

MEMORANDUM

Lyndon B. Johnson Space Center



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SUBJ: Changes in Treadmill for STS-4 and Subsequent Flights

The following comments were offered by the STS-3 crew for improvements in treadmill operation.

1. It was noisy with the major portion coming from the LiOH door having an appreciable gap and slamming into its sill.
2. Make the treads less slippery.
3. The forward bungees needed to be extended still further forward to allow more clearance and better utilization of the tread area.
4. Variation in force with movement and harness adjustment was annoying.
5. Methods for adjusting and monitoring performance of both machine and astronaut should be improved.

The following fixes have been recommended to Mel Tays who is coordinating them with ILC.

1. It was recommended prior to the last flight and is still recommended that a small strip of elastic material be placed in the gap between LiOH door and its frame, either permanently or on-orbit. Structure of the treadmill especially of the treads is very resonant acoustically and it may be possible to dampen this by adding foam agents which in-situ. Additional foam might be velcroed to the broad sides with reduction in noise.
2. A number of means are available to either roughen the tread surface or add anti-slip material.
3. Relocation of forward bungees would provide increased clearance and ILC has an outrigger scheme to accomplish this.
4. For various reasons the bungees were kept short and it was recognized that small changes in position would produce appreciable changes in force. The answer to this is to extend the length of the bungees by a pulley or similar arrangement where change in length is small compared to total length. The total