



National Aeronautics and
Space Administration
Washington, D.C.
20546

NEW FILM
SHUTTLE/MIR
CONFIGURATION

JAN 4 1993

Reply to attn of

JSC, GA-92-105

TO: NASA Headquarters
Attn: M-2/Director, Space Shuttle

FROM: MA/Program Manager, Space Shuttle

SUBJECT: Shuttle/MIR Cargo Configuration

The Shuttle/MIR team has continuously been assessing the flight performance for the Shuttle/MIR mission (STS-70). When the team presented its preliminary findings to you and others on September 15, 1992, the cargo configuration included a short spacelab module to conduct mission science because performance margins at that time required the lighter weight module. As a result of the continuing performance assessments, we have now concluded that the long spacelab module is viable and is the preferred configuration because of its larger volume to accommodate payloads/experiments and Russian logistics, and to minimize the impacts on KSC/MSFC.

The two main reasons leading to a change in the performance story are:

1. More accurate hardware and vehicle weights and a decrease in the flight performance reserve results in approximately 650 pounds of additional capability.
2. For the science equipment being flown, the short module was volume limited, not weight limited, and this required that equipment be relocated forward in the airlock and middeck, resulting in the addition of aft ballast. With the long module, all of the equipment can be accommodated in the module and the weight increase of the long module is offset by deleting the aft ballast. The long module configuration can satisfy all of our payload/experiment requirements and provide some margin.

Therefore, we are baselining the long module configuration with the appropriate cargo element control weights and are initiating the engineering activities required for implementation.

Leonard S. Nicholson

cc:
See List

