Aviation Investigation Final Report

Location:	LONG BEACH, California	**Accident Number:**	LAX99LA284
Date & Time:	August 26, 1999, 13:33 Local	**Registration:**	N5224R
Aircraft:	Aerospatiale AS350B3	**Aircraft Damage:**	Substantial
Defining Event:		**Injuries:**	2 None
Flight Conducted Under:	Part 91: General aviation		

Analysis

The pilot reported that a linesman directed him toward the center one of three transient parking helipads next to a small perimeter fence. All three helipads were empty. As he approached the pad, the pilot became concerned about obstructions and about exposing his tail rotor to a taxiway beyond his view. He performed a left pedal turn over the pad to bring the nose around to face the taxiway. He reported that the linesman made a 'hands-down motion' and walked away. The pilot assumed he was clear to touchdown. As he touched down, the tail rotor contacted the helipad's perimeter fence. The nose of the helicopter yawed left and the pilot performed a hovering autorotation. The tail rotor blades were destroyed and the tail boom was buckled. The distance from the center of the helipad parking space to the fence was measured at 23 feet. The distance from the main rotor mast to the end of the tail stinger on the AS350B3 is just over 23 feet. According to the parking space requirements outlined by FAA A/C 150/5390-2A, the fence was supposed to be no closer than 10 feet to any part of the helicopter. The fence was found to be within the tail rotor clearance area specified in the Advisory Circular. There was insufficient room for the helicopter to make a 180-degree turn, assuming it stayed on the center point of the parking space.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: The failure of the pilot to maintain clearance with the fence while landing. A factor was the failure of the helipad to meet the obstacle clearance design criteria specified in FAA Advisory Circular guidance.

Findings

Occurrence #1: IN FLIGHT COLLISION WITH OBJECT
Phase of Operation: TAXI - AERIAL

Findings
1. OBJECT - FENCE
2. (C) CLEARANCE - NOT MAINTAINED - PILOT IN COMMAND
3. (F) AIRPORT FACILITIES,HELIPAD - INADEQUATE
4. (F) PROCEDURES/DIRECTIVES - NOT COMPLIED WITH - AIRPORT PERSONNEL

Factual Information

On August 26, 1999, at 1333 hours Pacific daylight time, an Aerospatiale AS350B3, N5224R, collided with a fence while landing at the Long Beach, California, airport. The helicopter, operated by American Eurocopter, Grand Prairie, Texas, was substantially damaged. The commercial pilot and commercial rated passenger were not injured. The local area business flight was conducted under the provisions of 14 CFR Part 91 and originated from the Van Nuys, California, Airport, about 1235, and made a planned stop at a private heliport in Los Angeles before continuing to Long Beach. Visual meteorological conditions prevailed and no flight plan was filed.

In a written statement, the pilot reported that he had planned to park the helicopter on a pad in front of a fixed-base operator (FBO). He reported that the air traffic controller directed him to land on runway 7 and air taxi to the FBO. Upon reaching the FBO's ramp, a linesman directed the pilot toward the center of three helipads next to a small fence that bordered the western perimeter of the ramp. All three pads were empty. The pilot reported that as he approached the pad he became concerned that his tail rotor was exposed to a taxiway which was out of his view. Additionally, there were two large semi-tractor trailers parked south of the helipad which the pilot felt would obstruct the view of any aircraft taxiing out of the south end hangar. Because of these obstructions, the pilot initiated a left pedal turn over the pad to bring the nose of the helicopter around to face the taxiway. The pilot reported that he looked to the linesman for further landing guidance. The linesman made a "hands-down motion" and started to walk away. The pilot stated that he interpreted the linesman's signal to mean that he was clear to touchdown. As he landed, he felt a slight impact followed by a series of vibrations. The nose of the helicopter began to yaw left. The pilot reported that he immediately lowered the collective and reduced the power; he had no tail rotor control at that time.

The pilot instructed his passenger to remain in the helicopter until he could ensure that the area was clear. He performed a normal engine shutdown. As he exited the helicopter, he discovered that the tail rotor had struck the short chain link fence behind the aircraft. The tail rotor blades were destroyed and about 3 inches of the blade tips were broken off. One piece impacted the exhaust stack and went into the engine. The tailboom was buckled.

A representative from American Eurocopter submitted a drawing of the helipad displaying the measurements of the perimeter and the pad's location in relation to the fence. The pad, as defined by the painted border stripes, was 36 feet by 35 feet, which would generate a radius comparable to approximately 17 1/2 feet. The distance from the center of the "H" to the fence line was shown as 23 feet, and the distance from the nearest pad border of the helipad to the fence was 5 1/2 feet. According to American Eurocopter, the main rotor diameter of the AS350B3 helicopter is 35 feet and the distance from the center of the main rotor mast to the end of the tail stinger is just over 23 feet.

The parking space dimensions were reviewed for compliance with Federal Aviation Administration (FAA) Advisory Circular (AC) 150/5390-2A, issued in 1994. The application of the measurements to the FAA criteria revealed that the fence, at 23 feet from the center point of the helicopter parking space, was within the tail rotor clearance area. Pertinent portions of the Advisory Circular and the helicopter dimensions are appended to this file.

Pilot Information

Certificate:	Commercial; Flight instructor; Private	**Age:**	44,Male
Airplane Rating(s):	Single-engine land; Multi-engine land	**Seat Occupied:**	Right
Other Aircraft Rating(s):	Helicopter	**Restraint Used:**	
Instrument Rating(s):	Airplane	**Second Pilot Present:**	No
Instructor Rating(s):	Helicopter	**Toxicology Performed:**	No
Medical Certification:	Class 2 Valid Medical--w/ waivers/lim	**Last FAA Medical Exam:**	July 29, 1999
Occupational Pilot:	Yes	**Last Flight Review or Equivalent:**	
Flight Time:	2882 hours (Total, all aircraft), 177 hours (Total, this make and model), 2574 hours (Pilot In Command, all aircraft), 3 hours (Last 90 days, all aircraft), 3 hours (Last 30 days, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Aerospatiale	**Registration:**	N5224R
Model/Series:	AS350B3 AS350B3	**Aircraft Category:**	Helicopter
Year of Manufacture:		**Amateur Built:**	
Airworthiness Certificate:	Normal	**Serial Number:**	2968
Landing Gear Type:	Skid	**Seats:**	6
Date/Type of Last Inspection:	August 1, 1999 100 hour	**Certified Max Gross Wt.:**	4961 lbs
Time Since Last Inspection:	13 Hrs	**Engines:**	1 Turbo shaft
Airframe Total Time:	812 Hrs	**Engine Manufacturer:**	Turbomeca
ELT:	Installed, not activated	**Engine Model/Series:**	ARRIEL 2B
Registered Owner:	ROBERT'S AIRCRAFT	**Rated Power:**	847 Horsepower
Operator:	AMERICAN EUROCOPTER	**Operating Certificate(s) Held:**	None
Operator Does Business As:		**Operator Designator Code:**	

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	**Condition of Light:**	Day
Observation Facility, Elevation:	LGB ,57 ft msl	**Distance from Accident Site:**	
Observation Time:	21:56 Local	**Direction from Accident Site:**	
Lowest Cloud Condition:	Scattered / 8000 ft AGL	**Visibility**	10 miles
Lowest Ceiling:	Broken / 25000 ft AGL	**Visibility (RVR):**	
Wind Speed/Gusts:	5 knots /	**Turbulence Type Forecast/Actual:**	/
Wind Direction:	100°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	29 inches Hg	**Temperature/Dew Point:**	32°C / 17°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	VAN NUYS , CA (VNY)	**Type of Flight Plan Filed:**	None
Destination:	(LGB)	**Type of Clearance:**	VFR
Departure Time:	12:35 Local	**Type of Airspace:**	Class D

Airport Information

Airport:	LONG BEACH LGB	**Runway Surface Type:**	Asphalt
Airport Elevation:	57 ft msl	**Runway Surface Condition:**	Dry
Runway Used:	7R	**IFR Approach:**	None
Runway Length/Width:	5420 ft / 150 ft	**VFR Approach/Landing:**	Full stop

Wreckage and Impact Information

Crew Injuries:	1 None	**Aircraft Damage:**	Substantial
Passenger Injuries:	1 None	**Aircraft Fire:**	None
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	2 None	**Latitude, Longitude:**	33.78973,-118.120185(est)

Administrative Information

Investigator In Charge (IIC):	Mars, Noelani
Additional Participating Persons:	RICK STOCKTON; LONG BEACH , CA
Original Publish Date:	August 14, 2001
Last Revision Date:	
Investigation Class:	Class
Note:	
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=47232