BEFORE YOU START
Read all instructions before beginning work on your model. Make sure you have all parts and materials. When you are thoroughly familiar with the assembly procedure, begin construction. Check off each step as you complete it. In each step, test-fit the parts together before applying any glue. If some part doesn't fit properly, sand lightly or build up as required for precision assembly.

RECOMMENDED ENGINES:
A8-3, (First Flight), B6-4 B6-6, B8-5, C6-5, and C6-7.

PARTS LIST KIT NO. 1919
A 1 Engine Mount Tube (BT-20J) ......... 30326
B 1 Engine Hook (EH-2) .............. 35025
C 1 Engine Block (AR-520) ............ 30162
D 1 Adapter Ring Set (TA-1327) ...... 30090
E 1 Shock Cord (SC-1) ................. 85730
F 1 Body Tube (BT-55KA) ............. 30387
G 1 Die-Cut Balboa Fin Sheet ......... 32619
H 1 Plastic Nose Cone (PNC-55HU) .... 72055
I 1 Parachute (PK-12) ................. 85564
J 1 Shroud Line (SLT-72) ............. 38237
K 1 Tape Discs Set (TD-3F) .......... 38406
L 1 Launch Lug (LL-2A) ............... 38175
M 1 Decal (KD-1919) ................... 37234

TOOLS AND MATERIALS
In addition to the parts included in the kit you will need an X-Auto type modeling knife, white glue (Elmer's, Titebond, or similar), scissors, pencil, ruler, masking tape, fine and extra-fine grit sandpaper, sanding sealer, and a medium-size modeling paint brush. To paint your model we recommend gray primer and olive drab spray paint. Dull and gloss clear spray may be used to protect the decals. For easy and positive alignment of the fins on your model, we recommend the use of Estes' Fin Alignment Guide part number 2231.
ASSEMBLY INSTRUCTIONS

1. Cut a 1/8" long slit in the engine mount tube (Part A), 1/4" from one end as shown. Apply a 1-1/2" line of glue straight along the tube as shown. Push one end of the engine hook (part B) into the slit and press the main part of the hook into the glue. Cut a 4-5/8" long piece of 3/4" wide masking tape. Wrap the tape twice around the engine tube-engine hook assembly so the tape is 1" from the rear of the tube. Run a line of white glue inside the front end of the tube. Push the engine block (part C) into the front of the tube up to the engine hook and inside the tube. Set the completed engine tube assembly aside to dry.

2. Push adapter ring against engine hook.

3. Place notch over engine hook and slide ring up to masking tape.

4. Press shock cord mount into place. Hold till glue sets.

5. Check fit of rings in tube.


7. Align launch lug line with engine hook.

8. Cut out the shock cord mount found on page 1. Crease it on the dotted lines by folding. Spread glue on section 1 and lay one end of the shock cord (part E) into the glue. Fold over and apply glue to the back of section 1 and the exposed part of section 2. Lay the shock cord as shown and fold over again. Clamp the unit together with your fingers until the glue sets.

When the glue on the engine mount has dried completely, check the fit of the rings inside the body tube. The rings should slide easily into the tube. If the fit is tight, sand the outer edges of the rings until they slide easily in the body tube.

Apply a ring of glue around inside of rear end (the end opposite the shock cord mount) of body tube about 2-1/4" to 2-1/2" from the end of the tube. Slide the engine mount unit, engine block first, into the body tube so that the engine tube and body tube are even. Do not pause while inserting the engine mount or the glue may "grab" with the mount in the wrong position. Finish the installation by applying glue to the joint between the rear ring and the body tube. (Use a dowel or toothpick to apply the glue.)

Cut out the body tube marking guide found on page 1 of the instruction sheet. Wrap the guide tightly around the rear of the body tube. Align the guide lines and tape the guide together. Line up the launch lug line with the engine hook. Mark the fin lines and the launch lug lines on the body tube. Remove the guide. Press the body tube firmly against the inside of a door frame as shown. Draw a line through each pair of marks 4" up from the rear.
Fine-sand both sides of the balsa fin sheet (part G). Carefully remove the fins from the sheet using a sharp knife to cut free the corners and edges. Stack the fin set and sand as shown. Sand round the leading edges. The body edge must be square.

Rub a line of glue into the root (body) edge of each fin. Allow the glue to dry. Glue the fins to the body tube on the guide lines so that they are even with the rear of the body tube. Be sure that the leading edge (the edge that is parallel to the wood grain direction) is in front of the tube as shown. Adjust the fins so they project straight away from the body. Set the rocket upright while the glue dries. DO NOT set the rocket on its side while the glue is wet.

Trim or sand any excess plastic from around the sides of the nose cone (part H). Use a sharp knife to remove any excess plastic from the inside of the molded eyelet at the rear of the nose cone. Wash the nose cone in warm soapy water, rinse well, and let dry.

Cut out the parachute (part I) on its edge lines. Cut three 24" lengths of shroud line (part J). Attach line ends to the top of the parachute with tape discs (part K) as shown. Pass the shroud line loops through the eyelet on the nose cone. Pass the parachute through the loop ends and pull the lines tight against the eyelet. Set the knot with a drop of glue. Tie the free end of the shock cord to the eyelet with a double knot.

When all the glue on the model is dry, prepare the balsa fins for painting. Apply at least two coats of sanding sealer to all balsa surfaces. Let dry and sand thoroughly with the extra-fine grit sandpaper after each coat. Do this until all the tiny grain lines in the wood are filled and everything looks and feels smooth.

Insert a sheet of rolled-up newspaper or heavy paper into the rocket body as shown. Apply two or three light coats of gray primer spray paint to the entire unit. Allow each coat to dry thoroughly before applying the next coat.

When the gray primer is dry spray one light coat, and then one or two finish coats of olive drab.

Now apply one coat of gloss coat, and allow to dry. The gloss coat will make applying the decals much easier and a better job will result.
DECAL PLACEMENT

DIP DECAL IN WATER FOR ABOUT 10 SECONDS

When all paint is completely dry, apply decals (part M) in the positions shown below. To apply decals, cut out a decal section, dip it in lukewarm water for 10 seconds, and hold it until it starts to uncurl. Slip the decal off the backing sheet and onto your model. Blot excess water away. When all decals are in place, let the model dry overnight. After drying, apply a coat of Dull Cote to protect the decals.

LAUNCHING COMPONENTS
To launch your rocket you will need the following items:
An Estes model rocket launch system
Parachute recovery wadding (Estes Cat. No. 2274)
Estes A8-3, B6-4, B6-6, B8-5, C6-5, or C6-7 model rocket engines. Use an A8-3 engine for your first flight.

IMPORTANT:
Be sure to follow the HIAA-NAR* Model Rocket Safety Code when carrying out your model rocket activities.
*HIAA—Hobby Industry of America
*NAR—National Association of Rocketry

COUNTDOWN CHECKLIST

WADDING

T-13 Pack 5 to 6 squares of loosely crumpled recovery wadding into the rocket body.

MISFIRE PROCEDURE
Disarm the launch panel. Wait one minute before approaching the rocket on the launch pad. Remove the rocket, clean the igniter residue from the nozzle of the engine, and carefully install a new igniter. Repeat the Countdown Checklist.
Failure of the rocket engine to function properly is nearly always caused by a failure to install the igniter correctly. This failure permits the igniter to heat and burn into two pieces without igniting the engine.

NOTE: DO NOT pack parachute until you are actually ready to launch. For maximum parachute reliability, lightly dust the ‘chute with ordinary talcum powder before each flight, especially in cold weather.

NOTE: Nose cone should separate easily from rocket body tube, but should not be extremely loose. If fit is too tight, sand inside of body tube and shoulder of nose cone with fine sandpaper. If fit is too loose, add a wrapping of transparent tape or masking tape to the shoulder of the nose cone.

T-9 Disarm the launch panel—REMOVE SAFETY KEY!

T-8 Slide launch rod through rocket launch lugs and place rocket on launch pad. Make sure the rocket slides freely on the launch rod. Clean the micro-clips and attach them to the igniter wires. Arrange the clips so they do not touch each other or the metal blast deflector. Attach clips as close to tape as possible.

T-7 Clear the launch area, alert recovery crew and trackers. Check for low flying aircraft and unauthorized persons in the recovery area.

T-6 Arm the launch panel—INSERT SAFETY KEY!
-5-4-3-2-1-LAUNCH!!
Repeat the Countdown Checklist for each flight.

T-12 Gather the parachute as shown then fold into a triangular shape. Fold again and insert into rocket body. Slide nose cone into place.

T-11 Select an engine and install an igniter as directed in the engine instructions. Use an A8-3 engine for your first flight.

T-10 Insert engine into rocket engine mount. Engine hook must latch securely over end of engine.

INSERT IGNITER
FOLD
LATCH ENGINE HOOK SECURELY OVER END OF THE ENGINE

BLAST DEFLECTOR