



# National Transportation Safety Board Aviation Accident Data Summary

<b>Location:</b>	Scottsdale, AZ	<b>Accident Number:</b>	LAX04LA254
<b>Date &amp; Time:</b>	07/01/2004, 1500 MST	<b>Registration:</b>	N513TS
<b>Aircraft:</b>	Eurocopter AS-350-B2	<b>Injuries:</b>	2 Minor
<b>Flight Conducted Under:</b>	Part 91: General Aviation - Flight Test		

## Analysis

While performing a maintenance check flight, the collective down lock engaged, which resulted in an uncontrolled descent and collision with terrain. The pilot and a mechanic were to fly a maintenance flight check of the engine and perform a rotor track and balance. He entered a descent at approximately 1,200 feet above ground level (agl) and prepared to level off at approximately 700 feet agl. When he tried to pull up on the collective, the collective would not move and was observed latched by the collective down lock. He and the mechanic tried to unlatch the collective from the down lock, but they did not have enough time before he had to flare the helicopter for landing. With the collective stuck in flat pitch, they landed hard and with forward speed. The flight crew evacuated the helicopter once it had come to rest. An ensuing post accident fire destroyed the helicopter. A new after market avionics control panel had been installed and the collective down lock, which is secured to the panel, was adjusted prior to the flight. The down lock attaches to the lower section of avionics panel. When the collective is lowered to the lower pitch stop the clearance between the collective and the down lock is about 0.16 inches. The down lock is a flexible plate that is free to vibrate with the helicopter's normal rhythms. In the original factory installation, the clearance between the down lock and the collective is 0.3 inches. This is the second known accident where the collective lock has inadvertently engaged in flight with this particular after market avionics panel installed. The manufacturer of the aftermarket avionics panel provided installation information indicating that maintenance personnel must bend the collective locking plate such that the locking plate will spring away from the collective lock button. Examination of the accident aircraft's locking plate indicated that the locking plate bend was likely reversed, allowing the locking plate to spring toward the lock button.

## Probable Cause

The National Transportation Safety Board determines the probable cause(s) of this accident to be: Inadvertent in-flight engagement of the collective down lock, which resulted in an uncontrolled descent and ground impact. The collective down lock engagement was caused by the improper installation and/or adjustment of the collective locking system, which reduced the clearance between the locking plate and the collective control. A factor was the pilot's decision to embark on a maintenance test flight after encountering difficulty disengaging the collective lock release during previous hover tests.

## Findings

Occurrence #1: LOSS OF CONTROL - IN FLIGHT  
Phase of Operation: DESCENT

Findings

1. (C) ROTORCRAFT FLIGHT CONTROL, COLLECTIVE CONTROL - LOCKED
2. (C) MAINTENANCE, INSTALLATION - IMPROPER - OTHER MAINTENANCE PERSONNEL

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Occurrence #2: IN FLIGHT COLLISION WITH TERRAIN/WATER  
Phase of Operation: DESCENT - UNCONTROLLED

Findings

3. (C) REMEDIAL ACTION - NOT POSSIBLE - PILOT IN COMMAND

### Pilot Information

<b>Certificate:</b>	Flight Instructor; Commercial	<b>Age:</b>	36
<b>Airplane Rating(s):</b>	Single-engine Land	<b>Instrument Rating(s):</b>	Airplane; Helicopter
<b>Other Aircraft Rating(s):</b>	Helicopter	<b>Instructor Rating(s):</b>	Helicopter; Instrument Helicopter
<b>Flight Time:</b>	6200 hours (Total, all aircraft), 2000 hours (Total, this make and model), 6000 hours (Pilot In Command, all aircraft), 60 hours (Last 90 days, all aircraft), 20 hours (Last 30 days, all aircraft), 2 hours (Last 24 hours, all aircraft)		

### Aircraft and Owner/Operator Information

<b>Aircraft Make:</b>	Eurocopter	<b>Registration:</b>	N513TS
<b>Model/Series:</b>	AS-350-B2	<b>Engines:</b>	1 Turbo Shaft
<b>Operator:</b>	Westcore Aviation Inc	<b>Engine Manufacturer:</b>	Turbomeca
<b>Operating Certificate(s) Held:</b>	None	<b>Engine Model/Series:</b>	Arriel 1D1
<b>Flight Conducted Under:</b>	Part 91: General Aviation - Flight Test		

### Meteorological Information and Flight Plan

<b>Conditions at Accident Site:</b>	Visual Conditions	<b>Condition of Light:</b>	Day
<b>Observation Facility, Elevation:</b>	KSDL, 1510 ft msl	<b>Weather Information Source:</b>	Weather Observation Facility
<b>Lowest Ceiling:</b>	None	<b>Wind Speed/Gusts, Direction:</b>	8 knots / , 160°
<b>Temperature:</b>	36° C	<b>Visibility</b>	10 Miles
<b>Precipitation and Obscuration:</b>	No Obscuration; No Precipitation		
<b>Departure Point:</b>	Scottsdale, AZ (KSDL)	<b>Destination:</b>	

### Airport Information

<b>Airport:</b>	Scottsdale (KSDL)	<b>Runway Surface Type:</b>	Dirt
<b>Runway Used:</b>	N/A	<b>Runway Surface Condition:</b>	Dry
<b>Runway Length/Width:</b>			

## Wreckage and Impact Information

<b>Crew Injuries:</b>	2 Minor	<b>Aircraft Damage:</b>	Destroyed
<b>Passenger Injuries:</b>	N/A	<b>Aircraft Fire:</b>	On-Ground
<b>Ground Injuries:</b>	N/A	<b>Aircraft Explosion:</b>	None
<b>Latitude, Longitude:</b>	33.700556, -111.941944		

## Administrative Information

<b>Investigator In Charge (IIC):</b>	Van S McKenny	<b>Adopted Date:</b>	12/20/2005
<b>Investigation Docket:</b>	NTSB accident and incident dockets serve as permanent archival information for the NTSB's investigations. Dockets released prior to June 1, 2009 are publicly available from the NTSB's Record Management Division at <a href="mailto:pubinq@ntsb.gov">pubinq@ntsb.gov</a> , or at 800-877-6799. Dockets released after this date are available at <a href="http://dms.nts.gov/pubdms/">http://dms.nts.gov/pubdms/</a> .		

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