FROM YOUR SOMETIMES SIBER EDITORS:

The Law, the NAR, and High Power Issues...

Well, spring is here, and with spring, every young man's heart turns to... high power rocketry. With that in mind, we'd like to take the time to explain some of the legal ramifications of high power rocketry that you might not be aware of.

An interesting thing happened in 1984. Public Law 98-575, the Commercial Space Launch Act, was passed. The law was intended to control the commercial or civilian use of space. As such, it was aimed at opening the market place to commercial developers of space, such as the Conestoga series of boosters. However, as the law is presently worded, model rockets, high power rockets, and amateur rockets must also comply. The law applies to all "sub-orbital rocket flights", and while there is no definition of that term, previous experience with the Federal government indicates that the strictest of interpretations will be applied. Believe it or not, that means that you could be forced to get permits for each launch, launch site, and approval of any payload.

The NAR has taken steps to head off any potential problems with this law. Harry Stine has personally written DOT Secretary Elizabeth Dole, and has sent a lengthier response to the DOT Documentary Services Division. The NAR's response to the proposed implementation appeared in the Federal Register on 25 February 1985.

The NAR has proposed to the DOT that any rocket intended to reach an altitude of 100 km (62 miles) or less must be exempt from 98-575. The goal is to have no further restrictions placed upon model rocketry, high power rocketry, or amateur rocketry. It is the position of the NAR that the rules and regulations in place for these types of activities are sufficient at present. The NAR is opposed to over-regulation of consumer rocketry, and is using its resources to stop such over-regulation from happening.

The HPA Model Rocket Division (Dane Boles) also supports the NAR on this position. The NAR has also arranged for the L-5 National Society attorney to speak with author of the implementation procedures. The NAR is mounting quite an effort to nip this thing in the bud before it gets enacted into law.

Obviously, there are huge ramifications if this law is enacted. We here at SNOAR NEWS applaud the NAR's efforts to overturn this law. We must note that the NAR did not just try to protect model rocketry (which could have been expected), but had the foresight to include the high power aspects, and the amateur arena. This indicates that the NAR is quite serious about high power issues, and not just "toyig" with the high power crowd. It also indicates quite a change from the NAR's previous adversary position on high power issues. It now appears that the NAR is willing to work with the high power people on a number of issues, not just to get the high power membership's dues. This is especially good news. We look as though high power is here to stay, and the NAR is committed to giving it a good, fair, honest appraisal. Of course, this all takes time, but the key thing is, the effort is being made.

With that in mind, please read over this issue's stories on the high power code. Let us know what you think!

Matt and Mac
THE NAR/LDRS
HIGH POWER ROCKETRY PROPOSAL

BY THE LDRS COMMITTEE
(CHUCK MUND, BOB GEIER, JIM DUNLAP, CHRIS JOHNSTON, AND OTHERS)

This past summer at LDRS-3, Pat Miller of the NAR informed the high power community that the NAR may be interested in discussing joint programs between the association and high power flyers. He outlined the NAR bureaucratic procedures which must be followed to open such discussions. These included forming a consumer commission and developing high power limits and safety regulations.

Our committee of three volunteers sent out questionnaires regarding such limits to high power users last fall. Many thanks to all of you who took the time to respond. It helped considerably. In December, based on the returned questionnaires, we formulated a proposal asking the NAR to extend its services to include high power rocketry. This proposal included a sample set of high power regulations, and was delivered to the NAR Board of Trustees at their meeting in February. The NAR has agreed to continue discussions with us by forming a special panel, much like the Blue-Ribbon panel, to deal with our proposal.

The selection of the new NAR Blue Ribbon Commission has been announced by NAR President J. Pat Miller. The following is a detailed list of members:

- **Dan Meyer, Chairman**: Longtime NAR member, NARTS Chairman, Senior Engineer at Aerojet (Sacramento, CA), MS Engineering.
- **Jay Apt**: NAR Trustee (1972-75, 78-present), Responsible for scientific payloads onboard the Space Shuttle (NASA Johnson Space Center), PhD, Physics.
- **Vern Estes**: NAR Trustee (1979-present); Founder of Estes Industries and founding father of the hobby.
- **Tony Medina**: NAR Advisor and longtime NAR member
- **G. Harry Stine**: Chairman of NFPA Committee on Pyrotechnics, Founder of the NAR and founding father of the hobby, honorary NAR Trustee (1967-present).
- **John Worth**: Executive Director of the Academy of Model Aeronautics, NAR Trustee (1972-present)
- **Ron Wright**: NAR Trustee (1972-present), Chairman of various NAR committees.

Currently, the Commission charter is being written, which will define specific goals and responsibilities. The Commission will make recommendations to the Board of Trustees, who will make the final decision. The Commission will be on-line and ready to go no later than November first, and perhaps earlier. It's projected completion date is twelve months. Dan Meyer will attend LDRS-4, and meet with the LDRS Committee at that time. He will also interact with others at LDRS to get a feeling for the type of activity that goes on at such an event.

To keep you all up-to-date on the proceedings, **SNAR NEWS** has volunteered to publish a copy of the proposal submitted to the NAR, and the proposed High Power Code. Please keep in mind that the code offered is PRELIMINARY at best, and will be modified as discussions with the NAR Blue Ribbon Commission continue. It will also be modified by your input. If you have any comments, questions, or suggestions about the proposed code, don't hesitate to get in touch with one of us. We are, after all, here to represent you.

**Bob Geier**
P.O. Box 1974,
Holy Cross College
Worcester, MA 01610

**Chris Johnston**
26481 Shirley Ave
Euclid, OH 44132

**Chuck Mund**
115-72 Hilltop Rd
Kinnecon, NJ 0740

**Petition to the NAR**

**Requesting High Power Rocketry Services**

As Representatives of the "High Power Rocketry" consumers of the United States, we petition the National Association of Rocketry to extend its goals, purposes, administration, and support services to incorporate high power rocketry, as defined in the High Power Rocket Code we have enclosed, into the structure of the National Association of Rocketry.

We make this request as NAR members and former NAR members, based on seven years of High Power Rocket Activity without a safety incident. The majority of high power flyers have a sincere and active interest in the hobby of model rocketry, which they wish to continue to pursue as members of the NAR, along with their high power flying. In addition, we feel that the formal requirements and administrative capacity of the NAR can both ensure the continuing safety of our sport, and provide valuable assistance toward the advancement of the hobby.

We are particularly interested in assistance from the NAR in providing the following services:

- **Flight Insurance**
- Pages In **American Spacemodeling**, for High Power coverage.
- **Motor Certification**
- Representation (as High Power Rocketry Committee).
- **Legalization assistance for transportation, storage, and use of high power rockets and engines.**
- **Finding Fields**- Help in approaching non-NAR site owners.
- **Competition events and organization.** Perhaps an adjunct to NARAM, or a separate national event.
- **NARTS technical reports, design plans, and other items.**
- **Manufacturers Discount with membership program.**

We are happy to discuss any and all aspects of our request for admission to the NAR, as well as any and all aspects of the hobby of high power rocketry with any interested NAR member. We look forward to working with the NAR in the future.
1. High Power Rocket Engines

(a) Definition: A high power rocket engine is a reaction engine produced by a commercial manufacturer using preloaded combustible solid propellant as fuel.

(b) Any rocket engine shall have all of the propelling ingredients preloaded into the casing in such a manner that they cannot easily be removed. Delay trains and ejection charges may be included as an integral part of the engine, or may be preloaded and packaged separately by the manufacturer if:
   (a) the auxiliary package is a single preassembled unit containing all the remaining combustible material, and
   (b) the auxiliary package is so designed that an average person would have no difficulty handling and using it safely.

(c) A high power rocket engine casing shall be made of non-metallic material and shall be so constructed as not to fragment if ruptured.

(d) A single high power rocket engine shall produce no more than 5000 Newton-seconds of total impulse, with a thrust duration of not less than 0.10 seconds. This regulation may be extended for specific sites as provided in section 43.

(e) A high power rocket engine shall not be altered in any manner to change its dimensions or performance characteristics. It may not be reloaded, nor ignited in a manner other than those recommended by the manufacturer.

1.6 All high power rocket engines must hold current Safety Certification from the NAR before being flown in a high power rocket.

1.7 An NAR-certified high power rocket engine is assigned a type classification based on its mean sea-level total impulse at a temperature of 20 degrees Celsius (±5 degrees) as determined in static tests conducted by the NAR Standards and Testing Committee. NAR-certified high power rocket engine classifications are as follows:

<table>
<thead>
<tr>
<th>ENGINE CLASS</th>
<th>TOTAL IMPULSE (N-s)</th>
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<tbody>
<tr>
<td>G 80.0</td>
<td>160.00</td>
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<tr>
<td>H 160.0</td>
<td>320.00</td>
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<td>I 320.0</td>
<td>640.00</td>
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<td>J 640.0</td>
<td>1280.00</td>
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<td>K 1280.0</td>
<td>2560.00</td>
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<td>L 2560.0</td>
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1.8 NAR Safety Certification shall be granted only to high power rocket engines whose total impulse is repeatable within 20% (95% confidence interval of plus or minus 10% of the mean value), and whose delay and ejection systems function reliably.

1.9 An NAR-certified high power rocket engine shall carry on its casing a code indicating the date of manufacture, plus the following code designating its performance:

(a) A letter indicating the total impulse type as detailed above;
(b) A number indicating the average thrust to the nearest Newton; and
(c) A dash, followed by a number indicating the time in seconds (to the nearest second) of the delay charge.

2. High Power Rockets

2.1 Definition: A high power rocket is an aero-model that descends into the air without the use of aerodynamic lifting surfaces against gravity; that is propelled by means of a model rocket and/or high power rocket engines; and that exceeds the mass and/or total impulse limits required to meet the specifications of a model rocket.

2.2 A high power rocket shall be constructed of lightweight materials such as paper, wood, plástics, fiberglass, and rubber, without any metal or other hazardous material as structural parts.

2.3 Design and construction of a high power rocket shall include suitable means for providing stabilizing and restoring forces necessary to maintain a substantially true and predictable upward flight path.

2.4 A high power rocket shall be constructed as to be capable of more than a single flight, and shall be provided with a means for retarding its descent to the ground so that its structure may not be substantially damaged, and so that no hazard is created to persons or property. If a rocket is to descend in more than one unattached part, each part must conform to the above specification.

2.5 Gross launching mass, including rocket engine or engines, shall not exceed 10 kilograms.

2.6 The sum of total impulse of all the engines in a high power rocket shall not exceed 5000 Newton-seconds.

2.7 There shall be no more than three operable stages, unless at least one of the stages is ignited by electrical means, in which case the maximum will be four stages. The staged configuration of the high power rocket is considered to be that of the rocket at the instant of first motion on the launcher.

2.8 There shall be no more than 19 engines clustered on the first stage to be ignited, and no more than 12 engines clustered on subsequent stages.

2.9 Regulations 2.5, 2.6, 2.7, and 2.8 above may be extended for specific sites as provided in section 43.

2.10 A high power rocket possessing a self-contained powered ignition system must be provided with safety switch or other device capable of preventing actuation of the system and resultant ignition until immediately prior to launch.

2.11 A high power rocket equipped with an auxiliary device designed to operate via ignition or combustion must be designed so that the ignition of the device presents no hazard to people or property. The rocket must be designed so as to extinguish the device as soon as possible after performing its function.

2.12 A high power rocket shall never contain high explosives nor payloads which are intended to be flammable.
3. High power Rocket Launching Requirements

3.1 A high power rocket may only be launched by a person possessing a current NAR High Power License under the supervision of a Range Safety Officer (RSO) licensed for that function by the NAR High Power Committee.

3.2 During all operations concerned with the launching and flight of high power rockets, all authority for the safety of operations on the flying field shall be vested in an RSO who must hold a current NAR license as a high power rocket RSO. Deputy Range Safety Officers who likewise hold NAR high power RSO licenses may have this authority delegated to them by the RSO, but this delegation of partial authority does not relieve the RSO of the overall responsibility and authority on the flying field. If the RSO leaves the flying field, he must relinquish his duties and responsibilities to a new RSO, who must also hold an NAR high power rocket RSO license.

3.3 All rockets presented for operation on the flying field shall be permitted or denied flight by the Range Safety Officer or his duly authorized deputy on the basis of his considered judgement with respect to safety.

Launch Platforms and Ignition Systems:

3.4 A launching device or mechanism must be used which is sufficiently rigid and of sufficient length to guarantee that the rocket shall be independently stable when it leaves the device. This launching device shall be sufficiently stable on the ground to prevent significant shifts from the planned launch angle and accidental triggering of any first-motion ignition devices.

3.5 The launch pad or device shall have a jet deflector sufficient to prevent damage or fire hazard to surrounding equipment (including the launch pad itself) or the surrounding area.

3.6 A launching angle of less than 30 degrees from vertical must be used when flying high power rockets.

3.7 Launching or ignition of a high power rocket must be conducted by remote electrical means, from a distance of not less than 1/3 meter per each 5 Newton-seconds total impulse of the highest impulse engine in the rocket to be flown.

3.8 The launch of a rocket must be completely under the control of the person launching it, and the launching system must contain a switch which returns to an “off” condition when released. No person shall be allowed to approach a rocket on a launcher until the launch power supply is isolated from the firing switch by means of removal of an interlock key or disconnection.

Flying Field and Conditions:

3.9 All launches of high power rockets must be conducted in accord with federal, state, and local laws.

3.10 All high power rockets shall be launched from a clear area, free of any easy to burn materials, and away from buildings, power lines, tall trees, flying aircraft, or any conditions which may be hazardous to people or property. At no time shall recovery from a power line or other dangerous place be attempted. The flying field must be of sufficient size as to be able to recover the rocket within its confines.

3.11 Visibility must be sufficient to be able to observe the rocket during its entire flight, and the wind must be less than 35 kilometers per hour before any high power rocket is launched.

3.12 A high power rocket flying field must be equipped with an appropriately rated fire extinguishing device, a well stocked First Aid kit, and a person or persons familiar with their use.

3.13 All persons in the vicinity of any launching must be advised that a launching is imminent before a high power rocket may be ignited or launched. A minimum five second countdown must be given immediately prior to ignition or launch of a high power rocket.

3.14 No high power rocket may be launched at a target on the ground or in the air.

NAR High Power Rocketry Committee

We propose to add a standing committee to the NAR to govern high power related matters. No structure or means of appointing or electing members has yet been worked out, but its duties and powers shall include the following:

4.1 The NAR High Power Rocketry Committee shall govern and administer all of the provisions of the NAR high power rocket code, including the proposal of changes to the NAR; it shall be the coordinating agency for any services to the high power rocket consumer that the NAR and the committee choose to provide.

4.2 The NAR High Power Rocketry Committee shall establish the terms and procedures required to obtain and hold an NAR high power rocket license and an NAR high power rocket RSO license.

4.3 The NAR High Power Rocketry Committee shall be empowered to grant extensions of limitations to specified regulations in the NAR high power rocket code for certain launch sites which meet size and isolation requirements established by the Committee to warrant such an extension. The Committee may place whatever limitations, with regard to launch procedure and/or duration of validity of a launch site waiver which it finds appropriate.

STILL TO COME:
"WHAT FUTURE BUDGET CUTS COULD MEAN TO NASA'S ADVANCED PHOTOGRAPHIC PROJECTS..."
"Howdy, stud-hoss! I'm Bambi Woods, better known as "Debbie Benson" of the super hard-core "Debbie Does Dallas" flicks. Yup, that's me!

You know, being a porn slut superstar can sometimes be a drag. Yeah, a real grind (giggie) every now and then. Why, even the rehearsals can go on for hours!

Ah get so frustrated every once and a while. Ah just have to get away from it all, know what I mean, y'all? (Ah'll bet you do!)

So what does a suave, sophisticated, nymphomaniac like yours truly do to unwind from everyday pressures?

Ah put on my favorite cowgirl duds...get my hands outta my (giggie) pockets...an go out 'an FLY MODEL ROCKETS, silly boy!

Rite now, mah two biggest ambitions in life are (one) to be selected as Ms. Launch Rack for the next contest season, an' (two) to participate (giggie) in a modroc contest hosted by mah hero, the one an' only Carl "Rackman" Warner....sign.

That's why I'm frustrated again! Why, ah heard that Carl's planning another one of his meets real soon, an' poor little ol' me don't know a thang about it!

Oh, I spect it'll be comming sometime 'round Memorial Day. 'An, it'll probably be held in B'ham. But ah haven't the foggiest notion about what events we'll be flyin', or any of the details...

So, if'n y'all see Carl real soon, have him drop me a line or two, OK? Ah sure appreciate it evan so much.

An', by the way, tell Carl to leave his little lady home the day of the meet (hint-hint)!"
Ready for immediate delivery from
NORTH COAST ROCKETRY
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COMPOSITE COREBURNING ROCKET MOTOR

North Coast Rocketry breaks the impulse and price barriers with this revolutionary motor! A FULL 120 N-SEC FOR UNDER $10.00!
You can now lift heavier rockets to altitudes and velocities never before attainable! Try them in your next rocket and see the difference!

SPECIFICATIONS:

G60
Total Impulse: 120 n-sec
Burn Time: 2.0 sec
Initial Thrust: 17.0 lb
Peak Thrust: 20.8 lb
Motor Diameter: 1.125 in
Motor Length: 4.25 in
Initial Weight: 95.8 grams
Propellant Mass: 56.7 grams
Delays: 0.5,10,15,20 sec
Price: $9.95

Currently for sale to qualified parties only, pending NAR certification.

For catalog, send $1.00 to:
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37541 Grove Ave. No. 202
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Now Available Exclusively from
NORTH COAST ROCKETRY
NORTH COASTER E50 & F75
COMPOSITE COREBURNING ROCKET MOTORS

North Coast Rocketry has released it's second series of "North Coaster" motors. These high-impulse motors are designed for heavy or large scale rockets, or when a high-initial thrust is needed for a quick lift-off. Using advanced propellant and casing materials, North Coasters deliver reliable power for less cost. NAR Safety and Contest Certified.

SPECIFICATIONS:

E50
Total Impulse: 45.0 n-sec
Burn Time: 0.8 sec
Initial Thrust: 9.30 lbs
Peak Thrust: 13.4 lbs
Motor Diameter: 0.938 in
Motor Length: 2.75 in
Propellant Mass: 18.9 grams
Delays: 0.5,10,15 sec
Price: $6.95

F75
Total Impulse: 60.0 n-sec
Burn Time: 1.0 sec
Initial Thrust: 12.5 lbs
Peak Thrust: 21.6 lbs
Motor Diameter: 1.130 in
Motor Length: 3.26 in
Propellant Mass: 37.7 grams
Delays: 0.5,10,15,20 sec
Price: $8.95

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Willoughby, OH 44094
"Serving you better from 'The Heartland'"
NEW FROM NORTH COAST ROCKETRY!!!

North Coast Rocketry, the new leader in high power rocketry, is proud to announce several new additions to its 1985 product line, including 19 new kits! All of these kits use the famous NCR high strength airframe tubing, as well as other quality NCR parts. The line includes:

*Hypersonic 950: A high performance payload model for 24 mm motors. ($10)

*Hypersonic 1100: A high performance payload model for 29 mm motors. ($12)

*Spoil Sport: A four motor cluster sport model that uses D to F 24 mm motors. ($25)

*Mini Spoil Sport: A four motor cluster sport model for 18 mm motors. ($20)

*Sonic Seduction: A two stage, three cluster payload model for D to F 24 mm motors. ($25)

*Super Sonic Seduction: A two stage, three cluster payload model for D to F 29 mm motors. ($30)

*Aerobee Hi-Test: A scaled-up version of the famous HM1 Aerobee Hi. ($20)

*Replica 2650: Both full scale ($22) and reduced scale ($20) versions of the popular Energjet 2650 sounding rocket.
"Quantum 1: A basic, single motor design around a 2.3" airframe. ($15)
"Quantum 2: A two stage, higher flying version of the Quantum 1. ($20)
"Quantum 3: A three motor cluster version of the Quantum 1. ($18)
"Phantom 1800 ($15), "Phantom 2600 ($20), and "Phantom 4000 ($25): These are similarly styled models around different diameter airframes for maximum versatility.
"Solar Prestige: A 4" diameter, four motor cluster sport model. ($49)
"Solar Prestige Phase II: Is the booster stage for the Solar Prestige. ($15)
"Galactic Prestige: A 4" diameter sport model for Vulcan H, I, and J motors. ($49)
"Galactic Prestige Phase II: Is the booster stage for Galactic Prestige. ($15)

For this and all the other new items added to the NCR line, send $1 for our new 1985 catalog to: North Coast Rocketry, 37541 Grove Ave., #202, Willoughby, OH 44094.
California Rocketry Lively? Could be. Jerry Irvine has sold the rights (and debts) of California Rocketry to Chuck Rodgers, in a recent move. Supposedly, Chuck will become the new publisher and advertising manager, and Jerry will continue to be the editor. No issues are to be missed according to plans; instead, they will go monthly to make up the lost time and issues. Supposedly, the first of the "new ownership" issues should be out within two months. Irvine still has the rights to the CRM publications. No mention was made of what the sale price was. According to a number of sources, Irvine is still in financial trouble with customers for US Rockets, and with the NAR for bad checks.

Candidates for the NAR Board of Trustees have been announced; and Mr. Hodgson is not listed. It seems he has dropped out due to undisclosed reasons. One person that may be of interest is running is SNAR NEWS, editor Bill Steele. Others interested in serving on the Board include: Pat Allman, Jay Apt, John Worth, Mark Bundick, John Pursley, Scott Husnick, Vern Estes, Art Rose, Dan Meyer, Jack Kane, Howard Kuhn, Ron Wright, Claud Greenlee, Chris Tavares, and Ed Muccio. (There's always one surprised). The tri-annual elections will be held at NARAM-27, with ballots being provided in the NARAM mailing all NAR members will receive shortly. SNAR NEWS will announce its endorsements in a future issue.

The NFPA Committee on Pyrotechnics will be meeting this month at AIA HQ in Reston, VA. Chairman 6, Harry Stine will see that the NFPA's formal proposal to change the hobby definition is presented. Attending the meeting will be Blue Ribbon Chairman Trip Barber and HAI Representative Dane Ebel. There will be solid support for the changes. The formal revision process for the NFPA starts in October, 1985. The process will take 12 months and final approval is contingent upon the full body of the NFPA (i.e., thousands of fire officials across the nation). Like most good things, this will take time.

Haven't seen Space Coast Rocketry lately? Well, neither have we. But, there could be a good reason. Half the of the editorial staff, Pat "Elwood" McCarthy, has been elevated to the editor's position of the AVION, the Embry-Riddle school newspaper. While this will no doubt impact on Pat's eight year program to graduate, it will give him numerous contacts in the real world, should he ever actually graduate. Way to go, Pat! How