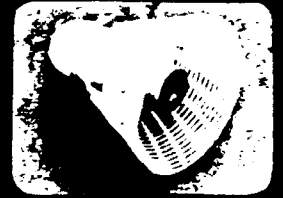


# Estes Industries Rocket Plan No. 61

# 'BIRDIE,

OCTOBER 1968  
DESIGN OF THE MONTH  
by DON VAIL



PUBLISHED AS A CUSTOMER SERVICE BY ESTES INDUSTRIES, BOX 227, PENROSE, CO. 81240 © ESTES INDUSTRIES, 1969

## GENERAL INFORMATION

The Birdie will fly with Series III engines *only*. It will not be stable with other engines. The recommended types to use are the 1'4A3-2S and the 1'2A6-2S.

When preparing your model for flight install an igniter as directed in the instructions which came with the engine. Slide the engine into place in the engine holder tube. It should fit just tightly enough to prevent its sliding out when it is on the launcher and the clips are attached. If it is too loose wrap tape on the rear of the engine until it will not slide out.

The Birdie uses featherweight recovery. At ejection the engine is expelled from the engine holder tube. Since the model has relatively high drag and low weight without its engine, it falls slowly. The expended engine is not stable by itself, so it tumbles back. The tumbling motion results in high drag and a slow return.

1 Begin construction by gluing the engine block in place. Smear white glue around the inside of the engine holder tube about 1/2 inch from one end. Insert the engine block into the other end and push it forward with a Series III engine until the rear end of the engine is even with the rear end of the tube.

2 Cut a hole for the launch lug in the shuttlecock as shown in the drawing. The hole should be no wider than the space between two of the long plastic ribs.

3 Cut a notch in the RA-2060 ring as shown in the illustration. Save the center disk from the ring.

4 Inside the nose of the shuttlecock are a number of molded plastic posts. Smear some glue around the outside of the outermost set of posts and push the engine holder tube into place. It should make a tight fit around the outside of the posts. (If there are no posts in the nose of your shuttlecock, smear glue around the sides of the inside of the nose and insert the tube.)

5 Push the center disk from the RA-2060 ring, edge first, halfway down the inside of the engine holder tube. Turn the disk with a finger or pencil so it touches the inside of the tube all the way around and push it the rest of the way with an engine casing. The disk should rest against the engine block and will need no glue.

6 Slide the RA-2060 ring into place. The outer edge of the ring should touch the inside of the shuttlecock all the way around and the notch should match the hole in the side. Apply a line of glue to the joint between the ring and the tube.

7 Install the launching lug from the front as shown. Secure it by gluing it to the ring at the rear where it passes through the notch.

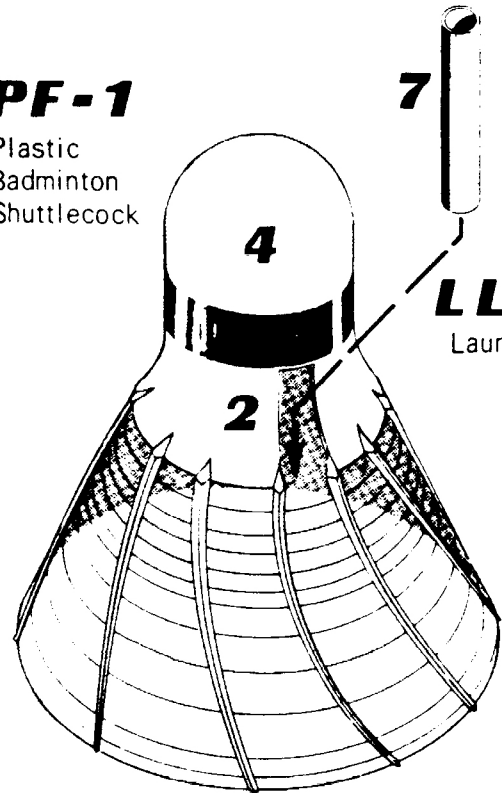
**PF-1**

Plastic  
Badminton  
Shuttlecock

7

**LL-2A**

Launch Lug



**EB-20A**

Engine Block

1

5

Center Disk  
From Ring

**BT-20M**

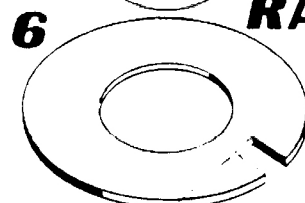
Engine Holder Tube

6

**RA-2060**

Adapter Ring

3



5/16"

1/8"