1993

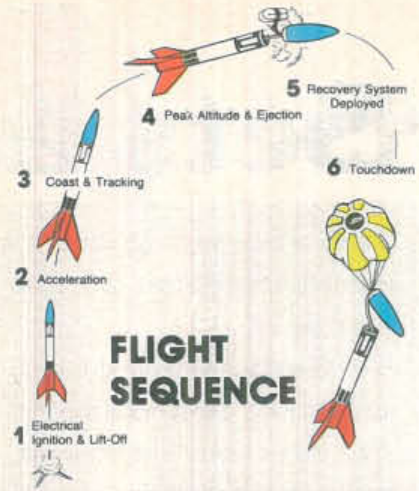
ESTES INDUSTRIES

Flying Model Rockets

THE WORLD OF MODEL ROCKETRY

There's nothing like it! The sky is a perfect blue and the air is calm. A model rocket **you** built cuts through the air with a trail of smoke. You watch it streak straight up for hundreds, maybe even thousands, of feet. You squint your eyes, waiting for the recovery system to deploy, maybe it's a parachute this time. With a gentle "pop", the rocket dangles beneath a brightly colored 'chute. You experience success, accomplishment, euphoria. The same emotions that thousands of scientists, engineers, technicians, and astronauts feel when the big rockets thunder from the Cape. The same emotions felt by millions of rocket modelers all over the world!

The world of model rocketry is huge and if you haven't tried it yet, it is an experience that waits for you! A perfect activity for the young and old, for males and females. Rockets are used in schools, camps and clubs. Rockets built and flown just for fun. Not only can model rockets do things, they can be launched over and over again. There are rockets that glide like planes, rocket-copters that whirl and spin to the ground. There are scale reproductions of the real things and rockets capable of lofting camera payloads, eggs or your own scientific payloads - maybe something electronic that you have built! We have rockets that fly incredibly high, with clusters or multi-stages. And best of all, Estes has made it easy! The key to "interactive rocketry" starts with our E2X™ series - rockets precision-engineered for a super easy, super fast build. Each of our series - Beta™, Explorer™, Challenge™ and Pro™ Series; each one of our kits - from the Airwalker™ Starter Set to the E2X™ Skywinder™ to the sophisticated rocket gliding TomCat™ - will teach you a new step in rocketry. Whether you just want to fly or enjoy the satisfaction of the construction, model rocketry will challenge you to explore! Only Estes offers you over 35 years of safety. The sky is a bright blue. The air is calm except for the crackle of excitement. The giant world of Estes model rocketry awaits your discovery - Ignite Your Imagination!



LAUNCH AREA:

Choose a large field away from power lines, tall trees, and low-flying aircraft. This chart shows the smallest recommended launch areas:

ENGINE TYPE	ESTIMATED ALTITUDE		MINIMUM LAUNCH SITE DIMENSION*	
ALL DELAYS	FEET	METERS	FEET	METERS
1/2A	200	61	50	15
A	400	122	100	30
B	800	244	200	61
C	1,600	488	400	122
D	1,800	549	500	152

Minimum circular area = Diameter in feet or meters
Minimum rectangular area = Shortest side in feet or meters

Launch site must be free of obstructions and highly flammable materials.

HOW TO USE YOUR ESTES CATALOG

To get the most out of your catalog, please read this section. It will help determine what kit fits your needs and what the specifications are of that kit. This catalog is divided into kit series. Each series has a skill level: E2X™ Series (almost ready to fly); Beta™ Series (skill level 1); Explorer™ Series (skill level 2), Challenge™ Series (skill level 3); and Pro™ Series (skill level 4). In this catalog each series contains an introduction that gives you the characteristics of that skill level. Each kit listing gives you the kit name, its product number and price. In addition, you will find a kit description that gives you features, length, diameter and weight. You will also find the engines, from least to most powerful, that we recommend for that rocket. We will sometimes list an engine that we recommend in breezy conditions. "First Flight" indicates which engine should be used to become familiar with your rocket's flight profile.
One of the more important features is the **Kit Feature Symbol**. These symbols will give the size and type of recovery system, type of fins, nose cone, decals and other features. Below is the symbol key:

RECOVERY SYSTEM:

- 24 — Plastic parachute with diameter in inches
- 18N — Nylon parachute with diameter in inches
- Streamer

NOSE CONE:

- Plastic
- Balsa

ENGINE MOUNT:

- Quick release

DECALS:

- Pressure sensitive
- Water soluble

MAXIMUM ALTITUDE:

- 450 — In meters with most powerful engine recommended

FIN TYPE:

- B — Die-cut balsa
- P — Die-cut plastic
- F — Die-cut fiber
- BFS — Balsa stock
- Plastic fin unit

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Model Rocketry is recommended for those age 14 years and up. Adult supervision is recommended for those under 14 years of age.

Use only Estes products with Estes model rockets. Unless specified, all models require assembly. Engines, launch system, glue and finishing supplies are not included with kits unless specified.

Prices may change without notice.

StarterSets

There's no better way to get started in this terrific hobby than with one of our five great starter sets.

Each set contains a high-flying, easy-to-assemble E2X™ Series model rocket kit. These models assemble so simply and precisely that we guarantee success. And, with pre-finished parts and no painting required, you'll have a sharp looking model ready to go in almost no time!

You also get:

- A Porta-Pad® II launch pad
- An Electron Beam® electrical launch controller
- Cobra™ model rocket engines, igniters and revolutionary new igniter plugs for sure-fire launches every time!

Plus, the launch equipment can be used to launch nearly every Estes rocket in the E2X™ through Challenge™ Series!

All of this comes packed in a sturdy range box with a carry handle. You'll save a bundle over individual retail prices. All you need is batteries and glue, and in about an hour, you'll be ready to launch!

*Unless otherwise specified, all models in this catalog require assembly.

StarterSets

PATRIOT™
EST 1450

AIRWALKER™
EST 1410

Each starter set requires four AA-type alkaline batteries and adhesive - not included.
Avg. Ship Wt. 1.4 Kg (3 lbs.)

AIRWALKER™

Sleek sounding rocket styling and a clear cargo bay highlight this sharp performer. Unique chrome-colored body tube, bright red fins and nose cone give this 50.8 cm (20") tall rocket a clean, professional appearance. Includes Cobra™ engines and supplies for your first three flights.
Engines: A8-3 (First Flight), B4-4, B6-4, B8-5, C5-3, C6-3, C6-5

PATRIOT™

This rugged, high flier features a scale appearance with military surface-to-air missile decor. Stands 49.5 cm (19.5") tall and features fast, easy assembly, no painting and parachute recovery. Includes Cobra™ engines and supplies for your first three flights.
Engines: A8-3 (First Flight), B4-4, B6-4, B8-5, C5-3, C6-3, C6-5

StarterSets

ALPHA® III
EST 1406

This set features the tried-and-true Alpha® III with bright new orange and black decor. Assembly is easy with a one-piece plastic swept-fin unit. Great performance with parachute recovery for safe landings. Includes Cobra™ engines and supplies for your first three flights.

Engines: A8-3 (First Flight), 1/2A6-2, A8-5, B4-4, B4-6, B6-4, B6-6, B8-5, C6-5, C6-7

AMERICA™
EST 1447

The 38 cm (15") tall America™ rocket features NASA-style decor and lean lines. Assembly is quick and easy with one-piece plastic fin unit and self-adhesive decals. Fantastic performance flight after flight using parachute recovery. Comes with Cobra™ engines and supplies for your first two flights.

Engines: A8-3 (First Flight), 1/2A6-2, A8-5, B4-4, B4-6, B6-4, B6-6, C6-5, C6-7

StarterSets

SUPER SHOT™
EST 1449

Each starter set requires four AA-type alkaline batteries and adhesive - not included.
Avg. Ship Wt. 1.4 Kg (3 lbs.)

SUPER SHOT™

This two rocket combo starter set delivers super value and super performance!
The E2X™ Series Super Shot™ rocket is the first step and features super-quick assembly, with pre-colored parts and hot decals. 42 cm (16½") tall, tough and durable, it can be launched again and again up to 800 feet high and returns by parachute.
The Twister™ is an Explorer™ Series rocket and includes crazy mind-twisting decals. Instead of a parachute, the 24 cm (9½") tall Twister™ separates into two pieces and spins down helicopter style from up to 1000 foot altitudes! The ideal second rocket.
Includes Cobra™ engines and supplies for your first three super flights.

Engines:
Super Shot™ - A8-3 (First Flight), B4-4, B6-4, B8-5, C5-3, C6-3, C6-5
Twister™ - 1/2A6-2 (First Flight), A8-3, A8-5, B4-4, B4-6, B6-4, B6-6, B8-5

E2X™ SERIES

E2X™ (ALMOST READY TO FLY)
SKILL LEVEL 0

There is no modeling experience required in this series. As a matter of fact, the rockets in this skill level are assembled, not constructed. What this means, simply and easily, is that:

- **There is practically no cutting or sanding**
- **There are very clear and simple to follow instructions**
- **There is no painting or sealing**
- **These kits are a very quick build - almost 30 minutes**

These precision engineered kits, with exacting plastic parts and pre-colored body tubes, let the novice assemble a rocket with a craftsmanship result. By including rockets, such as the piston-actuated Cato™, the helicopter-recovered SkyWinder™ and the payload-carrying Omloid™ in this skill level, there are features that even the experienced modeler will enjoy.

*Unless otherwise specified, all models in this catalog require assembly.

Engines, launch system, glue, and finishing supplies not included.
Avg. Ship Wt. 340 g (12 oz.)

SKYWINDER™
EST 2077

- *Copters Back To Earth!*

SKYWINDER™

This amazing model assembles fast and launches like any "regular" model rocket, but at the peak of its flight, it transforms! Three helicopter blades with brightly colored decals unfold from the body and start spinning faster and faster, creating a kinetic color display and lowering the SkyWinder™ gently to the ground. It has one piece recovery and preps for flight in seconds - no wadding, parachute or streamer.

Specifications:
Length: 50.8 cm (20"); Dia.: 34.2 mm (1.346"); Rotor Span: 50.8 cm (20"); Wt.: 70.9 g (2.5 oz.); Engines: B4-2 (First Flight), B6-2, C6-3

E2X™ SERIES

OMLOID™
EST 2078

- *Launch an Egg!*

OMLOID™
With a huge 51 mm (2") diameter twist-together cargo capsule, you can fly an egg or all kinds of scientific payloads in this multi-purpose launch vehicle. Pre-colored and assembles in minutes! A 46 cm (18") reflective silver 'chute brings it down safely even with heavy payloads. Perfect for school and science fair projects or just plain fun!
Specifications:
Length: 47.8 cm (18.8"); Dia.: 34.2 mm (1.346"); Wt.: without egg - 70.8 g (2.5 oz.); Engines: with egg - C5-3, C6-3, without egg - B4-2 (First Flight), B6-2, C6-5

Engines, launch system, glue, and finishing supplies not included.
Avg. Ship Wt. 340 g (12 oz.)

BAIL-OUT™
EST 2070

CATO™
EST 2071

BAIL-OUT™
Explore interactive rocketry with this model! Can eject your favorite 95 mm (3¾") action figure with a parachute (Sorry, figure is not included but two chutes for your figure are!). Features include plastic fin unit, two 61 cm (24") parachutes for figure, special harness for your figure and easy to build!
Specifications:
Length: 62 cm (24.5"); Dia.: 42 mm (1.64"); Wt.: without figure - 87 g (3.07 oz.), with figure - 104.0 g (3.67 oz.); Engines: B4-2 (First Flight), B6-4 (with no wind), C5-3, C6-3, C6-5

CATO™
The supreme "gag" rocket, this rocket breaks apart into pieces after a short flight, is safely recovered in a small area, and re-assembles in minutes for flight after flight. Internal piston system shows how the ejection charge works in different ways! The Cato™ features multiple recovery systems - parachute, streamer and tumble. The Cato™ is easy to build and to fly!
Specifications:
Length: 51 cm (21.0"); Dia.: 42 mm (1.64"); Wt.: 125 g (4.4 oz.); Engines: B6-0 (First Flight), C6-0

E2X SERIES

Engines, launch system, glue, and finishing supplies not included.
Avg. Ship Wt. 283 g (10 oz.)

Bandit™, Rampage™ and Dagger™ Kits Feature:

- *Pre-Colored Body Tubes*
- *Plastic Nose Cone and Fins*
- *Pre-Slotted Body Tubes*
- *Stick-On Decals*
- *No Painting*

BANDIT™
EST 2060

RAMPAGE™
EST 2061

DAGGER™
EST 2062

BANDIT™

The perfect beginner's model in a true almost ready-to-fly style. This rocket, capable of blazing performance, will be a guaranteed favorite. E2X™ standard features include slotted body tubes for easy fin alignment and precision engineered for a fast build.

Specifications:
Length: 42 cm (16.5"); Dia.: 25.4 mm (1.0"); Wt.: 45.5 g (1.6 oz.); Engines: A8-3 (First Flight), B4-4, B6-4, B8-5, C5-3, C6-3, C6-5

RAMPAGE™

With slotted body tubes for easy alignment and strong fin attachment, a double thick body tube and plastic nose cone, this rocket will still be flying when the competition has given up. The Rampage™ has a payload section and can be built under an hour.

Specifications:
Length: 44 cm (19.5"); Dia.: 25.4 mm (1.0"); Wt.: 50.2 g (1.8 oz.); Engines: A8-3 (First Flight), B4-4, B6-4, B8-5, C5-3, C6-3, C6-5

DAGGER™

The flagship of our E2X™ series, this rocket is sleek, long and lean. It's a winner whether it's on the pad, in the air or on display. This super quick build features a chrome colored payload section, slotted body tube and pre-finished plastic fins.

Specifications:
Length: 57.0 cm (22.5"); Dia.: 25.4 mm (1.0"); Wt.: 53.5 g (1.9 oz.); Engines: A8-3 (First Flight), B4-4, B6-4, B8-5, C5-3, C6-3, C6-5

GNOME™
EST 0886

ALPHA® III
EST 1256

GNOME™

This mini-engine entry into the E2X™ level is perfect for small flying fields. The Gnome's great features include an electric blue colored, one piece, plastic fin unit; a chrome colored body tube; and great performance!

Specifications:
Length: 26.04 cm (10.25"); Dia.: 13.8 mm (0.544"); Wt.: 12 g (0.42 oz.); Engines: 1/2A3-2T (First Flight), 1/2A3-4T, A3-4T, A10-3T

ALPHA® III

One of the oldest, most reliable, easiest to build rockets gets a dynamic new decor - glossy black body tube, fluorescent orange plastic fin unit and nose cone. This old-timer is a durable flier and requires no painting.

Specifications:
Length: 31.1 cm (12.25"); Dia.: 24.8 mm (0.976"); Wt.: 34 g (1.2 oz.); Engines: A8-3 (First Flight), 1/2A6-2, A8-5, B4-4, B4-6, B6-6, B8-5, C6-5, C6-7

E2X™ SERIES

ATHENA™
EST 2026

PEGASUS™
EST 2076

Engines, launch system, glue, and finishing supplies not included.
Avg. Ship Wt. 283 g (10 oz.)

ATHENA™

Gleaming and fast, rugged and beautiful, this model can smoke. With white and chrome plastic, the Athena™ will become one of your favorites! Performs great on a wide selection of engines.

Specifications:
Length: 38.1 cm (15.0"); Dia.: 24.6 mm (0.976"); Wt.: 36 g (1.27 oz.); Engines: A8-3 (First Flight), 1/2A6-2, A8-5, B4-4, B4-6, B6-6, B8-5, C6-5, C6-7

PEGASUS™

The new Pegasus™ is ready to become the first in your stable of rockets. This great looking, sleek rocket is quick to build and quick to fly. Features durable and rugged construction and there's no painting required!

Specifications:
Length: 38.1 cm (15.0"); Dia.: 24.6 mm (0.976"); Wt.: 36 g (1.27 oz.); Engines: A8-3 (First Flight), 1/2A6-2, A8-5, B4-4, B4-6, B6-6, B8-5, C6-5, C6-7

BETA™ SERIES

BETA™ SERIES
SKILL LEVEL 1

These dramatic, exciting-looking kits will fill many modelers' needs: from the inexpensive Mosquito™ to the hot performing Zinger™ to the payload-carrying Nova Payloader™ to the sensational Big Bertha™

This is a traditional starting point for some modelers. The kits in this series have simple construction, although some modeling experience can be helpful (sanding, cutting, measuring and gluing), this skill level will help you acquire those skills. These kits are often used in schools, Boy Scouts, 4H Clubs, summer camps, Civil Air Patrol and Young Astronauts programs. The kits feature:

- **Die cut fins with some fin alignment necessary**
- **Simple painting**
- **Pressure sensitive or water soluble decals**
- **Up through "C" engine power**

*Unless otherwise specified, all models in this catalog require assembly.

BETA™ SERIES

Engines, launch system, glue, and finishing supplies not included.
Avg. Ship Wt. 283 g (10 oz.)

ZINGER™
EST 1917

600

SPACE RACER™
EST 2039

F

540

SPARROW™
EST 0872

F

270

ZINGER™

Efficient aerodynamic design makes this our best performing single-stage rocket. Easily reaches 610 meters (2000 foot) altitudes, making it an excellent sport or competition model.

Specifications:
Length: 26 cm (10.25"); Dia.: 18.7 mm (0.736"); Wt.: 8.5 g (0.3 oz.); Engines: A8-5 (First Flight), B4-6, B6-6, C6-7

SPACE RACER™

This nifty rocket with the racy looks is easy to build and has "out-of-sight" performance. Features easy-to-finish fiber fins, a special plastic molded nose cone and can use a wide variety of engines.

Specifications:
Length: 32.1 cm (12.625"); Dia.: 18.7 mm (0.736"); Wt.: 20.8 g (0.73 oz.); Engines: 1/2A6-2 (First Flight), A8-3, A8-5, B4-4, B4-6, B6-4, B6-6, B8-5, C6-5, C6-7

SPARROW™

A mini model with big missile decor, this rocket is so lightweight that it only requires break-away recovery for safe landings! Additional features include fiber fins - no sealing required and colorful self-stick decals.

Specifications:
Length: 27.3 cm (10.75"); Dia.: 13.8 mm (0.544"); Wt.: 11.1 g (0.39 oz.); Engines: 1/2A3-2T (First Flight), A3-4T, A10-3T

MINI-PATRIOT™
EST 0896

F

150

RELIANT™
EST 1986

F

450

MINI-PATRIOT™

The only mini engine scale (1/22nd scale) model available! This semi-scale version features construction techniques that keep the painting simple. This model features fiber fins - no sealing required!

Specifications:
Length: 25.4 cm (10.0"); Dia.: 18.7 mm (0.736"); Wt.: 17.1 g (0.6 oz.); Engines: A3-4T (First Flight), A10-3T

RELIANT™

This hot performer features self-adhesive sounding rocket decals and a quick release engine mount - a perfect beginner's rocket. Can use a wide selection of engines!

Specifications:
Length: 31.8 cm (12.5"); Dia.: 18.7 mm (0.736"); Wt.: 17.6 g (0.62 oz.); Engines: 1/2A6-2 (First Flight), A8-3, A8-5, B4-4, B4-6, B6-4, B6-6, B8-5, C6-5, C6-7

BETA SERIES

Engines, launch system, glue, and finishing supplies not included.
Avg. Ship Wt. 283 g (10 oz.)

LUMINA™
EST 0897

NINJA™
EST 0882

YANKEE™
EST 1381

LUMINA™

An easy-building, high flier that makes an ideal first or second rocket. Simple break-apart recovery system brings it back close to the launch pad.

Specifications:
Length: 27 cm (10.5"); Dia.: 13.8 mm (0.544"); Wt.: 12.6 g (0.45 oz.); Engines: 1/2A3-4T (First Flight), 1/2A3-2T, A3-4T, A10-3T

NINJA™

Dark and mysterious, this hot performer flies on mini-engines. Builds quickly and makes an excellent first rocket.

Specifications:
Length: 26.8 cm (10.56"); Dia.: 18.7 mm (0.736"); Wt.: 15.9 g (0.56 oz.); Engines: 1/2A3-4T (First Flight), A3-4T, A10-3T

YANKEE™

Redecorated, this rocket still retains performance worthy of an All American - capable of out-of-sight flights! This model has self-stick adhesive decals, streamer recovery and can use a wide selection of engines.

Specifications:
Length: 27.9 cm (11.0"); Dia.: 18.7 mm (0.736"); Wt.: 11.9 g (0.42 oz.); Engines: 1/2A6-2 (First Flight), A8-3, A8-5, B4-4, B4-6, B6-4, B6-6, B8-5, C6-5, C6-7

WIZARD™
EST 1292

MOSQUITO™
EST 0801

THUNDERHAWK™
EST 2002

WIZARD™

You don't need magic to put this rocket up over 1/4 mile high - just plug in a "C" engine and go! A big 76 cm (30") streamer makes tracking and recovery easy.

Specifications:
Length: 30.5 cm (12"); Dia.: 18.7 mm (0.736"); Wt.: 22.4 g (0.79 oz.); Engines: A8-3 (First Flight), 1/2A6-2, A8-5, B4-4, B4-6, B6-4, B6-6, B8-5, C6-5, C6-7

MOSQUITO™

Don't let size fool you - the smallest rocket in our fleet moves out fast and flies almost out-of-sight every time! Ultra lightweight construction and fantastic performance.

Specifications:
Length: 9.9 cm (3.9"); Dia.: 13.8 mm (0.544"); Wt.: 2.8 g (0.1 oz.); Engines: 1/2A3-4T (First Flight), A3-4T, A10-3T

THUNDERHAWK™

Long, lean sport flier featuring super stable five fin configuration. Simple to construct and finish, and delivers impressive performance.

Specifications:
Length: 55.9 (22"); Dia.: 24.8 mm (0.976"); Wt.: 34.6 G (1.22 oz.); Engines: A8-3 (First Flight), B4-4, B6-4, C6-5

BETA™ SERIES

VIKING™
EST 1949

YELLOW JACKET™
EST 2008

ALPHA®
EST 1225

VIKING™

This high flier can be built with three, four or five fins in various arrangements, making it ideal for aerodynamic experiments and comparisons. Easy to build and needs no painting.

Specifications:
Length: 30.8 cm (12.125"); Dia.: 18.7 mm (0.736"); Wt.: 20.1 g (0.71 oz.); Engines: A8-3 (First Flight), A8-5, B4-4, B6-4, B8-5, C6-5, C6-7

YELLOW JACKET™

All around great performance is the hallmark of this terrific sport rocket. This easy to build flier features parachute recovery and water soluble decals.

Specifications:
Length: 42.7 cm (16.8"); Dia.: 24.8 mm (0.976"); Wt.: 30.6 g (1.08 oz.); Engines: A8-3 (First Flight), A8-5, B4-4, B4-6, B6-4, B6-6, B8-5, C6-5, C6-7

ALPHA®

The Alpha®, after over three decades, is still the perfect first or second rocket. Millions have been made and flown - a very reliable performer that can use a wide variety of engines! There is only one Alpha®!

Specifications:
Length: 31.1 cm (12.25"); Dia.: 24.8 mm (0.976"); Wt.: 22.6 g (0.8 oz.); Engines: A8-3 (First Flight), 1/2A6-2, A8-5, B4-4, B4-6, B6-4, B6-6, B8-5, C6-5, C6-7

Engines, launch system, glue, and finishing supplies not included.
Avg. Ship Wt. 392 g (14 oz.)

ESTES

- *Now Uses 200 ASA Film. Easier to Build!*

ASTROCAM™ 110
with Launch Vehicle
EST 1327

BIG BERTHA™
EST 1948

ASTROCAM™ 110

Imagine an image, taken hundreds of feet in the air from a rocket. This rocket gives you that ability. The newly redesigned AstroCam™ 110 is better than ever with features such as the use of 200 ASA 110 film (film and developing are available locally), having critical camera parts are pre-assembled and a new improved optical grade lens.

The easy-to-build launch vehicle features pre-colored plastic one-piece fin unit, yellow pre-colored body tube and self-adhesive decals.

Specifications - Camera:
Length: 16.5 cm (6.5"); Dia.: 35.3 mm (1.39"); Wt.: without film 38.5 g (1.36 oz.), with film - 49.8 g (1.76 oz.); Shutter Speed: 1/500 sec.; F-Stop: 11

Specifications - Camera and Launch Vehicle:
Length: 48.5 cm (19.1"); Dia.: 34 cm (1.34"); Wt.: 106.1 g (3.75 oz.) Engines: C6-7

BIG BERTHA™

Burly, bad and beautiful! One of Estes' oldest kits becomes one of our most dynamic looking! This rocket has been a favorite of millions of rocket modelers - make it your favorite, too! The mighty "Bertha" sports futuristic self-adhesive decals!

Specifications:
Length: 61 cm (24"); Dia.: 41.6 mm (1.637"); Wt.: 62.3 g (2.2 oz.); Engines: B6-2 (First Flight), A8-3 (in no wind conditions), B4-2, B4-4, B6-4, B8-5, C6-5

EXPLORER™ SERIES

EXPLORER™ SERIES
SKILL LEVEL 2

When you have learned the basics of model rocketry and are ready for something new and different, the next step is the Explorer™ Series. This series offers interesting features with more involved construction and finishing. Here you will polish your skills and learn about the variety of fascinating design and recovery possibilities. Glide recovery models like the new A.R.V. Condor™ or ultra high flying two- and three-stagers offer new dimensions of in-flight excitement. There are scale models and futuristic designs that fly just as great as they look! Or step up to huge "D"-powered models like the Optima™ for impressive high-powered flights. Choose from more than 30 exciting models!

 *Unless otherwise specified, all models in this catalog require assembly.

Engines, launch system, glue, and finishing supplies not included.
Avg. Ship Wt. 340 g (12 oz.)

A.R.V. CONDOR™

This is Estes' dynamic concept of an upper atmospheric research vehicle. This NOAA (National Oceanic and Atmospheric Administration) rocket would boost to the high reaches of our atmosphere via the booster vehicle, where the two research drones would detach. In our exciting version, the streamer recovered booster pops two parasite gliders off at ejection. These "diffuser tip" winged drones glide, circling, chasing each other gently back to the ground. Our kit features an easy-to-build, vacuum-formed plastic mounting system for the gliders and a three-color water-soluble decal.

Specifications:
Booster - Length: 47.0 cm (18.5"); Dia.: 24.8 mm (0.976"); Wt.: 32.0 g (1.13 oz.)
Drones - Length: 15.6 cm (6.13"); Dia.: 13.8 mm (0.544"); Wingspan: 27 cm (10.63"); Wt.: 14 g (0.49 oz.)
Engines: B4-2 (First Flight), B6-2, C5-3, C6-3

EXPLORER™ SERIES

SOLAR WARRIOR™
EST 0895

PHOTON PROBE™
EST 2043

SOLAR WARRIOR™

This colorful mini engine powered kit features futuristic styling. Modeled with ion engine pods which help stabilize it for atmospheric flights. Great looks and great performance!

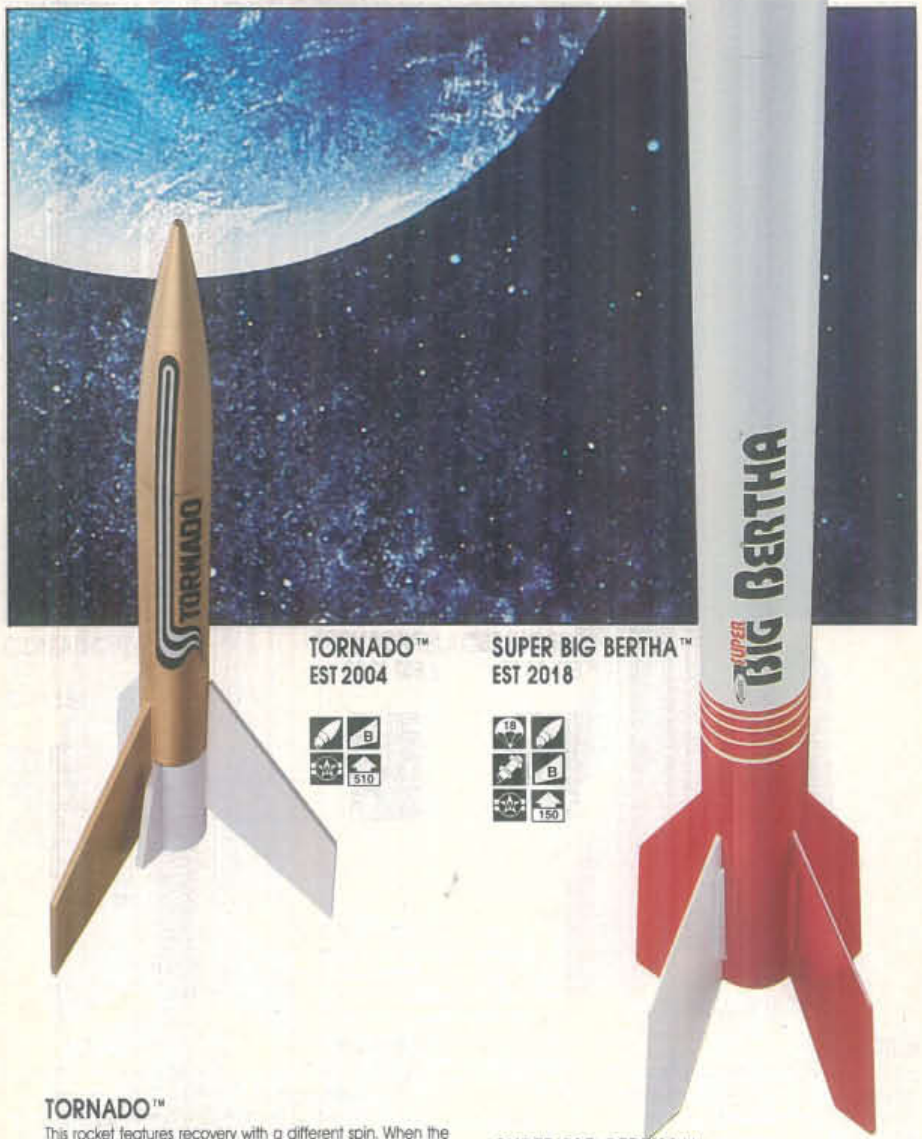
Specifications:
Length: 32.1 cm (12.625"); Dia.: 18.7 mm (0.736"); Wt.: 19 g (0.67 oz.); Engines: A3-4T (First Flight), A10-3T

PHOTON PROBE™

Advanced scientific probe flies at high warp speeds to investigate unstable galactic phenomena. Our model features parachute recovery and die-cut balsa fins.

Specifications:
Length: 58.4 cm (23"); Dia.: 33.7 mm (1.325"); Wt.: 68 g (2.4 oz.); Engines: A8-3 (First Flight), B4-4, B6-4, B8-5, C6-5

Engines, launch system, glue, and finishing supplies not included.
Avg. Ship Wt. 453 g (16 oz.)



TORNADO™
EST 2004

SUPER BIG BERTHA™
EST 2018

TORNADO™

This rocket features recovery with a different spin. When the engine's ejection charge is activated, the Tornado™ separates into two sections. Each section then spins to the ground in a helicopter-style recovery.

Specifications:
Length: 24.1 cm (9.5"); Dia.: 18.7 mm (0.736"); Wt.: 13.9 g (0.49 oz.); Engines: 1/2A6-2 (First Flight), A8-3, A8-5, B4-4, B6-4, B6-6, B8-5

SUPER BIG BERTHA™

The biggest Big Bertha™ ever! Over 91 cm (three feet) tall and delivers truly impressive flights. A great first "D" engine rocket.

Specifications:
Length: 92.7 cm (36.5"); Dia.: 65.0 mm (2.56"); Wt.: 169.8 g (6 oz.); Engines: D12-3 (First Flight), D12-5

EXPLORER™ SERIES

HERCULES™
EST 1377

PHOENIX™
EST 1380

HERCULES™
Reach for the sky with two-stage flights of almost 1/2 mile high! Featuring a clear payload section, this model is ideal for high-altitude payload launching.

Specifications:
Length: 54.9 cm (21.6"); Dia.: 24.8 mm (0.976"); Wt.: 52.1 g (1.84 oz.); Engines: single stage - A8-3 (First Flight), B4-4, B6-4, B8-5, C6-5, upper stage - A8-5 (First Flight), B6-6, B8-5, C6-7, booster - B6-0 (First Flight), C6-0

PHOENIX™
Huge, gorgeous 1/9 semi-scale model of the famous Phoenix air-to-air supersonic missile. This single "D" engine rocket will provide you with a very satisfying build with its big BT 80 body tube (over 6 cm - 2.6" in diameter) and a very large decal sheet. You'll be proud to display and fly this exciting scale model. Requires a 5 mm (3/16") Maxi-Rod™ (EST 2244) to launch.

Specifications:
Length: 76.2 cm (30"); Dia.: 66 mm (2.6"); Wt.: 186.8 g (6.6 oz.); Engines: D12-3 (First Flight), D12-5

Engines, launch system, glue, and finishing supplies not included.
Avg. Ship Wt. 453 g (16 oz.)

COMANCHE-3™
EST 1382

SR-71 BLACKBIRD™
EST 1942

COMANCHE-3™
If two stages are not enough, here's three. And to really get this show moving fast, there is a "D" engine in the first stage. This rocket can fly over 1/2 mile in altitude and is recovered with a streamer. Can also be flown in a single or two stage configuration. A 5 mm (3/16") Maxi-Rod™ (EST 2244) is required for launch.

Specifications:
Length: 104.1 cm (41.0"); Dia.: 24.8 mm (0.976"); Wt.: 58.9 g (2.08 oz.); Engines: single stage configuration: A8-3 (First Flight), B4-4, B6-4, B8-5, C6-5; multi stage configuration: upper (top) stage - A8-5 (First Flight), B4-6, B6-6, C6-7, second stage - B6-0 (First Flight), C6-0, first stage - D12-0

SR-71 BLACKBIRD™
Jet black, lean and mean, the SR-71 smashed numerous speed and altitude records as far back as 1965. Some still stand after more than 25 years! After three decades of service, the SR-71 is now used by NASA for testing propulsion systems and materials for use in the X-30 program.

Specifications:
Length: 48.3 cm (19"); Dia.: 24.8 mm (0.976"); Wt.: 90.6 g (3.2 oz.); Engines: B4-2 (First Flight), B6-2, B6-4, B8-5, C6-5

EXPLORER™ SERIES

NOVA PAYLOADER™
EST 1960

MINI-COBRA™
EST 0898

BLACK BRANT II™
EST 1958

NOVA PAYLOADER™

With its clear payload capsule, this easy-to-build rocket is perfect for experiments and science projects. A great second or third rocket. A "C" engine will power this model out of sight and a parachute will recover it nicely for its next flight.

Specifications:

Length: 53.7 cm (21.1"); Dia.: 24.8 mm (0.976"); Wt.: 37.6 g (1.33 oz.); Engines: A8-3 (First Flight), B4-4, B6-4, B8-5, C6-5

MINI-COBRA™

Fly to incredible altitudes with this ideal first two-stage rocket. Like all of our multi-staged models, the Mini-Cobra™ can be flown single-stage too.

Specifications:

Length: 25 cm (10"); Dia.: 13.8 mm (0.544"); Wt.: 13.2 g (0.47 oz.); Engines: single stage - A3-4T (First Flight), A10-3T, first stage - A10-0T, second stage - 1/2A3-4T

BLACK BRANT II™

High flying 1/13 scale model of the Bristol Aerospace sounding rocket used by the Canadian Armament Research and Development Establishment for upper atmospheric research. An ideal first "D" engine powered model.

Specifications:

Length: 63.2 cm (24.875"); Dia.: 33.7 mm (1.325"); Wt.: 152.8 g (5.4 oz.); Engines: D12-5 (First Flight), D12-7

Engines, launch system, glue, and finishing supplies not included.
Avg. Ship Wt. 392 g (14 oz.)

BULL PUP 12D™
EST 1972

HAWKEYE™
EST 0873

SENTINEL™
EST 1987

BULL PUP 12D™

This is our sport scale version of the U.S. Air Force's AGM-12D Bull Pup. The Bull Pup 12D™ is the perfect first scale model. Its unique appearance will make it stand out on the launch field or while on display.

Specifications:

Length: 39.7 cm (15.625"); Dia.: 33.7 mm (1.325"); Wt.: 50.9 g (1.8 oz.); Engines: A8-3 (First Flight), B4-4, B4-4, B6-4, C6-5

HAWKEYE™

Military surface-to-air missile styling and out-of-sight flights are the trademarks of this fun flier. Features patriotic red, white and blue decor plus great performance.

Specifications:

Length: 21.6 cm (8.5"); Dia.: 13.8 mm (0.544"); Wt.: 11.9 g (0.42 oz.); Engines: 1/2A3-2T (First Flight), A3-4T, A10-3T

SENTINEL™

This big model features air-to-air missile styling and realistic liftoffs. An impressive addition to your fleet and a real crowd-pleaser. Extensive decal sheet makes finishing easy.

Specifications:

Length: 70.2 cm (27.625"); Dia.: 41.6 mm (1.637"); Wt.: 76.4 g (2.7 oz.); Engines: A8-3, B4-4 (First Flight), B6-4, C6-3, C6-5

EXPLORER™ SERIES

HELIO*COPTER™
EST 1995

MEAN MACHINE™
EST 1295

HELIO* COPTER™

With clean lines and decor, this rocket soars high on "C" engines. Then watch eyes open when the nose cone separates and deploys three spring-loaded helicopter blades and begins its slow, spinning descent to the ground!

Specifications:
Length: 64.5 cm (25.4"); Dia.: 34.2 mm (1.346"); Wt.: 81.8 g (2.89 oz.); Engines: C6-3 (First Flight), C6-5

MEAN MACHINE™

Stand back on this one! Over six feet of body tube with a kick-in-the-pants "D" engine to boot. This tall, lean rocket is the perfect first "D" engine model and is a spectacular flier! Requires 5 mm (3/16") diameter Maxi-Rod™ (EST 2244) to launch.

Specifications:
Length: 200 cm (78.75"); Dia.: 41.6 mm (1.637"); Wt.: 164 g (5.8 oz.); Engines: D12-5

Engines, launch system, glue, and finishing supplies not included.
Avg. Ship Wt. 392 g (14 oz.)

IRIS™
EST 2007

PATRIOT™
EST 2056

SUPER NOVA™
EST 2011

IRIS™

Sporty 1/13 scale model of the Iris sounding rocket produced by Atlantic Research Corporation in the early 1960's. Simple construction and finishing plus excellent performance make this an ideal first scale model.

Specifications:
Length: 43.5 cm (17.125"); Dia.: 24.8 mm (0.976"); Wt.: 32.0 g (1.13 oz.); Engines: A8-3 (First Flight), B4-4, B6-4, B8-5, C6-5

PATRIOT™

A 1/10th semi-scale reproduction of the ground-to-air missile made famous in Desert Storm. This model features an easy-to-paint test round decor and self-adhesive decals. A free technical data sheet on the full scale anti-missile missile is included.

Specifications:
Length: 54 cm (21.25"); Dia.: 41.6 mm (1.637"); Wt.: 55.3 g (1.5 oz.); Engines: A8-3 (First Flight), B4-4, B6-4, B8-5, C6-5

SUPER NOVA™

This sleek two stage rocket can easily launch payloads to almost 1800 feet. The Super Nova™ features forward swept fins in the first stage and a clear payload capsule in the upper stage. Can also be flown as a single stage rocket.

Specifications:
Length: 68.6 cm (27"); Dia.: 24.8 mm (0.976"); Wt.: without payloads - 48.1 g (1.7 oz.); Engines: single stage configuration: B4-4 (First Flight), A8-3, B6-4, B8-5, C6-5; two stage configuration: first stage - B6-0 (First Flight), C6-0, second stage - A8-5 (First Flight), B4-6, B6-6, C6-7

EXPLORER™ SERIES

Engines, launch system, glue, and finishing supplies not included.
Avg. Ship Wt. 392 g (14 oz.)

STRIKE FIGHTER™
EST 2015

WARP II™
EST 2022

HORNET™
EST 2030

MAGNUM™
EST 2032

STRIKE FIGHTER™

Estes' concept of a multi-mission air-space fighter plane. Capable of escort and strike fighting capabilities. Features ram/scram engine for atmospheric flights and rocket power for space missions. Our model version features a clear canopy with cockpit detail, parachute recovery, and a plastic molded nose cone.

Specifications:

Length: 37.5 cm (14.75"); Dia.: 33.7 mm (1.325"); Wt.: 67.1 g (2.37 oz.); Engines: B4-4 (First Flight), B6-4, C6-3

WARP II™

A big see-through payload section carries experimental payloads on this sharp two-stage model. Over 61 cm (two feet) tall, it flies well single-staged too.

Specifications:

Length: 62.5 cm (24.625"); Dia.: 41.6 mm (1.637"); Wt.: 80.1 g (2.83 oz.); Engines: single stage - B4-4 (First Flight), A8-3, B6-4, B8-5, C6-5, upper stage - A8-5 (First Flight), B4-6, B6-6, C6-7, first stage - B6-0 (First Flight), C6-0

HORNET™

This is a great sport rocket with missile-like styling. This model features a unique fin configuration (the fins are die-cut balsa) and is capable of achieving out-of-sight flights. A great second or third model.

Specifications:

Length: 45.1 cm (17.75"); Dia.: 24.8 mm (0.976"); Wt.: 33.1 g (1.17 oz.); Engines: B4-4 (First Flight), A8-3, B6-4, B8-5, C5-3, C6-5

MAGNUM™

Powerful two-stager hauls payloads up to 1/4 mile high! Features a "D" engine in the booster section for heavier cargo capability.

Specifications:

Length: 62.5 cm (24.625"); Dia.: 41.6 mm (1.637"); Wt.: 80.1 g (2.83 oz.); Engines: single stage - B6-4 (First Flight), A8-3, B4-4, B8-5, C6-5, upper stage - A8-5 (First Flight), B4-6, B6-6, C6-7, first stage - D12-0

EXPLORER™ SERIES

BLACK HAWK™
EST 2053

DELTA CLIPPER™
EST 2067

BLACK HAWK™

The shape of things to come? This 21st Century stealth fighter features radar evading design. A unique ejection ducting system deploys the special black drogue chute for recovery.

Specifications:

Length: 38.9 cm (15.31"); Dia.: 24.8 mm (0.976"); Wing Span: 20.6 cm (8.125"); Wt.: 75.5 g (2.67 oz.); Engines: A8-3 (First Flight), B4-4, B6-4, C6-5

DELTA CLIPPER™

Those who love high performance will love this design optimized two stage "D" rocket. This rocket is capable of over 1/2 mile of altitude. And to top it off this model is constructed tough: thick walled body tubes, slotted tubes for through-the-wall fin construction, and plastic nose cone.

Specifications:

Length: 66 cm (26"); Dia.: 25.4 mm (1"); Wt.: 73.8 g (2.6 oz.); Engines: two stage configuration: upper stage - D12-7, first stage - D12-0; single stage configuration: D12-5, D12-7

Engines, launch system, glue, and finishing supplies not included.
Avg. Ship Wt. 392 g (14 oz.)

GREY HAWK™
Orbital Interceptor
EST 2068

SCRAMBLER™
EST 2072

GREY HAWK™

This is Estes' concept of a futuristic fighter that utilizes hybrid engines for atmospheric flight and a rocket engine for excursions into low earth orbit. Taking off from aircraft carriers, its primary mission is to hunt satellites and other spacecraft. Estes' model version features parachute recovery, large decal sheet and a unique plastic molded nose cone.

Specifications:

Length: 42.0 cm (16.5"); Dia.: 33.7 mm (1.325"); Wt.: 60.5 g (2.1 oz.); Engines: B4-4 (First Flight), A8-3, B6-4, B8-5, C5-3, C6-3, C6-5

SCRAMBLER™

Sturdy, reliable sport egg-lofter can haul all kinds of experimental cargo in its big 51 mm (2") diameter payload section. Boosts an egg and returns it un-scrambled!

Specifications:

Length: 55.0 cm (21.5"); Dia.: 51 mm (2.0"); Wt.: 71 g (2.51 oz.); Engines: without egg - B4-2 (First Flight), B6-2, B8-5, C6-5, with egg - C5-3

EXPLORER™ SERIES

OPTIMA™
EST 2035

S.W.A.T.™
EST 2017

OPTIMA™
This massive rocket stands nearly 122 cm (four feet) tall and measures over 64 mm (2½") in diameter! Slow, majestic "D"-powered liftoffs. Includes chrome and metal-flake decal sheets. Requires 5 mm (3/16") Maxi™ Rod (EST 2244) for launch.

Specifications:
Length: 120.7 cm (47.5"); Dia.: 66 mm (2.6"); Wt.: 234.9 g (8.3 oz.); Engines: D12-3 (First Flight), D12-5

S.W.A.T.™
This huge hypersonic fighter of the future stands nearly 91 cm (three feet) tall and delivers exciting flights on "C" engines. Includes huge two-color decal sheet. Requires 5 mm (3/16") Maxi™ Rod (EST 2244) for launch.

Specifications:
Length: 86.4 cm (34"); Dia.: 41.6 mm (1.637"); Wt.: 114.9 g (4.06 oz.); Engines: C6-3 (First Flight), C6-5

Engines, launch system, glue, and finishing supplies not included.
Avg. Ship Wt. 453 g (16 oz.)

SOLAR PROBE™
EST 2051

SOLAR SAILER II™
EST 2044

BETA LAUNCH VEHICLE™
EST 2054

SOLAR PROBE™
A futuristic look at a spacecraft-launched probe, used to investigate the regions around the sun. Sensors and antennas would be located in the fin-like protrusions. This large model features die cut balsa fins, parachute recovery and a tail cone.

Specifications:
Length: 51.1 cm (20.125"); Dia.: 41.6 mm (1.637"); Wt.: 51.5 g (1.82 oz.); Engines: A8-3 (First Flight), B4-4, B6-4, B8-5, C6-5

SOLAR SAILER II™
An Estes concept vehicle of a solar propelled vehicle. In reality, a spacecraft of this type would use a giant mylar film to capture and sail with the solar wind. Our version uses a 45 cm (18") big silver-colored parachute to simulate the solar sail.

Specifications:
Length: 72.4 cm (28.5"); Dia.: 24.8 mm (0.976"); Wt.: 52 g (1.84 oz.); Engines: A8-3 (First Flight), B4-4, B6-4, B8-5, C6-5

BETA LAUNCH VEHICLE™
A scale-like model of a commercial lift vehicle. Easy-to-build rocket with large colorful decals. Also features a "twist-on" clear plastic fin unit. Includes a removable plastic engine nozzle for display.

Specifications:
Length: 61.9 cm (24.375"); Dia.: 41.6 mm (1.637"); Wt.: 74.4 g (2.63 oz.); Engines: A8-3 (First Flight), B4-4, B6-4, B8-5, C6-5

Estes Challenge series

CHALLENGE™ SERIES
SKILL LEVEL 3

When you are ready for a challenge, and the satisfaction that comes from building and flying an advanced model, step up to the Challenge™ Series! Here you'll find beautifully detailed scale models of well known space vehicles such as the Space Shuttle™ or the Saturn V™. If you enjoy winged rocketry, try the TomCat™ Swing-Wing Fighter, or the incredible radio-controlled Astro-Blaster.™ Star Trek® fans will love the USS Enterprise™ and Klingon™ Battle Cruiser models.

Challenge™ Series models involve more time and skill for assembly and perhaps the use of other adhesives such as epoxy, also advanced finishing and painting techniques. The construction, finishing and flight of a Challenge™ Series model is a proud accomplishment!

 *Unless otherwise specified, all models in this catalog require assembly.

Engines, launch system, glue, and finishing supplies not included.
Avg. Ship Wt. 392 g (14 oz.)

TOMCAT™ Swing-Wing Rocket Glider
EST 2086

TOMCAT™ Swing-Wing Rocket Glider

Just unveiled by the Estes skunk works, the Tomcat™ is ready for action! Climbs vertically with the wings swept back, then the engine's ejection charge activates the release mechanism, and the wings sweep forward into glide mode. The Tomcat™ soars down in a graceful circling glide path. Replace the engine, sweep the wings back, reset the release mechanism, and you're ready to go ballistic!

Specifications:
Length: 53.7 cm (21.12"); Wingspan: Swept - 26.0 cm (10.25"), Extended - 47.3 cm (18.63"); Weight: 115 g (4.1 oz.); Engines: C6-3 (First Flight), C5-3

Estes

Challenge series

CHALLENGE™ SERIES

These two commemorative kits were re-released in 1992 to celebrate the 25th anniversary of Star Trek®. These flying model kits originally appeared in 1975.

STARSHIP ENTERPRISE®

This "Constellation"-class starship was the flagship of the Federation. Its mission encompassed galactic security and exploration. Our version requires special modification (with the addition of a recovery probe) to fly in our atmosphere. The recovery probe can easily be disengaged. Other features include vacuum-formed plastic parts and highly accurate decals.

Specifications:

Length: 42.6 cm (16.8"); Recovery Probe Length: 77.2 cm (30.4"); Primary Hull Dia.: 19 cm (7.5"); Wt.: 110 g (3.8 oz.); Engines: B6-2 (First Flight), C6-3

KLINGON™ BATTLE CRUISER

In the 23rd century, the Klingon® Empire was the primary enemy of the Federation. The Battle Cruiser, with its fierce warriors and powerful weaponry, was the mainstay weapon platform of the Klingons. Our Klingon® replica features vacuum-formed plastic parts, water soluble and special chrome-colored self-adhesive decals.

Specifications:

Length: 39.4 cm (15.5"); Wing Span: 24.9 cm (9.8"); Wt.: 70 g (2.5 oz.); Engines: B4-2 (First Flight), B6-4, C6-5

Engines, launch system, glue, and finishing supplies not included.
Avg. Ship Wt. 580 g (20 oz.)

- ***Converts to .049 Glow Power in Seconds!***

- ***"E" Engines Coming Soon!***

ASTRO-BLASTER™

A new dimension in excitement for rocket enthusiasts and R/C modelers alike. Combining rocket boost glider technology with R/C aerobatic capability gives a model that delivers maximum flying fun! Now includes a quick-change adapter for .049 glow engine power. In seconds, the Astro-Blaster™ transforms into an aerobatic power ship, R/C rocket glider, slope soarer, .049-powered sport flier: 3-in-1 versatility! Features conventional quality model aircraft construction and requires two channel radio equipment with mini or micro flight pack (not included).

Specifications:

Wingspan: 91.4 cm (36"); Weight (typical): 397 g (14 oz.); Wing Loading (typical): 0.26 g/cm^2 (8.6 oz./ft.^{2}); Maximum altitude with Estes D11-P engine: 91 cm (300 ft.); Engines: D11-P

Some R/C experience is recommended before flying the Astro-Blaster™.

Estes

Challenge series

SPACE SHUTTLE™
EST 1284

EXPLORER AQUARIUS™
EST 2016

SPACE SHUTTLE™

Accurately detailed 1/162 scale model of America's most famous space vehicle. Like the real one, the orbiter glides back to Earth, while the external tank and boosters return under a 46 cm (18") parachute. Removable stablizer fins plug in for flight. A great display and demonstration model.

Specifications:
Total Length: 34.5 cm (13.6"); Orbiter Length: 22.9 cm (9"); Orbiter Wingspan: 18 cm (7.1"); Weight: 124 g (4.37 oz.); Engines: C5-3 (First Flight), C6-3

EXPLORER AQUARIUS™

Excerpted from Mary's Compendium On Interstellar Craft, disk 2, ed. 123, published in 2286: Early 22nd century (completed in 2111, launched in 2114)...manned star probe...utilized first suspended animation system...lost contact in 2197. Our beautiful model features "D" power, a unique plastic nose cone and two huge decal sheets. Requires a 5 mm (3/16") Maxi-Rod™ (EST 2244).

Specifications:
Length: 55.2 cm (21.75"); Dia.: 69.9 mm (2.75"); Wt.: 118.9 g (4.2 oz.); Engines: D12-3 (First Flight), D12-5

Engines, launch system, glue, and finishing supplies not included.
Avg. Ship Wt. 504 g (18 oz.)

SATURN 1B™
EST 2048

SATURN V™
EST 2001

SATURN 1B™

The Saturn 1B was used to test the Apollo spacecraft's various systems and heat shields prior to the first lunar flights. This 1/100th scale model is nicely detailed and flies realistically on D engines.

Specifications:
Length: 67.3 cm (26.5"); Diameter: 66.5 mm (2.618"); Weight: 151 g (5.33 oz.); Engines: D12-5

SATURN V™

Absolutely beautiful 1/100 scale model of the mighty Saturn V, the first vehicle to take man to the moon. Scaled from official NASA drawings and extensively detailed, this magnificent model stands over 109 cm (43") tall. Lift-offs are slow and majestic under D12-3 power.

Specifications:
Length: 109.9 cm (43.25"); Diameter: 100 mm (3.938"); Weight: 288.7 g (10.2 oz.); Engines: D12-3

PRO™ SERIES
SKILL LEVEL 4

At the top of our line-up is the high-powered Pro™ Series. These are big models using single or clustered "D" engines and larger. Engineered for performance and safety, we only recommend these models for modelers 16 years of age or older.

Models in this line feature rugged yet simple construction designed to withstand the stresses of higher-powered flight. Heavy-duty body tubes, through-the-wall fin mounting, plywood centering rings and rip-stop nylon parachutes are just some of the features that make these models tough but surprisingly lightweight.

Plus, we have the right accessories to go with these impressive models - the Command Control™ launch controller and Power Plex™ launch pad are the ultimates in ruggedness, versatility and safety.

 *Unless otherwise specified, all models in this catalog require assembly.

Engines, launch system, glue, and finishing supplies not included. Avg. Ship Wt. 1 Kg (2.2 lbs.)

These models require a 6 mm (1/4") launch rod and a heavy duty launch system such as the Power Plex™ and the Command Control™.

TERRIER/SANDHAWK™
EST 2083

18 P 360

JAYHAWK™
EST 2085

24N B 240

TERRIER/SANDHAWK™

Nearly 122 cm (four feet) tall, this lightweight but strongly built 1:9.8 scale model is an excellent performer. Flies single stage in two configurations: as is or detach the Sandhawk™ and fly it alone! Scale data and documentation included.

Specifications:
Length: 116.8 cm (46.0"); Diameter: 46.6 mm (1.835"); Weight: 244 g (8.6 oz.); Engines: Terrier/Sandhawk™ - D12-3, E15-4, E30-5, Sandhawk™ - D12-5 (First Flight), E15-8, E30-7, with EM-2050 adapter - B4-2, B6-2, C6-3

JAYHAWK™

A magnificent, highly detailed 1/5th scale model of the U.S. Navy's supersonic AQM-37A Missile Target drone. This unique looking rocket will become your favorite, whether on display or in the air. The Jayhawk™ kit features giant, colorful, scale, water-soluble decals; a nylon parachute; slotted heavy-duty body tube; and plastic molded nose cone and conduit.

Specifications:
Length: 76.2 cm (30"); Dia.: 63.5 mm (2.5"); Wt.: 245 g (8.6 oz.); Engines: D12-3 (First Flight), E15-1, E30-5

ESTES PRO SERIES™ MODEL ROCKETS

These models require a 6 mm (1/4") launch rod and a heavy duty launch system such as the Power Plex™ and the Command Control™.

IMPULSE™
EST 2064

18N · B · 270

PATRIOT™
EST 2066

24N · B · 300

MAXI-FORCE™
EST 2065

24N · B · 330

IMPULSE™

The power of two "D" engines, ignited simultaneously, whip this rocket into the air. The racy Impulse™ makes the introducton to clustering simple. This rocket is easy to build for the experienced rocket modeler. The Impulse™ features the standard heavy-duty Pro™ Series construction.

Specifications:
Length: 94 cm (37"); Dia.: 63.5 mm (2.5"); Wt.: 235 g (8.3 oz.); Engines: (two required) D12-5 (First Flight), D12-7

PATRIOT™

This is one HUGE 1/5 scale model of the Desert Storm veteran. The thunder and smoke of four "D"s, clustered together, hurl this model missile to over 1000 feet. This rocket is a rewarding build for the experienced modeler. Scale contoured fins and conduits along with a highly detailed decal sheet enhance this kit.

Specifications:
Length: 99 cm (39"); Dia.: 76.2 mm (3"); Wt.: 348 g (12.3 oz.); Engines: (four required) D12-7

*FAA notification or waiver may be required to fly this rocket.

MAXI-FORCE™

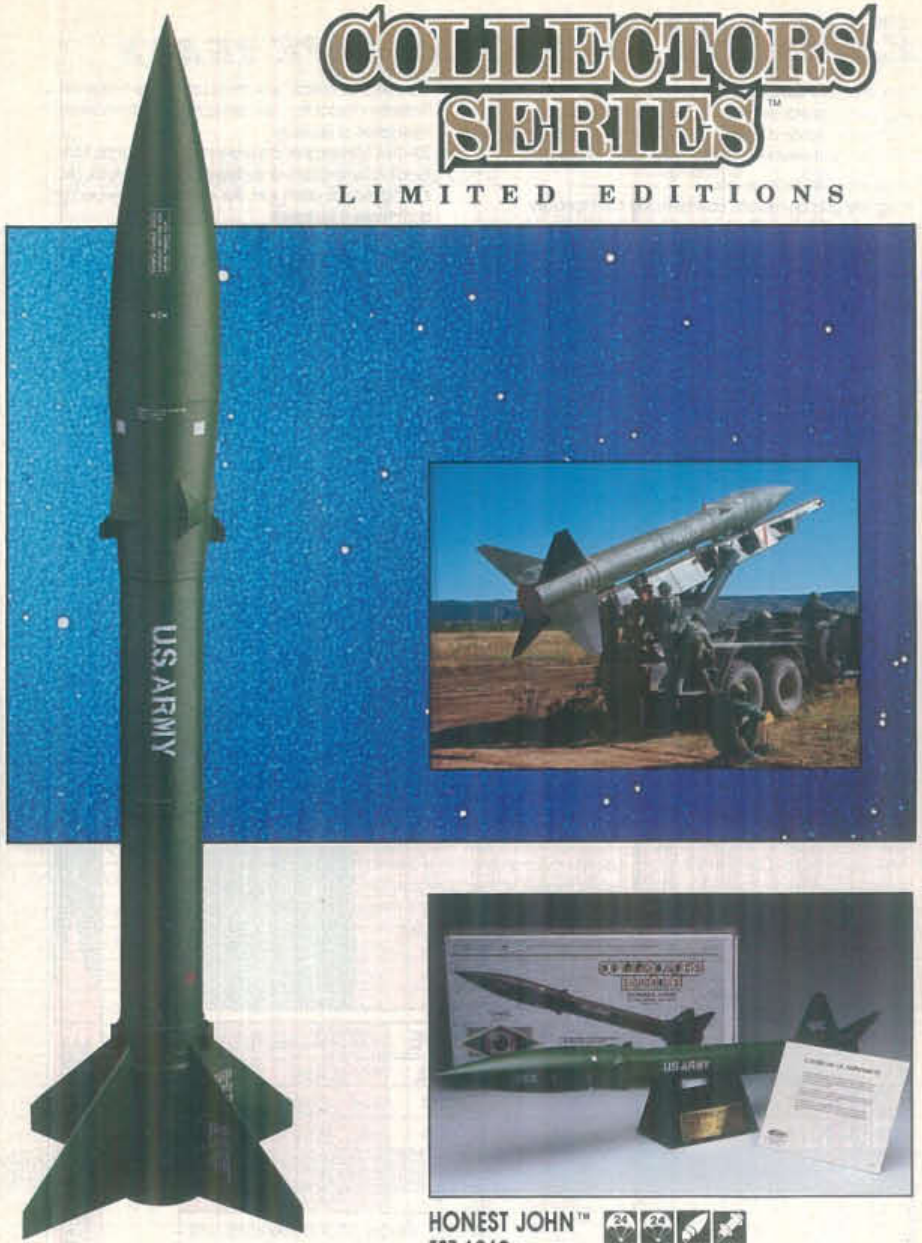
With the combined force of three "D" engines, this huge bird roars to over 1000 feet altitude on a column of smoke. Definitely an attention getter! Rugged construction and a tough rip-stop nylon parachute assure reliable, high-powered flights.

Specifications:
Length: 127 cm (50"); Diameter: 63.5 mm (2.5"); Weight: 348 g (12.3 oz.); Engines: (three required) D12-7

*FAA notification or waiver may be required to fly this rocket.

COLLECTORS SERIES™

LIMITED EDITIONS



HONEST JOHN™
EST 1269

34 · 24 · P · 90

HONEST JOHN™

Our original 1/9 scale Honest John™ joined the Maxi™ Brute line in 1975. This Collectors™ Series release is a faithful reproduction in every way. All parts, instructions and decals are original plus a certificate of authenticity and display stand are included.

Specifications:
Length: 94.0 cm (37.0"); Diameter: 66.0 mm (2.6"); Weight: 397 g (14 oz.); Engines: D12-3

Engines, launch system, glue, and finishing supplies not included.
Avg. Ship Wt. 1 Kg (2.2 lbs.)

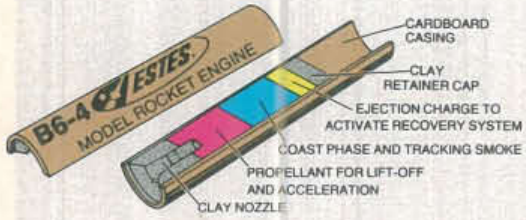
Limited Quantities

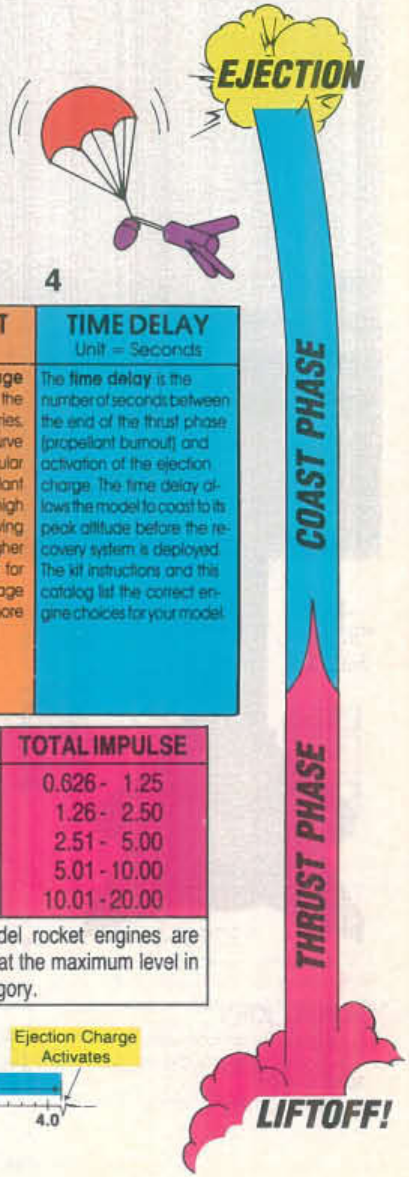
ENGINES OVER 35 SAFE YEARS

Safe, intelligent design, precise manufacture and strict engineering tolerances have made Estes model rocket engines the standard in the industry. They have been proven consistent and reliable in more than 300,000,00 launches.

Some important features are:

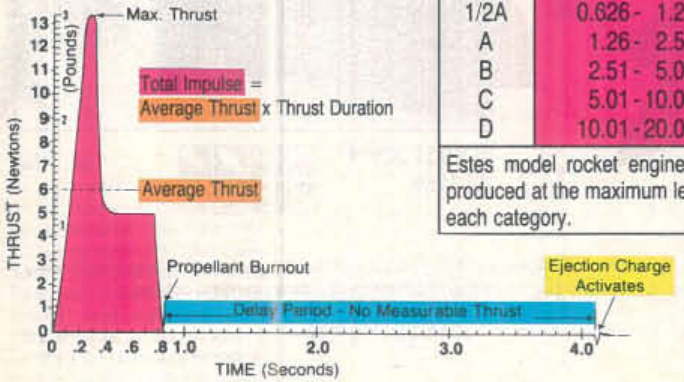
- Lightweight non-metallic casings made from specially formulated paper with clay nozzles
- Pre-loaded with propellant - the modeler does not handle any hazardous materials
- Estes engines comply with the codes of the National Fire Protection Association and are certified by the National Association of Rocketry.
- 3% of all Estes engines made are static-tested at the factory for reliability and adherence to performance specifications. If our standards aren't met, the engines are rejected and don't make it to market.
- The concept of the pre-assembled model rocket engine is the foundation of this safe, scientific and educational activity.





B **6** **4**

TOTAL IMPULSE Unit = Newton-seconds	AVERAGE THRUST Unit = Newtons	TIME DELAY Unit = Seconds
This letter indicates the **total impulse range** of the engine. **Total impulse** is the total power the engine produces, which basically indicates how much propellant it contains. Total impulse is measured in newton-seconds. One newton-second is the amount of total impulse that can produce one newton of thrust for a duration of one second. A five newton-second engine ("B" type) could produce five newtons of thrust for one second, ten newtons for 1/2 second, or any combination that equals five newton-seconds when multiplied. The chart below shows the possible values for each engine type.	This number tells you the **average thrust** the motor delivers during the thrust phase. The **actual thrust** varies, and is shown on the time-thrust curve (see example below). For a particular engine size, let's say a "B", the propellant may be burned quickly, giving high thrust for a short time, or slowly, giving lower thrust for a longer time. A higher average thrust engine (B8) is best for heavier models, while a lower average thrust, longer burn engine (B4) is more efficient in smaller, lighter models.	The **time delay** is the number of seconds between the end of the thrust phase (propellant burnout) and activation of the ejection charge. The time delay allows the model to coast to its peak altitude before the recovery system is deployed. The kit instructions and this catalog list the correct engine choices for your model.



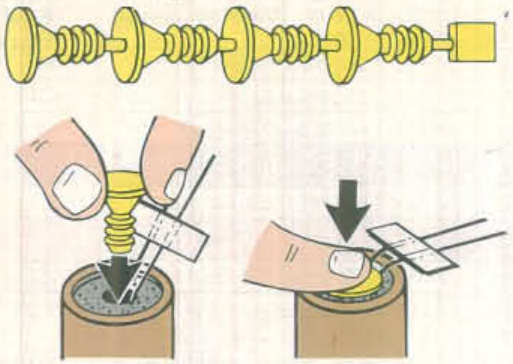
B6-4 Time Thrust Profile

TYPE	TOTAL IMPULSE
1/2A	0.626 - 1.25
A	1.26 - 2.50
B	2.51 - 5.00
C	5.01 - 10.00
D	10.01 - 20.00

Estes model rocket engines are produced at the maximum level in each category.

IGNITER PLUGS - *Use Only with Estes Engines*

Smart new technology! Estes' igniter plugs securely lock the igniter in place for dependable, safe ignition. Makes misfires due to incorrect igniter installation a thing of the past. Plus, they're reusable! Color-coded and tagged for easy identification, igniter plugs are now included with all Estes engines.



	Engine Type	Plug Color
MINI	1/2A3, A3	Orange
	A10	Green
REGULAR	A8,B4	Yellow
	B6, C6	Magenta
	B8, C5	Blue
D	D11, D12	White

COLOR CODING:

Estes model rocket engines have color-coded labels that indicate their applications.

Green Label - Single stage models

Purple Label - Upper stage or single stage, if used in very light models

Red Label - "0" delay engines, for use in booster stage and special projects **only**. Contain no delay or ejection charge

Black Label - The D11-P is a special purpose engine for use in the Astro-Blaster™ rocket glider. It contains no delay or ejection charge.

REGULAR ENGINES

SINGLE STAGE ENGINES (GREEN LABEL)

Prod. No.	Engine Type	Prices 3 for	Total Impulse lb-sec.[1]	Total Impulse N-sec.[2]	Time Delay (±15%)	Max. Lift Wt. oz./g	Max. Thrust oz./g	Thrust Duration	Initial Weight oz.	Initial Weight g	Propellant Weight oz.	Propellant Weight g
1593	1/2A6-2*		0.28	1.25	2 sec.	2.5/ 70.8	46/1301.8	0.20 sec.	0.53	15.0	0.055	1.56
1598	A8-3		0.56	2.50	3 sec.	4.0/113.2	48/1358.4	0.32 sec.	0.57	16.2	0.110	3.12
1601	B4-2		1.12	5.00	2 sec.	4.0/113.2	48/1358.4	1.20 sec.	0.70	19.8	0.294	8.33
1602	B4-4		1.12	5.00	4 sec.	3.5/ 99.1	48/1358.4	1.20 sec.	0.74	21.0	0.294	8.33
1605	B6-2		1.12	5.00	2 sec.	4.5/127.4	48/1358.4	0.83 sec.	0.68	19.3	0.220	6.24
1606	B6-4		1.12	5.00	4 sec.	4.0/113.2	48/1358.4	0.83 sec.	0.71	20.1	0.220	6.24
1620	B8-5*		1.12	5.00	5 sec.	5.0/141.5	80/2264.0	0.60 sec.	0.68	19.3	0.220	6.24
1617	C5-3*		2.25	10.00	3 sec.	8.0/226.4	80/2264.0	2.10 sec.	0.90	25.5	0.450	12.70
1613	C6-3		2.25	10.00	3 sec.	4.0/113.2	48/1358.4	1.70 sec.	0.88	24.9	0.440	12.48
1614	C6-5		2.25	10.00	5 sec.	4.0/113.2	48/1358.4	1.70 sec.	0.91	25.8	0.440	12.48
UPPER STAGE ENGINES or single stage if used in a very light rocket **(PURPLE LABEL)**												
1599	A8-5		0.56	2.50	5 sec.	2.0/ 56.6	48/1358.4	0.32 sec.	0.62	17.6	0.110	3.12
1604	B4-6		1.12	5.00	6 sec.	1.5/ 42.5	48/1358.4	1.20 sec.	0.78	22.1	0.294	8.33
1607	B6-6		1.12	5.00	6 sec.	2.0/ 56.6	48/1358.4	0.83 sec.	0.78	22.1	0.220	6.24
1615	C6-7		2.25	10.00	7 sec.	2.5/ 70.8	48/1358.4	1.70 sec.	0.95	26.9	0.440	12.48
BOOSTER ENGINES (RED LABEL)												
1608	B6-0		1.12	5.00	none	4.0/113.2	48/1358.4	0.80 sec.	0.58	16.4	0.220	6.24
1616	C6-0		2.25	10.00	none	4.0/113.2	48/1358.4	1.68 sec.	0.80	22.7	0.440	12.48

Regular engines are 7 cm (2.75 in.) long and 17.5 mm (0.69 in.) dia. Ship Wt. of each package of engines is approximately 113.2 g (4 oz.)

**Series II engines have semi-core-burning grain with large propellant burning area for high initial thrust with short thrust duration.*

MINI ENGINES

SINGLE STAGE ENGINES (GREEN LABEL)

Prod. No.	Engine Type	Prices 3 for	Total Impulse lb-sec.[1]	Total Impulse N-sec.[2]	Time Delay (±15%)	Max. Lift Wt. oz./g	Max. Thrust oz./g	Thrust Duration	Initial Weight oz.	Initial Weight g	Propellant Weight oz.	Propellant Weight g
1503	1/2A3-2T		0.28	1.25	2 sec.	2/ 56.6	28/ 792.4	0.36 sec.	0.198	5.6	0.062	1.75
1507	A3-4T		0.56	2.50	4 sec.	2/ 56.6	28/ 792.4	0.86 sec.	0.268	7.6	0.124	3.50
1511	A10-3T		0.56	2.50	3 sec.	5/141.5	48/1358.4	0.26 sec.	0.277	7.9	0.133	3.78
UPPER STAGE ENGINES (PURPLE LABEL)												
1504	1/2A3-4T		0.28	1.25	4 sec.	1/ 28.3	28/ 792.4	0.36 sec.	0.212	6.0	0.062	1.75
BOOSTER ENGINES (RED LABEL)												
1510	A10-0T		0.56	2.50	none	5/141.5	48/1358.4	0.26 sec.	0.235	6.7	0.133	3.70

Mini-engines are 4.4 cm (1.75 in.) long and 12.7 mm (0.5 in.) dia. Ship Wt. of each package of mini-engines is approximately 70.8 g (2½ oz.)

Complete instructions, igniters, and igniter plugs are included with each package of Estes model rocket engines.

[1]Pound-seconds (Figures shown are optimum.)

[2]Newton-seconds* (Figures shown are optimum.)

A Newton is the measurement of force required to move one kilogram of mass one meter per second per second. 1 Newton = 0.2248 pounds

MIGHTY 'D' ENGINES

SINGLE STAGE ENGINES (GREEN LABEL)

Prod. No.	Engine Type	Prices 3 for	Total Impulse lb-sec.[1]	Total Impulse N-sec.[2]	Time Delay (±15%)	Max. Lift Wt. oz./g	Max. Thrust oz./g	Thrust Duration	Initial Weight oz.	Initial Weight g	Propellant Weight oz.	Propellant Weight g
1666	D12-3		4.48	20.00	3 sec.	14/396.2	144/4075.2	1.70 sec.	01.49	42.2	0.879	24.93
1667	D12-5		4.48	20.00	5 sec.	10/283.0	144/4075.2	1.70 sec.	1.52	43.1	0.879	24.93
UPPER STAGE ENGINES (PURPLE LABEL)												
1668	D12-7		4.48	20.00	7 sec.	8/226.4	144/4075.2	1.70 sec.	1.55	44.0	0.879	24.93
BOOSTER ENGINES (RED LABEL)												
1665	D12-0		4.48	20.00	none	14/396.2	144/4075.2	1.70 sec.	1.44	40.9	0.879	24.93
PLUGGED ENGINES for use with the Astro-Blaster™ **(YELLOW LABEL)**												
1669	D11-P		4.48	20.00	none		98.9/2803.2	1.82 sec.	1.55	44.0	0.879	24.93

"D" engines are 7 cm (2.75 in.) long and 24 mm (0.945 in.) dia. Ship Wt. of each package of "D" engines is approximately 184 g (6½ oz.)

ESTES MODEL ROCKET ENGINES HAVE BEEN PROVEN CONSISTENT AND RELIABLE IN MORE THAN 300,000,000 LAUNCHES!

ACCESSORIES

BLAST-OFF™ FLIGHT PACK
EST 1672

BLAST-OFF™ FLIGHT PACK

This great assortment of engines features 24 of our most popular engines. Included in the flight pack are 30 igniters plus a package of recovery wadding an outstanding deal! The engines include six each of the A8-3, B6-4, C6-5 and C6-7 (upper stage engine, but also ideal for lightweight single stage rockets) engines. Includes 24 igniter plugs too!
Ship Wt. 679 g (1 lb. 8 oz.)

RECOVERY WADDING
EST 2274

RECOVERY WADDING

Flameproof recovery wadding protects your recovery system from hot gases at ejection to ensure reliable deployment. Handy package contains 75 squares - enough for about 25 flights. Instructions for use are printed on package.
Ship Wt. 170 g (6 oz.)

IGNITERS
EST 2301

IGNITERS

Dependable, easy-to-use Estes igniters in a convenient six-pack. It's always a good idea to keep a few spares around! Used with our new igniter plugs, the safest and most reliable ignition system available.
Ship Wt. 28 g (1 oz.)

COMMAND CONTROL™

This is it - the ultimate launch controller! Take command of your next launch. With NiCad batteries and heavy-duty launch cable, the Command Control™ can pour out enough current to ignite three or four-engine clusters as fast as you can push the button! Loaded with safety features and built to last.

COMMAND CONTROL™
EST 2234

- Audio and visual continuity indication
- LED voltage readout
- Super safe two-button launch system **plus** safety key
- Built-in igniter storage compartment
- Comes with 914 cm (30 feet) of heavy duty launch cable; winding and storage spool; and clip-whip cluster igniter connector
- Uses one or two 6 cell 7.2 volt hobby NiCad battery packs for power (not included - available at your local hobby dealer)
- The launch controller for all your model rocket launches

POWER PLEX™ LAUNCH PAD

Designed for our big Pro™ Series models, this versatile and rugged pad can handle **any** size model rocket since it accepts 3 mm (1/8"), 5 mm (3/16") and 6 mm (1/4") launch rods. Ultra-wide 102 cm (40") footprint plus feet that may be staked down ensure positive stability. Easy trajectory adjustment up to 30° from vertical in any direction. Folds up for convenient transport and storage. 6 mm (1/4") x 122 cm (48") two-piece launch rod, stainless steel blast deflector and stand-off included.

POWER PLEX™ LAUNCH PAD
EST 2235

E2™ LAUNCH CONTROLLER
EST 2236

- ***A New Level of Safety!***

E2™ LAUNCH CONTROLLER

A two-fisted approach to launch rockets. Once the safety key is inserted, you get a red flashing visual and a beeping audio confirmation of continuity. The left button gets pushed to initiate or arm the E2™ and then, keeping the left button pushed, the right button is pushed to launch - the high-tech yet simple approach to maximum launch safety. The E2™ provides plenty of power for many launches with four "C" cells or one 7.2 volt R/C car-type battery (batteries not included). There is also built-in storage for the five meter (15 feet) igniter leads. Do not use for clustering - use the Command Control™ (EST 2234).

TRANSROC II™
EST 2237

- ***Now You Can Find Your Rocket or Anything Else Too!***

TRANSROC II™

Recovery is easy with this compact, lightweight sonic tracking and locating system for model rockets. The on-board unit fits in any BT-20 size rocket or larger and emits a strong locator tone. The direction and frequency sensitive hand-held receiver will pinpoint the sending unit at up to 183 meters (600 feet) range. Includes headset and magnetic compass. Requires one 9 volt and one 6 volt (type 2CR1/3N) battery - not included.

ELECTRON BEAM® LAUNCH CONTROLLER

The nerve center of any model rocket launch is found in a safe electrically controlled launch system. It puts you in control! You decide when to proceed with countdown and liftoff or whether you need to put your launch on hold. The Electron Beam® features 5.18 meters (17 feet) of launch wire with micro-clips for easy igniter hookup, a safety key to complete the electrical circuit, a continuity light to tell you that you have a complete circuit and a launch push button to commence your launch. The launch controller fits easily in your hand, has a snap-open battery compartment and self-adhesive decals. Requires 4 AA alkaline batteries - not included. Use only with Estes igniters (EST 2301). Use only our Command Control™ (EST 2234) system for clustering engines.

Specifications:
Length: 17.1 cm (6.75"); Width: 38 mm (1.5"); Depth: 31.8 mm (1.25"); Ship Wt.: 266 g (8 oz.)

ELECTRON BEAM® LAUNCH CONTROLLER EST 2220

ELECTRON BEAM®/ PORTA-PAD® II COMBO EST 2218

EXTRA VALUE!

PORTA-PAD® II LAUNCH PAD

The perfect launch pad for small to medium-sized rockets (models that weigh 500 g (1 lb.) or less). The bright easy-to-see Porta-Pad® II features easy setup and quick takedown, stable design and an easy - no tools required - tilt adjustment (cannot be tilted more than 30° from vertical) for air direction.

The Porta-Pad® II also includes:

- A steel blast deflector plate with sturdy standoff attachment that is screwed onto the plate
- A two-piece, 3 mm (1/8") dia., 81 cm (32") long launch rod. The Porta-Pad® II can also accommodate the optional (not included) 5 mm (3/16") dia. Maxi™ Rod (required for most "D"-powered rockets). If you require a system that has a 6.5 mm (1/4") dia. rod, then please see our Power Plex™ launch pad (EST 2235).
- A safety key and launch rod cap that fits the Electron Beam® and E2™ Launch Controller is included.

Ship Wt.: 680 g (24 oz.)

LAUNCH EQUIPMENT PARTS AND ACCESSORIES

5 mm (3/16") Dia. Two-Piece Maxi™ Rod
Ship Wt. 340 g (12 oz.) **EST 2244**

3 mm (1/8") Dia. Two-Piece Launch Rod
Ship Wt. 170 g (6 oz.) **EST 2243**

Launch Rod Safety Cap with Safety Key
(will not fit the Command Control™)
Ship Wt. 113 g (4 oz.) **EST 2205**

Micro-Clips (2 per package)
Ship Wt. 28 g (1 oz.) **EST 2247**

Blast Deflector Plate with Standoff
Ship Wt. 142 g (5 oz.) **EST 2241**

Battery Clips (2 per package)
Ship Wt. 142 g (5 oz.) **EST 2245**

DESIGNER'S SPECIAL™ EST 1463

DESIGNER'S SPECIAL™

Turn your imagination into reality! This comprehensive parts assortment contains everything you need to build up to eight rockets of your own design. Over 75 pieces at excellent savings!
Ship Wt. 0.91 kg (2 lb.)

The Designer's Special contains:
Body Tubes: 2 BT-5, 2 BT-20, 2 BT-50, 1 BT-55, 1 BT-60; Nose Cones: 1 BNC-5E, 1 BNC-5S, 1 BNC-20B, 1 BNC-20R, 1 BNC-50KA, 1 BNC-50YR, 1 BNC-55AC, 1 BNC-60MS; Fin Material: 2 BFS-20, 2 BFS-30, 2 BFS-40; Parachutes: 3 PK-12, 1 PK-18, 1 PK-24; Recovery Equipment: 3 Shock Cords 3 mm (1/8") x 46 cm (18"), 1 Shock Cord 3 mm (1/8") x 91 cm (36"), 1 Shock Cord 6 mm (1/4") x 46 cm (18"), 1 Streamer Material 25 mm (1") x 76 cm (30"), 6 Screw Eyes; Miscellaneous: 3 Engine Blocks (EB-20A), 3 Engine Holders (EH-3), 3 Engine Holder (EH-2), 1 Engine Mount (EH-2050), 1 Engine Mount (EH-2060), 1 Nose Block (NB-20), 1 Nose Block (NB-50), 1 Stage Coupler (JT-55C), 1 Stage Coupler (JT-60C), 1 Balsa Adapter (TA-2050A), 1 Multi-Purpose Paper Adapter Set (TA-1), 12 Launch Lugs - 6 cm (2 3/8") long, 1 Alpha Book of Model Rocketry, 1 Fin Pattern Sheet No. 2, 1 Fin Pattern Sheet No. 3

EMERGENCY REPAIR KIT EST 2233

FIN ALIGNMENT GUIDE EST 2231

EMERGENCY REPAIR KIT

Tuck this away in your range box and you'll have many of the things you need to field-repair your model rockets. The recloseable pouch contains these items:

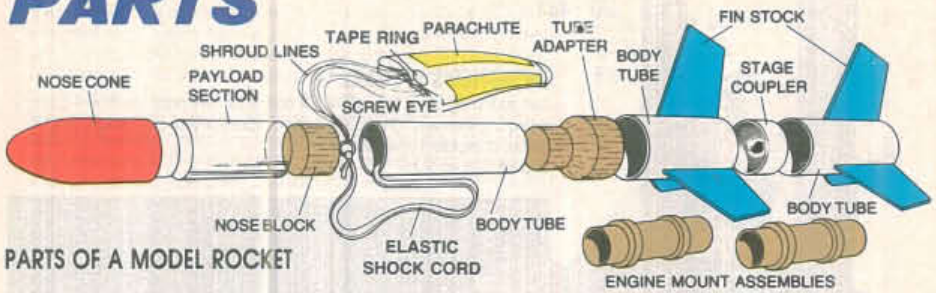
- Sandpaper
- Screw Eyes
- White Glue
- Shock Cord Mounts
- Tape Rings
- Launch Rod Safety Cap
- Universal Safety Key
- Recovery Wadding
- 30 cm (12") Parachute
- 366 mm (144") Shroud Line
- Launch Lugs
- 3 mm (1/8") & 6 mm (1/4") Elastic Shock Cords

Ship Wt. 226 g (8 oz.)

FIN ALIGNMENT GUIDE

This useful tool will allow you to position glue 2 mm (3/32") and 3 mm (1/8") thick fins quickly and easily. Designed to fit body tubes up to a BT 101, three or four-finned designs, aligning the fins at 90° or 120° to each other. Assembles easily with slip-together plastic parts. Adjusts quickly with plastic fin position clips.
Ship Wt. 1358 g (3 lbs.)

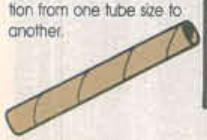
PARTS



PARTS OF A MODEL ROCKET

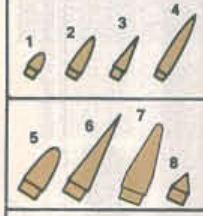
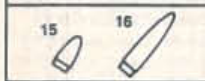
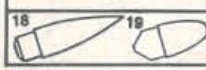
Model rocket kits are constructed of lightweight materials such as balsa wood, paper tubes, and plastic as shown in this diagram. Nearly all matching Estes parts have the same series description number and are interchangable. For instance, a body tube BT-20 will mate with a balsa nose cone BNC-20B. A balsa adapter TA-2060 will adapt a BT-20 to a BT-60. An AR-2050 will center a BT-20 in a BT-50. When ordering parts, use both the product number and the description.

BODY TUBES: Spiral wound paper. Use stage couplers to connect tubes of the same diameter. Use balsa adapters to transition from one tube size to another.



Prod. No.	Description	Price Each	Length in./cm	Inside Dia. in./mm	Outside Dia. in./mm	Wall Thickness in./mm	Weight in oz./g Net	Ship.
30302	BT-5		18.0/45.7	0.518/13.2	0.544/ 13.8	.013/.33	0.219/ 6.2	11/312
30316	BT-20		18.0/45.7	0.710/18.0	0.736/ 18.7	.013/.33	0.288/ 8.2	11/312
30352	BT-50		18.0/45.7	0.950/24.1	0.976/ 24.8	.013/.33	0.378/10.7	11/312
30382	BT-55		18.0/45.7	1.283/32.6	1.325/ 33.7	.021/.53	0.672/19.1	11/312
30396	BT-60		18.0/45.7	1.595/40.5	1.637/ 41.6	.021/.53	0.960/27.2	11/312
30424	BT-70		17.5/44.5	2.180/55.4	2.217/ 56.3	.021/.53	1.300/36.9	14/397
30433	BT-80KD		14.2/36.1	2.558/65.0	2.600/ 66.0	.021/.53	0.637/18.1	11/312
30449	BT-101SV		24.7/62.7	3.896/99.0	3.938/100.0	.021/.53	2.873/81.4	16/454

NOSE CONES: Please note that a BNC is a balsa nose cone while PNC refers to a plastic nose cone.

Shape	No.	Prod. No.	Description BNC-Balsa PNC-Plastic	Price Each	Dimensions (In./mm) 1	2	3	Average Wt. (oz./g)	Ship. Wt. (oz./g)
	1	70216	BNC-5V		0.750/ 19.1	0.544/13.8	0.250/ 6.4	0.013/ 0.4	1/ 28
	2	70212	BNC-5E		1.375/ 34.9	0.544/13.8	0.250/ 6.4	0.020/ 0.6	1/ 28
	3	70214	BNC-5S		1.500/ 38.1	0.544/13.8	0.250/ 6.4	0.016/ 0.5	1/ 28
	4	70218	BNC-5W		2.800/ 71.1	0.544/13.8	0.250/ 6.4	0.039/ 1.1	2/ 57
	5	70230	BNC-20B		1.700/ 43.2	0.736/18.7	0.500/12.7	0.050/ 1.4	1/ 28
	6	70240	BNC-20R		2.750/ 69.9	0.736/18.7	0.500/12.7	0.070/ 2.0	2/ 57
	7	70226	BNC-20AM		2.000/ 50.8	0.736/18.7	0.500/12.7	0.060/ 1.7	2/ 57
	8	70241	BNC-20Y		0.950/ 24.1	0.736/18.7	0.500/12.7	0.020/ 0.6	1/ 28
	9	70256	BNC-50J		1.370/ 34.8	0.976/24.7	0.500/12.7	0.080/ 2.3	4/113
	10	70262	BNC-50K		2.750/ 69.9	0.976/24.7	0.500/12.7	0.130/ 3.7	4/113
	10	71028	PNC-50KA		2.735/ 69.5	0.976/24.7	0.750/19.1	0.130/ 3.7	4/113
	11	71001	PNC-50SP		4.720/119.9	0.976/24.7	0.500/12.7	0.250/ 7.1	6/170
	12	70266	BNC-50Y		4.350/110.5	0.976/24.7	0.500/12.7	0.160/ 4.5	6/170
	13	71070	PNC-55AC		5.403/137.2	1.325/33.7	0.500/12.7	0.320/ 9.1	6/170
	14	71038	PNC-55D		3.750/ 95.3	1.325/33.7	0.750/19.1	0.360/10.2	4/113
	15	71020	PNC-60MS		2.500/ 63.5	1.637/41.6	0.750/19.1	0.390/11.1	4/113
	16	71043	PNC-60AH		6.750/171.5	1.637/41.6	0.800/20.3	1.000/28.4	6/170
	17	70300	BNC-70AJ		4.400/111.8	2.217/56.3	0.750/19.1	0.850/24.1	6/170
	18	71035	PNC -80K		8.150/207.0	2.600/66.0	1.000/25.4	1.680/47.6	8/227
	19	72080	PNC-80BB		4.000/101.6	2.600/66.0	1.750/44.5	1.180/33.5	8/227

FIN STOCK: Top quality balsa sheeting for making fins. Remember that the leading edge of the fin needs to be parallel to the grain of the wood.

Prod. No.	Description	Price 3 for	Dimensions (In in./mm)	Weight in oz./g Net	Ship.	Major Use
32102	BFS-20		0.063x3x 9/1.6x76.2x228.6	0.13/3.7	4/113	High Performance
32106	BFS-20L		0.063x3x12/1.6x76.2x304.8	0.17/4.8	6/170	High Performance
32108	BFS-30		0.094x3x 9/2.4x76.2x228.6	0.15/4.3	4/113	Sport Models
32110	BFS-30L		0.094x3x12/2.4x76.2x304.8	0.20/5.7	6/170	Sport Models
32116	BFS-40		0.125x3x 9/3.2x76.2x228.6	0.20/5.7	4/113	Cluster Rockets
32118	BFS-40L		0.125x3x12/3.2x76.2x304.8	0.27/7.5	6/170	Glider Wings

ENGINE MOUNTS: These high performance engine mount kits are great for all your original designs. All engine mount kits are easy to assemble, have detailed instructions and lightweight components. The EM-520 is great for a quick change conversion for flying mini-engines in lightweight regular-size engine rockets and the EM-2050 is perfect for using regular-size engines in lightweight "D" rockets. Check engine charts to insure that maximum liftoff weights are not exceeded. Avg. Ship Wt. 141.75 g (5 oz.)

Engine Type	Prod. No.	Description	Price	Fits	Net Weight oz./g
For Regular Engines—A, B, & C type 0.69" x 2.75"	3150 3151 3152	EH-2050 EH-2055 EH-2060		BT-50 BT-55 BT-60	0.10/2.8 0.14/4.0 0.17/4.8
For "T" Mini-Engines, 5" x 1.75"	3153	EM-520		BT-20	0.09/2.6
Special Purpose Quick-Change Conversion Mount—From "D" Engines to Regular Engines	3154	EM-2050		BT-50	0.19/5.4
For "D" type Engines 0.945" x 2.75"	3156	EM-5055/60		BT-55 or BT-60	0.30/8.5

ENGINE BLOCKS: Fits inside a BT-20 engine or body tube. Use with or without an engine hook to create a thrust bulkhead. Description - EB-20A. Wt. 0.3 g (0.009 oz.). Ship Wt. 28 g (1 oz.)
EST 3131

ENGINE HOLDER: Flat steel spring with an easy-to-use design allows an engine to be easily inserted, removed, and securely held in an engine tube. 3 per package. Ship Wt. 28 g (1 oz.)
For regular and "D" engines
EST 3140
For mini-engines
EST 3142

MULTI-PURPOSE RING SET: This set has 20 total rings for centering and mounting BT-5 in BT-20; BT-5 and BT-20 in BT-50; and BT-5, BT-20 and BT-50 in BT-60. Also includes three universal adapter shrouds with instructions. This set is great for that special design. Ship Wt. 57 g (2 oz.)
EST 85013

CENTERING RINGS - AR-2050: Extra-strong centering rings that center a BT-20 tube in a BT-50 tube. Perfect for custom engine mounts. Weight per pair is 8.1 g (0.285 oz.) 10 per package. Ship Wt. 57 g (2 oz.)
EST 3100

CENTERING RINGS - AR-5055: Extra-strong centering rings that center a BT-50 tube in a BT-55. Perfect for "D" engine mounts. Wt. 1.8 g (0.062 oz.) 4 per package. Ship Wt. 57 g (2 oz.)
EST 3102

RING ADAPTERS: These card rings will center and mount a BT-20 tube into the given outer tube. Ship Wt. 57 g (2 oz.)

Product Number	Description	Outer Tube	No. per Package	Price per Package
EST 3110	RA-2050	BT-50	20	
EST 3111	RA-2055	BT-55	10	
EST 3113	RA-2060	BT-60	10	

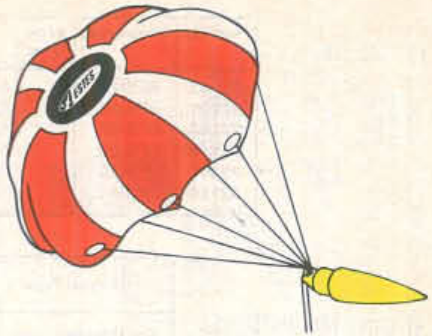
BALSA ADAPTER: Smoothly taper from one size body tube to another. Great for payload capsules, parachute compartments or creating unique looking rockets. Can be hollowed out for ejection gas passage. Both ends on all adapters have at least 13 mm (1/2") mating surface.

Prod. No.	Description	Price Each	Mates Tubes	Length in./mm	Taper Len. in./mm	Weight in oz./g Net	Ship.
70002	TA-520		BT-5 to BT-20	1.8/44.5	0.8/19.1	0.04/ 1.13	1/ 28
70004	TA-550		BT-5 to BT-50	2.2/55.9	1.0/25.4	0.06/ 1.70	4/113
70006	TA-2050		BT-20 to BT-50	3.0/76.2	2.0/50.8	0.15/ 4.25	4/113
70010	TA-2055		BT-20 to BT-55	2.5/63.5	1.5/38.1	0.22/ 6.24	4/113
70012	TA-2060		BT-20 to BT-60	3.0/76.2	2.0/50.8	0.20/ 5.67	4/113
70014	TA-5055		BT-50 to BT-55	2.0/50.8	1.0/25.4	0.60/17.01	4/113
70016	TA-5060		BT-50 to BT-60	3.0/76.2	2.0/50.8	0.23/ 6.52	4/113
70028	TA-5560		BT-55 to BT-60	2.2/55.9	1.0/25.4	0.25/ 7.09	4/113
70034	TA-6070		BT-60 to BT-70	2.7/68.6	1.5/38.1	0.65/18.43	4/113

PARACHUTE KITS

These two-color parachutes give maximum visibility. These 'chutes are very durable, lightweight and easily folded. Each parachute kits comes with 'chute material, tape rings and shroud lines. The Solar Chute™ comes in a silver-colored plastic with red and black markings - great for those futuristic models. Each weighs less than 8.5 g (0.3 oz.).
Ship Wt. 57 g (2 oz.)

Product Number	Description	Parachute Diameter (cm/in.)	Price Each
2264	PK-12	30/12	
2267	PK-18	45/18	
2271	PK-24	61/24	
2272	PK-18 (Solar Chute)	45/18	



SHOCK CORDS: Strong, long-lasting elastic shock cords. Specify width and length when ordering. Ship Wt. 28 g (1 oz.)
3 mm (1/8") wide, 45 cm (18") long. Net Wt. 1.1 g (0.039 oz.)
EST 2276
3 mm (1/8") wide, 90 cm (36") long. Net Wt. 2.2 g (0.078 oz.)
EST 85744
6 mm (1/4") wide, 45 cm (18") long. Net Wt. 2.2 g (0.078 oz.)
EST 2277

TAPE RINGS: Fasten shroud lines to plastic parachutes or streamers with these 19 mm (3/4") diameter extra adhesive vinyl pressure sensitive tape rings. In sheets of 6 rings (4 sheets per package). Ship Wt. 28 g (1 oz.)
EST 2294

TAPE STRIPS: These strips have high strength and are ideal for fastening shroud lines. Dimensions of each strip are 6.4 mm (1/4") x 19.1 mm (3/4"). 12 strips per sheet, 6 sheets per package. Ship Wt. 28 g (1 oz.)
EST 38412

STREAMER MATERIAL: Bright orange, flame-resistant crepe paper makes great high performing streamers. Comes in 229 cm (7½ foot) lengths - enough for two to eight streamers. Specify size when ordering. Ship Wt. 28 g (1 oz.)
25.4 mm wide (1"), Net Wt. 2.7 g (0.092 oz.)
EST 2341
50.8 mm wide (2"), Net Wt. 5.2 g (0.184 oz.)
EST 2343

SNAP SWIVELS: Allows for quick changes between recovery systems. It also reduces the tangling in parachutes. These swivels are 25.4 mm (1") long and come 12 to a package. Net Wt. 0.3 g (0.01 oz.). Ship Wt. 28 g (1 oz.)
EST 2292

SHROUD LINES: Strong shroud line cord for your custom parachutes. Comes in a 64 meter (210 foot) spool. Ship Wt. 142 g (5 oz.)
EST 2340

SCREW EYES: Attach your shock cords and recovery systems to balsa nose cones, nose blocks and adapters with these screw eyes. Specify size when ordering (6 per package). Ship Wt. 28 g (1 oz.)
LARGE EYE, perfect for BT-55 and above, 25.4 mm (1") long, Wt. 1.1 g (0.04 oz.)
EST 2280
SMALL EYE, great for BT-20 and above, 19.1 mm (3/4") long, Wt. 0.9 g (0.03 oz.)
EST 2279
EXTRA SMALL EYE, for BT-5 and BT-20, 15.9 mm (5/8") long, Wt. 0.3 g (0.01 oz.)
EST 2281

DOWELS: Extra-strong, lightweight seasoned maple dowels. 8 per package. Specify size when ordering. Ship Wt. 142 g (5 oz.)
3 mm (1/8") x 45 cm (18")
EST 3190
2 mm (1/12") x 30 cm (12")
EST 3191

LAUNCH LUGS: High-strength laminated lugs with a mylar plastic core for durability and a paper outer layer for easy gluing.

Product Number	Length	No. per Package	Price per Package
For 3 mm (1/8") rods:			
EST 2321	31.8 mm (1.25")	12	
EST 2322	60.3 mm (2.38")	10	
For 5 mm (3/16") rods - Maxi-Rods:			
EST 2328	50.8 mm (2.00")	4	

STAGE COUPLERS: Use for multi-staging, joining body tubes, making engine mounts, etc. Also make perfect guides for cutting body tubes. Ship Wt. for all is 0.9 g (0.3 oz.) each.

Prod. No.	Description	Price Each	Outside Dia. (in./mm)	Inside Dia. (in./mm)	Length (in./mm)	Fits	Avg. Wt. oz./g
30252	JT-5C		0.51/13.0	0.46/11.6	0.75/19.1	BT-5	0.02/0.6
30254	JT-20C		0.71/18.0	0.65/16.5	0.75/19.1	BT-20	0.03/0.8
30260	JT-50C		0.95/24.1	0.92/23.4	1.00/25.4	BT-50	0.05/1.5
30262	JT-55C		1.28/32.5	1.25/31.8	1.30/33.0	BT-55	0.09/2.5
30266	JT-60C		1.59/40.4	1.55/39.4	1.50/38.1	BT-60	0.12/3.5
30270	JT-70A		2.18/55.2	2.12/53.7	1.25/31.8	BT-70	0.14/4.0
30274	JT-80C		2.56/65.1	2.50/63.6	1.00/25.4	BT-80	0.10/2.9
30280	JT-101SV		3.89/98.8	3.85/97.7	1.38/34.9	BT-101	0.18/5.2

NOSE BLOCKS: Use nose blocks to partition off payload sections or anywhere else a solid bulkhead is required.

Prod. No.	Description	Price Each	Outside Dia. (in./mm)	Length (in./mm)	Fits	Weight in oz./g Net	Ship.
70152	NB-20		0.71/18.0	0.75/19.1	BT-20	0.014/3.97	1/ 28
70158	NB-50		0.95/24.1	1.00/25.4	BT-50	0.040/1.13	4/113

EDUCATIONAL MATERIALS

ROCKETRY SCIENCE KIT

A complete model rocketry outfit with a detailed project manual. The step-by-step program demonstrates basic scientific principles and teaches proper experimental procedures. Perfect for school projects, science fairs and exhibits.

ROCKETRY SCIENCE KIT
EST 0900

PHANTOM™
EST 1207

ALTITRAK™
EST 2232

ALTITRAK™

How high does it fly? Simply follow your rocket in the sights to its highest point, then release the trigger to lock in the reading. Displays your rocket's height directly in meters and elevation angle in degrees. A meters-to-feet conversion table is included. Use two for even greater accuracy

IDEA: Compare the results to predictions made with our Aerotrek™ software.
Ship Wt. 425 g (15 oz.)

PHANTOM™

This model rocket will never leave the ground. A non-flying model that is great for demonstrations, science fairs and exhibits. The clear plastic body tube, nose cone and fin unit allow you to see the recovery parachute, engine mount and a static cutaway C6-5.
Specifications:
Length: 32 cm (12.6"); Dia.: 24.8 mm (0.976"); Wt.: 38 g (1.35 oz.)

PUBLICATIONS

MODEL ROCKET NEWS MAGAZINE
Provides articles of interest, technical tips, information about new products, special offers, and much more. Available to ESP members and through local retailers.

ALPHA BOOK OF MODEL ROCKETRY
An informative book for beginners in model rocketry. 32 pages.
EST 2820

THE LAWS OF MOTION AND MODEL ROCKETRY
The three laws of motion are explained in easily understood terms. Simple examples and experiments are included. 12 pages
EST 2821

ESTES GUIDE FOR AEROSPACE CLUBS
The perfect source book for organizing and operating a successful model rocket club or ESP chapter. 34 pages.
EST 2817

MODEL ROCKET CONTEST GUIDE
Use to plan model rocket contests for clubs or schools. Details on competitive events and suggestions on all facets of contest organization. 18 pages.
EST 2815

PROJECTS IN MODEL ROCKETRY
Suggestions on how to plan, prepare, and present research projects. Ideas for about one hundred projects.
EST 2831

MODEL ROCKET LAUNCH SYSTEMS
Contains a wealth of information. Photographs and clearly-drawn schematics make it easily understood. 20 pages.
EST 2811

THE CLASSIC COLLECTION
A comprehensive collection of technical reports that makes a valuable reference tool.
EST 2845

MODEL ROCKETRY STUDY GUIDE
A logical program for anyone who wants the most from model rocketry. Guides a beginner on the path to becoming an expert rocketeer.
EST 2841

ALTITUDE PREDICTION CHARTS
A simple system by which aerodynamic drag and other effects can be taken into account in predicting rocket peak altitudes. Technical Report TR-10.
EST 2842

AERODYNAMIC DRAG OF MODEL ROCKETS
Gives practical examples of ways to minimize aerodynamic drag and improve performance. Technical TR-11.
EST 2843

ELEMENTARY MATHEMATICS OF MODEL ROCKET FLIGHT
Information on how to make your own altitude tracker and calculate speeds and accelerations. Technical Note TN-5.
EST 2844

MODEL ROCKETRY TECHNICAL MANUAL
Handy guide for construction and flight of model rockets. Tips on "scratch building", launch systems, tracking, staging, boost-gliders, and more.
EST 2819

ESTES EDUCATOR NEWS
Interesting technical articles, new product information, plus activities and resources on space and model rocketry subjects suitable for classroom use. Available though many local retailers.

GUIDE FOR TEACHERS AND YOUTH GROUP LEADERS
Introduces you to Estes' model rocket technology and the complete services offered in our educational program.
EST 2814

INDUSTRIAL ARTS TEACHERS MANUAL FOR MODEL ROCKETRY
Very practical 52 page guide on model rocketry and its applications in the study of manufacturing, transportation, R & D, communications, and construction.
EST 2810

CAMP LEADER'S MODEL ROCKETRY MANUAL
Proven guide for introducing model rocketry successfully into camp programs. 10 pages.
EST 2822

VIDEO-- MODEL ROCKETRY - THE LAST FRONTIER*
Capture the excitement of model rocketry in this full color VHS video presentation, narrated by and featuring William Shatner of Star Trek** fame! An excellent primer to model rocketry with dramatic launch footage and graphic, easy-to-understand illustration. 15 minutes.
EST 2792

SOFTWARE

ASTROCAD™
Written by Michael Gasperi

This easy-to-use computer program is ideal for basic model rocket performance analysis. This program menu has the following items:

- Apogee Determination
- Drag Prediction
- Performance Prediction
- Flight Simulation
- Aerodynamic Stability
- Model Rocket Design (two versions)
- Drag Estimation
- Optimum Weight
- Elliptical Fin Design

Apple
EST 9028

IBM PC (and compatibles)
EST 9037

AEROTREK™ Written by Michael Dorffler
Model Rocket Altitude Prediction Toolkit

A collection of utilities to predict the performance of single or multi-stage rockets. A valuable tool for analyzing original designs or kits. Calculate drag coefficients, compare performance with different engines, estimate delay times required for new designs and more. You can even find out how high your rockets would fly if launched on the moon!

IDEA: Compare theoretical altitudes with data from test flights to learn how various factors affect flight performance - an excellent basis for a school project or science fair entry!

- Introduction
- Single Stage
- Two Stage
- Three Stage
- Single Stage Cluster
- Incremented Weight
- Designer's Scratchpad
- Lunar Launch

Apple
EST 9033

IBM PC (and compatibles)
EST 9034

NAR SAFETY CODE

(Effective 10-91)

1. **Materials**—My model rocket will be made of lightweight materials such as paper, wood, rubber, and plastic suitable for the power used and the performance of my model rocket. I will not use any metal for the nose cone, body, or fins of a model rocket.
2. **Motors/Engines**—I will use only commercially-made NAR certified model rocket engines in the manner recommended by the manufacturer. I will not alter the model rocket engine, its parts, or its ingredients in any way.
3. **Recovery**—I will always use a recovery system in my model rocket that will return it safely to the ground so it may be flown again. I will use only flame resistant recovery wadding if required.
4. **Weight and Power Limits**—My model rocket will weigh no more than 1,500 grams (53 ounces) at liftoff, and its rocket engines will produce no more than 320 Newton-seconds (4.45 Newtons equal 1.0 pound) of total impulse. My model rocket will weigh no more than the engine manufacturer's recommended maximum liftoff weight for the engines used, or I will use engines recommended by the manufacturer for my model rocket.
5. **Stability**—I will check the stability of my model rocket before its first flight, except when launching a model rocket of already proven stability.
6. **Payloads**—Except for insects, my model rocket will never carry live animals or a payload that is intended to be flammable, explosive, or harmful.
7. **Launch Site**—I will launch my model rocket outdoors in a cleared area, free of tall trees, power lines, buildings, and dry brush and grass. My launch site will be at least as large as that recommended in the following table.

LAUNCH SITE DIMENSIONS

Installed Total Impulse (Newton-Seconds)	Equivalent Engine Type	Minimum Site Dimension (feet)	(meters)
0.00-- 1.25	¼A & ½A	50	15
1.26-- 2.50	A	100	30
2.51-- 5.00	B	200	60
5.01-- 10.00	C	400	120
10.01-- 20.00	D	500	150
20.01-- 40.00	E	1000	300
40.01-- 80.00	F	1000	300
80.01--160.00	G	1000	300
160.01--320.00	2Gs	1500	450

8. **Launcher**—I will launch my model rocket from a stable launch device that provides rigid guidance until the model rocket has reached a speed adequate to ensure a safe flight path. To prevent accidental eye injury, I will always place the launcher so the end of the rod is above eye level or I will cap the end of the rod when approaching it. I will cap or disassemble my launch rod when not in use, and I will never store it in an upright position. My launcher will have a jet deflector device to prevent the engine exhaust from hitting the ground directly. I will always clear the area around my launch device of brown grass, dry weeds, or other easy-to-burn materials.
9. **Ignition System**—The system I use to launch my model rocket will be remotely controlled and electrically operated. It will contain a launching switch that will return to "off" when released. The system will contain a removable safety interlock in series with the launch switch. All persons will remain at least 15 feet (5 meters) from the model rocket when I am igniting model rocket engines totalling 30 Newton-seconds or less of total impulse and at least 30 feet (9 meters) from the model rocket when I am igniting model rocket engines totalling more than 30 Newton-seconds of total impulse. I will use only electrical igniters recommended by the engine manufacturer that will ignite model rocket engine(s) within one second of actuation of the launching switch.
10. **Launch Safety**—I will ensure that people in the launch area are aware of the pending model rocket launch and can see the model rocket's liftoff before I begin my audible five-second countdown. I will not launch a model rocket using it as a weapon. If my model rocket suffers a misfire, I will not allow anyone to approach it or the launcher until I have made certain that the safety interlock has been removed or that the battery has been disconnected from the ignition system. I will wait one minute after a misfire before allowing anyone to approach the launcher.
11. **Flying Conditions**—I will launch my model rocket only when the wind is less than 20 miles (30 kilometers) an hour. I will not launch my model rocket so it flies into clouds, near aircraft in flight, or in a manner that is hazardous to people or property.
12. **Pre-Launch Test**—When conducting research activities with unproven model rocket designs or methods I will, when possible, determine the reliability of my model rocket by pre-launch tests. I will conduct the launching of an unproven design in complete isolation from persons not participating in the actual launching.
13. **Launch Angle**—My launch device will be pointed within 30 degrees of vertical. I will never use model rocket engines to propel any device horizontally.
14. **Recovery Hazards**—If a model rocket becomes entangled in a power line or other dangerous place, I will not attempt to retrieve it.

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 _____ Date _____

This is the official Model Rocketry Safety Code of the National Association of Rocketry and the Model Rocket Manufacturers Association.

Estes Note: The largest "model" rocket engine as defined by CPSC is an "F" (80 NS). To launch rockets weighing over one pound including propellant or rockets containing more than 4 oz. of propellant (net weight), you must obtain a waiver from the FAA. Check your telephone directory for the FAA office nearest you.

RCHTA RADIO CONTROL HOBBY TRADE ASSOCIATION

MEMBER HOBBY INDUSTRY MANUFACTURERS OF AMERICA

NAR

SPECIAL OFFERS

EXPLORER™ SERIES

NATIONAL AEROSPACE PLANE™
EST 2037

12 | B | 150

An early concept of what the proposed U.S. hypersonic, "runway to orbit" test vehicle would look like. Our rocket is molded with scram/ram engine ducts, three-color decal, and parachute recovery.

Specifications:
Length: 67.3 cm (26.5"); Dia.: 41.6 mm (1.637"); Wt.: 97.9 g (3.46 oz.); Engines: A8-3 (First Flight), B4-4, B6-4, B8-5, C6-5

DEEP SPACE TRANSPORT™
EST 2034

12 | B | 90

Futuristic model of an interplanetary passenger/cargo vehicle. This rocket features a unique nose cone, tri-body design and a large three-color decal.

Specifications:
Length: 67.3 cm (26.5"); Dia.: 33.7 mm (1.325"); Wt.: 106.1 g (3.75 oz.); Engines: B4-2 (First Flight), B6-2, C5-3, C6-3

Estes Challenge series

SUPER VEGA™
EST 2036

24 | B | 90

The Super Vega™ is our concept of what the first FTL (faster than light) unmanned starships would look like. This HUGE (over 91 cm - three feet tall) exotic model is dramatic looking on the pad and features slow, thrilling "D" powered lift-offs. A very satisfying build with die cut balsa fins and giant multi-colored decal sheet.

Specifications: Length: 93 cm (36.625"); Dia.: 41.6 mm (1.637"); Wt.: 152.8 g (5.4 oz.); Engines: D12-3

TITAN IIIE™
EST 2019

18 | B | 1

Large 1/73rd scale model of Martin Marietta's Titan IIIe. This exciting model is powered by a "D". The stabilizing flight fins can be removed and replaced with engine nozzles for display.

Specifications:
Length: 71.1 cm (28"); Dia.: 56.4 mm (2.22"); Wt.: 169.8 g (6 oz.); Engines: D12-3 (First Flight), D12-5

INDEX

FULL ONE YEAR WARRANTY

Your Estes product is warranted against defects in materials or workmanship for one year from the date of the original purchase. Any Estes product, except computer software, which, because of a manufacturing mistake, malfunctions or proves to be defective within the one-year warranty period will be repaired or replaced, at Estes' option and at no charge to you, provided it is returned to Estes with proof of purchase.

This warranty does not cover incidental or consequential damage to persons or property caused by the use, abuse, misuse, failure to comply with operating instructions or improper storage of the warranted product. Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above exclusion may not apply to you.

This warranty gives you specific legal rights and you may also have other rights which vary from state to state.

For repair or replacement under this warranty, please return the defective part of your Estes product with proof of purchase to:

Estes Industries
Customer Service Department
1295 H Street
Penrose, CO 81240

JOIN THE LARGEST ROCKET CLUB ON EARTH!

The Estes Space Program™ was developed to increase your fun AND perfect your skills while flying your rockets. The Estes Space Program™ is set up so that members can earn official Achievement Awards. These awards can be earned as you progress through the various aspects of model rocketry such as multi-staging, gliders, aerial photography and/or scale.

Your membership packet is loaded with the following exciting rocket items:

- The exclusive **Yankee Clipper™** flying model rocket, available only to the Estes Space Program™ (ESP). This high performing, almost 45 cm (17½") tall rocket flies on A8-3 (First Flight), B4-4, B6-4, B8-5 or C6-5 engines.
- **ESP Cloth Patch** - the official club emblem comes on a 51 mm (2") x 76 mm (3") inch patch
- Full-color **ESP Decals** - an assortment of large and small decals, fantastic for decorating your Yankee Clipper™, your range box or anywhere else

ESTES SPACE PROGRAM™

- A beautiful wall **Membership Certificate/Achievement Record** and a **Membership Card** - both identify you as a member of the Estes Space Program™. Attach your ESP Achievement Awards to the certificate.
- **Estes Space Program™ Stationery** for all your rocketry correspondence
- Information on how to earn your first five **Achievement Awards**. The Awards come with a colorful cloth patch and four corresponding decals. So far, there are ten possible Achievement Awards.
- A Special Edition of the **Model Rocket News**. As long as you get Achievement Awards, you will continue to receive this information-packed newsletter - published three to four times a year.

Watch for some forthcoming additions and changes to this program!

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