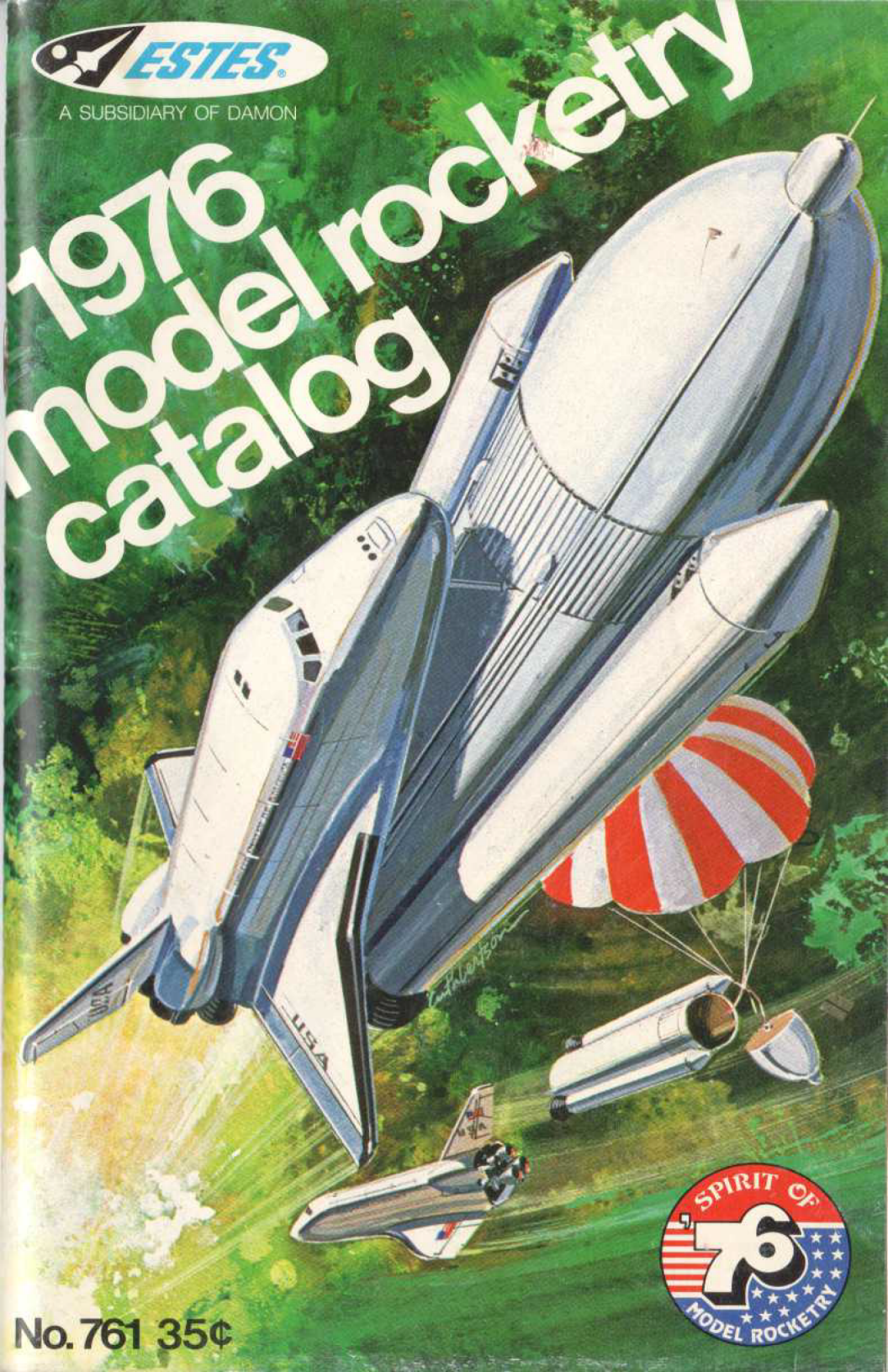
ESTES

A SUBSIDIARY OF DAMON

1976 model rocketry catalog



No. 761 35¢

Welcome to the exciting world of model rocketry...

See Page 31

See Page 28

See Page 24

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LITHO IN U.S.A.

SKILL LEVELS

All model rocket kits in this catalog require assembly unless otherwise indicated. Skill level numbers given in each kit description recommend the general skill and experience necessary for a rocketeer to successfully complete the kit. For further information refer to the chart below.

Skill Level No.	Description	To Be Built By
1	Very Simple	Beginning Rocketeer
2	Fairly Easy	Intermediate Rocketeer
3	Average	Craftsman Rocketeer
4	Challenging	Advanced Rocketeer
5	Extremely Challenging	Expert Rocketeer

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Estes Industries encourages membership in the National Association of Rocketry for the active model rocketry enthusiast. NAR

...the incredible space age hobby!

See Pages 4 & 5

There is no thrill quite like launching a model rocket you have built, watching it streak skyward, reaching apogee, then gently returning to earth on its parachute. In a very real sense model rocketeers experience the same excitement felt by America's space scientists and astronauts as they push man's horizons relentlessly forward to the stars. The best way to get started in the exciting world of model rocketry is with an Estes Starter Kit (see pages 4 to 7). Each starter kit has everything you need to build and fly your first rocket.

As you increase your rocketry skills you can progress to new and exciting projects including multi-stage rockets, payload experiments, scale models, and even aerial photography. We know you will enjoy building and flying our rockets as much as we enjoy designing them, and invite you to join with more than 80,000 fellow rocketeers by becoming a member of the Estes Aerospace Club (see page 37) for maximum enjoyment of this exciting hobby. Good luck, and happy flying!

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FLIGHT SEQUENCE & MODEL ROCKET PARTS

BASIC MODEL ROCKET COMPONENTS

Most model rocket kits are constructed of light-weight hobby materials such as balsa wood, paper tubing and plastic. Diagram shows basic components found in most model rocket kits.

Big Bertha
Cat. No. 1223

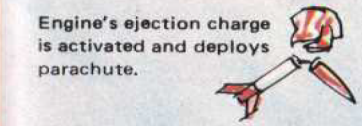
X-RAY
Cat. No. 1218

Sky Hook
Cat. No. 1208

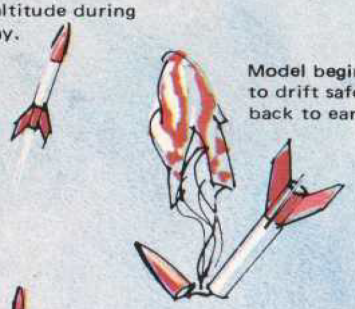
CHOOSING YOUR NEXT ROCKET

Here are 3 excellent choices for your next rocket. All are quite different, yet each one is ideal for your second kit. As each is a Skill Level 1 model, all are recommended for the beginning rocketeer to further increase your experience and develop your model rocketry skills.

The Sky Hook is an excellent sport flier with colorful 12" parachute recovery. If you're interested in payload experiments the X-Ray is a great high-performance payloader with large see-through cargo section. For a really "Big" rocket that's easy-to-build with slow, realistic lift-off, the Big Bertha is for you!


Engine's ejection charge is activated and deploys parachute.

Model coasts upward to peak altitude during time delay.


Model begins to drift safely back to earth.

Powered Flight

Lift-off

Rocket is launched electrically from launch pad.

This year our Nation celebrates 200 years of growth and freedom. Within a decade and a half of its founding, Estes Industries will also reach a landmark of its own. Sometime early this summer an American rocketeer will enjoy the 100,000,000th launching of an Estes model rocket. We are very proud to be a part of the safe growth of educational model rocketry the world over. Have a grand year, and great flying.

Sincerely,
VERN ESTES

HERE'S HOW TO USE YOUR ESTES CATALOG.

1. Name of the kit.
2. Skill Level number recommends the general skill and experience necessary for a rocketeer to successfully complete the kit. Skill Level 1 kits are suggested for beginners, Skill Level 2 for intermediate rocketeers, and so on to Skill Level 5, Expert Rocketeer.
3. Special features and additional kit information.
4. Specifications including length, diameter, and weight, in both English and Metric Equivalents, plus shipping weight for the kit.
5. Recommended engines for flying the rocket. Engines are listed from least powerful to most powerful. Also, indicates which engine should be used for the first flight.
6. Catalog number for kit which should always be used when ordering.
7. Price of the kit.

Gentle touch down . . . ready to blast-off again.

All prices in this catalog are subject to change without notice.

NEW!

STAR TREK™

Flying Model Rocketry Starter Kit

Complete with everything you need to lift-off in minutes (less battery and glue).

© 1976 Paramount Pictures Corporation

"This Is Where To Begin"

THE STAR TREK STARTER KIT

It's The Perfect Model Rocketry Beginner's Outfit

Imagine the tremendous feeling of excitement as you press the launch button for the first time, and your Star Trek rocket blasts-off on a spectacular cloud of rocket exhaust. Seconds tick away as your bird streaks skyward, reaches apogee, and begins its descent toward earth. Suddenly, with the puff of your engine's ejection charge, the rocket's colorful parachute is fully deployed. With a sigh of relief you know that your first mission has been a success, and your rocket will have a safe, gentle recovery.

Your Star Trek Starter Kit will give you dozens of enjoyable missions just like the first one. High performance Star Trek rocket is easy-to-assemble with quick-release engine mount and bright yellow plastic nose cone and fin unit. Features quick-finish decor with impressive Star Trek wrap-around decal. No painting required! Your model will attain altitudes of over 1,000 feet and return via 12" parachute recovery for flight-after-flight enjoyment.

- ☐ The Star Trek Launch Control System uses a standard 12 volt lantern battery for power (not included). Futuristically designed Launch Controller features continuity arming lamp, safety interlock key, and ignition launch button.
- ☐ Engineered for easy assembly, system includes lightweight launch cable, 1/8"x36" two-piece launch rod, micro igniter clips, and mini-blast deflector. Sleekly designed combination launch pad/power cap sets up quickly for launch and disassembles easily for compact storage. The Star Trek Launch Control System can be used throughout your model rocketry career to launch the majority of Estes model rockets.
- ☐ Flight pack includes three NAR Safety Certified model rocket engines, parachute recovery wadding, and Astron rocket igniters.
- ☐ Special Bonus - New "Beginner's Tech Manual" featuring a variety of model rocketry data is enclosed to get you started off right! (Recommended batteries: Ray-O-Vac #926, Eveready #732, Burgess TW-2, or N.E.D.A. type #926.)

STAR TREK AND MODEL ROCKETRY!

A WINNING COMBINATION FOR FUN AND EXCITEMENT!

Cat. No. 1418 . . . . . **ONLY $9.95**

DELUXE STARTER OUTFIT

Perfect For The Beginning Rocketeer
Even Includes Construction & Finishing Supplies!

Imagine the tremendous feeling of excitement as you press the launch button for the first time, and your Star Trek rocket blasts-off on a spectacular cloud of rocket exhaust. Seconds tick away as assembly of your real flying model. With each construction procedure you take great care to see that everything is just right. Finally, you place the finishing touches on your rocket and you know how professional space scientists feel as they complete final launch preparations on the real thing.

At one low price you get everything needed for assembly, finishing, lift-off, and recovery. Packaged in a sturdy, field operations box with handle, our Deluxe Starter Outfit features:

- ☐ Alpha Rocket Kit with quick-release engine mount, 12" parachute recovery, and balsa parts. Excellent, high performance design for flights up to 1,000 feet.
- ☐ New Astron Launch Control System with safety interlock key, arming lamp, and ignition button. Plus flat-jawed micro-clips, heavy duty battery clips, and 20 feet of launch cable.
- ☐ Rugged Porta-Pad Tripod Launcher with sturdy girder construction, blast deflector plate, 1/8" dia. x 36" two-piece launch rod, and special tilt-adjustment to compensate for wind direction. Also handles larger 3/16" launch rod.
- ☐ Estes "Alpha Book of Model Rocketry" to give you the basics of model rocketry and to really get you into your new hobby. Includes information on stability tests, tracking, multi-staging, boost gliders, scale models, and much, much more.
- ☐ Three Safety Certified Estes Model Rocket Engines for reliability and performance with every launch. Two A8-3 engines are provided for first flights plus a higher powered B6-4 engine for a really spectacular launch.
- ☐ Recovery Wadding to protect your parachute from the engine's ejection gases. Enough for your first series of flights.
- ☐ Astron Igniters for sure lift-offs everytime. Used with new Astron Launch Control System to safely ignite Estes model rocket engines. Enough provided for first series of lift-offs.
- ☐ All necessary construction supplies including hobby knife, sandpaper, and glue.
- ☐ All needed finishing materials including two colors of paint, sanding sealer, thinner, and paint brush.

Super-Complete,
DELUXE STARTER OUTFIT
Cat. No. 1407 ..... **ONLY $12.95**

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ESTES FIRING LINE STARTER KIT

Ready-to-Launch in Minutes

- ☐ The ideal beginner's outfit for father and son. Comes completely ready-to-launch in 10 to 15 minutes (less batteries). All plastic snap-together construction for easy, quick assembly.
- ☐ Ready-to-fly Vampire model rocket features operational status decor and easy-lock engine mount. Pre-assembled 10" parachute for launch-after-launch excitement.
- ☐ Portable Firing Line Launch System is regularly designed to provide countless launches. Easy grip hand held Launch Controller has advanced safety interlock key and distinctive launch control button. Realistic launch pad features 24" two-piece launch rod, pre-soldered micro-clips, mini-blast deflector, and sturdy girder construction. The entire system is pre-wired. (Requires four alkaline penlight batteries, size AA, for operation.)
- ☐ Firing Line Flight Pack includes 3 NAR Safety Certified A3-4T mini-engines, parachute recovery wadding, and Estes advanced Solar igniters.
- ☐ A special model rocketry tech manual is also enclosed for the novice.

Shipping weight 2 lbs., 8 oz.
Cat. No. 0701 ..... **ONLY $14.95**

Features Everything you need to Lift-off TODAY!

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SPORT FLIERS

Sky Hook

Skill Level 1
An excellent kit for your second rocket. Easy-to-build with 12" parachute recovery. Terrific performance flight after flight.

Specifications
Length 12" (30.5cm)
Diameter 0.765" (19.4mm)
Weight 0.7 oz. (20 g)
Shipping wt. 5 oz.
Recommended Engines
1/2A6-2 (First flight)
A8-3 B6-6
B4-4 C6-7
Cat. No. 1208 . . . . . **$1.95**

STREAK

Skill Level 1
Lightweight (1/8 oz. without engine) with wind-cheating design. Great for contests and records. Features simple feather-weight recovery.

Specifications
Length 5.6" (14.2cm)
Diameter 0.720" (18.3mm)
Weight 0.1 oz. (3 g)
Shipping wt. 4 oz.
Recommended Engines
1/2A6-4 (First flight)
A8-5
B6-6
C6-7
Cat. No. 1204 . . . . . **$ .89**

SCOUT Skill Level 1

Estes Industries' first model rocket.

Originally developed in 1959, the Scout is still a super popular kit among rocketeers. Now our most historic rocket, it is sure to become a real collector's item. Teaches you elementary balance and design principles. Sleek lines and tumble recovery for really exciting flights.
Ship. wt. 2 oz. Pat. # 3,114,317

Specifications
Length 7" (17.8cm)
Diameter 0.765" (19.4mm)
Weight 0.3 oz. (9 g)
Recommended Engines
1/2A6-2 (First flight)
A8-3 C6-5 B6-4
Cat. No. 1201 . . . . . **$1.25**

Alpha

Skill Level 1
The ideal kit for your first or second rocket. Swept fin design makes it a really great performer. Balsa nose cone and fins, quick-release engine mount, and 12" parachute recovery.

Specifications
Length 12.25" (31.1cm)
Diameter 0.976" (24.8mm)
Weight 0.8 oz. (23 g)
Shipping wt. 5 oz.
Recommended Engines
1/2A6-2
A8-3 (First flight)
B4-4
B6-4
C6-5
Cat. No. 1225
$1.95

Alpha III

Skill Level 1
Another great first or second kit. Plastic nose cone and fin assembly make for easy, quick assembly. This rocket will deliver outstanding performance flight after flight. Roll pattern decal, quick-release engine mount and 12" parachute are features.

Specifications
Length 12.25" (31.1cm)
Diameter 0.976" (24.8mm)
Weight 1.2 oz. (33.9 g)
Shipping wt. 10 oz.
Recommended Engines
1/2A6-2 A8-3 (First flight)
B6-4 B4-4 C6-5
Cat. No. 1256 . . . . . **$2.95**

Mark II

Skill Level 1
Ideal for sport or demonstration flying. Designed for midbody ejection/separation system with streamer recovery, it's an excellent challenge for the novice rocketeer. Top-notch performance every time.

Specifications
Length 9.1" (23.1cm)
Diameter 0.765" (19.4mm)
Weight 0.7 oz. (20 g)
Shipping wt. 5 oz.
Recommended Engines
1/2A6-2 (First flight) A8-3
B6-4 C6-5
Cat. No. 1202 . . . . . **$1.75**

X-RAY

Skill Level 1
Perfect for your first payloader or second kit. Features large see-through payload/cargo section. Perfect for research work of all kinds. The recommended single-stage payload vehicle for small biological projects. 12" parachute recovery.

Specifications
Length 16.75" (42.5cm)
Diameter 0.736" (18.7mm)
Payload Sec. Dia. 0.976" (24.8mm)
Weight 0.7 oz. (20 g)
Shipping wt. 5 oz.
Recommended Engines
1/2A6-2
A8-3 (First flight)
B6-4
B14-5 C6-5
Cat. No. 1218
$2.95

Engines, Launch System, and Glue not included.

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SPORT FLIERS

Big Bertha

Skill Level 1
Perfect kit for a "big" second rocket. Ideal for demonstration launches. Slow, realistic lift-off for really spectacular flights. 24" from nose to tail, quick-release engine mount, and giant 18" parachute recovery make it a real favorite of rocketeers.

Specifications

Length	24" (61cm)
Diameter	1.637" (41.6mm)
Weight	2.2 oz. (64 g)

Shipping wt. 11 oz.
Recommended Engines
A8-3 B4-2 B6-2 (First flight)
B6-4 C6-5
Cat. No. 1223 . . . . . **$3.95**

Drifter

Skill Level 3
Swept-fin design, low weight, and large 'chute capacity make this bird great for competition, test, or sport flying. Interchangeable chutes: 24" for competition and 12" for test and sport.

Specifications

Length	14.3" (36.3cm)
Diameter	0.976"(24.8mm)
Weight	1 oz. (28 g)

Shipping wt. 5 oz.
Recommended Engines
1/2A6-2 (First flight) A8-3
B6-4 C6-5
Cat. No. 1214 . . . . . **$2.95**

QUASAR

Skill Level 1
Dramatic, easy-to-build model for beginners. Bright white plastic nose cone and fin assembly. Metallized-preprinted mylar wrap-on decal for the body tube. No painting required! Quick-release engine mount and recovery by 12" plastic parachute.

Specifications

Length	14" (35.6cm)
Diameter	0.976" (24.8mm)
Weight	1.5 oz. (42 g)

Shipping wt. 10 oz.
Recommended Engines
1/2A6-2 A8-3 (First flight) A8-5
B4-2 B6-4 C6-5
Cat. No. 0650 . . . . . **$2.95**

Engines, Launch System, and Glue not included.

SAROS

Skill Level 2
An excellent scale-like sounding rocket vehicle. High performance design for really high flights. Payload section plus plastic nose cone, adapter section, and fin unit. Embossed metallic fin rivet press-on with three-color decals. Quick-release engine mount and 12" parachute recovery.

Specifications
Length 22.5" (57.2cm)
Diameter 0.976" (24.8mm)
Weight 1.5 oz. (43 g)
Shipping wt. 8 oz.
Recommended Engines
A8-3 (First flight) A8-5
B4-4 C6-5
Cat. No. 1254. . . **$4.95**

Replacement Plastic Parts Kit (Saros)
Includes nose cone, adapter and fin unit.
Cat. No. 45012
$1.95

Camroc Carrier

Skill Level 3
This high performance model is especially designed for lofting the Camroc. Reaches altitudes over 1,000 feet with "C" engines. Special reducer section and elliptical fins create an excellent low drag design. Features optional payload section for those interesting cargo experiments. Kit includes die-cut fins, stick-on decals, molded plastic nose cone, and 12" parachute recovery.

Specifications

Length	17.75" (45.09cm)
Diameter	1.634" (41.5mm)
Weight w/payload	1.96 oz. (56 g)
Weight w/o payload	0.81 oz. (23 g)

Shipping wt. 6 oz.
Recommended Engines
With Camera:
B6-6 (First flight)
B14-7 C6-7
With Payload:
A8-3 (First flight) B6-4
B14-5 C6-5

Note: Kit can also be modified to handle single D engines. (Camroc Carrier does not include camera.) See page 48 for more information on Camroc aerial camera.
Camroc Carrier
Cat. No. 1266 . . . . . **$3.50**

DER RED MAX

Skill Level 2
Far-out super-fun model. Large stable design gives great sport performance. Freaky "Red Max" decal sheet. Molded plastic nose cone and die-cut fins. 18" parachute recovery for perfect launch, flight after flight.

Specifications

Length	16.25" (41.3cm)
Diameter	1.637" (41.6mm)
Weight	2.375 oz. (67 g)

Shipping wt. 12 oz.
Recommended Engines
B4-2 (First flight) B6-2
B6-4 C6-5
Cat. No. 0651 . . . . . **$3.95**

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SPORT FLIERS

SPRINT

Skill Level 3

Real competition design. Highest performance in its class. Up to 1,600 ft. with C6-7 engine. Low drag ogive nose cone and reducer tail section. Contest winning die-cut elliptical fins, decals, and streamer recovery.

Specifications

Length	13.8" (35cm)
Diameter	0.976" (24.8mm)
Weight	1.0 oz. (28 g)
Shipping wt.	7 oz.

Recommended Engines

1/2A6-2 A8-3 (First flight)
B14-5 B4-6 B6-6 C6-7

Cat. No. 1249 . . . . . **$2.95**

PATRIOT

Skill Level 2

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" (66cm)
Diameter	1.637" (41.6mm)
Weight	3.3 oz. (94 g)
Shipping wt.	12 oz.

Recommended Engines

B4-2 (First flight) B6-4 C6-5

Cat. No. 0652 . . . . . **$4.95**

"SCRAMBLER"

Skill Level 3

A super big "egg lofter" for sport or contest flying. Huge see-through payload section holds an egg or any other large payload. Three-engine cluster gives you the power you need to boost your cargo. Capable of lofting a grade A hens egg over 1,000 ft. and then gently returning it to earth. Kit includes two 18" parachutes, decals, and Tech Report on clustering.

Specifications

Length	23.5" (59.7cm)
Diameter	1.637" (41.6mm)
Payload Dia.	1.796" (45.6mm)
Weight	2.8 oz. (79 g)
Shipping wt.	13 oz.

Recommended Engines

Requires 3 identical engines at launch.

A8-3 B6-4 (First flight)
B14-5 C6-5

Cat. No. 1237 . . . . . **$6.95**

NIKE-X

Skill Level 2

Scale-like single-stage model of U.S. Army's 4th generation, two-stage surface-to-air interceptor missile. Nike-style design with U.S. Army decor. Great performance for really impressive flights. Easy-to-assemble. Realistic roll pattern decals, quick-release engine mount, die-cut fins, and big 18" parachute.

Specifications

Length	23.4" (59.4cm)
Diameter	1.325" (33.7mm)
Weight	2.3 oz. (65 g)
Shipping wt.	9 oz.

Recommended Engines

A8-3 (First flight) B4-4
B6-4 C6-5

Cat. No. 1270 . . . . . **$4.95**

BANDIT

Skill Level 2

Features advanced ejection ducting system. It never needs recovery wadding! High performance styling and military like appearance makes the Bandit a really impressive bird. Over 25" long with large payload section, die-cut fins, quick-release engine mount, U.S.A.F. decals, and 12" parachute recovery.

Specifications

Length	25.75" (65.4cm)
Diameter	1.325" (33.6mm)
Weight	2.6 oz. (37.9 g)
Shipping wt.	12.5 oz.

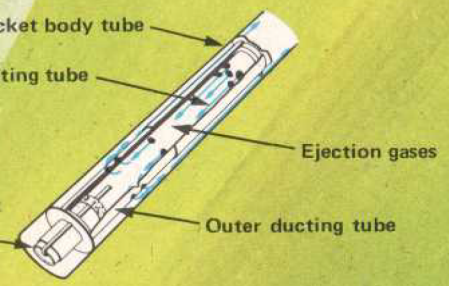
Recommended Engines

A8-3 B4-4 B6-4 (First flight)
B14-5 C6-5

Cat. No. 1248 . . . . . **$5.95**

ADVANCED EJECTION DUCTING SYSTEM

Cools ejection gases completely by the time they reach your parachute.



Engines, Launch System, and Glue not included.

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SPORT FLIERS

ANTARES NEW!

Skill Level 1
Achieve flights over 1200 feet with this high performance sports model. Kit features include fin and roll pattern decals plus 12" parachute recovery. Easy assembly with plastic nose cone, die-cut balsa parts, and quick-release engine mount.

Specifications

Length	14.6" (37.1cm)
Diameter	0.976" (24.8mm)
Weight	0.77 oz. (22 g)

Shipping wt. 5 oz.
Recommended Engines
1/2A6-2 A8-3 (First flight) A8-5
B4-4 B6-4 C6-5
Cat. No. 1276 . . . . . **$2.50**

ICARUS NEW!

Skill Level 1
High altitude payload vehicle with see-through cargo section. Achieve flights of over 1,000 feet with lightweight payload. Simulated sounding rocket appearance with dual roll pattern decor and 12" parachute recovery. Plastic nose cone, die-cut balsa parts, and quick-release engine mount are included for rapid assembly and easy operation.

Specifications

Length	20.8" (52.8cm)
Diameter	0.976" (24.8mm)
Weight	1.3 oz. (37 g)

Shipping wt. 5 oz.
Recommended Engines
1/2A6-2 A8-3 (First flight) B4-4
B6-4 C6-5
Cat. No. 1277 . . . . . **$2.95**

Engines, Launch System, and Glue not included.

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mini-BRUTES

MOSQUITO

Skill Level 1
This smallest of all Mini-Brutes combines fantastic performance with feather weight recovery. Balsa and paper construction with simple spray paint decor makes for quick and easy assembly.

Specifications

Length	3.9" (9.9cm)
Diameter	0.541" (13.74mm)
Weight	0.1 oz. (2.83 g)

Shipping wt. 4 oz.
Recommended Engines
1/4A3-2T (First flight) 1/4A3-4T
1/2A3-4T A3-6T A10-3T
Cat. No. 0801 . . . . . **$ .79**

Screamer

Skill Level 1
Another super performer featuring spectacular streamer recovery. Screaming off the pad this bird is sure to catch the attention at your launch site.

Specifications

Length	7.8" (19.81cm)
Diameter	0.541" (13.74mm)
Weight	0.255 oz. (6.37 g)

Shipping wt. 6 oz.
Recommended Engines
1/4A3-2T (First flight)
1/4A3-4T 1/2A3-4T
A3-6T A10-3T
Cat. No. 0802 . . . . . **$1.75**

Javelin

Skill Level 1
Super performance, easy-to-build competition design with streamer recovery. Scale-like sounding rocket appearance. Reaches altitudes over 1,000 feet.

Specifications

Length	12.4" (31.5cm)
Diameter	0.541" (13.74mm)
Weight	0.34 oz. (9.6 g)

Recommended Engines
1/4A3-2T (First flight)
1/2A3-2T A10-3T
A3-4T

(Combo Kit)
2 for 1

COMBO SPECIAL 2 FOR THE PRICE OF 1

Super Flea

Skill Level 1
The "Flea" has a competition design for ultra-high performance. Reaches incredible altitudes with ogive nose cone and and swept fins. Easy-to-build and features break-away drag recovery.

Specifications

Length	7.34" (18.64cm)
Diameter	0.541" (13.74mm)
Weight	0.158 oz. (4.5 g)

Recommended Engines
1/4A3-2T (First flight) 1 2A3-2T
1/2A3-4T A3-4T A10-3T
COMBO KIT (Javelin & Super Flea)
Cat. No. 0815 . . . . . **Only $2.25**

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mini-BRUTES

BETA

Skill Level 2
Two-stage Mini-Brute for really high flights. Low-drag design with sounding rocket style decor. Booster stage has tumble recovery while top stage returns on 10" parachute
Pat. No. 3,392,302

Specifications

Length	13.76" (34.95cm)
Diameter	0.736" (18.69mm)
Weight	0.75 oz. (21.3 g)
Shipping wt.	6 oz.

Recommended Engines
UPPER STAGE
1/4A3-2T (First flight)
1/2A3-4T A3-6T
A10-3T

BOOSTER STAGE
1/2A3-0T (First flight) A3-0T
A10-0T
Cat. No. 0845 . . . . . **$1.95**

Wolverine

Skill Level 3
Futuristic Russian hypersonic interceptor designed for near-space missions. Ram jet nose cone and cockpit canopy. 12" parachute recovery with two-color Russian decals.

Specifications
Length 11.25" (28.6cm)
Diameter 0.976" (24.8mm)
Weight 0.875 oz. (24.8 g)
Shipping wt. 5 oz.

Recommended Engines
1/2A3-2T (First flight) A3-4T
A10-3T
Cat. No. 0816 . . . . **$2.50**

mini BOMARC

Skill Level 3
Scale model of famous surface-to-air interceptor missile. Authentic Canadian Air Force decor. Features die-cut fins, quick-release engine mount, and 8" parachute recovery.

Specifications
Length 11.75" (29.85cm)
Diameter 0.736" (18.69mm)
Weight 1.0 oz. (28 g)
Wing Span 4.5" (11.43cm)
Shipping wt. 5 oz.

Recommended Engines
1/2A3-2T (First flight)
A3-4T
A10-3T
Cat. No. 0805
$3.50

STAR BLAZER

Skill Level 3
Authentic space vehicle appearance with its forward crew cockpit canopy, structural fairing strips, and streamlined design. Three-color U.S.A.F. decals and 10" parachute recovery.

Specifications
Length 11.5" (29.2cm)
Diameter 0.736" (18.7mm)
Weight 0.73 oz. (20.7 g)
Shipping wt 5 oz.

Recommended Engines
1/4A3-2T (First flight)
1/2A3-2T A3-4T A10-3T
Cat. No. 0831 . . . . . **$2.95**

Engines, Launch System, and Glue not includeo.

LITTLE JOHN

Skill Level 1
Authentic appearance of a semi-scale surface-to-surface military vehicle with U.S. Army decor. Die-cut fins, quick-release engine mount and bright 12" parachute recovery.

Specifications

Length	14.0" (35.6cm)
Diameter	0.976" (24.81mm)
Weight	0.875 oz. (21.2g)
Shipping wt.	6 oz.

Recommended Engines
1/2A3-2T (First flight)
A3-4T A10-3T
Cat. No. 0819 . . . . . **$2.25**

Engines, Launch System, and Glue not included.

These miniature models streak from their launch pads with exceptional performance. Using the smaller than average "T" series Mini-Engine our super-soaring, cloud-busting Mini-Brutes are the favorites of Estes rocketeers. Mini-priced for your pocketbook, Mini-Brutes are a winner for you!

mini Bertha

Skill Level 1
A little sister to the famous Big Bertha listed on page 10. Great performance with colorful 10" parachute recovery. Two-color decal sheet, quick-release engine mount, and balsa and paper construction.

Specifications
Length 11.25" (28.58cm)
Diameter 0.736" (18.69mm)
Weight 0.484 oz. (13.72 g)
Shipping wt. 6 oz.

Recommended Engines
1/2A3-2T (First flight)
A3-4T A10-3T
Cat. No. 0803 . . . **$1.95**

rogue

Skill Level 1
Scale-like sounding research vehicle with realistic decor. Excellent performance for great sport flying. 10" parachute recovery and die-cut balsa parts.

Specifications

Length	11.7" (29.7cm)
Diameter	0.736" (18.7mm)
Weight	0.75 oz. (21.26 g)
Shipping wt.	6 oz.

Recommended Engines
1/4A3-2T (First flight) 1/2A3-2T A3-4T
A10-3T
Cat. No. 0818 . . . . . **$1.95**

ESTES MULTI-STAGERS

A SUBSIDIARY OF DAMON

AVENGER

Skill Level 2
Long, slender lines give this bird the sounding rocket look. Large 18" 'chute brings payload section back gently, booster employs tumble recovery.
Pat. No. 3,292,302
Specifications
Length 32" (81.3cm)
Diameter 1.325" (33.7mm)
Weight 2.7 oz. (77 g)
Shipping wt. 16 oz.
Recommended Engines
UPPER STAGE
A8-5 B6-6 (First flight)
C6-7
BOOSTER
A8-0 B6-0 (First flight)
B14-0 C6-0
Cat. No. 1238 . . **$4.95**

apogee II

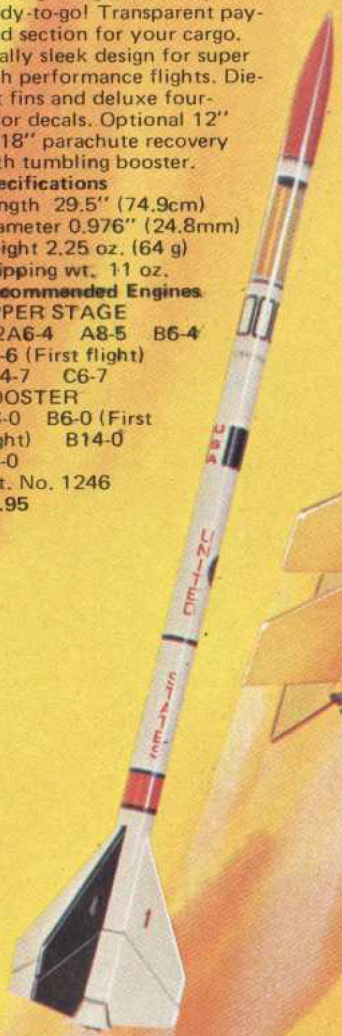
Skill Level 3
Ultimate in 2-stage performance and reliability. See-through payload section lets you observe specimens without removing them from the rocket. 10" pre-assembled parachute and tumbling re-entry booster. Includes Tech Report on Multi-Staging.
Pat. No. 3,292,302.
Specifications
Length 14.7" (37.5cm)
Diameter 0.736" (18.7mm)
Weight 0.6 oz. (17 g)
Shipping wt. 6 oz.
Recommended Engines
UPPER STAGE
1/4A3-4
1/2A6-4 (First flight) A8-5
B4-6 B6-6
B14-7 C6-7
BOOSTER
1/2A6-0 (First flight) A8-0
B6-0 B14-0
C6-0
Cat. No. 1205 **$2.95**

Farside

Skill Level 3
Sophisticated 3-stage ultra-high altitude probe. Flies to well over 2,500 feet. Top stage cargo compartment makes it an excellent payload vehicle. Booster stages tumble back to earth while upper stage returns via 12" bright orange and white 'chute. Includes Tech Report on staging.
Pat. No. 3,292,302.
Specifications
Length 21.5" (54.6cm)
Diameter 0.976" (24.8mm)
Weight 2.0 oz. (57 g)
Shipping wt. 6 oz.
Recommended Engines
FIRST STAGE
1/2A6-0 A8-0
B14-0 (First flight)
SECOND STAGE
1/2A6-0 (First flight)
A8-0 B6-0 B14-0
C6-0
TOP STAGE
1/2A6-4 (First flight)
A8-5 B4-6 B6-6
B14-6 C6-7
Cat. No. 1212 **$3.95**

SHRIKE

Skill Level 3
Employs easy pop-and-go staging method. Just insert engines, plug the stages together and you're ready-to-go! Transparent payload section for your cargo. Really sleek design for super high performance flights. Die-cut fins and deluxe four-color decals. Optional 12" or 18" parachute recovery with tumbling booster.
Specifications
Length 29.5" (74.9cm)
Diameter 0.976" (24.8mm)
Weight 2.25 oz. (64 g)
Shipping wt. 11 oz.
Recommended Engines
UPPER STAGE
1/2A6-4 A8-5 B6-4
B6-6 (First flight)
B14-7 C6-7
BOOSTER
A8-0 B6-0 (First flight) B14-0
C6-0
Cat. No. 1246
$6.95



Engines, Launch System, and Glue not included.

NEW! Vigilante

Skill Level 2
Ultra-high performance two-stage model for flights over 1100 feet. Kit features include impressive kit name decal, low drag plastic nose cone, and die-cut balsa fins. Sleekly designed upper stage returns via 18" parachute while the booster employs tumble recovery.
Specifications
Length 26.5" (67cm)
Diameter 1.325" (33.6mm)
Weight 2.25 oz. (64 g)
Shipping wt. 13 oz.
Recommended Engines
UPPER STAGE
1/2A6-4 A8-5 (First flight)
B4-6 B6-6 C6-7
BOOSTER
A8-0 (First flight) B6-0 C6-0
Cat. No. 1278 . . . . . **$4.95**

OMEGA

Skill Level 3
Recommended launch vehicle for the Cineroc aerial movie camera. Ultimate in two stage, "D" engine performance for lofting heavier payloads. Features pop-and-go staging, high performance plastic ogive nose cone, large payload section and die-cut fins. Plus two-color fin decals, 18" parachute recovery and tumbling booster.
Specifications
With Payload Section and nose cone (for use without Cineroc).
Length 30.5" (77.5cm)
Diameter 1.637" (41.6mm)
Weight 4.0 oz. (113 g)
Shipping wt. 15 oz.
Recommended Engines
D12-5 (First flight) Booster: D12-0
Upper Stage: D12-7
Single Stage Flights: D12-5
(Does not include camera)
See inside back cover for more information on the Cineroc aerial movie camera.
OMEGA
Cat. No. 1200 . . . . . **$7.95**

"D" POWERED BIRDS

Using our mighty "D" engines these kits offer the ultimate in power and performance. Perfect for high altitude research and many payload experiments. All kits come complete ready-to-assemble with instructions. Engines not included.

A-20 DEMON

Skill Level 2
Super performing payload carrier with sounding research vehicle appearance. Bright silver easy-track foil press-on decal for payload section. Allows for accurate in-flight tracking and recovery. Quick-release engine mount, sleek die-cut fins and 18" parachute.

Specifications

Length	26.5" (67.3cm)
Diameter	1.325" (33.6mm)
Weight	2.75 oz. (78 g)
Shipping wt.	12.5 oz.

Recommended Engines
D12-7
Also:
B6-4 B14-5 C6-5
(Using EM-2050 Adapter)
Cat. No. 1258 . . . . . $5.95

CHEROKEE-D

Skill Level 2
Sleek and powerful "D" engine rocket that will practically sail out-of-sight. Big 18" 'chute brings it down safely flight after flight. Die-cut fins, quick-release engine mount and sharp two-color decals. A really beautiful model for your first "D" powered kit.

Specifications

Length	21.6" (54.9cm)
Diameter	1.325" (33.7mm)
Weight	2.75 oz. (78 g)
Shipping wt.	11 oz.

Recommended Engines
D12-5 (First flight) D12-7
Cat. No. 1247 . . . . . $3.95

Engines, Launch System, and Glue not included.

renegade

Skill Level 2
Spectular, ultra-high performance "D" bird over 33" long. R & D style design gives it a real test vehicle appearance. Low-drag styling and giant 18" 'chute means an outstanding flight every time. Contemporary decals, quick-release engine mount and die-cut fins.

Specifications

Length	33.8" (85.9cm)
Diameter	1.637" (41.6mm)
Weight	4.6 oz. (132 g)
Shipping wt.	12 oz.

Recommended Engines
D12-5 (First flight) D12-7
Cat. No. 1271. . . . . $4.95

GOBLIN

Skill Level 3
Powerful and fast, this spooky little kit really gets up and moves. You'll need a good recovery team to retrieve her as she'll reach 1,500 feet and more flight after flight with "D" engines. Dramatic recovery with big, 2" wide bright orange tracking streamer. Includes die-cut fins, crazy decals and quick-release engine mount.

Specifications

Length	14.32" (36.3cm)
Diameter	1.325" (33.6mm)
Weight	2.0 oz. (56.6 g)
Shipping wt.	7 oz.

Recommended Engines
D12-7 (A8-3, B6-4 and C6-5 with adapter EM-2050).
Cat. No. 1255 . . . . . $3.75

ESTES BOOST GLIDERS

A SUBSIDIARY OF DAMON

FIREFLY

NEW!

Skill Level 2

"Hitchhikes" on other larger models for glide durations of up to 30 seconds beginning at apogee. Perfect kit for your first glider with die-cut balsa parts. Impressive performance.

Specifications

Length 12" (30.5cm)
Wing Span 4.5" (11.4cm)
Weight 0.16 oz. (4.6 g)
Shipping wt. 5 oz.
Cat. No. 1280 . . . . . **$1.25**

Rocket Not Included.

SCISSOR-WING FLIGHT PROFILE

The Scissor-Wing Transport represents a major advancement in boost-glider technology. This unique glider launches straight up with its main wing held parallel to the body tube. Shortly after reaching apogee, the engine's ejection charge jettisons the internal power pod causing a weight shift and the pivoting of the main wing to a perpendicular glide position. Then, settling into a gentle glide, the Scissor-Wing begins its descent to Earth. The power pod is recovered via parachute.

GYROC

Skill Level 3

An amazing and unique "helicopter" recovery system makes the Gyroc a must for your fleet. Lifts-off with main fins in straight-away position. Engine's ejection charge allows rear fin tips to snap sideways causing rotor effect and helicopter recovery. Unusual appearance and strange performance is sure to catch the interest of on-lookers.

Specifications

Length	9.8" (24.9cm)
Diameter	0.736" (18.7mm)
Weight	0.6 oz. (17 g)
Shipping wt.	5 oz.

Recommended Engines

1/2A6-2 (First flight) A8-3 B6-4 C6-5
Cat. No. 1224 . . . . . **$1.95**

Sky Dart

Skill Level 4

This totally new rocket-boosted glider design features an internal rear ejection power pod. Streamline "Business SST" body styling results in a high performance glide along with good reliability. 12" parachute recovery brings power pod back safely. Pat. No. 3,157,960.

Specifications

Wing Span	12.6" (31.8cm)
Length	15.8" (40cm)
Body Dia.	.976" (24.8mm)
Weight	1.25 oz. (35.4 g)
Weight of Glider with Pod	2.5 oz. (70.8 g)
Shipping wt.	12 oz.

SCISSOR-WING TRANSPORT

Skill Level 3

This exciting bird introduces the revolutionary new Scissor-Wing concept. Features super SST styling and high flight reliability. Capable of glide times of more than 60 seconds. Internal ejection power pod features vertical stabilizer fins. Comes ready-to-assemble with die-cut parts and two-color decals.

Specifications

Length	22.75" (57.7cm)
Body Dia.	0.976" (2.48cm)
Wing Span	16" (40.6cm)
Weight w/pod	2.5 oz. (71 g)
Weight w/o pod	1.8 oz. (51 g)
Shipping wt.	16 oz.

Recommended Engines

B4-2 (First flight) B6-2 C6-3
Cat. No. 1265 . . . . . **$5.95**

Recommended Engines

A8-3 B4-2 B6-2 C6-3
Cat. No. 1257 . . . . . **$5.95**

Engines, Launch System, and Glue not included.

ESTES
A SUBSIDIARY OF DAMON

INTERPLANETARY VOYAGERS

U.S.S. ATLANTIS

NEW!

Skill Level 3

Patrolling the distant outposts of our galaxy are super-fast starships like the USS Atlantis. This multi-mission star cruiser is designed for patrol, escort, transport, and fleet battle operations. Star flight capability is provided by two giant aft propulsion units. The unique, multi-level flight deck allows massive planet-side operations from synchronous or standard planetary orbit. In addition to superior speed and maneuverability, its powerful weaponry enables it to deal singlehandedly with most alien vessels. Kit includes colorful decals, die-cut balsa fins, plastic nose cone, and quick-release engine mount. Excellent performance with impressive 12" parachute recovery for flight-after-flight enjoyment.

Specifications

Length	23.3" (59.2cm)
Diameter	0.976" (24.8mm)
Weight	1.86 oz. (56.2 g)
Shipping wt.	11 oz.

Recommended Engines

A8-3 B4-4 B6-4 (First flight) C6-5

Cat. No. 1283 ..... **$4.95**

NEW!

PHOTON DISRUPTOR

Skill Level 2

Equip your star fleet with this sophisticated scale missile from the 23rd century. Designed primarily as a mass conversion weapon to overload the defensive screens of an enemy vessel, the actual Photon Disruptor may also be programmed as an interceptor missile, a proximity space mine, or a space distress signal. Exact size, speed, range, and destruct radius of this vehicle are classified. Photon Disruptor uses impulse power unit and guidance system for launch from planetary surface. Kit features operational status detailing decor and comes complete with 12" parachute. Assembly and operation are made easy with plastic nose cone, die-cut balsa parts, and quick-release engine mount.

Specifications

Length	18.25" (46.4cm)
Diameter	0.976" (24.8mm)
Weight	1.4 oz. (40 g)
Shipping wt.	6 oz.

Recommended Engines

1/2A6-2

A8-3 (First flight)

A8-5 B4-4 B6-4

C6-5

Cat. No. 1282 .... **$2.95**

ESTES
A SUBSIDIARY OF DAMON

MODEL ROCKETRY PARTS & ACCESSORIES

ROCKETRONICS

AERIAL TRANSMITTERS

Remote sensing and reporting by telemetry is now practical. The TRANSROC (TX-1) is your basic unit. This tiny transmitter requires no FCC license, yet sends back a clear signal with a range of 5 miles while in flight and of hundreds of yards while on the ground. The closer you are to the TRANROC, the stronger the signal becomes. In its basic mode it transmits an intermittent "beep" for tracking. Any standard walkie-talkie may be used as the receiver, Channel 14 is standard, but other channels of the 27 MHz. Citizen's Band are available by using the proper crystal. Adding accessory kits to the basic mode requires only a little time and a few small circuit changes for each. In the microphone mode (TXA-1) the TRANSROC lets you listen to everything from the unique position of on-board the rocket. The Spin-Rate Telemetering Kit (TXA-2) lets you study the effects of different aerodynamic shapes and unusual fin alignments. The Temperature Telemetering Kits (TXA-3 and TXA-4) permit you to make temperature versus altitude studies. Spotting temperature inversions for predicting pollution buildups is great fun. The TRANSROC opens up a whole new world of exciting scientific research.

THE COMPLETE ROCKETRONICS CATALOG IS AVAILABLE ON REQUEST.

SPECIFICATIONS

Fits BT-50

Length 4.2" (10.7cm)

Dia. .940" (23.9mm)

Weight w/battery 1.3 oz. (36.9g)

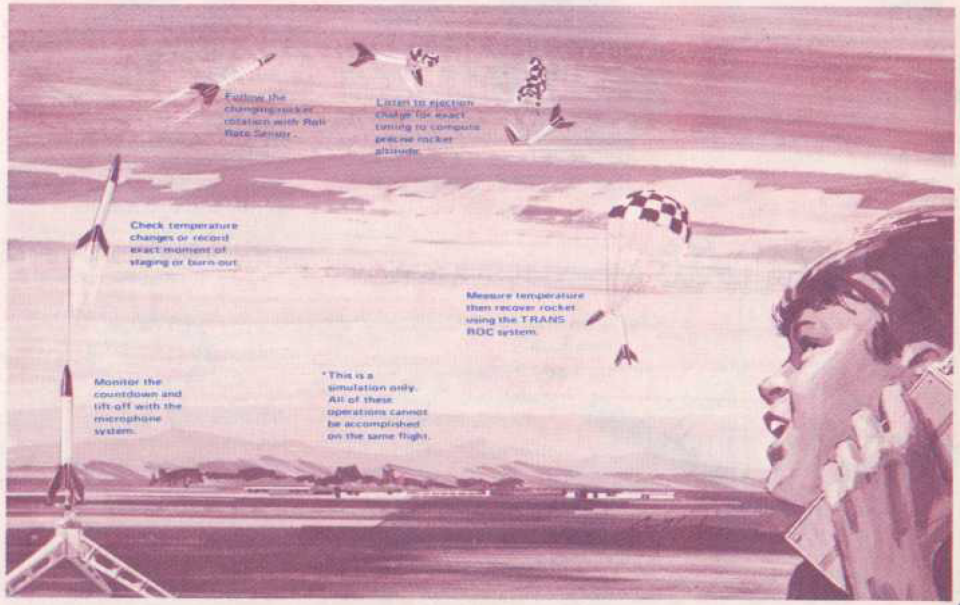
TRANSROC TRANSMITTERS:

Cat. No.	Description	Price
1425	TX-1A(Assembled)	$24.95
1424	TX-1 (Kit Form)	$16.95

ACCESSORY KITS:

Cat. No.	Description	Price
1427	TXA-1	$4.95
1428	TXA-2	$5.95
1429	TXA-3	$7.95
1430	TXA-4	$7.95

Shipping weight is 6 oz. for each kit.



TRACKING EQUIPMENT

PREDICTED ALTITUDE COMPUTER

The Estes Pocket Size Altitude Computer enables any rocketeer to predict his model rocket's performance in a matter of seconds. Just move the center slide in a simple procedure for fast accurate results. Three color calculator comes complete with instructions. Ship. wt. 3 oz.
Cat. No. 9015 . . . . . $ .75

ALTISCOPE

Find out how high your rocket went with this Altiscope! Comes in kit form complete with instructions, trig tables, technical report TR-3 on altitude tracking and 2-D altitude computer. Patent No. 3,208,147. Ship. wt. 20 oz.
Cat. No. 1415 . . . . . $4.95

LAUNCH SUPPLIES

ADD-ON ROD: Sturdy 1/8" diameter, 18" long launch rod section expands two-piece rod to 53" length. Ship. wt. 6 oz.
Cat. No. 2236
$ .30 per section

LEAD WIRE: Size 18 two-conductor insulated wire. Ideal as lead from firing panel to launcher. In 12 foot lengths. Ship. wt. 5 oz.
Cat. No. 2230 . . . . . $ .95

SWIVEL ASSEMBLY: Provides 360° rotation and full tilt adjustment, yet locks in selected position. Handles 1/8" rod, 3/16" rod, and C-rail. Ship. wt. 3/4 oz.
Cat. No. 2219 . . . . . $1.75

MASKING TAPE: Use to secure engines in models, mask for painting, etc. ½" wide, in 30' rolls. Ship. wt. 5 oz.
Cat. No. 2508 . . . . . $ .60

BATTERY CLIPS: Hook-up to car batteries. Heavy-duty clips connect to terminals up to 1" in dia. With insulators. Ship. wt. 5 oz.
Cat. No. 2245 2 for $1.10

DELUXE BLAST DEFLECTOR: Durable pressed steel plate deflects engine blast outward away from launcher. Ship. wt. 5 oz.
Cat. No. 2240 . . . . . $ .75

Fin-Kwik ASSEMBLING FIXTURE

Fast!
Simple!
Accurate!

- Position and Glue Fins Quickly and Easily
- Fits Body Tubes up to BT-70
- Designed for either 3 or 4 finned rockets
- Aligns fins exactly at 90° or 120° to each other
- Heavy duty metal construction
- Completely adjustable

Cat. No. 2713 . . . . ONLY $7.95

NICHROME WIRE: Model rocket ignition wire. No. 30 recommended for use with car batteries, No. 32 for use with other power supplies.
No. 30, 15-Foot Roll:
Cat. No. 2228 . . . . . $ .65
No. 32, 15-Foot Roll:
Cat. No. 2229 . . . . . $ .85

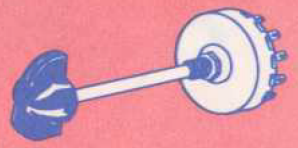
ARMING LIGHT LAUNCH PANEL HOLDER: Steel with 1/2" red plastic jewel, mounts in 7/16" hole. Takes 6 or 12 volt bulbs, not included. Ship. wt. 4 oz.
Cat. No. 2355 . . . . . $1.25

6 VOLT BULB: Fits holder Cat. No. 2355. Ship. wt.1 oz. (Type 51.)
Cat. No. 38020 . . . . $ .30

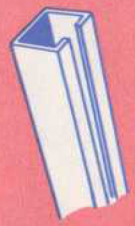
12 VOLT BULB: Fits holder Cat. No. 2355. Ship. wt. 1 oz. (Type 53.)
Cat. No. 38021 . . . . $ .30

KEY SAFETY SWITCH: Prevents accidental launching of rockets. SPST, turns on with key, must be turned off to remove key. Mounts in 1/2" hole. One key included. Ship. wt. 4 oz.
Cat. No. 2350 . . . . . $3.75
EXTRA KEY:
Cat. No. 2351 . . . . . $ .70

PUSH BUTTON SWITCH: Heavy duty construction, momentary type, SPST, normally open. Excellent for use as a firing switch. Mounts in 1/2" hole. Ship. wt. 4 oz.
Cat. No. 38140 . . . . $1.75



ROTARY SWITCH: Twelve position single pole rotary switch — use as a selector with multiple firing systems. Non-shorting, mounts in 3/8" hole. Ship wt. 5 oz.
Cat. No. 38145 . . . . . $2.75



LAUNCH RAILS: Rigid aluminum 'C' rails offer countless possibilities for launcher designs.

'C' RAIL: 3/8" square (outside). Comes in 18" long sections. Durable aluminum for long life and rust-free service. Use at least 2 sections connected with a joiner (see below). Ship wt. 6 oz.
Cat. No. 2250 . . . . . 2 for $1.95

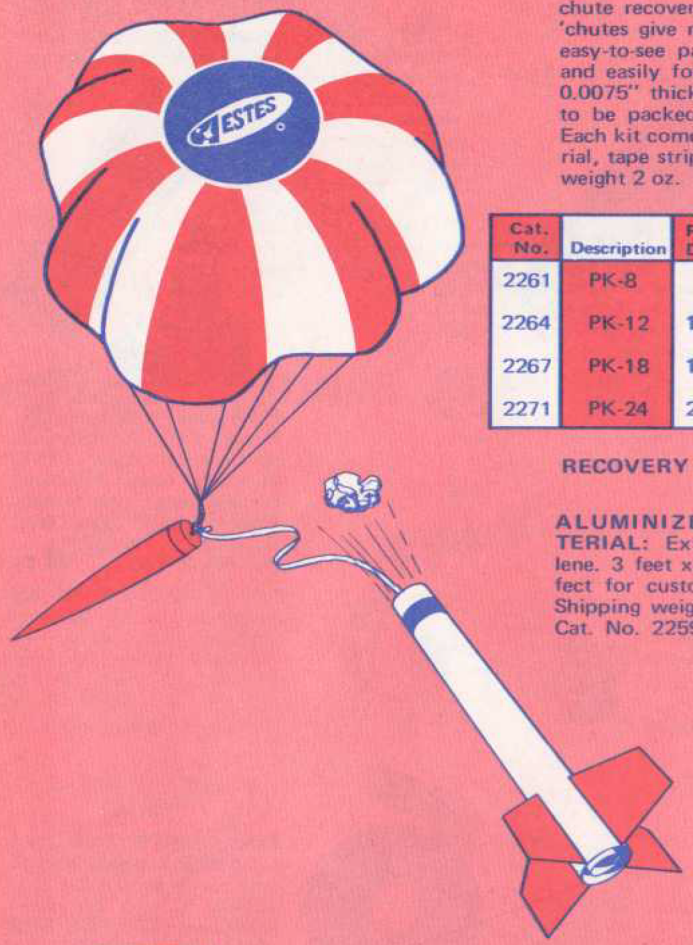
RAIL JOINER: Spring clip 2" long by 1/4" wide, fits inside rail ends, holds two rail sections securely together. Ship. wt. 2 oz.
Cat. No. 2252 . . . . . $ .55 each

DIAL PLATE: Numbered 12 position plate for use with rotary switch Cat. No. 38145. Mounts on panel with same nut used to hold switch. Ship. wt. 1 oz.
Cat. No. 38050 . . . . $ .65

UNIVERSAL SAFETY KEY: Replacement safety interlock key for Solar Launch Controller Cat. No. 2300 and the Astron Launch Control System Cat. No. 2212.
Cat. No. 2204 . . . . . $ .25

RECOVERY SUPPLIES

A SUBSIDIARY OF DAMON

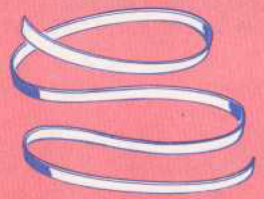


PARACHUTE KITS: Get the best in parachute recovery! Two-color printed plastic 'chutes give maximum visibility – feature easy-to-see pattern. Lightweight, durable, and easily folded. These 'chutes are only 0.0075" thick, allowing the most material to be packed into the least body space. Each kit comes complete with 'chute material, tape strips, and shroud lines. Shipping weight 2 oz.

Cat. No.	Description	Parachute Diameter	Net Weight	Price Each
2261	PK-8	8 inches	.035 oz.	$ .50
2264	PK-12	12 inches	.078 oz.	$ .55
2267	PK-18	18 inches	.144 oz.	$ .60
2271	PK-24	24 inches	.298 oz.	$ .90

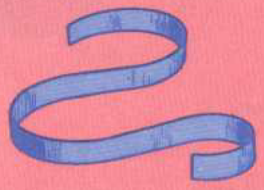
RECOVERY WADDING: See Page 40

ALUMINIZED PARACHUTE MATERIAL: Extra strong coated polyethylene. 3 feet x 3 feet. 1.25 mil. thick. Perfect for custom 'chutes, para-wings, etc. Shipping weight 2 oz.
Cat. No. 2259 . . . . . 2 for $1.95

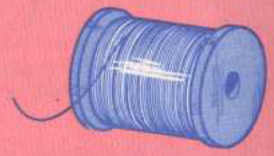


SHOCK CORD: Specify width when ordering. Shipping weight 1 oz.
1/8" wide: Net wt. 0.039 oz.,
Cat. No. 2276 $ .20
1/4" wide: Net wt. 0.078 oz.,
Cat. No. 2277 $ .25

Also 36" long for greater stretch on those larger birds.
1/8" wide: Net wt. 0.078 oz.,
Cat. No. 85744 . . . . . $ .30



STREAMER MATERIAL: Bright orange, flame-resistant crepe paper streamers. In 7½-foot lengths, enough for two to eight streamers. Specify size when ordering. Shipping weight 1 oz.
1" wide – Net wt. .092 oz.
Cat. No. 2341 6 for $ .95
2" wide – Net wt. .184 oz.
Cat. No. 2343 6 for $1.10

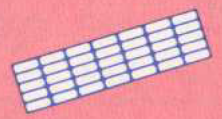


SHROUD LINES: Build reliable, durable, custom parachutes with this strong, hard surface shroud line cord.

Comes in 70 yard spools. Shipping weight 5 oz.
Cat. No. 2340 . . . . . $ .60

SCREW EYES: Specify size when ordering. Shipping weight for 6 eyes, 1 oz.
LARGE EYE: 1" long; .04 oz.
Cat. No. 2280 . . . . . 6 for $ .45
SMALL EYE: 3/4" long; .03 oz.
Cat. No. 2283 . . . . . 6 for $ .45
EXTRA SMALL EYE: 5/8" long; .01 oz.
Cat. No. 2281 . . . . . 6 for $ .45

TAPE DISCS: Fasten shroud lines to plastic parachutes or streamers with these 3/4" pressure sensitive Tape Discs. In sheets of 6 discs. Shipping weight 1 oz.
Cat. No. 2294 . . . . . 4 sheets of 6 for $ .55



TAPE STRIPS: For top strength, low bulk and low weight, fasten shroud lines with these 1/4" x 3/4" tape strips, in sheets of 35 strips. Shipping weight 1 oz.
Cat. No. 2297 . . . . . 2 sheets of 35 for $ .70

SNAP SWIVELS: For quick changes and reduced tangling in your recovery systems, use these tiny 1" long snap swivels. Net weight .01 oz. Shipping weight for 12 swivels, 1 oz.
Cat. No. 2292 . . . . . 12 for $ .95

PARTS SELECTION

Once you have constructed several model rocket kits and have become familiar with the basic Estes Technical Reports you will no doubt have a variety of ideas for unique designs of your own. In order to select the proper parts for your original design it is important for you to understand our system of parts description numbers.

Nearly all matching Estes parts have the same series description number. Those which do not feature an additional explanation as to where they can be used. Normally, parts listing the same series description number will be interchangeable with each other. For instance, a #20 body tube (BT-20) would mate with a #20A balsa nose cone (BNC-20A), a #20C payload section (PS-20C), or a #20B engine block (EB-20B). Further, 1 #2060 tube adapter (TA-2060) will adapt a BT-20 to a BT-60, and a #5055 centering ring (AR-5055) will center a BT-50 within a BT-55. By using balsa or paper adapters almost any combination of parts can be joined together. For ordering, be sure to use both the catalog number and the series description number (name).

BODY TUBES

SPIRAL

Cat. No.	Description	Price Each	Length	Inside Diameter	Outside Diameter	Wall Thickness	Weight in Oz. Net.	Ship.
Spiral-Wound Paper Tube, for nose sections and strap-on payloads								
3070	BT-5	$ .45	18"	0.515"	0.541"	0.013"	.219	11
Spiral-Wound Paper Tube, for competition and sport models								
3072	BT-20	$ .45	18"	0.710"	0.736"	0.013"	.288	11
30320	BT-20B	$ .25	8.65"	0.710"	0.736"	0.013"	.138	4
30326	BT-20J	$ .20	2.75"	0.710"	0.736"	0.013"	.044	4
Spiral-Wound Paper Tube, for sport and high performance payload models								
3073	BT-50	$ .55	18"	0.950"	0.976"	0.013"	.378	11
30372	BT-50W	$ .45	9.5"	0.950"	0.976"	0.013"	.200	5
Spiral-Wound Paper Tube, for sport and demonstration models								
3074	BT-55	$ .80	18"	1.283"	1.325"	0.021"	.672	11
Spiral-Wound Paper Tube, for sport and demonstration models								
3075	BT-60	$ .85	18"	1.595"	1.637"	0.021"	.960	11
30406	BT-60D	$ .65	11"	1.595"	1.637"	0.021"	.583	11
Spiral-Wound Paper Tube, for monster models and tail rings								
3076	BT-70	$1.10	17.5"	2.175"	2.217"	0.021"	1.300	14
Spiral-Wound Paper Tube, for giant-scale models								
30438	BT-101	$1.95	16.5"	3.896"	3.938"	0.021"	1.974	16

PARALLEL

Cat. No.	Description	Price Each	Length	Inside Diameter	Outside Diameter	Wall Thickness	Weight in Oz. Net.	Ship.
Parallel-Wound Paper Tube, for sport models								
30338	BT-30	$ .45	9"	0.725"	0.765"	0.021"	.270	4

CLEAR

Cat. No.	Description	Price Each	Length	Inside Diameter	Outside Diameter	Wall Thickness	Weight in Oz. Net.	Ship.
Clear Plastic Tubes, for payload sections								
30602	PST-20	$ .50	8"	0.710"	0.736"	0.013"	.168	4
30604	PST-20J	$ .25	2.75"	0.710"	0.736"	0.013"	.058	4
30608	PST-50S	$ .40	4"	0.950"	0.976"	0.013"	.110	4
30614	PST-60R	$ .65	5"	1.595"	1.637"	0.021"	.350	6
30616	PST-65R	$ .70	5"	1.750"	1.796"	0.023"	.450	6
Mylar Plastic Tube, for featherweight models								
30312	BT-10	$ .40	9"	0.710"	0.720"	0.005"	.088	4

PAYLOAD SECTIONS

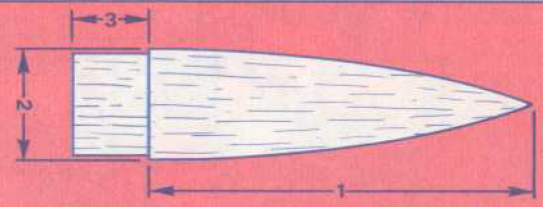
Cat. No.	Description	Price Each	Body Mat'l.	Fits	Inside Diameter	Inside Length	Overall Length	Weight in Oz. Net.	Ship.
3010	PS-20A	$1.10	Clear Plastic	BT-20	.710"	2"	4.00"	.16	1
3012	PS-20C	$1.10	Clear Plastic	BT-20	.950"	3"	7.00"	.40	4
3014	PS-30B	$ .90	Regular Tube	BT-30	.725"	2"	3.75"	.24	1
3016	PS-50A	$1.10	Clear Plastic	BT-50	.950"	3"	6.50"	.39	4
3020	PS-50C	$2.35	Clear Plastic	BT-50	1.59"	4"	10.50"	1.00	11
3025	PS-50E	$2.10	Clear Plastic	BT-50	1.75"	4"	10.50"	1.10	11
3026	PS-55B	$1.85	Regular Tube	BT-55	1.28"	3"	7.63"	.53	11
3028	PS-60A	$2.35	Clear Plastic	BT-60	1.59"	4"	9.50"	.98	11
3032	PS-60C	$2.35	Clear Plastic	BT-60	1.75"	4"	9.50"	1.00	11

Notes:
Payload Sections include nose cone, body tube, and adapter or bulk head.

NOSE CONES

Nose cone dimensions listed in columns 1, 2, and 3.

In "Description" column BNC stands for balsa nose cone and PNC for plastic nose cone.



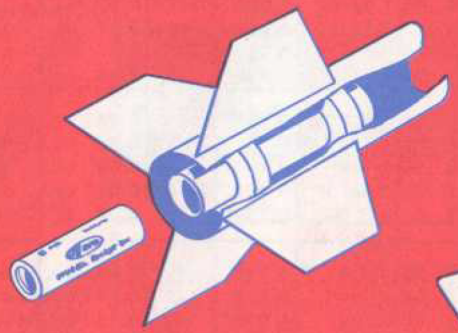
Shape	No.	Cat. No.	Description	Price Each	Dimensions 1	2	3	Average Weight	Ship. Weight
BT-5	1	8002	BNC-5V	$ .40	3/4"	0.541"	1/4"	0.013 oz.	1 oz.
	2	8000	BNC-5E	$ .40	1-3/8"	0.541"	1/4"	0.020 oz.	1 oz.
	3	8001	BNC-5S	$ .40	1-1/2"	0.541"	1/4"	0.016 oz.	1 oz.
	4	8003	BNC-5W	$ .55	2-7/8"	0.541"	1/4"	0.039 oz.	2 oz.
BT-10	5	70220	BNC-10A	$ .40	13/16"	0.728"	1/4"	0.03 oz.	1 oz.
	6	70222	BNC-10B	$ .45	1-11/16"	0.728"	5/16"	0.05 oz.	1 oz.
BT-20	7	8004	BNC-20A	$ .40	13/16"	0.736"	1/4"	0.03 oz.	1 oz.
	8	70238	BNC-20P	$ .45	1-5/16"	0.900"	7/16"	0.07 oz.	4 oz.
	9	8005	BNC-20B	$ .45	1-11/16"	0.736"	5/16"	0.05 oz.	1 oz.
	10	8007	BNC-20R	$ .55	2-3/4"	0.736"	3/8"	0.07 oz.	2 oz.
	11	8006	BNC-20N	$ .60	2-3/4"	0.736"	1/2"	0.08 oz.	2 oz.
BT-30	12	70242	BNC-30C	$ .45	3/4"	0.767"	3/8"	0.04 oz.	1 oz.
	13	70244	BNC-30D	$ .50	1-1/2"	0.767"	3/8"	0.06 oz.	1 oz.
	14	70248	BNC-30M	$ .55	1-1/2"	0.767"	1/2"	0.06 oz.	1 oz.
	15	70246	BNC-30E	$ .60	2-3/16"	0.767"	7/16"	0.07 oz.	1 oz.
	16	70250	BNC-30N	$ .65	2-3/4"	0.767"	1/2"	0.08 oz.	2 oz.
BT-50	17	8008	BNC-50J	$ .55	1-3/8"	0.976"	1/2"	0.08 oz.	4 oz.
	18	8009	BNC-50K	$ .65	2-3/4"	0.976"	1/2"	0.13 oz.	4 oz.
	18	71008	PNC-50K	$ .65	2-3/4"	0.976"	1/2"	0.13 oz.	4 oz.
	19	8010	BNC-50X	$ .80	3-1/4"	0.976"	1/2"	0.15 oz.	4 oz.
	20	71007	PNC-50AD	$ .85	4-1/16"	1.300"	1/2"	0.25 oz.	6 oz.
	21	8011	BNC-50Y	$ .95	4-3/8"	0.976"	3/8"	0.16 oz.	6 oz.
	21	71009	PNC-50Y	$ .95	4-3/8"	0.976"	3/8"	0.16 oz.	6 oz.
BT-55	22	8012	BNC-55AA	$ .95	3-1/8"	1.325"	1/2"	0.15 oz.	4 oz.
	23	8014	BNC-55F	$1.00	3-7/8"	1.325"	1/2"	0.19 oz.	4 oz.
	24	71070	PNC-55AC	$1.10	5-3/8"	1.325"	3/8"	0.32 oz.	6 oz.
	25	71075	PNC-55AO	$1.10	5"	1.325"	3/4"	0.43 oz.	4 oz.
BT-60	26	8015	BNC-60AB	$ .80	2-5/8"	1.637"	3/8"	0.23 oz.	4 oz.
	27	8018	BNC-60T	$ .95	2-7/8"	1.637"	1/2"	0.17 oz.	4 oz.
	28	8020	PNC-60L	$ .95	3-1/8"	1.637"	5/8"	0.34 oz.	4 oz.
	29	8016	BNC-60AH	$1.85	6-5/8"	1.637"	7/8"	1.0 oz.	6 oz.
	29	8021	PNC-60AH	$1.85	6-5/8"	1.637"	7/8"	1.0 oz.	6 oz.
PST-65 30	30	70298	BNC-65L	$1.00	3-1/4"	1.796"	1/2"	0.41 oz.	4 oz.
BT-70 31	31	8019	BNC-70AJ	$1.85	4-1/4"	2.217"	1"	0.85 oz.	6 oz.
TAIL CONE FOR BT-55[1] 32	32	70532	BTC-55Z	$1.20	3"	1.325"	1/2"	0.25 oz.	4 oz.

[1] (With pre-drilled hole)

ESTES
A SUBSIDIARY OF DAMON

ENGINE MOUNTS

Engine Type	Cat. No.	Description	Price	Fits	Net Weight Oz.	Shipping Weight Oz.
For Series I & II Engines—A, B, & C type 0.69"×2.75"	3150 3151 3152	EH-2050 EH-2055 EH-2060	$ .55 $ .55 $ .55	BT-50 BT-55 BT-60	0.1 0.14 0.17	5 5 5
For Series IV Engines-D type 0.945" x 2.75"	3155	EM-5063	$ .75	Saturn V	0.4	5
For T Series Mini-Engines .5"×1.75"	3153	EM-520	$ .50	BT-20	0.09	5
Special Purpose Quick-Change Conversion Mount —From Series IV Engines to Series I & II Engines	3154	EM-2050	$ .60	BT-50	0.19	5



Use Estes, high performance engine mounts for your original designs. All engine mounts feature easy-to-assemble instructions and lightweight components.

ENGINE BLOCKS

Used for positioning the engine in the rocket. Provides a hollow bulkhead for the engine to develop thrust against, as well as an opening for gases to pass for normal ejection.

Cat. No.	Description	Price 3 for	Outside Dia.	Inside Dia.	Length	Fits	Weight in Oz. Net.	Ship.
3131	EB-20A	3/$.35	.708"	.65"	1/4"	BT-20	.009	1
3134	EB-20B	3/$.35	.708"	.65"	1/8"	BT-20	.005	1
3136	EB-30A	3/$.35	.724"	.65"	1/4"	BT-30	.010	1

NOSE BLOCKS

Use these top quality featherweight balsa nose blocks in payload sections and anywhere else a solid bulkhead is required. Precision turned for exact fit in body tubes.

Cat. No.	Description	Price Each	Outside Diameter	Length	Fits	Weight in Oz. Net.	Ship.
8025	NB-20	$ .45	.710"	3/4"	BT-20	.014	1
70156	NB-30	$ .50	.725"	3/4"	BT-30	.014	1
8026	NB-50	$ .55	.950"	1"	BT-50	.040	4
8027	NB-55	$ .60	1.283"	1-1/4"	BT-55	.115	4
8028	NB-60	$ .65	1.595"	1-1/2"	BT-60	.190	4

BALSA ADAPTERS

Adapters give flexibility for rocket design. Switch from one size body tube to another for payload capsules, parachute compartments, propulsion sections, etc. Adapters fitting BT-20 can be built-up with masking tape to fit BT-30. Any adapter can be hollowed to make a passage for ejection gases. All adapters have at least ½" mating surface on each end.

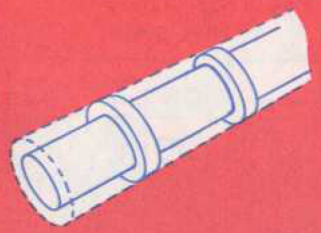
Cat. No.	Description	Price Each	Mates Tubes	Length	Taper Length	Weight Oz. Net.	Ship.
8031	TA-520	$ .45	BT-5 to BT-20	1.75"	0.75"	0.04	1
8032	TA-550	$ .50	BT-5 to BT-50	2.2"	1.0"	0.06	4
70008	TA-2050A	$ .50	BT-20 to BT-50	2.0"	1.0"	0.11	4
8033	TA-2055	$ .60	BT-20 to BT-55	2.5"	1.5"	0.22	4
8034	TA-2060	$1.20	BT-20 to BT-60	3.0"	2.0"	0.20	4
8035	TA-5055	$ .75	BT-50 to BT-55	2.0"	1.0"	0.60	4
8036	TA-5060	$1.45	BT-50 to BT-60	3.0"	2.0"	0.23	4
8037	TA-5065	$ .85	BT-50 to PST-65	3.0"	2.0"	0.26	4
8038	TA-5560	$ .80	BT-55 to BT-60	2.2"	1.0"	0.25	4
70030	TA-5565	$ .80	BT-55 to PST-65	2.7"	1.5"	0.38	4
70032	TA-6065	$ .75	BT-60 to PST-65	2.0"	0.5"	0.23	4
8039	TA-6070	$1.35	BT-60 to BT-70	2.7"	1.5"	0.65	4

STAGE COUPLERS

For multi-staging, joining body tubes, positioning adapter rings, etc. Make perfect guides for cutting body tubes and sanding cut edges of body tubes, too. Shipping weight for all is 3 oz. each.

Cat. No.	Description	Price Each	Outside Diameter	Inside Diameter	Length	Fits	Average Weight
3050	JT-5C	$ .20	.513"	.455"	3/4"	BT-5	.020 oz.
3051	JT-20C	$ .20	.708"	.650"	3/4"	BT-20	.027 oz.
30256	JT-30C	$ .20	.724"	.650"	3/4"	BT-30	.030 oz.
3052	JT-50C	$ .25	.949"	.920"	1"	BT-50	.051 oz.
3053	JT-55C	$ .25	1.28"	1.25"	1.3"	BT-55	.088 oz.
3054	JT-60C	$ .25	1.59"	1.55"	1-1/2"	BT-60	.124 oz.
3055	JT-70A	$ .40	2.175"	2.115"	1-1/4"	BT-70	.140 oz.

CENTERING RINGS



AR-2050 CENTERING RINGS
For centering a BT-20 body tube within a BT-50. Greater strength makes for use with high thrust engines. Weight per pair .285 oz. Shipping weight 3 oz.
Cat. No. 3100 ..... **10 for $ .70**

AR-5055 CENTERING RINGS
To center a BT-50 tube in a BT-55 body tube. Extra strong for "D" engine mounts. Weight 0.062 oz. each. Shipping weight 2 oz.
Cat. No. 3102 ..... **4 for $ .50**

PAPER ADAPTERS

MULTI-PURPOSE SET – Includes a total of 20 rings for positioning BT-5 in BT-20; BT-5, BT-20, BT-30 in BT-50; and BT-5, BT-20, and BT-50 in BT-60. Also three universal tapered shrouds and instructions. Shipping weight 2 oz.
Cat. No. 8030 ..... **$ .55**

RA-2050 RINGS – 20 rings for centering and mounting BT-20 in BT-50. Shipping weight 2 oz.
Cat. No. 3110 ..... **$ .40 per set**

RA-2055 RINGS – 10 rings for centering and mounting BT-20 in BT-55. Shipping weight 2 oz.
Cat. No. 3111 ..... **$ .45 per set**

RA-2060 RINGS – 10 rings for centering and mounting BT-20 in BT-60. Shipping weight 2 oz.
Cat. No. 3113 ..... **$ .45 per set**

FIN STOCK

Top quality balsa sheeting for making fins for model rockets. For maximum strength, grain of wood should follow the leading edge of fin. Read FINS in Vol. 3, No. 3 of the MODEL ROCKET NEWS for more information.

Cat. No.	Description	Price	Dimensions (In Inches)	Weight in Oz. Net.	Ship.	Major Use
3162	BFS-10	3 for $ .65	1/32x3x9	.065	4	High Performance
3164	BFS-20	3 for $ .55	1/16x3x9	.130	4	High Performance
3166	BFS-20L	3 for $ .70	1/16x3x12	.173	6	High Performance
32104	BFS-20B	2 for $ .20	1/16x1/2x6	.015	2	Glider Elevon
3168	BFS-30	3 for $ .60	3/32x3x9	.150	4	Sport Models
3170	BFS-30L	3 for $ .75	3/32x3x12	.200	6	Sport Models
3172	BFS-40	3 for $ .70	1/8x3x9	.200	4	Cluster Rockets
3174	BFS-40L	3 for $ .80	1/8x3x12	.265	6	Glider Wings
32114	BFS-30W	$ .85 each	4x18	.50	16	Boost Glider

FIN PATTERNS

Popular fin designs, all tried and proven, printed full size on heavy index stock. Simply cut out and trace around pattern to transfer design to balsa. A must for the model rocket designer. Shipping weight 1 oz.
Cat. No. 84465, SHEET No. 2 (14 patterns) ..... **$ .40**

Cat. No. 84466, SHEET No. 3 (15 patterns) ..... **$ .40**

ESTES
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CUSTOMIZING MATERIALS

Launchers Special

Perfect starter assortment for developing your own "R & D" program. Over 74 pieces—at an excellent savings! Packed in reusable Range Box.

Contents:

Nose Cones
1 PNC–60L
1 BNC–30D
1 BNC–30M
1 BNC–20A
1 BNC–20B
1 BNC–20N
1 BNC–10A
1 BNC–10B

Body Tubes
2 BT–10H
2 BT–20
2 BT–30
1 BT–60

Fin Material
1 BFS–10
2 BFS–20
3 BFS–30
2 BFS–40

Recovery Equipment
1 PK–8A
2 PK–12A
1 PK–18A
1 PK–24A

1 SM–1 Streamer Material
2 TD–2 Tape Discs
1 SLT–1 Shroud Line
6 SC–1 Shock Cord
1 SC–2 Shock Cord
9 SE–2 Screw Eye

Miscellaneous
1 JT–60C Stage Coupler
1 NB–30 Nose Block
1 NB–20 Nose Block
1 EH–2060 Engine Holder
1 TA–2060 Balsa Adapter
1 TA–1 Multi-Purpose Paper Adapter Set
3 NCD–2 Nose Cone Dowels
3 LL–2C Launch Lug
3 EB–20A Engine Blocks
3 EB–30A Engine Blocks
3 NCW–1 Nose Cone Weight
1 NCS–1 Nose Stock
1 NCS–2 Nose Stock
1 D–5 Decal
1 2820 Alpha Book of Model Rocketry
1 PP–2 Fin Patterns
1 PP–3 Fin Patterns

Shipping wt. 2 lbs.
Cat. No. 1462 ..... **$15.00 Value ONLY $9.95**

Lift-Off Assortment

For building an all-purpose rocket fleet. Lift-off to more rocket building enjoyment with this special-value assortment.

Contents:

Nose Cone
1 BNC–30C
1 BNC–30D
1 BNC–30E
1 BNC–30M
1 BNC–30N

Body Tubes
5 BT–30

Fin Stock
3 BFS–20
2 BFS–30

Recovery Equipment
1 PK–8A
2 PK–12A
1 SM–1 Streamer Material
1 TD–2 Tape Discs
5 SC–1 Shock Cord

1 SLT–1 Shroud Line
5 SE–2 Screw Eye

Miscellaneous
1 2820 Alpha Book of Model Rocketry
1 PP–2 Fin Patterns
1 PP–3 Fin Patterns
5 LL–2A Launch Lug
5 EB–30A Engine Blocks

Shipping wt. 1 lb., 10 oz.
Cat. No. 1461 ..... **$7.00 Value ONLY $4.95**

CONSTRUCTION SUPPLIES

A Complete Construction and Finishing Set
One convenient package containing all the tools and supplies recommended for assembling, painting, and decorating most model rockets. Ideal for the beginning rocketeer who doesn't already have modeling equipment. This set helps you build the best models right from the start.
Contents:

- 1 Bottle White Glue
- 3 Emery Boards
- 1 Bottle Sanding Sealer
- 4 Bottles Paint (assorted colors)
- 1 Bottle Thinner
- 1 Gold Mine Special Decal
- 1 United States Decal
- 3 Sheets Sanding Material
- 1 Roll Masking Tape
- 1 X-Acto Knife
- 18 Sheets Sandpaper
- 3 Paint Brushes

Shipping wt. 1.5 lb.
Cat. No. 1400
$7.25 Value **Only $4.95**

LAUNCH LUGS: Super-strength laminated launch lugs feature mylar plastic core for durability, paper outer layer for easy gluing. Inside diameter 5/32", fit 1/8" rod. Ship. wt. 1 oz.
1-1/4" long: Cat. No. 2321 .. **12 for $ .65**
2-3/8" long: Cat. No. 2322 ... **10 for $ .65**
5" long: Cat. No. 2325 ..... **6 for $ .75**
8" long: Cat. No. 2326 ..... **4 for $ .75**

FOAM PADDING: Protect payload specimens, pad payload capsules with plastic foam. Pieces are 6" x 6" x 1/4". Can be cut and secured in place with white glue. Net weight 0.08 oz. Shipping wt. 1 oz. Cat. No. 3007
3 for $ .85

NYLON SCREWS: Extra light, high strength screws for elevon adjustment on boost-gliders. 1/2" long, 1/16" thread diameter. Cat. No. 9004
6 for $ .80

PAYLOAD: How high can your rocket lift an ounce of lead? This 1 oz. payload weight, 3/4" in diameter, is certified for competition. Ship. wt. 2 oz. Cat. No. 2309
2 for $1.10

REINFORCING: Reinforce fin joints, attach shock cords. 3" x 12" sheets of gauze.
Cat. No. 3006
6 for $ .75
3" x 9" self-adhesive treated paper Cat. No. 3005
6 for $ .60

STYROFOAM BALLS: Featherweight 3" diameter styrofoam balls for "odd ball" designs. Use white glue for best results. Net weight 0.2 oz. Shipping wt. 5 oz.
Cat. No. 3216
2 for $ .85

DOWELS: Extra strong, lightweight, seasoned maple dowels. Ship. wt. 5 oz.
1/8" x 18" —
Cat. No. 3190
8 for $ .55
1/12" x 12" —
Cat. No. 3192
8 for $ .55

GLUE GUN: Handles all makes of glue and cement. Speeds assembly. Shipping wt. 1-3/4 oz. Cat. No. 2530 **$1.75**

ENGINE HOLDER: Flat spring steel design gives easy installation and low drag. Recommended for sport and demonstration models built from BT-20 and BT-30, the engine holder is 2.8" long, 0.1" wide and only 0.025" thick. Net weight 0.032 oz. Shipping wt. 1 oz. Cat. No. 3140
3 for $ .75

WEIGHTS: Balance rockets for stability.
ROUND LEAD WEIGHTS — 11/16" dia., center hole. Weight: 0.12 oz. each. Shipping wt. 1 oz.
Cat. No. 2305 ..... **6 for $ .75**
BALANCING WEIGHTS — Flexible lead strips. 3" x 1/4" x 0.02". Weight: 0.085 oz. each. Shipping wt. 1 oz.
Cat. No. 2307 ..... **10 for $ .75**

MODELING TOOLS

KNIFE AND TOOL SET: Contains small, medium, and heavy-duty knives and an entire assortment of blades, gouges, routers, and punches. Plus planer, 1" sander, spokeshave, and balsa stripper. In wooden box. Shipping weight 2 lbs.
Cat. No. 2693 ..... **$14.95 each**

KNIFE CHEST: Small, medium, and heavy-duty knives plus 9 assorted extra blades. In natural finish wood chest. Shipping weight 1 lb., 8 oz.
Cat. No. 2692 ..... **$5.50**

DOUBLE KNIFE SET: Nos. 1&2 knives with 10 extra asstd. blades. Shipping weight 8 oz.
Cat. No. 2674 ..... **$3.00**

HEAVY DUTY KNIFE: Set of one 4-3/4" long and #4 plastic handle with metal chuck and one general purpose knife blade similar to #4G. Shipping wt. 6 oz.
Cat. No. 2689 ..... **$1.40 each**

PRECISION KNIFE SET: Includes one 4-1/4" long no. 1 aluminum handle and 5 assorted blades. Recommended for precision work. Shipping weight 2 oz.
Cat. No. 2673 ..... **$ .70 each**

RETRACTABLE BLADE KNIFE: Heavy duty #2 aluminum handle, 4-3/4" long, with one double ended #2D blade. Blade retracts into handle for safe carrying. For general cutting. Shipping weight 4 oz.
Cat. No. 2687 ..... **$1.60**

JTILITY KNIFE: The 3-Position blade is reversible, retractable, and replaceable! Excellent modeling knife. Shipping weight 3 oz.
Cat. No. 2688 ..... **$ .30 each**

TWEEZERS: For 1,001 uses in handling small parts, attaching shock cords, etc. Steel, 3" long, 1/8" jaw. Shipping wt. 2 oz.
Cat. No. 2708 ..... **$ .25 each**

RAZOR SAW: Fits #4 handle. 1" wide x 5" long. Use razor saw blade for cutting balsa and body tube. Shipping weight 6 oz.
Cat. No. 2681 ..... **$ .55 each**

WHETSTONE: Keep knife blades extra sharp for easy cutting. Pocket size, 3-1/2" x 3/4" x 3/8". Use with oil for best results.
Cat. No. 2709 ..... **$ .50**

FINISHING SUPPLIES

ESTES
A SUBSIDIARY OF DAMON

ASTROSEAL Balsa Filler: Gives smooth surface for dope or enamel application. Sand between coats. Four ounce jar. Ship. wt. 7 oz.
Cat. No. 2526 . . . **$1.25**

FLUORESCENT SPRAY PAINT: The brightest colors anywhere. Glowing, high visibility paint in 3 oz. spray cans. Dries in minutes. Rocket Red, Dazzling Orange, Solar Yellow, Brilliant Green, and Vibrant Pink. Specify colors when ordering. Ship. wt. 14 oz.
Cat. No. 2640 . . . . . **$1.25**

ENAMEL SPRAY PAINT: Top quality enamel in 3 oz. spray cans. Dries in minutes. Use indoors or outdoors. Not fluorescent. Royal Blue, Insignia Red, Yellow, Insignia Orange, Gloss White, Gloss Black, Flat White, Flat Black, Gold, Chrome Silver, and Clear. Specify colors when ordering. Ship. wt. 14 oz.
Cat. No. 2620 . . . . . **$1.00**

MILITARY FLAT SPRAYS: Perfect paints for scale models, especially the Maxi-Brute German V-2 and Pershing 1-A. In 3 oz. cans. Camouflage Gray, Light Earth, Artillery Olive, and Flat Red. Specify color when ordering. Ship. wt. 14 oz.
Cat. No. 2650 . . . . . **$1.00**

ENAMEL PAINT: Brushes on smoothly and easily. Perfect for touch-up jobs. 2/3 oz. bottles. Insignia Red, Insignia Orange, Yellow, Royal Blue, Gold, Chrome Silver, Gloss White, Flat White, Gloss Black, Flat Black, Flat Orange and Flat Red. Specify colors when ordering. Ship. wt. 4 oz.
Cat. No. 2600 . . . . . **$ .45**

SANDING SEALER: Fills small holes in blasa, paper and other porous materials, provides a smooth surface for paint or dope. In 1 oz. bottles. Ship. wt. 4 oz.
Cat. No. 2525 . . . . **$ .45**

THINNER: For diluting enamel, dope, sanding sealer and Astroseal. Excellent for brush cleaning. 2/3 oz. bottles. Specify type when ordering. Ship. wt. 4 oz.

Thinner for enamel only.
Cat. No. 2619 . . . . **$ .45**
Thinner for dope, sanding sealer, and Astroseal.
Cat. No. 2541 . . . . **$ .45**
WHITE GLUE: Sets fast, gives super strong joints with wood, paper, cloth and other porous materials. In 2 oz. plastic squeeze bottle. Ship. wt. 6 oz.
Cat. No. 86016 . . . . **$ .85**
BODY PUTTY: Fill cracks, holes, grain marks in balsa parts, make smooth finbody joints. 1-1/2 oz. tube. Ship. wt. 5 oz.
Cat. No. 2503 . . . . . **$ .60**
FINISHING WAX: For a high gloss finish and low drag. Recommended for use on enamel and butyrate finishes only. In 2 oz. jar. Ship wt. 5 oz.
Cat. No. 2504 . . . . . **$1.25**
SANDING MATERIAL: Special mylar plastic backed abrasive sheet can be used over and over again. Extra fine 320 grit in easy to handle 2-1/2" x 2-1/4" sheets. Ship. wt. 1 oz.
Cat. No. 2510 **6 for $ .60**
SANDPAPER: Shape and smooth model rocket parts. Available in three grades. 3" x 3" sheets. Specify grade when ordering. Ship. wt. 1 oz. for 6 sheets.
12 Sheets Medium —
Cat. No. 2518 . . . . . **$ .50**
12 Sheets Fine —
Cat. No. 2516 . . . . . **$ .50**
12 Sheets Extra Fine —
Cat. No. 2514 . . . . . **$ .60**
36 Sheets Assorted (12 ea.)
Cat. No. 2513. . . . . **$ .90**
PAINT BRUSHES: Two #1 brushes for extra fine work, two #4 brushes for normal work and two #6 brushes for covering large areas rapidly. Sets of six only. Ship. wt. 2 oz.
Cat. No. 2505 . . . . . **$1.00**
STYRENE CEMENT: 1/2 oz. bottle. For cementing plastic to plastic. Ship. wt. ,2 oz.
Cat. No. 2532 . . . . **$ .35**
1/2 oz. Tube. For cementing plastic to other materials. Ship. wt. 2 oz.
Cat. No. 2533 . . . . . **$ .30**

DECALS

ESTES
A SUBSIDIARY OF DAMON

Deluxe Decals for roll pattern and fins. Red, white, orange and black 4" x 9" sheet.
Cat. No. 2465 .. **$ .60 ea.**

Kit Name Decals for your favorite models. Red, white, yellow and black 3-1/2" x 9-1/4" sheet.
Cat. No. 37011 .. **$ .35 ea.**

Gold Mine Special, Decals for lettering, vents, hatches, etc. Red, white, and black 3-1/2" x 9-1/4" sheet.
Cat. No. 37005 .. **$ .35 ea.**

Multi-Purpose Decals featuring a variety of favorite markings. Printed black on clear 3" x 4-1/2" sheet.
Cat. No. 2457 .. **$ .20 ea.**

1/5" Checkerboards for colorful roll patterns. 4-1/4" x 10" sheet. Available in red, black, gold or white. Specify color when ordering.
Cat. No. 36934 .. **$ .35 ea.**

3/8" Checkerboards for authentic roll patterns. 4-1/4" x 10" sheet. Available in red, black, white or gold. Specify color when ordering.
Cat. No. 2467 .. **$ .35 ea.**

Patriot Decal. Features American Eagle roll pattern plus big USA lettering. Gold, black and white 6" x 7-1/2" sheet.
Cat. No. 37204 .. **$ .45 ea.**

Kit Name Decals for your favorite models. 4" x 8-1/4" sheet. Available in black or white. Specify color when ordering.
Cat. No. 37006 .. **$ .35 ea.**

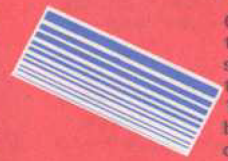
Red, white and blue stars and stripes for fins and roll patterns. 6" x 12" sheet.
Cat. No. 37203 .. **$ .85 ea.**

Furturistic Starship Vega Decals for fins and roll patterns. Red, black and white 5" x 12" sheet.
Cat. No. 37205 .. **$ .55 ea.**

Orbital Transport Decals for fins and body tube decor. Red, black and yellow 4-1/4" x 11" sheet.
Cat. No. 37041 .. **$ .70 ea.**

Red Max fun decals. Black and white skull and cross bones, iron crosses and other crazy markings. 5" x 11-1/2" sheet.
Cat. No. 2468 .. **$ .45 ea.**

Interceptor Decals. Futuristic USAF red, white, blue and black fin and body tube decor. 4-1/2" x 12-1/2" sheet.
Cat. No. 37049 .. **$ .70 ea.**



Color Stripes for body tube and fins. 4-1/4" x 10" sheet with ten stripes 1/32" through 1/2" wide and 9-1/2" long. Available in red, black or yellow. Specify color when ordering.
Cat. No. 2463 . . **$ .35 ea.**

Model markings for roll patterns, lettering, numbering, etc. Printed in black on 4" x 9" clear backing.
Cat. No. 37012 .. **$ .35 ea.**

1/4" Letters and Numbers to identify your models. Available in black or white. Specify color when ordering.
Cat. No. 2464 . . **$ .20 ea.**

3/8" Letters and Numbers for authentic markings. Available in black or white. Specify color when ordering.
Cat. No. 2461 . . **$ .20 ea.**

STARS and BARS sheet of twelve 1-1/4" red, white and blue USAF emblems. 2-1/2" x 4-3/4" sheet.
Cat. No. 37001 .. **$ .20 ea.**

STARS and BARS sheet of two 2-1/8" and two 1-3/4" red, white and blue USAF emblems plus other markings. 3-1/4" x 4-1/4" sheet.
Cat. No. 2458 .. **$ .20 ea.**

DECORATING TAPE, black: Thin, tough, pressure-sensitive tape is perfect for stripes, bars and other decoration. Only .0015" thick, in rolls 1/2 inch wide and 144 inches long. Ship. wt. 5 oz. .
Cat. No. 2501 . . **$ .40 ea.**

TECHNICAL REPORTS
SPECIAL PUBLICATIONS

ROCKET STABILITY – TR-1: Easy-to-read report explaining how rockets are designed to fly properly, including a before-launch test to assure rocket stability.
Cat. No. 84721 ..... $ .35

MULTI-STAGING – TR-2: A complete easy-to-understand report providing the information needed for designing, building, and flying multi-stage rockets.
Cat. No. 84722 ..... $ .35

ALTITUDE TRACKING – TR-3: The classic work on simple altitude tracking for model rocketeers with easy-to-understand computation.
Cat. No. 84723 ..... $ .35

REAR ENGINE BOOST-GLIDERS – TR-4: Basic information covering design, construction, and operation of rear engine boost-gliders.
Cat. No. 84724 ..... $ .35

BUILDING A WIND TUNNEL – TR-5: Full plans and information for building and using a wind tunnel with data on both hand-powered and motorized versions.
Cat. No. 84725 ..... $ .35

CLUSTER TECHNIQUES – TR-6: The complete report on clustering engines to launch larger payloads.
Cat. No. 84726 ..... $ .35

FRONT ENGINE BOOST-GLIDERS–TR-7: Valuable information on designing, building, and flying front engine boost-gliders.
Cat. No. 84727 ..... $ .35

MODEL ROCKETRY STUDY GUIDE – TR-8: A planned sequence of activities to guide anyone toward becoming an expert model rocketeer.
Cat. No. 84728 ..... $ .85

DESIGNING STABLE ROCKETS – TR-9: Based on standard engineering practices, this report presents a method of designing rockets for proper stability on paper before any construction work is done.
Cat. No. 84729 ..... $ .35

ALTITUDE PREDICTION CHARTS – TR-10: Explains a relatively simple method by which aerodynamic drag and other atmospheric effects can be taken into account in predicting rocket peak altitude.
Cat. No. 84730 ..... $1.25

AERODYNAMIC DRAG OF MODEL ROCKETS – TR-11: All factors that influence drag are explained, and practical examples of ways to minimize drag are given.
Cat. No. 84731 ..... $1.25

THE ALPHA BOOK OF MODEL ROCKETRY: The things you will want to know before, during, and after your first flights are explained to help you get the most fun from your new hobby.
Cat. No. 2820 ..... $ .60
P

MODEL ROCKET LAUNCH SYSTEMS: An easy-to-understand booklet covering basic electrical theory, launcher design, multiple launchers, and electrical math.
Cat. No. 2811 ..... $ .35

SPACE AGE TECHNOLOGY: A comprehensive mini-text for use in aerospace education, science, and industrial arts classes.
Cat. No. 2813 ..... $1.25

A "Teacher's Manual" (Cat. No. 2823) is available to educators for $1.25.

ESTES MODEL ROCKET CONTEST GUIDE: Great for planning model rocket contests and meets. Features rules for exciting competitive events plus suggestions for contest organization.
Cat. No. 2815 ..... $ .60

AEROSPACE EDUCATION AND MODEL ROCKETRY: An excellent teacher's guide for introducing model rocketry into the classroom.
Cat. No. 2816 ..... $1.25

(Single copies free to educators requesting it on school stationery.)

ESTES GUIDE FOR AEROSPACE CLUBS: Features complete details for club organization and activities.
Cat. No. 2817 ..... $ .60

MODEL ROCKET ENGINES – TN-1: Large time-thrust curves suitable for use in displays, plus other data.
Cat. No. 84700 ..... $ .35

MODEL ROCKET ENGINE PERFORMANCE – TN-2: Technical information. Includes formulas for calculating engine performance.
Cat. No. 84701 ..... $ .35

IS THAT PARACHUTE TOO BIG? – TN-3: Information on model rocket recovery systems with suggestions on modifying parachutes.
Cat. No. 84702 ..... $ .35

THE FINE ART OF PAYLOAD LAUNCHING – TN-4: Information on payload launching with data on possible payloads, available payload compartments, and suggestions on preparation and launch of payloads.
Cat. No. 84703 ..... $ .35

ELEMENTARY MATHEMATICS OF MODEL ROCKET FLIGHT – TN-5: Math altitude determination, velocities, and accelerations.
Cat. No. 900,677 ..... $ .35

MODEL ROCKETRY TECH MANUAL: Handy pocket-size manual with lots of information including construction hints, finishing procedures, stability tests, staging techniques, recovery methods, launch system wiring, and much, much more.
Cat. No. 2819 ..... $ .25

MARS SNOOPER II

Skill Level 4
Looks like a real space ship. Futuristic decor, advanced styling, and simulated touch-down pads gives it a real science-fiction appearance. Eye-catching flights with big 18" parachute recovery. Includes die-cut parts, kit decals, and quick-release engine mount.

Specifications
Length 22.3" (56.5cm)
Diameter 0.976" (24.8mm)
Weight 2.3 oz. (66 g)
Shipping wt. 8 oz.
Recommended Engines
A8-3 (First flight) B4-2 B6-4 C6-5
Cat. No. 1220 ..... $4.95

MARS LANDER

Skill Level 5
Displays a futuristic concept for a planetary exploration and landing vehicle. Spring-loaded landing gear simulates realistic upright touch-down. Big 18" bright orange and white canopy 'chute makes for a really great recovery sequence. Includes highly detailed body panels, colorful scale-like decals, and quick-release engine mount.

Specifications
Height 12" (30.5cm)
Diameter 3.8" (96.5mm)
Landing Gear Span 13.2" (33.5cm)
Weight 3.0 oz. (85 g)
Shipping wt. 16 oz.
Recommended Engines
B4-2 (First flight)
B6-2 C6-3
Cat. No. 1243
$9.95

Engines, Launch System, and Glue not included.

ESTES
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INTERPLANETARY VOYAGERS

Our most exotically designed vehicles to give our rocketeers a real look into the future. Build one of these magnificent birds and journey into the year 2001 and beyond. All kits come complete, ready-to-assemble with instructions. Engines not included.

INTERCEPTOR

Skill Level 3
Futuristic version of real interplanetary interceptor. Deep space exotic design makes it the pride of any modeler. Delivers excellent performance for really sensational flights. Dramatic 18" parachute recovery, two big sheets of four-color decals, and quick-release engine mount. Plus all die-cut balsa parts and detailed plastic nose cone, wing pods and tail cone.

Specifications

Length	26" (66cm)
Wing Span	7.4" (18.8cm)
Diameter	1.325" (33.6mm)
Weight	3.85 oz. (109 g)
Shipping wt.	12 oz.

Recommended Engines
B4-2 B6-4 (First flight) C6-5
Cat. No. 1250 ..... **$7.95**

Replacement Plastic Parts Kit
Includes nose cone, 2 wing pods and tail cone,
Cat. No. 45010 ..... **$1.65**

Orbital Transport

Skill Level 4
Features dramatic space shuttle concept. Developed for both orbital and near-space missions. Long and sleek transport ship lifts-off vertically with shuttle riding piggy-back. At engine ejection transport returns via 18" parachute and shuttle becomes gliding re-entry vehicle. Separation of crafts at apogee makes for exceptionally spectacular flights. Includes quick-release engine mount and realistic three-color decals.

TRANSPORT SHIP

Length	23" (58.4cm)
Diameter	0.976" (24.8mm)
Wing Span	7.9" (20cm)
Weight	2 oz. (57 g)

Andromeda

Skill Level 3
Designed for journeys to distant planets this incredible "starship of the future" will be an outstanding addition to your model rocket collection. Performing interplanetary missions within the galaxy, our engineer's conception of the actual ship features simulated hybrid fission-ion propulsion engines, forward crew module and colorful mission decor. This beauty is over 43" long and represents a unique entry to our own Starship Fleet. Kit features include die-cut parts, highly detailed decals, and quick-release engine mount. Andromeda's flights are of course most spectacular, especially with giant 18" parachute recovery.

Specifications

Length	43.3" (110cm)
Diameter	0.736" (18.7mm)
Fin Span	11.8" (30.1cm)
Weight	3.0 oz. (85 g)
Ship wt.	11 oz.

Recommended Engines
B6-4 (First flight) C6-5
Cat. No. 1273 ..... **$5.95**

RE-ENTRY VEHICLE

Length	8.6" (21.8cm)
Diameter	0.736" (18.7mm)
Wing Span	5" (12.7cm)
Weight	0.5 oz. (14 g)
Shipping wt.	16 oz.

Recommended Engines
B6-2 B6-4 (First flight) C6-5
Cat. No. 1242 ..... **$4.95**

Engines, Launch System, and Glue not included.

ESTES
A SUBSIDIARY OF DAMON

INTERPLANETARY VOYAGERS

constellation

Skill Level 3
Sleekly styled single-stage payloader, perfect for those smaller cargos. Exotic appearance, plus fin tip "landing shocks" gives it a real "space ship" look. Great performance for sport flying. See-through payload section, and 12" parachute recovery.

Specifications
Length 16.2" (41.4cm)
Diameter 0.976" (24.8mm)
Weight 1.0 oz. (28 g)
Shipping wt. 5 oz.
Recommended Engines
1/2A6-2
A8-3 (First flight)
B6-4 B14-5 C6-5
Cat. No. 1235
$2.95

Alien INVADER NEW!

RED ALERT PRIORITY MESSAGE FROM RIEGEL IV COLONY..... START - - UNIDENTIFIED ALIEN SPACECRAFT HAVE ATTACKED RIEGEL IV COLONY - - LARGE NUMBER ALIEN CRAFT ARRIVED SIMULTANEOUSLY VIA HYPERSPACE - - OUTPOST DEFENSES CURRENTLY ENGAGING ENEMY VESSELS - - SENSORS UNABLE TO FULLY PENETRATE ENEMY SCREENS - - END TRANSMISSION **Previous is excerpt from first report of contact with Alien Invaders.**

Skill Level 3
By computer enhancement of declassified portions of sensor readings, Estes engineers have produced a replica of the Alien Invader spacecraft. Available data indicates alien spacecraft capable of limited atmospheric operations. Precise crew complement, internal features, and weaponry not determined from sensor data secured by Riegel IV outpost before aliens disengaged and fled. Your model includes a plastic forward command hull, engine-engineering section, and outboard atmospheric propulsion units. Kit is complete with die-cut balsa parts, quick-release engine mount, 12" 'chute, and unusual battle insignia decals.

Specifications
Length 20.5" (52cm)
Diameter 0.976" (24.8mm)
Weight 1.62 oz. (46 g)
Shipping wt. 8 oz.
Recommended Engines
1/2A6-2
A8-3 (First flight)
B4-4 B6-4 C6-5
Cat. No. 1281 ..... **$3.95**

Engines, Launch System, and Glue not included.

ESTES
A SUBSIDIARY OF DAMON

STAR TREK FLYING MODEL ROCKETS

TM

KLINGON BATTLE CRUISER

Skill Level 4
Your Star Trek collection won't be complete without this flying scale model of the Enterprise's chief adversary, the Klingon Battle Cruiser. Although slightly smaller and without the luxuries found on Federation Starships, these cruisers from the Klingon Empire are capable of extended starflight at ultra-light speeds. Their powerful weaponry and warrior crews are a match for any starship and pose a constant threat to the security of Federation space perimeters. Accurately detailed, our flying scale cruiser has been modified to permit atmospheric operations. Kit includes accurately detailed molded plastic and die-cut parts, Klingon warship insignia, quick release engine mount and colorful orange and white canopy 'chute. A really terrific display model, our Klingon replica has excellent performance for sensational flights.

Specifications
Length 15.1" (38.4cm)
Wing Span 8.9" (22.6cm)
Weight 2.5 oz. (70 g)
Shipping wt. 12 oz.
Recommended Engines
B4-2 (First flight) B6-4 C6-5
Cat. No. 1274 ..... **$6.95**

STARSHIP ENTERPRISE

Skill Level 4
The United Space Ship Enterprise was commissioned by the United Federation of Planets to maintain order and explore the uncharted regions of our galaxy. Assembled in space in the 23rd century, this gigantic vessel carried Captain Kirk, First Officer Spock and more than 400 officers, scientists and crew to "where no man had gone before." Scaled from official Federation drawings, our model starship has been modified for operations within planetary atmospheres. A parachute recovery probe attaches quickly for flight and removes easily for display. Other kit features include highly detailed molded plastic and die-cut parts, authentic full-color starship decals, quick-release engine mount and 18" recovery parachute. A challenging model to build, it is truly spectacular to fly and impressive to display.

Specifications
Display Length 16.8" (42.6cm)
Recovery Probe Length 25.9" (65.8cm)
Primary Hull Dia. 7.5" (19cm)
Weight 3.8 oz. (110 g)
Shipping wt. 16 oz.
Recommended Engines
B6-2 (First flight) C6-3
Cat. No. 1275 ..... **$7.95**

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A SUBSIDIARY OF DAMON

MILITARY SCALE MODELS

These distinctive models are exciting replicas of real rockets and missiles. Many feature highly detailed parts and authentic decor for a perfect scale appearance. All kits come complete, ready-to-assemble with instructions. Engines not included.

V-2 *(1/49th Scale)*

Skill Level 3
Scale model of the WW II German ground-to-ground ballistic missile. Its development opened the door to the exploration of space. The V-2 was the first rocket to solve the problems of propulsion and guidance. Our replica of this historic missile has excellent performance with impressive 12" parachute recovery. Ready-to-assemble with balsa nose and tail cones.

Specifications

Length	11.2" (28.4cm)
Diameter	1.325" (33.7mm)
Weight	1.4 oz. (40 g)
Shipping wt.	7 oz.

Recommended Engines
1/2A6-2 A8-3
B6-4 (First flight) B14-5
C6-5
Cat. No. 1222. . . . . $3.95

HONEST JOHN

Skill Level 4
Highly detailed version of U.S. Army's surface-to-surface ballistic missile. Many small parts and authentic decals for a really good looking 1/24th scale model. Gives an excellent challenge to the experienced rocketeer. Dramatic flights with 12" parachute recovery.

Specifications

Length	13.75" (35cm)
Diameter	0.976" (24.8mm)
Weight	1.2 oz. (34 g)
Shipping wt.	7 oz.

Recommended Engines
1/2A6-2 A8-3 (First flight)
B4-4 B6-4 C6-5
Cat. No. 1227 . . . **$3.50**

WAC CORPORAL

Skill Level 2
Great model for your first scale bird. U.S. Army ground-to-ground ballistic and research vehicle. Low-drag design makes it a terrific sport-flier too! Accurate 1/16th scale. Die-cut fins and 12" 'chute.

Specifications

Length	11.8" (30cm)
Diameter	0.736" (18.7mm)
Weight	.7 oz. (20 g)
Shipping wt.	5 oz.

Recommended Engines
1/2A6-2 (First flight)
A8-3 B6-4 C6-5
Cat. No. 1211 . . **$2.25**

BOMARC

Skill Level 4
A beautifully detailed, 1/24th scale rendering of the U.S.A.F. surface-to-air interceptor missile. Features molded plastic components, and die-cut balsa parts. Big, authentic decals, vinyl stripping and metallized mylar panels. At apogee, the engine pod is jettisoned and desends via 12" parachute while the Bomarc returns as a boost-glider...with a gentle, almost horizontal glide path.

Specifications

Length	23" (58.4cm)
Diameter	1.325" (33.6mm)
Weight	3.8 oz. (108 g)
Shipping wt.	12 oz.

Recommended Engines
B4-2 B6-2 (First flight) C6-3
Cat. No. 0654. . . . . **$6.95**

NIKE AJAX NEW!

Skill Level 3
The first supersonic anti-aircraft missile, the Nike Ajax, was developed to defend large cities and industrial complexes against enemy bomber attack. Actual vehicle has a range of 30 to 50 miles and an effective altitude capability of approximately 60,000 feet at a speed of more than 1500 miles per hour. Real vehicle is boosted by a solid propellant rocket which drops away at a predetermined height as a sustaining liquid propellant motor cuts in. Our 12.4 to 1 semi-scale model comes complete with authentic U. S. Army decor and realistic detailing. Kit includes 18" parachute recovery, die-cut balsa parts, and quick-release engine mount.

Specifications
Length 31.25" (79.38cm)
Diameter 1.325" (33.7mm)
Weight 2.6 oz. (74 g)
Shipping wt. 11 oz.
Recommended Engines
A8-3 B4-4
B6-4 (First flight) C6-5
Cat. No. 1279 . . . . . **$5.95**

NEW!

Model Rocketery's First Scale

Space Shuttle

Skill Level 4
Dramatic 1/162nd scale reproduction of America's newest space vehicle. Designed as a re-useable near space transportation system, first tests of the real thing are scheduled for the fall of 1976. NASA's Space Shuttle will be a multi-mission vehicle designed to perform such missions as the delivery and recovery of orbital payloads and space laboratory research. Semi-scale orbiter employs glider recovery just like the real thing while boosters and external tank return via 18" parachute recovery. Our model features special stabilizer fins for atmospheric flight which remove easily for display. Kit components include injection molded and vacuformed plastic and die-cut parts plus quick-release engine mount.

Specifications

Shuttle Length	13.6" (34.5cm)
Diameter	2.04" (51.8mm)
Orbiter Length	9.0" (22.9cm)
Orbiter Wingspan	6.7" (17.0cm)
Weight	4.37 oz. (124 g)
Shipping wt.	16 oz.

Recommended Engine
C6-3

AVAILABLE April 15, 1976

Engines, Launch System, and Glue not included.

Cat. No. 1284 . . . . . **$7.95**

ESTES
SUBSIDIARY OF DAMON

SOUNDING ROCKETS

AEROBEE 300

Skill Level 3
Another great kit for your first or second scale model. Orginally developed in 1947, the Aerobee performed heavy duty upper-atmosphere research during the International Geophysical Year 1957 - 58. The real rocket has recorded peak altitudes of 260 miles above the earth. Our smaller version features authentic scale decals, balsa detailing and 12" 'chute. 1/15th Scale.

Specifications
Length 20" (50.8cm)
Diameter 0.976" (24.8mm)
Weight 0.9 oz. (26 g)
Shipping wt. 14 oz.
Recommended Engines
1/2A6-2
A8-3 (First flight)
B6-4 C6-5
Cat. No. 1217 . . **$2.95**

ARCAS®

Skill Level 3
A precise reproduction of the well-known Atlantic Research Corp. sounding rocket. Designed to collect meteorological data at altitudes up to 40 miles. Original high performance design gives great performance to our smaller 1:3.4 scale version. Kit includes detailed fin mounts, authentic ARCAS® decal and 18" parachute.

Specifications
Length 22.8" (58cm)
Diameter 1.325" (33.7mm)
Weight 1.4 oz. (40 g)
Shipping wt. 11 oz.
Recommended Engines
A8-3 (First flight) B6-4
C6-5
Cat. No. 1226. . . . . **$3.95**

SANDHAWK

(1/10th Scale) Skill Level 2
A mighty "D" engine powered, ultra-detailed, 30" tall scale model. Actual rocket is a single-stage, solid-propellant vehicle developed for upper-atmosphere research experiments. Real Sandhawk is capable of reaching a 100 mile apogee with 200 lb. payload. Our scale version features all plastic, highly-detailed nose cone, payload section, fins and tail assembly. Quick-release engine mount plus 12" 'chute for payload and big 18" parachute for rocket.

Specifications
Length 30.1" (76.5cm)
Diameter 1.325" (33.7mm)
Weight 5 oz. (14.2 g)
Shipping wt. 11 oz.
Recommended Engines
B4-2 C6-3 D12-5 (First flight)
Use EM-2050 adapter for other than "D" engines. (Adapter not included.)
Cat. No. 1251 . . . . . **$4.95**

Replacement Plastic Parts Kit:
(SANDHAWK ONLY)
Includes tail section, fins, payload section, nose cone and antennae.
Cat. No. 45011 . . . . . **$1.65**

Engines, Launch System, and Glue not included.

SPACE EXPLORERS

SATURN V *(Semi-Scale)*

Skill Level 3
Though not fully detailed this model of the Saturn V is an amazingly good representation of our nation's largest launch vehicle that put the first man on the moon. Scaled 1 to 242 it is a practical size to build. Comes with pre-printed wrap-on decor, clear plastic fins, quick-release engine mount and 12" parachute recovery.

Specifications
Length 18.1" (46cm)
Diameter 1.637" (41.6mm)
Weight 1.9 oz. (54 g)
Shipping wt. 12 oz.
Recommended Engines
A8-3 (First flight) B6-4
C6-5
Cat. No. 1239 . . . . . **$3.95**

RUSSIAN VOSTOK *(1/76th Scale)*

Skill Level 3
Dramatic semi-scale, profile model of the famous Russian space booster which carried man into space for the first time on April 12, 1961. Responsible for establishing a foundation for the Russian space program, Vostoks set 21 world space records during the six missions between 1961 and 1963. Our profile version of this historic space vehicle looks great on display and realistic on the pad. Kit features include preprinted fins, quick-release engine mount, and realistic Russian decor. Big 18" parachute recovery makes for super-exciting flights.

Specifications
Length 19.75" (50cm)
Diameter 1.325" (34mm)
Weight 2.4 oz. (69 g)
Shipping wt. 11 oz.
Recommended Engines
A8-3 B4-4
B6-4 (First flight) C6-5
Cat. No. 1272 . . . . . **$4.95**

MERCURY REDSTONE

Skill Level 5
Famous NASA vehicle which boosted Commander Alan Shepard on America's first manned space flight. Beautifully scaled to 1/42nd actual size our Mercury Redstone features intricately detailed fin assemblies and escape tower. Launchings simulate real space missions as Mercury capsule returns via bright orange and white 12" canopy 'chute and rocket descends on larger 18" parachute. Kit includes scale decals and quick-release engine mount.

Specifications
Length 23.5" (59.7cm)
Diameter 1.637" (41.6mm)
Weight 2.1 oz. (60 g)
Shipping wt. 12 oz.
Recommended Engines
A8-3 B6-4 (First flight)
C6-5
Cat. No. 1241. . . . . **$4.95**

ESTES
A SUBSIDIARY OF DAMON

MAXI-BRUTES

German V-2

Skill Level 3

This giant scale model is a replica of the ground-to-ground ballistic missile developed at Peenemunde before and during World War II. The United States captured many of these rockets during World War II and used them as test vehicles at White Sands during the late 1940s and early 1950s. The last V-2 firing was made at the White Sands Proving Ground in December, 1952.

This 1/19th scale Maxi-Brute features "D" engine power, detailed plastic nose cone, dual 24" parachute recovery and pre-shaped fins. Nose cone fits BT-101 tube. Model requires a 3/16" launch rod for best lift-off performance. This historic reproduction will be the attention getter at your launch site and a handsome display model for your desk or bookshelf. Historical background is also included with instructions.

Specifications

Length 33.5" (85cm)
Diameter 3.938" (100mm)
Weight 12.5 oz. (354.38 g)
Shipping wt. 2 lbs.
Recommended Engine
D12-3
Cat. No. 1267 ..... $15.95

NEARLY 3 FEET TALL

HONEST JOHN

Skill Level 3

Our newest Maxi-Brute is a 1/9th scale model of the famous U.S. Army surface-to-surface, supersonic ballistic missile. Listed as a 762mm, very heavy field-artillery rocket, the real M31 series Honest John follows a free-flight trajectory similiar to that of an artillery shell. First developed as a JATO booster for other missiles, the motor had such tremendous thrust that a warhead and fins were added to make it a separate rocket. Completely mobile, the Honest John can be carried by and fired from a regulation Army truck. A small team of only five or six men is required for handling and launching. Employing a solid-fuel rocket motor it has high reliability coupled with great accuracy over a range of 15 to 30 miles. Producing a thrust of 90,950 lbs. it travels at speeds of Mach 1.5 and is capable of delivering a nuclear or high explosive warhead. Spin motors provide initial stabilization at lift-off. One of the main stays of the Army's tactical atomic-weapons system, the Honest John has been operational with U.S. Pentomic airborne and infantry divisions, and overseas with our NATO forces.

Our new, highly detailed version of this well known rocket uses single "D" engine power for truly realistic lift-offs.

Smaller diameter body should make it our best performing Maxi. Comes with pre-shaped, accurately scaled fins and molded plastic nose cone, plus quick-release engine mount and additional scale background data. Spectacular recovery with giant, dual 24" orange and white canopy 'chutes. Great for demonstrations and perfect as an impressive display model. A 3/16" launch rod is recommended for best lift-off results.

Specifications

Length 37" (94cm)
Diameter 2.6" (66mm)
Weight 14 oz. (397 g)
Recommended Engine
D12-3
Cat. No. 1269
$15.95

PERSHING-1A

Skill Level 3

This Maxi-Brute is a true scale model of the United States Army surface-to-surface ballistic missile produced by the Martin-Marietta Corporation, Orlando Division. Development of the Pershing missile began in 1958 with the first test firing taking place two years later at Cape Kennedy. The Pershing had the most successful testing record of any tactical missile. Pershing Missile Battalions continue to conduct annual firings at the White Sands Missile Range. The Pershing is completely mobile and is deployed with the United States, Federal Republic of Germany, and NATO Units in Europe.

Our 1/10 scale Pershing 1-A is "D" engine powered with three color decals, preshaped fins, detailed molded plastic nose cone, and dual 24" parachute recovery. A 3/16" launch rod should be used for best lift-off results. The unusual fin configuration of this model makes it one of the most unique scale models ever to be offered. Additional historical background data is also included.

Specifications

Length 41" (104.14cm)
Diameter 3.938" (100mm)
Weight 11.5 oz. (326.03 g)
Shipping wt. 2 lbs.
Recommended Engine D12-3
Cat. No. 1268
$15.95

BOTH OVER 3 FEET TALL

Engines, Launch System, and Glue not included.

ESTES
A SUBSIDIARY OF DAMON

MAXI-BRUTES

SATURN 1-B *(1/70th Scale)*

Skill Level 5

Completely detailed model of the giant rocket that first lofted the lunar module into earth orbit. A real NASA workhorse, the Saturn 1B has most recently been used to shuttle astronaut crews to Skylab. Features four-engine cluster power for really dramatic lift-offs. Highly scaled escape tower and stabilizer fin assembly. Includes authentic U.S.A./NASA decor, quick-release engine mounts, and die-cut balsa parts. Plus big, dual 24" orange and white parachutes for main booster and 12" 'chute for Apollo capsule. Tech report on engine clustering also included.

Specifications

Length	37" (94cm)
Diameter	3.938" (100mm)
Weight	9.9 oz. (280 g)
Shipping wt.	3 lbs., 5 oz.

Recommended Engines

A8-3 B6-2 (First flight)
B6-4 C6-5
(4 engines required. All must be the same type.)

Cat. No. 1229 . . . . . **$13.95**

(1/100th Scale)

SATURN V

Skill Level 5

A truly magnificent scale reproduction of the world's most famous rocket...the mighty Saturn V. First space vehicle to carry men to the moon and most recently utilized to place Skylab in orbit around the earth. Scaled to 1/100th of its actual size, our model stands an impressive 43-1/2" tall. Single "D" engine power gives this baby a spectular Cape Kennedy style lift-off. Apollo capsule has life-like recovery with bright 12" orange and white canopy 'chute while big ship returns on giant dual 24" parachutes. Precision molded plastic engine nozzles and Apollo capsule with escape tower give detailed authenticity. Corrugated body wrap-ons make this one of our most precise scale models. Also includes Tech Report on clustering.

Specifications

Length	43.5" (110cm)
Diameter	3.938" (100mm)
Weight	9.9 oz. (280 g)
Shipping wt.	3 lbs., 5 oz.

Recommended Engines

May be flown as 3 engine cluster or single engine.
Cluster Power: C6-3 (3 required)
"D" Power: D12-3 (1 required)
Cat. No. 1236 . . . . . **$19.95**

Engines, Launch System, and Glue not included.

Get more out of model rocketry... Join the estes aerospace CLUB

The most exciting hobby on Earth is even more fun when you are a member of the most exciting rocket club on Earth — The Estes Aerospace Club.

As soon as you join, you'll receive your own special EAC membership kit which includes the following exciting items:

VIPER ROCKET — Special kit designed exclusively for members of the Estes Aerospace Club. Features sleek styling, parachute recovery, and Mini-Brute power for maximum high performance.

MEMBERSHIP CERTIFICATE — Handsome membership certificate suitable for framing.

CLUB EMBLEM — Official iron-on patch with EAC insignia for tee shirt or jacket. And as you progress to higher skill levels, you'll receive additional iron-on "thrust bars" signifying your achievements.

DECAL SHEET — Special EAC rocket decals to identify your models as part of the EAC fleet.

RANGE BOX STICKERS — Bright, multipurpose stick-ons for your range equipment.

EAC STATIONERY — Distinctive rocketeer stationery for your most important notes and letters.

MODEL ROCKETRY TECHNICAL MANUAL — Includes information on contruction techniques, finishing, stability, tracking, recovery systems, multi-staging, and boost gliders, plus many other subjects.

MODEL ROCKET NEWS — Features free plan designs, technical articles, cartoons, contests, construction hints, rocketeer contributions, special projects, and much, much more.

EAC PRODUCTS SHEET — Special club flier featuring outstanding offers for EAC kits, parts and accessories, rocket plans and technical publications which are available ONLY to members.

Membership in the Estes Aerospace Club opens up a whole new world of exciting model rocket activities. Your EAC Membership Kit is just the beginning.

You'll be eligible to participate in special projects and exciting contests open only to EAC members — many of them involving valuable prizes. As an official EAC club member you will be eligible for exclusive kits and special product offers. You'll have the opportunity to be selected as a member of the EAC Advisory Board which will suggest new product ideas to Estes Industries.

Further details on all these exciting programs and club services will be included with your EAC Membership Kit. Your EAC membership will remain in effect for as long as you remain an active Estes rocketeer.

Cat. No. 1447 . . . . . EAC membership **Only $2.50**

JOIN NOW! BECOME AN EAC ROCKETEER TODAY!!

Simply check the EAC membership box on your catalog order form and include $2.50.

THRUST BAR ACHIEVEMENT PROGRAM

SKILL LEVEL ONE
BEGINNER/NEW EAC MEMBER

SKILL LEVEL TWO
INTERMEDIATE ROCKETEER

SKILL LEVEL THREE
CRAFTSMAN ROCKETEER

SKILL LEVEL FOUR
ADVANCED ROCKETEER

SKILL LEVEL FIVE
EXPERT ROCKETEER

SOLID PROPELLANT

MODEL ROCKETRY SAFETY CODE

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

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

As a member of the Estes Model Rocketry Program, I promise to faithfully follow all rules of safe conduct as established in the above code.

Signed

ESTES
A SUBSIDIARY OF DAMON

MODEL ROCKET ENGINES

Reliability-proven in over 95,000,000 launchings!
Quality-Tested for High Performance Flights!!
The finest engine made....you can depend on it....for every flight application!!!

The design and development of the Estes model rocket engine was the real beginning of the safe, educational and exciting hobby that model rocketry has become.

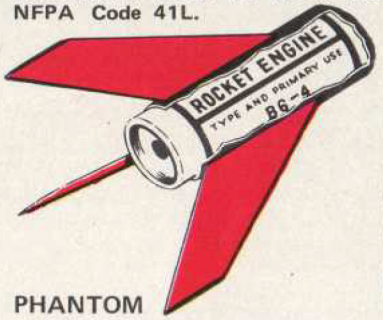
Today's modern rocket engine is the result of over 15 years of engineering efforts at Estes Industries. Consequently, today's rocketeer has dependable, safety-proven engines to carry on his rocket activities.

The energy-packed, solid propellant Estes model rocket engine is a complete power system for your rocket. It is designed and pre-manufactured to perform all power functions for dependable launch and activation of a recovery system. In one compact package it provides thrust for quick lift-off and acceleration to high altitudes, allows for a timed delay period to reach peak altitude while delivering a smoke trail for easy tracking and supplies ejection power for the parachute or other system for your rocket's safe return to earth.

Reliability-proven in over 60 million launchings. Estes engines are manufactured under controlled conditions within exacting tolerance limits. You can count on them for consistent performance from one launch to the next. You'll launch with confidence in contest and exhibition flying.

Six power levels are available in Estes engines. Total impulse is tailored to fit the various NAR-FAI classes. Average thrust, peak thrust and delay times are set up to give the best performance within these classes and to provide the most useful selection of engines for all rocketeers.

Designed for specific launch and flight functions, rocket engines are expendable — not reusable. Estes model rocket engines are "NAR Safety and Contest Certified" and comply with the National Fire Protection Association's Code for Model Rocketry, NFPA Code 41L.



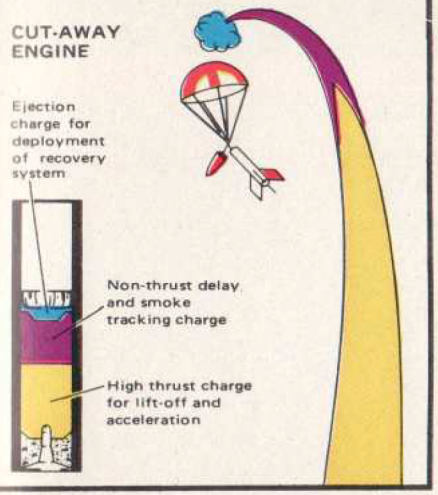
PHANTOM

Perfect static demonstration model for workshops and presentations. Shows all internal components of a model rocket plus special cut-away version of C6-5 model rocket engine. Ideal for displays and exhibits.

Length	12.6" (32.0cm)
Body Dia.	0.976" (24.8mm)
Weight	1.35 oz. (38.3 g)

Cat. No. 1207 . . . . . **$2.95**

Graphic explanation of a rocket engine's fundamental construction and functions.



ENGINE CODING FOR QUICK-N-EASY IDENTIFICATION

1. **Label color indicates recommended use of the engine.**
   a. GREEN ..... Single stage rockets
   b. PURPLE ..... Top stage and multi-stage rockets
   c. RED ..... Booster and intermediate stages of multi-stage models
2. **Code designation stamped on the engine gives useful and important information on its performance capabilities.**
   a. This portion indicates total impulse or total power produced by the engine.
   b. This portion shows the engine's average thrust in newtons and helps you choose the right engine for your rocket's flight.
   c. This number gives you the delay in seconds between burnout and ejection charge. Lets you choose the engine with the delay time you want for any flight.

Igniters and complete instructions are included with Estes engines.

ROCKET ENGINE SELECTION CHART

Cat. No.	Engine Type	Prices 3 for	Total Impulse lb-sec① n-sec②		Time Delay (±15%)	Max. Lift Wt.	Max. Thrust	Thrust Duration	Initial Weight Oz.	Initial Weight G	Propellant Weight Oz.	Propellant Weight G
SINGLE STAGE ENGINES						**GREEN LABEL**						
1593	1/2A6-2	3 for $1.30	0.28	1.25	2 sec.	2.5 oz.	46 oz.	0.20 sec.	0.53	15.0	0.055	1.56
1598	A8-3	3 for $1.40	0.56	2.50	3 sec.	4.0 oz.	48 oz.	0.32 sec.	0.57	16.2	0.110	3.12
1601	B4-2	3 for $1.50	1.12	5.00	2 sec.	4.0 oz.	48 oz.	1.20 sec.	0.70	19.8	0.294	8.33
1602	B4-4	3 for $1.50	1.12	5.00	4 sec.	3.5 oz.	48 oz.	1.20 sec.	0.74	21.0	0.294	8.33
1605	B6-2	3 for $1.50	1.12	5.00	2 sec.	4.5 oz.	48 oz.	0.83 sec.	0.68	19.3	0.220	6.24
1606	B6-4	3 for $1.50	1.12	5.00	4 sec.	4.0 oz.	48 oz.	0.83 sec.	0.78	22.1	0.220	6.24
1609	B14-5*	3 for $1.70	1.12	5.00	5 sec.	5.0 oz.	7 lb.	0.35 sec.	0.69	19.6	0.220	6.24
1613	C6-3	3 for $1.70	2.25	10.00	3 sec.	4.0 oz.	48 oz.	1.70 sec.	0.88	24.9	0.440	12.48
1614	C6-5	3 for $1.70	2.25	10.00	5 sec.	4.0 oz.	48 oz.	1.70 sec.	0.91	25.8	0.440	12.48
UPPER STAGE ENGINES③						**PURPLE OR BLUE LABEL**						
1594	1/2A6-4	3 for $1.30	0.28	1.25	4 sec.	1.0 oz.	46 oz.	0.20 sec.	0.54	15.3	0.055	1.56
1599	A8-5	3 for $1.30	0.56	2.50	5 sec.	2.0 oz.	48 oz.	0.32 sec.	0.62	17.6	0.110	3.12
1604	B4-6	3 for $1.50	1.12	5.00	6 sec.	1.5 oz.	48 oz.	1.20 sec.	0.78	22.1	0.294	8.33
1607	B6-6	3 for $1.50	1.12	5.00	6 sec.	2.0 oz.	48 oz.	0.83 sec.	0.71	20.1	0.220	6.24
1611	B14-7*	3 for $1.70	1.12	5.00	7 sec.	2.5 oz.	7 lb.	0.35 sec.	0.73	20.7	0.220	6.24
1615	C6-7	3 for $1.70	2.25	10.00	7 sec.	2.5 oz.	48 oz.	1.70 sec.	0.95	26.9	0.440	12.48
BOOSTER ENGINES						**RED LABEL**						
1595	1/2A6-0	3 for $1.30	0.28	1.25	none	4.0 oz.	46 oz.	0.18 sec.	0.48	13.6	0.055	1.56
1600	A8-0	3 for $1.40	0.56	2.50	none	4.0 oz.	48 oz.	0.30 sec.	0.51	14.2	0.110	3.12
1608	B6-0	3 for $1.50	1.12	5.00	none	4.0 oz.	48 oz.	0.80 sec.	0.58	16.4	0.220	6.24
1612	B14-0*	3 for $1.70	1.12	5.00	none	6.0 oz.	7 lb.	0.35 sec.	0.61	17.3	0.220	6.24
1616	C6-0	3 for $1.70	2.25	10.00	none	4.0 oz.	48 oz.	1.68 sec.	0.80	22.7	0.440	12.48

Complete instructions and Astron igniters are included with each package of Estes model rocket engines.

*Series II engine has core-burning grain with large propellant burning area for high initial thrust with short thrust duration.

All engines listed on this page are 2.75 in. (6.99cm) long and 0.690 in. (1.75cm) dia.

Shipping weight of each package of engines is approximately 4 oz.

NOTES:

① Pound - seconds (Figures shown are maximum.)

② Newton - seconds (Figures shown are maximum.)

③ Or Single Stage Engine if used in very light rocket.

ASTRON IGNITERS: Easy to use for reliable ignition every time. Recommended for launch systems using 6 to 12 volts. Same type as supplied with all packages of Estes engines. Installation procedure featured on engine instructions. (Patent No. 3,363,559.) Shipping weight 1 oz. (Not recommended for Solar Launch Controller.)
Cat. No. 2225 . . . . . **6 for $ .45**

RECOVERY WADDING: Provides protection from hot ejection gases for parachutes and streamers. Each package contains approximately 75—4-1/2" squares-enough wadding for up to 25 flights. Instructions for installation are included in each package. Shipping weight 6 oz.
Cat. No. 2274 . . . . . **$ .60**

MINI-ENGINE SELECTION CHART

Cat. No.	Engine Type	Prices 4 for	Total Impulse lb-sec① n-sec②		Time Delay (±15%)	Max. Lift Wt.	Max. Thrust	Thrust Duration	Initial Weight Oz.	Initial Weight G	Propellant Weight Oz.	Propellant Weight G
SINGLE STAGE ENGINES												
1500	1/4 A3-2T	4 for $1.40	0.14	0.625	2 sec.	1 oz.	23 oz.	0.18 sec.	0.173	4.9	0.031	0.88
1503	1/2 A3-2T	4 for $1.50	0.28	1.25	2 sec.	2 oz.	28 oz.	0.36 sec.	0.198	5.6	0.062	1.75
1506	A3-2T	4 for $1.60	0.56	2.50	2 sec.	3 oz.	28 oz.	0.86 sec.	0.254	7.2	0.124	3.50
1507	A3-4T	4 for $1.60	0.56	2.50	4 sec.	2 oz.	28 oz.	0.86 sec.	0.268	7.6	0.124	3.50
1511	A10-3T	4 for $1.60	0.56	2.50	3 sec.	5 oz.	48 oz.	0.26 sec.	0.277	7.9	0.133	3.78
UPPER STAGE ENGINES③												
1501	1/4 A3-4T	4 for $1.40	0.14	0.625	4 sec.	1 oz.	23 oz.	0.18 sec.	0.187	5.3	0.031	0.88
1504	1/2 A3-4T	4 for $1.50	0.28	1.25	4 sec.	1 oz.	28 oz.	0.36 sec.	0.212	6.0	0.062	1.75
1508	A3-6T	4 for $1.60	0.56	2.50	6 sec.	1 oz.	28 oz.	0.86 sec.	0.282	8.0	0.124	3.50
BOOSTER ENGINES												
1505	1/2 A3-0T	4 for $1.50	0.28	1.25	none	3 oz.	28 oz.	0.36 sec.	0.166	4.7	0.062	1.75
1509	A3-0T	4 for $1.60	0.56	2.50	none	3 oz.	28 oz.	0.86 sec.	0.226	6.4	0.124	3.50
1510	A10-0T	4 for $1.60	0.56	2.50	none	5 oz.	48 oz.	0.26 sec.	0.235	6.7	0.133	3.70

Mini-Engines are 1.75 in. (4.45cm) long and .500 in. (1.27cm) dia. Shipping weight of each package of mini-engines is approximately 2-1/2 oz.

MIGHTY 'D' ENGINES

Recommended Only for Experienced Rocketeers!

With the advancement of model rocketry to bigger birds, larger payloads, and higher altitude demands, Estes Industries has developed the "D" engine (Series IV). The Estes "D" provides twice the power of the largest Series I engine. It's the first dependable "D" engine to provide the consistent high-thrust and total impulse levels necessary for peak performance in its class.

Cat. No.	Engine Type	Prices 3 for	Total Impulse lb-sec① n-sec②		Time Delay (±15%)	Max. Lift Wt.	Max. Thrust	Thrust Duration	Initial Weight Oz.	Initial Weight G	Propellant Weight Oz.	Propellant Weight G
SINGLE STAGE ENGINES												
1666	D12-3	3 for $2.95	4.48	20.0	3 sec.	14 oz.	9 lb.	1.50 sec.	1.49	42.2	0.879	24.93
1667	D12-5	3 for $2.95	4.48	20.0	5 sec.	10 oz.	9 lb.	1.50 sec.	1.52	43.1	0.879	24.93
UPPER STAGE ENGINES③												
1668	D12-7	3 for $2.95	4.48	20.0	7 sec.	8 oz.	9 lb.	1.50 sec.	1.55	44.0	0.879	24.93
BOOSTER ENGINES												
1665	D12-0	3 for $2.95	4.48	20.0	none	14 oz.	9 lb.	1.48 sec.	1.44	40.9	0.879	24.93

Complete instructions and Astron igniters are included with each package of Estes model rocket engines.

"D" engines are 2.75 in. (6.99cm) long and 0.945 in. (2.40cm) dia.

Shipping weight of each package of "D" engines is approximately 6-1/2 oz.

NOTES:

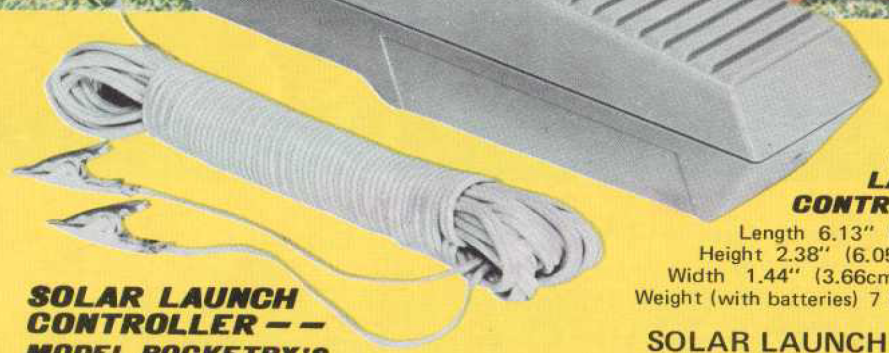
① Pound - seconds (Figures shown are maximum.)

② Newton - seconds (Figures shown are maximum.)

③ Or Single Stage Engine if used in very light rocket.

ESTES
A SUBSIDIARY OF DAMON

LAUNCH SYSTEMS



SOLAR LAUNCH CONTROLLER

Length 6.13" (15.57cm)
Height 2.38" (6.05cm)
Width 1.44" (3.66cm)
Weight (with batteries) 7 oz. (199g)

SOLAR LAUNCH CONTROLLER — — MODEL ROCKETRY'S MOST ADVANCED LAUNCH SYSTEM

The Solar Launch Control System should be standard equipment in your range box. This futuristically designed launch control unit requires only 4 alkaline pen light batteries for power. Advanced shape allows for perfect hand held control. Unit is easily assembled in minutes and features safety key, continuity check lamp, ignition button, and 15 feet of lightweight launch cable. System is constructed of durable "non-breakable" plastic. Micro-clips are presoldered. Use with Estes Solar Igniters (#2301). (Batteries not included.) Shipping weight 8 oz.
Cat. No. 2300 . . . . . **$4.95**

SOLAR LAUNCHER COMBINATION OFFER Save $1.50

Includes Solar Launch Controller (#2300) and Porta-Pad Launcher (#2217). Shipping weight 12 oz.
Cat. No. 1450 . . . . . **$7.95**

NEW!

Astron Launch Control System

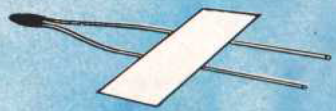
Newly redesigned Launch Controller features futuristic design and provides greater reliability with simplified assembly. Bright orange plastic controller gives realistic ignition system appearance. Recommended for 6 or 12 volt power sources. Perfect Launch Controller for your 12 volt car battery. No need to remove battery from car, simply connect launch system's battery clips to terminals. Features include arming lamp, safety key, launch button, battery clips, micro-clips, and 20 feet of launch cable. Shipping weight 12 oz.
Cat. No. 2212. . . **$5.95**

TILT-A-PAD

Wooden Tripod

This flexible launcher gives you ideal launch control and convenience. Hardwood construction for durability. Adjusts to fit uneven ground. Tilts to compensate for wind direction and speed. Legs fold down for compact storage. Comes in easy to assemble kit form with complete instructions. Shipping weight 2 lbs.
Cat. No. 2216 . . . . . **$4.95**

*Rockets Not Included
The Solar Launch Controller (#2300) or the new Astron Launch Control System (#2212) are the recommended launch systems for use with the Tilt-A-Pad or Porta-Pad.



SOLAR IGNITERS: Add increased reliability at lift-off with Estes "high performance" Solar Igniter. This uprated igniter is designed especially for the Solar Launch Controller (#2300). Features easy engine installation and is suitable for all Estes model rocket engines. Unique four-element design makes it the most dependable igniter made. Shipping weight 1 oz.
Cat. No. 2301 . . . . . **6 for $.45**

MICRO-CLIPS: Equip your launcher with the best. Spring-loaded solid steel clips connect lead wires to igniters. Easy-to-clean and highly conductive with flat contact surfaces. Only 1.1 inches long, attach to leads with or without solder.
Shipping weight 1 oz.
Cat. No. 2247 . . **2 for $.50**

1/8" DIA. TWO-PIECE LAUNCH ROD: Handy collapsible two-piece rod for portable launchers. Pieces slip together to make a 36" long rod. Base rod has a diameter of 1/8". Shipping weight 6 oz.
Cat. No. 2235 . . . . . **$.60**

3/16" DIA. MAXI-ROD: Perfect for launching new Maxi-Brutes (German V-2, Pershing 1-A, and Honest John). Fits Porta-Pad Tripod (#2217). Two-piece construction. 36" long, lightweight aluminum launch rod. Collapsible for easy storage. Shipping weight 12 oz.

Cat. No. 2239 . . . . . **$1.75**

BLAST DEFLECTOR PLATE: Slip-on metal deflector plate fits any launcher using 1/8" rod, protects launcher base from rocket blast. Four-inch diameter. Shipping weight 5 oz.
Cat. No. 2241 . . . . . **$.85**

PORTA-PAD

Plastic Tripod

Space-age designed, the Porta-Pad is rugged enough to take the stress of countless launchings, even with the big Estes "D" engines, yet is lightweight and compact enough for easy carrying and storage. Strong, girder construction. Orange plastic legs snap off for storage in range box. Friction grip secures rod firmly (accommodates standard 1/8" rod (#2235) or heavy-duty 3/16" Maxi-rod (#2239). Tilt adjustment allows you to compensate for wind.

For extra versatility, Porta-pad can be adapted for rail launchings with Estes "C" Rail (#2250). Shipping weight is 1 lb. 8 oz.
Cat. No. 2217. . . **$4.50**

ESTES
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THE FANTASTIC ESTES LAND ROCKETS™

Get the ESTES LAND ROCKET Race Kit!

FEATURES EVERYTHING YOU NEED TO RACE TODAY!

Discover the thrill and excitement of Land Rocket racing. Watch your machine streak away from the starting line in a cloud of jet exhaust. As she sprints across the finish, realistic drag 'chute is deployed just like the real thing.
Kit includes Screamin' Eagle racer with T-wing airfoil, mag wheels and racing slicks. Plus XR-100 re-useable rocket engine, colorful drag chute, official race flags, sponsor decals, and "Competition Guide". Plus ColdPower propellant and synchro line with anchor system.
Ship Wt. 27oz.
Cat. No. 4000. . . . . .$6.95

"Screamin' Eagle" Racer with T-wing Air Foil and Racing Slicks

Drag Chute*

Race Flags*

XR 100 Re-usable Engine

Self-stick Decals

Synchro Line and Anchor System*

COLDPOWER Propellant*

*Included in race kit only.

Race'em alone or with friends! Hold your own Le Mans, Grand Prix, or Championship Drags!!

SCREAMIN' EAGLE

This wide track monster looks like a "Mustang Funny Car" with giant slicks and T-wing airfoil ready for the Winter Nationals.
11.4" long. (28.96cm)
Ship Wt. 15 oz.
Cat. No. 4001. . . . . .$3.95

COLDPOWER PROPELLANT

High performance, non-flammable fuel for all Estes Land Rockets.
15 oz. can provides 10-15 runs.
Ship. Wt. 16 oz.
Cat. No. 3404 . . . . $2.50

LIGHTNIN' BUG

A real four wheel bomb featuring "VW Funny Car" design with simulated 'chute pouch and far-out decals. 11.4" long, (28.96cm). Ship. Wt. 15 oz.
Cat. No. 4002 . . . . . $3.95

SCORCHER

This "Salt Flats Machine" is a rocket engine on wheels ready to set a new land speed record. 12" long, (30.48cm). Ship. Wt. 15 oz.
Cat. No. 4003 . . . . . $3.95

STARFIRE

A "Rocket Powered Rail Job" low to the ground with sleek lines ready to sprint the strip. Watch out, dragsters! 13.25" long, (33.66cm). Ship. Wt. 15 oz.
Cat. No. 4004 . . . . . $3.95

Easy to build and fun to race.

Each Land Rocket is uniquely designed in the Estes quality tradition. Engineered for action and performance, attain scale speeds over 700 m.p.h. (Actual speeds over 35 m.p.h.) All models powered by safe ColdPower propellant. Each car features light-weight, vacuum-formed body, T-wing airfoil, high performance design, mag wheels and racing slicks. Plus colorful decals, built-in guide lugs and re-usable XR-100 ColdPower rocket engine.

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COLDPOWER™ CONVERTIBLES

All **COLDPOWER** Convertibles feature pre-assembled cold propellant engine, 7½ oz. can of **COLDPOWER** fuel, die-cut fins, press-on decals, launch pad, plastic launch controller, and **COLDPOWER** converter. All three models convert from **COLDPOWER** Propellant to standard Estes model rocket engines.

YANKEE 5

Skill Level 2
All-American stars and stripes decor
Payload section
Sleek lines
12" Parachute recovery

SPECIFICATIONS
Length: 17" (43.18cm)
Diameter: 0.976" (24.79mm)
Weight (with engine): 2.06 oz. (58.40g)
Shipping weight: 32 oz.
Cat. No. 1112 . . . . . **$9.95**

MARAUDER

Skill Level 2
Sounding rocket design
Great sports model
Easy-to-build
Payload section
12" Parachute recovery

SPECIFICATIONS
Length: 18" (45.72cm)
Diameter: 0.976" (24.79mm)
Weight (with engine): 2.06 oz. (58.40g)
Shipping weight: 32 oz.
Cat. No. 1110 **$9.95**

SHARK

Skill Level 2
Surface-to-air missile styling
Deluxe sports model
Payload section
12" Parachute recovery

SPECIFICATIONS
Length: 19.5" (49.53cm)
Diameter: 0.976" (24.79mm)
Weight (with engine): 2.06 oz. (58.40g)
Shipping weight: 32 oz.
Cat. No. 1111 . . . . . **$9.95**

COLDPOWER™ ROCKET PROPELLANT

High performance, non-flammable fuel for all Estes ColdPower rockets. 15 oz. can provides 6-10 flights. Ship wt. 16 oz.
Cat. No. 3404 . **$2.50**

ESTES
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ENTER THE DESIGN OF THE MONTH CONTEST

YOUR DESIGN COULD WIN YOU A $75 MERCHANDISE CERTIFICATE

Have an idea for an original design? Enter our Design of the Month competition today! Simply follow the rules below. Keep those entries coming, and maybe you'll be our next winner!!

DOM RULES

1. All entries become the property of Estes Industries and cannot be returned.
2. Employees of Estes Industries and members of their immediate families are not eligible.
3. Any type of model rocketry design can be entered (rockets, boost-gliders, launching or recovery devices, etc.).
4. Designs should be new, original, and different, but they also need to be workable. The goal is to develop something new that other rocketeers can build and use successfully, too.
5. Entries will be judged on practicality, originality, neatness, completeness, and clarity. Plans do not have to be flight tested and proven. However, a proven design is more apt to win.
6. Your design entry should include a parts list and any instructions or diagrams you feel would be helpful.
7. Please do not send the actual model as it cannot be returned.
8. Photos of entries are greatly appreciated, but are not required.
9. You may send as many entries as you like.
10. New contest every month.
11. All designs reaching Estes Industries during the calendar month will be entered in that month's competition. (Date of receipt, not postmark, will determine the month in which a design will be entered.)
12. If two or more exceptional entries are received during any month, the judges may, at their discretion, make identical first-place awards or give additional honorable mentions.
13. Designs should be sent to the Design of the Month Editor, Estes Industries, Inc., Penrose, Colorado 81240. However, all plans sent to us which are not specifically addressed to another contest or department will be automatically placed in the Design of the Month Competition.
14. Each month the designer of the winning entry will receive a certificate entitling him to $75.00 in merchandise and an award certificate suitable for framing. Award winners will be notified by mail.

GOOD LUCK!!!!

START A SCHOOL PROGRAM IN MODEL ROCKETRY

Would you like to see your teacher start a model rocketry program for your school? We will be happy to assist you. Send your teacher's name, the name of your school, your school's address (be sure to include street address, city, state, and zip code), and your own name and home address. Send this information to Education Department, Estes Industries, Department 51, Penrose, Colorado 81240.

We will send your teacher a free teacher's guide explaining what model rocketry can help you to learn, information on special offers to get a school or club program started, a catalog, and a free Astron Alpha model rocket kit.

If you would like for your 4-H club, Scout troop or den, YMCA, or other group to start a model rocketry project, send us the name, title, and home address of the adult leader. Tell us what type of group it is. We will send the leader information on how to start an exciting and educational model rocketry project.

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CAMROC

MODEL ROCKETRY'S FIRST AERIAL CAMERA.

Photo Courtesy of Fred Long San Diego, CA

Aerial photography has long been acknowledged for its value in map making, geographical studies, reconnaissance, and related research fields. The Camroc aerial camera opens a new field of science studies to the rocketeer who wants to get a better understanding of the scientific uses of aerial photography. Recommended booster vehicle is the Camroc Carrier. Other models can be adapted.

In addition to learning principles of camera construction and operation, many challenging aerial photographic projects can be developed.

Study space science reconnaissance techniques the practical way — over familiar terrain with known objects. Map your flight area with Camroc photos. Use photo pairs, which produce a stereoptic image when properly viewed, to emphasize heights of different objects quite accurately. Pat. No. 3,537,369

Negative: 1-1/2" dia. (3.8cm)
Print size: 3" dia. (7.6cm)

CAMROC SPECIFICATIONS

Lens opening — f/16
Shutter speed — 1/1600 sec.
Focal Length 3" (76mm)

Single exposure film negative 1-1/2" dia.
Print 3" dia.

Fits body tube BT-50. In kit form with all parts and assembly instructions. Comes with 1 loaded film holder plus unexposed film disk for practice loading and experimenting. Shipping wt. 7.5 oz.
Cat. No. 1409 ..... **$8.95**

CAMROC CARRIER

Skill Level 3
This high per formance model is especially designed for lofting the Camroc. See page 11 for complete details.

CAMROC COMBINATION OFFER SAVE $2.50

Camroc Carrier and Camroc Aerial Camera. Shipping wt. 14 oz.
Cat. No. 1466 ..... **$9.95**

FILM ONLY

Precision cut Astropan 400 film discs to fit Camroc film holder. Shipping wt. 1.5 oz.
Cat. No. 85308 ..... **6 for $1.25**

DEVELOPING—PRINTING

Film is developed and one glossy print made at 2 times enlargement (3" dia. image).
Cat. No. FDP-1 ..... **$ .50**

EXTRA PRINTS

Additional prints of negatives which have been previously developed.
Cat. No. NP-1 ..... **$ .30**

LOADED FILM HOLDERS

Pre-loaded with film. Holders are reusable and subject to refund when returned.
Cat. No. 1411 ..... **4 for $3.95**

REFUND PLAN ON FILM HOLDERS

A refund of $ .15 will be allowed for all film holders returned. Deduct $ .15 for each.

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CINEROC

Model Rocket Movie Camera

CAMERA SPECIFICATIONS

10mm focal length lens, f/11 aperture, 1/500 second/31fps shutter, 31 frames per second, 6" to infinity depth of field. Takes color film.

Diameter 1.75" (44.5mm)
Length 9.9" (25.15cm)
Fits BT-60 Body Tube

Fully loaded, the Cineroc Super-8mm aerial movie camera weighs only 3 ounces (85.05 g). Comes completely assembled with Flight-Pak loaded with color film, 2 batteries, and 18" parachute. Shipping wt. 1.5 lbs.
Cat. No. 1412 ..... **$29.95**

The most important model rocket development in years, the Estes CINEROC enables the advanced rocketeer to make moving photographic studies from a vantage point never before possible: the rocket itself!

Easily lofted by the Estes "D" engine, this Super-8mm camera is an engineering marvel. The single element 10mm acrylic lens gives the best possible image with the greatest depth of field. You'll see the launch lugs and fins of the launch vehicle as clearly as the terrain far below. A semi-slow motion effect is obtained with the CINEROC's exposure rate of 31 frames per second, ideal for studying ignition, booster separation, stability, and parachute opening actions.

An essential part of the CINEROC is the Flight-Pak film cartridge. No threading; just slip it into the camera and you're ready to go.

The photos on this page were taken from CINEROC films and show the clarity and detail possible. You see everything....from lift-off to deployment of the recovery system.

FLIGHT-PAK MOVIE CARTRIDGE

10 feet of Super-8mm color film for approximately 40 seconds of projection time. Two PFB-2 batteries (good for one flight) included with each cartridge. Shipping wt. 4 oz.
Cat. No. 1414 ..... **$4.95**

FLIGHT-PAK PROCESSING

After exposure, place the Flight-Pak back in its black plastic bag, package it for safe mailing, enclose $2.00, and send to:

Estes Film Lab
Penrose, Colorado 81240
Cat. No. FDP-2 ..... **$2.00**

OMEGA

Skill Level 3
Two-stage "D" powered bird recommended for carrying the Cineroc aloft. See page 19 for complete details.

CINEROC COMBINATION OFFER SAVE $4.95

Omega and Cineroc aerial movie camera. Shipping wt. 2 lbs., 4 oz.
Cat. No. 1413 .... **$32.95**

STAR TREK™ FLYING MODEL ROCKETS

KLINGON
BATTLE CRUISER

Impressive flying scale model of the Enterprise's arch rival. Accurately detailed with Klingon Warship insignia. Modified slightly for model rocketry flights, kit features include premolded plastic parts, quick-release engine mount, and 12" parachute recovery. See page 29.

STARSHIP ENTERPRISE

Precisely detailed, flying model of television's most famous spacecraft. Modified for operation within earth's atmosphere. Special parachute recovery probe attaches quickly for flight and removes easily for display. Comes ready-to-assemble with authentic full color Starship decals, 18" parachute, and special Enterprise display stand. See page 29.

NEW!

STAR TREK™
Model Rocketry Starter Kit

Perfect model rocketry starter outfit. Complete with everything you need to lift off in minutes (less battery and glue). High performance Star Trek rocket features easy assembly and quick finish decor. No painting required! Reliable 12" parachute recovery for flight-after-flight enjoyment.

Star Trek Launch Control System uses standard 12 volt lantern battery (not included).

Designed with futuristic handheld Controller and sleek launch pad/power cap.

Comes with flight pack of three safety certified engines, recovery wadding, and Astron igniters. See page 4.

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ESTES INDUSTRIES, PENROSE, COLORADO 81240