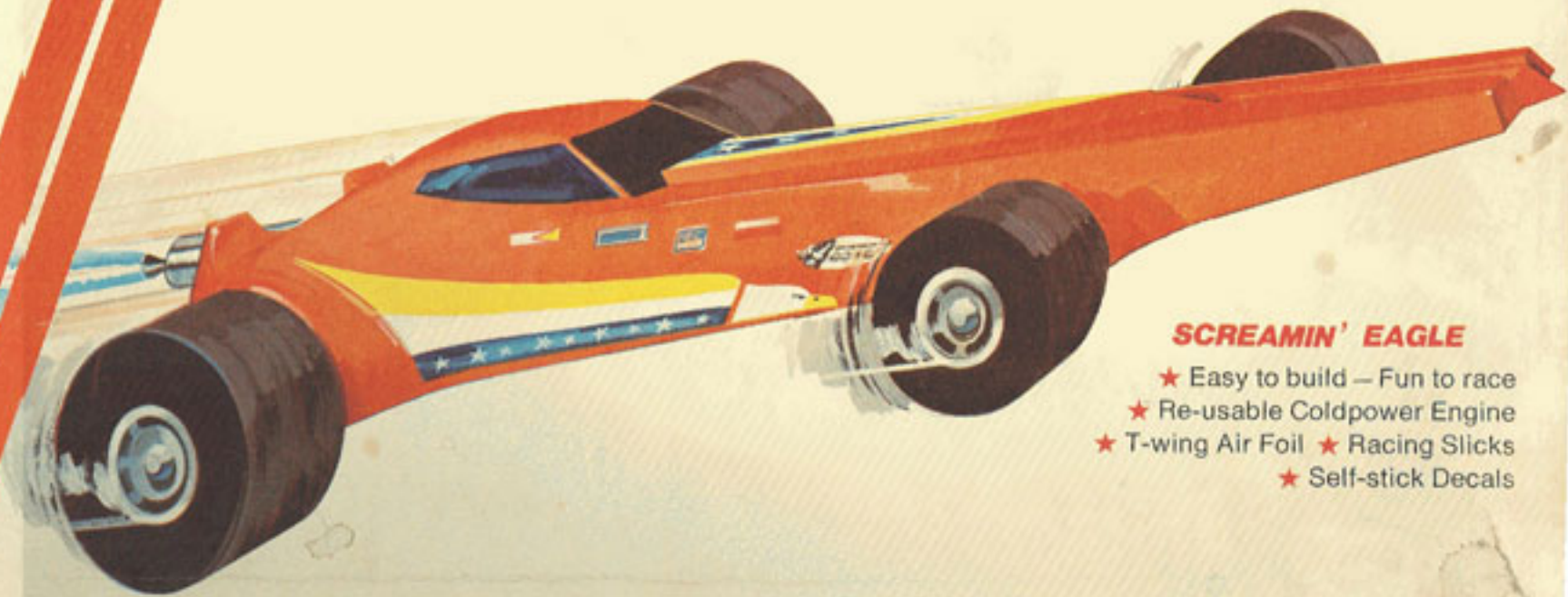


ESTES LAND ROCKET™

Racing Car Kit with Re-usable Coldpower Engine

Recommended for ages 10 to adult.

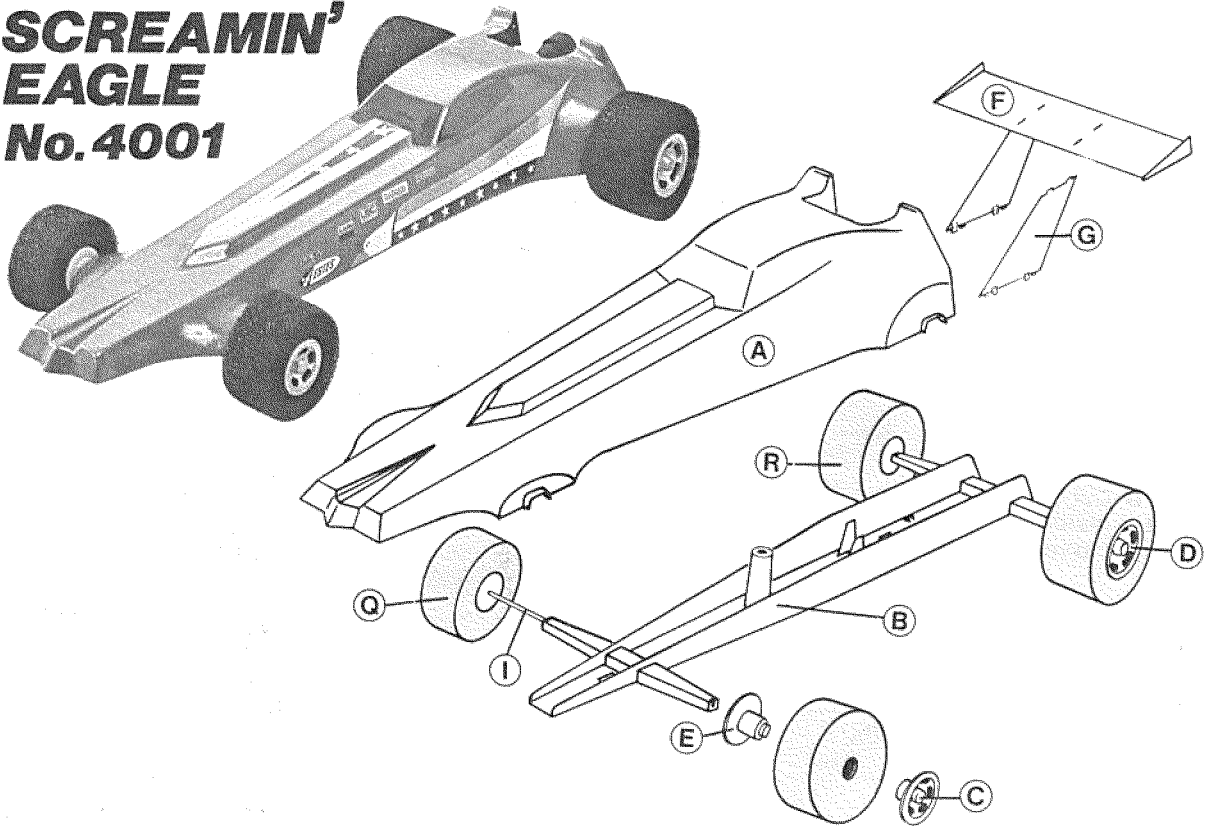


SCREAMIN' EAGLE™

- ★ Easy to build – Fun to race
- ★ Re-usable Coldpower Engine
- ★ T-wing Air Foil
- ★ Racing Slicks
- ★ Self-stick Decals

ASSEMBLY INSTRUCTIONS

SCREAMIN' EAGLE No. 4001



Parts List

Quantity	Description	Part #	Quantity	Description	Part #
A 1	Body	33075	K 1	Self-Tapping Screw	45131
B 1	Chassis	33051	L 1	Fuel Valve	35313
C 2	Front Wheel	33057	M 1	Fuel Hose	35330
D 2	Rear Wheel	33058	N 1	Engine Hold-Down Band	44060
E 4	Wheel Hub	33059	O 1	Line Lug	35369
F 1	Main Airfoil	33062	P 1	Decal	37561
G 2	Fin	33064	Q 2	Front Tire	45405
H 1	Engine	80364	R 2	Rear Tire	45406
I 1	Front Axle	45400	S 1	Blast Deflector	37607
J 1	Rear Axle	45401			

RECOMMENDED TOOLS AND SUPPLIES: Razor saw (optional); sharp modeling knife; emery board (available at cosmetic counters); ruler or straight edge; masking tape; liquid plastic cement; a flat working surface; 8-1/2" X 11" sandpaper [100 grit and extra fine (available at hardware stores)]; block for sanding; spray paint (Must be compatible with plastics. If in doubt, try out on pieces of scrap plastic after cutting out body.)

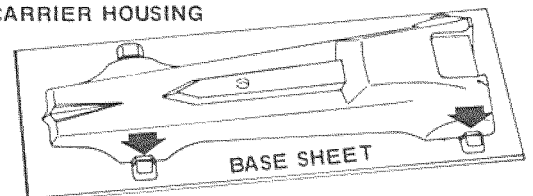
WORK CAREFULLY - DO NOT HURRY - THE QUALITY OF YOUR FINISHED MODEL DEPENDS ON YOUR WORK.

Body Trimming

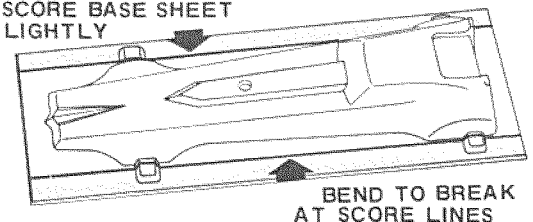
1 Use razor saw to cut through axle carrier housings 1/16" from body. Cut down to base sheet. If you do not have a razor saw, use a sharp modeling knife. Work very carefully to avoid splitting the plastic body.

2 Use modeling knife to lightly score (cut partially through) base sheet as shown. Do not try to cut completely through base sheet. Bend base sheet back and forth (gently) at scored lines to break excess off cleanly. Save scrap plastic for possible future repairs or reinforcing use.

CUT THROUGH AXLE CARRIER HOUSING
TO BASE SHEET



SCORE BASE SHEET
LIGHTLY



BEND TO BREAK
AT SCORE LINES

3 Use modeling knife to lightly score base sheet around body. Break at score lines by gently bending back and forth.

4 Tape the 100 grit sandpaper, rough side up, to a flat surface as shown.

5 Lightly sand body bottom to remove excess "flanges". You may need to push or pull the body in one direction until the lower surface of body is smooth enough to use a light back and forth motion. Stop often and examine body edges. Lightly sand off excess plastic as it flares out from edges. As you sand, less and less will flare out. This seems slow, but will result in a professional appearance for your model if done correctly. Continue sanding until you are satisfied with the appearance of the body.

6 Cut 3/16" wide strips from scrap plastic and cement inside body as shown. This will give added strength to rear of body. Let dry overnight.

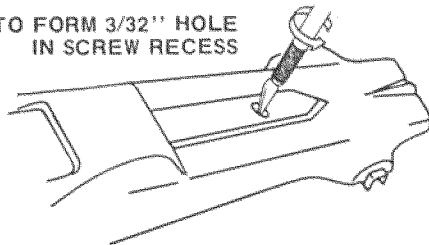
7 Use sharp modeling knife to lightly score plastic inside the depressed area at rear of body. Go over these lines repeatedly to cut out depressed area. Be very careful; do not try to cut through the plastic with only one or two cuts.

8 Use emery boards and sandpaper to smooth edges and to do final shaping of cut out area at rear of body.

9 Place block inside body at axle carrier locations and sand flush (or nearly so) with body. The block is used to support body while sanding.

10 Twirl point of knife in center of screw recess to form small hole (about 3/32" diameter) for mounting screw.

TWIRL KNIFE TO FORM 3/32" HOLE IN SCREW RECESS



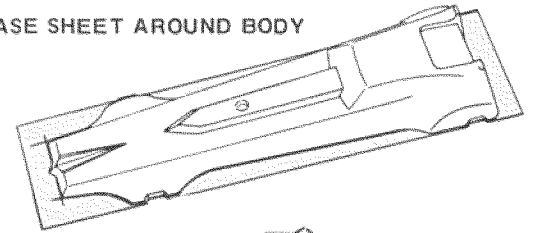
11 Examine body carefully and touch up edges with extra fine sandpaper.

12 Tape body to dowel or stick for painting.

13 Apply two or three coats of Insignia Orange paint to body and allow to dry overnight.

14 Apply decals to body as shown. Do not place hood decal on body until body is attached to chassis. Save remaining decals for use on airfoil assembly.

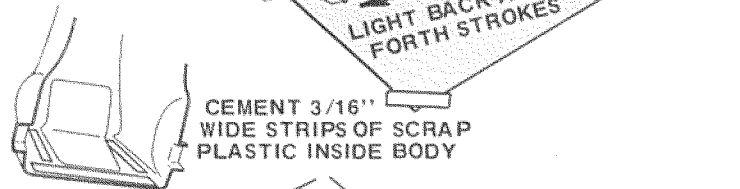
SCORE BASE SHEET AROUND BODY



BODY AFTER BREAKING OFF EXCESS

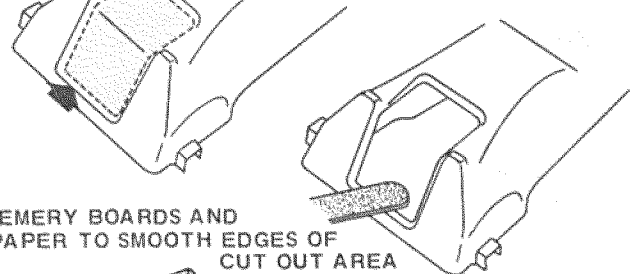
8 1/2" x 11" 100 GRIT SANDPAPER

LIGHT BACK AND FORTH STROKES



CEMENT 3/16" WIDE STRIPS OF SCRAP PLASTIC INSIDE BODY

SCORE LIGHTLY INSIDE DEPRESSED AREA AT REAR

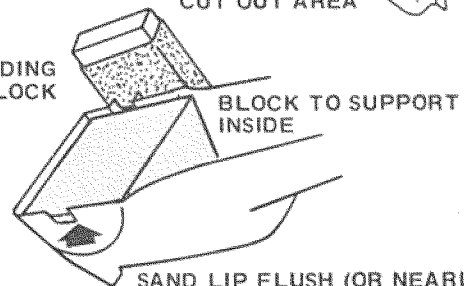


USE EMERY BOARDS AND SANDPAPER TO SMOOTH EDGES OF CUT OUT AREA

SANDING BLOCK

BLOCK TO SUPPORT INSIDE

SAND LIP FLUSH (OR NEARLY SO) WITH BODY!

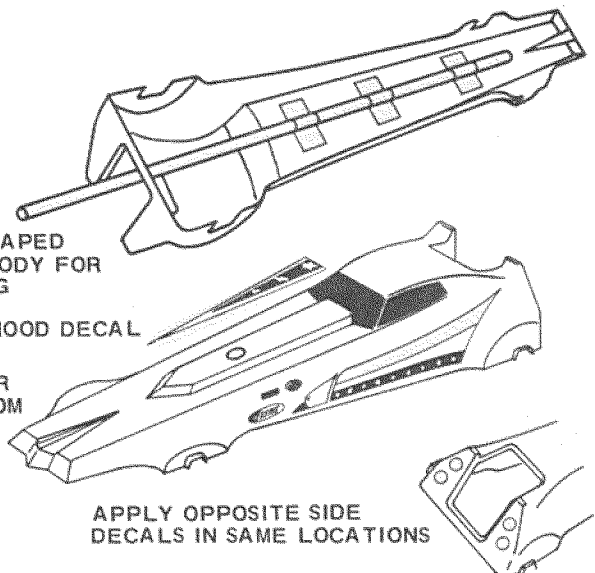


DOWEL TAPED INSIDE BODY FOR PAINTING

HOOD DECAL

TRIM CLEAR MATERIAL FROM HOOD AND WINDOW DECAL

APPLY OPPOSITE SIDE DECALS IN SAME LOCATIONS



Chassis Construction

1 Prepare chassis and wheels by removing any excess plastic with a file or emery board. If desired, paint the chassis and wheel components at this time. Do not get paint in the joint areas of the wheels.

2 The front tires and wheels are smaller than the rear tires and wheels. All four inner hubs are the same. Sort these parts into matching sets: One tire, one wheel and one inner hub. Slide a tire onto an inner hub. Apply plastic cement to the inside mating surface of the appropriate wheel and, squeezing the tire out of the way, join wheel and hub. Hold parts together for several seconds while the cement sets. Assemble all four sets this way.

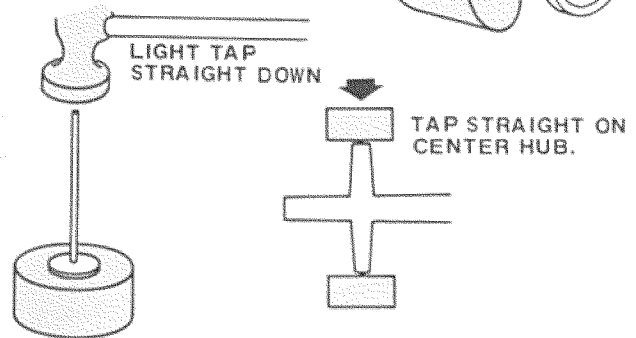
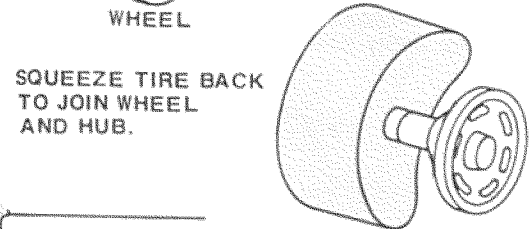
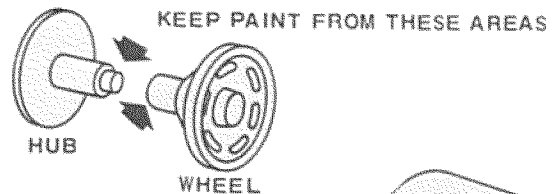
3 Insert the shorter axle into the hub of one front wheel. Tap lightly on the end of the axle with the wheel, flat on the table until the axle seats 1/2" into the hub. Slide the axle through the holes in the front axle housing. Check to be sure the axle turns freely. If it binds, remove plastic from the bearing by carefully scraping with a sharp knife blade. With the axle in place, slide the other front wheel onto the axle and tap into position. Mount the rear wheels in the same way.

4 Slide a pencil into the engine compartment. Loop the engine hold-down band around the tabs and over the pencil. Pull the pencil up to stretch the looped band and slide the engine into place.

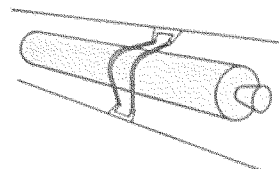
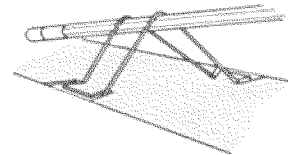
5 Decide whether your car will be run free (large open space such as a parking lot required) or on a guide line (best for sidewalk, etc.; necessary for drag racing). If your car will be operated only on the guide line, the airfoil is not necessary. If you plan on running the car free, the airfoil is essential. Stability in free-running cars can be improved even more by taping two or three pennies to the inside floor of the chassis just ahead of the body mounting post.

6 Cement the fins to the airfoil. Make sure both fins are facing the correct direction and that they project straight from the airfoil. Let the cement dry thoroughly before handling.

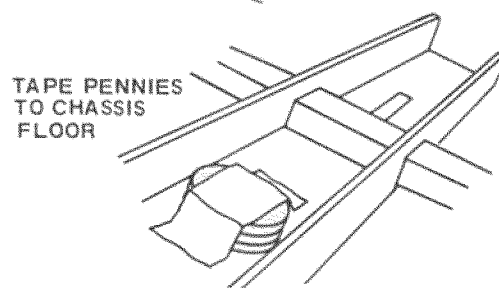
7 Apply small pieces of masking tape to the insides of the tabs on the bottoms of the fins. Paint the airfoil and fins. After the paint is dry, remove tape and apply decals.



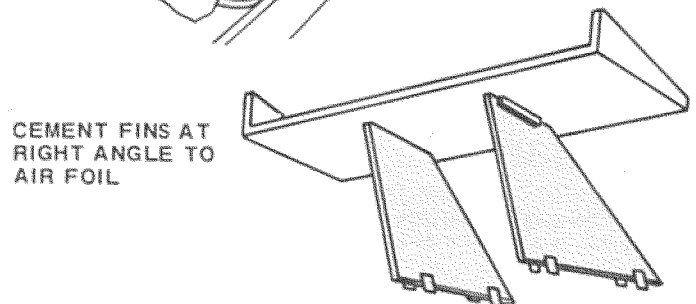
LOOP BAND AROUND TABS IN FRAME



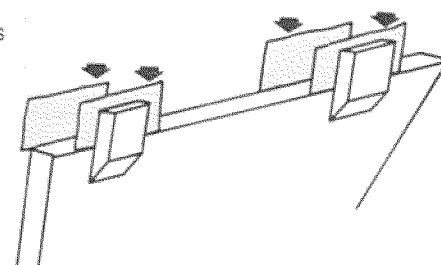
SLIP ENGINE INTO PLACE



TAPE PENNIES TO CHASSIS FLOOR



CEMENT FINS AT RIGHT ANGLE TO AIR FOIL

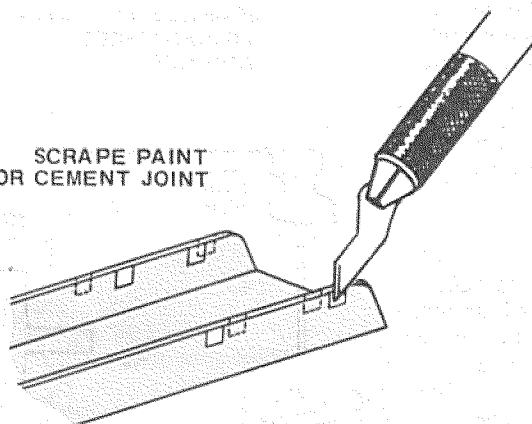


MASKING TAPE ON THE EIGHT AIR FOIL TABS

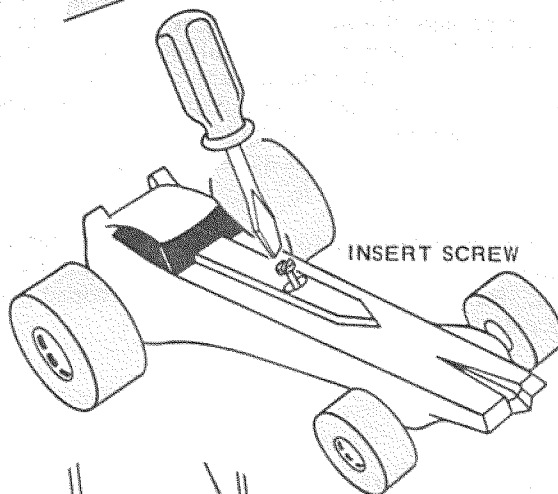
Final Assembly

8 The airfoil may either be cemented permanently in place or held with strips of transparent tape on each side. If the airfoil is to be cemented in place, scrape any paint from the chassis where the tabs on the fins will fit. Do not apply cement yet!

SCRAPE PAINT
FOR CEMENT JOINT

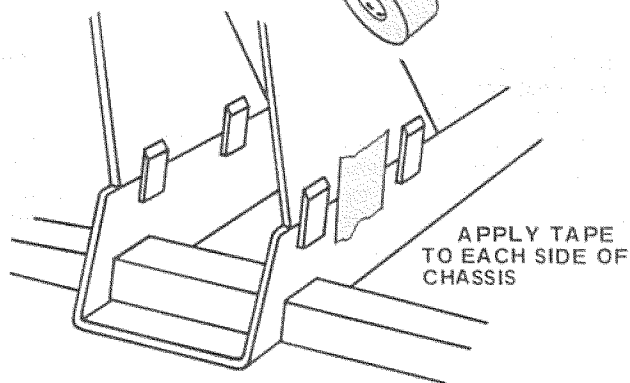


9 Mount the body by setting it in place over the chassis so the axle housings fit into their cut-outs and the hole in the body matches the hole in the mounting post. Secure the body in place with the screw, making sure the body remains straight on the chassis.



INSERT SCREW

10 Attach the airfoil. If cementing, apply the cement to the insides of the tabs and slide the fins into place. If taping, slide the unit into position and apply tape across the joint. If the body covers the joint, reach up from underneath the body to apply the tape.



APPLY TAPE
TO EACH SIDE OF
CHASSIS

Important

Estes RP-100 ColdPower Propellant is the only propellant suitable for use in your XR-100 engine. RP-100 ColdPower Propellant is available at your Estes retailer or directly from Estes Industries.

RP-100 ColdPower Propellant Safety Hints:

- Keep can cool - below 120°F.
- Do not puncture propellant can - contents under pressure.
- Keep RP-100 away from open flame.
- Do not breathe propellant. Although non-toxic, heavy gas may temporarily prevent adequate respiration.
- Keep out of reach of children under ten years of age.

Warranty

Estes Land Rockets are guaranteed by Estes Industries against manufacturing defects. Any part found defective will be repaired or replaced without charge providing the defective part is returned post-paid to Estes Industries Customer Service Department, Penrose, Colorado 81240. For fastest service, please send only the defective part.



OPERATING INSTRUCTIONS

Race Track or Salt Flat

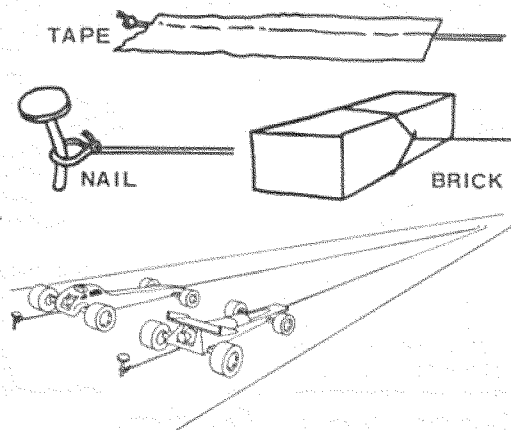
Choose the site for running your car. With a full fuel charge, you'll need a space at least 50 yards long. (With a parachute, you can run in spaces as short as 25 yards.) The surface must be smooth; avoid areas with loose gravel.

Going to drag race? A 4' wide sidewalk is fine. Want all-out Salt Flat free-running performance? Better find a big, clear paved parking lot. Remember, the smoother the surface, the better your car will perform. You'll be able to successfully run on a rougher surface with a guide line than with a free-running car.

For a guide line, use the high strength line supplied in the Estes Land Rocket Race Kit. Other suitable line is Estes' SLT-1 shroud line or heavy-duty waxed carpet thread. Use a line at least 50 yards long, anchored securely at both ends.

On smooth, clean surfaces such as hardwood, tile, and polished concrete, a strip of masking tape makes a good line anchor. On an asphalt paved parking lot, a masonry nail pounded into the pavement at each end will do fine. Be sure to remove the nails when you're through! Otherwise, tie the ends of the line to bricks or other heavy objects for anchors. Stretch the line so it is under slight tension.

If you're drag racing, use two lines spaced 18" to 24" apart. Mark a starting line about 4' from the anchor. Your finish line can be anywhere along the line, but 30' to 40' from the start generally seems to be a good distance.



Fueling Around

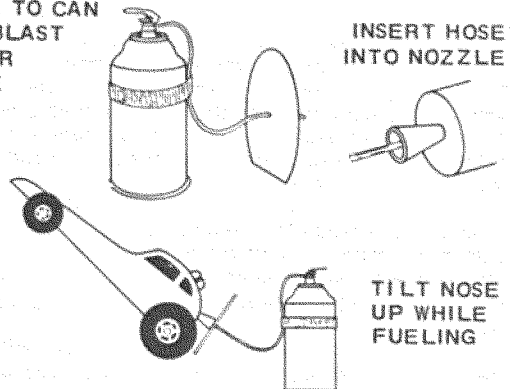
Get ready to fuel your engine. Insert fuel hose into hole in valve. Install valve on can. Tape hose to can. Slip blast deflector onto hose.

With your car on the line, ready to go, insert the hose into the nozzle, pressing in tightly for a good seal. Slip the blast deflector up against the nozzle. Tilt the nose of the car up at a 45° angle and press the valve on the fuel can to begin filling.

The engine has a vent in its front end. As you fill, you will be able to hear gas escaping through the vent. When the sound changes and the vent starts spitting liquid (usually after about 10 to 20 seconds), your engine is full.



TAPE HOSE TO CAN AND SLIP BLAST DEFLECTOR ONTO HOSE



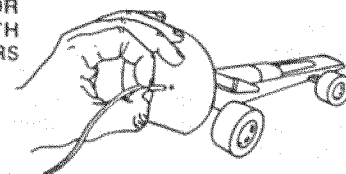
INSERT HOSE INTO NOZZLE

TILT NOSE UP WHILE FUELING

Blast Off

With the engine fueled, rest your car on its wheels and slip the blast deflector up against the engine. Grasping the fuel hose between thumb and forefinger just behind the blast deflector, pull the hose from the nozzle while pushing on the blast deflector. Your car will take off!

PRESS ON DEFLECTOR WHILE PULLING WITH FINGERS



Important: Estes RP-100 ColdPower Propellant is the only propellant suitable for use in your XR-100 engine. RP-100 ColdPower Propellant is available at your Estes retailer or directly from Estes Industries.

RP-100 ColdPower Propellant Safety Hints: a. Keep can cool - below 120°F. b. Do not puncture propellant can-Contents are under pressure. c. Do not breathe propellant. Although nontoxic, heavy-gas may temporarily prevent adequate respiration. d. Keep out of reach of children under ten years of age.

ESTES LAND ROCKET SAFETY CODE

1. Engine: I will use only factory made cold propellant rocket engines. I will follow all instructions. I will use engines and cars only in a manner recommended by the manufacturer.

2. Propellant: I will re-load cold propellant rocket engines only with propellant recommended by the manufacturer. As engine exhaust is very cold, I will not allow it to hit me or anyone else directly.

3. Operation: I will always check my car before each run to be sure that it is in safe running condition. I will use a blast deflector between my hand and the engine's nozzle to protect me from engine exhaust. I will not launch my car into the air in a manner creating a hazard to myself or others.

4. Construction: I will use only safe hobby materials in the construction of my rocket cars. I will not design or build any vehicle which might create a hazard to myself or

others. My cars will not have sharp edges or points.

5. Running Surfaces: I will run my car only in places and on surfaces which do not create a hazard to myself or others. I will not run my car in the street or busy parking lots.

6. Racing: Before starting, I will be sure that the racing area is clear of spectators and other objects. I will always give a verbal countdown or starting sequence to alert spectators before releasing my car. When using a guide line, I will make sure the line is securely anchored at both ends before releasing my car.

7. Loaded Engine: I will never store or leave a loaded cold propellant rocket engine unattended. I will always keep a loaded engine firmly restrained whether in or out of a car. I promise to faithfully follow all rules of safe conduct as established in the above code.

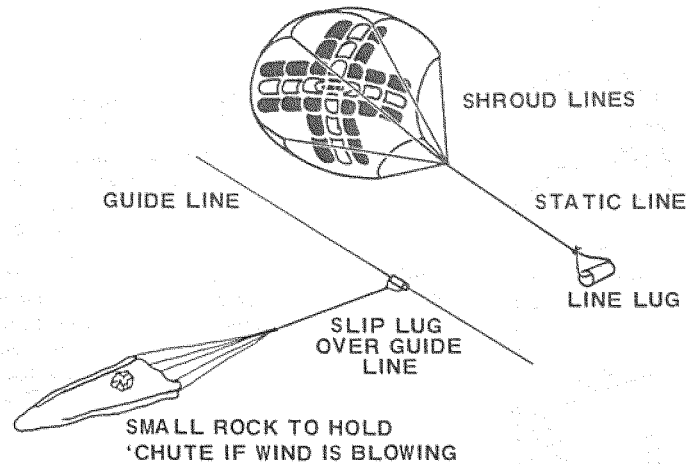
Signed _____ Be safe! Be smart!! Follow the Safety Code!!!

Whoa!

If your track is long enough, your car can roll until it stops of its own accord. When space is limited, though, you'll need to stop your car short of the 120' to 140' it normally travels. A drag 'chute is the way to go on short tracks.

A suitable 'chute is included in the Estes Land Rocket Race Kit. Cut three 20" lengths of guide line to use as shroud lines. Assemble the 'chute according to the instructions printed on the plastic sheet. If you do not have the Race Kit, use an 8" or 10" model rocket parachute. Cut a 15" static line from one end of the guide line. Tie the shroud lines to one end of the static line. Tie the other end of the static line to the line lug.

When setting up to race, slide the line lug over the guide line. The lug must slide freely on the line. Position the lug at least 50 feet from your start line. Lay out the parachute and static line as shown. Leave at least 15' of line beyond the 'chute position to allow the car to stop.



Beat Your Buddy

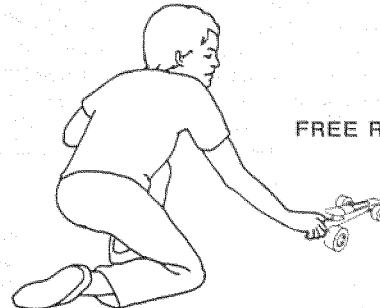
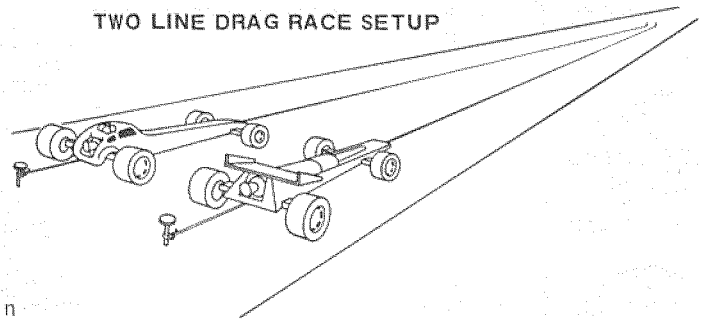
The most popular competition for rocket cars is the drag race. To run a drag race, you'll need an extra person to signal the start and watch the finish line. Lay out guide lines and anchor them in place. Mark start and finish lines 35' apart.

With cars fueled and ready at the line, the judge signals the start. First car across the finish line wins. Run an elimination to see who's the real champion in your group.

Another popular contest is the distance drag. Winner in this event is the car that goes the farthest. Cars can be run one at a time, marking each stopping point on the pavement before running the next car. Another way to run this event is by sending the cars off in heats of as many as 5 or 10 at a time. There's lots of excitement as the cars take off in a cloud of jet exhaust, scream through maximum acceleration, and finally strain for the last possible inch.

When you get to know your car and its performance, you may want to run a predicted distance event. In this contest each competitor marks a spot where he thinks his own car will stop (at least 60' from the starting point). The racer coming closest to his predicted spot wins. No parachutes are allowed in this event.

Predicted distance contests can be run with cars on the guide line or, where space permits, with free-running cars. A fun variation, when running free, is to mark one spot, and have everyone pick his own starting point and shoot for that spot. Each car is left where it stops; a few collisions (at low speed) can add to the excitement. Draw straws or numbered pieces of paper to decide the starting order. A complete Land Rocket Competition Guide is included in the Race Kit or can be obtained directly from Estes. Just fill out the enclosed coupon to receive your copy.



Performance Mods

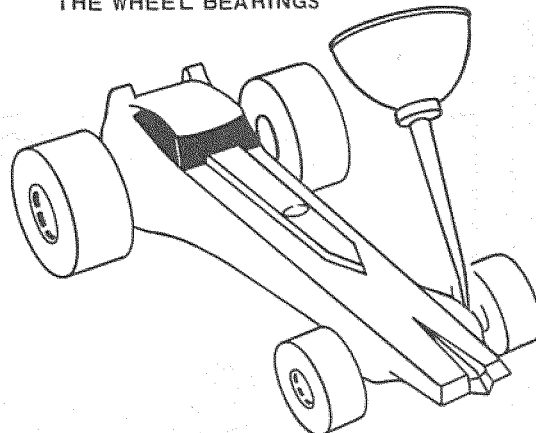
Regular drag racing is a pure acceleration contest. The car that wins will be the one with the lowest weight, best aerodynamics, and least energy loss through wheels and wheel bearings. Modifications to improve performance have to be aimed at these areas. Removing weight from the chassis and lubricating the bearings are the best ways to start hopping up your car.

In a maximum distance event, aerodynamics and low wheel and bearing losses are still important, but instead of keeping weight at a minimum, it becomes important to find an "optimum" weight. If the car is too light, aerodynamic drag and friction will slow it down too soon (How far can you throw a feather?). If the car is too heavy, the engine won't be able to accelerate it to a high enough speed to allow any significant distance gain during coasting.

When trying to stop on a particular spot with a free-running car, directional stability becomes very important. Stability can be improved by adding weight to the nose of the car. Airfoil and fin alignment are also important.

Good luck and great racing!

LESSEN FRICTION BY LUBRICATING THE WHEEL BEARINGS



ATTENTION ESTES ROCKETEERS

Would you like to do your teacher a favor (and do a good turn for yourself at the same time)? Send us your science teacher's name and address, and we'll send him a free catalog and a teacher's guide. This guide explains ways in which model rocketry can make the science class more fun. It shows your teacher how to provide exciting "space missions" in which you and your friends learn how the big rockets operate while you are building and launching your own model rockets. Simply include your teacher's name and school address, and your own name and address on this coupon. Mail it today!

Please send my teacher a free model rocketry catalog and teacher's guide.

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ESTES LAND ROCKET COMPETITION GUIDE

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10 different events.

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Competition.

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