

CONTESTANT BRIEFING 2008



Welcome



Team America Rocketry Challenge 2008
Co-Sponsored by:



Aerospace Industries Association
Audrey Koehler, TARC Coordinator/Contest
Director



National Association of Rocketry
Trip Barber, VP & TARC Contest Director

Why We're Doing It

- Promote interest among secondary school students in aerospace as a career field
- Because “model rocketry is FUN”

Event Background

- Sixth year of a national model rocket contest for student teams: largest model rocket contest in the world
 - 643 teams, 7000 students, from 43 states/DC
 - 340 teams submitted good qualification flights
 - 100 teams selected to come to the fly-off, representing 32 states/DC

Supporters

- Great Meadow Outdoors Foundation – Our host
- AIA and its member companies – The prizes and the staff that handled all the PR and team entries
- NAR – Team mentors nationwide and the 107 volunteer rocketeers running the flying range
- NASA – Student Launch Initiative prizes
- Department of Defense – New teacher prize
- American Association of Physics Teachers
- 34 AIA Member Aerospace Companies

And many educational organizations nationwide

AIA Event Operations Staff

- Contest Director: Audrey Koehler
- Press/Public Affairs: Alexis Allen
- Catering: Sherry Epperson
- Displays: Daphne Dador
- Special Guests: Cord Sterling
- Announcer: Remy Nathan
- Photography: Kathie Care

Activities

- Rocket flight demonstrations
 - Opening ceremony
 - B-2 bomber flyover at 2:00 PM
 - UK rocket team at 2:15 PM
 - NASA Ares scale rocket at 2:30 PM
 - 12 high-power rockets: 2 at 2:45 PM, 10 at 4:00 PM
- New Team Presentation competition at 1:30 PM
- Free breakfast for teams in first flying round
- Free lunch & ice cream social
 - Your TARC credential badge is your “ticket”
- Free bottled water at the NAR Info Tent
- Free BBQ dinner for participants (\$10 for others)

Exhibits

- Exhibits by universities, DoD, NASA and other organizations
- A list is included in your registration packet
- Some of the displays include:
 - Sprockit the Robot
 - Coalition for Space Exploration photo booth
 - Space Camp
 - DoD Aerostat – weather data available

Prizes

- \$60,000 in cash to top 10 teams
- Winning team's trip to London (Farnborough) Airshow July 16 – 20 courtesy of Raytheon
 - Competing against UK team on the 18th
- Bushnell Voyager Sky Tour Telescopes
- SLI & DoD teacher prizes
- Special Award Plaques

Other Participants

- National & local media throughout the day
 - VanEperen PR Firm
- Many VIP's visiting and giving awards
 - Department of Defense Executives
 - NASA Executives and Astronauts
 - Aerospace Executives

Event Ground Rules

- Safety is paramount – flight and recovery
- The rules are the rules for everyone
- Only the student team members prep or fly the rocket, or go inside the main field railing
- Good sportsmanship is expected
- Scheduled events happen at scheduled times
- Everybody stays for the awards ceremony
- Treat the Great Meadow facility gently

Award Ceremony

- Starts at 5 PM, lasts no more than 1 hour
- Significant VIP and media participation
- NAR staff will control access/seating inside fenced area (only)
- Reduced number of special awards: only 5

This ceremony is a big deal to our corporate sponsors – please stay for it

EVENT OPERATIONS

Presentation Competition

- New optional event, \$500 prize for 1st place – Launch Magazine
- 12 teams each do 6-minute presentation plus 2 minute Q&A on their TARC project to judging panel
 - Starts 1:30 PM, order of presentations already published
 - Order will be adjusted to let any teams that make flyoff go first
- Electronic presentations (if used) must be turned in tonight by 9:30 PM for loading on our computer
- If you are one of the 12 but are not ready or want to withdraw, tell us tonight by 9:30 PM
- All are welcome to attend and watch – except teams that are presenting cannot watch others until after they present their own

Team Presenters

Team #	Team Name	City	State	Order
6006	Boy Scout Troop 264	Rockford	MI	1st
6015	Monroe County Advanced Learning Center	Amory	MS	2nd
6026	George West High School	George West	TX	3rd
6061	Frenship High School	Wolfforth	TX	4th
6065	St. Andrew's Priory School for Girls	Honolulu	HI	5th
6098	Madison West High School (Team 2)	Madison	WI	6th
6122	Washington International School	Washington	DC	7th
6127	South Atlanta High School	Atlanta	GA	8th
6154	Goshen High School	Goshen	IN	9th
6193	Knight High School	Palmdale	CA	10th
6204	Penn Manor High School (Team 3)	Millersville	PA	11th
6382	Hart County 4-H	Munfordville	KY	12th

NAR Event Operations Staff

- Flight Director: Trip Barber
- Registration: Eric Robinson
- Range Operations: Jonathan Rains
- Range Equipment: Mitch Guess
- Results: Chris Kidwell
- Awards Ceremony: John Hochheimer
- Range Safety Officers: Jay Apt & John Langford
- Chief Timer: Jim Barrowman
- Public Address Announcer: Alan Williams
- And 90 others -- all volunteers

Topics

- Safety
- Schedule
- Flight Procedures
- Event Rules

Safety First

- Follow the NAR Safety Code and the Range Safety Officer (RSO) directions
- Listen to the PA and FM radio 92.9 MHz, **stay off FRS channel 7** (NAR/AIA operations)
- No one within 30 feet of a liftoff
- No one on the flying field unless flying
- Do not tilt launch rods toward spectators
- Do not arm electronic ignition or ejection systems until on the pad
- Do NOT try to recover rockets from power lines, or from trees above where poles reach



NAR Safety Code



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- Key to the hobby's safety – always in effect
 - Lightweight non-metal nose, body & fins
 - Certified, unmodified commercially-made motors
 - Everyone 30 feet or more away at launch
 - Launch electrically within 30 degrees of vertical
 - No launches into clouds or with winds >20 mph
 - Wait 60 seconds to approach pad after a misfire
 - All rockets must have a recovery system

Event Schedule

6:15	Range crew on the field
6:30	Contestants on field, eggs available
6:30	Check-in opens for rockets (first window)
8:30 – 1:30	Contest flying (5 one-hour “windows”)
11:00 – 2:00	Lunch available
12:30 – 1:30	Available for allowed initial-round reflights
1:30 – 3:30	Presentation competition
2:00	Notification of 18 teams selected for flyoff
3:00 – 4:00	Flyoff round 2 nd flights for 18 teams
4:00 – 4:30	High-power rocket flight demonstration
4:30	Deadline for rocket returns from 2 nd round
5:00	Award ceremony
6:00	BBQ dinner

Flight Windows

- Check rocket in up to 2 hours before “flight window”
- May not load rocket on pad until 1 hour before
- Must fly during assigned one-hour “window”

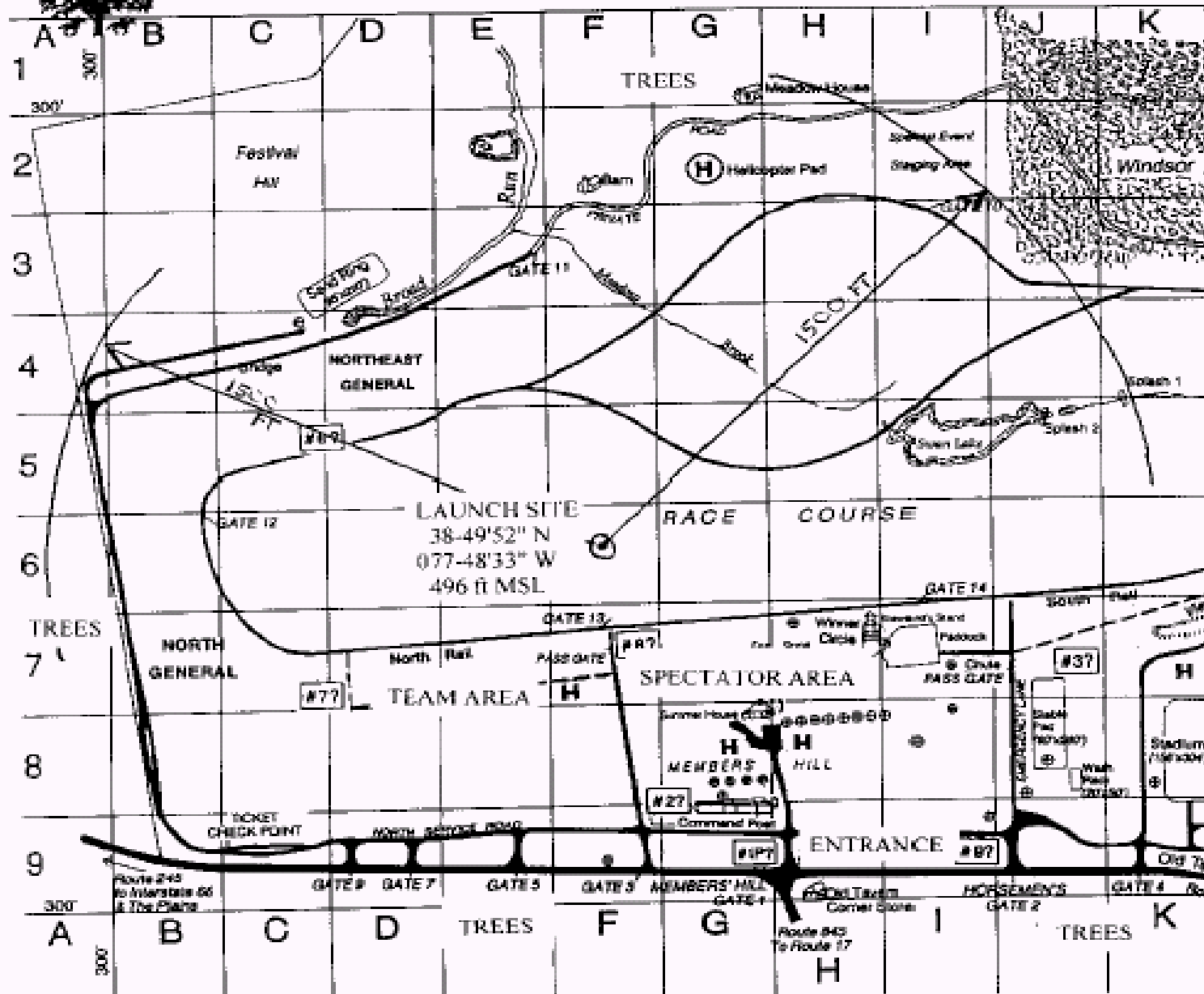
<u>Round</u>	<u>Load Time</u>	<u>Flight Window</u>
Goddard 1	7:30 AM – 8:30 AM	8:30 AM – 9:30 AM
VonBraun 2	8:30 AM – 9:30 AM	9:30 AM – 10:30 AM
Goddard 3	9:30 AM – 10:30 AM	10:30 AM – 11:30 AM
VonBraun 4	10:30 AM – 11:30 AM	11:30 AM – 12:30 PM
Goddard 5	11:30 AM – 12:30 PM	12:30 PM – 1:30 PM
Re-Flights	11:30 PM – 12:30 PM	12:30 PM – 1:30 PM
Flyoff Goddard 6	2:00 PM – 4:00 PM	3:00 PM – 4:00 PM



Great Meadow Grid Site Plan

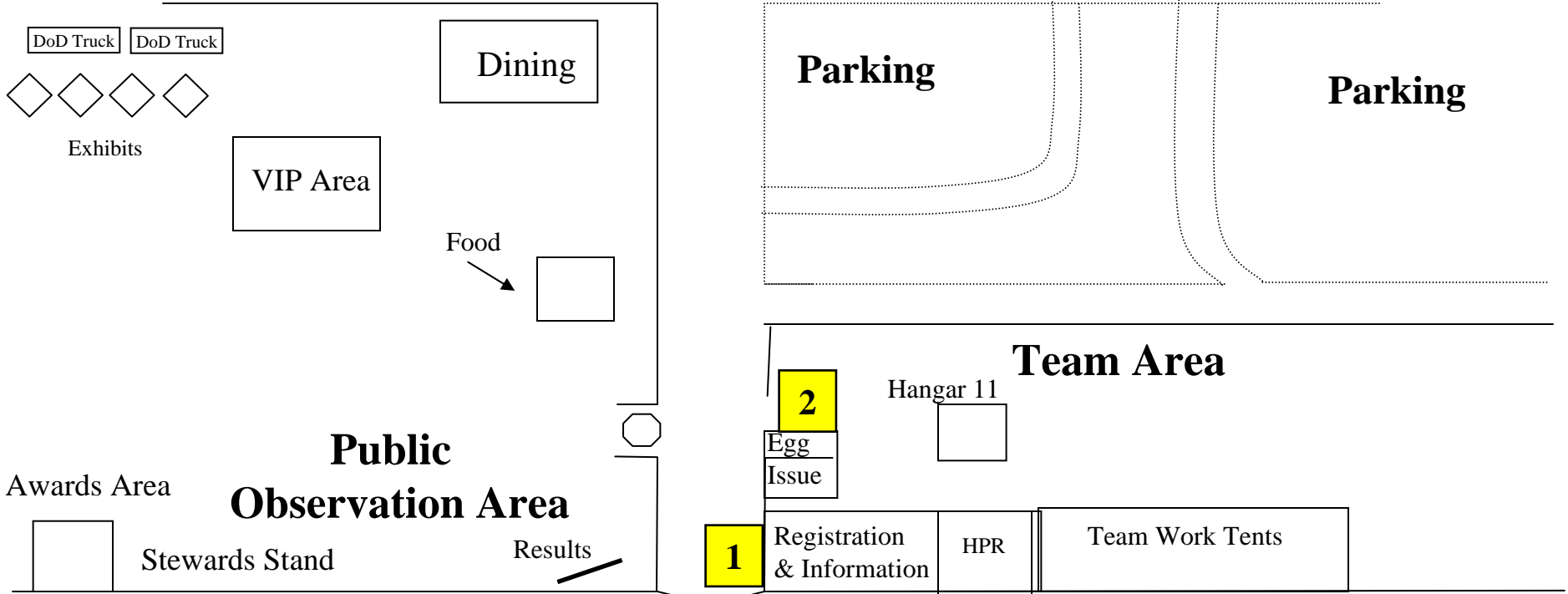
88 of 100

HIGH Mid-70's, LOW Mid-80's
60% SUNNY



Great Meadow
Main Entrance

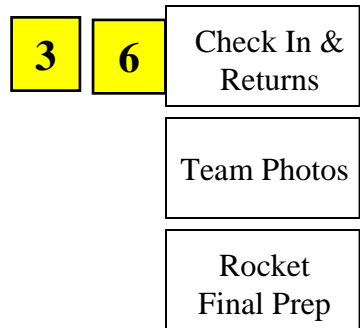
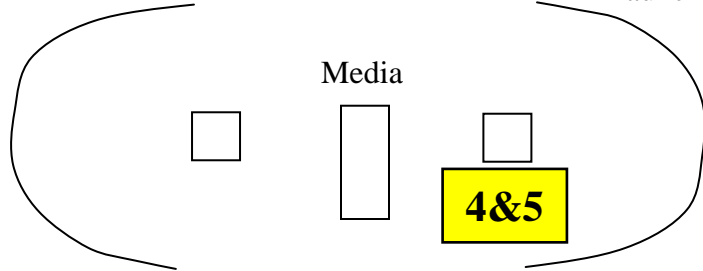
Gate 7



Flying Ranges

VonBraun
Launch Pads

Goddard
Launch Pads



Flying Range Layout



Flight Procedures 1

- First: go to REGISTRATION, get team materials
 - Name badges, parking pass, T-shirts, food tickets
 - Any rockets shipped ahead to Aurora
 - Registration today until 9:30, Saturday on the field
- Hangar11 Hobbies available tonight and on the field for pick-up/sale of rocket engines & supplies
- Rockets shipped ahead to Aurora Flight Sciences available for pickup tonight

Flight Procedures 2

- When teams arrive at the field Saturday, go to “Team Parking” (1 vehicle per team limit there)
 - Do not arrive earlier than 6:15 AM
- Second: teams go to EGG ISSUE and select 2 eggs
 - Each has its weight written on it
- Only student team members from this point on
 - All rocket prep, checkin, pad loading, etc. by students only
 - No one else on the flying field
 - OK to have help for recovery outside flying field₂₅

Flight Procedures 3

- Third: up to 2 hours before “flight window” opens (but no later than 15 minutes before it closes) take complete rocket, with egg inside and **altimeter outside**, to CHECKIN
 - Certify that your team (students) and no one else built rocket, and it has flown before
 - Rocket will be weighed in flight-ready configuration, with engines & egg: <1500 grams
 - State exactly what engines from our list are in the rocket; do not exceed 125 grams propellant in total
 - Show mark where “Center of Pressure” is located
 - Launch pad number has been pre-assigned

Flight Procedures 4

- Fourth: after checkin, but no earlier than one hour before “flight window”, students (only) go to assigned LAUNCH PAD and set rocket up
 - Pause for group photo by our photographer enroute
 - Pads are “hot” from previous round until 1 hour before yours
 - Tables next to checkin for last-minute adjustments
 - OK to use your own rod/rail/pad; we provide a 1/4-inch/6-foot rod with 2 electric clips (12 VDC) on an adjustable pivot
 - NAR “pad monitors” will help and direct you
 - Do not angle launch rod toward the spectators or arm electronic ejection systems until on pad

Flight Procedures 5

- Fifth: Fly it! Do this anytime during your assigned one-hour flight window, your choice
 - Stand by your pad, hold up numbered “paddle” when ready to fly and have one team member join your timing team
 - Verify your altimeter is still beeping “flight ready” signal just before countdown starts
 - Once Range Safety Officer designates your pad for next launch, step 30 feet back and wait – wave to the crowd!
 - People at adjacent pads must step back when a pad is being flown – 30-foot standoff for everyone
 - If no flight by the end of “window,” you’re out
 - If your paddle is up by then and delay is ours, can still fly

Flight Procedures 6

- Sixth: return the eggs and altimeter by 2:00 PM
 - Take to RETURNS before you leave the flying field
 - Leave eggs & altimeter in rocket, remove when told
 - May have to return other parts of rocket if the RSO says so, due to rules-compliance concerns
 - If your rocket is on a power line LEAVE IT
 - If your rocket is in a tree, come get an NAR “returns judge” and a recovery pole
 - Reflight if rocket is seen but not safely reachable

Flight Procedures 7

- 18 top-scoring teams from first flights will fly a 2nd flight in a “flyoff”
 - Top 10 places awarded based on sum of 2 flight scores
 - Remaining 90 places awarded based on 1st flight scores
- Top 18 teams will be posted on event scoreboard no later than 2:00 PM
 - Checkin opens as soon as these teams are announced
 - Flight window 3 PM to 4 PM, returns close at 4:30
 - Can keep original eggs or get new ones

Key Event Rules

- Electronic ejection or ignition systems must have a positive-safing system until on pad
- Egg capsule must land without being caught
- Every part that comes to earth separately must do so safely – recovery system or unstable tumbling
 - Ejected engine with no recovery system = DQ

Event Rules: Reflights

- Allowed if a rocket engine suffers a “catastrophic failure”, as judged by RSO/CD
 - Crashes or partial ignition of clusters are not “catastrophic failure”
- Allowed if the egg section lands in a place too dangerous to recover, as judged by NAR
- Allowed if an altimeter is judged by NAR to have failed to function despite being used properly
- No other reasons for second flights
- Flight window for these is 12:30 PM to 1:30 PM, must be returned by 2:00.

Event Rules: Disqualification

- “DQ” means flight score does not count
- Judged by RSO, can be appealed to Contest Director
 - Decision by CD on the field is final
- Based on one of three major factors:
 - Involvement in the flight by people other than student team members
 - Performance of rocket in flight – heavy pieces falling from sky at unsafe speed, no recovery
 - Non-compliance of rocket with event rules

Summary

- Safety is paramount – flight and recovery
- The rules are the rules for everyone
- Only the student team members participate
- Good sportsmanship is expected
- Scheduled events happen at scheduled times
- Everybody stays for the awards ceremony
- Treat the Great Meadow facility gently