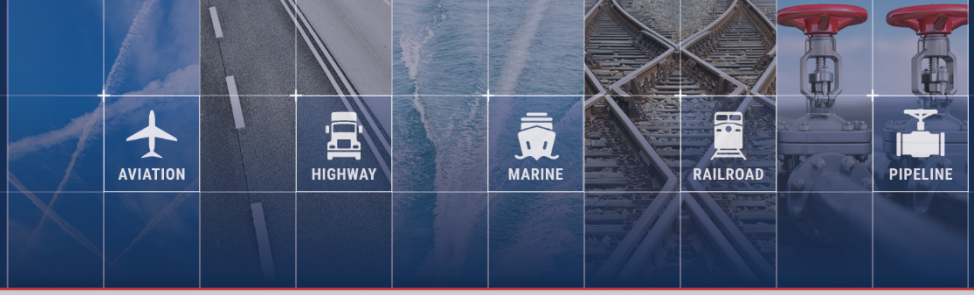

Aviation Investigation Final Report

Location:	Las Vegas, Nevada	**Accident Number:**	WPR13LA310
Date & Time:	July 5, 2013, 18:45 Local	**Registration:**	XBRSC
Aircraft:	Rockwell NA-265-65	**Aircraft Damage:**	Substantial
Defining Event:	Loss of control on ground	**Injuries:**	6 None
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

The pilots reported that, during the approach, the main hydraulic system lost pressure. They selected the auxiliary hydraulic system "on," continued the approach, and extended the landing gear using the emergency landing gear extension procedures. During the landing roll, about two-thirds down the runway, the pilots noticed that the brakes were not working normally and then turned onto a taxiway to clear the runway. The captain reported that, once on the taxiway, he was unable to stop or steer the airplane as it proceeded across a parallel runway and into an adjacent field where it subsequently struck a metal beam.

A postaccident examination of the airplane revealed brake system continuity with the cockpit controls. The tires, brake assemblies, and brake pads were intact and undamaged. The hydraulic lines from the hydraulic pump to the wheel brakes were intact. No hydraulic fluid was observed leaking on the exterior or interior portions of the airplane. The hydraulic fluid reservoir was found about 1/4 full. Further, testing of the two hydraulic pumps revealed that they were both functional, and no mechanical failures or anomalies that would have precluded normal operation were noted.

The airplane's hydraulic system failure emergency procedures state that, if hydraulic pressure is lost, the electrically driven hydraulic pump should be reset and that, if the hydraulic pressure was not restored, that the primary hydraulic system should be disengaged and the landing gear should be lowered using the emergency landing gear extension procedures. After the gear is extended, the auxiliary hydraulic system should be selected "on" for landing. However, the pilots stated that they did not attempt to reset the electric hydraulic pump and that they performed the emergency landing gear extension procedures with the auxiliary hydraulic pump engaged. It is likely that the pilots' failure to select the auxiliary hydraulic system "off" before extending the landing gear caused the hydraulic pressure in the auxiliary system to dissipate, which left only the emergency brake accumulator available for braking during the landing. The number of emergency brake applications that can be made by the pilots depends on the accumulator charge, which may be depleted in a very short time.

The airplane's emergency braking procedures state that, as soon as the airplane is safely stopped, the pilots should request towing assistance. However, the pilots did not stop the airplane on the runway despite having about 3,900 ft of runway remaining; instead, they turned off the runway at an intersection, which resulted in a loss of directional control.

Probable Cause and Findings

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

The pilots' failure to follow the airplane manufacturer's emergency procedures for a hydraulic system failure and emergency braking, which resulted in the loss of braking action upon landing and the subsequent loss of directional control while turning off the runway. Contributing to the accident was the loss of hydraulic pressure for reasons that could not be determined because postaccident testing and examination of the hydraulic system revealed no mechanical failures or anomalies that would have precluded normal operation.

Findings

Personnel issues	Aircraft control - Flight crew
Personnel issues	Use of policy/procedure - Flight crew
Aircraft	Surface speed/braking - Not attained/maintained
Aircraft	Directional control - Not attained/maintained
Personnel issues	Use of equip/system - Flight crew
Not determined	(general) - Unknown/Not determined
Environmental issues	(general) - Contributed to outcome

Factual Information

History of Flight

Approach	Sys/Comp malf/fail (non-power)
Taxi-from runway	Loss of control on ground (Defining event)
Taxi-from runway	Collision with terr/obj (non-CFIT)

On July 5, 2013, about 1845 Pacific daylight time, a Rockwell International Corporation NA-265-65, Mexican registered XB-RSC, sustained substantial damage following a reported loss of control while taxiing at the McCarran International Airport (LAS) Las Vegas, Nevada. The airplane was registered to and operated by Eseasa Contrucciones, S. A. de C. V., under the provisions of Title 14 Code of Federal Regulations Part 91. The captain, first officer, and four passengers were not injured. Visual meteorological conditions prevailed and an instrument flight rules (IFR) flight plan was filed for the personal flight which originated from Brownsville, Texas about 1755, central daylight time.

The pilots reported that about 20 miles from the airport, the main hydraulic system lost pressure. They selected the auxiliary hydraulic system and continued the approach. During the landing roll, about two thirds down the runway, the pilots noticed that the brakes were not working normally and turned onto a taxiway to clear the runway. Once on the taxiway, the captain reported he was unable to stop or steer the airplane as it proceeded across a parallel runway and then into an adjacent grass field where it subsequently struck a metal beam located within a drainage area.

Examination of the airplane wreckage by a Federal Aviation Administration Inspector revealed that the left wing was substantially damaged. The airplane was recovered to a secure storage facility for further examination.

A review of the airplane's emergency procedures for Hydraulic Pressure or Hydraulic Caution Light On, revealed that the electrically driven hydraulic pump should be reset and if the hydraulic pressure does not return to normal, to select the hydraulic pump to "off," and use the emergency gear lowering procedures to extend the landing gear. After the gear is emergency extended, the hydraulic auxiliary pump should be selected "on" for landing. The flight crew stated that they did not attempt to reset the hydraulic pump and accomplished the emergency landing gear extension procedures with the auxiliary hydraulic pump engaged.

Upon landing, the flight crew stated that they activated the emergency brake switch on the runway. The airplane's emergency procedures state when using emergency braking, as soon as the airplane is brought safely to a stop, that the flight crews should request towing assistance. The procedures also state that the number of brake applications available to the crew is dependent on the accumulator charge and may be depleted in a very short time. The landing runway was 10,525 feet in length, 150 feet wide, and had a 0.9 % uphill gradient. The flight crew did not bring the airplane to complete stop on the runway but taxied off the runway at an intersection, with about 3,900 feet of runway remaining.

A postaccident examination of the airplane, revealed brake system continuity with the cockpit controls. The tires, brake assemblies, and brake pads were intact and undamaged. The hydraulic lines from the hydraulic pump to the wheel brakes were intact. No hydraulic fluid was observed leaking on the exterior or interior portions of the airplane. Further, the external portions of the brake assemblies were not contaminated with hydraulic fluid. The hydraulic reservoir quantity was observed low in fluid and about ¼ full. According to the airplane's maintenance manual, the reservoir maximum capacity was two gallons. The reservoir fluid was observed to be dark red/brown in color and had a musky burnt scent. A sample of the reservoir hydraulic fluid was sent to the National Transportation Safety Board Materials (NTSB) laboratory for analysis.

The analysis of the hydraulic fluid revealed that the acid level was degraded beyond the normal range expected for this type of fluid but not to a critical level. Reference the Material Laboratory Factual Report in the public docket for additional information.

The two hydraulic pumps were removed and sent to their respective manufacturer for a functional check. Examination and functional checks of both hydraulic pumps revealed that they operated normally. No mechanical failures or anomalies that would preclude normal operation were noted.

The airplane's cockpit voice recorder (CVR) was sent to the NTSB Vehicle Recorder Division for readout. The recording of the accident flight was not present and consistent with the CVR being inoperative prior to the accident.

Pilot Information

Certificate:	Commercial	**Age:**	61
Airplane Rating(s):	Multi-engine land	**Seat Occupied:**	Left
Other Aircraft Rating(s):	None	**Restraint Used:**	3-point
Instrument Rating(s):	Airplane	**Second Pilot Present:**	Yes
Instructor Rating(s):	None	**Toxicology Performed:**	No
Medical Certification:	Unknown With waivers/limitations	**Last FAA Medical Exam:**	February 13, 2013
Occupational Pilot:	Yes	**Last Flight Review or Equivalent:**	October 10, 2012
Flight Time:	7400 hours (Total, all aircraft), 2100 hours (Total, this make and model), 7100 hours (Pilot In Command, all aircraft), 75 hours (Last 90 days, all aircraft), 25 hours (Last 30 days, all aircraft), 4 hours (Last 24 hours, all aircraft)		

Co-pilot Information

Certificate:	Commercial	**Age:**	39
Airplane Rating(s):	Multi-engine land	**Seat Occupied:**	Right
Other Aircraft Rating(s):	None	**Restraint Used:**	3-point
Instrument Rating(s):	Airplane	**Second Pilot Present:**	Yes
Instructor Rating(s):	None	**Toxicology Performed:**	No
Medical Certification:	Unknown Without waivers/limitations	**Last FAA Medical Exam:**	May 10, 2012
Occupational Pilot:	Yes	**Last Flight Review or Equivalent:**	October 10, 2012
Flight Time:	1939 hours (Total, all aircraft), 788 hours (Total, this make and model), 75 hours (Last 90 days, all aircraft), 25 hours (Last 30 days, all aircraft), 4 hours (Last 24 hours, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Rockwell	**Registration:**	XBRSC
Model/Series:	NA-265-65	**Aircraft Category:**	Airplane
Year of Manufacture:		**Amateur Built:**	
Airworthiness Certificate:	Normal	**Serial Number:**	465-55
Landing Gear Type:	Retractable - Tricycle	**Seats:**	10
Date/Type of Last Inspection:	Unknown	**Certified Max Gross Wt.:**	24000 lbs
Time Since Last Inspection:		**Engines:**	2 Turbo fan
Airframe Total Time:	9940 Hrs at time of accident	**Engine Manufacturer:**	Garrett
ELT:	Installed, activated, did not aid in locating accident	**Engine Model/Series:**	TFE-731-3R-1D
Registered Owner:	Eseasa Contrucciones S.A. de C.V.	**Rated Power:**	3700 Lbs thrust
Operator:	Eseasa Contrucciones S.A. de C.V.	**Operating Certificate(s) Held:**	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	**Condition of Light:**	Dusk
Observation Facility, Elevation:	KLAS,2181 ft msl	**Distance from Accident Site:**	0 Nautical Miles
Observation Time:	18:56 Local	**Direction from Accident Site:**	0°
Lowest Cloud Condition:	Few / 11000 ft AGL	**Visibility**	10 miles
Lowest Ceiling:	Broken / 25000 ft AGL	**Visibility (RVR):**	
Wind Speed/Gusts:	17 knots / 23 knots	**Turbulence Type Forecast/Actual:**	/ None
Wind Direction:	180°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	29.53 inches Hg	**Temperature/Dew Point:**	38°C / 5°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Brownsville, TX (BRO)	**Type of Flight Plan Filed:**	IFR
Destination:	Las Vegas, NV (LAS)	**Type of Clearance:**	IFR
Departure Time:	17:55 Local	**Type of Airspace:**	Class B

Airport Information

Airport:	McCarran International Airport LAS	**Runway Surface Type:**	Concrete
Airport Elevation:	2181 ft msl	**Runway Surface Condition:**	Dry
Runway Used:	25L	**IFR Approach:**	ILS
Runway Length/Width:	10526 ft / 150 ft	**VFR Approach/Landing:**	Full stop

Wreckage and Impact Information

Crew Injuries:	2 None	**Aircraft Damage:**	Substantial
Passenger Injuries:	4 None	**Aircraft Fire:**	None
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	6 None	**Latitude, Longitude:**	36.074722,-115.15139(est)

Administrative Information

Investigator In Charge (IIC):	Nixon, Albert
Additional Participating Persons:	Gary Rucker; Federal Aviation Administration; Las Vegas, NV John Mecalo; Sabreliner Aviation LLC; Perryville, MO
Original Publish Date:	November 19, 2015
Last Revision Date:	
Investigation Class:	Class
Note:	
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=87393