



Space Shuttle Mission 2007



Designed By: Michael Swannick

Mission Checklist



Emergency Fuel Cell Restart Procedure



Space Shuttle Mission 2007



Designed By: Michael Swannick

Emergency Restart Procedure - Fuel Cell 1

PANEL SECTION	PANEL	PROCEDURE	PANEL AREA & NOTES
Overhead Aft Panel	O14	* Cycle FC 1 CNTLR (Off / On)	You Must Cycle The FC 1 CNTLR. Turn This Switch Off Then To The On Position. Note: This Will Activate A Master Alarm Warning.
Front Center Panel	F7	* BACKUP C/W ALARM Is Illuminated (Red) * PRIMARY C/W Is Illuminated (Red) * MAIN BUS UNDERVOLT Is Illuminated (Red) * AC VOLATAGE Is Illuminated (Yellow) * FUEL CELL PUMP Is Illuminated (Yellow) * HYD PRESS Is Illuminated (Yellow)	Review Warning Panel. Note: A Fuel Cell Shutdown Should Activate The Listed Alarm Indicators.
Front Left Panel Front Center Panel	F2 F7	* Press The Master Alarm * BACKUP C/W ALARM Indicator Is Extinguished * PRIMARY C/W Indicator Is Extinguished	This Will Silence The Master Alarm Audio Signal & Extinguish The Master Alarm Indicator on Panel F2. This Will Also Extinguish The Following (Panel - F7) Warning Indicators. (BACKUP C/W ALARM & PRIMARY C/W)
Front Right Panel	F9	* Upper Rotary AC1 - A (AC Volts=0) * Upper Rotary AC1 - B (AC Volts=0) * Upper Rotary AC1 - C (AC Volts=0)	The AC Volts Meter Located To The Right Of The Upper Rotary for AC1 (A/B/C) Will Indicate Zero Volts. Normal Indications = Approximately 120Volts
Front Right Panel	F9	* Lower Rotary, SIGNAL STRENGTH MAIN VOLTS A (DC VOLTS=0) * Lower Rotary, VOLTS/AMP FUEL CELL 1 (DC AMPS=0)	The DC VOLS & DC AMPS Meters Located In The Middle Of The Upper & Lower Rotaries Will Indicate Zero Volts For Main Volts A And Will Indicate Zero Amps For FUEL CELL 1. Normal Indications = Approximately 32V and 225A
Right Aft Panel	R11L	* Set MAJ FUNC To SM	Gives Access To The Shuttle Systems
Right Aft Panel	R11L R11U	* Enter SPEC 69 PRO * Examine Fuel Cell Information On CRT 4	The MFD Now Displays The Fuel Cell Screen. Note: Examine Fuel Cells 1/2/3. Fuel Cells 2 & 3 are normal, Whereas Fuel Cell 1 Indicates A Problem.
Right Panel	R1	* FUEL CELL 1 READY FOR LOAD = Striped * FUEL CELL 1 COOLANT PUMP = Striped	Fuel Cell 1 / Ready For Load And Fuel Cell 1 / Coolant Pump Indicators Are Striped and Should Display As White. This Indicates A Fuel Cell Problem.
Right Panel	R1	* Press & Hold FUEL CELL 1 Rocker Switch UP To START	Hold The Fuel Cell 1 Rocker Switch In The Up Position Until The (Ready For Load & Coolant Pump) Talkbacks Turn White.
Front Center Panel Right Aft Panel Front Right Panel	F7 R11U F9	* MAIN BUS UNDERVOLT Indicator Is Extinguished * AC VOLATAGE Indicator Is Extinguished * FUEL CELL PUMP Indicator Is Extinguished * HYD PRESS Indicator Is Extinguished * Examine Fuel Cell Information On CRT 4 * Upper Rotary AC1 - A (AC Volts=120) * Upper Rotary AC1 - B (AC Volts=120) * Upper Rotary AC1 - C (AC Volts=120) * Lower Rotary, Signal Strength MAIN VOLTS A (DC VOLTS=32) * Lower Rotary, Volts/Amp FUEL CELL 1 (DC AMPS=225)	Confirm Fuel Cell Restart Return Of Normal Fuel Cell Indications Return Of Normal Indications = Approximately 120Volts Return Of Normal Indications = Approximately 120Volts Return Of Normal Indications = Approximately 120Volts Return Of Normal Indications = Approximately 32 DC Volts Return Of Normal Indications = Approximately 225 DC Amps



Space Shuttle Mission 2007



Designed By: Michael Swannick

Emergency Restart Procedure - Fuel Cell 2

PANEL SECTION	PANEL	PROCEDURE	PANEL AREA & NOTES
Overhead Aft Panel	O15	* Cycle FC 2 CNTLR (Off / On)	You Must Cycle The FC 2 CNTLR. Turn This Switch Off Then To The On Position. Note: This Will Activate A Master Alarm Warning.
Front Center Panel	F7	* BACKUP C/W ALARM Is Illuminated (Red) * PRIMARY C/W Is Illuminated (Red) * MAIN BUS UNDERVOLT Is Illuminated (Red) * AC VOLATAGE Is Illuminated (Yellow) * FUEL CELL PUMP Is Illuminated (Yellow) * HYD PRESS Is Illuminated (Yellow)	Review Warning Panel. Note: A Fuel Cell Shutdown Should Activate The Listed Alarm Indicators.
Front Left Panel Front Center Panel	F2 F7	* Press The Master Alarm * BACKUP C/W ALARM Indicator Is Extinguished * PRIMARY C/W Indicator Is Extinguished	This Will Silence The Master Alarm Audio Signal & Extinguish The Master Alarm Indicator on Panel F2. This Will Also Extinguish The Following (Panel - F7) Warning Indicators. (BACKUP C/W ALARM & PRIMARY C/W)
Front Right Panel	F9	* Upper Rotary AC2 - A (AC Volts=0) * Upper Rotary AC2 - B (AC Volts=0) * Upper Rotary AC2 - C (AC Volts=0)	The AC Volts Meter Located To The Right Of The Upper Rotary for AC2 (A/B/C) Will Indicate Zero Volts. Normal Indications = Approximately 120Volts
Front Right Panel	F9	* Lower Rotary, SIGNAL STRENGTH MAIN VOLTS B (DC VOLTS=0) * Lower Rotary, VOLTS/AMP FUEL CELL 2 (DC AMPS=0)	The DC VOLS & DC AMPS Meters Located In The Middle Of The Upper & Lower Rotaries Will Indicate Zero Volts For Main Volts B And Will Indicate Zero Amps For FUEL CELL 2. Normal Indications = Approximately 32V and 225A
Right Aft Panel	R11L	* Set MAJ FUNC To SM	Gives Access To The Shuttle Systems
Right Aft Panel	R11L R11U	* Enter SPEC 69 PRO * Examine Fuel Cell Information On CRT 4	The MFD Now Displays The Fuel Cell Screen. Note: Examine Fuel Cells 1/2/3. Fuel Cells 1 & 3 are normal, Whereas Fuel Cell 2 Indicates A Problem.
Right Panel	R1	* FUEL CELL 2 READY FOR LOAD = Striped * FUEL CELL 2 COOLANT PUMP = Striped	Fuel Cell 2 / Ready For Load And Fuel Cell 2 / Coolant Pump Indicators Are Striped and Should Display As White. This Indicates A Fuel Cell Problem.
Right Panel	R1	* Press & Hold FUEL CELL 2 Rocker Switch UP To START	Hold The Fuel Cell 2 Rocker Switch In The Up Position Until The (Ready For Load & Coolant Pump) Talkbacks Turn White.
Front Center Panel Right Aft Panel Front Right Panel	F7 R11U F9	* MAIN BUS UNDERVOLT Indicator Is Extinguished * AC VOLATAGE Indicator Is Extinguished * FUEL CELL PUMP Indicator Is Extinguished * HYD PRESS Indicator Is Extinguished * Examine Fuel Cell Information On CRT 4 * Upper Rotary AC2 - A (AC Volts=120) * Upper Rotary AC2 - B (AC Volts=120) * Upper Rotary AC2 - C (AC Volts=120) * Lower Rotary, Signal Strength MAIN VOLTS B (DC VOLTS=32) * Lower Rotary, Volts/Amp FUEL CELL 2 (DC AMPS=225)	Confirm Fuel Cell Restart Return Of Normal Fuel Cell Indications Return Of Normal Indications = Approximately 120Volts Return Of Normal Indications = Approximately 120Volts Return Of Normal Indications = Approximately 120Volts Return Of Normal Indications = Approximately 32 DC Volts Return Of Normal Indications = Approximately 225 DC Amps



Space Shuttle Mission 2007



Designed By: Michael Swannick

Emergency Restart Procedure - Fuel Cell 3

PANEL SECTION	PANEL	PROCEDURE	PANEL AREA & NOTES
Overhead Aft Panel	O16	* Cycle FC 3 CNTLR (Off / On)	You Must Cycle The FC 3 CNTLR. Turn This Switch Off Then To The On Position. Note: This Will Activate A Master Alarm Warning.
Front Center Panel	F7	* BACKUP C/W ALARM Is Illuminated (Red) * PRIMARY C/W Is Illuminated (Red) * MAIN BUS UNDERVOLT Is Illuminated (Red) * AC VOLATAGE Is Illuminated (Yellow) * FUEL CELL PUMP Is Illuminated (Yellow) * HYD PRESS Is Illuminated (Yellow)	Review Warning Panel. Note: A Fuel Cell Shutdown Should Activate The Listed Alarm Indicators.
Front Left Panel Front Center Panel	F2 F7	* Press The Master Alarm * BACKUP C/W ALARM Indicator Is Extinguished * PRIMARY C/W Indicator Is Extinguished	This Will Silence The Master Alarm Audio Signal & Extinguish The Master Alarm Indicator on Panel F2. This Will Also Extinguish The Following (Panel - F7) Warning Indicators. (BACKUP C/W ALARM & PRIMARY C/W)
Front Right Panel	F9	* Upper Rotary AC3 - A (AC Volts=0) * Upper Rotary AC3 - B (AC Volts=0) * Upper Rotary AC3 - C (AC Volts=0)	The AC Volts Meter Located To The Right Of The Upper Rotary for AC3 (A/B/C) Will Indicate Zero Volts. Normal Indications = Approximately 120Volts
Front Right Panel	F9	* Lower Rotary, SIGNAL STRENGTH MAIN VOLTS C (DC VOLTS=0) * Lower Rotary, VOLTS/AMP FUEL CELL 3 (DC AMPS=0)	The DC VOLS & DC AMPS Meters Located In The Middle Of The Upper & Lower Rotaries Will Indicate Zero Volts For Main Volts C And Will Indicate Zero Amps For FUEL CELL 3. Normal Indications = Approximately 32V and 225A
Right Aft Panel	R11L	* Set MAJ FUNC To SM	Gives Access To The Shuttle Systems
Right Aft Panel	R11L R11U	* Enter SPEC 69 PRO * Examine Fuel Cell Information On CRT 4	The MFD Now Displays The Fuel Cell Screen. Note: Examine Fuel Cells 1/2/3. Fuel Cells 1 & 2 are normal, Whereas Fuel Cell 3 Indicates A Problem.
Right Panel	R1	* FUEL CELL 3 READY FOR LOAD = Striped * FUEL CELL 3 COOLANT PUMP = Striped	Fuel Cell 3 / Ready For Load And Fuel Cell 3 / Coolant Pump Indicators Are Striped and Should Display As White. This Indicates A Fuel Cell Problem.
Right Panel	R1	* Press & Hold FUEL CELL 3 Rocker Switch UP To START	Hold The Fuel Cell 3 Rocker Switch In The Up Position Until The (Ready For Load & Coolant Pump) Talkbacks Turn White.
Front Center Panel Right Aft Panel Front Right Panel	F7 R11U F9	* MAIN BUS UNDERVOLT Indicator Is Extinguished * AC VOLATAGE Indicator Is Extinguished * FUEL CELL PUMP Indicator Is Extinguished * HYD PRESS Indicator Is Extinguished * Examine Fuel Cell Information On CRT 4 * Upper Rotary AC3 - A (AC Volts=120) * Upper Rotary AC3 - B (AC Volts=120) * Upper Rotary AC3 - C (AC Volts=120) * Lower Rotary, Signal Strength MAIN VOLTS C (DC VOLTS=32) * Lower Rotary, Volts/Amp FUEL CELL 3 (DC AMPS=225)	Confirm Fuel Cell Restart Return Of Normal Fuel Cell Indications Return Of Normal Indications = Approximately 120Volts Return Of Normal Indications = Approximately 120Volts Return Of Normal Indications = Approximately 120Volts Return Of Normal Indications = Approximately 32 DC Volts Return Of Normal Indications = Approximately 225 DC Amps