

National Transportation Safety Board

Office of Research and Engineering

Washington, D.C. 20594

Performance Study

Specialist Report

Marie Moler

A. ACCIDENT

Location:	Eagle, Colorado
Date:	June 5, 2015
Time:	1647 MDT
Airplane:	Morse Frank L Rebel, N914FM
NTSB Number:	CEN15FA257

B. GROUP

No vehicle performance group was formed.

C. SUMMARY

On June 5, 2015, at 1647 mountain daylight time (MDT), a Morse Rebel experimental amateur-built airplane, N914FM, impacted a hangar and parking ramp at the Eagle Regional Airport (EGE), Eagle, Colorado. The commercial pilot was fatally injured and the passenger was seriously injured. There were no ground injuries. The airplane was substantially damaged. The airplane was registered to and operated by a private individual under the provisions of 14 Code of Federal Regulations Part 91 as a personal, cross-country flight. Visual meteorological conditions prevailed for the flight, which was being operated without a flight plan.

D. PERFORMANCE STUDY

Data for the flight was available from an on-board Samsung Galaxy Tab. The flight originated in Holyoke Airport in Holyoke, Colorado at about 13:43 MDT as shown in Figure 1. The flight duration was three hours and five minutes. The weather at EGE at 1650 was reported as 10 statute miles visibility, overcast skies at 7,000 feet, light rain, and winds from 200° at 18 knots, gusting to 22 knots.

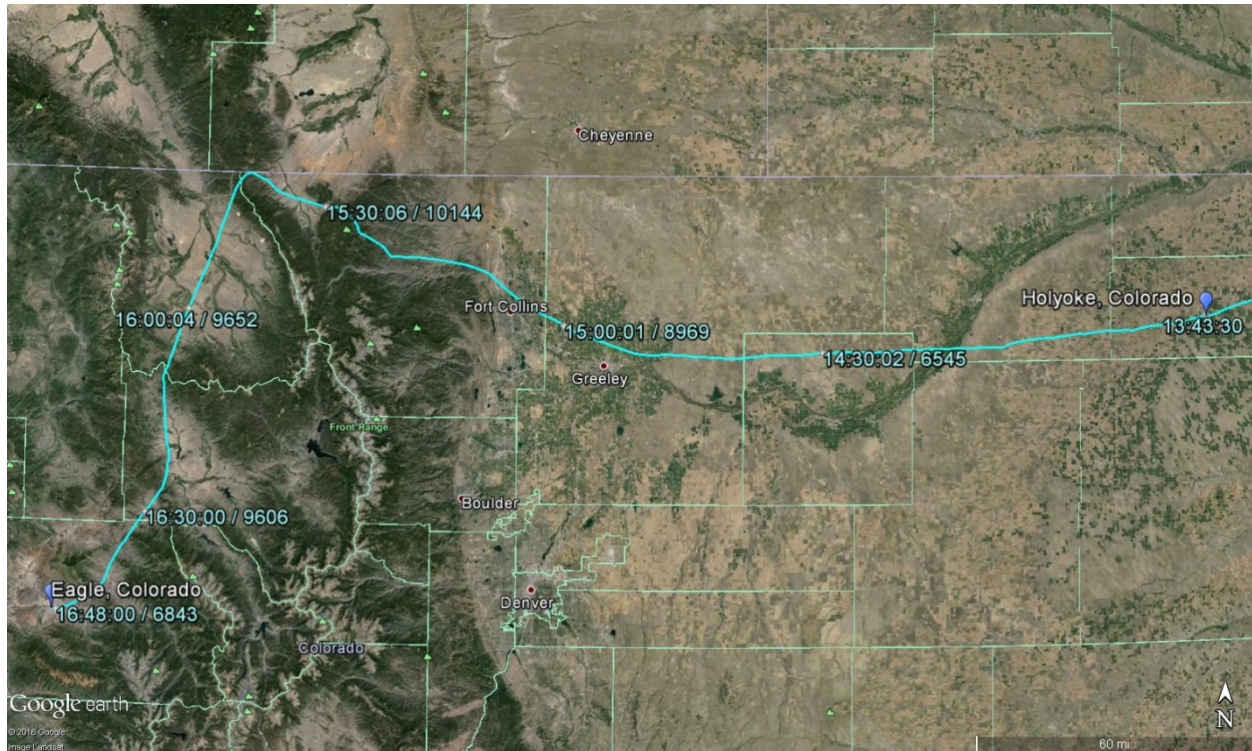


Figure 1. Aircraft flight path from Holyoke Airport in Holyoke, Colorado to Eagle, Colorado.

The aircraft approached runway 25 at an equivalent airspeed of 75 kts and slowed to 65 kts as it crossed the runway threshold (Figure 2). The equivalent airspeed calculation relied on the 18 kts wind report; the reported gusting winds up to 22 kts would change the equivalent airspeed. The final 400 ft of descent was done along a glide slope of 4.7°. Runway 25 has a four light precision approach path indicator (PAPI) with a 3.0° glide path. The aircraft's rate of climb (descent) during this final portion of the flight was between -600 and -800 ft/min.

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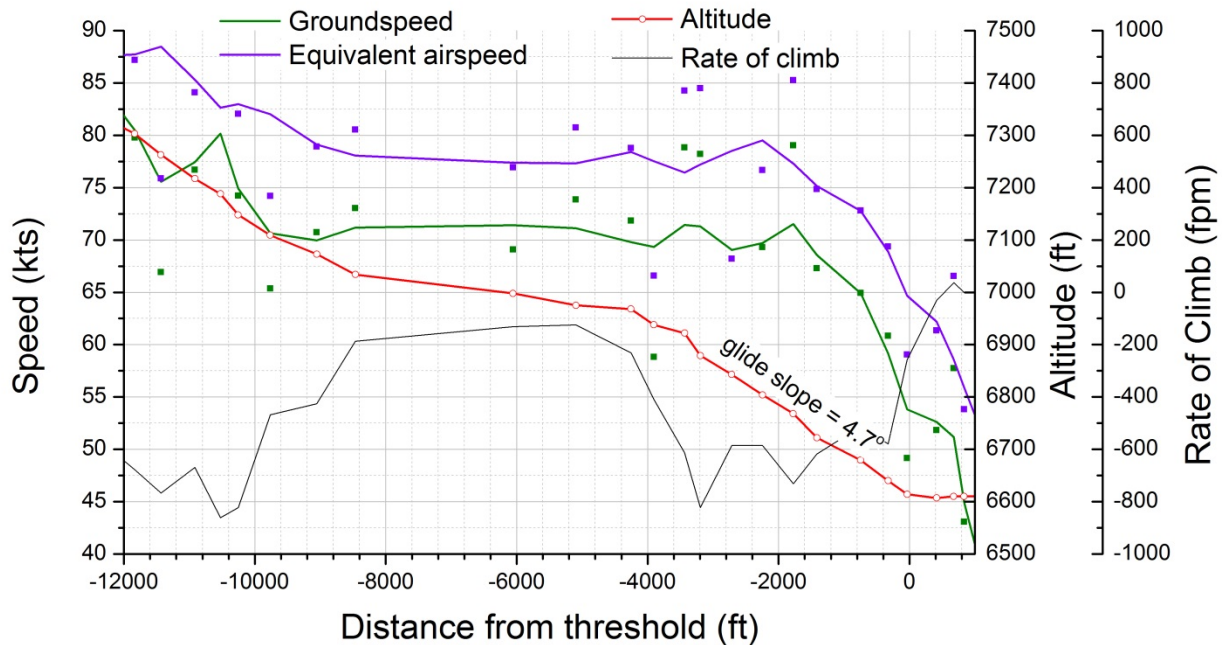


Figure 2. Aircraft altitude, speed, and rate of climb versus distance to threshold.

An excerpt for the flight profile from the EGE RNAV approach plate is shown below in Figure 3. The altitude for the point 3 NM before NEPRY (3.5 NM before the runway threshold) is 9,860 ft. The approach plate lists the airport elevation as 6535 ft. A continuous descent between the point 3 NM before NEPRY and the runway would have a glide slope of approximately 8.9°. While the airport PAPI has a 3.0° glide slope, a significant descent rate is required earlier in the approach to capture that glide slope. The RNAV chart is shown to indicate the potential difficulty of the approach; the Limitations Section of the Pilots Operating Manual [1] states the aircraft “must be operated only for [Visual Flight Rules] day flights”.

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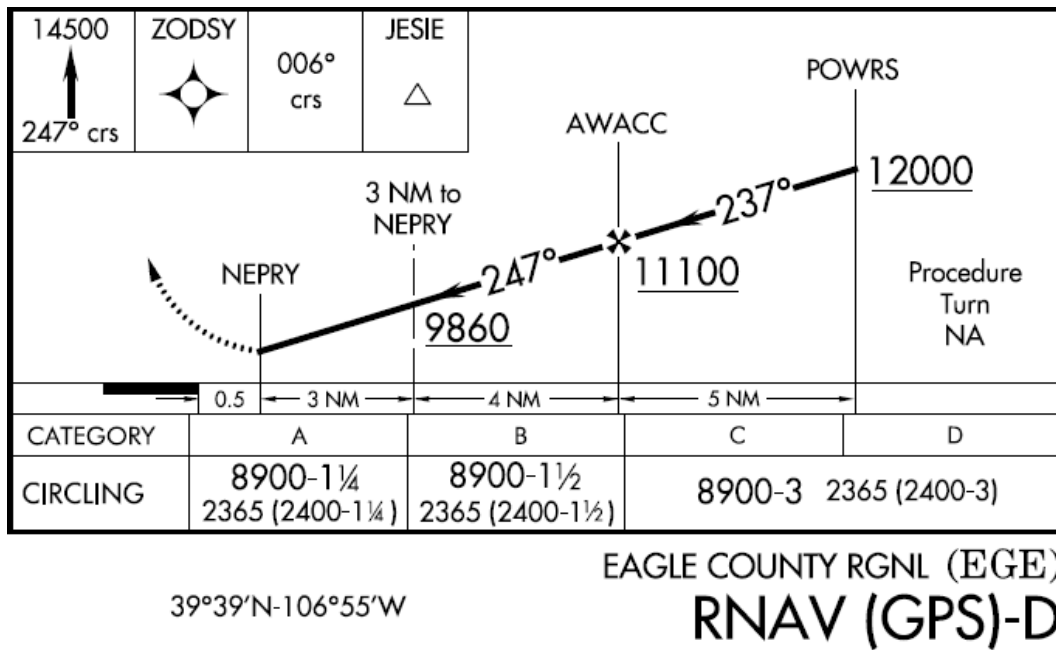


Figure 3. Profile excerpt from RNAV (GPS)-D approach plate for runway 25 at EGE.

About 18 seconds after crossing the threshold, at 1,200 ft past the threshold, while still above the runway, the aircraft began to turn to the left. The aircraft left the runway, crossed a taxiway, and continued over the ramp before impacting a hanger. Figure 4 shows the aircraft's track with selected times and GPS recorded altitudes.

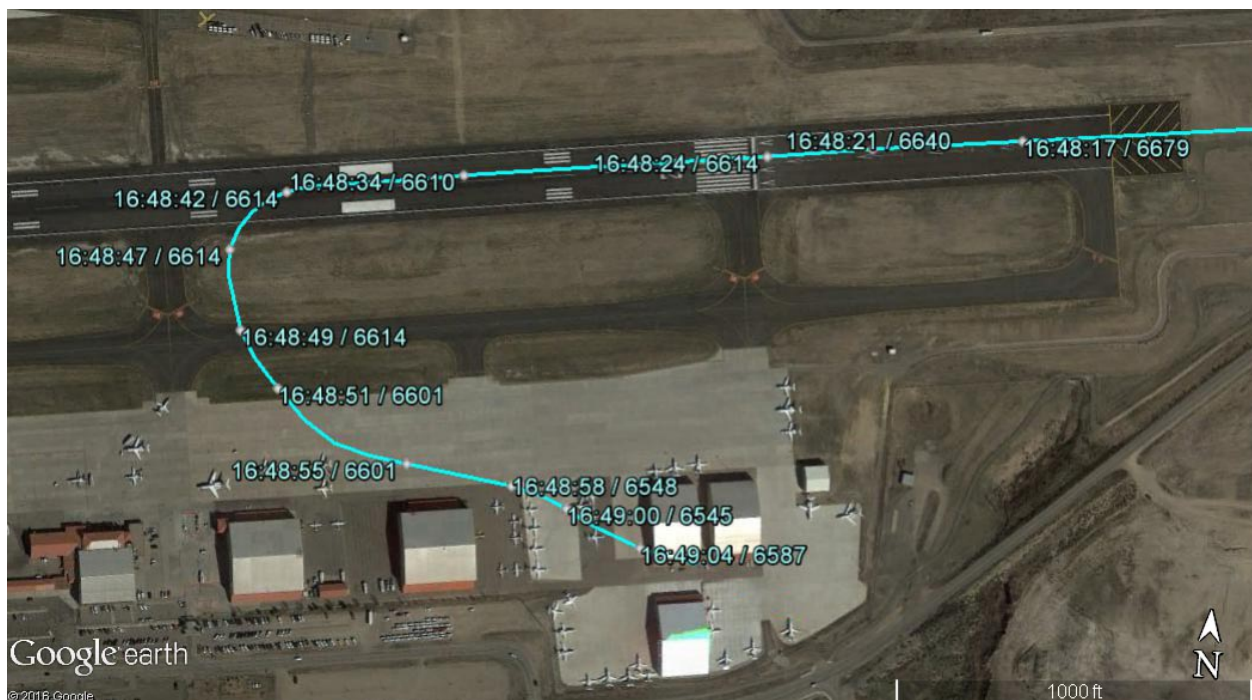


Figure 4. Aircraft flight path over runway 25 and ramp with selected times and altitudes.

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Figure 5 shows the groundspeed and equivalent airspeed for the final 40 seconds of flight. The aircraft crossed the threshold at an equivalent airspeed of 64 kts (groundspeed was 54 kts) and slowed to just above 40 kts (30kts groundspeed) when it began to turn to the left. As the aircraft left the runway, its airspeed increased until it was about 67 kts (64 kts groundspeed) as it crossed over the taxiway.

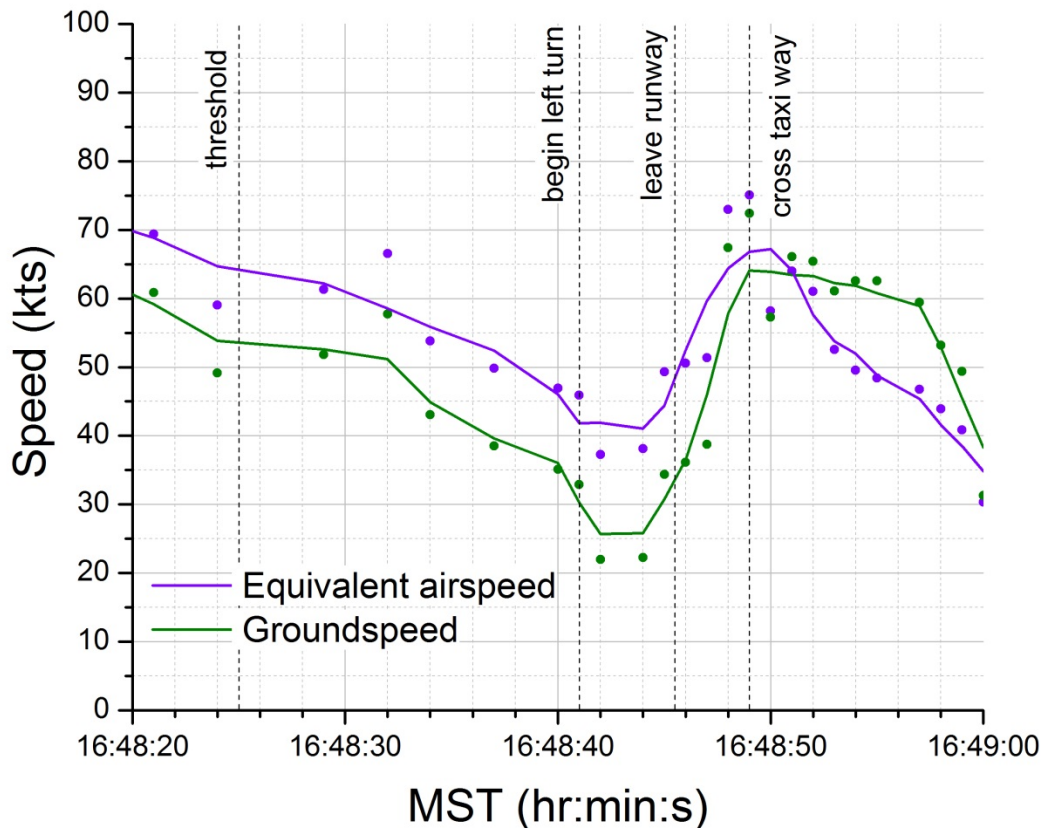


Figure 5. Airspeed for final portion of flight.

During the aircraft's approach and flight over the runway, the crosswind from the left was between 13.7 kts (for 18 kts wind from 200°) to 16.8 kts (for 22 kts gust from 200°). The maximum allowable crosswind for approach and landing reported in the Pilots Operating Manual is 15 kts [1].

E. CONCLUSIONS

The aircraft approached runway 25 on a glide slope of 4.7° at an equivalent airspeed of 75 kts. This glide slope was higher than the runway's 3° glide slope. The aircraft crossed the threshold at 64 kts (groundspeed was 54 kts) and slowed to just above 40 kts before turning to the left and leaving the runway. The aircraft's ground and airspeed increased as it crossed the taxiway before impacting a hanger. The Pilots Operating Manual indicates that the stall speed at 30° flaps and no power is 34 kts [1].

During approach and landing, the aircraft experienced a crosswind from the left of between 13.7 and 16.8 kts. The aircraft's maximum crosswind on approach and landing is 15 kts.

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F. REFERENCES

1. Pilots Operating Manual for 0-320 Murphy Rebel, noted for N914FM, Kit number 0147R.