

Task Order Plan (TOP)

Contract Number: NNM05AB50C
TO Title: MAST Design and Test Support
TO Number: 33-040121 **Revision:** 01

Period of Performance: 10/02/2010 to 9/30/2011

MSFC Initiator: Jonathan (Mark) Darden

(b)(4)

Emergency: No

Revision 1: The purpose of this revision is to extend this task into Contract Year 6 of the NNM05AB50C ESTS contract. This revision defines and estimates work for the period October 2, 2010 through September 30, 2011. Additionally, the Schedule, Performance Plan and Risk Assessment have been revised to reflect changes in task activities for the new period of performance.

Subelement -00 MAST Design and Test Support (WBS 522094.08.01.01.03.01)

Estimated (b)(4) labor hours and (b)(4) in material costs for a total cost estimate of (b)(4)

Revision 00: This new Task Order facilitates support for dynamic testing of a new Shunt Injected Damping Seal design to be performed using the Marshall Annular Seal Tester (MAST). This revision defines and estimates work for the period August 19, 2010 through October 1, 2010.

Subelement -00 MAST Design and Test Support (WBS 522094.08.01.01.03.01)

Work performed under this subelement is in support of the design development of a Shunt Injected Damping Seal, preparation of the existing test rig and the acquisition of material required for preparation activities. Estimated (b)(4) and (b)(4) in material costs resulting in a total estimate of (b)(4) for this initial revision.

1.0 Task Order Description & Objectives

The objective of this Task Order is to provide design support, tech support and material to facilitate the modification of the Marshall Annular Seal Tester (MAST) to incorporate the new Shunt Injected Damping Seal design. This task work is expected to continue into the following fiscal year, culminating in testing to be performed in early 2011. This task order is intended to be a central point of coordination between design personnel, test personnel, and the NASA Task Initiator; as well as a vehicle for the acquisition of material required to modify the MAST.

The scope of this task is to provide support in the development Computer Aided Design models and drawings necessary to define the specified geometric and material properties for fabrication of the proposed Shunt Injected Damping Seal and associated hardware. In addition, tech personnel will be required to physically perform the work necessary to modify the existing MAST test rig. The scope of this task will also include the acquisition of material necessary to facilitate test rig set-up and test execution.

2.0 Technical Approach (Including required input, guidelines & assumptions)

The contractor will provide design support to Propulsion Structural and Dynamics Analysis Branch personnel to develop CAD models and drawings, perform test-rig modification and set-up, and purchase test supplies and related test support equipment. The technical approach is described as follows:

The ESTS Propulsion Component Design and Development Team (MER34) will provide design support for this Task Order. Specific contractor responsibilities include, but are not limited to support in the development of the following design drawings:

- Damping Seal Carrier
- Damping Seal with Shunt Injection Ring
- Proximity Probe Holders

Technician support will be provided through the ESTS Group Propulsion Component Design and Development Team (MER33). Specific responsibilities include, but are not limited to the disassembly and reassembly of the following MAST components:

- Upper Hydrostatic Bearing
- Housing Accelerometer Brackets
- External Proximity Probe Stingers
- Rotor Coupling Guard and associated plumbing
- High Speed Coupling (Shaft-to-Transmission) and Rotor
- Bell Crank to Shaker

Specific instructions for these disassembly/reassembly operations will be provided through Work Orders generated by MER33. Similarly, Work Orders will provide specific instructions required to support future testing of the Shunt Injected Damping Seal. Purchase of test instrumentation, supplies, and other associated equipment will be also be required to support the modification of the MAST. Procurement of vendor fabrication services will be required following the completion of design drawings.

3.0 Discussion of Skills Required

Subelement -00 MAST Design and Test Support

A CAD operator with experience in the development of ProE models and drawings is required.

Technicians with previous experience with the MAST hardware are required.

4.0 Special Tools Required

None.

5.0 Participating Subcontractors

None.

6.0 Milestones & Deliverables

- a) Monthly Activity Reports

- b) Design drawings
- c) Briefings as required
- d) Fabricated parts
- e) Test results

Report deliverables shall be produced using Microsoft Office products. (Word, Excel, PowerPoint).

7.0 Special Considerations (Recruiting, Special Equipment / Material, Safety, etc.)

Design drawings will meet requirements of the ESTS Group's AS9100-compliant Performance Management System.

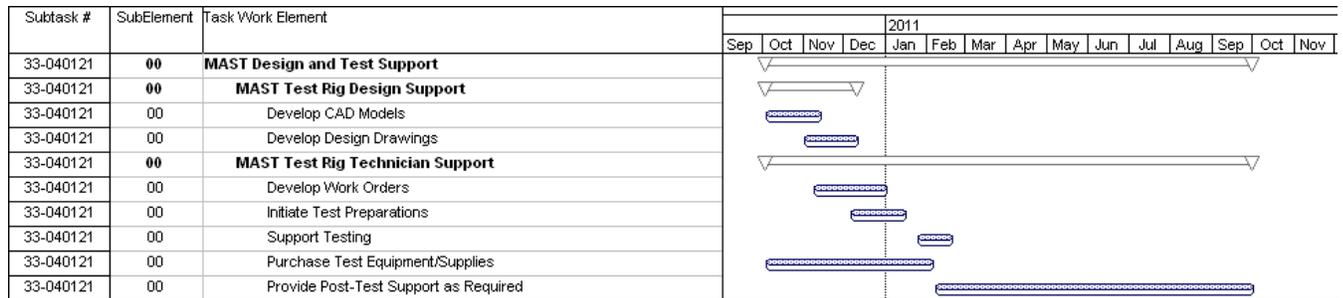
New instrumentation will be required to support this test. A new flow meter and pressure transducers are estimated to cost (b)(4). Miscellaneous material and equipment estimated at (b)(4) will be required to support the disassembly and reassembly of the MAST test rig.

8.0 Work Shelf

The following activities could be accomplished as part of the Task Order performance by personnel that are temporarily available due to program or funding delays on other Tasks. Specific assignments will be coordinated with the Task Initiator to ensure appropriate skills and experience.

TO/Subelement	Description	Due Date	Skill
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9.0 Schedule



ESTS Contract Task Order Request Performance Plan

Task Order Title: [MAST Design and Test Support](#)

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Category	Weighting Technical %	End of Period Technical Score
Technical Objectives	65%	X 65% = Justification
Develop test rig modification drawings Support pre and post test operations		
Schedule Objectives (Milestones)	Weighting Schedule % 10% (min 10%)	Schedule Score X 10% = Justification
Monthly reports Briefings as required		
Cost (actual vs. negotiated)	Weighting Cost% 25% (min.25%)	Cost Score X 25% = Justification
	Weighting Total % 100.00%	Total Score

Technical, Schedule, and Cost Grading Scale

Score	Description
9.0-10.0	Exceeded TO Performance Plan objectives resulting in major benefit(s)
8.0-8.9	Exceeded TO Performance Plan objectives resulting in modest benefit(s)
7.0-7.9	Met TO Performance Plan objectives
3.0-6.9	Did not meet all TO Performance Plan objectives resulting in minimal impact or requiring additional agency funds
0.0-2.9	Did not meet TO Performance Plan objectives resulting in substantial impact and/or requiring additional agency funds

ESTS Contract Task Order Request Performance Plan

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Comments:

Risk Assessment

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Task Order Risk Assessment to Cost, Technical, and Schedule

List identified risk associated with Task Order performance as related to task cost, technical, and schedule. Classify the risk(s) according to probability of occurrence and impact as defined below and enter the risk into risk matrix.

Risk	Risk Type	Probability (1-4)	Impact (1-4)	Risk Description
Risk C1	Cost			No cost risks have been identified for this Task Order.
Risk C2	Cost			
Risk T1	Technical	1	1	Technical knowledge of personnel assigned not appropriate for work assigned.
Risk T2	Technical			
Risk S1	Schedule	1	2	If required input data is not available on schedule, it may cause delays in associated deliverables.
Risk S2	Schedule			

*Note: See page 2 for risk mitigation plan for those risks which are Primary Risk Drivers.

