

# Team 8189 TARC National Competition

Seen enough rockets yet today?

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# "Magnum" (First Rocket)



Photo courtesy of Explorer Post 1010

- Engine: F24-4W
- Mass (on final test):413 g
- Booster Recovery:10X chute
- Cargo Recovery:

   2-7"x70" Streamers

   First Rocket This Team Has

   Ever Built.

### Flight Testing of "Magnum"

- November 21, 2009 (Mt. Airy, MD)
   -Test 1 Results: 770 feet high, 30 seconds long
   Additional Details: Egg broke
   -Test 2 Results: 907 feet high, 34 seconds long
- December 30, 2009 (Mt. Airy, MD)

   Test 1 Results: 994 feet high, 40 seconds long
   Test 2 Results: 806 feet high, 31 seconds long
   Additional Details:
   Used E30-4T instead of F24-4W
- January 16, 2010 (Mt. Airy, MD)

   Test 1 Results: 838 feet high, 35 seconds long
   Test 2 Results: 916 feet high, 26 seconds long
   Additional details: Used F24-7W instead of F24-4W

### Last Test of "Magnum"

- February 27, 2010 (Manassas, VA)
  - -Test 1 Results: 799 feet high, 15 seconds long
    - **Additional Details:**
    - -Official Qualification (Score: DQ)
    - -Ejection charge failed; result of that shown below:



It was given a proper burial.

In our filing cabinet.

Photo courtesy of Connor Armstrong

#### "Blue Steel" (New Rocket)



Photo courtesy of Explorer Post 1010

- Engine: F24-4W
- Mass (most recent):463 g
- Booster Recovery:
  6"x60" streamer
- Cargo Recovery (most recent):3-7"x70" Streamers

# Flight Testing of "Blue Steel"

- March 20, 2010 (Great Meadow, VA)
  - -Test 1 Results: 744 feet high, 30 seconds long Additional Details:

Used E30-4T instead of F24-4W 2-7"x70" Streamers instead of 3

#### Not High Enough.

-Test 2 Results: 659 feet high, 28 seconds long Additional Details:

Used E30-4T instead of F24-4W 2-7"x70" Streamers instead of 3

**Definitely Not High Enough** 

#### Flight Testing of "Blue Steel" (Continued)

- March 20, 2010 (continued)
  - -Test 3 Results: 925 feet high, 51 seconds long

Additional details: 2-7"x70" Streamers instead of 3

#### Too High, But The Time Is Proportional

- March 27, 2010 (Great Meadow, VA)
  - -Test 1 Results: 838 feet high, 31 seconds long Additional details:

2-7"x70" Streamers instead of 3

Great But Still Too Low and Too Short, Getting



# Flight Testing of "Blue Steel" (Continued)

March 27, 2010 (continued)

-Test 2 Results: 859 feet high, 36.5 seconds long

**Additional Details:** 

Used 2 -7"x70" streamers and 1-4"x40"

streamer

Official Qualification (Score: 51.6)

First Official Qualifier, Not Good Enough For TARC Though.

#### Miracle Test of "Blue Steel"

- Also on March 27, 2010 in Great Meadow, VA
- We decided to switch out the 4"x40" streamer for another 7"x70" streamer
- This decision gave us results as follows:
  - 823 feet high, 40.6 seconds long
- Since this was an official qualification launch, we earned an official score of 2, which made our team a finalist at the 2010 National Team America Rocketry Challenge
- And the Bragging rights were nice too.

#### Lessons Learned

- 1.Build it right the first time. Design is important.
- 2. What is your Data telling you? Its telling you what you're doing right and wrong.
- 3. Testing. Do it a lot.
- 4. Crash 7 times, launch 8. Design, build, launch, crash, repeat. Gravity, it happens.
- 5. Do everything carefully. There's a price to pay for error
- 6. Have a little fun too. It keeps the mind healthy.

Wait, what's apogee again?

(We will expand in final version)

# Teamwork: No Rocket Scientist Left Behind

- Teamwork was essential to every procedure in the process.
- Each team member specialized in a system on the rocket. One covered engines. Another specialized in the recovery system. The last member focused on the altimeter and payload.
- However, we all understood every component.
- And we get along pretty well too.

