Kit# 203

AVENGER

Length: 24.5 Inches
Recovery: Twin Parachute
Engine: A, B, C, D, E

Angular Airframe Technology
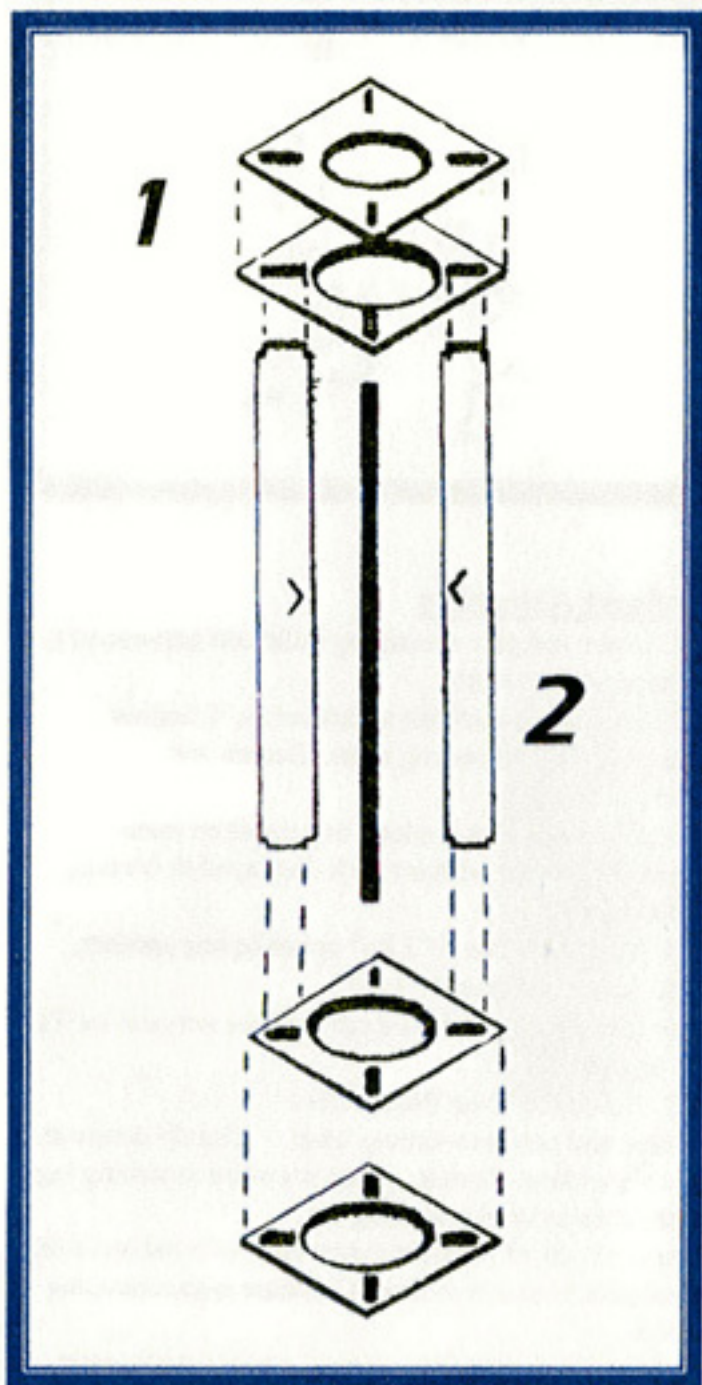**Easy To Assemble**
Standard Engines
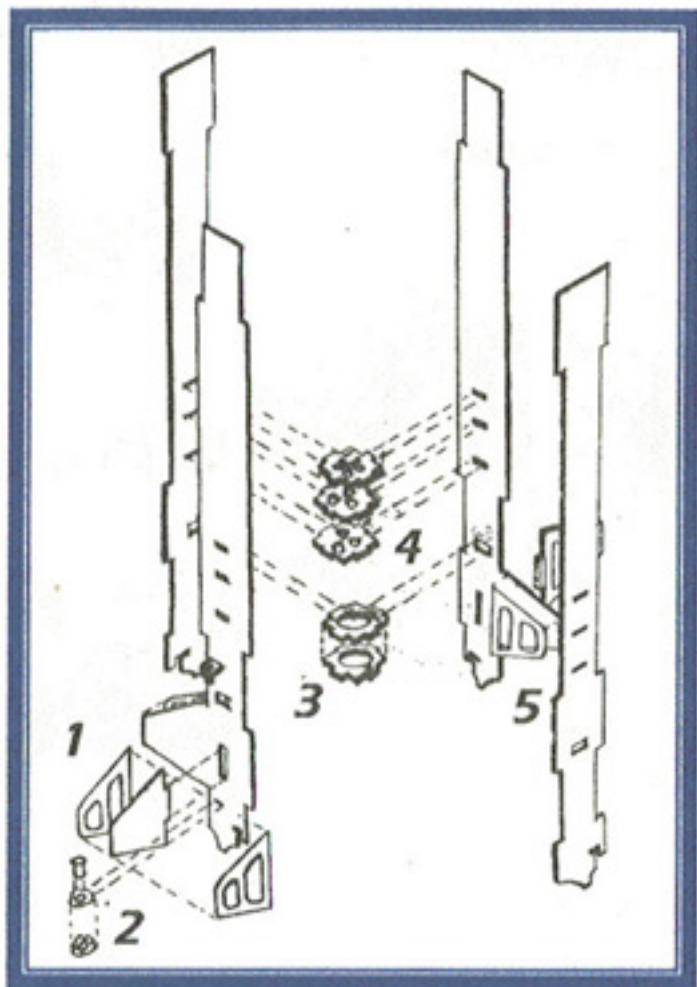**LASER-CUT**

SDI

Kit# 203

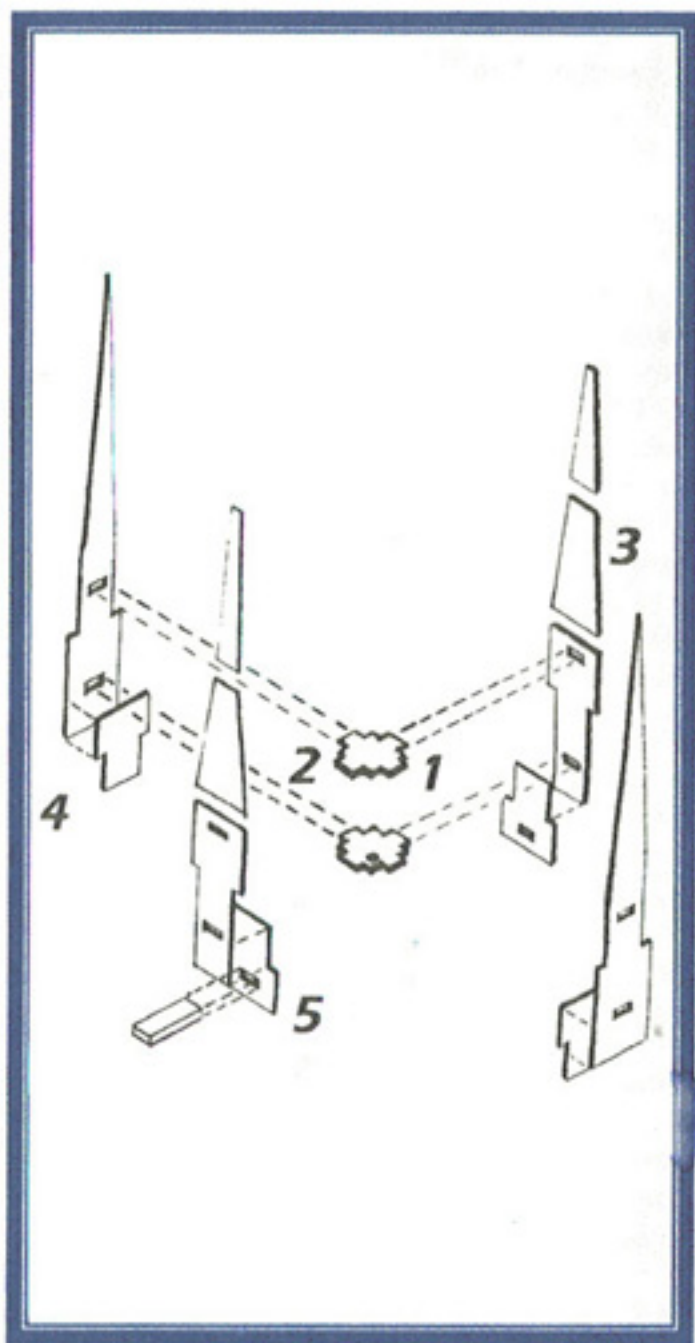# AVENGER

Angular Airframe Flying Model Rocket

SDI

Motor Carriages(2 Mounts)

☐ 1. Glue 2 top sections together face-to-face. Glue 2
bottom sections face-to-face. (For Composite D
mount, ensure that smaller opening is on the top side of
the 2 upper sections.)

☐ 2. Insert four basswood supports into slots and glue.
(For Composite D mount, use supports with the
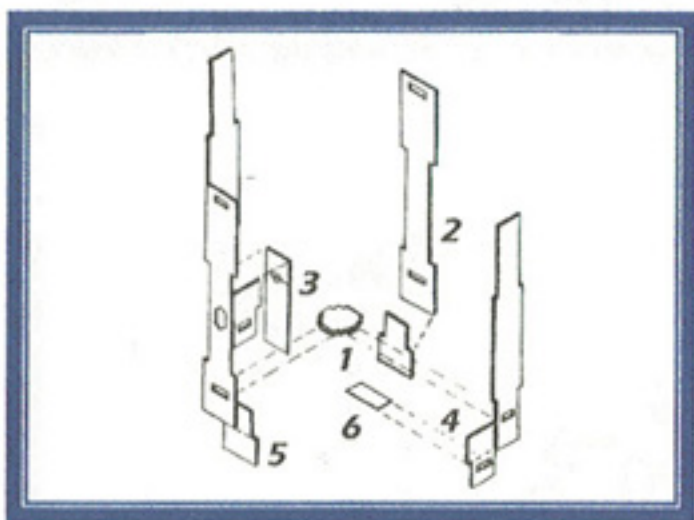arrows. Arrows should point inward.)

Lower Section Assembly

☐ 1. Insert and glue 2 basswood fins into slots of lower section pieces. Glue 1 plywood fin panel to each side of 2 fins.

☐ 2. Glue 4 plywood launch guides together face-to-face to form 2 launch guides. Insert and glue brass eyelet. Once dry, Insert 2 launch guides into slots on side piece.

☐ 3. Glue 2 "M" bulkheads together face-to-face so that the "M's" are directly on top of one another.

☐ 4. Glue 2 shock cord lugs together face to face. Insert into bulkhead "U". Using a square knot, fasten shock cord to the lug. Insert bulkheads into the slots in one of the finless sides. Ensure that bulkhead U is positioned with lug pointing upward. Continue assembly with adjacent sides. Secure with rubber bands until dry.

☐ 5. Glue remaining 2 plywood fin panels to the inner sides of the finned-sides.

Nosecone Assembly

☐ 1. Insert and glue Nose1 and Nose2 bulkheads into one of the short nosecone sides.

☐ 2. Join 2 long pointed nosecone sides to assembly. Glue final side to assembly. Secure with rubberbands.

☐ 3. Gently bend long sides until points touch. Attach middle and upper side nosecone pieces.

☐ 4. Insert and glue 2 "T2's" opposite one another.

☐ 5. Insert and glue 2 "T1's".

Payload Assembly

☐ 1. Insert and glue remaining bulkhead into one of the payload section sides.

☐ 2. Attach adjacent side to assembly. Continue assembly with remaining sides. Secure with rubberbands.

☐ 3. Insert and glue docking bay panel on inside of payload chamber with artwork displayed in docking bay cutout.

☐ 4. Insert and glue 2 "T2's" opposite one another.

☐ 5. Insert and glue 2 "T1's".

☐ 6. Insert short mounting tab halfway into slot on T1-T2 assembly.

☐ 7. Assemble Twin Parachutes:

-Crack and peel a mounting label.   Gently crease at middle without closing. Insert plywood mounting lug with holes in label matching lug.

-Place corner of parachute over edge of label and fold label over to attach mount. Continue with remaining labels.

-Divide 2 included strings into 3 equal lengths each. Use square knots to   fasten each of the string segments to 2 mounts.

-Pull 3 string loops together on each parachute and pull parachute through loops forming a string hitch. Place hitch over inside end of mounting tab on T1-T2 assembly. Tighten hitch.

-Use a square knot to fasten shock cord to tab.

-Repeat hitching steps with other parachute.

☐ 8. Slide mounting tab the rest of the way into the slots and glue.

The Finishing Touch

☐ 1. Insert nosecone into payload section with slots aligned. Slide remaining mounting tab through slots(DO NOT GLUE NOSECONE OR TAB TOGETHER ELSE PAYLOAD SECTION WILL BE INACCESSIBLE).

☐ 2. For the best possible surface finish, sand all outer surfaces of rocket assembly with 400 grit sandpaper followed by 600 grit sandpaper.

☐ 3. Grasp each parachute, one at a time, at each center point. Pull strings downward so that the parachute forms a triangle. Fold parachute over and over upon itself into smaller triangles. Fold point of triangle over onto string mounts. Insert into rocket body.

☐ 4. Insert nosecone/payload assembly into body. If nosecone is loose, glue paper shims on sides of nosecone inserts.

☐ 5. In light coats, apply spray paint to outer rocket surfaces using an even sweeping motion. Allow time between coats for paint to dry thoroughly. Continuing applying light coats until desired finish is achieved.

To Launch...

-Insert Motor:

-A,B,C: Select appropriately labeled motor carriage. Insert motor into carriage assembly. Insert carriage into lower end of rocket body until it makes contact with bulkhead M. Select Teflon motor lock with smaller opening. Place lock flat against the lower end of the motor. Rotate lock so the four tabs are positioned into each of the four slots.

-Composite D: Repeat above instructions with appropriately labeled motor carriage.

-D, E: Insert motor into lower end of rocket body until it makes contact with bulkhead M. Select Teflon motor lock with larger opening. Place lock flat against the lower end of the motor. Rotate lock so the four tabs are positioned into each of the four slots.

-Insert igniter and plug.

-Insert two sections of recovery wadding into rocket body gently pushing it down to bulkhead U. Fold parachutes, as before, and insert one over the other.

-When engaged in any practices with your model rocket, always heed to the National Association of Rocketry MODEL ROCKETRY SAFETY CODE.

This is our Story---Avenger

It is a wonder that many people spend their entire lives on a curved surface and take little or no notice of it. Geometry tells us that the shortest distance between two points is a straight line. This, however, is used by most people on Earth without much concern for the planet's spherically curved surface. Their simplistic thoughts lack this element of dimension. Turn it around, though, and they will make note of it. If all of humanity were to be suddenly placed on the inside surface of the Earth or some other similarly curved surface, the edge of the mind would be doubtless affected and take immediate notice of its "unflat" environment.

It has been a long two months since we left our decaying home. I now feel I have adjusted to my new environment and am prepared for the even longer journey to our new home, Lenara. I have noticed that many of my coexistants on this gigantic colony vessel aptly named Goliath have also faced many challenges in adapting themselves to life aboard this ship. Personally, I recall some of my first sensations of disorientation being caused by the basic layout of the living habitats themselves. The designers on Earth made the decision to place all of the living quarters upon the curved inner surfaces of the ship. With the ship propelled through space spinning on its laterally centered axis, an artificial gravity well is created upon the inner surfaces of the vessel. I suppose the design works in theory but, upon enduring it, I have to confess that I do not feel as though I am just living in a building back on Earth as we were reassured by the scientists. In my quarters, as I am sure it is with others in their own quarters, the illusion can be quite convincing. However, once the door of my room slides open, I am reminded of my artificial environment and the limitations that come with it. The corridors are angled relatively upward, conveying the ships confining truths.

"Computer, save log entry."

Commander Hannibal Maxwell finished downloading the file from the small borgenic implant protruding slightly from the left side of his forehead. He grasped the interface connection with his right hand and unplugged the cable, laying it down on the surface of his desk. How long had it taken him to become used to this type of communication with computers?

He recalled the day he received his first borgenic implant. It was the day he had enlisted in the armed forces. It was a simple process. The initial introduction of the implant was administered with a hypodermic needle inserted into the skin on the back of the right hand. After the introduction of the device, it attached itself to a nearby bone and began crystallizing into an interface, protruding from the skin's surface, which is adaptable to any computer on the planet. For individuals who do not have or have lost their right hand, the implant is introduced into the forehead. Hannibal was one of the latter. He lost his right arm in training operations for the elite special forces division and as a result received a replacement implant in his forehead.

Even after ten years, he still felt some remorse over the loss of his limb. His life could have been much different had he made the special forces. However, there was no way of knowing that he would still have qualified for one of the few available positions. Still, he would have had that chance. But dwelling on it, as Hannibal had reminded himself countless times in the past, would not change anything. He needed to accept his situation and make the best of today. He was headed for a new world, a fresh start; what more could he ask for? He could still remember the day they had left Earth and would probably always remember that day for the rest of his life.

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Early the day they had departed from Earth, the over 200 passengers had been called together

for one final briefing before boarding Goliath. Hannibal stepped into the large auditorium already filled with most of the colonists. It was early, clearly the reason for the uncharacteristic silence of this size of gathering. The quiet was probably also due in part to the expectations and uncertainties of the impending trip.

Hannibal politely excused himself as he passed in front of the row of legs between the aisle and an open seat in the second row. As he sat down, he scanned his immediate surroundings. Seated on his left was a lady who, he judged, was in her late twenties. Next to her were a young boy and a young girl. These were most likely her children. On Hannibal's right, sat a man of different sorts. In desperate need of a shave, he was dressed in a plaid tee-shirt and blue-Jean overalls. It was no exaggeration when they said that there would be a diverse set of individuals on the colony ship. This man was definitely the needle in their haystack. He did not look like what one visualized when they thought of a planetary colonist. But then they had all been forced into becoming colonists. The only other choice was to remain on Earth and face an inevitable death as the planet continued to change.

"Howdy, neighbor," addressed a southern drawl from Hannibal's right, "How ya doin'? Name's Pixford. Henry Pixford."

"Good morning, Mr. Pixford," replied the retired military commander.

"Henry. Call me Henry."

"Good morning, Henry," corrected Hannibal with a tinge of impatience. It was a little too early for this. Hannibal was here for the briefing, that was all.

"Ain't this excitin'. Gonna lay down claim to some new homestead, you could say, huh?"

"Yes, Henry."

The low rumble that had developed in the auditorium conceded to silence as a voice came over the loudspeaker, "Ladies and gentlemen, may I have your attention."

The room was quiet, everyone hanging on the next words to be spoken.

"The journey you are about to take is a journey already embarked upon by thousands of others like yourself. Your mission is to ensure the continued existence of the human race; to spread your seed throughout the galaxy. You are the future."

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That was the startling truth. The future of the human race lay in their hands. If their ship was the only one to successfully reach its destination, they would be the final remnants of an age-old legacy and they may never know the fate of the other colony ships. Even with all of this ship's technology, there was no guarantee that they would successfully reach their destination.

Sitting at his desk, Hannibal rubbed his forehead, his hand brushing the edge of the borgenic implant, a constant reminder of the sheltered life that was provided for him. He wondered how many others on Goliath felt the same psychological discomfort that accompanied the knowledge that their lives were constantly being monitored by a computer. Sure he had had ten years to adjust to his borgenic implant, but all of the others on board besides those with previous military experience, as himself, had been given borgenic implants just prior to leaving on their voyage. He knew exactly the feelings they were experiencing as the implants developed and eventually pushed through the skin's surface to become a constant reminder to its host.

Hannibal stood and pushed a button near the door, sliding it open. Hannibal stepped outside his quarters, making the slight adjustment to the relative tilt of the corridor, and proceeded down

the hallway to the common area. Located about 20 meters from his living quarters, the common area was a gathering place for anyone on board who was interested in the company of others on their colony ship. As Hannibal entered the common area, he was greeted by a familiar voice.

"Howdy, neighbor," called Henry, "Come and join us, will you?"

"Good afternoon, Henry."

"How can you tell? Since we left Earth, I've lost all track of time in this old sardine can of a ship."

Henry was definitely a colorful individual, both in his manner as well as his clothing. He was, Hannibal had concluded long ago, a valuable asset to the group of colonists on Goliath. With Henry, it seemed as though there was always something interesting. He had a unique way of viewing their situation and a singular way of verbalizing it to others. Henry had become that spice in their lives which would be missed if absent.

Hannibal craned his neck upward toward where the ceiling would normally be in any civilized construct. Instead of a ceiling, his eyes registered the large number of people gathered in the curving common area on the opposite surface of the ship. Hannibal still got slightly light-headed at the sight although the sight has never again bothered him as much as it did those first few times. To comfortably facilitate the maximum number of individuals possible in the smallest amount of space, the designers of Goliath had constructed the common area to circumscribe the interior of the colony ship. Although this design provided a comfortable amount of space for people to move around in, it could be quite unsettling for the stomach as a person looks up and observes another person, held in place by the artificial gravity well, staring back down on him/her.

"Why are there so many people here right now?" asked Hannibal as he turned back to face Henry.

"Today, we rendezvous with the Avenger Advanced Base Rocket. Didn't you get that memo?"

"Oh, yes. I've had so much on my mind lately, I forgot."

Henry pressed the button on his chair's right armrest. Immediately a small screen extended from the arm and rotated into position in front of Henry. Reaching over with his left hand, Hannibal did likewise, glancing around and noticing that most of the other's screens had already been activated.

"Initiating ship securing process. Please standby," came a low raspy voice over the ship's comm. system.

After a brief pause, belts extended from each of the chairs, securing their inhabitants. Following shortly after that, Hannibal felt himself becoming lighter as Goliath slowed its spinning motion to prepare for the docking procedures. All of the screens in the common area were filled with the vague images of light against a black background.

Hannibal was reminded of the countless informative lectures which they had been given prior to their departure. The scientists tried to explain, in laymen's terms, the intricacies of interdimensional space travel. Much of the information had been presented in slow boring lectures. Hannibal had not grasped much of the material, but he did get enough to understand that what he was seeing, on his viewscreen, was not light created from passing stars. Goliath was traveling in a domain existing between two separate universes. Each area of light, resembling an ink blot in a psychological exam, was created by the black hole of one universe. This black hole assimilates

matter from one universe and translates it into a hydrogen derivative in the other universe, thus creating a nebula which eventually coalesces into one or more stars.

As a result, it is necessary for Goliath to navigate around these hydrogen streams. This is one of the major reasons that their voyage to Lenara will take two years. Goliath has been designed to traverse the distance in small jumps, making the necessary course adjustments at each new interval. To act as a guide and temporary supply depot, the Avenger Advanced Base Rocket is sent ahead to act as a homing beacon for the colony ship.

Gradually, as Hannibal recalled the information, a small object appeared on the black background of the screen. It grew larger and larger as the minutes passed, each of the Avenger's features coming into view. As they neared the rocket, it appeared to rotate. Whether this rotation was due to the Avenger's propulsion systems or Goliath's was indiscernable by anyone in the Common Area. The Avenger continued to fill the screen as the docking bay came into view of the camera, each docking light casting a different shadow on the uneven surface. Then the screen went blank as the docking process was completed.

This was the first time that Goliath had slowed to dock with one of the Advanced Base Rockets. Hannibal decided that he would make a concerted effort to appreciate his surroundings more in the future. It surely beat this zero gravity stuff. As Hannibal looked around, he observed many individuals who looked on the verge of losing their most recent meals. He turned to Henry and received only a cocky southern smirk in return. Henry is obviously enjoying this. That much is for sure.

"Feels alot like one of them rollercoaster things, huh?" commented Henry.
Hannibal simply stared back at him in honest disbelief.