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LANGLEY'S SPACE SHUTTLE TECHNOLOGY -
A BIBLIOGRAPHY

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by

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SUMMARY

Included in this document is a compilation of most of the major research reports, journal articles, presentations, and contractor reports, written and published by the Langley Research Center staff or from work performed under contract, monitored by the Center staff. The research covers a number of discipline areas including, but not limited to, aerothermo-dynamics, structures, dynamics and aeroelasticity, environment, and materials. This bibliography has been compiled for historical purposes.

In the beginning days of space shuttle documentation reporting, an immense amount of wind-tunnel data was generated in support of the space shuttle by Langley personnel and the volume of publications became too great for the in-house reporting system to handle. As a consequence, a reporting system was utilized with Chrysler Corporation through a NASA contract (NASA-13247) for data management. The reason for this contract was (a) to provide a uniform data base at one location and (b) to get the data into the information system rapidly. The resulting reports were referred to as SADSAC (System for
Automated Design of Shuttle Aerothermodynamic Characteristics) originally and later called DATAMAN (Data Management) reports. In order to properly present the full story of Langley's involvement in space shuttle development support, it was thought pertinent to include these publications in this report. In some instances the SADSAC/DATAMAN publications were converted to NASA contractor reports or to the NASA technical memorandum report series. This cross reference has been indicated where known.

References are listed chronologically within three major categories: A. NASA Formal Reports, B. Contractor Reports, and C. Articles and Conferences. In addition, an Appendix A has been included to list the SADSAC and DATAMAN publications during the past decade which have not always been credited to Langley though the research was performed by Langley researchers using Langley's and other government facilities for testing.
BACKGROUND

The Langley Space Shuttle Technology Task Group was established by the Langley Research Center Director on July 11, 1969 (LaRC Announcement 45-69) because of strong NASA interest in a large space station or base and an efficient transportation system or shuttle to supply it. The concept of a reusable space shuttle was of particular interest.

The responsibilities of the Task Group included:

1. Develop an integrated Langley research plan in support of the shuttle.

2. Help coordinate the implementation of this plan within the Center.

3. Assist NASA's Office of Advanced Research and Technology (OART) in developing a "Space Shuttle Technology Program."

4. Assist NASA's Office of Manned Space Flight (OMSF) and its Centers in conducting space shuttle studies and configuration selections.

5. Serve as a focal point within Langley for developing solutions to specific shuttle problems.

Further support for the Task Group was announced on August 1, 1969 (LaRC Announcement 54-69) involving personnel assignments, and location of Task Group in Building 1251. This announcement stated the activity of the Task Group would require heavy involvement of many other divisions at the Center and established an
Engineering Design Office and a Technical Program Coordinating Office, reporting to Mr. Eugene S. Love, Head, Space Shuttle Technology Task Group.

To provide a continuing focus for Langley research and technology support of two major system developments then planned for the 1970's, the space station/base and the space shuttle, a Space Systems Research Division was established on January 11, 1970, (LARC Announcement 1-70) with Mr. Love being named Chief of this new division.

In addition to the specific research and study tasks, the Space Systems Research Division was to assume a Center-wide coordination function for the space shuttle and space station activities. Because of the responsibility for Center-wide coordination of space station/base and space shuttle activities, the structure and charter of the SSRD was different from that of most research divisions. As Langley's focal point, SSRD was to involve other research divisions so that their full available strength could be brought to bear on critical problems.

The references included in this bibliography show the magnitude of studies, both in-house and under contract, across Center division and directorate lines which have provided the intensive support required by this major developmental effort over the last decade.
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A. NASA Formal Reports - Continued


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A. NASA Formal Reports - Continued


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B. Contractor Reports


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C. Articles and Conferences


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