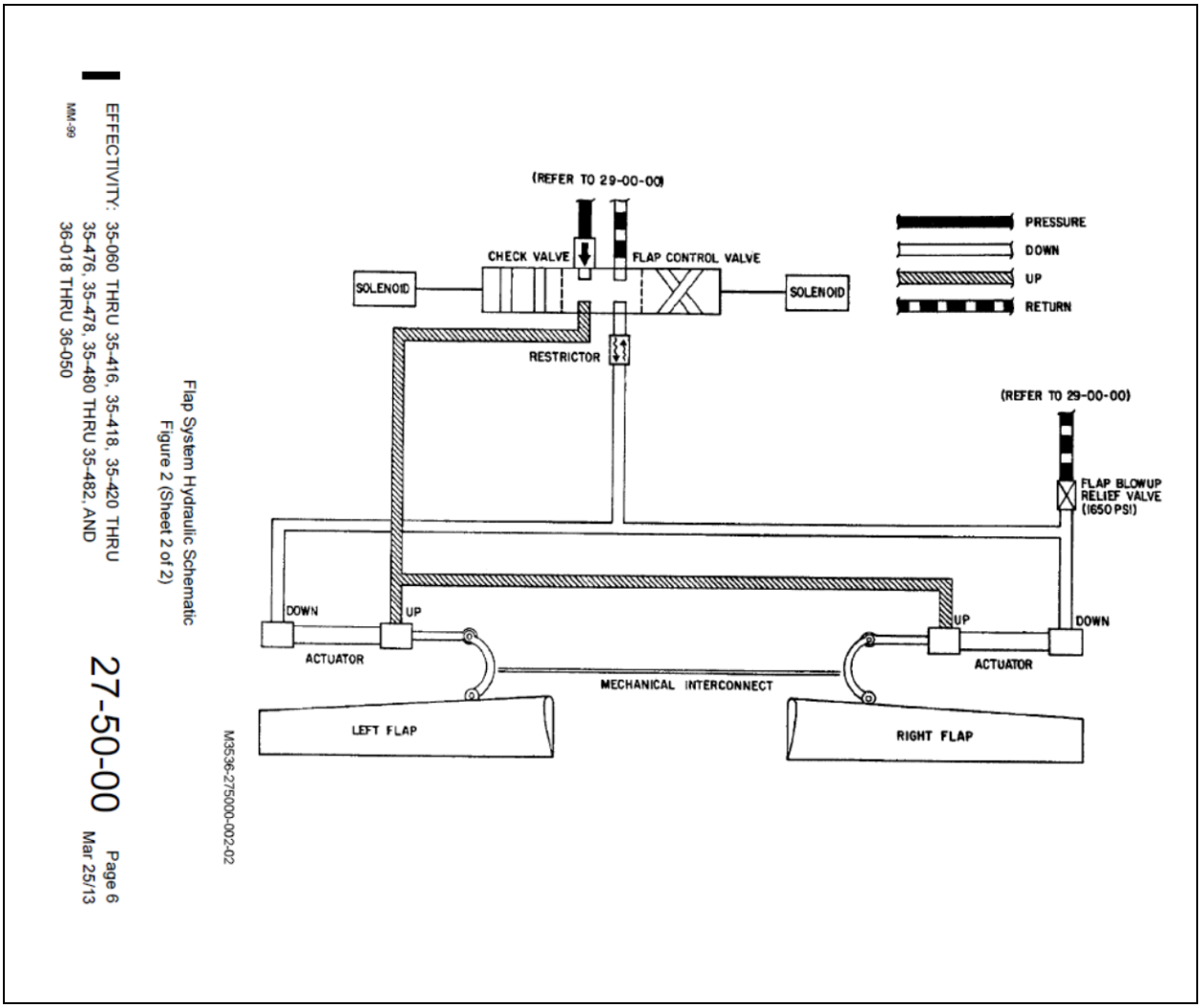

Figure 8 – Flap System Schematic

Fire Detection and Extinguishing System

Engine fire detection assemblies consist of three elements for each engine; one element around the tail cone, a second element on the accessory gear box, and a third element is secured to the firewall. When the firewall or accessory gearbox elements reach a temperature of about 410°F or the tail cone element reaches a temperature of about 890°F, the control unit energizes the FIRE PULL warning light.

The engine fire extinguishing system provides fire extinguishing capabilities for each engine nacelle. Two engine fire extinguisher bottles are installed in the tail cone equipment bay. The bottles are charged with extinguishing agent to a pressure of 600 psi. Pulling either the left or right FIRE PULL Tee-Handle Switch closes the associated engine main fuel shutoff valve, hydraulic shutoff valve, and bleed air shutoff and pressure regulator valve for the affected nacelle.

Engine Fire Emergency Procedures (Quick Reference Handbook)

The following are the initial checklist actions (memory items) in the event of an engine fire.

ENGINE FIRE - SHUTDOWN

1. Thrust Lever – Idle, unless a critical thrust situation exists
2. If fire continues more than 15 seconds or there are other indications of fire:
    a. Thrust Lever – Cutoff
    b. Engine Fire Pull Handle – Pull
    c. Armed Light – Depress One

Administrative Information

Investigator In Charge (IIC):	Baker, Daniel
Additional Participating Persons:	Roger Messick; FAA; San Diego, CA Ricky Smith; Phoenix Air Group Inc; GA Jennifer McDuffie; Honeywell; Phoenix, AZ Michael Lemay; Bombardier
Original Publish Date:	June 12, 2025
Last Revision Date:	
Investigation Class:	Class 3
Note:	
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=130456