

No. 10995

MULTILATERAL

**Arrangement between certain member States of the European Space Research Organisation and the European Space Research Organisation concerning the execution of a special TD project (with annexes).
Opened for signature at Paris on 9 October 1968**

Authentic texts: French and English.

Registered by France on 4 March 1971.

MULTILATÉRAL

**Arrangement entre certains États membres de l'Organisation européenne de recherches spatiales et l'Organisation européenne de recherches spatiales concernant l'exécution d'un projet spécial TD (avec annexes).
Ouvert à la signature à Paris le 9 octobre 1968**

Textes authentiques: français et anglais.

Enregistré par la France le 4 mars 1971.

ARRANGEMENT ¹ BETWEEN CERTAIN MEMBER STATES
OF THE EUROPEAN SPACE RESEARCH ORGANISATION
AND THE EUROPEAN SPACE RESEARCH
ORGANISATION CONCERNING THE EXECUTION OF
A SPECIAL TD PROJECT

The Governments of the Federal Republic of Germany, the Kingdom of Belgium, the Kingdom of Denmark, Spain, the French Republic, the Kingdom of the Netherlands, the United Kingdom of Great Britain and Northern Ireland, the Kingdom of Sweden and the Swiss Confederation (hereinafter referred to as “the Governments”), being Governments of States parties to the Convention for the establishment of a European Space Research Organisation opened for signature in Paris on 14 June 1962 ² (hereinafter referred to as “the Convention”) and the European Space Research Organisation (hereinafter referred to as “the Organisation”)

Considering that there is a need to design, develop, construct and place in orbit a TD satellite;

Considering that such a project already initiated in the agreed programme of the Organisation cannot be continued in the same framework;

Regarding the project as a Special Project within the meaning of Article VIII of the Convention;

¹ Came into force on 30 December 1968, the date by which it had been signed by the European Space Research Organisation and the Governments of the following States, whose shares in the scales set out in the appendix to annex B amounted to more than 90%, had also signed it — without reservation as to ratification or approval — or had deposited a notification of provisional application under article 9(4) with the Government of France, in accordance with the provisions of article 9:

<i>State</i>	<i>Date of definitive signature (s) or deposit of notification (n)</i>
European Space Research Organisation	9 October 1958 <i>s</i>
Denmark	19 November 1968 <i>s</i>
Federal Republic of Germany	23 October 1968 <i>s</i>
(With a declaration that the said Arrangement will apply to <i>Land Berlin</i> from the date on which it enters into force for the Federal Republic of Germany.)	
France	13 November 1968 <i>s</i>
Spain	13 November 1968 <i>s</i>
Switzerland	28 November 1968 <i>s</i>
United Kingdom of Great Britain and Northern Ireland	9 October 1968 <i>s</i>

Subsequently, Sweden and the Netherlands having signed with reservation as to ratification, on 28 October and 30 December 1968, respectively, the Arrangement came into force for these two States on 19 June 1969 and 21 July 1970, the respective dates of deposit of their instrument of ratification with the Government of the French Republic, in accordance with article 9(2).

² United Nations, *Treaty Series*, vol. 528, p. 33.

Having regard to the Declaration made by the representatives to the Council of the Organisation of the Governments referred to above, dated 9 October 1968;

Having regard to the Resolution ESRO/C/XXV/Res. 3.2 (b) adopted by the Council of the Organisation during its 25th Session;

Have agreed as follows:

Article 1

In accordance with Article VIII of the Convention, the Organisation shall make available to the Governments, its assistance and the use of its facilities, in the design, development, construction and placing in orbit of a TD satellite incorporating the essential features of the mission of the TD1 satellite formerly included in the programme of the Organisation (hereinafter referred to as the "Special Project"). It is understood that the subsequent exploitation of the TD satellite in orbit shall be an integral part of the Organisation's normal programme. The Special Project shall be executed in accordance with the programme set out in Annex A, which is an integral part of this Arrangement.

Article 2

Except where otherwise provided in this Arrangement, the rules of the Organisation shall be applied *mutatis mutandis* for the execution of the Special Project.

Article 3

1. The cost resulting from the execution by the Organisation of its duties under this Arrangement, as defined in Annex B which is an integral part of this Arrangement (hereinafter referred to as "the reimbursable costs"), shall be refunded to the Organisation by the Governments.

2. The reimbursable costs shall not exceed 196 MF (which includes a contingency margin of 44 MF).

3. The reimbursable costs incurred by the Organisation shall be charged to a special account in accordance with the detailed provisions set out in Annex B.

4. The share of each Government in the reimbursable costs shall be determined in accordance with the basis of apportionment set out in Annex B.

5. The Governments shall pay their shares of the reimbursement into the special account in amounts and at dates in accordance with the provisions of the Organisation's Financial Rules.

6. The Director General of the Organisation shall control the use of the contingency of 44 MF referred to in paragraph 2 of this Article. Any proposal to use more than is at the discretion of the Director General under the rules of the Organisation shall require the approval of two-thirds of the Governments.

7. The Governments may, as an exceptional measure, decide
- (i) to institute special technical and financial controls of which they will define the terms and conditions,
 - (ii) to hold meetings in order to give the Director General instructions concerning the management of the Special Project.

Article 4

The publication of scientific and technical information, as well as the intellectual property rights, arising out of the Special Project shall be governed by the relevant rules within the Organisation.

Article 5

1. The Governments authorise the Organisation to conclude the necessary contracts for the execution of the Special Project in conformity with the provisions of Annexes A and B.

2. In placing contracts and sub-contracts for the execution of the Special Project preference shall be given wherever possible to work being undertaken in the territories of the Governments.

Article 6

The Organisation shall own the satellite.

Article 7

1. The Governments shall indemnify the Organisation against any liability which it might incur should its international responsibility be engaged as a result of the execution of the Special Project.

2. Compensation received by the Organisation in respect of damage caused to the Special Project shall be credited to the special account referred to in paragraph 3 of Article 3 of this Arrangement.

Article 8

1. Any dispute which arises between two or more of the Governments, or between any of them and the Organisation, concerning the interpretation or application of this Arrangement, and which cannot be settled amicably,

shall be submitted at the request of any party to the dispute to a single arbiter to be appointed by the President of the International Court of Justice. The arbiter may not be a national of a State which is a party to the dispute.

2. Those parties to the Arrangement which are not parties to the dispute shall have the right to join in the proceedings and the arbiter's decision shall be binding on all the Governments and the Organisation, whether or not they so join.

Article 9

1. This Arrangement shall be open for signature by the Governments until 1 January 1969.

2. The Governments shall become parties to this Arrangement:

- upon signature not subject to ratification or approval
- upon depositing an instrument of ratification or approval with the Government of the French Republic, if this Arrangement was signed subject to ratification or approval.

3. This Arrangement shall come into force when it has been signed by the Organisation and when the Governments whose shares on the scale set out in the Appendix to Annex B amount to 90 % have become parties to this Arrangement in accordance with paragraph 2 of this Article.

4. For the purpose of paragraph 3 of this Article, the deposit of a declaration of intention to apply the Arrangement provisionally and to seek ratification or approval as soon as possible shall be considered as the deposit of an instrument of ratification or approval.

5. Any Government of a Member State of the Organisation which has not signed the Arrangement by 1 January 1969 may become a party to the Arrangement after it has come into force provided

- (i) the other Governments party to the Arrangement agree and
- (ii) the Government in question deposits an instrument of accession with the Government of the French Republic.

6. On becoming a party to this Arrangement after its entry into force, a Government shall contribute the amount that it would have contributed had it been a party to the Arrangement at the moment of its entry into force and such amounts shall be credited pro rata to the other Parties in the special account.

Article 10

1. The Organisation shall notify the Governments, after consultation with them, when the Special Project has been duly completed in accordance with the provisions of this Arrangement and this Arrangement shall expire upon receipt of such notification.

2. In the event that, for exceptional circumstances, it should become necessary to exceed the financial ceiling specified in paragraph 2 of Article 3 in order to complete the Special Project, the Organisation shall immediately notify the Governments, who shall consult with each other with a view to deciding whether the Special Project can be continued and if so on what basis.

3. This Arrangement shall expire forthwith if a decision as to the continuation of the Special Project cannot be reached. In this event a Protocol shall be drawn up for the liquidation of the Special Project.

Article 11

Upon the entry into force of this Arrangement, the Government of the French Republic shall register it with the Secretariat of the United Nations in accordance with Article 102 of the Charter of the United Nations.

Article 12

The Government of the French Republic shall notify the Governments of all the signatures, ratifications, accessions and the date of the entry into force of this Arrangement.

IN WITNESS WHEREOF the undersigned Representatives, having been duly authorised thereto, have signed this Arrangement.

DONE in Paris, this ninth day of October nineteen hundred and sixty eight in the English and French languages, both texts being equally authoritative, in a single copy, which shall be deposited in the archives of the Government of the French Republic, which shall transmit certified copies to each of the Governments and to the Organisation.

For the Government of the Federal Republic of Germany:

[Signed ¹]

[Signed ²]

¹ Signed by Sigismund von Braun.

² Signed by Lindner.

For the Government of the Kingdom of Belgium:

[Signed ¹]

Sous réserve de ratification ²

For the Government of the Kingdom of Denmark:

[Signed ³]

For the Government of Spain:

[Signed ⁴]

For the Government of the French Republic:

[Signed ⁵]

For the Government of the Kingdom of the Netherlands:

Subject to ratification

[Signed ⁶]

For the Government of the United Kingdom of Great Britain and Northern Ireland:

[Signed ⁷]

For the Government of the Kingdom of Sweden:

[Signed ⁸]

Signed subject to ratification by the Riksdag

For the Government of the Swiss Confederation:

[Signed ⁹]

For the European Space Research Organisation:

[Signed ¹⁰]

¹ Signed by J. Bouha.

² Subject to ratification.

³ Signed by S. E. Schram-Nielsen.

⁴ Signed by Luis de Azcarraga.

⁵ Signed by J. F. Denisse.

⁶ Signed by A. Bentinck.

⁷ Signed by J. F. Hosie.

⁸ Signed by C. H. von Platen.

⁹ Signed by Pierre Dupont.

¹⁰ Signed by H. Bondi.

ANNEX A

TO THE ARRANGEMENT BETWEEN CERTAIN MEMBER STATES OF THE ORGANISATION
AND THE ORGANISATION CONCERNING THE EXECUTION OF A SPECIAL TD PROJECT

CONTENTS

1. Experiments to be flown
2. Short description of the spacecraft
3. Use of knowledge, information and equipment resulting from the work already done under the preliminary contract for the TD1/TD2 satellites
4. Time scale to completion
5. Methods and means of control by the Organisation
6. Revision clause for this Annex

1. EXPERIMENTS TO BE FLOWN

The TD1 satellite is intended to enable the operation in space of a group of seven scientific experiments.

Two of these experiments shall study the high energy X-ray spectrum of the sun and require one axis of the satellite to be permanently pointed at the sun. Four experiments shall scan the sky in several regions of the electromagnetic spectrum (UV and infrared), to study the emission from stars and other galactic or possible extragalactic sources, with different degrees of spectral and directional precision. These experiments shall take advantage of a slow continuous rotation of the satellite around the axis pointing at the sun. One experiment shall measure the composition of primary cosmic particles of cosmic and solar origin as well as the fluxes of protons coming from the sun and those trapped in the Van Allen belts.

The list of the actual experiments to be flown is given below:

Solar gamma and X-ray experiments:

- S. 88. Solar gamma-ray detection in the energy range 50-300 MeV:
- Scintillator/photomultiplier arrangement
 - Experiment sponsored by the Physical Institute of the University of Milan.
- S. 100. Monitoring of solar X-rays in the energy range 20-300 KeV:
- Scintillator/photomultiplier arrangement
 - Experiment sponsored by the Space Research Laboratory of the Utrecht University.

Stellar UV radiation experiment:

- S. 1/2/68. Multicolour celestial scanning in the spectral region 1000-3000 Å and in the infrared
- 30 cm diameter telescope and associated spectrometer/photometers/infrared detectors arrangement
 - Experiment jointly sponsored by the University of Liege and the Edinburgh Royal Observatory.
- S. 59. UV stellar spectrometer
- 26 cm diameter telescope and spectrophotometer arrangement
 - Experiment sponsored by the Space Research Laboratory of the Utrecht University.

Stellar gamma and X-ray experiments:

- S. 133. Measurement of gamma-rays in the energy range 70-300 MeV.
- Optical spark chamber/counters/Vidicon system arrangement
 - Experiment jointly sponsored by the Physical Institute of the University of Milan, the Munich Institute for Extra-Terrestrial Physics and the Saclay Nuclear Research Institute.
- S. 77. Spectrometry of extra-terrestrial X-rays in the energy range 3-30 KeV
- X-ray collimator and proportional counters arrangement
 - Experiment sponsored by the Saclay Nuclear Research Institute.

Cosmic ray charge distribution experiment:

- S. 67 A. Spectrometry of primary charged particles
- Solid state detectors and Cerenkov counter
 - Experiment sponsored by the Saclay Nuclear Research Institute.

The TD1 satellite shall be designed in order to accommodate the seven above-mentioned experiments. If, in the development of the project, serious difficulties make it necessary to consider a change in the composition of the payload, this would be treated in accordance with the existing ESRO procedure for the modification of satellite payloads resulting from development difficulties.

2. SHORT DESCRIPTION OF THE SPACECRAFT

The satellite shall consist essentially of two boxes, one containing the experiments and the other, mounted beneath it, containing the functional spacecraft equipment. The experiment compartment shall be built around the two large te-

lescopes S. 1/2/68 and S. 59 and the spark chamber S. 133. The equipment compartment shall house the equipment necessary for the functioning of the satellites e.g., the attitude control subsystem, the command receiver and decoders, the house-keeping subsystem, the data storage and transmission subsystem, the power conditioning, storage and distribution units. The satellite shall be powered by solar cells, mounted on solar paddles, hinged from opposite edges of the same face of the satellite body. This face of the satellite shall be controlled to face the sun during the sun-lit phase of the orbit with an accuracy of the order of 1 minute of arc.

Telecommand and telemetry transmissions shall take place in the V.H.F. band, through an antenna located at the tip of a deployable boom.

The satellite dimensions shall be about $1 \times 0.9 \times 2$ m. Its weight shall be approximately 460 kg

The satellite shall be launched into a quasi circular orbit at about 550 km altitude by a Thor Delta vehicle. The inclination of the orbit and time of launch shall be selected so that a sun-synchronous orbit is achieved. The satellite shall be designed to operate during the sun-lit phase of such an orbit only and for a maximum life time of 6 months.

Three satellite units shall be produced:

- a first prototype model (P1)
- a qualification model (P2)
- the flight model.

3. USE OF KNOWLEDGE, INFORMATION, AND EQUIPMENT RESULTING FROM THE WORK ALREADY DONE UNDER THE PRELIMINARY CONTRACT FOR THE TD1/TD2 SATELLITES

All information and knowledge already accumulated under the preliminary contract for the TD1/TD2 satellites, at the contractor and in the Organisation, shall be made available to the TD project, wherever this is of use for the implementation of that project. Equipment already developed or under construction in the framework of the preliminary contract for the TD1/TD2 satellites shall be used, wherever possible, for the benefit of the TD project.

The project shall be conducted in such a way that the fullest use shall be made of the knowledge accumulated and of the equipment developed under the preliminary contract for the TD1/TD2 satellites.

4. TIME-SCALE TO COMPLETION

The TD project shall be conducted so as to lead to the earliest possible launch date compatible with a high probability of success in orbit. The overall time-scale for the project shall take into account the necessity of ensuring a reasonable separation between the end of the tests on the first satellite prototype (P1) and the delivery

of experiments and equipment for integration into the qualification satellite model (P2).

Recognizing that the mission requirements can only be met if launch takes place during short windows in Spring and Autumn each year, a launch in Spring 1972 shall be set as a target for the TD satellite.

The Organisation shall endeavour to assist the scientific groups involved in meeting the most economical time scale leading to a launch in Spring 1972.

5. METHODS AND MEANS OF CONTROL BY THE ORGANISATION

The Organisation shall aim at ensuring the best possible control of the TD project, as regards technical performances, time-scale and costs.

To achieve this goal, the Organisation shall set up a project group, containing an adequate number of suitably qualified specialists. This project group shall constitute an integral part of ESTEC. Its function shall be to monitor the works for which the prime contractor is responsible, to monitor the works which are undertaken within the Organisation and directly concerned with the execution of the project and to ensure the compatibility of interfaces throughout the project. The project group shall comprise only persons working exclusively for the TD project. The size of this group shall be approximately 50 persons.

The TD project group shall receive as need be, the assistance of functional support divisions of the Organisation.

Adequate modern control techniques shall be used in the conduct of the project. These methods shall enable the project managers in industry and in the Organisation to know at regular intervals the overall situation of the project as regards technical progress, time-scale and cost and to compare it with reference plans forming part of the development contract. The corresponding control procedures shall be made parts of the contractual obligations imposed on the prime contractor and his co- and sub-contractors.

The control methods to be applied shall provide the information to be presented in the reports mentioned in paragraph 4 of Annex B to the Arrangement for the execution of the special TD project.

6. REVISION CLAUSE FOR THIS ANNEX

Should for any reason the application of any provision of this Annex reveal impracticability, then the Governments and the Organisation shall enter into negotiations with a view to amending these provisions in order to achieve the earliest possible launch date, with a high chance of success, at minimum cost, without substantially affecting the scientific objectives of the mission as planned.

ANNEX B

TO THE ARRANGEMENT BETWEEN CERTAIN MEMBER STATES OF THE ORGANISATION AND THE ORGANISATION CONCERNING THE EXECUTION OF A SPECIAL TD PROJECT

1. REIMBURSABLE COSTS

The Governments shall reimburse to the Organisation the following costs incurred by the Organisation, as from the 23 April 1968 in connection with, and properly chargeable to, the Special Project defined in Annex A:

- (a) Staff expenditure (comprising basic salaries after deduction of internal tax, expatriation, family and other allowances and the Organisation's contributions to the Provident Fund after deduction of internal tax and to the Social Security scheme) of staff exclusively employed on the Special Project;
- (b) Travel expenses reimbursed to the Organisation's staff, referred to in (a) above, in accordance with the Staff Regulations;
- (c) Experts' fees and travel expenses;
- (d) The cost of equipment intended exclusively for the Special Project;
- (e) The cost of external contracts placed by the Organisation for the purpose of the Special Project.

2. APPORTIONMENT OF REIMBURSABLE COSTS AND SCALE

The reimbursable costs for each financial year shall be apportioned among the Governments in direct proportion to their contributions to the Organisation, assessed in accordance with Article XII of the Convention, for that year. The scale of allocations for 1968 is set out in the Appendix to this Annex.

3. SPECIAL ACCOUNT

The reimbursable costs incurred by the Organisation shall be charged to a special account which shall be established and administered by the Organisation in accordance with the relevant provisions of its Financial Rules, in particular those Articles in Sections IV and VI of Chapter III of these Rules dealing with expenditure and accounts.

4. REPORTS

The Director General of the Organisation shall establish the necessary instructions for the reports to be given on the progress and geographical distribution of the work, on the call-ups of contributions, the expenditure to date and the latest estimates of cost to completion of the Special Project, in accordance with the relevant provisions of the Organisation's Financial Rules dealing with accounts (Chap-

ter III, section VI of the Financial Rules), and with the provisions adopted by the Council concerning the periodical reports to be presented (document ESRO/C/306, add. 2, rev. 1).

5. REVISION CLAUSE

Should for any reason the application of the provisions of this Annex reveal impracticability, then the Governments and the Organisation shall enter into negotiations with a view to amending these provisions accordingly.

APPENDIX TO ANNEX B

TO THE ARRANGEMENT BETWEEN CERTAIN MEMBER STATES OF THE ORGANISATION AND THE ORGANISATION CONCERNING THE EXECUTION OF A SPECIAL TD PROJECT

Scale of contributions for 1968

<i>States</i>	<i>Average Annual National Income 1962-1964 (Milliards of A.U.)</i>	<i>Scale of contributions %</i>
Belgium	11,16	4,350
Denmark	6,43	2,506
France	60,56	23,607
Germany	73,00	28,456
Netherlands	12,13	4,728
Spain	1,36 ¹	0,530
Sweden	12,72	4,958
Switzerland	9,74	3,797
United Kingdom	69,44	27,068
	TOTAL	100,000

¹ Spanish average national income (13.55 Milliards A.U.) reduced to ten-per-cent (i.e. 1.36 Milliard A.U.) in order to calculate the percentage share.