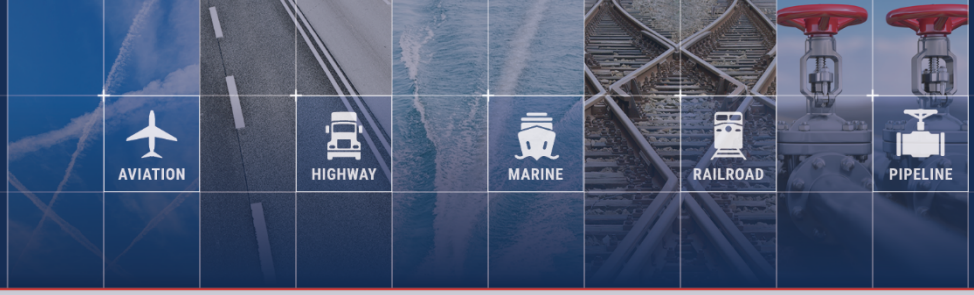

Aviation Investigation Final Report

Location:	Chesapeake, Virginia	**Accident Number:**	NYC01LA220
Date & Time:	September 3, 2001, 13:15 Local	**Registration:**	N962JA
Aircraft:	Andre Mini Max 1500R	**Aircraft Damage:**	Substantial
Defining Event:		**Injuries:**	1 None
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

The pilot descended from 5,500 feet to 1,500 feet, at a moderate cruise power setting, at 5,500 rpm. About 1,500 feet above the ground, the two cycle 2-cylinder engine lost all power, and the pilot performed a forced landing to a field. The pilot believed that the descent at cruise power created a lean fuel/air mixture. Examination of the engine revealed scoring on both pistons, which was directly in line with the exhaust. According to a representative from the engine manufacturer, that type of failure was indicative of a heat seizure, normally associated with an excessive exhaust gas temperature, exceeding 1200 degrees F. The representative assumed that the engine was operating in a lean condition. According to the manufacturer's engine manual, during cruise and descents, it was very important that to avoid creating a lean mixture condition with high rpm and low throttle opening. Additionally, the manual warned that the engine was subject to sudden stoppage, and conformed to no aircraft standards.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: The pilot's failure to follow the engine manufacturer's descent procedure, which resulted in a lean mixture condition and subsequent engine seizure.

Findings

Occurrence #1: LOSS OF ENGINE POWER(TOTAL) - MECH FAILURE/MALF
Phase of Operation: DESCENT

Findings
1. (C) PROCEDURES/DIRECTIVES - NOT FOLLOWED - PILOT IN COMMAND
2. MIXTURE - INCORRECT

Occurrence #2: FORCED LANDING
Phase of Operation: DESCENT - EMERGENCY

Occurrence #3: IN FLIGHT COLLISION WITH TERRAIN/WATER
Phase of Operation: DESCENT - EMERGENCY

Findings
3. TERRAIN CONDITION - OPEN FIELD

Factual Information

On September 3, 2001, about 1315 eastern daylight time, an amateur built Mini Max 1500R, N962JA, was substantially damaged during a forced landing near Chesapeake, Virginia. The certificated private pilot was not injured. Visual meteorological conditions prevailed for the flight that departed a private airport in Saluda, Virginia; destined for Hampton Roads Executive Airport (PVG), Chesapeake, Virginia. No flight plan was filed for the personal flight conducted under 14 CFR Part 91.

The pilot stated that he began a descent from 5,500 feet, toward PVG. During the descent, he maintained a "moderate cruise" power setting, at 5,500 rpm. About 1,500 feet above the ground, the two cycle 2-cylinder Rotax engine lost all power, and the pilot performed a forced landing to a field. During the landing, the airplane struck small trees and sustained substantial damage to the right wing.

The pilot added that the engine experienced a "cold seizure." He believed that the descent at cruise power created a lean fuel/air mixture and subsequent lack of lubrication.

A Federal Aviation Administration inspector examined the airplane. The inspector observed that both pistons exhibited scoring. Photographs of the damaged pistons and cylinders were forwarded to a representative from the engine manufacturer.

According to the manufacturer representative, the failure was directly in line with the exhaust, which was more indicative of a heat seizure, rather than a cold seizure. The representative further stated that a heat seizure was normally associated with excessive exhaust gas temperature, exceeding 1200 degrees F. He assumed that the engine was operating in a lean condition.

An excerpt from the manufacturer's make and model engine manual revealed:

"During cruise and descending it is very important not to create a lean condition with high rpm and low throttle opening. The less fresh charge the engine gets, the more hot residual gas remains in the cylinder. This raises the temperatures to a critical level. For this reason, you may also experience higher exhaust gas and cylinder head temperatures at reduced throttle openings."

Another excerpt from the manual revealed:

"Danger! This engine, by its design, is subject to sudden stoppage! Engine stoppage can result in crash landings. Such crash landings can lead to serious bodily injury or death.

Never fly the aircraft equipped with this engine at locations, airspeeds, altitudes, or other circumstances from which a successful no-power landing cannot be made, after sudden engine stoppage.

Warning! Although these engine types have undergone considerable durability testing, this engine is not a certified aircraft engine. It has not received any individual safety or durability testing and conforms to no aircraft standards. It is for use in experimental and ultralight uncertified aircraft and vehicles only, in which an engine failure will not compromise safety.

User assumes all risk of use and acknowledges by his use the he knows this engine is subject to sudden stoppage."

Pilot Information

Certificate:	Private	**Age:**	45,Male
Airplane Rating(s):	Single-engine land	**Seat Occupied:**	Single
Other Aircraft Rating(s):	None	**Restraint Used:**	
Instrument Rating(s):	None	**Second Pilot Present:**	No
Instructor Rating(s):	None	**Toxicology Performed:**	No
Medical Certification:	Class 3 Valid Medical--no waivers/lim.	**Last FAA Medical Exam:**	October 23, 2000
Occupational Pilot:	UNK	**Last Flight Review or Equivalent:**	February 24, 2001
Flight Time:	460 hours (Total, all aircraft), 116 hours (Total, this make and model), 415 hours (Pilot In Command, all aircraft), 30 hours (Last 90 days, all aircraft), 10 hours (Last 30 days, all aircraft), 5 hours (Last 24 hours, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Andre	**Registration:**	N962JA
Model/Series:	Mini Max 1500R	**Aircraft Category:**	Airplane
Year of Manufacture:		**Amateur Built:**	Yes
Airworthiness Certificate:	Experimental (Special)	**Serial Number:**	TA962
Landing Gear Type:	Tailwheel	**Seats:**	1
Date/Type of Last Inspection:	May 16, 2001 Annual	**Certified Max Gross Wt.:**	560 lbs
Time Since Last Inspection:	40 Hrs	**Engines:**	1 Reciprocating
Airframe Total Time:	116 Hrs at time of accident	**Engine Manufacturer:**	Rotax
ELT:	Not installed	**Engine Model/Series:**	447
Registered Owner:	John D. Andre	**Rated Power:**	40 Horsepower
Operator:		**Operating Certificate(s) Held:**	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	**Condition of Light:**	Day
Observation Facility, Elevation:	ORF,26 ft msl	**Distance from Accident Site:**	14 Nautical Miles
Observation Time:	12:51 Local	**Direction from Accident Site:**	70°
Lowest Cloud Condition:	Few / 2000 ft AGL	**Visibility**	10 miles
Lowest Ceiling:	None	**Visibility (RVR):**	
Wind Speed/Gusts:	10 knots /	**Turbulence Type Forecast/Actual:**	/
Wind Direction:	70°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	30.06 inches Hg	**Temperature/Dew Point:**	24°C / 17°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Saluda, VA (NONE)	**Type of Flight Plan Filed:**	None
Destination:	Chesapeake, VA (PVG)	**Type of Clearance:**	None
Departure Time:	12:15 Local	**Type of Airspace:**	Class G

Airport Information

Airport:	Hamton Roads Executive Airport PVG	**Runway Surface Type:**	Asphalt
Airport Elevation:	23 ft msl	**Runway Surface Condition:**	Dry
Runway Used:	02	**IFR Approach:**	None
Runway Length/Width:	3524 ft / 70 ft	**VFR Approach/Landing:**	Forced landing;Traffic pattern

Wreckage and Impact Information

Crew Injuries:	1 None	**Aircraft Damage:**	Substantial
Passenger Injuries:		**Aircraft Fire:**	None
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	1 None	**Latitude, Longitude:**	36.800735,-76.420394(est)

Administrative Information

Investigator In Charge (IIC):	Gretz, Robert
Additional Participating Persons:	Ed Hall; FAA FSDO-21; Richmond, VA
Original Publish Date:	May 1, 2003
Last Revision Date:	
Investigation Class:	Class
Note:	The NTSB traveled to the scene of this accident.
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=53161

The National Transportation Safety Board (NTSB) is an independent federal agency charged by Congress with investigating every civil aviation accident in the United States and significant events in other modes of transportation—railroad, transit, highway, marine, pipeline, and commercial space. We determine the probable causes of the accidents and events we investigate, and issue safety recommendations aimed at preventing future occurrences. In addition, we conduct transportation safety research studies and offer information and other assistance to family members and survivors for each accident or event we investigate. We also serve as the appellate authority for enforcement actions involving aviation and mariner certificates issued by the Federal Aviation Administration (FAA) and US Coast Guard, and we adjudicate appeals of civil penalty actions taken by the FAA.

The NTSB does not assign fault or blame for an accident or incident; rather, as specified by NTSB regulation, "accident/incident investigations are fact-finding proceedings with no formal issues and no adverse parties … and are not conducted for the purpose of determining the rights or liabilities of any person" (Title 49 *Code of Federal Regulations* section 831.4). Assignment of fault or legal liability is not relevant to the NTSB's statutory mission to improve transportation safety by investigating accidents and incidents and issuing safety recommendations. In addition, statutory language prohibits the admission into evidence or use of any part of an NTSB report related to an accident in a civil action for damages resulting from a matter mentioned in the report (Title 49 *United States Code* section 1154(b)). A factual report that may be admissible under 49 *United States Code* section 1154(b) is available here.