

About Semroc Astronautics Corporation

Semroc Astronautics Corporation was started by Carl McLawhorn in his college dorm at North Carolina State University in November, 1967. Convincing a small group of investors in his home town of Ayden, North Carolina to invest in a small corporation, the company was re-incorporated as Semroc Astronautics Corporation on December 31, 1969.

Semroc produced a full line of model rocket kits and motors. At its peak, Semroc had twenty-five full time employees working at two facilities. One was for research and development, printing, shipping, and administration. The other was outside of town and handled all production and model rocket motor manufacturing. For several years, Semroc successfully sold model rocket kits, supplies, and motors by mail-order and in hobby shops. In early 1971, Semroc became insolvent and had to close its doors.

After 31 years of dreams and preparations, Semroc Astronautics Corporation was reincorporated on April 2, 2002 with a strong commitment to putting the fun back into model rocketry. Many years of excellent service to the rocketry community passed by until sadly, on August 11 2013, Carl passed away and left a great void in the hearts of many rocketeers. He is forever in our hearts and minds.

In February of 2015, Semroc was sold to eRockets and moved to Dayton, Ohio where it resides today. It is our goal to continue the level of service and dedication to the hobby Carl and his family were so well known for. We strive to serve you, our customers, to the best of our abilities as we carry the vision of Carl McLawhorn boldly into the future.

About the Semroc UFO Invader™

One of the four Centuri "Super Kits", the UFO Invader was released in 1976 and last saw production in 1981. This is the second release in the Semroc line of Centuri Super Kits. Capable of flying in deep space as well as underwater, the UFO Invader is stationed at a top-secret undersea base.

Are those pesky aliens plotting to take over Earth? If only there were some kind of Galactic Hero to save us from the nefarious plans of the creatures aboard the UFO Invader! Stay tuned and watch for more new and exciting kits from Semroc to fight off this alien menace.

November 2017 Semroc plans by Eric Specht

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SEMROC

U.F.O. INVADER™

Futuristic Invader
from Another World!

Laser Cut Fiber Fins

Precision Turned
Balsa Nosecones

Waterslide Decals

12" Twin Parachute
Recovery



FLYING
MODEL
ROCKET KIT

Made in the U.S.A by Semroc - Dayton, Ohio

UFO Invader™ Kit No. KV-91

Specifications	Motor	Approx. Altitude
Body Diameter	1.34" B4-2	90'
Length	29.75" B6-2	96'
Fin Span	10.33" C6-3	301'
Net Weight	5.36 oz	

Skill Level 2

BEFORE YOU START!

Make sure you have all the parts included in this kit that are listed in the Parts List in these instructions. In addition to the parts included in this kit, you will also need the tools and materials listed below. Read the entire instructions before beginning to assemble your rocket. When you are thoroughly familiar with these instructions, begin construction. Read each step and study the accompanying drawings. Check off each step as it is completed. In each step, test-fit the parts together before applying any glue. It is sometimes necessary to sand lightly or build-up some parts to obtain a precision fit. If you are uncertain of the identity of some parts, refer to the exploded view. It is important that you always ensure that you have adequate glue joints.

TOOLS

In addition to the parts supplied, you will need the following tools to assemble and finish this kit.



ASSEMBLY

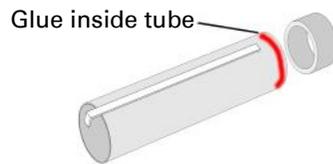
These instructions are presented in a logical order to help you assemble your UFO Invader™ quickly and efficiently. Check off each step as you complete it. We hope you enjoy putting this kit together!

MOTOR MOUNT

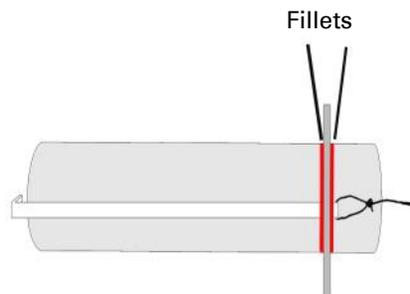
- ❑ 1. Tie a loop in the end of the Kevlar® cord (V). Pass the motor hook (S) through the loop and into the slot in the motor tube (T).



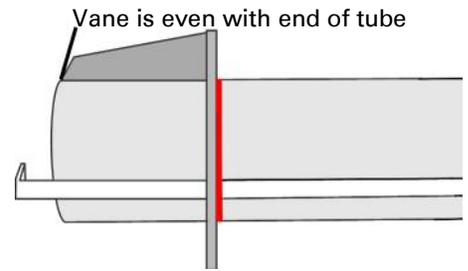
- ❑ 2. Apply glue around the inside of the motor mount. Insert the thrust ring (Q) and push it into place against the motor hook.



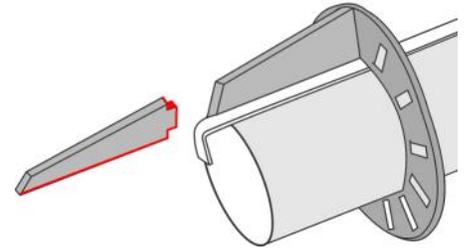
- ❑ 3. Take the top centering ring (R1) and slide it on over the top of the motor mount until it covers the top 1/16 inch of the motor hook. Run a fillet of white glue around both sides of the ring.



- ❑ 4. Slide the rear centering ring (R2) onto the motor tube. Make sure the notch in the ring lines up with the motor hook. Use a vane (U) to determine the proper distance from the bottom of the tube. When the vane is inserted into any slot in the centering ring, the other end of the vane should be even with the bottom of the motor tube. Use the vane to check all around the motor tube before gluing the bottom ring in place.

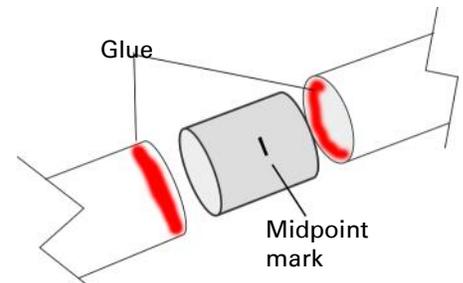


- ❑ 5. Attach the vanes using either white glue or CA glue. Make sure they are projecting straight out from the centering ring.



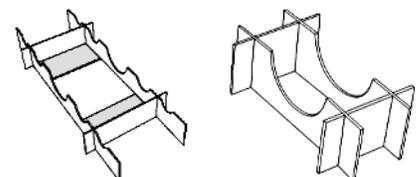
AIRFRAME

- ❑ 6. Make a mark in the middle of the coupler (G). Smear a line of glue inside the end of the lower airframe tube. (O) Insert the coupler to the midpoint line. Apply another thin line of glue to the inside of the center airframe tube (H). Insert the coupler and press the two tubes firmly together to form the main airframe tube. Roll on a flat surface to ensure the tubes are glued together straight.



FINS AND PODS

- ❑ 7. Using CA glue, build the main fin guide (Z) and the canard fin guide (AA). Glue the rectangular pieces into the bottom of the main fin guide to help keep it square.



- ❑ **8.** Locate the 4 pod nosecones (K) and the 4 tank tube nosecones (I).

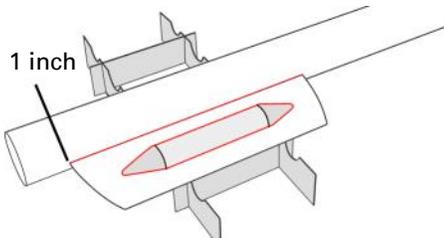
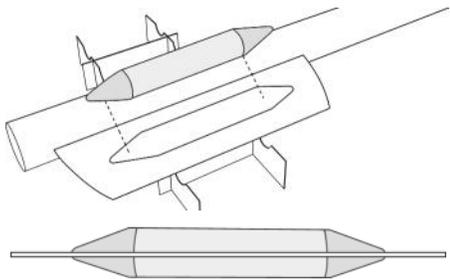
Run a bead of white glue inside each end of the tank tubes (J) and glue the cones into place.

Glue the pod nosecones into each end of the pod tubes (L).

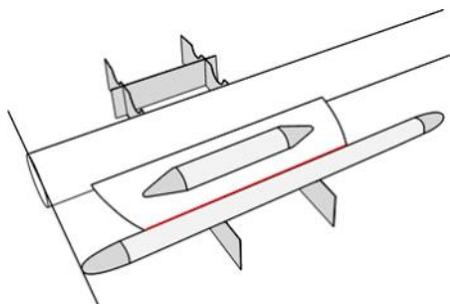


For steps 9 through 14, check to make sure the parts lay flat against the guide before applying glue.

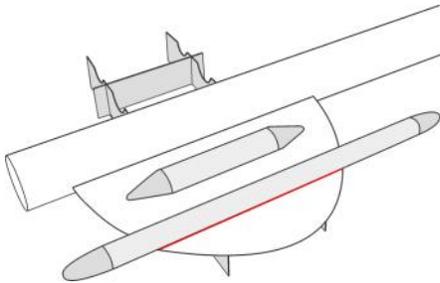
- ❑ **9.** Lay the main airframe tube in the main fin guide. Support the top of the tube with the assembled canard fin guide. Take a tank tube assembly and, using the fin guide, press it into the wing (M). The tank tube should fit exactly in the middle of the wing. Glue the top of the tank tube assembly, then glue the wing to the main airframe tube exactly 1 inch from the bottom.



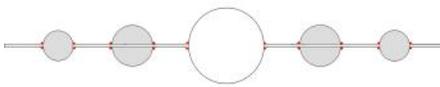
- ❑ **10.** Glue the pod tube on next. The pod nosecone should be even with the end of the main airframe tube. Using a book or a straightedge, make sure this is the case and then apply glue to the pod/wing joint to secure in place.



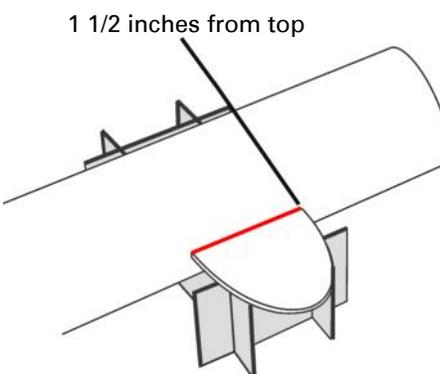
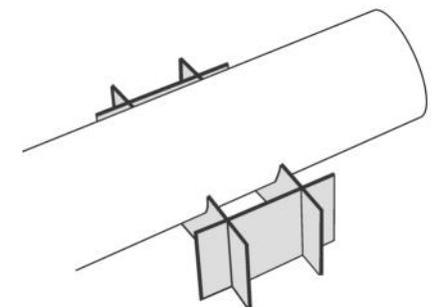
- ❑ **11.** Affix the wingtip (N) to the pod tube. Line up the wingtip with the curve of the main wing, then apply glue.



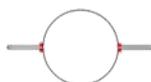
- ❑ **12.** Repeat steps 9 through 11 for the other side of the rocket. When complete, fillet all tube/wing joints. Use thin fillets as a heavy application of white glue may warp and damage the fiber material.



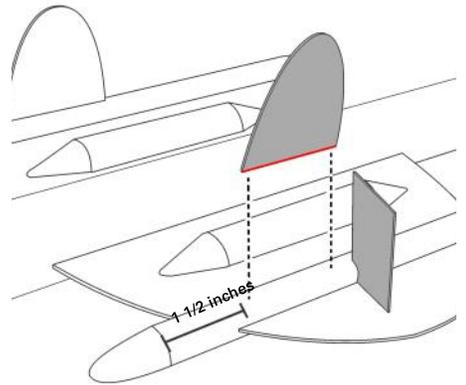
- ❑ **13.** When the fillets have dried, lay the main airframe tube back into the main fin jig and the canard fin jig. Using the canard fin jig, glue the canards (F) on exactly 1 1/2 inches from the top of the main airframe tube.



- ❑ **14.** Repeat step 13 for the other side of the rocket. When both canards have been attached, lightly fillet all canard/tube joints.



- ❑ **15.** Using the rudder fin alignment tool, glue the rudders (O) on exactly 1 1/2 inches from the trailing edge of the pod tube. Fillet all rudder/pod joints.

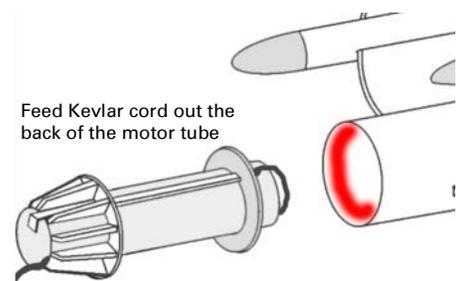


MOTOR MOUNT

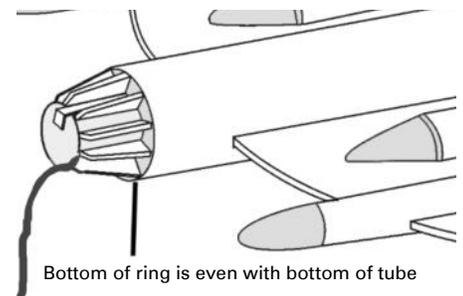
- ❑ **16.** Feed the Kevlar cord through the top of the motor tube and out the bottom of the rocket.

Spread a line of glue around the inside of the main airframe tube.

Insert the motor mount with one smooth motion. The bottom ring of the motor mount should be barely inserted inside the airframe. The bottom of the ring should be even with the bottom of the tube.



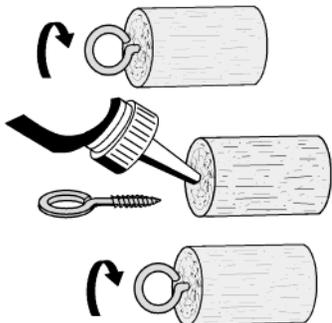
Feed Kevlar cord out the back of the motor tube



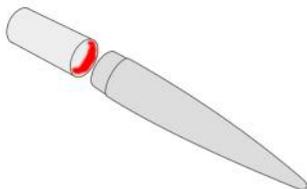
Bottom of ring is even with bottom of tube

UPPER AIRFRAME

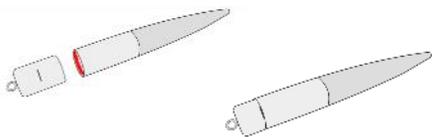
- ❑ 17. Install the screw eye (D) into the body tube coupler (C) as shown. Remove, squirt in some glue, then replace the screw eye.



- ❑ 18. Spread a line of glue around the inside of the upper airframe tube (B) and insert the nosecone (A).

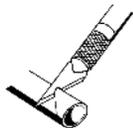


- ❑ 19. Make a mark in the center of the tube coupler. Spread some glue around the inside of the upper airframe assembly and insert the coupler up to the mark.



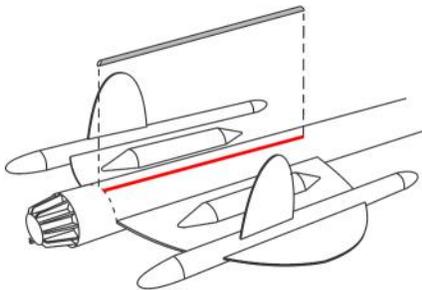
LAUNCH LUG

- ❑ 20. Using a sharp knife, cut a bevel in each end of the launch lug (P).



- ❑ 21. With the motor hook facing down, make a mark across the main airframe tube even with the trailing edge of the wing. Using a straight-edge, make a line in the middle of the tube that extends forward to the tip of the pod nosecones.

Apply glue to this line, then lay the launch lug into it. Quickly wipe away any excess glue on either side of the lug, forming a fillet in the process.



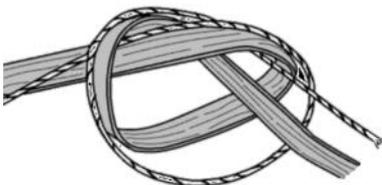
RECOVERY

- ❑ 22. Follow the instructions included with the parachutes (X) to build two 12 inch parachutes.

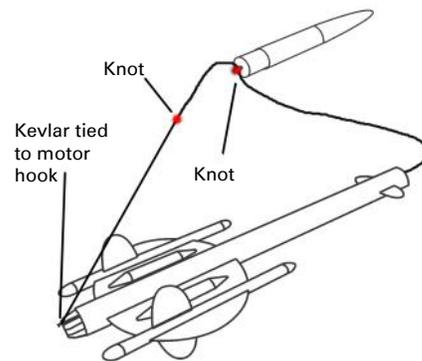
- ❑ 23. After the parachutes are assembled, attach them to the screw eye by either:

- Tying a knot in the shroud lines around the screw eye.
- Passing the loops of the shrouds through the screw eye, then threading the canopy through the loops to form a knot.

- ❑ 24. Using an overhand knot, tie the Kevlar cord to the Elastic cord (W) as shown. Pass both cords back through the motor tube and out the top of the main airframe.



- ❑ 25. Pass the elastic cord through the screw eye. Tie a knot in the elastic cord around the screw eye, leaving about 8 inches of the elastic on the other side of the knot. Then, tie the 24 inch long piece of Kevlar® around the motor hook. Finally, tie the elastic and Kevlar cords together so that the rocket hangs level when held by the screw eye. The final assembly should look like the illustration.

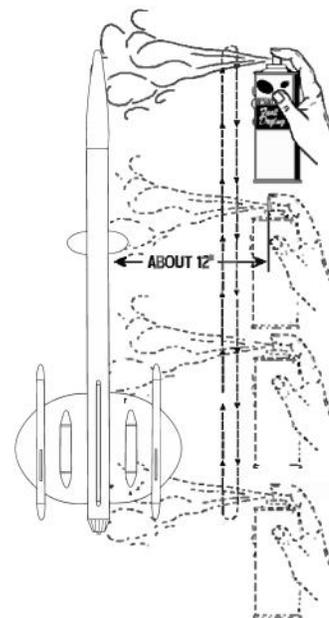


The parachutes are not shown in this view for the sake of clarity.

FINISHING

- ❑ 26. Seal and sand the balsa nosecone of your UFO Invader prior to painting. If you plan to use primer, take care to use light coats so the fiber parts do not warp.

Mount the model on a wooden dowel or other type of support. Using metallic silver paint, sweep back and forth over the model, keeping the can about 12 inches away. Multiple light coats work much better than one heavy coat.



- ❑ 27. After the paint is thoroughly dry, use the photos on the next page to apply the decals.

- ❑ 28. This completes the assembly of your Semroc UFO Invader.

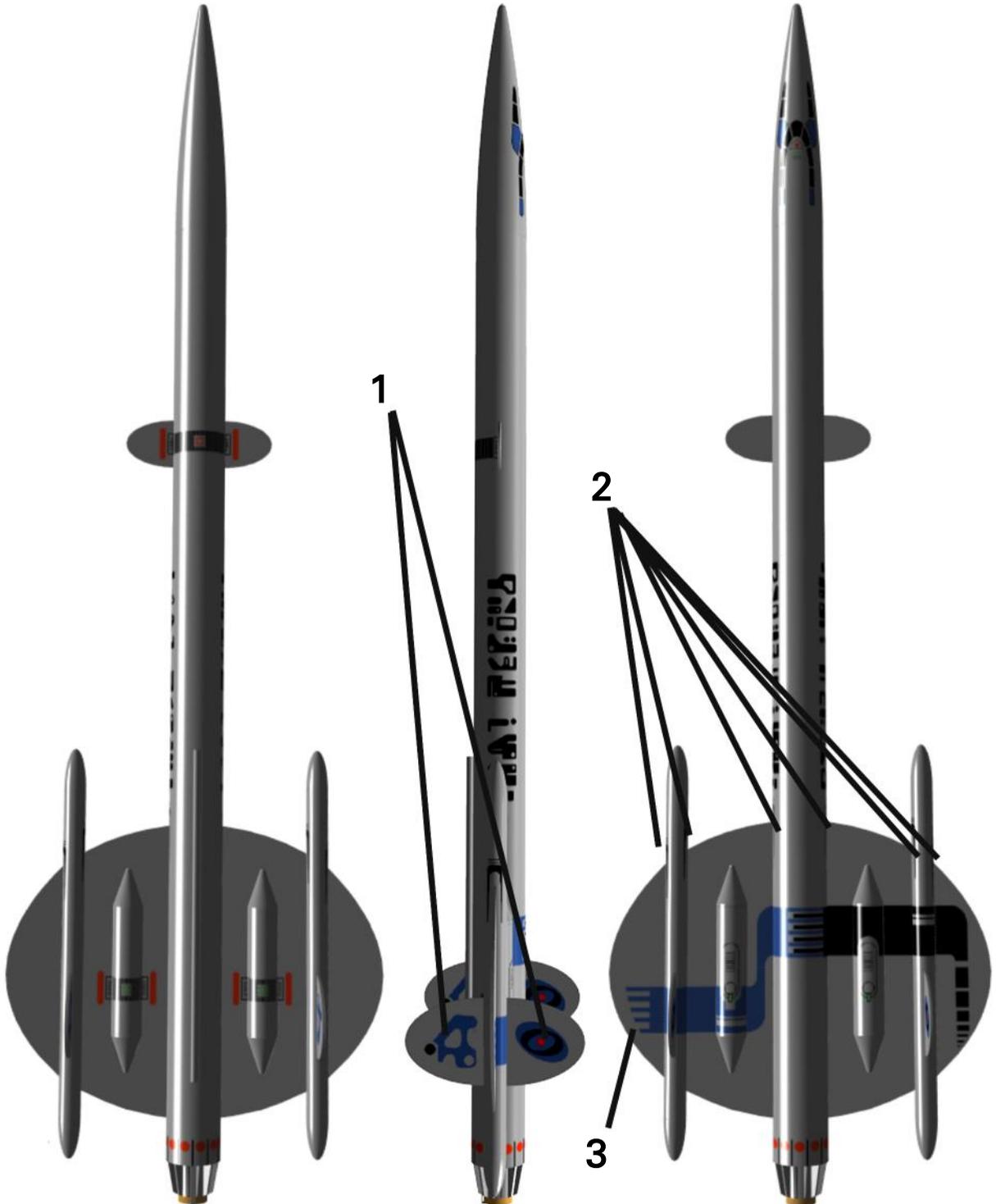
Congratulations!

1. Clean surface free of oil or grease.
2. Dip decal in water, Approx. 10 sec.
3. Have surface very wet for easy sliding into position.
4. Slide decal from paper to proper location
5. Remove all air bubbles.
6. Wash decal to remove excess adhesive.

NOTE 1: Each rudder has an oval emblem on one side, and an alien number on the other side. See photos for relationship.

NOTE 2: There are six vent decals: one for each tube/wing joint.

NOTE 3: The wing stripes are in several separate pieces for easier application. Start applying it where shown below, and work across slowly to avoid ripping the decal.



Parts List

- A. Nose Cone.....BC-1364
- B. Top Airframe Tube.....ST-1330
- C. Body Tube Coupler.....BTC-13
- D. Screw Eye.....SE-10
- E. Center Airframe Tube.....ST-1380
- F. Canards (2).....FCE-5308
- G. Tube Coupler.....HTC-13
- H. Lower Airframe Tube.....ST-13120
- I. Tank Nose Cone (4).....BC-710
- J. Tank Tube (2).....ST-730
- K. Pod Nose Cone (4).....BC-510P
- L. Pod Tube (2).....ST-580
- M. Wing (2).....FCE-5308
- N. Wingtip (2).....FCE-5308
- O. Rudder (4).....FCE-5308
- P. Launch Lug.....LL-2D
- Q. Thrust Ring.....TR-7
- R. Centering Ring Set.....CR-KV-91
- S. Motor Hook.....EH-28
- T. Motor Tube.....ST-730E
- U. Vanes (12).....FCE-5308
- V. Kevlar Cord (2).....SCK-124
- W. Elastic Cord.....EC-124
- X. 12 inch Parachute (2).....CP-12-24
- Y. Waterslide Decals.....
- Z. Main Fin Guide.....
- AA. Canard Fin Guide.....
- BB. Rudder Guide.....

