

CITATION



A SUBSIDIARY OF DAMON

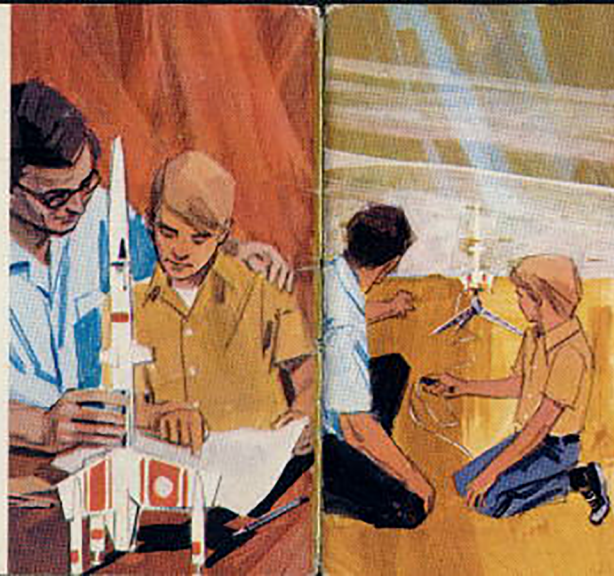


Recommended ages 10 to adult.

FLYING MODEL ROCKETS

Why Rocketry?

From the first countdown to our most recent landing on the moon, young people everywhere have been stirred by man's incredible journeys into space. Along with the excitement there has been a challenge — to learn more about rockets, and to share, somehow, in those great adventures in space.



Estes — pioneer in model rocketry and today the world's largest manufacturer of model rockets, safety-certified engines and accessories. Whatever your age, from 10 to adult, there are Estes rockets you can build, launch, follow through recovery, then fly and fly again.

Explanation of Degree of Challenge in assembling the kit.

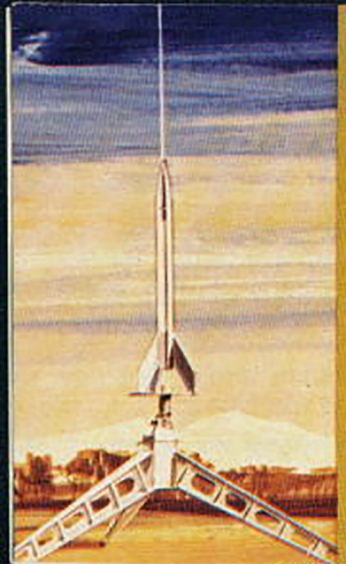
1 = Easy

2 = Fairly Easy

3 = Average

4 = Difficult

5 = Very Difficult



**Building
and flying
model rockets.**

1 Rocket is launched electrically from launch pad.

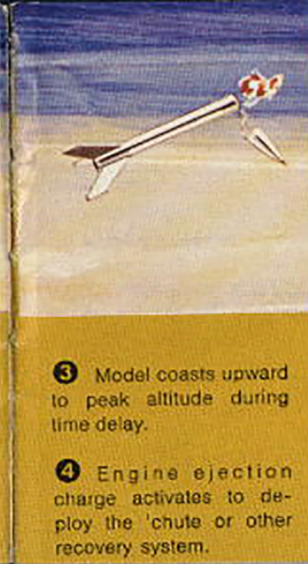
2 Powered flight up to 1500'.

3 Model coasts upward to peak altitude during time delay.

4 Engine ejection charge activates to deploy the 'chute or other recovery system.

5 Model rocket drifts safely back to earth.

6 Gentle landing ready for lift-off again.



STARTER KIT

Here it is! Everything! All you need to build and fly exciting model rockets.
Comes complete, packed in a re-usable Field Operations Box.

Quasar Flying Model Rocket

Star Port Launch Pad

Rocket Positioning Spring

Launch Control System

Glue Packet

Number One X-acto Knife

3 engines, ignitors, tape discs and recovery wadding

Catalog No. MKS-8 **PRICE \$11.95**



QUASAR



Degree of Challenge: One

Dramatic but easy-to-build model for beginners. Bright metallized plastic nose cone and fin assembly. Metallized and pre-printed mylar wrap-on decal for the body tube. No painting required! Recovery by 12" plastic parachute for many, many flights.

SPECIFICATIONS

Length	14 in.	(35.6 cm)
Body Dia.	0.976 in.	(24.8 mm)
Weight	1.5 oz.	(42 gr)

RECOMMENDED ENGINES

A-3, B-4 or C-5. / Use A-3 for first flight.

Two A-3 engines, ignitors, tape discs and recovery wadding included.

Catalog No. MK-1 **PRICE \$2.25**



RED MAX

Degree of Challenge: Two

Contemporary, super-fun model. Large stable design gives great sport performance. Big fun "Red Max" decal sheet. Molded plastic nose cone and die cut fins. Parachute recovery (18" chute) for perfect flight after flight.

SPECIFICATIONS

Length	16.25 in.	(41.3 cm)
Body Dia.	1.637 in.	(41.6 mm)
Weight	2.375 oz.	(67 gr) (Approx)

RECOMMENDED ENGINES

A-3, B-2 or C-5. / Use A-3 for first flight.
Two A-3 engines, ignitors, tape discs and recovery wadding included.

Catalog No. MK-2 **PRICE \$3.25**



PATRIOT

Degree of Challenge: Two

Big, burly and impressive sport model — over 25" tall. Spectacular "All-American" red, white and blue decor. Two big decal sheets, 5 colors in all. Fast, easy construction with molded plastic nose cone and die cut balsa fins. Recovery by 18" parachute

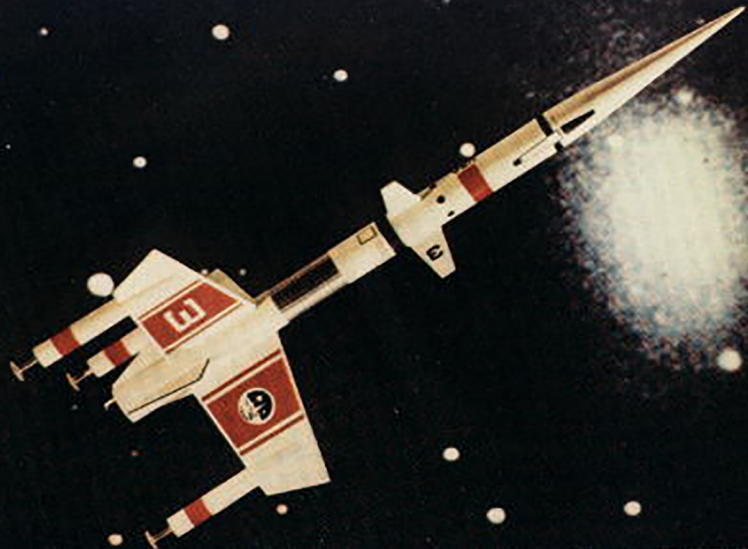
SPECIFICATIONS

Length	26 in.	(66 cm)
Body dia.	1.637 in.	(41.6 mm)
Weight	3.3 oz.	(94 gr)

RECOMMENDED ENGINES

B-2, B-4 or C-5. / Use B-2 for first flight.
Two B-2 engines, ignitors, tape discs and recovery wadding included.

Catalog No. MK-3 **PRICE \$4.25**



STARSHIP VEGA

Degree of Challenge: Three

A look into tomorrow . . . deep space, interplanetary exploration vehicle. Great sport flying performance. Futuristic landing legs on rear fins. Complete with 3-color decal sheet, die cut fins and bright foil body wrap-on. Parachute (12") recovery system.

SPECIFICATIONS

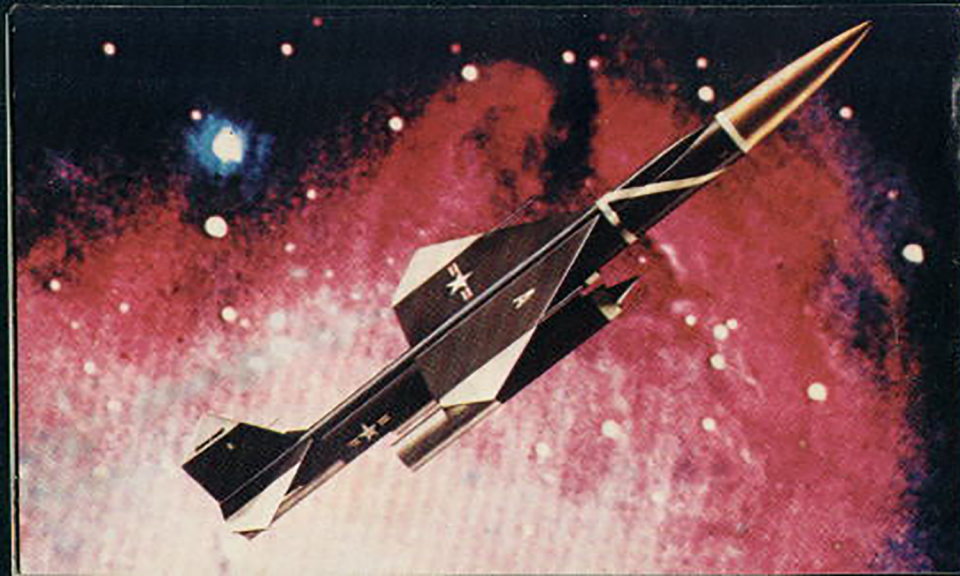
Length	19.5 in.	(49.5 cm)
Body Dia.	0.976 in.	(24.8 mm)
Weight	1.88 oz.	(53 gr)

RECOMMENDED ENGINES

B-2, B-4 or C-5. / Use B-2 for first flight.

Two B-2 engines, ignitors, tape discs and recovery wadding included.

Catalog No. MK-4 **PRICE \$5.25**



BOMARC

Degree of Challenge: Four

A beautifully detailed, superb scale rendering of the U.S.A.F. surface-to-air interceptor missile. Features molded plastic components, and die cut balsa parts.

Plastic nose cone has true-scale, pre-finished copper metallic surface. Big, authentic decals, vinyl stripping and metallized mylar panels. At apogee, the engine pod is ejected and comes down by parachute while the model returns as a boost glider. . . with a gentle, flat glide pattern.

SPECIFICATIONS

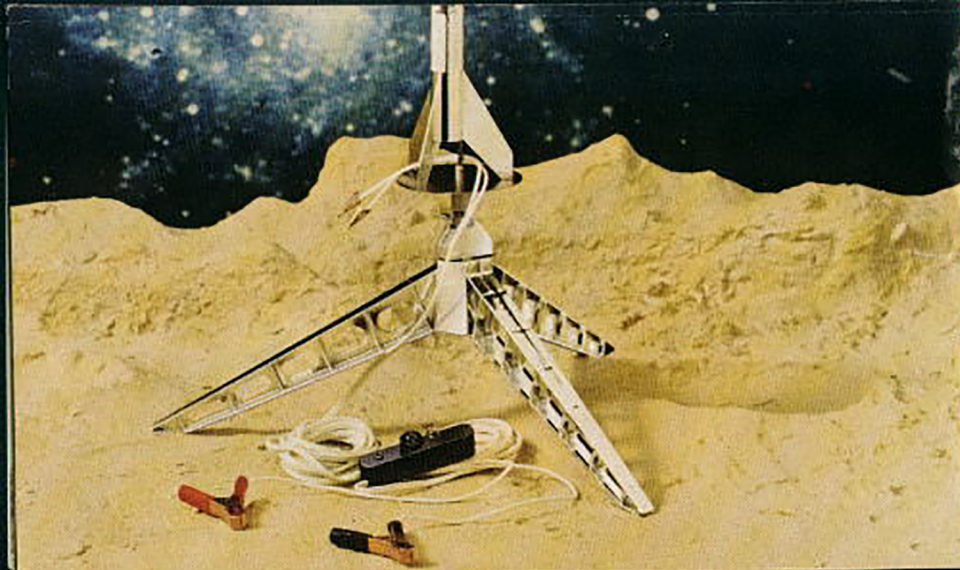
Length	23 in.	(58.4 cm)
Body Dia.	1.325 in.	(33.6 mm)
Weight	3.8 oz.	(108 gr)

RECOMMENDED ENGINES

B-2 or C-3. / Use B-2 for first flight.

Two B-2 engines, ignitors, tape discs and recovery wadding included.

Catalog No. MK-5 **PRICE \$6.50**



STAR PORT LAUNCH SYSTEM

A space-age designed ruggedly constructed complete system for the perfect launch . . . time after time.

The bright, vacuum metallized finished launching platform features: authentic girder design, tilt adjustment for different launch angles and snap together construction for quick field assembly and compact storage.

The launch controller completes the system . . . advanced engineering features include a safety interlock key and continuity check light. Complete with 18 feet of cord, micro clips, battery clips and assembly instructions.

Use with either 6 or 12 volt power source.

Catalog No. LS-1 **PRICE \$8.50**



The Estes model rocket engine is engineered to give top performance in your Citation Series model rocket. All engines measure 2.75 in. long and 0.69 in. in diameter. Here are the components of a typical engine.

1. Ejection charge for deployment of recovery system.
2. Non-thrust delay and smoke tracking charge.
3. High thrust propellant for lift-off and acceleration.
4. Nozzle accelerates exhaust to supersonic velocity to give maximum thrust.

ROCKET ENGINE SELECTION CHART

PRICES AND SPECIFICATIONS

DATA FOR CORRECT ENGINE CHOICE

Engine Type	Generally Equivalent To	Prices	Total Impulse		Time Delay ($\pm 15\%$)	Maximum Lift-off Weights With Engines	Maximum Thrust	Thrust Duration	Initial Weight		Propellant Weight	
			lb sec ¹	n-sec ²					Oz.	Gr.	Oz.	Gr.
A-3	A7-3	\$1.10	0.56	2.50	3 sec	4.0 oz.	50 oz.	0.35 sec	0.57	16.2	0.110	3.12
B-2	B6-2	1.20	1.12	5.00	2 sec	5.0 oz.	50 oz.	0.78 sec	0.70	19.8	0.220	6.24
B-4	B6-4	1.20	1.12	5.00	4 sec	4.5 oz.	50 oz.	0.78 sec	0.78	22.1	0.220	6.24
C-3	C6-3	1.35	2.25	10.00	3 sec	5.0 oz.	50 oz.	1.60 sec	0.68	24.9	0.440	12.48
C-5	C6-5	1.35	2.25	10.00	5 sec	4.5 oz.	50 oz.	1.60 sec	0.91	25.8	0.440	12.48

Each pack of 3 engines includes 18 sheets recovery wadding and 5 ignitors. Designed for specific launch and flight functions, rocket engines are expendable — not re-usable.

1 — Pound seconds 2 — Newton seconds



MODEL ROCKET SAFETY

A recognized safety code — plus safe rocketry materials — equals 24 million safe rocket launches.

This Solid Propellant Model Rocketry Safety Code Is Approved by The National Association of Rocketry and the Hobby Industry Association of America.

ROCKETEER'S CODE OF SAFETY

- 1. CONSTRUCTION** — My model rockets will be made of lightweight materials such as paper, wood, plastic and rubber, without any metal as structural parts.
- 2. ENGINES** — I will use only pre-loaded, factory-made model rocket engines in the manner recommended by the manufacturer. I will not change in any way nor attempt to reload these engines.
- 3. RECOVERY** — I will always use a recovery system in my model rockets that will return them safely to the ground so that they may be flown again.
- 4. WEIGHT LIMITS** — My model rocket will weigh no more than 453 grams (16 ozs.) at liftoff, and the engines will contain no more than 113 grams (4 ozs.) of propellant.
- 5. STABILITY** — I will check the stability of my model rockets before their first flight, except when launching models of already proven stability.

6. LAUNCHING SYSTEM — The system I use to launch my model rockets must be remotely controlled and electrically operated and will contain a switch that will return to "off" when released. I will remain at least 10 feet away from any rocket that is being launched.

7. LAUNCH SAFETY — I will not let anyone approach a model rocket on a launcher until I have made sure that either the safety interlock key has been removed or the battery has been disconnected from my launcher.

8. FLYING CONDITIONS — I will not launch my model rocket in high winds, near buildings, power lines, tall trees, low-flying aircraft, or under any conditions which might be dangerous to people or property.

9. LAUNCH AREA — My model rockets will always be launched from a cleared area, free of any easy to burn materials, and I will only use non-flammable recovery wadding in my rockets.

10. JET DEFLECTOR — My launcher will have a jet deflector device to prevent the engine exhaust from hitting the ground directly.

11. LAUNCH ROD — To prevent accidental eye injury, I will always place the launcher so the end of the rod is above eye level or cap the end of the rod with my hand when approaching it. I will never place my head or body over the launching rod. When my launcher is not in use, I will always store it so that the launch rod is NOT in an upright position.

12. POWER LINES — I will never attempt to recover my rocket from a power line or other dangerous places.

13. LAUNCH TARGETS & ANGLE — I will not launch rockets so their flight path will carry them against targets on the ground and will never use an explosive warhead nor a payload that is intended to be flammable. My launching device will always be pointed within 30 degrees of vertical.

14. PRE-LAUNCH TEST — When conducting research activities with unproven designs or methods, I will, when possible, determine their reliability through pre-launch tests. I will conduct launchings of unproven designs in complete isolation from persons not participating in the actual launching.

Revised 2/4/70

ROCKETEER'S PLEDGE

I am proud to be a model rocketeer. I feel it is important to do my part in upholding the outstanding safety record that model rocketry has gained. In all my rocketry activities I will act in a mature manner and will always be considerate of other people and property rights. I pledge to follow the Rocketeer's Code of Safety.

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Estes Industries, Inc. Box 227, Penrose, Colo. 81240

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