SPACE COOPERATION

International Space Station

Protocol Between the
UNITED STATES OF AMERICA
and the RUSSIAN FEDERATION

Signed at Moscow June 11, 1996

with

Appendices

and

Addenda to the Protocol

Signed at Moscow September 9, 2004

Signed at Cape Canaveral July 1, 2006

NOTE BY THE DEPARTMENT OF STATE

Pursuant to Public Law 89—497, approved July 8, 1966 (80 Stat. 271; 1 U.S.C. 113)—

". . .the Treaties and Other International Acts Series issued under the authority of the Secretary of State shall be competent evidence . . . of the treaties, international agreements other than treaties, and proclamations by the President of such treaties and international agreements other than treaties, as the case may be, therein contained, in all the courts of law and equity and of maritime jurisdiction, and in all the tribunals and public offices of the United States, and of the several States, without any further proof or authentication thereof."

RUSSIAN FEDERATION

Space Cooperation: International Space Station

Protocol signed at Moscow June 11, 1996;
Entered into force June 11, 1996.
With appendices.
And addenda to protocol.
Signed at Moscow September 9, 2004;
Entered into force January 26, 2005.
Signed at Cape Canaveral July 1, 2006;
Entered into force July 1, 2006.

June 11, 1996

PROTOCOL

INCLUDING TERMS, CONDITIONS AND ASSUMPTIONS, SUMMARY BALANCE OF CONTRIBUTIONS AND OBLIGATIONS TO INTERNATIONAL SPACE STATION (ISS) AND RESULTING RIGHTS OF NASA AND RSA TO ISS UTILIZATION ACCOMMODATIONS AND RESOURCES, AND FLIGHT OPPORTUNITIES

1. The National Aeronautics and Space Administration (NASA) and the Russian Space Agency (RSA), ("the Parties") will begin to implement the understandings outlined in this Protocol ("the Protocol") regarding the balance of the Parties' contributions and obligations immediately upon the written approval by the respective agencies. The terms, conditions and assumptions specified in this Protocol will be summarized and incorporated in and subject to the conclusion of the NASA/RSA Memorandum of Understanding ("NASA/RSA MOU"). Upon entry into force of the NASA/RSA MOU, the MOU will take precedence over this Protocol and this Protocol will constitute an implementing arrangement under the Space Station Intergovernmental Agreement (IGA) and the NASA/RSA MOU. The Parties recognize that the understandings documented in this Protocol exist within the framework of a single integrated Space Station. The Parties assume and intend that the terms of this Protocol are consistent with NASA's bilateral MOUs with the other ISS partners. These understandings will be implemented through the management mechanisms defined in the NASA/RSA MOU under the lead integration role of NASA. For the purposes of this Protocol, the ISS vehicle consists of two segments: the Russian Segment and the American Segment. The Russian Segment contains the Russian elements and the NASA-provided FGB, while the American Segment includes the remaining NASA-provided elements and the elements provided by all ISS international partners other than RSA.

2. This Protocol, except as otherwise specifically indicated, will not nullify or void any previous agreements reached by the technical teams or those agreements already contained in program documentation. In the case of conflict between such previous agreements and this Protocol, this Protocol will take precedence.

3. This Protocol, together with the IGA, the NASA/RSA MOU, and existing and any future contractual and cooperative arrangements, represents the complete arrangement between NASA and RSA regarding the balance of the Parties' respective contributions and obligations to the Program, and the sharing of responsibilities associated with each Party's participation in the Program. If it is necessary in the future to adjust the Parties' contributions and obligations, and those adjustments have cost implications, any issues arising from the adjustments will be resolved, if the Parties agree, through barters and will not require renegotiation of the terms of this Protocol or additional discussion to quantify the cost impact. NASA's and RSA's responsibilities for performance of common system operations (as defined in Article 9.3 of the existing Memoranda of Understanding between NASA and the European Space Agency (ESA), NASA and the Government of Japan (GOJ) and NASA and the Canadian Space Agency (CSA), and the draft NASA/RSA MOU), have been taken into account in the Protocol and are included in the resulting balance of the Parties' contributions and obligations. RSA will not claim further compensation for the performance of common systems operations. NASA will not claim further compensation from RSA for its performance of common system operations.

4. The Parties will each be responsible for support of their own elements unless otherwise specified in the Protocol. For example, the Parties will each be responsible for the launch of their own elements, spares, logistics, sustaining engineering and utilization costs absent a specific agreement to the contrary. The FGB and SPP are examples of "specific agreements to the contrary" and are discussed in paragraphs 19 and 20. The Parties' overall responsibilities with regard to their own elements will be set forth in the NASA/RSA MOU. The Parties will each retain the use and benefits of the elements and systems they each provide, except as otherwise specifically agreed. For example, RSA will retain full use of its research modules and the electrical power generated by the Russian Segment (RS), absent agreement to the contrary, and will not have utilization rights in the American Segment (AS), again unless otherwise specifically agreed. Similarly, NASA will retain full use of the laboratories and electrical power generated by the AS, and will not have utilization rights in the RS unless otherwise specifically agreed. The basis for the evaluation of the Parties' contributions reflected in this Protocol is that the Parties each "keep what they bring". Understandings on currently known exceptions to this approach are also documented in this Protocol. Nothing in this Protocol precludes the Parties from reaching mutually agreeable barters in the future.

5. The reference configuration for the ISS vehicle is the Preliminary ISS Assembly Sequence, Revision B, as of March 1, 1996 (Appendix 1).

6. For purposes of cost sharing and assessing the Parties' relative contributions, the capabilities of the Parties' transportation vehicles have been used. Specific flight rates, crew and cargo loads and vehicles used for transportation to the Space Station will be determined through the agreed upon Program management mechanisms and operations planning functions.

7. The Parties agree that NASA, the lead integrator, with support of RSA, will perform ISS systems engineering and integration, ISS operations integration, and ISS utilization integration as specified in Appendix 2. These integration activities include utilization planning, integration and coordination for the Space Station as a whole, as well as activities identified in the attached balance of contributions. RSA will provide data and personnel to support this overall program integration effort and participate in the integrated operations and utilization planning for the strategic, tactical and execution phases. NASA and RSA will additionally each perform integration tasks for their own elements and segments, although these activities were not considered services provided for one Party by another. Both Parties agree to minimize operations costs and exchange of funds.

8. NASA's utilization integration contribution consists of the station-level analyses and efforts, with support of RSA, required to incorporate the integrated payload complement of the RS into the ISS. RSA will integrate RS payloads up to the segment level. By agreeing on NASA's leading station-level payload integration role, the Parties do not intend to imply that RSA has an allocation of AS utilization accommodations or resources, or vice versa for NASA. In the event that NASA or other partners conclude other cooperative science agreements or barter arrangements with RSA which bestow AS utilization accommodations or resources on RSA, any payload integration costs NASA incurs for such cooperative activities will be negotiated on a case by case basis as part of the barter arrangement. The same is true in the reverse instance where cooperative science agreements or barter arrangements bestow RS utilization accommodations or resources on NASA. In that case, any payload integration costs RSA incurs for such cooperative activities will be negotiated on a case by case basis as part of the barter arrangement.

9. The Parties agree that the planning for implementation of any transfer of Space Station resources, i.e. electrical power, between the Parties will be addressed through ISS Program integrated operations and utilization planning processes (strategic Consolidated Operations and Utilization Plan (COUP) development, tactical Increment Definition and Requirements Documents (IDRDs) development, execution-level integrated engineering assessments and the short term plan development, etc.). It will be necessary for RSA to participate in the Program's integrated planning forums, (i.e. Space Station Control Board, Systems Operations Panel, User Operations Panel, Multilateral Operations and Utilization Analysis and Integration Team (AIT), integrated tactical operations organization and, if resources are to be transferred, the Payload Operations Integration Center (POIC), etc.).

10. It was assumed that the Space Station will have a crew of 3 during assembly and a crew of 7 after assembly complete. The NASA/RSA MOU will set forth the general process for allocating flight opportunities and crew time, but paragraphs 11 and 12, below, describe the Parties' specific assumptions for the purpose of determining the overall balance of the Parties' contributions and obligations in this Protocol. Allocation of crew time and flight opportunities to the other Space Station partners will be in accordance with the terms of NASA's bilateral Memoranda of Understanding (MOUs) with those partners. This Protocol will only address the understanding between the Parties.

11.a. Crew During Assembly (through flight 19A): NASA and RSA will each have the right to an average of 50% of the 3 available crew flight opportunities. Each crew should include at least one representative from NASA and at least one representative from RSA. The Parties will each bear the responsibility for transporting and supporting on-orbit 50% of the 3-person crew. While the Parties will each receive 50% of the flight opportunities, this is an average balance over the entire assembly time frame and the Parties may not have equal shares at any given time. Detailed operational plans for allocating individual flight opportunities will be developed through normal operations planning processes. Crew time will first be devoted to systems operations and maintenance required to perform assembly tasks and Space Station operations and maintenance. Any time remaining will be devoted to utilization. Of crew time available for utilization, from first element launch up to the time when the GOJ accrues rights to on-orbit crew time, 50% of available time will be used to perform utilization on RS payloads and the remaining 50% will be used to perform utilization on AS payloads. After the GOJ accrues rights to on-orbit crew time, through flight 19A, its allocation of on-orbit utilization crew time will be drawn equally from the AS on-orbit crew time allocation and the RS on-orbit crew time allocation. It is assumed that no other partner will have rights to

on-orbit crew time through the completion of the assembly phase. In the event that the Parties end assembly with flight opportunities to their credit, those opportunities will be exercised in the assembly complete phase. If any other partner ends assembly with flight opportunities to their credit, those opportunities will be exercised in the assembly complete phase and drawn from the AS flight allocation. Each Party has a right to visiting crew. If the Parties have visiting crew, each Party will provide for the transport (including rescue), support (supplies and life support/habitation) and all expenses on Earth for those visiting crews. As a result, the visiting crews will not count as use of a Party's allocation of flight opportunities or crew time on-orbit rights. Plans for visiting crews will be coordinated through the standard ISS operations planning processes. As is the case for all utilization accommodations and resources, the Parties may receive additional rights to flight opportunities or crew time through barter.

11.b. Crew Post Assembly (after flight 19A): Following the completion of assembly of the Space Station and initial operational verification of the U.S.-provided crew rescue vehicle that allows an increase in the crew complement to 7, RSA will have the rights to the flight opportunities and on-orbit crew time of 3 crew to perform RS systems operations and utilization activities. NASA and the remaining Space Station partners will share the remaining four flight opportunities for their nationals and the time of the equivalent of four remaining crew to perform AS systems operations and utilization activities. In the event the crew rescue vehicle provided by the U.S. is not available immediately after flight 19A, and the ISS has crew complement of 6 and not 7, the Parties will meet to discuss appropriate action.

12. Crewmembers will work together as a single team. Regardless of nationality and tasks assigned to any individual crew person, the entire crew will train together and perform duties on-orbit as a single integrated international crew with one ISS Commander. Each Party will assign a crewmember to have primary responsibility for its segment. The ISS Crew Operations Board will further define the details of the integrated crew concept.

13. The Parties agree that RSA provides the capability to return the entire international crew (up to three) in off-nominal situations through the completion of assembly (flight 19A in June 2002). Since the entire vehicle capability of the Soyuz TM is assumed in determining RSA's cost credit for crew rotation and unplanned crew return, the seats required on the Soyuz (up to three) will remain available for use by the ISS crew. NASA will provide crew rescue capability following the completion of assembly. In the event the NASA crew rescue capability becomes available later than is currently planned (flight 19A in June 2002), RSA agrees to continue to provide the capability to rescue the entire international crew using the Soyuz for agreed upon compensation from NASA.

14. For purposes of determining the balance of the Parties' contributions, 6 Shuttle flights and 11 Soyuz flights rotating 51 crewmembers have been assumed for the assembly phase (after assembly complete, crew rotation was assumed to be provided by each Party proportional to its share of the crew, thus not requiring any exchange of compensation/contribution credit). Additional Shuttle flights (currently estimated at 5) during assembly might be used, upon mutual agreement of the Parties, when necessary to provide flexibility in the crew rotation model. NASA recognizes potential impacts to RSA if the use of additional Shuttle flights results in a Soyuz rotating less than three crew and these potential impacts have been taken into account in determining the balance of the Parties' contributions. NASA recognizes that Soyuz must fly with a minimum of two crew, but, as in the case of Shuttle-rotated crew, the mission tasks and required training will determine the details of crew rotation. NASA is not claiming contribution credit or compensation from RSA for the additional Shuttle crew rotation flights. The Parties agree to continue to work together on the optimum number and interval of Shuttle crew rotation flights and to resolve the issues of partial or full rotation of the crew.

15. Training expenses: Top level agreements regarding Space Station crew will be addressed in the context of the NASA/RSA MOU negotiations. Details of the crew training curriculum and process, including the curriculum and sites for advanced and increment-specific training for Space Station crew, will be defined as part of normal operations planning processes. For the purposes of the Protocol, it is understood that each Party is financially responsible for all compensation (salary and per diem), travel, personal interpreters, medical expenses, lodging and other living costs on Earth for Space Station crew which it provides. However, it is further agreed that the training of the U.S. and Russian crew shall be provided by the host country free of charge. RSA will not be charged training costs for crew training in the United States and NASA will not be charged training costs for crew training in Russia. Crew training includes instruction, training materials and equipment, access to all necessary facilities and all costs for activities in the jointly agreed training plan and curriculum. This reciprocal bilateral waiver of training fees is intended to include cases where, pursuant to a cooperative agreement for example, someone other than a U.S. national is tendered for training in Russia as part of NASA's flight opportunity allocation or vice versa. NASA agrees to discuss adoption of a similar approach for all ISS partners during the course of its bilateral MOU negotiations with ESA, GOJ and CSA.

16. Each Party will be responsible for providing food, supplies and personal items for its astronauts and cosmonauts who serve as Space Station crew. Launch of these items has been taken into account in determining the balance of the Parties contributions during the assembly phase. After assembly complete, it is assumed each Party will supply and deliver these items for its own crew or arrange for launch at its own expense.

17. With regard to propellant delivery, the Parties based their arrangement on the assumption that the total propellant required for the life of the station is 112 MT (this estimate does not include the propellant required for off-nominal situations, such as abnormal solar cycles). Of that total, 71% is attributable to the AS (80 MT) and 29% is attributable to the RS (32 MT). NASA will deliver 24 MT after assembly complete. RSA will deliver the remaining 56 MT to ISS for the AS. Total RSA propellant delivery obligation over the life of the station is 88 MT (56 MT for the AS and 32 MT for the RS). At the conclusion of the assembly phase (or earlier if required), the Parties will review the actual use of propellant during assembly and consider whether propellant requirements for the remaining life of ISS should be reviewed and revised. In the event of revisions, the Parties will reach a mutually acceptable arrangement for the adjustment of their obligations. Barter at the technical level will be the primary goal, although other arrangements may be substituted in the event an acceptable barter is not feasible.

18. The Parties agree to continue efforts to improve operations efficiencies onboard the ISS, including common and interoperable systems and interfaces to crew.

19. The FGB is a U.S. element, technically integrated into the Russian Segment. For purposes of establishing the balance of the Parties' contributions, the FGB is considered NASA's responsibility, except as specifically otherwise agreed. This means for example that the FGB mass was attributed to the AS for purposes of assessing the relative shares of propellant required by both segments and NASA will have exclusive rights to the FGB's dry cargo stowage capability. The AS owns the interior stowage volume of the FGB. RSA is responsible for maintenance of the FGB and manufacture/delivery of FGB spares. The AS will provide the on-orbit stowage volume for FGB spares. RSA agrees the on-orbit stowage requirements for FGB spares will comply with requirements for AS stowage volume specified in ICD 42121 (PMA to FGB). The Parties have agreed to their respective responsibilities with regard to the FGB in the February 5, 1995 Protocol between RSA and NASA (the FGB protocol) and continue to honor those commitments. RSA has assumed the costs associated

with launching the FGB on Proton. This has been taken into account as a RSA contribution in the balance of contributions, along with all of RSA's other obligations referenced in the FGB Protocol.

20. NASA agrees to launch the SPP on the Shuttle and to deliver the SPP to the ISS. NASA further agrees to assemble the SPP on orbit with the cooperation and technical support of RSA. The technical tasks required to transfer and assemble the SPP have been defined and agreed to in Appendix 3. Funding responsibilities for the technical tasks have also been agreed to and identified in Appendix 3. As stated under section 4.1 of Appendix 3, NASA and RSA are jointly responsible for the certification of the SPP transfer and berthing operation. NASA assumes no liability for the operation or overall performance of the SPP. RSA is ultimately responsible for the certification of the SPP and its subsystems. RSA and NASA agree that the Non-Standard Shuttle Services referenced under section 6 of Appendix 3 are based on initial design requirements identified in March, 1996. Costs for additional Non-Standard Shuttle Services beyond those listed in Appendix 3 resulting from subsequent SPP design changes/modifications are not included in this agreement. Separate negotiations will be conducted between NASA and RSA to specify funding responsibility if any additional Non-Standard Shuttle Services are required.

21. In assessing the Parties' relative contributions for the ISS configuration referenced in paragraph 5, current or future losses or gains of efficiency caused by a change in inclination, altitude, launch delays or inability to utilize the full capability of a transportation system, etc. will not be considered a contribution unless otherwise specifically agreed. Loss of efficiency or cost impacts caused by changes from previous design configurations to the current baseline configuration will likewise not be considered a contribution. Financial and other impacts from any loss of efficiency or previous design changes will be the sole responsibility of the Party claiming the loss of efficiency or cost impact. Further, any modifications and upgrades carried out by NASA and RSA in collaboration with other Partners to transition from the Mir-2 Program (Service Module modifications, LTV development, etc.) and Freedom Program (Shuttle modifications, etc.) to the ISS Program have been considered and accepted as balanced.

22. For purposes of the Protocol, the hardware, software and data which the Parties exchange pursuant to the NASA/RSA Bilateral Hardware, Software and Data Exchange Agreements, are now and will continue to be upon completion, considered balanced and such agreed trades will require no additional exchange of goods, services or funds.

23. The Parties agree that the main operations language for activities under this Agreement will be the English language, and data and information generated or provided under this Agreement will be in the English language, unless otherwise agreed. For example, joint program meetings and telecons will be conducted in English. The Crew Operations Panel (under the Space Station Multilateral Coordination Board) will determine the language used for crew training. Therefore, the Parties will implement this understanding to the extent possible and documentation between NASA and the Russian side will be exchanged in English. However, in recognition of the need for a transition period for the Russian participants to undergo English language training, Program activities may be conducted in English through use of interpretation and translation services, and NASA and RSA will work on a reciprocal basis to provide appropriate and reasonable levels of interpretation and translation support for the technical and managerial meetings they host through the completion of the assembly and initial operational verification of the Space Station.

24. RSA will make available, arrange for availability or continue to provide for NASA use office space at the following facilities: RSA, RSC Energia, Khrunichev, TsUP, and Gagarin Cosmonaut Training Center. NASA will continue to make available office space at the Johnson Space Center for RSA's use. In the case of established offices, the Parties will continue to provide the scope of office space and support currently provided. In the case of offices yet to be established, the Parties will work together to reach mutually satisfactory arrangements, recognizing that the cost of the Parties' provision of such office space and support have been taken into account and are considered balanced from a financial perspective. NASA will continue to staff and operate the NASA Moscow Liaison Office within the US Embassy in Moscow at its own expense.

25. Once the funding identified in contract NAS 1510110 for Russian personnel travel is depleted, each Party will bear the costs incurred by its personnel (civil servants and contractors) traveling to participate in the Space Station Program activities.

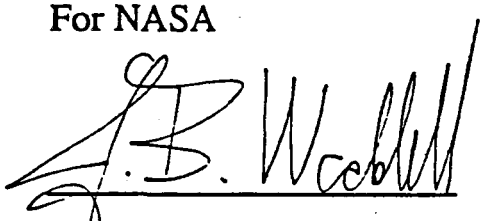
26. The efforts of the Parties to monitor and provide warning on/ response to space debris have been considered and require no further compensation.

27. Except as otherwise specifically agreed in the Protocol, the Parties' provision of backup data transmission capability and backup command and control to each other for contingency purposes has been considered and deemed balanced.

28. The attached Appendix 2 further specifies the balance of goods and services which each Party contributes.

Done in Moscow, in duplicate, this 11th day of June, 1996, in English and Russian languages, each text being equally authentic.

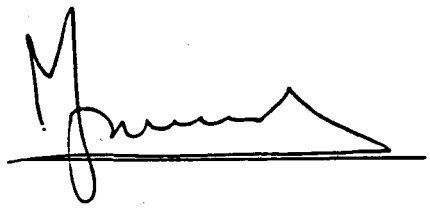
For NASA



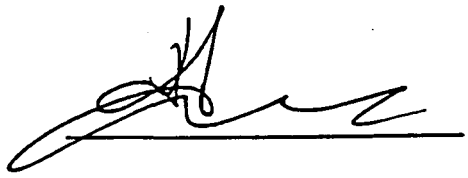
J. B. Waddell

For RSA

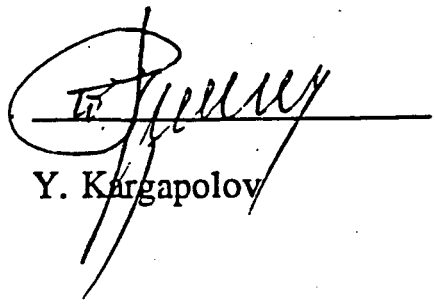
M. Sinelschikov



A. Krasnov



A. Derechin



Y. Kargapolov

Note: At the present time, the Treaty Office does not have the Russian text of this Protocol. If the Russian text becomes available, it will be added to this publication.

Preliminary ISS Assembly Sequence Rev B as of 1 March 1996

Planned Launch Date	Flight	Delivered Elements
11/97	1A/R	FGB (Launched on PROTON launcher)
12/97	2A	Node 1 (1 Storage racks), PMA1, PMA2
4/98	1R	Service Module
5/98	2R	Soyuz
7/98	3A	Z1 truss, CMGs, Ku-band, S-band Equipment, PMA3, EVAS (Spacelab Pallet)
11/98	4A	P6, PV Array (4 battery sets) / EATCS radiators, S-band Equipment
12/98	5A	Lab (4 Lab Sys racks)
12/98	4R	Docking Compartment (DC)
1/99	6A	7 Lab Sys racks (on MPLM), UHF, SSRMS (on Spacelab Pallet)
3/99	UF-1	ISPRs, 1 Storage rack (on MPLM), 2 PV battery sets (Spacelab Pallet)
4/99	7A	Airlock, HP gas (3 O2, 1 N2) (on Spacelab Pallet)
Phase 2 Complete		
6/99	8A	S0, MT, GPS, Umbilicals, A/L Spur
8/99	UF-2	ISPRs, 2 Storage Racks (on MPLM), MBS
9/99	9A	S1 (3 rads), TCS, CETA (1), S-band
11/99	9A.1	Science Power Platform w/4 solar arrays
1/00	11A	P1 (3 rads), TCS, CETA (1), UHF
2/00	12A	P3/4, PV Array (4 battery sets), 2 ULCAS
3/00	10A	Node 2 (4 DDCU racks), P5 w/radiator OSE
4/00	3R	Universal Docking Module (UDM)
6/00	1J/A	JEM ELM PS (5 JEM Sys, 2 ISPR, 1 Storage racks), SPDM, ULC w/HP Gas (1 O2, 1 N2)
8/00	13A	S3/4, PV Array (4 battery sets), 4 PAS
11/00	1J	JEM PM (3 JEM Sys racks), JEM RMS
12/00	UF-3	ISPRs, 1 Storage Rack (on MPLM)
1/01	UF-4	2 ULCs with attached payloads, ATA, NTA, 1 O2 tank
5/01	2J/A	JEM EF, ELM-ES, 4 PV battery sets (on ULC)
5/01	8R	Research Module #1 (RM-1)
6/01	UF-5	S5, Cupola (on mini-ULC), Port Rails, Attached payloads (on ULC)
9/01	14A	Centrifuge
11/01	2E	2 U.S. Storage, 7 JEM racks, 7 ISPRs (on MPLM)
12/01	15A	S6, PV Array (4 battery sets), Stbd MT/CETA rails
12/96	10R	Research Module #2 (RM-2)
2/02	16A	Hab (6 Hab racks)
2/96	11R	Life Support Module (LSM)
4/96	13R	Research Module #3 (RM-3)
4/02	UF-6	ISPRs, 1 Storage Rack (on MPLM)
5/02	17A	1 Lab Sys, 1 Storage, 8 Hab Sys racks (on MPLM), ULC w/1 O2 tank, 2 PV battery sets
6/02	18A	CTV #1 (Launch Vehicle TBD) [refered to as CRV in protocol]
6/02	19A	3 Hab Sys, 11 U.S. Storage racks (on MPLM)
U.S. Assembly Complete		
early 2003	1E	Columbus Orbital Facility

June 11, 1996

International Space Station
NASA/RSA Contributions and Services which Cross the Interface

DURING ASSEMBLY (through flight 19A)

NASA PROVIDING to RSA

1. Sufficient electrical power transfer required to augment Russian generated power in order to maintain essential Russian segment core systems (up to 4 kw) for the period between the delivery of P-6 on flight 4A until the SPP is delivered, installed, and operational in accordance with mutually agreed schedules for power transfer
2. Delivery and return of international crew, on 6 Shuttle flights (up to 11 if mutually agreed), to support the traffic model documented and approved in the Multi-Increment Manifest (MIM)
    a) Required training for up to 51 crewmembers for Station, plus backup necessary for shuttle launch and/or return
3. NASA Wide Area Network (NWAN) communications systems in Russia
    a) Design, procurement, and installation (including labor and travel), per the Joint Institutiona Communications Requirements Working Group document (WG-9/NASA-RSA/001 of June 21, 1995), as amended, through assembly complete
    b) All recurring costs through assembly complete
4. Lead role in ISS systems engineering and integration
    a) Integrated design analyses cycles performed biannually (DAC)
    b) Vehicle Master Data Base (VMDB) development and maintenance
    c) Documentation for requirements, interfaces, and configuration
    d) Schedule integration
    e) Assembly sequence management
    f) Station level safety and mission assurance
5. Lead role in ISS operations integration and Russian segment payload integration into ISS
    a) Control center operations
    b) Control center interfaces (Remote Extension Moscow {REM})
    c) Cargo integration
    d) Integrated vehicle sustaining engineering analyses
    e) Multi-segment training facilities development
    f) Strategic, tactical, and execution planning
6. Non-propulsive attitude control via Control Moment Gyros (CMGs)
7. Functional Cargo Block (FGB) functions and services to RSA
8. Integration of Science Power Platform (SPP) on shuttle, launch on shuttle, hand-off to SSRMS, and on orbit assembly on a cooperative basis with RSA
9. Integration of SPP solar arrays on shuttle, launch on shuttle, and delivery to ISS
10. Delivery of 3,000 kg of water by Shuttle to the Russian segment
11. 500 kg of upmass on Shuttle
12. 1,500 kg of recoverable downmass on Shuttle

June 11, 1996

International Space Station
NASA/RSA Contributions and Services which Cross the Interface

DURING ASSEMBLY (through flight 19A)

RSA PROVIDING to NASA

1. Crew rescue capability and required training for entire international crew by the provision of 11 Soyuz TM
2. Supply and delivery of 44 MT of propellant (of which NASA's share is 31 MT)
3. Delivery of 28 MT of Life Support Systems (LSS) resupply for a three person international crew (of which NASA's share is 14 MT)
4. Delivery and return of international crew on up to 11 Soyuz TM vehicles to support the traffic model documented and approved in the Multi-Increment Manifest (MIM)
    a) Required training, sokol suits, seat liners, and necessary equipment for up to 51 crewmembers, plus backup
5. FGB launch, integration within the Russian Segment, trainers and training, on-orbit maintenance (including up to 1.5 MT of spares), operations, and sustaining engineering per February 1995 FGB protocol
6. Accommodations/Life Support (in the Service Module [SM]) for entire International crew until US Hab Module is fully outfitted (from flight 2R to flight 19A estimated to be 5/98 to 6/02)
7. Data transmission from American segment until US lab is activated (flight 2A to 5A)
8. Ground system modifications (communication sites and MCCM) to remove limitations on commands to node 1 through the FGB
9. Up to 800 watts power transfer from service module to node 1 until P-6 delivery (flight 1R to 4A estimated to be seven months)
10. Reboost, propulsive and non-propulsive attitude control
11. Support to NASA in ISS systems engineering and integration
    a) Integrated design analyses performed biannually (DAC)
    b) Vehicle Master Data Base (VMDB) maintenance
    c) Documentation for requirements, interfaces, and configuration
    d) Schedule integration
    e) Assembly sequence management
    f) Station level safety and mission assurance
12. Support to NASA in ISS operations integration and Russian segment payload integration into ISS
    a) Control center operations
    b) Cargo integration
    c) Integrated vehicle sustaining engineering analyses
    d) Multi-segment training facilities development
    e) Strategic, tactical, and execution planning

June 11, 1996

International Space Station
NASA/RSA Contributions and Services which Cross the Interface

ASSEMBLY COMPLETE (after flight 19A)

NASA PROVIDING to RSA

1. Contingency electrical power (up to 5 kw) to maintain Russian segment core systems
2. Lead role in ISS systems engineering and integration
   a) Integrated design analyses cycles performed biannually (DAC)
   b) VMDB maintenance
   c) Documentation for requirements, interfaces, and configuration
   d) Schedule integration
   e) Station level safety and mission assurance
3. Lead role in ISS operations integration and Russian segment payload integration into ISS
   a) Control center operations
   b) Control center interfaces (REM)
   c) Cargo integration
   d) Integrated vehicle sustaining engineering analyses
   e) Multi-segment training facilities development
   f) Strategic, tactical, and execution planning
4. Non-propulsive attitude control via CMG's
5. Reboost function
6. Delivery of 24 MT of propellant
7. 3 MT recoverable down mass on Shuttle
8. Delivery of 20 MT of cargo for the Russian Segment
9. Delivery of 5 MT of water

June 11, 1996

International Space Station
NASA/RSA Contributions and Services which Cross the Interface

ASSEMBLY COMPLETE (after flight 19A)

RSA PROVIDING to NASA

1. Supply and delivery of 44 MT of propellant (of which NASA's share is 24 MT)
2. FGB on-orbit operations, maintenance (including up to 3 MT of spares), and sustaining engineering per February 1995 FGB protocol
3. Reboost and propulsive and non-propulsive attitude control
4. Support to NASA in ISS systems engineering and integration
    a) Integrated design analyses performed biannually (DAC)
    b) VMDB maintenance
    c) Documentation for requirements, interfaces, and configuration
    d) Schedule integration
    e) Station level safety and mission assurance
5. Support to NASA in ISS operations integration and Russian segment payload integration into ISS
    a) Control center operations
    b) Cargo integration
    c) Integrated vehicle sustaining engineering analyses
    d) Multi-segment training facilities development
    e) Strategic, tactical, and execution planning

Appendix 3

#	ITEM	FUNDING Responsibility	TECHNICAL Responsibility
1	**All EVAs required to assure Berthing/Docking of SPP to SM**		
1.1	- Installation of the Stand on the FGB	RSA	RSA
1.2	- Installation of FGB Power & Data Grapple Fixture (PDGF) on the Stand	NASA	NASA
1.3	- Removal of the SPP PDGF **(T&C 1.1)**	RSA	RSA
1.4	- Development & T&V of an EVA backup method for SPP/SM Berthing/Docking operation **(T&C 1.2)**	RSA	RSA
2	**FGB PDGF Implementation (a), (T&C #'s 2.1, 2.2, 2.3, 2.4)**		
2.1	- PDGF ORU & Video Signal Converter (VSC) **(a1)**	NASA	NASA
2.2	- Canadian Manufact. H/W, T&V **(a2), (T&C #2.3)**	NASA	NASA
2.3	- NASA Manufact. H/W & T&V (video/data cables, conn's.) **(a3)**	NASA	NASA
2.4	- RSA Manufactured H/W (data cables, connectors) **(a4)**	RSA	RSA/NASA
2.5	- PDGF H/W Integration & Prime H/W Modifications, T&V, Integration (SSCN 303) **(a5)**	NASA	NASA
2.6	- RACU to SSRMS power testing at SPAR **(a6)**	NASA	RSA/NASA
2.7	- Launch/Delivery of PDGF & associated H/W to ISS		
2.8	- PDGF Stand Dsgn, Development, T&V, & Delivery **(T&C 2.4)**	RSA	RSA
3	**SPP PDGF Implementation (b)**		
3.1	- PDGF ORU & PDGF Canadian Manufact. H/W/T&V **(b1)**	NASA	NASA
3.2	- Flight Releasable Grapple Fixture (FRGF) **(b2)**	NASA	NASA
3.3	- US/CSA SSRMS Software Modifications **(b3)**	NASA	NASA/CSA
3.4	- System Level NASA/Prime SSRMS/SPP Configuration Verification **(b4)**	NASA	NASA
4	**Transfer/Berthing of SPP to SM w/ SSRMS (T&C #'s 4.1)**		
4.1	- Integrated ISS Operational Analysis & Modeling	NASA	NASA
4.2	- SPP/SM Interface T&V (Using results of ISS Ops Analysis)	RSA	RSA
5	**SVS Targets (c)**		
5.1	- SM Targets and Orientation Survey **(c1)**	NASA	RSA/NASA
5.2	- SPP Targets And Orientation Survey **(c2)**	NASA	RSA/NASA

Appendix 3

#	ITEM	FUNDING Responsibility	TECHNICAL Responsibility
6	**Non-Standard Shuttle Services (T&C 6.1)**	**NASA**	**NASA**
6.1	- Remotely Operated Electrical Umbilical (ROEU)		
6.2	- Thermal Model Development & Analysis		
6.3	- Design Coupled Loads Analysis/Finite Element Modeling		
6.4	- Orbiter Cabling		
6.5	- SRMS Manipulator Demonstration Facility Mockup		
7	**Second Set of SPP Solar Arrays (SA) (T&C #7.1)**		
7.1	- Design, Development, Manufacturing, & T&V of SPP SA's	RSA	RSA
7.2	- SA Carrier	NASA	NASA
7.3	- Carrier Flight Support Equipment (FSE) to attach SA	RSA	RSA
7.4	- SPP attach point to accommodate Carrier & SA's	RSA	RSA
7.5	- EVAs required for Installation of SAs	RSA	RSA
7.6	- SSRMS Operational Analysis & Modeling	NASA	NASA
7.7	- Delivery/Launch of SPP SA's On-orbit by Shuttle	NASA	NASA
7.8	- Return of SA Carrier on the Shuttle	NASA	NASA
8	**SPP Pre-launch Processing at KSC for SPP & SAs (T&C 8.1)**	**NASA**	**NASA**
9	**TCS Two-Phase Flight Demo (T&C #9.1)**		
9.1	- H/W Design, Manufacturing, T&V	RSA	RSA
9.2	- Flight Demo Carrier	NASA	NASA
9.3	- Carrier Flight Support Equipment (FSE) to attach Flight Demo	RSA	RSA
9.4	- Installation & Analysis of Flight Demo	NASA	NASA
9.5	- Pre-launch processing at KSC	NASA	NASA
9.6	- Delivery of Experiment On-orbit on STS-87	NASA	NASA
9.7	- Return of the Flight Demo experiment on Shuttle	NASA	NASA
10	**SPP On-orbit Assembly EVAs**	**RSA**	**RSA**

Appendix 3

1.1 RSA is responsible for removal of the SPP PDGF and return to the US segment for relocation to the HAB. NASA is responsible for installation of the PDGF on the HAB.

1.2 NASA/RSA agrees to have two methods for accomplishing the SPP Berthing/Docking operation that do not exceed the capabilities of the SSRMS as defined in SSP 50227. One of these methods is to be an EVA backup which would be fully tested and verified prior to launch.

2.1 RSA and NASA agree to the development of requirements in joint documents NASA/RSCE/3411-SPP and SSP 50227. Existing SSRMS interface and operational requirements as defined in SSP 42003 and SSP 42004 will be incorporated. RSA is responsible for assurring that all requirements defined in the above documents are met.

2.2 The FGB PDGF will remain permanently installed on the FGB. The FGB PDGF will also be used for the installation of the SPP Solar Arrays.

2.3 RSA also requires that a PDGF be installed on the SPP. NASA will procure the PDGF and associated hardware by June 1, 1996 in order to utilize existing the NASA/SPAR contract at a significant discounted cost and meet the ISS Assembly Sequence schedule.

2.4 As agreed at TIM 17, RSA is responsible for the development, test, verification, delivery and installation on the FGB, a support structure/stand to which a PDGF can be mounted.

4.1 NASA agrees to perform an Integrated Analysis of the SPP transfer and berthing operation. RSA agrees to provide Docking Mechanism (Hybrid Probe/Cone) characteristic data as required by the NASA in order to accurately model the Docking Mechanism. Results of this analysis will be provided to RSA for incorporation in the Docking Mechanism test stand. NASA and RSA agree to the joint responsibility for the certification of the transfer and berthing operation.

6.1 Items identified under section 6 are the main areas listed for Non-Standard Shuttle services. Specific items will be identified as the SPP design matures.

Appendix 3

7.1 RSA is responsible for the development, test, verification and installation of the remaining 4 SPP solar arrays. NASA agrees to deliver on orbit these arrays utilizing a US developed carrier. RSA agrees to provide NASA required information for integrating the solar arrays onto the carrier and into the Shuttle Payload Bay.

NASA is responsible for the SSRMS handover of the carrier/arrays to the Russian Segment. RSA agrees that if the transfer, removal of the Solar Arrays, and return of the carrier is not possible within the defined mission timeline, RSA is responsible for providing an attach/stowage location for the carrier on the Russian Segment.

8.1 NASA is responsible for Prelaunch processing, including ammonia servicing, CITE testing, battery servicing and other applicable SPP services at KSC. RSA is responsible for financing Russian Segment personnel required to support planning and processing operations at KSC.

9.1 NASA and RSA agree to fly the Russian TCS Two Phase Flight Experiment on the Shuttle based on RSA's commitment that the Flight Experiment will be delivered to KSC by Septemeber, 1997 in support of STS-89. Final agreement for NASA to fly the Russian Two Phase Experiment is conditional pending RSA submittal of payload mass properties and dimensions data for feasibility assessments.

A.1 The SPP will undergo the Joint ISS/Shuttle Safety Review Process. RSA agrees to support the Joint Review Panel as required.

A.2 RSA agrees to provide an approved SPP schedule and to provide bi-weekly status updates as well as formal updates upon changes to the schedule. RSA further agrees to conduct periodic Joint Detailed Design Reviews to assess that the SPP is meeting all applicable Shuttle/ISS requirements and schedules. RSA and NASA agree to provide detailed documentation (schedules, drawings, Preliminary Design Documentation, Test and Verification documents, etc.).

(a) - FGB PDGF H/W LIST (Including T&V & USOS Modifications)

	ITEM	COMMENTS	SOURCE	PROCUREMENT NEED DATE
1	PDGF ORU Assembly	Includes Thermal Blankets, Grapple Shaft ORU Assembly, & Connector Saver Set (Consists of 6 Harness Assemblies. Used to simulate SSRMS LEE for T&V)	Borrowed from USOS HAB module	N/A
	Video Signal Converter (VSC)		Borrow Existing USOS Spare	N/A
2	PDGF Mounting Assembly (Adapter Ring)	Includes 8 Thermal Bushings (No Spares)	US (SPAR); Existing NASA/CSA Contract	6/1/96 (Authority To Proceed)
	VSC Mounting Kit (VSC Plate)	VSC Bracket, 2 Attraction Plates, 4 screws	US (SPAR); Existing NASA/CSA Contract	6/1/96 (Authority To Proceed)
	PDGF External Harness (Cable Bundle), with VSC Interface	Data, Power, Video Cables, VSC Connectors, & PDGF Interface Connectors	US (SPAR)	6/1/96 (Authority To Proceed)
3	1553 Cable Wire (Silver & Nickel Plated)	For interface between PDGF Harness & Node/PMA 1553 Cables	US GFE (Bay Associates)	TBD
	Video Cable (Fiber)	Interface Between S0 Truss & VSC (5 fibers for Aapprox. 100 ft.). Includes Design, Manufacturing & WETF Mockup	US GFE (Brand Rex)	TBD
	External Connectors (Power & Video)	External Connectors (3)	US GFE (Amphenol)	TBD
	QCDs	Internal Quick Disconnect Connectors	US GFE (TBD)	TBD
	Power Cable Dressing & Tiedowns	External Power Cables Routing	US GFE (TBD)	TBD
	WETF PDGF Cable Harness Mockup	Low-fidelity mockup for PDGF handling training. Includes VSC Mockup	US GFE (JSC)	TBD
	WETF PDGF Fiber Bundle Mockup	Low-fidelity mockup for video fiber routing. Assuming EVA installation of Video Fiber	US GFE (JSC)	
4	FGB External/Internal Cable Manufacturing	RS will manufacture 1553 cables for: Interface between PDGF Harness & Node/PMA 1553 cables	RS	TBD
	External Connectors (Data)	PDGF Harness interface & FGB Feedthrough Interface	RS	TBD
	Internal Connectors (Data)	Internal FGB 1553 & Node/PMA 1553 cables interface	RS	TBD
	External/Internal Connectors (Data)	FGB Feedthrough 1553 cables interface	RS	TBD
5	US H/W Modifications, T&V & Integration	Includes PDGF H/W Integration and NASA H/W Mods	US (Prime, PG 1, PG 3)	
	- 1553 Cable/Connectors & Integration	Integration of 1553 connectors with 1553 cables	US (PG 1)	
	- Lab-Node 1 1553 Jumper Cables	2 jumpers. Prime/PG assessing via new SSCM.	US (PG 1, PG 3)	
	- Video Cable Outfitting	PMA 1/Node 1 outfitting (Dressings and Tiedowns)	US (PG 1)	
	- 1553 Bus Performance Testing	1553 Bus Performance Testing	US (PG 1)	
6	Non-US (Joint) Integrated T&V	Power test of RACUs & SSRMS	US/RS (Prime, PG 2, SPAR, KhSC)	Dec. 96 - Mar. 97 Window of Opportunity

(b) - SPP PDGF Related H/W LIST (Including T&V & USOS Modifications)

#	ITEM	COMMENTS	SOURCE	PROCUREMENT NEED DATE
1	PDGF ORU Assembly	Includes Thermal Blankets & Grapple Shaft ORU Assembly, & Connector Saver Set (Consists of 6 Harness Assemblies. Used to simulate SSRMS LEE for T&V)	US (SPAR); Existing NASA/CSA Contract	6/1/96 (Authority To Proceed)
	PDGF Mounting Assembly (Adapter Ring)	- Includes 8 Thermal Bushings (No Spares)	US (SPAR); Existing NASA/CSA Contract	6/1/96 (Authority To Proceed)
	PDGF External Harness (Cable Bundle)	Data, Power & Video Cables & PDGF Interface Connectors	US (SPAR); Existing NASA/CSA Contract	6/1/96 (Authority To Proceed)
2	Flight Releasable Grapple Fixture (FRGF)	Required for Shuttle RMS grappling in Payload Bay	US (Existing Spare)	N/A
3	SSRMS Software Modifications	Functionality to berth SPP & control SSRMS	US GFE (JSC), Prime, SPAR	N/A
4	System Level NASA/Prime SSRSM/SPP Configuration Verification	SSRMS Functionality & Verification	US (Prime)	TBD

(c) - SPP/SM Space Vision System (SVS) Targets (Including T&V)

#	ITEM	COMMENTS	SOURCE	PROCUREMENT NEED DATE
1	SM			
	- TBD targets (4-5 minimum, 8 likely)	Work is in progress to identify quantity and need dates	US (SPAR); New procurement	TBD
	- Exact Location/Orientation Survey	Done by KSC personnel (1-2 days, 4 personnel)	US	N/A. SM schedule & US KSC personnel availability driven
2	SPP			
	- TBD targets (4-5 minimum, 8 likely)	Work is in progress to identify quantity and need dates	US (SPAR); New procurement	TBD
	- Exact Location/Orientation Survey	Done by KSC personnel (1-2 days, 4 personnel)	US	N/A. SPP schedule & US KSC personnel availability driven

Addendum to the 1996 Balance of Contributions Protocol for Services to be Provided through December 2005 and Crew Rescue through April 2006

With regard to the near term update to the 1996 Balance of Contributions Protocol (the Balance Agreement) and the resolution of near term operational issues for the period covering calendar year 2005 and crew rescue through April 2006, NASA and Roskosmos (the Parties) agree to continue implementation of the original agreement amended as follows:

1. NASA will not plan on continued use of the contract crew hours beyond October 2004 and agrees to implement the necessary contract modifications by November 2004 to reflect that as of the end of Expedition 9 Roskosmos will have fully met its obligation for the crew hours and stowage obligations in Modification 44 of Contract NAS15-10110.

2. NASA agrees to continue to provide NASA environmental/health care system capability to support habitation of the Expedition crews, including the Roskosmos crewmembers, through December 2005.

3. NASA agrees to continue to supply Roskosmos with electrical power pursuant to the 1996 Balance Agreement.

4. NASA agrees to continue to provide Roskosmos with communications resources and stowage volume, as available, pursuant to current operational practice through December 2005.

5. For purposes of calculating the requirements and obligations through December 2005, the Parties assume the ISS will have a two-person crew in this timeframe.

   The Parties agree to share crew rotation responsibilities as follows: Roskosmos agrees to return the Expedition 10 crew (one NASA, one Roskosmos) on Soyuz 9. Roskosmos agrees to launch the Expedition 11 crew (one NASA, one Roskosmos) on Soyuz 10 in April 2005. Roskosmos agrees to return the Expedition 11 crew (one NASA, one Roskosmos) on Soyuz 10 and launch the Expedition 12 crew (one NASA, one Roskosmos) on Soyuz 11 in October 2005. This guarantees Roskosmos the ability to market the third seat on each Soyuz flight in 2005.

However, NASA agrees to continue to work an option, subject to the operational readiness of the Shuttle, of rotating the NASA Expedition 11 and Expedition 12 crewmembers on the Shuttle in the fall of 2005. This leaves open the possibility for Roskosmos to market an additional seat on Soyuz 11.

Should the Parties jointly determine that adequate operational capability is available to support the third crewmember on orbit, NASA agrees to provide launch and subsequent return of the third crewmember (provided by Roskosmos) on the Shuttle. If the increase to a three-person crew does not coincide with the Roskosmos long duration flight opportunity NASA will remedy this on the next rotation on the Shuttle.

The Parties agree that each side will then be considered to have fulfilled its obligations for crew rotation under the 1996 Balance Agreement. Crew rotation in 2006 and beyond will be the responsibility of each side to provide for its crewmembers through its own resources or by arranging for such services from the other partner.

6. Upon Shuttle Return to Flight NASA agrees to provide crew provisions and food on the Shuttle and ATV 1 vehicles to support the NASA crewmembers. In addition, NASA agrees to provide water for the entire Expedition crew, including Roskosmos crewmembers. NASA also agrees to continue to launch and return Roskosmos cargo in accordance with its obligations under the 1996 Balance Agreement and subsequent protocols.

7. Roskosmos agrees to provide crew rescue capability to the entire Expedition crew, including the NASA crewmembers, through April 2006.

   The Parties agree that, regardless of when the Assembly Phase is complete, Roskosmos will have fulfilled its obligations for crew rescue under the 1996 Balance Agreement to provide crew rescue on eleven Soyuz vehicles. Crew rescue after April 2006 and beyond will be the responsibility of each side to provide for its crewmembers through its own resources or by arranging for such services from the other partner.

8. Roskosmos agrees to continue to provide habitation to the entire Expedition crew, including the NASA crewmembers, including launch of life support systems resupply, water, and gas through December 2005.

9. In 2005, until such time as the Shuttle returns to flight, Roskosmos will launch some mutually agreed upon NASA cargo (crew provisions, food, critical spares, and utilization items) not to exceed a total of 1.7 MT. Upon Shuttle return to flight, the unlaunched balance of the 1.7 MT will be used to reduce NASA's existing debt to Roskosmos for Progress waste removal services. Additionally Roskosmos will accommodate a small, mutually agreed upon amount of

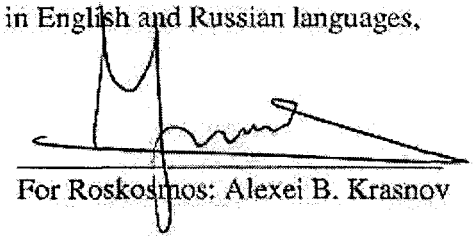
downmass on Soyuz, including utilization hardware, during the period before the Shuttle returns to flight.

This Addendum to the 1996 Balance Protocol represents an Implementing Arrangement within the framework of the Space Station Intergovernmental Agreement and NASA/RSA Memorandum of Understanding, and will enter into force following completion of the Parties' internal approval procedures. However, the Parties agree to implement the terms of this Addendum upon signature, pending such approval.

The Parties also agree to devote intensive efforts to the development of additional arrangements covering the period from the beginning of calendar year 2006 to the end of calendar year 2009. The Parties agree that the optimum date for conclusion of negotiations of such arrangements is not later than the end of March 2005.

Done in Moscow, in duplicate, September 9, 2004, in English and Russian languages, each text being equally authentic.

For NASA: Charles J. Precourt



For Roskosmos: Alexei B. Krasnov

Note: At the present time, the Treaty Office does not have the Russian text of this Addendum. If the Russian text becomes available, it will be added to this publication.

SECOND ADDENDUM

TO THE IMPLEMENTING ARRANGEMENT ENTITLED

"PROTOCOL INCLUDING TERMS, CONDITIONS AND ASSUMPTIONS, SUMMARY BALANCE OF CONTRIBUTION AND OBLIGATIONS TO INTERNATIONAL SPACE STATION (ISS) AND RESULTING RIGHTS OF NASA AND RSA TO ISS UTILIZATION ACCOMMODATIONS AND RESOURCES, AND FLIGHT OPPORTUNITIES" (BALANCE AGREEMENT)

BETWEEN

THE NATIONAL AERONAUTICS AND SPACE ADMINISTRATION OF THE UNITED STATES OF AMERICA

AND

THE FEDERAL SPACE AGENCY OF THE RUSSIAN FEDERATION

Balance Agreement Addendum

The National Aeronautics and Space Administration of the United States of America (hereinafter "NASA") and the Federal Space Agency of the Russian Federation (hereinafter "Roscosmos") (hereinafter, collectively, "the Parties"),

RECOGNIZING the Agreement between the United States of America and the Russian Federation concerning Cooperation in the Exploration and Use of Outer Space for Peaceful Purposes of June 17, 1992,

RECOGNIZING the Agreement among the Government of Canada, Governments of Member States of the European Space Agency, the Government of Japan, the Government of the Russian Federation, and the Government of the United States of America Concerning Cooperation on the Civil International Space Station signed on January 29, 1998, (hereinafter the "Intergovernmental Agreement"),

RECOGNIZING the Memorandum of Understanding between the National Aeronautics and Space Administration and the Russian Space Agency Concerning Cooperation on the Civil International Space Station signed on January 29, 1998 (hereinafter the "MOU"),

RECOGNIZING the implementing arrangement to the MOU entitled the Protocol Including Terms, Conditions and Assumptions, Summary Balance of Contributions and Obligations to International Space Station (ISS) and Resulting Rights of NASA and RSA to ISS Utilization Accommodations and Resources, and Flight Opportunities signed on June 11, 1996, (hereinafter the "Balance Agreement"),

RECOGNIZING the Addendum to the Balance Agreement signed on September 9, 2004, (hereinafter the "First Addendum"),

CONVINCED that implementation of the agreements governing cooperation on the International Space Station will further expand cooperation through the establishment of a long-term and mutually beneficial relationship and will further promote cooperation in the exploration and peaceful use of outer space,

Have agreed as follows:

ARTICLE 1 – PURPOSE

The purpose of this Addendum is to adjust the balance of contributions of the Parties as previously set forth in the Balance Agreement and First Addendum, so as to maintain the balance of the Parties' respective contributions and obligations to the ISS program and the sharing of responsibilities associated with each Party's participation in accordance with the principles established in the Intergovernmental Agreement, the MOU, and the Balance Agreement. Adjustments are required at this time due to changes in the timeline for ISS assembly, programmatic changes on the part of both Parties, and the development of circumstances and plans that necessitate the exchange of goods and services not covered by the terms of the Balance Agreement. The specific objectives of this Addendum are to establish common approaches to key operational issues and effect a

partial rebalance of the NASA and Roscosmos efforts until such time as a more complete evaluation and comprehensive rebalance can be completed through future adjustments of the Balance Agreement. In accordance with the provisions of Balance Agreement Paragraphs 3 and 4, and MOU Article 16.4, the Parties have sought to minimize the exchange of funds through the mutual provision of goods and services agreed to be of equivalent value (i.e. barter). This Addendum is also intended to provide a framework for the acquisition, through separate contractual or other arrangements between the Parties, of ISS goods and services that cannot be obtained through barter.

ARTICLE 2 – SCOPE AND BACKGROUND CONSIDERATIONS

A. This Addendum shall constitute an addendum to an implementing arrangement pursuant to Article 4(2) of the Intergovernmental Agreement and Article 1.1 of the MOU.

B. All terms and provisions of the Balance Agreement, as amended by the First Addendum, remain in effect unless otherwise specified by this Addendum.

ARTICLE 3 – TERMS

A. Crew size and composition:

Paragraph 11 of the Balance Agreement shall be amended by the following addition to the end of the article:

> "11.c. Based on program status as of January 1, 2006, the Parties have reached the following understandings:
>
> i. Crew Until 2009: The permanent ISS crew size will be increased via flight ULF1.1 in May 2006 from two to three and remain at three until the end of April 2009, assuming nominal Shuttle operations. Flight opportunities and crew time for a three-person crew shall continue to be allocated in accordance with the previous practice through Increment 6.
>
> ii. Crew from 2009 until U.S. Crew Rescue Vehicle Available: By the end of April 2009, the permanent ISS crew size will expand from three to six through NASA's provision of additional Soyuz vehicles for crew rotation and rescue and NASA habitation and logistics support of its three designated crewmembers. From the end of April 2009 after the permanent ISS crew size expands to six (1) Roscosmos shall have the rights to the flight opportunities for its three crewmembers and on-orbit crew time equivalent to three crewmembers and will retain those rights for the life of the ISS subject to Roscosmos' provision of support of those crewmembers (rescue, rotation, habitation) to perform Russian Segment systems operations and utilization activities; and (2)

NASA and the remaining ISS Partners shall share the remaining three flight opportunities and on-orbit crew time equivalent to three crewmembers continuous on-orbit per year and will retain those rights for the life of the ISS subject to their provision of support for those crewmembers (rescue, rotation, habitation) to perform U.S. on-orbit Segment systems operations and utilization activities until such time as a U.S. crew rescue vehicle is available. Nothing in this paragraph in any way implies that the ISS will be considered to have achieved the state of assembly complete when the permanent crew size expands from three to six. If it becomes apparent that NASA will be unable to provide habitation and logistics support required to add three crewmembers or will be unable to provide crew rescue, rotation, and logistics support for its three crewmembers after 2011, the Parties will meet to discuss appropriate action.

iii. Crew After a U.S. Crew Rescue Vehicle is Available: Following the availability of a U.S. crew rescue vehicle and when the ISS has a crew of 7, flight opportunities and crew time will be allocated in accordance with MOU Articles 8.3.c.2 and 11.1, and paragraph 11.b of the Balance Agreement."

B. Working Language: Translation services shall be provided by NASA only for critical operations and training documents. The transition period described in Balance Agreement paragraph 23 shall end with the expansion of the ISS permanent crew size to six persons.

C. NASA shall purchase crew rotation, crew rescue and cargo services, as needed, from Roscosmos through 2011, pursuant to mutually agreed contractual arrangements.

ARTICLE 4 – CHANGES IN CONTRIBUTIONS OF ROSCOSMOS AND NASA

A Science Power Platform and its arrays: In fulfillment of NASA and Roscosmos' respective obligations under Articles 3.3, point 5, 6.1.b.14 and 6.2.b.14 of the MOU, Roscosmos and NASA will continue to cooperate in assembling and operating the International Space Station as agreed in this Addendum. The following provisions of the Balance Agreement are superseded by the arrangements in this Second Addendum: paragraph 20; Appendix 2, page 1, items 8 and 9; and Appendix 3.

B. Upmass:

1. NASA's obligation to deliver a total of 20,500 kilograms upmass under the Balance Agreement plus an additional 707 kilograms upmass for non-Life Support Systems cargo launched by Roscosmos for NASA after February 1, 2003 was equal to 21,207 kilograms of total NASA upmass. The Parties agree to reduce the NASA obligation by 13,115 kilograms upmass and acknowledge NASA's delivery of 5,892 kilograms upmass as of January 1,

2006. Therefore, the remaining NASA obligation to Roscosmos is 2,200 kilograms upmass.

2. Accordingly, Appendix 2, page 1, item 11 is deleted.

3. Accordingly, Appendix 2, page 3, item 8 is amended to read:

"Delivery of 2.2 metric tons of cargo for the Russian Segment: This 2.2 metric tons of cargo includes, inter alia, outfitting equipment for the Russian Multipurpose Logistics Module (MLM). The total mass of this MLM equipment includes the flight hardware and the associated flight support equipment (FSE) and shall not exceed 2.2 metric tons. NASA shall be responsible for providing the carrier for transportation on the Space Shuttle, integration of Russian hardware onto the carrier, and supplying appropriate interface documentation. Roscosmos shall be responsible for providing MLM-associated FSE."

4. Roscosmos shall deliver 31 kilograms of cargo to the ISS for NASA in 2006, with manifesting details to be agreed through the existing processes. This cargo is in addition to that which has already been procured.

C. Habitation:

1. Appendix 2, page 2, item 6 is replaced in its entirety with:

"During the time when only 2 crewmembers are onboard the ISS, Roscosmos shall continue to provide habitation services for 1 equivalent NASA designated crewmember continuously on orbit per year until expansion of crew size to three persons, or April 2009, whichever comes first. After expansion of the crew to a total of 3 crewmembers on orbit, Roscosmos shall provide habitation services for 1.5 equivalent NASA designated crewmembers continuously on orbit per year until expansion of crew size to six persons or the end of April 2009, whichever comes first. This obligation is separate from the paragraph 16 obligation that NASA and Roscosmos are responsible for providing food, supplies, and personal items for their respective designated crewmembers. This obligation is also separate from the responsibility of NASA and Roscosmos for the collection, stowage, and disposal of waste commensurate with their respective designated crewmembers."

2. The following text is added as a new Appendix 2, page 1, item 11:

"NASA will continue to provide limited support for habitation, consistent with NASA's previous practice through Increment 6, until expansion of the permanent crew size to 6 persons or the end of April 2009, whichever comes first."

D. Electrical Power:

1. NASA agrees that pursuant to its original obligation under MOU Article 6.1.b.20, NASA is obligated to provide electrical power (in agreed amounts and subject to the limits of the US power system) to augment Roscosmos-generated power to support essential Roscosmos-provided flight element core systems, which is defined to include overall Russian Segment operations and utilization, throughout the remaining life of ISS. Therefore, pursuant to NASA's original obligations under Article 6 of the MOU to support Roscosmos' original plans to augment its own electrical power system and to provide adequate electrical power for the Russian Segment, NASA shall continue to provide to Roscosmos electrical power in accordance with the power transfer schedule and conditions below. Appendix 2, page 1, item 1 will be provided according to the schedule below. Appendix 2, page 3, item 1 is included in the power transfer quantities set forth in the power transfer schedule below.

	Power per Appendix 2, Page 1, Item 1, continuous (kW)	Power pursuant to Article 6 of MOU, continuous (kW)	Continuous power transfer limit (kW) (includes Col 1)	Contingency/ Peak power transfer limit (kW) (includes Col 1)	Est'd Amt Remaining of 615,000 kWh
2006					615,000
until flt 12A.1	1.5	1.7	3.2	5.4	601,536
post-12A.1	1.5	2.7	4.4	7.2	599,268
2007	1.5	2.7	4.4	7.2	575,397
2008					
until arrival of MLM	1.5	2.7	4.4	7.2	553,815
post-MLM	1.5	4.5	12	14.4	550,035
2009					
until expansion to 6 crew	1.5	8	12	14.4	526,923
post expansion to 6 crew	0	10.9	12	14.4	462,831
2010	0	10.6	12	14.4	369,756
2011	0	10.6	12	19.4	276,681
2012	0	10.7	12	19.4	182,730
2013	0	10.7	12	19.4	88,779
2014	0	10.7	12	19.4	0
2015	0	10.8	12	19.4	0

2. The figures in the above power transfer schedule do not include power to support the Automated Transfer Vehicle (ATV) docked to the Russian Segment.

3. NASA accepts loss of power in the power cables during transmission to the Russian power converters, while Roscosmos accepts loss of power due to conversion in the Russian power converters. Therefore, power quantity shall be measured at the inlet to Russian power converters.

4. The estimated amount of power transferred to the Russian Segment may be reallocated annually based on Roscosmos' request, within the bounds of the continuous/peak limits above, subject to the 615,000 kilowatt hour limit. The Parties have also agreed to provide for overall assessment of power usage from 2006 through 2009 and reallocate unused amounts to later periods. Or, upon mutual agreement of the Parties, the Parties may exchange excess kilowatt hours for other resources using a conversion factor of USD $718 per kilowatt hour.

E. Stowage: NASA shall provide stowage for total Russian cargo in the Zarya Control Module (FGB) (excluding .75 cubic meters for launch of FGB stowage enclosures) in the amount of 9.18 cubic meters in 2006, 7.18 cubic meters in 2007 and 2008 and 0.25 cubic meters in 2009 through 2011. NASA shall also provide stowage of 2.5 cubic meters as NASA's total portion of the Russian Life Support System consumables through April 2009. The amount of Roscosmos stowage, including NASA's total portion of Russian Life Support System consumables, shall not exceed 12.5 cubic meters in 2006, 10.5 cubic meters in 2007 and 2008 respectively, 3.5 cubic meters from January 1, 2009 through April 30, 2009, and 1.0 cubic meter from May 1, 2009 through December 31, 2011. Following the removal of items as identified on the return manifest of ISS flight ULF.1.1, Russian stowage in the USOS and FGB in excess of the above limits will require additional compensation, assuming not less than 4 Shuttle flights in a 12-month period beginning with the flight of ULF 1.1.

F. Communication Services: NASA shall provide Tracking and Data Relay Satellite System (TDRSS) S-Band and Ku-band services for Russian Segment systems and utilization activities on a noninterference basis, consistent with procedures and operational prioritization applicable to USOS usage, through December 31, 2011.

G. Propellant:

1. Paragraph 17 of the Balance Agreement is amended by adding the following final sentences:

"However, as part of the balance of contributions reached in the Second Addendum to this Agreement, NASA and Roscosmos agree to reduce the Roscosmos obligation to deliver 56,000 kilograms of propellant for NASA over the life of the Station by 16,325 kilograms; it is acknowledged that Roscosmos has delivered 13,857 kilograms of propellant for NASA through Dec. 31, 2005, thus the remaining Roscosmos obligation is to deliver 25,817 kilograms of propellant for NASA. Roscosmos also has an obligation to deliver 32,000 kilograms of propellant, in addition to its obligation to deliver propellant for NASA; through Dec. 31, 2005, it has delivered 5,813 kilograms, leaving a remaining balance of 26,187 kilograms. NASA has an obligation to deliver a total of 24,000 kilograms of propellant; through Dec. 31, 2005, it has delivered 4,961 kilograms and has a remaining balance of 19,039 kilograms of propellant.

The Parties recognize the need to determine the updated requirement for propellant, appropriate performance, and remaining obligations against assembly and assembly complete obligations with due consideration for changes in the configuration of the Russian and American segments and the impacts of those changes on propellant requirements and the Parties' obligations. Because the analysis is on-going among the NASA and Roscosmos technical specialists to determine the overall propellant requirements for the ISS both assembly and assembly complete, the Parties agree to document performance to date against the total obligation for each Party. Upon completion of the necessary analysis, the Parties shall document the agreed remaining obligations for propellant delivery for assembly and assembly complete in a separate arrangement.

H. Waste Removal Services: Roscosmos shall reduce NASA's total remaining debt for waste removal by 0.9 metric tons.

I. Water: NASA's obligation is to provide a total of 8 metric tons of water to the ISS, 3 metric tons during Assembly and 5 metric tons after Assembly Complete, as stated in Appendix 2, page 1, item 10 and Appendix 2, page 3, item 9. The remaining NASA obligation is 2 metric tons as of January 1, 2006.

J. Liaison Office and Travel Support: NASA will provide $680,000 of funding for support of the Roscosmos Houston liaison office and agreed travel for Russian personnel. The Parties will pursue mutually agreeable long term arrangements to continue this support beyond this funding level.

ARTICLE 5 – CONSISTENCY WITH DOMESTIC LAWS

All activities under this Addendum shall be conducted in a manner consistent with the respective laws and regulations of each Party.

ARTICLE 6 - AMENDMENT

This Addendum may be amended by the mutual written agreement of the Parties.

ARTICLE 7 - ENTRY INTO FORCE AND DURATION

This Addendum shall enter into force upon signature.

This Addendum shall remain in force until such time as the MOU ceases to be in force unless it is superseded by a later agreement.

ARTICLE 8 – WITHDRAWAL AND TERMINATION

If the United States or Russia gives notice of withdrawal from the Intergovernmental Agreement in accordance with Article 28 thereof, its corresponding Party shall be

deemed to have withdrawn from this Addendum effective from the effective date of such withdrawal.

DONE at Kennedy Space Center, Florida, this 1st day of July, 2006, in two originals in the English and Russian languages, each text being equally authentic.

FOR THE NATIONAL AERONAUTICS AND SPACE ADMINISTRATION OF THE UNITED STATES OF AMERICA:

Michael Griffin
Administrator

FOR THE FEDERAL SPACE AGENCY OF THE RUSSIAN FEDERATION:

A.N. Perminov
Head

ВТОРОЕ ДОПОЛНЕНИЕ

К ДОГОВОРЕННОСТИ ОБ ИСПОЛНЕНИИ СОГЛАШЕНИЙ, ИМЕНУЕМОЙ

"ПРОТОКОЛ, ВКЛЮЧАЮЩИЙ СРОКИ, УСЛОВИЯ И ДОПУЩЕНИЯ, СВОДНЫЙ БАЛАНС ВКЛАДОВ И ОБЯЗАТЕЛЬСТВ ПО МЕЖДУНАРОДНОЙ КОСМИЧЕСКОЙ СТАНЦИИ (МКС), А ТАКЖЕ ПРАВА, ПОЛУЧЕННЫЕ В РЕЗУЛЬТАТЕ НАСА И РКА НА РАЗМЕЩЕНИЕ ОБОРУДОВАНИЯ, ИСПОЛЬЗОВАНИЕ РЕСУРСОВ МКС И ПОЛЕТНЫЕ ВОЗМОЖНОСТИ"
(ПРОТОКОЛ ПО БАЛАНСУ ВКЛАДОВ)

МЕЖДУ

НАЦИОНАЛЬНЫМ УПРАВЛЕНИЕМ ПО АЭРОНАВТИКЕ И ИССЛЕДОВАНИЮ КОСМИЧЕСКОГО ПРОСТРАНСТВА СОЕДИНЕННЫХ ШТАТОВ АМЕРИКИ
И

ФЕДЕРАЛЬНЫМ КОСМИЧЕСКИМ АГЕНТСТВОМ РОССИЙСКОЙ ФЕДЕРАЦИИ

Национальное управление по аэронавтике и исследованию космического пространства Соединенных Штатов Америки (в дальнейшем «НАСА») и Федеральное космическое агентство Российской Федерации (в дальнейшем «Роскосмос») (в дальнейшем, совместно, «Стороны»),

ПРИЗНАВАЯ Соглашение между Российской Федерацией и Соединенными Штатами Америки о сотрудничестве в исследовании и использовании космического пространства в мирных целях от 17 июня 1992 г.,

ПРИЗНАВАЯ Соглашение между Правительством Канады, Правительствами государств-членов Европейского космического агентства, Правительством Японии, Правительством Российской Федерации и Правительством Соединенных Штатов Америки относительно сотрудничества по международной космической станции гражданского назначения от 29 января 1998 г. (в дальнейшем «Межправительственное соглашение»),

ПРИЗНАВАЯ Меморандум о взаимопонимании между Российским космическим агентством и Национальным управлением по аэронавтике и исследованию космического пространства относительно сотрудничества по международной космической станции гражданского назначения, подписанный 29 января 1998 г. (в дальнейшем «МОВ»),

ПРИЗНАВАЯ договоренность об исполнении соглашений к МОВ, именуемую «Протокол, включающий сроки, условия и допущения, сводный баланс вкладов и обязательств по международной космической станции (МКС), а также права, полученные в результате НАСА и РКА на размещение оборудования, использование ресурсов МКС и полетные возможности» от 11 июня 1996 г. (в дальнейшем «Протокол по балансу вкладов»),

ПРИЗНАВАЯ дополнение к Протоколу по балансу вкладов от 9 сентября 2004 г. (в дальнейшем «Первое дополнение»),

БУДУЧИ УВЕРЕННЫМИ в том, что реализация договоренностей, в соответствии с которыми осуществляется сотрудничество по международной космической станции, позволит еще более углубить сотрудничество посредством установления долгосрочных и взаимовыгодных отношений и будет способствовать дальнейшему развитию сотрудничества в исследовании и использовании космического пространства в мирных целях,

пришли к соглашению о нижеследующем:

СТАТЬЯ I – ЦЕЛЬ

Целью настоящего Дополнения является уточнение баланса вкладов Сторон, определенных ранее в Протоколе по балансу вкладов и Первом дополнении, таким образом, чтобы поддерживать баланс соответствующих вкладов и обязательств Сторон по Программе МКС и обеспечивать разделение ответственности, связанной с участием каждой Стороны, в соответствии с принципами, определенными в Межправительственном соглашении, МОВ и Протоколе по балансу вкладов. В настоящее время необходимость в корректировке обусловлена изменениями в графике сборки МКС, программными изменениями, внесенными обеими Сторонами, появлением обстоятельств и планов, требующих обмена товарами и услугами, не предусмотренными условиями Протокола по балансу вкладов. Конкретными

целями данного Дополнения являются определение общих подходов к ключевым вопросам выполнения операций и осуществление частичного изменения баланса вкладов НАСА и Роскосмоса до того времени, пока не будет осуществлена более полная оценка и не появится возможность осуществить всестороннее изменение баланса посредством дальнейшего уточнения Протокола по балансу вкладов. В соответствии с положениями параграфов 3 и 4 Протокола по балансу вкладов и Статьи 16.4 МОВ Стороны провели работу по минимизации обмена фондами в форме взаимного предоставления товаров и услуг на эквивалентной основе (т.е. бартера). Настоящее Дополнение также призвано заложить основу для приобретения, посредством отдельных контрактных или иных договоренностей между Сторонами, товаров и услуг, связанных с МКС, в том случае, когда эти товары и услуги не могут быть предоставлены на условиях бартера.

СТАТЬЯ 2 – СФЕРА ДЕЙСТВИЯ И ИСХОДНЫЕ ПОЛОЖЕНИЯ

A. Настоящее Дополнение является дополнением к договоренности об исполнении соглашений в соответствии со Статьей 4(2) Межправительственного соглашения и Статьей 1.1 МОВ.

B. Все условия и положения Протокола по балансу вкладов, измененные Первым дополнением, остаются в силе, если только в настоящем Дополнении не оговорено иное.

СТАТЬЯ 3- Сроки

A. Численность и состав экипажа:

Параграф 11 Протокола по балансу вкладов изменяется путем добавления следующего текста в конец статьи:

> "11.c. На основании текущего положения дел по программе по состоянию на 1 января 2006 г., Стороны достигли взаимопонимания по следующим вопросам:
>
> i. Экипаж на период до 2009 г.: численность постоянного экипажа МКС будет увеличена с двух до трех человек в мае 2006 г. посредством полета ULF1.1, и будет поддерживаться на уровне трех человек до конца апреля 2009 г. при условии выполнения полетов КК «Шаттл» по штатной программе. Места в экипаже и время экипажа для экипажа из трех человек будут продолжать распределяться в соответствии с предыдущей практикой, существовавшей в период вплоть до завершения Экспедиции 6.
> ii. Экипаж с 2009 г. до появления американского корабля-спасателя (CRV): к концу апреля 2009 г. численность экипажа будет увеличена с трех до шести человек за счет предоставления НАСА дополнительных кораблей «Союз» для обеспечения ротации и спасения экипажей, а также за счет обеспечения со стороны НАСА обитаемости и материально-технического снабжения трех членов экипажа, назначенных НАСА. С конца апреля 2009 г. после того как численность постоянного экипажа МКС увеличится до шести человек, (1) Роскосмос получает права на полетные возможности для своих трех членов экипажа и полетное время экипажа, эквивалентное трем членам экипажа, и сохранит эти права на весь срок службы МКС, при условии предоставления Роскосмосом поддержки этих членов

экипажа (спасение, ротация экипажа, обитаемость), для осуществления деятельности по эксплуатации и использованию Российского сегмента МКС; и (2) НАСА и другие Международные Партнеры по МКС разделят между собой оставшиеся три полетные возможности и полетное время экипажа, эквивалентное нахождению трех членов экипажа на орбите непрерывно в течение года, и сохранят эти права на весь срок службы МКС при условии предоставления ими поддержки этих членов экипажа (спасение, ротация экипажа, обитаемость), для осуществления деятельности по эксплуатации и использованию американского орбитального сегмента до того времени, когда появится американский корабль-спасатель. Ничто в настоящем параграфе никоим образом не подразумевает, что сборка МКС будет считаться завершенной, когда численность постоянного экипажа будет увеличена с трех до шести человек. Если станет очевидно, что НАСА не будет иметь возможности обеспечивать обитаемость и материально-техническое снабжение, необходимые для добавления трех членов экипажа, или не сможет обеспечить спасение, ротацию и материально-техническое снабжение своих трех членов экипажа после 2011 г., Стороны встретятся для обсуждения соответствующих действий.

iii. Экипаж после появления американского корабля-спасателя: после появления американского корабля-спасателя и увеличения численности постоянного экипажа МКС до 7 человек полетные возможности и время экипажа будут распределяться в соответствии со Статьями 8.3.c.2 и 11.1 МОВ и параграфом 11.b Протокола по балансу вкладов.

B. Рабочий язык: услуги по переводу будут обеспечиваться НАСА только для операций, имеющих критическое значение, и для документации для подготовки экипажа. Переходный период, определяемый в параграфе 23 Протокола по балансу вкладов, завершается после увеличения численности постоянного экипажа МКС до 6 человек.

C. НАСА должно приобрести у Роскосмоса услуги по ротации экипажей, по их спасению и по доставке грузов, как это будет необходимо, на период по 2011 г. включительно в соответствии с взаимно согласованными контрактными договоренностями.

СТАТЬЯ 4- ИЗМЕНЕНИЯ ВКЛАДОВ РОСКОСМОСА И НАСА

A Научно-энергетическая платформа и ее солнечные батареи: при выполнении соответствующих обязательств НАСА и Роскосмоса в соответствии со Статьей 3.3, пункт 5, 6.1.b.14 и 6.2.b.14 МОВ, Роскосмос и НАСА продолжат сотрудничество по сборке и эксплуатации Международной космической станции, как это согласовано в настоящем Дополнении. Следующие положения Протокола по балансу вкладов заменяются договоренностями настоящего Второго дополнения: параграф 20; Приложение 2, пункты 8 и 9 на странице 2; и Приложение 3.

B. Выводимая масса:

1. В соответствии с Протоколом по балансу вкладов обязательство НАСА по выведению в общей сложности 20500 кг грузов, плюс дополнительно 707 кг грузов для систем, не относящихся к жизнеобеспечению, выведенных для НАСА Роскосмосом после 1 февраля 2003 г., эквивалентно 21207 кг общей массы грузов, выводимых НАСА. Стороны согласились сократить обязательство НАСА на 13115 кг выводимой массы и учесть 5892 кг, выведенных по состоянию на 1 января 2006 г. Таким образом, оставшееся обязательство НАСА перед Роскосмосом составляет 2200 кг.

2. Соответственно, пункт 11 на странице 2 Приложения 2 удаляется.

3. Соответственно, текст пункта 8 на странице 5 Приложения 2 изменяется следующим образом:

"Доставка 2,2 метрических тонн грузов для российского сегмента: данные 2,2 метрические тонны груза, в числе прочего, включают оборудование дооснащения для российского многоцелевого лабораторного модуля (МЛМ). Общая масса оборудования для многоцелевого лабораторного модуля включает полетное оборудование и соответствующее полетное вспомогательное оборудование (FSE) и не должна превышать 2,2 метрической тонны. НАСА отвечает за предоставление несущей платформы для доставки на борту КК «Шаттл», интеграцию российского оборудования на указанную несущую платформу и предоставление соответствующей документации на интерфейсы. Роскосмос отвечает за поставку связанного с МЛМ полетного вспомогательного оборудования".

4. Роскосмос должен обеспечить доставку на МКС 31 килограмма грузов для НАСА в 2006 г. Содержание манифеста должно быть согласовано в соответствии с существующей практикой. Этот груз доставляется в дополнение к уже приобретенным услугам по доставке грузов.

C. Обитаемость:

1. Пункт 6 на странице 3 Приложения 2 заменяется полностью на:

"В период, когда на борту МКС находится экипаж только из 2 человек, Роскосмос продолжит оказывать услуги по обитаемости, эквивалентные непрерывному пребыванию на орбите в течение одного года назначенного НАСА одного члена экипажа до момента увеличения численности постоянного экипажа МКС до трех человек, или же до апреля 2009 г., в зависимости от того, что наступит раньше. После увеличения численности постоянного экипажа МКС до 3 человек, Роскосмос будет оказывать услуги по обитаемости, эквивалентные непрерывному пребыванию на орбите в течение одного года 1,5 назначенных НАСА членов экипажа, до момента увеличения численности постоянного экипажа МКС до 6 человек или до конца апреля 2009 г., в зависимости от того, что наступит раньше. Это обязательство не связано с обязательством, приведенным в параграфе 16, на основании которого НАСА и Роскосмос отвечают за поставки продуктов питания, средств дооснащения и личных вещей для назначенных ими соответствующих членов экипажа. Кроме того, это обязательство не связано с ответственностью НАСА и

Роскосмоса по сбору, хранению и удалению отходов в объемах, пропорциональных числу членов экипажа, назначенных от этих агентств".

2. Следующий текст добавляется как новый в пункт 11 на стр. 2 Приложения 2:

"НАСА продолжит оказывать ограниченную поддержку обитаемости в соответствии с предыдущей практикой, существовавшей в период вплоть до завершения Экспедиции 6, до момента увеличения численности постоянного экипажа МКС до 6 человек, либо до конца апреля 2009 г., в зависимости от того, что наступит раньше".

D. Электропитание:

1. НАСА подтверждает, что в соответствии с первоначальным обязательством по Статье 6.1.b.20 МОВ оно несет ответственность за обеспечение электропитанием (в согласованных объемах и в соответствии с ограничениями американской системы электропитания) в дополнение к электропитанию, вырабатываемому Роскосмосом для поддержки работы основных бортовых систем Роскосмоса, к которым относятся все системы, обеспечивающие эксплуатацию и использование российского сегмента в полном объеме на весь оставшийся срок службы МКС. Таким образом, в соответствии с первоначальными обязательствами НАСА согласно Статье 6 МОВ по поддержке первоначальных планов Роскосмоса по наращиванию системы электропитания российского сегмента и адекватному энергообеспечению российского сегмента, НАСА продолжит предоставление Роскосмосу электроэнергии в соответствии с графиком и условиями передачи электроэнергии, приведенными ниже. Пункт 1 на стр. 1 Приложения 2 будет реализован в соответствии с приведенным ниже графиком. Данные пункта 1 на стр. 5 Приложения 2 включаются в объемы передаваемой электроэнергии в соответствии с графиком передачи электроэнергии, приведенным ниже.

	Непрерывная передача мощности по п. 1 стр. 1 Прил. 2 (кВт)	Непрерывная передача мощности по Статье 6 МОВ (кВт)	Ограничение по непрерывной передаче мощности (кВт) (включая колонку 1)	Ограничение по нештатной/ пиковой передаче мощности (кВт) (включая колонку 1)	Остаток от 615000 кВт-час (прогноз)
2006					615000
до полета 12A.1	1.5	1.7	3.2	5.4	601536
после полета12A.1	1.5	2.7	4.4	7.2	599268
2007	1.5	2.7	4.4	7.2	575397
2008					
до прибытия МЛМ	1.5	2.7	4.4	7.2	553815
после прибытия МЛМ	1.5	4.5	12	14.4	550035
2009					
до экипажа из 6 чел.	1.5	8	12	14.4	526923
при экипаже из 6 чел.	0	10.9	12	14.4	462831
2010	0	10.6	12	14.4	369756
2011	0	10.6	12	19.4	276681
2012	0	10.7	12	19.4	182730
2013	0	10.7	12	19.4	88779
2014	0	10.7	12	19.4	0
2015	0	10.8	12	19.4	0

2. Данные в приведенном выше графике передачи электроэнергии не учитывают электроэнергию для обеспечения полета корабля ATV, пристыкованного к российскому сегменту.

3. НАСА допускает потерю мощности в кабелях питания при передаче электропитания на российские преобразователи питания, а Роскосмос, соответственно, принимает на себя потерю мощности в результате преобразования питания российскими устройствами. Таким образом, количество электроэнергии должно измеряться на входе в российские преобразователи питания.

4. Прогнозируемое количество электроэнергии, передаваемое на российский сегмент, может быть ежегодно перераспределено на основании запросов Роскосмоса с учетом ограничений по непрерывным/пиковым значениям, приведенным выше, и в пределах 615 000 киловатт - часов. Стороны также согласились выполнить общую оценку энергопотребления в период с 2006 по 2009 гг. включительно и перераспределить неиспользованный объем на более поздние периоды. Или, по взаимной договоренности Сторон, Стороны могут обменять избыточные киловатт-часы на другие ресурсы на основании коэффициента пересчета, соответствующего 718 долларам США за киловатт-час.

E. Хранение: НАСА обеспечивает хранение общего количества российских грузов в функциональном-грузовом блоке «Заря» (ФГБ) (исключая 0,75 $м^3$ для выведения запанельных контейнеров для хранения в ФГБ) в объемах 9,18 $м^3$ в 2006 г., 7,18 $м^3$ в 2007 и 2008 гг., 0, 25 $м^3$ в период с 2009 по 2011 гг. включительно. НАСА также должно обеспечивает хранение 2,5 $м^3$ грузов, являющихся общей долей НАСА в расходуемых грузах российской системы жизнеобеспечения, по апрель 2009 г. включительно. Объем грузов Роскосмоса, уложенных на хранение, включая общую долю НАСА в расходуемых грузах российской системы жизнеобеспечения не должен превышать 12,5 $м^3$ в 2006 г., 10,5 $м^3$ в 2007 и 2008 гг., 3,5 $м^3$ в период с 1 января 2009 г. по 30 апреля 2009 г. включительно и 1,0 $м^3$ в период с 1 мая 2009 г. по 31 декабря 2011 г. включительно. После удаления грузов в полете ULF.1.1 в соответствии с манифестом на возвращаемые с МКС грузы хранение российских грузов на американском орбитальном сегменте и в ФГБ в объемах, превышающих приведенные выше значения, потребует дополнительной компенсации, при условии выполнения не менее 4 полетов КК «Шаттл» в течение 12 месяцев, начиная с полета ULF 1.1.

F. Услуги связи: НАСА должно предоставить услуги связи в S- и Ku-диапазонах через систему сети спутников-ретрансляторов слежения и связи (TDRSS) для эксплуатации и использования российского сегмента на основе бесконфликтного выделения ресурсов в соответствии с процедурами и операционными приоритетами, применимыми на американском орбитальном сегменте, на период по 31 декабря 2011 г. включительно.

G. Топливо:

1. Раздел 17 Протокола по балансу вкладов изменяется за счет добавления следующих заключительных предложений:

"Тем не менее, на основании Второго дополнения, являющегося частью Протокола по балансу вкладов, НАСА и Роскосмос согласились сократить обязательства Роскосмоса

по доставке 56000 кг топлива для нужд НАСА за период срока службы станции на 16325 кг; подтверждается доставка Роскосмосом 13857 кг топлива для нужд НАСА до 31 декабря 2005 г. включительно, таким образом, оставшиеся обязательства Роскосмоса составляют 25817 кг топлива для нужд НАСА. Роскосмос также имеет обязательства по доставке 32000 кг топлива в дополнение к обязательству по доставке топлива для нужд НАСА. До 31 декабря 2005 г. доставлено 5813 кг. Оставшаяся часть составляет 26187 кг. НАСА имеет обязательство по доставке 24000 кг топлива. До 31 декабря 2005 г. доставлено 4961 кг. Оставшаяся часть составляет 19039 кг топлива.

Стороны признают необходимость определения уточненных потребностей в топливе, надлежащего исполнения, оставшихся обязательств по завершению сборки станции, а также обязательств после завершения сборки, с учетом изменений конфигурации российского и американского сегментов и влияния этих изменений на потребности в топливе и обязательства Сторон.
Поскольку технические специалисты НАСА и Роскосмоса продолжают расчеты для определения общих требований по топливу как для фазы продолжения сборки станции, так и для фазы завершения сборки, Стороны согласились документировать текущее исполнение в сопоставлении с общими обязательствами каждой из Сторон. После завершения необходимых расчетов, Стороны документально оформят согласованные оставшиеся обязательства по доставке топлива для фазы продолжения сборки и фазы завершения сборки станции в рамках отдельной договоренности.

H. Услуги по удалению отходов: Роскосмос сокращает общую остающуюся задолженность НАСА по удалению отходов на 0,9 метрической тонны.

I. Вода: НАСА имеет обязательство по доставке на МКС в общей сложности 8 метрических тонн воды, 3 метрических тонн в период сборки и 5 метрических тонн после завершения сборки, в соответствии с пунктом 10 на стр. 2 Приложения 2 и пунктом 9 на стр. 5 Приложения 2. По состоянию на 1 января 2006 г. оставшаяся задолженность НАСА составляет 2 метрические тонны.

J. Представительство и организация командировок: НАСА выделяет 680 000 долларов США для обеспечения функционирования представительства Роскосмоса в Хьюстоне и согласованных командировок российских специалистов. Стороны будут придерживаться взаимно согласованных долгосрочных договоренностей в целях продолжения обеспечения функционирования представительства сверх уровня данного финансирования.

СТАТЬЯ 5 – СООТВЕТСТВИЕ ВНУТРЕННЕМУ ЗАКОНОДАТЕЛЬСТВУ

Все работы во исполнение данного Дополнения проводятся в соответствии с соответствующим законодательством и нормативно-правовыми актами каждой из Сторон.

СТАТЬЯ 6 - ИЗМЕНЕНИЯ

Данное Дополнение может быть изменено на основании взаимного письменного соглашения Сторон.

СТАТЬЯ 7 – ВСТУПЛЕНИЕ В СИЛУ И СРОК ДЕЙСТВИЯ

Настоящее Дополнение вступает в силу с момента подписания.

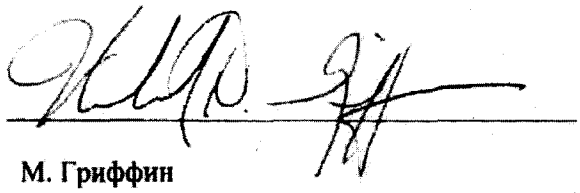
Настоящее Дополнение остается в силе до момента прекращения действия МОВ, если только оно не будет заменено более поздним соглашением.

СТАТЬЯ 8 – ВЫХОД ИЗ СОГЛАШЕНИЯ И ПРЕКРАЩЕНИЕ ЕГО ДЕЙСТВИЯ

Если Соединенные Штаты или Россия уведомят другую Сторону о выходе из Межправительственного соглашения в соответствии со Статьей 28, то соответствующая Сторона будет считаться свободной от обязательств по настоящему Дополнению с момента фактической даты выхода страны из Межправительственного соглашения.

СОВЕРШЕНО в Космическом центре им. Дж.Ф. Кеннеди, шт. Флорида, 1 июля 2006 г., в двух экземплярах на русском и английском языках, причем оба текста имеют одинаковую силу.

ОТ НАЦИОНАЛЬНОГО УПРАВЛЕНИЯ ПО АЭРОНАВТИКЕ И ИССЛЕДОВАНИЮ КОСМИЧЕСКОГО ПРОСТРАНСТВА СОЕДИНЕННЫХ ШТАТОВ АМЕРИКИ:



М. Гриффин
Администратор

ОТ ФЕДЕРАЛЬНОГО КОСМИЧЕСКОГО АГЕНТСТВА РОССИЙСКОЙ ФЕДЕРАЦИИ:

А.Н. Перминов
Руководитель