

1. CONTRACT (Proc. Inst. Ident.) NO. **NAS5-26645**

2. EXPIRE DATE **SEP 1 1981**

3. REQUISITION/PURCHASE REQUEST/PROJECT NO. **403-13104 (1C)**

4. CERTIFIED FOR NATIONAL DEFENSE UNDER BSDA REG. 2 AND/OR DMS REG. 1. RATING:

5. ISSUED BY CODE
National Aeronautics & Space Administration
Goddard Space Flight Center
Greenbelt Road
Greenbelt, Maryland 20771

6. ADMINISTERED BY CODE
(If other than block 5)

7. DELIVERY FOR DESTINATION
 OTHER (See below)

8. CONTRACTOR NAME AND ADDRESS CODE FACILITY CODE
University of New Hampshire
Durham, NH 03824

9. DISCOUNT FOR PROMPT PAYMENT

10. SUBMIT INVOICES (4 copies unless otherwise specified) TO ADDRESS SHOWN IN BLOCK _____

11. SHIP TO/MARK FOR CODE

12. PAYMENT WILL BE MADE BY CODE
Financial Management Division, Code 151.2
Goddard Space Flight Center
Greenbelt Road
Greenbelt, Maryland 20771

13. THIS PROCUREMENT WAS ADVERTISED, NEGOTIATED, PURSUANT TO:
 10 U.S.C. 2304 (a)(5)
 41 U.S.C. 252 (c)

14. ACCOUNTING AND APPROPRIATION DATA
J.O. 403-869-12-20-01; BLI A702; O.C. 40-2511; R&D 801/20108(81); PPC RE; B/NC 501

15. ITEM NO.	16. SUPPLIES/SERVICES	17. QUANTITY	18. UNIT	19. UNIT PRICE	20. AMOUNT
	Definition Phase of the D-1 Detector Subsystem for the COMPTEL. Type of Contract: Cost Reimbursable Technical Officer: M. A. Davis, Code 403 Contract Negotiator: R. L. Krenning, Code 280.7				

21. TOTAL AMOUNT OF CONTRACT \$ **1,631,800**

CONTRACTING OFFICER WILL COMPLETE BLOCK 22 OR 26 AS APPLICABLE

22. CONTRACTOR'S NEGOTIATED AGREEMENT (Contractor is required to sign this document and return 4 copies to issuing office.) Contractor agrees to furnish and deliver all items or perform all the services set forth or otherwise identified above and on any continuation sheets for the consideration stated herein. The rights and obligations of the parties to this contract shall be subject to and governed by the following documents: (a) this award/contract, (b) the solicitation, if any, and (c) such provisions, representations, certifications, and specifications, as are attached or incorporated by reference herein. (Attachments are listed herein.)

26. AWARD (Contractor is not required to sign this document.) Your offer on Solicitation Number _____ including the additions or changes made by you which additions or changes are set forth in full above, is hereby accepted as to the items listed above and on any continuation sheets. This award constitutes the contract which consists of the following documents: (a) the Government's solicitation and your offer, and (b) this award/contract. No further contractual document is necessary.

23. NAME OF CONTRACTOR BY **Steven Bernstein**
 (Signature of person authorized to sign)

27. UNITED STATES OF AMERICA BY **R. L. Krenning**
 (Signature of Contracting Officer)

24. NAME AND TITLE OF SIGNER (Type or print)
Steven Bernstein
Sr. Grant & Contract Officer

25. DATE SIGNED
8/6/81

28. NAME OF CONTRACTING OFFICER (Type or print)
R. L. Krenning

29. DATE SIGNED
AUG 15 1981

ARTICLE I - STATEMENT OF WORK

The contractor shall provide all materials, equipment, facilities, and personnel for the development and fabrication of a partial engineering model DI detector subsystem.

Specific tasks to be performed shall include, but not be limited to, the following:

- A) Design and fabrication of engineering model (EM) DI cell, front-end electronics (FEE), bleeder strings (BLS), bi-polar amplifier (BPA) and DI integrating structure.
- B) Design and fabricate system for selection of flight PMT's.
- C) Software development for PMT selection system and SCOE (special checkout equipment).
- D) Construct and test lead collimator for DI cell acceptance tests with necessary support structure.
- E) Perform trade-off studies as necessary to support DI detector subsystem.
- F) Continue detailed analysis of Science Model (SM) tests.
- G) Support COMPTEL team activities as requested by the Principal Investigator (PI).
- H) Support COMPTEL Preliminary Design Reviews (PDR) planned for March 1982 at BASD and August 1982 at MPI.
- I) Design, fabrication, and checkout of SCOE.
- J) Partial purchase of Research Computer Center Prime 750 computer system for dedicated use by COMPTEL.

The contractor shall provide field support as required for the following COMPTEL and GRO activities:

- A) Science Working Team (SWT) and ADP Team meetings at the GSFC.
- B) COMPTEL team and working group meetings as required by the PI.
- C) Two PDR's to be held in CY 1982.

Applicable Documents:

- A) GSFC Preferred Parts List No. 14.
- B) Performance Assurance Requirements for GRO Instruments, Document 302-S-003.
- C) Performance Assurance Implementation Plan for the COMPTEL instrument.

Deliverable Items:

- A) Monthly technical progress reports including schedule updates.
- B) Financial Management Reports (533M & 533Q).
- C) Items as specified in the COMPTEL Performance Assurance Implementation Plan.

ARTICLE II - PERIOD OF PERFORMANCE

The Period of Performance shall be from date of contract through November 30, 1982.

ARTICLE III - ESTIMATED COST

The estimated cost for complete performance of this contract is \$1,631,800.00.

ARTICLE IV - SUBMISSION OF VOUCHERS OR INVOICES FOR PAYMENT OF COSTS

Vouchers or invoices for the payment of costs shall be submitted independent of vouchers or invoices for payment of fee.

In accordance with the provisions of the clause of this contract entitled "Allowable Cost and Payment", invoices or vouchers and any required supporting statements or certificates, properly identifiable with the contract number, will be submitted by the Contractor to the Contracting Officer, or his authorized representative. Reimbursement claims should be submitted as follows:

- 1 - Original SF 1034, SF 1035 or equivalent Contractor's attachment
- 7 - Copies SF 1034a, SF 1035a or equivalent Contractor's attachment

The Contractor shall mark on copies 1 thru 5 of the foregoing SF 1034a, by insertion in the memorandum block, the name and address of the following parties to facilitate distribution of paid copies of vouchers/invoices by the GSFC Financial Management Division:

etc for 14 pages

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STANDARD FORM 26, JULY 1966 GENERAL SERVICES ADMINISTRATION FED. ACQ. REG. (41CFR) 1-10.101		AWARD/CONTRACT			PAGE 1	OF 21
1. CONTRACT (Proc. Inv. Ident.) NO. NAS-26268		2. EFFECTIVE DATE AUG 21 1980	3. REQUISITION/PURCHASE REQUEST/PROJECT NO. See Block 14		4. CERTIFIED FOR NATIONAL DEFENSE UNDER BSDA REG. 2 AND/OR DMS REG. 1. RATING: DO-A7	
5. ISSUED BY National Aeronautics & Space Administration Goddard Space Flight Center Greenbelt Road Greenbelt, Maryland 20771		CODE 282	6. ADMINISTERED BY (If other than block 5)		7. DELIVERY FOR DESTINATION <input checked="" type="checkbox"/> X <input type="checkbox"/> OTHER (See below)	
8. CONTRACTOR NAME AND ADDRESS The Trustees of Princeton University Office of Research & Project Admin. P.O. Box 36 Princeton, New Jersey 08544		CODE	FACILITY CODE	9. DISCOUNT FOR PROMPT PAYMENT N/A		10. SUBMIT INVOICES (4 copies unless otherwise specified) TO ADDRESS SHOWN IN BLOCK 12
11. SHIP TO/MARK FOR See Article III - F.O.B. Point		CODE	12. PAYMENT WILL BE MADE BY Financial Management Division, Code 212 Goddard Space Flight Center Greenbelt Road Greenbelt, Maryland 20771		CODE	
13. THIS PROCUREMENT WAS <input type="checkbox"/> ADVERTISED, <input checked="" type="checkbox"/> NEGOTIATED, PURSUANT TO: <input checked="" type="checkbox"/> 10 U.S.C. 2304 (a)(1)(5) <input type="checkbox"/> 41 U.S.C. 252 (c)						
14. ACCOUNTING AND APPROPRIATION DATA JON: 740-879-31-02-05; APP: 800/10108(80); BLI: A7-06; O.C. 74-5113 A. Moak PCN: 740-83203 (\$335,000)(1C) PPC-SE; B/NC: 278 Continued on Page 1a						
15. ITEM NO.	16. SUPPLIES/SERVICES			17. QUANTITY	18. UNIT	19. UNIT PRICE
	Design, Development, Fabrication, and Data Analysis of the Interstellar Medium Absorption Profile Spectrograph Experiment in accordance with Attachment A - Statement of Work.					
	Technical Officer: Harry Cyphers, Code 420 Contract Negotiator: Dan DeMaio, Code 282 Type of Contract: Cost-No-Fee			Linda X718	Hand called Princeton for Plan 11/24/80	OFFICE OF PATENT COUNSEL
21. TOTAL AMOUNT OF CONTRACT \$ 1,213,528						
CONTRACTING OFFICER WILL COMPLETE BLOCK 22 OR 26 AS APPLICABLE						
22. <input checked="" type="checkbox"/> CONTRACTOR'S NEGOTIATED AGREEMENT (Contractor is required to sign this document and return 4 copies to issuing office.) Contractor agrees to furnish and deliver all items or perform all the services set forth or otherwise indicated above and on any continuation sheets for the consideration stated herein. The terms and obligations of the parties to this contract shall be subject to and governed by the following documents: (a) this award/contract, (b) the solicitation, if any, and (c) such promises, representations, certifications, and specifications, as are attached or incorporated by reference herein. (Attachments are listed herein.)				26. <input type="checkbox"/> AWARD (Contractor is not required to sign this document.) Your offer on Solicitation Number _____, including the additions or changes made by you which additions or changes are set forth in full above, is hereby accepted as to the items listed above and on any continuation sheets. This award consummates the contract which consists of the following documents: (a) the Government's solicitation and your offer, and (b) this award/contract. No further contractual document is necessary.		
23. NAME OF CONTRACTOR BY <i>Allen J. Sinisgalli</i> (Signature of person authorized to sign)				27. UNITED STATES OF AMERICA BY <i>Gifford P. Moak</i> (Signature of Contracting Officer)		
24. NAME AND TITLE OF SIGNER (Type or print) Allen J. Sinisgalli Director, Office of Project Administration		25. DATE SIGNED AUG 19 1980	28. NAME OF CONTRACTING OFFICER (Type or print) GIFFORD P. MOAK		29. DATE SIGNED AUG 21 1980	

INDEX OF SCHEDULE ARTICLES

- ARTICLE I - SCOPE OF WORK
- ARTICLE II - DELIVERABLE ITEMS AND SCHEDULE
- ARTICLE III - F.O.B. POINT
- ARTICLE IV - PRESERVATION, PACKING, PACKAGING AND MARKING (II-24a)
- ARTICLE V - ADVANCED NOTIFICATION OF SHIPMENT (II-30)
- ARTICLE VI - GOVERNMENT BILLS OF LADING (II-34)
- ARTICLE VII - OVERHEAD RATES (III-50)
- ARTICLE VIII - ESTIMATED COST
- ARTICLE IX - SUBCONTRACT APPROVAL
- ARTICLE X - LIMITATION OF GOVERNMENT'S OBLIGATION (INCREMENTAL PERIODS OF PERFORMANCE) (III-44)
- ARTICLE XI - SUBMISSION OF VOUCHERS OR INVOICES FOR REIMBURSEMENT OF COSTS - (UNIVERSITIES) (III-25)
- ARTICLE XII - ADVANCE AGREEMENT ON CERTAIN COST ITEMS
- ARTICLE XIII - DESIGNATION OF NEW TECHNOLOGY REPRESENTATIVE AND PATENT REPRESENTATIVE (February 1977) (IV-14)
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- ARTICLE XIV - TECHNICAL DIRECTION (IV-19)
- ARTICLE XV - MONTHLY LETTER PROGRESS REPORT
- ARTICLE XVI - TYPE III FINAL PROJECT REPORT (IV-26)
- ARTICLE XVII - TECHNICAL REPORTS
- ARTICLE XVIII - MONTHLY AND QUARTERLY CONTRACTOR FINANCIAL MANAGEMENT REPORT (NASA FORMS 533M AND 533 Q) (IV-28B)
- ARTICLE XIX - WORK BREAKDOWN STRUCTURE (WBS) (IV-30)
- ARTICLE XX - KEY PERSONNEL AND FACILITIES (IV-43)

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- ARTICLE XXII - COOPERATION WITH OTHER CONTRACTOR PERSONNEL (IV-45)
- ARTICLE XXIII - GOVERNMENT FURNISHED PROPERTY (IV-57)
- ARTICLE XXIV - ACQUISITION/FABRICATION/REPORTING OF CENTRALLY REPORTABLE EQUIPMENT (IV-52C)
- ARTICLE XXV - PRIORITIES, ALLOCATIONS AND ALLOTMENTS (IV-69)
- ARTICLE XXVI - SUBCONTRACTS (IV-80)
- ARTICLE XXVII - ACCESS TO GOVERNMENT PROPERTY, SERVICE AND/OR SPACE (IV-111)
- ARTICLE XXVIII - DESIGNATION OF CONTRACTING OFFICER'S TECHNICAL REPRESENTATIVE (IV-113)
- ARTICLE XXIX - INSPECTION AND ACCEPTANCE (V-1B)
- ARTICLE XXX - MATERIAL INSPECTION AND RECEIVING REPORT (V-9A)
- ARTICLE XXXI - INCORPORATION OF CONTRACT CLAUSES BY REFERENCE (VI-1)
- ARTICLE XXXII - CONTENTS OF CONTRACT (VI-2)
- ARTICLE XXXIII - ORDER OF PRECEDENCE (November 1965) (VIII-1)

ARTICLE I - SCOPE OF WORK

The Contractor shall provide the materials, services, facilities, and personnel necessary for the design, development, fabrication, testing, checkout, calibration, and certification of the Interstellar Medium Absorption Profile Spectrograph (IMAPS) Experiment to be flown on the Black Brant sounding rocket as set forth in Attachment A entitled "Statement of Work." The Contractor shall also support instrument testing, integration and flight operations at the locations designated in the Statement of Work. The Contractor shall also analyze, reduce and report on the flight data within a period of one year after receipt of such data.

The work is to be performed in four sequential phases: the Design Phase, the Spectrograph Fabrication Phase, the Detector Fabrication and Test Phase, and the Integration, Launch and Data Analysis Phase in accordance with the milestone schedule outlined in Attachment C.

ARTICLE II - DELIVERABLE ITEMS AND SCHEDULE

The following items shall be completed and/or delivered as indicated. Unless otherwise indicated all dates are "months after effective date of contract". The references below are to applicable paragraphs of the aforementioned Attachment A and/or pertinent Contract Schedule Articles.

<u>Item</u>	<u>Description</u>	<u>Reference</u>	<u>QTY</u>	<u>Delivery</u>
1	Program Plan	SOW 1.2.1	6	1 1/2 months
2	Monthly Progress Reports	SOW 1.2.5 Art. XV	6	Due by 15th day of month
3	Monthly Financial Reports	(533M) Art. XVII	5	Due by 15th day of month
4	Quarterly Financial Reports	(533Q) Art. XVII	5	15th of March June, Sept. Dec.
5	Informal Reviews	SOW 1.22.1 Art. III		As required by the Technical Officer
6	Preliminary Design (PDR) Review	SOW 1.3.2.1		Mar. 1981
7	Critical Design Review (CDR)	SOW 1.3.2.1		Aug. 1981

ARTICLE II - DELIVERABLE ITEMS AND SCHEDULE (Cont'd)

<u>Item</u>	<u>Description</u>	<u>Reference</u>	<u>QTY</u>	<u>Delivery</u>
8	Top Level Drawings Layout & Rocket Interface	SOW 1.3.2.2		Aug. 1981
9	Detector Development (DDR) Review	SOW 1.3.2.3 Art. III		April 1982
10	Pre-Integration Review (PIR)	SOW 1.3.2.4 Art. III		Jan. 1983
11	Test Data	SOW 1.3.2.4	1 Set	Jan. 1983
12	IMAPS Rocket Instrument	SOW	1	Mar. 1983
13	Ground Support Equipment	SOW	1 Set	Mar. 1983
14	Flight Readiness Review	SOW 1.3.2.5		Mar. 1983
15	Final Report	Art. XVI		
	a. Draft		10	60 days after launch but no later than July 1983
	b. Final		25	90 days after launch but no later than Aug. 1983
16	Technical Reports	SOW 1.7 Art. XVII	5	Within 30 days of availability but no later than 1 year after launch

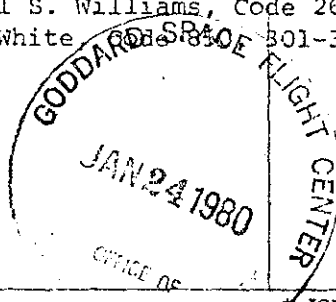
ARTICLE III - F.O.B. POINT

Delivery of all items called for herein shall be F.O.B. destination and shall be shipped "all transportation costs prepaid".

— etc for 21 pages —

9/30/81
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STANDARD FORM 26 JULY 1966 GENERAL SERVICES ADMINISTRATION REG. PROC. REG. (41 CFR) 101-11.6		AWARD/CONTRACT		PAGE 1 OF 21	
1. CONTRACT (Proc. Inv. Ident.) NO NASS-25948		2. EFFECTIVE DATE 12-7-79		3. REQUISITION/PURCHASE REQUEST/PROJECT NO 850-44826(1C)	
4. ISSUED BY National Aeronautics & Space Administration Goddard Space Flight Center Greenbelt Road Greenbelt, Maryland 20771		5. ADMINISTERED BY 268 Gail S. Williams 301-344-8608		6. CERTIFIED FOR NATIONAL DEFENSE UNDER SEC. REG. 2 AND/OR DMS REG. 1. N/A	
7. CONTRACTOR NAME AND ADDRESS The University of Texas at Austin Office of Sponsored Projects Attn: Mr. A. J. Dusek P.O. Box 7726 Austin, TX 78712		8. FACILITY CODE		9. DISCOUNT FOR PROMPT PAYMENT Net 30	
10. SHIP TO/MARK FOR See Article H.4		11. PAYMENT WILL BE MADE BY Financial Management Division, Code 212 Goddard Space Flight Center Greenbelt Road Greenbelt, Maryland 20771		12. SUBMIT INVOICES (4 copies unless otherwise specified) TO ADDRESS SHOWN IN BLOCK 12	
13. THIS PROCUREMENT WAS <input type="checkbox"/> ADVERTISED, <input checked="" type="checkbox"/> NEGOTIATED, PURSUANT TO: <input checked="" type="checkbox"/> 10 U.S.C. 2304 (a)(5) <input type="checkbox"/> 41 U.S.C. 252 (a)					
14. ACCOUNTING AND APPROPRIATION DATA \$84,000; 809/00108(79); 850-676-10-01-04; A703; 85-8527; B/NC-178; PPC-SF					
15. ITEM NO.	16. SUPPLIES/SERVICES	17. QUANTITY	18. UNIT	19. UNIT PRICE	20. AMOUNT
	Operation and Management of the Satellite and Laser Ranging Ground Station Equipment at McDonald Observatory, Texas and the Application of Single Photoelectron Techniques in Laser Ranging for Crustal Dynamics Measurements. Type of Contract: Cost Sharing Contract Administrator: Gail S. Williams, Code 268.2, 301-344-8608 Technical Officer, Wiley W. White, Code SR40E, 301-344-8437				
21. TOTAL AMOUNT OF CONTRACT \$ 84,000					
CONTRACTING OFFICER WILL COMPLETE BLOCK 22 OR 26 AS APPLICABLE					
22. <input checked="" type="checkbox"/> CONTRACTOR'S NEGOTIATED AGREEMENT (Contractor is required to sign this document and return 4 copies to issuing office.) Contractor agrees to furnish and deliver all items or perform all the services set forth or otherwise identified above and on any continuation sheets for the consideration stated herein. The rights and obligations of the parties to this contract shall be subject to and governed by the following documents: (a) this award/contract, (b) the solicitation, if any, and (c) such provisions, representations, certifications, and specifications, as are attached or incorporated by reference thereto. (Attachments are to be bound.)			26. <input type="checkbox"/> AWARD (Contractor is not required to sign this document.) Your offer on Solicitation Number _____, including the additions or changes made by you which additions or changes are set forth in the above, is hereby accepted as to the items listed above and on any continuation sheets. This award consummates the contract which consists of the following documents: (a) the Government's solicitation and your offer, and (b) this award/contract. No further contractual document is necessary.		
23. NAME AND TITLE OF SIGNER A. J. Dusek (Signature of person authorized to sign)			27. SIGNED FOR THE GOVERNMENT Gail S. Williams (Signature of Contracting Officer)		
24. NAME AND TITLE OF SIGNER (Type or print) G. J. Fonken Vice-President for Research		25. DATE SIGNED 11/28/79		28. NAME OF CONTRACTING OFFICER (Type or print) Gail S. Williams	
26. NAME AND ADDRESS OF CONTRACTOR The University of Texas at Austin		29. DATE SIGNED 12-7-79			



(B)

NOTE: Sections A--D are not applicable to this

LIST OF SCHEDULED ARTICLES

- ARTICLE E.1--SERVICES TO BE FURNISHED
- ARTICLE E.2--ESTIMATED COST AND COST-SHARING (MARCH 1972)
- ARTICLE E.3--DATE OF INCURRENCE OF COSTS
- ARTICLE F.1--SCOPE OF WORK
- ARTICLE F.2--TECHNICAL DIRECTION (FOR COST REIMBURSEMENT CONTRACTS--NO FEE TYPE)
- ARTICLE F.3--TYPE 1 MONTHLY PROGRESS REPORTS
- ARTICLE F.4--MONTHLY AND QUARTERLY CONTRACTOR FINANCIAL MANAGEMENT REPORT
- ARTICLE F.5--KEY PERSONNEL AND FACILITIES
- ARTICLE F.6--PERIODIC TECHNICAL REPORTS
- ARTICLE G.1--PRESERVATION, PACKING, PACKAGING, AND MARKING
- ARTICLE H.1--PERIOD OF PERFORMANCE
- ARTICLE H.2--PLACE OF PERFORMANCE
- ARTICLE H.3--DELIVERABLE ITEMS
- ARTICLE H.4--PLACE OF DELIVERY
- ARTICLE H.5--SHIPPING INSTRUCTIONS
- ARTICLE H.6--GOVERNMENT BILLS OF LADING
- ARTICLE I.1--INSPECTION AND ACCEPTANCE
- ARTICLE J.1--OPTION TO EXTEND THE TERM OF THE CONTRACT (AGREEMENT TO AGREE)
- ARTICLE J.2--GOVERNMENT FURNISHED PROPERTY
- ARTICLE J.3--TITLE TO GOVERNMENT PROPERTY
- ARTICLE J.4--ACQUISITION OF MOTOR VEHICLES
- ARTICLE J.5--APPLICABILITY OF RIGHTS IN DATA CLAUSES
- ARTICLE K.1--SUBMISSION OF VOUCHERS OR INVOICES FOR REIMBURSEMENT OF COSTS
- ARTICLE K.2--LIMITATION OF GOVERNMENT'S OBLIGATION
- ARTICLE K.3--OVERHEAD RATES
- ARTICLE K.4--DESIGNATION OF NEW TECHNOLOGY REPRESENTATIVE AND PATENT REPRESENTATIVE
- ARTICLE K.5--TECHNICAL DIRECTION (TECHNICAL OFFICER)
- ARTICLE K.6--DESIGNATION OF CONTRACTING OFFICER'S TECHNICAL REPRESENTATIVE
- ARTICLE K.7--SAFETY AND HEALTH
- ARTICLE K.8--COMPLIANCE WITH OCCUPATIONAL SAFETY AND HEALTH ACT OF 1970
- ARTICLE K.9--ADVANCE AGREEMENT ON CERTAIN COST ITEMS

ARTICLE K.10--FOREIGN CLEARANCES

ARTICLE K.11--ACQUISITION/FABRICATION/REPORTING OF CENTRALLY REPORTABLE
EQUIPMENT

ARTICLE L.1--INCORPORATION OF CONTRACT CLAUSES BY REFERENCE

ARTICLE L.2--CONTENTS OF CONTRACT

ARTICLE L.3--ALTERATIONS IN CONTRACT

ARTICLE L.4--ORDER OF PRECEDENCE (NOVEMBER 1965)

ARTICLE L.5--SCIENTIFIC AND TECHNICAL INFORMATION SERVICE

SECTION E

ARTICLE E.1--SERVICES TO BE FURNISHED

The contractor shall furnish lunar and satellite laser ranging support in accordance with Article F.1, Scope of Work, and Exhibit A entitled "Operation and Management of the Lunar and Satellite Laser Ranging Ground Station Equipment at McDonald Observatory, Texas, and the Application of Single Photo Electron Techniques in Laser Ranging for Crustal Dynamics Measurements," dated November 1979.

ARTICLE E.2--ESTIMATED COST AND COST-SHARING (March 1972)

It is estimated that the total cost of performing the work under this, including the government's and University's share, contract will be \$1,745,043.

For the performance of the work under this contract, the contractor shall be reimbursed for not more than 96 percent of the costs of performance determined to be allowable in accordance with the Clause number 172d entitled "Allowable Cost and Payment." The remaining 4 percent or more, of the costs of performance so determined shall constitute the contractor's share for which it will not be reimbursed by the government. Accordingly, the government's share shall not exceed \$1,675,241.

The contractor will maintain records of all contract costs claimed by the contractor as constituting part of its share and such records shall be subject to audit by the government. Costs contributed by the contractor shall not be charged to the government under any other grant or contract (including allocation to other grants or contracts as part of an independent research and development program).

ARTICLE E.3--DATE OF INCURRENCE OF COSTS

The contractor shall be entitled to reimbursement for costs incurred in an amount not to exceed \$70,000 on or after November 15, 1979, which, if incurred after this contract had been entered into, would have been reimbursable under the provisions of this contract.

SECTION F

ARTICLE F.1--SCOPE OF WORK

The contractor shall provide qualified personnel, facilities, material, and services, not otherwise provided by the government under the terms of this contract, as necessary to perform those functions set forth in Exhibit A, dated November 1979, entitled "Operational Management of the Lunar and Satellite Laser Ranging Ground Station Equipment at McDonald Observatory, Texas, and the Application of Single Photo Electron Techniques in Laser Ranging for Crustal Dynamics Measurements," (attached hereto and made a part of this contract.

etc for 21 pages

1. CONTRACT (Proc. Inst. Ident.) NO. **NAS5-27000** 2. EFFECTIVE DATE **21 SEP 1981** 3. REQUISITION/PURCHASE REQUEST/PROJECT NO. **420-15117 (1C)** 4. CERTIFIED FOR NATIONAL DEFENSE UNDER BSDA REG. 2 AND/OR DMS REG. 1. RATING: **N/A**

5. ISSUED BY **National Aeronautics & Space Administration**
Goddard Space Flight Center
Greenbelt Road
Greenbelt, Maryland 20771 CODE **282** 6. ADMINISTERED BY (If other than block 5) CODE 7. DELIVERY FOB DESTINATION **N/A**
 OTHER (See below)

8. CONTRACTOR NAME AND ADDRESS **Johns Hopkins University**
Charles & 34th Streets
Baltimore, MD 21228 CODE FACILITY CODE 9. DISCOUNT FOR PROMPT PAYMENT **N/A**
(Street, city, county, State, and ZIP code) 10. SUBMIT INVOICES (4 copies unless otherwise specified) TO ADDRESS SHOWN IN BLOCK 12

11. SHIP TO/MARK FOR **See Article V - Place of Delivery** CODE 12. PAYMENT WILL BE MADE BY **Financial Management Division, Code XXX 151.2**
Goddard Space Flight Center
Greenbelt Road
Greenbelt, Maryland 20771 CODE

13. THIS PROCUREMENT WAS ADVERTISED, NEGOTIATED, PURSUANT TO: 10 U.S.C. 2304 (a)(1) 41 U.S.C. 252 (c)(1)

14. ACCOUNTING AND APPROPRIATION DATA **B/NC: 277**
PCN: 420-15117(1C); JON: 420-440-52-03-01; APPROP: 80 0/1 0108(80); BLI: A7-01
OC: 42-2511; AMOUNT: \$2,760,000; PPC: RE

15. ITEM NO.	16. SUPPLIES/SERVICES	17. QUANTITY	18. UNIT	19. UNIT PRICE	20. AMOUNT
	Development Phase of the Hopkins Ultraviolet Telescope in accordance with attachment A - Statement of Work. Technical Officer: Earle Young, Code 420 Contract Negotiator: Gifford Moak, Code 282 Type of Contract: Cost				

21. TOTAL AMOUNT OF CONTRACT **\$5,924,500**

CONTRACTING OFFICER WILL COMPLETE BLOCK 22 OR 26 AS APPLICABLE

22. CONTRACTOR'S NEGOTIATED AGREEMENT (Contractor is required to sign this document and return 4 copies to issuing office.) Contractor agrees to furnish and deliver all items or perform all the services set forth or otherwise identified above and on any continuation sheets for the consideration stated herein. The rights and obligations of the parties to this contract shall be subject to and governed by the following documents: (a) this award/contract, (b) the solicitation, if any, and (c) such provisions, representations, certifications, and specifications, as are attached or incorporated by reference herein. (Attachments are listed herein.)

26. AWARD (Contractor is not required to sign this document.) Your offer on Solicitation Number _____, including the additions or changes made by you which additions or changes are set forth in full above, is hereby accepted as to the items listed above and on any continuation sheets. This award consummates the contract which consists of the following documents: (a) the Government's solicitation and your offer, and (b) this award/contract. No further contractual document is necessary.

23. NAME OF CONTRACTOR **The Johns Hopkins University**
 BY *John Dearden* (Signature of person authorized to sign)

27. UNITED STATES OF AMERICA
 BY *Richard I. Weiss* (Signature of Contracting Officer)

24. NAME AND TITLE OF SIGNER (Type or print) **John Dearden - Director**
Grant & Contract Services 25. DATE SIGNED **9/18/81**

28. NAME OF CONTRACTING OFFICER (Type or print) **Richard I. Weiss**
Contracting Officer 29. DATE SIGNED **21 SEP 1981**

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- ARTICLE III - PLACE OF PERFORMANCE
- ARTICLE IV - ESTIMATED COST
- ARTICLE V - PLACE OF DELIVERY (II-12A)
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- ARTICLE VII - MARKING - SPACE FLIGHT (II-26)
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ARTICLE I - SCOPE OF WORK

The Contractor shall provide the personnel, materials, facilities, and equipment except as otherwise provided herein, necessary to design, develop, fabricate, verify, transport, and store the Hopkins Ultraviolet Telescope (HUT) in accordance with Attachment A, entitled "Statement of Work for the Development of the Hopkins Ultraviolet Telescope (HUT)", dated April 15, 1981, attached hereto and made a part of this contract. The Contractor shall support instrument integration, flight operations, instrument deintegration, and data analysis in accordance with the aforementioned Statement of Work.

ARTICLE II - DELIVERABLE ITEMS AND SCHEDULE

The following items shall be completed and/or delivered as indicated. The references below are to applicable paragraphs of the Statement of Work (SOW), and/or pertinent Contract Schedule Articles (Art).

A. HARDWARE

<u>Item</u>	<u>Reference</u>	<u>Description</u>	<u>Qty</u>	<u>Delivery Date</u>
A1	SOW	Hopkins Ultraviolet Telescope	1	April 1, 1984
A2	SOW	Ground Support Equipment	1	April 1, 1984
A3	N/A	Shipping Container	1	April 1, 1984
A4	N/A	Spare TV Transfer Optics System	1	April 1, 1984

B. DOCUMENTATION

Note: ADC = After Effective Date of Contract.

<u>Item</u>	<u>Reference</u>	<u>Description</u>	<u>Qty</u>	<u>Delivery Date</u>
B1	SOW 1.2	Software Development Plan (Final)	3	30 Days ADC

ARTICLE II - DELIVERABLE ITEMS AND SCHEDULE (Cont'd)B. DOCUMENTATION (Cont'd)

Note: ADC = After Effective Date of Contract.

<u>Item</u>	<u>Reference</u>	<u>Description</u>	<u>QTY</u>	<u>Delivery Date</u>
B2	SOW 1.3.2	Experiment Requirements Document		
		- Preliminary	20	5 1/2 Months ADC
		- Final	20	19 1/2 Months ADC
B3	SOW 1.3.3.1	Preliminary Instrument Review Data	20	Two weeks prior to Prel. Instrument Review
B4	SOW 1.3.3.2	Critical Instrument Review Data	20	Two weeks prior to Critical Instrument Review
B5	SOW 1.3.3	Delivery Readiness Review Data	3	March 1, 1984
B6	SOW 1.8	Engineering Report	3	Within 30 Days after landing
B7	SOW 1.8	Preliminary Scientific Report	3	Within 90 Days after receipt of instrument data
B8	SOW 1.8 Art. XXI	Published Reports, Scientific Papers and Theses	5 (including 1*)	No later than February, 1986
B9	SOW 1.8	Experiment Data	1*	No later than February, 1986

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ARTICLE II - DELIVERABLE ITEMS AND SCHEDULE (Cont'd)B. DOCUMENTATION (Cont'd)

Note: ADC = After Effective Date of Contract.

<u>Item</u>	<u>Reference</u>	<u>Description</u>	<u>QTY</u>	<u>Delivery Date</u>
B10	SOW 1.8	Science Data Plan	4	No later than March, 1984
B11	SOW 1.8	National Science Data Center Report	4	February 28, 1986
B12	SOW 1.2.3 Art. XIX	Monthly Letter Progress Report	3	Within 10 Days after end of month
B13	SOW 1.2.1 Art. XXII	NASA Monthly Financial Management Report	5	Within 10 Days after end of each month
B14	SOW 1.2.1 Art. XXII	NASA Quarterly Financial Management Report	5	Within 10 Days after end of 3 month period
B25	Art. XX	Final Project Report-Type III	15	February 28, 1986

C. MEETINGS AND REVIEWS

<u>Item</u>	<u>Reference</u>	<u>Description</u>	<u>QTY</u>	<u>Delivery Date</u>
C1	SOW 1.2.2	Review Meetings & Technical Conferences	13	Quarterly - beginning 3 Months ADC thru 3/85
C2	SOW 1.3.3.1	Preliminary Instrument Review	1	4 Months ADC
C3	SOW 1.3.3.2	Critical Instrument Review	1	13 Months ADC
C4	SOW 1.3.3.3	Delivery Readiness Review	1	March 15, 1984

ARTICLE II - DELIVERABLE ITEMS AND SCHEDULE (Cont'd)D. MISSION SUPPORT

<u>Item</u>	<u>Reference</u>	<u>Description</u>	<u>QTY</u>	<u>Delivery Date</u>
D.1	SOW 1.4.3	Integration Test Support	3 trips - 7 days each	April-December 1984
D.2	SOW 1.6	Flight Support	1 trip - 7 days each	February 1985
D.3	SOW 1.7	Post Flight Support	1 trip - 3 days each	March 1985

ARTICLE III - PLACE OF PERFORMANCE

Performance of this contract shall be at the Contractor's facilities located at Baltimore and Laurel, Maryland; and at the Goddard Space Flight Center in the vicinity of Greenbelt, MD; the Johnson Space Center in the vicinity of Houston, TX, and the John F. Kennedy Space Center in the vicinity of Cape Canaveral, FL.

ARTICLE IV - ESTIMATED COST

The estimated cost for the complete performance of the contract is \$5,924,500.

The performance of the contract shall consist of four distinct phases. Each phase shall begin only upon successful completion of the prior phase and authorization of the Contracting Officer to proceed. It is agreed and understood that successful completion of a phase does not obligate NASA to continue the next phase. The Contractor is to assume that authorization to proceed has been given unless notification to the contrary is received 30 days prior to the commencement of a phase.

etc. for 28 pages