

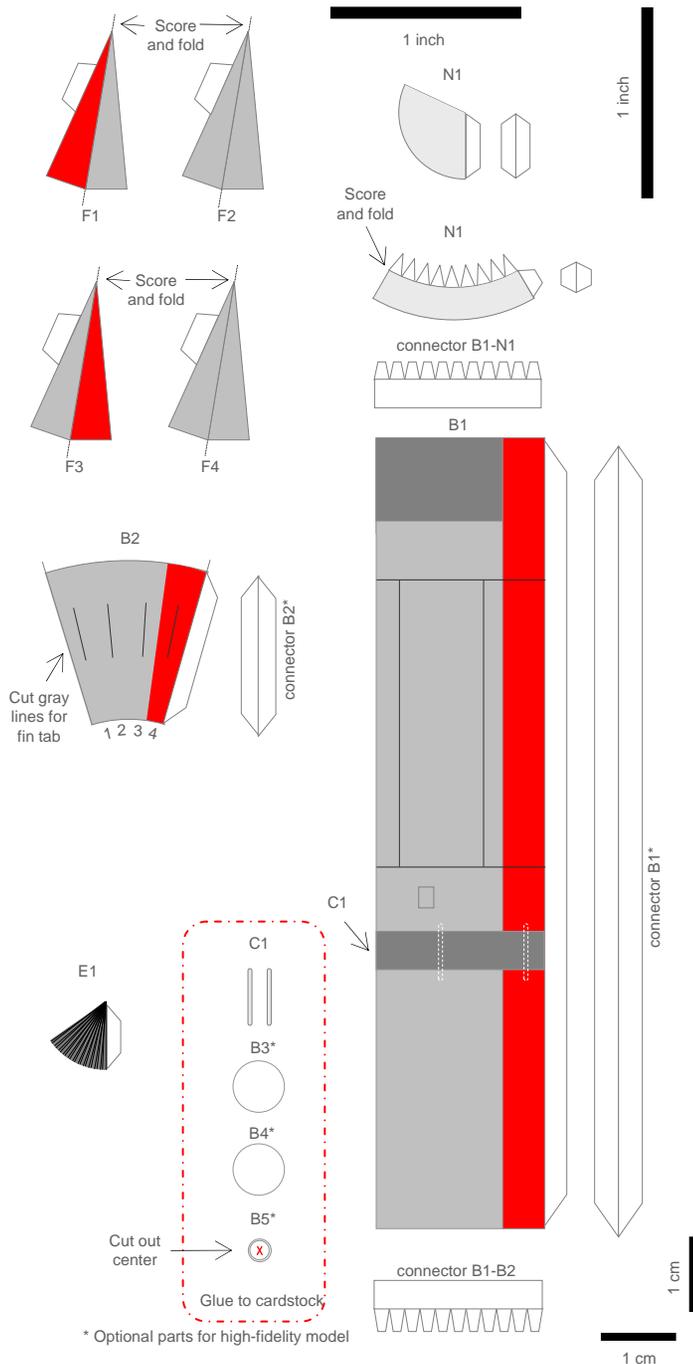
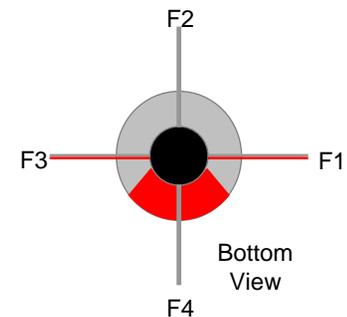
Robert Goddard's L-10 (1:32nd scale)

Launched on December 18, 1936, L-10 was one of in a family of Goddard rockets known as the "L-series." L-10 was the first flying rocket in a set of 9-inch (0.229 m) diameter rockets that tested various guidance concepts. L-10 had no guidance system other than its fins, and flew ballistically.

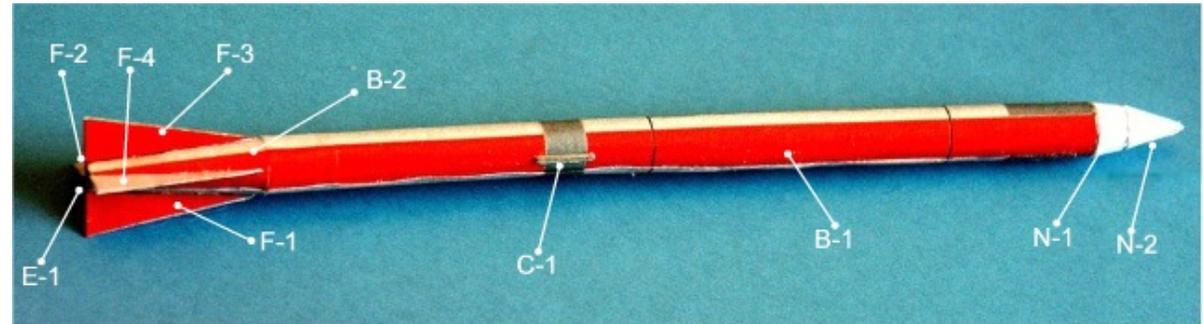
The rocket tipped shortly after launch and then flew horizontally. It reached a maximum altitude of 2000 feet (610 m) and landed 2000 feet (610 m) from the launch site. It used liquid oxygen and gasoline pressurized with liquid nitrogen. The overall height of this rocket was 175 inches (4.44 m).

Assembly instructions

- Roll main body (B1) into a cylinder and glue. (if desired, cut off tab on B1 and use optional connector for a flush tube.)
- Score tabs on connector B1-B3. Roll and glue inside of B1.
- Slide B3 inside B1 and glue to bottom of connector B1-N1.
- Slide B4 approx 1/2" (12 mm) up the bottom of the main body tube. Use a pencil or rod to keep it perpendicular to the tube.
- Score the tabs on connector B1-N1, roll, and glue inside the bottom of the main tube,
- Cut slits for the fins into the lower body (B2), then roll B2 into a cone, and glue.
- Roll the engine (E1) into a cone with the color inside, and glue. Slide inside B2 and glue flush with bottom. (Or skip this step and use step 11).
- Optional: Cut out the bottom of the body (B7) – including the center – and glue to the bottom of B2. Glue the bottom of the engine to the inside of B7.
- Glue the bottom of the body to the main body. Keep the seams aligned.
- Cut out the cable tunnels (C1). Glue the cable tunnels to the rocket body on the dotted lines on B1.
- Cut out nose cone pieces N1 and N2. Form them into cones and glue.
- Glue N3 into the top of N2, using the tabs from N2.
- Glue the nose cone to the body.
- Score the fins (F1-F4) as shown. Cut out the pieces. Double each fin over and glue together. Press the pieces flat.
- Slide each fin into the appropriate slot on the lower body (B2), and glue into place. The fins are numbered, and the corresponding numbers are shown under B2. Note that the fin that goes in the red quadrant is bare aluminum on both sides. The red sides on the fins should be visible when viewed from the red quadrant.



Finished L-10 Model, with pieces labeled.



Want to make this model at a different scale?

I chose 1:32nd scale for this model because it fits with several other models of early rockets, including Ralph Currell's V-2 and Niels Knudson's Hermes. (Besides, it is a traditional aircraft scale.) But 1/32nd is at the limit of what many modelers can make. It is easier to make at larger scales, rescaling the kit.

If you want to make a 1:24th scale model, print the sheets at 133% scaling. To print it at 1:16th scale, use a 200% scaling. For 1:8th scale, use a 400% scaling.

If you do this, you can only print part of the page on a standard-sized sheet (8.5x11 USA or A4 in Europe). With a .pdf file use the following procedure:

1. Scale the PDF window so that it shows the part of the page you wish to print.

2. Click on the print button.
3. When the "Print" menu appears, choose the following options:
 - Set "Print Range" to "Current View"
 - Set "Page Scaling:" to "None"
 - Turn "Auto-Rotate and Center" off and "Choose paper size by PDF page size."
4. Click on the "Properties" button for the printer. Find the scaling option for your printer. On some printers this is on one of the menu tabs. On others, there is a button that takes you to a menu with the option.
5. Set the scaling -- print at 133% for 1:24, 200% for 1:16, 400% for 1:8.
6. Print page.

Move the window around until all the pieces get printed

For smaller scales, use the following scaling values:

- 1:48 – 67%
- 1:72 – 44%
- 1:96 – 33%

Turn "Auto-Rotate and Center" on when you print.