

ANNEX ONE
 BETWEEN
 THE NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
 JOHN C. STENNIS SPACE CENTER
 AND
 RELATIVITY SPACE, INCORPORATED
 UNDER SPACE ACT UMBRELLA AGREEMENT
 NO. SSAA-1053-0117

ARTICLE 1. PURPOSE

Relativity Space, Inc. (RSI) is designing the (b)(4) orbital launch vehicle to be fully manufactured using (b)(4) technologies. Launch vehicle components produced by (b)(4) processes potentially can result in better, less expensive launch vehicles than those produced by conventional processes. RSI is planning to manufacture the Aeon 1 rocket engine for (b)(4) using an (b)(4) (b)(4) (b)(4)

No rocket engine has ever been tested with both a (b)(4) (b)(4) (b)(4) RSI desires to test a (b)(4) engine utilizing the facilities and resources at Stennis Space Center (SSC). The engine(s) to be tested will be fully assembled off-site and brought to SSC. RSI seeks the opportunity to acquire engine operating performance data via test at SSC to prove the engine's design and (b)(4) technology applied to a (b)(4) rocket engine. Stennis has existing testing facilities and resources that are ideally situated and adaptable to help accomplish RSI's goals of making production of launch vehicles, and space travel, less expensive, and available more quickly via (b)(4)

Work under this Annex will include reconfiguration of NASA SSC's E3 Cell 2 test facility for RSI's Aeon 1 engine and performance of a series of tests to determine and evaluate Aeon 1's (b)(4) characteristics. (b)(4) weeks of testing are anticipated pursuant to this Annex over a (b)(4) month calendar period to accomplish the intended scope of this effort.

ARTICLE 2. RESPONSIBILITIES

A. NASA SSC will use reasonable efforts to:

1. Provide use of a test facility (E3 Cell 2) and the associated engineering and technician resources in support of test facility build-up and test operations to accommodate RSI's Aeon 1 engine (b)(4) test project requirements. Specific facility requirements are:

a. A nominal combined propellant flow of (b)(4) of Liquid Oxygen (LOX) and Liquid Methane (LM) at an LO2 to LM mixture ratio between (b)(4). The facility/test article interface pressure will be approximately (b)(4) psia and flow duration will be approximately (b)(4) seconds.

- b. (b)(4) lbf vertical or horizontal thrust take-out structure (TTOS).
- c. Data acquisition system with PT, TC, load cell, and flowmeter channels.
- d. Water flow system for (b)(4) testing capable of providing (b)(4) for the duration of test.

2. Reconfigure the E3 Cell 2 engine deck for the Aeon 1 test article, including:

(b)(4)

3. Provide advice and guidance on the testing process including the development of a test matrix.

4. Provide all test data acquisition services and test operations, including checkout, test and post-test operations.

B. Partner will use reasonable efforts to:

- 1. Provide for all Aeon 1 engine test article manufacturing, assembly and its transportation to SSC.
- 2. Provide the structural interface between test article and existing mounting points on the facility.
- 3. Provide a technical representative onsite for all test article related activities (e.g. installation, activation, hot-fire).

ARTICLE 3. SCHEDULE AND MILESTONES

The planned major milestones for the activities for this Annex defined in the "Responsibilities" Article are as follows:

Delivery of test article to SSC approximately one (1) month prior to expected test date. Subsequent test articles will be also delivered at least one (1) month prior to expected test date.

(b)(4)

Projected Completion of Test Project

(b)(4)

ARTICLE 4. FINANCIAL OBLIGATIONS

A. Partner agrees to reimburse NASA an estimated cost of (b)(4) for NASA to carry out its responsibilities under this Annex. This cost is based on the estimated cost of facility buildup (b)(4) and (b)(4) of intermittent testing at (b)(4) per week of standard test activities at E3C2 to carry out its responsibilities under this Annex. This

estimated cost is based on a standard 40-hour work week and includes (b)(4) for propellants and gasses and (b)(4) for ancillary materials supporting test operations. To allow for sufficient time for processing of payments, funding for all activities under this Annex shall be resident with NASA SSC no less than two (2) weeks prior to the commencement of any activities under this Annex.

Each payment shall be marked with "NASA Stennis Space Center" and "Annex 1, SSAA-1053-0118."

B. NASA will not provide services or incur costs beyond the current funding. Although NASA has made a good faith effort to accurately estimate its costs, it is understood that NASA provides no assurance that the proposed effort under this Annex will be accomplished for the estimated amount. Should the effort cost more than the estimate, Partner will be advised by NASA as soon as possible. Partner shall pay all costs incurred and have the option of canceling the remaining effort, or providing additional funding in order to continue the proposed effort under the revised estimate. Should this Annex be terminated, or the effort completed at a cost less than the agreed-to estimated cost, NASA shall account for any unspent funds within 180 days after completion of all effort under this Annex, and promptly thereafter, at Partner's option return any unspent funds to Partner or apply any such unspent funds to other activities under the Umbrella Agreement.

ARTICLE 5. INTELLECTUAL PROPERTY RIGHTS - DATA RIGHTS

A. Data produced under this Annex which is subject to paragraph C. of the Intellectual Property Rights - Data Rights Article of the Umbrella Agreement will be protected for the period of two (2) years.

B. Under paragraph H. of the Intellectual Property Rights - Data Rights Article of the Umbrella Agreement, Disclosing Party provides the following Data to Receiving Party. The lists below may not be comprehensive, are subject to change, and do not supersede any restrictive notice on the Data provided.

1. Background Data: None
2. Third Party Proprietary Data: None
3. Controlled Government Data: None
4. The following software and related Data will be provided to Partner under a separate Software Usage Agreement: None

ARTICLE 6. TERM OF ANNEX

This Annex becomes effective upon the date of the last signature below and shall remain in effect until the completion of all obligations of both Parties hereto, or one (1) year from the Effective Date, whichever comes first, unless such term exceeds the duration of the Umbrella Agreement. The term of this Annex shall not exceed the term of the

Umbrella Agreement. The Annex automatically expires upon the expiration of the Umbrella Agreement.

ARTICLE 7. RIGHT TO TERMINATE

Either Party may unilaterally terminate this Annex by providing thirty (30) calendar days written notice to the other Party.

ARTICLE 8. MANAGEMENT POINTS OF CONTACT

The following personnel are designated as the Management Points of Contact between the Parties in the performance of this Annex.

Management Points of Contact:

NASA Stennis Space Center

David Coote

Manager

New Business Development and Planning

Mail Stop: Building 1100/EA02

Stennis Space Center, MS 39529

Phone: (228) 688-1056

Email: david.j.coote@nasa.gov

Relativity Space, Incorporated

Jordan Noone

Chief Technology Officer

8701 Aviation Blvd.

Inglewood, CA 90301

(b)(4)

ARTICLE 9. MODIFICATIONS

Any modification to this Annex shall be executed, in writing, and signed by an authorized representative of NASA and the Partner. Modification of an Annex does not modify the terms of the Umbrella Agreement.

ARTICLE 10. SIGNATORY AUTHORITY

The signatories to this Annex covenant and warrant that they have authority to execute this Annex. By signing below, the undersigned agrees to the above terms and conditions.

National Aeronautics And Space
Administration

John C. Stennis Space Center

Relativity Space, Incorporated

BY: R. Gilbrech
Richard J. Gilbrech, Ph.D.
Center Director

BY: Jordan Noone
Jordan Noone
Chief Technology Officer

DATE: 8-18-16

DATE: 8/23/16

AMENDMENT ONE TO
ANNEX ONE
BETWEEN
THE NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
JOHN C. STENNIS SPACE CENTER
AND
RELATIVITY SPACE, INCORPORATED
UNDER SPACE ACT UMBRELLA AGREEMENT
NO. SSAA-1053-0117

Whereas on August 23, 2016, Relativity Space, Inc. (RSI) entered into Annex One, SSAA-1053-0118 (Annex) to Umbrella Space Act Agreement, SSAA-1053-0117 (Agreement) with the National Aeronautics and Space Administration (NASA), John C. Stennis Space Center (SSC), for the purpose of providing NASA test facility and test services for the RSI Aeon 1 rocket engine. Specifically, this Annex described facility modifications and fabrication activities to support the RSI test article hardware and (b)(4) (b)(4) weeks of testing activities over a (b)(4) month period.

Whereas, since the signing of the Annex One, RSI and NASA SSC have developed additional details of the facility modifications required, performed extensive (b)(4) (b)(4) and checkout testing of the (b)(4) over a (b)(4) week test activity period, and completed the majority of system configuration changes to establish the facility into a good support arrangement for the engine testing series. These items have resulted in additional in-scope annex services in which a new forecasted completion date, along with a revised funding profile will be required. This amendment provides a revised completion date changed from (b)(4) and a revised funding estimate changed from (b)(4) to a new value of (b)(4) and

Whereas the Parties wish to amend the existing Annex One to reflect these changes and continue into the engine test series activities; and

Whereas Article 9 of the Annex One states that the Agreement may be modified by mutual consent of the Parties and must be executed in writing and signed by the authorized representatives of each Party.

Now, therefore, the Parties do hereby agree that Annex One is modified by this Amendment One as follows:

ARTICLE 3. SCHEDULE AND MILESTONES

Article 3 is deleted in its entirety and replaced with:

The following planned milestones and objectives are used for project planning coordination between the Parties. Adjustments can be made between the representatives of each party as long as the dates are agreed upon, do not extend outside the Umbrella Agreement, and the costs do not exceed (b)(4)

Delivery of first engine test article to SSC shall be approximately one (1) month prior to expected test date. Subsequent test articles will be targeted for delivery at two (2) weeks prior to expected test readiness, provided interfaces remain the same with respect to size, location and orientation.

- Initial component hardware delivery:
- Thrust Chamber/Engine delivery
- Projected Completion of Test Project Annex One:

(b)(4)

ARTICLE 4. FINANCIAL OBLIGATIONS

Article 4, Section A is deleted in its entirety and replaced with:

A. Partner (RSI) agrees to reimburse NASA an estimated cost of (b)(4) for NASA to carry out its responsibilities under this Annex. This cost is based on the actual cost to date (the date of SSC's signing of this Amendment), along with a projection of (b)(4) for the project completion timeframe of (b)(4). This revised cost projection is based on RSI providing the liquid natural gas (LNG) propellant per arrangements with their contracted supplier for delivery to SSC. To allow for sufficient time for processing of payments, funding for all activities under this Annex shall be resident with NASA SSC no less than two (2) weeks prior to the commencement of any activities under this Annex requiring funding. The SSC Project representative in coordination with the RSI representative will assure intermediate funding allocations and disbursements are received in a timely manner to prevent work execution impacts.

Each payment shall be marked with "NASA Stennis Space Center" and "Annex One, SSAA-1053-0118." The planned funding deliveries to accomplish this Amendment One, are projected to be (b)(4) due 31 May 2017, with final balance on or about (b)(4) (b)(4) or as coordinated by the POCs.

ARTICLE 8. MANAGEMENT POINTS OF CONTACT

Article 8, Management Point of Contact for SSC is updated as follows:

NASA Stennis Space Center
Ray Nichols
Project Manager/Systems Engineer
Engineering and Test Directorate
Mail Stop: Building 3225/A46
Stennis Space Center, MS 39529
Phone: (228) 688-1731
Email: raymond.c.nichols@nasa.gov

All other terms and conditions of the Umbrella and Annex One shall remain applicable and unchanged.

EXECUTION:

National Aeronautics and Space Administration
John C. Stennis Space Center

BY: John W. Bailey, Jr.
John W. Bailey, Jr.
Director
Engineering & Test Directorate

DATE: 5/12/17

Relativity Space, Incorporated

BY: Jordan Noone
Jordan Noone
Chief Technology Officer

DATE: 5/16/17