

LONG SHOT – BASE KIT ESTES #2128 CUSTOM MODIFICATIONS

Modification 1 – This bash is a redesign for flying on 18mm motors in both stages. The increased weight of the rocket limits the motor options for this bird.

Stage 1: C6-0

Stage 2: B6-2, C6-3

Parts List To Substitute Or Add

- (1) 18mm motor mount/stuffer tube, BT-20 - 18", for the upper stage.
- Use HBT-760 intended for upper stage, heavy duty BT-20, in booster.
- (1) 70mm motor hook and 5/20 thrust ring for first stage.
- (2) HD 760/56 HD rings substituted for the 50/56 HD rings. Used in the booster.
- (1) additional 760/56 HD ring used on second stage stuffer tube.
- (1) additional 20/50 HD ring used as first stage thrust ring.
- (1) 20/50 HD ring used to anchor engine hook in booster.
- Clay for nose - ½" of stick

First Stage Instructions

- Glue motor thrust ring flush with forward end of 760 tube.
- Cut slot for engine hook ¼" from front of 760 tube, against block.
- Glue (1) 20/55 ring over very end of motor hook about ¼" from rear.
- Peel inner layer of paper from 20/50 ring so it will slide over 760 tube and motor hook.
- Glue 20/50 ring 1 ¼" from rear of 760 tube.
- Cut slot ~ 1/8" deep into 20/55 ring to allow movement of motor hook.
- Glue this ring ½" from rear of 760 tube.
- Glue this assembly into booster BT-56 body tube, 3 ¾", tubes flush at rear so motor hook protrudes ~3/8".
- Glue stage coupler 1" into forward end of booster body tube, against motor mount.
- Coat all interior areas of booster forward of the thrust ring with epoxy.
- Glue booster fin unit onto booster tube, rear flush with aft end of body tubes.
- Drill two opposing ¼" holes through booster stage tube ½" from front of booster tube. (Not from the front of the coupler. Holes must be 180 degrees apart around diameter to prevent vectoring upon ejection gas discharge!)

Second Stage Instructions

- Mark 18mm motor spacer tube at 2 ¼". Use it to glue a 5/20 thrust ring in BT-20 stuffer tube.
- Glue 20/50 HD ring over end of motor hook at 2 ¼" point.
- Glue 20/55 HD ring over motor hook 1 1/8" from rear of stuffer tube.
- Glue BT-56 coupler into one section of second stage body tube.
- Glue 20/55 HD ring into above body tube flush to rear of coupler.

LONG SHOT – BASE KIT ESTES #2128 CUSTOM MODIFICATIONS

Second Stage Instructions (Con't)

- Glue stuffer tube into above section of body tube with stuffer tube 1/8" forward of flush with rear of body tube.
- At this point glue the stuffer tube securely with epoxy to the 20/55 HD ring in the forward end of above body tube.
- Coat outer surface of engine tube and rear of 20/55 HD ring in rear of second stage with CA glue, taking care to NOT get glue on inner body tube surface. (Coupler will protect it)
- Glue remaining 20/55 HD ring 1/8" from forward end of stuffer tube.
- Glue fin unit to second stage flush with body tube.
- Glue second body tube onto coupler of first with epoxy.
- Glue last coupler into third body tube section. When dry glue this coupler into second body tube section.
- Make up shock cord as per instructions.
- Glue 1/2" of a clay stick into nosecone with CA.

Finishing Instructions

- Lightly sand fin units and nosecone so primer will stick.
- Push putty into tube joints and sand smooth when dry.
- Paint nosecone and fin units bright red to match decals.
- Paint body tube gray.
- Apply decals.
- Apply clear topcoat.

**LONG SHOT – BASE KIT ESTES #2128
CUSTOM MODIFICATIONS**

Modification 2 – This bash is a redesign for flying as a three stage rocket. The increased weight to fly three stages will not permit an 18mm first stage option.

**Stage 1: D12-0
Stage 2: B6-0, C6-0
Stage 3: B6-4, C6-5**

Parts List To Substitute Or Add

- (1) 18mm motor mount/stuffer tube, BT-20 - 18", for the upper stage.
- Use HBT-760 intended for upper stage, heavy duty BT-20, in second stage.
- (1) 70mm motor hook and 20/50 thrust ring for first stage
- (1) 70mm motor hook and 5/20 thrust ring for second stage.
- (1) motor retaining ring for BT-50 tube in first stage.
- (1) motor retaining ring for BT-760 tube in second stage made from 1" long piece of BT-50 slit lengthwise.
- (1) additional BT-56 body tube 3-3/4" long.
- (1) additional plastic fin unit.
- (2) HD 760/56 HD rings used in the second stage.
- (1) additional 760/56 HD ring used on third stage stuffer tube.
- Clay for nose - 1/2" of stick

First Stage Instructions

- Glue motor thrust ring flush with forward end of HBT-1000 tube.
- Cut slot for engine hook 1/4" from front of 1000 tube, against block.
- Glue (1) 1000/56 ring over very end of motor hook 1" from rear.
- Glue motor hook hold down tube forward of and flush to above centering ring.
- Glue (1) 1000/56 ring forward of and flush to above hold down ring.
- Glue this assembly into (1) booster BT-56 body tube, 3 3/4", tubes flush at rear so motor hook protrudes ~3/8".
- Glue stage coupler 1" into forward end of booster body tube, flush against motor mount.
- Coat all interior areas of booster forward of the thrust ring with epoxy.
- Glue booster fin unit onto booster tube, rear flush with aft end of body tubes.
- Drill two opposing 1/4" holes through booster stage tube 1/2" from front of booster tube. (Not from the front of the coupler. Holes must be 180 degrees apart around diameter to prevent vectoring upon ejection gas discharge!)

Second Stage Instructions

- Glue 5/20 motor thrust ring flush with forward end of HBT-760 tube.
- Cut slot for engine hook 1/4" from front of 760 tube, against block.
- Glue (1) 760/56 ring over very end of motor hook 1" from rear.
- Glue motor hook hold down tube forward of and flush to above centering ring.

LONG SHOT – BASE KIT ESTES #2128 CUSTOM MODIFICATIONS

Second Stage Instructions (con't)

- Glue (1) 760/56 ring forward of and flush to above hold down ring.
- Glue this assembly into (1) booster BT-56 body tube, 3 ¾", tubes flush at rear so motor hook protrudes ~3/8".
- Glue stage coupler 1" into forward end of booster body tube, flush against motor mount.
- Coat all interior areas of booster forward of the thrust ring with epoxy.
- Glue booster fin unit onto booster tube, rear flush with aft end of body tubes.
- Drill two opposing ¼" holes through booster stage tube ½" from front of booster tube. (Not from the front of the coupler. Holes must be 180 degrees apart around diameter to prevent vectoring upon ejection gas discharge!)

Finishing Instructions

- Lightly sand fin units and nosecone so primer will stick.
- Push putty into third stage tube joints and sand smooth when dry.
- Paint nosecone and first and third fin units bright red to match decals.
- Paint second stage fin unit gray to match third stage body tube
- Paint third stage body tube gray.
- Apply decals.
- Apply clear topcoat.

Important Note

Modification 2 will allow the assembly of a two stage option using D12-0 as a booster. If this flight is planned, a longer delay motor in the second stage will be required versus the recommended motors outlined in Modification 1. Probably a B6-4 or C6-5 will be best given the eight increases involved in these changes. However, if built lighter, possibly a B6-6 or C6-7 could be needed.