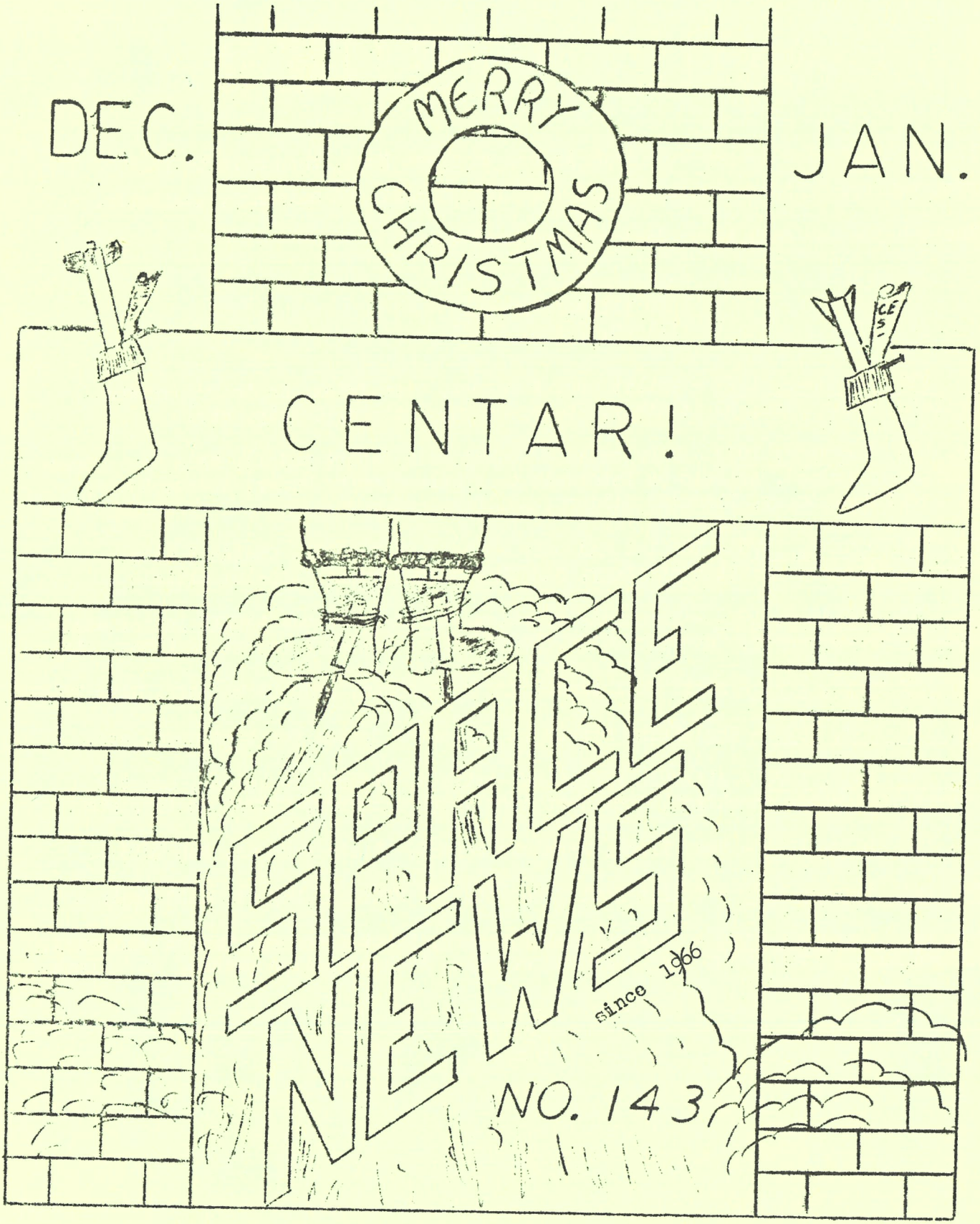
DEC.
MERRY CHRISTMAS
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CENTAR!
SPACE NEWS
since 1966
NO. 143

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No. 133 December, 1977 - Babylonian 2 Rocket paln (sport model), NASA News (Space Shuttle progress), Article on Internats team selection by Bunny, Modroc Demos, by David Montgomery, Tissuing Gliders, Mailbox, and more.

No. 134 January, 1978 - The 1st and only episode of NARTREK, CENTAR I date change, Streamer duration strategy, NARRIP I announcement, pop-lug article

No. 135 February, 1978 - Parachute duration strategy, Famous NARWIN letter and equally famous reply, Superroc rules, Tower plans, Centar I report, Mailbox, etc.

No. 137 April, 1978 - April Fool issue! Key West Naram, USMC Rocketeers, Star Trick.

No. 138 May, 1978 - Egglofting strategy, Egglofter plans for beginners, etc.

No. 139 June, 1978 - Altitude Efficiency article, Redneck rocketeer, Smart 2 report, Range box checklist, Southwest Area section roster, CENTAR Roster, etc.

No. 140 July, 1978 - Star Trick, Premiere report, State records, NAR QUIZ 2.

No. 141 Aug-Sep 1978 - Toilit Bowl 2 Report, AVI ENCYCLOG Report, SSRS engines

No. 142 November, 1978 - Tex-Regional I report, Robot I report, Tandem editorial, Manufacturers List, FRUG Drag race rocket plan, Seek-a-section puzzle, Dan's Desk.

FROM THE EDITOR...

Well folks, here it is the end of another year. I'd like to take this space to reflect on the past year and share a few thoughts with our readers.

We started off the year on the wrong foot with our January issue being lost in the mail for the most part. Thankfully, there were a lot of spares printed that were originally intended for hobby shops, so we were saved. In February, the infamous NARWIN letter from you-know-who made it's mark on the country.

The US Postal Service lost our March issue (again), and this time, we didn't have a bunch of extras. This left us with absolutely no back issues (for March) after sending copies out again.

The April Fool issue was a real riot, and I had a lot of fun doing the joke headlines, and the "Naram 21 in Key West" Article.

The May issue included a photocopied cover and some experimentation with new graphics.

June kicked of the hot-and-heavy summer competition season with a HD competition plan and some tips for flying Altitude Efficiency. July had the Premiere report, and the "Guess what the G stands for" contest, which G. Harry won.

Unfortunately, we had to go bi-monthly after that, because of various reasons that were elaborated on in the August-September issue. This issue contained the Toilit Bowl II report and a humorous article on the more interesting malfunctions at the meet. You guys should know about our last issue, if your memory is still good. That's when we lowered the boom, amd were forced to charge a subscription fee.

We were really surprised at the number of people who immediately subscribed to Space News, some of you for two years or more! We really appreciate this show of support.

As for those of you who have NOT subscribed, if you are reading this issue, it is because of one of the following reasons:

Look at the back cover of this paper, where your name and address is written. At the bottom of this block is a section marked "Subscription expires:". If this is followed by EXC , it means that we are exchanging newsletters with you, and you are exempt from the charge. If it says COMP, then you have a complimentary subscription (Manufacturers, special friends, NAR HQ, NAR President, etc). If a date follows this, then that is when the complimentary subscription expires, and you gotta pay after that. If CEN is written in this space, you are a CENTAR member, and you get this rag free as part of your membership priveledges. If this space says "Where are you?" it means that you have not subscribed, but we think there is hope for you yet, and we're giving you one more chance. You probably got a letter with this issue too. Now, if there is nothing in this block, not even a name or address, that means you fast talked the editor out of a copy while at a meet. You can sometimes do this if he is in the right mood, and has some copies with him. Don't count on it to last though. We are planning a 40 or 50 cent single copy price. Last but not least are you guys who have a date in this block, like 12/79, or 4/81. This means you payed when asked, and that's when your subscription runs out. Thanks for a good 1978, and here's to an even better 1979!

This Issue...

space news no. 143 jan. 79

A Merry Christmas and a Happy New Year from the Space News Staff

SPACE ADVENTURES

featuring...

STAR TRICK

by Joseph McKinney

in... "The Valzoonian Gas Attack"

Space...the final pollutable...These are the voyages of the Star-garbage-ship "Exitprize...its hopeless mission, to mess up interplanetary relations, to seek out new garbage and dump it elsewhere...to boldly go where no man will ever go again!

*****

It is the start of a typically boring day aboard the USS Exitprize....

Zulu-----Ah, so where is honorable captain?
Chinkov--I do not know. Maybe he slept late again.
McToy----Didn't I see him last night with that new Yeoman, down in the rec room?
Skippy---Heh, heh. Maybe he took her to his quarters. (snicker)
Chinkov--If he did, he will be very sorry! I heard that Yeoman Bolt is Admiral Jones' neice.
Zulu-----Ah, so! Then why did he station her on such a tub as this?
Mc Toy---To get even with Quirk.
Zulu-----What do you mean? Get even by sending his neice here?
McToy----I can see you haven't met the new Yeoman.
Zulu-----Ah so, she is not good looking?
McToy----Zulu, let's just say my bulldog looks better.

At that moment, Quirk walks in...
Quirk----(Yawn) How are things going?
Zulu-----Ah, so! All systems are go...
K A B L U U U E Y ! ! ! ! !
Quirk picks himself back up off of the floor.
Quirk----This is your idea of 'systems go'?
Zulu-----Well, I...
Quirk----Never mind! Just find out what the $%@#* happened.
Spink----(looking up from his modified viewmaster) We have apparantly been attacked by an alien craft!
Quirk----Apparantly! Identify!
Spink----It appears to resemble a giant glider of very primitive design.
Quirk----Any identifying markings?
Spink----Affirmative. The numeral "2" appears a number of times on various parts of the craft...and the inscription "SS Fatt Katt"
Quirk----Let me see...
He looks in the viewer.
Quirk----FATT KATT, huh? Whoever is flying that crate sure flunked spelling!
O'Hara---We're getting a call on a strange frequency captain!
Quirk----Well, put it on the screen.

A huge face comes on the screen...
Chinkov--Gee! Look at that weird looking haircut!
Skippy---Looks like the mat I used to wipe my feet on at my granny's house!
Quirk----Quiet, I think he has something to say.

SPACE ADVENTURES, continued...

VOICE----Calling the federation ship Exitprize. You are intruding on Valzoonian space, without paying the valzoonian toll. You have ten minutes to pay the toll, or you will be destroyed.
Quirk----What's that turkey talking about? This is federation space.
Spink----I believe that is the infamous fascist rebel known as Schline.
Quirk----Oh?
Spink----He and a band of rebels, together with a large number of brainwashed prepubescent renegades from a summer camp, recently overthrew the colonial government of the planet Valzoonia, and have since imposed a ridiculously high toll on federation ships passing through the area.
McToy----Well, why doesn't the federation just go in and boot Schline and his cronies out?
Spink----Well, it seems that the fed heds don't really want to. He was once a high ranking official at Star Fleet Command. Only problem was, when he didn't get his way on some minor executive decision, he would jump on the table, and pull a terrible temper tantrum, turn red, scream and yell, threaten to sue, and such. When he took over Valzoonia, Star Fleet was just glad to get rid of him. The place seems to keep him occupied, and out of the way. Besides, he and his band of rebels have threatened to blow themselves up with E60's if Star Fleet retaliates.
Quirk----So why not let them? Seems that would solve the whole problem, wouldn't it?
Spink----No. You see, they are also holding Admiral Jones' nephew, Billy, as hostage.
Skippy---I would think that would make the old admiral fightin' mad enough to go in and break up the whole shenanigans.
McToy----Not really! Billy's a real pain in the butt. He's probably glad to get rid of him.
Zulu-----Ah, so! What is an E60?
Spink----An ancient explosive weapon. Originally designed as a propulsion device, but adapted to diabolical purposes!
Zulu-----oh.
Quirk----Still, you'd think Star fleet would want to bust up his party, just to get the planet back.
Spink----Sir, you know Star fleet as well as I do. They just don't work that way. Besides, as a planet, Valzoonia is utterly worthless.
VOICE----Your time is up. Pay your toll of 19.50 scrubels, or face the consequences!
Quirk----Twenty @#%$*!-ing scrubels! Yer outa yer mind! You can forget your toll, Schline, and go <u>freeze fire</u>!
VOICE----Very well, then. You were warned.
BRAAAAAP!
Quirk----What was THAT?
McToy----Sounds like Skippy's been eating those peanut butter submarine sandwiches again!
Skippy---Not I!!
Spink----The alien ship has released a cloud of gas which is enveloping the Exitprize!
Zulu-----&@%$*! It sure stinks! (Gag)
McToy----Pyooo! Skippy, you <u>sure</u> you weren't eating those subs?
Spink----It appears to be a form of Tri-Anal nitrate! A severely mutated form, I might add.
Skippy---<u>I'll</u> say!

Quirk----Well, how come the gas is attracted to <u>us</u>? And how could Schlime stand the smell?
Spink----He didn't have to. He apparantly had it stored in bottles strapped to the outer hull of his ship! When he released it, it was attracted to us because of the fact that this particular form of Tri-anal nitrate feeds on peanut butter.
Quirk----Skippy, I thought I told you to get rid of all that peanut butter you had stored in the ship's hold!
Skippy---I did...Most of it at least.
Quirk----<u>MOST</u> of it?
Skippy---Well yea...all but 400 tons...
Spink----402.1653 tons to be exact, according to the computer...
Quirk----FOUR HUNDRED &¢%@* tons!!!!! Skippy, we'd better get out of this mess, or I'll have your neck!! That is, if we don't all die of the odor first. GAG! COUGH! CHOKE!
Skippy---I er, think I'll go to my quarters...
Quirk----Good Idea! Spink, (cough, choke) break out the gas masks!
McToy----Sir, why don't we just hit the engines, and leave?
Chinkov--That would be impossible. The 9 volt battery is still charging. Until it is up to full power, we are stuck here!
McToy----That figures. (gag)

Later

Quirk----Captain's log...star date 8916.3...Gas masks failing...The nine-volt is finally up to full power, but the propulsion system is still inoperative, as the oxidizer is now contaminated. Unless something happens fast, (choke) we're going to be in a <u>really</u> smelly situation!

****

Quirk----Spink, do you have any more data on that ship? How about we blow him away before we go, as a final act?
Spink----Not possible sir. The phasers are also inoperative. They just make a rather crude sound when activated.
Quirk----¢*&$#!
Spink----As for data, Schlime is still hovering at close range. He is probably planning to board the exterprize and take command.
Quirk----He must have better gas masks than us then! What kind of range does his ship have?
Spink----Not much sir. The Fatt Katt is a crude, illogical design, not capable of long excursions. He'll have to go back to Valzoonia soon as his orbit will probably start to deteriorate within an hour.
Zulu-----Ah so! (choke) I don't think we will last an hour! (gag, cough, cough!)
Quirk----THAT'S IT!!!!!
Zulu-----What?
Quirk----He'll have to go back!
Spink----Yes, his orbit is starting to decay already.
McToy----So is my gas mask!
Quirk----Exactly! Suppose we beam Skippy's peanut butter over to his ship.
McToy----I dunno...Skippy'll get madder than...
Quirk----Lock him in his quarters.
Spink----Hopefully, the gas will follow the peanut butter right over to Schlime's

ship. His ship is too small to carry a transporter or shuttle craft, and with no remaining fuel, plus a decaying orbit, that means he'll have to take the peanut butter...and the gas...back to Valzoonia.
Zulu-----Unless he dumps it out the air lock.
Quirk----If he can accomplish that during re-entry, I wish him luck!
McToy----Let's just hope our transporter still works.
Spink----Affirmative, Captain. It does **not** seem affected by the gas.
Quirk----Good. O'Hara, call deck six and get all hands loading that peanut butter into the cargo elevator as fast as possible.
O'Hara---(cough) aye, aye, sir.

****a little later****
Quirk----OK, Smith, generalize.
Smith----That's energize, sir...
Quirk----Whatever...

Bzzzzz...Tinkle...FLUSH!!!!!
Smith----There it goes.

****soon, back on the bridge.....

O'Hara---I'm receiving a message from the Fatt Katt.
Quirk----Put it over studio.
VOICE----I'll get you for this, Quirk! (gag, choke, cough!) You'll pay!!!!!
Quirk----I've heard that before. Have a nice trip home, Schlime.
VOICE----BAH!!
****SHLIME throws a can of peanut butter at the screen, which then goes blank.
Zulu-----Engines have returned to normal sir. Oxidizer is OK. Warp drive OK.
Quirk----Good. Plot a course for Star Base 4.

and so ends another exciting (?) adventure of the crew of the USS Exitprize.

¢¢¢¢¢¢¢¢¢¢¢¢¢¢¢

The Garland Association of Rocketry

by Steve Dixon

The Garland Association of Rocketry, or G.A.R. for short is a spacemodeling club in Garland, Texas. This is on the northeast edge of Dallas. Many of you may not have heard of us before so I would like to introduce the club and myself.

I'm Steve Dixon the current president of the G.A.R. Model rocketry has been a hobby of mine for almost eleven years and I have enjoyed every minute of it. I became interested in the hobby in January of 1968, when I spotted these neat flying model rocket kits in a Western Auto store in Logan, Ohio. I've been hooked ever since.

As for the G.A.R., which was formed about three and a half years ago, it is in most respects a typical model rocket club. You may wonder what, if anything, is special about it. Well to start with, the G.A.R. is not a member of the National Association of Rocketry. It is just a local club. However, an exciting thing began to happen at the beginning of this year; we started to grow like never before. In January, we had about 18 people on the club phone list, of which 12 were paid members and 6 of which just tagged along for the launches. Now, less than a year later, we have 35 paid members and about 25 other people who attend some of the club activities, but have not decided if they want to join yet. This makes the G.A.R. one of, if not the largest spacemodeling club in Texas. We are also very active for we have about two launches a month and at least one business meeting in the same period.

At present, the G.A.R. has a problem which many of you in other clubs may also be experiencing. This is the trouble of finding and keeping a regular launch area. The G.A.R. had two regular launch sites at this time last year, but now we have only one and will soon lose it to a home-building company. What are we going to do about it? We started a petition drive to get the Garland park board to appropriate 60 to 70 acres of land as an aeromodel and free-flight park. The response to the petition has been excellent and we have a local hobby shop collecting signatures with us. Also, a building contractor has agreed to build a clubhouse-pavilion in the aero-park for free if the G.A.R. can get the park board to acquire the land.

The club is also working on new ways to better serve its members and is looking for new means to generate interest in model rocketry. Be looking for my next article on ways to keep a club ticking. Until then, if you have any questions or comments, please call the new G.A.R. hot line at (214)324-4517 (no collect calls, please). It is available 24 hours a day, 7 days a week; call late and save.

NATIONAL RECORDS

A - DIVISION

Gnat Boost Glide	Mark Friedlander	93 seconds	6/13/76
Hornet Boost Glide	Michael Sykos	307 seconds	8/1/77
Sparrow Boost Glide	Joel Kenny	114 seconds	10/23/76
Swift Boost Glide	Mark Friedlander	153 seconds	5/23/76
Hawk Boost Glide			
Eagle Boost Glide	Margaret Pommert	659 Seconds	2/10/74
Gnat Rocket Glide	Bill O'Donovan	26 seconds	6/14/75
Hornet Rocket Glide	Joel Kenny	74 seconds	4/24/77
Sparrow Rocket Glide	Brian Clouse	85 seconds	9/23/73
Swift Rocket Glide			
Hawk Gocket Glide			
Eagle Rocket Glide			
Condor Rocket Glide			
Class 00 Altitude			
Class 0 Altitude	Mark Friedlander	169 meters	11/29/75
Class 1 Altitude	Mark Friedlander	253 meters	10/23/76
Class 2 Altitude	Robert D'Antonio	431 meters	10/23/76
Class 3 Altitude			
Class 4 Altitude			
Class 5 Altitude			
Pee Wee Payload	Sam Jaskilka	192 meters	11/2/74
Single Payload	David Alexander	655 meters	8/3/76
Dual Payload			
Open Payload			
Robin Eggloft			
Pigeon Eggloft	Mark Friedlander	423 meters	5/2/76
Ostrich Eggloft	Theresa Leahy	446 meters	6/26/77
Roc Eggloft			
Mercury Dual Eggloft	Arthur Unton	319 meters	10/12/75
Gemini Dual Eggloft			
Design Efficiency	Scott Baird	183m/Nt-sec	12/13/75
Class 00 Para chute Duration	David Alexander	781 seconds	11/29/75
Class 0 Parachute Duration			
Class 1 Parachute Duration	David Henson	1079 seconds	9/15/73
Class 2 Parachute Duration			
Class 3 Parachute Duration	Charles Lehman	1301 seconds	4/20/74
Class 00 Streamer Duration			
Class 0 Streamer Duration	Joel Kenny	63 seconds	10/23/76
Class 1 Streamer Duration	Charles Glatt	81 seconds	4/24/77
Class 2 Streamer Duration	Andrew Katz	95 seconds	6/7/75
Class 3 Streamer Duration	Pete Pathos	160 seconds	8/2/77
PENDING:			
Class 1 Streamer Duration	Clad Blair	83 seconds	3/18/78
Sparrow Rocket Glide	Clad Blair	172 seconds	3/18/78

B - DIVISION

Gnat Boost Glide	Mark Batterson	154 seconds	11/29/75
Hornet Boost Glide	John Chapman	248 seconds	8/6/74
Sparrow Boost Glide	George Gassaway	402 seconds	8/4/75
Swift Boost Glide	Scott Rearce	69 seconds	4/23/77
Hawk Boost Glide			
Eagle Boost Glide	David Cook	840 seconds	9/13/75
Condor Boost Glide			
Gnat Rocket Glide	Biedron-Langford Team	51 seconds	6/15/75
Hornet Rocket Glide	James LeCroy	32 seconds	7/17/76
Sparrow Rocket Glide			
Swift Rocket Glide	Bill O'Donovan	204 seconds	8/3/76
Hawk Rocket Glide	Rany Ringner	168 seconds	8/6/75
Eagle Rocket Glide	Mark Batterson	105 seconds	12/5/76
Condor Rocket Glide	George Gassaway	70 seconds	6/15/75
Class 00 Altitude	James LeCroy	111 meters	5/2/76
Class 0 Altitude	James LeCroy	111meters	5/2/76
Class 1 Altitude	Doug Zitymann	149 meters	7/16/77*
Class 2 Altitude	Virginia Keyes	381 meters	6/1/77
Class 3 Altitude			
class 4 Altitude	David Cook	904 meters	6/13/76
Class 5 Altitude			
Roc Wee Payload	David Cook	244 meters	8/4/75
Single Payload	Bill O'Donovan	461 meters	8/3/76
Dual Payload			
Open Payload			
Robin Eggloft			
Pigeon Eggloft			
Ostrich Eggloft			
Roc Eggloft			
Mercury Dual Eggloft			
Gemini Dual Egglof	Guy Bradley	476 meters	6/14/75
Design Efficiency	Alan Lande	171 m/Nt-sec	4/24/76
Class 00 Parachute Duration	Andrew Conders	965 seconds	10/16/76
Class 0 Parachute Duration	Jim Chapman	810 seconds	8/6/75
Class 1 Parachute Dubation	Andrew Tratch	477 seconds	6/17/77
Class 2 Parachute Durtion	Dynamic Duo Team	2365 seconds	8/1/76
Class 3 Parachute Duration	Stephen Flynn	40 seconds	5/30/76
Class 00 Streamer Duration T	James LeCroy	12 seconds	7/17/76
Class 0 Streamer Duration	Marc Nagagawa	97 seconds	10/5/74
Class 1 Streamer Duration	James LeCroy	45 seconds	8/5/76
Class 2 Streamer Duration	Dewey Baxter	120 seconds	10/2/76
Class 3 Streamer Duration	Bill O'Donovan	216 seconds	8/2/76
PENDING			
Hawk Rocket Glide	Doug Liederman	407 seconds	8/1/77
Sparrow Rocket Glide	Royce Blackburn	52 seconds	1/28/78

NATIONAL RECORDS (cont.)

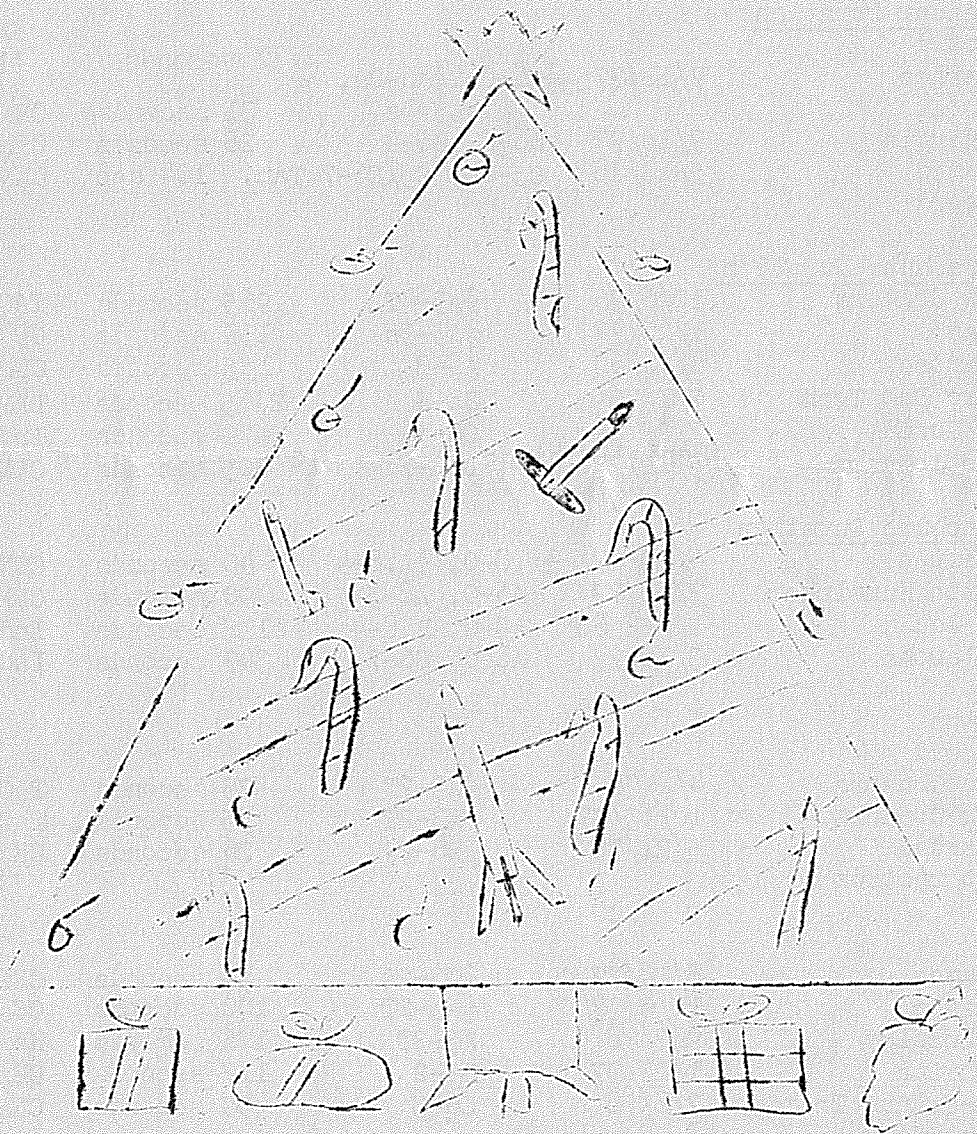
B Division PENDING:			
Class 3 Parachute Duration	John Hames	187 seconds	1/28/78
Class 00 Streamer Duration	Shannon McBride	21 seconds	1/29/78
Class 1 Streamer Duration	Scott Hunsicker	86 seconds	4/23/78
Robin Eggloft	Scott Hunsicker	201 meters	5/13/78
	C - DIVISION		
Gnat Boost Glide			*Pending
Hornet Boost Glide	BS & T Team	344 seconds	9/8/73
Sparrow Boost Glide	David Kusterer	309 seconds	8/5/75
Swift Boost Glide	Chris Flanigan	251 seconds	10/12/74
Hawk Boost Glide	Gunny Youngren	707 seconds	8/8/75
Eagle Boost Glide	Chris Flanigan	2717 seconds	11/11/75
Condor Boost Glide	Robert Dowd	193 seconds	6/21/75
Gnat Rocket Glide			
Hornet Rocket Glide	Lee James	60 seconds	8/29/77
Sparrow Rocket Glide	Terry Lee	76 seconds	11/29/75
Swift Rocket Glide	James Konarski	162 seconds	4/6/75
Hawk Rocket Glide	Les Cartee	79 seconds	8/29/77
Eagle Rocket Glide	Robert Dowd	275 seconds	6/22/74
Condor Rocket Glide	James Konarski	445 seconds	4/28/74
	Terry Lee	188 seconds	5/23/76
Class 00 Altitude			
Class 0 Altitude	Daniel Minings	198 meters	11/29/75
Class 1 Altitude	Celestino Leahy	193 meters	7/16/77
Class 2 Altitude	Daniel Minings	397 meters	7/16/77*
Class 3 Altitude	Daniel Minings	564 meters	6/4/77
Class 4 Altitude	Donald Larson	1101 meters	11/29/75
Class 5 Altitude	Les Cartee	671 meters	6/5/77
Pee Wee Payload	Vandall Team	282 meters	7/15/73
Single Payload	Nowak-Steele Team	535 meters	5/1/77
Dual Payload	Donald Larson	1209 meters	5/23/76
Open Payload	Aron Insinga	754 meters	6/12/76
Robin Eggloft	Les Cartee	160 meters	6/5/77
	Scott Hunsicker	237 meters	7/9/78*
Pigeon Eggloft	Terry Lee	621 meters	8/3/76
Ostrich Eggloft			
Roc Eggloft			
Mercury Dual Eggloft	Robert Kaplow	500 meters	8/29/76
Gemini Dual Eggloft	Joy Fox	382 meters	5/29/77
Design Efficiency	Jeffrey Flygare	166 m/lt-sec	8/5/74
Class 00 Parachute Duration	Brett Lawler	323 seconds	11/2/74
Class 0 Parachute Duration	Les Cartee	69 seconds	1/28/78*
Class 1 Parachute Duration	Doug Frost Team	612 seconds	10/2/77*
Class 2 Parachute Duration			
Class 3 Parachute Duration	James Howard	1308 seconds	4/21/74
Class 00 Streamer Duration	Chris Tavares	59 seconds	11/2/74
Class 0 Streamer Duration	Larson-Coffey Team	88 seconds	4/21/74
Class 1 Streamer Duration	Tom Hoelle	214 seconds	7/14/73
Class 2 Streamer Duration	Tom Hoelle	159 seconds	5/26/74
Class 3 Streamer Duration	Bernard Biales	177 seconds	8/2/76*

NATIONAL RECORDS, continued.....

As this list of records was compiled over the summer, there are obviously some additions that are not on our list as of yet. If one of these is yours, we offer our apologies, and will do our best to get it on the next list. One addition that has been recently called to our attention is:

Class 5 Altitude	Matt Ota	9/16/78	1086 meters

****



TEXAS STATE RECORDS

Space News once again presents the current Texas State Model Rocketry performance records, which are current as of December 20, 1978. All clubs and individuals are invited to send in their entries and join the growing list.

Single Staged Parachute Duration

Cl. 00	Lee James	3/6/77	¼A3-4T	29 seconds	CENTAR
0	Les Cartee	5/14/78	½A3-4T	73 seconds	CENTAR
1	Les Cartee	8/27/77	A3-6T	107 seconds	CENTAR
2	Lee James	2/27/77	B4-6	70 seconds	CENTAR
3	Matt Ota	9/16/78	C6-7	176 seconds	RB
4	Les Cartee	7/17/77	D12-7	56 seconds	CENTAR
5	no record				

Multi-Staged Streamer Duration

Cl. 1	no record				
2	Les Cartee	7/18/77	½A6-0s, ½A6-0s, ¼A3-4s	31 seconds	CENTAR
3	Greg Hargis	7/18/77	B6-0, B6-4	28 seconds	CENTAR
4	Lee James	5/13/78	C5-0s, C5/C6-7 Tan.	104 sec	CENTAR
5	no record				

Single Staged Parachute Duration

Cl. 00	Andrew Conders	10/6/76	¼A3-4T	965 seconds	TAC
0	Lee James	1/23/77	½A3-3m	130 seconds	CENTAR
1	Les Cartee	4/20/69	A8-3	155 seconds	CENTAR
2	Dynamic Duo Team	7/1/76	B6-4	2365 seconds	DARS
3	Peter Gould	2/22/69	C6-5	479 seconds	Ind.
4	Leslie Johnson	5/21/77	D12-7	205 seconds	CENTAR

Multi-Staged Parachute Duration

Cl. 1	Les Cartee	4/29/67	¼A.8-0, ¼A.8-4	40 seconds	CENTAR
2	Jeanette Hunsicker	7/18/77	½A6-0, A8-5	90 seconds	CENTAR
3	Peter Gould	12/28/68	B3-0, B.8-4	115 seconds	Ind.
4	Eric Jerome	3/18/77	A8-0, C6-7	347 seconds	Ind.

Helicopter Duration

Cl. 00	no record				
0	Andrew Conders	4/8/78	½A3-2T	23 seconds	TAC
1	Andrew Conders	10/15/77	A3-2T	55 seconds	TAC
2	Les Cartee	5/21/78	B6-2	26 seconds	CENTAR
Cl. 3, 4, 5	no records				

Boost Glide

Gnat	Lee James	8/14/77	¼A3-2T	84 seconds	CENTAR
Hornet	Lee James	11/6/77	½A3-2T	100 seconds	CENTAR
Sparrow	John Pursley	9/3/78	A3-2T	176 seconds	Hasa/Hou.
Swift	Les Cartee	1/23/77	B4-2	117 seconds	CENTAR
Hawk	Titan-Uranus Team	7/8/78	C6-3	94 seconds	CENTAR
Eagle	no record				
Condor	no record				

Rocket Glide					
Gnat	Lee James	8/28/77	¼A3-2T	60 seconds	CENTAR
Hornet	John Pursley	3/27/78	½A3-2T	98 seconds	Nasa/Hou.
Sparrow	Lee James	1/28/78	A3-2T	126 seconds	CENTAR
Swift	Les Cartee	8/29/77	B4-2	79 seconds	CENTAR
Hawk	Titan-Uranus Team	10/8/78	B3-5m	83 seconds	CENTAR
Eagle	no record				
Condor	no record				
Single Egglofting					
Robin	Cary Ward	4/29/78	C6-5	236 meters	RB
Pidgeon	Cary Ward	9/16/78	D12-5	401 meters	RB
Ostrich	no record				
Roc	no record				
Dual Egglofting					
Mercury	Scott Hunsicker	7/9/78	E60-6	428 meters	CENTAR
Gemini	no record				
Altitude					
Cl. 00	Les Cartee	3/6/77	¼A1.7-2.50	82 meters	CENTAR
0	no record				
1	Les Cartee	4/24/77	A8-5	183 meters	CENTAR
2	Jeanette Hunsicker	6/4/77	B4-6	381 meters	CENTAR
3	Ricky McIntosh	9/3/78	C6-7	722 meters	DARS
4	no record				
5	David D'orrycott	9/16/78	F100-0, D20-0, E5-6	1139 meters	RB
Payloading					
Pee Wee	Scott Hunsicker	7/9/78	A10/A3-4T Tan.	166 meters	CENTAR
Single	David D'orrycott	9/16/78	B14-0, B14-7	395 meters	CENTAR
Dual	no record				
Open	no record				

Club Affiliations:

CENTAR	Central Texas Association of Rocketry
Nasa/Hou.	NASA/Houston section
TAC	Tarrant Area Competitors (Ft. Worth Area)
RB	Rocket Benders (Lubbock)
DARS	Dallas Area Rocket Society

At present, MAGIC (El Paso), and the Eagle Squadron (Eagle Pass). have not filed for any State Records.

If you would like to file for a Texas State Record, send name of rocket, engine type used, date and location of flight, and value of performance, to:

Space News
1310 Illinois Avenue
Killeen, Texas, 76541

ROCKET PLAN NO. 5

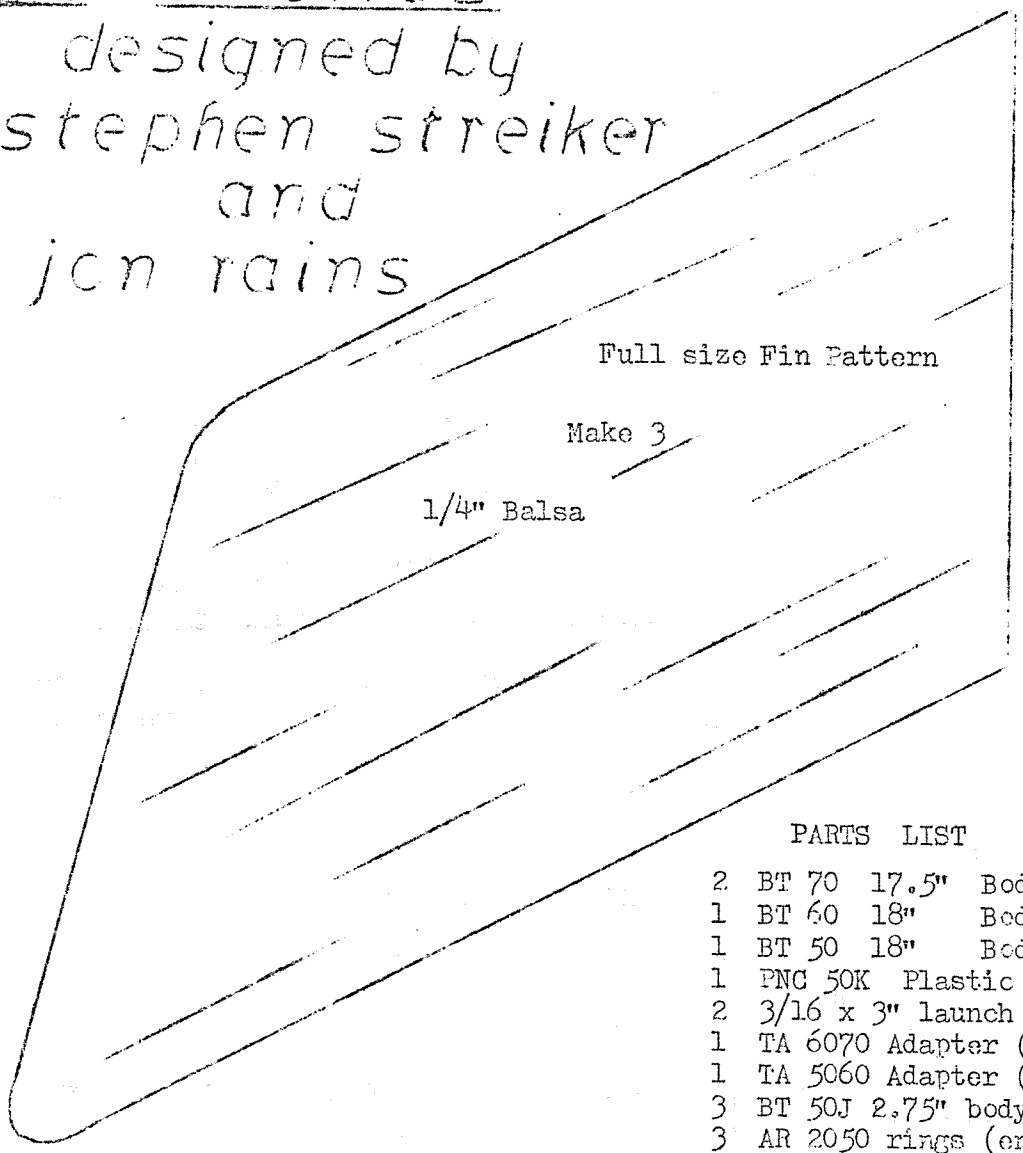
the SYGHSB

designed by

stephen streiker

and

jon rains



PARTS LIST

2 BT 70 17.5" Body Tubes
1 BT 60 18" Body tube
1 BT 50 18" Body tube
1 PNC 50K Plastic nose cone
2 3/16 x 3" launch lugs
1 TA 6070 Adapter (balsa)
1 TA 5060 Adapter (balsa)
3 BT 50J 2.75" body tubes
3 AR 2050 rings (engine blocks)
1 36" parachute (nylon)
1 large screw eye
48" 1/4" elastic shock cord
2 JT-70A tube couplers
1 balsa sheet, 1/4 x 3 x 36"

The SYGHSB by JON RAINS

The SYGHSB is a large (6½ feet tall!) demonstration rocket developed mutually by Stephen Streiker and Jon Rains.

The SY made her maiden flight in April, 1971 at the First East Coast Boost-Glide Championships. With a modified Sky Slash condor BG strapped to her side, the rocket made her mark, or to be exact, a hole, 'bout three inches wide. She pranged!

Your attention please! This design is not the same version of the 'SY' that Steve and I now refer to as "Ye Olde Hole Digger". Be assured that this rocket does fly; not only that, it flies well. How many models can make that claim?

To date, two additional 'SY's have been constructed and flown with no problems, save one. This bird is designed to handle a cluster of three Estes D12-5s. Mr. Newton-Second hisself, Warren 'Killer' Sisco flew his 'SY' with three AVI Gold Series E11.8-7.5 this summer. Jeepers! I never saw this design go so high, nor drift so far away. Killer's rocket now resides in a Pennsylvania corn field.

By now, you should have a burning desire to build this rocket. I promise you this: it flies like no other!

Begin construction by assembling the cluster engine mount. Cut three 2.75" long sections of BT-50 and glue an AR-2050 engine block flush with the end of each tube. Speaking of glue (we were a sentence ago), use an "aliphatic resin" glue, like Titebond when assembling the 'SY'. Here, motors 'put out' a maximum thrust of over 35 pounds! Back to construction: glue two of the BT-50 engine tubes together, using a flat surface (i.e. table) for alignment. Make sure the engine blocks are on the same end! After the glue dries, glue the remaining engine tube on top of the first assembly. Allow to dry, then slip this cluster mount inside an Estes JT-70A stage coupler, until the rear end is flush with the rear of the coupler. If this fits (you might have to sand a little here), remove the assembly, smear glue on the inside of the JT-70, and reinsert the cluster mount. After this has dried completely, smear glue on the inside of one of the BT-70 tubes (for a depth of 2¼") and slide the entire cluster mount assembly into the tube, until flush with the rear. This must be done in one smooth motion, or the mount may 'freeze' in the tube.

You've just completed the most critical step of assembly, and it should be fairly basic from here. The open spaces around the cluster mount must be filled. A tissue putty (made by mixing glue and tissue - it is messy, but works) should be applied to complete an ejection gas seal.

The fins are cut from ¼" x 3" x 36" sheet balsa. A razor saw is best for performing the actual cutting, and a sanding block should be used to round the corners and for 'hacking out' an airfoil. The body tube attachment points can be made stronger by making small pin holes in the areas where the fins will be glued on. This enables the glue to form small but strong rivets.

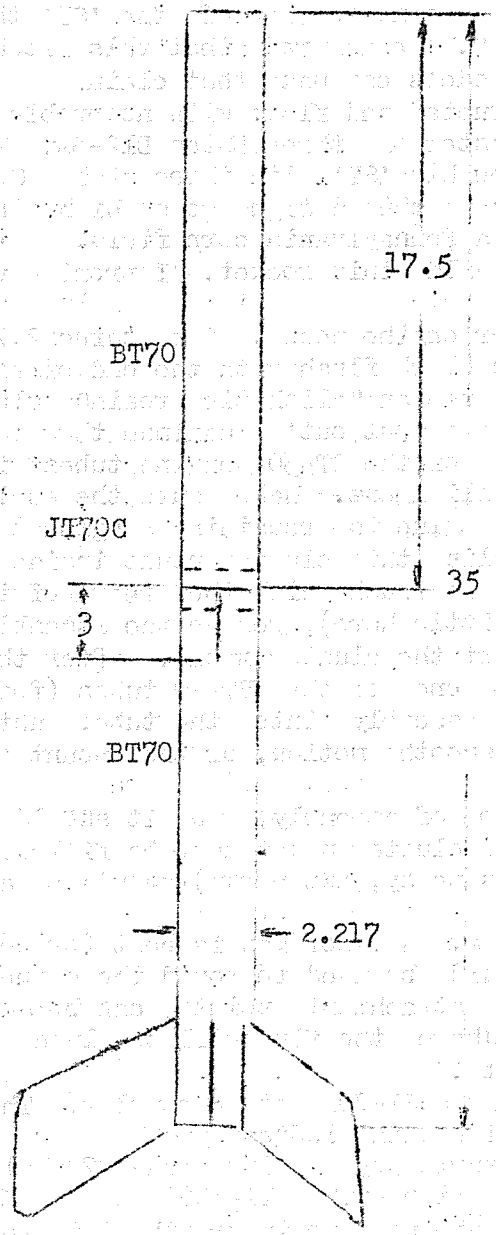
A second BT-70 is glued atop the first, using a JT-70A stage coupler. This completes the first 36" of the rocket, sometimes called "the longest yard".

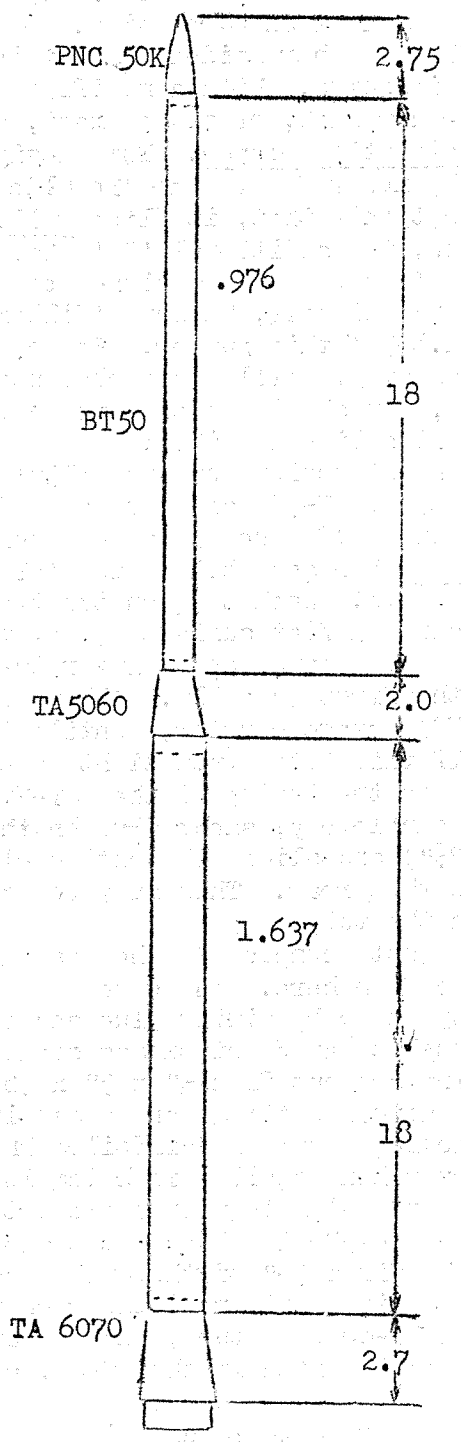
The remaining portion of the rocket is constructed by gluing a TA-6070 balsa adapter to a BT-60 body tube, and repeating the operation with a TA-5060 and a BT50. The TA-5060 is inserted in the BT-60, with masking tape used to insure the tightest of fits. A plastic nose cone tops the rocket.

A single parachute is used to recover the 'SYGHSB', never mind that it is a 36" diameter nylon parachute. It might still be available from Estes as a special order item (catalog designation PK-36S) or you can order it direct from Edmund Scientific Company (1776 Edscorp Building, Barrington, NJ, 08007), at the price of $1.95 each.

continued on page 19

SYGHSE


17.5
BT70
JT70C
35
3
BT70
2.217


PNC 50K
2.75
.976
BT50
18
TA5060
2.0
1.637
18
TA 6070
2.7

Rocket Plan (continued from page 17)

Be sure to include $1 handling with order. Oh yes, catalog number is 41,679 (a typical flight duration, in seconds of course!) The shock cord is ¼" wide sewing elastic. A LARGE screw eye (available at a hardware store) should be glued into the TA-6070 adapter. By the way, use masking tape to build up this joint so that it's tight, but not so tight as to prevent ejection.

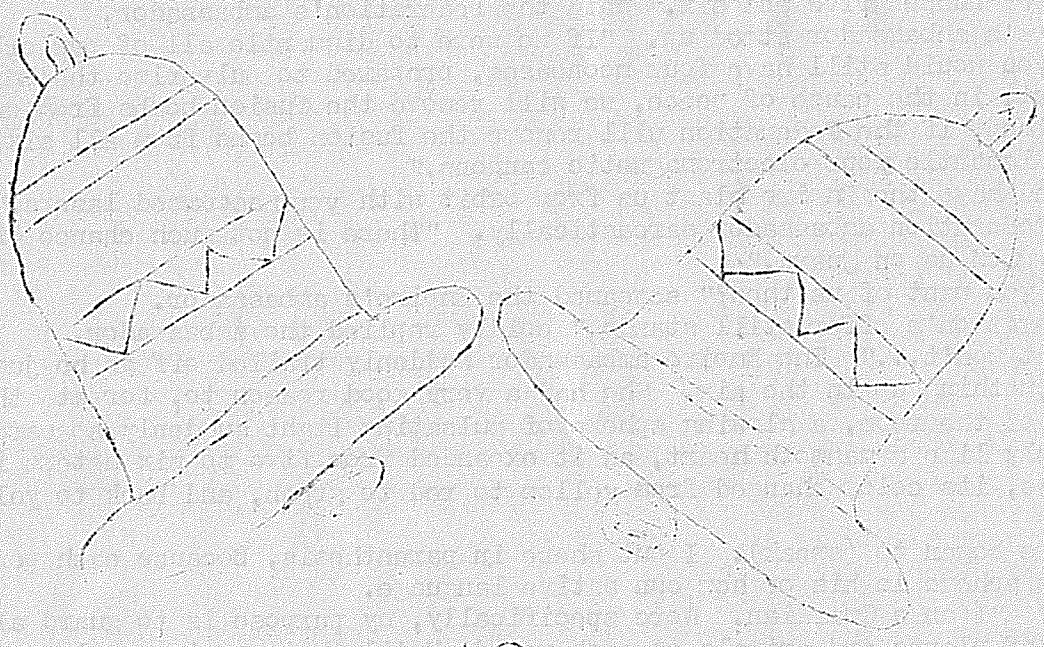
The paint pattern is simple: gloss black on everything below the BT-60, and the BT-60 and everything above should be painted gloss red. The TA-6070 is black for those of you who can't understand the above.

For flying, prep the rocket with about twenty (20) squares of flame proof wadding. I know this makes you a super litter bug, but you can always pick up more wadding a lot easier than a new 36" nylon 'chute. The cluster is ignited by the flashbulb method, using a 12 volt car battery for power. This rocket launches off a standard Estes Porta-pad equipped with a 3/16" x 36" rod. Now you must make a few modifications, like buying a single piece rod from your hobby shop, who sells it as 'music wire'. Also, weigh down each pad leg with a brick, so the launcher doesn't take off too!

All that's left is ignition--which will be followed by a sight one rarely sees; a huge monster rocket, full of flame and smoke, lifting off slowly for high altitude. What could be more fun?

By now you might have asked yourself (at least once) what the initials 'SYGHSB' stand for. Well, I'm not permitted to say, but I can give you two hints: G. Harry and 'B' is a universal letter.

Bye for now, and happy launching. Keep 'em flying!



SIC ITUR AD ASTRA

by John Hames

Author's note: This report has been translated into the language of the third planet of Sol, commonly known as Earth. The greatest effort has been made to remain factual, but some of the concepts are beyond the capacity of this language.

A brief summary of recent world history is called for. Canada, the United States, Mexico, and Great Britain have joined together to form the North American Federation. The federation considers itself the protector of democracy. The federation started a military build up, until they had the largest and strongest military machine to ever exist on their planet. The communist countries joined together to meet the federation threat. They formed a union known as the Communist Empire. The empire is composed of the countries of the USSR, China, Mongolia, and several of their sattelite nations. Thay were extremely efficient in going about their task and in a short time, the empire had weapons of equal strength to that of the federation. The planet was set for its final war. An analysis of the situation gave the inhabitants a .0002% chance of finding a peaceful answer to their problems. Claerly, the intervention of a guardian was called for to save them from themselves.

****

At the United Nations building on the Planet Earth, this interesting quarrel was taking place inside the General Assembly Chamber.

"The resident of the Federation wishes me to ask the Empire to dismantle all of your orbital warheads. In return, the Federation gives you it's promise to abandon moonbases number five and six." said the federation's ambassador.

The Empire's ambassador stood up. "If we were to dismantle all of our orbital warheads, you would still have four moonbases, prepared to pulverize the Empire's cities. But, in the cause of peace, we will remove the fusion bombs from our Space Stations, if the Federation will remove the fusion bombs from all six moonbases and dismantle your electromagnetic cannons."

"Sure, and have the Empire blast us from orbit with your accursed lasers." accused the Federation ambassador sarcastically. "There is not much chance of that happenning with us on guard."

"What do you want of us then?" screamed the Empire's ambassador.

"The federation's offer still stands." coldly replied the ambassador.

"Well that won't..." The Empire ambassador suddenly trailed off as he just gaped at something up in the air. She had a very good reason to, for at the exact center of the room, a glowing sphere of pulsating light suddenly appeared. It pulsed slowly like a mammoth heart, as it expanded from five to six meters in diameter. Also, its color changed from yellow to red to green, and back to yellow again.

The sphere began to (speak). I put shere in parenthesis, because each person (heard) the sphere in his or her own native language.

It (said) "I am a Guardian. More specifically, my purpose is to guard all the subspecies of plants and animals on each world, Until that species evolves up into intelligence.

Your race is very warlike; accordingly, I come to give you this message. The

Earth's science has reached a turning point. The federation and the empire have both developed a high frequency laser that is capable of making a fusion generator. With this power, you can turn Earth into a paradise for yourselves; alternately, you can make a fusion bomb with which you will try to destroy all life on this planet, along with yourselves. If you wish to kill yourselves, we will not interfere, but we will not allow you to destroy the other species of life on this planet!

"If you do not destroy yourselves, in time, we will offer you membership in a giant confederation of all the civilized species in the Universe."

The Guardian paused and said, "Your race has much promise. Do not throw all that away"

With that, the Guardian vanished.

****

"Well, how did they take the visit of our fake alien?" asked Jim Thomas.

"Beautiful," replied John O'Brian "When I left the floor, they were voting to convert the moonbases into fusion research laboratories and to use the Empire's orbital lasers for weather control."

Jim said, "Do you think we should ever tell them that it was a fake? That the image was a holographic projection done by intersecting laser beams and the voice they all heard came over the earphones."

"We did not have a choice about what to do. Everyone knew that Earth was heading for its own death." Elaborated John, Later, after they get used to cooperating with each other, we could let them know what we did. I believe that what the world gained was worth the deception. What are your plans going to be now?"

"I think I will try to get a berth on one of the new starships that will be going out to the stars. Maybe I will get a chance to find out if there are really any guardians out there." answered Jim. "What are your plans?"

"I will just keep on watching the world and try to keep it on the right path," said John.

****

In a field near the United Nations complex stood a man, who on Earth is known as John O'Brian. It was the figure of a man who seemed to be very satisfied with the job of helping out planets in trouble. He thinks it is best summed up best in the Latin he learned when he was on Earth once before. "Sic Itur Ad Astra", or "Such is the way to the stars."

With a sigh, he reached do n to his belt, and touched a switch on it. John was instantly enclosedby a sphere of golden light, and with a smile John O'Brian was lifted gently into space. His last thought before dissapearing into hyperspace was: They have one of the most beautiful planets in the universe. I hope they can make it as beautiful down there as it is from up here!

With that, the golden sphere was gone.

.....

and from Tom Hoelle...

Section 109 Paragraph 2300 of the By-Laws of the By-Laws of the By-Laws Committee.

Don't eat the glue off your fingers in public! You might be mistaken for a cannibal.

If you are ashamed of the workmanship of your model - fly it in the dark!

Don't appear in public with your NAR membership card in one hand and bandages all over your other hand!

When buying modeling supplies - be sure to get enough glue for your hands and pants as will as for your rocket!

Be sure to put down waxed paper before gluing your fingers together!

Be sure not to glue your new model to the workbench unless your engine has and unusual amount of power!

Neatness hint. Glue all of your scraps and trash together into one lump. Then you can throw it all out in one trip. You might even show how thoughtful you are by gluing a handle on it to bring a smile to the face of the trash man.

Be thorough. Count your fingers after cutting out the parts for your model. If any of them are missing, or unusually short, see a doctor as soon as you are through working!

Modeling can be educational. Probably sometime you will accidently build two left wings for a glider. That will show you what a darn fool feels like.

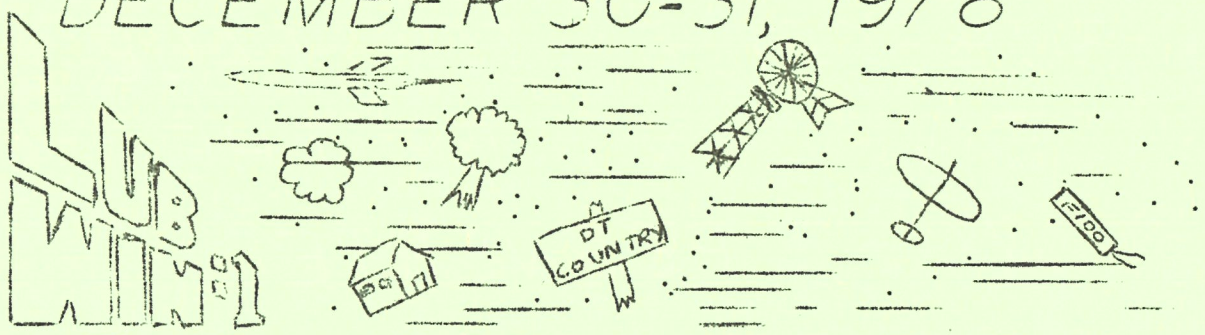
If you haven't tried golf, and wonder if its really more fun, hit your rocket with a stick and see if it IS really more fun.

For the heck of it - ask the cop what he'd rather you do then build and fly model rockets.

There is a rumor that NAR Headquarters usually ignores all letters written to them in crayon. No one there reads "crayon.". (That isn't as funny as it sounds They also DON'T read the letters that you INTENDED to write, but never got around to it!).

ANNOUNCING

DECEMBER 30-31, 1978



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Product Evaluation

by Lee James

featuring: Estes Skyhook

Among the multitude of beginner kits, some with plastic fin assemblies and nose cones, which can be built in 30 minutes are more conventional kits that aren't as easy to build, but fly better. One of these is the Estes Skyhook, which has long been overlooked as a high performance sport model.

Introduced in the early '60's, the Skyhook originally used the parallel wound BT-30 body tube. While strong, it was also heavy. Somewhere around 1973 the parallel wound tube was replaced by a more conventional spiral wound tube, which was about 0.1 oz. lighter. Except for this change, the Skyhook is the same rocket it was when it was introduced, having the same balsa nose cone and fins.

The Skyhook is actually easy to build, but offers surprising performance, which belies it's appearance. It will ol[illegible] an 18" Estes 'chute, and up to a 26" cleaning bag 'chute. With the 18" 'chute, it is capable of turning in durations of 2½ minutes or more consistently. The Skyhook is also a very reliable rocket, making it a very good beginner kit as well as a good looking and flying sport and competition model. As always with Estes kits, the instructions are well written and easy to understand.

Below are some altitudes for a typical Skyhook, as determined with the Centuri Altitude Prediction Graphs(TIR-100). Of course this will vary according to how wll the model is built, and finished.

Engine	Predicted Altitude	Time delay needed
½A6-4*	170 feet	3 seconds
A8-5	450 feet	4.5 seconds
B4-6	900 feet	5.75 seconds
B6-6	890 feet	5.8 seconds
B14-7	870 feet	6 seconds
C6-7	1600 feet	6.5 seconds

* We advise using the ½A6-2 instead of the ½A6-4 until you are sure the rocket will not crash with the longer delay.

NAR IMPULSE CLASSES

by Les Cartee NAR 28337 SR

For those of you who are new to the NAR and never managed to figure out the NAR impulse classifications, this is for you.

A look in your favorite modroc manufacturer's catalog will tell you many things about the engines you use. Terms like maximum thrust, propellant weight, time delay, thrust time, initial weight, and total impulse are listed on the engine specification sheet. That last item, total impulse, is somewhat akin to horsepower, but it is a measure of the total power of the engine. Merely stating that an engine has an average thrust of 18 newtons (roughly 4 pounds) doesn't really tell you much. If that 18 newtons is spread out over 10 seconds then you have one mean engine on your hands, but if the 18 newtons lasts for only $\frac{1}{4}$ second, then the engine isn't nearly as powerful. Multiplying the burn time by the average thrust will give you a pretty close approximation of the total impulse in newton-seconds. Model rocket engines are coded by letter as to their total impulse. The code is as follows:

$\frac{1}{4}$A	00.00 - 0.625	newton-seconds
$\frac{1}{2}$A	0.626 - 1.25	newton-seconds
A	1.25 - 2.50	newton-seconds
B	2.51 - 5.00	newton-seconds
C	5.01 - 10.00	newton-seconds
D	10.01 - 20.00	newton-seconds
E	20.01 - 40.00	newton-seconds
F	40.01 - 80.00	newton-seconds

As you can see, each succeeding letter is twice the power of the preceeding class. This <u>does not</u> mean, however, that the D engine you are holding has 20 newton-seconds power. It can be anywhere between 10.01 and 20.00 newton-seconds. This happens frequently with the D thru F class engines. You need to check your catalog for the actual value. You can't always trust this either, however. For example, FSI's E5 has a rated value of 22 newton-seconds, which is a low E. Official NAR tests reveal that they are actually only 15 newton-seconds which is only a mid-range D.

For contest purposes, the NAR assigns a <u>class</u> number for each event, which confuses things a bit more. The class system is as follows:

ENGINE SIZE	CLASS DURATION/ALTITUDE	GLIDERS
$\frac{1}{4}$A	00	Gnat
$\frac{1}{2}$A	0	Hornet
A	1	Sparrow
B	2	Swift
C	3	Hawk
D/E	4	Eagle
F	5	Condor

Note the colorful names used for the glide events. Notice also, that Class 4 includes both D and E engines. This probably came about because of the fact that when the classes were drawn up, most E engines on the market were little more than glorified D engines, such as the FSI E5. There are still no full 40 newton-second E engines readily available (I'm not counting the AVI E24 as it is not currently in production).

In Egglofting though, D and E <u>are</u> flown separatly. The classes are as follows:

Robin	C
Pigeon	D
Ostrich	E
Roc	F
Mercury Dual	E
Gemini Dual	F

The same applies to Super Roc:

Atlas	A
Titan	B
Mammoth	C
Dinosaur	D
Monster	E
Collossus	F

In some events staging, clustering, tandeming or any combination of these techniques, is legal. The way to figure what class you are in is to simply add the individual total impulses of all engines used. Thus two 5 newton-second B4/4 engines will add up to 10 newton-seconds, putting you in Class 3 (C engines). If you wanted to go with a bit lower power and still be in Class 3, you could stage or tandem a B engine with a ½A. That would give you 6.25 newton-seconds. which is low C power. This strategy is sometimes advantageous in the higher power glide events, simply to keep from losing the silly thing!

You may have just the opposite in mind. If you are flying Ostrich Eggloft with an E60, you will find that FSI rates the E60 at 30 newton-seconds. Therefore, you could tandem or stage it with a C to get the full 40 newton-seconds allowed. In cases where a manufacturer's rating conflicts with the NAR rating, as in the E5, then the NAR rating prevails.

****

SUPERROC RULES

PL1.1 Superroc competition comprises six events open to single-stage model rockets powered by a single engine with no more than 80 newton-seconds of total impulse. The models will have a gross launching weight of no more than 453 grams and a body length of no less than the minimum allowed for the class in which it is flown.

PL1.2 Points will be awarded according to the following schedule:

1.2.1 The number of centimeters in the length of the body rounded off to the nearest centimeter, will be awarded as static points.

1.2.2 The number of static points will be added to the total altitude achieved by the model as tracked and reduced in meters. If track is lost, no flight points will be added.

1.2.3 The entry with the highest number of total points thus awarded will be declared the winner.

PL1.3 A model which comes apart, bends so as to crimp the body, or has similar structural damage before ejection shall be disqualified.

PL1.4 The following classes are established for Superroc competition:

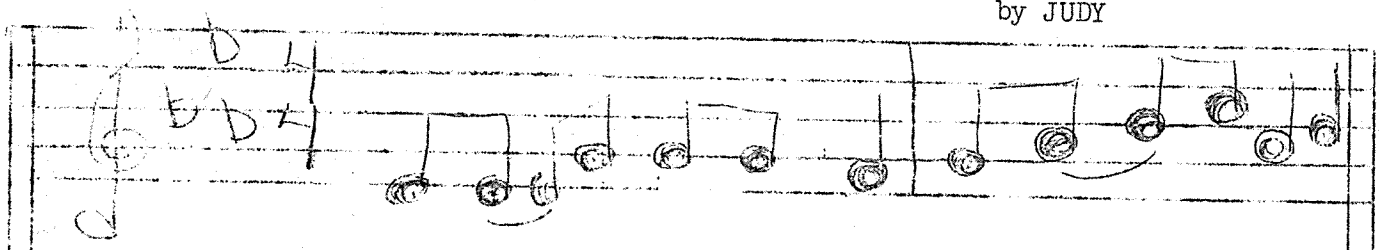
Class	Impulse	Min. Length
Atlas	0-2.5 n-sec.	50 cm.
Titan	2.51-5.0 n-sec.	100 cm.
Mammoth	5.01-10 n-sec.	150 cm.
Dinosaur	10.01-20 n-sec.	150 cm.
Monster	20.01-40 n-sec	150 cm.
Colossus	40.01-80 n-sec.	150 cm.

PL1.5 The weighting factor for Superroc is 3.

PL1.6 The model is not required to be returned to the officials except as stated in rule 9.6 (see Pink Book).

THE TWELVE DAYS OF CHRISTMAS

by JUDY



On the first day of Christmas, G. Harry sent to me
a suspiciuos looking D12-3.

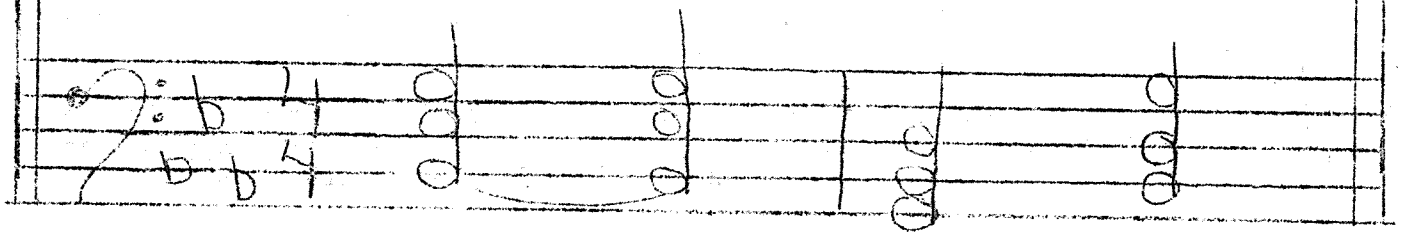
On the second day of Christmas, G. Harry sent to me
two broken eggs....

On the third day of Christmas, G. Harry sent to me
three shredded fins....

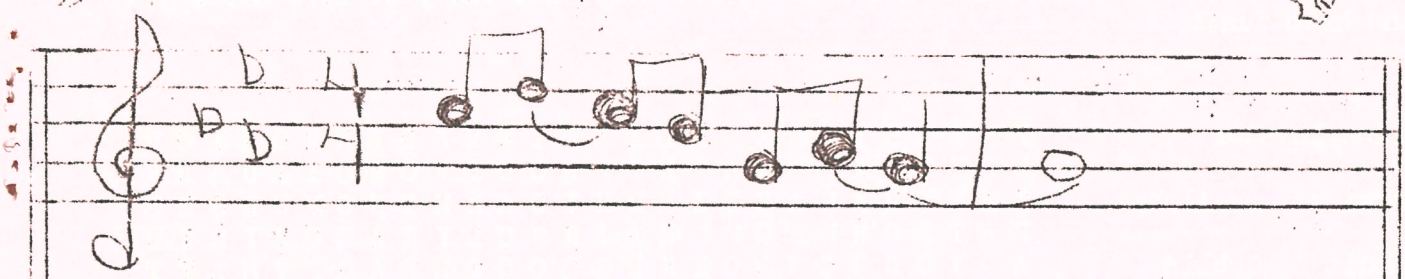
On the fourth day of Christmas, G. Harry sent to me
four sure-shot wicks...

On the fifth day of Christmas, G.Harry sent to me
Five nose cone weights...

On the sixth day of Christmas, G. Harry sent to me
six feet of shock cord...



...G. HARRY SENT TO ME



On the seventh day of Christmas, G. Harry sent to me
seven BT-40's....

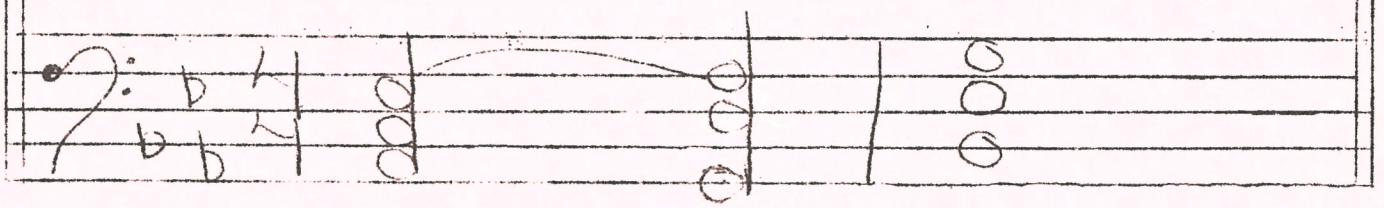
On the eighth day of Christmas, G. Harry sent to me
eight bent up launch rods....

On the ninth day of Christmas, G. Harry sent to me
nine lawsuits pending....

On the tenth day of Christmas, G. Harry sent to me
Ten broken Flat Cats....

On the eleventh day of Christmas, G. Harry sent to me
eleven Estes Iron-ons....

On the twelfth day of Christmas, G. Harry sent to me
twelve dozen tandems, eleven Estes Iron-ons, ten broken Flat Cats, nine lawsuits pending, eight bent up launch rods, seven BT-40's, six feet of shock cord, five nose cone weights. Four sure-shot wicks, three shredded fins, two broken eggs, and a suspicious looking D12-3.



PUZZLE CORNER

by Judy

This month's puzzle features Estes model rockets. Get out your 1978 catalog, and have fun!!

Alien Invader

Farside Alpha

Bandit Goblin

Orbital Transport

Honest John X-Wing

Andromeda LTV Scout

Sky Raider Shrike

Wac-Corporal

Apogee II Avenger

Little John Teros

Maxi Alpha Bomarc

Antares Pershing IA

Sandhawk Cherokee D

Mini Bertha

Saturn V Odyssey

P	F	A	R	S	I	D	E	Z	S	A	L	I	E	N	I	N	V	A	D	E	R	R	O	X	Y	O	N
L	P	Y	V	O	X	P	E	G	A	S	U	S	P	N	O	W	J	V	O	Z	D	I	J	B	E	R	V
S	A	L	P	H	A	M	A	E	Z	I	N	B	H	I	O	A	K	M	T	N	O	P	W	B	G	B	E
P	R	T	F	O	N	N	B	C	F	S	M	A	J	H	S	C	L	Y	E	A	E	Q	V	I	M	I	R
A	Q	V	O	N	D	C	E	D	O	K	K	N	G	Q	C	C	J	L	P	A	R	P	V	M	A	T	T
C	G	S	T	E	R	M	D	P	M	Y	L	D	F	R	R	O	S	S	A	V	A	O	O	V	X	A	I
E	O	C	U	S	O	D	C	L	O	R	L	I	E	T	E	R	O	S	O	R	M	F	S	I	I	L	C
N	B	O	W	T	M	E	B	Q	B	A	U	T	C	G	A	P	E	R	S	H	I	N	G	I	A	T	A
E	L	U	G	J	E	F	N	J	K	I	B	S	E	H	M	O	S	Q	U	B	A	J	R	C	L	R	L
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M	E	V	T	N	H	I	L	E	E	R	B	F	S	L	D	L	D	P	J	O	I	E	P	R	A	S	S
D	F	X	U	G	S	A	R	O	S	E	F	E	C	A	F	E	H	W	B	C	N	L	Y	O	N	P	U
R	S	Y	R	M	A	R	S	L	A	N	D	E	R	N	D	E	A	A	I	O	I	I	Y	K	U	O	P
R	W	S	K	S	T	X	Y	Z	Z	Z	O	A	B	T	E	P	W	I	T	W	B	N	O	E	S	R	E
Y	X	A	T	W	U	Y	A	B	E	T	A	Z	M	I	A	Q	K	I	Q	W	E	U	S	E	T	T	R
C	Z	U	M	A	R	K	I	I	Q	B	Q	U	A	S	A	R	U	R	E	S	R	T	S	D	O	V	F
H	A	X	W	I	N	G	S	Q	M	X	M	E	N	D	B	Q	R	M	O	X	T	U	S	U	R	X	L
R	S	R	C	N	V	M	K	S	A	V	O	O	D	Y	S	S	E	Y	Y	Y	H	T	F	M	E	P	E
I	G	A	N	I	K	E	A	J	A	X	X	B	F	O	A	C	E	W	I	Z	A	R	D	O	N	O	A
S	G	Y	E	K	S	T	A	R	L	A	A	B	B	M	G	H	K	R	N	A	M	C	C	B	N	E	P	N
T	G	H	V	U	I	C	K	P	Q	V	U	K	D	R	I	F	T	E	R	U	A	I	Y	S	G	R	T
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A	O	A	L	I	T	T	L	E	J	O	H	N	H	S	I	L	I	N	O	M	F	O	D	T	D	X	R
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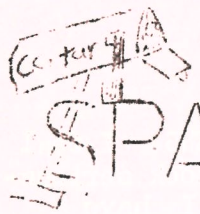
I	G	Y	R	O	C	L	O	P	R	B	O	M	E	G	A	A	M	I	R	O	F	G	B	B	U	D	U
M	E	R	C	U	R	Y	R	E	D	S	T	O	N	E	A	A	F	P	Z	S	C	O	N	D	O	R	X
P	A	T	R	I	O	T	X	Q	I	S	K	Y	H	O	O	K	J	S	T	R	E	A	K	I	N	A	R

Renegade Gyroc Mercury-Redstone Nike-Ajax Firefly Wizard Nike-X

Super Flea Starlab Mars Lander Omega Red Max Atlantis Cobra

Pegasus Javelin Screamer Mosquito Icarus Quasar Space Shuttle

Condor Saros Patriot Skyhook Streak Mark II X-Ray



SPACE NEWS MAILBOX

The following are a few of the letters we received concerning the recent ban on tandem engines:

First of all:

--I received the November issue of Space News and was delighted to see your comments about Harry Stine. Harry indeed has a thankless, often unrewarding job as Rocketeer Editor. Month after month, he (with the invaluable assistance of Managing Editor Kevin Barkes) put the Model Rocketeer into final publishable form.

Amidst it all, he is sent cartoons pencil sketched on cardboard, inked-in copy with no coherent text, plus other"editorial nightmares" such as photographic negatives yet to be printed. When he does not use such material the authors, of course, are irate. Needless to say you probably experience similiar problems as editor of Space News.

I did receive Dan White's letter of protest regarding tandems and have responded directly to Dan. You have my permission to publish the response if you would like to present my reasons for the tandem decision.

Certainly there is no correlation between Ford's decision to pardon Nixon and my decision to prohibit tandems...other than to say it must have been as difficult for Mr. Ford as it was for me. In any event, please read my letter to Dan.

Cordially
J. Patrick Miller
NAR President

and...

--As for tandems, the Midwest and Southern rocketeers are not pleased either. But don't blame Pat Miller. He had to make a decision once it was put in his lap. The one who started it was the ROCKETEER editor mentioned above (and I don't mean Carlson either). I wrote somewhat the same sentiments (especially the staging and cluster comparisons) to Chris Tavares. He agreed that the points were valid, but that getting rid of tandems solves what could be an insurance problem. What pisses me is that nobody here knew how to tandem till Barber's article in a summer (June or July) '75 issue of the Rocketeer. That's what seemed to bring the wide use seen during the last few years. It's kind of like Russia in a way; they don't desire full freedom since they don't know it exists, but if they experience it, then have it taken away, the desire to have it again is constantly there. I never used tandems as a device to increase total impulse, but did use them a lot to make Eagle C6's (C6-0/A3-2T tandem) and a high power E or low power F with variable delay (E11.8 to A's B's or C's). Ah, but don't worry, the NAR won't make staging or clustering illegal, at least not while the Damon Duo still sells kits that use them.

George Gassaway
Homewood, Alabama

and for an explanation...

--Many thanks for the kind words in the November, 1978 issue of SPACE NEWS. I feel I should apologize for the letter I sent you about NARWIN-1, which you took seriously and which I wrote with tongue in both cheeks (which I can do because I have a forked tongue...). I am very glad that you now know that I wrote it in jest. I don't mind you taking a pot shot at me from time to time; I am a highly visible target. I do have a reasonably thick hide, however, which is made up of scar tissue. I might add that you have never overstepped that fine line that divides real humor from a vicious personal attack.

I feel that I should say a word or two about the tandem engine affair. The situation was not created by the manufacturers. It was created when Terry Lee made the ruling that a tandem engine would be considered as a single engine. As with many things in this hobby and elsewhere, tandems had been flown for several years and the potential problems had not been brought to anyone's attention. Because every individual engine combination in a tanden produces a combined total impulse that is not simply the sum of the total impulses of the engines that have been combined, this would have meant that every single possible combination would have had to be tested and certified by Standards and Testing in order that we would know the average total impulse for record homologation processes, if for nothing else. Terry Lee made the ruling without checking with Trip Barber, and it's Trip Barber's responsibility to establish engine standards such as calling a tandem a single engine.

I had personally been operating under the philosophy that a tandem was a double or a triple engine. As such, it would have caused no problem with the U.S. Sporting Code, the NAR Solid propellant Model Rocket Safety Code, or with the Code for Unmanned Rockets, NFPA No. 1122L.

Incidentally, very few NAR members apparently know that I am the NAR representative to the Committee on Pyrotechnics of the National Fire Protection Association and have been since 1967. In 1974, I was elected Chairman of the Committee on Pyrotechnics. As such, I am responsible to the NFPA for the Model State Fireworks Law No. 44L, the Standard for Public Display of Fireworks NFPA No. 1123, and the Uniform Code for Unmanned Rockets NFPA No. 1122L. On the Committee are representatives from the Hobby Industry Association (Dane Boles), the National Safety Council, the National Society for the Prevention of Blindness, the Fire Marshall's Association of North America, the Consumer Product Safety Commission, the American Insurance Association, the American Pyrotechnics Association, and the American Academy of Pediatrics. We also have several personal members who are appointed to the Committee because of their outstanding expertise in their feild. One of these personal members is Orville H. Carlisle.

I am giving you all of this background detail so that you can begin to see some of the complex interrelationships that exist and understand some of the diplomatic problems that can often ensue.

NFPA No. 1122L has been adopted as law in 36 states, including the State of Texas, I believe. This means that my committee wrties your state law for Model Rocketry which is adopted by the state in an enabling act. Be damned glad that there are at least three people on that Committee for Pyrotechnics that know something about model rocketry; when I was appointed to the Committee in 1967, I was the lone soul amidst a bunch of fireworks experts and fire marshals. Talk about a difficult selling job...!

When the tandem engine matter became a matter of public record rather than a matter of tacit acceptance as a multi-engine system, Dane Boles and the Hobby Industry Association had to take action to protect themselves from the product liability stand-

point. Ed Brown, Estes engine man, flatly states that any Estes engine is designed and manufactured for only a single use and that by tandeming, the lower engine casing is subjected to conditions for which it was not designed. Ed Brown is entitled to hold an opinion; he knows what he is talking about. Although Centuri engines are made in Penrose, they are made to slightly different specifications than the Estes engines (really, they are, because I have now been through the entire operation and I know even though Ed Brown supervises their production.

It may be of interest to learn that Jeff Flygare of Centure Eng. wrote a letter saying that Centuri does not recommend using their engines in tandems; the letter is dated June 26, 1978. The letter from Dane Boles at Estes Industries Inc. is dated September 12, 1978 and gives technical reasons against tandeming. There was discussion of tandems at the meeting of the Ad Hoc Committee on Class C Toy Propellant Devices in Las Vegas, Nevada on 30 September 1978 in which Lonnie Reese of FSI, Gary Rosenfield of Composite Dynamics and Mark Mayle of Small Sounding Rocket Systems affirmed their objections against tandems.

What else could Pat Miller do but disallow tandems? He even overruled one of his Committee Chairmen. When it plainly states in Paragraph Number 2 of the NAR-HIAA Solid Propellant Model Rocket Safety code that engines will be used only in accordance with recommendations of the manufacturer, and when all manufacturers nix tandems on technical grounds (they know more about their engines than we do; they are the pros and they are the ones who stand to lose a wad if something goes wrong), what's Pat Miller going to do? Tell them to go climb a rope?

As a matter of fact, what am I going to do in the NFPA Committee on Pyrotechnics? Tandeming is in direct violation of Paragraphs 5-1.3 and 5-1.4 of NFPA No. 1122L. The NAR-HIAA Safety Code is printed in NFPA No. 1122L as an advisory. The Code comes up for review in 1981, which means that we start review procedures in 1979 to get into the NFPA cycle; I do not want a face-to-face confrontation with Dane Boles and the Hobby Industry Association that he represents in public at a Committee meeting or before the entire NFPA in 1981. It would seriously weaken the NAR's position with the NFPA if the Association were to take a stand directly opposed to that of the Hobby Industry Association. We could lose the entire ball game, I might be forced out of Chairmanship of the Committee on Pyrotechnics, and I guarantee you that the next Chairman will be a fireworks manufacturer who doesn't have any love at all for model rocketry.

Model rocketry has always been a close co-operative effort between the manufacturers and the NAR, even when it seemed that it wasn't. When the manufacturers say that users should not use one of their products in a specific way, they are in the catbird seat. It isn't all a one-way street, however, because the NAR establishes the model rocket engine standards and provides the Safety Certification that enables the manufacturers to sell model rocket engines in 36 states.

The major objection to disallowing tandems seems to be the current lack of Type E and Type F model rocket motors. Small Sounding Rocket Systems is selling Contest Certified and DOT classified Class C engines in ranges E and F. However, FSI should be back in business shortly. When DOT landed on the model rocket manufacturers, I made a trip to Edison, New Jersey and to Washington, DC 9(my own expense) and met with the Bureau of Explosives of the Association of American Railroads that actually does the classification and with the Materials Transportation Branch of the DOT that establishes the standards. The chief of both groups asked me to bring together all the model rocket manufacturers and the NAR, to propose to DOT and BOE new standards for Class C Toy propellant Devices, and to conduct impartial tests to confirm the suitability of our proposed standards. This has been done. All the model rocket

engine manufacturers with the exception of AVI met with the NAR at NARAM 20 on August 10, 1978; we established some tentative standards then. We all met again in Las Vegas, Nevada on 30 September 1978 to conduct the tests. The tests were conducted by Trip Barber and were witnessed by Pat Miller, Ron Wright, and myself; all four of us signed a certificate guaranteeing the truthfulness and completeness of the tests and data. The manufacturers provided more than $4000 in model rocket motors that we subjected to impact tests and fire tests. All of us were there at our own expense. I shot more than 150 photos out of my own pocket. We then put together a 32-page single-spaced typewritten report complete with data and photographs. This was staffed around the Ad Hoc Committee to insure that we had reported everything properly. It was then xeroxed and a copy was sent to both the DOT and BOE an 22 November, 1978. I have received acknowledgement of receipt from both DOT and BOE. The ball is now in their court, and they asked us to serve it! We are recommending that the limit on Class C Toy Propellant devices be increased to 62.5 grams to meet other national standards of NFPA ans Consumer Product Safety Commission. We ahve the data to back up our proposed standards. We will give them a reasonable ammount of time to consider and evaluate our proposal. In the meantime, I can only ask you and others not to rock the boat because we are rowing away like hell in the right direction. If the time comes when we need the boat rocked. I'll pass the word.

Les, I am sure that within your own club there are a lot of things going on that don't get reported in SPACE NEWS. Likewise, there are things going on in the NAR that do not get reported in detail to the membership because the MODEL ROCKETEER goes to a lot of people other than the membership. From the diplomatic viewpoint, one does not want to air something in public while it is in the delicate negotiating sates; you always have to leave room for the other guy to change his mind without losing face in public. This requires a considerable amount of trust in your elected representatives and officials. And Les, for the first time in many years, the NAR has officials who are honest, hard-working, sincere, and <u>not</u> on an ego trip. They deserve all the support we can give them. If you or anyone else wants to join us in this can of worms, welcome to the club! Run for Trustee this year. Pat Miller is always looking for people who want to shoulder some of the responsibilities of the Association. If you don't want to get involved directly, at least be scientific enough to get all the data before publishing. A simple telephone call to Pat Miller, to myself, or to anyone else who is a Committee Chairman in the Association can often provide you with the full story and the complete answers in a situation. I don't like everything that goes on in the NAR myself, but I am in touch by letter or telephone with those who had to make difficult decisions, whatever it was, and I am on speaking terms and understand some of the problems involved. (Please don't take the above personally. I didn't mean it that way. This will probably be published in whole or in part in Space News, so it's intended as a bit of advice to everyone.

Didn't mean to make this so long, but there was a lot of ground that had to be covered, judging from the November 1978 Space News. I hope it uncluttered things a little bit.

On to NARAM 21!

Cordially.
G. Harry Stine

*****It sure did! Thanks for all the background information. If the general membership had known the hole story from the start, the controversy wouldn't have been nearly as big as it has been. However, if the facts had all been gathered at first, I would have been merely writing a supportive editorial and someone would

have immediately jumped on my back for being a part of the submissive, silent majority. I think that the way it worked out is for the best, as it brought out two sides of the story, and put the issue before the otherwise inattentive uncaring majority. A good controversy. every now and then is, in my opinion, good for the association, as it wakes everyone up, and once explained, or resolved, what was once a controversy serves to further unite the NAR. The following letter supports that viewpoint.

**Editor.

--Thank you for the latest copy of SPACE NEWS. I always read it from cover to cover and as a show of support for it, here is a donation to help you continue to publish same. You certainly have a "nack" for getting issues stirred up; and sometimes I think that is good. If people within an organization have to think about something--whether they agree or disagree with you, I believe it makes for a much more solid organization than if everyone is passive on a given controversy.

I have both agreed with you on some of the things brought up in past issues and I have disagreed on some. I do feel that you were a little hard on G, Harry a couple of times even "in fun". But I certainly have to agree for the most part with your latest editorial on the subject.

Regarding the TANDEMS BANNED editorial, I feel that I should not stand by and let Estes, Centuri, and the NAR take all of the blame for the ruling handed down by Pat Miller. Much careful consideration and discussion among NAR members and manufacturers led to this decision. I must say at this time that Flight Systems, Inc. was contacted and asked for an opinion regarding the practice of tandeming model rocket engines. In addition to responding in letter form that tandeming should be disallowed for safety reasons and many of the other reasons given by the other manufacturers, we also felt that to tandem egines actually to some degree changed their programmed specifications. Thus while admitting that performance is improved, it also has to be admitted that the engines no longer have the original time/thrust curves. Therfore, you have modified the original premanufactured packages and actuallycreated a new engine. This of course would violate NAR rules.

I could not agree with you more that "...high powered model rocketry is here to stay!..." I will try to update you on the DOT/BOE controversy regarding shipment of large model rocket motors. First of all, the 30 gram weight limit on propellant is an unofficial arbitrary limit set on devices by the Bureau of Explosives in order for them to be called Class C Explosives. It is not a new thing but was overlooked until it was called to the attention of those concerned for one reason or another.

Anyway the facts are: 1) Testing has been done by the NAR at the request of the DOT and BOE to evaluate the shipping hazard of large motors versus small motors. 2) The results of these tests along with documentation supplied by all of the manufacturers involved has been submitted to both the DOT and the BOE. 3) Both organizations have acknowledged receipt of same. 4) All concerned are standing by awaiting a decision by the BOE/DOT based on the submitted information. It is hoped by all that a quick decision is in the offering. Perhaps by the time you publish your next newsletter, the affected E and F series motors will again be available. Keep your fingers crossed.

Thank you and all the Southwest Rocketeers for your past support. We appreciate all of your letters and hope that it will not be necessary to continue our "campaign".

Lonnie Reese
President, FSI

*****Thanks for the letter, Lonnie.... and the donation. FSI is the only manufacturer who has sent such a donation (Hint, Hint! Where are the rest of you guys?) and believe me, we sure can use it!

**Editor.

If you believe this one...

--Just got the November issue of Space News, and I thought it was the best issue yet, mainly because my name is in it. Any way, I decided I want all my garbage by first class mail, so I've enclosed a money order for four dollars.

I have a tip which I would like to pass on to all who fly model rockets. Don't ever wear your "MODEL ROCKET FLYERS STAY UP LONGER" T-shirt when you go to meet your girl friend's parents for the first time!

Todd Smith
Goliad, Texas

--Here's my $3. Enter my name on your growing list of paid subscribers. You've got a good gimmick -- send a guy an issue of Space News (the first one in 8 months), get him hooked, then tell him he's gotta pay for the next!! Actually, I want to get in on the guaranteed engine cato...I need one for David D'orrycott's (thats Da...orrycott) "%$#@?&*@!-ing FRUG".

Mark Smith
Lubbock, Texas

--Man, I thought the Lubbock Rocketeer was big with 20 pages, but Space News had to top it with 21. I guess next month, I'll have to do 22 pages!

Matt Ota
Editor, Lubbock Rocketeer

*****Won't do you any good, Matt. Look at this issue!

**Editor.

--On Pat Miller's letter, I think that Pat was very mistaken about any activity in Oklahoma in the "good old days". The only rocketeers I knew in Oklahoma, circa 1970, were my kid brother and an Air Force Lieutenant stationed at Tinker AFB. My Brother is not in rocketry any more, and Grant Boyd can tell you what happened to the leiutenant. Just to keep the story straight, like a good rocketeer, Pat Was carrying the catalog. I have no excuse for why I was not carrying mine.

Ron Goforth
Senior Advisor,
NASA/Houston Section

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*****EDITOR'S NOTE: In our last issue, in the Tex-Regional I report, it was erroneously reported that Lloyd Chumbley's rocket lifted off while hooking up the clips. In actuality, it was David Shaw. That's what happens when you try to run the range and take notes on the meet at the same time!

famous TEXAS PRANGS

We all know about the Rocket Benders' newsletter section entitled "Prang of the month." SNOAR News recently did an article on "Famous name Prangs". Well, not to be one who is easily upstaged, the Space News staff here at CENTAR decided to come up with some prangs that are typical of the NAR members in TEXAS. The following is what we arrived at.

The Paul Necko Original Hanging Superroc -- You might have read about this one in the November, 1978 issue of Space News, or the Lubbock Rocketeer. Paul's Collossus Superroc punched its way through the cloud cover (via F100) and after the chute opened, it drifted out of the clouds only to get hit in the mid-section by a badly placed telephone wire. The body tube then folded itself neatly over said wire, with the whole affair being held in place by the parachute which was flapping in the ever present Lubbock wind.

The Mark Smith Static-test F7 Superroc effect -- This one really takes the cake. Mark really pushed his luck when he tried to fly his Collossus Superroc on - you guessed it - an F7...in the wind. The bird hung up on the pad - a real demonstration of the F7's lifting power - and the nine second burn put a real nifty hole in Matt Ota's metal blast deflector. Fortunately, the Porta-Pad was virtually undamaged. Hmmm...suppose one of the legs had burned off, the pad fell over, and the bird became UNstuck...

The John Dyer Kitbashed summersaulting MX-774.-- This one happened in Dallas. John put a longer nose cone on a Centuri MX 774. For some reason, the bird flew perfect for about 50 feet, then would go unstable, doing nifty loops in the air until burnout.

The Scott Hunsicker Burn the wings off Dethermalizer -- Scott will never live this one down! At Megalaunch II, Condor RG was on the schedule. Scott, and his teammate, John Dyer, flew a front engine F7 fixed wing, fixed pod RG. This monster must have been about six feet tall. It flew fine for about 7 of the 9 seconds of the F7's burn. Then, the wings burned off. The rest of the glider plummetted in while the wings turned in a fairly respectable time!

The David Hartman abrupt end, horizontal flight -- This is a real old one. It happened at the old Thrall Model Rocket Club launch field, in Thrall Texas. Dave, who was Vice President of the club at the time, launched a bird which lost a fin or two and proceeded to fly horizontally over the tennis court until it encountered the wall of the local High School. If this was not enough, it then fell into the only mud puddle around.

The John Hames Drill Press -- A rather recent development. John has a bad habit of not bothering to build decent birds for competition. Take his modified Gyroc in Helicopter Duration for example. A typical flight went something like this: The bird lifts off in rather marginally unstable fashion, spinning wildly all the way up. It then prangs during the delay (John persists in using an A8-5) and spins on its nose until the ejection charge goes.

The Perfect Parabola Rocket Glider a la Rob Justis.-- Rob's Condor RG, flown at Megaton I last March in Dallas, flew in a nice arc up, then proceeded to fly the same arc, only in reverse, all the way down. On both flights.

Bowling Ball recovery -- First used by Steve Sproat, in 1970? The monstrosity that employed this form of recovery (?) was the Manhole. Basically, the Manhole was a short ($3\frac{1}{2}$") length of large diameter tubing ($3\frac{1}{2}$") with a BT 20 and three fins centered in the larger tube. An engine was then installed. After clearing the rod, the Manhole would go into a hair-raising accellerated end-over-end tumble, sending people scattering in every direction. The rocket (?) would then hit the ground and continue rolling. The Manhole was responsible for a couple of launch pad fires.

The Billy Humphries all parts moving glider.-- Billy became known for this one at Toilit Bowl 1, in 1977. What started out as a no moving parts RG self destructed after burnout. It wasn't one of those noisy shredding affairs. But the wings, tail and pod just sort of fell off during coast.

The typical Pursley Rocket Glider -- This has happened at every meet John has flown RG at, or so it seems. John usually forgets to hook up his rubber band on his RG, sometimes several times in a row, resulting in a rather crunched glider, and rather poor times.

Wrong way Mesko.-- Dubbed so because of his Class 5 Altitude bird at Rob III, a Rocket Benders section meet. Paul's bird was powered by a D20 to F100 staged combination. Those D20's (and most other standard propellant coreburners) seem to have a bit of a delay between burnout, and forward propellant rupturing (and upper stage ignition). This bird made the most of this fact by reaching apogee on the D20, and arcing over before staging. When the F100 ignited, the bird was pointing straight down. This flight then ended rather quickly.

The Lee James two flights in one Boost Glider -- In an attempt to stage a modified Sky Dart, Lee built a lower stage of BT 50, used some left over Maxi Alpha fins, and an E11.8-0 to B4-6 combination as the power plant. At ignition, the Glider cocked back giving the bird a rather noticable angle of attack, and considering the wing size, its no wonder it did three loops and then pranged under power. When the B4-6 ignited, the glider skidded along the ground for a few feet, and then became airborn. Luckily, it flew into the wind, and managed to stay up long enough to outlast the six second delay, although only about 40 feet up. At ejection, the %$#@*! thing tried its best to thermal away!

The Les Cartee fizzle.-- Back in 1968, while living in Alabama, I had an Estes ignitor burned through, but lodged inside the nozzle of an engine, obstructing the exhaust. The bird just sat on the pad and poured smake for about five seconds, thoroughly stinking up the launch area. After checking out the bird and finding the problem, it took a big pair of pliers and a bit of muscle work to get the offending piece of nichrome out of the nozzle.

UPCOMING EVENTS

December 30-31, 1978	Lubbock, Texas	LUBWIN 1: Open meet. Sparrow RG, Sparrow BG, Cl. 2 SD, Cl. 2 Helicopter, Plastic model conversion, Drag Race. Contact: Matt Ota, 2010 5th St, Lubbock, TX 79401.
January 6, 1979 (note date change)	Austin, Texas	CENTAR meeting at Scott Hunsicker's house. Important!! 1979 elections. For info, call Scott at 441-3342.
January 13-14, 1979	Killeen, Texas	CENTAR 4 section meet, and 2nd annual Centar freezeout! Remember Centar 1? Plastic Model Conversion, Eagle Boost Glide (no thermals!), Swift Boost glide, Class 2 SD, Class 00 SD, Class 3 Helicopter duration. Bring coat and gloves!!
Eat yer hearts out yankees! We fly all year long in Texas!!		
January 27, 1979	Houston, Texas	Encore: Open Meet. Swift RG, Hornet BG, Cl 0 Altitude, Cl 00 PD, Cl 0 SD, Cl 1 Alt Eff, Atlas Superroc, Robin Eggloft, Open Spot Landing, Contact: Rob Justis, 907 Bouy, Houston, Texas, 77062. Phone (713) 488-6542
March 31-April 1, 1979	Dripping Springs	MECATON 2: Open meet. Condor RG, Eagle BG, Open Payload, Class 4 Altitude, Roc Eggloft, Genini Dual Eggloft, Class 4 Helicopter duration, Class 3 Streamer Duration. Contact: Scott Hunsicker, 3405A Dolphin, Austin, Texas, 78704. Phone (512) 441-3342
Easter Weekend, 1979	Garland, Texas	Megalaunch III: Class 5 Altitude, Class 4 Altitude, Class 2 PD, Class 2 SD, Hornet BG, Open Spot Landing, Pidgeon Eggloft, Mercury Dual Eggloft, Class 0 PD, Dinosaur Superroc, Contact: Steve Dixon, 9659 Vinewood, Dallas, Texas, 75227..
April 29, 1979	Austin, Texas	Centar 60's bash!! Everyone invited (Even VALSUN). Big nostalgic 60's demo and oddball contest (rockets and rocketeers!). 60's music provided by the Titan-Uranus team. Come and have a good time!