PROGRAM MANAGEMENT

NASA ORGANIZATION

The Saturn V development program comes under the direction of the NASA Office of Manned Space Flight, Washington, D.C. That office assigned development responsibility to the Marshall Space Flight Center, one of the three Manned Space Flight field centers. Another of those field centers, the Kennedy Space Center, has been delegated the responsibility of launching the Saturn V. (Development of the Apollo spacecraft, the first "payload" for the Saturn V, was assigned to the Manned Spacecraft Center, the other MSF field organization.)

Marshall Center Project Management Organization

Tens of thousands of prime and subcontractor employees and civil service employees are working on the Saturn program. At one time the manpower level was more than 125,000. Saturn industrial activities are scattered nationwide but there are three major areas of concentration:

1. the Northeast, with its grouping of electronic industries.
2. the Southeast, for production, test, and launch operations.
3. the West Coast, with its concentration of aerospace industries for design, production, and test work.

In addition, various research projects by scientific institutions and subcontractor production efforts contributing to the Saturn program are spread throughout the nation.

The wide dispersion makes necessary very comprehensive and reliable management systems and control techniques to manage the program effectively. The geographic dispersion of the Saturn effort requires excellent communications. The Marshall Center must be aware of related programs carried out by other NASA centers—especially the Manned Spacecraft Center, managing the Apollo spacecraft program, and Kennedy Space Center, responsible for Saturn launches.

The Marshall Center has found that one of the more effective tools for total program visibility is especially constructed and outfitted rooms called Program Control Centers. The Saturn V launch vehicle program office and other major groups have such centers.

The budget for the current fiscal year at the MSFC is about $850 million. The center must have a well staffed organization responsive to the many changes which can take place in a program of this magnitude.

One of the Marshall Center's two major divisions—Industrial Operations—is responsible for the management of the Saturn launch vehicle development programs for NASA manned space flight. Lee B. James, the Saturn V program manager in Industrial Operations, controls the project effort, plans, and budgets. For technical solutions to vehicle problems, the manager gets assistance from the laboratories of the Research and Development Operations—the second major and largest MSFC division reporting directly to the center director. Because of the many interfaces between the stages and with ground support equipment, program management responsibility in Industrial Operations includes establishing specifications and procedures which assure physical and functional compatibility. Formerly, the Marshall Center did the overall design of stages and major systems inhouse, but more recently, particularly with subsystems and components, the program managers have concentrated on performance specifications and left the details to the contractors. This management function keeps the program engineers very much in the mainstream of technical design activity. Thus, Industrial Operations program managers are quite active in the areas of: test requirements, qualification testing, product control, systems engineering, program control, and flight operations.

Marshall Center's Research and Development Operations laboratories are oriented functionally in such primary disciplines as mechanical engineering, electronics, and flight mechanics. Collectively, the laboratories provide the deep-rooted technological foundation on which the success of all Marshall projects depends. In the project offices, technical decisions are made which affect many areas. These decisions are formulated by drawing upon the full technical resources of the laboratories, which maintain a high level of professional competence.

Laboratory personnel work on selected projects to keep their technical knowledge updated and their technical competence at a high pitch. This is the Marshall work bench philosophy—the "dirty hands" approach.

The Saturn V program office is headed by a program manager. There is a stage manager or project director for each of five major vehicle systems. A stage manager primarily deals with only one major contractor. In the case of the instrument unit and the ground support equipment project, there are several major contractors. The principle of a single project management focal point is the objective of each project team.

Program management is vested in the program manager. Technical project management, so far as NASA is concerned, occurs at the stage or project level. The program and stage managers are fully responsible for technical adequacy, reliable performance, and for management of all related contractor activity.

These program and project managers must be backed up and supported by technical competence in depth. This in-depth support is provided, to a degree, by a staff of competent technical and business management people in the program manager and stage manager office, and to a much larger degree, by Research and Development Operations.

There is a resident manager at each of the contractor plants to act as the "official" voice for the Marshall Center. All MSFC instructions to the contractor are transmitted through the resident manager. Through the resident manager, MSFC maintains a direct contact with contractor operations and is kept informed of the status of all significant program events.

Marshall Center laboratory technical personnel are assigned to the resident managers' staffs. These technical people are assigned to each resident manager's office to provide him with assistance in resolving technical problems, and to keep the MSFC technical laboratories directly informed of field technical effort. Laboratory participation is dictated by need as determined by project management.

Many people are involved in attaining the final goal. Project management, technical, and contractor personnel are tied in a close knit group capable of managing this country's large launch vehicle program.

MANAGEMENT PERSONNEL

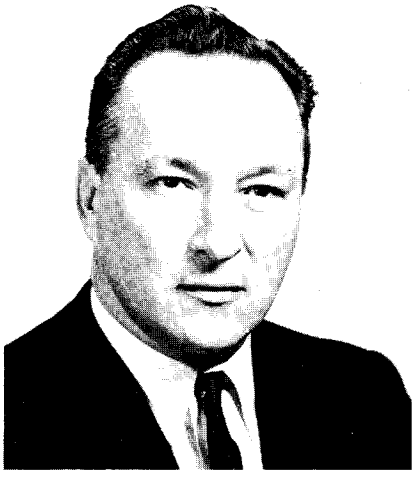
NASA

Dr. George E. Mueller, Associate Administrator for Manned Space Flight, NASA Headquarters.

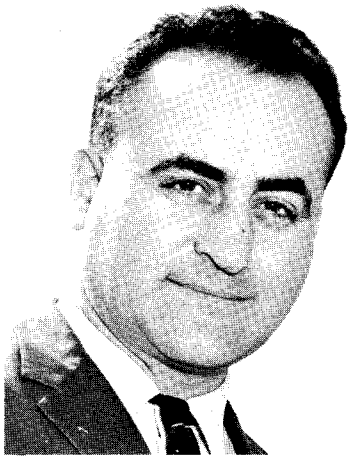
Lt. Gen. Samuel C. Phillips, Director, Apollo Program, NASA Headquarters.

Dr. Wernher von Braun, Director, Marshall Space Flight Center.

Dr. Kurt H. Debus, Director of John F. Kennedy Space Center.



Lee B. James, Manager, Saturn V Program Office, Marshall Space Flight Center.



Rocco A. Petrone, Director of Launch Operations, Kennedy Space Center.

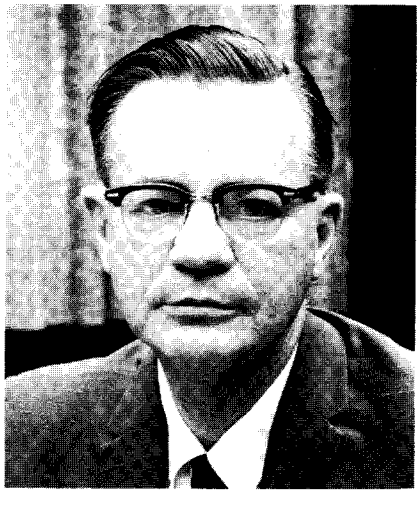
MANAGEMENT PERSONNEL

BOEING

G. H. Stoner, Group Vice President, Aerospace.

R. H. Nelson, General Manager, Launch Systems Branch.

L. D. Alford, Manager, Huntsville.



H. D. Gunning, Manager, Michoud.

F. L. 'Bud' Coenen, Director, Boeing Atlantic Test Center.

MANAGEMENT PERSONNEL

MCDONNELL DOUGLAS

Charles R. Able, Chairman and Chief Executive Officer, McDonnell Douglas Astronautics Company.

Jack L. Bromberg, Vice President, Deputy General Manager, McDonnell Douglas Astronautics Company—Western Division.

Theodore D. Smith, Director, Huntington Beach Development Engineering, McDonnell Douglas Astronautics Company—Western Division.

Steven D. Truhan, Director, Florida Test Center for McDonnell Douglas Astronautics Company—Western Division. Directs and coordinates all Company activities at Kennedy Space Center.

Harold E. Bauer, Director, Saturn/Apollo Programs, McDonnell Douglas Astronautics Company—Western Division. Responsibility for all aspects of the present development program on the S-IVB upper stages of the Saturn IB and Saturn V launch vehicles.

A. P. O'Neal, Director, Saturn Development Engineering. McDonnell Douglas Astronautics Company—Western Division.

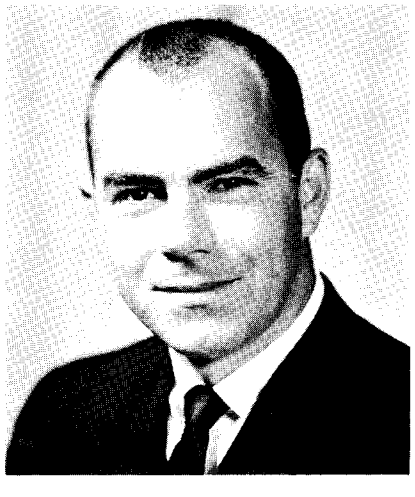
MANAGEMENT PERSONNEL

IBM

Bob O. Evans, President of the Federal Systems Division.

Arthur E. Cooper, Federal Systems Division Vice President and General Manager, Space Systems Center, Bethesda, Md.

Clinton H. Grace, Facility Manager, Space Systems Center, Huntsville, Ala.



Ammon G. Belleman, Facility Manager, Space Systems Center, Kennedy Space Center.

MANAGEMENT PERSONNEL

SPACE DIVISION —NORTH AMERICAN

William B. Bergen, Vice President, North American Aviation, Inc.; President, Space Division. Downey, Calif.

Robert E. Greer, Vice President, Space Division; Program Manager, Saturn Second Stage.

William F. Parker, Deputy Program Manager, Saturn Second Stage.

Bastian 'Buz' Hello, Vice President and General Manager, Launch Operations, Space Division, Florida.

MANAGEMENT PERSONNEL

ROCKETDYNE—NORTH AMERICAN

Samuel K. Hoffman, President of Rocketdyne and Vice President of North American Aviation, Inc.

William J. Brennan, Vice President and General Manager, Liquid Rocket Division.

Paul D. Castenholz, Program Manager, J-2 Engine.

Norman C. Reuel, Assistant General Manager, Liquid Rocket Division.

David E. Aldrich, Program Manager, F-1 Engine.