

These models are for your personal use and not for resale. They are designed with stiffness needed using 6mm depron foam only and Aerotech E-6 24mm rc rocket motors only. The motors are available from dynasoarrocketry.com

Refer to the pictures on how they go together, it is expected you are comfortable with an aileron controlled airplane at speeds of 60-70mph, and that you have scratch built models before.

Parts required:

6mm depron for wings/tail/horiz stab/canopy

21.5" long estes PSII 3" body tube

.039 music wire for pushrods

Two rail buttons/weld style or brad head t nuts for mounting the rail buttons

Two wing skids(dubro or great planes) for the bottom of the fuse to protect from landing.

Blenderm tape

Receiver(I used AR-400)

1s 450-500mah battery

Adapter wire to connect the battery to the receiver

2 Servo extensions to reach the front of the model to connect the receiver, length depends on the servo wires.

24mm motor mount tube with motor hook if desired.

3mm or 1/8" carbon rod for wing spar

1/8" carbon rod for pivot rod for tail surfaces

.125ID aluminum tube for the pivot for the tail surfaces.

Dubro micro servo control arms, these are drilled out and glued on the torque tubes for the tail surfaces.

Print out the parts tracings, they have a 6" ruler to be sure there is no shrinkage of the tracing, print with no margins and no page scaling.

Cut out depron surfaces, the Mig 19 wing can be joined in the middle since it has a spar and goes through the body tube which helps support it. The A-7 wing should be cut in one piece.

Cut V slots in the bottom of the wings for the spars, and drag them through the slots so that they fit. Then use foam safe CA+ to glue in the spars and then tape over with blenderm tape.

Mark the body tube every 90 degrees and draw lines full length with pencil.

Mark and cut the body tube for the vertical stab and wing. Note the A-7 wing glues on top of the fuse so you don't need to slot it.

You can round the depron surfaces with 320 or 220 grit sandpaper before assembly.

Glue in the vertical fin so that it seats flush on the bottom of the inside of the fuse and the top of the fuse, put a fillet inside and outside with foam safe CA+. Glue in the motor tube in the slot in the fit, make sure it is centered.

Glue in the wing make sure it is centered, spars will face down. On the A-7 glue the wing under the front tab of the vertical fin and on the top of the body tube, make sure it is straight and perpendicular to the vertical fin. On the Mig 19 it may be necessary to cut the slot slightly longer than required on one side to allow the wing to insert and rotate, you can then glue back a piece of the cutout slot to cover the gap or use some spare foam.

Mark the location for the 1/8" pivot rod on each side of the body tube and push it through the vertical fin tab to the other side. Make sure it is perpendicular to the body tube and aligned with the wing.

Cut aluminum torque tubes about 1/4" longer than the distance across the fin. V groove the bottom of the tail surfaces and drag the aluminum tubes in the slots till they fit easily and don't warp the surface. Drill out and glue a servo arm on the end of each aluminum torque tube. Using foam safe CA+ glue in the torque tube into each control surface, the arm will point down on the Mig 19, and up on the A-7 relative to the top surface. Cut two 1/8" long pieces of aluminum tube to act as retaining caps.

Slide the control surfaces onto the pivot rod and cut the rod so that 3/16 to 1/4" extends past each side of the control surfaces. Cut the rod to length and glue it in the body tube, centered. Use foam safe CA+ from the inside of the body tube only, don't get any glue on the outside of the carbon rod.

Make two pushrods approx. 6" long, with a z bend on the end, Install the pushrod into the third hole from the furthest end of each stab servo arm. Pushrod goes in from the inboard end of the control surface so that the wire is closest to the body tube and doesn't interfere with the control surface when it moves.

Slide each control surface onto the pivot rod and install a 1/8" cap on each end, use a very small amount of CA+ on each end to lock the retaining ring in place, do not get any glue into the pivoting parts or they will be useless.

Cut slots into the body tube for the servos, so that the pushrod is aligned straight, on the Mig 19 the servos are behind the wing trailing edge with the servo arm pointing downward, I used screws into the body tube to hold them in place. On the A-7 the servos are underneath the wing, the servo will inset into the body tube partially and glue to the bottom of the wing so that the pushrod is straight.

Bend the other end of the pushrods so that the z bend aligns with the servo arms when centered, then install the servos and screw or glue them in place. Make sure to attach servo extensions so that they

exit the front of the body tube and can attach to the receiver. Power everything up and center the control surfaces. I used servo arms on the servos that are around 5/8" long so that there is plenty of throw.

Sand and install the canopy/spine as appropriate for the model.

I used 125% rate on the pitch and 100% on roll for the models, that gives 1.5" movement at the TE for pitch and 1" for roll.

Set up the surfaces so that they are neutral for the first flight. I used no pitch setting for the A-7 and a very slight amount of up trim for the Mig 19.

Set up your radio on the flap setting and switch so that the elevators are 1/4" to 3/8" of up trim for glide to start.

For the A-7 I cut a 1" long piece of bt-70 or PS-2 2" tube to the top front inside of the body tube. You can then get a short ogive nose cone to simulate the radome or laminate depron/foam and sand it to shape. Each model required 1/2 to 3/4 oz of nose weight, so if the cone is around 1/2 ounce that is fine. The cone just pushes into the small body tube piece so that it is removable to get access to the receiver as needed.

Velcro the receiver to the top inside of the body tube and Velcro the receiver battery to the front bottom inside of the body tube.

I mounted two wing skids into the bottom of the body tube about 3" from each end to help protect the tube from landing damage. I mounted the rail buttons using t nuts without prongs on the inside of each body tube end offset to the side so that they don't hit the ground on landing but the rail will not interfere with the control arms on the tail surfaces or servos.

I use trim vinyl for markings, stickershock23 does great custom markings. I used a fine sharpie pen for panel lines and did not paint the Mig but left it white. If you paint the models, paint adds weight so be light. I only recommend testors small rattle can or model master small rattle can enamel only, and spray from 18" away from the foam or you risk melting it.

Once you apply the vinyl markings use a hot hair dryer to soften it and push it down with your finger and it will conform nicely even over paint.

Install a loaded motor and balance as per the model specifics, do not fly them tail heavy.

Ensure the surfaces are neutral and launch straight up, keep control of the model, keep it going vertical and counter any roll, as the motor burns out push over horizontal and flip in the up trim. Trim as needed for a gentle glide, set up for landing and flare for a soft landing.

Good luck!

A-7

Vertical Tail Slot  $\frac{3}{4}$ " from rear of body tube to  $5 \frac{1}{16}$ " from rear of body tube.

Pivot rod location  $2 \frac{1}{2}$ " from rear of body tube

CG location  $9 \frac{7}{8}$ " from rear of body tube

Mig 19

Wing slot location 4" from front of body tube to 13" from front of body tube

Vertical Tail Slot  $\frac{1}{2}$ " from rear of body tube to  $4 \frac{5}{8}$ " from rear of body tube.

Pivot rod location  $2 \frac{1}{8}$ " from rear of body tube.

CG location  $10 \frac{1}{4}$  from rear of body tube.