

**The New
"Near-Scale"
BRIGHTHAWK**



Order your quality rocketry
kits, motors and parts from:

***NORTH COAST
ROCKETRY***

37541 Grove Ave. #202
Willoughby, OH 44094

NORTH COAST ROCKETRY



Where The Action Is!

Catalog 861

Price \$1.25

NORTH COAST ROCKETRY:

Where the Action Is!

Hello! We'd like to welcome you to the 1986 edition of the **North Coast Rocketry Catalog**.

North Coast Rocketry was formed by Matt Steele and Chris Pearson in order to serve the high power community. **North Coast Rocketry** was developed by two experienced national and world class rocketeers to provide innovative concepts, exciting quality kits, and quick, reliable service. We stock an exclusive line of parts, motors, and kits just for you!

North Coast Rocketry was proud to be the only American high power rocketry manufacturer to travel to Bulgaria in 1985 for the Sixth World Championships. Be it LDRS, NARAM, or the Internats, **North Coast Rocketry** is on the scene, listening to you. And because we're on the scene we know what you want. We are dedicated to Innovation, Quality, and Quick Service.

Thanks to the support of modelers everywhere, **North Coast Rocketry** has emerged as the leader in high power rocketry. We would like to thank every one out there who has helped us in the past.

Why the name "**NORTH COAST ROCKETRY**"? Because, that's where we're located, on America's North Coast, to serve you better from "the Heartland". Bet on it!

CHRIS PEARSON

MATT STEELE

NORTH COAST ROCKETRY, INC.

Below: Matt Steele (Left) and Chris Pearson proudly display their Quantum 3 and Quantum 1 kits in front of the Bulgarian Rocketry Federation poster in Jambol, Bulgaria during the Sixth World Space Modeling Championships.



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NORTH COAST ROCKETRY

WHAT'S NEW?

North Coast Rocketry enters it's third year with an expanded product line, including new high-power kits, improved motors, additional parts and service that is second to none.

Our exclusive **North Coaster** motor line is also undergoing changes. The E28 is now offered with a smoky exhaust and delay train. This should forever end the problem of not being able to see the rocket in flight. Our tests of the new motors left us quite impressed; you will be, too, when you see it. By mid-year, this feature will be incorporated in all the **North Coasters**: the E50, F41, F75, and G60. The E28 is now not only the lightest full E motor available, but is also the cheapest! There haven't been prices this low since 1972!

North Coast Rocketry has streamlined it's **Aerotech** motor line, and reduced prices on many of them.

In the new parts department, we are now offering three new sizes of airframe and motor tube. These are the BT-7 (18mm ID), BT-15 (1.530" ID) and the BT-21 (2.140" ID). The BT-7 is for use with the new 18mm D and E motors, with a wall thickness nearly twice that of an Estes BT-20. It is available in lengths of 24". The BT-15 and BT-21 both with a .060" thick wall. These super strong tubes were designed primarily for use with the new 1.5" and 2.125" industry standard Class B motors. Couplers, centering rings, and motor adapters will be available.

Incorporating these new motor tubes will be the **Hypersonic 1800** and **Hypersonic 2300**. Both are near minimum diameter for super high altitude flights using Class B motors. They will feature Parastreams and through-the-wall fin attachment.

One of our most popular kits has been upgraded. The **Phantom 4000-HD** is the perfect bird to fly Class B motors in, thanks to two new motor mount options and super strong construction techniques.

The **NCR Magna** and the **NCR Katana** are two new "have it your way" kits. Both feature six different motor mount combinations to choose from. The Magna stands over seven feet tall, large enough to make people think twice about calling rockets toys.

The **Brighthawk** is a new, scale like kit, designed with the exacting modeler in mind. This is a bird that looks great close up, thanks to the 100 tiny screws used for various detail parts, and the custom decal sheet. Scaled around the BT-26, it is big enough to be impressive, yet can fly on F motors.

The **Hypersonic Seduction** is what happens when we let our imaginations run wild! A grown up version of the **Sonic Seduction**, the **Hypersonic Seduction** uses a 4.0" main body tube, and is powered a a cluster of three 1.5" motors.

North Coast Rocketry now offers **Custom Fabrication Services**. We will modify any kit in our line to suit your exacting needs, as well design specific rockets if you desire. If you are interested in duplicating a non-available kit, we can help out. Let us know what you want.

Because of the overwhelming popularity of our **Airframe Special** and **Nose Cone Special**, we've decided to include them in our regular catalog. Also, we've added a **High Power Builder's Special** for those who want a complete scratch building kit at a discount price.

North Coast Rocketry can now ship to Canada! UPS will deliver to Ontario, and we will ship via the US Postal Service to any other Canadian province. Special rates and some restrictions will apply, unfortunately.

We have discontinued a few items. The **NCR Replica Ace** kits are available on a limited basis, and when these are gone, there will be no more. Contact us for availability. We regret that we will no longer carry the **Lots of Crafts Pre-Fabricated** kits. They are still available directly from **Lots of Crafts, High Power Division**.

That's what's new for 1986! We're already working on a number of projects for release in 1987. If you have a special project, application, or requirement you'd like to see become a North Coast Rocketry product, drop us a line. **We're where the action is!**

Chris and Matt
North Coast Rocketry

NORTH COAST ROCKETRY "QUANTUM" SERIES

The NCR "QUANTUM" series of rocket kits use variations of a basic designs to demonstrate different performance potentials. Each kit comes complete with pre-cut fins, high strength NCR airframe tubing, NCR AEROFOAM nose cone, heavy duty cloth parachute, shock cord and mount, plus detailed instructions.

QUANTUM 1

The **QUANTUM 1** is the perfect model rocket for those becoming familiar with high power rocketry, and for those experienced modelers who want single motor reliability and high performance. A superb performer!

Length: 38.5"
Diameter: 2.3"
Catalog # K-19

Recommended motors:
E60-6, F100-6, F10-2, F20-4, F41-9,
F75-15, G25-10

QUANTUM 2

The **QUANTUM 2** is a high performance two stage variation of the **QUANTUM 1** design. Maximize your fun with spectacular staged flights! This is a "must-have" kit!

Length: 50.5"
Diameter: 2.3"
Catalog # K-20

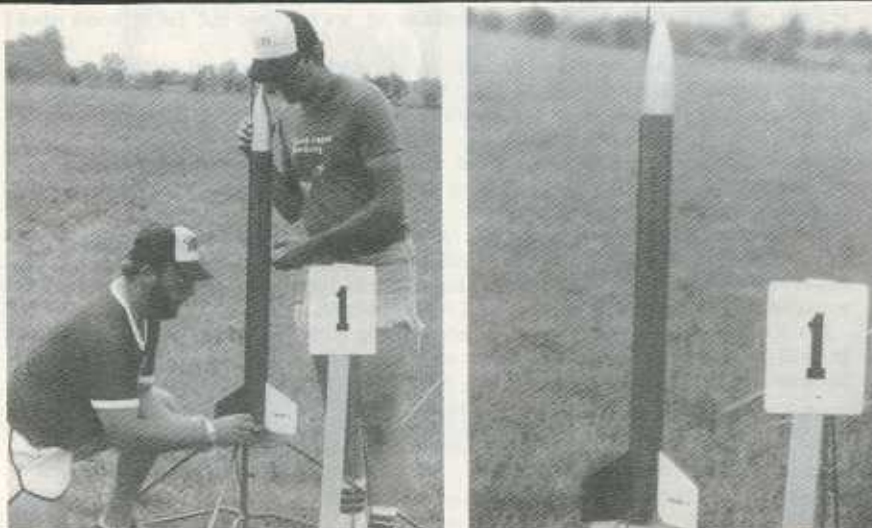
Recommended motors:
Lower Stage: E60-0, F100-0, F20-0, F41-0
Upper Stage: E60-6, F100-8, F7-4

QUANTUM 3

The **QUANTUM 3** is perfect for those becoming familiar with high power cluster rockets. Experienced modelers will find the **QUANTUM 3** combines reliability and high performance for an outstanding value. This was the Bulgarians' favorite model, especially when powered by a cluster of three North Coaster E50 motors!

Length: 56.5"
Diameter: 2.3"
Catalog # K-21

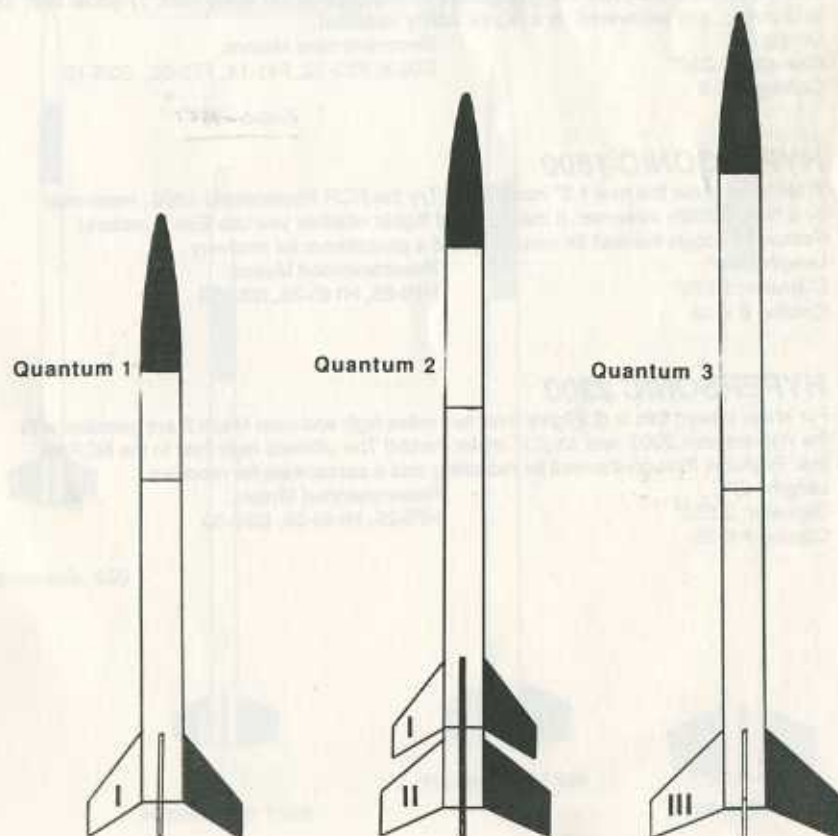
Recommended motors: (3)
D12-7., E6-8, E10-8, E28-8, E50-10



Matt Steele and Bob Ferrate prepare an Aerobee Hi-Test for flight.



Chris Pearson and Matt Steele with Quantum 1 and Quantum 3 in Bulgaria.



NORTH COAST ROCKETRY "HYPERSONIC" SERIES

The NCR "HYPERSONIC" series of model rockets are intended to obtain maximum performance for both "out of sight" sport flights and for experimental flights with or without payloads to speeds exceeding Mach 1! Flights of over one mile are possible. Each kit comes complete with pre-cut plywood fins, thrust ring, streamer or parachute, high strength NCR airframe tubing, NCR **AEROFOAM** nose cone, plus detailed instructions.

HYPERSONIC 950

A single motor, minimum diameter high performance kit that will streak off the pad and out of sight with a minimum of power. The payload section can accommodate transmitters or recovery beeper. Get the most from the total impulse with the *Hypersonic 950* ! Uses streamer recovery for reliable recovery.

Length: 26"
Diameter: 1.00"
Catalog # K-1

Recommended Motors:
D12-7, E6-8, E10-8, E28-12,
E50-10

HYPERSONIC 1100

A scaled up version of the *Hypersonic 950*, utilizing the larger 1.125" motors. The *Hypersonic 1100* is ideal for boosting a small electronic or camera payloads. Flights with the Hypersonic 1100 are guaranteed to attention on the flying field. Flyable with D to G power, and recovered by a high visibility streamer.

Length: 29"
Diameter: 1.210"
Catalog # K-2

Recommended Motors:
E60-8, F20-12, F41-14, F75-20, G25-10

HYPERSONIC 1800

Want to see how the new 1.5" motors fly? Try the NCR *Hypersonic 1800*, recovered by a high visibility streamer. It makes great flights whether you use E or H motors! Features through-the-wall fin mounting and a parastream for recovery.

Length: 36.5"
Diameter: 1.870"
Catalog # K-34

Recommended Motors:
H76-25, H143-25, I283-30

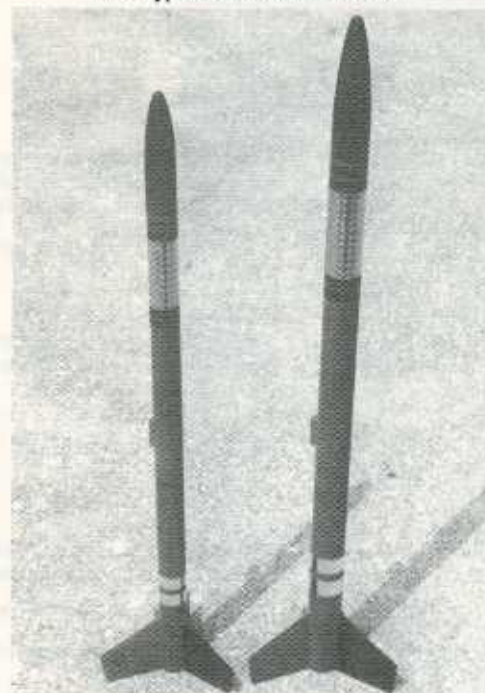
HYPERSONIC 2300

For sheer power, this is it! Flights over two miles high and near Mach 2 are possible with the *Hypersonic 2300* and it's 2.1" motor mount! The ultimate high flyer in the NCR kit line. Features through-the-wall fin mounting and a parastream for recovery.

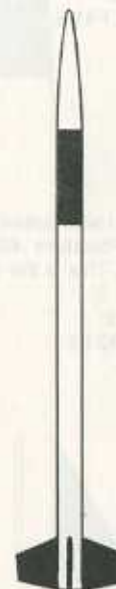
Length: 42"
Diameter: 2.550"
Catalog # K-35

Recommended Motors:
H76-25, H143-25, I283-30

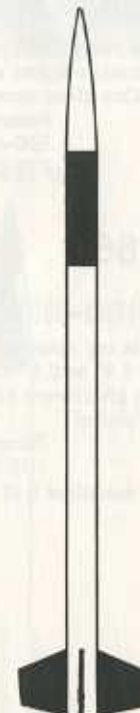
The Hypersonic 950 and 1100



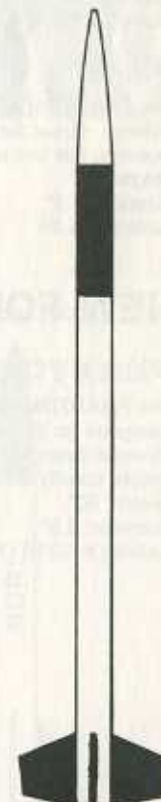
Hypersonic 950



Hypersonic 1100



Hypersonic 1800



Hypersonic 2300

NORTH COAST ROCKETRY "PHANTOM" SERIES

The NCR "PHANTOM" series of rocket kits use one basic design in a variety of sizes to demonstrate different performance potentials. Each kit comes complete with pre-cut fins, high strength NCR airframe tubing, NCR AEROFOAM nose cone, heavy duty cloth parachute, shock cord and mount, plus detailed instructions.

PHANTOM 1800

The high performance **PHANTOM 1800** is a great model rocket for becoming familiar with high power rocketry. This bird goes together quickly, and yet can fly to great heights! A real screamer on D12's or E28's!

Length: 23.5"

Diameter: 1.8"

Catalog # K-22

Recommended motors: D12-5, E60-6, F100-8,
F10-4, F20-4, F41-6, F75-10, G25-10

PHANTOM 2600

The high performance **PHANTOM 2600** is a step up the high power rocketry ladder. Impressively sized, this bird goes together quickly, is easy to prep, and really performs! Try an F75 in this one if you're ready for real excitement!

Length: 30.5"

Diameter: 2.6"

Catalog # K-23

Recommended motors:
E60-6, F100-6, F10-4, F20-4,
F41-6, F75-10, G25-10

PHANTOM 4000

The **PHANTOM 4000** is the perfect BIG rocket for becoming familiar with high power rocketry. Great for demonstration flights with it's slow, realistic lift offs, and graceful recovery, this bird is a must! One of our most popular kits.

Length: 50"

Diameter: 3.9"

Catalog # K-24

Recommended motors:
E60-4, F100-6, F20-4, F41-6,
F75-5, G25-5

NEW FOR 1986!

PHANTOM 4000-HD

The **PHANTOM 4000-HD** is our response to those of you who asked for more power! Designed for the new NCR 1.5" or 2.1" motor tube, the **Phantom 4000-HD** features plywood through-the-wall fin attachment for extra strength. This is the way to move up! Please specify motor mount choice.

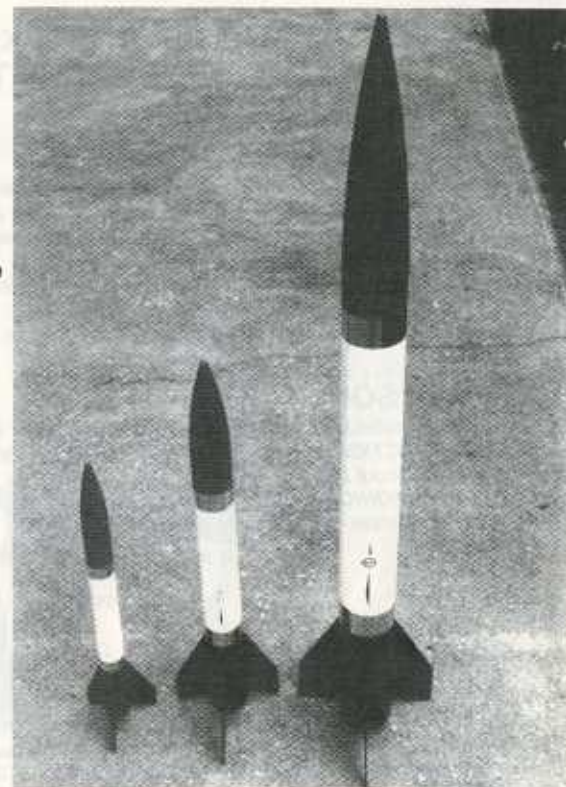
Length: 50"

Diameter: 3.9"

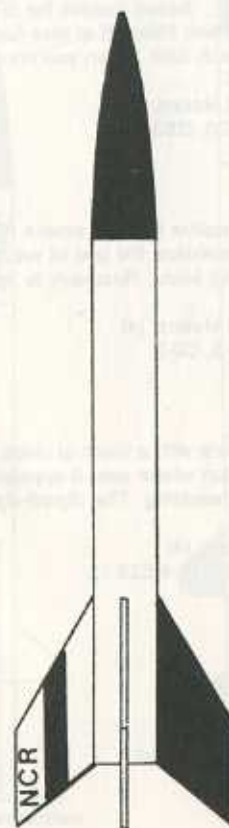
Catalog # K-31A (1.5" motor mount) or B (2.1" motor mount)

Recommended motors:
H76-15, H142-15, I283-25

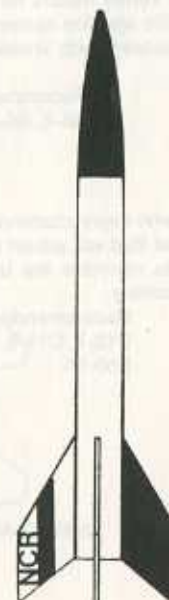
The Phantom line



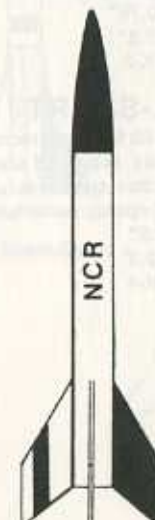
Phantom 4000 and
Phantom 4000 HD



Phantom 2600



Phantom 1800



NORTH COAST ROCKETRY CLUSTER ROCKET KITS

SONIC SEDUCTION

A two stage model, the **SONIC SEDUCTION** is perfect for both sport and research work. Just about any altitude can be reached with the proper combination of motors. The **SONIC SEDUCTION** uses direct staging for ease of prepping, and the lower stage tumbles safely back to earth.

Length: 60.5"

Diameter: 2.3"

Catalog #K-17

Recommended Motors:

Lower Stage: D12-0, E10-0, E28-0

Upper Stage: D12-7, D11-9

SUPER SONIC SEDUCTION

A two stage model, the **SUPER SONIC SEDUCTION** is the scaled up version of the **SONIC SEDUCTION**, for use with larger motors. Perfect for both sport and research work, as just about any altitude can be reached with the proper combination of motors. The **SUPER SONIC SEDUCTION** uses direct staging for ease of prepping, and the lower stage tumbles safely back to earth.

Length: 80.5"

Diameter: 2.6"

Catalog #K-18

Recommended Motors:

Lower Stage: E60-0, F100-0, F20-0

Upper Stage: E60-8, F100-10, F7-4

HYPERSONIC SEDUCTION

This is the large-scale version of the **SONIC SEDUCTION**, based around the BT-39, and featuring three 1.5" motors for power. Just imagine this bird lifting off at your favorite flying field! Just imagine the look on the faces on the launch field when you show up with this bird!

Length: 94"

Diameter: 4.0"

Catalog # K-32

Recommended Motors:

H76-15, H143-20, I283-25

MINI SPOIL-SPORT

A fun kit for those who like to use 18mm motors for impressive fire and smoke flights! The **Mini Spoil-Sport** uses a baffle ejection system to minimize the use of wadding. This bird will appeal to those rocketeers with limited flying fields. Recovery is by 24" ripstop parachute.

Length: 40.75"

Diameter: 1.8"

Catalog # K-3

Recommended Motors: (4)

B6-4, B6-6, C6-5, C6-7

SPOIL-SPORT

Here's the kit for those rocketeers who enjoy clustered rockets with a touch of class. The **Spoil-Sport** is a good sized model that will attract attention where ever it appears. A baffle ejection system is utilized to minimize the use of wadding. The **Spoil-Sport** uses a 24" ripstop parachute for recovery.

Length: 57.5"

Diameter: 2.3"

Catalog # K-4

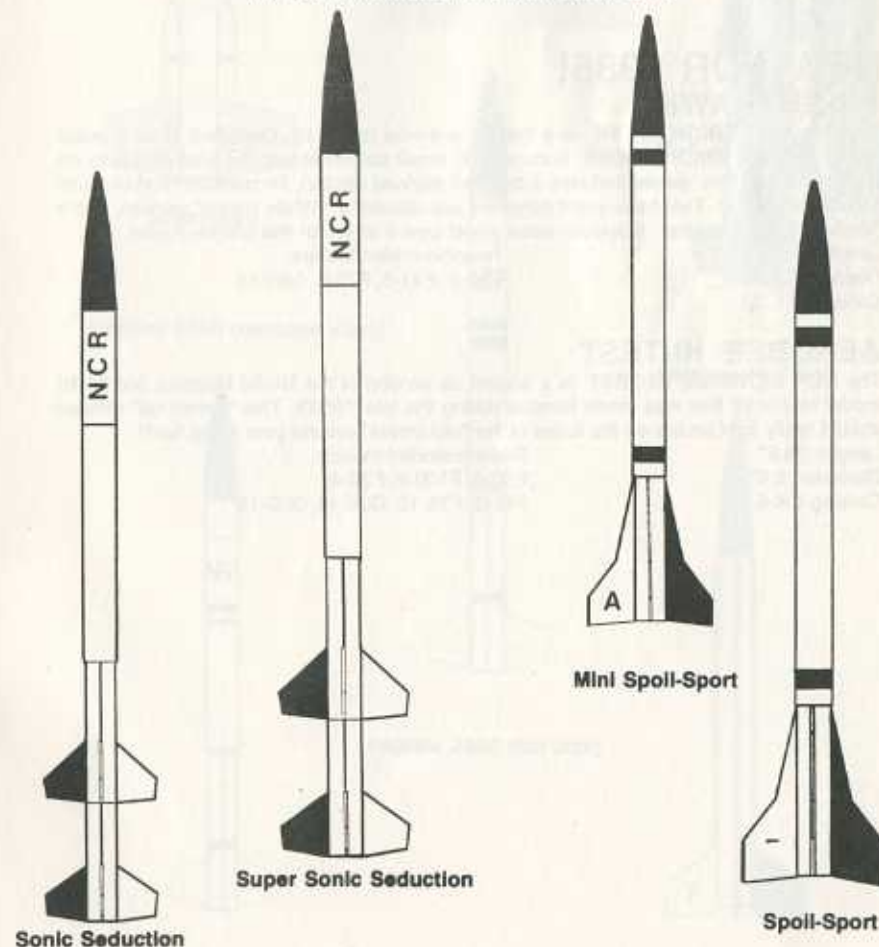
Recommended Motors: (4)

D12-7, D11-9, E6-8, E10-8, E28-12

E50-15



Mike Morton displays his Mini Spoil-Sport



NORTH COAST ROCKETRY NEAR-SCALE ROCKET KITS

REPLICA 2650 (REDUCED VERSION)

The NCR **REPLICA 2650** (Reduced Version) is a semi-scale version of the Enerjet 2650 sounding rocket that was made famous during the early 1970's. This down scaled version is capable of impressive high performance flights with a three motor cluster from D to F power!

Length: 40.5"
Diameter: 2.3"
Catalog #K-7

Recommended motors: (3)
D12-7, D11-9, E6-8, E10-8, E28-8, E50-10

REPLICA 2650 (FULL SIZE VERSION)

The NCR **REPLICA 2650** (Full Size Version) is a full size semi-scale version of the Enerjet 2650 sounding rocket that was made famous during the early 1970's. See why this was the flagship of the Enerjet fleet with it's impressive high performance flights from E to G power!

Length: 49.5"
Diameter: 2.6"
Catalog #K-8

Recommended motors: (3)
E60-8, F100-8, F10-4, F20-8, F41-9,
F75-15, G25-10, G60-20

NEW FOR 1986! BRIGHTHAWK

The new NCR **BRIGHTHAWK** is a first for a model rocket kit. Designed to be a scale "look alike", the **BRIGHTHAWK** features 100 small screws to add the final details to an impressive kit. The model includes a detailed payload section, fin sections, and strap on booster segments. Two basic paint schemes are utilized, a "White Sands" version, and a "Wallops Island" version. A special decal sheet tops it all off for this unique model.

Length: 53"
Diameter: 2.6"
Catalog # K-33

Recommended Motors:
F20-4, F41-6, F75-5, G60-10

AEROBEE HI-TEST

The NCR **AEROBEE HI-TEST** is a scaled up version of the Model Missiles, Inc. (MMI) model rocket kit that was made famous during the late 1950's. This "grown up" version should really light smiles on the faces of the "old-timers" around your flying field!

Length: 38.5"
Diameter: 2.6"
Catalog # K-5

Recommended motors:
E60-4, F100-6, F20-4,
F41-6, F75-10, G25-10, G60-15

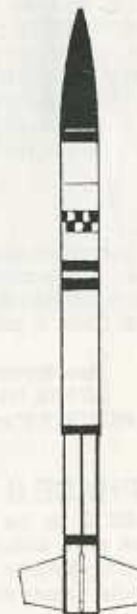


Brighthawk

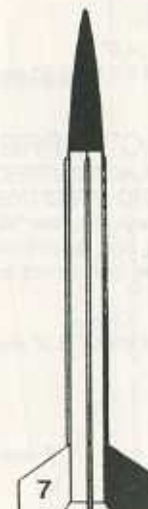
Replica 2650 (reduced size)



Replica 2650 (full size)



Aerobee HI-Test



NORTH COAST ROCKERTY "PRESTIGE" SERIES

The NCR "**PRESTIGE**" series is as impressive on display as they are in flight. Designed for extremely high power motors, these kits are recommended for experienced modelers only. FAA permission may be required to fly these models. Each kit comes with pre-cut plywood fins, centering rings and baffles, heavy duty parachutes, high strength NCR airframe tubing, plus detailed instructions.

SOLAR PRESTIGE

The **SOLAR PRESTIGE** will gather plenty of attention whether on display or in the air! The **SOLAR PRESTIGE** features a four motor cluster designed for a variety of the most popular motor combinations. Large payload section is well suited for most high tech payloads.

Length: 61"

Diameter: 4.0"

Catalog # K-25

Recommended motors: (4)

E60-6, F100-8, F20-4, F41-9, F75-10,

G25-10, G60-15

SOLAR PRESTIGE PHASE II

The **SOLAR PRESTIGE PHASE 2** is the lower stage booster for the NCR **SOLAR PRESTIGE**. Add even more altitude and lifting power with this extra stage! Uses a cluster of four 29 mm motors, and recovered by parachute. Upper stage must be electronically ignited. (Electronic ignition not included)

Length: 17"

Diameter: 4.0"

Catalog # K-26

Recommended motors: (4)

F100-4, F20-4, F41-6, F75-5,

G25-5, G60-5

GALACTIC PRESTIGE

The **GALACTIC PRESTIGE** has been redesigned to feature either the new 1.5" or 2.1" diameter motor mount for use with experimental high performance motors. Designed with research payloads in mind, the **GALACTIC PRESTIGE** is a reliable, heavy lift vehicle. Ideal for your first Class B powered rocket. Specify motor mount desired.

Length: 61"

Diameter: 4.0"

Catalog # K-27A (1.5" motor mount) #K-27B (2.1" motor mount)

Recommended motors:

H76-15, H143-15, I283-20

GALACTIC PRESTIGE PHASE II

The **GALACTIC PRESTIGE PHASE 2** is the lower stage booster for the NCR **GALACTIC PRESTIGE**. Add even more altitude and lifting power with this extra stage! Uses the new NCR 1.5" or 2.1" diameter motor mount (please specify when ordering) and recovered by parachute. Upper stage must be electronically ignited. (Electronic ignition not included)

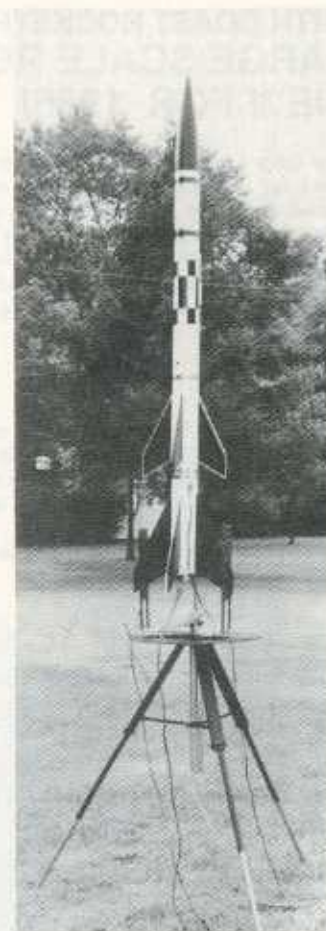
Length: 17"

Diameter: 4.0"

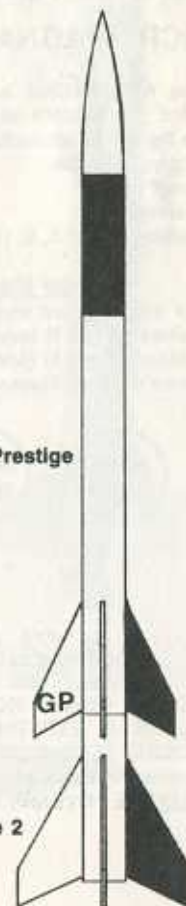
Catalog # K-28A (1.5" motor mount) #K-28B (2.1" motor mount)

Recommended motors:

H76-5, H143-5, I283-5



Galactic Prestige



NORTH COAST ROCKETRY ULTRA-LARGE SCALE ROCKETS NEW FOR 1986!

The **North Coast Rocketry Ultra-Large Scale** line is as impressive on display as they are in flight. Designed for extremely high power motors, these kits are recommended for experienced modelers only. These kits are capable of almost out-of-sight flights over a mile in altitude. FAA permission may be required to fly these models. The six motor mount options for these kits allow for the most demanding requirements to be met. Each kit comes with pre-cut fins, **AEROFOAM** nose cone, centering rings and baffles, heavy duty parachutes, high strength NCR airframe tubing, plus detailed instructions.

NCR KATANA

The **NEW NCR KATANA** features a six fin, custom motor mount cluster design for power, stability, and superior strength. The payload section is 11" long and 4" in diameter, which is large enough for almost all payloads. The motor mount will accept combinations of one to seven motors, so that the power can be tailored to the flying field.

Length: 62"

Diameter: 4.0"

Motor combinations depend on type motor mount selected.

Catalog #K-36A, B, C, D, E or F

NCR MAGNA

The **NCR MAGNA** is an experimental rocket designed with the experienced rocketeer in mind. The model's large size makes it easy to track and recover, yet this baby really gets up there. The dramatic slow lift off will impress everyone. It is a workhorse model, capable of great altitudes.

Length: 84"

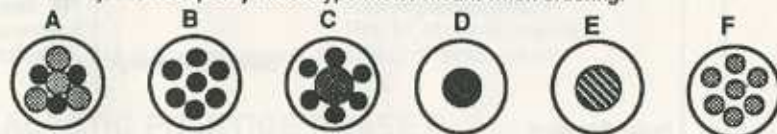
Diameter: 4.0"

Motor combinations depend on type motor mount selected.

Catalog # K-37 A, B, C, D, E or F

Motor Mount Options for the KATANA and NCR MAGNA:

Six motor mount styles are available: **Type A** (four 29 mm motors and three 24 mm motors), **Type B** (seven 24 mm motors), **Type C** (one 1.5" motor mount and six 24 mm motors), **Type D** (one 1.5" motor), **Type E** (one 2.1" motor), and **Type F** (seven 29mm motor motors). Please specify which type motor mount when ordering.

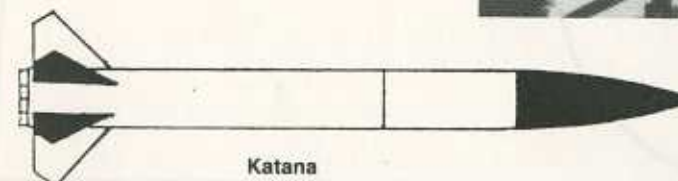


VULCAN SYSTEMS CLASS B ROCKET MOTORS

NORTH COAST ROCKETRY is a distributor of **VULCAN SYSTEMS H, I, AND J CLASS B EXPERIMENTAL MOTORS**. These motors are for **EXPERIENCED ROCKETEERS ONLY**, and require special shipping procedures. If you are interested in purchasing these motors, and, if you qualify, please contact us for further information. **YOU MUST BE 21 YEARS OF AGE OR OLDER TO PURCHASE THESE MOTORS!**



Chris Pearson and Katana



Katana

"NORTH COASTERS" MODEL ROCKET MOTORS

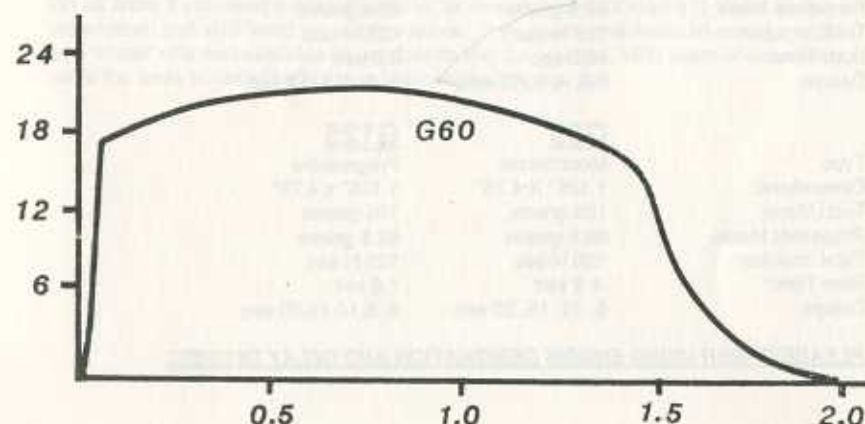
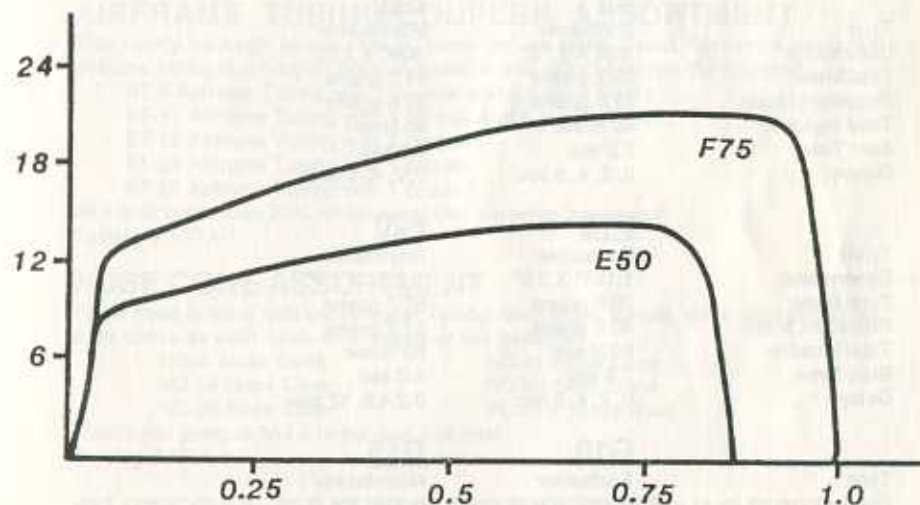
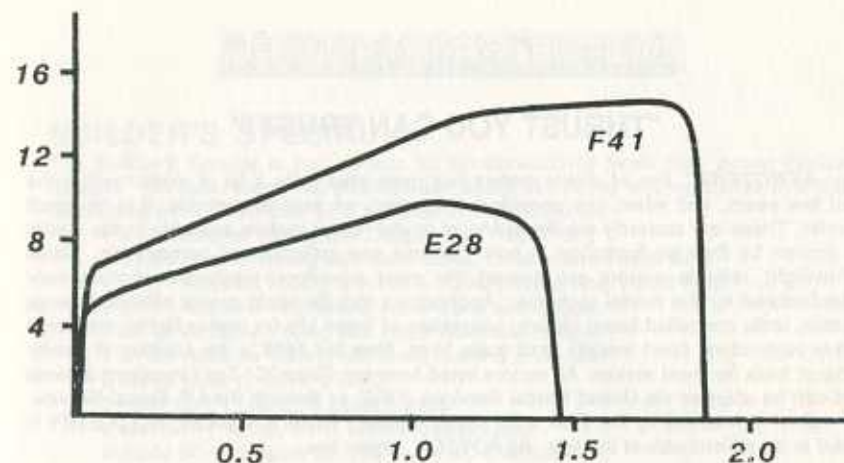
- *HIGH PERFORMANCE !**
- *LOW COST !**
- *EXCEPTIONAL RELIABILITY !**

North Coast Rocketry has continued to add to its model rocket motor series, the "NORTH COASTERS". Much like the original "Coaster" motors of the 1960's, these engines significantly advance the state of the art in large motor technology, using advanced propellants and casing materials. Now, *North Coaster* E motors (and all motors in the future) feature a revolutionary smoky exhaust and delay train, which should help tracking these high power motors. North Coast breaks the impulse and price barriers with these revolutionary motors! For example, the G60 offers a full 120 N-sec for less than \$11.00 ! *North Coasters* feature high initial thrust levels that are perfect for large or heavy models. Try them in your next bird! You'll see the difference! All motors listed here are Class "C" Toy Propellant devices and can be shipped via United Parcel Services (UPS) or through the US Postal Service. No waiver is required by the FAA to fly these motors.

SPECIFICATIONS:

	E28	E50	F41	F75	G60
Total Impulse:	40 N-sec	40 N-sec	79.6 N-sec	80.0 N-sec	120 N-sec
Burn Time:	1.4 sec	0.8 sec	1.8 sec	1.0 sec	2.0 sec
Initial Thrust:	5.85 lbs	9.3 lbs	7.30 lbs	12.5 lbs	17.0 lbs
Peak Thrust:	9.30 lbs	13.4 lbs	15.4 lbs	21.6 lbs	20.5 lbs
Diameter:	.938"	.938"	1.125"	1.125"	1.125"
Length:	2.75"	2.75"	3.50"	3.25"	4.25"
Total Mass:	39.6 grams	38.4 grams	70.5 grams	70.1 grams	95.5 grams
Propellant Mass:	18.9 grams	18.9 grams	37.8 grams	37.7 grams	56.7 grams
Delays:	4, 8, 12 sec	5, 10, 15 sec	6, 9, 14 sec	5, 10, 15, 20	0.5, 10, 15, 20

North Coasters: Where the Action Starts!



AEROTECH MOTORS

"THRUST YOU CAN TRUST!"

The **AEROTECH** line of rocket motors has generated quite a bit of excitement in the past few years, and when one considers the variety of motors available, it is no small wonder. These are currently the finest line of model rocket motors available in the world, as proven by their performance in both national and international competition. These lightweight, reliable motors are among the most advanced production motors ever manufactured for the model rocketeer. Applications include world record altitude attempt models, radio controlled boost gliders, adaptation of Estes kits for higher flights, and large heavy payloaders, sport models, and scale birds. **New for 1986** is the addition of smoky exhaust trails for most motors. All motors listed here are Class "C" Toy Propellant devices and can be shipped via United Parcel Services (UPS) or through the US Postal Service. No waiver is required by the FAA to fly these motors. **NORTH COAST ROCKETRY** is proud to be a distributor of the fine **AEROTECH** motor line.

SPECIFICATIONS:

	E6	E10
Type:	Endburner	Moonburner
Dimensions:	.938" X 2.75"	.938" X 2.75"
Total Mass:	39.7 grams	38.7 grams
Propellant Mass:	21.5 grams	20.5 grams
Total Impulse:	40 N-sec	40 N-sec
Burn Time:	7.2 sec	4.0 sec
Delays:	0, 2, 4, 8 sec	0, 2, 4, 8 sec
	F10	F20
Type:	Endburner	Regressive
Dimensions:	1.125" X 3.5"	1.125" X 3.5"
Total Mass:	70.5 grams	67.7 grams
Propellant Mass:	40.5 grams	37.7 grams
Total Impulse:	80 N-sec	80 N-sec
Burn Time:	7.9 sec	4.0 sec
Delays:	0, 2, 4, 8 sec	0, 2, 4, 8, 12 sec
	G10	G15
Type:	Endburner	Moonburner
Dimensions:	1.125" X 4.5"	1.125" X 4.5"
Total Mass:	105 grams	105 grams
Propellant Mass:	62.5 grams	62.5 grams
Total Impulse:	120 N-sec	125 N-sec
Burn Time:	12.0 sec	8.0 sec
Delays:	0, 2, 4, 8, 12 sec	0, 2, 4, 8, 12 sec
	G25	G125
Type:	Moonburner	Progressive
Dimensions:	1.125" X 4.75"	1.125" X 4.75"
Total Mass:	105 grams	105 grams
Propellant Mass:	62.5 grams	62.5 grams
Total Impulse:	120 N-sec	125 N-sec
Burn Time:	.48 sec	1.0 sec
Delays:	5, 10, 15, 20 sec	0, 5, 10, 15, 20 sec

PLEASE ORDER USING ENGINE DESIGNATION AND DELAY DESIRED.

PARTS ASSORTMENTS

BUILDER'S SPECIAL

The Builder's Special is just perfect for scratchbuilding those high power custom designs. An assortment that includes just about everything one needs, all at a low, discounted price. Save over \$10! Included in the special are:

- 1 BT-7 Airframe Tubing with Coupler and Thrust Ring
- 1 BT-9 Airframe Tubing with Nose Cone, Coupler and Thrust Ring
- 1 BT-11 Airframe Tubing with Nose Cone, Coupler and Thrust Ring
- 1 BT-18 Airframe Tubing with Nose Cone and Coupler
- 1 BT-23 Airframe Tubing with Nose Cone and Coupler
- 1 BT-26 Airframe Tubing with Nose Cone and Coupler
- 5 Screw Eyes (2 SE-1, 3 SE-2)
- 2 each LL-1, LL-2, LL-3 Launch Lugs
- 2 each MT-1, MT-2, MT-3, MT-4 Motor Mounts
- 2 yards SC-1, 3 yards SC-2, 4 yards SC-3 Shock Cord
- 4 CR-9 Centering Rings

Catalog # BSA-1

AIRFRAME TUBING/COUPLER ASSORTMENT

This handy package allows one to "stock up" on North Coast Rocketry's exclusive airframe tubing at a bargain price! Included in this assortment are the following:

- BT-9 Airframe Tubing with 1 coupler and 2 engine blocks
- BT-11 Airframe Tubing with 1 coupler and 2 engine blocks
- BT-18 Airframe Tubing with 1 coupler
- BT-23 Airframe Tubing with 1 coupler
- BT-26 Airframe Tubing with 1 coupler

All this at better than 20% off list price! Get 'em while they're hot!

Catalog # AFTA-1.

NOSE CONE ASSORTMENT

To go hand in hand with the Airframe Tubing Assortment special, we're discounting our nose cones as well! Look what comes in this package:

- NC-9 Nose Cone
- NC-11 Nose Cone
- NC-18 Nose Cone
- NC-23 Nose Cone
- NC-26 Nose Cone
- PLUS 5 Screw Eyes

You're not going to find a better deal than this!

Catalog # NCA-1

CUSTOM FABRICATION SERVICES

Let us know if you need a special part, kit, or design, and we'll supply it. Write us with a description, and we'll send you a price quote. If you want a variation of one of our kits, or a "clone" of a non-available kit, we can do that for you, too. With years of experience, we're the ones to come to. We're in business to help you out.

NORTH COAST ROCKETRY PARTS AND ACCESSORIES

NCR HIGH STRENGTH BODY TUBES

High strength airframe tubing made exclusively for North Coast Rocketry. This is high quality tubing that will last and last. Spiral-wound kraft paper allows excellent glue penetration for strong bonds. The best in the business. The new BT-15 and BT-21 are extra thick for super strength.

CATALOG #	ID	OD	THICKNESS	LENGTH
BT-7	0.734"	0.754"	.020"	24" NEW!
BT-9	0.950"	1.000"	.025"	34"
BT-11	1.140"	1.210"	.035"	34"
BT-15	1.530"	1.590"	.060"	34" NEW!
BT-18	1.800"	1.870"	.035"	34" NEW!
BT-21	2.140"	2.200"	.060"	34"
BT-23	2.420"	2.550"	.035"	34"
BT-26	2.625"	2.705"	.040"	34"
BT-39	3.896"	3.976"	.040"	34"

NCR AEROFOAM NOSE CONES:

These are advanced technology nose cones available exclusively from North Coast Rocketry. They combine the lightweight of wood with the strength and ease of finishing that plastic provides. All cones are 4:1 ogive, and are compatible with all types of paint.

CATALOG #	FITS TUBE	LENGTH	SHOULDER LENGTH
NC-9	BT-9	4.25"	1.0"
NC-11	BT-11	4.50"	1.25"
NC-18	BT-18	7.25"	1.75"
NC-23	BT-23	8.50"	2.25"
NC-26	BT-26	8.50"	2.25"
NC-39	BT-39	16.0"	2.00"

NCR HIGH STRENGTH PLYWOOD CENTERING RINGS:

These high strength rings are made from 1/8" aircraft plywood to adapt BT-9, BT-11, BT-15 or BT-21 motor tubes to larger diameter tubes.

CATALOG #	FITS TUBE	MOTOR TUBE SIZE
CR-18-9	BT-18	BT-9
CR-23-9	BT-23	BT-9
CR-26-9	BT-26	BT-9
CR-39-9	BT-39	BT-9
CR-18-11	BT-18	BT-11
CR-23-11	BT-23	BT-11
CR-26-11	BT-26	BT-11
CR-39-11	BT-39	BT-11
CR-23-15	BT-23	BT-15 NEW!
CR-26-15	BT-26	BT-15 NEW!
CR-39-15	BT-39	BT-15 NEW!
CR-26-21	BT-26	BT-21 NEW!
CR-39-21	BT-39	BT-21 NEW!

NCR THRUST RINGS:

Spiral wound kraft paper rings to hold motors in place.

CATALOG #	TO FIT TUBE SIZE:
TR-7	NCR BT-7 OR ESTES BT-20
TR-9	BT-9
TR-11	BT-11
TR-15	BT-15 NEW!
TR-21	BT-21 NEW!

NCR MOTOR ADAPTERS:

For mounting 0.95" motors in a BT-11 tube, this kit eliminates the use of masking tape wrapping and increases reliability. Kit consists of two centering rings, a BT-9 motor tube, thrust ring, and complete instructions.

CATALOG #	LENGTH
MA-1	6"
MA-2	12"

HIGH POWER MOTOR ADAPTERS:

NEW! Motor adapters for use in our new BT-15 and BT-21. Tubes are 12" in length. The motor adapter kit comes with motor tube, adapter rings, thrust ring, and complete instructions.

CATALOG #	ADAPTS:
MA-3	1.125" motors to BT-15
MA-4	1.50" motors to BT-21

NCR BULKHEADS:

Hollow tubing bulkheads are perfect for nose blocks and payload sections. These kits consist of a tubing coupler, pre-fit plywood backing plate, and a screw eye. These are stronger, lighter, and more durable than solid bulkheads.

CATALOG #	TO FIT TUBE	LENGTH	WALL THICKNESS
BH-9	BT-9	1.5"	.030"
BH-11	BT-11	2.0"	.030"
BH-18	BT-18	3.0"	.040"
BH-23	BT-23	4.0"	.040"
BH-26	BT-26	4.0"	.040"
BH-39	BT-39	6.0"	.040"

NCR MOTOR TUBES:

Identical in construction to our airframe tubing, these motor tubes have thickwall construction that resists burn-through and adds strength.

CATALOG #	TYPE OF TUBE	LENGTH
MT-1	BT-7	3.0"
MT-2	BT-9	6.0"
MT-3	BT-9	12.0"
MT-4	BT-11	12.0"
MT-5	BT-15	17.0" NEW!
MT-6	BT-21	17.0" NEW!

NCR TUBE ADAPTER RINGS:

NEW! NCR motor tube adapter rings for mounting motor tubes into airframe tubes or larger motor tubes.

CATALOG #	ADAPTS:	LENGTH:
CR-9	BT-9 to BT-11	1.75"
CR-11	BT-11 to BT-15	2.0" NEW!

CR-15	BT-15 to BT-18	3.0" NEW!
CR-21A	BT-15 to BT-21	3.0" NEW!
CR-21B	BT-21 to BT-23	4.0" NEW!

NCR TUBING COUPLERS:

Spiral wound paper couplers that fit inside our airframe tubing. For use as staging couplers, joining airframe sections, or motor mounts.

CATALOG #	TO FIT TUBE	LENGTH	WALL THICKNESS
TC-9	BT-9	1.5"	.030"
TC-11	BT-11	2.0"	.030"
TC-15	BT-15	3.0"	.060" NEW!
TC-18	BT-18	3.0"	.030"
TC-21	BT-21	4.0"	.060" NEW!
TC-23	BT-23	4.0"	.040"
TC-26	BT-26	4.0"	.040"
TC-39	BT-39	6.0"	.040"

NCR LAUNCH LUGS:

These high strength, spiral wound paper lugs are perfect for high power rockets. Lugs come in 6" lengths and are available in all popular sizes.

CATALOG #	FITS ROD	ID	OD	WALL THICKNESS
LL-1	1/4"	.281"	.341"	.030"
LL-2	3/8"	.406"	.486"	.040"
LL-3	1/2"	.531"	.631"	.050"

NCR SCREW EYES:

Screw eyes for attaching recovery systems to either nose cones or bulkheads. Zinc plated for highest quality.

CATALOG #	LENGTH	EYE SIZE
SE-1	1 3/16"	3/8"
SE-2	1 7/8"	1/2"
SE-3	2 1/4"	3/4"

NCR SHOCK CORD:

Heat resistant, high strength elastic cord, perfect for high power models. New this year is the SC-4 super heavy duty shock cord for those really big birds!

CATALOG #	WIDTH	SUGGESTED USE
SC-1	.375"	BT-9, BT-11
SC-2	.50"	BT-18, BT-23, BT-23
SC-3	.75"	BT-26, BT-39
SC-4	1.0"	BT-39, BT-56 NEW!

NCR SHOCK CORD MOUNTS:

This is an industry exclusive, extensively tested by NCR to provide the most reliable and safe shock mount system for high power rockets available today. This mount will most likely outlive the rocket. Comes with complete instructions. Order shock cord separately.

CATALOG #	FITS TUBE	LENGTH
SCM-9	BT-9	1.0"
SCM-11	BT-11	1.25"
SCM-18	BT-18	1.75"
SCM-23	BT-23	2.25"
SCM-26	BT-26	2.75"
SCM-39	BT-39	4.00"

NCR COMPOSITE MOTOR IGNITORS:

Thermalite wick tipped with a special pyrogen, for use with most high power motors, these specially designed ignitors are perfect for your composite ignition needs.

CATALOG #	LENGTH	TO BE USED IN
PW-1	3.5"	FSI, Vulcan E motors, Estes D12
PW-2	4.5"	FSI, Vulcan F motors
PW-3	5.5"	Vulcan G motors

REPLACEMENT IGNITORS FOR COMPOSITE AEROTECH MOONBURNERS AND ENDBURNERS:

Direct replacement for Aerotech moon burner and end burner ignitors. The ignitors are 3" long and come with complete instructions.

CATALOG # RW-1

NCR SURE-SHOT REPLACEMENT WICK:

Replacement wick in 1" lengths for use with flashbulbs or standard ignitors. Great for clusters. Instructions included.

CATALOG # RW-2

NCR FLASHBULB IGNITORS:

The traditional flashbulb ignitor has been taken one step further! These are pre-made for your convenience. Why bother wiring your own, when you can buy these soldered, 22 gauge wire, 12" lead ignitors?

CATALOG # FB-1

REPLACEMENT IGNITORS FOR CORE BURNING ENGINES:

Replacement ignitors for all North Coasters and Aerotech coreburning motors. Leads are 7" long, and ignitors are continuity safe. Can also be used in other composite motors. Comes complete with instructions.

CATALOG # EP-1

REPLACEMENT IGNITORS FOR G & H CLASS MOTORS:

Similar to the EP-1 ignitor, except that they have 9" leads to insure top of the core ignition for those deep-cored G & H motors.

CATALOG # EP-2

SPECIAL PURPOSE IGNITORS FOR LARGE COMPOSITE MOTORS:

Similar to the EP-1 ignitor, these ignitor uses a special high energy pyrogen to insure ignition. For use in clusters or Class B motors. With instructions.

CATALOG # SP-1

IMPROVED ELECTRIC MATCHES:

Offered exclusively by North Coast, these electric matches have a greater amount of pyrogen to insure ignition. These ignitors feature small diameter heads to fit most motors (including D12's), and 60" leads.

CATALOG # EM-1

PYROGEN ELECTRIC MATCHES:

Similar to EM-1, these have a larger, pyrogen coated head for positive ignition. Perfect for clusters and Class B motors. 60" leads.

CATALOG # PM-1

NORTH COAST ROCKETRY T-SHIRTS:

You don't want to be without this attractive blue T-shirt with the North Coast logo in white! Let everyone know you're a high power flyer. "I SURVIVED LDRS-4" on the back. Available in small, medium, large, and extra large. Please specify size when ordering.

CATALOG # TS-1 (S, M, L, or XL)



(left) A Replica 2650 roars aloft under cluster power.

(above) An Aerobee Hi-Test takes to the sky atop the colorless exhaust of a North Coast motor.

NCR LARGE ROCKET CHUTES AND PARASTREAMS

Large Rocket Chutes and Parastreams are some of the best in the business, and we should know! They are available in the following colors or color combinations: White, Black, Red, Orange, Dark Blue, Light Blue, Yellow, Gold, Green, Purple, and Lime Green.

LARGE ROCKET CHUTES

Available in 12 panel/12 Shroud line versions, 18 panel/18 Shroud line versions, 4 panel/8 shroud line, 3 panel/8 shroud line, double and single panel versions. They feature large spill holes for less downfield drift, and sewn from 3/4 oz ripstop nylon.

30" 12 panel	Catalog # LRC-12-1
36" 12 panel	Catalog # LRC-12-2
42" 18 panel	Catalog # LRC-18-3
48" 18 panel	Catalog # LRC-18-4
54" 18 panel	Catalog # LRC-18-5
60" 18 panel	Catalog # LRC-18-6
18" 4 panel	Catalog # LRC-4-8
24" 4 panel	Catalog # LRC-4-9
36" 4 panel	Catalog # LRC-4-10
10" Solid panel	Catalog # LRC-S-17
12" Solid panel	Catalog # LRC-S-18
16" Solid panel	Catalog # LRC-S-19
18" Solid panel	Catalog # LRC-S-20

PARASTREAM

Parastreams are highly visible at long distances, and particularly suited for those high flying models. They use 3/4 oz ripstop nylon construction, and are available in two sizes, 6"x72" or 8"x96", with a choice of 10", 12", 16" or 18" parachute. One panel, one color only.

WHEN ORDERING SPECIFY COLOR DESIRED, WITH OR WITHOUT CHUTE, AND DIAMETER OF CHUTE.

6" X 72" Parastream Catalog # PS-1
8" X 96" Parastream Catalog # PS-2

Quality parts! North Coast Rocketry has the best in rocketry from heavy duty body tubes to precision machined centering rings.



HOW TO ORDER:

Please use our new order form when making an order. The minimum order amount is \$10.00. New order forms will be sent with each purchase. Be sure to add handling and shipping fees. For motors and/or ignitors, the shipping/handling fee is \$3; for all other orders, add \$5.

Please include your full name and shipping address, including zip code. preferred method of shipment is United Parcel Service, but orders with a post office box will be sent via the mail. This may entail extra expense to you. Check or money order for payment in full must be included with your order. No stamps or COD accepted.

We can now ship to Canada. We will ship via UPS to Ontario, and via the Postal Service for all other Canadian customers. For all Canadian provinces except Ontario, as well as Hawaii and Alaska, add \$10 for shipping.

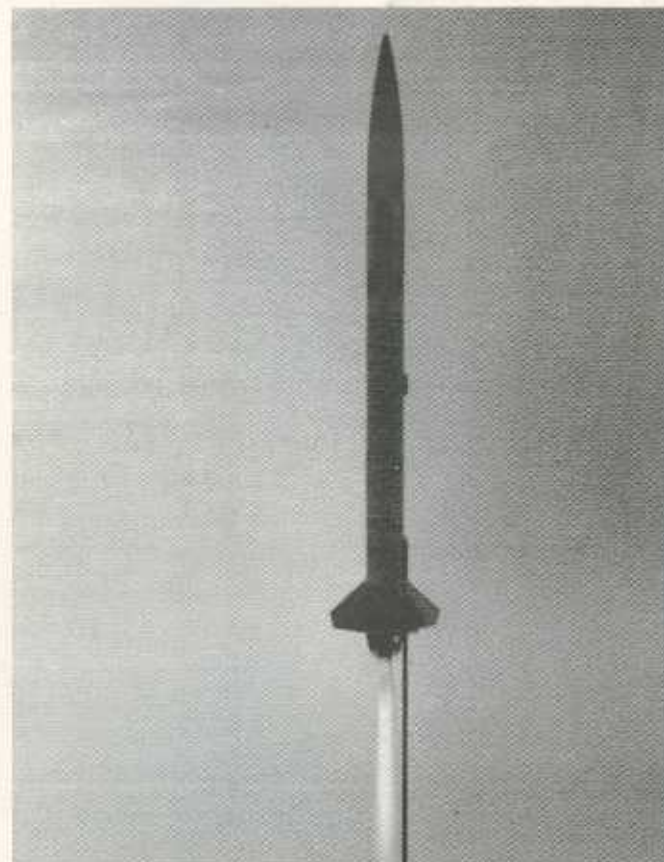
PLEASE MAKE ALL CHECKS PAYABLE TO NORTH COAST ROCKETRY.

NORTH COAST ROCKETRY will normally ship all orders within a short as possible period after receipt. On occasion, if a product is temporarily out of stock, we will notify you within 30 days. Your order will be filled as soon as possible, but in no event later than 90 days after receipt of your order. If your order cannot be filled within 90 days, your money will be refunded.

All inquiries will be personally answered promptly. If you have a problem with a **NORTH COAST ROCKETRY** product, let us know.

Once again, thanks for ordering!

Below: The **NCR Katana** powered by an I283 motor! (Bill Barber photo)



NORTH COAST ROCKETRY

PRICE LIST

EFFECTIVE MARCH 1986

KITS:

K-1	HYPERSONIC 850	10.00
K-2	HYPERSONIC 1100	12.00
K-3	MINI SPOIL SPORT	20.00
K-4	SPOIL SPORT	25.00
K-5	AEROBEE HI-TEST	20.00
K-7	REPLICA 2650 REDUCED VERSION	20.00
K-8	REPLICA 2650 FULL SIZE VERSION	22.00
K-17	SONIC SEDUCTION	25.00
K-18	SUPER SONIC SEDUCTION	30.00
K-19	QUANTUM 1	15.00
K-20	QUANTUM 2	20.00
K-21	QUANTUM 3	18.00
K-22	PHANTOM 1800	15.00
K-23	PHANTOM 2600	20.00
K-24	PHANTOM 4000	25.00
K-25	SOLAR PRESTIGE	49.00
K-26	SOLAR PRESTIGE PHASE II	15.00
K-27	GALACTIC PRESTIGE	49.00
K-28	GALACTIC PRESTIGE PHASE II	15.00
K-31	PHANTOM 4000-HD	30.00
K-32	HYPERSONIC SEDUCTION	60.00
K-33	BRIGHTHAWK	35.00
K-34	HYPERSONIC 1800	18.00
K-35	HYPERSONIC 2300	22.00
K-36	KATANA	50.00
K-37	MAGNA	60.00

BUILDER'S SPECIAL BSA-1: 45.00
 AIRFRAME ASSORTMENT AFA-1: 13.00
 NOSE CONE ASSORTMENT NCA-1: 19.00

BODY TUBES:

BT-7	1.50
BT-9	2.50
BT-11	2.75
BT-15	3.25
BT-18	3.00
BT-21	3.50
BT-23	3.25
BT-26	3.50
BT-39	4.75

NCR AEROFOAM NOSE CONES:

NC-9	2.50
NC-18	3.50
NC-26	6.50

CENTERING RINGS:

CR-18-9	.50/EACH
CR-23-9	.60/EACH
CR-26-9	.75/EACH
CR-39-9	.95/EACH
CR-18-11	.50/EACH
CR-23-11	.60/EACH
CR-26-11	.75/EACH
CR-39-11	.95/EACH
CR-23-15	.60/EACH
CR-26-15	.75/EACH
CR-39-15	.95/EACH
CR-26-21	.75/EACH
CR-39-21	.95/EACH

MOTOR TUBES:

MT-1	.40
MT-2	.45
MT-3	.75
MT-4	.95
MT-5	1.35
MT-6	1.50

NC-11	2.75
NC-23	4.50
NC-39	10.00

THRUST RINGS:

TR-7	5/1.00
TR-9	5/1.25
TR-15	25 EACH
TR-21	35 EACH

TUBE CENTERING RINGS:

CR-9	4/1.50
CR-15	.45 EACH
CR-21A	.65 EACH
CR-21B	.65 EACH
CR-11	.45 EACH

COUPLERS:

TC-9	.30
TC-11	.40
TC-15	.45
TC-18	.50
TC-21	.65
TC-23	.75
TC-26	1.00
TC-39	1.50

SHOCK CORD:

SC-1	.50/YARD
SC-2	.60/YARD
SC-3	.70/YARD
SC-4	.80/YARD

LAUNCH LUGS:

LL-1	.15/EACH
LL-2	.25/EACH
LL-3	.35/EACH

SCREW EYES:

SE-1	7/1.00	SE-2	4/1.00	SE-3	3/1.00
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IGNITORS:

PW-1	COMPOSITE MOTOR IGNITORS	6/2.50
PW-2	COMPOSITE MOTOR IGNITORS	6/2.75
PW-3	COMPOSITE MOTOR IGNITORS	6/3.00
RW-1	AEROTECH IGNITOR	6/2.00
RW-2	SURESHOT REPLACEMENT	10/7.75
EP-1	MOONEND BURNER IGNITOR	6/2.00
EP-2	G & H MOTOR IGNITOR	6/2.50
SP-1	SPECIAL PURPOSE IGNITOR	1.00/EACH
FB-1	FLASHBULB IGNITOR	.75/EACH
PM-1	PYROGEN ELECTRIC MATCH	2.00/EACH
EM-1	ELECTRIC MATCH	1.25/EACH

TS-1 NORTH COAST ROCKETRY T-SHIRT 7.50

NORTH COASTERS:

E28-X	4.95 NEW!	E50-X	6.95	G60-X	10.95
F41-X	8.95	F75-X	8.95		

AEROTECH:

E6-X	8.95	3 FOR: 25.95	E10-X	6.95	3 FOR: 19.95
F10-X	9.95	3 FOR: 26.95	F20-X	8.95	3 FOR: 34.95
G10-X	17.95		G15-X	17.95	
G25-X	14.95		G125-X	14.95	

PARACHUTES AND PARASTREAMS:

Many at new, reduced prices!

30" 12 PANEL	CATALOG # LRC-12-1	8.00
36" 12 PANEL	CATALOG # LRC-12-2	13.00
42" 18 PANEL	CATALOG # LRC-18-3	17.00
48" 18 PANEL	CATALOG # LRC-18-4	22.00
54" 18 PANEL	CATALOG # LRC-18-5	25.00
60" 18 PANEL	CATALOG # LRC-18-6	30.00
18" 4 PANEL	CATALOG # LRC-4-8	4.25
24" 4 PANEL	CATALOG # LRC-4-9	5.25
36" 4 PANEL	CATALOG # LRC-4-10	10.00 NEW!
10" SOLID PANEL	CATALOG # LRC-S-17	1.50
12" SOLID PANEL	CATALOG # LRC-S-18	2.25
16" SOLID PANEL	CATALOG # LRC-S-19	2.75
18" SOLID PANEL	CATALOG # LRC-S-20	3.50

6" X 72" PARASTREAM	CATALOG # PS-1	8.00
8" X 96" PARASTREAM	CATALOG # PS-2	11.00

BULKHEADS:

BH-9	1.00
BH-11	1.25
BH-18	1.50
BH-23	1.75
BH-26	2.00
BH-39	2.50

MOTOR ADAPTERS:

MA-1	1.00
MA-2	1.50
MA-3	2.00
MA-4	2.50

SHOCK CORD MOUNTS:

SCM-9	.15
SCM-11	.20
SCM-18	.25
SCM-23	.30
SCM-26	.35
SCM-39	.45

What People Are Saying About North Coast Rocketry...

"Your E28 North Coaster was fantastic! My heavy-duty egglofter never saw such heights before!"

"I must say that I am quite impressed with the quality of your kit....Your instructions seem clear and to the point."

Your kit is GREAT! Aerofoam nose cone, body tube and engines, shock cord and mount, fins, and especially parachute are all top quality."

"Your service is second to none, and I like your philosophy with regard to your customers..."

"Seldom do I get a chance to thank a high power rocketry mail order company for excellent service - but I would be remiss if I didn't take this opportunity to express my gratitude for your fine job. I was almost lulled into believing some of the West Coast crowd's belief that we consumers must accept long delays and impersonal service to be "lucky" enough to be in on the leading edge of technology. I guess it's hard to "maintain motivation" out there! Anyways, thanks a LOT!"

This is THE BEST service I have ever gotten from anyone. I am very pleased with your company, and rest assured I will tell ALL my friends about you! Thanks again!"