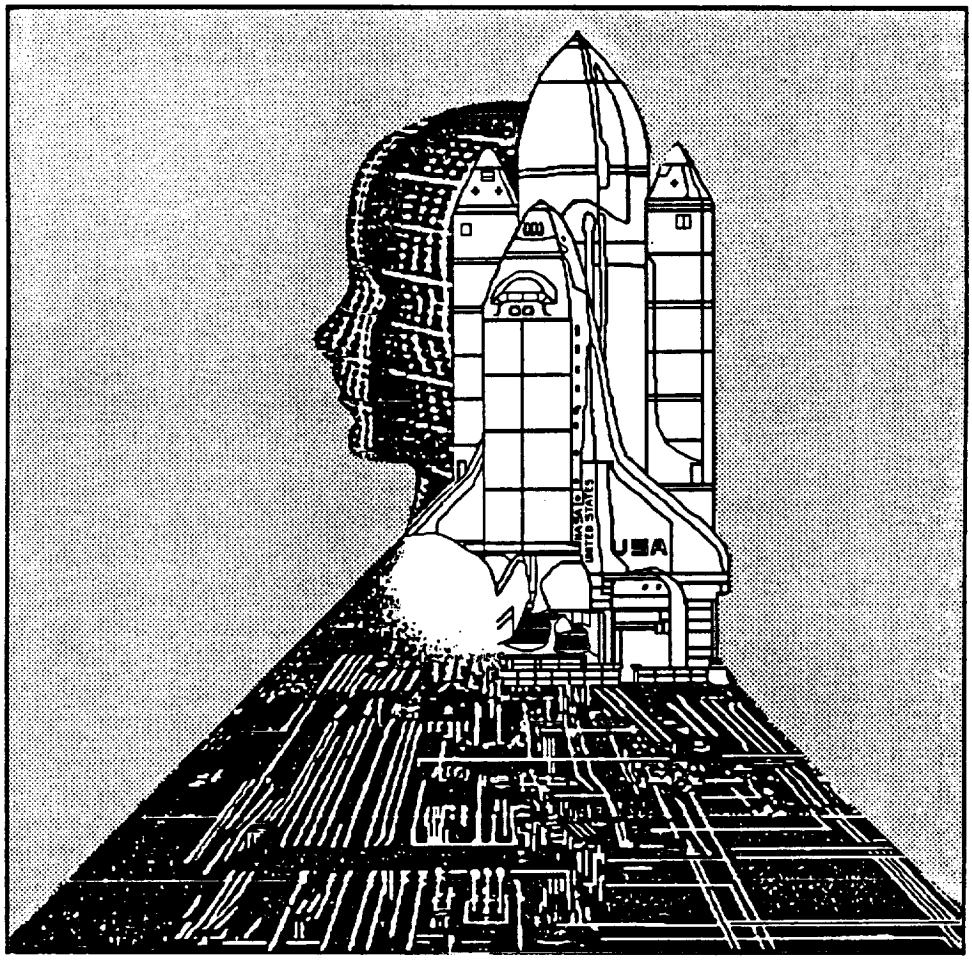
Shuttle Ground Operations Efficiencies/Technologies Study

BOEING

AEROSPACE OPERATIONS



TECHNICAL INFORMATION SHEETS (TIS)

VOLUME 5 of 5

FINAL REPORT - Phase 1

KENNEDY SPACE CENTER

NAS10-11344

May 4, 1987

(NASA-CR-180585) SHUTTLE GROUND OPERATIONS EFFICIENCIES/TECHNOLOGIES STUDY (SGOE/T). VOLUME 5: TECHNICAL INFORMATION SHEETS (TIS) Final Report, Jun. 1986 - May 1987 (Boeing

N87-22452

Unclas

SHUTTLE GROUND OPERATIONS EFFICIENCIES/TECHNOLOGIES STUDY

TECHNICAL INFORMATION SHEETS

FINAL REPORT - VOL 5
- PHASE 1 -

MAY 4, 1987

KENNEDY SPACE CENTER
NAS10-11344

BOEING

A.L. Scholz
Study Manager
M. T. Hart
Dep. Study Manager

NASA

W.J. Dickinson
Study Manager

SPACE SHUTTLE GROUND OPERATIONS EFFICIENCIES/TECHNOLOGIES STUDY PHASE 1 FINAL REPORT

The final report for the Shuttle Ground Operations Efficiencies/Technologies Study is made up of five volumes.

Volume 1	Executive Summary
Volume 2	Ground Operations Evaluation
Volume 3	Final Presentation Material
Volume 4	Preliminary Issues Database (PIDB)
Volume 5	Technology Information Sheets (TIS)

Volume 1

The Executive Summary volume provides a brief overview of the major elements of the Study, reviews the findings, and reflects the development of the recommendations resulting from the Study.

Volume 2

The Ground Operations Evaluation volume describes the breath and depth of the various Study elements selected as a result of an operational analysis conducted during the early part of the Study. Analysis techniques used for the evaluation are described in detail. Elements selected for further evaluation are identified; the results of the analysis documented; and a follow-on course of action recommended. The background and rationale for developing recommendations for the current Shuttle or for future programs is presented.

Volume 3

The Final Presentation Material volume contains the most recent version of the charts used in the Final Phase 1 Oral Briefing at KSC on April 6, 1987, and to the STAS (Space Transportation Architecture Study) IPR-5 (Interim Program Review) held at MSFC on April 8, 1987. The KSC, April 6 notation in the title block was used for both packages because the reviews were held so closely together. This volume contains all charts in their final form and any differences from charts presented are minor.

Volume 4

The Preliminary Issues Database (PIDB) was assembled very early in the Study as one of the fundamental tools to be used throughout the Study. Data was acquired from a variety of sources and compiled in such a way that the data could be easily sorted in accordance with a number of different analytical objectives. The system was computerized to significantly expedite sorting and make it more usable. This volume summarizes the information contained in the PIDB and provides the reader with the capability to manually find items of interest. How that information was used in this Study is explained in greater detail in Volumes 2 and 3.

Volume 5

The Technology Information Sheet volume was assembled in database format during Phase 1 of the Study. This document was designed to provide a repository for information pertaining to 144 OMI (Operations and Maintenance Instructions) controlled operations in the OPF, VAB and PAD. It provides a way to accumulate information about required crew sizes, operations task time duration (serial and/or parallel), special GSE required, and identification of a potential application of existing technology -- or the need for the development of a new technology item.

TECHNOLOGY IDENTIFICATION SHEETS

The Technology Identification Sheet (TIS) is an expanded version of the Resource Identification Sheet (RIS) that was in the original Study Plan. The TIS contains a description of the activity, location, facility and equipment requirements, hazard level, subtask procedures and manpower requirements. In addition, it now contains vehicle power requirement, LCC Support requirement, associated issues, technology needs, and technology candidates. Each task has been assigned a task sequence number to provide for downstream manipulation.

The manhour and headcount data on the TIS Sheets are incomplete because the data was not obtainable from the SPC or NASA. Technician data for the OPF was the only data made available and is incorporated.

The "Technology Need" and "Technology Candidates" descriptions have been completed only for the seven technology tentpoles identified in the study.

The TIS sequence task number was used to group the OMI's by usage location, i.e.,

1 - 88	are the top level OMI's performed in the OPF
100 - 111	are the top level OMI's performed in the VAB
200 - 213	are the top level OMI's performed at the PAD
300 - 305	are examples of spacecraft support OMI's at the PAD
401 - 423	are the top level OMI's performed in the ET checkout cell.

The Technology Identification Sheet Database consists of up to four entry screens. The printed sheets combine the most significant information into one sheet per task number. All of the information on the first screen is printed. The second screen contains the GSE equipment required. The equipment nomenclature is omitted from the GSE equipment entries on the second screen, but the part number is printed. The third and fourth screens contain space for the technology need description and the technology candidates identified and is printed in its entirety.

A sample of the printout appears on the next page with an explanation of all the fields.

Technology Identification Sheet

Seq. Task No.: ..[1].... Facility: ....[2]..... OMI Page Count: [3].
OMI No: .....[4]..... OMI Title: ..[ACTUAL TITLE PRINTED ON OMI].....
.....
Subtask OMI(s): .....[5]....., ..., ..., ...,
....., ..., ..., ..., ...,
....., ..., ..., ..., ...,
Prerequisite Task OMI: .....[6].....
Hazard: . Level: ...[7].. Vehicle Power Required: . LCC Support Required: .
GSE: .....[8]....., ..., ..., ...,
....., ..., ..., ...

Activity Description: ..[BRIEF DESCRIPTION OF OMI OPERATION].....
.....
.....
.....
.....

Personnel:	Head Count	Man Hours	Remarks
Mech. Tech:	..	....	...
Elec. Tech:	[9]	[1Ø]	[11]
Quality:	..	....	...
LCC Ops:	..	....	...
Support:	..	....	...
Engineering:	..	....	...
Total:	..	....	Time: .[12]

Issues .....[13]..... :..... :..... :.....

Technology Need Description: .....
.....
[THIS AREA TO BE USED FOR ANY NEEDS FOR IMPROVEMENT]
[IDENTIFIED FROM A REVIEW OF THE PROCEDURE]
.....
.....
.....

Technology Candidates Identified: .....
.....
[THIS AREA TO BE USED FOR A BRIEF DESCRIPTION]
[OF TECHNOLOGY IMPROVEMENT POSSIBILITIES]
.....

[ ] NOTES

[1] AN INTERNALLY ASSIGNED NUMBER USED BY STUDY TEAM.
[2] USAGE LOCATION SUCH AS OPF, VAB OR THE PAD.
[3] NUMBER OF PAGES IN THE OMI REVISION REVIEWED.
[4] OMI NUMBER AS IT APPEARS ON DOCUMENT.
[5] 14 MOST SIGNIFICANT SUBTASK OMIS LISTED IN OMI UNDER REVIEW.
[6] OMI THAT MUST HAVE BEEN PERFORMED BEFORE THIS ONE CAN BE RUN.
[7] HAZARDOUS - YES OR NO, LEVEL OF HAZARD , VEHICLE POWER NECESSARY TO PERFORM THIS OMI - YES OR NO, AND LCC INVOLVEMENT REQUIRED - YES OR NO.
[8] 8 MOST SIGNIFICANT GSE EQUIPMENT SETS REQUIRED FOR PERFORMANCE OF THIS OMI
[9] MAXIMUM NUMBER OF PERSONS REQUIRED TO PERFORM OMI.
[1Ø] HOURS REQUIRED BY THIS CATEGORY.
[11] N/A WILL APPEAR IF NO INFORMATION WAS AVAILABLE FOR THIS TASK.
[12] LENGTH OF TIME REQUIRED TO PERFORM THIS OMI
[13] PRELIMINARY ISSUES DATA BASE ISSUES IDENTIFIED DURING REVIEW OF THIS OMI.

Technology Identification Sheet

Seq. Task No: 1.000 Facility: OPF OMI Page Count: 735
OMI No: V1002 OMI Title: SHUTTLE LANDING-POST LANDING CONVOY OPERATIONS -KSC (LPS)
Subtask OMI(s): I2004 , I3012 , Q3053 , S5230 , Q6091 , Y3109 , V3528 , V3537 , V1091 , V3521 , , , , ,
Prerequisite Task OMI:
Hazard: Y Level: Vehicle Power Required: Y LCC Support Required: Y
OSE: 170-0991 , C70-1115 , H70-0508 , S70-1218 , S70-1226 , S70-0508 , S70-0534 , P72-1001

Activity Description: TO PROVIDE OVERALL CONTROL OF ALL RELATED ACTIVITIES DURING ANY LANDING OPERATIONS AND DETAILED PREPLANNED APPROVED ACTIONS AUTHORIZED IN THE EVENT OF ANY EMERGENCY OR CONTINGENCY.

Personnel:	Head Count	Man Hours	Remarks
Mech. Tech:	27	162.0	
Elec. Tech:	4	24.0	
Quality:	0	0.0	N/A
LCC Ops:	0	0.0	N/A
Support:	0	0.0	N/A
Engineering:	0	0.0	N/A
Total:	31	186.0	Time: 6.0

Issues: : : :

Technology Need Description:

Technology Candidates Identified:

Technology Identification Sheet

Seq. Task No: 2.000 Facility: OPF OMI Page Count: 80
OMI No: V5099 OMI Title: ORBITER SPOTTING, LIFTING AND LEVELING
Subtask OMI(s): V3508 , , ,
, , , ,
, , , ,
Prerequisite Task OMI:
Hazard: Y Level: Vehicle Power Required: N LCC Support Required: N
GSE: H70-0570 , H70-0768 , A70-0600 , H70-0508 ,
P72-1001 , , ,

Activity Description: PREPARE ORBITER FOR NORMAL MAINTENANCE BY LIFTING AND LEVELING ORBITER ZO 400 AT 253 INCHES OFF OPF FLOOR, USING ORBITER PLATFORM LIFT SYSTEM.

Personnel:	Head Count	Man Hours	Remarks
Mech. Tech:	14	56.0	
Elec. Tech:	0	0.0	N/A
Quality:	0	0.0	N/A
LCC Ops:	0	0.0	N/A
Support:	0	0.0	N/A
Engineering:	0	0.0	N/A
Total:	14	56.0	

Time: 4.0

Issues: : : :

Technology Need Description:

Technology Candidates Identified:

ORIGINAL PAGE IS OF POOR QUALITY

Technology Identification Sheet

Seq. Task No: 3.000 Facility: OPF OMI Page Count: 1167
OMI No: V1150 OMI Title: OMS/RCS DESERVICING(LPS)

Subtask OMI(s): V3511 , 03415 , W3103 , , ,
, , , , ,
, , , , ,
Prerequisite Task OMI:
Hazard: Y Level: Vehicle Power Required: Y LCC Support Required: Y
GSE: S70-0784-XX , S70-0065-XX , A70-0671-04 , A70-0672-XX ,
A70-1004 , F70-0031-02 , S70-0679-XX , S70-0695-XX

Activity Description:PERFORM OPF ORBITER DESERVICING OF FRCS AND OMS POD/XFD SYSTEM FOLLOWING FLIGHT. DESERVICING WILL OFF LOAD EXCESS PROPELLANT FROM TANKS, AND DRAIN AND PURGE PROPELLANT DISTRIBUTION SYSTEM TO PREPARE OMS/XFD SYSTEM AND FRCS FOR PRE-FLIGHT SERVICING OR REMOVAL FROM ORBITER.

Personnel:	Head Count	Man Hours	Remarks
Mech. Tech:	3	168.0	
Elec. Tech:	3	168.0	
Quality:	0	0.0	N/A
LCC Ops:	0	0.0	N/A
Support:	0	0.0	N/A
Engineering:	0	0.0	N/A
Total:	6	336.0	Time: 56.0

Issues: DESIGN CRITERIA :AUTOMATION :COST/MANHOURS :ACCESSABILITY

Technology Need Description:

Technology Candidates Identified:

Technology Identification Sheet

Seq. Task No: 4.000 Facility: OPF OMI Page Count: 150
OMI No: V9021 OMI Title: OME TRICKLE PURGE ACTIVATION/
DEACTIVATION
Subtask OMI(s): , , , ,
, , , ,
, , ,
Prerequisite Task OMI:
Hazard: Y Level: Vehicle Power Required: N LCC Support Required: N
ISE: F70-0031-001(2), S70-0570-3(SLS), S70-0704-11(12), S70-0065-XX ,
S70-0068-XX , S70-1228-1(2) , S70-0700-XX ,

Activity Description: TO PERFORM NECESSARY OPERATIONS TO SUPPORT THE OME TRICKLE PURGE HOOKUP, ACTIVATION, DEACTIVATION.

Personnel:	Head Count	Man Hours	Remarks
Mech. Tech:	2	24.0	
Elec. Tech:	0	0.0	N/A
Quality:	0	2.0	N/A
LCC Ops:	0	0.0	N/A
Support:	0	0.0	N/A
Engineering:	0	0.0	N/A
Total:	2	24.0	Time: 12.0

Issues: : : :

Technology Need Description:

Technology Candidates Identified:

Technology Identification Sheet

Req. Task No: 5.000 Facility: OPF OMI Page Count: 007
OMI No: V1091 OMI Title: ORBITER PRSD CRYO DRAIN (LPS)

Subtask OMI(s): V3543 , V3502 , V3507 , V3511 ,
V3512 , V3315 , V5033 , V5034 , V9A01RL1 ,
V7016 , I3117 , M2063 , 03415 ,
Prerequisite Task OMI:
Hazard: Y Level: Vehicle Power Required: Y LCC Support Required: Y
SSE: C70-0686 , C70-0689 , C70-0743-2 , C70-0807 ,
S70-0590 , S70-0786-2 , S70-1220 , S72-1106-1

Activity Description: TO PROVIDE INSTRUCTIONS TO DETANK AND INERT ORBITER PRSD LO2 AND LH2 TANKS AT OPF USING LPS.

Personnel:	Head Count	Man Hours	Remarks
Mech. Tech:	4	192.0	
Elec. Tech:	0	0.0	N/A
Quality:	0	0.0	N/A
LCC Ops:	0	0.0	N/A
Support:	0	0.0	N/A
Engineering:	0	0.0	N/A
Total:	4	192.0	Time: 48.0

Issues: DESIGN CRITERIA :COST/MANHOURS :

Technology Need Description: DEVELOP NEW, HIGH POWER-DENSITY FUEL CELLS OR BATTERIES THAT REQUIRE SIGNICANTLY LESS ON-LINEMAINTENANCE THAN THE CURRENT FUEL CELL SYSTEM. REPLACE THE CURRENT FUEL CELLS.

Technology Candidates Identified:
EARLY CANDIDATES APPEAR TO BE:

1. ALKALINE/ALKALINE REGENERATIVE FUEL CELL SYSTEM (RFCS)
2. INDIVIDUAL PRESSURE VESSEL (IPV) NI-H2 HATTERY
3. NAS BATTERIES (LONG TERM)
4. LI/SOCL2 BATTERIES (LONG TERM)

Technology Identification Sheet

Seq. Task No: 6.000 Facility: OPF OMI Page Count: 167
OMI No: V5432 OMI Title: PYRO REMOVAL AND SYSTEM SAFING

Subtask OMI(s): , , , ,
, , , , ,
, , , ,
Prerequisite Task OMI:
Hazard: Y Level: Vehicle Power Required: N LCC Support Required: N
GSE: H70-0565-2 SN2 , H72-1006 SN1 , A72-1014 , E70-0011 ,
H72-1003 , H72-1005 , ,

Activity Description: TO REMOVE EXPENDED PYRO DEVICES AND SECURE CONTINGENCY PYRO SYSTEMS.

Personnel:	Head Count	Man Hours	Remarks
Mech. Tech:	3	24.0	
Elec. Tech:	3	24.0	
Quality:	0	0.0	N/A
LCC Ops:	0	0.0	N/A
Support:	0	0.0	N/A
Engineering:	0	0.0	N/A
Total:	6	48.0	Time: 8.0

Issues: ; ; ;

Technology Need Description:

Technology Candidates Identified:

Technology Identification Sheet

Seq. Task No: 7.000 Facility: OPF OMI Page Count: 20:
OMI No: V5057 OMI Title: TVC/SSME GSE INSTALLATION/REMOVAL

Subtask OMI(s): V2270 , V3508 , V3512 , ,
, , , ,
, , ,

Prerequisite Task OMI:
Hazard: N Level: Vehicle Power Required: N LCC Support Required: N
GSE: A70-0501 , A70-0983 , A70-1056 , H70-0629 ,
M70-0021 , M70-0024 , S70-0902 , S72-1107-1

Activity Description: TO PROVIDE OPERATIONAL INSTRUCTIONS FOR INSTALLATION, USE AND REMOVAL OF LISTED GSE TO SUPPORT SSME, HYDRAULIC OR GN&C SUBSYSTEM TESTING.

Personnel:	Head Count	Man Hours	Remarks		
Mech. Tech:	4	32.0			
Elec. Tech:	0	0.0	N/A		
Quality:	0	0.0	N/A		
LCC Ops:	0	0.0	N/A		
Support:	0	0.0	N/A		
Engineering:	0	0.0	N/A		
Total:	4	32.0		Time:	12.0

Issues: : : :

Technology Need Description:

Technology Candidates Identified:

Technology Identification Sheet

Seq. Task No: 8.000 Facility: OPF OMI Page Count: 25
OMI No: V5003 OMI Title: ORBITER FERRY KIT REMOVAL AND PREPARATIONS FOR ORBITER ACCESS
Subtask OMI(s): , , , ,
, , , ,
, , ,
Prerequisite Task OMI:
Hazard: Y Level: Vehicle Power Required: N LCC Support Required: N
SSE: A70-0603 , A70-0657 , A70-0672-XX , A70-0702 ,
A70-0796 , A70-0797 , A70-0971 , A70-1011

Activity Description: TO REMOVE ORBITER FERRY KIT AND PREPARE ORBITER FOR ACCESS

Personnel:	Head Count	Man Hours	Remarks
Mech. Tech:	0	0.0	N/A
Elec. Tech:	0	0.0	N/A
Quality:	0	0.0	N/A
LCC Ops:	0	0.0	N/A
Support:	0	0.0	N/A
Engineering:	0	0.0	N/A
Total:	0	0.0	Time: 0.0

Issues: ACCESSABILITY : : :

Technology Need Description:

Technology Candidates Identified:

Technology Identification Sheet

Seq. Task No: 9.000 Facility: OPF OMI Page Count: 446
OMI No: V5017 OMI Title: CREW SYSTEMS DESTOWAGE

Subtask OMI(s): V6024 , V5067 , , , ,
, , , , ,
, , , ,
Prerequisite Task OMI:
Hazard: Y Level: Vehicle Power Required: N LCC Support Required: N
GSE: A70-0541 , P70-0805 , P70-0806 , H70-0557 ,
A70-0712 , A70-0796 , ,

Activity Description: REMOVE CREW SYSTEMS EQUIPMENT FROM ORBITER AFTER THE COMPLETION OF A MISSION.

Personnel:	Head Count	Man Hours	Remarks
Mech. Tech:	6	48.0	
Elec. Tech:	2	16.0	
Quality:	0	0.0	N/A
LCC Ops:	0	0.0	N/A
Support:	0	0.0	N/A
Engineering:	0	0.0	N/A
Total:	8	64.0	Time: 8.0

Issues: : : :

Technology Need Description:

Technology Candidates Identified:

Technology Identification Sheet

Seq. Task No: 10.000 Facility: OPF OMI Page Count: 1367
OMI No: V9001VL1-VL4 OMI Title: ORBITER POWER UP/DOWN-OPF(OPF)

Subtask OMI(s): V3500 , V3502 , V3507 , V3512 ,
V1184 , C2008 , , , ,
, , , ,
Prerequisite Task OMI:
Hazard: N Level: Vehicle Power Required: Y LCC Support Required: Y
GSE: C70-0807 , C72-1079 , C72-1250 , S70-0890-1 ,
S70-0508-2 , C70-0532 , C70-0910 , E70-0012

Activity Description:PROVIDE STANDARD INSTRUCTIONS FOR ORBITER POWER UP AND DOWN INCLUDING THE GSE REQUIRED FOR THE BASIC SUPPORT SYSTEMS,I.E. EPD&C, INSTRUMENTATION, ECLSS AND DPS.

Personnel:	Head Count	Man Hours	Remarks
Mech. Tech:	0	0.0	N/A
Elec. Tech:	4	0.0	N/A
Quality:	3	0.0	N/A
LCC Ops:	6	0.0	N/A
Support:	0	0.0	N/A
Engineering:	0	0.0	N/A
Total:	13	0.0	Time: 0.0

Issues: DESIGN CRITERIA :COST/MANPOWER :REQUIREMENTS :EXPERT SYSTEM

Technology Need Description:

Technology Candidates Identified:

Technology Identification Sheet

Seq. Task No: 11.000 Facility: OPF OMI Page Count: 250
OMI No: V5012 OMI Title: ORDNANCE INSTALLATION AND CHECKOUT (LPS)
Subtask OMI(s): S3500 , S6005 , V1086 , V3502 , V9001 , V9002.07 , V9024 , , , , , , , , ,
Prerequisite Task OMI:
Hazard: Y Level: Vehicle Power Required: Y LCC Support Required: Y
GSE: H72-1003 , C72-1127-2 , C72-1128 , A72-1014 , H72-1005 , E70-0011 , H72-0565-02 , H72-1006

Activity Description: INSTALL AND ELECTRICALLY CONNECT ORBITER ORDANANCE IN THE OPF.

Personnel:	Head Count	Man Hours	Remarks
Mech. Tech:	5	148.0	
Elec. Tech:	6	164.0	
Quality:	0	0.0	N/A
LCC Ops:	0	0.0	N/A
Support:	0	0.0	N/A
Engineering:	0	0.0	N/A
Total:	11	312.0	Time: 44.0

Issues: SAFETY : : :

Technology Need Description: REPLACE ORDNANCE DEVICES WITH NON-EXPLOSIVE DEVICES.

Technology Candidates Identified: NITINOL APPLICATION (NITINOL - A NICKEL-TITANIUM "MEMORY" ALLOY, CAN BE MECHANICALL DEFORMED AND THEN RETURNED TO ORIGINAL SHAPE BY HEAT WHILE EXERTING UP TO 300K PSI).

Technology Identification Sheet

Seq. Task No: 12.000 Facility: OPF OMI Page Count: 149
OMI No: V1104 OMI Title: ORBITER S/W GPC AND MMU READ/WRITE PROCEDURES (LPS)
Subtask OMI(s):
Prerequisite Task OMI:
Hazard: N Level: Vehicle Power Required: Y LCC Support Required:
OSE:

Activity Description: TO LOAD, PATCH, DUMP, AND COMPARE SOFTWARE FROM THE MASS MEMORY UNITS OR GPC'S.

Personnel:	Head Count	Man Hours	Remarks
Mech. Tech:	3	36.0	
Elec. Tech:	3	40.0	
Quality:	0	0.0	N/A
LCC Ops:	0	0.0	N/A
Support:	0	0.0	N/A
Engineering:	0	0.0	N/A
Total:	6	76.0	Time: 16.0

Issues: TIME/ON-LINE :REQUIREMENTS :

Technology Need Description:

Technology Candidates Identified:

Technology Identification Sheet

Seq. Task No: 13.000 Facility: OPF OMI Page Count: 142
OMI No: V1200 OMI Title: ORBITER FLIGHT RECORDER DUMP TO GSE DURING POST LANDING OPERATIONS
Subtask OMI(s):
Prerequisite Task OMI:
Hazard: N Level: Vehicle Power Required: N LCC Support Required: N
GSE:

Activity Description:ORBITER OPS 1, OPS 2 AND PAYLOAD RECORDER DUMP TO GSE DURING POST LANDING OPS TO RETRIEVE FLIGHT DATA FROM THE ORBITER OPS AND PAYLOAD FLIGHT TAPE RECORDER.

Personnel:	Head Count	Man Hours	Remarks
Mech. Tech:	1	12.0	
Elec. Tech:	4	48.0	
Quality:	0	0.0	N/A
LCC Ops:	0	0.0	N/A
Support:	0	0.0	N/A
Engineering:	0	0.0	N/A
Total:	5	60.0	Time: 12.0

Issues: FAULT DETECTION :REQUIREMENTS :

Technology Need Description:

SEE TIS 57 (V1003)

Technology Candidates Identified:

SEE TIS 57 (V1003)

Technology Identification Sheet

Seq. Task No: 14.000 Facility: OPF OMI Page Count: 139
OMI No: V1034.01-.03 OMI Title: CAUTION AND WARNING TURNAROUND VERIFICATION (LPS)
Subtask OMI(s): S9001 , V9001 , V9036 , ,
, , , ,
, , ,
Prerequisite Task OMI:
Hazard: N Level: Vehicle Power Required: Y LCC Support Required: Y
GSE: , , , ,
, , ,

Activity Description: PERFORM ANNUNCIATOR AND TONE CHECKS BETWEEN EACH FLIGHT.

Personnel:	Head Count	Man Hours	Remarks
Mech. Tech:	1	4.0	
Elec. Tech:	3	12.0	
Quality:	0	0.0	N/A
LCC Ops:	0	0.0	N/A
Support:	0	0.0	N/A
Engineering:	0	0.0	N/A
Total:	4	16.0	Time: 4.0

Issues: DESIGN :FAULT DETECTION :RELIABILITY :

Technology Need Description:

SEE TIS 57 (V1003)

Technology Candidates Identified:

SEE TIS 57 (V1003)

Technology Identification Sheet

Seq. Task No: 15.000 Facility: OPF OMI Page Count: 1749
OMI No: V5043VL1-VL3 OMI Title: SSME HEAT SHIELD INSTALLATION AND REMOVAL
Subtask OMI(s): V3508 , V3512 , V3511 , V2272 ,
V5057 , V1007 , , , ,
, , , ,
Prerequisite Task OMI:
Hazard: Y Level: Vehicle Power Required: N LCC Support Required: N
GSE: M70-0020-1 , H70-0855-1 , H70-1352 , H70-0541-02 ,
A72-1323 , H70-0588 , ,

Activity Description: PROVIDE INSTRUCTIONS FOR INSTALLATION AND/OR REMOVAL OF SSME MOUNTED AND ORBITER MOUNTED HEAT SHIELD SEGMENTS.

Personnel:	Head Count	Man Hours	Remarks
Mech. Tech:	15	1440.0	
Elec. Tech:	2	192.0	
Quality:	0	0.0	N/A
LCC Ops:	0	0.0	N/A
Support:	0	0.0	N/A
Engineering:	0	0.0	N/A
Total:	17	1632.0	Time: 96.0

Issues: DESIGN :TIME/ON-LINE :COST/MANHOURS :ACCESSABILITY

Technology Need Description:

Technology Candidates Identified:

Technology Identification Sheet

Seq. Task No: 16.000 Facility: OFF OMI Page Count: 63
OMI No: V5056 OMI Title: ORBITER AFT FUSELAGE GAS SAMPLER MODULE DISASSEMBLY, BUILDUP AND CHECKOUT
Subtask OMI(s):
Prerequisite Task OMI:
Hazard: Y Level: Vehicle Power Required: N LCC Support Required: N
GSE: C72-1109 , C72-1127-2

Activity Description: TO PROVIDE DISASSEMBLY, BATTERY PACK REMOVAL, ASSEMBLY AND CHECKOUT INSTRUCTIONS FOR ORBITER AFT FUSELAGE GAS SAMPLES.

Personnel:	Head Count	Man Hours	Remarks
Mech. Tech:	3	12.0	
Elec. Tech:	0	0.0	N/A
Quality:	0	0.0	N/A
LCC Ops:	0	0.0	N/A
Support:	0	0.0	N/A
Engineering:	0	0.0	N/A
Total:	3	12.0	Time: 4.0

Issues:

Technology Need Description:

Technology Candidates Identified:

Technology Identification Sheet

Seq. Task No: 17.000 Facility: OPF OMI Page Count: 1030
OMI No: V1011.01-.07 OMI Title: SSME ENGINE LEAK AND FUNCTIONAL (LPS)

Subtask OMI(s): V1171 , V9001VL4 , V9002VL1 , , ,
, , , , ,
, , , ,
Prerequisite Task OMI:
Hazard: Y Level: Vehicle Power Required: Y LCC Support Required: Y
GSE: S72-1106-2 , C72-1227 , S70-0670-XX , C70-0907 ,
C70-0743-XX , S70-0695-XX , Z70-0018-04 , A34-0329030

Activity Description: ACCOMPLISH THE FOLLOWING: HPFTP & MCC DRYING, TURBOPUMP INT. CHECKS; INT/EXT INSPECTION OF MAJOR COMP'S; INTEGRITY OF HE FLUID SYS; VERIFY INTEGRITY OF SSME HGM, LOX, & LH2 FLUID SYS'S; PNUEMATIC CHECKOUT & LEAK CHECKS & ROUTINE MODULE CHECKOUT OF SSME'S; AND OPERATIONAL INTEGRITY OF ALL SSME/ORBITER FLUID & ELECTRICAL INTERFACES FOLLOWING 10 ENGINE STARTS.

Personnel:	Head Count	Man Hours	Remarks
Mech. Tech:	9	1320.0	
Elec. Tech:	3	744.0	
Quality:	0	0.0	N/A
LCC Ops:	0	0.0	N/A
Support:	0	0.0	N/A
Engineering:	0	0.0	N/A
Total:	12	2064.0	Time: 252.0

Issues: DESIGN CRITERIA :REQUIREMENTS :COST/MANPOWER :RELIABILITY

Technology Need Description:

Technology Candidates Identified:

Technology Identification Sheet

Seq. Task No: 18.000 Facility: OPF OMI Page Count: 36
OMI No: V1113 OMI Title: ORBITER ATTITUDE REFERENCE

Subtask OMI(s):
Prerequisite Task OMI:
Hazard: N Level: Vehicle Power Required: N LCC Support Required: N
OSE:

Activity Description: TO DETERMINE ORBITER ROLL, PITCH AND YAW ANGLES

Personnel:	Head Count	Man Hours	Remarks
Mech. Tech:	0	0.0	N/A
Elec. Tech:	0	0.0	N/A
Quality:	0	0.0	N/A
LCC Ops:	0	0.0	N/A
Support:	0	0.0	N/A
Engineering:	0	0.0	N/A
Total:	0	0.0	Time: 4.0

Issues: TIME/ON-LINE

Technology Need Description:

Technology Candidates Identified:

Technology Identification Sheet

Seq. Task No: 19.000 Facility: OPF OMI Page Count: 648
OMI No: V5006.01-.03 OMI Title: PAYLOAD BAY DOOR OPENING TO 145 OR 160 DEGREE MAINTENANCE POSITION (LPS)
Subtask OMI(s): 03110 , V3509 , V9001VL1 , S3500 V6034 , , , , , , , ,
Prerequisite Task OMI:
Hazard: Y Level: Vehicle Power Required: Y LCC Support Required: Y
GSE: A70-0668 , A70-0883 , C70-0807 , C70-0870 , H70-0529 , H70-0728 , H70-0829 , H72-0828-5

Activity Description: POSITION PAYLOAD DOORS TO THE 145 OR 160 DEGREE MAINTENANCE POSITION TO ALLOW ACCESS TO THE PAYLOAD BAY, RADIATOR MECHANISMS, ETC.

Personnel:	Head Count	Man Hours	Remarks
Mech. Tech:	8	96.0	
Elec. Tech:	0	0.0	N/A
Quality:	0	0.0	N/A
LCC Ops:	0	0.0	N/A
Support:	0	0.0	N/A
Engineering:	0	0.0	N/A
Total:	8	96.0	Time: 12.0

Issues: ACCESSABLILTY :DESIGN :REQUIREMENTS :TIME/ON-LINE

Technology Need Description:

Technology Candidates Identified:

Technology Identification Sheet

Seq. Task No: 20.000 Facility: OPF OMI Page Count: 49
OMI No: V1173 OMI Title: REMOTE MANIPULATOR POSITIONING MECHANISM STOW/DEPOLY VERTICAL/HORIZONTAL
Subtask OMI(s): V9001VL1
Prerequisite Task OMI:
Hazard: N Level: Vehicle Power Required: Y LCC Support Required: Y
GSE:

Activity Description: TO STOW OR DEPLOY THE RMPM/RMS TO FACILITATE ACCESS TO PAYLOAD BAY AREA.

Personnel:	Head Count	Man Hours	Remarks
Mech. Tech:	2	6.0	
Elec. Tech:	3	9.0	
Quality:	0	0.0	N/A
LCC Ops:	0	0.0	N/A
Support:	0	0.0	N/A
Engineering:	0	0.0	N/A
Total:	5	15.0	Time: 3.0

Issues: DESIGN CRITERIA :FAULT DETECTION :

Technology Need Description:

SEE TIS 57 (V1003)

Technology Candidates Identified:

SEE TIS 57 (V1003)

Technology Identification Sheet

Seq. Task No: 21.000 Facility: OPF OMI Page Count: 1858
OMI No: V1009.01-.05 OMI Title: MPS LEAK AND FUNCTIONAL TEST (LPS)

Subtask OMI(s): V1171 , S3500 , V3502 , V9001 ,
, , , , ,
, , , ,
Prerequisite Task OMI:
Hazard: Y Level: Vehicle Power Required: Y LCC Support Required: Y
GSE: C70-0903 , C72-1227 , C70-0796 , E70-0036 ,
A70-0702 , C70-0807 , A70-0640-3 , S70-0695-2,-3

Activity Description: TO INSPECT THE 1000 MICRON SCREENS IN THE MAIN ENGINE FEED LINES AT THE OUTLET SIDE OF THE PREVALVES; PERFORM TIP LOAD AND FLAPPER ANGLE MEASUREMENTS ON THE 17 IN. QD'S AND VERIFY MPS COPPER PATHS, COMPONENT AND ELECTRICAL CHECKS.

Personnel:	Head Count	Man Hours	Remarks
Mech. Tech:	5	1320.0	
Elec. Tech:	3	792.0	
Quality:	0	0.0	N/A
LCC Ops:	0	0.0	N/A
Support:	0	0.0	N/A
Engineering:	0	0.0	N/A
Total:	8	2112.0	Time: 264.0

Issues: DESIGN :MAINTAINABILITY :TIME/ON-LINE :COST/MANPOWER

Technology Need Description:

Technology Candidates Identified:

Technology Identification Sheet

Seq. Task No: 22.000 Facility: OPF OMI Page Count: 163
OMI No: V6018 OMI Title: CABIN AIR RECIRULATION INSPECTION AND MAINTENANCE
Subtask OMI(s):
Prerequisite Task OMI:
Hazard: N Level: Vehicle Power Required: N LCC Support Required: N
GSE:

Activity Description: TO PERFORM ROUTINE MAINTENANCE ON THE CABIN FAN, IMU, AND AVIONICS BAY 1,2,3 DEBRIS SCREENS. THE CONDENSING HEAT EXCHANGER WILL BE INSPECTED FOR CORROSION AND BIOLOGICAL GROWTH, WATER SAMPLES WILL BE OBTAINED FROM THE CONDENSING HEAT EXCHANGER AND ANALYZED FOR BIOLOGICAL GROWTH. TOTAL SYSTEM WILL BE INSPECTED AND VACUUMED.

Personnel:	Head Count	Man Hours	Remarks
Mech. Tech:	4	368.0	
Elec. Tech:	0	0.0	N/A
Quality:	0	0.0	N/A
LCC Ops:	0	0.0	N/A
Support:	0	0.0	N/A
Engineering:	0	0.0	N/A
Total:	4	368.0	Time: 92.0

Issues: ACCESSABILITY :DESIGN :MAINTAINABILITY :

Technology Need Description:

Technology Candidates Identified:

Technology Identification Sheet

Seq. Task No: 23.000 Facility: OPF OMI Page Count: 1031
OMI No: V5E02 OMI Title: SPACE SHUTTLE MAIN ENGINE LRU COMPONENT REMOVAL/INSTALLATION-HIGH PRESSURE OXIDIZER TURBOPUMP (LPS)
Subtask OMI(s): V3512 , V5043 , V3508 , V5057 , V9002 , V3553 , , , , , ,
Prerequisite Task OMI:
Hazard: Y Level: Vehicle Power Required: Y LCC Support Required: Y
GSE: H70-0565 , H70-0774 , H70-0773 , A70-1265 , H70-1208 , A70-0885 , H70-0528 ,

Activity Description: TO PROVIDE PROCEDURES TO REMOVE SSME HIGH PRESSURE OXIDIZER TURBOPUMP (LRU) IN THE OPF (HOR).

Personnel:	Head Count	Man Hours	Remarks
Mech. Tech:	6	216.0	
Elec. Tech:	0	0.0	
Quality:	2	72.0	
LCC Ops:	0	0.0	N/A
Support:	0	0.0	N/A
Engineering:	1	72.0	
Total:	9	360.0	

Time: 36.0

Issues: ACCESSABILITY :MAINTAINABILITY :RELIABILITY :DESIGN

Technology Need Description:

Technology Candidates Identified:

ORIGINAL PAGE IS
OF POOR QUALITY

Technology Identification Sheet

Seq. Task No: 24.000 Facility: OPF OMI Page Count: 265
OMI No: V5E06 OMI Title: SPACE SHUTTLE MAIN ENGINE LRU
COMPONENT REMOVAL/INSTALLATION HIGH PRESSURE FUEL TURBOPUMP
Subtask OMI(s): V3512 , V3553 , V5043 , V3508 ,
V5057 , V9002 , V9001VL1 , 03119 , 13205 ,
, , , ,
Prerequisite Task OMI:
Hazard: Y Level: Vehicle Power Required: Y LCC Support Required: Y
GSE: H70-1208 , H70-0528 , H70-0774 , A70-0501 ,
S70-0902 , S70-0695-2 , A70-0983 , H70-0565

Activity Description: TO PROVIDE PROCEDURES TO REMOVE SSME HIGH PRESSURE FUEL TURBOPUMP (LRU) IN THE OPF (HOR).

Personnel:	Head Count	Man Hours	Remarks
Mech. Tech:	6	216.0	
Elec. Tech:	0	0.0	
Quality:	2	72.0	
LCC Ops:	0	0.0	N/A
Support:	0	0.0	N/A
Engineering:	1	36.0	
Total:	9	324.0	Time: 36.0

Issues: ACCESSABILITY :MAINTAINABILITY :RELIABILITY :DESIGN

Technology Need Description:

Technology Candidates Identified:

Technology Identification Sheet

Seq. Task No: 25.000 Facility: OPF OMI Page Count: 44
OMI No: V6002 OMI Title: POST FLIGHT INSPECTION LESS TPS

Subtask OMI(s): , , , ,
, , , , ,
, , , ,

Prerequisite Task OMI:
Hazard: Y Level: Vehicle Power Required: N LCC Support Required: N
GSE: A70-0724 , A70-1084 , C70-0799 , C70-0897 ,
, , ,

Activity Description: TO PERFORM VISUAL/NDT INSPECTIONS REQUIRED BY OMRS AND OMI AND TO SHAKE DOWN ACCESSIBLE AREAS FOR FLIGHT INDUCED DAMAGE/DEFECTS.

Personnel:	Head Count	Man Hours	Remarks
Mech. Tech:	3	396.0	
Elec. Tech:	0	0.0	N/A
Quality:	0	0.0	N/A
LCC Ops:	0	0.0	N/A
Support:	0	0.0	N/A
Engineering:	0	0.0	N/A
Total:	3	396.0	

Time: 132.0

Issues: TECHNOLOGY :COST/MANPOWER :

Technology Need Description:

Technology Candidates Identified:

Technology Identification Sheet

Seq. Task No: 26.000 Facility: OPF OMI Page Count: 132
OMI No: V6003 OMI Title: ORBITER SHAKEDOWN INSPECTION INTERNAL

Subtask OMI(s):

Prerequisite Task OMI:
Hazard: N Level: Vehicle Power Required: N LCC Support Required: N
GSE: S70-0902 , S70-0903

Activity Description: TO PERFORM AN INTERNAL VISUAL AND PHYSICAL INSPECTION OF ORBITER VEHICLE.

Personnel:	Head Count	Man Hours	Remarks
Mech. Tech:	4	96.0	
Elec. Tech:	0	0.0	N/A
Quality:	0	0.0	N/A
LCC Ops:	0	0.0	N/A
Support:	0	0.0	N/A
Engineering:	0	0.0	N/A
Total:	4	96.0	Time: 24.0

Issues: MAINTAINABILITY :DESIGN CRITERIA :REQUIREMENTS :

Technology Need Description:

Technology Candidates Identified:

Technology Identification Sheet

Sec. Task No: 27.000 Facility: OPF OMI Page Count: 5
OMI No: V6028 OMI Title: POST FLIGHT ORBITER REUSABLE SURFACE INSULATION INSPECTION
Subtask OMI(s):

Prerequisite Task OMI:
Hazard: N Level:
BSE: A72-0812-1

Vehicle Power Required: N LCC Support Required: N

Activity Description: TO PERFORM POST-LANDING AND PRE-FERRY VISUAL SURVEY/ INSPECTION OF ORBITER THERMAL PROTECTION SUBSYSTEM (TPS)

Personnel:	Head Count	Man Hours	Remarks
Mech. Tech:	0	0.0	
Elec. Tech:	0	0.0	
Quality:	7	560.0	
LCC Ops:	0	0.0	
Support:	0	0.0	
Engineering:	6	72.0	
Total:	13	632.0	Time: 60.0

Issues: TECHNOLOGY :COST/MANHOURS :

Technology Need Description: A RELIABLE TEST METHOD TO INSPECT THE TILE SYSTEM TO INCLUDE: CRACKS OR WATER IN THE TILE
ADEQUATE BOND LINE AND CONDITION OF FILLER BAR
INSPECTION METHOD SHOULD BE NON-INVASIVE, AUTOMATED, AND CAPABLE OF COMPUTER ANALYSIS.

Technology Candidates Identified:
* ACOUSTIC EXCITATION/LASER SENSING
  * NASA/ KSC FUNDED STUDY
  * EG&G/IDAHO NATIONAL ENGINEERING LABORATORY (INEL)
  * PHASE I COMPLETED - NON-CONTACTING ACOUSTO-OPTIC SENSING FEASIBLE
  * PHASE II WILL REFINE AND QUALIFY SENSOR, PROTOTYPE T-E SYSTEM
* BACKSCATTER X-RAY IMAGERY WILL BE INVESTIGATED UPON RECEIPT OF FUNDS.

Technology Identification Sheet

Seq. Task No: 28.000 Facility: OPF OMI Page Count: 656
OMI No: V9024VL1-VL6 OMI Title: THERMAL PROTECTION SYSTEM RSI MAINTENANCE
Subtask OMI(s):
Prerequisite Task OMI:
Hazard: N Level: Vehicle Power Required: N LCC Support Required: N
GSE:

Activity Description: TO PROVIDE GUIDELINES FOR EVALUATION AND REWORK OF TPS SYSTEM CONDITIONS. OUTLINES PROCESSING STEPS AND INDICATES REQUIRED INSPECTION BUY-OFF TO SUPPORT PLANNING AND PROCESS CONTROL.

Personnel:	Head Count	Man Hours	Remarks
Mech. Tech:	0	0.0	N/A
Elec. Tech:	0	0.0	N/A
Quality:	0	0.0	N/A
LCC Cps:	0	0.0	N/A
Support:	0	0.0	N/A
Engineering:	0	0.0	N/A
Total:	0	0.0	Time: 40.0

Issues:

Technology Need Description:

Technology Candidates Identified:

Technology Identification Sheet

Seq. Task No: 29.000 Facility: OPF OMI Page Count: 279
OMI No: V1053 OMI Title: ECLSS CABIN SENSOR FUNCTIONAL TEST (LPS)
Subtask OMI(s): V3511 , V3512 , , ,
, , , , ,
, , , ,
Prerequisite Task OMI:
Hazard: N Level: Vehicle Power Required: Y LCC Support Required: Y
GSE: C70-0748 , C70-1173 , A70-0658 , C72-0831 ,
M70-0022 , S70-0790-9 , A14-0034-2 ,

Activity Description: TO PERFORM INSTALLATION, REMOVAL AND CHECKOUT OF CO2 AND PPO2 SENSORS PLUS A FUNCTIONAL TEST OF THE CABIN PRESSURE SENSOR.

Personnel:	Head Count	Man Hours	Remarks
Mech. Tech:	1	12.0	
Elec. Tech:	4	40.0	
Quality:	0	0.0	N/A
LCC Ops:	0	0.0	N/A
Support:	0	0.0	N/A
Engineering:	0	0.0	N/A
Total:	5	52.0	Time: 12.0

Issues: FAULT DETECTION :COST/MANHOURS : :

Technology Need Description:

SEE TIS 57 (V1003)

Technology Candidates Identified:

SEE TIS 57 (V1003)

Technology Identification Sheet

Seq. Task No: 30.000 Facility: OPF OMI Page Count: 26
OMI No: V7353 OMI Title: WINDOW POLISHING FOR CONTAMINATION REMOVAL
Subtask OMI(s):
Prerequisite Task OMI:
Hazard: N Level: Vehicle Power Required: N LCC Support Required: N
GSE: A70-0580

Activity Description: TO POLISH ORBITER EXTERNAL WINDOW SURFACE FOR CONTAMINATION REMOVAL.

Personnel:	Head Count	Man Hours	Remarks
Mech. Tech:	2	120.0	
Elec. Tech:	0	0.0	N/A
Quality:	0	0.0	N/A
LCC Ops:	0	0.0	N/A
Support:	0	0.0	N/A
Engineering:	0	0.0	N/A
Total:	2	120.0	Time: 60.0

Issues: TECHNOLOGY :MAINTAINABILITY :COST/MANHOURS :

Technology Need Description: POSSIBLE DESIGN SOLUTIONS INCLUDE:
* DEVELOP A NEW MATERIAL FOR THE WINDSHIELD WTIH SURFACE THAT CONTAMINATION WIL NOT ADHERE TO.
* PROVIDE AN OVERLAY OR TREATMENT THAT COULD EITHER BE JETTISONED AFTER ASCENT OR REMOVED AFTER FLIGHT.
* REDESIGN SRB SEP MOTOR EXHAUST TO PREVENT IT FROM IMPINGING ON THE WINDOWS.

Technology Candidates Identified: POSSIBLE CANDIDATES:
* CARBON COATING WITH HARDNESS PROPERTY OF DIAMONDS
  * ION BEAM OR SPUTTERING
  * CHEMICAL VAPOR DEPOSITION
  * APPLICATION R&D
    * SDIO (CRYSTALLINE CARBON TECHNOLOGY INITIATIVE)
    * PENN STATE (CONSORTIUM ON DIAMOND FILM)
    * NASA/LERC
* POLYCRYSTALLINE MGAL204 SPINEL (FOR HIGH PERFORMANCE WINDOWS)
* USE NITINOL TO JETTISON AN OVERLAY

Technology Identification Sheet

Seq. Task No: 31.000 Facility: OPF OMI Page Count: 010
OMI No: V1022 OMI Title: FUEL CELL AND PRSD SYSTEM TEST -(LPS)

Subtask OMI(s): V3500 , V3502 , V3507 , B3511 ,
V3512 , V3515 , V3527 , V5033 , V5034 ,
V9001VL1 , V9014 , V9016 , ,
Prerequisite Task OMI:
Hazard: N Level: Vehicle Power Required: Y LCC Support Required: Y
GSE: C70-0807 , C70-0743-2 , C70-0834-1,-2 , C72-1227 ,
S70-0531-1,-2 , S70-0698-1,2,3 , S72-1106-1 , A70-0884

Activity Description: TO PROVIDE PROCEDURE FOR VERIFICATION OF FUEL CELL/PRSD INSTRUMENTATION AND CONTROLS INCLUDING FUNCTIONAL OPERATIONS OF SYSTEM RELIEF VALVES AND CONTROLS CIRCUITS ON ORBITER VEHICLE.

Personnel:	Head Count	Man Hours	Remarks
Mech. Tech:	2	144.0	
Elec. Tech:	1	72.0	
Quality:	1	72.0	
LCC Ops:	2	144.0	
Support:	0	0.0	N/A
Engineering:	0	0.0	N/A
Total:	6	432.0	Time: 72.0

Issues: FAULT DETECTION : : :

Technology Need Description:

SEE TIS 57 (V1003)
SEE TIS 5 (V1091)

Technology Candidates Identified:

SEE TIS 57 (V1003)
SEE TIS 5 (V1091)

Technology Identification Sheet

Seq. Task No: 32.000 Facility: OPF OMI Page Count: 352
OMI No: V1026 OMI Title: WASTE MANAGEMENT SYSTEM LEAK AND FUNCTIONAL TEST (LPS)
Subtask OMI(s): V3500 , V3511 , V3512 , V5067
V9001 , V9014 , , , , , , ,
Prerequisite Task OMI:
Hazard: N Level: Vehicle Power Required: Y LCC Support Required: Y
GSE: C70-0007 , C70-0743-001 , H70-0561-005 , A70-0659-002 ,
M70-0022 , S70-0791-2 , S70-0656 , P70-1013

Activity Description: TO PROVIDE PROCEDURES TO INSTALL WASTE COLLECTOR, TO TEST WASTE SUBSYSTEM AND WASTE WATER MANAGEMENT SYSTEM, AND PERFORM WASTE MANAGEMENT SYSTEM TURNAROUND OPERATIONS.

Personnel:	Head Count	Man Hours	Remarks
Mech. Tech:	5	320.0	
Elec. Tech:	3	192.0	
Quality:	0	0.0	N/A
LCC Ops:	0	0.0	N/A
Support:	0	0.0	N/A
Engineering:	0	0.0	N/A
Total:	8	512.0	Time: 64.0

Issues: TECHNOLOGY :TIME/OFF-LINE :TIME/ON-LINE :

Technology Need Description:

Technology Candidates Identified:

Technology Identification Sheet

Seq. Task No: 33.000 Facility: OFF OMI Page Count: 66
OMI No: V6012 OMI Title: HYDRAULIC SYSTEM INSPECTION

Subtask OMI(s): V3511 , V5057 , V5064 , V9002.08 ,
, , , , ,
, , , ,
Prerequisite Task OMI:
Hazard: N Level: Vehicle Power Required: N LCC Support Required: N
GSE: , , , ,
, , ,

Activity Description: TO INSPECT THE HYDRAULIC SYSTEM PREFLIGHT AND POSTFLIGHT TO DETECT SYSTEM DEGRADATION.

Personnel:	Head Count	Man Hours	Remarks
Mech. Tech:	3	204.0	
Elec. Tech:	4	272.0	
Quality:	0	0.0	N/A
LCC Ops:	0	0.0	N/A
Support:	0	0.0	N/A
Engineering:	0	0.0	N/A
Total:	7	476.0	Time: 60.0

Issues: TECHNOLOGY :COST/MANHOURS :DESIGN CRITERIA :

Technology Need Description:

Technology Candidates Identified:

Technology Identification Sheet

Seq. Task No: 34.000 Facility: OPF OMI Page Count: 904
OMI No: V9002.01-.10 OMI Title: OPF-VEHICLE HYDRAULIC POWER UP/DOWN

Subtask OMI(s): S3500 , V1133 , V9001 , , , , , , , , , ,
Prerequisite Task OMI:
Hazard: Y Level: Vehicle Power Required: Y LCC Support Required: Y
GSE: A70-0696 , C70-0894 , S72-0841 , S70-0843 , S70-0952 , S70-0861-1 , S72-0844-3 , S72-0844-4

Activity Description: APPLY HYDRAULIC GROUND POWER TO THE ORBITER TO SUPPORT HYDRAULIC OR ANY ASSOCIATED SUBSYSTEM TESTING.

Personnel:	Head Count	Man Hours	Remarks
Mech. Tech:	3	140.0	
Elec. Tech:	3	72.0	
Quality:	0	0.0	N/A
LCC Ops:	0	0.0	N/A
Support:	0	0.0	N/A
Engineering:	0	0.0	N/A
Total:	6	212.0	Time: 68.0

Issues: TECHNOLOGY :COST/MANHOURS :DESIGN CRITERIA :

Technology Need Description:

Technology Candidates Identified:

Technology Identification Sheet

Seq. Task No: 35.000 Facility: OPF OMI Page Count: 96
OMI No: V1131 OMI Title: ORBITER HYDRAULIC SYSTEM GN2
ACCUMULATOR SERVICING (LPS)
Subtask OMI(s): V9001VL1 , V3511 ; V9014 ,
,
,
Prerequisite Task OMI:
Hazard: N Level: Vehicle Power Required: Y LCC Support Required: Y
GSE: Z70-0018-2-3 , C70-0743-007 , S70-0646 ,
,

Activity Description: TO DETERMINE ACCUMULATOR PRECHARGE PRESSURE AND TO PRECHARGE THE ORBITER HYDAULIC SYSTEM BOOTSTRAP ACCUMULATORS AND THE OSME RETURN ACCUMULATOR TO FLIGHT PRESSURES IF SERVICING REQUIRED.

Personnel:	Head Count	Man Hours	Remarks
Mech. Tech:	3	72.0	
Elec. Tech:	2	48.0	
Quality:	0	0.0	N/A
LCC Ops:	0	0.0	N/A
Support:	0	0.0	N/A
Engineering:	0	0.0	N/A
Total:	5	120.0	Time: 24.0

Issues: TECHNOLOGY :COST/MANHOURS :DESIGN CRITERIA :

Technology Need Description:

Technology Candidates Identified:

Technology Identification Sheet

Seq. Task No: 36.000 Facility: OPF OMI Page Count: 52
OMI No: V9022 OMI Title: ET UMBILICAL DOOR POSITIONING

Subtask OMI(s): V9001VL1

Prerequisite Task OMI:
Hazard: N Level: Vehicle Power Required: Y LCC Support Required: Y
GSE: A70-0603 , A70-1031

Activity Description: PROVIDE PROCEDURES FOR POSITIONING THE ET UMBILICAL DOORS, DOOR LATCHES AND CENTERLINE LATCHES TO SUPPORT OPERATIONAL AND MANUFACTURING REQUIREMENTS.

Personnel:	Head Count	Man Hours	Remarks
Mech. Tech:	3	324.0	
Elec. Tech:	3	324.0	
Quality:	0	0.0	N/A
LCC Ops:	0	0.0	N/A
Support:	0	0.0	N/A
Engineering:	0	0.0	N/A
Total:	6	648.0	Time: 108.0

Issues: COST/MANHOURS :REQUIREMENTS :DESIGN CRITERIA :

Technology Need Description:

Technology Candidates Identified:

Technology Identification Sheet

Seq. Task No: 37.000 Facility: OPF OMI Page Count: 209
OMI No: V1123 OMI Title: ECLSS ARS FUNCTIONAL TEST (LPS)

Subtask OMI(s): V3501, V9001VL1, V3511, V3512

Prerequisite Task OMI:
Hazard: N Level: Vehicle Power Required: Y LCC Support Required: Y
GSE: C70-0548-01, S70-0679-03, C70-0796

Activity Description: TO PERFORM OPERATIONS NECESSARY TO FUNCTIONALLY TEST THE ARS WATER COOLANT LOOPS, CABIN TEMPERATURE CONTROL AND HUMIDITY SEPARATOR SYSTEMS, AND AVIONICS BAYS AND IMU AIR CIRCULATION CONDITIONING SYSTEM.

Personnel:	Head Count	Man Hours	Remarks
Mech. Tech:	1	4.0	
Elec. Tech:	3	12.0	
Quality:	0	0.0	N/A
LCC Ops:	0	0.0	N/A
Support:	0	0.0	N/A
Engineering:	0	0.0	N/A
Total:	4	16.0	

Time: 4.0

Issues: FAULT DETECTION :TIME/ON-LINE : :

Technology Need Description:

SEE TIS 57 (V1003)

Technology Candidates Identified:

SEE TIS 57 (V1003)

Technology Identification Sheet

Seq. Task No: 38.000 Facility: OPF OMI Page Count: 57
OMI No: V1134 OMI Title: WATER DRAIN AND HAZARDOUS GAS DETECTION LINE VERIFICATION AND DRAIN/VENT FILTER REPLACEMENT
Subtask OMI(s): , , , ,
, , , ,
, , , ,
Prerequisite Task OMI:
Hazard: N Level: Vehicle Power Required: N LCC Support Required: N
GSE: S70-0965 , S70-0679 , S70-0772 , Z70-0019-05 ,
S70-0657 , A70-0702 , S34-0160-01 ,

Activity Description: TO REMOVE RESIDUAL WATER ACCUMULATION FROM ORBITER FRCS AND NOSE WHEEL DRAIN LINES AND TO VERIFY NO LEAKS IN THE FRCS AND NOSE WHEEL DRAIN LINES AND THE HGDS SENSOR LINES UNDER VACUUM CONDITIONS.

Personnel:	Head Count	Man Hours	Remarks
Mech. Tech:	4	32.0	
Elec. Tech:	2	16.0	
Quality:	0	0.0	N/A
LCC Ops:	0	0.0	N/A
Support:	0	0.0	N/A
Engineering:	0	0.0	N/A
Total:	6	48.0	Time: 8.0

Issues: DESIGN :MAINTAINABILITY : :

Technology Need Description:

Technology Candidates Identified:

Technology Identification Sheet

Sec. Task No: 39.000 Facility: OPF OMI Page Count: 7.6
OMI No: V1078 OMI Title: APU LUBE OIL SERVICING-LPS

Subtask OMI(s): S3500 , V9014 , V3504 , V9011VL ,
, , , ,
, , , ,

Prerequisite Task OMI:
Hazard: Y Level: Vehicle Power Required: Y LCC Support Required: Y
GSE: C70-0743-002 , S70-0679-11 , S70-0778-3 , S70-0679-2 ,
S70-0700-11A , S72-0694-5 , S70-0613 , S70-0752

Activity Description:PERFORM POST FLIGHT CONTINGENCY SAMPLING & ULLAGE CHECK, MAGNETIC CHIP INSPECTION, GEARBOX REPRESSURIZATION, OFFLOAD OIL AND PURGE WITH GN2. REMOVE FLIGHT FILTER, INSTALL FLUSH FILTER & FLUSH, REPLACE FLIGHT FILTER AND LEAK TEST. MONITOR DELTA PRESSURES BETWEEN ALL APU GEARBOXES AND RESPECTIVE DRAIN CAVITIES.

Personnel:	Head Count	Man Hours	Remarks
Mech. Tech:	4	192.0	
Elec. Tech:	2	96.0	
Quality:	0	0.0	N/A
LCC Ops:	0	0.0	N/A
Support:	0	0.0	N/A
Engineering:	0	0.0	N/A
Total:	6	288.0	Time: 48.0

Issues: TECHNOLOGY :REQUIREMENTS :DESIGN CRITERIA :

Technology Need Description:

Technology Candidates Identified:

Technology Identification Sheet

Seq. Task No: 40.000
Facility: OPF
OMI Page Count: 168
OMI No: V6005
OMI Title: STAR TRACKER INSPECTION AND CLEANING

Subtask OMI(s): V3508, V3509, V3511

Prerequisite Task OMI:
Hazard: N Level:
Vehicle Power Required: Y
LCC Support Required: Y
GSE: A70-0887, A70-1019, H70-0789

Activity Description: TO PROVIDE A PROCEDURE FOR INSPECTION, CLEANING, REMOVAL AND INSTALLATION OF THE STAR TRACKER, PROTECTIVE WINDOW AND LIGHT SHADE.

Personnel:	Head Count	Man Hours	Remarks
Mech. Tech:	1	8.0	
Elec. Tech:	1	8.0	
Quality:	0	0.0	N/A
LCC Ops:	0	0.0	N/A
Support:	0	0.0	N/A
Engineering:	0	0.0	N/A
Total:	2	16.0	

Time: 8.0

Issues: TECHNOLOGY

Technology Need Description:

Technology Candidates Identified:

Technology Identification Sheet

Seq. Task No: 41.000 Facility: OPF OMI Page Count: 175
OMI No: V1153 OMI Title: APU WATER SERVICING (LPS)

Subtask OMI(s): V3500 , S9001 , V3511 , V3512 ,
V7223 , V9014 , V2350 , V3508 , V3502 ,
, , , ,
Prerequisite Task OMI:
Hazard: N Level: Vehicle Power Required: Y LCC Support Required: Y
GSE: C70-0743-002 , S70-0679-11 , S70-0986 , S70-1232 ,
Z70-0018-006 , , ,

Activity Description: TO PERFORM THE FOLLOWING OPERATION ON THE PRIMARY AND SECONDARY PUMP/VLV COOLING WATER TANKS AND THE INJECTOR COOLING TANK, OFFLOAD, DIAPHRAGM LEAK TEST AND SERVICING.

Personnel:	Head Count	Man Hours	Remarks
Mech. Tech:	4	32.0	
Elec. Tech:	3	24.0	
Quality:	0	0.0	N/A
LCC Ops:	0	0.0	N/A
Support:	0	0.0	N/A
Engineering:	0	0.0	N/A
Total:	7	56.0	Time: 0.0

Issues: TECHNOLOGY :COST/MANHOURS :DESIGN CRITERIA :

Technology Need Description:

Technology Candidates Identified:

Technology Identification Sheet

Seq. Task No: 42.000 Facility: OPF OMI Page Count: 1899
OMI No: V1005 OMI Title: ORBITER COMM. SYSTEM TEST (LPS)

Subtask OMI(s): D2013 , S3500 , V3502 , V3503 ,
V9001VL1 , , , ,
, , , ,
Prerequisite Task OMI:
Hazard: Y Level: Vehicle Power Required: Y LCC Support Required: Y
GSE: A70-0386 , C70-0625 , C70-0724-1 , C70-0725-1 ,
C70-0727 , , ,

Activity Description:TO PERFORM A COMPLETE VERIFICATION OF ALL OF THE ORBITER COMMUNICATION SYSTEMS.

Personnel:	Head Count	Man Hours	Remarks
Mech. Tech:	0	0.0	N/A
Elec. Tech:	3	24.0	
Quality:	0	0.0	N/A
LCC Ops:	0	0.0	N/A
Support:	0	0.0	N/A
Engineering:	0	0.0	N/A
Total:	3	24.0	Time: 8.0

Issues: FAULT DETECTION : : :

Technology Need Description:

SEE TIS 57 (V1003)

Technology Candidates Identified:

SEE TIS 57 (V1003)

Technology Identification Sheet

Seq. Task No: 43.000 Facility: OPF OMI Page Count: 160
OMI No: V1062 OMI Title: AIR DATA SYSTEM FUNCTIONAL CHECKOUT
(LPS)
Subtask OMI(s): S3500 , V3502 , V9001
Prerequisite Task OMI:
Hazard: N Level: Vehicle Power Required: Y LCC Support Required: Y
OSE:

Activity Description: TO VERIFY FUNCTIONAL PATHS OF THE AIR DATA SYSTEM INCLUDING PROBE HEAT/DEPLOY SWITCH, DISCRETES, ANALOGS, AND TO MEASURE THE ACCURACY OF THE AIR DATA PRESSURE TRANSDUCER ASSEMBLIES.

Personnel:	Head Count	Man Hours	Remarks
Mech. Tech:	3	24.0	
Elec. Tech:	2	16.0	
Quality:	0	0.0	N/A
LCC Ops:	0	0.0	N/A
Support:	0	0.0	N/A
Engineering:	0	0.0	N/A
Total:	5	40.0	Time: 8.0

Issues: FAULT DETECTION :

Technology Need Description:

SEE TIS 57 (V1003)

Technology Candidates Identified:

SEE TIS 57 (V1003)

Technology Identification Sheet

Seq. Task No: 44.000 Facility: OPF OMI Page Count: 324
OMI No: V1076 OMI Title: ORBITER WCCS FUNCTIONAL TEST

Subtask OMI(s):

Prerequisite Task OMI:
Hazard: N Level: Vehicle Power Required: N LCC Support Required: N
GSE: S70-0532 , A70-0958 , S70-0989 , S70-0980-XXX

Activity Description: TO PROVIDE PROCEDURES TO VERIFY THE FUNCTIONAL CORRECTNESS OF THE ORBITER WINDOW CAVITY CONDITIONING SYSTEM.

Personnel:	Head Count	Man Hours	Remarks
Mech. Tech:	3	288.0	
Elec. Tech:	2	192.0	
Quality:	0	0.0	N/A
LCC Ops:	0	0.0	N/A
Support:	0	0.0	N/A
Engineering:	0	0.0	N/A
Total:	5	480.0	Time: 96.0

Issues: TECHNOLOGY :COST/MANHOURS :TIME/CYCLE :

Technology Need Description:
POSSIBLE ALTERNATIVES INCLUDE:
1. A NEW DESICCANT WITH RELIABLE INDICATORS FOR VISUAL INSPECTION.
2. IMPROVE ACCESSABILITY OF THE DESICCANT ASSEMBLIES.
3. A NEW METHOD TO CONTROL THE MOISTURE INGESTED OR TRAPPED IN THE CAVITIES BETWEEN THE WINDOW PANES.

Technology Candidates Identified: TECHNOLOGY SEARCH RESULTS:
1. NO DESICCANT HAS BEEN IDENTIFIED WITH THE DESIRED PROPERTIES.
2. DESICCANT ASSEMBLIES COULD BE RELOCATED TO THE PAYLOAD BAY.
3. BUILT-IN DRY PURGED FOR USE DURING THE ASCENT AND DESCENT PORTION OF THE FLIGHT.

Technology Identification Sheet

Seq. Task No: 45.000 Facility: OPF OMI Page Count: 412
OMI No: V1008 OMI Title: ORBITER NAVAIDS SYSTEM TEST (LPS)

Subtask OMI(s):

Prerequisite Task OMI:
Hazard: Y Level: Vehicle Power Required: Y LCC Support Required: Y
GSE:

Activity Description: VERIFY NO EXCESSIVE AIR LEAKS IN THE WAVE GUIDE RUN BETWEEN MIDDECK AND ANTENNAS. VERIFY ALL TACANS PASS ACTIVATION AND SELF-TEST REQUIREMENTS AND SYSTEM FUNCTIONS WITHIN ACCEPTABLE LIMITS.

Personnel:	Head Count	Man Hours	Remarks
Mech. Tech:	1	8.0	
Elec. Tech:	3	24.0	
Quality:	0	0.0	N/A
LCC Ops:	0	0.0	N/A
Support:	0	0.0	N/A
Engineering:	0	0.0	N/A
Total:	4	32.0	Time: 8.0

Issues: FAULT DETECTION

Technology Need Description:

SEE TIS 57 (V1003)

Technology Candidates Identified:

SEE TIS 57 (V1003)

Technology Identification Sheet

Seq. Task No: 46.000 Facility: OPF OMI Page Count: 188
OMI No: V1098 OMI Title: LANDING GEAR FUNCTIONAL TEST (LPS)

Subtask OMI(s): S3500 , V9001VL1 , V9002 , ,
, , , ,
, , , ,

Prerequisite Task OMI:
Hazard: Y Level: Vehicle Power Required: Y LCC Support Required: Y
GSE: A70-0601 , A70-0696 , H70-0570 , C70-0894 ,
S70-0646 , Z70-0018-007 , ,

Activity Description: TO PROVIDE PROCEDURES FOR VERIFICATION OF PROPER OPERATION OF THE ORBITER LANDING GEAR/DOOR SYSTEM.

Personnel:	Head Count	Man Hours	Remarks		
Mech. Tech:	7	56.0			
Elec. Tech:	3	24.0			
Quality:	0	0.0	N/A		
LCC Ops:	0	0.0	N/A		
Support:	0	0.0	N/A		
Engineering:	0	0.0	N/A		
Total:	10	80.0		Time:	8.0

Issues: FAULT DETECTION :TIME/ON-LINE :COST/MANHOURS :

Technology Need Description:

SEE TIS 57 (V1003)

Technology Candidates Identified:

SEE TIS 57 (V1003)

Technology Identification Sheet

Seq. Task No: 47.000 Facility: OPF OMI Page Count: 316
OMI No: V1018.02-.04 OMI Title: APU/HYDRAULIC WATER SPRAY BOILER DESERVICING (LPS)
Subtask OMI(s): , , ,
, , ,
, , ,
Prerequisite Task OMI:
Hazard: N Level: Vehicle Power Required: Y LCC Support Required: Y
GSE: S70-0775-2 , S70-0790-1 , S70-1231 , Z70-0018-5 ,
A70-0792-3 , A70-0790-2 , S70-1232 ,

Activity Description: TO SERVICE ORBITER SPRAY BOILERS WITH WATER AND GASEOUS NITROGEN.

Personnel:	Head Count	Man Hours	Remarks
Mech. Tech:	3	24.0	
Elec. Tech:	3	24.0	
Quality:	0	0.0	N/A
LCC Ops:	0	0.0	N/A
Support:	0	0.0	N/A
Engineering:	0	0.0	N/A
Total:	6	48.0	Time: 8.0

Issues: TECHNOLOGY :DESIGN CRITERIA :REQUIREMENTS :

Technology Need Description:

Technology Candidates Identified:

Technology Identification Sheet

Seq. Task No: 48.000 Facility: OPF OMI Page Count: 361
OMI No: V1055 OMI Title: POTABLE WATER SERVICING - WET SYSTEMS
KSC LANDING (LPS)
Subtask OMI(s): S9001VL1 , V3502 , V3504 , V9001VL1
V9014 , , , ,
, , , ,
Prerequisite Task OMI:
Hazard: Y Level: Vehicle Power Required: Y LCC Support Required: Y
GSE: C70--743-1 , C70-1153 , S70-0742 , S70-0787-2 ,
S70-0974 , , ,

Activity Description: TO SERVICE THE POTABLE WATER SYSTEM WITH 3-5 PPM IODINE/ WATER FOR FLIGHT CREW CONSUMPTION AND FLASH EVAPORATOR USE.

Personnel:	Head Count	Man Hours	Remarks
Mech. Tech:	5	120.0	
Elec. Tech:	2	48.0	
Quality:	0	0.0	N/A
LCC Ops:	0	0.0	N/A
Support:	0	0.0	N/A
Engineering:	0	0.0	N/A
Total:	7	168.0	

Time: 24.0

Issues: DESIGN :REQUIREMENTS :TECHNOLOGY :INTERFACE

Technology Need Description:

Technology Candidates Identified:

**ORIGINAL PAGE IS
OF POOR QUALITY**

Technology Identification Sheet

Seq. Task No: 49.000 Facility: OPF OMI Page Count: 590
OMI No: V1170 OMI Title: KU-BAND COMM/RADAR SYSTEMS TEST (LPS)

Subtask OMI(s): S3500 , V1114 , V1184 , V3508 ,
V3528 , V3546 , V5006.01 , V9001VL1 , V9001VL2 ,
, , , ,
Prerequisite Task OMI:
Hazard: Y Level: Vehicle Power Required: Y LCC Support Required: Y
GSE: C70-0625 , C70-0725 , C70-0727 , C70-0727-8 ,
C70-1188 , , ,

Activity Description: TO VERIFY THAT THE ORBITER KU-BAND COMMUNICATIONS/RADAR SYSTEM OPERATES WITHIN SPECIFIED LIMITS.

Personnel:	Head Count	Man Hours	Remarks
Mech. Tech:	2	16.0	
Elec. Tech:	5	40.0	
Quality:	0	0.0	N/A
LCC Ops:	0	0.0	N/A
Support:	0	0.0	N/A
Engineering:	0	0.0	N/A
Total:	7	56.0	Time: 8.0

Issues: FAULT DETECTION :COST/MNHOURS :TIME/ON-LINE :

Technology Need Description:

SEE TIS 57 (V1003)

Technology Candidates Identified:

SEE TIS 57 (V1003)

Technology Identification Sheet

Seq. Task No: 50.000 Facility: OPF OMI Page Count: 122
OMI No: V1077 OMI Title: ORBITER FUEL CELL COOLANT SERVICING AND SAMPLING (LPS)
Subtask OMI(s): V2051 , V3511 , V9014 , V9016
Prerequisite Task OMI:
Hazard: N Level: Vehicle Power Required: Y LCC Support Required: Y
GSE: Z70-0018-6 , A70-0685-1

Activity Description: TO PROVIDE PROCEDURES TO MEASURE COMPRESSIBILITY AND SAMPLE THE FUEL CELL COOLANT LOOPS.

Personnel:	Head Count	Man Hours	Remarks
Mech. Tech:	3	24.0	
Elec. Tech:	0	0.0	N/A
Quality:	0	0.0	N/A
LCC Ops:	0	0.0	N/A
Support:	0	0.0	N/A
Engineering:	0	0.0	N/A
Total:	3	24.0	Time: 8.0

Issues: TECHNOLOGY : : :

Technology Need Description:

SEE TIS 5 (V1091)

Technology Candidates Identified:

SEE TIS 5 (V1091)

Technology Identification Sheet

Seq. Task No: 51.000 Facility: OPF OMI Page Count: 216
OMI No: V1093 OMI Title: FUEL CELL SINGLE CELL VOLTAGE TEST (LPS)
Subtask OMI(s): S3500 , V1050 , V1091 , V1120 , V3502 , V3507 , V3511 , V3512 , V3515 , V9001 , V9014 , V9016 , ,
Prerequisite Task OMI:
Hazard: Y Level: Vehicle Power Required: Y LCC Support Required: Y
GSE: C70-0807 , C70-0854 , S70-0590 , S70-0679-1 , S70-0695-1 , S70-0698-1,2,3 , S70-0815-2,3 , S70-0825-1,2

Activity Description: TO PROVIDE PROCEDURES TO CONDUCT A SINGLE CELL VOLTAGE TEST (BOTH THE TAFEL TEST AND GN2 DIAGNOSTIC TEST) OF THE ORBITER FUEL CELLS.

Personnel:	Head Count	Man Hours	Remarks
Mech. Tech:	3	0.0	N/A
Elec. Tech:	2	0.0	N/A
Quality:	2	0.0	N/A
LCC Ops:	2	0.0	N/A
Support:	0	0.0	N/A
Engineering:	0	0.0	N/A
Total:	9	0.0	Time: 0.0

Issues: TECHNOLOGY :TIME/ON-LINE : :

Technology Need Description:

SEE TIS 5 (V1091)

Technology Candidates Identified:

SEE TIS 5 (V1091)

Technology Identification Sheet

Seq. Task No: 52.000 Facility: OFF OMI Page Count: 356
OMI No: V1097 OMI Title: ORBITER/ET UMBILICAL CLOSEOUT DOOR FUNCTIONAL TEST (LPS)
Subtask OMI(s): S3500 , V3502 , V9001VL1 , , , , , , , ,
Prerequisite Task OMI:
Hazard: N Level: Vehicle Power Required: Y LCC Support Required: Y
GSE: A70-0603 , A70-1031 , H70-0865 , , , ,

Activity Description: TO PROVIDE PROCEDURES FOR VERIFICATION OF PROPER OPERATION OF THE ORBITER/ET UMBILICAL CLOSEOUT DOORS AND LATCHES POWER DRIVE UNITS.

Personnel:	Head Count	Man Hours	Remarks
Mech. Tech:	3	24.0	
Elec. Tech:	3	24.0	
Quality:	0	0.0	N/A
LCC Ops:	0	0.0	N/A
Support:	0	0.0	N/A
Engineering:	0	0.0	N/A
Total:	6	48.0	Time: 8.0

Issues: DESIGN :TIME/ON-LINE :COST/MANHOURS :

Technology Need Description:

Technology Candidates Identified:

Technology Identification Sheet

Seq. Task No: 53.000 Facility: OFF OMI Page Count: 381
OMI No: V5069 OMI Title: ORBITER JACK TRANSFER TO AND FROM H70-0570 BODY JACKS & A70-0999 LANDING GEAR SUPPORT STANDS
Subtask OMI(s): V5014 , V5103 , V3508 , , , , , , , , , ,
Prerequisite Task OMI:
Hazard: N Level: Vehicle Power Required: N LCC Support Required: N
GSE: A70-0999 , H70-0570 , H70-0768 , C70-0743-7 SN67, Z70-0018 , , ,

Activity Description: TO TRANSFER ORBITER TO BODY JACKS OR L.G. SUPPORT STANDS AS REQUIRED TO SUPPORT OTHER SCHEDULED OPERATIONS.

Personnel:	Head Count	Man Hours	Remarks
Mech. Tech:	16	128.0	
Elec. Tech:	0	0.0	N/A
Quality:	0	0.0	N/A
LCC Ops:	0	0.0	N/A
Support:	0	0.0	N/A
Engineering:	0	0.0	N/A
Total:	16	128.0	Time: 8.0

Issues: COST/MANHOURS : : :

Technology Need Description:

Technology Candidates Identified:

Technology Identification Sheet

Seq. Task No: 54.000 Facility: OPF OMI Page Count: 509
OMI No: V1196 OMI Title: APU POST FLIGHT FUEL SYSTEM OPERATIONS (LPS)
Subtask OMI(s): , , , , , , , , , , , ,
Prerequisite Task OMI:
Hazard: Y Level: Vehicle Power Required: Y LCC Support Required: Y
GSE: C70-0743-002 , C70-0743-004 , F70-0013-006 , S70-0679-02 , S70-0679-11 , S70-0757 , S70-0758 ,

Activity Description: TO VENT APU FUEL TANKS AND FUEL MANIFOLDS TO PAD PRESSURE, DRAIN APU CAVITY DRAIN SYSTEM CATCH BOTTLES, AND PERFORM FUNCTIONAL TEST OF CATCH BOTTLE RELIEF VALVES AND ALCOHOL-FLUSH CAVITY DRAIN SYSTEM.

Personnel:	Head Count	Man Hours	Remarks
Mech. Tech:	5	120.0	
Elec. Tech:	2	48.0	
Quality:	0	0.0	N/A
LCC Ops:	0	0.0	N/A
Support:	0	0.0	N/A
Engineering:	0	0.0	N/A
Total:	7	168.0	Time: 24.0

Issues: TECHNOLOGY :COST/MANHOURS :DESIGN :

Technology Need Description:

Technology Candidates Identified:

Technology Identification Sheet

Seq. Task No: 55.000 Facility: OPF OMI Page Count: 558
OMI No: V1086 OMI Title: MASTER EVENT CONTROLLER/PYROTECHNIC INITIATOR CONTROLLER VERIFICATION (LPS)
Subtask OMI(s): V1003 , V3502 , V3507 , V9001 ,
S3500 , , , , ,
, , , .
Prerequisite Task OMI:
Hazard: N Level: Vehicle Power Required: Y LCC Support Required: Y
GSE: C77-0202 , C72-1128 , E70-0011 , C72-1280-1 ,
C72-1127-2 , , ,

Activity Description: TO FUNCTIONALLY VERIFY OPERATIONS OF EACH MASTER EVENT CONTROLLER. TEST AND VALIDATE ALL ORBITER MEC/PIC FUNCTIONS AND VALIDATE ALL ORBITER, ET, SRB, AND GROUND INTERFACES. VARIFY MANUAL PIC/LCA FUNCTIONS, FIRE EXTINGUISHERS AND LANDING GEARS.

Personnel:	Head Count	Man Hours	Remarks	
Mech. Tech:	2	48.0		
Elec. Tech:	3	72.0		
Quality:	0	0.0	N/A	
LCC Ops:	0	0.0	N/A	
Support:	0	0.0	N/A	
Engineering:	0	0.0	N/A	
Total:	5	120.0		Time: 24.0

Issues: FAULT DETECTION :COST/MANHOURS : :

Technology Need Description:

SEE TIS 57 (V1003)

Technology Candidates Identified:

SEE TIS 57 (V1003)

Technology Identification Sheet

Seq. Task No: 56.000 Facility: OPF OMI Page Count: 355
OMI No: V1165 OMI Title: LANDING GEAR MAINTENANCE

Subtask OMI(s):

Prerequisite Task OMI:
Hazard: Y Level: Vehicle Power Required: N LCC Support Required: N
GSE:

Activity Description: TO PERFORM NORMAL MAINTENANCE AND INSPECTION OF MAIN AND NOSE LANDING GEAR.

Personnel:	Head Count	Man Hours	Remarks
Mech. Tech:	4	288.0	
Elec. Tech:	0	0.0	N/A
Quality:	0	0.0	N/A
LCC Ops:	0	0.0	N/A
Support:	0	0.0	N/A
Engineering:	0	0.0	N/A
Total:	4	288.0	Time: 72.0

Issues: DESIGN :REQUIREMENTS :TECHNOLOGY :

Technology Need Description:

Technology Candidates Identified:

Technology Identification Sheet

Seq. Task No: 57.000 Facility: OPF OMI Page Count: 120
OMI No: V1003 OMI Title: ORBITER POWER SYSTEM VALIDATION

Subtask OMI(s): S3500 , V1084 , V3507 , V3511
V9001 , , , ,
, , , ,

Prerequisite Task OMI:
Hazard: N Level: Vehicle Power Required: Y LCC Support Required: Y
GSE: C70-0807 , C72-1250 , C72-1079 , S70-0508-2 ,
C70-0898 , C70-0519 , C72-1233 , C72-1337

Activity Description: TO FUNCTIONALLY EXERCISE AND VERIFY THE ELECTRICAL POWER DISTRIBUTION AND CONTROL SYSTEM AND ITS INTERFACES.

Personnel:	Head Count	Man Hours	Remarks
Mech. Tech:	2	24.0	
Elec. Tech:	4	48.0	
Quality:	0	0.0	N/A
LCC Ops:	0	0.0	N/A
Support:	0	0.0	N/A
Engineering:	0	0.0	N/A
Total:	6	72.0	Time: 12.0

Issues: FAULT DETECTION :DESIGN : :

Technology Need Description:

SEE TIS 57 (V1003)

Technology Candidates Identified:

SEE TIS 57 (V1003)

Technology Identification Sheet

Seq. Task No: 58.000 Facility: OPF OMI Page Count: 340
OMI No: V5011 OMI Title: APS POD REMOVAL/INSTALLATION AND PREP. FOR TRANSPORT
Subtask OMI(s): 03119 , 03205 , V3511 , V3555
Prerequisite Task OMI:
Hazard: N Level: Vehicle Power Required: N LCC Support Required: N
GSE: H70-0846 , H70-0679-3,-4 , H70-0511-4 , A70-1007
A70-0803 , H70-0713 , H70-0829 , A70-1085

Activity Description: TO REMOVE SAFED APS PODS FROM ORBITER FOR TRANSPORT TO HYPER CHECKOUT FACILITIY AND INSTALLATION OF PODS AFTER CHECKOUT.

Personnel:	Head Count	Man Hours	Remarks
Mech. Tech:	0	0.0	N/A
Elec. Tech:	0	0.0	N/A
Quality:	0	0.0	N/A
LCC Ops:	0	0.0	N/A
Support:	0	0.0	N/A
Engineering:	0	0.0	N/A
Total:	0	0.0	Time: 0.0

Issues: : : :

Technology Need Description:

Technology Candidates Identified:

Technology Identification Sheet

Seq. Task No: 59.000 Facility: OPF OMI Page Count: 70
OMI No: V9019 OMI Title: ORBITER MPS VACUUM JACKETED LINE
CHECKS AND SERVICING
Subtask OMI(s): V3527

Prerequisite Task OMI:
Hazard: N Level: Vehicle Power Required: N LCC Support Required: N
GSE: C70-1227, A70-1004

Activity Description: OBTAIN VACUUM READINGS ON THE MPS VACUUM-JACKETED PROPELLANT LINES PER ML0510-0030

Personnel:	Head Count	Man Hours	Remarks
Mech. Tech:	0	0.0	N/A
Elec. Tech:	0	0.0	N/A
Quality:	0	0.0	N/A
LCC Ops:	0	0.0	N/A
Support:	0	0.0	N/A
Engineering:	0	0.0	N/A
Total:	0	0.0	Time: 0.0

Issues:

Technology Need Description:

Technology Candidates Identified:

Technology Identification Sheet

Seq. Task No: 60.000 Facility: OPF OMI Page Count: 0
CMI No: N/A OMI Title: TPS WATERPROOFING

Subtask OMI(s):

Prerequisite Task OMI:
Hazard: N Level: Vehicle Power Required: N LCC Support Required: N
GSE:

Activity Description: APPLY WATERPROOFING TO THE TPS TILE.

Personnel:	Head Count	Man Hours	Remarks
Mech. Tech:	0	0.0	N/A
Elec. Tech:	0	0.0	N/A
Quality:	0	0.0	N/A
LCC Ops:	0	0.0	N/A
Support:	0	0.0	N/A
Engineering:	0	0.0	N/A
Total:	0	0.0	Time: 100.0

Issues: TECHNOLOGY :COST/MANHOURS : :

Technology Need Description:

Technology Candidates Identified:

Technology Identification Sheet

Seq. Task No: 61.000 Facility: OPF OMI Page Count: 1214
OMI No: V1180 OMI Title: RIGHT AND LEFT APS POD FUNCTIONAL CHECKOUT (LPS)
Subtask OMI(s): I2003 , I2022 , I3053 , M2061 ,
M2063 , M3095 , M3096 , M3141 , Q3415 ,
V2119 , W3103 , , , ,
Prerequisite Task OMI:
Hazard: Y Level: Vehicle Power Required: Y LCC Support Required: Y
GSE: C72-1227 , S70-0865-XX , S70-1119-X , C70-0743 ,
C70-0886-1 , S70-0784 , S70-0547 , S70-0548

Activity Description: TO DEMONSTRATE APS OMS/RCS GHE REGULATOR, CHECK VALVE AND RELIEF VALVE/BURST DISC FUNCTIONAL OPERATION AFTER EXENDED NON-TEST PERIODS.

Personnel:	Head Count	Man Hours	Remarks
Mech. Tech:	7	504.0	
Elec. Tech:	3	216.0	
Quality:	0	0.0	N/A
LCC Ops:	0	0.0	N/A
Support:	0	0.0	N/A
Engineering:	0	0.0	N/A
Total:	10	720.0	Time: 72.0

Issues: : : :

Technology Need Description:

Technology Candidates Identified:

Technology Identification Sheet

Seq. Task No: 62.000 Facility: OPF OMI Page Count: 124
OMI No: V1048 OMI Title: NOSE WHEEL STEERING CONTROL BOX CHECKOUT (LPS)
Subtask OMI(s): V3500 , V9001VL2 , V9001VL3 , V9002.01
Prerequisite Task OMI:
Hazard: Y Level: Vehicle Power Required: Y LCC Support Required: Y
GSE: C70-0769

Activity Description: TO VERIFY LOGIC ASSOCIATED WITH NOSE WHEEL STEERING AND RESPONSE TO MANUAL AND GPC COMMANDS, VERIFY NO RESPONSE IN CASTER (OFF) MODE AND FAIL LIGHT CYCLES PROPERLY.

Personnel:	Head Count	Man Hours	Remarks
Mech. Tech:	5	20.0	
Elec. Tech:	3	12.0	
Quality:	0	0.0	N/A
LCC Ops:	0	0.0	N/A
Support:	0	0.0	N/A
Engineering:	0	0.0	N/A
Total:	8	32.0	Time: 4.0

Issues: FAULT DETECTION :TIME/ON-LINE :

Technology Need Description:

SEE TIS 57 (V1003)

Technology Candidates Identified:

SEE TIS 57 (V1003)

Technology Identification Sheet

Seq. Task No: 63.000 Facility: OPF OMI Page Count: 310
OMI No: V1065 OMI Title: BRAKE/ANTI-SKID CONTROL SYSTEM TEST
(LPS)
Subtask OMI(s): V3500 , V9001VL1 , V9001VL3 , V9002.01 ,
, , , ,
, , , ,
Prerequisite Task OMI:
Hazard: Y Level: Vehicle Power Required: Y LCC Support Required: Y
GSE: A70-0771 , A70-0787 , , ,
, , ,

Activity Description: TO VERIFY THE SIGNALS, INTERFACES AND VOTING LOGIC OF THE BRAKE AND SKID CONTROL SYSTEM.

Personnel:	Head Count	Man Hours	Remarks
Mech. Tech:	4	16.0	
Elec. Tech:	3	12.0	
Quality:	0	0.0	N/A
LCC Ops:	0	0.0	N/A
Support:	0	0.0	N/A
Engineering:	0	0.0	N/A
Total:	7	28.0	Time: 4.0

Issues: FAULT DETECTION :COST/MANPOWER :MAINTAINABILITY :

Technology Need Description:

SEE TIS 57 (V1003)

Technology Candidates Identified:

SEE TIS 57 (V1003)

Technology Identification Sheet

Seq. Task No: 64.000 Facility: OPF OMI Page Count: 385

OMI No: V1060 (LPS) OMI Title: FLIGHT CONTROL AEROSURFACE CHECKOUT

Subtask OMI(s): V3500 , S9001 , V1123 , V9002.01 ,
V9002.02 , V9002.05 , , , ,
, , , ,

Prerequisite Task OMI:

Hazard: Y Level: Vehicle Power Required: Y LCC Support Required: Y

GSE: C70-0561 , , , ,
, , ,

Activity Description: TO FUNCTIONALLY CHECK THE PROPER OPERATION AND ACCURACY OF THE ORBITER'S AEROSURFACE FLIGHT CONTROL SYSTEMS.

Personnel:	Head Count	Man Hours	Remarks
Mech. Tech:	7	28.0	
Elec. Tech:	3	12.0	
Quality:	0	0.0	N/A
LCC Ops:	0	0.0	N/A
Support:	0	0.0	N/A
Engineering:	0	0.0	N/A
Total:	10	40.0	

Time: 4.0

Issues: FAULT DETECTION :DESIGN : :

Technology Need Description:

SEE TIS 57 (V1003)

Technology Candidates Identified:

SEE TIS 57 (V1003)

Technology Identification Sheet

Seq. Task No: 65.000 Facility: OPF OMI Page Count: 489
OMI No: V1063 OMI Title: FLIGHT CONTROL MPS TVC CHECKOUT AND SRB SIMULATED INTERFACE VERIFICATION (LPS)
Subtask OMI(s): S3500 , S9001 , V1123 , V3502 ,
V3503 , V3504 , V5057 , V9001VL1 , V9002 ,
, , , , ,
Prerequisite Task OMI:
Hazard: Y Level: Vehicle Power Required: Y LCC Support Required: Y
GSE: C70-0796 , M70-0021 , , ,
, , ,

Activity Description: TO VERIFY THE COMMAND, FEEDBACK AND FAILURE DETECTION AND FUNCTIONAL OPERATION OF THE ORBITER ASCENT THRUST VECTOR CONTROL.

Personnel:	Head Count	Man Hours	Remarks
Mech. Tech:	4	16.0	
Elec. Tech:	3	12.0	
Quality:	0	0.0	N/A
LCC Ops:	0	0.0	N/A
Support:	0	0.0	N/A
Engineering:	0	0.0	N/A
Total:	7	28.0	Time: 4.0

Issues: FAULT DETECTION :MAINTAINABILITY :COST/MANHOURS :

Technology Need Description:

Technology Candidates Identified:

Technology Identification Sheet

Seq. Task No: 66.000 Facility: OPF OMI Page Count: 436
OMI No: V1161 OMI Title: ORBITER VEHICLE BUS REDUNDANCY TEST
(LPS)
Subtask OMI(s): V9001VL1 , V9001VL2 , V9001VL4 , V1123 ,
S3500 , V1171 , , , ,
, , , ,
Prerequisite Task OMI:
Hazard: Y Level: Vehicle Power Required: Y LCC Support Required: Y
GSE: , , , ,
, , ,

Activity Description: TO PROVIDE AN INTEGRATED BUS REDUNDANCY TEST WHICH INCLUDES ALL ORBITER VEHICLE SYSTEMS CONTAINING BUS REDUNDANT DESIGN.

Personnel:	Head Count	Man Hours	Remarks	
Mech. Tech:	1	8.0		
Elec. Tech:	3	24.0		
Quality:	0	0.0	N/A	
LCC Ops:	0	0.0	N/A	
Support:	0	0.0	N/A	
Engineering:	0	0.0	N/A	
Total:	4	32.0		Time: 8.0

Issues: FAULT DETECTION :TIME/ON-LINE :COST/MANHOURS :

Technology Need Description:

SEE TIS 57 (V1003)

Technology Candidates Identified:

SEE TIS 57 (V1003)

Technology Identification Sheet

Seq. Task No: 67.000 Facility: OPF OMI Page Count: 45
OMI No: V1001 OMI Title: SSME ELECTRICAL INTERFACE VERIFICATION (LPS)
Subtask OMI(s): V9001VL4
Prerequisite Task OMI:
Hazard: N Level: Vehicle Power Required: Y LCC Support Required: Y
GSE:

Activity Description: PROVIDE STANDARD INSTRUCTION TO TEST ALL EIU AND SSME CONTROLLER COPPER PATHS AFTER ENGINE INSTALLATION, AFTER ELECTRICAL LRU REPLACEMENT AND AFTER ENGINE HOT FIRING.

Personnel:	Head Count	Man Hours	Remarks
Mech. Tech:	1	4.0	
Elec. Tech:	3	12.0	
Quality:	0	0.0	N/A
LCC Ops:	0	0.0	N/A
Support:	0	0.0	N/A
Engineering:	0	0.0	N/A
Total:	4	16.0	Time: 4.0

Issues:

Technology Need Description:

Technology Candidates Identified:

Technology Identification Sheet

Seq. Task No: 68.000 Facility: OPF OMI Page Count: 324

OMI No: V1041 OMI Title: ECLSS NITROGEN AND OXYGEN SERVICING AND DESERVICING (LPS)

Subtask OMI(s): V9001 , V9014 , S3500 , , , , , , , , ,

Prerequisite Task OMI:

Hazard: Y Level: Vehicle Power Required: Y LCC Support Required: Y

GSE: S70-0691-1 , S70-0691-2 , S70-0825-1 , S70-0825-2 , S70-0825-3 , S70-0832-6 , ,

Activity Description: TO SERVICE AND DE-SERVICE THE ECLSS GN2 AND GO2 SYSTEMS TO DESIRED PRESSURE.

Personnel:	Head Count	Man Hours	Remarks
Mech. Tech:	3	36.0	
Elec. Tech:	3	36.0	
Quality:	0	0.0	N/A
LCC Ops:	0	0.0	N/A
Support:	0	0.0	N/A
Engineering:	0	0.0	N/A
Total:	6	72.0	

Time: 12.0

Issues: DESIGN CRITERIA :REQUIREMENTS :TIME/ON-LINE :COST/MANHOURS

Technology Need Description:

Technology Candidates Identified:

Technology Identification Sheet

Seq. Task No: 69.000 Facility: OPF . OMI Page Count: 393
OMI No: V5050 OMI Title: CREW EQUIPMENT INTERFACE TEST

Subtask OMI(s): V5010 , V5067 , V5097 , ,
, , , ,
, , , ,

Prerequisite Task OMI:
Hazard: N Level: Vehicle Power Required: N LCC Support Required: N
GSE: A70-0519 , A70-0643-3 , A70-0668 , A70-0719 ,
A70-0788 , A70-0883 , A70-0962 , H70-0829

Activity Description: PERFORM THE MECHANICAL INTERFACE CHECKS OF FEC, INCLUDING CCTV, COAS AND FLIGHT BINOCULARS, IN ON-ORBIT CONFIGURATIONS. PRIMARY FUNCTION INCLUDES: FIT CHECK OF FCE (ESPECIALLY THAT WHICH IS NEW TO A PARTICULAR MISSION) AND/OR GSE LIGHTING.

Personnel:	Head Count	Man Hours	Remarks		
Mech. Tech:	0	0.0	N/A		
Elec. Tech:	4	96.0			
Quality:	0	0.0	N/A		
LCC Ops:	0	0.0	N/A		
Support:	0	0.0	N/A		
Engineering:	0	0.0	N/A		
Total:	4	96.0		Time:	24.0

Issues: DESIGN :COST/MANHOURS : :

Technology Need Description:

Technology Candidates Identified:

Technology Identification Sheet

Seq. Task No: 70.000 Facility: OPF OMI Page Count: 225
OMI No: V1201 OMI Title: MPS/SSME HELIUM SIGNATURE TEST

Subtask OMI(s): V1111 , V1171 , V3535 , , , , , , , ,

Prerequisite Task OMI:
Hazard: N Level: Vehicle Power Required: Y LCC Support Required: Y
GSE: A70-0702 , S70-0534 , S70-0695-2 , S70-0695-8 ,
Z70-0023 , , ,

Activity Description: PERFORM LEAK CHECK OF ISOLATED MPS/SSME SYSTEMS USING VARIAN MASS SPECTROMETER AND PURGE AIR FLOW IN AFT SECTION.

Personnel:	Head Count	Man Hours	Remarks
Mech. Tech:	4	192.0	
Elec. Tech:	3	144.0	
Quality:	0	0.0	N/A
LCC Ops:	0	0.0	N/A
Support:	0	0.0	N/A
Engineering:	0	0.0	N/A
Total:	7	336.0	Time: 48.0

Issues: : : :

Technology Need Description:

Technology Candidates Identified:

Technology Identification Sheet

Seq. Task No: 71.000 Facility: OPF OMI Page Count: 52
OMI No: V1032 OMI Title: ORBITER CLOSEOUT PRIOR TO MOVE TO VAB

Subtask OMI(s):

Prerequisite Task OMI:
Hazard: N Level: Vehicle Power Required: N LCC Support Required: N
GSE:

Activity Description: PREPARE ORBITER FOR WEIGHT AND BALANCE AND MOVE TO VAB.

Personnel:	Head Count	Man Hours	Remarks
Mech. Tech:	10	1440.0	
Elec. Tech:	6	864.0	
Quality:	0	0.0	N/A
LCC Ops:	0	0.0	N/A
Support:	0	0.0	N/A
Engineering:	0	0.0	N/A
Total:	16	2304.0	Time: 144.0

Issues: COST/MANHOURS :REQUIREMENTS :TIME/ON-LINE :QA

Technology Need Description:

Technology Candidates Identified:

Technology Identification Sheet

Seq. Task No: 72.000 Facility: OPF OMI Page Count: 146
OMI No: V1176 OMI Title: PAYLOAD BAY CLOSEOUT CLEANING-OPF

Subtask OMI(s): V3508

Prerequisite Task OMI:
Hazard: N Level: Vehicle Power Required: N LCC Support Required: N
SOE:

Activity Description: TO CLEAN ACCESSIBLE PAYLOAD BAY SURFACES TO ONE OF THREE CLEANLINESS LEVEL OPTIONS AND TO QUALITATIVELY ASSESS THE TYPES AND LEVELS OF VARIOUS CONTAMINANTS WITH THE INTENT OF IMPROVING CONTAMINATION CONTROLS.

Personnel:	Head Count	Man Hours	Remarks
Mech. Tech:	4	144.0	
Elec. Tech:	0	0.0	N/A
Quality:	0	0.0	N/A
LCC Ops:	0	0.0	N/A
Support:	0	0.0	N/A
Engineering:	0	0.0	N/A
Total:	4	144.0	Time: 36.0

Issues: COST/MANHOURS :REQUIREMENTS :DESIGN :TIME/ON-LINE

Technology Need Description:

Technology Candidates Identified:

Technology Identification Sheet

Seq. Task No: 73.000 Facility: OPF OMI Page Count: 18
OMI No: V1059 OMI Title: DPS COMPUTER COMPLEX CHECKOUT (LPS)

Subtask OMI(s): S3500 , S9001 , V9001VL1 ,

Prerequisite Task OMI:
Hazard: N Level: Vehicle Power Required: Y LCC Support Required: Y
GSE:

Activity Description: PROVIDES INSTRUCTIONS FOR APPLYING ELECTRICAL POWER TO THE DATA PROCESSING SUBSYSTEM (DPS) AND PERFORMING DPS SUBSYSTEM LEVEL TESTS TO VERIFY SYSTEM READINESS TO SUPPORT ORBITER CHECKOUT AND PROCESSING.

Personnel:	Head Count	Man Hours	Remarks
Mech. Tech:	1	4.0	
Elec. Tech:	3	12.0	
Quality:	0	0.0	N/A
LCC Ops:	0	0.0	N/A
Support:	0	0.0	N/A
Engineering:	0	0.0	N/A
Total:	4	16.0	Time: 4.0

Issues: FAULT DETECTION

Technology Need Description:

Technology Candidates Identified:

Technology Identification Sheet

Seq. Task No: 74.000 Facility: OPF OMI Page Count: 738
OMI No: V1037 OMI Title: AMMONIA BOILER SERVICING,OPERATIONS AND DESERVICING (LPS)
Subtask OMI(s): I2003 , M2063 , M3011 , M3022 , M3039 , W3103 , S9001VL1 , V9014 , , , , , , ,
Prerequisite Task OMI:
Hazard: Y Level: Vehicle Power Required: Y LCC Support Required: Y
GSE: S70-0654 , S70-0776 , S70-1201-1 , S70-1201-2 , S70-1201 , S70-1211 , S70-0695-3 ,

Activity Description: TO PERFORM OPERATIONS NECESSARY TO SERVICE, DE-TANK AND SAFE THE NH3 STORAGE TANKS AND TO CONNECT THE NH3 VENT, OPERATE NH3 BOILER AND DE-TANK.

Personnel:	Head Count	Man Hours	Remarks
Mech. Tech:	7	168.0	
Elec. Tech:	3	72.0	
Quality:	0	0.0	N/A
LCC Ops:	0	0.0	N/A
Support:	0	0.0	N/A
Engineering:	0	0.0	N/A
Total:	10	240.0	Time: 24.0

Issues: COST/MANHOURS :DESIGN CRITERIA :REQUIREMENTS :

Technology Need Description:

Technology Candidates Identified:

Technology Identification Sheet

Sec. Task No: 75.000 Facility: OPF OMI Page Count: 147
OMI No: V1177 OMI Title: HEADS UP DISPLAY SYSTEM (HUDE, PDU)
CHECKOUT (LPS)
Subtask OMI(s):
Prerequisite Task OMI:
Hazard: N Level: Vehicle Power Required: Y LCC Support Required: Y
GSE:

Activity Description: TO FUNCTIONALLY VERIFY PROPER OPERATION OF HEADS UP DISPLAY ELECTRONICS UNIT (HUDE) AND PROPER OPERATION OF PILOT DISPLAY UNIT (PDU).

Personnel:	Head Count	Man Hours	Remarks
Mech. Tech:	1	4.0	
Elec. Tech:	3	12.0	
Quality:	0	0.0	N/A
LCC Ops:	0	0.0	N/A
Support:	0	0.0	N/A
Engineering:	0	0.0	N/A
Total:	4	16.0	Time: 4.0

Issues: FAULT DETECTION

Technology Need Description:

SEE TIS 57 (V1003)

Technology Candidates Identified:

SEE TIS 57 (V1003)

Technology Identification Sheet

Oeg. Task No: 76.002 Facility: OPF OMI Page Calc: 123
OMI No: V1029 OMI Title: DEDICATED DISPLAY AND DISPLAY DRIVER UNIT CHECKOUT (LPS)
Subtask OMI(s): V3500 , C9001 , , ,
, , , , ,
, , , , ,
Prerequisite Task OMI:
Hazard: N Level: Vehicle Power Required: Y LOC Support Required: Y
GSE: , , , , ,
, , ,

Activity Description: TO FUNCTIONALLY VERIFY PROPER OPERATION OF THE DISPLAY DRIVER UNITS (DDU'S) AND THE PROPER OPERATION ACCURACY AND INTEGRITY OF THE DEDICATED DISPLAYS (FORWARD, LEFT HAND AND RIGHT ADI, AMI, AVVI, HSI AND SPI AND AFT ADI)

Personnel:	Head Count	Man Hours	Remarks
Mech. Tech:	1	4.0	
Elec. Tech:	3	12.0	
Quality:	0	0.0	N/A
LOC Ops:	0	0.0	N/A
Support:	0	0.0	N/A
Engineering:	0	0.0	N/A
Total:	4	16.0	Time: 4.0

Issues: FAULT DETECTION :REQUIREMENTS : :

Technology Need Description:

SEE TIS 57 (V1003)

Technology Candidates Identified:

SEE TIS 57 (V1003)

Technology Identification Sheet

Seq. Task No: 77.000 Facility: OPF OMI Page Count: 94
OMI No: V1000 OMI Title: MULTIFUNCTION CRT DISPLAY SYSTEM (MCDS) CHECKOUT (LPS)
Subtask OMI(s): S3500 , S9001 , V9001VL1 ,
Prerequisite Task OMI:
Hazard: N Level: Vehicle Power Required: Y LCC Support Required:
GSE:

Activity Description: TO PROVIDE FUNCTIONAL CHECKOUT OF THE ORBITER MCDS CONSISTING OF ON-BOARD DISPLAY ELECTRONICS UNITS (DEU), DISPLAY UNITS (DU), AN KEYBOARD UNITS (KBU).

Personnel:	Head Count	Man Hours	Remarks
Mech. Tech:	5	20.0	
Elec. Tech:	3	12.0	
Quality:	0	0.0	N/A
LCC Ops:	0	0.0	N/A
Support:	0	0.0	N/A
Engineering:	0	0.0	N/A
Total:	8	32.0	Time: 4.0

Issues: FAULT DETECTION :REQUIREMENTS : :

Technology Need Description:

SEE TIS 57 (V1003)

Technology Candidates Identified:

SEE TIS 57 (V1003)

Technology Identification Sheet

Seq. Task No: 78.000 Facility: OPF OMI Page Count: 597
OMI No: V1171 OMI Title: MPS/SSME PRESSURIZATION OPERATION
(LPS)
Subtask OMI(s): G6105 , G6150 , G6205 , G625V1201
V1202 , V5057 , , ,
, , ,
Prerequisite Task OMI:
Hazard: Y Level: Vehicle Power Required: Y LCC Support Required: Y
GSE: , , , ,
, , ,

Activity Description: REPETITIVE TASK OMI TO ALLOW MPS/SSME SYSTEMS TO BE PRESSURIZED TO SUPPORT VEHICLE FLOW.

Personnel:	Head Count	Man Hours	Remarks
Mech. Tech:	0	0.0	N/A
Elec. Tech:	0	0.0	N/A
Quality:	0	0.0	N/A
LCC Ops:	0	0.0	N/A
Support:	0	0.0	N/A
Engineering:	0	0.0	N/A
Total:	0	0.0	

Time: 0.0

Issues: : : :

Technology Need Description:

Technology Candidates Identified:

Technology Identification Sheet

Seq. Task No: 79.000 Facility: OPF OMI Page Count: 97
OMI No: V1007 OMI Title: PVD STRUCTURAL LEAKAGE/POSITIVE PRESSURE TESTING AND FILTER MAINTENANCE (LPS)
Subtask OMI(s): V1111 , V3511 , V3512 , V3559 , V5067 , , , , , , , ,
Prerequisite Task OMI:
Hazard: N Level: Vehicle Power Required: Y LCC Support Required: Y
SSE: A70-0769 , C70-1107-2 , F70-0033-1 , S70-0534 , S70-0958 , S70-1310 , ,

Activity Description: TO DETERMINE THE LEAKAGE ACROSS THE ORBITER'S FUSELAGE AND STRUCTURAL BULKHEADS AND FOR COMPARTMENTS TO MAINTAIN A POSITIVE PRESSURE UNDER NORMAL PURGE FLOWRATES AND INSTRUCTIONS TO REMOVE AND REPLACE PVD VENT FILTERS.

Personnel:	Head Count	Man Hours	Remarks
Mech. Tech:	2	48.0	
Elec. Tech:	2	48.0	
Quality:	0	0.0	N/A
LCC Ops:	0	0.0	N/A
Support:	0	0.0	N/A
Engineering:	0	0.0	N/A
Total:	4	96.0	Time: 24.0

Issues: MAINTAINABILITY :DESIGN CRITERIA :TIME/ON0LINE :

Technology Need Description:

Technology Candidates Identified:

Technology Identification Sheet

Orig. Task No: 00.000 Facility: OPF OMI Page Color: 196
OMI No: V5018 OMI Title: PAYLOAD BAY DOOR CLOSING-HORIZONTAL (-90)
Subtask OMI(s): 03119 , V3500 , V3508 , VV30:VL1
, , , ,
, , , ,
Prerequisite Task OMI:
Hazard: Y Level: Vehicle Power Required: Y LCC Support Required:
SOE: A70-0646 , A70-0883 , C70-0827 , C70-0870 ,
H70-0529 , H70-0728 , H70-0829 , H72-0026-6

Activity Description: CLOSING OF PAYLOAD BAY DOORS PRIOR TO ROLLOUT FROM OPF.

Personnel:	Head Count	Man Hours	Remarks
Tech. Test:	8	96.0	
Elec. Test:	1	12.0	
Quality:	0	0.0	N/A
GSE Ops:	0	0.0	N/A
Support:	0	0.0	N/A
Engineering:	0	0.0	N/A
Total:	9	108.0	Time: 12.0

Issues: TIME/ON-LINE :DESIGN CRITERIA :REQUIREMENTS :

Technology Need Description:

Technology Candidates Identified:

Technology Identification Sheet

Seq. Task No: 81.000 Facility: OPF OMI Page Count: 246
OMI No: V1034 OMI Title: ORBITER FLIGHT CONTROL FREQUENCY RESPONSE TEST (LPS)
Subtask OMI(s): S3500 , V9002.08 , V5057 , V9022 , V7023 , , , , , , , , , , , ,
Prerequisite Task OMI:
Hazard: Y Level: Vehicle Power Required: Y LCC Support Required: Y
GSE: A70-0999 , S72-0841 , H70-0570 , , , , ,

Activity Description: DEMONSTRATE THE DYNAMIC PERFORMANCE OF THE FLIGHT CONTROL SYSTEM BY CONDUCTING A FREQUENCY RESPONSE TEST (FRT) AND/OR A STEP RESPONSE TEST ON THE FOLLOWING: AEROSURFACES, MPS-TVC SYSTEM.

Personnel:	Head Count	Man Hours	Remarks
Mech. Tech:	0	0.0	N/A
Elec. Tech:	0	0.0	N/A
Quality:	0	0.0	N/A
LCC Ops:	0	0.0	N/A
Support:	0	0.0	N/A
Engineering:	0	0.0	N/A
Total:	0	0.0	Time: 0.0

Issues: FAULT DETECTION :DESIGN :MAINTAINABILITY :

Technology Need Description:

SEE TIS 57 (V1003)

Technology Candidates Identified:

SEE TIS 57 (V1003)

Technology Identification Sheet

Seq. Task No: 32.000 Facility: OPF OMI Page Count: 122
OMI No: VS101 OMI Title: ORBITER WEIGHT AND CENTER OF GRAVITY DETERMINATION USING PLATFORM SCALES AND OPF PLATFORM LIFTING SYSTEM
Subtask OMI(s): , , , ,
, , , ,
, , ,
Prerequisite Task OMI:
Hazard: Y Level: Vehicle Power Required: N LCC Support Required: N
GSE: A70-0544 , A70-0600 , C70-0894 , H70-0508 ,
H70-0570 , H70-0768 , P72-1001 ,

Activity Description: TO CONFIGURE FOR AND PERFORM A THREE POINT ORBITER WEIGHING

Personnel:	Head Count	Man Hours	Remarks
Mech. Tech:	16	192.0	
Elec. Tech:	0	0.0	N/A
Quality:	0	0.0	N/A
LCC Ops:	0	0.0	N/A
Support:	0	0.0	N/A
Engineering:	0	0.0	N/A
Total:	16	192.0	Time: 12.0

Issues: DESIGN(SSE: :REQUIREMENTS :TIME/ON-LINE :COST/MANHOURS

Technology Need Description:

Technology Candidates Identified:

Technology Identification Sheet

Seq. Task No: 83.000 Facility: OPF OMI Page Count: 9
OMI No: N52XX OMI Title: DOWN CARGO OFFLOAD/DECONFIGURE

Subtask OMI(s):

Prerequisite Task OMI:
Hazard: Y Level: Vehicle Power Required: N LCC Support Required: N
GSE:

Activity Description: REMOVE ANY CARGO, CARGO EQUIPMENT OR CARGO RELATED SHUTTLE EQUIPMENT REMAINING FROM THE PREVIOUS MISSION.

Personnel:	Head Count	Man Hours	Remarks
Mech. Tech:	4	192.0	
Elec. Tech:	1	48.0	
Quality:	0	0.0	N/A
LCC Ops:	0	0.0	N/A
Support:	0	0.0	N/A
Engineering:	0	0.0	N/A
Total:	5	240.0	Time: 48.0

Issues: DESIGN :DESIGN CRITERIA :REQUIREMENTS :

Technology Need Description:

Technology Candidates Identified:

Technology Identification Sheet

Seq. Task No: 84.000 Facility: OPF OMI Page Count: 0
OMI No: V35Z2 OMI Title: INSTALL PAYLOAD BAY ACCESS

Subtask OMI(s):

Prerequisite Task OMI:
Hazard: Y Level: Vehicle Power Required: N LCC Support Required: N
GSE:

Activity Description: INSTALL PAYLOAD ACCESS PLATFORMS IN THE ORBITER PAYLOAD BAY TO PROVIDE ACCESS TO CARGO AND AIRBORNE SUPPORT EQUIPMENT.

Personnel:	Head Count	Man Hours	Remarks
Mech. Tech:	4	32.0	
Elec. Tech:	0	0.0	N/A
Quality:	0	0.0	N/A
LCC Ops:	0	0.0	N/A
Support:	0	0.0	N/A
Engineering:	0	0.0	N/A
Total:	4	32.0	Time: 8.0

Issues: TIME/ON-LINE :DESIGN :REQUIREMENTS :COST/MANHOURS

Technology Need Description:

Technology Candidates Identified:

Technology Identification Sheet

Seq. Task No: 85.000 Facility: OPF OMI Page Count: 0
OMI No: N/A OMI Title: AFT FLIGHT DECK RECONFIGURATION/ RECONFIGURATION
Subtask OMI(s):
Prerequisite Task OMI:
Hazard: N Level: Vehicle Power Required: N LCC Support Required: N
GSE:

Activity Description: REMOVE EQUIPMENT FROM AFT FLIGHT DECK USED TO SUPPORT CARGO ON PREVIOUS MISSION AND INSTALL EQUIPMENT REQUIRED TO SUPPORT NEXT MISSION.

Personnel:	Head Count	Man Hours	Remarks
Mech. Tech:	0	0.0	N/A
Elec. Tech:	2	336.0	
Quality:	0	0.0	N/A
LCC Ops:	0	0.0	N/A
Support:	0	0.0	N/A
Engineering:	0	0.0	N/A
Total:	2	336.0	Time: 168.0

Issues: DESIGN CRITERIA :REQUIREMENTS :COST/MANHOURS : TIME/ON-LINE

Technology Need Description:

Technology Candidates Identified:

Technology Identification Sheet

Seq. Task No: 36.000 Facility: OPF OMI Page Count: 0
OMI No: N/A OMI Title: PAYLOAD BAY RECONFIGURATION (MECH & ELECT)
Subtask OMI(s):
Prerequisite Task OMI:
Hazard: Y Level: Vehicle Power Required: N LCC Support Required: N
GSE:

Activity Description: RECONFIGURE THE PAYLOAD BAY BRIDGES (KEEL & LONGERON) AND SMCH CABLES TO SUPPORT NEXT MISSION.

Personnel:	Head Count	Man Hours	Remarks
Mech. Tech:	4	768.0	
Elec. Tech:	3	576.0	
Quality:	0	0.0	N/A
LCC Ops:	0	0.0	N/A
Support:	0	0.0	N/A
Engineering:	0	0.0	N/A
Total:	7	1344.0	Time: 192.0

Issues: TIME/ON-LINE :COST/MANHOUR :REQUIREMENTS :DESIGN CRITERIA

Technology Need Description:

Technology Candidates Identified:

Technology Identification Sheet

Seg. Task No: 07.000 Facility: ØPF OMI Page Count: Ø
OMI No: N/A OMI Title: PAYLOAD BAY RADIATOR FUNCTIONAL/KU/
RMS/TANK SET OPPORTUNITY
Subtask OMI(s):
Prerequisite Task OMI:
Hazard: Y Level: Vehicle Power Required: N LCC Support Required: N
GSE:

Activity Description: SCHEDULE OPPORTUNITY TO PERFORM RADIATOR FUNCTIONAL TEST, KU BAND TEST, RMS INSTALLATION AND TEST, AND FUEL CELL TANK SET INSTALLATION/ REMOVAL.

Personnel:	Head Count	Man Hours	Remarks
Mech. Tech:	4	480.0	
Elec. Tech:	3	360.0	
Quality:	Ø	Ø.Ø	N/A
LCC Ops:	Ø	Ø.Ø	N/A
Support:	Ø	Ø.Ø	N/A
Engineering:	Ø	Ø.Ø	N/A
Total:	7	840.0	Time: 120.0

Issues: TIME/ON-LINE :COST/MANHOURS :DESIGN CRITERIA :REQUIREMENTS

Technology Need Description:

Technology Candidates Identified:

Technology Identification Sheet

Seq. Task No: 80.000 Facility: OPF OMI Page Count: 0
OMI No: N/A OMI Title: ORBITER/PAYLOAD BAY INTERFACE VERIFICATION
Subtask OMI(s): , , , ,
, , , , ,
, , , ,
Prerequisite Task OMI:
Hazard: N Level: Vehicle Power Required: Y LCC Support Required: Y
GSE: , , , ,
, , ,

Activity Description: VERIFY THE COPPER PATHS OF THE ORBITER TO THE CARGO INTERFACE PLATE IN THE PAYLOAD BAY.

Personnel:	Head Count	Man Hours	Remarks
Mech. Tech:	0	0.0	N/A
Elec. Tech:	4	288.0	
Quality:	0	0.0	N/A
LCC Ops:	0	0.0	N/A
Support:	0	0.0	N/A
Engineering:	0	0.0	N/A
Total:	4	288.0	Time: 72.0

Issues: COST/MANHOURS :TIME/ON-LINE :REQUIREMENTS :DESIGN CRITERIA

Technology Need Description:

Technology Candidates Identified:

Technology Identification Sheet

Seq. Task No: 101.000 Facility: VAB OMI Page Count: 74
OMI No: T5244 OMI Title: TPS CLOSEOUT, ORBITER JACK PADS

Subtask OMI(s):

Prerequisite Task OMI:
Hazard: N Level: Vehicle Power Required: N LCC Support Required: N
GSE:

Activity Description: PERFORM NECESSARY TASKS TO PREPARE LH2 TANK SUBSTRATE AND EXISTING THERMAL PROTECTION SYSTEM AT ORBITER JACK PADS AND APPLY POLYURETHANE FOAM.

Personnel:	Head Count	Man Hours	Remarks
Mech. Tech:	0	0.0	N/A
Elec. Tech:	0	0.0	N/A
Quality:	0	0.0	N/A
LCC Ops:	0	0.0	N/A
Support:	0	0.0	N/A
Engineering:	0	0.0	N/A
Total:	0	0.0	Time: 16.0

Issues:

Technology Need Description:

Technology Candidates Identified:

Technology Identification Sheet

Seq. Task No: 100.000 Facility: VAB OMI Page Count: 526
OMI No: S0004 OMI Title: ORBITER/ET MATE

Subtask OMI(s): S3001 , S3002 , T1203 , T1248 ,
V1111 , V2084 , V2093 * , V2094 * , V3508 ,
V3509 , V3511 , V5029 , V6030 , V9005
Prerequisite Task OMI:
Hazard: Y Level: Vehicle Power Required: N LCC Support Required: Y
GSE: A70-0562 , A70-1268 , H70-0597 , H70-0768 ,
P72-1001 , H70-0508 , S70-0805 , S70-0958

Activity Description: HOISTING AND MATING ORBITER TO EXTERNAL TANK AND UMBILICAL HOOK-UPS. 1) TO MATE ORBITER/ET UMBILICALS. 2) CONFIGURE GSE TO MONITOR ET TANK PRESSURE. 3) INSTALL ORB/ET UMBILICAL PURGE CURTAINS. 4) TO INSTALL ORB ORD AT VAB PER OMI V5029. 5) TO MATE T-0 UMBILICALS PER OMI V2093 AND V2094.

Personnel:	Head Count	Man Hours	Remarks
Mech. Tech:	0	0.0	N/A
Elec. Tech:	0	0.0	N/A
Quality:	0	0.0	N/A
LCC Ops:	0	0.0	N/A
Support:	0	0.0	N/A
Engineering:	0	0.0	N/A
Total:	0	0.0	Time: 88.0

Issues: : : :

Technology Need Description:

Technology Candidates Identified:

Technology Identification Sheet

Seq. Task No: 102.000 Facility: VAB OMI Page Count: 108
OMI No: T5048 OMI Title: INSTALL AND REMOVE INTERTANK ACCESS KIT
Subtask OMI(s): T6447
Prerequisite Task OMI:
Hazard: Y Level: Vehicle Power Required: N LCC Support Required: N
GSE: A72-0853, A78-3604, A78-3605

Activity Description: INSTALL INTERTANK ACCESS KIT AND RELATED EQUIPMENT. REMOVE INTERTANK ACCESS KIT AND RELATED EQUIPMENT.

Personnel:	Head Count	Man Hours	Remarks
Mech. Tech:	0	0.0	N/A
Elec. Tech:	0	0.0	N/A
Quality:	0	0.0	N/A
LCC Ops:	0	0.0	N/A
Support:	0	0.2	N/A
Engineering:	0	2.0	N/A
Total:	0	0.0	Time: 4.0

Issues:

Technology Need Description:

Technology Candidates Identified:

Technology Identification Sheet

Seq. Task No: 103.002 Facility: VAB OMI Page Count: 452
OMI No: B5304 OMI Title: SRB SYSTEMS MATE AND CLOSEOUT

Subtask OMI(s):

Prerequisite Task OMI:
Hazard: Y Level: Vehicle Power Required: N LCC Support Required: N
GSE:

Activity Description: TO PROVIDE INSTRUCTIONS FOR THE SRB CLOSEOUT TASKS TO BE PERFORMED IN VAB HB-1/-3 FROM PREPARATIONS FOR ET MATE THROUGH PREPARATIONS FOR ROLLOUT.

Personnel:	Head Count	Man Hours	Remarks
Mech. Tech:	0	0.0	N/A
Elec. Tech:	0	0.0	N/A
Quality:	0	0.0	N/A
LCC Ops:	0	0.0	N/A
Support:	0	0.0	N/A
Engineering:	0	0.0	N/A
Total:	0	0.0	Time: 17.0

Issues:

Technology Need Description:

SEE TIS 11 (V5012)

Technology Candidates Identified:

SEE TIS 11 (V5012)

Technology Identification Sheet

Seq. Task No: 105.000 Facility: VAB OMI Page Count: 64
OMI No: T1201 OMI Title: ET VENT VALVE OPERATION - S920

Subtask OMI(s): S9001 , T1001 , , ,
, , , , ,
, , , ,
Prerequisite Task OMI:
Hazard: Y Level: Vehicle Power Required: N LCC Support Required: Y
GSE: C72-1280 , C77-0202-XXX , E78-0006 , ,
, , ,

Activity Description: TO OPEN AND CLOSE THE ET VENT VALVES WITH THE ET MATED TO THE ORBITER IN THE INTEGRATION CELL.

Personnel:	Head Count	Man Hours	Remarks
Mech. Tech:	0	0.0	N/A
Elec. Tech:	0	0.0	N/A
Quality:	0	0.0	N/A
LCC Ops:	0	0.0	N/A
Support:	0	0.0	N/A
Engineering:	0	0.0	N/A
Total:	0	0.0	Time: 4.0

Issues: : : :

Technology Need Description:

Technology Candidates Identified:

Technology Identification Sheet

Seq. Task No: 104.000 Facility: VAB OMI Page Count: 50
OMI No: T1203 OMI Title: ET CONTINGENCY PRESSURIZATION-ORBITER
MATE HB-1/-3
Subtask OMI(s): T1001 , T1002 , , , ,
, , , , ,
, , , ,
Prerequisite Task OMI:
Hazard: N Level: Vehicle Power Required: N LCC Support Required: N
GSE: , , , ,
, , ,

Activity Description: INITIATE ET LO2 AND LH2 TANK PRESSURE MONITOR. ACCOMPLISH CONTINGENCY PRESSURIZATION OF LO2 AND LH2 TANKS.

Personnel:	Head Count	Man Hours	Remarks		
Mech. Tech:	0	0.0	N/A		
Elec. Tech:	0	0.0	N/A		
Quality:	0	0.0	N/A		
LCC Ops:	0	0.0	N/A		
Support:	0	0.0	N/A		
Engineering:	0	0.0	N/A		
Total:	0	0.0		Time:	6.0

Issues: : : :

Technology Need Description:

Technology Candidates Identified:

Technology Identification Sheet

Seq. Task No: 106.000 Facility: VAB OMI Page Count: 440
OMI No: S0008 OMI Title: SHUTTLE INTERFACE TEST (LPS)

Subtask OMI(s): B1061 , B5003 , S0020 , S3500 ,
S9001 , S9002 , T1249 , V1149 , V3503 ,
V3505 , V3509 , V5027 , V5029 , V9002
Prerequisite Task OMI:
Hazard: Y Level: Vehicle Power Required: Y LCC Support Required: Y
GSE: E78-0006 , C70-1101 , C72-1128 , C70-0903 ,
C77-0202 , C72-0831 , C72-1127-2 , C78-5007

Activity Description: 1) VERIFY ORBITER/MLP INTERFACES.
2) VERIFY ORBITER/ET ELECTRICAL AND FLUID INTERFACES.
3) VERIFY ORBITER/SRB INTERFACES.
4) VERIFY FUNCTIONAL OPERATION OF SRB SYSTEMS.

Personnel:	Head Count	Man Hours	Remarks
Mech. Tech:	2	0.0	N/A
Elec. Tech:	0	0.0	N/A
Quality:	0	0.0	N/A
LCC Ops:	0	0.0	N/A
Support:	0	0.0	N/A
Engineering:	0	0.0	N/A
Total:	2	0.0	Time: 37.0

Issues: : : :

Technology Need Description:

Technology Candidates Identified:

Technology Identification Sheet

Seq. Task No: 107.002 Facility: VAB OMI Page Count: 246
OMI No: S0020 OMI Title: SHUTTLE FLIGHT CONTROL INTEGRATED
'EGTS (LPS)
Subtask OMI(s): B1005 , B1009 , B1026 , B5004 ,
B5101 , S7320 , S9001 , S9002 , V1123 ,
Prerequisite Task OMI:
Hazard: Y Level: Vehicle Power Required: Y LCC Support Required: Y
OSE: A77-0179 , S72-8750-1 , , ,

Activity Description: TO VERIFY COMMAND, FEEDBACK AND FAILURE DETECTION INTERFACES AND FUNCTIONAL OPERATION OF THE SHUTTLE SRB FLIGHT CONTROL SYSTEM.

Personnel:	Head Count	Man Hours	Remarks
Crew Test:	0	0.0	N/A
Elec Test:	0	0.0	N/A
Mech:	0	0.0	N/A
LCC Ops:	0	0.0	N/A
Support:	0	0.0	N/A
Engineering:	0	0.0	N/A
Total:	0	0.0	Time: 6.0

Issues: : : :

Technology Need Description:

Technology Candidates Identified:

Technology Identification Sheet

Seq. Task No: 100.000 Facility: VAB OMI Page Count: 38
OMI No: T6248 OMI Title: EXTERNAL TANK (ET) PRE-MOVE INSPECTION
Subtask OMI(s): T5048
Prerequisite Task OMI:
Hazard: N Level: Vehicle Power Required: N LCC Support Required: N
GSE:

Activity Description: TO PROVIDE DETAILED INSTRUCTIONS FOR PERFORMING INSPECTION OF EACH EXTERNAL TANK (ET), ET/ORBITER (ORB) INTERFACE AND ET/SOLID ROCKET BOOSTER (SRB) INTERFACE PRIOR TO MOVE OPERATIONS.

Personnel:	Head Count	Man Hours	Remarks
Mech. Tech:	0	0.0	N/A
Elec. Tech:	0	0.0	N/A
Quality:	0	0.0	N/A
LCC Ops:	0	0.0	N/A
Support:	0	0.0	N/A
Engineering:	0	0.0	N/A
Total:	0	0.0	Time: 10.0

Issues:

Technology Need Description:

Technology Candidates Identified:

Technology Identification Sheet

Seq. Task No: 109.000 Facility: VAB OMI Page Count: 78
OMI No: AS214 OMI Title: SHUTTLE TRANSFER AND MATE TO PAD

Subtask OMI(s): B5306 , C9002 , C9010 , M3051 ,
M3139 , Q3006 , Q3016 , Q5001 , Q6014 ,
S3001 , S3002 , T6248 , V1111 , V3509
Prerequisite Task OMI:
Hazard: Y Level: Vehicle Power Required: N LCC Support Required: Y
GSE: , , , ,
, , ,

Activity Description: TO PROVIDE SEQUENTIAL INSTRUCTIONS FOR KSC OPERATIONS TO EFFECTIVELY TRANSFER THE SSV/MLP FROM VAB TO PAD. DOCUMENT IS WRITTEN FOR THE CT TO MOVE UNDER THE MLP ON THE FIRST DAY AND THE MOVE AND MATE TO PAD ON SECOND DAY OPERATION.

Personnel:	Head Count	Man Hours	Remarks
Mech. Tech:	0	0.0	N/A
Elec. Tech:	0	0.0	N/A
Quality:	0	0.0	N/A
LCC Ops:	0	0.0	N/A
Support:	0	0.0	N/A
Engineering:	0	0.0	N/A
Total:	0	0.0	Time: 10.0

Issues: : : :

Technology Need Description:

Technology Candidates Identified:

ORIGINAL PAGE IS
OF POOR QUALITY

Technology Identification Sheet

Seq. Task No: 110.000 Facility: VAB OMI Page Count: 62
OMI No: T1205 OMI Title: INSTALLATION/ REMOVAL OF GO2 PRESS LINE BLANK-OFF PLATE - INTEGRATION CELL
Subtask OMI(s): T1001 , T1201 , , ,
, , , ,
, , , ,
Prerequisite Task OMI:
Hazard: Y Level: Vehicle Power Required: N LCC Support Required: Y
SSE: A78-3623-01 , A78-3623-02 , C78-1229 , P78-3137-1-102 ,
, , ,

Activity Description: TO INSTALL GO2 PRESS LINE BLANK-OFF PLATE TO SUPPORT ORBITER ENGINE/PROPULSION SYSTEM TESTING.

Personnel:	Head Count	Man Hours	Remarks
Mech. Tech:	0	0.0	N/A
Elec. Tech:	0	0.0	N/A
Quality:	0	0.0	N/A
LCC Ops:	0	0.0	N/A
Support:	0	0.0	N/A
Engineering:	0	0.0	N/A
Total:	0	0.0	

Time: 5.0

Issues: : : :

Technology Need Description:

Technology Candidates Identified:

Technology Identification Sheet

Seq. Task No: 111.000 **Facility:** VAB **OMI Page Count:** 78

OMI No: T1204 . **OMI Title:** INSTALLATION/REMOVAL OF GH2 PRESS LINE BLANK-OFF PLATE, INTEGRATION CELL

Subtask OMI(s): G9201 , S9001 , T1001 , T1050 ,

T1201 , , , , ,

, , , ,

Prerequisite Task OMI:

Hazard: Y **Level:** **Vehicle Power Required:** N **LCC Support Required:** Y

GSE: A78-3623-01 , A78-3623-02 , C78-1229 , P78-3137-1-101 ,

, , ,

Activity Description: TO INSTALL GH2 PRESS LINE BLANK-OFF PLATE, TO SUPPORT ENGINE/PROPULSION SYSTEM TESTING IN VAB INTEGRATION CELL. THE BLANK-OFF PLATE MAY BE REMOVED, IF REQUIRED, AT PAD A PER OMI T1401, OR IN THE INTEGRATION CELL PER THIS OMI.

Personnel:	Head Count	Man Hours	Remarks
Mech. Tech:	0	0.0	N/A
Elec. Tech:	0	0.0	N/A
Quality:	0	0.0	N/A
LCC Ops:	0	0.0	N/A
Support:	0	0.0	N/A
Engineering:	0	0.0	N/A
Total:	0	0.0	

Time: 5.0

Issues: : : :

Technology Need Description:

Technology Candidates Identified:

Technology Identification Sheet

Seq. Task No: 200.000 Facility: PAD OMI Page Count: 152
OMI No: A5214 OMI Title: SHUTTLE TRANSFER AND MATE TO PAD

Subtask OMI(s): B5306 , C9002 , C9010 , M3051 ,
M3139 , Q3006 , Q3016 , Q5001 , Q6014 ,
S3001 , S3002 , T6248 , V1111 , V3509
Prerequisite Task OMI:
Hazard: Y Level: Vehicle Power Required: N LCC Support Required: Y
GSE: , , , ,
, , ,

Activity Description: TO PROVIDE SEQUENTIAL INSTRUCTIONS FOR KSC OPERATIONS TO EFFECTIVELY TRANSFER THE SSV/MLP FROM VAB TO PAD. DOCUMENT IS WRITTEN FOR THE CT TO MOVE UNDER THE MLP ON THE FIRST DAY OF THE MOVE AND MATE TO PAD ON SECOND DAY OPERATION.

Personnel:	Head Count	Man Hours	Remarks
Mech. Tech:	0	0.0	N/A
Elec. Tech:	0	0.0	N/A
Quality:	0	0.0	N/A
LCC Ops:	0	0.0	N/A
Support:	0	0.0	N/A
Engineering:	0	0.0	N/A
Total:	0	0.0	Time: 9.0

Issues: : : :

Technology Need Description:

Technology Candidates Identified:

Technology Identification Sheet

Seq. Task No: 201.000 Facility: PAD OMI Page Count: 466
OMI No: S0009 OMI Title: SHUTTLE LAUNCH PAD VALIDATION WITH CONTINGENCY APU CONFIDENCE RUN (LPS)
Subtask OMI(s): SEE PAGE 15 , THRU 24 FOR , 179 SEPARATE , TASK CALLOUTS ,
Prerequisite Task OMI:
Hazard: Y Level: Vehicle Power Required: Y LCC Support Required: Y
GSE: H70-0865 , A70-0643-2 ,

Activity Description: PERFORM/VERIFY STS/MLP/PAD ELECTRICAL/PNEUMATIC/MECH. INTERFACES. PERFORM/VERIFY LOX PAD/MLP MATE AND FUNCT CHECKS. PERFORM/VERIFY LH2 PAD/MLP MATE AND FUNCT CHECKS. PERFORM/VERIFY GOX VENT ARM/ET ALIGNMENT. VERIFY SSV RF/INSTRUMENTATION INTERFACES WITH THE PAD. PERFORM/VERIFY PERFORMANCE OF APU'S VIA APU CONFIDENCE RUN PERFORMANCE TEST.

Personnel:	Head Count	Man Hours	Remarks
Mech. Tech:	0	0.0	N/A
Elec. Tech:	0	0.0	N/A
Quality:	0	0.0	N/A
LCC Ops:	0	0.0	N/A
Support:	0	0.0	N/A
Engineering:	0	0.0	N/A
Total:	0	0.0	Time: 34.0

Issues:

Technology Need Description:

Technology Candidates Identified:

Technology Identification Sheet

Seq. Task No: 202.000
Facility: PAD
OMI Page Count: 949
OMI No: S0017
OMI Title: TERMINAL COUNT DEMONSTRATION (LPS)

Subtask OMI(s): SEE PARA 1.1.3, FOR 66 SUBTASK, LISTING , ,
, , , , ,
, , , ,

Prerequisite Task OMI:
Hazard: Y Level:
Vehicle Power Required: Y
LCC Support Required: Y
GSE: S70-1232 , S70-0832-2 , S72-0685-1 , S72-1107-1 ,
C70-0749 , C70-1226-3 , S70-0547 , S70-0548

Activity Description: 1) TO DEMONSTRATE THE SEQUENCE OF CREW OPERATIONS REQUIRED TO PREPARE FOR SHUTTLE LAUNCH FROM CREW SUITING THROUGH GLS CUT-OFF (T-5 SEC.) 2) TO EVALUATE CREW OPERATION TIME LINES.. 3) TO EVALUATE THE INTER-AGENCY INTERFACES.. 4) TO INTERFACE THE FLIGHT CREW AND THE LAUNCH TEST TEAM DRESS REHEARSAL. 5) TO DEMONSTRATE LAUNCH ABORT SAFING AND RECYCLE TO T-20 MIN.

Personnel:	Head Count	Man Hours	Remarks
Mech. Tech:	0	0.0	N/A
Elec. Tech:	0	0.0	N/A
Quality:	0	0.0	N/A
LCC Ops:	0	0.0	N/A
Support:	0	0.0	N/A
Engineering:	0	0.0	N/A
Total:	0	0.0	

Time: 24.0

Issues: TIME/ON-LINE :COST/MANHOURS :REQUIREMENTS :

Technology Need Description:

Technology Candidates Identified:

Technology Identification Sheet

Seq. Task No: 203.000 Facility: PAD OMI Page Count: 120
OMI No: V1202 OMI Title: MPS/SSME HELIUM SIGNATURE TEST

Subtask OMI(s): V1171 , V1122 , G6250 , G6205 ,
G6105 , , , , ,
, , , ,
Prerequisite Task OMI:
Hazard: N Level: Vehicle Power Required: Y LCC Support Required: Y
GSE: U72-1186-2 , S72-0685-X , A70-0668 , A70-0698 ,
C70-0743-7-068 , C70-1187-001 , F70-0033-1 , S70-0534

Activity Description: PERFORM LEAK CHECK OF ISOLATED MPS/SSME SYSTEMS WITH HELIUM USING HAZ GAS DETECTION SYSTEM.

Personnel:	Head Count	Man Hours	Remarks
Mech. Tech:	0	0.0	N/A
Elec. Tech:	0	0.0	N/A
Quality:	0	0.0	N/A
LCC Ops:	0	0.0	N/A
Support:	0	0.0	N/A
Engineering:	0	0.0	N/A
Total:	0	0.0	Time: 44.0

Issues: TIME/ON-LINE :COST/MANHOURS :

Technology Need Description:

Technology Candidates Identified:

Technology Identification Sheet

Seq. Task No: 204.000 Facility: PAD OMI Page Count: 496
OMI No: S0024 OMI Title: PRELAUNCH PROPELLANT SERVICING (LPS)

Subtask OMI(s): SEE PARA 1.1.3, FOR LIST OF , 55 DIFFERENT , SUBTASK OMI'S ,
, , , , ,
, , , ,
Prerequisite Task OMI:
Hazard: Y Level: Vehicle Power Required: Y LCC Support Required: Y
GSE: S70-0547 , S70-0548 , , ,
, , ,

Activity Description: SERVICES HYDRAZINE FOR EACH APU FOR NORMAL FLIGHT AND LOAD NITROGEN TO THE REQUIRED FILL ENVELOPE AFTER HYDRAZINE SERVICING. SERVICES 20 FRCS, ARCS, OMS PROPELLANT TANKS AND GHE, GN2 TANKS TO FLIGHT LOADS WITH N2O4, MMH, GHE AND GN2. SERVICES SRB HYDRAULIC POWER UNIT (HPU) FUEL SUPPLY MODULE WITH FUEL AND GN2 PRECHARGE. SERVICES PRSD SYSTEM WITH LO2 & LH2.

Personnel:	Head Count	Man Hours	Remarks
Mech. Tech:	0	0.0	N/A
Elec. Tech:	0	0.0	N/A
Quality:	0	0.0	N/A
LCC Ops:	0	0.0	N/A
Support:	0	0.0	N/A
Engineering:	0	0.0	N/A
Total:	0	0.0	Time: 100.0

Issues: TIME/ON-LINE :COST/MANHOURS :DESIGN :REQUIREMENTS

Technology Need Description:

Technology Candidates Identified:

Technology Identification Sheet

Seq. Task No: 205.000 Facility: PAD OMI Page Count: 266
OMI No: S5009 OMI Title: FINAL ORDNANCE INSTALLATION/CONNECTION AND AFT CLOSEOUT (LPS)
Subtask OMI(s): SEE PARA 1.1.3, FOR LIST OF , 42 SEPARATE , SUBTASK OMI'S ,
Prerequisite Task OMI:
Hazard: Y Level: Vehicle Power Required: Y LCC Support Required: Y
GSE: C72-1127-2

Activity Description: 1) INSTALL SRSS FLIGHT CODE. 2) PERFORM SRSS OPEN/CLOSED LOOP TESTS. 3) PERFORM POWER OFF STRAY VOLTAGE CHECKS, SHIELD TO GROUND RES. CHECKS & ELECT CONNECT ALL PYRO DEVICES. 4) CONNECT ET & SRB SRSS CDF ASSY'S TO S&A DEVICES 5) ET I/T CLOSEOUT. 6) CONNECT SRB IGN S&A CABLES & PULL PINS. 7) PIC RES & ROTATION. 8) SRB MECH CLOSEOUT 9) CARGO STRAY VOLTS 10) FINAL CONF

Personnel:	Head Count	Man Hours	Remarks
Mech. Tech:	0	0.0	N/A
Elec. Tech:	0	0.0	N/A
Quality:	0	0.0	N/A
LCC Ops:	0	0.0	N/A
Support:	0	0.0	N/A
Engineering:	0	0.0	N/A
Total:	0	0.0	Time: 100.0

Issues: SAFETY :TIME/ON-LINE : :

Technology Need Description:

SEE TIS 57 (V1003)
SEE TIS 11 (V5012)

Technology Candidates Identified:

SEE TIS 57 (V1003)
SEE TIS 11 (V5012)

Technology Identification Sheet

Seq. Task No: 206.000 Facility: PAD OMI Page Count: 904
OMI No: V9002.01-.10 OMI Title: HYDRAULIC POWER UP/DOWN

Subtask OMI(s): S3500 , V1133 , V9001 , , ,
, , , , ,
, , , ,
Prerequisite Task OMI:
Hazard: Y Level: Vehicle Power Required: Y LCC Support Required: Y
GSE: A70-0696 , C70-0894 , S72-0841 , S70-0843 ,
S70-0952 , S70-0861-1 , S72-0844-3 , S72-0844-4

Activity Description: APPLY HYDRAULIC GROUND POWER TO ORBITER TO SUPPORT HYDRAULIC OR ANY ASSOCIATED SUBSYSTEMS TESTING.

Personnel:	Head Count	Man Hours	Remarks
Mech. Tech:	2	0.0	N/A
Elec. Tech:	0	0.0	N/A
Quality:	0	0.0	N/A
LCC Ops:	0	0.0	N/A
Support:	0	0.0	N/A
Engineering:	0	0.0	N/A
Total:	2	0.0	Time: 28.0

Issues: DESIGN CRITERIA :REQUIREMENTS :COST/MANHOURS :

Technology Need Description:

Technology Candidates Identified:

Technology Identification Sheet

Seq. Task No: 207.000 Facility: PAD OMI Page Count: 539
OMI No: V1046 OMI Title: SSME LEAK AND FUNCTIONAL (VERTICAL) (LFS) (CONTINGENCY)
Subtask OMI(s): , , , ,
, , , , ,
, , , ,
Prerequisite Task OMI:
Hazard: Y Level: Vehicle Power Required: N LCC Support Required: N
GSE: A70-0668 , A70-0698-1 , C70-0902 , C70-0907 ,
S70-0902 , S70-0905 , ,

Activity Description: 1) PERFORM CONTINGENCY LEAK AND FUNCTIONAL C/O IN VERTICAL 2) VERIFY SSME SYSTEM INTEGRITY FOLLOWING A PAD ABORT AFTER MAIN ENGINE IGNITION.

Personnel:	Head Count	Man Hours	Remarks
Mech. Tech:	0	0.0	N/A
Elec. Tech:	0	0.0	N/A
Quality:	0	0.0	N/A
LCC Ops:	0	0.0	N/A
Support:	0	0.0	N/A
Engineering:	0	0.0	N/A
Total:	0	0.0	Time: 30.0

Issues: : : :

Technology Need Description:

Technology Candidates Identified:

Technology Identification Sheet

Seq. Task No: 200.000 Facility: PAD OMI Page Count: 112
OMI No: S1005 OMI Title: LO2 TOTAL SYSTEM DEW POINT AND ET CONDITIONING
Subtask OMI(s): G6150, G9101, L02-9006, M3011, M3020, M3500, S9001, V1171, V5057,
Prerequisite Task OMI:
Hazard: Y Level: Vehicle Power Required: Y LCC Support Required: Y
GSE: S72-1106-2,

Activity Description: TO PURGE THE EXTERNAL TANK, TSM VENT, ORBITER AND ENGINES, AND ENGINE BLEEDLINE WITH GN2 FROM THE S72-0685-3 PANEL FOR A DEWPOINT OF 113 PPM H20 MAXIMUM. TO VERIFY REPLENISH FILL SYSTEM AND VAPOROZER FOR A DEW POINT OF 22 PPM H20 MAX PER G2124. TO PURGE MAIN FILL AND DRAIN INCLUDING CROSS COUNTRY LINE THRU THE TSM DRAIN LINE WITH GN2..FOR A DEW POINT OF 113 PPM.

Personnel:	Head Count	Man Hours	Remarks
Mech. Tech:	0	0.0	N/A
Elec. Tech:	0	0.0	N/A
Quality:	0	0.0	N/A
LCC Ops:	0	0.0	N/A
Support:	0	0.0	N/A
Engineering:	0	0.0	N/A
Total:	0	0.0	Time: 12.0

Issues:

Technology Need Description:

Technology Candidates Identified:

Technology Identification Sheet

Seq. Task No: 209.000 Facility: PAD OMI Page Count: 0
OMI No: S1006 OMI Title: ET/FACILITY LH2 SYSTEM CONDITIONING

Subtask OMI(s): G6250 , G9201 , T1050 , V9001 ,
V3500 , V5057 , SCTP-LH2-9006 , , ,
, , , ,

Prerequisite Task OMI:
Hazard: Y Level: Vehicle Power Required: Y LCC Support Required: Y
GSE: , , , ,
, , , ,

Activity Description: TO PURGE AND SAMPLE THE ET LH2 TANK AT LC39A. TO PURGE AND SAMPLE THE LH2 STORAGE AND TRANSFER SYSTEM.

Personnel:	Head Count	Man Hours	Remarks
Mech. Tech:	0	0.0	N/A
Elec. Tech:	0	0.0	N/A
Quality:	0	0.0	N/A
LCC Ops:	0	0.0	N/A
Support:	0	0.0	N/A
Engineering:	0	0.0	N/A
Total:	0	0.0	Time: 12.0

Issues: : : ;

Technology Need Description:

Technology Candidates Identified:

Technology Identification Sheet

Seq. Task No: 210.000 Facility: PAD OMI Page Count: 510
OMI No: V1103.01-03 OMI Title: EXTRAVEHICULAR MOBILITY UNIT/FUNCTIONAL CHECKOUT (LPS)
Subtask OMI(s): M3095 , M6020 , S3500 , V3502 , V3512 , V3528 , V5057 , V5067 , V6003 , V9001, VLi , , , ,
Prerequisite Task OMI:
Hazard: Y Level: Vehicle Power Required: Y LCC Support Required: Y
GSE: A70-0962 , C70-0743-001 , S70-0698-1 , S70-0698-3 , S70-0834-1 , S70-0834-2 , S70-0787-2 , S72-1106-1

Activity Description: PROVIDE EMU INTERFACE VALIDATION TESTS AT OPF.
PROVIDE EMU FUNCTIONAL CHECKOUT AT PAD. (TWO UNITS)
PROVIDE EMU FUNCTIONAL CHECKOUT AT PAD. (2 EMU'S AND 1 SPARE)

Personnel:	Head Count	Man Hours	Remarks
Mech. Tech:	0	0.0	N/A
Elec. Tech:	0	0.0	N/A
Quality:	0	0.0	N/A
LCC Ops:	0	0.0	N/A
Support:	0	0.0	N/A
Engineering:	0	0.0	N/A
Total:	0	0.0	Time: 12.0

Issues: FAULT DETECTION :TIME/ON-LINE :DESIGN CRITERIA :

Technology Need Description:

SEE TIS 57 (V1003)

Technology Candidates Identified:

SEE TIS 57 (V1003)

Technology Identification Sheet

Seq. Task No: 211.000 Facility: PAD OMI Page Count: 240
OMI No: V1149 OMI Title: T-0 UMBILICALS INTERFACE LEAK CHECKS (LPS)
Subtask OMI(s): G6105 , G6150 , G6205 , S9001 , S3500 , T1101 , T1201 , V9017 , V5057 , V1171 , , , ,
Prerequisite Task OMI:
Hazard: Y Level: Vehicle Power Required: Y LCC Support Required: Y
GSE: F70-0027 , S70-0517 , S70-0529 , S70-0823-1 , S72-0685-1 , S72-0686-1 , S72-1107-1 , S72-1107-13

Activity Description: 1) LEAK CHECK THE INTERFACES BETWEEN THE ORBITER AND THE T-0 UMBILICALS AND THE ORB/ET DISCONNECTS.
2) TIMING OF ORB/ET DISCONNECT VALVES.
3) VERIFICATION OF LO2/LH2 ORBITER/ET DISCONNECT CAVITY PURGES.

Personnel:	Head Count	Man Hours	Remarks
Mech. Tech:	0	0.0	N/A
Elec. Tech:	0	0.0	N/A
Quality:	0	0.0	N/A
LCC Ops:	0	0.0	N/A
Support:	0	0.0	N/A
Engineering:	0	0.0	N/A
Total:	0	0.0	Time: 9.0

Issues: MAINTAINABILITY :DESIGN : :

Technology Need Description:

Technology Candidates Identified:

Technology Identification Sheet

Seq. Task No: 212.000 Facility: PAD OMI Page Count: 182
OMI No: V2303 OMI Title: FCSS/PRSD DEWAR SERVICING LO2 AND LH2 (COMBINED LOADING) (LPS)
Subtask OMI(s): SEE PARA 1.1.3, FOR LIST OF , 35 SEPARATE , SUBTASK OMI'S ,
Prerequisite Task OMI:
Hazard: Y Level: Vehicle Power Required: N LCC Support Required: Y
GSE: C72-0811 , S70-0817 , S70-0830-2 , S70-1220 , S70-1222 , S72-0694-6 , S72-0697-3 , S72-0699-2

Activity Description: PROVIDE THE NECESSARY STEPS TO SERVICE THE LO2 AND LH2 FCSS/PRSD DEWARS FOR SUBSEQUENT ORBITER PRSD CRYO LOADING OPERATION. THIS NEW OMI WILL BE USED FOR INITIAL SYSTEM VALIDATION OF THE S70-0817 SYSTEM (PAD B) AND SUBSEQUENT OPERATIONAL SERVICINGS OF THE ORBITER PRSD SYSTEM (PAD A AND PAD B).

Personnel:	Head Count	Man Hours	Remarks
Mech. Tech:	0	0.0	N/A
Elec. Tech:	0	0.0	N/A
Quality:	0	0.0	N/A
LCC Ops:	0	0.0	N/A
Support:	0	0.0	N/A
Engineering:	0	0.0	N/A
Total:	0	0.0	Time: 7.0

Issues: : : :

Technology Need Description:

Technology Candidates Identified:

Technology Identification Sheet

Seq. Task No: 213.000 Facility: PAD OMI Page Count: 2487
OMI No: S0007VL1-4 OMI Title: SHUTTLE COUNTDOWN (LPS)

Subtask OMI(s): SEE PARA 1.1.3, FOR LIST OF , REQUIRED , SUBTASK OMI'S ,
, , , , ,
, , , ,
Prerequisite Task OMI:
Hazard: Y Level: Vehicle Power Required: Y LCC Support Required: Y
GSE: S70-0508-C,R , Z70-0018-5 , A70-0719 , S70-1220 ,
S70-1228-01,-02, S72-1107-01 , S70-1232 , S70-0613

Activity Description: 1) TO PROVIDE THE SEQUENCE OF OPERATIONS REQUIRED TO PREPARE THE SHUTTLE FOR LAUNCH.
2) TO SERVICE CERTAIN PROPELLANTS AND GASES TO THE SHUTTLE FOR LAUNCH.
3) TO LAUNCH THE SHUTTLE.
4) TO PERFORM INITIAL PAD SAFING AFTER LAUNCH.

Personnel:	Head Count	Man Hours	Remarks
Mech. Tech:	0	0.0	N/A
Elec. Tech:	0	0.0	N/A
Quality:	0	0.0	N/A
LCC Ops:	0	0.0	N/A
Support:	0	0.0	N/A
Engineering:	0	0.0	N/A
Total:	0	0.0	Time: 60.0

Issues: : : :

Technology Need Description:

Technology Candidates Identified:

Technology Identification Sheet

Seq. Task No: 300.000 Facility: PAD OMI Page Count: 84
OMI No: N0133 OMI Title: SHUTTLE - CARGO INSTALLATION CONTROL
(LPS)
Subtask OMI(s): A2203 , E1519 , E1933 , E5506 ,
E6600 , M7160 , N5033 , N5433 , V1173 ,
V1176 , V3510 , V3545 , V5045 , V9023
Prerequisite Task OMI:
Hazard: Y Level: Vehicle Power Required: Y LCC Support Required: Y
GSE: , , , ,
, , ,

Activity Description: PROVIDE THE INTEGRATION CONTROL OF THE TRANSFER OF PAYLOADS TO THE PAD, PAYLOAD INSTALLATION IN THE PCR AND PAYLOAD INSTALLATION IN THE ORBITER.

(IUS EXAMPLE)

Personnel:	Head Count	Man Hours	Remarks
Mech. Tech:	0	0.0	N/A
Elec. Tech:	0	0.0	N/A
Quality:	0	0.0	N/A
LCC Ops:	0	0.0	N/A
Support:	0	0.0	N/A
Engineering:	0	0.0	N/A
Total:	0	0.0	Time: 80.0

Issues: : : :

Technology Need Description:

Technology Candidates Identified:

Technology Identification Sheet

Seq. Task No: 301.000 Facility: PAD OMI Page Count: 104
OMI No: N0433 OMI Title: CARGO/ORBITER INTERFACE TEST (LPS)
(IUS EXAMPLE)
Subtask OMI(s): A2700 , S3500 , S9001 , V3528
V1117 , V1184 , E0233 , E0433
Prerequisite Task OMI:
Hazard: Y Level: Vehicle Power Required: Y LCC Support Required: Y
GSE:

Activity Description: SUPPORT MDAC PAYLOAD AS REQUIRED DURING P/L CHECKOUT.

Personnel:	Head Count	Man Hours	Remarks
Mech. Tech:	0	0.0	N/A
Elec. Tech:	0	0.0	N/A
Quality:	0	0.0	N/A
LCC Ops:	0	0.0	N/A
Support:	0	0.0	N/A
Engineering:	0	0.0	N/A
Total:	0	0.0	Time: 26.0

Issues:

Technology Need Description:

Technology Candidates Identified:

Technology Identification Sheet

Seq. Task No: 302.000 Facility: PAD OMI Page Count: 0
OMI No: N0131 OMI Title: PAM EXAMPLE

Subtask OMI(s): , , , ,
, , , , ,
, , , ,
Prerequisite Task OMI:
Hazard: N Level: Vehicle Power Required: N LCC Support Required: N
GSE: , , , ,
, , ,

Activity Description: PAM

Personnel:	Head Count	Man Hours	Remarks
Mech. Tech:	0	0.0	N/A
Elec. Tech:	0	0.0	N/A
Quality:	0	0.0	N/A
LCC Ops:	0	0.0	N/A
Support:	0	0.0	N/A
Engineering:	0	0.0	N/A
Total:	0	0.0	Time: 51.0

Issues: : : :

Technology Need Description:

Technology Candidates Identified:

Technology Identification Sheet

Sec. Task No: 303.000 Facility: PAD OMI Page Count: 94
OMI No: N0431 OMI Title: CARGO/ORBITER INTERFACE TEST (LPS)
(PAM EXAMPLE)
Subtask OMI(s): E0431 , E1528 , E1543 , S3500 ,
S9001 , V1117 , V3528 , V9001 , ,
, , , ,
Prerequisite Task OMI:
Hazard: Y Level: Vehicle Power Required: Y LCC Support Required: Y
GSE: C70-0727 , , , ,
, , ,

Activity Description: SUPPORT MDAC PAYLOAD AS REQUIRED DURING P/L CHECKOUT.
(PAM EXAMPLE)

Personnel:	Head Count	Man Hours	Remarks
Mech. Tech:	0	0.0	N/A
Elec. Tech:	0	0.0	N/A
Quality:	0	0.0	N/A
LCC Ops:	0	0.0	N/A
Support:	0	0.0	N/A
Engineering:	0	0.2	N/A
Total:	0	0.0	Time: 12.0

Issues: : : :

Technology Need Description:

Technology Candidates Identified:

Technology Identification Sheet

Seq. Task No: 304.000 Facility: PAD OMI Page Count: 0
OMI No: N0130 OMI Title: SPACELAB EXAMPLE

Subtask OMI(s):

Prerequisite Task OMI:
Hazard: N Level: Vehicle Power Required: N LCC Support Required: N
GSE:

Activity Description: SPACELAB

Personnel:	Head Count	Man Hours	Remarks
Mech. Tech:	0	0.0	N/A
Elec. Tech:	0	0.0	N/A
Quality:	0	0.0	N/A
LCC Ops:	0	0.0	N/A
Support:	0	0.0	N/A
Engineering:	0	0.0	N/A
Total:	0	0.0	Time: 0.0

Issues:

Technology Need Description:

Technology Candidates Identified:

Technology Identification Sheet

Seq. Task No: 305.000 Facility: PAD OMI Page Count: 0
OMI No: N0430 OMI Title: -CARGO/ORBITER INTERFACE TEST (LPS)
(SPACELAB EXAMPLE)
Subtask OMI(s):

Prerequisite Task OMI:
Hazard: N Level:
GSE:

Vehicle Power Required: N LCC Support Required: N

Activity Description: SPACELAB

Personnel:	Head Count	Man Hours	Remarks
Mech. Tech:	0	0.0	N/A
Elec. Tech:	0	0.0	N/A
Quality:	0	0.0	N/A
LCC Ops:	0	0.0	N/A
Support:	0	0.0	N/A
Engineering:	0	0.0	N/A
Total:	0	0.0	Time: 0.0

Issues:

Technology Need Description:

Technology Candidates Identified:

Technology Identification Sheet

Seq. Task No: 401.200 Facility: ET C/O CELL OMI Page Count: 371
OMI No: T5149 OMI Title: ET OFF-LOAD MOVE AND SECURE IN CHECKOUT/STORAGE CELL
Subtask OMI(s): Q3016 , I2003 , I2045 , I2047 , Q3009 , Q3011 , Q3208 , Q3235 , T1102 , T1103 , T5128 , T5148 , T6048 ,
Prerequisite Task OMI:
Hazard: Y Level: Vehicle Power Required: N LCC Support Required: N
GSE: H78-0839-2 , H78-0847 , H78-3004 , H78-3006 , H78-3028 , H78-3040 , M78-0063 ,

Activity Description: ET BARGE OFF-LOAD, MOVE TO VAB, REMOVE FROM TRANSPORTER, TRANSLATE TO VERTICAL AND INSTALL IN THE ET CHECKOUT/STORAGE CELL.

Personnel:	Head Count	Man Hours	Remarks
Mech. Tech:	0	0.0	N/A
Elec. Tech:	0	0.0	N/A
Quality:	0	0.0	N/A
LCC Ops:	0	0.0	N/A
Support:	0	0.0	N/A
Engineering:	0	0.0	N/A
Total:	0	0.0	Time: 24.0

Issues: : : :

Technology Need Description:

Technology Candidates Identified:

Technology Identification Sheet

Seq. Task No: 402.000 Facility: ET C/O CELL OMI Page Count: 206
OMI No: T5128 OMI Title: PREP ET CHECKOUT CELL/STORAGE CELL-HB-2
Subtask OMI(s):
Prerequisite Task OMI:
Hazard: Y Level: Vehicle Power Required: N LCC Support Required: N
GSE:

Activity Description: PLACE CHECKOUT/STORAGE CELL IN CONFIGURATION NECESSARY FOR RECEIPT AND INSTALLATION OF AN ET.

Personnel:	Head Count	Man Hours	Remarks
Mech. Tech:	0	0.0	N/A
Elec. Tech:	0	0.0	N/A
Quality:	0	0.0	N/A
LCC Ops:	0	0.0	N/A
Support:	0	0.0	N/A
Engineering:	0	0.0	N/A
Total:	0	0.0	Time: 8.0

Issues:

Technology Need Description:

Technology Candidates Identified:

Technology Identification Sheet

Seq. Task No: 403.000 Facility: ET C/O CELL OMI Page Count: 114
OMI No: T1102 OMI Title: LO2 TANK PREPS, PURGE, PRESSURIZATION AND SAMPLING
Subtask OMI(s): T1101 , T2001 , , , ,
, , , , ,
, , , ,
Prerequisite Task OMI:
Hazard: Y Level: Vehicle Power Required: N LCC Support Required: N
GSE: , , , ,
, , ,

Activity Description: TO REMOVE SHIPPING AND STANDBY PRESSURIZATION GSE AND REPRESSURIZE THE LO2 TANK, IF REQUIRED, TO LEAK TEST AND STANDBY PRESSURE LEVELS. TO INSPECT THE 2 IN. DISCONNECT. TO SAMPLE THE LO2 TANK FOR DEW POINT.

Personnel:	Head Count	Man Hours	Remarks
Mech. Tech:	0	0.0	N/A
Elec. Tech:	0	0.0	N/A
Quality:	0	0.0	N/A
LCC Ops:	0	0.0	N/A
Support:	0	0.0	N/A
Engineering:	0	0.0	N/A
Total:	0	0.0	Time: 20.0

Issues: : : :

Technology Need Description:

Technology Candidates Identified:

Technology Identification Sheet

Seq. Task No: 404.000 Facility: ET C/O CELL OMI Page Count: 102
OMI No: T1103 OMI Title: LH2 TANK PREPS, PURGE, PRESS AND SAMPLING
Subtask OMI(s): T1101 , T2001 , , ,
Prerequisite Task OMI:
Hazard: Y Level: Vehicle Power Required: N LCC Support Required: N
GSE:

Activity Description: TO REMOVE SHIPPING AND STANDBY PRESSURIZATION GSE AND REPRESSURIZE THE LH2 TANK, IF REQUIRED, TO LEAK TEST AND STANDBY PRESSURE LEVELS. TO INSPECT 2 IN. AND 4 IN. DISCONNECTS. TO PURGE THE LH2 TANK WITH GHE, REPRESSURIZE AND SAMPLE FOR PERCENT HELIUM AND DEW POINT.

Personnel:	Head Count	Man Hours	Remarks
Mech. Tech:	0	0.0	N/A
Elec. Tech:	0	0.0	N/A
Quality:	0	0.0	N/A
LCC Ops:	0	0.0	N/A
Support:	0	0.0	N/A
Engineering:	0	0.0	N/A
Total:	0	0.0	Time: 20.0

Issues:

Technology Need Description:

Technology Candidates Identified:

Technology Identification Sheet

Seq. Task No: 405.000 Facility: ET C/O CELL OMI Page Count: 84
OMI No: T6149 OMI Title: ET RECEIVING INSPECTION

Subtask OMI(s):

Prerequisite Task OMI:

Hazard: N Level: Vehicle Power Required: N LCC Support Required: N

GSE: A72-0853, A78-0856, A78-3604

Activity Description: TO PROVIDE NECESSARY DETAILED INSTRUCTIONS TO PERFORM RECEIVING INSPECTION ON EACH EXTERNAL TANK (ET), ITS ASSOCIATED SHIP-LOOSE HARDWARE AND ENGINEERING CONFIGURATION VERIFICATION AFTER ARRIVAL AT KSC.

Personnel:	Head Count	Man Hours	Remarks
Mech. Tech:	0	0.0	N/A
Elec. Tech:	0	0.0	N/A
Quality:	0	0.0	N/A
LCC Ops:	0	0.0	N/A
Support:	0	0.0	N/A
Engineering:	0	0.0	N/A
Total:	0	0.0	Time: 40.0

Issues:

Technology Need Description:

Technology Candidates Identified:

Technology Identification Sheet

Sec. Task No: 406.020 Facility: ET C/O CELL OMI Page Count: 109
OMI No: T5048 OMI Title: INSTALL AND REMOVE INTERTANK ACCESS KIT
Subtask OMI(s): T6447
Prerequisite Task OMI:
Hazard: N Level: Vehicle Power Required: N LCC Support Required: N
CSE: A72-0853, A78-3604, A78-3605

Activity Description: INSTALL INTERTANK ACCESS KIT AND RELATED EQUIPMENT. REMOVE INTERTANK ACCESS KIT AND RELATED EQUIPMENT.

Personnel:	Head Count	Man Hours	Remarks
Mech. Tech.:	2	0.0	N/A
Elec. Tech.:	2	0.0	N/A
Quality:	0	0.0	N/A
LCC Spt:	0	0.0	N/A
Support:	0	0.0	N/A
Engineering:	0	0.0	N/A
Total:	0	0.0	Time: 32.0

Issues:

Technology Need Description:

Technology Candidates Identified:

Technology Identification Sheet

Seq. Task No: 407.000 Facility: ET C/O CELL OMI Page Count: 154

OMI No: S6005 OMI Title: SHUTTLE PYROTECHNICS DEVICES RECEIVING INSPECTION, STORAGE, AND PREINSTALLATION ACCEPTANCE

Subtask OMI(s): , , , ,
, , , , ,
, , , ,

Prerequisite Task OMI:

Hazard: Y Level: Vehicle Power Required: N LCC Support Required: N

GSE: C72-1109 , C72-1127-2 , C72-1228 , C77-0194 ,
C77-0363 , , ,

Activity Description: TO PERFORM A VISUAL EXAMINATION FOR DAMAGE AND DEGRADATION, FLIGHT CERTIFICATION, AND ELECTRICAL CHECKOUT PRIOR TO PLACING DEVICES IN STORAGE. TO CONDUCT PREINSTALLATION INSPECTION AND PERFORM FLIGHT BOX BUILDUP.

Personnel:	Head Count	Man Hours	Remarks
Mech. Tech:	0	0.0	N/A
Elec. Tech:	0	0.0	N/A
Quality:	0	0.0	N/A
LCC Ops:	0	0.0	N/A
Support:	0	0.0	N/A
Engineering:	0	0.0	N/A
Total:	0	0.0	

Time: 16.0

Issues: : : :

Technology Need Description:

Technology Candidates Identified:

Technology Identification Sheet

Seq. Task No: 409.000 Facility: ET C/O CELL OMI Page Count: 156
OMI No: T6148 OMI Title: GUCP AND GUCP QUICK DISCONNECT POST LAUNCH REFURBISHMENT
Subtask OMI(s):
Prerequisite Task OMI:
Hazard: N Level: Vehicle Power Required: N LCC Support Required: N
GSE: A78-3621, F78-0048

Activity Description: TO REFURBISH/LEAK TEST GROUND HALF OF GUPC QUICK DISCONNECT, ONE 7 IN. GH2 VENT AND SIX 3/8 IN. PRESSURIZATION QUICK DISCONNECTS AFTER LAUNCH.

Personnel:	Head Count	Man Hours	Remarks
Mech. Tech:	0	0.0	N/A
Elec. Tech:	0	0.0	N/A
Quality:	0	0.0	N/A
LCC Ops:	0	0.0	N/A
Support:	0	0.0	N/A
Engineering:	0	0.0	N/A
Total:	0	0.0	Time: 96.0

Issues:

Technology Need Description:

Technology Candidates Identified:

Technology Identification Sheet

Seq. Task No: 409.000 Facility: ET C/O CELL OMI Page Count: 27
OMI No: T1109 OMI Title: LH2/LO2 TANK LEAK TEST

Subtask OMI(s):

Prerequisite Task OMI:

Hazard: N Level: Vehicle Power Required: N LCC Support Required: N

GSE: A72-0853, A78-0856, A78-3604, C78-1229

Activity Description: TO VERIFY THAT LEAKAGE OF THE PENETRATIONS, FLANGES AND CLOSURES OF THE ET LH2/LO2 WHICH ARE DIRECTLY EXPOSED TO TANK PRESSURE IS WITHIN SPECIFICATIONS.

Personnel:	Head Count	Man Hours	Remarks
Mech. Tech:	0	0.0	N/A
Elec. Tech:	0	0.0	N/A
Quality:	0	0.0	N/A
LCC Ops:	0	0.0	N/A
Support:	0	0.0	N/A
Engineering:	0	0.0	N/A
Total:	0	0.0	Time: 40.0

Issues:

Technology Need Description:

Technology Candidates Identified:

Technology Identification Sheet

Seq. Task No: 410.000
OMI No: T1147
PLATE (GUCP)
Subtask OMI(s):

Facility: ET C/O CELL
OMI Title: INSTALL GRQUND UMBILICAL CARRIER

OMI Page Count: 108

Prerequisite Task OMI:
Hazard: Y Level:
GSE:

Vehicle Power Required: N LCC Support Required: N

Activity Description: INSTALL AND MECHANICALLY CONNECT THE INTERTANK (I/T) GUCP TO THE ET AND TO THE CHECKOUT CELL FACILITY SERVICES.

Personnel:	Head Count	Man Hours	Remarks
Mech. Tech:	0	0.0	N/A
Elec. Tech:	0	0.0	N/A
Quality:	0	0.0	N/A
LCC Ops:	0	0.0	N/A
Support:	0	0.0	N/A
Engineering:	0	0.0	N/A
Total:	0	0.0	

Time: 48.0

Issues:

Technology Need Description:

Technology Candidates Identified:

Technology Identification Sheet

Seq. Task No: 411.000   Facility: ET C/O CELL   OMI Page Count: 136
OMI No: T1107   OMI Title: ET ANCILLARY LEAK AND FLOW TEST
(HB-2)
Subtask OMI(s): T1101 , T1102 , T1103 , ,
, , , ,
, , , ,
Prerequisite Task OMI:
Hazard: Y Level: Vehicle Power Required: N   LCC Support Required: N
GSE: C78-1229 , C78-5202 , , ,
, , ,

Activity Description: PROVIDE THE PROCEDURES FOR LEAK TESTING THOSE ET LINES AND COMPONENTS WITHIN THE INTERTANK NOT DIRECTLY EXPOSED TO LO2 AND LH2 TANK INTERNAL PRESSURE AND FOR VERIFYING FLOW IN INTERTANK PURGE, AND NOSE FAIRING PURGE SYSTEM.

Personnel:	Head Count	Man Hours	Remarks
Mech. Tech:	0	0.0	N/A
Elec. Tech:	0	0.0	N/A
Quality:	0	0.0	N/A
LCC Ops:	0	0.0	N/A
Support:	0	0.0	N/A
Engineering:	0	0.0	N/A
Total:	0	0.0	

Time: 56.0

Issues: : : :

Technology Need Description:

Technology Candidates Identified:

Technology Identification Sheet

Seq. Task No: 412.000 Facility: ET C/O CELL OMI Page Count: 17
OMI No: T5143 OMI Title: INSTALL ET RANGE SAFETY SYSTEM COMPONENTS
Subtask OMI(s):

Prerequisite Task OMI:
Hazard: N Level:
GSE:

Vehicle Power Required: N LCC Support Required: N

Activity Description: TO INSTALL ET RANGE SAFETY SYSTEM FLIGHT COMPONENTS PRIOR TO SRSS FUNCTIONAL TESTING.

Personnel:	Head Count	Man Hours	Remarks
Mech. Tech:	0	0.0	N/A
Elec. Tech:	0	0.0	N/A
Quality:	0	0.0	N/A
LCC Ops:	0	0.0	N/A
Support:	0	0.0	N/A
Engineering:	0	0.0	N/A
Total:	0	0.0	Time: 8.0

Issues:

Technology Need Description:

Technology Candidates Identified:

Technology Identification Sheet

Seq. Task No: 413.000 Facility: ET C/O CELL OMI Page Count: 162
OMI No: T5142 OMI Title: SRSS ORDNANCE INSTALLATION

Subtask OMI(s): T1104 , T1107 , , , ,
, , , , ,
, , , ,
Prerequisite Task OMI:
Hazard: Y Level: Vehicle Power Required: N LCC Support Required: N
GSE: A78-0856 , M78-0077-1 , M78-0077-2 , ,
, , ,

Activity Description: INSTALL AND CONNECT THE ET SRSS LINEAR SHAPED CHARGE (LSC) IN LO2 AND LH2 CABLE TRAYS. MECHANICALLY INSTALL SAFE AND ARM DEVICE. INSTALL LO2/LH2 RUBBER DAMS AMD CABLE TRAY COVERS.

Personnel:	Head Count	Man Hours	Remarks
Mech. Tech:	0	0.0	N/A
Elec. Tech:	0	0.0	N/A
Quality:	0	0.0	N/A
LCC Ops:	0	0.0	N/A
Support:	0	0.0	N/A
Engineering:	0	0.0	N/A
Total:	0	0.0	Time: 24.0

Issues: : : :

Technology Need Description:

SEE TIS 11 (V5012)

Technology Candidates Identified:

SEE TIS 11 (V5012)

Technology Identification Sheet

Seq. Task No: A11.000 Facility: ET C/O CELL OMI Page Count: 70
OMI No: T1145 OMI Title: PURGE BARRIER SEAL INSTALLATION

Subtask OMI(s):

Prerequisite Task OMI:
Hazard: N Level: Vehicle Power Required: N LCC Support Required: N
GSE:

Activity Description: INSTALL PURGE BARRIER SEALS AND INSPECT UMBILICALS.

Personnel:	Head Count	Man Hours	Remarks
Mech. Tech:	0	0.0	N/A
Elec. Tech:	0	0.0	N/A
Quality:	0	0.0	N/A
LCC Ops:	0	0.0	N/A
Support:	0	0.0	N/A
Engineering:	0	0.0	N/A
Total:	0	0.0	Time: 64.0

Issues:

Technology Need Description:

Technology Candidates Identified:

Technology Identification Sheet

Seq. Task No: 415.000
OMI No: T5141

Facility: ET C/O CELL
OMI Title: TPS CLOSEOUT, AFT HARDPOINT

OMI Page Count: 92

Subtask OMI(s):

Prerequisite Task OMI:

Hazard: Y Level:

GSE:

Vehicle Power Required: N LCC Support Required: N

Activity Description: PERFORM NECESSARY TASKS TO PREPARE LH2 TANK SUBSTRATE AND EXISTING THERMAL PROTECTION SYSTEM AT AFT HARDPOINT CLOSEOUT AND APPLY POLYURETHANE FOAM.

Personnel:	Head Count	Man Hours	Remarks
Mech. Tech:	0	0.0	N/A
Elec. Tech:	0	0.0	N/A
Quality:	0	0.0	N/A
LCC Ops:	0	0.0	N/A
Support:	0	0.0	N/A
Engineering:	0	0.0	N/A
Total:	0	0.0	

Time: 24.0

Issues:

Technology Need Description:

Technology Candidates Identified:

Technology Identification Sheet

Seq. Task No: 416.000 Facility: ET C/O CELL OMI Page Count: 64
OMI No: TS136 OMI Title: TPS CLOSEOUT, HELIUM INJECT LEAK CHECK PORTS
Subtask OMI(s):

Prerequisite Task OMI:
Hazard: N Level: Vehicle Power Required: N LCC Support Required: N
GSE:

Activity Description: PERFORM NECESSARY TASKS TO PREPARE LO2 FEEDLINE SUBSTRATE, AND EXISTING THERMAL PROTECTION SYSTEM FOR APPLICATION OF POLYURETHANE FOAM L744A.

Personnel:	Head Count	Man Hours	Remarks
Mech. Tech:	0	0.0	N/A
Elec. Tech:	0	0.0	N/A
Quality:	0	0.0	N/A
LCC Ops:	0	0.0	N/A
Support:	0	0.0	N/A
Engineering:	0	0.0	N/A
Total:	0	0.0	

Time: 16.0

Issues:

Technology Need Description:

Technology Candidates Identified:

Technology Identification Sheet

Seq. Task No: 417.000 Facility: ET C/O CELL OMI Page Count: 66
OMI No: T5238 OMI Title: TPS CLOSEOUT, HELIUM INJECT BOX

Subtask OMI(s):

Prerequisite Task OMI:
Hazard: N Level: Vehicle Power Required: N LCC Support Required: N
GSE:

Activity Description: PERFORM NECESSARY TASKS TO PREPARE SUBSTRATE AND EXISTING THERMAL PROTECTION SYSTEM AT HELIUM INJECT BOX CLOSEOUT AND APPLY L744A POLYURETHANE FOAM.

Personnel:	Head Count	Man Hours	Remarks
Mech. Tech:	0	0.0	N/A
Elec. Tech:	0	0.0	N/A
Quality:	0	0.0	N/A
LCC Ops:	0	0.0	N/A
Support:	0	0.0	N/A
Engineering:	0	0.0	N/A
Total:	0	0.0	Time: 16.0

Issues:

Technology Need Description:

Technology Candidates Identified:

Technology Identification Sheet

Seq. Task No: 418.000 Facility: ET C/O CELL OMI Page Count: 147
OMI No. T1101 OMI Title: GH2/GO2 VENT VALVE FUNCTIONAL TEST-
S033
Subtask OMI(s):

Prerequisite Task OMI:
Hazard: Y Level: Vehicle Power Required: N LCC Support Required: Y
GSE: C78-1229 , C78-1273 , C78-1273-32

Activity Description: TO VERIFY THAT THE GH2/GO2 VENT VALVES OPEN AND CLOSE WITHIN THE SPECIFIED TIMES, AND THAT THE VALVES CRACK AND RESEAT WITHIN THE SPECIFIED PRESSURES. TO LEAK CHECK THE GH2/GO2 VENT VALVE PILOT SENSE PORTS.

Personnel:	Head Count	Man Hours	Remarks
Mech. Tech:	0	0.0	N/A
Elec. Tech:	0	0.0	N/A
Quality:	0	0.0	N/A
LCC Ops:	0	0.0	N/A
Support:	0	0.0	N/A
Engineering:	0	0.0	N/A
Total:	0	0.0	Time: 20.0

Issues:

Technology Need Description:

Technology Candidates Identified:

Technology Identification Sheet

Seq. Task No: 419.000 Facility: ET C/O CELL OMI Page Count: 303
OMI No: TI160 OMI Title: ET ELECTRICAL ALL SYSTEMS TEST HB-4/2

Subtask OMI(s): T1101, T1195

Prerequisite Task OMI:

Hazard: Y Level: Vehicle Power Required: Y LCC Support Required: Y

GSE:

Activity Description: TO PERFORM ELECTRICAL CIRCUIT INTEGRITY, MATE GSE CABLING, VERIFY RESISTANCE THRESHOLDS, LOAD LEVELS, ENERGY OUTPUTS, VERIFY SRSS AND ASSOCIATED SRB AND ORBITER ELECTRICAL INTERFACES, OPERATIONAL INSTRUMENTATION SYSTEM, TUMBLE SYSTEM, ET HEATER SYSTEM AND DISCONNECT ELECTRICAL AND GUCP PNEUMATICS GSE FROM ET PRIOR TO ET TRANSFER TO INTEGRATION CELL.

Personnel:	Head Count	Man Hours	Remarks
Mech. Tech:	0	0.0	N/A
Elec. Tech:	0	0.0	N/A
Quality:	0	0.0	N/A
LCC Ops:	0	0.0	N/A
Support:	0	0.0	N/A
Engineering:	0	0.0	N/A
Total:	0	0.0	Time: 72.0

Issues:

Technology Need Description:

Technology Candidates Identified:

Technology Identification Sheet

Seq. Task No: 420.000 Facility: ET C/O CELL OMI Page Count: 146
OMI No: T1108 OMI Title: LO2/LH2 DISCONNECT 17-IN. FLAPPER VALVE MEASUREMENT,VERIFICATION AND INSPECTION-HB-2/-4 CHECKOUT CELL
Subtask OMI(s):

Prerequisite Task OMI:
Hazard: Y Level: Vehicle Power Required: N LCC Support Required: N
GSE:

Activity Description: MEASURE AND VERIFY THE ANGLE AND TIP LOAD OF THE LO2/LH2 17-IN. DISCONNECT FLAPPER VALVES. VERIFY THE FLAPPER VALVE FAIRING CONFIGURATION ON THE LO2/LH2 DISCONNECT VALVES. VERIFY THE PROPER TORQUE ON THE LO2/LH2 17-IN. DISCONNECT FLAPPER VALVE STOPS.

Personnel:	Head Count	Man Hours	Remarks
Mech. Tech:	2	2.0	N/A
Elec. Tech:	0	0.0	N/A
Quality:	2	2.0	N/A
LCC Ops:	0	0.0	N/A
Support:	2	2.0	N/A
Engineering:	0	0.0	N/A
Total:	6	6.0	Time: 48.0

Issues:

Technology Need Description:

Technology Candidates Identified:

Technology Identification Sheet

Seq. Task No: 421.000 Facility: ET C/O CELL OMI Page Count: 38
OMI No: T6248 OMI Title: EXTERNAL TANK (ET) PREMOVE INSPECTION

Subtask OMI(s): T5048

Prerequisite Task OMI:
Hazard: N Level:
GSE:

Vehicle Power Required: N LCC Support Required: N

Activity Description: TO PROVIDE DETAILED INSTRUCTIONS FOR PERFORMING INSPECTION OF EACH EXTERNAL TANK (ET), ET/ORBITER (ORB) INTERFACE AND ET/SOLID ROCKET BOOSTER (SRB) INTERFACE PRIOR TO MOVE OPERATIONS.

Personnel:	Head Count	Man Hours	Remarks
Mech. Tech:	0	0.0	N/A
Elec. Tech:	0	0.0	N/A
Quality:	0	0.0	N/A
LCC Ops:	0	0.0	N/A
Support:	0	0.0	N/A
Engineering:	0	0.0	N/A
Total:	0	0.0	

Time: 16.0

Issues:

Technology Need Description:

Technology Candidates Identified:

Technology Identification Sheet

Seq. Task No: 422.000 Facility: ET C/O CELL OMI Page Count: 246
OMI No: T5148 OMI Title: PREP ET CHECKOUT CELL/STORAGE CELL

Subtask OMI(s):

Prerequisite Task OMI:
Hazard: Y Level:
GSE:

Vehicle Power Required: N LCC Support Required: N

Activity Description: PLACE CHECKOUT/STORAGE CELL (VAB HB-2/-4) IN CONFIGURATION NECESSARY FOR RECEIPT AND INSTALLATION OF AN ET.

Personnel:	Head Count	Man Hours	Remarks
Mech. Tech:	0	0.0	N/A
Elec. Tech:	0	0.0	N/A
Quality:	0	0.0	N/A
LCC Ops:	0	0.0	N/A
Support:	0	0.0	N/A
Engineering:	0	0.0	N/A
Total:	0	0.0	

Time: 6.0

Issues:

Technology Need Description:

Technology Candidates Identified:

Technology Identification Sheet

Seq. Task No: 423.000 Facility: ET C/O CELL OMI Page Count: 176
OMI No: T5147 OMI Title: ET MOVE FROM STORAGE CELL TO CHECKOUT CELL/FROM CHECKOUT CELL TO STORAGE CELL
Subtask OMI(s): I2003 , I2026 , Q3008 , Q6003 ,
Q3022 , Q3016 , Q3235 , S0003 , T5128 ,
T5148 , T6248 , , ,
Prerequisite Task OMI:
Hazard: Y Level: Vehicle Power Required: N LCC Support Required: N
GSE: H78-0839-2 , H78-0847 , H78-3006 , H78-3008 ,
H78-3028 , H78-3040 , M78-0063 ,

Activity Description: MOVE ET FROM STORAGE CELL AND SECURE IN CHECKOUT CELL OR FROM CHECKOUT CELL AND SECURE IN STORAGE CELL.

Personnel:	Head Count	Man Hours	Remarks
Mech. Tech:	0	0.0	N/A
Elec. Tech:	0	0.0	N/A
Quality:	0	0.0	N/A
LCC Ops:	0	0.0	N/A
Support:	0	0.0	N/A
Engineering:	0	0.0	N/A
Total:	0	0.0	Time: 8.0

Issues: : : :

Technology Need Description:

Technology Candidates Identified: