

# ORBIT



## FLYING MODEL ROCKET

*Easy to  
Assemble*

*22" Long*

Altitudes to 3500'

Durable Aircraft Plywood Fins

Specifications:

Length—22"

Body Dia.—

above transition—0.903"

below transition—1.130"

Takeoff weight without  
engine: 1.91 oz. (54 g)\*

Recommended F.S.I. Engines:

D18-4, D18-6, D20-5, E5-6,

E60-8, F7-6, F100-8

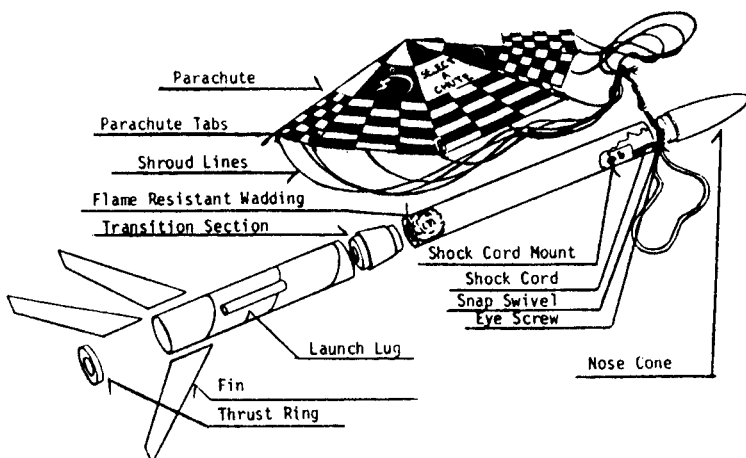
### Skill Level 2

This kit requires assembly. Launch systems, engines, glue, and finishing supplies are not included.

ADULT SUPERVISION RECOMMENDED

# ORBIT

The Orbit is designed to make maximum use of the F.S.I. long thrusting ( 9 sec. ) F 7 rocket engine. It will easily reach altitudes beyond ground visibility using the F7. This highly stable rocket makes very impressive flights even when flown with smaller F.S.I. engines.



## PARTS LIST

1 Shroud Line	1 Transition Section
1 Nose Cone	1 Launch Lug
1 Parachute	1 Body Tube (.903")
1 Eye Screw	3 Fins
1 Parachute Tab	1 Thrust Ring
1 Shock Cord	1 Flame Proof Wadding
1 Snap Swivel	1 Fin Guide
1 Shock Cord Mount	1 Decal Sheet
1 Body Tube (1.13")	

## ASSEMBLY INSTRUCTIONS:

### Important:

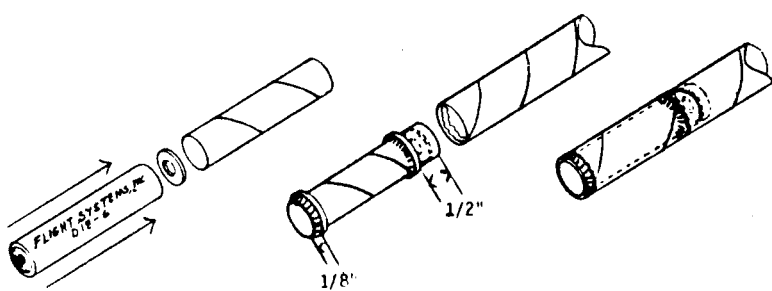
Read through the entire set of instructions before starting assembly. Check to be sure all parts are present. Familiarize yourself with the parts. Test fit the parts together before applying any glue. If a part doesn't fit properly sand or build up for a precision fit. Please read each step before starting that step.

1. First determine which size F.S.I. engine you intend to use in your Orbit rocket. If you decide to use the large 'E' or 'F' size (27mm) then you can omit step 1B and just install the large thrust ring in the lower body tube (1.13) step 1A.

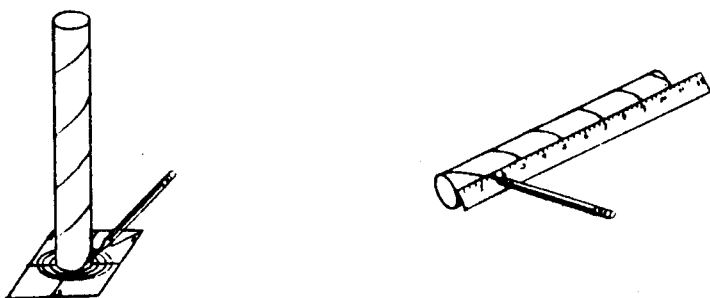


- Step 1-A Select the thrust ring that fits the large body tube. Put a ring of glue inside of the body tube and using a F.S.I. 27mm engine push the thrust ring into the body tube until the engine projects out of the body tube 1/2".

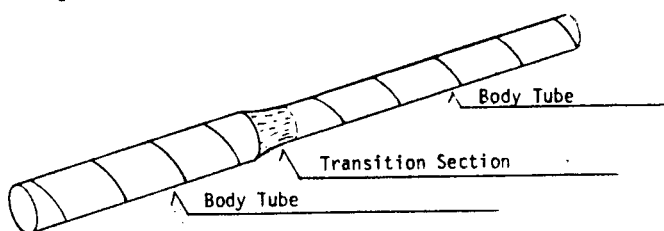
- Step 1-B For using 21mm engines select the 1" X 1/4" engine tube, the two centering rings that measures 15/16" I.D. and 1 1/8" O.D. and the thrust ring that fits the engine tube. Next put a ring of glue inside the engine holding tube. Now using a F.S.I. 21mm engine push the thrust ring into the engine holding tube until the engine projects out or the end of the tube 1/2". Remove the engine and install the centerings as shown below.



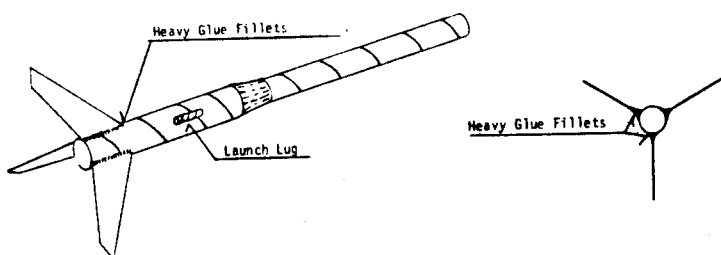
2. Install engine mount unit. Be sure the engine mount will slide easily into the body tube. If it is too tight, sand the rings until a precision fit is obtained. Apply a ring of glue inside the body tube. Insert the engine mount unit using one smooth motion until it is flush with the back of the body tube. **DO NOT STOP** pushing engine mount until it is in position or it will stick in the position in which you stopped.



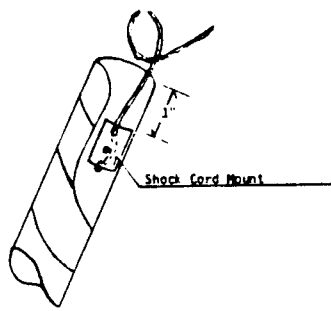
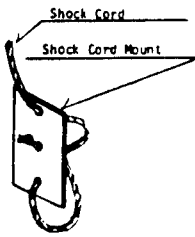
3. Using the fin alignment guide marklines on the large diameter body tube for 3 fin alignment as shown. Be sure the marks are on the end opposite the thrust ring.



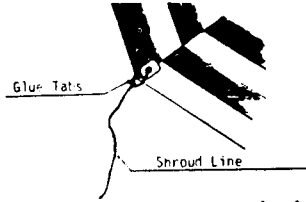
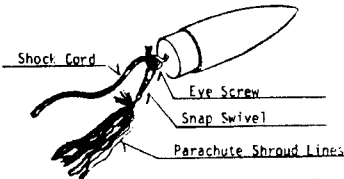
4. The two body tubes are joined together by a transition section. Check to see that the transition section fits into the body tubes as shown. If it is too tight, sand to obtain a precision fit. Spread a layer of glue inside the small body tube. Insert the small end of the transition into the body tube. Apply glue inside the larger body tube on the end opposite the end previously marked for fins and insert the transition. Align the body tubes and transition section so that the body tubes are parallel to each other.



5. Lightly sand and round the edges of all fins. **DO NOT** sand the root (red colored edge) of the fins. Attach the red edge of the fins to the body tube. Be sure the fins stick straight out from the body tube and are carefully aligned with the lines marked on the body tube. Apply a line of glue to the launch lug and place it centered between two fins and parallel with the body tube as shown. Stand the assembly on its forward end and allow to dry. When dry, run two or three heavy glue fillets on both sides of the fins for added strength.



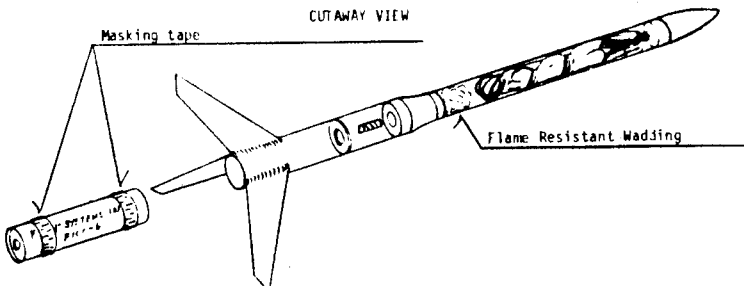
6. Install shock cord in shock cord mount as shown. Spread a heavy layer of glue over the side opposite the shock cord knot. Curve the shock cord mount and insert into the nose end of the body tube and firmly press in place. Drawing shows the proper position in the body tube.



7. Put the eyescrew in the center of the nose cone. Attach the shock cord. The parachute is marked in inches. Cut with scissors to the desired size. For the Orbit cut 14". Lay the parachute on a flat surface and attach shroud lines as shown. Punch holes through the glue tabs and tie the shroud lines to the parachute. Attach the snap swivel.
8. The rocket is now ready to paint and add decals. It is recommended that a light coat of paint be sprayed on and let dry. Add a couple more mist coats lightly sanding between them. Then apply a wet coat ( gloss just appears) and set aside to dry. After the model is completely dry apply decals. Cut one decal at a time from the decal sheet and submerge in lukewarm water until the decal will slide off of the paper(usually about 20 sec.). Gently slide decal onto rocket and carefully align and smooth out any wrinkles.

### FLIGHT PREPARATION

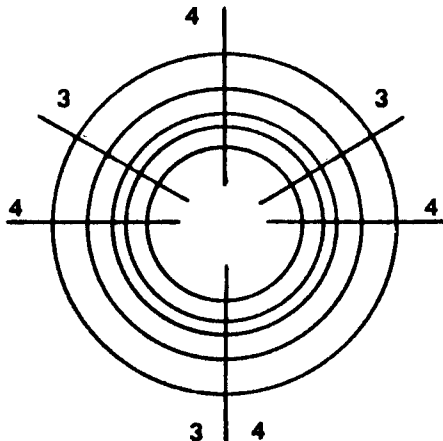
1. Install flameproof wadding as shown in cut away view of rocket.
2. Fold and install parachute. It is a good idea to dust parachute with ordinary talcum powder before each flight.
3. Install engine using friction fit. Several wraps of masking tape are placed around the engine as shown to hold the engine in place.
4. Insert F.S.I. engine until contact is made with the thrust ring. Be sure to use enough masking tape to assure a snug fit in the body tube. It should require a firm push. If the engine doesn't fit firmly it will be ejected instead of the parachute and the rocket will free fall.
5. Place the rocket on the launcher. Insert the F.S.I. igniter and attach the firing clips as shown in Engine Instructions.
6. Go back to launch control and clear area. Arm the launch control by inserting the phone jack attached to the firing line.
7. Give count down 5-4-3-2-1 Ignition.



Be sure to follow the \*HIA- NAR Model Rocket Safety Code when carrying out your model rocket activities.

\*HIA- Hobby Industry of America  
 NAR- National Association of rocketry

# FIN PLACEMENT GUIDE



1. Center end of tube in the proper circle.
2. Mark (4) lines for four fin models and (3) lines for three fin models.

F S  
JANUARY 1 2  
6 7 8 9  
13 14 15 16  
20 21 22 23  
27 28 29 30

FEBRUARY 1  
3 4 5 6  
10 11 12 13  
17 18 19 20  
24 25 26 27

MARCH 1  
3 4 5 6  
10 11 12 13  
17 18 19 20  
24 25 26 27  
31

APRIL 1 2 3  
7 8 9 10  
14 15 16 17  
21 22 23 24  
28 29 30

MAY 1 3  
5 6 7 8  
12 13 14 15  
19 20 21 22  
26 27 28 29

JUNE 1  
2 3 4 5  
9 10 11 12  
16 17 18 19  
23 24 25 26  
30

JULY 1 2 3  
7 8 9 10  
14 15 16 17  
21 22 23 24  
28 29 30 31

AUGUST 1  
4 5 6 7  
11 12 13 14  
18 19 20 21  
25 26 27 28

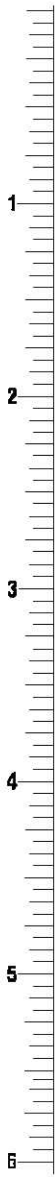
SEPTEMBER 1 2 3 4  
8 9 10 11  
15 16 17 18  
22 23 24 25  
29 30

OCTOBER 1 2  
6 7 8 9  
13 14 15 16  
20 21 22 23  
27 28 29 30

NOVEMBER 1 2 3 4  
8 9 10 11  
15 16 17 18  
22 23 24 25  
29 30 31

DECEMBER 1 2 3 4  
8 9 10 11  
15 16 17 18  
22 23 24 25  
29 30 31





**ORBIT**



**FLIGHT SYSTEMS**

**99**

