SSP 57057
Revision A

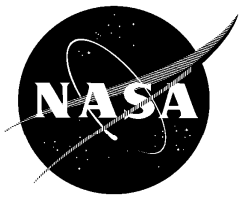
ISS Payload Integration Template

International Space Station Program

Revision A

September 2002

National Aeronautics and Space Administration
International Space Station Program
Johnson Space Center
Houston, Texas



REVISION AND HISTORY PAGE

REV.	DESCRIPTION	PUB. DATE
-	Initial Release (Reference per SSCD 002654, EFF. 10-06-00)	10-26-00
A	Revision A (Reference per SSCD 006037, EFF. 09-11-02)	10-21-02

INTERNATIONAL SPACE STATION PROGRAM

ISS PAYLOAD INTEGRATION TEMPLATE

CHANGE SHEET

October 18, 2002

Revision A

Space Station Control Board Directive 006037/(1-1), dated 09-11-02. (1)

CHANGE INSTRUCTIONS

SSP 57057, ISS Payload Integration Template, has been approved by the authority of SSCD 006037. All future updates to this document will be identified on this change sheet.

INTERNATIONAL SPACE STATION PROGRAM

ISS PAYLOAD INTEGRATION TEMPLATE

Revision A (Reference SSCD 006037, dated 09-11-02)

LIST OF EFFECTIVE PAGES

October 18, 2002

The current status of all pages in this document is as shown below:

Page	Change No.	SSCD No.	Date
i - vii	Revision A	006037	September 11, 2002
1-1	Revision A	006037	September 11, 2002
2-1 - 2-2	Revision A	006037	September 11, 2002
3-1 - 3-16	Revision A	006037	September 11, 2002
4-1 - 4-14	Revision A	006037	September 11, 2002
5-1 - 5-12	Revision A	006037	September 11, 2002
6-1	Revision A	006037	September 11, 2002
7-1 - 7-4	Revision A	006037	September 11, 2002
8-1 - 8-10	Revision A	006037	September 11, 2002
9-1	Revision A	006037	September 11, 2002
10-1	Revision A	006037	September 11, 2002
11-1	Revision A	006037	September 11, 2002
12-1	Revision A	006037	September 11, 2002
13-1 - 13-15	Revision A	006037	September 11, 2002
14-1	Revision A	006037	September 11, 2002
15-1	Revision A	006037	September 11, 2002
16-1	Revision A	006037	September 11, 2002
17-1	Revision A	006037	September 11, 2002
18-1 - 18-20	Revision A	006037	September 11, 2002
A-1 - A-8	Revision A	006037	September 11, 2002
B-1 - B-2	Revision A	006037	September 11, 2002
C-1 - C-3	Revision A	006037	September 11, 2002
D-1 - D-4	Revision A	006037	September 11, 2002
E-1 - E-7	Revision A	006037	September 11, 2002

SSP 57057
Revision A

INTERNATIONAL SPACE STATION PROGRAM

ISS PAYLOAD INTEGRATION TEMPLATE

SEPTEMBER 2002

PREFACE

ISS PAYLOAD INTEGRATION TEMPLATE

The purpose of this document is to define the template that is used to develop schedules for the integration of International Space Station (ISS) payloads. These schedules track products (such as data deliveries and analyses) and major milestones (such as Program-level reviews), and are used to ensure that the payload integration process is completed successfully and in a timely manner. The document also serves as a reference so that process improvement teams can have a better understanding of key integration activities, along with their related predecessor and successor activities, in proposing better ways to do business in the future.

Need dates for schedule activities are initially calculated based on the template. The template identifies the activities that will be included on the schedule, and when they must occur based on their relation to each other and to the projected launch date, increment, or planning period. Examples of several different "generic schedules" are included in this document. These are essentially different formats for displaying schedule information with varying levels of detail.

Payload integration schedules are baselined by the Payload Mission Integration Team (PMIT). Changes to the schedules are negotiated on an as-required basis by the parties involved, with issues brought back to the PMIT for resolution. Changes to the template itself must be approved by the Payload Control Board (PCB).

L B Roe

Lesa Roe
Payloads Office Manager
International Space Station Program

10/9/02
Date

INTERNATIONAL SPACE STATION PROGRAM

ISS PAYLOAD INTEGRATION TEMPLATE

CONCURRENCE

SEPTEMBER 2002

Prepared by:	Steve Forrest BOOK MANAGER	OZ2 ORG
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	Linda Boriack SIGNATURE	10/9/02 DATE

INTERNATIONAL SPACE STATION PROGRAM

ISS PAYLOAD INTEGRATION TEMPLATE

LIST OF CHANGES

SEPTEMBER 2002

All changes to paragraphs, tables, and figures in this document are shown below:

PCB	Entry Date	Change	Paragraph(s)
	September 2000	Baseline	All
	October 2002	Revision A	All

TABLE OF CONTENTS

APPENDIX

TABLE

FIGURE

1.0 INTRODUCTION

1.1 PURPOSE

This document defines the template that is used to develop schedules for the integration of International Space Station (ISS) payloads. This document provides the template for ISS Payload Submit to the ISS Program and Space Shuttle Program (SSP).

1.2 SCOPE

This document defines the schedule template for each of the different classes of payloads to be found on the ISS: Facility, External, EXpedite the PRocessing of Experiments to the Space Station (EXPRESS) (long and short templates), EXPRESS Pallet, and Japanese Experiment Module - Exposed Facility (JEM-EF) Payloads. The document also includes the schedule templates for the following payload managers: EXPRESS Payload Integration Manager (EPIM), Payload Integration Manager (PIM), Flight Payload Manager (FPM), and Increment Payload Manager (IPM).

1.3 PRECEDENCE

If there are discrepancies between the ISS Payload Integration Template with regard to dates, the following precedence shall be followed:

A. For ISS Program milestones, SSP 50489, ISS Mission Integration Template **<TBD 1-1>**, shall take precedence.

B. For SSP milestones, JSC 25187, Flight Production Generic Template, Appendix A, shall take precedence.

C. For Payload Integration milestones, SSP 57057 shall take precedence.

1.4 DELEGATION OF AUTHORITY

The ISS Payload Integration Template will be controlled by the Payload Control Board (PCB).

2.0 DOCUMENTS

2.1 APPLICABLE DOCUMENTS

The following documents include specifications, models, standards, guidelines, handbooks, and other special publications. The current issue of the following documents is identified in the Program Automated Library System (PALS) (http://iss-www.jsc.nasa.gov/ss/issapt/pals) or Payload Integration Library System (PILS) (http://sspweb.jsc.nasa.gov/pils/payload.cfm). The documents listed in this paragraph are applicable to the extent specified herein. Inclusion of applicable documents herein does not in any way supersede the order of precedence identified in Paragraph 1.3 of this document.

SSP 50261-02 **<TBD 2-1>**	ISS Generic Groundrules and Constraints Part 2: Execute Planning
SSP 50489 **<TBD 1-1>**	ISS Mission Integration Template
SSP 52000-PDS	Payload Data Sets Blank Book
SSP 52000-PVP-ERP	Generic Payload Verification Plan EXpedite the PRocessing of Experiments to Space Station (EXPRESS) Rack Payloads
SSP 57010	Pressurized Payloads Generic Payload Verification Plan
JSC 25187	Flight Production Generic Templates

2.2 REFERENCE DOCUMENTS

The following documents contain supplemental information to guide the user in the application of this document. These reference documents may or may not be specifically cited within the text of this document.

SSP 52000-PIA-PRP	Payload Integration Agreement Blank Book For Pressurized Payloads
SSP 52000-PVP-EPP **<TBD 2-1>**	Generic Payload Verification Plan EXpedite the PRocessing of Experiments to Space Station (EXPRESS) Pallet Payloads
SSP 57013	Generic Attached Payloads Verification Plan
SSP 57059	Standard Payload Integration Agreement for Pressurized Payloads
SSP 57060	Payload Integration Agreement Increment Addendum Blank Book for Pressurized Payloads

SSP 57061	Standard Payload Integration Agreement for Unpressurized Payloads
SSP 57062	Payload Integration Agreement Increment Addendum Blank Book for Unpressurized Payloads
SSP 57063	Standard Payload Integration Agreement for Small Pressurized Payloads
SSP 57064	Payload Integration Agreement Blank Book for Small Pressurized Payloads
SSP 58309	Payload Training Implementation Plan

3.0 ISS PAYLOAD PROGRAM MILESTONES

3.1 ISS PAYLOAD INTEGRATION TEMPLATE

Figure 3.1-1 is a top-level schedule of the integrated flow for ISS payload integration. The template assumes that Launch XX occurs on the first day of a planning period/increment. Application of the template to a flight later in the planning period/increment will change the template relationship to the planning period/increment milestone relative to the flight. The circles represent ISS Payloads Office products, and the arrows represent an ISS/SSP product.

3.2 ISS PAYLOAD MILESTONE DEFINITIONS

Table 3.2-1 defines the milestones in the ISS Payload Integration Template. The columns of the table include the following data.

A. Column 1: Milestone acronym.

B. Column 2: Milestone description.

C. Column 3: Identifies the provider and receiver of the products and the party responsible for conducting reviews.

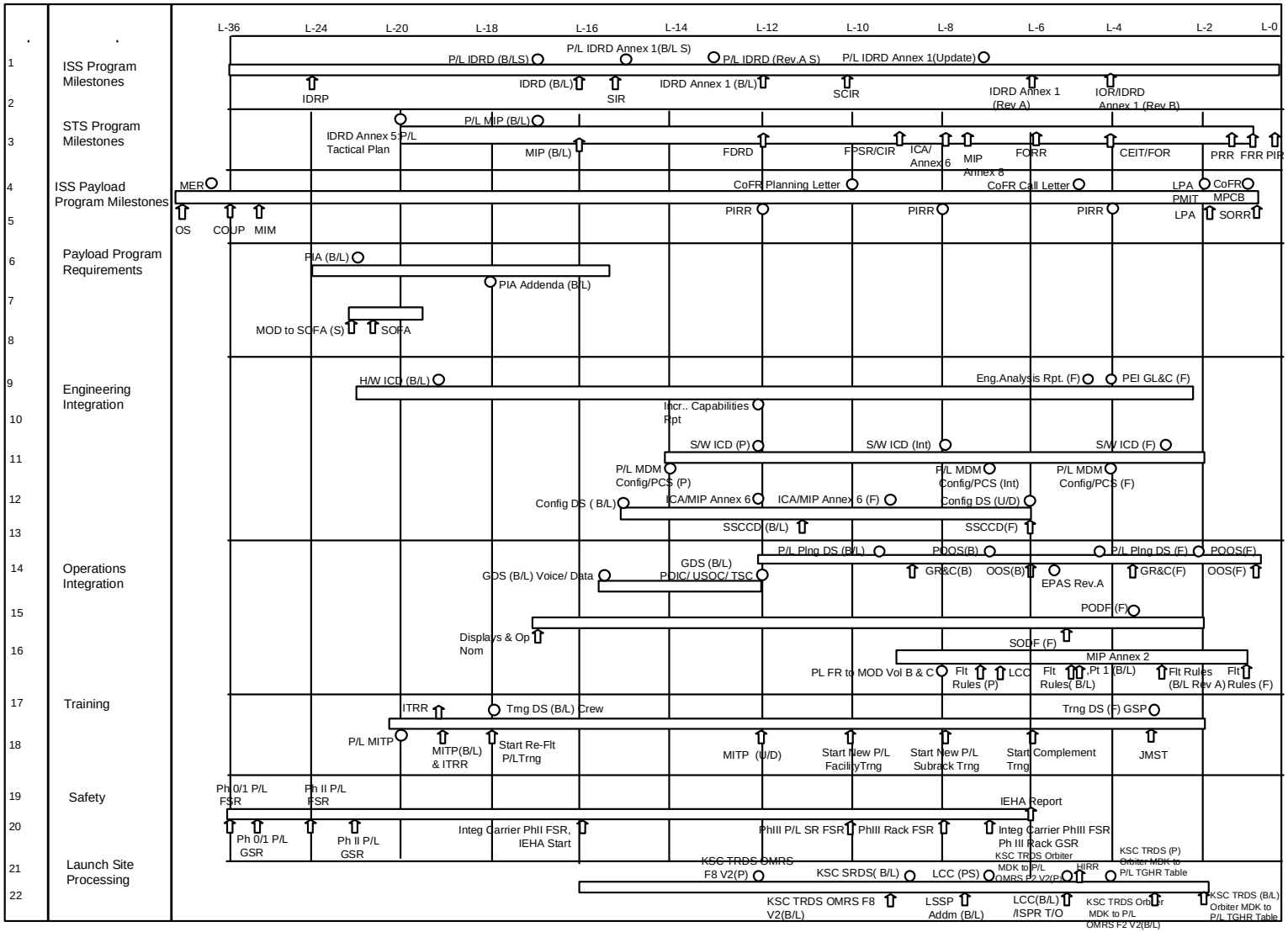


FIGURE 3.1-1 ISS PAYLOAD INTEGRATION PROCESS FLOW (TOP LEVEL)

TABLE 3.2-1 ISS PAYLOAD MILESTONE DEFINITIONS (PAGE 1 OF 14)

Line #	Acronym	Description	Provider/ Receiver
1		Acoustics Control Plan	
2	ATDR	Acoustics Test Data Report If the payload generates continuous or intermittent noise in the crew compartment, the customer shall provide an acoustics report to the PIM/EPIM for delivery to shuttle program.	PD/ISS
3	BR KSC	Bench Review Kennedy Space Center Middeck: The MBR is the final MDK flight hardware checkout at FEPC. The crew physically reviews the equipment carried in the airlock and MDK as stowed to see if it is packed correctly.	PD/ISS
4	BR JSC	Bench Review Johnson Space Center Middeck: Middeck bench reviews are nominally at L-1 month. Payloads that are passive stowage and do not require any integrated activities or testing are O/D 2 weeks prior to that date (-6 weeks prior to launch). Launch Package Managers may require earlier O/D dates if other mission or bench review conflicts occur. MPLM: The initial MPLM bench review at JSC is nominally at L-3.5 months. Payloads that are passive stowage and do not require any integrated activities, testing or limited life are O/D 2 weeks prior to that date (-18 weeks prior to launch). Launch Package Managers may require earlier O/D dates if other mission or bench review conflicts occur.	PD/ISS
5	CEIT	Crew Equipment Interface Test CEIT allows the astronauts to interface with the flight hardware checking tool and payload interfaces and to become familiar with the hardware.	Crew/SSP
6	CIDS	Cargo Item Data/Models Submittal This submittal includes structure, thermal, and geometric math models; EMI/EMC, avionics, and acoustics requirements verification are required by CI from the cargo item providers. The CI performs analyses to assess compatibility and safety of the integrated NASA/logistics carrier with the Shuttle (CIDS/L&R). This is applicable to large unpressurized payloads.	PD/SSP
7	CIR	Cargo Integration Review This review is conducted by the SSP Office to ensure that the ISS cargo elements manifested on a given Shuttle mission can be accommodated within the STS flight and ground capabilities. The Shuttle CIR is the major cargo-related review at which the ISS concurs with the integration and implementation of their requirements at the cargo/flight level.	SSP/MT
8	CoFR (LPA)	Certification of Flight Readiness (Launch Package Assessment) The CoFR certifies the readiness of the ISS Launch Package/Cargo Element for integration into the applicable launch vehicle.	ISS
9	CoFR (SORR)	Certification of Flight Readiness (Stage Operations Readiness Review) The CoFR certifies that the Launch Package/Cargo Element ground-support facilities and personnel are ready to support the flight, stage, and/or increment. It also certifies the readiness of the on-orbit stage configuration to accept the Launch Package/Cargo Element and the readiness for on-orbit increment operations.	ISS

TABLE 3.2-1 ISS PAYLOAD MILESTONE DEFINITIONS (PAGE 2 OF 14)

Line #	Acronym	Description	Provider/ Receiver
10	COUP	Consolidated Operations and Utilization Plan The OS release initiates the COUP development process. The MCB releases a COUP approximately once per year. The COUP describes systems and utilization activities for the next five planning periods, each covering approximately one year. It integrates planned major ISS operational events, system or element changes, logistics requirements, and utilization activities. The utilization resources and accommodations are divided into allocations for each IP. The COUP represents a commitment between the ISS Program and the IPs for utilization of resources and accommodations. The SOP and UOP, with support from the SSP, develop the COUP for the MCB. This document will be released on an annual basis to show a new five-year window.	MCB/OZ4
11	EIRR	EXPRESS Integration Readiness Review The purpose of the EIRR is to conduct an assessment of all mission related systems of the experiment launch package to determine the readiness of the package to be integrated into the EXPRESS carrier. The data presented will be sufficient to validate the required certification that proves the experiment systems are ready for integration and on-orbit operations.	PD/SSP
12	Engineering Analysis Report	The Payload Element-Level Engineering Analysis Report documents the stage-specific results of payload complement compatibility analysis for the specified element of the ISS, in response to the verification requirements of the PVPP.	PEI/POIC
13	EPAS	ETOV Payload Activity Summary The EPAS defines the ETOV Payload Planning Requirements to the Shuttle FAOs for development of the Flight Plan.	POIF/JSC DO4/DO5
14	FDRD	Flight Definition and Requirements Document Requirements have been established for the implementation of an integrated SSP. The purpose of this document is to specify those Program requirements and define Space Shuttle flights. This document defines the Program content and Space Shuttle flight definition required to allow consistent planning and resource control.	SSP/MT
15	FOR	Flight Operations Review This review is conducted by the SSP Office to ensure that the flight products to be used during real-time operations between the Space Shuttle and ISS meet ISS requirements for accomplishment of the mission.	SSP
16	FORR	Flight Operations Readiness Review **<TBD 3-1>**	SSP
17	FPSR (MDK)	Flight Planning and Stowage Review (Middeck) This review baselines crew activities, crew compartment, and cargo bay stowage. It marks the final opportunity to add standard MDK payloads or standard GAS payloads to the flight.	SSP/MT

TABLE 3.2-1 ISS PAYLOAD MILESTONE DEFINITIONS (PAGE 3 OF 14)

Line #	Acronym	Description	Provider/ Receiver
18	FR Annex	Flight Rules Annex The FR Annex documents pre-planned responses designed to minimize the need to develop real-time decisions in response to off-nominal situations that occur during mission operations. The FR Annex also documents the authority and responsibility of all organizations involved in the conduct of mission operations, including the IP mission control centers, POIC, engineering support functions, and the Mission Management Team. The FR Annex, Volume A contains the Space Shuttle generic rules. The FR Annex, Volume B will contain the generic ISS rules. The FR Annex, Volume C will contain generic joint ISS and Shuttle rules. Increment-specific flight rules will contain flight rules specific to a given increment activity or a joint ISS and Shuttle mission. A single annex will contain increment-specific rules for Volumes A, B, and C. Flight Rules submits are: Preliminary L-7, Baseline L-5, Rev. A L-3, and Final L-1.	ISS
19	FRR	Flight Readiness Review The purpose of the FRR is to conduct an assessment of all mission-related flight and ground systems to determine the readiness of the ISS to support the upcoming flight. NASA, NASA contractors, and IP representatives will certify readiness in their areas of responsibility. The data presented during the review will be sufficient to validate, in unambiguous terms, the required certification that proves the systems are ready for flight and on-orbit operations.	ISS/SSP
20	FSR	Flight Safety Review The integrated flight safety includes the performance of integrated hazard analyses to provide the means to systematically and objectively identify all hazards and hazard causes inherent in the design and flight operations, to evaluate risk controls, and to assess methods used to verify hazard controls. The integrated on-orbit safety encompasses both crew and vehicle safety. There are three phases of FSRs: Phase 0/1, Phase II, and Phase III.	PD/PSRP
21	GL&C	Guidelines and Constraints The Payload Operations GL&C Report documents the stage operational restrictions for payloads located in the specified element of the ISS. These are derived from the Payload Element-Level Engineering Analysis Report.	PD/OZ3
22	GOR	Ground Operations Review The Shuttle GOR is a review to verify that the ISS and launch vehicle facilities, services, personnel, and planning are ready to proceed with the processing of flight hardware. The results of this review will also provide management with a clear indication of the supportability of the scheduled launch date. The GOR will assess the launch vehicle multi-flow schedules for integration, test, and checkout, as well as the associated procedures and GSE. The actual date of the GOR occurs 30 days before primary hardware on-dock at KSC.	SSP

TABLE 3.2-1 ISS PAYLOAD MILESTONE DEFINITIONS (PAGE 4 OF 14)

Line #	Acronym	Description	Provider/ Receiver
23	GR&C	Ground Rules and Constraints There are of two types of GR&Cs, generic and increment. Generic GR&Cs are independent of a specific increment. They include rules for crew scheduling, resource distribution and management, EVA planning, trajectory planning, robotics operations planning, and integrated and launch vehicle joint operations. Increment and launch vehicle-specific planning rules include specific resource distribution decisions determined in accordance with the resource allocations in the IDRD. There are two parts to the GR&Cs. One covers Strategic and Tactical GR&Cs, while the other covers Execute Planning GR&Cs. The owner of SSP 50261-02 is the ExPCP.	POIF/MOD
24	GSR	Ground Safety Review The ISS GSR process is conducted for the cargo elements, IP cargo elements, experiments, and all GSE/non-GSE planned for ground processing at KSC. Reliability includes performance of an integrated FMEA to verify reliability requirements and to assess hardware for functional failure effects. Quantitative reliability analyses are also performed to assess reliability of ISS during the assembly and initial operations phase and mature operations phase. There are three phases of GSRs: Phase 0/1, Phase II, and Phase III.	PD/GSRP
25	HIRR	Hardware Integration Readiness Review This is tied to installation for unpressurized and pressurized facility payloads.	PD/ISS
26	ICA/MIP, Annex 6 (MDK/ Orbiter Crew Compartment)	Interface Control Annex/Mission Integration Plan, Annex 6 (Middeck/Orbiter Crew Compartment) ICA/MIP, Annex 6 contains information about items in the Orbiter MDK and defines overlays for aft flight deck equipment.	ISS to SSP SSP
27	ICD	Interface Control Document An ICD defines physical, functional, and environmental interfaces of one item to another. There are six types of categories: A. ICD - Defines cargo item interface with CE. B. ICD - Defines cargo item interface with the on-orbit ISS. C. ICD-A - Defines CE to Shuttle interface and covers the launch phase. D. ICD-B - Defines CE to Shuttle interface and covers the on-orbit transfer phase. E. H/W ICD - Defines the interface between PD H/W and the ISS. F. S/W ICD Document requirements for command, data, and payload support software accommodations for the on-orbit and ground-activity phases.	 SSP/MS ISS to SSP SSP/MS ISS to SSP ISS/OZ3 ISS/OZ3

TABLE 3.2-1 ISS PAYLOAD MILESTONE DEFINITIONS (PAGE 5 OF 14)

Line #	Acronym	Description	Provider/ Receiver
28	IDRD	Increment Definition and Requirements Document The IDRD process starts after the release of the COUP with the development of the IDRD Planning Letter. The Planning Letter is released at PP-24 months and documents the major increment/flight objectives, facility class and rack-level payloads per flight, and resource and accommodation allocations for each increment in the planning period. Based upon these allocations, the baselined Planning Period IDRD is developed and released at I-16 months. The baselined IDRD documents the detailed definition of Program flight-specific and increment objectives, resource and accommodation allocations, scientific themes/ campaigns, and the delivery/return cargo manifest summaries for the first increment in the planning period. Subsequent revisions released in four-month increments will be released to document the detailed requirements for the remaining increments within the planning period. The IDRD provides ISS Program-level direction to the execution-level organizations performing planning for the control center and training facility operations.	ISS/OM
29	IDRD, Annex 1	Increment Definition and Requirements Document, Annex 1 The IDRD, Annex 1 includes the detailed cargo manifest for all launch vehicles on a flight. The baselined IDRD, Annex 1 includes cargo items, newly manifested items, LON items, hazardous cargo, etc. The update contains manifest data for pre-packed items.	ISS/OM
30	IDRD, Annex 2	Increment Definition and Requirements Document, Annex 2, Part 1 The ISS increment On-Orbit Maintenance Plan is documented in IDRD, Annex 2.	ISS/OM
31	IDRD, Annex 5: PTP	Increment Definition and Requirements Document, Annex 5: Payload Tactical Plan This document provides integrated multi-lateral input to IDRD allocations as an increment-specific payload summarization by ascent/descent traffic model, on-orbit payload complement topologies, and EXPRESS rack topologies. The IDRD, Annex 5: PTP also provides directions to the Research Program Offices, IPs, and Implementing Field Centers. The IDRD, Annex 5: PTP consists of a list of the increment-specific research experiments and objectives, a payload manifest for the increment Shuttle flights, and an analysis of resource usage compared with availability.	OZ4/ RPWG OZ2/PMIT
32	IDRP	Increment Definition Requirements Plan The IDRP provides initial payload allocations in conjunction with the Preliminary Payload Addenda to develop the PTP, which is used to start payload integration activities.	OM/ISS
33	IOR	Increment Operations Review The IOR is a major review between the ISS Program and those organizational elements responsible for executing operations planned for the increment. The IOR will assess the preparation and status of ISS mission operations. It will ensure that the ground facilities and operational documentation will be ready to support the final phase of training for both flight and ground personnel, as well as execute the real-time operations planned for the increment. Those products that are required to support crew training activities or are required at the beginning of the increment will be reviewed at the IOR.	ISS

TABLE 3.2-1 ISS PAYLOAD MILESTONE DEFINITIONS (PAGE 6 OF 14)

Line #	Acronym	Description	Provider/ Receiver
34	IPMM	Integrated Payload Mission Model The IPMM represents the multi-increment payload manifest and research operations plans and consists of rack and attached payload traffic models, subrack and pallet candidate lists, and a yearly research operations plan. The IPMM will be baselined on the same template as the MIM and feeds development of the IDRDs and associated PIAs and payload ICDs.	ISS/OZ4
35	ITRR	Increment Training Readiness Review Prior to the execution of a payload training, there will be an ITRR held to demonstrate the readiness of the payload training team to execute payload crew training for a given increment. A status/schedule for the payload's facilities, equipment, courseware, hardware/software, procedures, OBT lessons, and instructors supporting the given increment will be given. In addition, training schedules will be presented as well as preliminary information on the increment's simulations and Payload Complement training.	OZ/ISS
36	JMST	Joint Multi-Segment Station Training JMST involves payload training for a crew with the POIC (integrated simulations) and with all other control centers (joint integrated simulations).	ISS
37	LCC	Launch Commit Criteria Payloads that have onboard and/or ground systems requirements, which must be operational within definable limits prior to launch, will require the development and SSP-approval of the LCC that cover failure conditions in these systems that may occur during the launch count.	SSP
38	MIM	Multi-Increment Manifest Following the COUP, the ISS Program develops the MIM, which defines the program traffic plan and crew rotation plan. The MIM is utilized in tactical planning to define the beginning and ending of each increment based on crew rotation, and to define all flights within each increment based on the traffic model. This document will be released on an annual basis to show a new five-year window.	ISS/OM
39	MIP	Mission Integration Plan The MIP is the Program-to-Program agreement between the ISS and the SSPs for a specific Space Shuttle flight. The MIP is a joint Shuttle/ISS document that is mission-specific and covers agreed-upon overview requirements, products, and services. It also has annexes that contain detailed data and/or requirements for that particular mission. The Standard Integration Plan is used as the starting document to develop the mission-specific MIP and annexes.	ISS/OM to SSP/MT SSP/MT
40	MIP, Annex 2, Part 1 (Flight Planning)	Mission Integration Plan, Annex 2, Part 1 (Flight Planning) MIP, Annex 2, Part 1 comes from the VMDB Drop 1, which contains electrical power, energy, and cooling data.	SSP

TABLE 3.2-1 ISS PAYLOAD MILESTONE DEFINITIONS (PAGE 7 OF 14)

Line #	Acronym	Description	Provider/ Receiver
41	MIP, Annex 8 (LSSP)	Mission Integration Plan, Annex 8 (Launch Site Support Plan) The LSSP is developed by the KSC mission-unique Launch Processing IPT and provides a consolidated overview of the processing to take place at KSC. This plan summarizes organizational responsibilities, support requirements, pre-launch/post-landing operations, payload-to-Shuttle interfaces, and major test requirements for KSC ground processing services; it also commits Shuttle facilities to be used.	SSP ISS to SSP SSP ISS to SSP
42	MIP, Annex 8 (LSSP Addendum)	Mission Integration Plan, Annex 8 (Launch Site Support Plan Addendum) The LSSP Addendum is developed by KSC utilization to provide an overview of utilization payload processing that will take place at KSC. These plans are similar in content to the Launch Processing LSSP and are developed from the report capability of the PDL using the SRDS. LSSP milestones shown in the Payload Integration Flows reference LSSP Addenda.	PD/KSC Utilization
43	MER	Mission Evaluation Request The MER documents planning requirements at the rack level for pressurized payloads and at the subpallet level for unpressurized payloads. Data will be used to produce the IPMM.	PD/OZ4
44	MITP	Multilateral Increment Training Plan The MITP is written for the time period each group of permanent ISS crewmembers stays on-orbit and will include the training for the ISS crew, applicable Shuttle or Soyuz crews that dock with the ISS during that crew's tour onboard the ISS, and the respective training of the ground safety personnel involved. The plan integrates training requirements and resources across all IPs, including payloads, to provide a reasonable training template that ensures proper crew loading, mission/flight controller availability, and appropriate facility capability and availability. MITP manages the allocation of training time, crew and mission controller training start dates, and other training resources. Payload training requirements that need multilateral coordination are submitted for incorporation into the MITP and will identify any supported JMST simulations.	ISS/DT
45	OMRS	Operations and Maintenance Requirements and Specifications The MIP OMRS replaces MIP, Annex 9. The Payload Interface Verification Summary contains ISS Launch Package-to-Space Shuttle integration requirements at the launch site. It is used to develop and document the ISS and Orbiter integration requirements. OMRS is also used for KSC technical requirements imposed on KSC by ISS Payloads.	PD/KSC Utilization SSP
46	OOS	On-Orbit Operations Summary The OOS high-level plan provides a summary of system and payload activities for an entire increment. OOSs are integrated across the ISS and are included in the IOP.	ISS/DT
47	OS	Operations Summary The ISS Program-developed OS defines projected ISS capabilities and supporting services, which can be allocated in the COUP. This document will be released on an annual basis to show a new five-year window.	ISS/OC

TABLE 3.2-1 ISS PAYLOAD MILESTONE DEFINITIONS (PAGE 8 OF 14)

Line #	Acronym	Description	Provider/ Receiver
48	OPNOM	Operations Nomenclature The purpose of the OPNOM is to document methods of denoting all hardware, software and associated dates referenced by operations products produced by the ISS operations community.	ISS
49	P/L Configuration DS	Payload Configuration Data Set The PDSs P/L Configuration DS documents configuration of the payload for all phases (ascent, on-orbit, descent). Configuration data includes sketches and drawings, electrical interface schematics, thermal interface schematics, mass properties, stowage requirements, etc. The purpose is to collect data for supporting engineering analysis to ensure the safety and interface compatibility of the entire payload complement. This data includes thermal requirements, power profiles, use of selected consumables, and launch vehicle or carrier-to-ISS transfer requirements.	PD/OZ3
50	P/L Training DS	Payload Training Data Set The P/L Training DS documents requirements for user-provided and user/ISS Program-provided payload training for the ISS crew and ISS Program ground support personnel, and ISS Program requirements for training of user personnel.	PD/OZ5
51	KSC SRDS	Kennedy Space Center Support Requirements Data Set The SRDS documents the launch and landing site advanced planning for ground processing support requirements necessary to process a single ISS payload through the following activities: simulations, preflight, in-flight, and post-flight phases associated with launch and recovery on the Space Shuttle system. This includes both hardware and science items to be processed at the launch and landing sites.	PD/KSC Utilization
52	KSC TRDS	Kennedy Space Center Technical Requirements Data Set These payload-unique technical requirement submits are the detailed payload operations and maintenance requirements that are to be levied on KSC. These technical requirements are those that KSC is to perform on a payload during prelaunch, launch, recovery, and turnaround operations.	PD/KSC Utilization
53	P/L Planning DS	Payload Planning Data Set The P/L Planning DS contains the detailed payload operations and resource requirements specifications used to develop mission planning products. Initial user submits are required at I-12 months, with updates due at I-6 months.	PD/OZ2

TABLE 3.2-1 ISS PAYLOAD MILESTONE DEFINITIONS (PAGE 9 OF 14)

Line #	Acronym	Description	Provider/ Receiver
54	P/L GDS DS	Payload Ground Data Services Data Set The P/L GDS DS documents the ground system and communications requirements for supporting the on-orbit operations of the payload. GDS are provided by the ISS Program-furnished operations support center (e.g., POIC, USOC, and NISN), as well as by other operations facilities.	PD/OZ5
55	P/L O/D (KSC)	Payload On Dock Relative to Launch Date (H-) (Hardware On Dock - Time Reference) KSC processing involves a variety of customer offline and/or KSC integrated activities and testing. Payload developers coordinate their arrival at KSC based upon their processing requirements and KSC turnover dates. Scheduled integrated activities are based upon the types of payloads as follows: EXPRESS Racks: Payloads that require EXPRESS Rack integration testing, and facility racks are O/D at around L-6 months for MPLM missions. Missions with multiple payload testing could require earlier O/D times depending on testing schedules and off-line requirements. Middeck payloads that require FCU/PTCS EXPRESS integrated testing for a non-MPLM mission are O/D between L-4 and L-1 months. Middeck payloads or sample stowage that do not require EXPRESS integrated testing are O/D between L-1 month and L-1 week.	PD/KSC Utilization PD/JSC
56	P/L T/O (KSC)	Payload Turn-Over (Kennedy Space Center) KSC receives custodial responsibility for payload hardware at turnover. Hardware is turned over to support KSC “online” integrated mission processing activities as planned and required. When processing involves integrated testing activities, a thorough review of the flight hardware and its related IDP is performed. An IDP is not needed for flight-ready hardware, shipped directly to KSC logistics for stowage, and “turnover” is at hardware arrival, per shipping documentation. However, typically, hardware turnover follows a period of payload developer, offline activities at KSC. EXPRESS Racks or Facility Rack Payloads are turned over at around L-5.5 months. Middeck payloads that require FCU/PCTS EXPRESS integrated testing for a non-MPLM mission are turned over between L-4 and L-1 months. Middeck payloads or sample stowage are turned over for middeck integrated testing and/or stowage between L-1 week and L-26 hours.	PD/KSC Utilization
57	P/L Operations DS	Payload Operations Data Set The P/L Operations DS defines the requirements needed to support pre-execution, on-orbit execution, and post-executions of payload operations. The payload operations functions will be performed by the POIF or IP equivalent and will require submits from PDs and the respective Partner engineering integration organizations. The scope of this DS is limited to the information required in the operations integration process. User submits are broken up into two main payload submits: I-12 and I-9.	PD/OZ5

TABLE 3.2-1 ISS PAYLOAD MILESTONE DEFINITIONS (PAGE 10 OF 14)

Line #	Acronym	Description	Provider/ Receiver
58	PIA Addenda	Payload Integration Agreement Addenda These documents are the agreements between a payload and the ISS Program on the increment-specific responsibilities and tasks that directly relate to the integration of a payload into the ISS. They consist of the payload's objective, planning and on-orbit requirements, return requirements, ground support personnel training, crew time, ground data services support during flight operations, schedules, and safety reviews.	PD/OZ2
59	PIA	Payload Integration Agreement The payload-unique PIAs document agreements made between the ISS Program and the PD concerning ISS resources, capabilities, and services required to provide the payload with accommodations to, from, and onboard the ISS. The PIA also documents Program and technical agreements. The PIA includes customer and ISS Program points-of-contact and their separate and joint responsibilities. It includes schedules for payload development, payload item delivery, payload safety reviews, PDS delivery, and long-lead items. The agreements in the PIA provide submits to PDSs, including payload description and objectives, manifesting requirements, onboard placement requirements, and top-level operations requirements.	PD/OZ2
60	PIR	Post-Increment Review The PIR is a formal review to assess the conduct of the increment. The IPM is the focal point for OZ2. The objective is to document the lessons learned from the increment and produce the Post-Increment Evaluation Report. The PIR consist of the following three activities: Ensures the disposition of the ISS hardware and specimens returned, along with the dissemination of the data. Involves a crew debriefing. Determines any discrepancies between the planned resource and the amount of research received.	OZ2
61	PIRR	Payload Increment Readiness Review The Space Station Payloads Office has established the PIRR to be held tri-annually. The primary objectives of the PIRR are to provide a comprehensive review of payload mission integration requirements, PD readiness, payload engineering analysis and products, payload operations readiness to support planning, training, and execution, and launch site readiness.	OZ
62	P/L Trng. (Start)	Payload Training (Start) P/L training is provided to the ISS crew going up on the first flight of the increment, regardless of launch vehicle. Training includes procedures training, increment-specific activities, proficiency training on skills, systems operations, and team training. Reflight - Reflight Training addresses payloads that have flown on a previous increment . Facility - New P/L Facility Training addresses new facility class payloads that have <u>not</u> flown on a previous increment. Subrack - New Payload Subrack Training addresses new subrack payloads that have <u>not</u> flown on a previous increment. Complement Training - Complement Training involves standalone training of the crew on the complement of payloads to be operated during ISS on-orbit activities.	ISS/P/L Crew

TABLE 3.2-1 ISS PAYLOAD MILESTONE DEFINITIONS (PAGE 11 OF 14)

Line #	Acronym	Description	Provider/ Receiver
63	POST MISSION P/L RETURN TO PDs	Post Mission Payload Return to Payload Developers Middeck Payloads Requirements for time-critical de-stow and turnover to the PD for middeck payloads are documented in the TGHR Table. Time-critical middeck runway de-stow is accomplished within R+6 hours and payloads are typically returned to their PD/PIs within R+5.5 and R+8 hours. Return times within R+5.5 are possible when there are at least 2 payload delivery vehicles involved with de-stow, allowing one to leave the runway early, or that the number of payload destow items is small. Otherwise, time-critical runway payload destow and return to the PDs, usually in their offline areas, are accomplished within R+8 hours. Middeck payloads with TGHR requirements within R+48 hours (not runway de-stow) are de-stowed in the OPF (at KSC) or MDD (at DFRC). Usually these de-stow items are retrieved by the PDs at the FCE area. The RMDP documents the arrangements and planning for the post mission return, pick-up, or shipment of all middeck de-stowed items to their "owners." MPLM Payloads The requirement for MPLM Payload Bay time-critical access and de-stow for conditioned payloads is documented in OMRS File 2, Volume 2 and is accomplished as soon as possible using the REAP at KSC and the DEAP at DFRC. This occurs R+4 to 5 days at KSC and R+4 days at DFRC. The DEAP is not expected to be available until the UF-3 mission. Individual payload MPLM destow requirements are documented in OMRS File 8, Volume 2. Nominal MPLM payload de-stow occurs when the MPLM is returned to the SSPF around R+2 to 3 weeks. Unpressurized Payloads Attached payloads are removed from the payload bay ASAP after PLB door opening which occurs around 5 days after OPF arrival (R+5 for a KSC landing and around R+13 for a DFRC landing). Unpressurized payloads are returned to their PDs around R+2 to 3 weeks.	PD/KSC
64	PRR	Payload Readiness Review The goal of the PRR is for the ISS Program, with payload developer support, to provide a payload readiness statement for launch, if there is a direct payload interface with the Orbiter's payload bay or as requested by the cargo bay carrier integrator (e.g., Spacehab, etc.). This is applicable for large unpressurized payloads.	OZ/KSC

TABLE 3.2-1 ISS PAYLOAD MILESTONE DEFINITIONS (PAGE 12 OF 14)

Line #	Acronym	Description	Provider/ Receiver
65	PPD DS	Payload Procedures and Displays Data Set The PPD DS contains all U.S. payload procedures, ASI payload procedures, selected multi-segment payload procedures, selected joint system/payload procedures executed in U.S. Segments, procedures necessary to operate selected payload support systems in U.S. Segments, selected procedures necessary to operate US Lab payload support equipment, reference information necessary to support execution of U.S. PPD DS procedures, and the Integrated Video/Photo Operations Handbook. Operations concept and analysis/flows, Payload displays, payload-unique Operations Nomenclature, drawings reviewed by IPLAT, manual procedures and support products, automated procedures, ground command procedures, payload data files, payload messages are included in this data set.	PD/OZ5
66	POOS	Payload Increment On-Orbit Operations Summary The POOS is a high-level plan providing a summary of payload activities for an entire increment.	PD/OZ5
67	PTDR	Payload Training Dry Run Prior to crew training, a PTDR will be held for each payload or experiment course, included on-board training products, to prove the readiness of the facilities, instructors, and training equipment/products. The instructor that has been designated to perform the training for the crew conducts the PTDR. Attendance is required by the responsible Simulation Engineer and crew representative in order to sign-off and certify the lesson.	PD/POIF
68	SCIR	Station Cargo Integration Review The SCIR specifically addresses the appropriate engineering disciplines, such as structures, avionics, thermal, test and verification, and the operational compatibility of the manifested systems and payload hardware with the on-orbit ISS operational environment and configuration. It also includes a review of the preliminary OOS.	ISS/OM
69	SIR	Stage Integration Review The SIR evaluates integrated hardware and software functionality performance and plans against the baseline requirements for the stages being reviewed. It also determines if the integrated stage meets the requirements specified in the AIRD.	ISS

TABLE 3.2-1 ISS PAYLOAD MILESTONE DEFINITIONS (PAGE 13 OF 14)

Line #	Acronym	Description	Provider/ Receiver
70	SODF	Systems Operations Data File SODF contains systems procedures, non-U.S. single-segment procedures, multi-segment system procedures, procedures involving critical functions, ISS-based assembly procedures for the U.S. Segment and U.S. Segment activation procedures, selected joint U.S. system/payload procedures, selected procedures necessary to operate U.S. payload support systems, procedures used to conduct MPLM and MSS operations, selected approaching/attached vehicle operations procedures, selected procedures used to conduct EVA, and reference information necessary to support the execution of U.S. SODF procedures. All maintenance procedures and supporting data and documentation related to U.S. element maintenance will be integrated into the SODF.	ISS
71	SOFA	Systems Operations Feasibility Assessment The SOFA is the initial analysis that incorporates only system requirements and establishes projected available resources for utilization.	ISS/OM
72	SSCCD	Space Station Configuration Control Drawings The SSCCD will document both the interior and exterior configurations of the vehicle. The top-assembly SSCCD incorporates the ISS Program baseline configuration data and the flight/increment-unique installed hardware (e.g., hook and loop fasteners, interior and exterior decals/placards, and mission-unique cable routings). SI develops the stowage configuration control drawings for the crew, systems, operational, logistics/maintenance hardware, and payload stowage items stowed in standard stowage racks. The results of all cargo layout planning are documented by the SSCD-Ls and SSCD-Rs, which provide the physical installation requirements for the cargo with the logistics carriers.	ISS/OM
73	MPLM SBR	Multi-Purpose Logistics Module Stowage Bench Review Members of the Astronaut Office (crew members or designee) review cargo/stowage in its flight configuration during MPLM SBRs. Bench reviews are scheduled at KSC according to various MPLM integration milestones. Hardware providers coordinate their shipments to KSC to meet processing schedules for turnover for the appropriate bench reviews based on rack integration, stowage location, and/or time.	PD/KSC Utilization
74	TRA	Tactical Resource Allocations	OZ/PD

TABLE 3.2-1 ISS PAYLOAD MILESTONE DEFINITIONS (PAGE 14 OF 14)

Line #	Acronym	Description	Provider/ Receiver
75	TGHR	Time-critical Ground Handling Requirements MDK P/L time-critical Orbiter requirements are documented in a mission-specific TGHR table. The TGHR also includes time-critical requirements for other non-payload crew compartment items. MDK time-critical requirements include late stowage, launch delay, and early de-stow requirements. MDK orientation and power interrupt constraints are also documented in the TGHR. MDK IVT and any other requirements will be documented in OMRS File II, Volume II. Currently, MDK fit check requirements are documented in OMRS, but may eventually become TGHR requirements.	ISS/SSP
76	TST	Training Strategy Team A NASA payload TST process has be defined to aid in the development of the payload training requirements for each payload or experiment and complements of payloads or experiments. Payload training requirements, and what will be needed to fulfill those requirements, for both crewmembers and GSP, are discussed, defined, and agreed upon during this process. The official membership of the TST consists of MSFC training personnel, JSC training personnel, SSTF/PTC SME, PD Representatives, Crew Representatives, and Program Office personnel.	PD/POIF
77	VADAR	Verification and Analysis Data Acceptance Review This is a Structures Working Group Product.	ISS/PD
78	Vehicle Capability Report	The ISS Vehicle Capability Report defines the projected increment resources available to payloads. It is comprised of power, thermal, and command and data handling capabilities.	PEI/POIC
79	VLA R	Verification Loads Analysis Report The process for supporting the VLA ends with the closure of action items resulting from the VAR.	SSP/ISS

4.0 INTERNATIONAL STANDARD PAYLOAD RACK - PRESSURIZED PAYLOAD

4.1 ISS PRESSURIZED PAYLOAD INTEGRATION PROCESS FLOW

Figure 4.1-1 is a high-level schedule of the integrated flow for the International Standard Payload Rack (ISPR). The template assumes that Launch XX occurs on the first day of a planning period/increment. Application of the template to a flight later in the planning period/increment will change the template relationship to the planning period/increment milestone relative to the flight. The triangles represent a Payload Developer (PD) submit; the circles represent ISS Payloads Office product; and the arrows represent an ISS/SSP product.

4.2 PRESSURIZED PAYLOAD MILESTONE CHRONOLOGY

Table 4.2-1, Pressurized Payload Milestone Chronology (ISPR), is for planning purposes only. Level I and Level II flight schedule milestones and dates will be baselined through the appropriate ISS panels and boards.

Table 4.2-1 is a detailed listing that identifies and describes all pressurized payload milestones. Thus, not all milestones in the table are depicted in Figure 4.1-1. In the table, the word Submit equals PD, and Input equals the OZ Program Office. The columns include the following data:

A. Column 1: Milestone acronym.

B. Column 2: Milestone date (in months, unless otherwise stated) shown in relationship to a planning period/increment/launch.

C. Column 3: Acronym definition and the milestone's predecessors (that which must occur prior to the milestone) and the successor (that which is fed by the milestone).

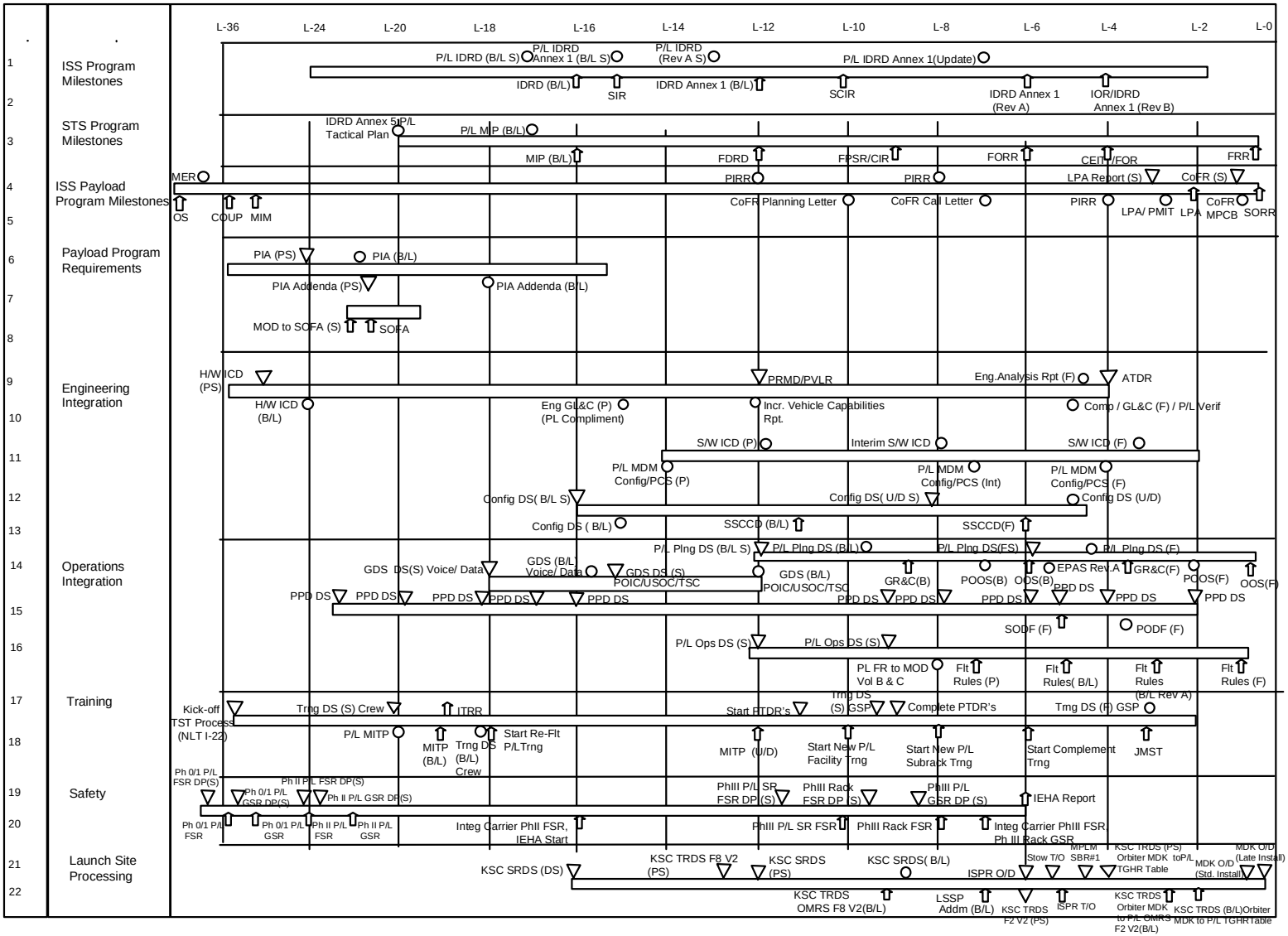


FIGURE 4.1-1 ISS PRESSURIZED PAYLOAD INTEGRATION PROCESS FLOW (ISPR)

TABLE 4.2-1 PRESSURIZED PAYLOAD MILESTONE CHRONOLOGY (ISPR) (PAGE 1 OF 12)

Line #	Acronym	Date (Months)	Description
1	MER	(PP-38)	Mission Evaluation Request 2 months before IPMM
2	Phase 0/1 P/L FSR DP (S)	(-45 days of Phase 0/1 FSR)	Phase 0/1 Payload Flight Safety Review Data Pack (Submit)
3		(PP-36)	Tactical Resource Allocations
4	IPMM (Annual Release)	(PP-36)	Integrated Payload Mission Model (Annual Release) 4 months before MIM 12 months prior to IDRP Feeds PIA (PS)
5	Export Control Memo	(PDR)	Export Control Memo
6	PIA (PS)	(CDR) (I-24)	Payload Integration Agreement (Preliminary Submit) Tied to CDR
7	H/W ICD (PS)	(PDR)	Hardware Interface Control Document (Preliminary Submit) Submit for P/L CDR 2 months after final IPMM 12 months before H/W ICD B/L
8	Phase 0/1 P/L GSR DP (S)	(-45 days of Phase 0/1 GSR)	Phase 0/1 Payload Ground Safety Review Data Pack (Submit)
9	Phase 0/1 P/L GSR	(PDR+3)	Phase 0/1 Payload Ground Safety Review
10	Phase II P/L FSR DP (S)	(-45 days of Phase II FSR)	Phase II Payload Flight Safety Review Data Pack (Submit)
11	Phase 0/1 P/L FSR	(PDR$\pm$2)	Phase 0/1 Payload Flight Safety Review
12	Acoustic Control Plan	(CDR)	Acoustic Control Plan
13	Phase II P/L GSR DP (S)	(-45 days of Phase II GSR)	Phase II Payload Ground Safety Review Data Pack (Submit)
14	Phase II P/L FSR	(CDR$\pm$2)	Phase II Payload Flight Safety Review
15	Phase II P/L GSR	(CDR$\pm$2)	Phase II Payload Ground Safety Review
16	Kick-off TST Process	(PDR/NLT I-22)	Kick-off Training Strategy Team Process 16 months before Training DS Submit Crew
17	PPD DS	(PDR/NLT I-22)	Payload Procedures and Displays Data Set - Operations Concept Maybe combined with TST process Optional PD submit

TABLE 4.2-1 PRESSURIZED PAYLOAD MILESTONE CHRONOLOGY (ISPR) (PAGE 2 OF 12)

Line #	Acronym	Date (Months)	Description
18	PIA (B/L)	(CDR + 2) (I-22)	Payload Integration Agreement Document (Baseline) 2 months after PIA (B/L S) 6 months before IDRD (B/L) Submit to PDSs
19	PPD DS	(I-22)	Payload Procedures and Displays Data Set - Operations Analysis/Flows Upon completion of Operations Concept Development 2 months before Initial Crew Displays Optional PD submit
20	PIA Addenda (PS)	(I-21)	Payload Integration Agreement Addenda (Preliminary Submit) 3 months before PIA Addenda (B/L)
21	IDRD, Annex 5: PTP (B/L)	(I-20)	Increment Definition and Requirements Document Annex 5: Payload Tactical Plan (Baseline) 4 months after IDRP 2 months before PIA Addenda (B/L) IDRD, Annex 5: PTP (Update as required)
22	P/L MITP (B/L) Input	(I-20)	Payload Multilateral Increment Training Plan (Baseline) Input
23	Training DS (S) Crew	(I-20)	Training Data Set (Submit) Crew 2 months before Training DS (B/L) Submit from PIA Increment Addenda (PS)
24	PPD DS	(I-20)	Payload Procedures and Displays Data Set - Initial Crew Displays; Payload Unique Operations Nomenclature (Preliminary) 2 months after Operations Analysis/Flows 3 months before Candidate Crew Displays
25	H/W ICD (B/L)	(NLT L-19)	Hardware Interface Control Document (Baseline) Submit for P/L CDR B/L CDR + 60 days
26	MITP (B/L)	(I-19)	Multilateral Increment Training Plan (Baseline) 1 month after Training DS (S) Crew
27	ITRR	(I-19)	Increment Training Readiness Review 1 month before Start Reflight P/L Training
28	C&DH DS (P)	(L-18)	Command and Data Handling Data Set (Preliminary) (If Program is to build) 4 months before Configuration Files/PCS Displays (P) at L-14 6 months before S/W ICD (P) at L-12
29	Start P/L Training	(I-18)	Start Payload Training for Reflight Payloads 1 month after MITP (B/L) 1 month after ITRR
30	PIA Addenda (B/L)	(I-18)	Payload Integration Agreement Addenda (Baseline) 3 months after PIA Addenda (PS) 4 months before PIA Addenda Update 1 month before IDRD Annex 5: PTP (U/D) (Update as required)

TABLE 4.2-1 PRESSURIZED PAYLOAD MILESTONE CHRONOLOGY (ISPR) (PAGE 3 OF 12)

Line #	Acronym	Date (Months)	Description
31	GDS DS (S) Voice/Data	(I-18)	Ground Data Services Data Set (Submit) Voice/Data Submit from PIA Addenda (PS) 2.5 months before GDS DS (B/L) Voice/Data
32	Training DS (B/L) Crew	(I-18)	Training Data Set (Baseline) Crew 2 months after Training DS (S) 1 month after MITP (B/L)
33	PPD DS	(I-18)	Payload Procedures and Displays Data Set - Engineering Drawings (IPLAT review) (Pre-released) After initial Operations Nomenclature submission 1 month before Operations Nomenclature/ECR (U/D)
34	P/L IDRD (B/L) Input	(I-17)	Payload Increment Definition and Requirements Document (Baseline) Input
35	P/L MIP (B/L S)	(I-17)	Payload Mission Integration Plan (Baseline Submit)
36	PPD DS	(I-17)	Payload Procedures and Displays Data Set - Payload Unique Operations Nomenclature/ECR (Update); Candidate Flight Crew Displays 1 month after Engineering Drawings (IPLAT review) (Pre-released) 1 month before Manual Procedure delivery
37	PPD DS	(I-16)	Payload Procedures and Displays Data Set - Manual Procedures; Delivered Procedure/Display Files List; Reference Data; Validation Plan; Validation Record Report; Log Files; MPV Links; Payload Messages 6 months before start new P/L Facility Training
38	Integrated Carrier Phase II FSR	(L-16)	Integrated Carrier Phase II Flight Safety Review
39	IDRD (B/L)	(I-16)	Increment Definition and Requirements Document (Baseline) 8 months after IDRP Submit from PIA Addenda (B/L)
40	MIP (B/L)	(L-16)	Mission Integration Plan (Baseline) 4 months before FDRD Submit from IDRD (B/L)
41	C&DH DS (P)	(L-16)	Command and Data Handling Data Set (Preliminary) 2 months before Configuration Files/PCS Displays (P) at L-14 4 months before S/W ICD (P) at L-12
42	Configuration DS (B/L S)	(L-16)	Configuration Data Set (Baseline Submit) - including Trash Survey 1 month before Configuration DS (B/L)
43	KSC SRDS Draft (S)	(L-16) or (H-10)	Kennedy Space Center Support Requirements Data Set Draft (Submit) - provided for KSC visibility 4 months before KSC Support Requirements DS (PS)

TABLE 4.2-1 PRESSURIZED PAYLOAD MILESTONE CHRONOLOGY (ISPR) (PAGE 4 OF 12)

Line #	Acronym	Date (Months)	Description
44	IEHA Start	(L-16)	Integrated Element Hazard Analysis Start
45	GDS DS (B/L) Voice/Data	(I-15.5)	Ground Data Services Data Set (Baseline) Voice/Data 2.5 months after GDS DS Submit Voice/Data
46	P/L IDRD, Annex 1 (B/L S)	(L-15)	Payload Increment Definition and Requirements Document, Annex 1 (Baseline Submit) 5 months after IDRD Annex 5: PTP
47	GDS DS (S) POIC/USOC/ TSC	(I-15)	Ground Data Services Data Set (Submit) Payload Operations Integration Center/United States Operations Center/Telescience Support Center 3 months before GDS (B/L) POIC/USOC/TSC Submit from PIA Addenda (B/L)
48	Configuration DS (B/L)	(L-15)	Configuration Data Set (Baseline) 1 month after Configuration DS (B/L S) 3 months before IDRD, Annex 1 (B/L) 4 months before SSCCD (B/L)
49	PEI GL&C (P)	(L-15)	Payload Engineering and Integration Guidelines and Constraints (Preliminary)
50	P/L Configuration Files PCS Displays (P)	(L-14)	Payload Configuration Files Portable Computer System Displays (Preliminary) 2 months before Preliminary S/W ICD
51	P/L IDRD Revision A (S)	(I-13)	Payload Increment Definition and Requirements Document Revision A (Submit)
52	KSC TRDS (PS) ISS to P/L OMRS, File 8, Volume 2	(L-12.5)	Kennedy Space Center Technical Requirements Data Set (Preliminary Submit) International Space Station to Payload Operations and Maintenance Requirements and Specifications, File 8, Volume 2 1.5 months after PIA Addenda (U/D) 0.5 month before KSC TRDS OMRS, File 8, Volume 2 (P)
53	IDRD, Annex 1 (B/L)	(L-12)	Increment Definition and Requirements Document, Annex 1 (Baseline) 1 month after Configuration DS (B/L) Submit from IDRD Revision A
54	S/W ICD (P)	(L-12)	Software Interface Control Document (Preliminary) 4 months before S/W ICD (I)
55	KSC TRDS OMRS, File 8, Volume 2 (P)	(L-12)	Kennedy Space Center Technical Requirements Data Set Operations and Maintenance Requirements and Specifications, File 8, Volume 2 (Preliminary) 3 months before KSC TRDS OMRS, File 8, Volume 2 (B/L) 0.5 month after KSC TRDS (PS)
56	P/L Planning DS (B/L S)	(I-12)	Payload Planning Data Set (Baseline Submit) 3.5 months before GR&C (B)
57	PRMD	(L-12)	ISS Payload Report/Model Delivery 6 months after cargo item data/models delivery to Shuttle

TABLE 4.2-1 PRESSURIZED PAYLOAD MILESTONE CHRONOLOGY (ISPR) (PAGE 5 OF 12)

Line #	Acronym	Date (Months)	Description
58	PEI Increment Capability Report	(I-12)	Payload Engineering and Integration Increment Capability Report
59	P/L Operations DS (S)	(I-12)	Payload Operations Data Set (Submit) Initial Video/Photo and Video/Photo Requirements 12 months after PIA (PS)
60	KSC SRDS (PS)	(L-12) or (H-6)	Kennedy Space Center Support Requirements Data Set (Preliminary Submit) 5 months before LSSP Addendum (B/L)
61	GDS DS (B/L) POIC/USOC/ TSC	(I-12)	Ground Data Services Data Set (Baseline) Payload Operations Integration Center United States Operations Center/Telescience Support Center 3 months after GDS DS (S) POIC/USOC/TSC 2 months after PIA Addenda (U/D)
62	PPD DS (PS)	(L-12)	Payload Procedures and Display Data Set - Ground Command Procedures (Preliminary Submit)
63	Phase III SR FSR DP (S)	(I-11.5)	Phase III Subrack Flight Safety Review Data Pack (Submit) -45 days of Phase III SR FSR
64	SSCCD (B/L)	(L-11)	Space Station Configuration Control Drawings (Baseline) 4 months after Configuration DS (B/L) 6 months before Configuration DS (U/D)
65	PTDR	(I-11 to I-9)	Payload Training Dry Runs for new payloads 1 month before training session
66		(L-10.5)	Rack Test Verified Model
67	Start New P/L Facility Training	(I-10)	Start Payload Training for new Payloads 4 months before start of Complement Training 1 month after start of PTDRs
68	Phase III SR FSR	(L-10)	Phase III Subrack Flight Safety Review
69	CoFR Planning Letter	(L-10)	Certification of Flight Readiness Planning Letter 5 months before CoFR Call Letter
70	Phase III Integrated Rack FSR DP (S)	(L-9.5)	Phase III Integrated Rack Flight Safety Review Data Pack (Submit) -45 days of Phase lll Integrated Rack FSR
71	P/L Planning DS (B/L)	(I-9.25)	Payload Planning Data Set (Baseline)
72	P/L Operations DS (S)	(I-9)	Payload Operations Data Set (Submit) - LCC, FR, and Payload Regulations, Post-Video/Photo deliverables, real-time operations/facilities/team/other payload operations, contacts, and real-time operations team structure/additional PD operations/direction, authority and coordination information 1 month before POIC FR inputs to JSC MOD 3 months before Payload Imagery Usage Projection Report POIC Console Handbooks for cadre/PD simulations and RT support

TABLE 4.2-1 PRESSURIZED PAYLOAD MILESTONE CHRONOLOGY (ISPR) (PAGE 6 OF 12)

Line #	Acronym	Date (Months)	Description
73	PPD DS (P)	(L-9)	Payload Procedures and Displays Data Set - Ground Command Procedures (Preliminary) This is a POIF product
74	KSC SRDS (B/L)	(L-9) or (H-3)	Kennedy Space Center Support Requirements Data Set (Baseline) 2 months before LSSP Addendum (B/L)
75	P/L Imagery Usage Report (S)	(I-9)	Payload Imagery Usage Report (Submit)
76	Training DS (S) GSP	(I-9)	Training Data Set (Submit) Ground Support Personnel 6 months before Training DS GSP (F)
77	KSC TRDS OMRS, File 8, Volume 2 (B/L)	(L-9)	Kennedy Space Center Technical Requirements Data Set Operations and Maintenance Requirements and Specifications, File 8, Volume 2 (Baseline) 3 months after OMRS, File 8, Volume 2 (P) 9 months before launch
78	C&DH DS (I)	(L-9)	Command and Data Handling Data Set (Interim) 2 months before Configuration Files/PCS Displays (I) at L-7 1 month before S/W ICD (I) at L-8
79	Phase III Integrated Rack GSR DP (S)	(L-8.5)	Phase III Integrated Rack Ground Safety Review Data Pack (Submit) -45 days of Phase lll Integrated Rack GSR
80	GR&C (B)	(I-8.5)	Ground Rules and Constraints (Basic) 0.75 months after Payload Planning DS (B/L) 1.75 months before POOS (B) 2.5 months before OOS (B/L)
81	Configuration DS (U/D S)	(L-8)	Configuration Data Set (Update) (Sub-kit Data Submit) 7 months after Configuration DS (B/L) 2 months before SSCCD (F) 2 months before IDRD, Annex 1, Revision A
82	Phase III Rack FSR	(L-8)	Phase III Rack Flight Safety Review
83	P/L FR to MOD, Volumes B and C	(I-8)	Payload Flight Rules to Mission Operations Directorate, Volumes B and C 4 months after Payload Operations DS (S) I-12
84	PPD DS	(I-8)	Payload Procedures and Displays Data Set - Engineering Drawings (IPLAT Review) (Released) After Engineering Drawings (IPLAT Review) (Pre-released) Before Manual Procedure ECR
85	Start New P/L Subrack Training	(I-8)	Start Payload training for new subrack payloads 2 months before Start Complement Training

TABLE 4.2-1 PRESSURIZED PAYLOAD MILESTONE CHRONOLOGY (ISPR) (PAGE 7 OF 12)

Line #	Acronym	Date (Months)	Description
86	S/W ICD (I)	(L-8)	Software Interface Control Document (Interim) Submit to S/W ICD (F) 4 months after S/W ICD (P)
87	EPAS (Basic)	(I-8)	ETOV Payload Activity Summary (Basic) (Separate volume issued for each flight in the increment) 4 months after Payload Planning Data Set (B/L S) 4 months before first flight FOR
88	ICA (MIP Annex 6)	(L-8)	Integrated Cargo Agreement (Mission Integration Plan Annex 6)
89	P/L Exceptions (PS)	(L-7.5)	Payload Exceptions (Preliminary Submit)
90		(L-7.5)	Payload Verification Data (Submit) - See Appendix D 10.5 months after H/W ICD (B/L) 3 months before Final Stage Analysis Report
91	LSSP Addendum (B/L)	(L-7)	Launch Site Support Plan Addendum (Baseline) 2 months after KSC SRDS (B/L)
92	LCC (Preliminary Input)	(L-7)	Launch Commit Criteria (Preliminary Input)
93	Integrated Carrier Phase III FSR	(L-7)	Integrated Carrier Phase III Flight Safety Review
94	Phase III Rack GSR	(L-7)	Phase III Rack Ground Safety Review
95	P/L Configuration Files/PCS Displays (I)	(L-7)	Payload Configuration Files/Portable Computer System Displays (Interim) 1 month after Interim S/W ICD
96	POOS (B)	(I-6.75)	Payload Increment On-Orbit Operations Summary (Basic) 1.75 months after GR&C (B) 0.75 month before OOS (B) 2.5 months after Payload Planning DS (B/L)
97	KSC TRDS (PS) Orbiter MDK to P/L OMRS, File 2, Volume 2	(L-6)	Kennedy Space Center Technical Requirements Data Set (Preliminary Submit) Orbiter Middeck to Payload Operations and Maintenance Requirements and Specifications, File 2, Volume 2 8 months after PIA Addenda (U/D) 1 month before OMRS, File 2, Volume 2 (P)
98	P/L Planning DS (FS)	(I-6)	Payload Planning Data Set (Final Submit) 3.25 months after Payload Planning DS (B/L) 1 month before OOS (B) 2.5 months before GR&C (F)
99	C&DH DS (F)	(L-6)	Command and Data Handling Data Set (Final) 2 months before Configuration Files/PCS Displays (F) at L-4 3 months before S/W ICD (F) at L-3

TABLE 4.2-1 PRESSURIZED PAYLOAD MILESTONE CHRONOLOGY (ISPR) (PAGE 8 OF 12)

Line #	Acronym	Date (Months)	Description
100	Start Complement Training	(I-6)	Start Complement Training 6 months after MITP (U/D)
101	ISPR O/D	(L-6)	International Standard Payload Rack On-Dock 1 month after LSSP Addendum (B/L) 30 days after GSR Phase III 1 month/10 working days before Rack T/O to KSC FSR Phase III complete
102	OOS (B)	(I-6)	On-Orbit Operations Summary (Basic) Submit from FR (P) 2.5 months after GR&C (B) 0.75 month after POOS (B)
103	PPD DS (FS)	(L-6)	Payload Procedures and Displays Data Set - Ground Command Procedures (Final Submit) 6 months after Ground Command Procedures (P) 6 months before Payload launch
104	SSCCD (F)	(L-6)	Space Station Configuration Control Drawings (Final) 2 months after Configuration DS (U/D S)
105	IDRD, Annex 1 Revision A	(L-6)	Increment Definition and Requirements Document, Annex 1 Revision A 6 months after IDRD, Annex 1 (B/L) Concurrent with SSCCD (F) 2 months before IDRD, Annex 1 Revision B
106	PPD DS	(I-5.5)	Payload Procedures and Displays Data Set - ECR to Baseline Manual Procedures; Delivered Procedure/Display Files List (Update); Validation Record Report (Update); Log Files (Update); MPV Links (Update); Payload Messages (Update); Procedure Hazard Control List After Engineering Drawing (IPLAT Review complete) 2 months before Payload Operations Data File
107	EPAS (Revision A)	(L-5.5)	ETOV Payload Activity Summary (Revision A) (Flight Specific Issue) 0.5 month after Payload Planning Data Set (FS) 1.5 months before Shuttle Flight FOR
108	Configuration DS (U/D)	(L-5)	Configuration Data Set (Update) - Bar Code and Serial Number Data Submit Follows IDRD, Annex 1, Revision A (L-6) Supports IDRD, Annex 1, Revision B (L-4)
109	KSC TRDS Orbiter MDK to P/L OMRS, File 2, Volume 2 (P)	(L-5)	Kennedy Space Center Technical Requirements Data Set Orbiter Middeck to Payload Operations and Maintenance Requirements and Specifications, File 2, Volume 2 (Preliminary) 1 month after MDK OMRS, File 2, Volume 2 (PS) 2 months before MDK OMRS, File 2, Volume 2 (B/L)

TABLE 4.2-1 PRESSURIZED PAYLOAD MILESTONE CHRONOLOGY (ISPR) (PAGE 9 OF 12)

Line #	Acronym	Date (Months)	Description
110	P/L T/O	(L-5)	Payload Turn-Over 1 month after payload O/D KSC 1 month before payload installation into Carrier
111	LCC (B/L)	(L-5)	Launch Commit Criteria (Baseline)
112	SODF (F)	(I-5)	System Operations Data File (Final)
113		(L-5)	Rack Verified Loads Analysis Structural Assessment/Report
114	MPLM BR (JSC)	(L-5)	Multi-Purpose Logistics Module Bench Review (Johnson Space Center)
115	CoFR Call Letter	(L-5)	Certification of Flight Readiness Call Letter 5 months after CoFR Planning Letter 2 months before LPA Report (S) 3.5 months before CoFR (S)
116	MPLM Stowage O/D	(L-5)	Multi-Purpose Logistics Module Stowage On-Dock 1 month after ISPR O/D 2 weeks before MPLM Bench Review
117	P/L MDM Configuration (F)	(L-4)	Payload Multiplexer/Demultiplexer Configuration (Final) 4 months after Interim S/W ICD
118	MPLM Stowage Bench Review	(L-4.75)	Multi-Purpose Logistics Module Stowage Bench Review 3 weeks before rack installation into the MPLM
119	MPLM Stowage T/O	(L-4.5)	Multi-Purpose Logistics Module Stowage Turn-Over
120	KSC TRDS (PS) Orbiter MDK to P/L TGHR Table	(L-4.5)	Kennedy Space Center Technical Requirements Data Set (Preliminary Submit) Orbiter Middeck to Payload Time-critical Ground Handling Requirements Table 9.5 months after PIRD Addenda (U/D) 0.5 month before Orbiter MDK TGHR table (P)
121	PEI Stage Analysis Report (F)	(L-4.5)	Payload Engineering and Integration Stage Analysis Report (Final)
122	P/L Planning DS (F)	(I-4.25)	Payload Planning Data Set (Final)
123	KSC TRDS (P) Orbiter MDK to P/L TGHR Table	(L-4)	Kennedy Space Center Technical Requirements Data Set (Preliminary) Orbiter Middeck to Payload Time-critical Ground Handling Requirements Table 0.5 month after Orbiter MDK TGHR table (PS) 2 months before Orbiter MDK TGHR table (B/L)
124	PEI GL&C (F)	(L-4)	Payload Engineering and Integration Guidelines and Constraints (Final) (Payload Complement)
125	ATDR	(L-4)	Acoustics Test Data Report 2 months after compatibility analysis

TABLE 4.2-1 PRESSURIZED PAYLOAD MILESTONE CHRONOLOGY (ISPR) (PAGE 10 OF 12)

Line #	Acronym	Date (Months)	Description
126	IDRD, Annex 1 Revision B	(L-4)	Increment Definition and Requirements Document, Annex 1 Revision B 2 months after IDRD, Annex 1 Revision A
127	IOR	(I-4)	Increment Operations Review 2 months after OOS (B) Submit to FOR 0.5 month before GR&C (F) 1 month after FR (B/L)
128	P/L Configuration Files/PCS Displays (F)	(L-4)	Payload Configuration Files/Portable Computer System Displays (Final) 1 month before Final S/W ICD
129	MPLM BR (KSC)	(L-4)	Multi-Purpose Logistics Module Bench Review (Kennedy Space Center)
130	CEIT	(L-4)	Crew Equipment Interface Test Before Cargo Bay/Carrier installation
131	Rack Installation into MPLM	(L-4)	Rack Installation into Multi-Purpose Logistics Module 1.5 months before MPLM closeout
132		(L-3.5)	Payload Verification Data (Submit) - See Appendix D
133	GR&C (F)	(I-3.5)	Ground Rules and Constraints (Final) 0.5 month after Planning DS (F) Submit to POOS (F) 2.5 months before OOS (F)
134	PODF (F)	(I-3.5)	Payload Operations Data File (Final) 2 months after PPD DS Manual Procedure ECR (and other data) 3.5 months before increment start
135	PPD DS	(L-3)	Payload Procedures and Displays Data Set - Ground Command Procedures (Final) 6 months after Ground Command Procedures (P) 3 months before launch This is a POIF product
136	EPAS (F)	(L-3)	ETOV Payload Activity Summary (Final) (Flight Specific Issue) 1 month after Shuttle Flight FOR 3 months before Shuttle launch
137	Training DS (F) GSP	(I-3)	Training Data Set (Final) Ground Support Personnel 6 months after Training DS GSP (S)
138	KSC TRDS Orbiter MDK to P/L OMRS, File 2, Volume 2 (B/L)	(L-3)	Kennedy Space Center Technical Requirements Data Set Orbiter Middeck to Payload Operation and Maintenance Requirements and Specifications, File 2, Volume 2 (Baseline) 2 months after MDK OMRS, File 2, Volume 2 (P) 3 months before launch
139	S/W ICD (F)	(L-3)	Software Interface Control Document (Final) Submit from S/W ICD (I)

TABLE 4.2-1 PRESSURIZED PAYLOAD MILESTONE CHRONOLOGY (ISPR) (PAGE 11 OF 12)

Line #	Acronym	Date (Months)	Description
140	JMST	(I-3)	Joint Multi-Segment Station Training 3 months after Start Complement Training
141	LPA Report (S)	(L-12 weeks)	Launch Package Assessment Report (Submit) 1.25 months before LPA
142	POOS (F)	(I-2)	Payload Increment On-Orbit Operations Summary (Final) Submit from GR&C (F) 1 month before OOS (F)
143	PPD DS	(L-2)	Payload Procedures and Displays Data Set - Payload Data Files; Payload Automated Procedures (Timeliner Files) 2 months before launch
144	KSC TRDS (B/L) Orbiter MDK to P/L TGHR Table	(L-2)	Kennedy Space Center Technical Requirements Data Set (Baseline) Orbiter Middeck to Payload Time-critical Ground Handling Requirements Table 2 months after Orbiter MDK TGHR table (P) 2 months before launch
145	LPA PMIT	(L-10 weeks)	Launch Package Assessment Payload Mission Integration Team 3 weeks before LPA
146	MDK Stowage O/D (JSC)	(L-1.75)	Middeck Stowage On-Dock (Johnson Space Center)
147	LPA	(L-7 weeks)	Launch Package Assessment 3 weeks after LPA PMIT
148	CoFR (S)	(L-6 weeks)	Certification of Flight Readiness (Submit) 2.5 weeks before SORR
149	CoFR MPCB	(L-4.5 weeks)	Certification of Flight Readiness Multilateral Payload Control Board 1 week before SORR
150	OOS (F)	(I-1)	On-Orbit Operations Summary (Final)
151	MBR (JSC)	(L-1)	Middeck Bench Review (Johnson Space Center)
152	MDK Stowage Ship to (KSC)	(L-1)	Middeck Stowage Ship to (Kennedy Space Center)
153	SORR	(L-3.5 weeks)	Stage Operations Readiness Review 2.5 weeks after CoFR (S)
154	MDK O/D KSC (Standard Installation)	(L-22 days)	Middeck On-Dock Kennedy Space Center (Standard Installation) Approximately 7 working days before MDK T/O KSC for launch
155	MDK O/D KSC (Late Installation)	(L-15 days)	Middeck On-Dock Kennedy Space Center (Late Installation) Approximately 10 working days before MDK T/O KSC for launch
156	MDK T/O KSC (Standard Installation)	(L-8 days)	Middeck Turn-Over Kennedy Space Center (Standard Installation) Approximately 7 working days after MDK O/D KSC 8 days before launch
157	MDK T/O KSC (Late Installation)	(L-3 days)	Middeck Turn-Over Kennedy Space Center (Late Installation) Approximately 10 working days after MDK O/D KSC 3 days before launch

TABLE 4.2-1 PRESSURIZED PAYLOAD MILESTONE CHRONOLOGY (ISPR) (PAGE 12 OF 12)

Line #	Acronym	Date (Months)	Description
158	PIR #1	(Increment Complete +2 days)	Post-Increment Review Number 1
159	PIR #2	(Increment Complete +6 weeks)	Post-Increment Review Number 2

5.0 EXPRESS PAYLOAD (NON-STANDARD TEMPLATE)

5.1 ISS EXPRESS RACK INTEGRATION PROCESS FLOW (NON-STANDARD TEMPLATE)

Figure 5.1-1 is a high-level schedule of the integrated flow for the Non-Standard EXPRESS Payload Rack template. The template assumes that Launch XX occurs on the first day of a planning period/increment. Application of the template to a flight later in the planning period/increment will change the template relationship to the planning period/increment milestone relative to the flight. The triangles represent a PD submit; the circles represent ISS Payloads Office product; and the arrows represent an ISS/SSP product.

5.2 EXPRESS RACK MILESTONE CHRONOLOGY

Table 5.2-1, EXPRESS Payload Milestone Chronology (Non-Standard Template), is for planning purposes only. Level I and Level II flight schedule milestones and dates will be baselined through the appropriate ISS panels and boards.

Table 5.2-1 is a detailed listing that identifies and describes all EXPRESS Rack milestones. Thus, not all milestones in the table are depicted in Figure 5.1-1. In the table the word Submit equals PD, and Input equals the OZ Program Office. The columns include the following data:

A. Column 1: Milestone acronym.

B. Column 2: Milestone date (in months, unless otherwise stated) shown in relationship to a planning period/increment/launch.

C. Column 3: Acronym definition and the milestone's predecessors (that which must occur prior to the milestone) and the successor (that which is fed by the milestone).

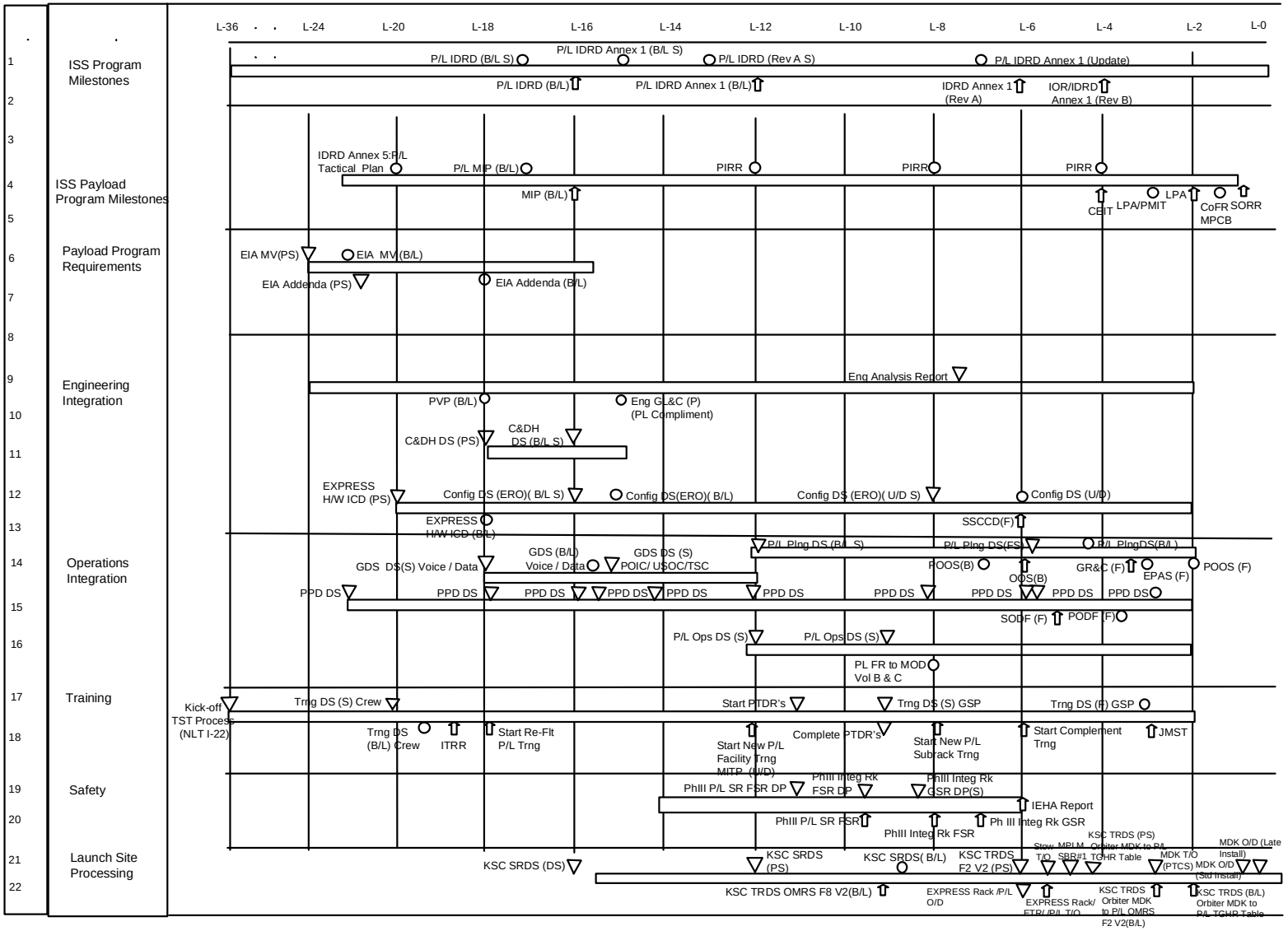


FIGURE 5.1-1 ISS PAYLOAD INTEGRATION PROCESS (EXPRESS NON-STANDARD)

TABLE 5.2-1 EXPRESS PAYLOAD MILESTONE CHRONOLOGY (NON-STANDARD TEMPLATE) (PAGE 1 OF 10)

Line #	Acronym	Date (Months)	Description
1	EIA MV (PS)	(I-24)	EXPRESS Integration Agreement Main Volume (Preliminary Submit)
2	EIA MV (B/L)	CDR+2 (I-22)	EXPRESS Integration Agreement Main Volume (Baseline)
3	PPD DS	(PDR/NLT I-22) (Maybe combined with TST process)	Payload Procedures and Displays Data Set - Operations Concept Maybe be combined with TST process Submit to P/L PDR Optional
4	Kick-off TST Process	(PDR/NLT I-22)	Kick-off Training Strategy Team Process 16 months before Training DS Crew (S)
5		(L-22)	Payload Verification Data (Submit) - See Appendix E
6	PPD DS	(I-22)	Payload Procedures and Displays Data Set - Operations Analysis Flows 2 months after Operations Concept 2 months before Initial Crew Displays Optional PD submit
7	EIA Increment Addenda (PS)	(I-21)	EXPRESS Integration Agreement Increment Addenda (Preliminary Submit) 3 months before EIA Addenda (B/L) (Update as required)
8	IDRD, Annex 5: PTP	(I-20)	Increment Definition and Requirements Document, Annex 5: Payload Tactical Plan 4 months after IDRP 2 months before EIA Addenda (B/L) IDRD, Annex 5: PTP (Update as required)
9	P/L TDS (Crew) (S)	(I-20)	Payload Training Data Set (Crew) (Submit) 2 months before the Training DS (B/L) Submittal is required from PD based upon results of TST
10	PVP (PS)	(L-20)	Payload Verification Plan (Preliminary Submit)
11	EXPRESS H/W ICD (P)	(L-20)	EXpedite the PRocessing of Experiments to the Space Station Hardware Interface Control Document (Preliminary)
12		(L-20)	Payload Verification Data (Submit) - See Appendix E
13	ITRR	(L-19)	Increment Training Readiness Review 1 month before Start Reflight P/L Training
14	Start P/L Training	(L-18)	Start Payload Training for Reflight Payloads 1 month after MITP (B/L) 1 month after ITRR
15	Training DS (B/L) Crew	(I-18)	Training Data Set (Baseline) Crew 3 months after the EIA Increment Addenda (PS)
16	EIA Increment Addenda (B/L)	(I-18)	EXPRESS Integration Agreement Increment Addenda (Baseline) 3 months after EIA Addenda (PS) 1 month before IDRD, Annex 5: PTP (U/D) (Update as required)

TABLE 5.2-1 EXPRESS PAYLOAD MILESTONE CHRONOLOGY (NON-STANDARD TEMPLATE) (PAGE 2 OF 10)

Line #	Acronym	Date (Months)	Description
17	PPD DS (P)	(I-18)	Payload Procedures and Displays Data Set - Initial crew Displays; Payload Unique Operations Nomenclature (Preliminary) After Operations Analysis/Flows 3 months before Candidate Crew Displays
18	PVP (B/L)	(L-18)	Payload Verification Plan (Baseline)
19	EXPRESS C&DH DS (PS)	(L-18)	EXpedite the PRocessing of Experiments to the Space Station Command and Data Handling Data Set (Preliminary Submit) 2 months before C&DH DS (B/L S)
20	EXPRESS H/W ICD (B/L)	(L-18)	EXpedite the PRocessing of Experiments to the Space Station Hardware Interface Control Document (Baseline) 2 months after EXPRESS H/W ICD (P)
21		(L-18)	Payload Verification Data (Submit) - See Appendix E
22	GDS DS Voice/Data (S)	(I-18)	Ground Data Services Data Set Voice/Data (Submit) Submit from EIA Increment Addenda (PS) 2.5 months before GDS DS Voice/Data (B/L)
23	P/L MIP (B/L S)	(I-17)	Payload Mission Integration Plan (Baseline Submit)
24	P/L IDRD (B/L) (S)	(I-17)	Payload Increment Definition and Requirements Document (Baseline) (Submit)
25	PCDS Manifest & Stowage Data (B/L S)	(L-17)	Payload Configuration Data Set Manifest and Stowage Data (Baseline Submit); Set Gases and Potable Water - Interface and consumable Data (Preliminary); Schematics (Electrical, Thermal, Vacuum) (Preliminary) 1 month before Configuration DS (B/L S)
26	PPD DS	(I-16)	Payload Procedures and Displays Data Set - Manual Procedures; Delivered Procedure/Display Files List; Reference Data; Validation Plan; Validation Record Report; Log Files; MPV Links; Payload Messages 6 months before start new P/L Facility Training
27	MIP (B/L)	(L-16)	Mission Integration Plan (Baseline) 4 months before FDRD Submit from IDRD (B/L)
28	Configuration DS ERO (B/L S)	(L-16)	Configuration Data Set EXPRESS Rack Office (Baseline Submit) 1 month before Configuration DS (B/L) 4 months before IDRD, Annex 1 (B/L) 5 months before SSCCD (B/L)
29	C&DH DS (P)	(L-16)	Command and Data Handling Data Set (Preliminary) Submit to S/W ICD (B/L) 4 months before S/W ICD (P)
30	KSC SDS	(L-16) or (H-10)	Kennedy Space Center Support Data Set - Visibility into Support Requirements Data Set 4 months before KSC SRDS (PS)
31	PPD DS	(I-16)	Payload Procedures and Displays Data Set - Engineering Drawings (IPLAT Review) (Pre-released) After initial Operations Nomenclature submission 1 month before Operations Nomenclature/ECR (U/D)

TABLE 5.2-1 EXPRESS PAYLOAD MILESTONE CHRONOLOGY (NON-STANDARD TEMPLATE) (PAGE 3 OF 10)

Line #	Acronym	Date (Months)	Description
32	P/L Operations DS (S)	(I-16)	Payload Operations Data Set (Submit) - Payload operations preparation and video/photo contact information 8 months after EIA MV (P)
33	IDRD (B/L)	(I-16)	Increment Definition and Requirements Document (Baseline) 8 months after IDRP Submit from PIA Addenda (B/L)
34		(L-16)	Payload Verification Data (Submit) - See Appendix E
35	GDS DS (Voice/Data) (B/L)	(I-15.5)	Ground Data Services Data Set (Voice/Data) (Baseline) 2.5 months after GDS DS Voice Data (S)
36	P/L IDRD, Annex 1 (B/L S)	(L-15)	Payload Increment Definition and Requirements Document, Annex 1 (Baseline Submit) 5 months after IDRD, Annex 5: PTP
37	Configuration DS (B/L)	(L-15)	Configuration Data Set (Baseline) 1 month after Configuration DS (B/L S) 3 months before IDRD, Annex 1 (B/L) 4 months before SSCCD (B/L)
38	GDS DS (S) POIC/USOC/ TSC	(I-15)	Ground Data Services Data Set (Submit) Payload Operations Integration Center/United States Operations Center/Telescience Support Center 3 months before GDS (B/L) POIC/USOC/TSC Submit from EIA Increment Addenda (B/L)
39	EXPRESS C&DH DS Application S/W & Displays (ER Laptop)	(L-15) (Preliminary to PSIV)	EXpedite the PRocessing of Experiments to the Space Station Command and Data Handling Data Set Application Software and Displays (EXPRESS Rack Laptop) (Preliminary to Payload Software Integration and Verification)
40	PCDS On-Orbit Configuration Drawings (P S)	(L-15)	Payload Configuration Data Set On-Orbit Configuration Drawings (Preliminary Submit)
41	PPD DS (U/D)	(I-15)	Payload Procedures and Displays Data Set - Candidate Flight Crew Displays; Payload Unique Operations Nomenclature/ECR (Update) 1 month after Engineering Drawings (IPLAT Review) (Pre-released) 1 month before Manual Procedure delivery
42	PCDS Assembly & Installation Drawings (B/L S)	(L-14)	Payload Configuration Data Set Assembly and Installation Drawings (Baseline Submit)
43	PPD DS	(I-14)	Payload Procedures and Displays Data Set - Manual Procedures; Delivered Procedure/Display Files List; Reference Data; Validation Data; Validation Record Report; Log Files; MPV Links; Payload Messages 6 months before Training window opens

TABLE 5.2-1 EXPRESS PAYLOAD MILESTONE CHRONOLOGY (NON-STANDARD TEMPLATE) (PAGE 4 OF 10)

Line #	Acronym	Date (Months)	Description
44	PCDS Gases & Potable Water - I&C Data (B/L S)	(L-13)	Payload Configuration Data Set Gases and Potable Water - Interface and Consumable Data (Baseline Submit); (Electrical, Thermal, Vacuum) (Final)
45	KSC TRDS (PS) ISS to P/L OMRS, File 8, Volume 2	(L-12.5)	Kennedy Space Center Technical Requirements Data Set (Preliminary Submit) International Space Station to Payload Operations and Maintenance Requirements and Specifications, File 8, Volume 2 1.5 months after EIA Increment Addenda (U/D) 0.5 month before KSC TRDS OMRS, File 8, Volume 2 (P)
46	P/L Operations DS (S)	(I-12)	Payload Operations Data Set (Submit) - Initial Video/Photo and Video/Photo Requirements 10 months after EIA MV (B/L) 9 months after EIA Increment Addenda (PS) 6.5 months before PODF (B)
47	P/L Planning DS (B/L S)	(I-12)	Payload Planning Data Set (Baseline Submit) 3.5 months before GR&C (B)
48	KSC SRDS (P)	(L-12) or (H-6)	Kennedy Space Center Support Requirements Data Set (Preliminary) 5 months before Launch Site Support Plan Addendum (B/L)
49	PPD DS (PS)	(L-12)	Payload Procedures and Display Data Set - Ground Command Procedures (Preliminary Submit)
50	IDRD, Annex 1 (B/L)	(L-12)	Increment Definition and Requirements Document, Annex 1 (Baseline) 1 month after Configuration DS (B/L) Submit from IDRD, Revision A
51		(L-12)	Payload Verification Data (Submit) - See Appendix E
52		(L-11.5)	Payload Verification Data (Submit) - See Appendix E
53	PTDR	(I-11 to I-9)	Payload Training Dry Run for new payloads 1 month before training sessions PD must meet milestone if they are the instructor, to recommend that the requested changes be made
54	SSCCD (B/L)	(L-11)	Space Station Configuration Control Drawings (Baseline) 4 months after Configuration DS (B/L) 6 months before Configuration DS (U/D)
55	P/L TDS Simulator H/W & S/W (per PSRD)	(I-11)	Payload Training Data Set Simulator Hardware and Software delivery to the training facility
56		(L-11)	Payload Verification Data (Submit) - See Appendix E
57	EXPRESS P/L C&DH DS Application S/W & Displays (ER Laptop)	(L-11) (Interim to PSIV)	EXpedite the PRocessing of Experiments to the Space Station Payload Command and Data Handling Data Set Application Software and Displays (EXPRESS Rack Laptop) (Interim to Payload Software Integration and Verification)

TABLE 5.2-1 EXPRESS PAYLOAD MILESTONE CHRONOLOGY (NON-STANDARD TEMPLATE) (PAGE 5 OF 10)

Line #	Acronym	Date (Months)	Description
58	Phase lll P/L SR FSR DP (S)	(L-10.5)	Phase lll Payload Subrack Flight Safety Review Data Pack (Submit) -45 days from Phase lll P/L SR FSR
59		(L-10.5)	Payload Verification Data (Submit) - See Appendix E
60	PCDS Assembly & Installation Drawings (U/D)	(L-10)	Payload Configuration Data Set Assembly and Installation Drawings (Update)
61	Start New P/L Facility Training	(L-10)	Start Payload Training for new Payloads 4 months before start of Complement Training 1 month after start of PTDRs
62		(L-10)	Payload Verification Data (Submit) - See Appendix E
63	Phase III Integrated Rack FSR DP (S)	(L-9.5)	Phase III Integrated Rack Flight Safety Review Data Pack (Submit) -45 days of Phase III Integrated Rack FSR
64		(L-9.5)	Payload Verification Data (Submit) - See Appendix E
65	P/L Planning DS (B/L)	(I-9.25)	Payload Planning Data Set (Baseline)
66	PPD DS (P)	(L-9)	Payload Procedures and Displays Data Set - Ground Command Procedures (Preliminary) This is a POIF product
67	KSC TRDS OMRS, File 8, Volume 2 (B/L)	(L-9)	Kennedy Space Center Technical Requirements Data Set Operations and Maintenance Requirements and Specifications, File 8, Volume 2 (Baseline) 3 months after OMRS, File 8, Volume 2 (P) 9 months before launch
68		(L-9)	Payload Verification Data (Submit) - See Appendix E
69	PCDS Configuration Drawings (B/L S)	(I-9)	Payload Configuration Data Set Configuration Drawings (Baseline Submit); Payload transfer Drawings/Requirements; Manifest and Stowage Data (Update) 1 month before Configuration DS (U/D S)
70	P/L IDRD (Revision B) Input	(I-9)	Payload Increment Definition and Requirements Document (Revision B) Input
71	Training DS GSP (S)	(I-9)	Training Data Set Ground Support Personnel (Submit) 6 months before Training DS GSP (F) Submit from EIA Addenda Needed to support cadre/PD simulations
72	KSC SRDS (B/L)	(L-9) or (H-3)	Kennedy Space Center Support Requirements Data Set (Baseline) 2 months before LSSP Addendum (B/L)

TABLE 5.2-1 EXPRESS PAYLOAD MILESTONE CHRONOLOGY (NON-STANDARD TEMPLATE) (PAGE 6 OF 10)

Line #	Acronym	Date (Months)	Description
73	P/L Operations DS (S)	(I-9)	Payload Operations Data Set (Submit) - Launch Commit Criteria, Flight Rules, and Payload Regulations, Post-Video/Photo deliverables, real-time operations/facilities/team/other payload operations contacts, and real-time operations team structure/additional PD operations/direction/authority, and coordination information 5 months after EIA Increment Addenda (U/D) 7 months before POIC FR inputs to JSC MOD 3 months before Payload Imagery Usage Projection Report POIC Console Handbooks for cadre/PD simulations and RT support
74	Phase lll P/L SR FSR	(L-9)	Phase lll Payload Subrack Flight Safety Review
75	Rack Engineering Analysis Complete	(L-9)	Rack Engineering Analysis Complete Submit to GL&C (F)
76	Phase III Integrated Rack GSR DP	(L-8.5)	Phase III Integrated Rack Ground Safety Review Data Pack (Submit) -45 days of Phase III Integrated Rack GSR
77	GR&C (B)	(I-8.5)	Ground Rules and Constraints (Basic) 0.75 month after Payload Planning DS (B/L) 1.75 months before POOS (B) 2.5 months before OOS (B/L)
78	EPAS (B)	(I-8)	ETOV Payload Activity Summary (Basic) (Separate volume issued for each flight in the increment) 4 months after Payload Planning Data Set (B/L S) 4 months before first flight FOR
79	Configuration DS ERO (U/D S)	(L-8)	Configuration Data Set EXPRESS Rack Office (Update Submit) 7 months after Configuration DS (B/L) 2 months before SSCCD (F) 2 months before IDRD, Annex 1, Revision A
80	P/L FR to MOD, Volumes B and C	(I-8)	Payload Flight Rules to Mission Operations Directorate, Volumes B and C 4 months after P/L Operations DS (S) I-12 1.25 months before POOS (B) 2 months before OOS (B)
81	EXPRESS P/L C&DH DS Application S/W & Displays (ER Laptop)	(L-8) (Final to PSIV)	EXpedite the PRocessing of Experiments to the Space Station Payload Command and Data Handling Data Set Application Software and Displays (EXPRESS Rack Laptop) (Final to Payload Software Integration and Verification)
82	Start New P/L Subrack Training	(I-8)	Start New Payload Subrack Training

TABLE 5.2-1 EXPRESS PAYLOAD MILESTONE CHRONOLOGY (NON-STANDARD TEMPLATE) (PAGE 7 OF 10)

Line #	Acronym	Date (Months)	Description
83	Phase III Integrated Rack FSR	(L-8)	Phase III Integrated Rack Flight Safety Review
84	PPD DS	(I-8)	Payload Procedures and Displays Data Set - Engineering Drawings (IPLAT Review) (Released) After Engineering Drawings (IPLAT Review) (Pre-released) Before Manual Procedure ECR
85	Phase lll Integrated Rack GSR	(L-7)	Phase lll Integrated Rack Ground Safety Review
86		(L-7)	Payload Verification Data (Submit) - See Appendix E
87	PCDS P/L Stowage Drawings (F S)	(I-7)	Payload Configuration Data Set Payload Stowage Drawings (Final Submit)
88	POOS (B)	(I-6.75)	Payload Increment On-Orbit Operations Summary (Basic) 1.75 months after GR&C (B) 0.75 month before OOS (B) 2.5 months after Payload Planning DS (B/L)
89		(L-6.5)	Payload Verification Data (Submit) - See Appendix E
90	KSC TRDS (PS) Orbiter MDK to P/L OMRS, File 2, Volume 2	(L-6)	Kennedy Space Center Technical Requirements Data Set (Preliminary Submit) Orbiter Middeck to Payload Operations Maintenance Requirements and Specifications, File 2, Volume 2 8 months after EIA Increment Addenda U/D 1 month before OMRS File 2, Volume 2 (P)
91	IDRD, Annex 1 Revision A	(L-6)	Increment Definition and Requirements Document, Annex 1 Revision A 6 months after IDRD, Annex 1 (B/L) Concurrent with SSCCD (F) 2 months before IDRD, Annex 1 Revision B
92	PPD DS (FS)	(L-6)	Payload Procedures and Displays Data Set - Ground Command Procedures (Final Submit) 6 months after Ground Command Procedures (P) 6 months before launch
93	P/L Planning DS (FS)	(I-6)	Payload Planning Data Set (Final Submit) 3.25 months after Payload Planning DS (B/L) 2.5 months before GR&C (F)
94	Start Complement Training	(I-6)	Start Complement Training 6 months after MITP U/D
95	EXPRESS Rack/P/L O/D	(L-6)	EXpedite the PRocessing of Experiments to the Space Station Rack/Payload On-Dock 1 month after LSSP Addendum (B/L) 30 days after GSR Phase III 1 month/10 working days before rack T/O to KSC FSR Phase III Complete

TABLE 5.2-1 EXPRESS PAYLOAD MILESTONE CHRONOLOGY (NON-STANDARD TEMPLATE) (PAGE 8 OF 10)

Line #	Acronym	Date (Months)	Description
96	EIRR MPLM P/L	(L-6)	EXPRESS Integration Readiness Review - Multi-Purpose Logistics Module Payloads 1 month before On Dock
97	OOS (B)	(I-6)	On-Orbit Operations Summary (Basic) Submit from FR (P) 2.5 months after GR&C (B) 0.75 month after POOS (B)
98	EPAS (Revision A)	(I-5.5)	ETOV Payload Activity Summary (Revision A) (Flight-Specific Issue) 0.5 month after Payload Planning Data Set (FS) 1.5 months before Shuttle Flight FOR
99	PPD DS	(I-5.5)	Payload Procedures and Displays Data Set - ECR to Baseline Manual Procedures; Log Files (Update); MPV Links (Update); Payload Messages (Update); Procedure Hazard Control List After Engineering Drawings (IPLAT Review complete) 2 months before Payload Operations Data File
100	MPLM BR (JSC)	(L-5)	Multi-Purpose Logistics Module Bench Review (Johnson Space Center)
101	PCDS Gases & Potable Water - I&C Data (U/D)	(I-5)	Payload Configuration Data Set Gases and Potable Water - Interface and Consumable Data (Update)
102	SODF (F)	(I-5)	System Operations Data File (Final)
103	Configuration DS ERO (U/D)	(L-5)	Configuration Data Set EXPRESS Rack Office (Update) 3 months after Configuration DS ERO (U/D S)
104		(L-5)	Payload Verification Data (Submit) - See Appendix E
105	KSC TRDS (PS) Orbiter MDK to P/L TGHR Table	(L-4.5)	Kennedy Space Center Technical Requirements Data Set (Preliminary Submit) Orbiter Middeck to Payload Time-critical Ground Handling Requirements Table 9.5 months after EIA Increment Addenda (U/D) 0.5 month before Orbiter MDK TGHR table (P)
106		(L-4.5)	Payload Verification Data (Submit) - See Appendix E
107	P/L Planning DS (F)	(I-4.25)	Payload Planning Data Set (Final)
108	IDRD, Annex 1 Revision B	(L-4)	Increment Definition and Requirements Document, Annex 1 Revision B 2 months after IDRD Annex 1 Revision A
109	CEIT	(L-4)	Crew Equipment Interface Test Before Cargo Bay/Carrier installation
110	MPLM BR (KSC)	(L-4)	Multi-Purpose Logistics Module Bench Review (Kennedy Space Center)
111	Crew BR	(I-4)	Crew Bench Review

TABLE 5.2-1 EXPRESS PAYLOAD MILESTONE CHRONOLOGY (NON-STANDARD TEMPLATE) (PAGE 9 OF 10)

Line #	Acronym	Date (Months)	Description
112	GR&C (F)	(I-3.5)	Ground Rules and Constraints (Final) 0.5 month after Planning DS (F) Submit to POOS (F) 2.5 months before OOS (F)
113	PODF (F)	(I-3.5)	Payload Operations Data File (Final) 2 months after Manual Procedure ECR (and other data) 3.5 months before launch
114	PPD DS	(L-3)	Payload Procedures and Displays Data Set - Ground Command Procedures (Final) 6 months after Ground Command Procedures (P) 3 months before launch This is a POIF product
115	Training DS (F) GSP	(I-3)	Training Data Set (Final) Ground Support Personnel 6 months after Training DS GSP (S)
116	JMST	(I-3)	Joint Multi-Segment Station Training 3 months after start Complement Training
117	EPAS (F)	(L-3)	ETOV Payload Activity Summary (Final) (Flight-Specific Issue) 1 month after Shuttle FOR 3 months before Shuttle launch
118	KSC TRDS Orbiter MDK to P/L OMRS, File 2, Volume 2 (B/L)	(L-3)	Kennedy Space Center Technical Requirements Data Set Orbiter Middeck to Payload Operation and Maintenance Requirements and Specifications, File 2, Volume 2 (Baseline) 2 months after MDK OMRS, File 2, Volume 2 (P) 3 months before launch
119		(L-3)	Payload Verification Data (Submit) - See Appendix E
120	EIRR MDK P/L	(L-2)	EXPRESS Integration Readiness Review - Middeck Payload 1 month before O/D
121	POOS (F)	(I-2)	Payload Increment On-Orbit Operations Summary (Final) Submit from GR&C (F) 1 month before OOS (F)
122	PPD DS	(L-2)	Payload Procedures and Displays Data Set - Payload Data Files; Payload Automated Procedures (Timeliner Files) 2 months before launch
123	LPA PMIT	(L-10 weeks)	Launch Package Assessment Payload Mission Integration Team 3 weeks before LPA
124	LPA	(L-7 weeks)	Launch Package Assessment 3 weeks after LPA PMIT
125	CoFR (S)	(L-6 weeks)	Certification of Flight Readiness (Submit) 2.5 weeks before SORR
126	MDK BR (JSC)	(L-1)	Middeck Bench Review (Johnson Space Center)

TABLE 5.2-1 EXPRESS PAYLOAD MILESTONE CHRONOLOGY (NON-STANDARD TEMPLATE) (PAGE 10 OF 10)

Line #	Acronym	Date (Months)	Description
127	SORR	(L-3.5 weeks)	Stage Operations Readiness Review 2.5 weeks after CoFR (S)
128	MDK O/D KSC (Standard Installation)	(L-22 days)	Middeck On-Dock Kennedy Space Center (Standard Installation) Approximately 10 working days before MDK T/O to KSC for launch
129	MDK O/D KSC (Late Installation)	(L-15 days)	Middeck On-Dock Kennedy Space Center (Late Installation) Approximately 10 working days before MDK T/O KSC for launch

6.0 EXPRESS PAYLOAD (STANDARD) <TBD 6-1>

7.0 SMALL PAYLOADS

TABLE 7.0-1 SMALL PAYLOADS MILESTONE CHRONOLOGY (PAGE 1 OF 4)

Line #	Acronym	Date (Months)	Description
1	IDRD, Annex 5: PTP (B/L)	(I-20)	Increment Definition and Requirements Document, Annex 5: Payload Tactical Plan (Baseline) (Update as required) 4 months after IDRP 2 months before PIA Addenda (B/L)
2	MIP (B/L S)	(I-17)	Mission Integration Plan (Baseline Submit) 1 month before IDRD (B/L)
3	P/L IDRD (B/L)	(I-16)	Payload Increment Definition and Requirements Document (Baseline) 3 months before IDRD Annex 1 (Update S)
4	IDRD (U/D)	(I-13)	Increment Definition and Requirements Document (Update) 1 month before IDRD (Revision A)
5	MIP (U/D S)	(I-12)	Mission Integration Plan (Update Submit)
6	Training DS (B/L) Crew	(I-12)	Training Data Set (Baseline) Crew (Update as required) 4 months before Start P/L Training
7	PPD DS (PS)	(I-12)	Payload Procedures and Displays Data Set (Preliminary Submit) - Operations Nomenclature and Displays 2 months before PPD DS (B/L S)
8	PPD DS (PS)	(I-12)	Payload Procedures and Displays Data Set (Preliminary Submit) - Engineering Drawings (IPLAT review)
9	PPD DS (PS)	(I-12)	Payload Procedures and Displays Data Set - Crew Procedures, Messages (Preliminary Submit)
10	P/L Operations DS (S)	(I-9)	Payload Operations Data Set (Submit) - LCC, FR, and Payload Regulations. Post photo/video deliverables, Real-time P/L Operations, Facilities, Operations Teams, and other PD Operations contacts. Real-time Operations Team Structure, additional PD operations information, and Direction, Authority, and coordination information. 4 months before POIC FR inputs to JSC MOD
11	P/L Ground Command Procedures (P)	(L-12)	Payload Ground Command Procedures (Preliminary)
12		(L-12)	Payload Waivers
13	PIA (PS)	(I-12)	Payload Integration Agreement (Preliminary Submit)
14	P/L Planning DS (B/L S)	(I-12)	Payload Planning Data Set (Baseline Submit) 3.5 months before GR&C (B)
15	KSC SRDS (PS)	(L-12)	Kennedy Space Center Support Requirements Data Set (Preliminary Submit)
16	PIA (B/L)	(I-10)	Payload Integration Agreement (Baseline) 2 months after PIA (PS) 2 months before IDRD (B/L) Submit to PDSs
17	CoFR Planning Letter	(L-10)	Certification of Flight Readiness Planning Letter 5 months before CoFR Call Letter
18	P/L Planning DS (B/L)	(I-9.25)	Payload Planning Data Set (Baseline)

TABLE 7.0-1 SMALL PAYLOADS MILESTONE CHRONOLOGY (PAGE 2 OF 4)

Line #	Acronym	Date (Months)	Description
19	PTDR	(I-11 to I-9)	Payload Training Dry Runs for new payloads 1 month before training session
20	KSC SRDS (B/L)	(L-9) or (H-3)	Kennedy Space Center Support Requirement Data Set (Baseline) 2 months before LSSP Addendum (B/L)
21	KSC TRDS OMRS, File 8, Volume 2 (B/L)	(L-9)	Kennedy Space Center Technical Requirements Data Set Operations and Maintenance Requirements and Specifications, File 8, Volume 2 (Baseline) 3 months after KSC TRDS OMRS, File 8, Volume 2 (P) 9 months before launch
22	Training DS (S) GSP	(I-9)	Training Data Set (Submit) Ground Support Personnel 6 months before Training DS GSP (F)
23	Configuration DS (B/L S)	(L-8.5)	Configuration Data Set (Baseline Submit) 1 month before Configuration DS (B/L)
24	Configuration DS (U/D)	(L-8)	Configuration Data Set (Update) (Sub-kit Data Submit to OZ2) 2 months before SSCCD (F) 2 months before IDRD, Annex 1, Revision A
25	PPD DS	(I-8)	Payload Procedures and Displays Data Set - Engineering Drawings (IPLAT Review) (Released)
26	P/L Operations DS (S)	(I-12)	Payload Operations Data Set (Submit) Initial Video/Photo and Video/Photo requirements
27	PPD DS (B/L S)	(I-8)	Payload Procedures and Displays Data Set - Engineering Drawings (IPLAT Review) (Baseline Submit)
28	Start P/L Training	(I-8)	Start Payload Training
29	Configuration DS (U/D S)	(L-8)	Configuration Data Set (Update Submit) (Manifest and Stowage/Operations Configuration Drawings)
30	Phase III FSR DP (S)	(L-7.5)	Phase III Flight Safety Review Data Pack (Submit) -45 days of Phase lll FSR
31	Phase III GSR DP (S)	(L-7.5)	Phase III Ground Safety Review Data Pack (Submit) -45 days of Phase lll FSR
32		(L-7.5)	Payload Verification Data (Submit) - See Appendix D
33	POOS (B)	(I-6.75)	Payload Increment On-Orbit Operations Summary (Basic) 1.75 months after GR&C (B) 0.75 month before OOS (B) 2.5 months after Payload Planning DS (B/L)
34	OOS (B)	(I-6)	On-Orbit Operations Summary (Basic) Submit from FR (P) 2.5 months after GR&C (B) 0.75 month after POOS (B)
35	Phase III FSR	(L-6)	Phase III Flight Safety Review
36	Phase III GSR	(L-6)	Phase III Ground Safety Review

TABLE 7.0-1 SMALL PAYLOADS MILESTONE CHRONOLOGY (PAGE 3 OF 4)

Line #	Acronym	Date (Months)	Description
37	P/L Planning DS (FS)	(I-6)	Payload Planning Data Set (Final Submit) 3.25 months after Payload Planning DS (B/L) 2.5 months before GR&C (F)
38	PPD DS (B/L S)	(I-5.5)	Payload Procedures and Displays Data Set (Baseline Submit) - Crew Procedures; Messages
39	CoFR Call Letter	(L-5)	Certification of Flight Readiness Call Letter 5 months after CoFR Planning Letter 2 months before LPA Report (S) 3.5 months before CoFR (S)
40	KSC TRDS (PS) Orbiter MDK to P/L TGHR Table	(L-4.5)	Kennedy Space Center Technical Requirements Data Set (Preliminary Submit) Orbiter Middeck to Payload Time-critical Ground Handling Requirements Table 0.5 month before Orbiter MDK TGHR table (P)
41	P/L Planning DS (F)	(I-4.25)	Payload Planning Data Set (Final)
42	KSC TRDS (P) Orbiter MDK to P/L TGHR Table	(L-4)	Kennedy Space Center Technical Requirements Data Set (Preliminary) Orbiter Middeck to Payload Time-critical Ground Handling Requirements Table 0.5 month after Orbiter MDK TGHR table (PS) 2 months before Orbiter MDK TGHR table (B/L)
43	MPLM BR (KSC)	(L-4)	Multi-Purpose Logistics Module Bench Review (Kennedy Space Center)
44	P/L Installation into MPLM	(L-4)	Payload Installation into Multi-Purpose Logistics Module 1.5 months before MPLM closeout
45		(L-3.5)	Payload Verification Data (Submit) - See Appendix D
46	PODF (F)	(I-3.5)	Payload Operations Data File (Final) 3.5 months after PPD DS (FS)
47	EPAS	(L-3)	ETOV Payload Activity Summary
48	Training DS GSP (F)	(I-3)	Training Data Set - Ground Support Personnel (Final)
49	JMST	(I-3)	Joint Multi-Segment Station Training 3 months after Start Complement Training
50	LPA Report (S)	(L-12 weeks)	Launch Package Assessment Report (Submit) 1.25 months before LPA
51	POOS (F)	(I-2)	Payload Increment On-Orbit Operations Summary (Final) Submit from GR&C (F) 1 month before OOS (F)
52	P/L O/D (JSC)	(L-2)	Payload On-Dock (Johnson Space Center)
53	LPA/PMIT	(L-10 weeks)	Launch Package Assessment/Payload Mission Integration Team 3 weeks before LPA
54	LPA	(L-7 weeks)	Launch Package Assessment 3 weeks after LPA PMIT

TABLE 7.0-1 SMALL PAYLOADS MILESTONE CHRONOLOGY (PAGE 4 OF 4)

Line #	Acronym	Date (Months)	Description
55	CoFR (S)	(L-6 weeks)	Certification of Flight Readiness (Submit) 2.5 weeks before SORR
56	CoFR - MPCB	(L-4.5 weeks)	Certification of Flight Readiness - Multilateral Payload Control Board 1 week before SORR
57	MPLM Pre-Pack BR (JSC)	(L-1.75)	Multi-Purpose Logistics Module Pre-Pack Stowage Bench Review (Johnson Space Center)
58	OOS (F)	(I-1)	On-Orbit Operations Summary (Final)
59	MBR (JSC)	(L-1)	Middeck Bench Review (Johnson Space Center)
60	MPLM MBR (JSC)	(L-1)	Multi-Purpose Logistics Module Middeck Bench Review (Johnson Space Center) 8 days before payload installation into the MPLM
61	SORR	(L-3.5 weeks)	Stage Operations Readiness Review 3.5 weeks after CoFR (S)
62	MDK O/D KSC (Standard Install)	(L-22 days)	Middeck On-Dock Kennedy Space Center (Standard Installation) Approximately 10 working days before MDK T/O KSC for launch
63	MDK O/D KSC (Late Install)	(L-15 days)	Middeck On-Dock Kennedy Space Center (Late Installation) Approximately 10 working days before MDK T/O KSC for launch

8.0 UNPRESSURIZED PAYLOADS

TABLE 8.0-1 UNPRESSURIZED PAYLOAD MILESTONE CHRONOLOGY (PAGE 1 OF 10)

Line #	Acronym	Date (Months)	Description
1	MER	(PP-38)	Mission Evaluation Request 2 months before IPMM
2	Phase 0/1 P/L FSR DP (S)	(-45 days of Phase 0/1 FSR)	Phase 0/1 Payload Flight Safety Review Data Pack (Submit)
3		(PP-36)	Tactical Resource Allocations
4	IPMM (Annual Release)	(PP-36)	Integrated Payload Mission Model (Annual Release) 4 months before MIM 12 months prior to IDRP Feeds PIA (PS)
5	H/W ICD (PS)	(PDR)	Hardware Interface Control Document (Preliminary Submit) Submit from PDR 2 months after final IPMM 12 months before H/W ICD B/L
6	PPD DS	(PDR/NLT I-22)	Payload Procedures and Displays Data Set - Operations Concept Maybe combined with TST process Optional PD submit
7	Kick-off TST Process	(PDR/NLT I-22)	Kick-off Training Strategy Team Process 16 months before Training DS Submit Crew
8	Phase 0/1 P/L GSR DP (S)	(-45 days of Phase 0/1 GSR)	Phase 0/1 Payload Ground Safety Review Data Pack (Submit)
9	Phase II P/L FSR DP (S)	(-45 days of Phase II FSR)	Phase II Payload Flight Safety Review Data Pack (Submit)
10	PIA (PS)	(CDR) (I-24)	Payload Integration Agreement (Preliminary Submit) Tied to CDR
11	H/W ICD (B/L)	(CDR)	Hardware Interface Control Document (Baseline) NLT L-14
12	Phase II P/L GSR DP (S)	(-45 days of Phase II GSR)	Phase II Payload Ground Safety Review Data Pack (Submit)
13	MOD to SOFA (S)	(L-22)	Mission Operations Directorate to Systems Operations Feasibility Assessment (Submit)
14	PPD DS	(PDR NLT I-22)	Payload Procedures and Displays Data Set - Operations Concepts Submit to P/L PDR
15	PIA (B/L)	(CDR + 2) (I-22)	Payload Integration Agreement (Baseline) 2 months after PIA (PS) 6 months before IDRD (B/L) Submit to PDSs

TABLE 8.0-1 UNPRESSURIZED PAYLOAD MILESTONE CHRONOLOGY (PAGE 2 OF 10)

Line #	Acronym	Date (Months)	Description
16	PIA Addenda (PS)	(I-21)	Payload Integration Agreement Addenda (Preliminary Submit) 3 months before PIA Addenda (B/L)
17	IDRD, Annex 5: PTP	(I-20)	Increment Definition and Requirements Document, Annex 5: Payload Tactical Plan 4 months after IDRP 5 months before P/L IDRD, Annex 1 (B/L S)
18	Training DS (S) Crew	(I-20)	Training Data Set (Submit) Crew 2 months before the Training DS (B/L) Submit from PIA Addenda (PS)
19	PPD DS	(I-20)	Payload Procedures and Displays Data Set - Initial Crew Displays; Payload Unique Operations Nomenclature (Preliminary) 3 months before Candidate Crew Displays 2 months after Operations Analysis/Flows
20	P/L MITP (B/L) Input	(I-20)	Payload Multilateral Increment Training Plan (Baseline) Input
21	ITRR	(I-19)	Increment Training Readiness Review 1 month before Start Reflight P/L Training
22	H/W ICD (B/L)	(NLT L-19)	Hardware Interface Control Document (Baseline) Submit for P/L CDR B/L CDR + 60 days
23	MITP (B/L)	(I-19)	Multilateral Increment Training Plan (Baseline) 1 month after Training DS (S) Crew
24	C&DH DS (P)	(L-18)	Command and Data Handling Data Set (Preliminary) (If Program is to build) 4 months before Configuration Files/PCS Displays (P) at L-14 6 months before S/W ICD (P) at L-12
25	PPD DS	(I-18)	Payload Procedures and Displays Data Set - Engineering Drawings (IPLAT Review) (Pre-released) After initial Operations Nomenclature submission 1 month before Operations Nomenclature/ECR (Update)
26	Training DS (B/L) Crew	(I-18)	Training Data Set (Baseline) Crew 2 months after Training DS (S) 1 month after MITP (B/L)
27	Start Reflight P/L Training	(I-18)	Start Payload Training for Reflight Payloads 1 month after MITP (B/L) 1 month after ITRR
28	PIA Addenda (B/L)	(I-18)	Payload Integration Agreement Addenda (Baseline) 3 months after PIA Addenda (PS) 1 month before IDRD, Annex 5: PTP (U/D) (Update as required)
29	GDS DS (S) Voice/Data	(I-18)	Ground Data Services Data Set (Submit) Voice/Data Submit from PIA Addenda (PS) 2.5 months before GDS DS (B/L) Voice/Data

TABLE 8.0-1 UNPRESSURIZED PAYLOAD MILESTONE CHRONOLOGY (PAGE 3 OF 10)

Line #	Acronym	Date (Months)	Description
30	P/L IDRD (B/L) (S)	(I-17)	Payload Increment Definition and Requirements Document (Baseline) (Submit)
31	PPD DS	(I-17)	Payload Procedures and Displays Data Set Payload Unique Operations Nomenclature/ECR (U/D), Candidate Flight Crew Displays(Submit) 1 month after Engineering Drawings (IPLAT Review) (Pre-released) 1 month before Manual Procedure delivery
32	P/L MIP (B/L S)	(I-17)	Payload Mission Integration Plan (Baseline Submit)
33	IDRD (B/L)	(I-16)	Increment Definition and Requirements Document (Baseline) 8 months after IDRP Submit from PIA Addenda (B/L)
34	MIP (B/L)	(L-16)	Mission Integration Plan (Baseline) 4 months before FDRD Submit from IDRD (B/L)
35	C&DH DS (P)	(L-16)	Command and Data Handling Data Set (Preliminary) 2 months before Configuration Files/PCS Displays (P) at L-14 4 months before S/W ICD (P) at L-12
36	PPD DS	(I-16)	Payload Procedures and Displays Data Set - Manual Procedures; Delivered Procedure/Display Files Lists; Reference Data Validation Plan; Validation Record Report; Log Files; MPV Links; Payload Messages (Final Submit) 6 months before start new P/L Facility Training
37	Configuration DS (B/L S)	(L-16)	Configuration Data Set (Baseline Submit) 1 month before Configuration DS (B/L)
38	KSC SRDS Draft (S)	(L-16)	Kennedy Space Center Support Requirements Data Set Draft (Submit) - provided for KSC visibility 4 months before KSC Support Requirements DS (PS)
39	IEHA Start	(L-16)	Integrated Element Hazard Analysis Start
40	GDS DS (B/L) Voice/Data	(I-15.5)	Ground Data Services Data Set (Baseline) Voice/Data 2.5 months after GDS DS Submit Voice/Data
41	P/L IDRD, Annex 1 (B/L S)	(L-15)	Payload Increment Definition and Requirements Document, Annex 1 (Baseline Submit) 5 months after IDRD, Annex 5: PTP
42	PEI GL&C (P)	(L-15)	Payload Engineering and Integration Guidelines and Constraints (Preliminary)
43	GDS DS (S) POIC/USOC/ TSC	(I-15)	Ground Data Services Data Set (Submit) Payload Operations Integration Center/United States Operations Center/Telescience Support Center 3 months before GDS (B/L) POIC/USOC/TSC Submit from PIA Addenda (B/L)

TABLE 8.0-1 UNPRESSURIZED PAYLOAD MILESTONE CHRONOLOGY (PAGE 4 OF 10)

Line #	Acronym	Date (Months)	Description
44	Configuration DS (B/L)	(L-15)	Configuration Data Set (Baseline) 1 month after Configuration DS (B/L S) 3 months before IDRD, Annex 1 (B/L) 4 months before SSCCD (B/L)
45	P/L Configuration Files/PCS Displays (P)	(L-14)	Payload Configuration Files/Portable Computer System Displays (Preliminary) 2 months before Preliminary S/W ICD
46	KSC TRDS (PS) ISS to P/L OMRS, File 8, Volume 2	(L-12.5)	Kennedy Space Center Technical Requirements Data Set (Preliminary Submit) International Space Station to Payload Operations and Maintenance Requirements and Specifications, File 8, Volume 2 1.5 months after PIA Addenda (U/D) 0.5 month before KSC TRDS OMRS, File 8, Volume 2 (P)
47	KSC TRDS OMRS, File 8, Volume 2 (P)	(L-12)	Kennedy Space Center Technical Requirements Data Set Operations and Maintenance Requirements and Specifications, File 8, Volume 2 (Preliminary) 3 months before KSC TRDS OMRS, File 8, Volume 2 (B/L) 0.5 month after KSC TRDS (PS)
48	IDRD, Annex 1 (B/L)	(L-12)	Increment Definition and Requirements Document, Annex 1 (Baseline) 1 month after Configuration DS (B/L) Submit from IDRD, Revision A
49	S/W ICD (P)	(L-12)	Software Interface Control Document (Preliminary) 9 months before S/W ICD (F)
50	P/L Planning DS (B/L S)	(I-12)	Payload Planning Data Set (Baseline Submit) 3.5 months before GR&C (B)
51	PRMD	(L-12)	ISS Payload Report/Model Delivery 6 months after cargo item data/models delivery to Shuttle
52	KSC SRDS (PS)	(L-12) or (H-6)	Kennedy Space Center Support Requirements Data Set (Preliminary Submit) 5 months before MIP LSSP Addenda (B/L)
53	GDS DS (B/L) POIC/USOC/ TSC	(I-12)	Ground Data Services Data Set (Baseline) Payload Operations Integration Center/United States Operations Center/Telescience Support Center 3 months after GDS DS (S) POIC/USOC/TSC 2 months after PIA Addenda (U/D)
54	P/L Operations DS (S)	(I-12)	Payload Operations Data Set (Submit) - Initial Video/Photo and Video/Photo requirements
55	PPD DS (PS)	(L-12)	Payload Procedures and Display Data Set - Ground Command Procedures (Preliminary Submit)
56	PTDR	(I-11 to I-9)	Payload Training Dry Run for new payloads 1 month before training session

TABLE 8.0-1 UNPRESSURIZED PAYLOAD MILESTONE CHRONOLOGY (PAGE 5 OF 10)

Line #	Acronym	Date (Months)	Description
57	SSCCD (B/L)	(L-11)	Space Station Configuration Control Drawings (Baseline) 4 months after Configuration DS (B/L) 6 months before Configuration DS (U/D)
58		(L-10.5)	Rack Test Verified Model
59	Start New P/L Facility Training	(I-10)	Start Payload Training for new Payloads 4 months before start of Complement Training
60	CoFR Planning Letter	(L-10)	Certification of Flight Readiness Planning Letter 5 months before CoFR Call Letter
61	P/L Integrated Carrier Phase III FSR DP (S)	(L-9.5)	Payload/Integrated Carrier Phase III Flight Safety Review Data Pack (Submit) -45 days of P/L/Integrated Carrier Phase lll FSR
62	P/L Planning DS (B/L)	(I-9.25)	Payload Planning Data Set (Baseline)
63	P/L Operations DS (S)	(I-9)	Payload Operations Data Set (Submit) - LCC, FR, and Payload Regulations, Post-Video/Photo deliverables, real-time operations/ facilities/team/other payload operations contacts, and real-time operations team structure/additional PD operations/direction, authority, and coordination information 1 month before POIC FR inputs to JSC MOD 3 months before Payload Imagery Usage Projection Report POIC Console Handbooks for cadre/PD simulations and RT support
64	KSC TRDS OMRS, File 8, Volume 2 (B/L)	(L-9)	Kennedy Space Center Technical Requirements Data Set Operations and Maintenance Requirements and Specifications, File 8, Volume 2 (Baseline) 3 months after OMRS, File 8, Volume 2 (P) 9 months before launch
65	KSC SRDS (B/L)	(L-9) or (H-3)	Kennedy Space Center Support Requirement Data Set (Baseline) 2 months before LSSP Addenda (B/L)
66	PPD DS (P)	(L-9)	Payload Procedures and Displays Data Set - Ground Command Procedures (Preliminary) This is a POIF product
67	C&DH DS (I)	(L-9)	Command and Data Handling Data Set (Interim) 2 months before Configuration Files/PCS Displays (I) at L-7 1 month before S/W ICD (I) at L-8
68	Training DS (S) GSP	(I-9)	Training Data Set (Submit) Ground Support Personnel 6 months before Training DS GSP (F) Submit from PIA Addenda (U/D) Needed to support cadre/PD simulations
69	P/L Integrated Carrier Phase III GSR DP (S)	(L-8.5)	Payload/Integrated Carrier Phase III Ground Safety Review Data Pack (Submit) -45 days of P/L/Integrated Carrier Phase lll Rack GSR

TABLE 8.0-1 UNPRESSURIZED PAYLOAD MILESTONE CHRONOLOGY (PAGE 6 OF 10)

Line #	Acronym	Date (Months)	Description
70	GR&C (B)	(I-8.5)	Ground Rules and Constraints (Basic) 0.75 month after Payload Planning DS (B/L) 1.75 months before POOS (B) 2.5 months before OOS (B/L)
71	PPD DS	(I-8)	Payload Procedures and Displays Data Set - Engineering Drawings (IPLAT Review) (Released) After Engineering Drawings (IPLAT Review) (Pre-released) Before Manual Procedure ECR
72	P/L Integrated Carrier Phase III FSR	(L-8)	Payload/Integrated Carrier Phase III Flight Safety Review
73	S/W ICD (I)	(L-8)	Software Interface Control Document (Interim) 4 months after S/W ICD (P) 1 month before P/L Configuration Files/PCS Displays (I) 2 months before FPSR
74	Configuration DS (U/D S)	(L-8)	Configuration Data Set (Update Submit) 7 months after Configuration DS (B/L) 2 months before SSCCD (F) 2 months before IDRD, Annex 1, Revision A
75	P/L FR to MOD, Volumes B and C	(I-8)	Payload Flight Rules to Mission Operations Directorate, Volumes B and C 14 months after Payload Operations DS (S) 1.25 months before POOS (B) 2 months before OOS (B)
76	ICA (MIP Annex 6)	(L-8)	Integrated Cargo Agreement (Mission Integration Plan Annex 6)
77		(L-7.5)	Payload Verification Data (Submit) - See Appendix D
78	LSSP Addendum (B/L)	(L-7)	Launch Site Support Plan Addendum (Baseline) 2 months after KSC SRDS (B/L)
79	P/L Integrated Carrier Phase III GSR	(L-7)	Payload/Integrated Carrier Phase III Ground Safety Review
80	P/L Configuration Files PCS Displays (I)	(L-7)	Payload Configuration Files Portable Computer System Displays (Interim) 1 month after Interim S/W ICD
81	POOS (B)	(I-6.75)	Payload Increment On-Orbit Operations Summary (Basic) 1.75 months after GR&C (B) 0.75 month before OOS (B) 2.5 months after Payload Planning DS (B/L)

TABLE 8.0-1 UNPRESSURIZED PAYLOAD MILESTONE CHRONOLOGY (PAGE 7 OF 10)

Line #	Acronym	Date (Months)	Description
82	KSC TRDS (PS) Orbiter MDK to P/L OMRS, File 2, Volume 2	(L-6)	Kennedy Space Center Technical Requirements Data Set (Preliminary Submit) Orbiter Middeck to Payload Operations and Maintenance Requirements and Specifications, File 2, Volume 2 12 months after PIA Addenda (B/L) 1 month before OMRS, File 2, Volume 2 (P)
83	IEHA Report	(L-6)	Integrated Element Hazard Analysis Report
84	PPD DS (FS)	(L-6)	Payload Procedures and Displays Data Set - Ground Command Procedures (Final Submit) 6 months after Ground Command Procedures (P) 6 months before Payload launch
85	P/L Planning DS (FS)	(I-6)	Payload Planning Data Set (Final Submit) 3.25 months after Payload Planning DS (B/L) 2.5 months before GR&C (F)
86	IDRD, Annex 1 Revision A	(L-6)	Increment Definition and Requirements Document, Annex 1 Revision A 6 months after IDRD, Annex 1 (B/L) Concurrent with SSCCD (F) 2 months before IDRD, Annex 1 Revision B
87	C&DH DS (F)	(L-6)	Command and Data Handling Data Set (Final) 2 months before Configuration Files/PCS Displays (F) at L-4 3 months before S/W ICD (F) at L-3
88	Configuration DS (U/D)	(L-5)	Configuration Data Set (Update) - Bar Code and Serial Number Data Submit
89	SSCCD (F)	(L-6)	Space Station Configuration Control Drawings (Final) 2 months after Configuration DS (U/D S)
90	Start Complement Training	(I-6)	Start Complement Training 6 months after MITP (U/D)
91	P/L O/D	(L-6)	Payload On-Dock 1 month after LSSP Addenda (B/L) 30 days after GSR Phase III 1 month/10 working days before P/L T/O to KSC FSR Phase III complete
92	OOS (B)	(I-6)	On-Orbit Operations Summary (Basic) Submit from FR (P) 2.5 months after GR&C (B) 0.75 month after POOS (B)
93	PPD DS	(I-5.5)	Payload Procedures and Displays Data Set - ECR to Baseline Manual Procedures; Delivered Procedure/Display Files List (Update); Validation Record Report (Update); Log Files (Update); MPV Links (Update); Payload Messages (Update); Procedure Hazard Control List (Baseline) After Engineering Drawings (IPLAT Review complete) 2 months before Payload Operations Data File

TABLE 8.0-1 UNPRESSURIZED PAYLOAD MILESTONE CHRONOLOGY (PAGE 8 OF 10)

Line #	Acronym	Date (Months)	Description
94	Compatibility Analysis	(L-5)	Compatibility Analysis Submit to GL&C (F)
95	KSC TRDS Orbiter MDK to P/L OMRS, File 2, Volume 2 (P)	(L-5)	Kennedy Space Center Technical Requirements Data Set Orbiter Middeck to Payload Operations and Maintenance Requirements and Specifications, File 2, Volume 2 (Preliminary) 1 month after MDK OMRS, File 2, Volume 2 (PS) 2 months before MDK OMRS, File 2, Volume 2 (B/L)
96	LCC (B/L)	(L-5)	Launch Commit Criteria (Baseline)
97	MPLM Stowage O/D	(L-5)	Multi-Purpose Logistics Module Stowage On-Dock 1 month after payload O/D 2 weeks before MPLM Bench Review
98	P/L T/O	(L-5)	Payload Turn-Over 1 month after payload O/D KSC 1 month before payload installation into Carrier
99	SODF (F)	(I-5)	System Operations Data File (Final)
100		(L-5)	Rack Verified Loads Analysis Structural Assessment/Report
101	CoFR Call Letter	(L-5)	Certification of Flight Readiness Call Letter 5 months after CoFR Planning Letter 2 months before LPA Report 3.5 months before CoFR (S)
102	MPLM Stowage Bench Review	(L-4.5)	Multi-Purpose Logistics Module Stowage Bench Review
103	KSC TRDS (PS) Orbiter MDK to P/L TGHR Table	(L-4.5)	Kennedy Space Center Technical Requirements Data Set (Preliminary Submit) Orbiter Middeck to Payload Time-critical Ground Handling Requirements Table 9.5 months after PIA Addenda (U/D) 0.5 month before Orbiter MDK TGHR table (P)
104	P/L Planning DS (F)	(I-4.25)	Payload Planning Data Set (Final)
105	CEIT	(L-4)	Crew Equipment Interface Test Before Cargo Bay/Carrier installation
106	KSC TRDS (P) Orbiter MDK to P/L TGHR Table	(L-4)	Kennedy Space Center Technical Requirements Data Set (Preliminary) Orbiter Middeck to Payload Time-critical Ground Handling Requirements Table 2 months before Orbital MDK TGHR table (B/L) 0.5 month after Orbiter MDK TGHR table (PS) 2 months before Orbiter MDK TGHR table (B/L)
107	PEI GL&C (F)	(L-4)	Payload Engineering and Integration Guidelines and Constraints (Final) Submit from Compatibility Analysis
108	P/L Configuration Files/PCS Displays (F)	(L-4)	Payload Configuration Files/Portable Computer System Displays (Final) 1 month before Final S/W ICD

TABLE 8.0-1 UNPRESSURIZED PAYLOAD MILESTONE CHRONOLOGY (PAGE 9 OF 10)

Line #	Acronym	Date (Months)	Description
109	IDRD, Annex 1 Revision B	(L-4)	Increment Definition and Requirements Document, Annex 1 Revision B 2 months after IDRD, Annex 1 Revision A
110	ATDR	(L-4)	Acoustics Test Data Report 2 months after compatibility analysis
111		(L-3.5)	Payload Verification Data (Submit) - See Appendix D
112	PPD DS Procedures (B/L)	(I-3.5)	Payload Procedures and Displays Data Set Procedures (Baseline) 2.5 months after PPD DS (FS)
113	PODF (F)	(I-3.5)	Payload Operations Data File (Final) 2 months after PPD DS Manual Procedure ECR (and other data) (FS) 3.5 months before increment start
114	GR&C (F)	(I-3.5)	Ground Rules and Constraints (Final) 0.75 month after Planning DS (F) Submit to POOS (F) 2.5 months before OOS (F)
115	PPD DS	(L-3)	Payload Procedures and Displays Data Set - Ground Command Procedures (Final) 6 months after Ground Command Procedures (P) 3 months before launch This is a POIF product
116	S/W ICD (F)	(L-3)	Software Interface Control Document (F)
117	JMST	(I-3)	Joint Multi-Segment Station Training 3 months after Start Complement Training
118	Training DS (F) GSP	(I-3)	Training Data Set (Final) Ground Support Personnel 6 months after Training DS GSP (S) 1.5 months before P/L CoFR (S)
119	KSC TRDS Orbiter MDK to P/L OMRS, File 2, Volume 2 (B/L)	(L-3)	Kennedy Space Center Technical Requirements Data Set Orbiter Middeck to Payload Operation and Maintenance Requirements and Specifications, File 2, Volume 2 (Baseline) 2 months after MDK OMRS, File 2, Volume 2 (P) 3 months before launch
120	LPA Report (S)	(L-12 weeks)	Launch Package Assessment Report (Submit) 1.25 months before LPA
121	PPD DS	(L-2)	Payload Procedures and Displays Data Set - Payload Data Files; Automated Procedures (Timeliner Files) 2 months before launch
122	KSC TRDS (B/L) Orbiter MDK to P/L TGHR Table	(L-2)	Kennedy Space Center Technical Requirements Data Set (Baseline) Orbiter Middeck to Payload Time-critical Ground Handling Requirements Table 2 months after Orbiter MDK TGHR table (P) 2 months before launch

TABLE 8.0-1 UNPRESSURIZED PAYLOAD MILESTONE CHRONOLOGY (PAGE 10 OF 10)

Line #	Acronym	Date (Months)	Description
123	POOS (F)	(I-2)	Payload Increment On-Orbit Operations Summary (Final) Submit from GR&C (F) 1 month before OOS (F)
124	OOS (F)	(I-1)	On-Orbit Operations Summary (Final)
125	LPA PMIT	(L-10 weeks)	Launch Package Assessment Payload Mission Integration Team 3 weeks before LPA
126	MDK Stowage O/D (JSC)	(L-1.75)	Middeck Stowage On-Dock (Johnson Space Center)
127	LPA	(L-7 weeks)	Launch Package Assessment 3 weeks after LPA PMIT
128	CoFR (S)	(L-6 weeks)	Certification of Flight Readiness (Submit) 2.5 weeks before SORR
129	MBR (JSC)	(L-1)	Middeck Bench Review (Johnson Space Center)
130	CoFR MPCB	(L-4 weeks)	Certification of Flight Readiness Multilateral Payload Control Board 1 week before SORR
131	MDK Stowage Ship to (KSC)	(L-1)	Middeck Stowage Ship to (Kennedy Space Center)
132	SORR	(L-3.5 weeks)	Stage Operations Readiness Review 2.5 weeks after CoFR (S)
133	MDK O/D KSC (Standard Installation)	(L-22 days)	Middeck On-Dock Kennedy Space Center (Standard Installation) Approximately 10 working days before MDK T/O KSC for launch
134	MDK O/D KSC (Late Installation)	(L-15 days)	Middeck On-Dock Kennedy Space Center (Late Installation) Approximately 10 working days before MDK T/O KSC for launch
135	MDK T/O KSC (Standard Installation)	(L-8 days)	Middeck Turn-Over Kennedy Space Center (Standard Installation) Approximately 7 working days after MDK O/D KSC 8 days before launch
136	MDK T/O KSC (Late Installation)	(L-3 days)	Middeck Turn-Over Kennedy Space Center (Late Installation) Approximately 10 working days after MDK O/D KSC 3 days before launch
137	PIR #1	(Increment Complete +2 days)	Post-Increment Review Number 1
138	PIR #2	(Increment Complete +6 weeks)	Post-Increment Review Number 2

9.0 EXPRESS PALLET <TBD 9-1>

10.0 JAPANESE EXPERIMENT MODULE - EXPOSED FACILITY PAYLOADS <TBD 10-1>

11.0 WINDOW OBSERVATIONAL RESEARCH FACILITY PAYLOADS INTEGRATION MANAGER SCHEDULE <TBD 11-1>

12.0 COLUMBUS EXPOSED FACILITY PAYLOADS INTEGRATION MANAGER SCHEDULE <TBD 12-1>

13.0 PAYLOAD INTEGRATION AGREEMENT AND PAYLOAD DATA SET LOGIC FLOWS

Figure 13.0-1 depicts the high-level logic flow for the Payload Integration Agreement (PIA) and the PIA Addenda.

Figures 13.0-2 through 13.0-14 depict high-level flows of information starting with the Data Set (DS) submits made by the PD through to the ISS Program-level milestones required for flight. The specific payload DS requirements are detailed in SSP 52000-PDS, Payload Data Sets Blank Book.

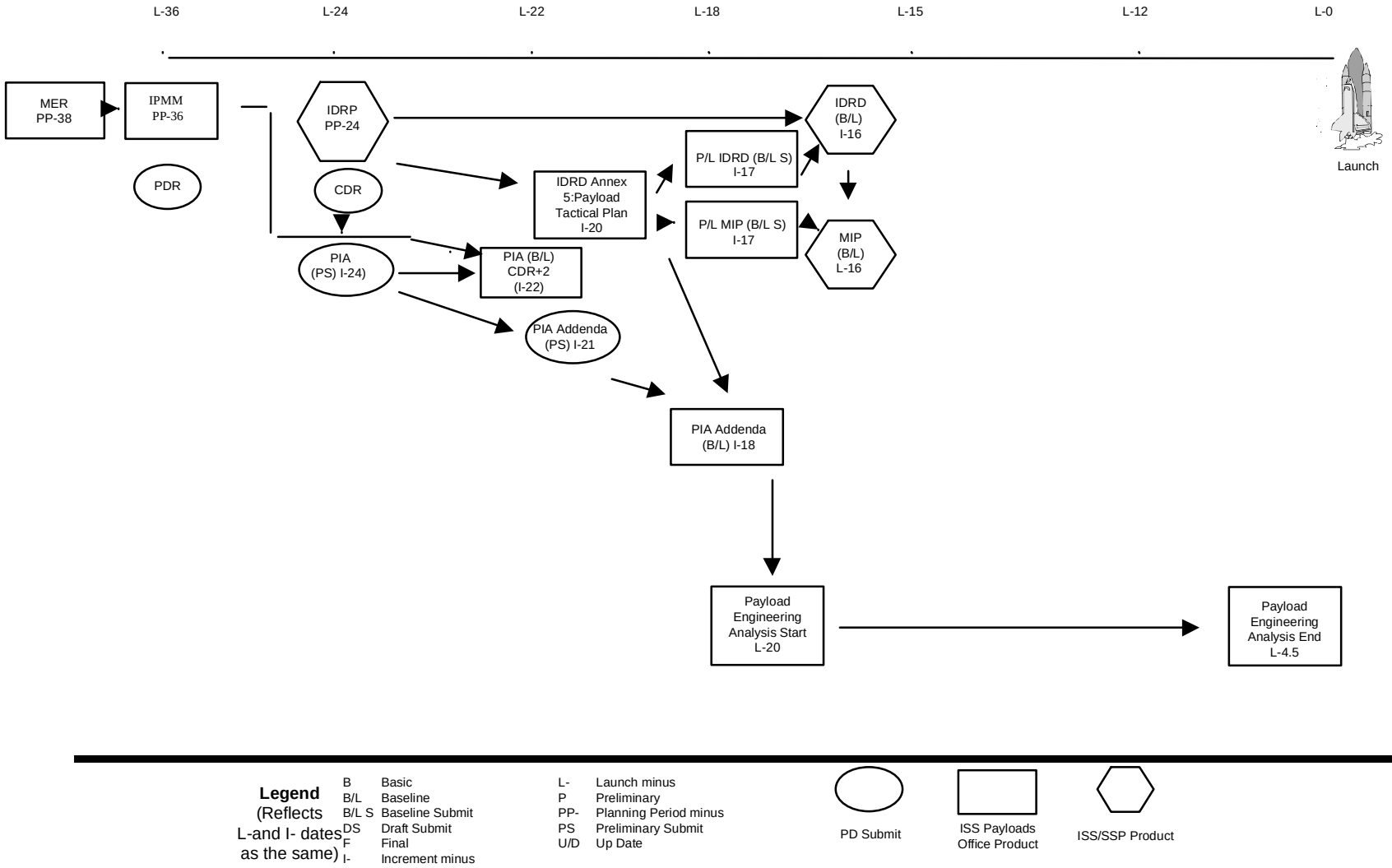
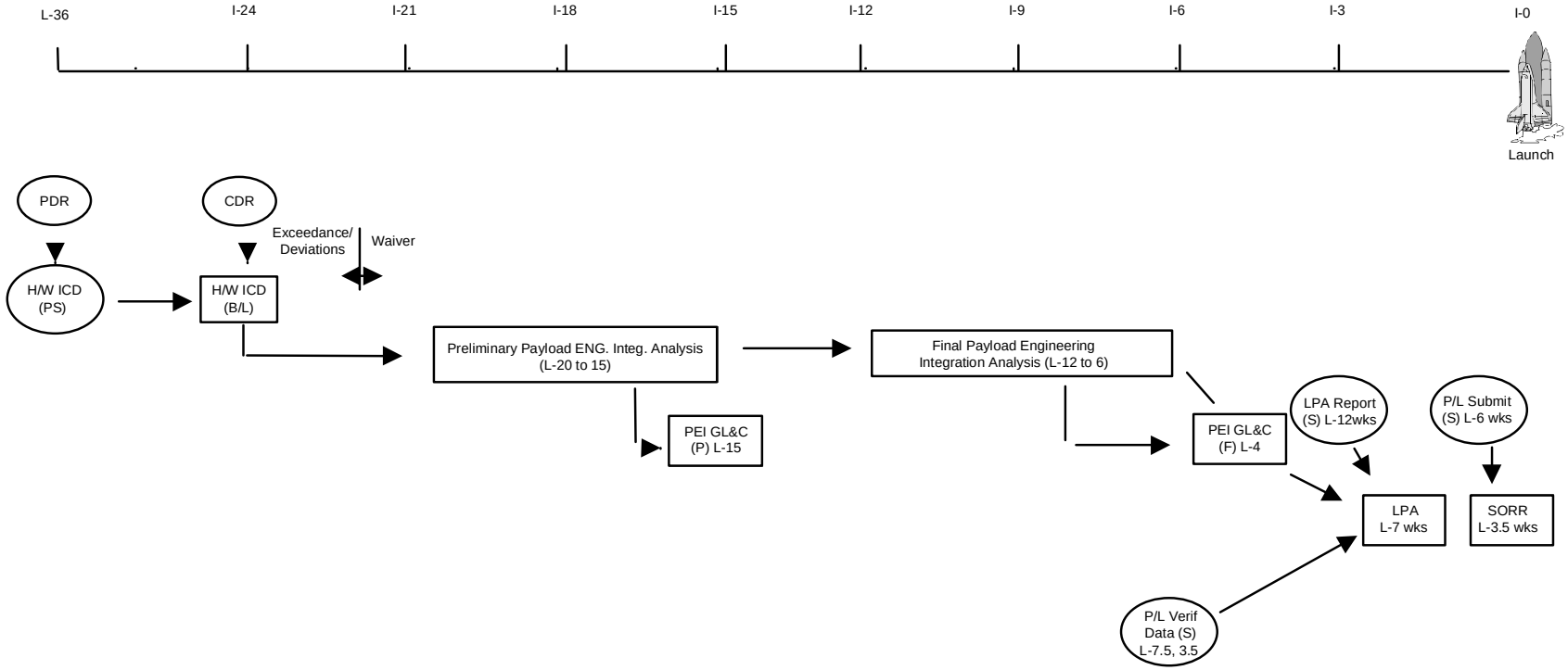


FIGURE 13.0-1 PAYLOAD INTEGRATION AGREEMENT FLOW



Legend (Reflects L-and I- dates as the same)

B	Basic
B/L	Baseline
B/L S	Baseline Submit
DS	Draft Submit
F	Final
I-	Increment minus
L-	Launch minus
P	Preliminary
PP-	Planning Period minus
PS	Preliminary Submit
U/D	Up Date

PD Submit

ISS Payloads Office Product

ISS/SSP Product

FIGURE 13.0-2 INTERFACE CONTROL DOCUMENT FLOW

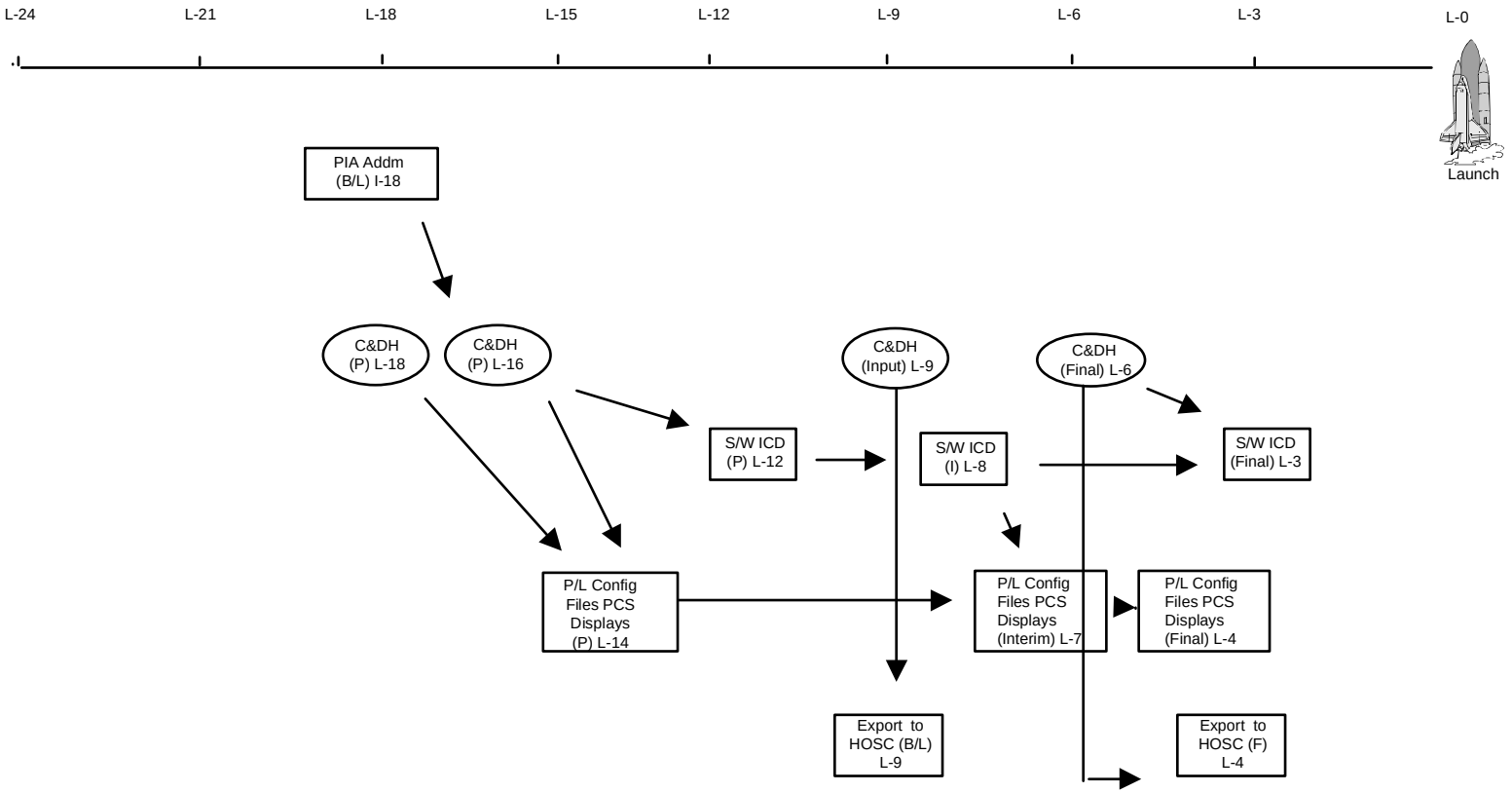


FIGURE 13.0-3 SOFTWARE INTERFACE CONTROL DOCUMENT FLOW

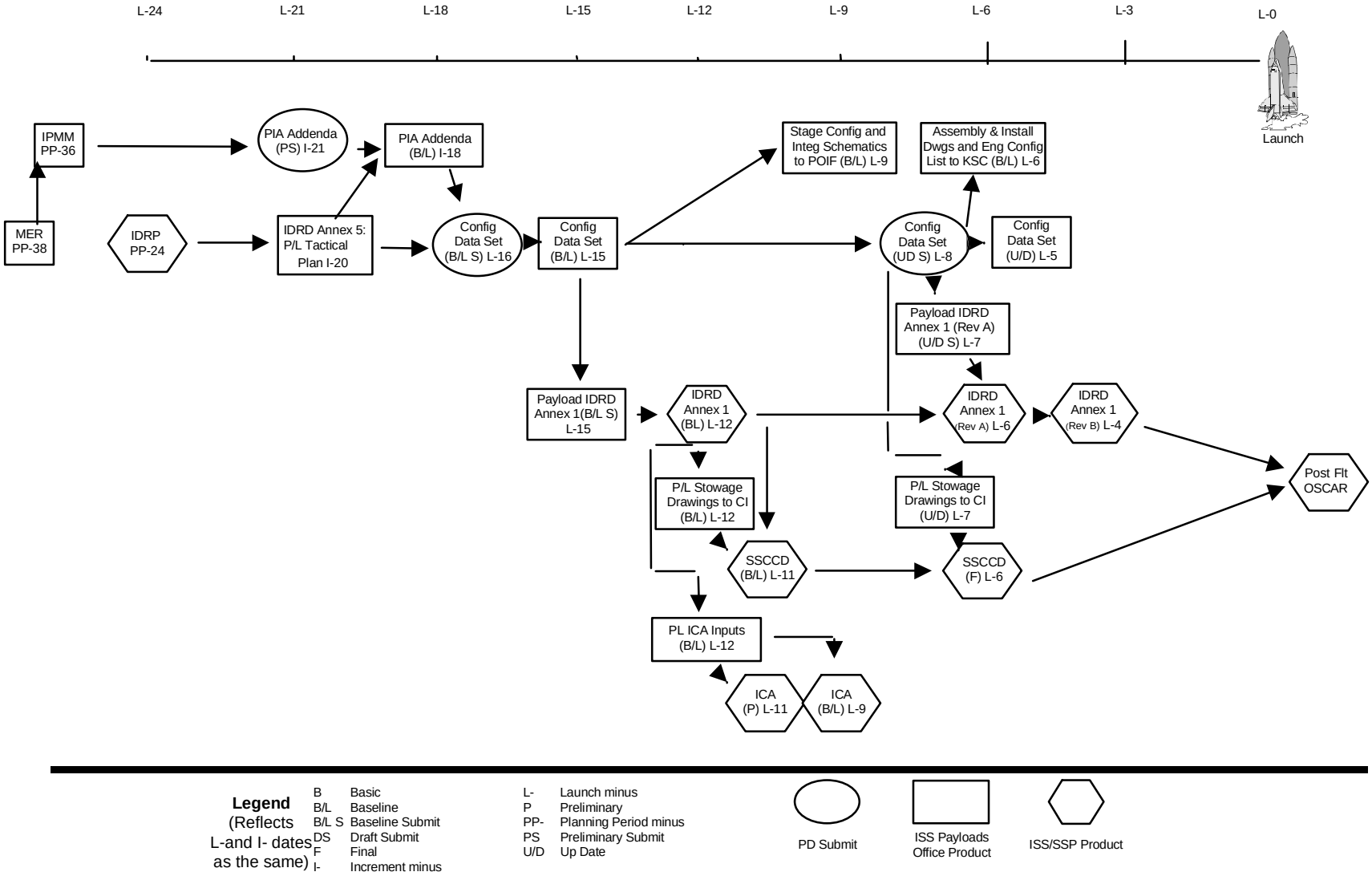


FIGURE 13.0-4 CONFIGURATION DATA SET FLOW

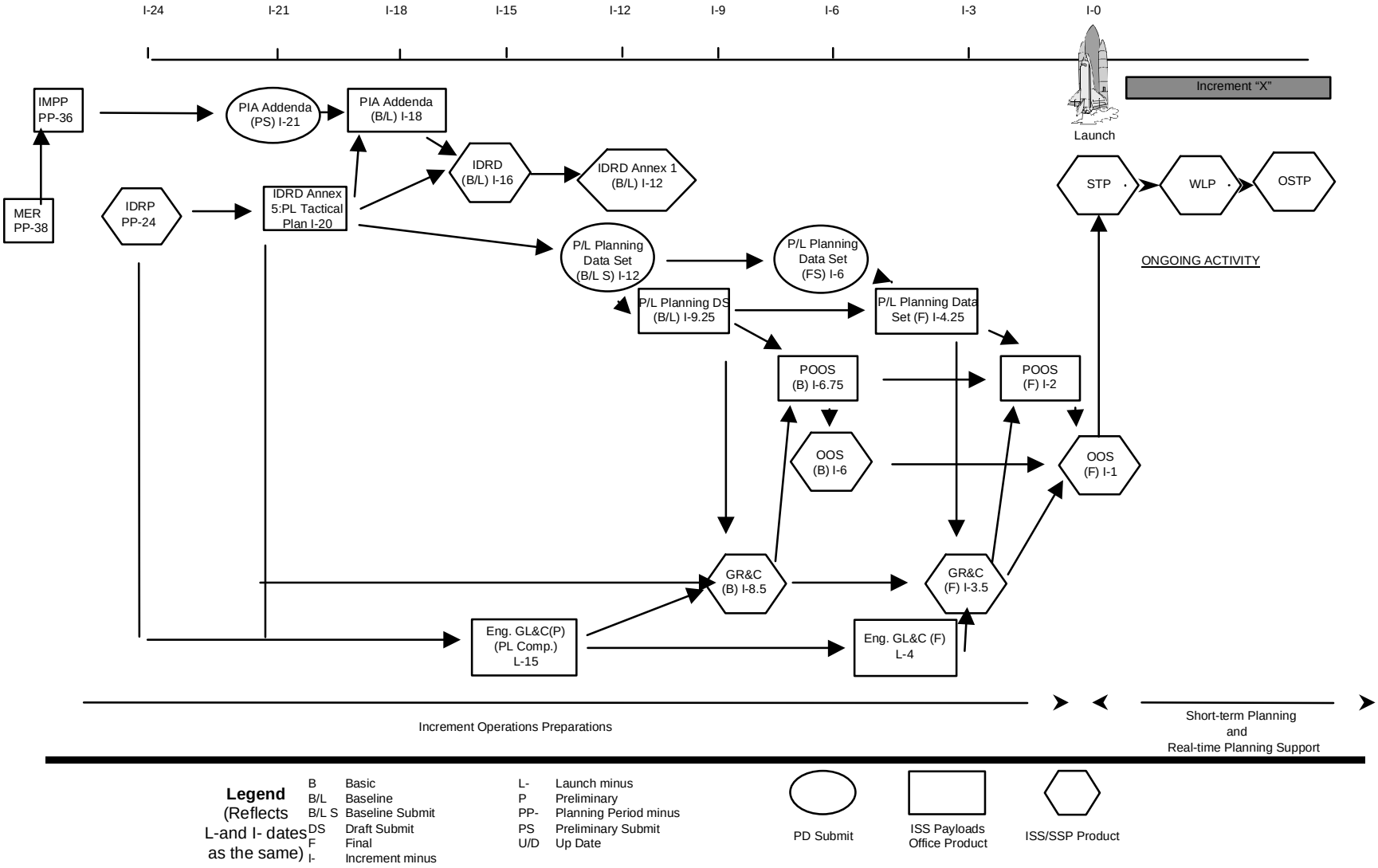
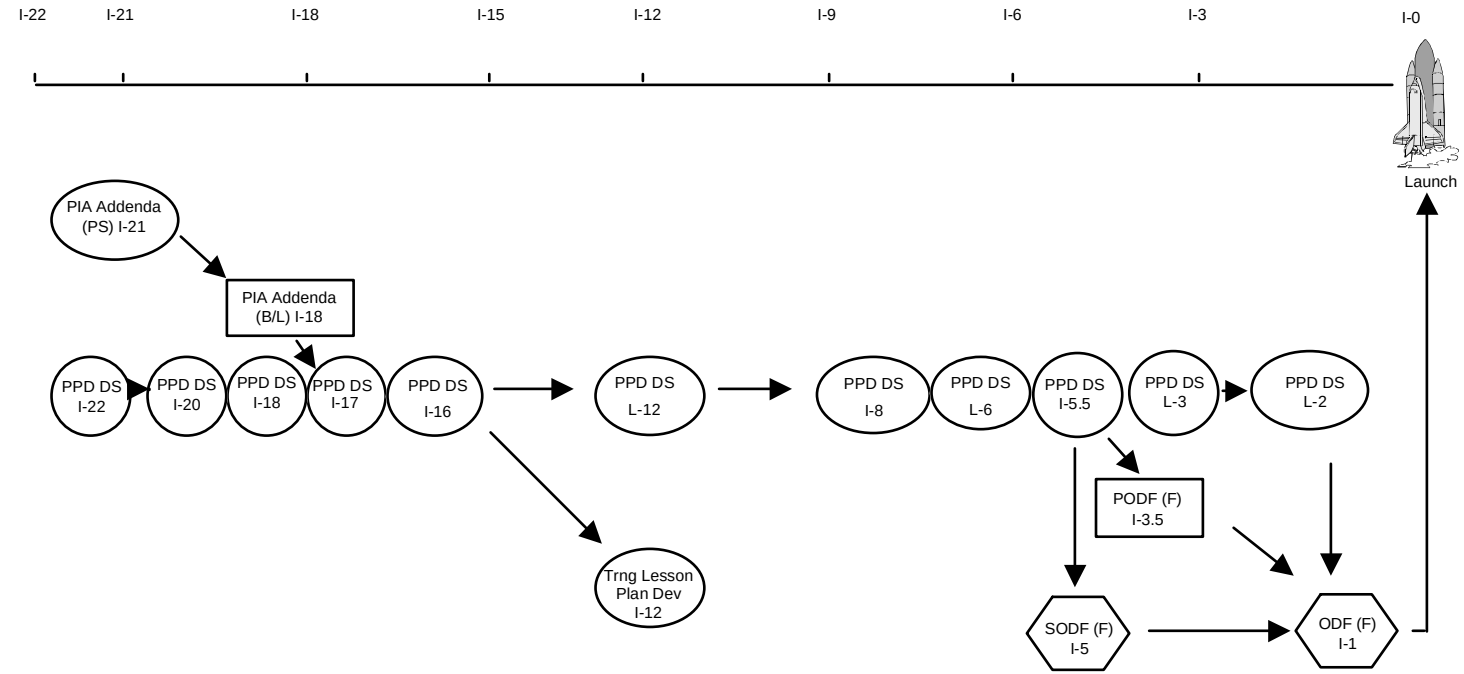


FIGURE 13.0-5 PAYLOAD PLANNING DATA SET FLOW



Legend (Reflects L-and I- dates as the same)

B	Basic
B/L	Baseline
B/L S	Baseline Submit
DS	Draft Submit
F	Final
I-	Increment minus
L-	Launch minus
P	Preliminary
PP-	Planning Period minus
PS	Preliminary Submit
U/D	Up Date

PD Submit

ISS Payloads Office Product

ISS/SSP Product

FIGURE 13.0-6 PAYLOAD PROCEDURES AND DISPLAYS DATA SET FLOW

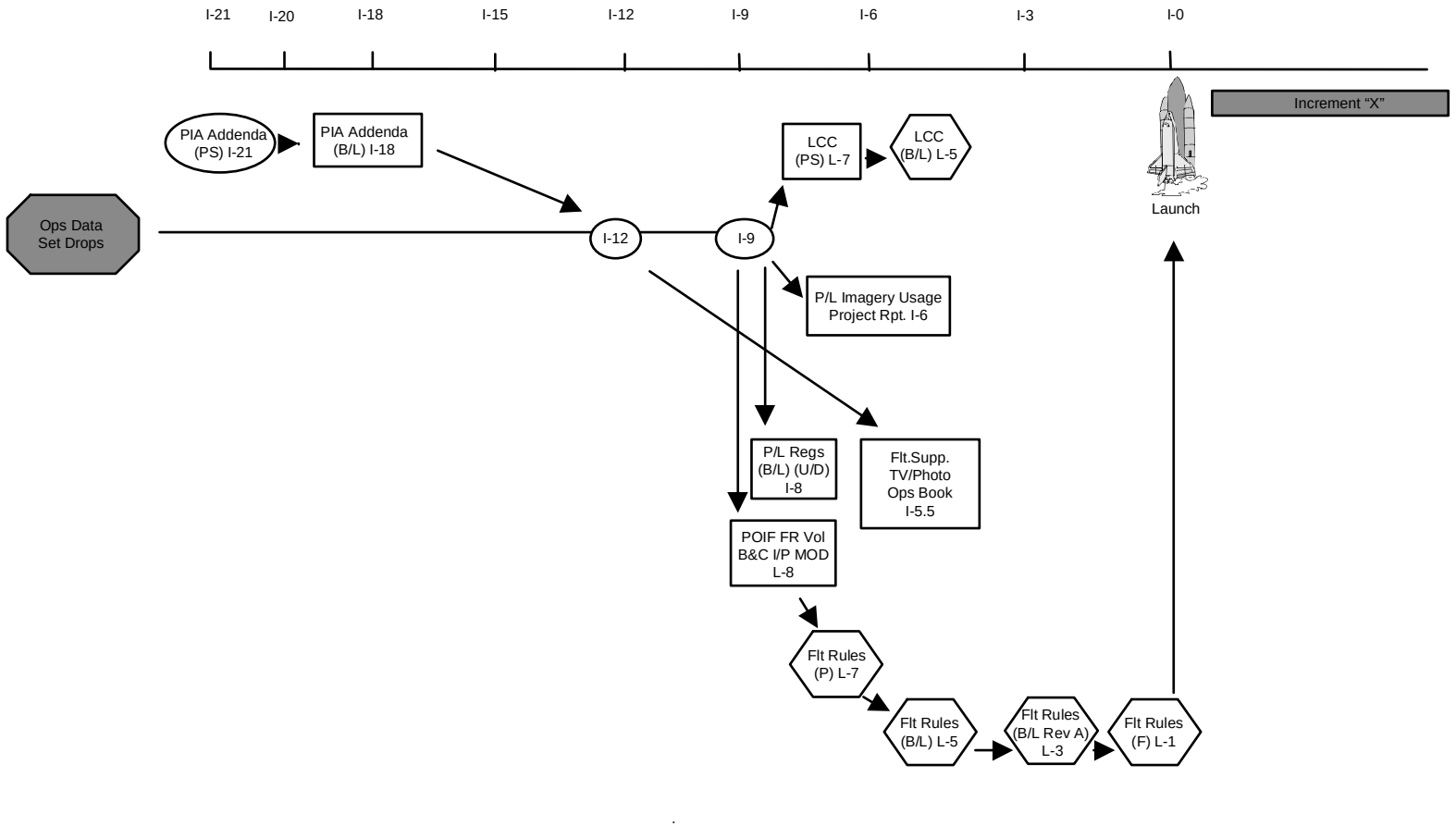


FIGURE 13.0-7 PAYLOAD OPERATIONS DATA SET FLOW

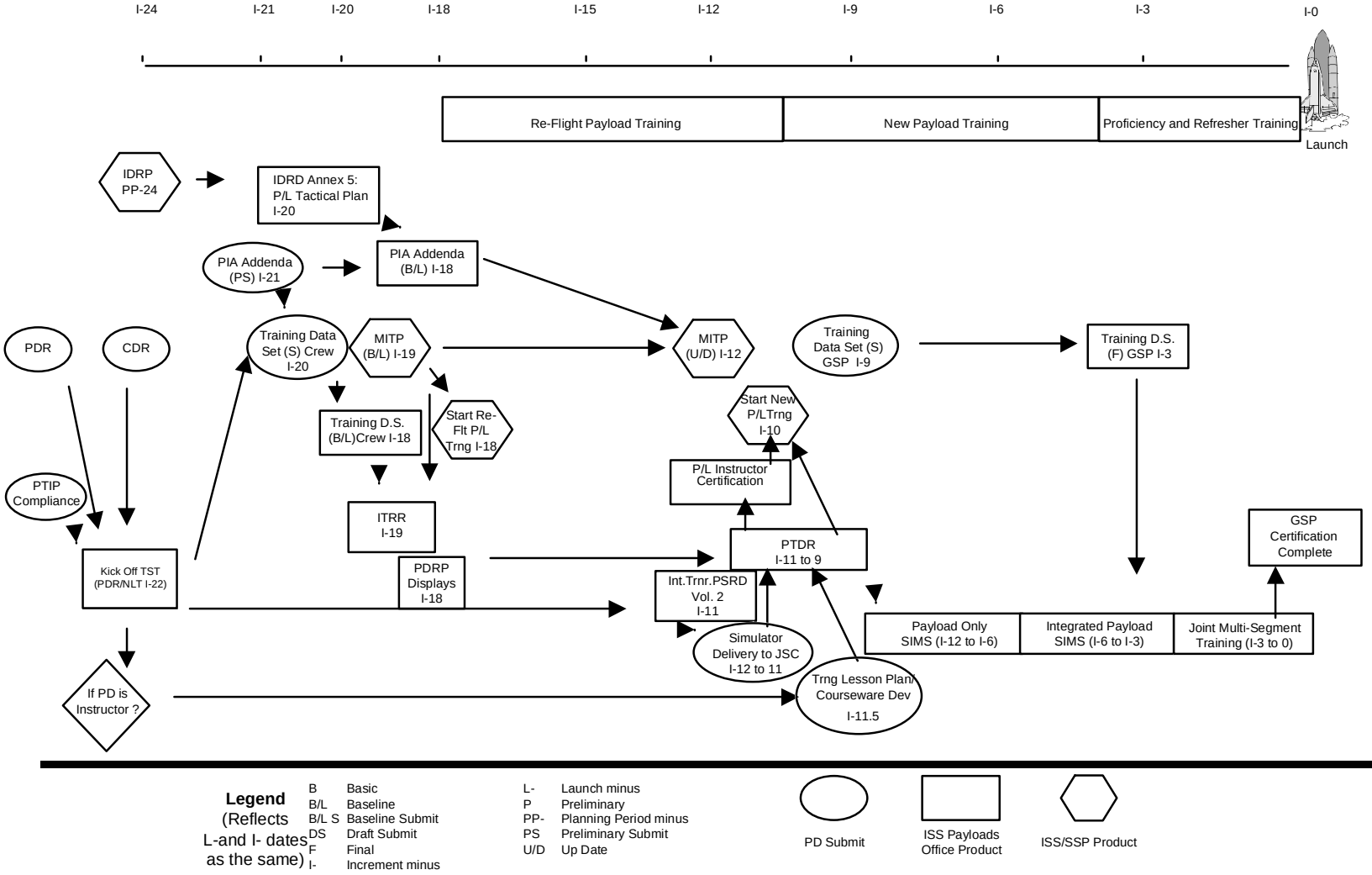


FIGURE 13.0-8 PAYLOAD TRAINING DATA SET FLOW

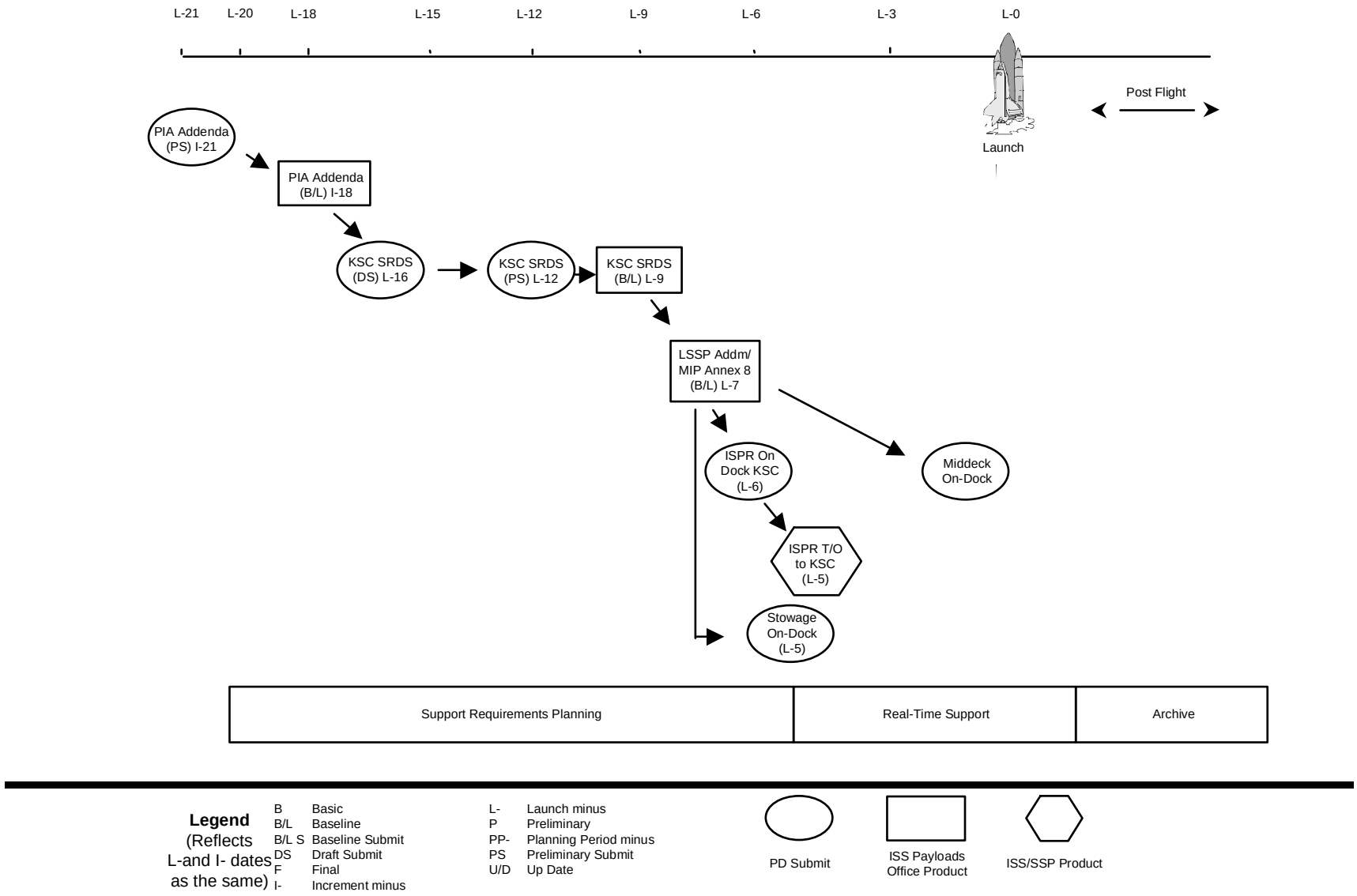


FIGURE 13.0-9 KSC SUPPORT REQUIREMENTS DATA SET FLOW

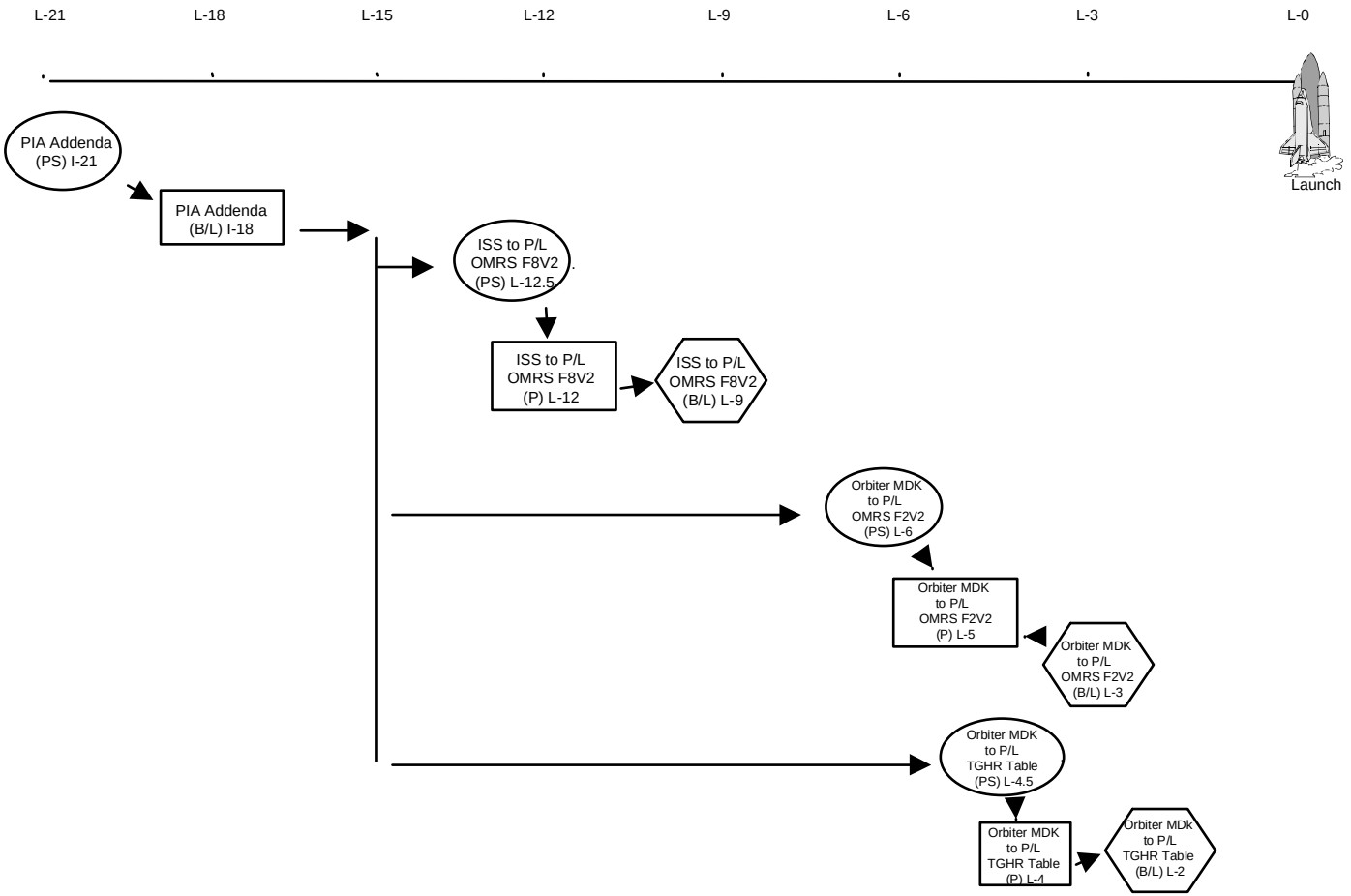
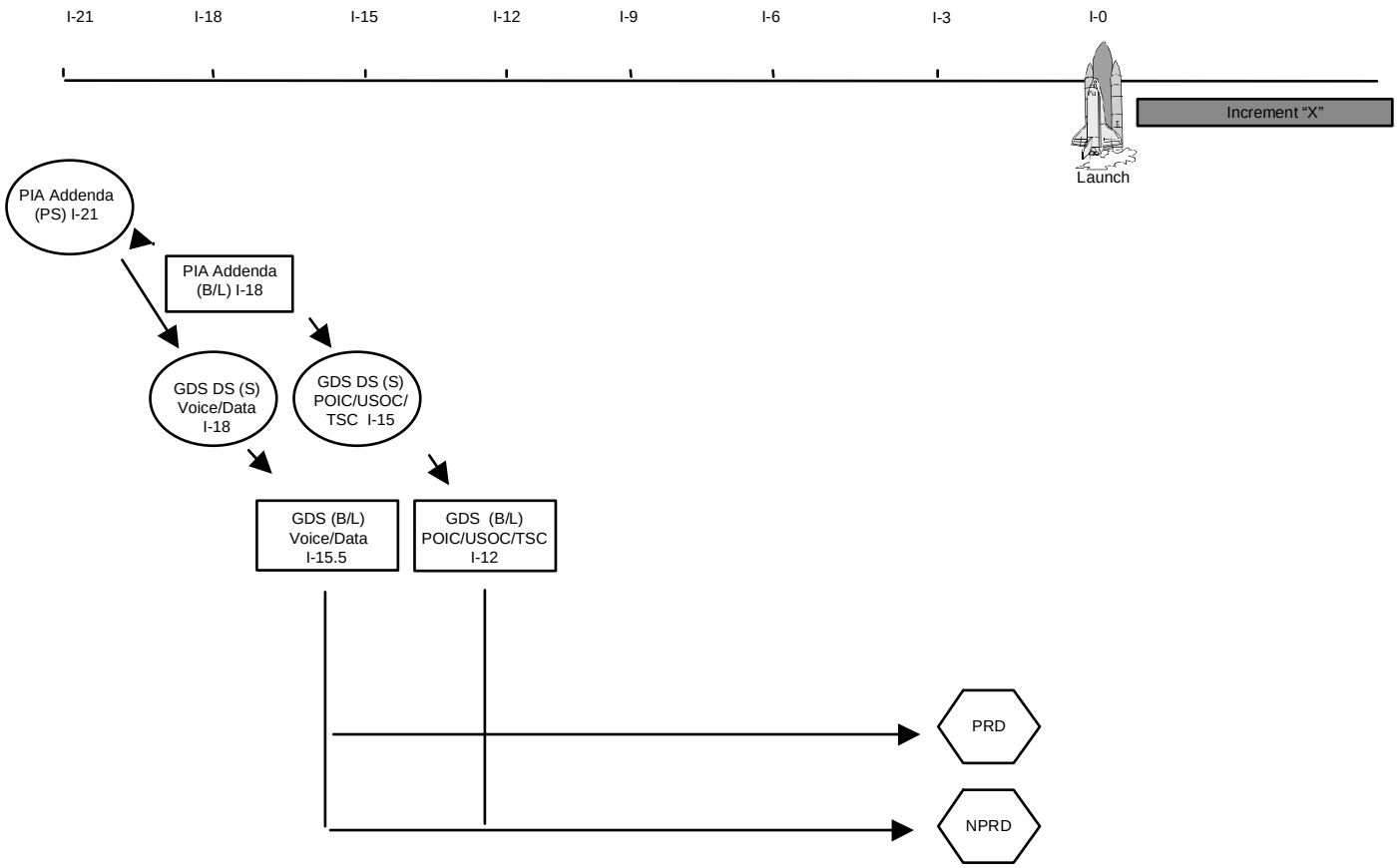


FIGURE 13.0-10 KSC TECHNICAL REQUIREMENTS DATA SET FLOW



Legend (Reflects L-and I- dates as the same)

B	Basic
B/L	Baseline
B/L S	Baseline Submit
DS	Draft Submit
F	Final
I-	Increment minus
L-	Launch minus
P	Preliminary
PP-	Planning Period minus
PS	Preliminary Submit
U/D	Up Date

PD Submit

ISS Payloads Office Product

ISS/SSP Product

FIGURE 13.0-11 PAYLOAD GROUND DATA SERVICES DATA SET FLOW

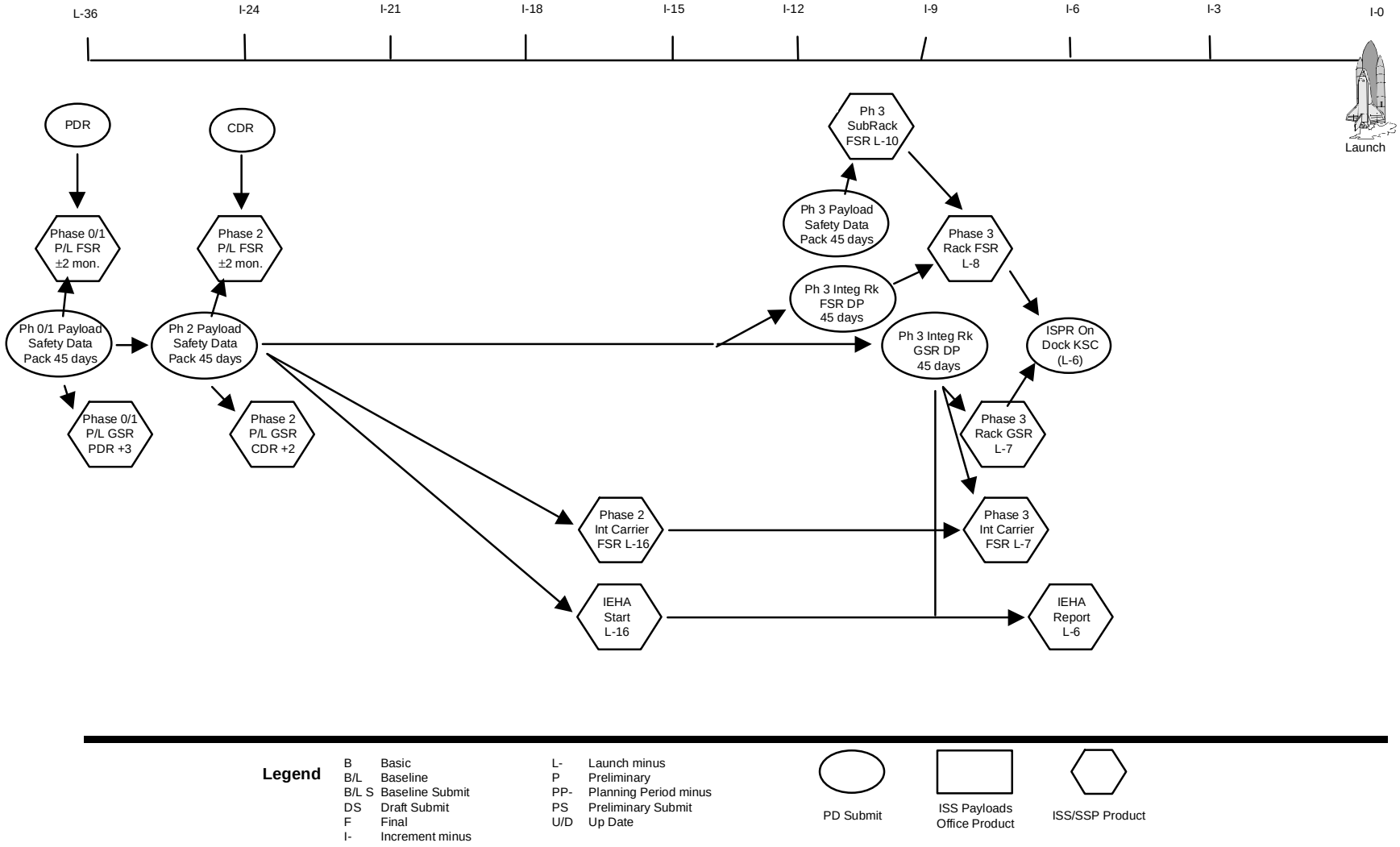


FIGURE 13.0-12 PAYLOAD SAFETY DATA SET FLOW

FIGURE 13.0-13 EXTRAVEHICULAR ACTIVITY DATA FLOW <TBD 13-1>

FIGURE 13.0-14 EXTRAVEHICULAR ROBOTICS DATA FLOW <TBD 13-2>

14.0 PAYLOAD MISSION INTEGRATION TEAM SCHEDULE DESCRIPTIONS

This section defines the different types of PIM schedules.

14.1 PAYLOAD INTEGRATION MANAGER SCHEDULE

Figure 18.1-1, Generic PIM Schedule, is the payload integration schedule with the lowest level of detail. It shows the flow from the PD to the Payload Office Need Date to the Payload Office Product to be delivered to feed the ISS/SSP Program Milestones. This is a payload-specific schedule, and as the Payload remains on-orbit, the schedule will grow to include continuing integration milestones.

14.2 PAYLOAD MISSION INTEGRATION TEAM SCHEDULE

Figure 18.2-1, Generic PMIT Schedule, is the summary-level payload integration schedule. It shows the flow from the PD to the Payload Office Need Date to the Payload Office Product to be delivered to feed the ISS/SSP Program Milestones. This is a flight-specific scheduling tool utilized by the IPM and FPM to provide a weekly status at the Payload Mission Integration Team (PMIT) meeting.

14.3 EXPRESS PAYLOAD INTEGRATION MANAGER SCHEDULE <TBD 14-3>

14.4 SMALL PAYLOAD INTEGRATION MANAGER SCHEDULE

Figure 18.4-1, Small Payload Integration Manager Schedule, is the payload integration schedule with the lowest level of detail. It shows the flow from the PD to the Payload Office Need Date to the Payload Office Product to be delivered to feed the ISS/SSP Program Milestones. This is a payload-specific schedule, and as the Payload remains on-orbit, the schedule will grow to include continuing integration milestones.

14.5 UNPRESSURIZED-PAYLOAD INTEGRATION MANAGER SCHEDULE

Figure 18.5-1, Unpressurized Payload Integration Manager Schedule, is the payload integration schedule with the lowest level of detail. It shows the flow from the PD to the Payload Office Need Date to the Payload Office Product to be delivered to feed the ISS/SSP Program Milestones. This is a payload-specific schedule, and as the Payload remains on-orbit, the schedule will grow to include continuing integration milestones.

15.0 EXPRESS PALLET INTEGRATION MANAGER SCHEDULE <TBD 15-1>

16.0 JAPANESE EXPERIMENT MODULE - EXPOSED FACILITY PAYLOADS INTEGRATION MANAGER SCHEDULE <TBD 16-1>

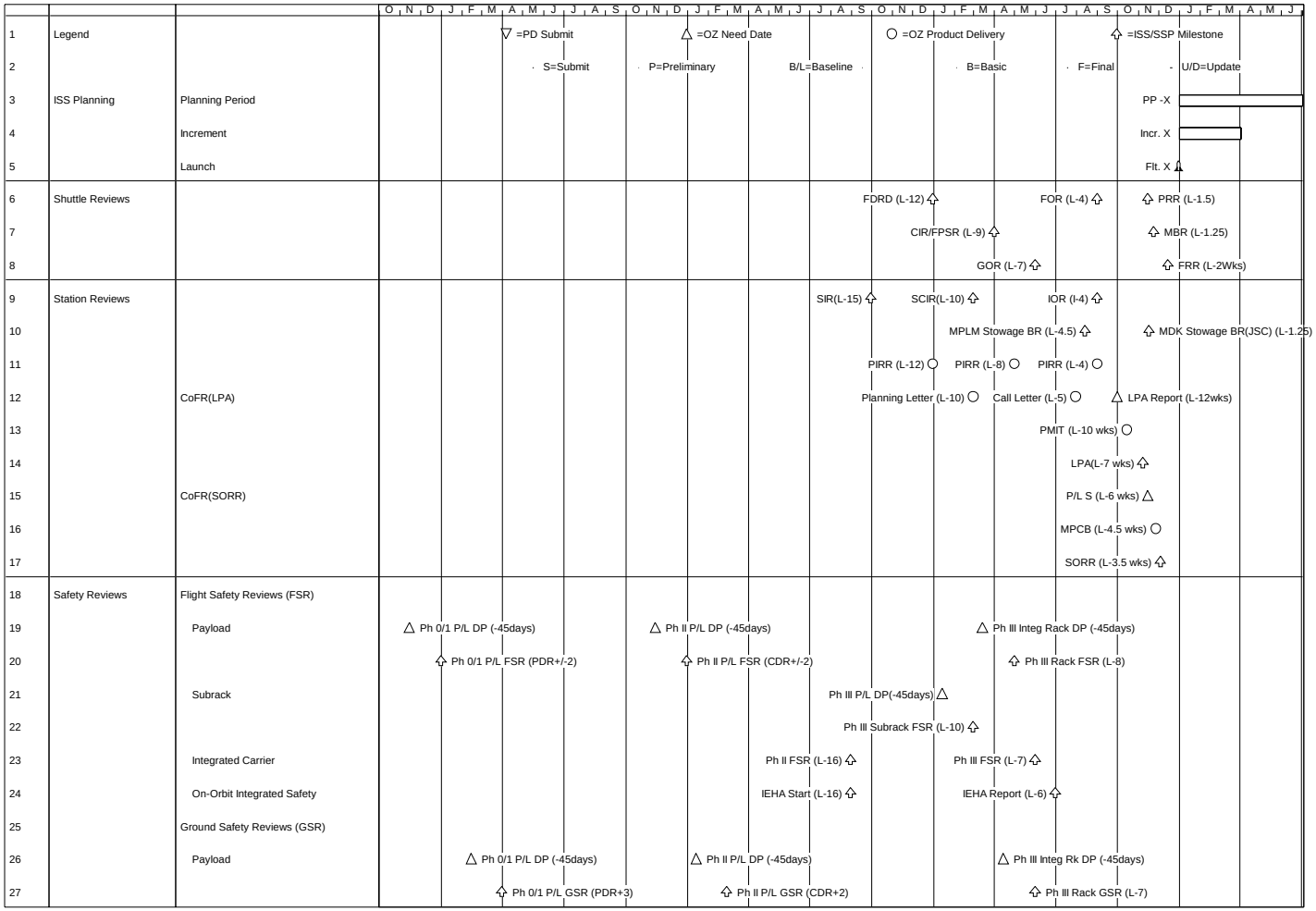
17.0 WINDOW OBSERVATIONAL RESEARCH FACILITY PAYLOAD INTEGRATION MANAGER SCHEDULE <TBD 17-1>

18.0 COLUMBUS EXPOSED FACILITY INTEGRATION MANAGER SCHEDULE <TBD 18-1>

IPT:
WBS:

Generic PIM Schedule

As of: 08/12/02
Page: 1 of 7



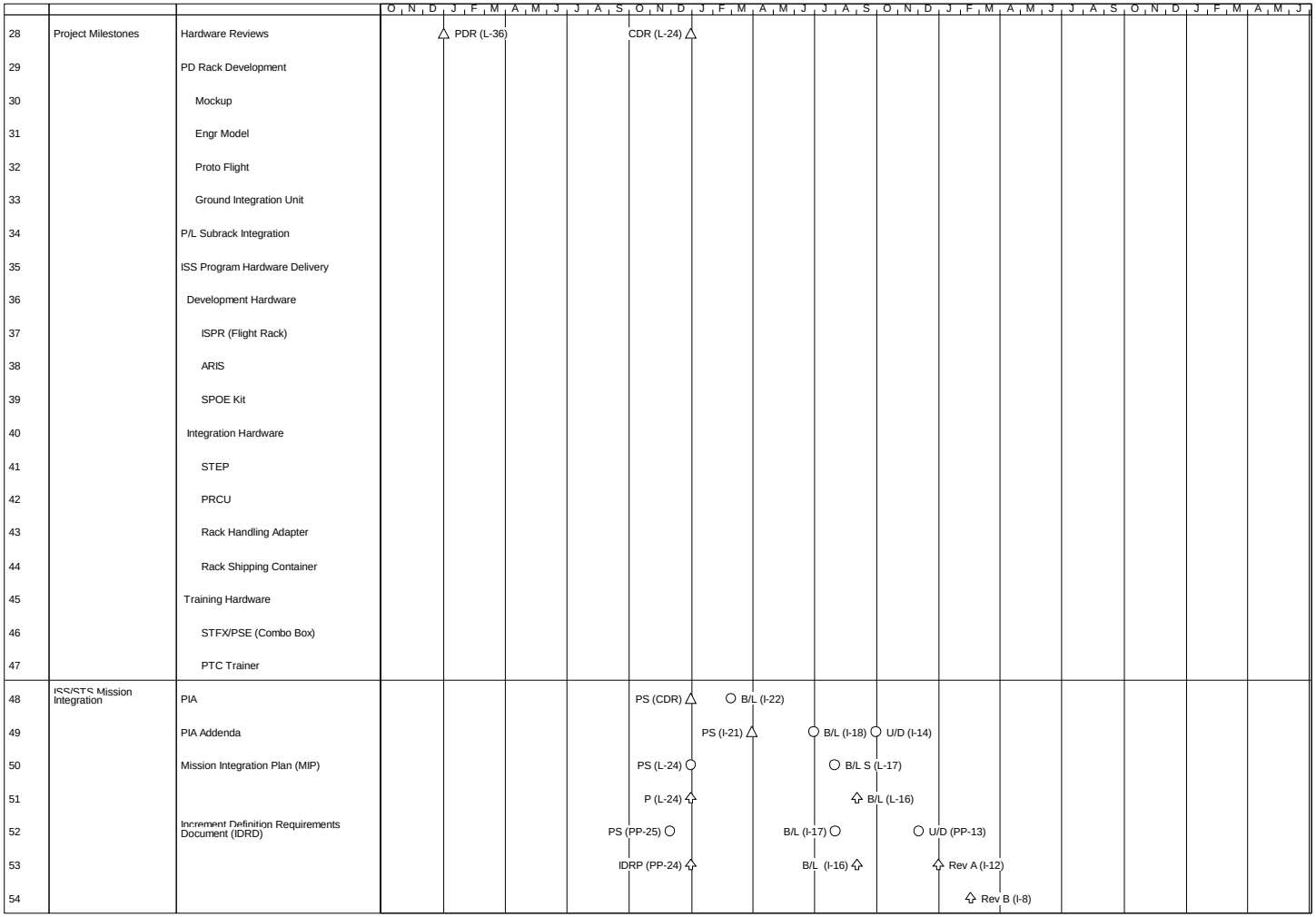
Print Date: 08/12/02
ISS Schedule Automation/Tiering Program (v P.3)
Code:

FIGURE 18.1-1 GENERIC PIM SCHEDULE (PAGE 1 OF 7)

IPT:
WBS:

Generic PIM Schedule

As of: 08/12/02
Page: 2 of 7



Print Date: 08/12/02 ISS Schedule Automation/Tiering Program (v P.3) Code:

FIGURE 18.1-1 GENERIC PIM SCHEDULE (PAGE 2 OF 7)

IPT:
WBS:

Generic PIM Schedule

As of: 08/12/02
Page: 3 of 7

O N D J F M A M J J A S O N D J F M A M J J A S O N D J F M A M J J A S O N D J F M A M J

55		IDRD Annex 5 : Payload Tactical Plan (PTP)	B/L (I-20) ○ U/D (I-17) ○
56		IDRD Annex 1	B/L S (L-15) ○ U/D S (L-7) ○
57			B/L (L-12) ⇧ Rev A (L-6) ⇧ Rev B (L-4) ⇧
58		P/L Configuration Data Set	
59		Manifest and Stowage Data	B/L S (L-16) △ U/D S (L-8) △
60		Stowage Item Drawings to CI	B/L (L-12) ○ U/D (L-7) ○
61		P/L System Schematics(FL,TH,VES,Vac Resource,Resource Gas,C&DH)	PS (L-16) △ B/LS (L-12) △
62		Integrated US Lab System Schematics	P (L-14) ○ B/L (L-9) ○
63		P/L On-Orbit Operations Configuration Drawings	PS (I-14) △ B/L S (I-8) △
64			P (I-12) ○ B/L (I-6) ○
65		Engineering Config List (ECL) for KSC	B/L S (L-8.5) △ B/L (L-6) ○
66		Assembly & Installation Drawings for KSC	B/L S (L-8.5) △
67		P/L Transfer Configuration Drawings	B/L S (L-12) △
68		ICA (MIP Annex 6)	B/L (L-11.5) ○ F (L-8.5) ⇧
69		MIP Annex 1	PS (L-24) ○ B/L S (L-18) ○
70			P (L-24) ⇧ B/L (L-16) ⇧ Final Weights S (L-4Wks) ⇧
71		Assessments/Reports	Rack Test Verified Model (L-10.5) ○ Rack VLA #2 Structural Assess/Report(L-5) ○
72	Engineering ICD	P/L Hardware ICD	PS (PDR) △ B/L (CDR) ○
73		Exceptions	Exceedance/Deviation (L-20) Waiver
74		Exception Status	Non EXPRESS (L-12) △ EXPRESS (L-10) △
75		P/L Software ICD	PS (CDR) △ B/L S (L-16) △
76			Prelim. (L-12) ○ Int. (L-8) ○ Final (L-3) ○
77		Exceptions	Exceedance/Deviation (L-16) Waiver
78		ISS Software Products	
79		P/L MDM Configuration Load Release	P (L-14) ○ Interim (L-7) ○ Final (L-4) ○
80		HOSC Delivery	L-9 ○ L-4 ○
81		Shuttle ICD (Cargo Bay)	PS (L-24) ⇧ ICD-A (B/L) (L-18)

Print Date: 08/12/02 — ISS Schedule Automation/Tiering Program (v P.3) — Code:

FIGURE 18.1-1 GENERIC PIM SCHEDULE (PAGE 3 OF 7)

IPT:
WBS:

Generic PIM Schedule

As of: 08/12/02
Page: 4 of 7

			O N D J F M A M J J A S O N D J F M A M J J A S O N D J F M A M J
82		Shuttle ICA (Middeck)	B/L (L-12)
83			S (L-11) B/L (L-9)
84	Plans/Analysis/Data	Structural	
85		P/L Verification Submits	(L-7.5) (3) (L-3.5) (3)
86		Electrical	
87		P/L Verification Submits	(L-7.5) (17) (L-3.5) (4)
88		Mechanical	
89		P/L Verification Submits	(L-7.5) (4) (L-3.5) (6)
90		Fluid dynamics	
91		P/L Verification Submits	(L-7.5) (13) (L-3.5) (1)
92		Environmental	
93		Microgravity (EN-005)	(L-7.5) (1)
94		Acoustics Emissions (EN-006)	(L-7.5) (1)
95		P/L Verification Submits	(L-7.5) (2) (L-3.5) (1)
96		MPLM	
97		P/L Verification Submits	(L-7.5) (5) (L-3.5) (6)
98		Command and Data Handling	
99		P/L Verification Submits	(L-7.5) (3) (L-3.5) (1)
100		Materials and Parts	
101		Misc. Materials and Parts COC	(L-3.5) (1)
102	Operations Integration	Ground Data Services Data Set	
103		Voice/Data	S (I-18) B/L (I-15.5)
104		POIC/USOC/TSC	S (I-15) B/L (I-12)
105		P/L Planning Data Set	B/L S (I-12) FS (I-6)
106			B/L (I-9.25) F (I-4.25)
107		Groundrules & Constraints(GR&C)	P (I-14) B (I-8.5) F (I-3.5)
108		P/L On-Orbit Operations Summary(POOS)	B (I-6.75) F (I-2)

Print Date: 08/12/02 ISS Schedule Automation/Tiering Program (v P.3) Code:

FIGURE 18.1-1 GENERIC PIM SCHEDULE (PAGE 4 OF 7)

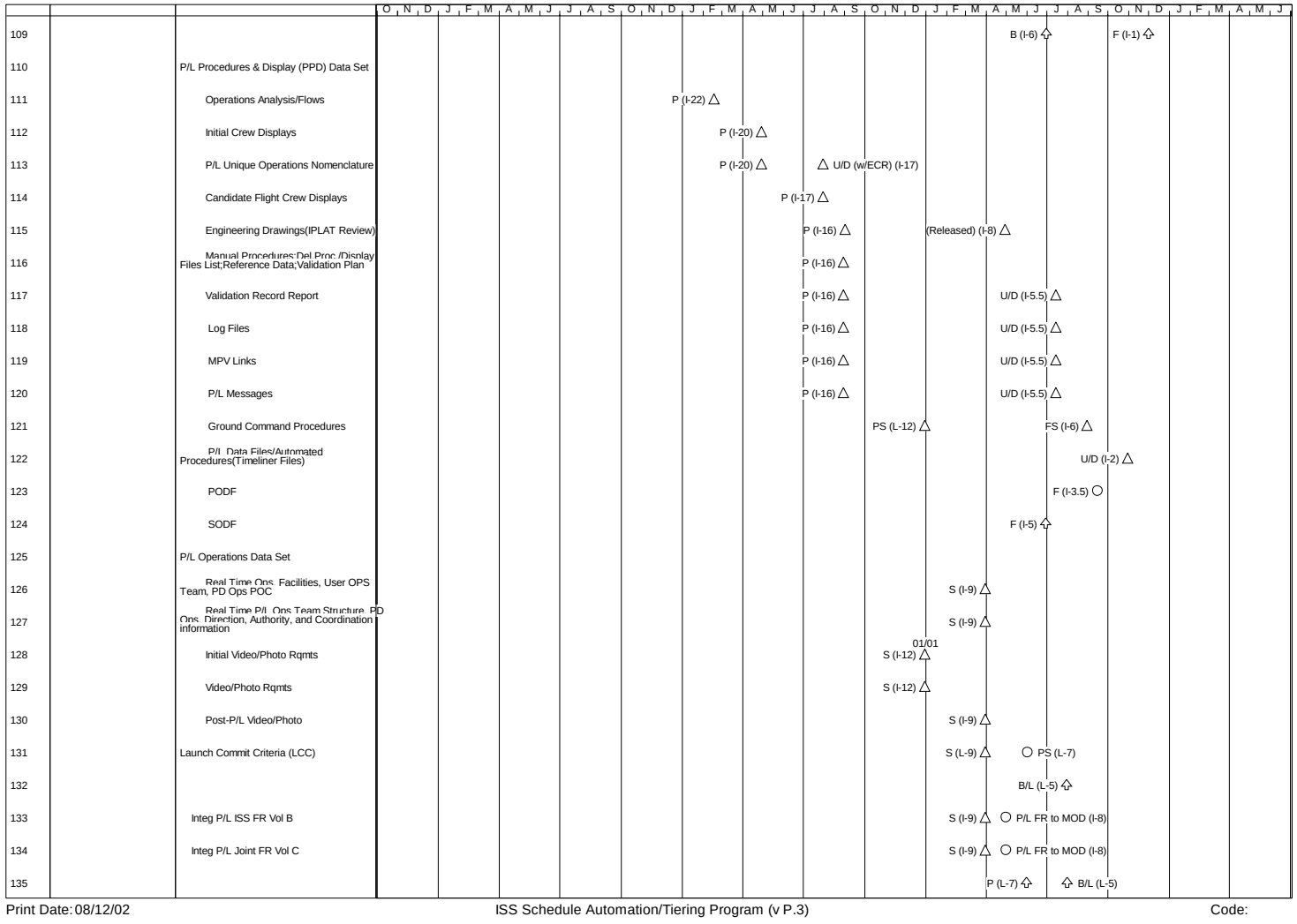
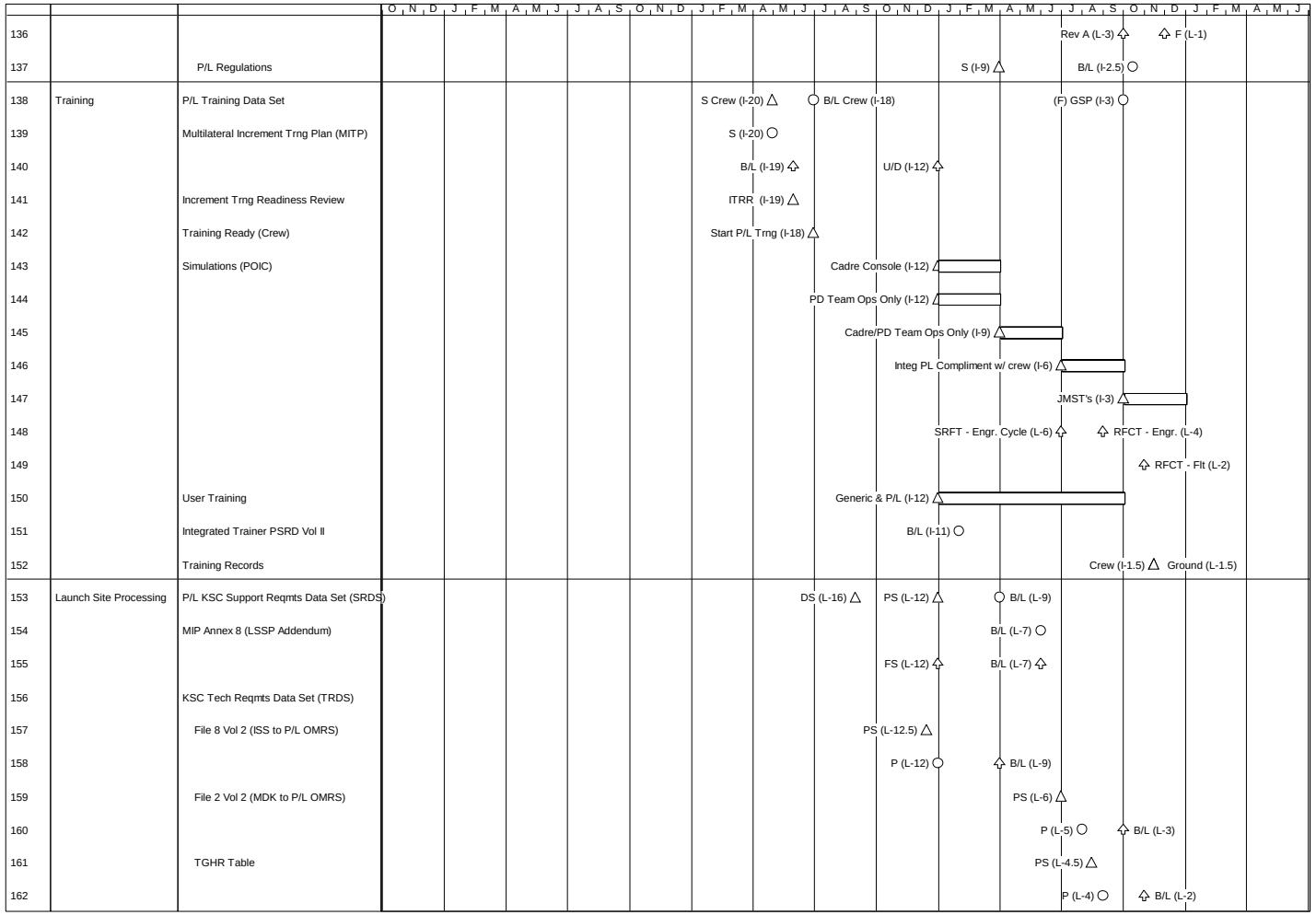


FIGURE 18.1-1 GENERIC PIM SCHEDULE (PAGE 5 OF 7)

IPT:
WBS:

Generic PIM Schedule

As of: 08/12/02
Page: 6 of 7



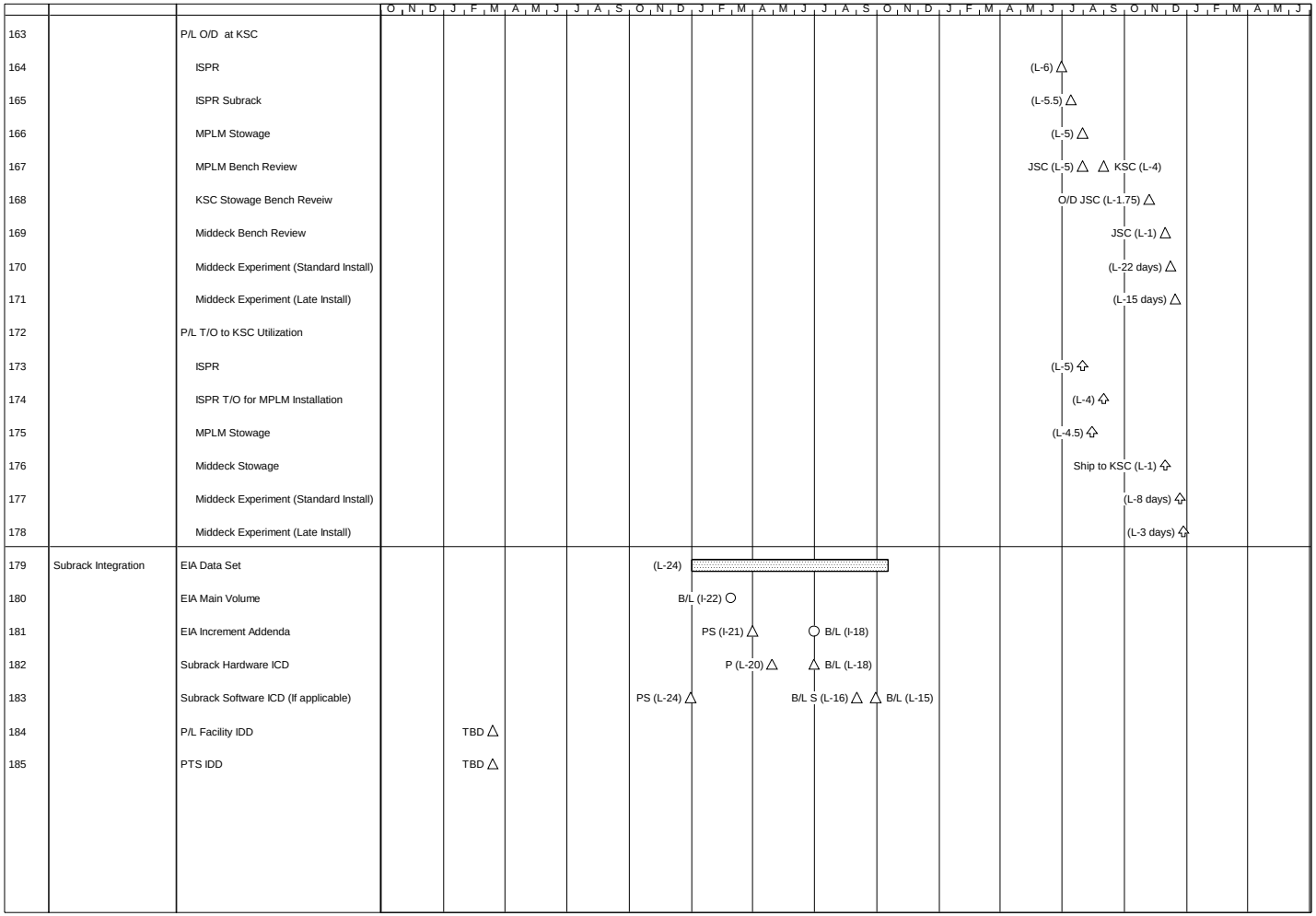
Print Date: 08/12/02 ISS Schedule Automation/Tiering Program (v P.3) Code:

FIGURE 18.1-1 GENERIC PIM SCHEDULE (PAGE 6 OF 7)

IPT:
WBS:

Generic PIM Schedule

As of: 08/12/02
Page: 7 of 7



Print Date: 08/12/02 ISS Schedule Automation/Tiering Program (v P.3) Code:

FIGURE 18.1-1 GENERIC PIM SCHEDULE (PAGE 7 OF 7)

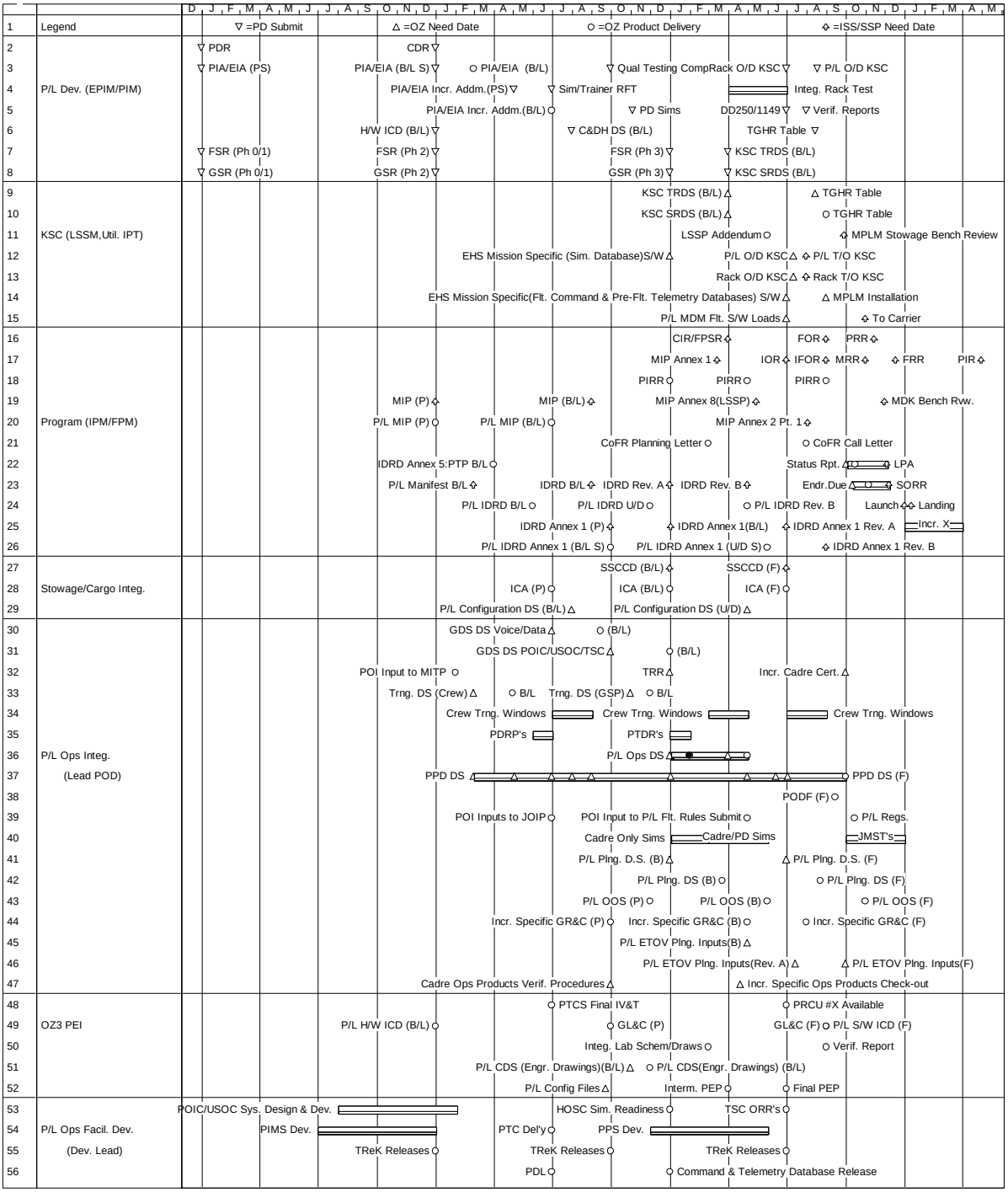
Assy Seq :

Generic PMIT Schedule

As of: 08/12/02

Crew Rotation Flt :

Page: 1 of 1



PCB Date:

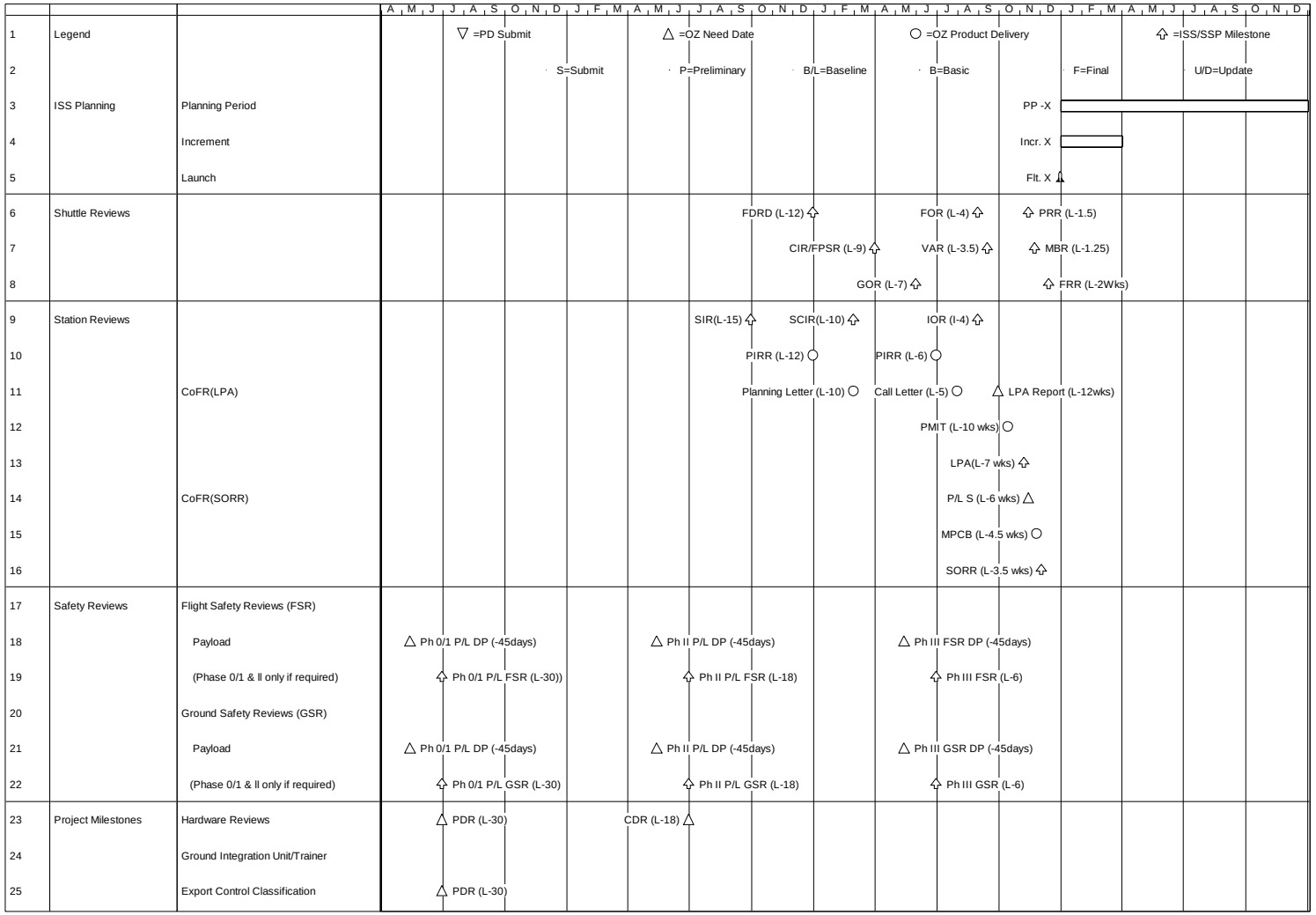
FIGURE 18.2-1 GENERIC PMIT SCHEDULE

FIGURE 18.3-1 <TBD 18-2>

IPT:
WBS:

Small P/Ls Gen. PIM Schedule

As of: 08/12/02
Page: 1 of 4



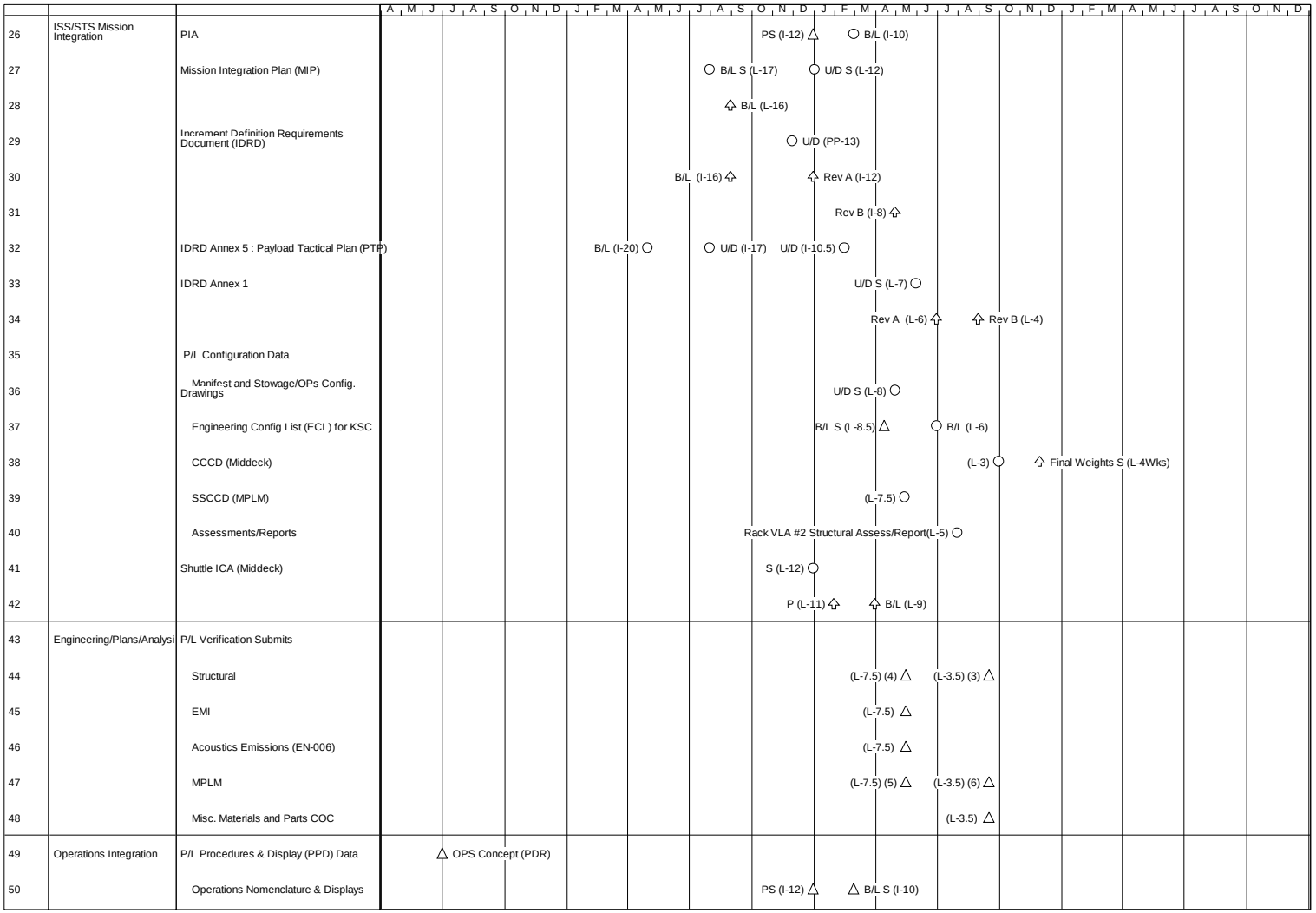
Print Date: 08/12/02 ISS Schedule Automation/Tiering Program (v P.3) Code:

FIGURE 18.4-1 SMALL PAYLOADS GENERIC PIM SCHEDULE (PAGE 1 OF 4)

IPT:
WBS:

Small P/Ls Gen. PIM Schedule

As of: 08/12/02
Page: 2 of 4



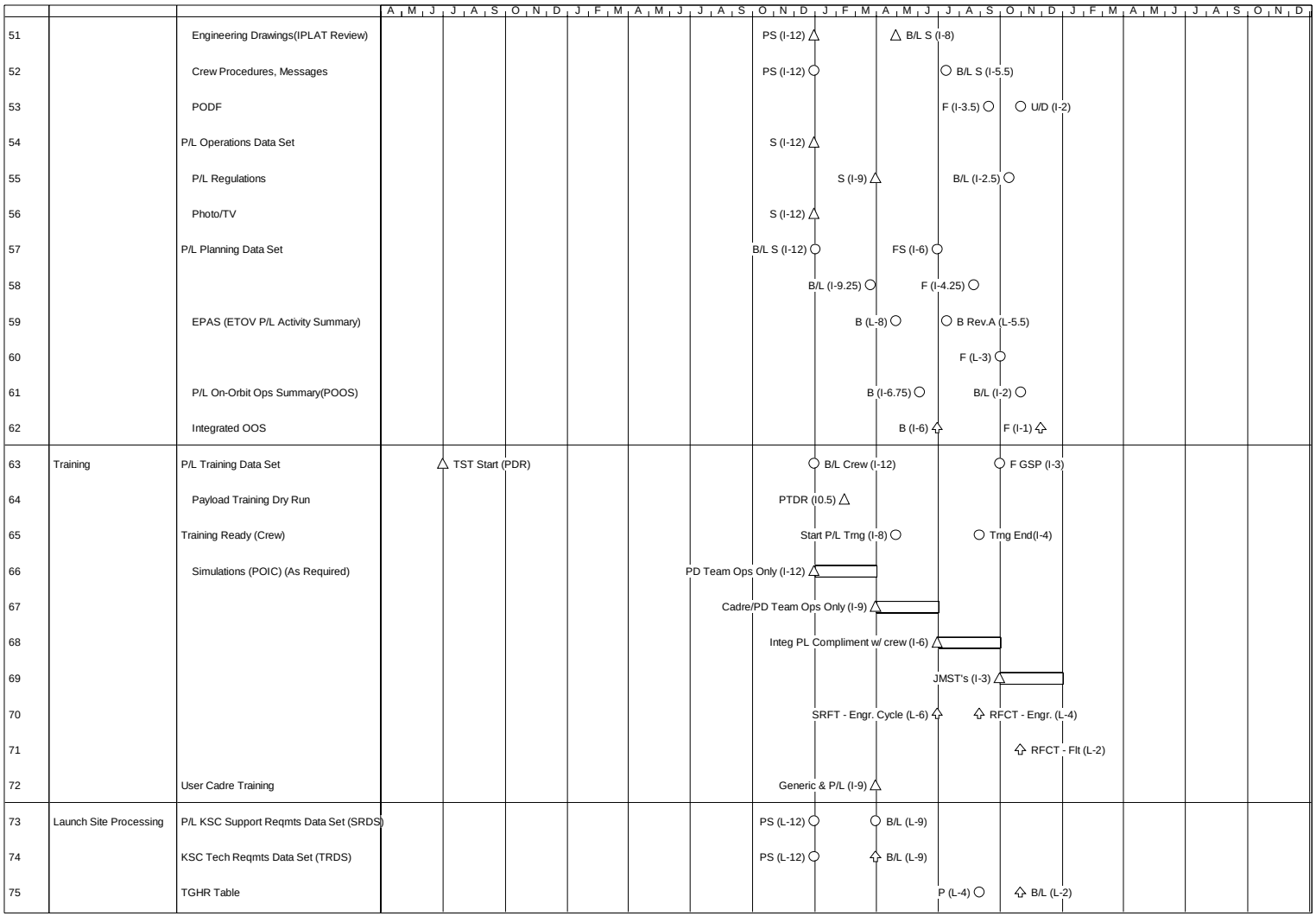
Print Date: 08/12/02 ISS Schedule Automation/Tiering Program (v P.3) Code:

FIGURE 18.4-1 SMALL PAYLOADS GENERIC PIM SCHEDULE (PAGE 2 OF 4)

IPT:
WBS:

Small P/Ls Gen. PIM Schedule

As of: 08/12/02
Page: 3 of 4



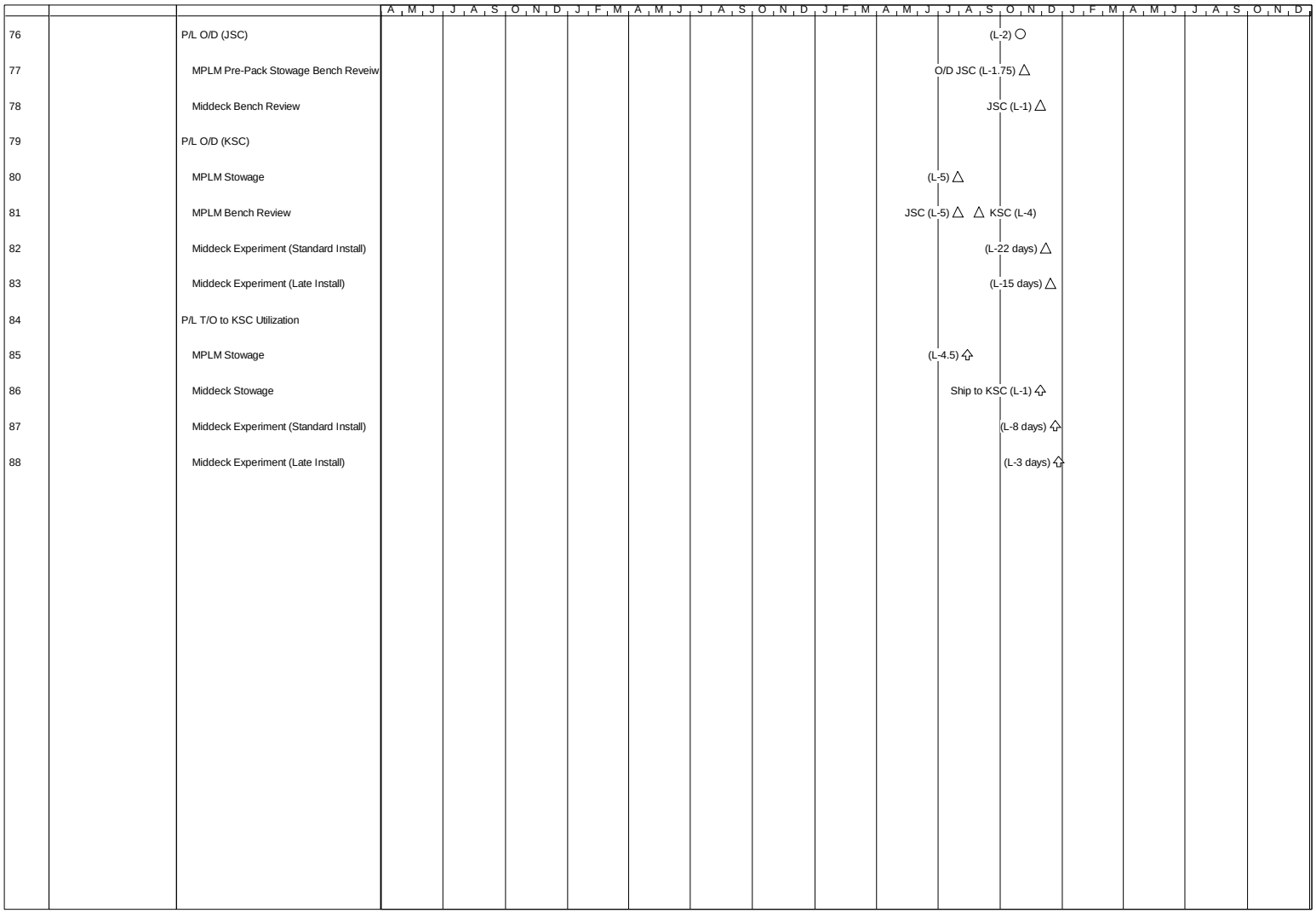
Print Date: 08/12/02 ISS Schedule Automation/Tiering Program (v P.3) Code:

FIGURE 18.4-1 SMALL PAYLOADS GENERIC PIM SCHEDULE (PAGE 3 OF 4)

IPT:
WBS:

Small P/Ls Gen. PIM Schedule

As of: 08/12/02
Page: 4 of 4



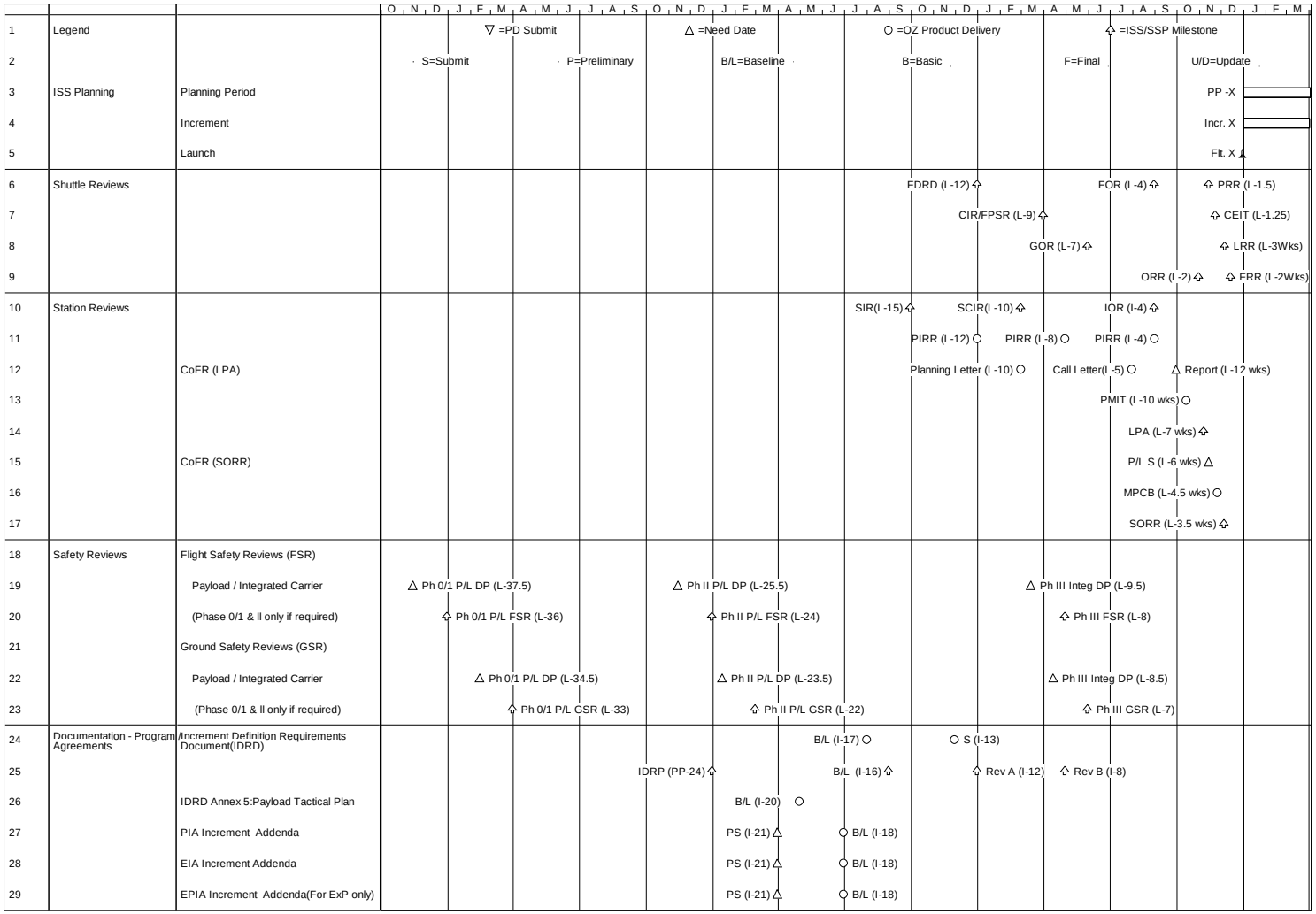
Print Date: 08/12/02 ISS Schedule Automation/Tiering Program (v P.3) Code:

FIGURE 18.4-1 SMALL PAYLOADS GENERIC PIM SCHEDULE (PAGE 4 OF 4)

IPT:
WBS:

Unpressurized Payloads
Generic PIM Schedule

As of: 08/12/02
Page: 1 of 6



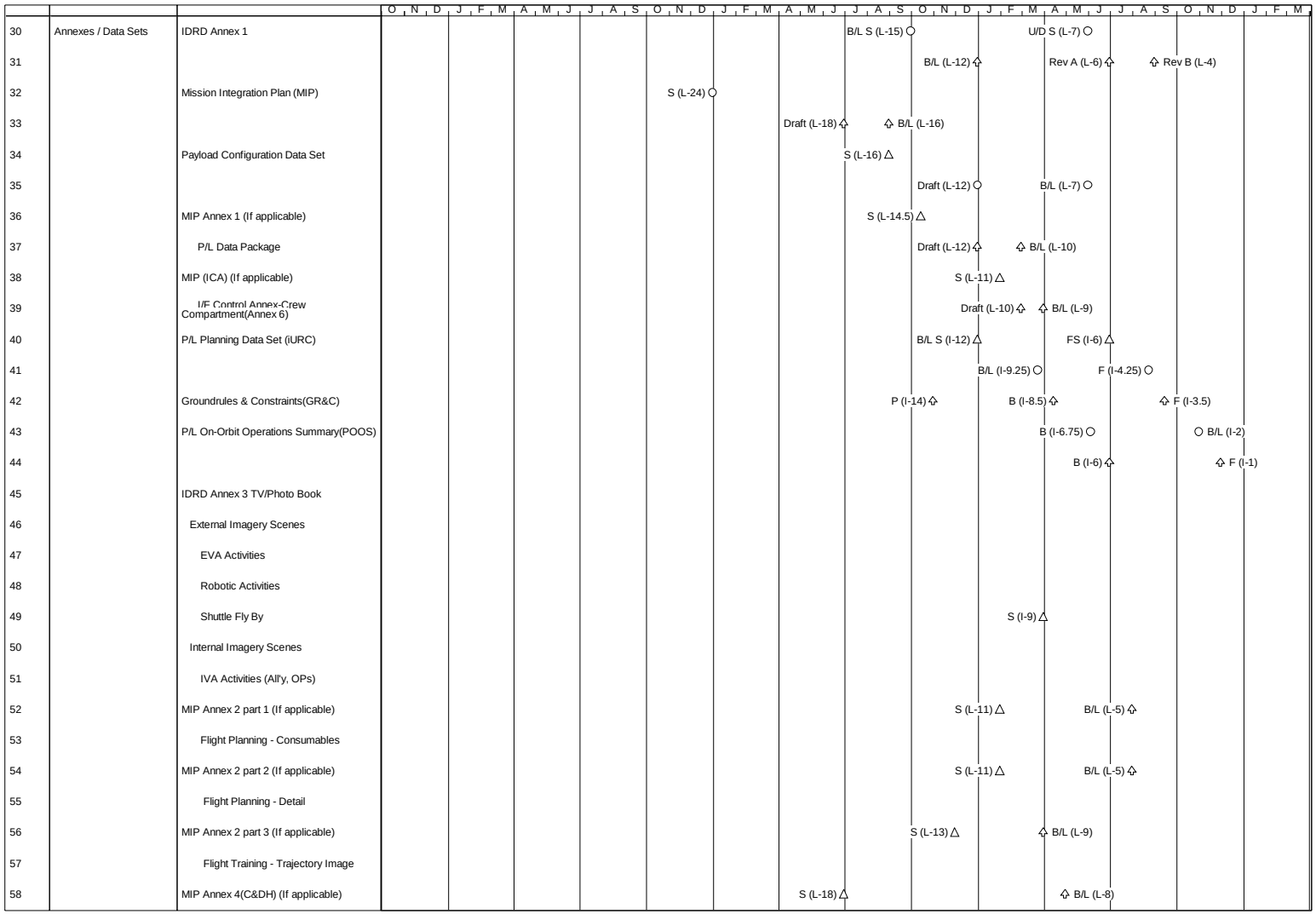
Print Date: 08/12/02
ISS Schedule Automation/Tiering Program (v P.3)
Code:

FIGURE 18.5-1 UNPRESSURIZED PAYLOADS GENERIC PIM SCHEDULE (PAGE 1 OF 6)

IPT:
WBS:

Unpressurized Payloads
Generic PIM Schedule

As of: 08/12/02
Page: 2 of 6



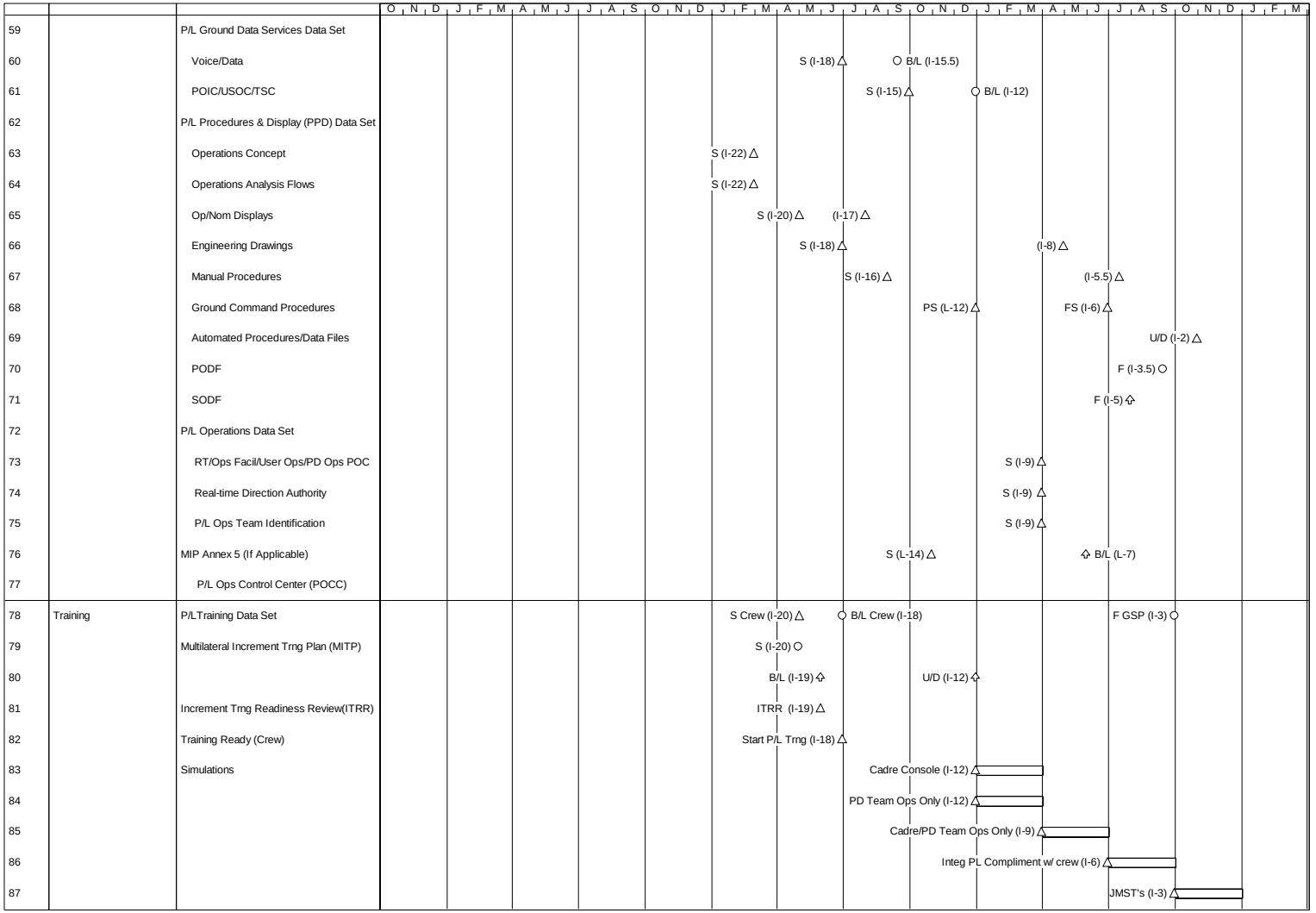
Print Date: 08/12/02 ISS Schedule Automation/Tiering Program (v P.3) Code:

FIGURE 18.5-1 UNPRESSURIZED PAYLOADS GENERIC PIM SCHEDULE (PAGE 2 OF 6)

IPT:
WBS:

Unpressurized Payloads
Generic PIM Schedule

As of: 08/12/02
Page: 3 of 6



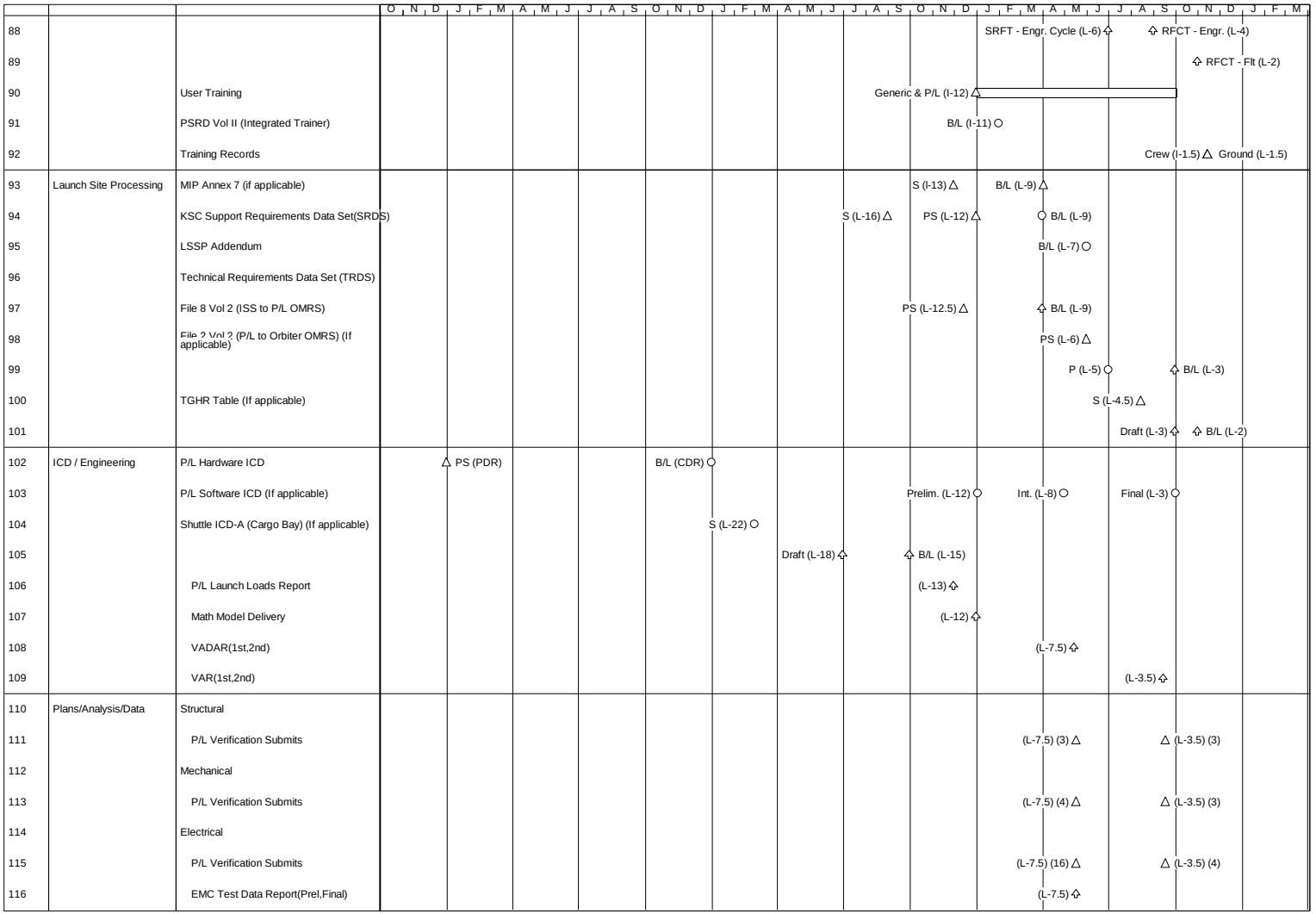
Print Date: 08/12/02 ISS Schedule Automation/Tiering Program (v P.3) Code:

FIGURE 18.5-1 UNPRESSURIZED PAYLOADS GENERIC PIM SCHEDULE (PAGE 3 OF 6)

IPT:
WBS:

Unpressurized Payloads
Generic PIM Schedule

As of: 08/12/02
Page: 4 of 6



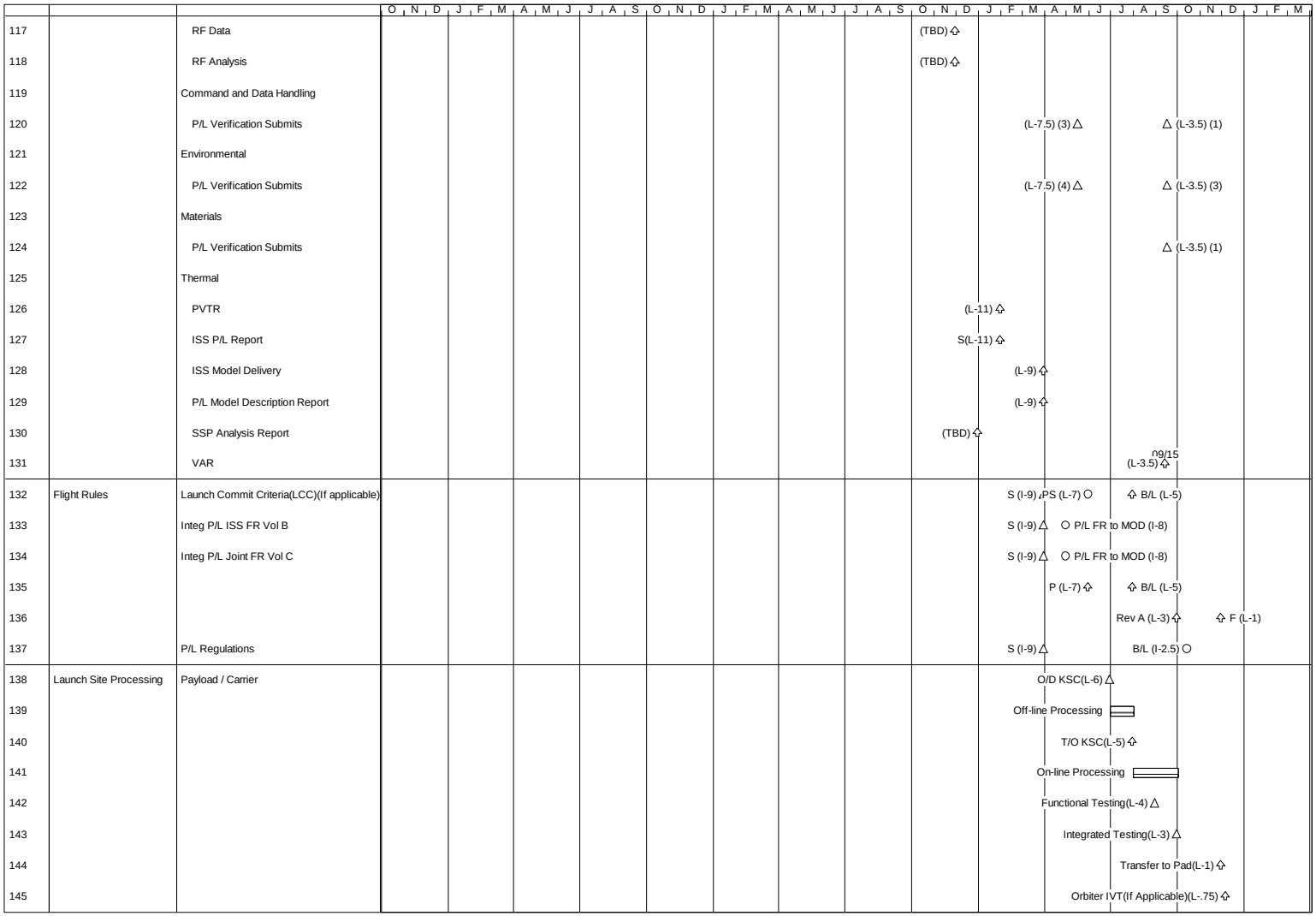
Print Date: 08/12/02 ISS Schedule Automation/Tiering Program (v P.3) Code:

FIGURE 18.5-1 UNPRESSURIZED PAYLOADS GENERIC PIM SCHEDULE (PAGE 4 OF 6)

IPT:
WBS:

Unpressurized Payloads
Generic PIM Schedule

As of: 08/12/02
Page: 5 of 6



Print Date: 08/12/02 ISS Schedule Automation/Tiering Program (v P.3) Code:

FIGURE 18.5-1 UNPRESSURIZED PAYLOADS GENERIC PIM SCHEDULE (PAGE 5 OF 6)

IPT:
WBS:

Unpressurized Payloads
Generic PIM Schedule

As of: 08/12/02
Page: 6 of 6

O N D J F M A M J J A S O N D J F M A M J J A S O N D J F M A M J J A S O N D J F M

146			Launch
147	Project Milestones	Hardware Reviews	PDR, CDR
148		Payload Development	
149		Engineering Model	
150		FSE / GSE	
151		Training Unit	
152		Flight Unit	
153		ISS Program Hardware Delivery	
154		Development Hardware	
155		FSE / GFE	
156		Integration Hardware	
157		Remote Operator Electrical Umbilical (ROEU)	
158		STEP	
159		PRCU / PTCS	
160		ACASS	
161		ExP Simulator	

Print Date: 08/12/02
ISS Schedule Automation/Tiering Program (v P.3)
Code:

FIGURE 18.5-1 UNPRESSURIZED PAYLOADS GENERIC PIM SCHEDULE (PAGE 6 OF 6)

APPENDIX A

ACRONYMS AND ABBREVIATIONS

APPENDIX A - ACRONYMS AND ABBREVIATIONS

AC	Alternating Current
ACASS	Active Common Attached Systems Simulator
AIRD	Assembly Implementation Requirements Document
APM	Attached Pressure Module
ARIS	Active Rack Isolation System
ASI	Agenzia Spaziale Italiana (Italian Space Agency)
ATDR	Acoustics Test Data Report
B	Basic
B/L	Baseline
BR	Bench Review
BS	Basic Submit
CAM	Centrifuge Accommodation Module
C&DH	Command and Data Handling
CCCD	Crew Compartment Configuration Drawings
CD	Command Data
CDR	Critical Design Review
CDS	Configuration Data Set
CE	Cargo Element
CEIT	Crew Equipment Interface Test
CG	Center of Gravity
CI	Cargo Integration
CIDS	Cargo Item Data/Models Submittal
CIR	Cargo Integration Review
COC	Certificate of Compliance
CoFR	Certification of Flight Readiness
COUP	Consolidated Operations and Utilization Plan
DC	Direct Current
DD	Department of Defense
DEAP	DFRC Equipment Access Platform
DFRC	Dryden Flight Research Center
DLA	Design Loads Analysis
DP	Data Pack
DQA	Data Quality Assurance
DS	Data Set
ECL	Engineering Configuration List
ECR	Engineering Change Request
EHS	Enhanced HOSC System
EI	EXPRESS Integration
EIA	EXPRESS Integration Agreement
EIRR	EXPRESS Integration Readiness Review
EL	Electrical

EMC	Electromagnetic Compatibility
EMI	Electromagnetic Interference
EN	Environmental
EPAS	ETOV Payload Activity Summary
EPCE	Electrical Power Consuming Equipment
EPIA	EXPRESS Payload Integration Agreement
EPIM	EXPRESS Payload Integration Manager
ER	EXPRESS Rack
ERO	EXPRESS Rack Office
ESD	Electrostatic Discharge
ETOV	Earth-to-Orbit Vehicle
ETR	EXPRESS Transportation Rack
EVA	Extravehicular Activity
ExP	ExPRESS
ExPCP	Execute Planning Control Panel
EXPRESS	EXpedite the PRocessing of Experiments to the Space Station
F	Final
FAO	Flight Activity Officer
FCE	Flight Crew Equipment
FCU	Functional Checkout Unit
FD	Fluid Dynamics
FDRD	Flight Definition and Requirements Document
FEPC	Flight Equipment Processing Contractor
FMEA	Failure Mode and Effects Analysis
FOR	Flight Operations Review
FORR	Flight Operations Readiness Review
FP	Fire Protection
FPM	Flight Payload Manager
FPSR	Flight Planning and Stowage Review
FR	Flight Rules
FRR	Flight Readiness Review
FS	Final Submit
FSE	Flight Support Equipment
FSR	Flight Safety Review
GAS	Getaway Special
GDS	Ground Data Services
GFE	Government Furnished Equipment
GL&C	Guidelines and Constraints
GN_2	Gaseous Nitrogen
GOR	Ground Operations Review
GR&C	Ground Rules and Constraints
GSE	Ground Support Equipment
GSP	Ground Support Personnel

GSR	Ground Safety Review
GSRP	Ground Safety Review Panel
H-	Hardware (on-dock) minus
HF	Human Factors
HIRR	Hardware Integration Readiness Review
HOSC	Huntsville Operations Support Center
H/W	Hardware
I	Interim
I-	Increment minus
I&C	Interface and Consumable
ICA	Interface Control Annex
ICD	Interface Control Document
IDD	Interface Definition Document
IDP	Integrated Data Package
IDRD	Increment Definition and Requirements Document
IDRP	Increment Definition Requirements Plan
IEHA	Integrated Element Hazard Analysis
I/F	Interface
IFOR	Increment Flight Operations Review
I/O	Input/Output
IOP	Increment Operations Plan
IOR	Increment Operations Review
IP	International Partner
IPLAT	ISS Payload Label Approval Team
IPM	Increment Payload Manager
IPMM	Integrated Payload Mission Model
IPT	Integrated Product Team
IRD	Interface Requirements Document
ISIS	International Subrack Interface Standard
ISPR	International Standard Payload Rack
ISS	International Space Station
ITCS	Internal Thermal Control System
ITRR	Increment Training Readiness Review
iURC	interim User Requirements Collection
IVA	Internal Vehicular Activity
IV&T	Interface Verification and Test
IVT	Interface Verification Test
JEM	Japanese Experiment Module
JEM-EF	Japanese Experiment Module - Exposed Facility
JMST	Joint Multi-Segment Station Training
JOIP	Joint Operations Integration Procedures
JSC	Johnson Space Center

KSC	Kennedy Space Center
L-	Launch minus
L&R	Launch and Return
LCC	Launch Commit Criteria
LON	Launch On Need
LPA	Launch Package Assessment
LSSM	Launch Site Support Manager
LSSP	Launch Site Support Plan
M	Meter
MBR	Middeck Bench Review
MCB	Multilateral Coordination Board
MD	Middeck
MDD	Mate Demate Device
MDK	Middeck
MDL	Middeck Locker
MDM	Multiplexer/Demultiplexer
MDP	Maximum Design Pressure
ME	Mechanical
MER	Mission Evaluation Request
MIM	Multi-Increment Manifest
MIP	Mission Integration Plan
MITP	Multilateral Increment Training Plan
MOD	Mission Operations Directorate
MP	Materials and Parts
MPCB	Multilateral Payload Control Board
MPLM	Multi-Purpose Logistics Module
MPV	Manual Procedure Viewer
MRR	Mission Readiness Review
MSFC	Marshall Space Flight Center
MSS	Mobile Servicing System
MTL	Moderate Temperature Loop
MV	Main Volume
NASA	National Aeronautics and Space Administration
NISN	NASA Integrated Service Network
NLT	No Later Than
NPRD	Network Program Requirements Document
O_2	Oxygen
OBT	Onboard Training
O/D	On-Dock
ODF	Operations Data File
OMRS	Operations and Maintenance Requirements and Specifications
OOS	On-Orbit Operations Summary
OPF	Orbiter Processing Facility

OPNOM	Operations Nomenclature
OPS	Operations
ORR	Operational Readiness Review
OS	Operations Summary
OSCAR	On-Orbit Stowage Capabilities and Requirements
OSTP	Onboard Short Term Plan
P	Preliminary
PALS	Program Automated Library System
PAS	Payload Accommodation Software
PCB	Payload Control Board
PCDS	Payload Configuration Data Set
PCS	Portable Computer System
PD	Payload Developer
PDL	Payload Data Library
PDR	Preliminary Design Review
PDRP	Payload Display Review Panel
PDS	Payload Data Set
PEHB	Payload Ethernet Hub Bridge
PEI	Payload Engineering and Integration
PEP	Payload Executive Processor
PFE	Portable Fire Extinguisher
PGSC	Payload General Support Computer
PI	Primary Investigator
PIA	Payload Integration Agreement
PILS	Payload Integration Library System
PIM	Payload Integration Manager
PIMS	Payload Information Management System
PIR	Post-Increment Review
PIRD	Payload Increment Requirements Document
PIRR	Payload Increment Readiness Review
P/L	Payload
PLB	Payload Bay
PMIT	Payload Mission Integration Team
POC	Point-of-Contact
POCC	Payloads Operations Control Center
POD	Payload Operations Director
PODF	Payload Operations Data File
POI	Payload Operations Integration
POIC	Payload Operations Integration Center
POIF	Payload Operation Integration Function
POOS	Payload Increment On-Orbit Operations Summary
PP-	Planning Period minus
PPD	Payload Procedures and Displays
PPS	Payload Planning System
PRCU	Payload Rack Checkout Unit

PRD	Program Requirements Document
PRMD	Payload Report/Model Delivery
PRR	Payload Readiness Review
PS	Preliminary Submit
PSE	Payload Software Environment
PSIV	Payload Software Integration and Verification
PSRD	Payload Simulator Requirements Document
PSRP	Payload Safety Review Panel
PTC	Payload Training Compliment
PTCS	Payload Test and Checkout System
PTDR	Payload Training Dry Run
PTIP	Payload Training Implementation Plan
PTP	Payload Tactical Plan
PTS	Payload Training Simulator
PVP	Payload Verification Plan
PVPP	Payload Verification Program Plan
PVTR	Preliminary Verification Thermal Review
R	Report
R+	Return plus
REAP	Removable Equipment Access Platform
RF	Radio Frequency
RFCT	Ready for Combined Training
RFT	Ready for Training
RIC	Rack Interface Controller
RMDP	Return Manifest Disposition Plan
ROEU	Remote Operator Electrical Umbilical
RPWG	Research Planning Working Group
RS	Recommended Standard
RT	Real-Time
S	Submit
SA	Safety Assessment
SBR	Stowage Bench Review
SCC	Safety-Critical Circuits
SCIR	Station Cargo Integration Review
SDS	Support Data Set
SI	Shuttle Integration
SIMS	Simulations
SIR	Stage Integration Review
SME	Subject Matter Experts
SODF	System Operations Data File
SOFA	Systems Operations Feasibility Assessment
SOP	Standard Operating Procedure
SORR	Stage Operations Readiness Review
SPOE	Standard Payload Outfitting Equipment

SR	Subrack
SRDS	Support Requirements Data Set
SRFT	Station Ready for Training
SSCCD	Space Station Configuration Control Drawings
SSCD-L	Space Station Configuration Drawings - Launch
SSCD-R	Space Station Configuration Drawings - Return
SSP	Space Shuttle Program
SSPF	Space Station Processing Facility
SSTF	Space Station Training Facility
ST	Structure
STEP	Suitcase Test Environment for Payloads
STFX	SSTF Test Fixture
STP	Short Term Plan
STS	Space Transportation System
S/W	Software
TBD	To Be Determined
TBR	To Be Resolved
TDS	Training Data Set
TGHR	Time-critical Ground Handling Requirements
TH	Thermal
T/O	Turn-Over
TRA	Tactical Resource Allocations
TRDS	Technical Requirements Data Set
TReK	Telescience Resource Kit
TRR	Training Readiness Review
TSC	Telescience Support Center
TST	Training Strategy Team
TV	Television
U/D	Update
UOP	Utility Outlet Panel
U.S.	United States
US Lab	United States Laboratory
USOC	United States Operations Center
VADAR	Verification and Analysis Data Acceptance Review
VAR	Verification Analysis Review
VC	**<TBD A-1>**
VCLA	Verification Coupled Loads Analysis
VDS	Verification Definition Sheet
VES	Vacuum Exhaust System
VLA	Verification Loads Analysis
VMDB	Vehicle Master Database
WBS	Work Breakdown Structure
WLP	Weekly Look-ahead Plan

APPENDIX B

GLOSSARY OF TERMS
<RESERVED>

APPENDIX B - GLOSSARY OF TERMS
<RESERVED>

APPENDIX C

OPEN WORK

APPENDIX C - OPEN WORK

Table C-1 lists the specific To Be Determined (TBD) items in the document that are not yet known. The TBD is inserted as a placeholder wherever the required data is needed and is formatted in bold type within brackets. The TBD item is numbered based on the section where the first occurrence of the item is located as the first digit and a consecutive number as the second digit (i.e., **<TBD 4-1>** is the first undetermined item assigned in Section 4 of the document). As each TBD is solved, the updated text is inserted in each place that the TBD appears in the document and the item is removed from this table. As new TBD items are assigned, they will be added to this list in accordance with the above described numbering scheme. Original TBDs will not be renumbered.

TABLE C-1 TO BE DETERMINED ITEMS

TBD	Section	Description
1-1	1.3, 2.1	Document to be approved.
2-1	2.1, 2.2	Document to be approved.
3-1	Table 3.2-1	Description of Flight Operations Readiness Review.
6-1	6.0	Section to be supplied at a later date.
9-1	9.0	Section to be supplied at a later date.
10-1	10.0	Section to be supplied at a later date.
11-1	11.0	Section to be supplied at a later date.
12-1	12.0	Section to be supplied at a later date.
13-1	Figure 13.0-13	Figure to be supplied at a later date.
13-2	Figure 13.0-14	Figure to be supplied at a later date.
14-3	14.3	Section to be supplied at a later date.
15-1	15.0	Section to be supplied at a later date.
16-1	16.0	Section to be supplied at a later date.
17-1	17.0	Section to be supplied at a later date.
18-1	18.0	Section to be supplied at a later date.
18-2	Figure 18.3-1	Figure to be supplied at a later date.
TBD	Figures 18.1-1, 18.5-1	To be provided by the book manager.
A-1	Appendix A	To be provided by the book manager.

Table C-2 lists the specific To Be Resolved (TBR) issues in the document that are not yet known. The TBR is inserted as a placeholder wherever the required data is needed and is formatted in bold type within brackets. The TBR issue is numbered based on the section where the first occurrence of the issue is located as the first digit and a consecutive number as the second digit (i.e., **<TBR 4-1>** is the first unresolved issue assigned in Section 4 of the document). As each TBR is resolved, the updated text is inserted in each place that the TBR appears in the document and the issue is removed from this table. As new TBR issues are assigned, they will be added to this list in accordance with the above described numbering scheme. Original TBRs will not be renumbered.

TABLE C-2 TO BE RESOLVED ISSUES

TBR	Section	Description

APPENDIX D

PAYLOAD VERIFICATION DATA (SUBMITS)

APPENDIX D - PAYLOAD VERIFICATION DATA (SUBMITS)

Table D-1, Payload Verification Data (Submits), is a listing of the payload verification data submits as specified within the generic set of Verification Definition Sheets (VDSs) from SSP 57010, Pressurized Payloads Generic Payload Verification Plan. The VDS describes what steps should be taken by the PD to verify that the payload hardware and software have satisfied the specific Interface Requirements Document (IRD) requirements

Table 4.2-1, line numbers 90 and 132, are a roll-up of Table D-1.

Figure 18.1-1, page 4 of 7, line numbers 84 through 101, are a roll-up of Table D-1.

TABLE D-1 PAYLOAD VERIFICATION DATA (SUBMITS) (PAGE 1 OF 3)

Structural		
C	Natural Frequency Model Verified (ST-OO4)	L-7.5
C	Stress Analysis DLA (ST-001)	L-7.5
C	Fracture Control Plan Analysis (ST-008)	L-7.5
D	Miscellaneous Structure (4) COC (4) COC	L-3.5
E	Stress Analysis VLA (ST-001)	L-3.5
E	Miscellaneous Structure (1) COC	L-3.5
Electrical		
C	Surge Current Reports (EL-010)	L-7.5
C	Maximum Ripple Voltage Analysis and Test Report (EL-015)	L-7.5
C	Reverse Energy/Current Data and Certification (EL-011)	L-7.5
C	EPCE Load Impedance Test Report (EL- 014)	L-7.5
C	Large Signal Stability Test and Data (EL-023)	L-7.5
C	Load-Stand Alone Stability Analysis Report (EL-016)	L-7.5
C	Ripple Voltage Characteristic Data Certification (EL-002)	L-7.5
C	EMI/EMC Analysis and Test Data (EL-020)	L-7.5
C	Electrical Bonding Analysis and Test Report (EL-022)	L-7.5
C	ESD and Test Report (EL-024)	L-7.5
C	ESD Labeling COC (EL-024)	L-7.5
C	Corona Analysis and Test Report (EL-042)	L-7.5
C	Lighting Analysis Report (EL-025)	L-7.5
C	Cable/Wire and Electrical Grounding Analysis Report Design (EL-021)	L-7.5
C	EMC for SCC Analysis Report (EL-019)	L-7.5
C	Remote Power Controller - Final Analysis and Test Data (EL-012)	L-7.5
C	Integrated Rack Power Removal - Drawings (EL-028)	L-7.5

TABLE D-1 PAYLOAD VERIFICATION DATA (SUBMITS) (PAGE 2 OF 3)

Electrical (continued)		
D	Integrated Rack Power Removal COC (EL-028)	L-3.5
D	Electrical Grounding Test and Inspection COC (EL-028)	L-3.5
D	Electrical Bonding Inspection COC (EL-022)	L-3.5
D	Miscellaneous Electrical - COC (21)	L-3.5
Mechanical		
B	P/L Protrusions U/D Data Certification	L-7.5
B	Fire Suppression Drawings (ME-055)	L-7.5
B	Smoke Detection - COC/Analysis Report	L-7.5
B	Fire Detection - Drawings	L-7.5
C	Weight and CG U/D Data Certification	L-3.5
D	Labeling Design COC	L-3.5
D	Fire Suppression Analysis and Test Report/COC	L-3.5
D	Fire Detection - COC	L-3.5
D	Payload Protrusions COC (ME-059)	L-3.5
D	Miscellaneous Mechanical (8)	L-3.5
Fluid Dynamics		
C	ITCS Pressure Drop Data Certification (FD-003)	L-7.5
C	Coolant Flow Data Certification (FD-004)	L-7.5
C	Coolant Return Temperature Data Certification (FD-005)	L-7.5
C	Coolant Loop Leakage Data Certification (FD-006)	L-7.5
C	Cabin Air Heat Leak Data Certification (FD-008)	L-7.5
C	Cabin Air Cooling Data Certification (FD-009)	L-7.5
C	Potable Water Use Data Certification - Final	L-7.5
C	Pressurized Gases Leakage Data Certification (FD-027)	L-7.5
C	VES Acceptable Exhause Gases Data Certification - U/D	L-7.5
C	ISS External Contamination Data Certification U/D	L-7.5
C	Latent Heat Load - H/W ICDs, PIA Addenda, Data Set	L-7.5
C	P/L Coolant Quantity Data Certification (FD-012)	L-7.5
C	Pressurized Gas I/F Data Certification	L-7.5
C	Pressurized Gas Bottles Data Certification (FD-028)	L-7.5
D	Miscellaneous Fluid Dynamics COC (19)	L-3.5
Environmental		
B	Microgravity - Test Report (EN-005)	L-7.5
B	Acoustics Emissions - Test Data (EN-006)	L-7.5
B	Atmosphere Humidity Analysis Report (EN-001)	L-7.5
B	Oxygen Consumption Data Certification (EN-003)	L-7.5
C	Miscellaneous Environment - COC	L-3.5

TABLE D-1 PAYLOAD VERIFICATION DATA (SUBMITS) (PAGE 3 OF 3)

Command and Data Handling		
A	Parameter Monitoring Test Report	L-7.5
A	Integrated Rack Caution/Warning/Advisory Data Analysis and Test Report	L-7.5
A	Miscellaneous Command and Data Handling - COC (13)	L-7.5
B	Miscellaneous Command and Data Handling - COC (15)	L-3.5
Materials and Parts		
A	Miscellaneous Materials and Parts - COC (3)	L-3.5
MPLM		
B	MPLM Electrical Power Characteristics - Data Certification (EL-035)	L-7.5
B	MPLM Electrical Power I/F - Analysis and Test Report (EL-036)	L-7.5
B	MPLM Electrical Power Connecting - Data Certification, Analysis and Test Report (EL-037)	L-7.5
B	MPLM Electromagnetic Compatibility - Analysis, Integration and Test Report; COC (EL-039)	L-7.5
B	MPLM Interfaces Preliminary Data Certification (ST-011)	L-7.5
C	MPLM Electrical Power Characteristics - COC (EL-035)	L-3.5
C	MPLM Electrical Power Connecting - COC (EL-037)	L-3.5
C	MPLM Electrical Power Consumer Constraints - COC (EL-038)	L-3.5
C	MPLM Electromagnetic Compatibility - COC (EL-039)	L-3.5
C	MPLM Interfaces Final Data Certification (ST-011)	L-3.5
C	MPLM Safety Requirements - COC	L-3.5

APPENDIX E

EXPRESS PAYLOAD VERIFICATION DATA (SUBMITS)

APPENDIX E - EXPRESS PAYLOAD VERIFICATION DATA (SUBMITS)

Table E-1, EXPRESS Payload Verification Data (Submits), is a listing of the payload verification data submits as specified within the generic set of VDSs from SSP 52000-PVP-ERP, Generic Payload Verification Plan EXpedite the PRocessing of Experiments to Space Station (EXPRESS) Rack Payloads. The VDS describes what steps should be taken by the PD to verify that the payload hardware and software have satisfied the specific Interface Definition Document (IDD) requirements.

Table 5.2-1, line numbers 5, 12, 18, 21, 34, 51, 52, 56, 59, 62, 64, 68, 86, 89, 104, 106, and 119, are a roll-up of Table E-1.

TABLE E-1 EXPRESS PAYLOAD VERIFICATION DATA (SUBMITS) (PAGE 1 OF 5)

Structural		
A	Acoustic Emission Limits Control Plan (ST-005)	L-22
B	Microgravity Requirement - Preliminary Microgravity Report (ST-006)	L-20
B	Structural Verification Plan (ST-001)	L-20
B	Preliminary Acoustic Summary (ST-005)	L-20
B	Pressurized Systems M of S Summary (Phase III) (ST-010)	L-20
B	Fracture Control Plan (ST-008)	L-20
E	Weight and Center of Gravity (ST-011)	L-12
E	Crew Applied Loads: Margin of Safety Summary (Ascent/Descent) (ST-002)	L-12
E	Structural Strength Margin of Safety Summary (ST-001)	L-12
F	Angular Momentum Requirement (ST-014)	L-11.5
F	Pressurized Systems M of S Summary (Phase III) (ST-010)	L-11.5
F	Fracture Control Summary (ST-008)	L-11.5
H	Structural Strength Test Verified Finite Element Model (ST-001)	L-10.5
J	Acoustics Test Results (ST-005)	L-9.5
J	Microgravity Requirement - Microgravity Test/Analytical Results (ST-006)	L-9.5
O	On-Orbit Depress/Repress (ST-003)	L-4.5
O	Natural Frequency (ST-004)	L-4.5
O	Ground Transportation Loads (ST-007)	L-4.5
O	Securing of Threaded Fasteners (ST-009)	L-4.5
O	PFE Discharge Rate (ST-012)	L-4.5
O	Late/Early Access Requirement (ST-013)	L-4.5
O	Orbiter/Middeck Attach Point Provisions (ST-MD-001)	L-4.5
O	MDK Natural Frequency (ST-MD-002)	L-4.5
O	MDK Crew Applied Loads (ST-MD-003)	L-4.5
O	MDK Acoustic Levels (ST-MD-004)	L-4.5
P	Structural Strength Margin of Safety Summary from VCLA (ST-001)	L-3
P	Structural Strength Certification of Conformity Between H/W and Design (ST-001)	L-3
Electrical		
I	Reverse Current/Energy: Analysis Results (EL-003)	L-10
J	EMI (Conducted/Radiated Emissions): Test Results (EL-015)	L-9.5
J	EMI (Conducted/Radiated Susceptibility): Test Results (EL-016)	L-9.5
J	Corona: Test/Analysis Results (EL-018)	L-9.5
J	AC/DC Magnetic Fields: Test/Analysis Results (EL-019)	L-9.5
J	Safety-Critical Circuits: Test/Analysis Results (EL-009)	L-9.5
M	Radiated Interference Test Results - Shuttle (EL-MD-004)	L-6.5
M	P/L-Produced Conducted Noise Test Results - Shuttle (EL-MD-005)	L-6.5
M	P/L-Produced Radiated Fields Test Results - Shuttle (EL-MD-006)	L-6.5
O	In-Flight DC Power Bus Ripple/Transient Spikes (Repetitive) at I/F-MDK (EL-MD-001)	L-4.5
O	Ground DC Power - Shuttle MD (EL-MD-002)	L-4.5

TABLE E-1 EXPRESS PAYLOAD VERIFICATION DATA (SUBMITS) (PAGE 2 OF 5)

Electrical (continued)		
O	AC Power Characteristics - Shuttle MDK (EL-MD-003)	L-4.5
O	Voltage Levels (EL-001)	L-4.5
O	Current Limiting (EL-006)	L-4.5
O	Ripple and Transient Spikes (Repetitive) Limits - ISS (EL-007)	L-4.5
O	Batteries (EL-008)	L-4.5
O	Electrical Hazards (EL-010)	L-4.5
O	Electrical Connectors (EL-011)	L-4.5
O	Electrical Connectors Mating/Demating (EL-012)	L-4.5
O	Electrical Connectors Mating/Demating (Powered) (EL-013)	L-4.5
O	Electrical Connector Mismating Prevention (EL-014)	L-4.5
O	ESD Compatibility/Labeling (EL-017)	L-4.5
O	Electrical Bonding (EL-020)	L-4.5
O	Electrical Bonding of Payload Hardware (EL-021)	L-4.5
O	Electrical Bonding of Payload Structures (EL-022)	L-4.5
O	Power Circuit Isolation and Grounding (EL-023)	L-4.5
O	Signal Isolation and Grounding Requirements (EL-024)	L-4.5
O	Pin Functions MDL's/MDL Replacement/ISIS Drawers (EL-026)	L-4.5
O	Approved Connectors for EXPRESS Rack Payload Use (EL-027)	L-4.5
O	Overload Protection Device (EL-005)	L-4.5
O	GSE Isolation and Grounding (EL-029)	L-4.5
Mechanical		
N	Pressure Relief Device Location (ME-010)	L-5
O	EXPRESS Mounting Plates (ME-001)	L-4.5
O	Standard Modular Locker (ME-002)	L-4.5
O	PD-Supplied Locker Requirements (ME-003)	L-4.5
O	Mounting Panels (ME-004)	L-4.5
O	On-Orbit Separation Interface Requirements (ME-005)	L-4.5
O	EXPRESS Rack Backplate (ME-006)	L-4.5
O	Fastener Requirements (ME-007)	L-4.5
O	ISIS Drawer Requirements (ME-008)	L-4.5
O	Payload Static Envelopes (ME-009)	L-4.5
O	Orbiter Inlet/Outlet Locations (ME-MD-001)	L-4.5
O	Closeout Cover Access (ME-MD-002)	L-4.5
O	Orbiter Overhead Window Interface Requirements (ME-MD-003)	L-4.5
Environmental		
G	Atmosphere Requirements: Analysis Report of O_2 Consumption (EN-004)	L-11
O	Atmosphere Requirements: Compliance with Requirements (EN-004)	L-4.5
O	Atmosphere Requirements: Compliance with Requirements (EN-004)	L-4.5
O	Illumination Requirements - Lighting Design (EN-001)	L-4.5
O	Laser Requirements (EN-002)	L-4.5
O	Radiation Requirements (EN-004)	L-4.5

TABLE E-1 EXPRESS PAYLOAD VERIFICATION DATA (SUBMITS) (PAGE 3 OF 5)

Software		
K	PL Display and File Transfer Requirement for PL Application S/W - Provide Copy of PAS to PSIV for Integrated Functional Testing (SW-007)	L-9
O	PL Display and File Transfer Requirement for PL Application S/W - Compliance with Requirements (SW-007)	L-4.5
O	Orbiter PGSC DC Power RS-232/RS-422 Connector/Pinout (SW-001)	L-4.5
O	Orbiter PGSC Software Interfaces (SW-002)	L-4.5
O	EXPRESS Rack RIC RS-422 Interface (SW-003)	L-4.5
O	EXPRESS Rack PEHB Ethernet Interface (SW-004)	L-4.5
O	PCS Interfaces (SW-005)	L-4.5
O	Software Safety Requirements for Payloads (SW-006)	L-4.5
O	Payload Command Ground Interface (SW-008)	L-4.5
Command and Data Handling		
O	RS-422 Signal Interface (CD-001)	L-4.5
O	RS-422, Ethernet, Analog, Discrete, Video, and Point-to-Point I/F (CD-002)	L-4.5
O	Ethernet Signal Interface (CD-003)	L-4.5
O	Analog Signal Characteristics (CD-004)	L-4.5
O	Discrete I/O Signal Characteristics (CD-005)	L-4.5
O	Discrete Driver/Receiver Characteristics (CD-006)	L-4.5
O	Video Signal Interface (CD-007)	L-4.5
L	Analysis and Test Reports - Nominal/Planned Release of Materials (MP-001)	L-7
L	Analysis and Drawings - Flammability (MP-001)	L-7
O	Compliance with Requirements (MP-001)	L-4.5
Fire Protection		
I	Fire Protection Interface Requirements (FP-001)	L-10
I	Oxygen (FP-002)	L-10
I	Payload Use of Battery Backup Power (FP-003)	L-10
I	Payload Data Monitoring (FP-004)	L-10
I	Portable Fire Extinguisher Access Port (FP-005)	L-10
I	Fire Suppressant Distribution (FP-006)	L-10
Thermal		
G	Touch Temperature - Thermal Analysis Report (TH-001)	L-11
G	Condensation Prevention - Thermal Analysis Report (TH-002)	L-11
G	Passive Cooling/Heating of Cabin - Thermal Analysis Report (TH-006)	L-11
G	MTL Physical I/F - Test Result or Analysis of Volume/Quantity Water in Payload (TH-010)	L-11
G	MTL Physical I/F - Flow Rate/Press Drop Test Data to Support PL Rack Assessment (TH-010)	L-11
G	MTL Physical I/F - Test Result or Analysis Showing Air Inclusion (TH-010)	L-11
G	MTL Physical I/F - Payload Leakage Test Data for Rack Level Assessment (TH-010)	L-11

TABLE E-1 EXPRESS PAYLOAD VERIFICATION DATA (SUBMITS) (PAGE 4 OF 5)

Thermal (continued)		
G	MTL Physical I/F - Test Results or Analysis (TH-010)	L-11
G	MTL Physical I/F - Test Results or Analysis	L-11
G	GN_2 I/F - Payload Leakage Test Data for Rack Level Assessment (TH-011)	L-11
G	GN_2 I/F - Compliance with Requirements (TH-011)	L-11
G	GN_2 I/F - Analysis or Test Certification of Compliance to MDP (TH-011)	L-11
G	Middeck Ducted Air Cooling Capability - Thermal Analysis Report-Showing Amount of Air Mixing (TH0014)	L-11
G	Middeck Ducted Air Cooling Capability - Thermal Analysis Report-Showing Cabin Heat Rejection (TH-014)	L-11
G	US Lab/APM/JEM/CAM Unique Thermal Control I/F - Thermal Analysis Report (TH-015)	L-11
I	Pressurized Gas Systems (TH-016)	L-10
I	ISS/Middeck Cabin Cooling I/F - Thermal Analysis Report (TH-007)	L-10
K	Middeck Ducted Air Cooling Capability - Certified Data Identifying the Leak Rate from the Testing (TH-014)	L-9
I	Pressurized Gas Systems (TH-016)	L-10
L	Sealing Surface - Certified Data Identifying the Leak Rate from the Testing (TH-012)	L-7
O	Loss of Cooling (TH-003)	L-4.5
O	Pressure Relief/Vent Valve Sizing (TH-004)	L-4.5
O	On Orbit Environmental Conditions (TH-005)	L-4.5
O	Passive Cooling/Heating of Cabin - Compliance with Requirements (TH-006)	L-4.5
O	ISS/Middeck Cabin Cooling I/F - Compliance with Requirements (TH 007)	L-4.5
O	Particulate(s) and Filters (TH-008)	L-4.5
O	Forced Air Flow Cooling (TH-009)	L-4.5
	Thermal (continued)	
O	MTL Physical I/F - Compliance with Requirements (TH-010)	L-4.5
O	GN_2 I/F - Compliance with Requirements (TH-011)	L-4.5
O	Sealing Surface - Compliance with Requirements (TH-012)	L-4.5
O	Payload Front Surface Temperature (TH-013)	L-4.5
O	Middeck Ducted Air Cooling Capability - Compliance with Requirements (TH-014)	L-4.5
O	US Lab/APM/JEM/CAM Unique Thermal Control I/F - Compliance with Requirements (TH-015)	L-4.5
Vacuum Exhaust		
C	Vacuum Exhaust Physical I/F - Analysis and Test Reports - Residual Exhaust Contaminants (VC-001)	L-18
C	Vacuum Exhaust Physical I/F - Analysis and Test Reports (VC-001)	L-18
I	Vacuum Exhaust Physical I/F - Analysis and Test Reports - Residual Exhaust Contaminants (VC-001)	L-10
I	Vacuum Exhaust Physical I/F - Analysis and Test Reports (VC-001)	L-10
O	Vacuum Exhaust Physical I/F - Compliance with Requirements (VC-001)	L-4.5

TABLE E-1 EXPRESS PAYLOAD VERIFICATION DATA (SUBMITS) (PAGE 5 OF 5)

Human Factors		
D	Protrusion (Permanent/Temporary) and Pathways - Data Certification Providing Drawings Identifying All Protrusions (HF-034)	L-16
K	Protrusion (Permanent/Temporary) and Pathways - Data Certification Providing Drawings Identifying All Protrusions (HF-034)	L-9
O	Handles, Restraints, Tether Points, and Captive Parts (HF-001)	L-4.5
O	Strength and Force Requirements (HF-002)	L-4.5
O	Full Size Range, Volume, and Accessibility Accommodation (HF-003)	L-4.5
O	Equipment Mounting (HF-004)	L-4.5
O	Drawers and Hinged Panels (HF-005)	L-4.5
O	Alignment, Align Marks, and Guide Pins (HF-006)	L-4.5
O	Slide-Out Stops (HF-007)	L-4.5
O	Access, Closures, Covers, and Tools (HF-008)	L-4.5
O	Labeling Design Requirements (HF-011)	L-4.5
O	Color (HF-014)	L-4.5
O	Fluid Connector Pressure/Flow Indicator (HF-015)	L-4.5
O	Controls Spacing Design (HF-017)	L-4.5
O	Accidental Actuation - Protection (HF-018)	L-4.5
O	Valve Controls (HF-019)	L-4.5
O	Toggle Switches (HF-020)	L-4.5
O	Audio Devices (Displays) (HF-021)	L-4.5
O	Electrical Connection Design (One-Hand Operation, Ease of Disconnect, Self-Locking) (HF-022)	L-4.5
O	Electrical Connection Design - Protection, Shape, and Arc Containment (HF 023)	L-4.5
O	Arrangement and Orientation for Connectors (HF-024)	L-4.5
O	Hose/Cable Restraints (HF-025)	L-4.5
O	Built-In Control (HF-026)	L-4.5
O	One-Handed Cleaning Operation (HF-027)	L-4.5
O	Waste Management (HF-028)	L-4.5
O	Mechanical Energy Devices (HF-029)	L-4.5
O	Other Non-Threaded Fasteners (HF-030)	L-4.5
O	Mounting Bolts and Fasteners (HF-031)	L-4.5
O	Latches (HF-032)	L-4.5
O	Payload In-Flight Maintenance (HF-033)	L-4.5
O	Sharp Edges/Corners Requirements (HF-035)	L-4.5
O	Restraints and Mobility Aids I/F Compatibility (HF-036)	L-4.5
O	PD Stowage Tray Requirements (HF-037)	L-4.5
O	Identification Labeling (HF-039)	L-4.5
Safety		
I	Payload Safety Requirements - Compliance Data Package Submitted to EI (SA-001)	L-10