

Minuteman 1 Flight

12APR25

Video



01 Takeoff

- Initial nominal takeoff
- Good angle
- Not stuck on rails



02 Stage Separation

- Stage Separation
- Due to Black Powder combustion.
- ~2.5 s into flight. Motor was set to deploy at 8 s into flight, so 5.5s early.
- No combination of delay drilling tool setup can cause this, barring catastrophe



Parachute Deploys

- Parachute not caught or folded incorrectly
- Parachute behaves nominally



Avionics &
nose

Parachute &
rope

"fin can" &
motor



Parachute / lower stage crash

- Parachute is hit by lower stage, minor damage
 - 1 broken string
- Interstage strap burnt away roughly here, stages completely separate



Lower stage Apogee

- Rocket motor continues combustion, under low pressure, thick clouds.
- Significant internal charring

Fireproof
blanket



Descent

- Lower stage burns
- Visible recovery wadding (fireproof paper)



Damages

- Toasted fin can
- Melted through interstage strap
- Parachute damage
- Verdict: buy a new kit
 - \$150



Upsides

- “Zipper” prevention worked great! Normally these events tear a crack down the side of the airframe
- 3d printed ladder I designed to spread out force from energetic deployments
- One individual in the launch video remarked “Thats gonna be a zipper” and was surprised when I showed him this portion of the rocket, almost intact, compared to what usually happens in these events.

Zipper Example



Upsides

- Upper stage fuselage, nosecone, electronics bay entirely intact.

VERDICT

- 6/10, will launch again
- Rocket motor quality (even commercial off the shelf) is a deciding factor in launch success