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Organization Procedure No. GRC-P7600.001

Revision D

7601 Organization Procedure

Research Facility Management

Approved by:

Chief, Research Testing Division/7600

**NASA - Glenn Research Center
Cleveland, OH 44135**

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Change Record

Rev.	Effective Date	Description
Basic	04/09/1999	Initial Issue
A	07/12/1999	Add Form Numbers to Quality Records and Forms, FCR1999-1060
B	04/21/2000	Remove record retention times, FCR2000-1189
C	03/23/2001	General Revisions, FCR2001-1312
D	11/04/2003	Document Number Changed from 7500.006 to 7600.001 General numbering and reference changes related to directorate re-organization and document re-numbering. FCR2003-1654

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1.0 INTRODUCTION

1.1 Purpose

The purpose of this document is to describe the key branch procedures - Research Test Scheduling and Operations, and Investment Planning - for all facilities governed by the Facilities Management and Planning Office at the NASA Glenn Research Center. The second procedure, Investment Planning, enables the completion of the first, Research Test Operations, and thus the two are inextricably linked and both described herein.

1.2 Scope

This document applies to all facilities governed by the Facilities Management and Planning Office at the NASA Glenn Research Center, including both aeronautics and space research facilities. The facilities are as follows:

Aeronautics Facilities -

10'x10' Supersonic Wind Tunnel(SWT)	8'x6' Supersonic Wind Tunnel(SWT)
1'x1' Supersonic Wind Tunnel(SWT)	9'x15' Low Speed Wind Tunnel(LSWT)
Icing Research Tunnel(IRT)	Propulsion Systems Lab(PSL)
Aero-Acoustic Propulsion Lab(AAPL)	Engine Components Research Lab(ECRL)
Engine Research Building(ERB) Complex	
Hangar	

Space Facilities -

Electric Propulsion Lab(EPL)	Engine Research Building(ERB) Complex
Electric Propulsion Research Lab(EPRB)	Research Combustion Lab(RCL)
Hangar	

2.0 REFERENCES

2.1 Applicable Documents

Document Number	Document Title
GRC-P1.2.2	Investment Planning – Facilities
GRC-P2.2.1	Internal Customer Agreements
GRC-P2.2.2	External Customer Agreements
GRC-P3.4	Facilities Management
GRC-P7600.002	Aero Facility Engineering
GRC-P7600.003	Aero Test Engineering
GRC-P7600.004	Space Test Engineering

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GRC-P7300.004

Construction of Facilities Program; Strategic Planning

Reimbursable Agreements Manual (<http://ramo.lerc.nasa.gov/>)

2.2 Records and Forms

Customer Survey Form

Space Act Agreement

Facility Investment Plan

Facility Schedule (<http://www.lerc.nasa.gov/WWW/opsdata/>)

RTD Metrics

International Letter Agreement

Reimbursable Cost Estimate Summary Worksheet (1 year or Multi year)(<http://ramo.lerc.nasa.gov/>)

2.3 Definitions

Construction of Facilities (CoF):

A congressional appropriation which provides contractual services for the repair, rehabilitation, and modification of existing facilities; the construction of new facilities; the acquisition of related collateral equipment; environmental compliance and restoration activities; the design and implementation of facilities projects; and advanced planning related to future facility needs.

EM

Experimental Methods – an RTD budget to fund operations and upgrades in the various Aero facilities at the center.

EMS

Experimental Methods Support – an RTD budget to fund special maintenance activities and replacement of obsolete equipment in the various facilities at the center.

External Customer:

Customer outside of NASA Glenn bringing test requirements and resources to the test facilities. Examples of External Customers are other NASA centers, Government agencies, Universities and Industry.

External Programs Directorate

Directorate that addresses three key areas for the Center: Educational programs, Community and Media Relations and Commercial Technology

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Facility:	A facility can be any individual test rig, R&D Laboratory, large research system, institutional support system or building.
Facility Manager:	Person that plans, coordinates and manages all activities associated with the operation and maintenance of the aeronautics and space research facilities. Person that is the main focal point between the facilities and the internal or external customers at the initial stages of the test program.
Facility, Test or Project Engineer:	Person that provides leadership to ensure the project planning and implementation of the design/construction/testing phases are successfully completed. In this procedure, this group/branch collectively will be referred to as "Test Engineers".
Facility Costing Guidelines	Guidelines established by NASA Headquarters (HQs) and passed on to each NASA center through the Resource Analysis and Management Organization (RAMO). The guidelines establish the percentage of funds that must be costed within a specific time period (i.e. end of FY or end of CY)
Facility Investment Plan	A prioritized, compilation of long range facility investment projects that can utilize various fund sources. The projects are typically listed in the FY that the work should be done. This compilation includes project description and estimated cost.
FMPO:	Facilities Management and Planning Office
RTD:	Research Testing Division
RTD Metrics	Divisional metrics consisting of feedback from test customers and/or test facility run hours.
Functional Budget	RTD budget that funds 1) activities that cannot be directly tied to a research program yet benefit the center, and 2) activities that can be tied (directly or indirectly) to research activities at the center. Examples: Institutional maintenance/repairs, SSCs, general division operations.
Internal Customer:	Customer within NASA Glenn, specifically the various program offices, bringing test requirements and resources to the test facilities.
Integrated Facility Planning Team	A team responsible for integrated facility capital investment/maintenance planning consistent with the Center's strategic implementation plan. Membership includes representation from the RTD organization.
Operational Readiness Review(ORR):	A formal committee organized by the Facility Manager to review test project preparations and test plans and to ensure that research objectives will be achieved.
Research Personnel:	Person that is responsible for defining the test requirements, the test objectives and desired test results. Also, this person assists in data acquisition, and analyzes the data obtained from the test.
RFMF	Research Facilities Maintenance Funds – an RTD budget to fund maintenance and repairs on research related facilities at the center.

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3.0 RESPONSIBILITIES

3.1 7600/Research Testing Division

The 7600 Research Testing Division of the 7000/Engineering and Technical Services Directorate is the key organization responsible for facilities management at the NASA Glenn Research Center. As such, the 7600 Division is responsible for the scheduling, maintenance and improvements, and the strategic planning for all research facilities under the Division's jurisdiction.

3.2 7010/Business Systems Office

This office is responsible for administering the funds used for facility maintenance and improvement activities. As such, the 7010 office receives and controls all facility funds for the division and, in conjunction with the Integrated Facility Planning Team, establishes all facility fund allocations. The 7010 office is also responsible for ensuring that all facility funds are used according to established policies and that overall facility costing guidelines are achieved.

3.3 7610/7620/7630/7640/7660 Aeronautics (Aero) and Space Test Engineering

This is a group of five branches – 7610 (Aviation Environments Test Engineering), 7620 (Aeropower & Propulsion Test Engineering), 7630 (Space Power Test Engineering), 7640 (Space Combustion & Microgravity Test Engineering) and 7660 (Electronic & Special Systems). The engineers in these branches provide all the necessary services required to support aeronautical and space research testing in the facilities within their jurisdiction. These services include pre-test article consultations, work plans (local project management), insuring facility readiness, performing minor test article or facility Field Engineering, consulting on facility and test article design and fabrication, build up, installation, checkout, safety reviews, test article and facility changes, testing, validation of data, preventive and corrective action to testing anomalies, run reports, test article removal, and summary reports.

3.4 7601/Facility Management and Planning Office

The Facilities Management and Planning Office is responsible for advocating, developing and maintaining test facilities at the NASA Glenn Research Center to meet the needs in Aerospace research. The office provides single points of contact to facility customers and stakeholders. The office identifies and manages all necessary resources to ensure the effective utilization of test and support facilities.

GRC-P3.4, Facilities Management, provides a set of common requirements for facility management and serves as an index to reference more detailed organizational procedures.

3.5 Customers - Internal and External

The customer, whether an internal NASA Glenn organization or an external company or entity, brings forth a potential test requirement or need for the research facilities at NASA Glenn. The customer is responsible for contacting NASA Glenn with their needs and to specify the test requirements. The customer is provided a test cost and test window and then, if the customer is external, enters into a formal agreement with NASA Glenn to perform the test. Also, if desired, the customer can be an integral part of the test itself as well as the data analysis.

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4.0 PROCEDURE

4.1 Research Test Scheduling and Operation

Proper research test scheduling and operation are required to ensure that programmatic goals are met within the required time period and within target cost goals and available staffing resources. Proper facility scheduling and operation includes ensuring effective facility utilization and meeting program requirements regarding precision and accuracy, while at the same time meeting all safety and environmental requirements.

The following is a test-by-test process and can occur randomly throughout the year.

<u>Responsible Person or Organization</u>	<u>Block No.</u>	<u>Activity</u>
Customers - Internal and External	4.1.1	The Internal or External Customer makes an informal inquiry or submits a formal test request to the Facility Manager.
Facility Management and Planning Office	4.1.2	The Facility Manager receives the internal or external customer test request and identifies the test requirements. After requesting and receiving input from the Aero & Space Test Engineering Branches, the Facility Manager provides the customer with an initial cost estimate and feasibility of performing the test. The feasibility is based on facility capabilities, facility availability and manpower availability. If the test is not feasible, the Facility Manager works with the customer to modify the test requirements, select an alternate test window, or direct them to an alternate test site. The Facility Manager can also work with the Aero & Space Engineering Branches to resolve the manpower availability. Refer to Reimbursable Cost Estimate Summary Worksheet and Internal Customer Agreements Procedure GRC-P2.2.1
Aero & Space Test Engineering	4.1.3	The Aero & Space Test Engineers provide a technical assessment of performing the test and also provide the manpower requirements necessary to complete the test. Refer to Aero Test Engineering Procedure GRC-P7600.003 and Space Test Engineering Procedure GRC-P7600.004.
Facility Management and Planning Office	4.1.4	If the test request comes from an Internal Customer, the Facility Manager provides project approval and schedules the requested test. Refer to the Facility Schedules web site.
Facility Management and Planning Office	4.1.5	If the test request comes from an External Customer, the Facility Manager provides preliminary approval for the requested test and initiates the Space Act or International Letter Agreement process. Refer to Reimbursable

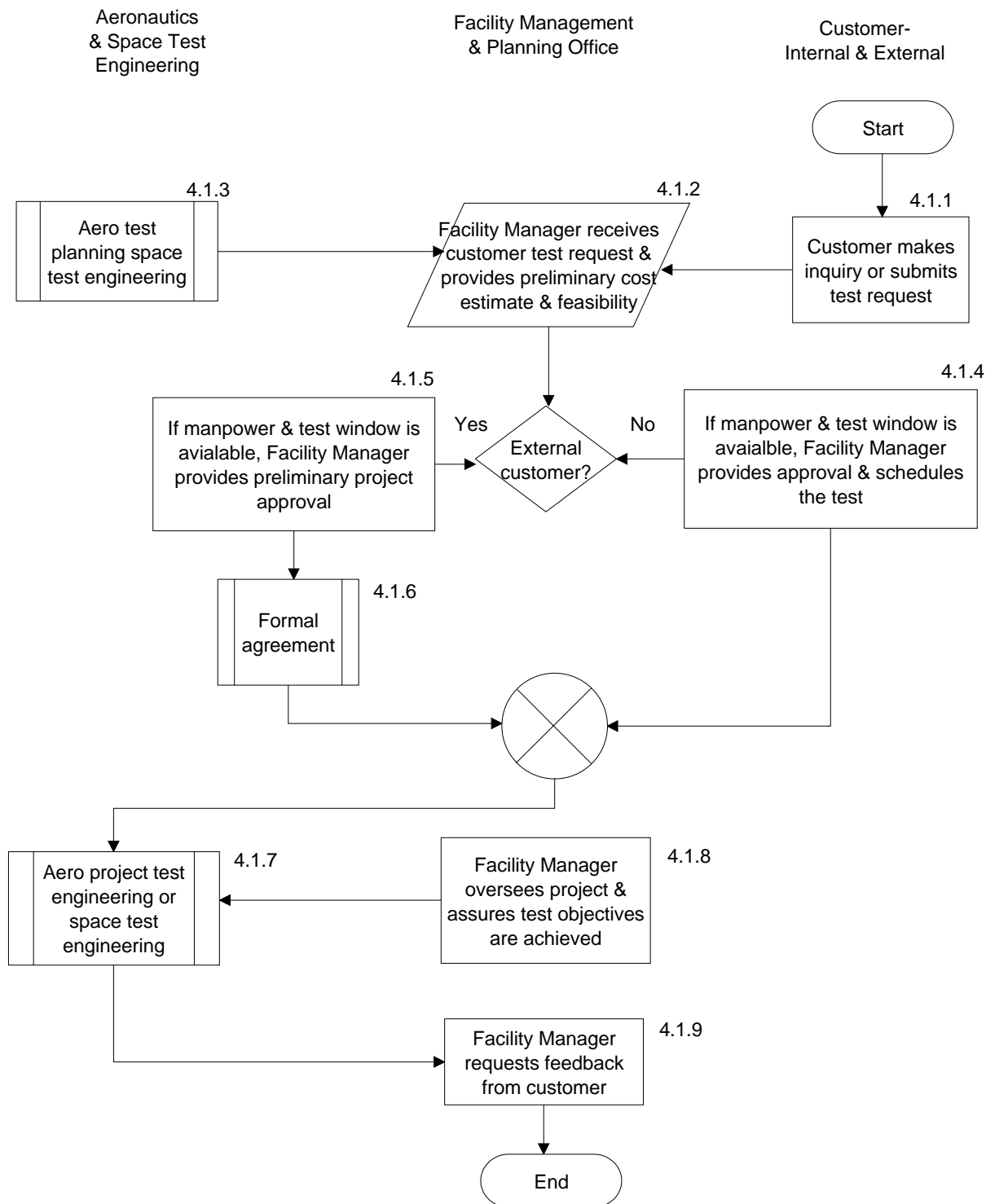
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Facility Management and Planning Office	4.1.6	<p>Agreements Manual.</p> <p>The Facility Manager works along with the External Programs Directorate in completing the Space Act or International Letter Agreement for the test. The final approval to perform an external test is made here. Refer to External Customer Agreements GRC-P2.2.2</p>
Aero & Space Test Engineering	4.1.7	<p>The Facility Manager notifies the Aero & Space Test Engineering branch management and engineers that the test is formally accepted and transfers the project point of contact function to the Test Engineer. The Facility Manager organizes the ORR from which approval is given to begin the test. Aero & Space Test Engineers perform the work necessary to prepare for and complete the test. Refer to Aero Test Engineering procedure GRC-P7600.003 and Space Test Engineering Procedure GRC-P7600.004.</p>
Facility Management and Planning Office	4.1.8	<p>The Facility Manager gathers input from the test engineers and oversees the overall project status to assure the test objectives are achieved. The Facility Manager reports the status as needed to customer representatives and division management</p>
Facility Management and Planning Office	4.1.9	<p>After the test is completed, the Facility Manager requests customer feedback by way of a customer survey form and then addresses any outstanding issues or concerns. This information is then entered into the RTD metrics database. As necessary, the Facility Manager prepares a formal response to the customer to address their concerns.</p>

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4.1 RESEARCH TEST SCHEDULEING & OPERATION (TEST BY TEST PROCEDURE)



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4.2 Investment Planning

Investment planning, including maintenance and improvements, for the Center's research facilities and systems is required to ensure that safe, reliable, and effective facilities are available to meet the mission of the Center.

This following is an annual Fiscal Year process.

<u>Responsible Person or Organization</u>	<u>Block No.</u>	<u>Activity</u>
Facility Management and Planning Office	4.2.1	As part of the annual RTD budget call, the Facility Manager requests input from a variety of sources, including the Aero & Space Test Engineering Branches and the Internal & External Customers, and then develops an individual facility investment plan. The funding level, established by NASA HQs, is passed on to the Facility Managers in the RTD budget call.
Aero & Space Test Engineering	4.2.2	The Aero & Space Test Engineers provide planned/needed facility maintenance, upgrades and repair assessments to the Facility Manager. Refer to Facility Engineering Procedure GRC-P7600.003.
Customer - Internal and External	4.2.3	The Facility Manager contacts the current and past Internal and External Research personnel to obtain future trends & program requirements. This then assists the Facility Manager in preparing the facility investment plan.
Facility Management and Planning Office	4.2.4	The Facility Manager prepares the facility project submittal forms and assigns a priority ranking to each project for the upcoming fiscal year for facility maintenance and upgrades. The scope and cost of the project determines which fund source will be requested. The Facility Manager submits the project forms to the Business Systems Office.
Business Systems Office	4.2.5	The Business Systems Office compiles the budget plan requirements from all Facility Managers.
Facility Management and Planning Office	4.2.6	An RTD organized team (which includes membership from FMPO) reviews the compiled budget plan requirements provided by the Business Systems Office for the EM, EMS and RFMF budgets. The team reviews the project requests to verify that the requested fund source is appropriate (based on the scope and cost of the project). The team selects the highest priority facility projects to be completed in the upcoming fiscal year(s) based on the funds available. The Facility Managers are informed of the projects selected and they revise their plans based upon this selection. Refer to Investment Planning – Facilities Procedure GRC-

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Facility Management and Planning Office	4.2.7	P1.2.2. The CoF Program Plan is formed. Refer to the Construction of Facilities Program; Strategic Planning Procedure Number GRC-P7300.004.
Facility Management and Planning Office	4.2.8	The Integrated Facility Planning Team (including representatives from the RTD organization) integrates the facility projects(EM, EMS, RFMF), the CoF projects and the functional budget projects. The team also assures manpower requirements are available to meet the budget requests. Refer to Investment Planning – Facilities Procedure GRC-P1.2.2.
Facility Management and Planning Office	4.2.9	The Facility Manager works with the Aero & Space Test Engineers to further identify how facility funds will actually be utilized (breaking down general projects into detailed line items). The Facility Manager keeps track of the various projects by monitoring schedules, progress and funds utilization.
Aero & Space Test Engineering	4.2.10	The Facility Manager notifies the RTD Test Engineering branches of the approved projects for the upcoming fiscal year. The Aero & Space Test Engineers then plan and implement the approved facility maintenance and investment projects. Refer to Facility Engineering Procedure GRC-P7600.003.
Business Systems Office	4.2.11	The Business Systems Office provides tracking by way of a facility monthly status report. In addition, the Office provides costing management to ensure the facility funds are fully utilized according to NASA HQs established facility costing guidelines.

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4.2 INVESTMENT PLANNING
(ANNUAL FISCAL YEAR PROCESS)

