

Important: Read This Addendum First

LRV01: Valuable tips and things to keep in mind before you begin.

Parts are attached to rectangular resin carriers. Always wear Safety Glasses when you remove parts from their carriers. Use extreme caution when using cutting tools like X-acto blades. Applying excessive pressure to a blade will cause it to break. Again, wear Safety Glasses when cutting or trimming parts! Safety Glasses have protected my eyes from serious injuries many times. Accidents happen; blades will break. Always protect your eyes. I cannot stress this enough!

Trim parts carefully and remember, if you are not careful when removing carriers, the details on resin parts may be damaged. Take your time. Sometimes it is better to remove small bits of material a little at a time rather than trying to cut off a large piece all at once. X-acto micro-saw blades are very useful for cutting off large carriers.

Release agents are not used in casting, and it is not necessary to wash parts for painting.

A pair of pointed tweezers will come in very handy for building the HGA and fitting the suspension rods.

Pin holes are easily filled with white glue. Minor interstitial voids can be ignored as they do not require filling.

The HGA

Building the High Gain Antenna (HGA) is not as difficult as it may look. I built mine in the following manner. Note: Extra parts are provided on the photoetched sprue.

- 1) Drill a pin hole in the top center of the resin former. After the screen is formed, a steel rod can be temporarily inserted through the screen and into the hole to align the photoetched disc on the screen. Note: Use the steel rod provided for the antenna on the PLSS.
- 2) Gradually bend and form the screen over the resin former using your thumbs. Avoid setting a crease in the screen; work slowly, and carefully until the screen is evenly formed over the former.
- 3) Bending the screen around, and under the edge of the former will secure the screen in place.
- 4) Insert a rod through the screen and into the hole in the former.
- 5) Apply adhesive, sparingly, to the side of the etched disc that will be glued against the screen. Slide it over the rod and down onto the screen, making certain that the grooves in etched disc align with the radial grooves in the resin former. The grooves are there to help you properly align the antenna ribs. Be careful not to glue the etched disc to the rod or the screen to the former. Remove the rod.

6) Glue the inner end of each antenna rib into a slot on the etched disc. Use the grooves in the resin former to align each of the ribs on the screen. After all the rib ends are secured in place glue down each rib: Apply medium thickness super glue, sparingly, to the edges of the ribs that attach to the screen, by applying a rivulet of glue on a scalpel blade, and carefully running it along, and beneath the edge of the rib. Check rib alignment against the radial groove on the former before securing each rib in place on the screen. Work carefully to avoid any wicking of glue onto the former.

7) Part 31 calls for a rod to be glued to it. Builder variances may make determining the exact length of the rod difficult. It's an easy matter to drill a hole in Part 31 to allow clearance for excess length.

8) Attaching Part 31 to the ends of the ribs as shown may seem to be a bit of a challenge but if all the antenna ribs are relatively well positioned and straight Part 31 will easily mate with rib ends. Start by test fitting. The ends of the antenna ribs are easily adjusted. When the parts are aligned begin gluing rib ends, one at a time, to posts on Part 31. Allow ample time for the glue to set. Note: Part 31 is very delicate. If any of the twelve posts are missing/broken replace them with an appropriate size and length of styrene rod.

9) Test the bond of each rib to the mesh by gently nudging it. Secure loose ribs with adhesive.

10) Use a new (sharp) pointed blade to cut the mesh on a straight line between rib tips. Take your time and work carefully. Slowly, pull the excess screen away from the HGA. Remove excess screen from former.

11) Carefully lift the HGA off the resin former. If by chance it is not entirely free because some glue has wicked off a rib then take a thin flexible, narrow strip of sheet styrene, with smooth rounded edges, and slide it up between the mesh, and under the rib. Work carefully, to avoid damaging the mesh, to break the bond.

12) Trim the edges of the HGA mesh with fine thread. White glue, applied sparingly, works well. You'll find that trimming the mesh is easy as the tread will catch on the cut ends of the mesh as you work it around the edges. Finish paint the thread in Gold or Brass.

Wheel Treads

Important: Form the length of the each photoetched wheel tread over a length 1/4" rod. Doing this sets a flexible curve in all the tread links so that they will cling to the wheel, making attachment very simple. The photoetched treads are supplied a little longer than required. Spot glue, and set the joint at the very bottom of the wheel. Work the tread onto the wheel. Spot glue, the center line of the tread, in place as necessary. It will not be necessary to glue each tread down to the wheel as the flexible curve formed in the tread links will cling to the wheel. Trim tread to fit.

Step 6: Suspension

Note: Do not cut the styrene rods used for the suspension in advance. Builder variances may require that each rod be fitted, and cut to length as required.

Part 35

Part 35 is the frame of the rake. The builder will have to add tines. Nylon brush bristles will work but it's suggested that the optional small scoop be used instead.

The Lunar Roving Vehicle transported two astronauts on exploration traverses on the Moon during Apollo 15, 16 and 17 missions. The LRV carried tools, scientific equipment, communications gear and lunar samples.

The four-wheel, lightweight vehicle greatly extended the lunar area that could be explored by humans. The LRV could be operated by either astronaut. It was the first manned surface transportation system designed to operate on the Moon. It marked the beginning of a new technology and represented an experiment to overcome many new challenging problems for which there was no precedent in terrestrial vehicle design and operations. The LRV folded up into a very small package in order to fit within the tight, pie-shaped confines of Quad 1 of the lunar module which transported it to the Moon.

The LRV was built by the Boeing Co., Aerospace Group, at its Kent SpaceCenter near Seattle, Wa, under contract to the NASA-Marshall Space Flight Center. Boeing's major subcontractor was the Delco Electronics Division of the General Motors Corp. Three flight vehicles were built, plus seven test and training units, spare components and related equipment.

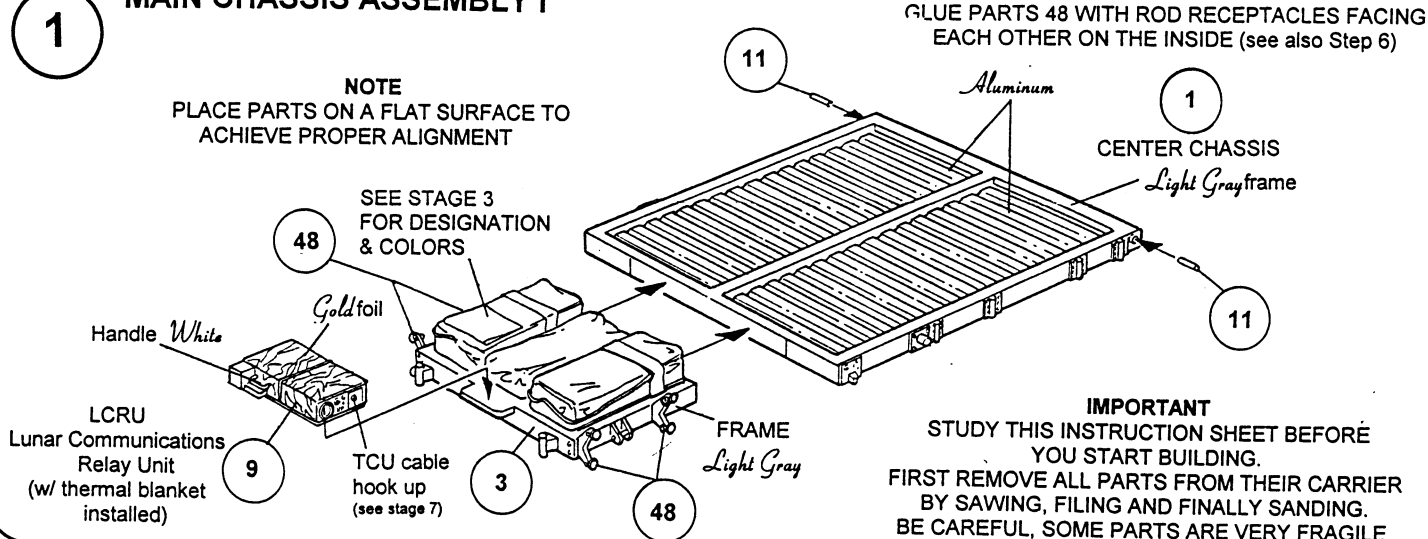
GENERAL DESCRIPTION

The LRV was 10' 2" long; had a 6' tread width; was 44.8" high and had a 7.5" wheel base. Each wheel was individually powered by a quarter-horsepower electric motor and the vehicle's top speed was about 8 mph on a relatively smooth surface. Two 36-volt batteries provided the vehicle's power, although either battery could power all vehicle systems if required. The front and rear wheels had a separate steering system, but if one steering system failed, it could have been disconnected and the vehicle would have operated with the other system.

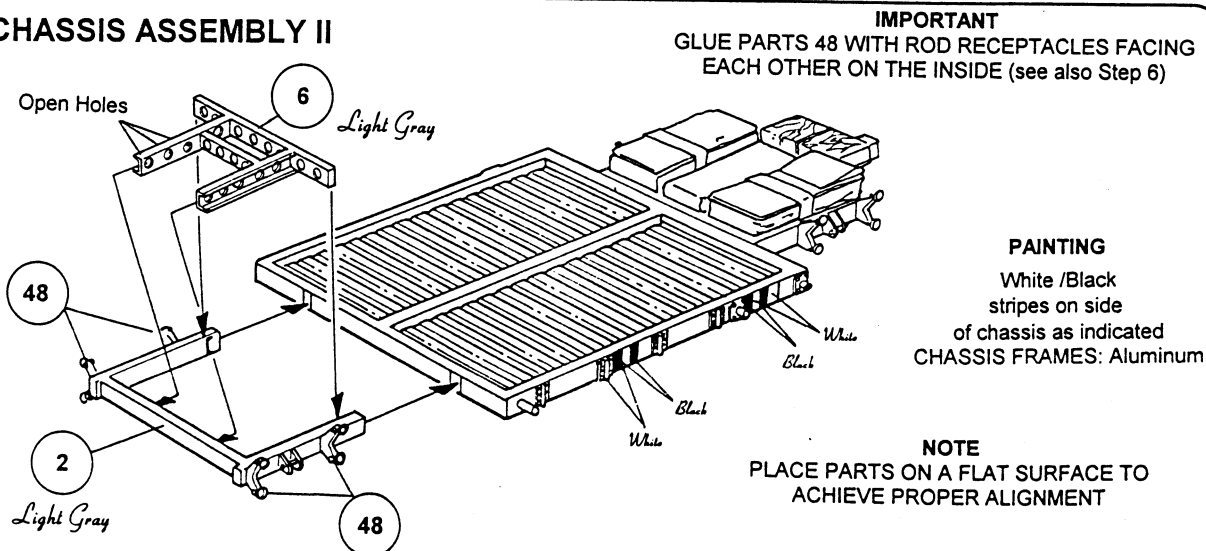
Weighing approximately 460 lbs (Earth weight) when deployed on the Moon, the LRV carried a total payload of about 1,080 lbs, more than twice its own weight. This cargo included astronauts and their portable life support (800lbs), 100 lbs of communications equipment, 120 lbs of scientific equipment and photographic gear in addition to 60lbs of lunar samples.

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1 MAIN CHASSIS ASSEMBLY I

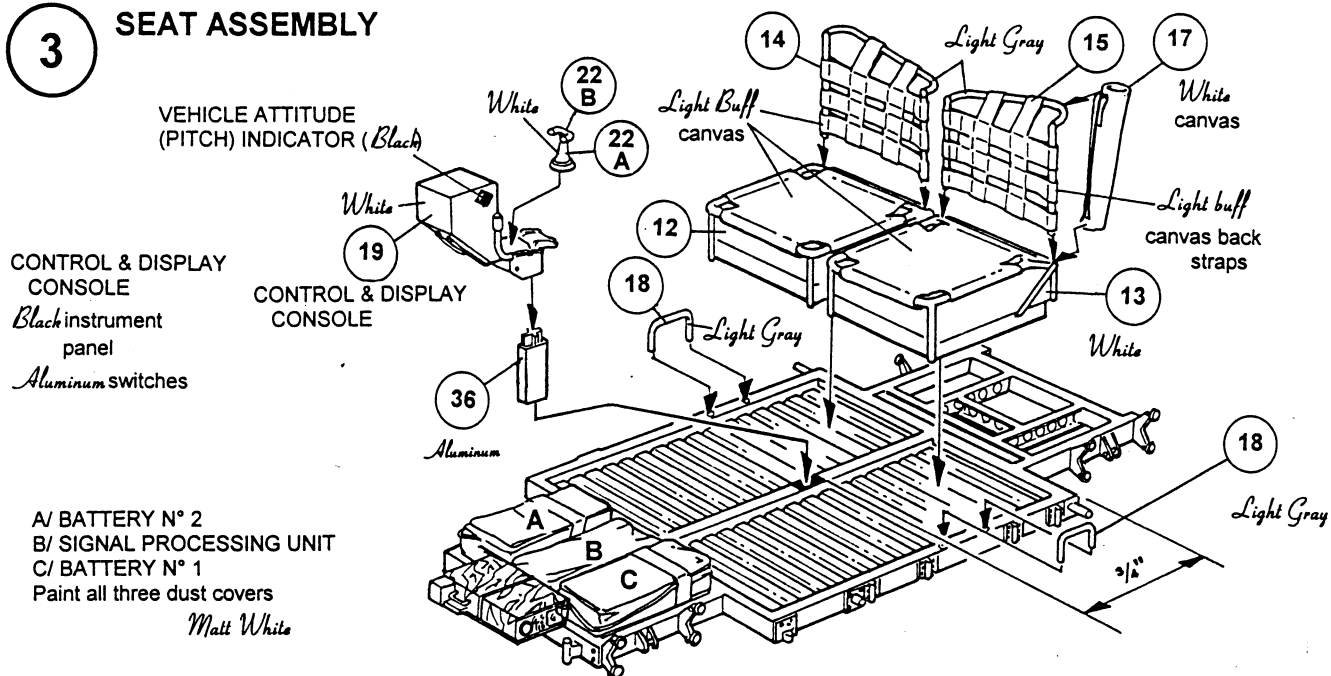


2 MAIN CHASSIS ASSEMBLY II



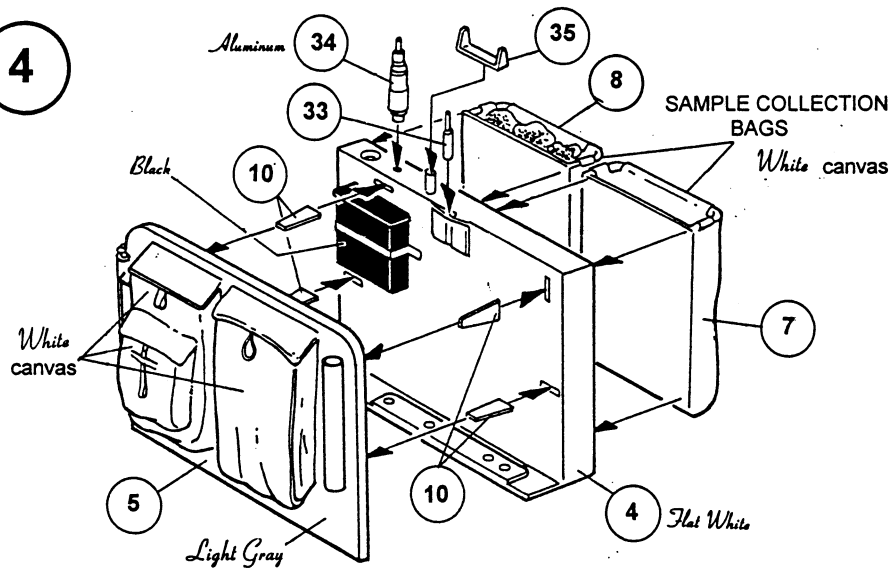
3

SEAT ASSEMBLY



4

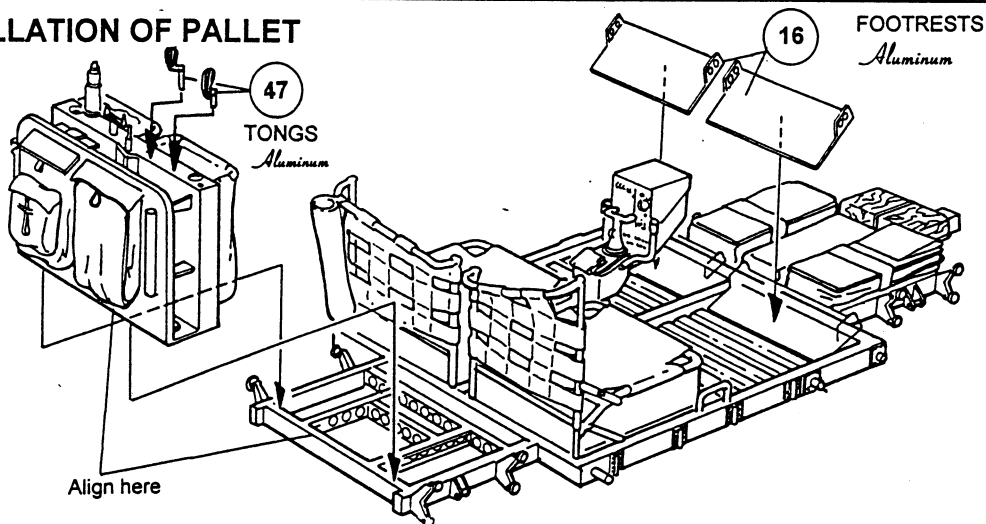
STOWAGE PALLET ASSEMBLY



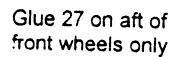
NOTE
PART 35 IS A RAKE
MAY BE REPLACED BY
PART 50 /SMALL SCOOP
(OPTIONAL)
PART 34 IS A PENETROMETER

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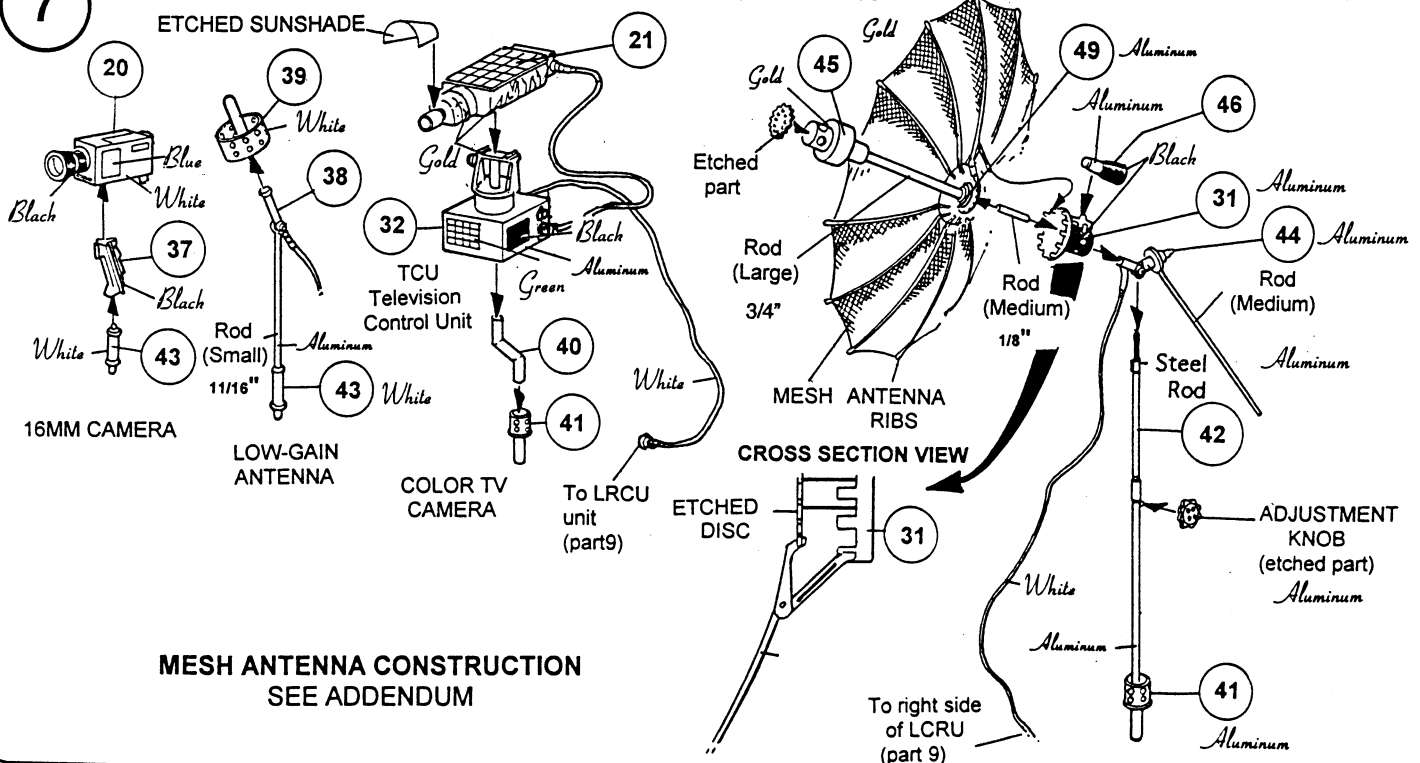
INSTALLATION OF PALLET



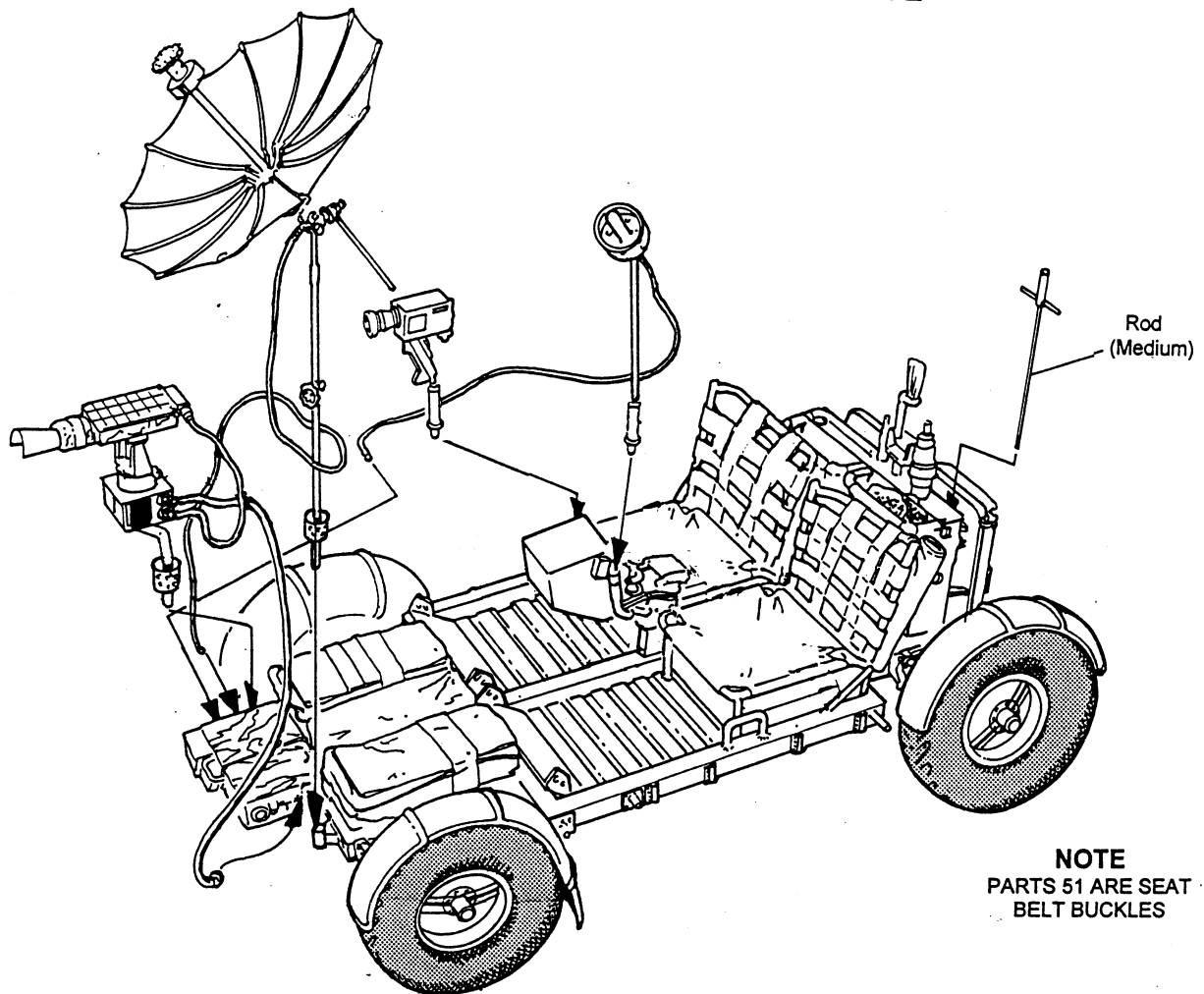
WHEEL ASSEMBLY



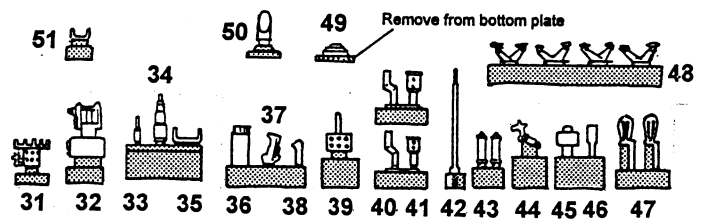
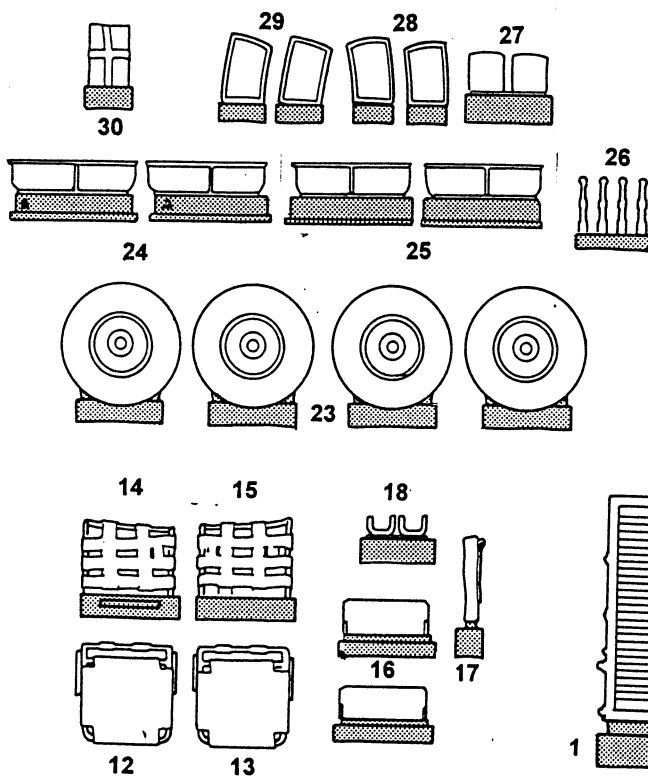
CAMERAS & COMMUNICATIONS EQUIPMENT



FINAL ASSEMBLY STAGE



RESIN PARTS



NOTE
REMOVE PARTS FROM CARRIER.
CARRIER SHOWN SHADED

