**Step by Step Directions to build the Constellation**

**KIT PARTS & SUPPLY LIST**

Your Astron Constellation model rocket kit consists of the following parts as illustrated in the drawing at right:

- **A** 1 nose cone - Part #NCO-50X
- **B** 1 payload section tube - Part #PST-50S
- **C** 1 nose block - Part #NB-30
- **D** 1 screw eye - Part #SE-2
- **E** 1 body tube - Part #BT-50H
- **F** 1 launch lug stand-off - Part #LD-2B
- **G** 1 launch lug - Part #LL-2B
- **H** 1 sheet balsa fin stock - Part #BFS-30
- **I** 1 engine holder tube - Part #BT-20J
- **J** 2 centering rings - Part #CR-2050
- **K** 1 engine retainer - Part #ER-2
- **L** 1 shock cord - Part #SC-1
- **M** 72" shock line cord - Part #SLT-12
- **N** 1 parachute - Part #PK-12A
- **O** 10 tape strips - Part #TS-21
- **P** 1 pattern sheet - Part #PS-35

In addition to the materials included with your kit, you will also need the following tools and supplies:

1. Modeling knife or single edge razor blade
2. Scissors
3. Extra strong white glue
4. Ball point pen or pencil
5. Fine and extra fine grit sandpaper
6. Paint or dope

**FIG. 1 ENGINE HOLDER STRAP**

1. Cut a 1/8" long slit in the side of the BT-20J engine holder tube 1/4" from one end. Insert one end of the engine retainer into this hole and lay the body of the retainer down on the tube as shown. Cut out the engine holder strap from the pattern sheet, apply glue to one side, and wrap it tightly around the middle of the tube and engine retainer as shown.

**FIG. 2 SLIDE RING INTO TUBE UNTIL IT TOUCHES THE FRONT OF THE ENGINE RETAINER**

2. Apply a line of glue around the top end (the end where the slit was made) of the engine holder tube. Slip one of the centering rings onto this end of the tube and down against the engine retainer’s end. Cut a section 3/16" wide from the other ring and glue this ring to the other end of the tube as shown, positioning it so it does not interfere with the movement of the retainer.

**FIG. 3 1-4 INCH SHEET BALSA FIN STOCK**

3. Cut out the fin and fin tip patterns from the pattern sheet. Lay out three fins and six tip pieces as shown above, making sure the grain on the pattern and the grain on the wood match perfectly. Cut the pieces out carefully. Glue two tip pieces to each fin as shown in Fig. 3B, one piece on each side of the fin. Set the fins aside to dry.

**FIG. 4 DOWEL SAME LENGTH AS LAUNCHING LUG END VIEW**

4. Cut the launch lug stand-off dowel to the same length as the launch lug. Apply a line of glue to one side of the lug and press the stand-off into place on the glue. Make sure the two pieces are perfectly parallel, then set the unit aside to dry.

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Read the entire assembly instructions carefully before beginning work on your rocket. Then start construction, following each step in order, checking off each step as it is completed.
ROOT EDGE OF FIN IS 3°

FIN TIP PATTERN

NOTE GRAIN DIRECTION

ENGINE HOLDER STRAP

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PART P. OF K-35

TUBE MARKING GUIDE

MATCH LINES - THEN TAPE TOGETHER HERE
CONSTELLATION

- CLEAR PAYLOAD SECTION
- FUTURISTIC DESIGN
- SIMULATED "LANDING SHOCKS"

SKILL LEVEL 3
1 - Beginner 2 - Intermediate 3 - Craftsman 4 - Advanced 5 - Expert

SPECIFICATIONS

Length: 10 1/2" (41.6 cm)
Weight: 1.0 oz. (29g)
Body Dia.: 0.976" (24.8 mm)
Parachute Recovery

RECOMMENDED ENGINES

F-2AAS-2, AS-3, BD-4, B-14-5, CR-3

Use J-2A for first flights. Engines and transfer kit included.

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