

ANNEX
BETWEEN
THE NATIONAL AERONAUTICS AND SPACE ADMINISTRATION AND
THE BOEING COMPANY
UNDER SPACE ACT UMBRELLA AGREEMENT
NO. 28204, DATED 9-13-18 (ANNEX 1).

ARTICLE 1. PURPOSE

This Annex shall be for the purpose of NASA JSC performing inspection, functional, and leakage testing of the available Space Shuttle R40b thrusters in the -5001 and configuration to identify the best eight (8) thrusters. The initial inspecting and testing will assist Boeing in selecting four (4) Space Shuttle R40b thrusters to return to service.

The legal authority for this Annex, consistent with the Umbrella Agreement, is in accordance with the National Aeronautics and Space Act (51 U.S.C. § 20113(e)).

ARTICLE 2. RESPONSIBILITIES

A. NASA WSTF will use reasonable efforts to:

- a) Designate a primary technical point of contact to work with Boeing.
- b) Perform decontamination, inspection and pre hot-fire functional/acceptance testing and provide data results on eight (8) each R40b (-5001 configuration) serial numbered thrusters from the following prioritized list – 626, 419, 654, 221, 430, 466, 420, 424, 497,421, 327, 119, 124, 625, 220, 224.
Updated versions/elements of the following NASA WSTF Job Instructions (WJIs) are anticipated to be performed as part of the pre hot-fire processing:
 - PROP-CTF-0006 (unpacking, fume hood decon, receiving inspection, receiving photos
 - PROP-CTF-0008 (Dynatube inspection)
 - PROP-CTF-0009 (Pc tube flush & x-ray)
 - PROP-CTF-0011 (j-box leak test, electrical tests)
 - PROP-CTF-0007 & 0002 (facility mechanical and electrical systems set-ups)
 - PROP-CTF-0010 (flush ATPs which include valve response and mass flow tests; GN2 purge & response tests, vacuum bake of thruster)
 - PROP-CTF-0247 (propellant systems cleanliness verification)
 - PROP-CTF-0012 (final leak tests - ambient & low temperature followed by vacuum bake)
 - PROP-CTF-0199 (chamber weld leak test).
- c) Verify calibration dates of NASA JSC owned equipment are sufficient for test period.
- d) Provide support for installation of test fixtures, test articles, and functional test equipment.
- e) Provide equipment (fork trucks, cranes, etc.) to support transportation of test fixtures, test articles, and functional test equipment.

- f) Provide, connect, and operate required instrumentation and data acquisition systems in accordance with NASA JSC procedures.
- g) Conduct any NASA WSTF or Boeing required safety or readiness reviews.
- h) Support scheduled meetings between NASA WSTF and Boeing.
- i) Support removal of items related to this effort upon completion of the Annex to return facilities, equipment and test systems to their pre-test state (unless additional annexes are processed which would preclude this need.
- j) Prepare thrusters for non-destructive transfer-in-place.
- k) Support non-destructive transfer in place of thrusters to DoD entity using standard NASA transfer process.

B. Boeing will use reasonable efforts to:

- a) Designate points of contact to work directly with NASA WSTF primary point of contact.
- b) Provide all requirements and necessary documentation relating to requested activities associated with this annex in a timeframe that supports the schedule agreed upon between the parties.
- c) Support any NASA WSTF or Boeing required safety or readiness reviews.
- d) Support scheduled meetings between NASA WSTF and Boeing.

ARTICLE 3. SCHEDULE AND MILESTONES

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

<p>Milestones defined below are based on time from the date the SAA has been signed and funding received by NASA WSTF (referred to in milestones as "effective date". The milestones listed assume agreement is signed in a timeframe where no conflicting projects have been initiated during the time while the SAA was being reviewed and issued.</p>	<p>N/A</p>
<p>Boeing provides detailed requirements for processing and testing of R40b thrusters.</p>	<p>1 week after effective date</p>
<p>WSTF issues Task Order(s) for performance of efforts defined in this annex. Note: Time for issuing will be dependent upon requirements information received from Boeing and whether it varies from previous estimated planning.</p>	<p>2-4 weeks after receipt of funding & detailed requirements from Boeing</p>
<p>WSTF Technical Services Office issues/receives procurements and performs test systems build-up and</p>	<p>3-5 months after issue of Task Order(s)</p>

design/safety/readiness reviews necessary to support pre and post hot-fire decontamination, inspection and functional/acceptance testing.

WSTF Technical Services Office removes eight each 1 month after issue of Task
thrusters from containers for visual inspection and photo Order(s)
documentation.

WSTF Technical Services Office performs pre hot-fire 3 months after completion of
decontamination, inspection and functional/acceptance test systems build-up and
testing of eight R40b thrusters. design/safety/readiness review

WSTF Technical Services Office returns test systems to 2 months after completion of
pre-annex conditions. NOTE: This milestone will only pre hot-fire decontamination,
be performed if no additional annexes are funded. inspection and
functional/acceptance testing
of R40b thrusters.

ARTICLE 4. FINANCIAL OBLIGATIONS

A. Partner agrees to reimburse NASA an estimated cost of \$818,094.75 for NASA to carry out its responsibilities under this Annex.

Each payment shall be marked with [JSC-WSTF and RAN 3085].

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 one (1) year 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 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:

The Disclosing Party's Background Data, if any, will be identified in a separate technical document.

2. Third Party Proprietary Data:

The Disclosing Party's Third Party Proprietary Data, if any, will be identified in a separate technical document.

3. Controlled Government Data:

The Disclosing Party's Controlled Government Data, if any, will be identified in a separate technical document.

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 ("Effective Date") and shall remain in effect until the completion of all obligations of both Parties hereto, or two years 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. POINTS OF CONTACT

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

Management Points of Contact

NASA White Sands Test Facility

Robert M. Cort
Manager, NASA JSC White Sands Test Facility
Mail Stop: 100:112A
12600 NASA Road
Las Cruces, NM 88012
Phone: 575-524-5771
robert.m.cort@nasa.gov

THE BOEING COMPANY

Brenton D. Sumrall
Contracts Representative
Mail Suite: 841-SX72
2060 East Imperial Highway
El Segundo, CA 90245-3507
Phone: 562-797-4117
brenton.d.sumrall@boeing.com

Technical Points of Contact

NASA White Sands Test Facility
Nicholas L. Buntain
Project Manager, Technical Services
Office
Mail Suite: 200:NHB3
12600 NASA Road
Las Cruces, NM 88012
Phone: 575-524-5570
nicholas.l.buntain@nasa.gov

THE BOEING COMPANY
Ken Walmsley
Propulsion Engineer
Mail Stop: W-S12-W317
The Boeing Company,
2060 East Imperial Highway,
El Segundo, CA 90245-3507
Phone: 310-335-6695
ronald.k.walmsley@boeing.com

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
WHITE SANDS TEST FACILITY

THE BOEING COMPANY

BY: 
Robert Cort
Manager, White Sands Test Facility

BY: 
Natalie Bonillas for Brenton D. Sumrall
Contracts Representative

DATE: 9/13/2018

DATE: September 12, 2018