Clementine Lunar Orbiter

- The spacecraft was an octagonal prism 1.88 meters (74") high and 1.14 m (45") across with two solar panels protruding on opposite sides parallel to the axis of the prism. A high-gain fixed dish antenna was at one end of the prism, and the 489 N thruster at the other end. The sensor openings were all located together on one of the eight panels, 90 degrees from the solar panels, and protected in flight by a single sensor cover. The spacecraft propulsion system consisted of a nonpropellant hydrazine system for attitude control and a bipropellant nitrogen tetraoxide and monomethyl hydrazine system for the maneuvers in space. The bipropellant system had a total capability of about 1900 m/s with about 550 m/s required for lunar insertion and 540 m/s for lunar departure. Attitude control was achieved with 12 small attitude control jets, two star tracker cameras, and two inertial measurement units.
- Assembly score and cut out all parts, noting the difference in the two solar panel assemblies.
- Main Bus Fold/glue into an octagonal prism. Fold down the tabs (do not fold the two small rectangles) and glue the top and bottom in place. Fold in half, then glue the sensor cover together. When dry attach to the edge of the sensor area on the bus, lighter side out. Fold/roll the omni antennae into short "sticks", then glue in place over the small white circles on the main bus. Fold/glue the star tracker into a box. Color the backs of the gray rectangles black, then roll into cylinders black side inward. Glue the cylinders to the slanted ends of the star tracker, then glue the star tracker over the marked square on top of the main bus. Roll/glue the nozzle into a cone and glue over the black circle on the top of the bus.
- Solar Arrays Carefully cut out the white circles on the arrays (these fit over the omni antenna when the array is folded for launch). Fold the gold tabs on the array arms up. Fold the arrays in half and glue, being careful not to glue the gold tabs together. Spread the tabs, then glue in place over the dotted rectangles on the sides of the bus attaching array 1 and 2 in the same relationship as on the printed page. Note, the bottom edge of the arrays aligns with the bottom of the bus.
- High Gain Antenna (HGA) roll/glue the HGA support ring into a circular band, then glue in place on the bottom of the main bus. Form/glue the HGA disk into a shallow cone, then glue in place (point inward) on the HGA support ring. Bend down the legs of the secondary reflector tripod and glue onto the HGA dish – space the tripod legs to match the small tic marks on the edge of the HGA dish.



Clementine Lunar Orbiter

1:48 scale



NOZZLE





Copyright 2009 by John Jogerst. Not for commercial use; for personal or educational use only.









