

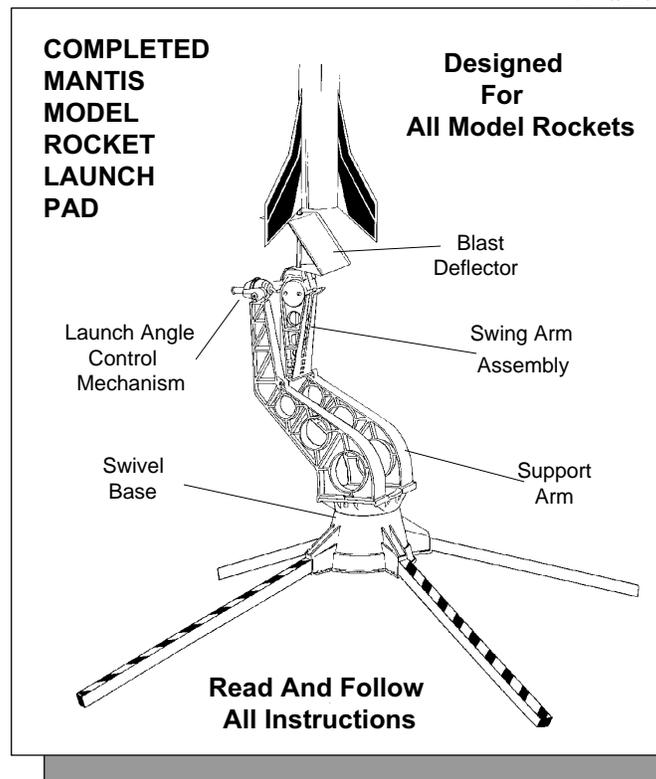
MANTIS™

MODEL ROCKET LAUNCH PAD

Assembly and Operation Instructions

READ THIS BEFORE YOU BEGIN:

- Study the illustrations and sequence of assembly. The sequence of assembly is important. Review the parts list and become familiar with all parts before assembly. If any parts are missing or damaged, contact RCS at 1-435-865-7100 or email at warranty@erotech-rocketry.com.
- If you wish to paint any plastic part of the MANTIS Model Rocket Launch Pad wash the part in a mild detergent solution to remove oils left from the manufacturing process.
- Always launch model rockets by use of an electrically operated launch controller.
- Read and follow the Model Rocket Safety Code of the National Association of Rocketry (NAR) and comply with all federal, state and local laws in all activities with model rockets.



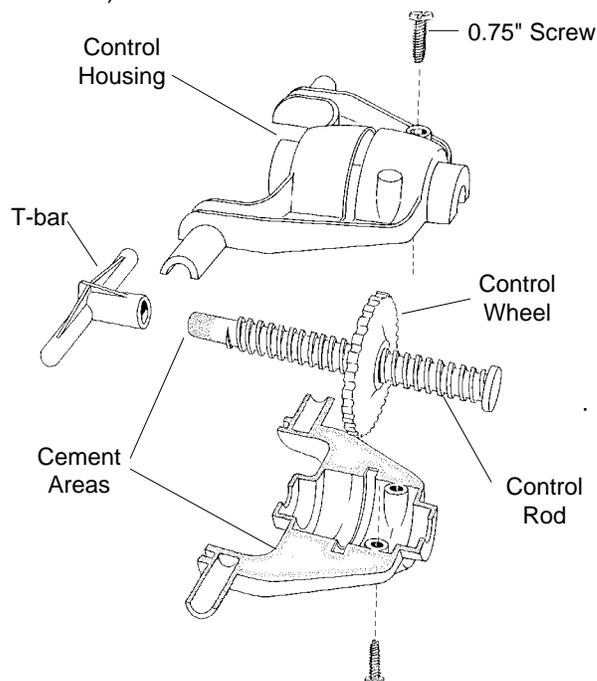
PARTS:

Control wheel (1.5" diameter)	(95010)	1	Leg caps	(95040)	4	Large wing nuts	(95031)	2
Control rod (3.5" long)	(95009)	1	Support arms	(95003)	2	Caution sticker	(99205)	1
T-bar	(95008)	1	Swing arms	(95004)	2	0.75" screws	(95030)	2
Control housing (2 piece)	(95005)	1	Launch rod adaptor disks	(95006)	2	0.50" screws	(95037)	2
Ribbed disks (3.75" diameter)	(95007)	2	Launch rod-1/4" -Male	(95023)	1	1.75" bolts	(95036)	2
Steel disks	(95020)	2	Launch rod-1/4" -Female	(95024)	1	Small lock washers	(95035)	2
Base	(95001)	1	Angled blast deflector	(95022)	1	Small wing nuts	(95032)	2
Swivel head	(95002)	1	Cord clips	(95041)	2	5" bolts	(95034)	2
Leg holders	(95011)	4	Rocket support	(14002)	1			
Aluminum legs (18" long)	(95021)	4	Large lock washer	(95033)	1			

ASSEMBLY INSTRUCTIONS (Use liquid solvent type polystyrene cement)

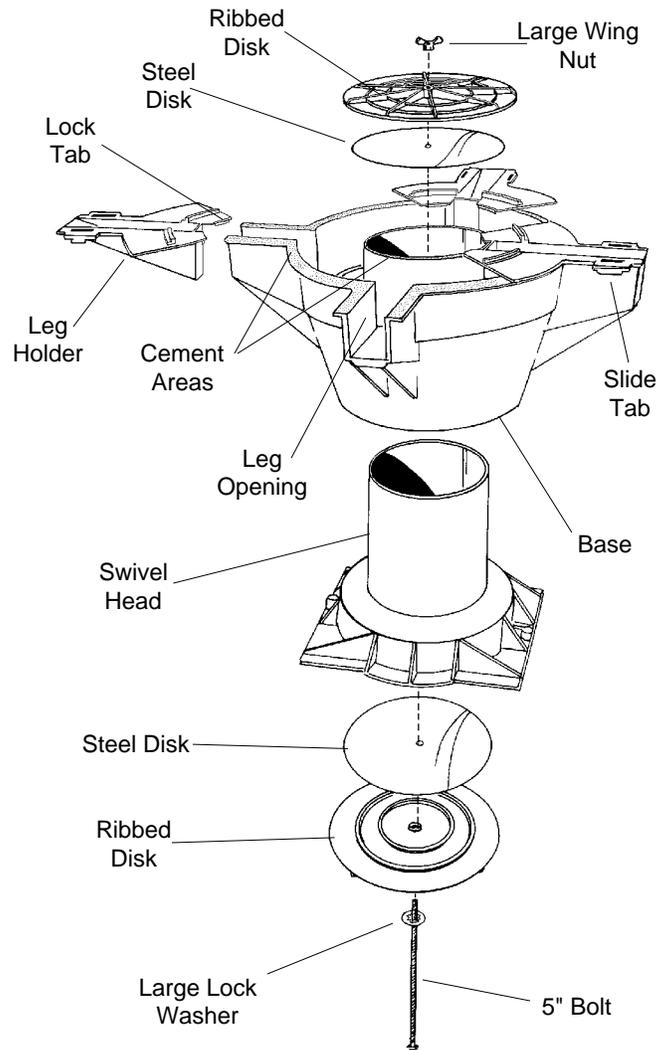
LAUNCH ANGLE CONTROL MECHANISM

1. Screw the control wheel onto the control rod. Position the wheel at the mid-point of the rod.
2. Cement the T-bar onto the narrow end of the control rod.
3. Place the control rod and control wheel assembly into one of the control housing halves as shown. The control wheel fits through the slot in the housing. (**NOTE:** The T-bar should be positioned toward the "C" shaped end of the housing.)
4. Run cement along the edge of the control housing as shown. (**CAUTION:** Be careful not to get cement on the wheel or rod.) Place the other half of the control housing over the rod and wheel assembly and secure the two housing halves together with the two 0.75" screws. Use rubber bands to keep the housing halves tightly together and set the launch angle control mechanism aside to dry.



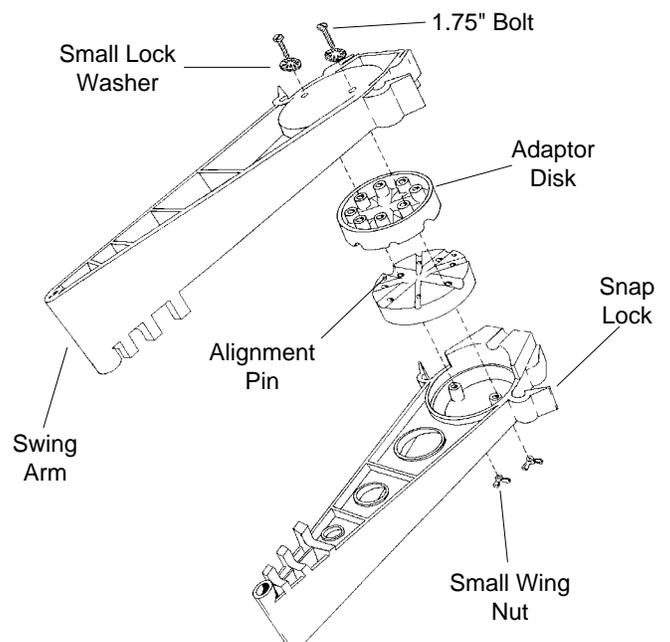
LAUNCH PAD SWIVEL BASE

- Slide the leg holders into the openings of the base until the small lock tabs snap into place over the central core. Make sure that the two small slide tabs on each holder slide over the flanges on the sides of each opening. Insert the aluminum legs into the leg openings to check for proper fit. If the legs do not slide into the leg openings easily, remove the leg holders and sand down the three bumps on each leg holder until a snug leg fit is achieved and each leg slides into the opening as far as they can go (about 3"). When this adjustment is completed, remove the legs and leg holders, apply liquid cement everywhere the leg holder touches the base and slide the leg holders back into position.
- Insert the swivel head into the base.
- Slide a 5" bolt through a large lock washer, a 3.75" ribbed disk, and one of the steel disks. (**NOTE:** The straight ribbing of the ribbed disk should be facing toward the lock washer and bolt head.)
- Position the disk and bolt assembly into the recessed area of the swivel head and guide the end of the 5" bolt through the other steel and ribbed disks. Position the disks within the circle formed by the curved ribbing on each leg holder. Screw a large wing nut onto the end of the 5" bolt and tighten loosely. (**NOTE:** The straight ribbing of the ribbed disk should be facing toward the wing nut.)
- Push a leg cap onto one end of each aluminum leg.
- Insert the uncapped ends of the four aluminum legs into the openings of the base as far as they will go (about 3"). If the legs do not slide in easily, use an emery board to sand down the first small bump on the inside of each leg holder opening.
- Tighten the swivel base wing nut until the parts are secure. Place the swivel base upright.



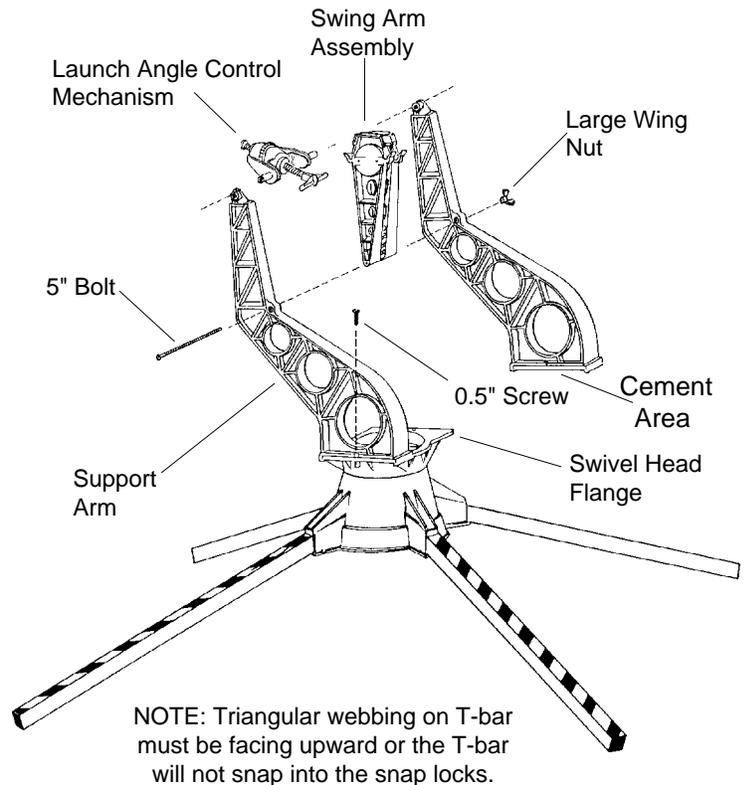
SWING ARM ASSEMBLY

- Join the launch rod adaptor disks so that the alignment pins match with the alignment pin holes. **DO NOT** cement the adaptor disks together.
- Place the joined adaptor disks into the circular recess of a swing arm. Align one of the two large diameter adaptor channels (for the 1/4" diameter launch rod) with the channel at the top of the swing arm. (**NOTE:** Make sure that the two screw holes in the swing arm are aligned with two screw holes in the adaptor.)
- Place the other swing arm over the adaptor disks. Put a small lock washer onto each 1.75" bolt and put the bolts through the swing arm/adaptor assembly as shown. Secure the swing arm assembly with two small wing nuts. Tighten loosely.



LAUNCH PAD UPPER STRUCTURE

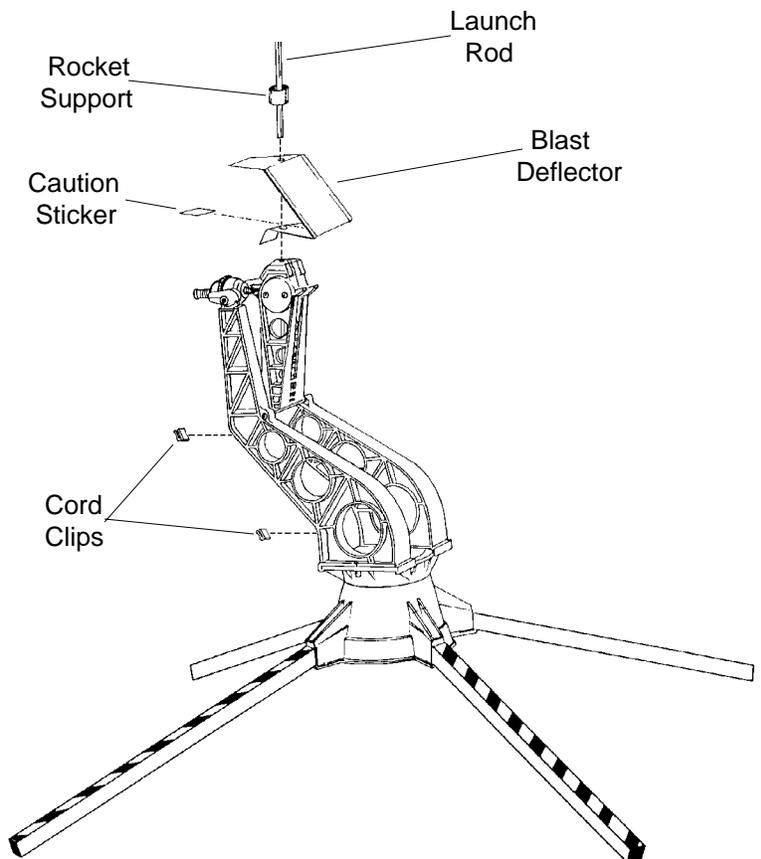
1. Apply cement to the bottom surface of a support arm and slide the arm onto one of the flanges of the swivel head. Secure the support arm to the swivel head with a 0.5" screw.
2. After removing the rubber bands, position one of the rotation pins of the previously assembled launch angle control mechanism into the hole at the upper end of the support arm. Apply cement to the bottom surface of the other support arm and slide it onto the swivel head and onto the other control mechanism rotation pin. Secure the support arm with the other 0.5" screw.
3. Line up the bolt hole at the bottom of the swing arm assembly between the bolt holes in the middle of the support arms. Pass a 5" bolt through these holes. Secure with a large wing nut.
4. Rotate the swing arm assembly upward and snap the launch angle control mechanism T-bar into the snap locks at the upper end of the swing arm assembly. (**NOTE:** The triangular webbing along the length of the T-bar must be facing upward or the T-bar will not snap into place.) In the event one of the snap locks should ever break, remove the swing arm assembly, turn it around and re-attach.



LAUNCH ROD AND BLAST DEFLECTOR

CAUTION: Handle the launch rod carefully to avoid eye injury.

1. Slide the launch rod half with the female coupling, unmachined end first, into the top of the swing arm assembly, through the launch rod adaptor, and down through the first hole at the bottom of the swing arm assembly. Tighten the small wing nuts of the swing arm assembly until the launch rod is secure. (**NOTE:** If the rod will not slide in easily, loosen the two small wing nuts.)
2. Slide the blast deflector down the launch rod and press the short tab on the bottom of the deflector into the slots at the top of the swing arm assembly.
3. Screw in the other half of the launch rod. Sand the joint of the two rod halves with fine sandpaper to remove any burrs.
4. Remove the paper backing from the cord clips and press the clips into position, as shown, onto the back surface of one of the support arms.
5. Apply the caution sticker to the blast deflector where shown.
6. Slide the rocket support down over the launch rod to rest on the top surface of the blast deflector.



OPERATION INSTRUCTIONS

1. **LOADING:** To load a rocket onto the launch pad, release the T-bar from the snap locks and rotate the launch rod down toward the ground. (**CAUTION:** Before releasing and moving the launch rod be sure that no one is standing in or approaching the area where the launch rod will swing down into.) Slide the model rocket along the launch rod until the rocket rests on the rocket support. The rocket support keeps fins clear of the blast deflector and reduces exhaust "backblast." Return the launch rod to the vertical position and snap the T-bar into the snap locks.
2. **LAUNCH ROD ANGLE AND DIRECTION:** Turn the control wheel to set the launch angle. Rotate the swivel head to set the launch direction. If there is no wind, adjust the launch rod to the vertical position. If there is a breeze, rotate the swivel head until the front surface of the blast deflector faces into the wind and then turn the control wheel to set the desired angle into the wind. (**NOTE:** Never launch a model rocket when the wind speed is above 20 miles per hour or the launch angle is more than 30° from vertical. The MANTIS Model Rocket Launch Pad will not angle more than 15° from the vertical.)
3. **MOTOR IGNITION:** Only launch model rockets by use of an electrically operated launch controller. The clips on the back side of one of the launch pad support arms are there to hold the launch controller cord leading to the igniter clip. These cord clips keep the igniter clip off the ground and within easy reach, and they reduce the pull on the igniter. When attaching the igniter clip to the igniter, run the controller cord to the base of the rocket from the back and over the top of the blast deflector. Angle the igniter lead back over the top of the blast deflector as well. This arrangement will keep the igniter clip and controller cord away from the rocket motor exhaust.
4. **LAUNCH AREA:** Launch model rockets in a cleared outdoor area free of tall trees, power lines, and buildings. The size of the cleared area should be appropriate for the size model rocket and motor being used. An area for a radius of at least 5 feet from the launcher should be clear of dry grass or other flammable substances.
5. **TRANSPORT AND STORAGE:** Unscrew the top half of the launch rod. Loosen the two wing nuts on the bolts through the upper part of the swing arm and remove the lower portion of the launch rod. Remove the launch pad legs. Wrap a small piece of cloth around the machined ends of the launch rods to prevent damage and store the rod pieces in a horizontal position.
6. **DIFFERENT LAUNCH ROD SIZES:** The MANTIS Model Rocket Launch Pad is designed to accommodate 1/8" and 3/16" launch rods as well as the 1/4" rod that comes with the launch pad kit. To change launch rods, simply remove the two bolts at the upper end of the swing arm assembly, remove the rod in place, rotate the adaptor disk to the hole size of the new rod, insert the new launch rod into the adaptor disk, re-insert the two bolts, and secure the rod in place with the two wing nuts. (**CAUTION:** Whatever launch rod you use, be sure its length from the top of the blast deflector and its diameter are appropriate for the size and weight of the model rocket being flown.)
7. **PRE-LAUNCH CHECKOUT:** Before each launch session make sure that the launch pad is in proper working order. Check that: wing nuts and screws are secure, legs are inserted all the way into the swivel base and do not slip, there are no broken or cracked parts, and the T-bar of the launch angle control mechanism snaps into the swing arm assembly snap locks securely.

AEROTECH produces a full line of advanced model rocket products. See your AEROTECH model rocket dealer or contact AEROTECH for more information.

NOTICE: As we cannot control the storage and use of our products, once sold we cannot assume any responsibility for product storage, transportation or usage. RCS shall not be held responsible for any personal injury or property damage resulting from the handling, storage or use of our product. The buyer assumes all risks and liabilities therefrom and accepts and uses AeroTech/RCS products on these conditions.

No warranty either expressed or implied is made regarding AeroTech/RCS products, except for replacement or repair, at RCS's option, of those products which are proven to be defective in manufacture within one year from the date of original purchase. For repair or replacement under this warranty, please contact RCS. Proof of purchase will be required. Note: Your state may provide additional rights not covered by this warranty.