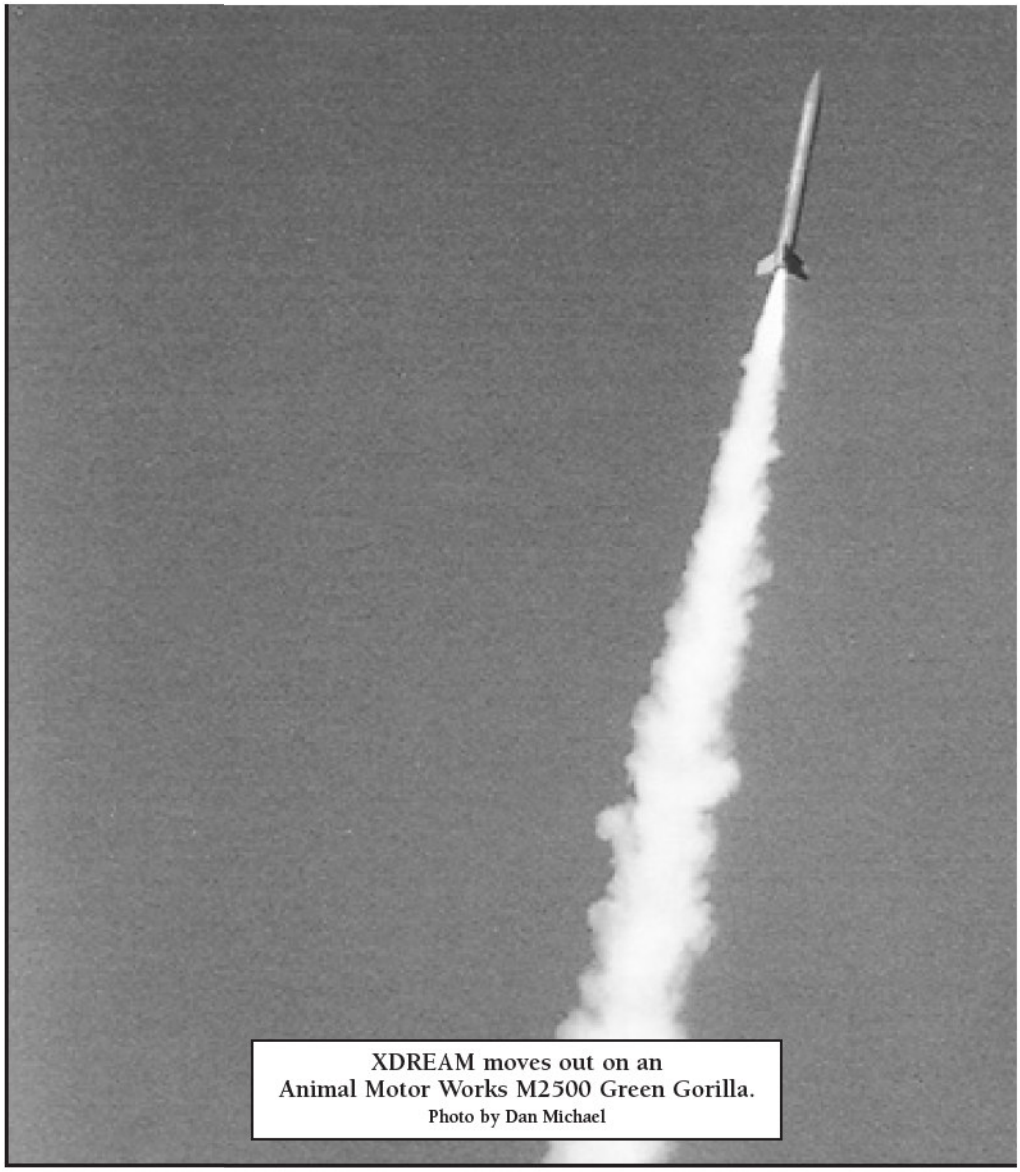


XDREAM moves out on an
Animal Motor Works M2500 Green Gorilla.
Photo by Dan Michael

XDREAM

No Longer a Dream, it's Reality, My Road to LEVEL 3

by Tim Seamans NAR 75008

I was first introduced to model rocketry at the age of 11 by my sixth grade science teacher, John Huda. I remember that day very clearly. The images and sound of those rockets streaking skyward from our small playground left me spellbound and anxious for more. I couldn't wait to go to the local hobby shop to pick out a model that I could build myself. Within a few days I had my first kit, an awe inspiring Mosquito. Building and launching my own rocket was a major milestone for me.

Throughout my teen years I built and launched many kits as well as some scratch-built top-of-the-line paper towel tube rockets when I couldn't afford another kit. I formed a rocket/astronomy club with a group of friends and we soon built a clubhouse complete with bomb shelter tunnel, battery powered lights, and a rooftop launch pad. The memories from those years are priceless but too numerous to mention here.

With high school and college came many other interests along with earning my private pilot's license and the rockets lost their appeal and took a backseat until the early 1990's. I was in a local hobby shop (Main Hobby) with my fiancée and wandered into the rocket area. I was amazed to see some large Aerotech kits on the shelf and E, F, and G motors on display behind the counter. What a thrill it was to see those "man-sized" rockets and motors. I quickly asked for more information and picked up a copy of *Sport Rocketry* magazine on the way out.

Over the next five years I built a few scratch-built "carpet-tube" and mailing tube rockets that I launched on F and G motors next to an old coal breaker near Jessup, Pennsylvania. A little while later, my wife and I went to see the movie October Sky and I was supercharged on getting back into the hobby. It was full steam ahead!

I searched for information on the Internet like a kid in a candy store. It was exciting to see how much had changed with the addition of high power rocketry and electronics. Soon, I built a 15-ft.-tall, 30-lb. Sonotube rocket (Little Josh) and launched it on 14 G motors (only 11 fired) to only about 300 ft in the middle of a cow pasture. The cows didn't like my rocket, but I did! Even though the boost and recovery left something to be desired, it was new and amazing to me and still a success.

A little while later, I read about an upcoming NARAM-41 in 1999 near Pittsburgh, Pennsylvania, and made up my mind that I would attend and try for my level 1 and 2 certifications. It was a 7-hour drive with my wife, sister-in-law, and 18-month-old son in my minivan that was thoroughly enjoyed by all. Well, maybe not enjoyed, but endured. The NARAM was a wonderful experience and I highly recommend it to anyone (as long as your spouse likes rockets, or if not, stays home). I did manage to pass my level 1 flight with a scratch-built 2-lb. rocket on an H238. Thanks again to Steve Lubliner for all of his help that day.

My level 2 rocket somehow disappeared into the woods about a 1/2 mile away after apparently (by my estimate) breaking mach 12 and reaching low earth orbit. I guess the heat shield burned up on reentry into the Earth's atmosphere and melted my parachute. I searched for it for a few hours while thoroughly enjoying the sensation of briars scratching up my legs, bites by prehistoric-sized mosquitoes, and high humidity with temperatures in the 90's. I never found the rocket but I did at least get to hear my wife complain for the next hour about how inconsiderate I was making them wait. And to top off the weekend, my water pump failed in the

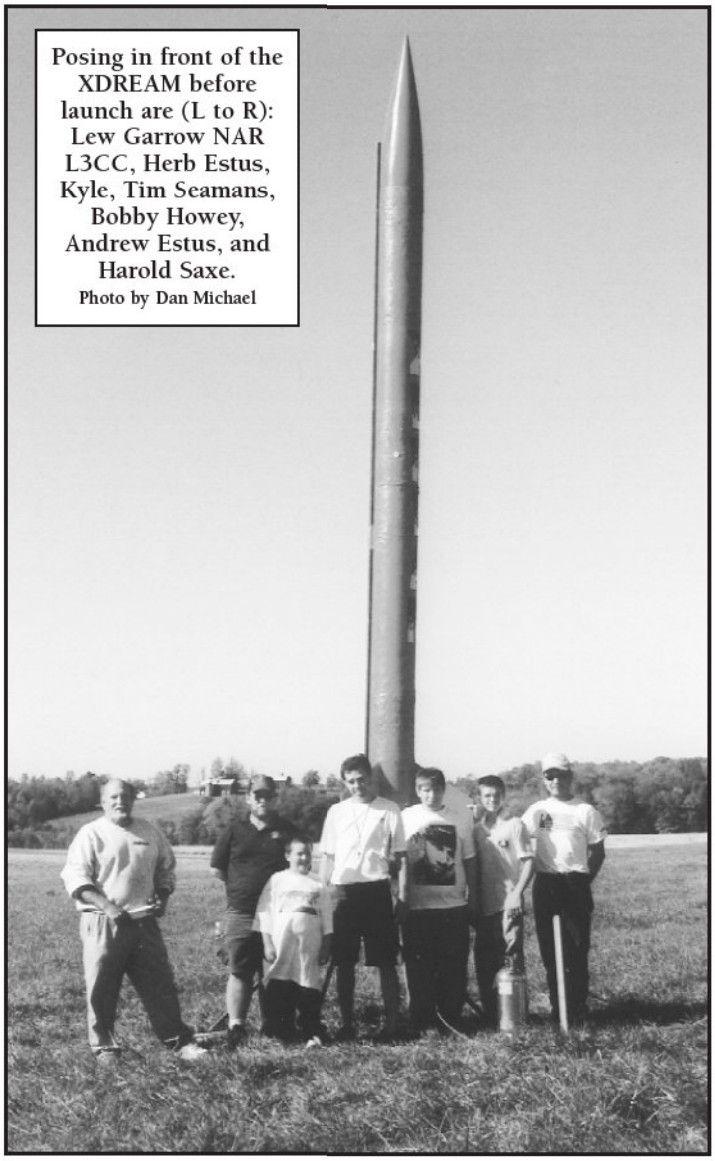
middle of nowhere on the way home. Thank God for AAA to tow me to a motel, a convenient auto parts store, and tools in the back of my van to change it during a nice soaking rain that night!

I tried again for my level 2 at a Cobleskill, New York, launch that October with my "JOSH" rocket after driving only three hours with a good friend Kevin Clum who didn't complain quite as much as my wife had. The boost went well at least until about 300 ft. up when the nose cone and chute popped off and a flame about two feet long appeared out of the top of the rocket. "Isn't this nice?" I thought to myself as the nose and chute stripped off and the rocket continued straight as an arrow to about 900 feet. I was surprised that many people were cheering at my spectacular failure. I failed to realize at that point that some people like to witness catos more than successful flights—especially when it's someone else's rocket. It turned out to be a forward closure breech. I did have a "backup" rocket and a spare closure with me, but the waiver for the day expired and I drove home feeling a "little" down that day.

Well, I did finally certify level 2 at a large hay farm near Nicholson, Penn., in July of 2000 with "JOSHROC," named after my Jimmy Neutron-like son, Joshua. He's a real inspiration to me and is now showing a strong interest in the hobby when he's not working on his time machine or dream recorder. This was a 7-foot-tall, 7.5-inch diameter, 13-lb. scratch-built rocket with a homemade five foot parachute, LOC nosecone, and 1/4" birch plywood fins. Thanks again to Randy Brust and his wife for driving almost three hours that day just to come up and certify me. The flight was beautiful on a J350 even though it was just us and Jeff Day and his son Dustin as spectators. Jeff did a successful level 1 certification that day.

That same month a few good men (Jeff Day, Ed Sopinski, Bob Theobald, and Joe Pidich) and myself chartered a new NAR Section, NEPRA (Northeastern Pennsylvania Rocketry Association) NAR Section #614. We had launched several times together in the previous year at a nearby site and decided that now was the right time to form a club and get things rolling.

In the three and a half years since, the club has continued to grow thanks to all the hard work of our volunteers and new officers. Thanks to Drake Damerau for his excellence as NEPRA President, for coming up with the idea for and planning/directing NSL 2003, and for all his hard work as the club webmaster and director of events. Thanks to our Vice President, Eric Salerno, for designing and building the club's new elaborate launch system and for setting up early and tearing down late at all the launches, and to his brother Kevin Salerno, our equipment manager, who built all our new pads and for being there early and leaving late at every launch to setup the pads. Thanks to Ed Sopinski for serving as Secretary/Treasurer, Bob Theobald for serving as past Vice president and for his photographic skills, and to Dan Michael for his continued professional photography, and to all of the following people for their help at our launches with RSO/LCO and setup: Jeff Day, Ed Sopinski, Drake Damerau, Dan Michael, Paul & David Kneble, Marci Damerau, Sean Guilday, Joe Pidich, and anyone else I may have forgotten. You have all made our club what it is today and have done a fantastic job.

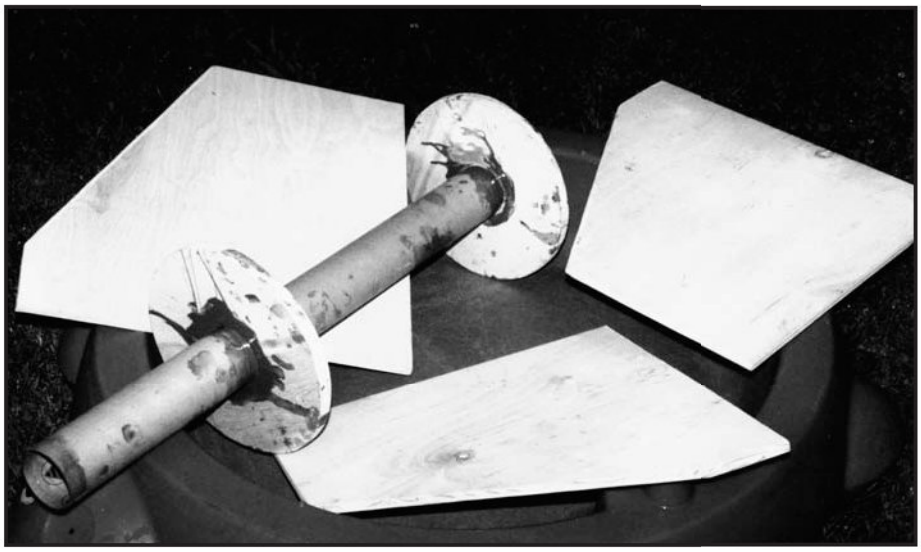


Posing in front of the XDREAM before launch are (L to R): Lew Garrow NAR L3CC, Herb Estus, Kyle, Tim Seamans, Bobby Howey, Andrew Estus, and Harold Saxe.
Photo by Dan Michael

My Level 3 Dream

From the time I first learned of the different levels of certification in high power rocketry, I dreamt of doing my level 3 with a really big rocket on a really big motor on a really beautiful day. Earlier this year, I decided I would give it a shot. I played with several designs on Rocksim, WRASP, and VCP and finally decided on scratch-building (yes, again) a 18.5-ft.-tall, 12" diameter, 100-lb. plus rocket that I would fly on an Animal Motor Works M2500 Green Gorilla motor.

I called Kevin at Countdown Hobbies and ordered a PML fiberglass 11.5" nosecone and got some "12" (actually 11.5" inside diameter) Sonotube for the airframe. I used 3/4" birch plywood for the bulkhead and centering rings, and 1/2" birch plywood for the three fins. With my limited budget I had to pull a NASA and cut costs even more by getting my parachute from Kmart.com (not that NASA buys chutes there). I bought a 20 ft. "toy" nylon chute and stitched 9/16" tubular nylon over all the seams with my sister-in-law's sewing machine. This was my first experience sewing with a machine so I practiced on some scrap material first. It took about four hours for me to finish the chute. I used 3/8" nylon rope for my shroud lines, and 1" tubular nylon to connect the sections of the rocket together along with a 4 ft. homemade drogue chute. Thanks again to Bob Theobald for giving me a large sheet of Kevlar to use as a heat shield for the main chute. Bob



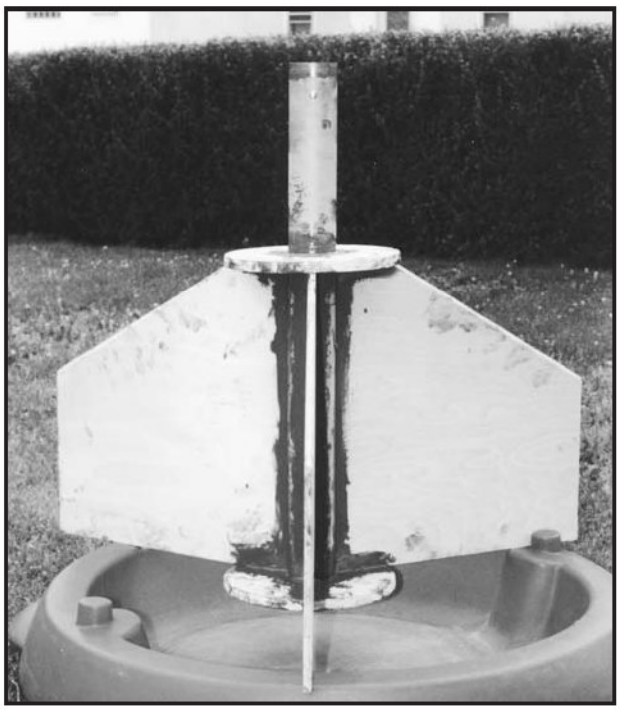
Above/Below: The fin unit of the XDREAM used 1/2" birch plywood fins and 3/4" centering rings.

Buchalski at Hangar 11 went out of his way to get me the hardware and reload for the M2500. Thanks again Bob!

For altimeters, I decided on a Missleworks RRC2 and a G-WIZ LC 800 deluxe. I had never used altimeters in the past (believe it or not) and would ground and flight test them both prior to my level 3 attempt. The idea of that was a little nerve wracking.

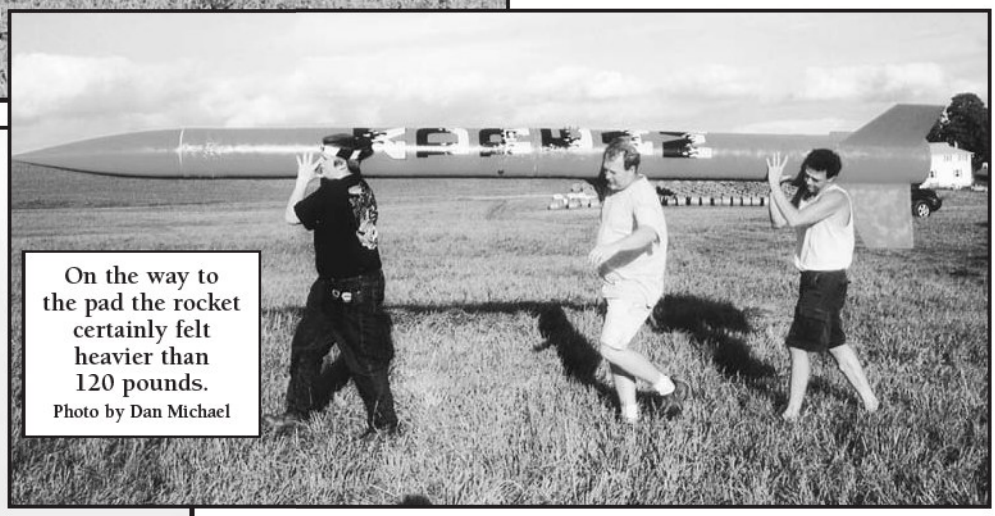
I finally started construction of my project "XDREAM" on Saturday July 26, 2003. I spoke with Lew Garrow from METRA and he agreed to come up to certify Ed Sopinski and myself on Labor Day weekend or soon after. I sent him my plans, some video of my fin unit interior, and level 3 cert info package. I was on vacation in mid-August and planned to work on my project then. As things go, I acquired a wonderful respiratory/gastrointestinal/pop-your-head-off kind of virus that left me floored for most of my vacation so I couldn't work on the rocket at all. I did feel much better by the time I had to return to work though.

I had less than two weeks to complete the rocket (which was barely started) so I got to work in my garage. It seems like I was out there every other night after 11 pm for an hour or two slopping on the epoxy. With my limited time, I managed to take my finishing skills to a new low in appearance. In my rush to finish, I slipped while cutting Sonotube with a carpet cutter and stuck it into my right lower leg, which required a less than pleasant trip to a local emergency room for stitches.

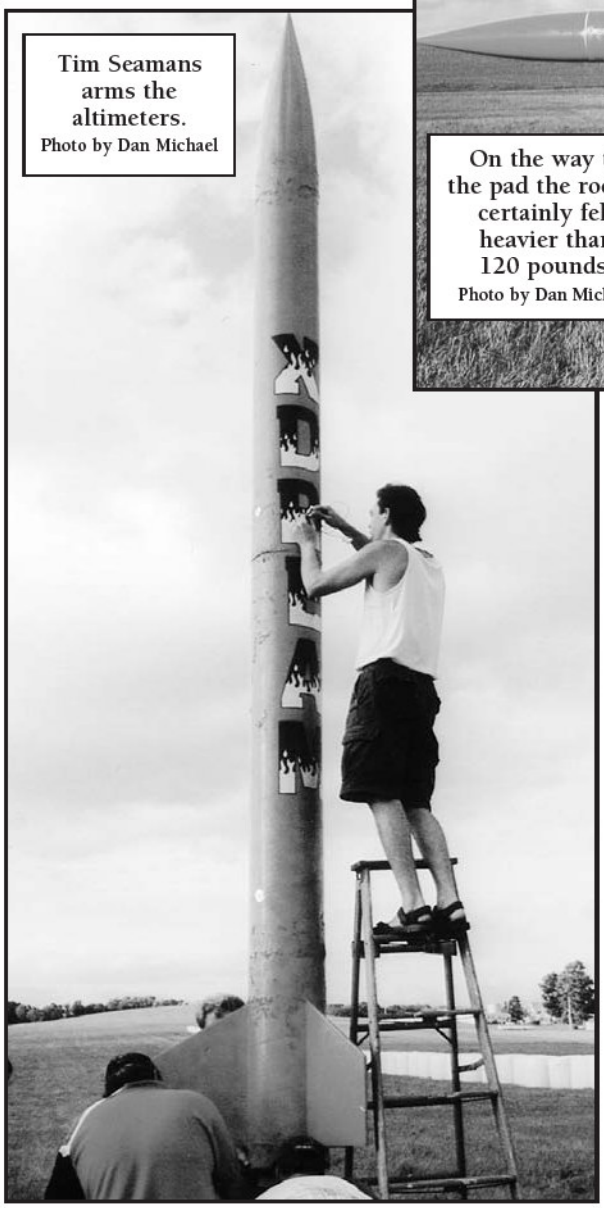


Where I had fiber glassed it, the tube had a close resemblance to the surface of the moon (the cratered and mountainous regions) and I was tempted to ask for a night launch to avoid any close-up pictures of it. I topped it off with a few cans of gray primer and red spray paint and applied the decals that I had made by a local sign store, "Signs by Tomorrow." I used clear

Tim preps his XDREAM. The altimeter bay is on the table with the nosecone.
Photo by Dan Michael



On the way to the pad the rocket certainly felt heavier than 120 pounds.
Photo by Dan Michael



Tim Seamans arms the altimeters.
Photo by Dan Michael

PVC for the altimeter tubes with threaded end caps (internal) and mounted them in the altimeter bay. I used the clear PVC because of its strength to protect the altimeters and to be able to see the LEDs flashing. I opted for using giant 1.25" PVC launch lugs on a 17' long, 1' diameter black pipe launch rod which I had already used on a previous large level 2 project.

The day finally came to launch on Saturday August 30, 2003. The weather was less than stellar with showers and wind but expected to clear later in the day. After finally loading the separated rocket parts and motor into my minivan minus the rear seats, I managed to get to the launch site by around noon. It was still raining on and off and was quite sloppy.

We set up the launch pad and I got to work putting together my rocket with a lot of help from Jeff Day. Thanks again Jeff! Soon Ed Sopinski showed up and started on his rocket. What a beautiful rocket he had built! I was hoping they wouldn't take any side-by-side pictures of it with mine. It would be like beauty and the beast.

I kept plugging away with my setup and Ed completed his prep and was off to the pad. He had a picture perfect launch and recovered his rocket safely for a successful level 3 certification. Congratulations again Ed! After what seemed like an eternity (even more to some than me) I finally was ready to go. Jeff Day, Kyle Damerau, and I carried the behemoth out to the pad. It was only 100 lbs. at that point but felt more like 1000 lbs. after the walk to the launch pad.

We got XDREAM all setup on the pad, and off she went. What a beautiful sight! It was up and over, and out came the drogue after some delay. Falling, falling...off came the nosecone at around 800 ft. Oh no! The main chute isn't out yet. Falling, falling...there it is! Too late. It finally spilled out at around 50 ft. up and the rocket slammed hard into the ground around 1500 ft. from us. Thanks a million to Dan Michael for helping me recover the rocket and taking all the great pictures. Upon inspection, it looked pretty bad. There were several body tube tears and a complete separation just forward of the fin unit. All four ejection charges had gone off. The altimeters averaged out to a height of 3334 ft.

Oh well, another learning experience. I wasn't sure at that point if I would try again for level 3 that year, but I knew I would try sometime.

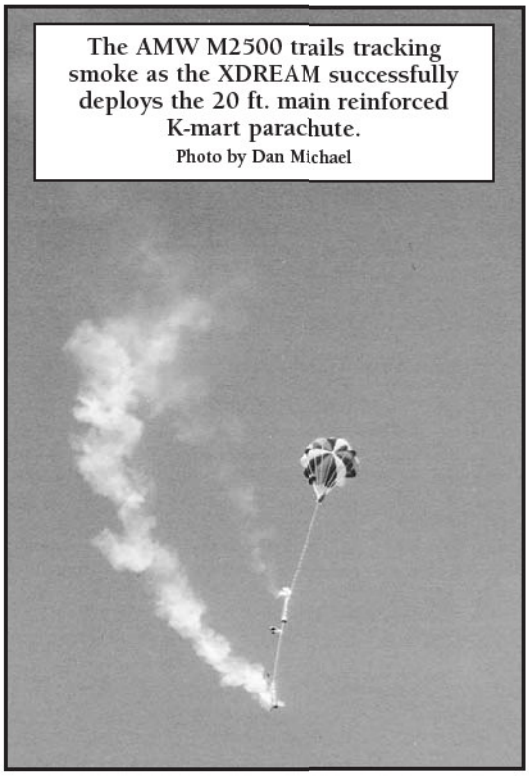
I put the wreckage in my garage/workshop and watched and rewatched the

video of the flight. After the nose had blown off, the front of the body tube went down into the slipstream and the relative wind appeared to hold the chute and heat shield in place inside the airframe. If only I had used more black powder. Ed Sopinski suggested that I use a pilot chute in the future to help pull out the main chute. My plans for repairs and a second attempt got put on the back burner for the next four weeks by a wedding and other family things.

On October 5th I got an e-mail from Lew Garrow (NAR L3CC) that he would be attending our October 11 NEPRA launch to certify a METRA member and asked if I wanted to do a second attempt. I had only five days from then to make repairs to XDREAM and was in high gear again. After another 20 lbs. of epoxy/fiberglass and reinforcing Sonotube couplers were added, the rocket was ready to go. The appearance was even worse than the first time, but at this point I was less interested in beauty and more in a successful flight. This time, I would use a pilot chute and 32 grams of black powder for main ejection as well as repeated prayers for a good outcome.

Launch day finally came and the weather was nearly perfect with blue skies and low to moderate winds. There was a good turnout at this launch with many other rockets going up. After prepping the rocket and getting the nod from Lew Garrow, I headed out to the away pad with the help of several other club members. At 120 lbs. and 18.5 feet tall, XDREAM was a little too big for me to carry by myself for 500 ft. Thanks again to Joe Pidich, Kyle, Luke, Herb Estus, Andrew Estus, Harold Saxe, and Lew Garrow for all your help with setup at the pad!

Once it was ready to go we headed back to the flight line and Jeff Day at LCO started the countdown. 5, 4, 3, 2, 1...wow! What a beautiful sight it was this time. With the clear blue sky as a background, XDREAM roared off the pad with an awesome green flame, flew to 2884 feet in 11 seconds, deployed the drogue at 15 seconds, the main at 30 seconds, and touched down at 84 seconds from liftoff. The descent on the colorful 20-ft. main was as fun to watch as the boost. It landed softly on the same knoll where I had launched my level 2 rocket just three years before. On landing the wind picked up, keeping the main chute inflated and dragged the rocket over 600 feet across the field. That part was almost as exciting as the flight.



The AMW M2500 trails tracking smoke as the XDREAM successfully deploys the 20 ft. main reinforced K-mart parachute.
Photo by Dan Michael

While driving out to pick up my rocket with the recovery crew, I distinctly remember hearing Shania Twain singing "So you're a rocket scientist? That don't impress me much!" In the end, the rocket was in great shape and I was certified to level 3. It was a very good day.

Who knows what's next? My wife launching me on a one-way trip into space? Maybe a patent on my trademark crater-like finish? More than likely many smaller projects with my kids and possibly a bigger or faster rocket that has a smooth finish.

In any event, the dream is not over yet. It has only just begun.