

SHROUDLINES

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Loren Walden's Polecat Black Brant II powers into the Gunter sky on a K535W at the March High Power Launch. Insert shows the flyer and rocket ready to go. Both photos by Nick Viggiano.



Ignition!

By Gary Briggs

This is getting written on mother's day 2015. We awoke this morning to a tornado warning with the local sirens going off and strong storms approaching. It ultimately fizzled out and all the fuss was for not, but it does demonstrate some of the challenges that we have been up against for the past few months when it comes to flying.

After several years where we were much more likely to cancel launches due to burn bans, with the occasional random rain event also creating issues, this year we have consistently dealt with monsoon like rain events for weeks on end. Great for growing grass, not so good for flying rockets. It creates some additional build time, but does tend to back up in the paint queue, as paint and humidity rarely go together well. What's a flyer to do?

First off, the picture shows the reason why getting caught on the field in a rain event is a bad thing in North Texas. The local clay turns into this substance lovingly known as "gumbo". It's slick and sticky, all at the same time, and is generally pretty awful to drive on or even walk on. The term "elevator shoes", speaks to what happens when you walk on this stuff, as it builds up layers on your shoes adding weight and height to your normal footwear. It makes

everything more of a workout if that is what your are going for.

This generally happens at launches following a rain event, but the worst case scenario is when it happens *at* the launch event. This occurred 2 years ago this March at the [Screaming Spotted Eggs of Death](#) contest. Rain hit the field, late in the day, trapping several of us trying to stow the equipment for the club and individual flyers. The results



weren't pretty. This is actually a "before" picture, meaning before we got rained on at the field. This was the field texture at the edge of flyability when we arrived, so you can imagine what it did when the rain added slick to sticky. The picture I still regret not taking was of 5-6 rocketeers pushing Stuart Powley's Mini off the field as the rear wheel wells were packed with mud to the point the wheels no longer turned. Unfortunately I chose to be a pusher instead of the photographer.

So there's the reasons why we don't wish to get caught on the

field in the rain. Hopefully the weather will cooperate soon.

I have to say the pulling the newsletter together of late has been a challenge. My thanks goes out to the contributors who have stepped up to provide content. We are always in need of more so if you read the newsletter, please do consider contributing to it as well. We need your words and pictures to make this work.

In this issue we start with Bill's Something number 13 discussing a bigger road trip or detours to this year's NARAM. Next up is another great outline by Robert Vanover into the development of his Level 3 project. Robert always builds a great rocket and his articles and pictures bring together a number of state-of-the-art components and techniques. I really look forward to seeing this one come together.

Following that is some news you can use from the DARS website. Pay special attention to the need for more launch sites and the bounty program being back in place. It also discusses TARC team successes. Up next is regular contributor George Sprague and his review of the Hot Rockets Mercury Redstone. We wrap up with pictures of George's successful L3 launch and others in Parting Shots. Enjoy. GB

Bill's Something #13

By Bill Gee

A shout out to Oscar Lee James. Thank you for the article about your trip to NARAM.

The first part of your journey will unfortunately turn into a painful exercise in getting out of Texas. This is a striking lesson how truly big the state is. I pass the time by thinking about what it might have been like for our pioneers to cover the same ground - they are driving many fewer horses in their vehicles with serious drama crossing nearly every wrinkle in the terrain. Unless there is a test launch at the West Texas range, there is nothing of real interest along the way. If you are going up to I-20, then west, you may want to see if the Nike-Hercules is still for sale in Stanton: <http://oldrocketforum.com/showthread.php?t=10125>

Some will say at least the trip is more exciting than a hole in the ground. I beg to differ. **Now presenting the "Great Southwest Holes in the Ground Tour"**...because you mentioned in your article about seeing that big hole to the north of the NARAM venue.

Start with a short detour on the way westward to visit Carlsbad Caverns in southeastern New Mexico (<http://www.nps.gov/cave/index.htm>). You may have seen some of the caves around Austin or San Antonio. This is their big sister. Not only is it an impressive sight, it is a rare refreshing break from the summer heat.

The Trinity Test Site is not far away, but unfortunately, it is only open to the public one day each year. In 2015, that day was in April; they are neglecting the chance to mark the 70th anniversary of the shot on the day of the shot. You also have a choice to visit the New Mexico Museum of Space History in Alamogordo (<http://www.nmspacemuseum.org/>); the final drive to the museum is especially impressive as their

Little Joe II becomes visible long before you arrive. Other choices include the rocket garden at the White Sands Missile Range or the tourist traps around Roswell.

If you choose to not deviate from IH-10, be sure to browse at Hal's Hobby Warehouse in El Paso (<http://www.halshobbywarehouse.com/>). It is like the Sam's Club of Hobby Shops.

Oh, by the way, Arizona does not observe Daylight Saving Time. In the summer, it is the same as Pacific time.

Your NARAM organizers should have Tucson attractions well covered. I will only add to be sure to shop the Ace Hardware store with the dedicated hobby department. They sometimes have surprisingly good prices.

Before bidding farewell to Southern Arizona, make a quick leap farther south to the Titan Missile Museum outside of Green Valley. This is a decommissioned Titan II missile silo. Imagine launching that thing out of there.

Instead of joining the crowd on Interstate 10 to Phoenix, consider taking the back way through Oracle and touring the Biosphere 2 (<http://b2science.org/>), an experiment some twenty plus years ago to create a self-contained environment: <http://b2science.org/>

For the most part, Phoenix is just another huge sprawling city. And does it sprawl. It almost puts Texans to shame. But it is home to some great hobby shops. First on the list is the Hobby Depot in Tempe (<http://www.thehobbydepot.com/>); they sell plastic model kits on consignment and you may be pleasantly surprised at what you can find. Next

is National Hobbies, also in the eastern suburbs; rocketry is one of their specialties. Be sure to contact them by phone before you go...a quick web search seems to indicate that they may have moved from Chandler to Mesa. Finally, you cannot miss Hobby Bench in Phoenix at 19th Avenue (west of Central Avenue, not to be confused with 19th Street to the east) and Northern. The chain is owned by Lee and Betty Piester, best known for a little company they used to run called Centuri Engineering. Rumor says that some of the rockets on display include Centuri catalog models... Before continuing north, make a side trip to the far northeastern suburb of Fountain Hills and see one of the world's tallest fountains. <http://www.fountainhillsguide.com/the-fountain/>

Many will drive IH-17 all the way to Flagstaff. If you have the time, it is well worth going through Sedona and enjoying the red rocks of the scenic Oak Creek Canyon. Along highway 89A between Sedona and Flagstaff is the Slide Rock State Park (<http://azstateparks.com/Parks/SLRO/>), a natural water park.

Hiking to the bottom of the Grand Canyon is on many people's bucket list. If you don't do that, you will need to at the very least hike on some of the many trails along the South Rim to get away from the crowd at the visitor center.

An alternative way to visit the Grand Canyon is to park in Williams and take the steam train excursion to the South Rim. It is a bit pricey, but it comes with a simulated train robbery complete with bandits on horses; paying to get a car into a national park is not insignificant these days.

If you dare, head to the western end of that big hole and take a stroll out on the Skywalk. <http://www.nps.gov/grca/planyourvisit/skywalk.htm>

If you went this far west, go a little farther and see Hoover Dam and Lake Mead for some perspective. Look to the east and see how much the lake has fallen. A striking "bathtub ring" on the rock walls shows the lake boundary when it was full. The dam tour is fascinating. Then look up at that impressive feat of modern engineering that is the highway bypass. Most travelers stay on the highway and have no idea what they are missing below. The original route followed switchbacks down to the dam, across it, then back up the other side. After the terror attacks of 9/11, the dam was deemed to be an attractive target and traffic restrictions put into place. Commercial trucks were banned and detoured through Laughlin; RVs were subject to search and everybody had to stop at the checkpoint and answer a few questions. The highway bypass was put on the fast track to be built. There is a way to climb up from the dam and walk on the bypass bridge.

You have come this far, go a bit more and try your luck at pouring your money into a hole in the ground and getting it back. While in Sin City, visit the National Atomic Testing Museum (<http://www.nationalatomictestingmuseum.org/>); their web site seems to indicate they have a Genie missile on display. One of the better HobbyTown USA stores I have visited is the one in Las Vegas.

Back in the day when I used to go to COMDEX every year, the Stardust Hotel and Casino was celebrating their upcoming 45th anniversary. Part of the festivities included burying a big time capsule in the shape of a rocket. They had it on display in their lobby and I took many pictures of it, intending to someday kitbash an Estes Big Daddy into a scale model. Well, COMDEX went away and the Stardust was closed and sold. The land was bought by investors who had plans to implode the old tower and erect its replacement, the Echelon. The economy went

bad, very bad, in 2008 and the plans were put on hold; I understand they are building it now. Anyway, back to the time capsule. Many inquiries indicated the time capsule was auctioned off along with many of the other artifacts of the Stardust. While researching for this installment, the whereabouts of the time capsule have surfaced: <http://lvartsandculture.blogspot.com/2013/11/p-moss-stardust-rocket-nevada-state.html>

Try to arrange a tour of the Nevada National Security Site, formerly known as the Nevada Test Site northwest of Vegas. It includes the Sedan Crater (http://en.wikipedia.org/wiki/Sedan_Crater), the largest man-made crater in the United States, a result of the Plowshare Program intended to demonstrate peaceful uses of nuclear weapons.

On the way home, Walnut Canyon National Monument, just to the east of Flagstaff, offers walking tours of cave dweller ruins: <http://www.nps.gov/waca/index.htm>

Then stop for a look at the Meteor Crater (<http://meteorcrater.com/>). You can hike around it if the wind is not blowing too hard. I wish we were still allowed to walk down to the bottom.

A must see in Albuquerque is the National Museum of Nuclear Science and History (<http://www.nuclearmuseum.org/>) boasting of the largest collection of nuclear capable missiles, including the Redstone, Atlas, Titan, Minuteman and Jupiter. They have recently taken possession of the Honest John which had been on display at the Pantex plant near Amarillo: <http://amarillo.com/news/local-news/2014-07-10/honest-john-rocket-moves-pantex-albuquerque> Be aware that they have moved from their location in Old Town to a new site just outside of Kirtland Air Force Base.

Something motivated eccentric millionaire Stanley Marsh of Amarillo to half-bury a couple of handfuls of tail-finned Cadillacs nose first in, you guessed it, holes in the ground, as a statement about the gaudiness of American culture at the time. His unconventional "art" is now known as the Cadillac Ranch. You are encouraged to add your own decorations to the shrine; admission is free, but spray paint is not included.

Take a few minutes to pay respect to astronaut and Amarillo hometown hero Rick Husband. His grave is near the southwest corner of Llano Cemetery.

The Palo Duro Canyon southeast of Amarillo pales in comparison to that big one a couple of states over, but it is the second largest canyon in the United States. And unlike its big brother, you can drive into this one.

If you would like to discuss this further, post your comments to the DARS-General Yahoo group at <http://groups.yahoo.com/group/DARS-General> or Ye Old Rocket Forum at <http://oldrocketforum.com> where I like to hang around.

Editor's Note: I have been on the "holes in the ground" tour with my parents in the 70's. Bill has given me a whole other set of side trips to make with this article. I go to Phoenix somewhat regularly for work so, next up on my list is the home of Centuri. Sadly, the photos online seem to show something more akin to Hobby Lobby, but I will have to check it out, just the same.



We Can Lick Gravity

Words and Pictures By Robert Vanover

“We can lick gravity, but sometimes the paperwork is overwhelming.”

Werner von Braun

This quote just keeps popping into my mind as I work on the documentation for my Level 3 project; I am currently collecting and documenting all the parts needed for *Uber Pike*. Recording the dimensions and properties of everything going into this beast and explaining every design decision is a major task. Here is a first look at the dry fit:



A few Stats:

142 inches tall

8 inch diameter

Fin span 24 ½ inches

All up weight somewhere north of 80 pounds

If you have only built kits up to mid power then the first thing to know is this is less of a kit than a collection of a few of the parts needed for a L3. All of the decisions about hardware, recovery gear, and avionics are up to me. There are no instructions so all the calculations on deployment charges, sear pins, chute sizing, av-bay vent size, rail button location, and motor choice are up to me. Since this a L3 project it all has to spelled out and approved by the TAP"s. The rocksim files and simulations are mine. My point is that on the big boys' "kit" just means a break on shipping.

As imposing as *Uber Pike* looks at first glance, it is really just a 1.4x upscale of my 5.5 Pike. It comes in at about twice the weight and requires at least twice the power, but that is what moving up is all about. Many of the same solutions I used on that build will scale up for this one, like the anchor ring –thrust plate assembly and the tracker bay in the nose. The large external fillets of Pro-line 4500 stay, and an automotive paint/ clear coat is a must. The source of most everybody's vinyl decals is dealing with an illness in the family so that will wait while he takes care of what's really important.

There are some interesting design changes coming in this project and most of them are solutions for the exponential increase in volume, not more weight and power. The first new idea is a system of interlocking centering

rings and slats epoxied to the motor mount forming pockets for the very large fins. The rings are skeletonized to allow the internal fillets to be viewed with an inspection camera and ultimately the fin can to be filled with adhesive foam. I hope to receive the parts in time to include pictures in this first article. The next change is still evolving in my brain so I can't even offer up a sketch of it yet. The goal is to be able to easily slide-out the electronics without disassembly of the 18" x 8" bay. A secondary goal is to reduce the volume to be vented. There are more but I get them in due time. If there is any interest in more articles I will keep the club up to date and hopefully it get more interesting when I can include lots of build pictures.

Some updates before press time...

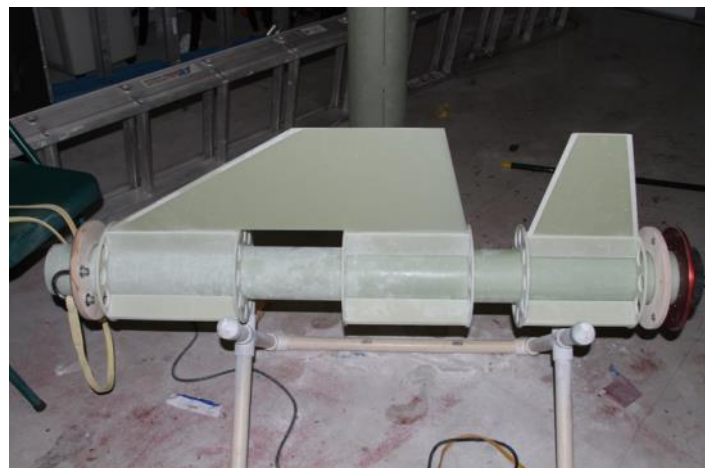
First of the updates is that I am planning to fly *Uber Pike* at [Balls 24](#) in late September. From their web site

"BALLS 24 is a venue for projects that should NOT be flown publicly due to safety and legal restrictions. This may include, but is not limited to, LARGE rockets, complex staging or clustering, metal rockets, self designed and/or fabricated rocket motors and new technologies being developed or proven. Black Rock Dry Lake has always been the site of large rocket launches. Its wide open vastness is unprecedented for its high altitude recovery record. Through the years BALLS has grown into non-professional rocketry's show place of the best there is. The quality, craftsmanship, sheer size, power, technology and edge cannot be compared to any other launch anywhere. The best thing is the exchange of new thoughts and methods that are presented openly to anyone who asks."

Next some of mods I am working on:

The next pictures are some custom parts from UpscaleCNC they are made of 3/16" G10 fiberglass. The rings weigh only 3.21 oz. each and

are incredible; I still need to drill lightning holes in the slats so I don't have a finished weight on them. Together the interlocking rings and slats form pockets for the fins and make the entire assembly practically self-jigging. I will locate all of the parts on the motor mount and use Aero-poxy on it all.





I did some work on the tracker bay inside the nose coupler there is a lot more to do, I will come back to it later. The sled is a Madcow Av-bay setup for 4 inch so you can get an idea of scale. The eye bolts are 3/8" and the four rods are 5/16". The front is an unused centering ring.



Those are 3/8" SS U-bolts though G10 FG and 1/2" plywood 8000 lb test Kevlar Y harness with a 6000 lb test swivel sewn in the center.



News You Can Use

From the DARS website and the President, Jack Sprague

Hi-Power Launches ON HOLD!

The club has been asked to stand down our high power launches from the Gunter site. The corporate owners of that portion are going to review the potential risks and liabilities that they face, if they allow us continued access. They have nixed our use until that review is completed. So, the club is back in the lookout for another High-Power flying field.

The Bounty Program Returns.

The club found our Gunter and Corsicana sites by offering to pay a reward (the Bounty) for persons assisting us in locating a suitable flying site and gaining the required permissions to use it. That program is being re-instated:

You could earn \$1,000 by helping find a great flying field.

The DARS will reward you with \$200 if you find an appropriate site for us, AND you help set up the initial meeting with the land owner(s). Then the club will pay you \$200 again for each of the first four launches held on your site. That's \$1,000 extra for you to spend on this hobby that you like, and we all share.

Looking for more spaces like the one shown below



TARC NEWS...TARC NEWS

Three teams from the greater DFW area made the TARC finals this year. The DARS helped mentor the teams from Johnson Middle School in McKinney. They flew with us last weekend and their "Pride-2" team put up a pair of great qualification flights: 1.48 points and 13.84 points. {Lower scores are better, and that's the best we've heard about.} Pride-1 almost made the cut too, except for their last flight attempt was a ballistic, egg-splattering DQ.

Southlake teams from Clariden High School and Middle School both qualified for the national finals also.

The Ore City High School team had a great first flight of just over 4 points. But then crashed their bird in a season ending DQ on their second flight.

Saint Marks from Dallas flew their attempts with us on Saturday, and got better with each flight. Just not quite good enough, soon enough.

And our Graham High School team put up three qualified flights, but did not make the finals cutoff score.

Congratulations to all the schools and teams. AND! Now its off to the finals in DC; over Mother's Day weekend. After some more practice perhaps...

Use Your DARS Card and Save Money—Member Discounts



8.25% Discount on the field and at meetings

HobbyTown USA
PLANO NOW @ 75 & PARKER

10% Discount on all rocketry related items.
Lots of kits and motors from Estes and Aerotech

HobbyTown USA
DALLAS ROCKWALL HURST LEWISVILLE

10% Discount on all rocketry related items.
The Dallas store carries Estes, Quest, Aero-
tech, and PML kits with a great
selection of Estes and Aerotech motors.



Additional 5% discount on regularly stocked mo-
tors. Enter DARS in the coupon field at check
out. Huge inventory of Aerotech motors.

Art Applewhite Rockets 
from deep in the heart of Texas

20% Discount on all rocketry related items.
Great selection of saucers, odd rocs, and
launch equipment.

R\C Zone

Plano @ Parker and 75

10% Discount on all rocketry related items. Estes
kits and motors. Great selection of plywood and
balsa.

DARS supporters not currently offering a discount



Click on logos to link to websites

Parting Shots

Photos by Various Artists

George Sprague's Level 3 Flight



Photos above by John Dyer, Below by Chris Bender





Photo by Chris Bender



Photo by Nick Viggiano



Photo by Chris Bender



Photo by Chris Bender



Photo by Nick Viggiano

How to Contribute to Shroudlines



We all share a love for the rocketry hobby and all have different experiences and expertise to share. You don't have to be a Pulitzer Prize winner to write for this publication. Anyone can do it!

Submissions can be in the form of plain text files, emails, or MS Word documents. Pictures can be of most any format, but .jpg files are generally the norm. Keep the content family friendly and free of political discussion; just rocketry.

We publish every 2 months so we need your content submitted by the 15th of an even numbered month (.i.e February 15, April 15, June 15, etc.). You can submit via the contacts page on dars.org or direct to the editor at garyb2643@att.net.

DARS Officers

President	Jack Sprague
Vice President	Dave Shultz
Treasurer	Suzie Sprague
Secretary	Bill Gee
NAR Senior Advisor	Sam Barone

Upcoming Events

5/2	DARS Business Meeting @ Coppell
5/16	Monthly Launch @ Frisco—Scrubbed
6/6	DARS Business Meeting @ Coppell
6/13	DARSTAR XI—Location TBD
6/20	Monthly Launch @ Frisco

The Dallas Area Rocket Society is a non-profit chartered section of the National Association of Rocketry (“NAR”). Its purpose is to promote the hobby of consumer rocketry in the Dallas/Ft. Worth metropolitan area.

Membership in DARS is open to all interested persons. Membership in NAR is encouraged, but not required. Annual dues are \$10.00 for individuals and \$15.00 for families. The entire family, including children, are welcomed to the meetings. Go to the website, fill out and send in an [application](#), to join or renew your membership.

The club normally meets on the first Saturday of each month at 1:00 p.m. and the current meeting location is in Coppell, just off the Sam Rayburn toll way and Denton Tap Road.

Visit the DARS website for the meeting location: www.dars.org