Bendix

Aerospace Systems Division

Human Factors Analysis
Effort for LRRR(300)

NO.	REV. NO.
ATM-941	

PAGE 1 OF 3

DATE 1/19/71

The following compilation of Crew Engineering human factors analysis design criteria and requirements inputs to the LRRR(300) Design Group constitutes the baseline parameters for the design of the LRRR(300).

Prepared by: Leslie D. Marrus
L. D. Marrus

The following design criteria and requirements inputs were provided to the LRRR(300) design group during the course of the LRRR(300) program:

1. Design the LRRR(300) for safe rapid, easy and accurate removal, transport and deployment by one astronaut.

2. Eliminate all sharp edges, corners, protuberances, burrs, and abrasive surfaces. The minimum radius for any external edge or corner should be 0.03 inch.

3. Prevent astronaut exposure to all hinged surfaces.

4. The LRRR(300) carry handle, UHT and UHT socket, fasteners and pull rings should permit the astronaut to deploy the LRRR(300) from a standing position.

5. The LRRR(300) design should permit the astronaut to perform one-handed reach operations between 22 and 66 inches off the ground, perform one-handed manipulation between 28 and 60 inches off the ground, and perform two-handed manipulations between 30 and 48 inches off the ground.

6. The UHT socket should be located as close to the center of mass of the deployed configuration as possible.

7. The carry handle should be opposite the back support structure, oriented horizontally and as close to the center of mass of the stowed configuration as possible.

8. Pull ring inside diameter should be 2 inches minimum.

9. White, matte thermal control paint (no glare) should be used on the LRRR(300).

10. Black or orange markings on a yellow or white background should be used for astronaut cues and instructional decals.

11. The astronaut should not be required to exert a force of less than 3 pounds or more than 20 pounds.

12. The clearance between the LRRR(300) release mechanism handle and the Grumman pallet should be at least 2 inches. (Grumman-supplied hardware.)

13. The length of the LRRR(300) release mechanism handle should be at least 4 inches, on the right side, measured from the side of the shaft. (Grumman-supplied hardware.)

14. The back support structure should permit setting the LRRR(300) down on a slope up to 15° without toppling.